

Apple vs. Nokia Patent Infringed/Infringing Map

On 23 Oct 2009, Nokia filed a lawsuit against Apple, alleging its iPhone infringes Nokia's ten patents.

([C.A. NO. 09-791-GMS](#));

On 11 Dec. 2009, Apple countersued Nokia over alleged infringements of 13 Apple patents, U.S. Patent Nos. 5,634,074, 6,343,263, 5,915,131, 5,555,369, 6,239,795, 5,315,703, 6,189,034, 7,469,381, RE 39,486, 5,455,854, 7,383,453, 5,848,105, and 5,379,431, ("Apple Asserted Patents").

Using Patentics auto-calculated Infringed/Infringing Map on Apple (the infringed) and Nokia (the infringing), For these thirteen "Apple Asserted Patents", which are non-standards-essential, eight (U.S. Patent Nos. [6,343,263](#), [5,555,369](#), [6,239,795](#), [5,315,703](#), [7,469,381](#), [RE 39,486](#), [5,848,105](#), [5,379,431](#)) are ranked in the results by Patentics. This demonstrates that Nokia might be implementing similar competing technologies that were patented by Nokia prior to Apple, and if these Nokia patents, which were applied for later than Apple's, and are ranked as highly relevant to and covered by Apple's patents, were embodied in Nokia products, it might imply Nokia's probable infringement of Apple's patents.

Apple has one of the most sophisticated IP portfolios in the software industry, and Nokia has one of the broadest IP portfolios in the telecom industry with over 10,000 families of patents. Yet, there's no comprehensive patent system allowing competitors to easily keep tabs on each other during their own product development. The Competitors Infringed/Infringing Map computed by Patentics quantitatively provides a real-time patent strength/vulnerability analysis with pin-pointing accuracy that nails individual patents which may be questionable among competing parties.

Please check Patentics auto-calculated Nokia (as the infringed) vs. Apple (as the infringing) Infringed/Infringing Map, where Patentics has ranked results that match up with Nokia's claims of Apple allegedly infringing Nokia's 10 standards-essential patents and 5 non-standards-essential patents.

The following contents are all caculated and generated automatically by Patentics program.

Apple Teams lead over Nokia Teams Analysis

Apple Inventor(Team)	Nokia Inventor(Team)	Link	c1	c2	c12
Wu;Hsi-Jung	Kalevo;Ossi	6.04	15	17	12
Bellegarda;JeromeR.	Tian;Jilei	5.97	67	52	23
Marriott;Greg	Pyhalamm;Seppo	4.75	8	8	8
Chen;Kok	Bergquist;Johan	2.67	6	6	6
Bellegarda;JeromeR.	Olsen;Jesper	1.77	67	24	14
Staats;Erik	Vasilache;Adriana	1.55	5	6	5
Matheny;JohnR.	Viitala;Tomi	1.31	8	29	8
Jones;Anne	Hannuksela;MiskaMatias	1.25	27	9	8
Venolia;DanielScott	Reponen;Erika	1.19	4	4	4
Bellegarda;JeromeR.	Tilei;Jian	1.01	67	11	10
Klivington;Jason	Ridge;Justin	0.97	9	11	6
DiFonzo;JohnC.	Lindberg;Phillip	0.93	5	10	5
Rohrbach;MatthewDean	Lindberg;Phillip	0.93	5	10	5
Yu;DeanT.	Vesterinen;Timo	0.88	10	11	6
Jones;Anne	Hannuksela;MiskaM.	0.87	27	13	8
Cornelius;WilliamP.	Floman;Matti	0.79	6	4	4
Jawa;Amandeep	Myllyla;Tomi	0.79	6	4	4
Shwartz;ScottL.	Roto;Virpi	0.79	6	4	4
Hauck;JerroldV.	Gillet;Michel	0.77	10	6	5
Hauck;JerroldV.	Gillet;Michel	0.77	10	6	5

Apple Inventors: 352; Nokia Inventors: 378; Inventor factor: 0.93; Strength factor: 2.75

Competitive Leads Timeline

Competitive Timeline: 51

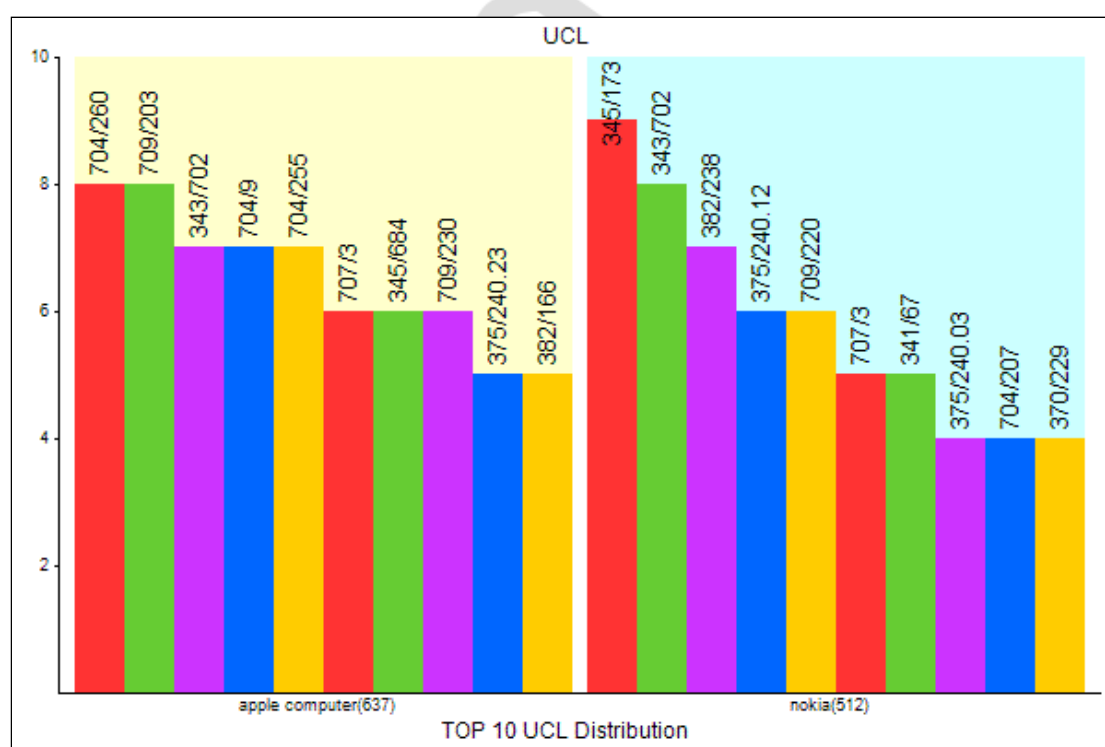
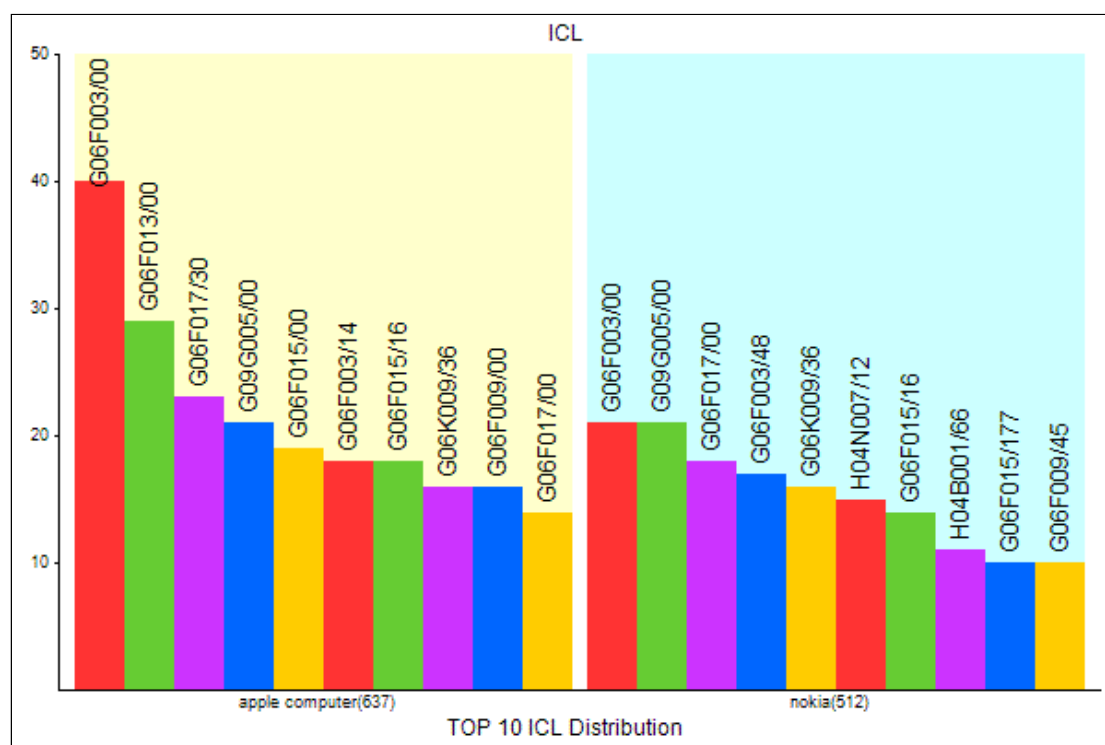
Apple Competitive Leads(*): 25.25; Nokia Competitive Leads(*): 15.67

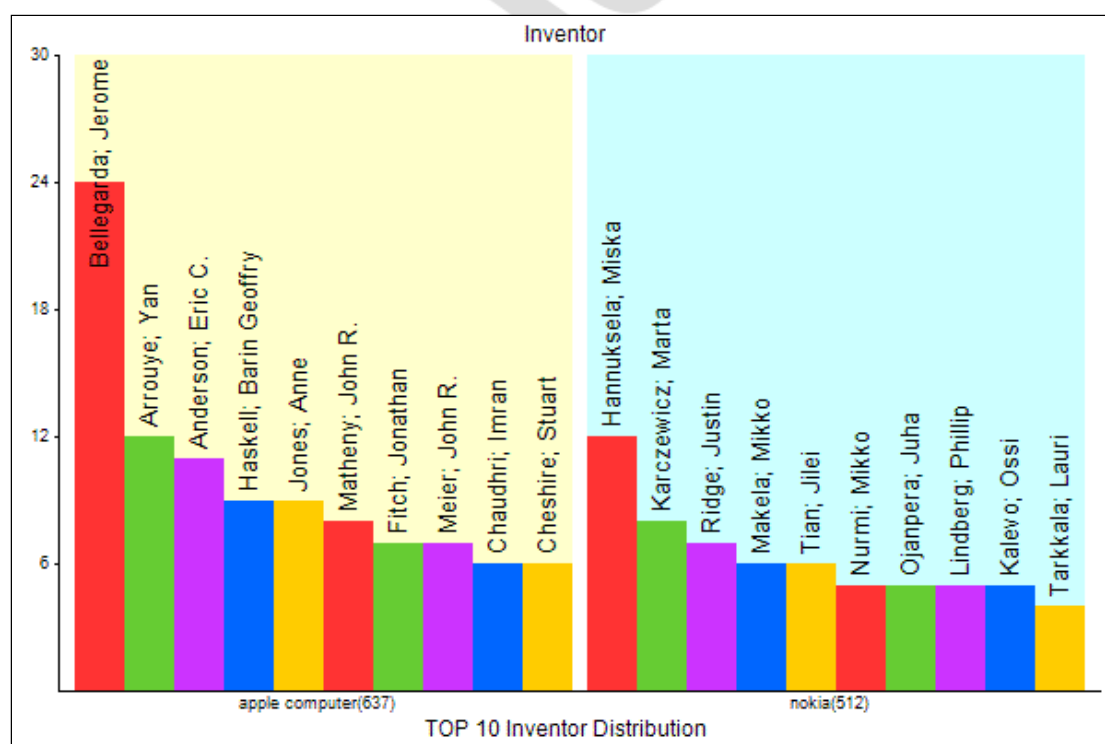
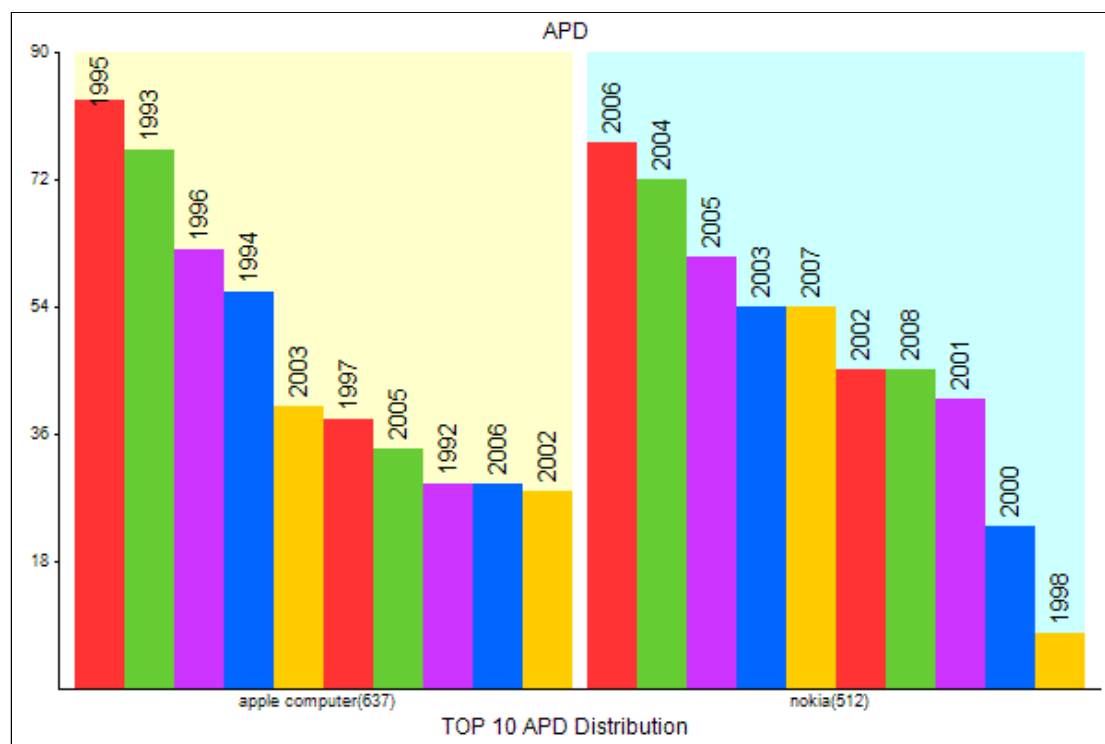
Apple Inventor(Team)

Inventor	Application Date
* Wu;Hsi-Jung	19960703
* Bellegarda;JeromeR.	19960213
Marriott;Greg	20041025
* DiFonzo;JohnC.	20050926
* Rohrbach;MatthewDean	20050926
* Yu;DeanT.	19951113
* Hauck;JerroldV.	20000118
* Arrouye;Yan	19980508
Haskell;BarinGeoffry	20021108
Haskell;BarinGeoffry	20021108
Chiang;Bing	20071218
Kuo;Shyh-Shiaw	20050419
* Fredenburg;Timothy	19960618
* Bellegarda;JeromeR.	19961217
Hill;RobertJ.	20061106
* Haskell;BarinGeoffry	20021108
* Kiddy;RaymondR.	20010725
* Marcu;GabrielG.	19980615
* Opstad;DavidG.	19990507
Dumitras;Adriana	20030707
* Christiansen;KevinM.	19941116
Chiang;Bing	20071218
MacDonald;LindsayWilliam	20040818
* Siegmund;DieterW.	20050823
Handley;Maynard	20030430
* Cheshire;StuartDavid	20001212
Kumar;Roger	20030430
* Tucker;Rusty	20001006
Bavor;Clay	20050801
Zhang;Zhijun	20060905
* Cheshire;Stuart	20010119
* Crandall;RichardE.	19970718
* Cheshire;StuartD.	20020319
* Cheshire;StuartDavid	20001212
Haskell;BarinGeoffry	20030707
Schlub;RobertW.	20070104
Dumitras;Adriana	20030813
Anderson;EricC.	20010928
MacDonald;LindsayWilliam	20040818
Bilbrey;Brett	20031029
* LeCroy;Chris	20010927
Dumitras;Adriana	20030903
Zhang;Zhijun	20060905
* Bellegarda;JeromeR.	19961217
* Chaudhri;ImranA.	20040625
* Forstall;Scott	20030106
Nie;Xiaochun	20030430
* Chaudhri;Imran	20020318
* Chu;Ke-Chiang	19930430
* Bailey;RobertL.	19940509
* Serenyi;Denis	20010108

Nokia Inventor(Team)

Inventor	Application Date
Kalevo;Ossi	20010119
Tian;Jilei	20021111
* Pyhalamm;Seppo	20040630
Lindberg;Phillip	20060608
Lindberg;Phillip	20060608
Vesterinen;Timo	20060822
Gillet;Michel	20041007
Das;Debashis	20021220
* Hannuksela;Miska	19991102
* Karczewicz;Marta	20010427
* Wang;Hanyang	20011218
* Ojanpera;Juha	20040823
Tian;Jilei	20021111
Riis;Soren	20011219
* Ozden;Sinasi	20050426
Wang;Ru-Shang	20040223
Hill;Tapio	20021015
Rantanen;Henry	20031014
Kotiranta;Atte	20041230
* Karczewicz;Marta	19990811
Zhao;Sheng	20010330
* Ollikainen;Jani	19980324
* Nenonen;Petri	20001222
Swami;YogeshP.	20060203
* Karczewicz;Marta	19990811
Smith;GregoryJ.	20020412
* Hallapuro;Antti	20010830
Le;Huihua	20031014
* Kautto-Koivula;Kaisa	20031217
* Arkko;Aimo	19990528
Card;James	20021211
Saarin;Markku-Juhani	20010517
Smith;GregoryJ	20030922
Card;James	20021211
* Wang;Ye-Kui	20030428
* Ozden;Sinasi	20050426
* Kalevo;Ossi	20000118
* Ronkka;Risto	19990120
* Trimeche;Mejdi	20040709
* Kalevo;Ossi	20000118
Wang;Ru-Shang	20030321
* Lainema;Jani	19970919
* Ozden;Sinasi	20050426
Riis;So	20010831
Vahtola;Miika	20060130
Nurmi;Mikko	20060419
* Hannuksela;Miska	20000428
Nurmi;Mikko	20040109
Ridge;Justin	20020312
Kuusisto;Mika	19970108
Bouet;Stephane	20011220





Competing Fields and Technologies

Circuit load	Dc supply current	Capacitor filter	Inductive circuit
Bus logic	Ram access	Memory read/write	Interface register
Broadcast protocol	Protocol-related	Package of data	Communication stream
Phoneme recognizer	Training text	Training database	Phonemic
Graphic icon	Graphical item	Iconic representation	Iconic
Dynamic linking	System library	Software build	Single executable file
Spatial-domain	Source frame	Quantisation	Difference frame
Interactive control	Interactive function	Viewer interface	Display video content

1983 results: [Apple probably-infringed\(637\)](#) [Nokia probably-infringing\(512\)](#)

PN	Title	Assignee	Inventors	Class	ICL	APD	Count	Rank	Sel
6,343,263	Real-time signal processing system for serially transmitted data	Apple Computer, Inc.	Nichols; James B. Lynch; John	702	G06F	19940802	0	100%	<input checked="" type="checkbox"/>

Abstract: A data transmission system having a real-time data engine for processing isochronous streams of data includes an interface device that provides a physical and logical connection of a computer to any one or more of a variety of different types of data networks. Data received at this device is presented to a serial driver, which disassembles different streams of data for presentation to appropriate data managers. A device handler associated with the interface device sets up data flow paths, and also presents data and commands from the data managers to a real-time data processing engine. Flexibility to handle any type of data, such as voice, facsimile, video and the like, that is transmitted over any type of communication network with any type of real-time engine is made possible by abstracting the functions of each of the elements of the system from one another. This abstraction is provided through suitable interfaces that isolate the transmission medium, the data manager and the real-time engine from one another.

MainClaim: A signal processing system for providing a plurality of realtime services to and from a number of independent client applications and devices, said system comprising:

a subsystem comprising a host central processing unit (CPU) operating in accordance with at least one application program and a device handler program, said subsystem further comprising an adapter subsystem interoperating with said host CPU and said device;

a realtime signal processing subsystem for performing a plurality of data transforms comprising a plurality of realtime signal processing operations; and

at least one realtime application program interface (API) coupled between the subsystem and the realtime signal processing subsystem to allow the subsystem to interoperate with said realtime services.

6,175,565	Serial telephone adapter	Nokia Corporation	McKinnon; Peter Pek; Jiri	370	G06F	19970917	1	93%	<input type="checkbox"/>
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Abstract: A serial telephone adapter for connection between a telephone and a personal computer to facilitate voice over computer-based networks such as the Internet. The adapter also includes an interface to the public switched telephone network for conventional voice communications when the personal computer is shut down.

MainClaim: A system for use with a telephony terminal and a personal computer to provide telephone access to a computer-based communications network via said personal computer, said system comprising:

application software in said personal computer to execute an operating system program;

a serial telephone adapter connected between said telephony terminal and a serial communications port on said personal computer, said adapter having a receiver/transmitter to receive and transmit respectively telephony communications from and to said terminal, and a converter to convert said telephony communications from analog to digital and digital to analog;

a system transfer protocol to coordinate transfer of telephony communications and control messages between said personal computer and said serial telephone adapter said protocol requiring that control messages from the personal computer to the serial telephone adapter be acknowledged by the serial telephone adapter before another control message is sent; and

an interface in said adapter to connect said telephony terminal to the public switched telephone network (PSTN) if said computer-based communications network is not available for service.

5,848,105	GMSK signal processors for improved communications capacity and quality		Gardner; William A. Schell; Stephan V.	375	H03D	19961010	0	100%	<input checked="" type="checkbox"/>
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Abstract: A method and apparatus for separating and removing distortion from interfering co-channel signals and suppressing adjacent-channel interfering signals of the Gaussian Minimum-Shift Keyed (GMSK) or other MSK type with filtering structures that exploit the cyclostationarity of the received GMSK or other MSK signals in order to accommodate a greater number (or the same number, but with greater quality) of transmitted signals received by one or more antennas than can be accommodated by existing filters. The parameters in these filtering structures are adapted by either of two adaptation apparatus that exploit both the known training sequence that is transmitted in most wireless communications systems, and the constant modulus property

exhibited by each of the transmitted GMSK or other MSK signals.

MainClaim: An apparatus for extracting a signal of interest from a plurality of spectrally and temporally overlapping input signals containing digital data having a bit rate, said input signals having carrier frequencies, said input signals having conjugate cycle frequencies equal to twice their carrier frequencies plus and minus one-half of their data bit rate, said input signals exhibiting conjugate spectral redundancy for spectral components having frequencies separated by said conjugate cycle frequencies, said input signals exhibiting temporal redundancy, said apparatus comprising:

(a) time-shifting means for producing a time-shifted output signal wherein said signal of interest is time-shifted;

(b) frequency-shifting means for producing a frequency-shifted output signal wherein said signal of interest is frequency-shifted by an amount determined by its cycle frequencies; and

(c) linear combining means for weighting and summing said output signals to produce an estimate of said signal of interest.

2007/0129042	Receiver	Nokia Corporation	Kristensson; Martin Ottersten; Bjorn Astely; David	455	H04B	20060911	1	96%	<input type="checkbox"/>
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Abstract: The present invention relates to a method for a digital receiver and a receiver exploiting second order statistics for adaptive co-channel interference rejection in wireless communication. It uses digitally I, in phase, and Q, quadrature, branches of a received transmitted signal as input to the receiver, a coarse synchronization and a coarse frequency offset compensation have being performed on the signal. It comprises a means for derotation, means for separation, means for filtering, means for estimating and means for detecting transmitted symbols in the received signal. The invention thereby improving co-channel rejection in wireless communication, thus making it possible to increase the number of communication channels for frequencies used.

MainClaim: A method for a digital receiver exploiting second order statistics for adaptive co-channel interference rejection in wireless communication, having digitally I, in phase, and Q, quadrature, branches of a received transmitted signal, a coarse synchronization and a coarse frequency offset compensation have being performed on said signal, the method comprising: derotating the signal, and outputting a complex valued time discrete base band representation of the received signal if a used modulation form is one dimensional, else if a used modulation form is multiple dimensional then construct, from possibly two vector valued signal sequences, a complex valued signal sequence and outputting said complex valued signal; separating said output signal into its real and imaginary parts which vector is output containing the transmitted signal, co-channel interfering user signals, additive noise and other possible disturbance; estimating using the outputs and performing one or more of the following quantities: fine synchronisation, fine frequency offset estimation or compensation, or data model estimation for outputting one or more of said quantities; filtering, using the real value output and coefficients in the data model output and performing a whitening operation on the signal additionally taking into account second order properties of noise and co-channel interference; and detecting transmitted symbols, and making use of the output and the data model, thereby improving co-channel rejection in wireless communication, thus making it possible to increase the number of channels for frequencies used.

7,474,884	Receiver	Nokia Corporation	Kristensson; Martin Ottersten; Bjorn Astely; David	455	H04B	20060911	1	96%	<input type="checkbox"/>
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Abstract: The present invention relates to a method for a digital receiver and a receiver exploiting second order statistics for adaptive co-channel interference rejection in wireless communication. It uses digitally I, in phase, and Q, quadrature, branches of a received transmitted signal as input to the receiver, a coarse synchronization and a coarse frequency offset compensation have being performed on the signal. It comprises a means for derotation, means for separation, means for filtering, means for estimating and means for detecting transmitted symbols in the received signal. The invention thereby improving co-channel rejection in wireless communication, thus making it possible to increase the number of communication channels for frequencies used.

MainClaim: A method comprising: receiving branches of transmitted signal by a digital receiver exploiting second order statistics for adaptive co-channel interference rejection in wireless communication, having digitally I, in phase, and Q, quadrature, wherein a coarse synchronization and a coarse frequency offset compensation are configured to be performed on said signal, derotating the signal, and outputting a complex valued time discrete base band representation of the received signal if a used modulation form is one dimensional, else if a used modulation form is multiple dimensional then construct, from possibly two vector valued signal sequences, a complex valued signal sequence and outputting said complex valued signal; separating said output signal into its real and imaginary parts which vector is output containing the transmitted signal, co-channel interfering user signals, additive noise and other possible disturbance; estimating using the outputs and performing one or more of the following quantities: fine synchronisation, fine frequency offset estimation or compensation, or data model estimation for outputting one or more of said quantities; filtering, using the real value output and coefficients in the data model output and performing a whitening operation on the signal additionally taking into account second order properties of noise and co-channel interference; and detecting transmitted symbols, and making use of the output and the data model, thereby improving co-channel rejection in wireless communication, thus making it possible to increase the number of channels for frequencies used.

7,107,031	Co-channel interference rejection in a digital receiver	Nokia Corporation	Kristensson; Martin Ottersten; Bjorn David; Astel	455	H04B	20010530	1	96%	<input type="checkbox"/>
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Abstract: The present invention relates to a method for a digital receiver and a receiver exploiting second order statistics for adaptive co-channel interference rejection in wireless communication. It uses digitally I, in phase, and Q, quadrature, branches of a received transmitted signal as input to the receiver, a coarse synchronization and a coarse frequency offset compensation have being performed on the signal. It comprises a means for derotation, means for separation, means for filtering, means for estimating and means for detecting transmitted symbols in the received signal. The invention thereby improving co-channel rejection in wireless communication, thus making it possible to increase the number of communication channels for frequencies used.

MainClaim: A method for a digital receiver exploiting second order statistics for adaptive co-channel interference rejection in wireless communication, having digitally I, in phase, and Q, quadrature, branches of a received transmitted signal as input to the receiver, a coarse synchronization and a coarse frequency offset compensation have being performed on said signal, and comprising a means for derotation, means for separation, means for filtering, means for estimating and means for detecting transmitted symbols in the received signal, characterized in that it comprises the following steps: derotating the signal in said means for derotation, outputting a complex valued time discrete base band representation of the received signal if a used modulation form is one dimensional, else if a used modulation form is multiple dimensional then construct, from possibly two

vector valued signal sequences, a complex valued signal sequence and outputting said complex valued signal; separating said output signal in said means for separating it into its real and imaginary parts which vector is output from said means for separation containing the transmitted signal, co-channel interfering user signals, additive noise and other possible disturbance; estimating in said means for estimation, using the outputs from said means for separation, means for filtering, and from said means for detecting as input, and performing on one or more of the following quantities: fine synchronisation, fine frequency offset estimation or compensation, or data model estimation, outputting one or more of said quantities to said means for derotating, filtering, and detecting; filtering in said means for filtering, using the real value output from said means for separation and coefficients in said data model output from the means for estimation and performing a whitening operation on the signal additionally taking into account a second order properties of noise and co-channel interference, the filtered signal being output to the means for estimation and detection; and detecting transmitted symbols in said means for detecting, making use of the output from said means for filtering and the data model from the means for estimation, thereby improving co-channel rejection in wireless communication, thus making it possible to increase the number of channels for frequencies used.

5,555,369	Method of creating packages for a pointer-based computer system	Apple Computer, Inc.	Menendez; Norberto Potrebic; Peter J. Sharpe; Benjamin W.	345	G06F	19940214	0	100%	<input checked="" type="checkbox"/>
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Abstract: A development environment and method is provided in which a first computer system is used to develop an application for execution in a second computer system--such as a pen-based computer--having a graphical user interface. The first computer system also has a graphical user interface that can display (1) a palette containing lists and/or buttons of "components" representing graphical interface elements such as slide bars, dialog boxes, buttons, check boxes, icons, menus, etc., (2) a layout window corresponding a display screen of the second computer and containing "views" of selected palette components and (3) a browser allowing the views to be edited graphically. To develop an application, the user creates views on the layout window by (1) selecting a component from the palette and (2) drawing a border for the view in the layout window. Each view so created represents a "template" which is a frame object having a plurality of "slots" which may be edited in a slot editor area of the browser. Some views in the layout window may be "linked views" which point to sublayout windows containing a plurality of other views. Still further, a system is provided that allows the creation of user defined proto templates containing an arrangement of views defined by the user. The user-defined proto templates can be used to create views in the layout window as described above.

MainClaim: A method of using a first computer system having a display screen displaying a first graphical user interface to create an application that can be executed and displayed through a second graphical user interface on a second computer system having a display screen sensitive to a pointer, a processor in communication with the display screen, and a memory in communication with the processor such that when the application is executing on the processor it can perform defined actions in response to interaction of the pointer with the display screen, the method comprising the following steps:

displaying a first layout window on the first graphical user interface displayed on the display screen of the first computer system, the first layout window defining a representation of the display screen of the second computer system as it will appear when the application is executing on the second computer system;

displaying a plurality of predefined view as manipulated by a user on the first layout window, each such predefined view defining a graphical interface element appearing on the display screen of the second computer system when the application is executing, the predefined view being located at regions of the first layout window corresponding to the locations of corresponding graphical interface elements appearing on the display screen of the second computer system when the application is executing on the second computer system, the graphical interface elements including one or more of slide bars, buttons, check boxes, icons, menus, and dialog boxes;

linking a second layout window to a predefined view on the first layout window, the second layout window itself having a plurality of predefined views defining graphical interface elements capable of appearing on the display screen of the second computer system when the application is executing; and

building said application from views on said first and second layout windows.

2006/0230056	Method and a device for visual management of metadata	Nokia Corporation	Aaltonen; Antti	707	G06F	20050406	16	93%	<input type="checkbox"/>
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Abstract: A method and a device for visual management of metadata. An area with a plurality of data elements is visualized (504) to the user who determines (508) a route on the area, said route including a number of preferred elements belonging to the plurality of elements, which is detected (512). The preferred elements shall act as targets for a predefined metadata operation (514), e.g. change of a metadata attribute value.

MainClaim: A method for directing a metadata operation at a number of electronically stored data elements in an electronic device having the steps of visualizing an area with a number of data elements on a display device to a user (504), obtaining control information about a user-defined route between user-defined start and end points on the visualized area comprising said number of data elements (508), specifying based on the route such data elements belonging to said number of data elements over which the route passed (512), and performing the metadata operation on said specified data elements (514).

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	93%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device

configuration, where the command specification is comprised of a prioritized list of commands.									
2008/0040668	Creating virtual targets in directory structures	Nokia Corporation	Ala-Rantala; Kati	715	G06F	20060810	8	92%	<input type="checkbox"/>
<p>Abstract: A method includes detecting a first user operation corresponding to a first item in a directory structure. The directory structure represents a hierarchical arrangement of a plurality of items, including the first item, in a memory. The first user operation indicates a start of an item action with the first item. The method also includes, in response to detecting a second user operation corresponding to a second item in the directory structure, creating a virtual target in the second item in the directory structure. The virtual target is a possible location for completion of the item action with the first item. The method further includes, in response to a third user operation indicating completion of the item action with the first item in the virtual target, completing the item action with the first item in the virtual target.</p> <p>MainClaim: A method comprising: detecting a first user operation corresponding to a first item in a directory structure, the directory structure representing a hierarchical arrangement of a plurality of items, including the first item, in a memory, the first user operation indicating a start of an item action with the first item; in response to detecting a second user operation corresponding to a second item in the directory structure, creating a virtual target in the second item in the directory structure, wherein the virtual target is a possible location for completion of the item action with the first item; and in response to a third user operation indicating completion of the item action with the first item in the virtual target, completing the item action with the first item in the virtual target.</p>									
5,315,703	Object-oriented notification framework system	Taligent, Inc.	Matheny; John R. White; Christopher Anderson; David R. Schaeffer; Arnold	345	G06F	19921223	0	100%	<input checked="" type="checkbox"/>
<p>Abstract: A system for an object based notification system. The notification system is designed in a flexible manner to support change notification in an object-oriented operating system. The change notification includes a memory for storing connection information including notification routing information and connection registration information. The connection registration information is stored in a connection object of the object-oriented system and the notification system updates the connection object with registration information indicative of enablement or disablement of notification. Then, when a notification event is detected, the object-oriented operating system selectively notifies objects in the system based on the connection registration information stored in the connection object in the memory of the computer system.</p> <p>MainClaim: An object-oriented notification framework system, comprising:</p> <p>(a) means for connecting a plurality of objects to a notification source;</p> <p>(b) memory means for storing connection information for the plurality of objects in a connection object of an object-oriented operating system;</p> <p>(c) means for registering connection information, including registration information indicative of a notification status, in the connection object of the object-oriented operating system;</p> <p>(d) means for selectively dispatching notification to at least one of the plurality of objects based on the registration information stored in the connection object of the object-oriented system; and</p> <p>(e) means for the at least one of the plurality of objects to receive the notification and take action based on the notification.</p>									
2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	94%	<input type="checkbox"/>
<p>Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.</p> <p>MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.</p>									
6,239,795	Pattern and color abstraction in a graphical user interface	Apple Computer, Inc.	Ulrich; Robert R. Johnston, Jr.; Robert G.	345	G06F	19990526	0	100%	<input checked="" type="checkbox"/>
<p>Abstract: Systems and method for providing a user with increased flexibility and control over the appearance and behavior of objects on a user interface. Sets of objects can be grouped into themes to provide a user with a distinct overall impression of the interface. Themes can be switched dynamically by switching pointers to drawing procedures or switching data being applied to these procedures. To buffer applications from the switchable nature of graphical user interfaces, colors and patterns used to implement the interface objects are abstracted from the interface by, for example, pattern look-up tables.</p> <p>MainClaim: A computer readable medium comprising:</p> <p>a first portion having stored therein data relating to a first set of graphical user interface objects whose individual appearances are collectively associated with a first common theme;</p> <p>a second portion having stored therein data relating to a second set of graphical user interface objects each of which have the same function as an associated interface object in said first set, but whose individual appearances are collectively associated with a second common theme; and</p>									

a third portion having stored therein computer executable code wherein, upon execution of instructions embedded in said code by a computer, a user interface associated with the computer selectively displays one of said first and second sets of graphical user interface objects.

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	92%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

5,379,431	Boot framework architecture for dynamic staged initial program load	Taligent, Inc.	Lemon; Steven P. Ross; Patrick D.	710	B06F	19931221	0	100%	<input checked="" type="checkbox"/>
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Abstract: A system is disclosed for use in booting a processor with a storage and attached peripherals. The system utilizes a technique for initializing a computer by resetting the storage and the one or more peripherals. Then, the system initializes a degraded environment for use in activating an operating system. The degraded operating environment enables file sharing and other basic tasks of importance in loading in the IO devices, system preferences, and hardware configurations and replaces itself with the IO file system for use by the operating system.

MainClaim: An apparatus for initializing a computer system in response to a boot command, comprising:

- (a) a processor;
- (b) a main volatile storage attached to and under control of said processor;
- (c) a non-volatile external storage attached to and under control of said processor, said external storage containing a copy of an operating system and a copy of a booting program;
- (d) means responsive to said boot command for loading said booting program from said external storage into said main volatile storage;
- (e) means operable after said booting program has been loaded into said main volatile storage for starting said booting program, said booting program thereupon controlling said processor; and
- (f) means controlled by said booting program for configuring said computer system and for loading portions of said operating system based on said configuring said computer system into said main volatile storage.

2007/0240171	Device, Method, And Computer Program Product For Accessing A Non-Native Application Executing In Virtual Machine Environment	Nokia Corporation	Biro; Jozsef Boros; Andras	719	G06F	20060329	9	92%	<input type="checkbox"/>
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Abstract: Embodiments of the invention provide a virtual machine application program (VMAPI) interface logically disposed between a non-native application executing in the virtual machine environment and a native middleware application, such as a native high-availability middleware application. The VMAPI is registered as a proxy component with the native middleware application by creating a library instance. The non-native application is registered as a proxied component with the native middleware application by creating another dedicated library instance. A JVM mapper may be logically disposed between the native middleware and the VMAPI that is capable of automatically mapping the JVM to the Java components based on a mapping policy selected from a predefined set of possible mapping policies.

MainClaim: A device for providing access to a non-native application executing in a virtual machine environment, wherein the device comprises: a processing element configured to execute a virtual machine application, including a virtual machine application program interface (VMAPI), to create the virtual machine environment in which the non-native application is configured to execute; the processing element further configured to execute a native middleware application; wherein the VMAPI is logically disposed between the non-native application executing in the virtual machine environment and the native middleware application; wherein the VMAPI is registered as a proxy component with the native middleware application; and wherein the non-native application is registered by the VMAPI as a proxied component with the native middleware application.

6,212,575	Extensible, replaceable network component system	Apple Computer, Inc.	Cleron; Michael A. Fisher; Stephen Bruck; Timo	719	G06F	19950505	0	100%	<input checked="" type="checkbox"/>
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Abstract: An extensible and replaceable network-oriented component system provides a platform for developing network navigation components that operate on a variety of hardware and software computer systems. These navigation components include key integrating components along with components configured to deliver conventional services directed to computer networks, such as Gopher-specific and Web-specific components. Communication among these components is achieved through novel application programming interfaces (APIs) to facilitate integration with an underlying software component architecture. Such a highly-modular cooperating layered-arrangement between the network component system and the component architecture allows any existing component to be replaced, and allows new components to be added, without affecting operation of the network component system.

MainClaim: An extensible and replaceable layered component computing arrangement residing on a computer coupled to a computer network, the layered arrangement comprising:

a software component architecture layer interfacing with an operating system to control the operations of the computer, the software component architecture layer defining a plurality of computing components; and

a network component layer for developing network navigation components that provide services directed to the computer network, the network component layer includes application programming interfaces; and

a first class included in the application programming interfaces to construct a first network navigation object that represents different network resources available on the computer network, wherein the network component layer coupled to the software component architecture layer in integrating relation to facilitate communication among the computing and network navigation components.

2006/0168526	Platform-specific application user interface remoting	Nokia Corporation	Stirbu; Vlad	715	G06F	20050112	10	92%	<input type="checkbox"/>
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Abstract: This invention relates to a server-site method, a client-site method, computer program products, a client, a server, a module and a system for remoting a user interface of an application between a server that executes said application and at least one client on which a representation of the user interface is to be rendered, wherein the representation of the user interface is generated at the server under consideration of a user interface description that is specific for a device platform of the at least one client; and wherein the representation of the user interface is transferred to the at least one client. The representation of the user interface may for instance be a memory model representation or a frame buffer representation.

MainClaim: A server-site method for remoting a user interface of an application between a server that executes said application and at least one client on which a representation of said user interface is to be rendered, said method comprising: generating said representation of said user interface at said server under consideration of a user interface description that is specific for a device platform of said at least one client; and transferring said representation of said user interface to said at least one client.

6,829,758	Interface markup language and method for making application code	Nokia Internet Communications, Inc.	Lewontin; Steve Thrane; Leon	717	G06F	20000714	9	92%	<input type="checkbox"/>
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Abstract: An Interface Markup Language ("IML") file specifies abstract server interface definitions called "operations" that return abstract content descriptions called "entities". Each entity specifies a set of operations that the entity can invoke. The combined set of entities and operations together define an abstract flow diagram of an application. A computer readable medium has instructions stored thereon which, when executed by a processor, cause the processor to perform a sequence of steps in order to make application code that is based on a flow diagram of an application. The steps include making an IML file that includes an operation list section delimited by an operation list marker and an entity list section delimited by an entity list marker. The operation list section specifies a series of operations supported by an application server. The entity list section describes a set of entities which constitute an interface to an application running on the application server. The steps further include compiling the IML file to make application code.

MainClaim: A method for generating application code comprising:

receiving a non-executable flow diagram of an application;

generating an interface markup language (IML) text file based on the application flow diagram, the IML text file containing operations and entities specifying a structure of the application; and

generating application code or code fragments for the application based on the IML text file.

7,469,381	List scrolling and document translation, scaling, and rotation on a touch-screen display	Apple Inc.	Ording; Bas	715	G06F	20071214	0	100%	<input checked="" type="checkbox"/>
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Abstract: In accordance with some embodiments, a computer-implemented method for use in conjunction with a device with a touch screen display is disclosed. In the method, a movement of an object on or near the touch screen display is detected. In response to detecting the movement, an electronic document displayed on the touch screen display is translated in a first direction. If an edge of the electronic document is reached while translating the electronic document in the first direction while the object is still detected on or near the touch screen display, an area beyond the edge of the document is displayed. After the object is no longer detected on or near the touch screen display, the document is translated in a second direction until the area beyond the edge of the document is no longer displayed.

MainClaim: A computer-implemented method, comprising: at a device with a touch screen display: displaying a first portion of an electronic document; detecting a movement of an object on or near the touch screen display; in response to detecting the movement, translating the electronic document displayed on the touch screen display in a first direction to display a second portion of the electronic document, wherein the second portion is different from the first portion; in response to an edge of the electronic document being reached while translating the electronic document in the first direction while the object is still detected on or near the touch screen display: displaying an area beyond the edge of the document, and displaying a third portion of the electronic document, wherein the third portion is smaller than the first portion; and in response to detecting that the object is no longer on or near the touch screen display, translating the electronic document in a second direction until the area beyond the edge of the electronic document is no longer displayed to display a fourth portion of the electronic document, wherein the fourth portion is different from the first portion.

2010/0107116	INPUT ON TOUCH USER INTERFACES	NOKIA CORPORATION	Rieman; John Hiitola; Kari Heine; Harri Yli-Nokari; Jyrki Kallio; Markus Kaki; Mika	715	G06F	20081027	5	95%	<input type="checkbox"/>
	APPARATUS, METHOD								

2009/0276701	AND COMPUTER PROGRAM PRODUCT FOR FACILITATING DRAG-AND-DROP OF AN OBJECT	Nokia Corporation	Nurmi; Mikko A.	715	G06F	20080430	1	94%	<input type="checkbox"/>
<p>Abstract: An apparatus, method and computer program product are provided for facilitating the drag-and-drop of an object, wherein the distance a user has to drag a graphical item associated with the object may be reduced. Once a user has selected an object, for which a graphical item is displayed on an electronic device display screen, the electronic device may attempt to predict with which target object the user is likely to link, or otherwise associate, the selected object. Once the electronic device has identified one or more potential target objects, the electronic device may cause the graphical item(s) associated with those potential target object(s) to be displayed on the electronic device display screen at a location that is close to the location at which the selected graphical item is displayed.</p> <p>MainClaim: An apparatus comprising: a processor configured to: receive a selection of an object; identify one or more potential target objects with which the selected object is linkable; and alter an image on a display screen so as to cause a graphical item associated with at least one of the one or more identified potential target objects to be displayed within a predefined distance from a first location at which either a graphical item associated with the selected object is displayed within the image or a key associated with the selected object is located within a keypad of the apparatus.</p>									
2010/0138784	MULTITASKING VIEWS FOR SMALL SCREEN DEVICES	NOKIA CORPORATION	Colley; Ashley	715	G06F	20081128	1	92%	<input type="checkbox"/>
<p>Abstract: A system and method that includes providing content items to be displayed on a display of a device, determining a relevance of each content item with respect to each other content item, and organizing the content items on the display of the device along a scattered continuum, wherein more contextually relevant content is located closer to a center area of the display and less contextually relevant content is located away from the center area.</p> <p>MainClaim: A method comprising: providing content items to be displayed on a display of a device; determining a relevance of each content item with respect to each other content item; and organizing the content items on the display of the device along a continuum, wherein more contextually relevant content is located closer to a center area of the display and less contextually relevant content is located away from the center area.</p>									
5,612,719	Gesture sensitive buttons for graphical user interfaces	Apple Computer, Inc.	Beernink; Ernest H. Foster; Gregg S. Capps; Stephen P.	345	G09G	19940415	0	100%	<input checked="" type="checkbox"/>
<p>Abstract: A gesture sensitive button for graphical user interfaces characterized by a digital computer, a screen coupled to the digital computer, a pointer mechanism used for pointing locations on the screen, a "button" image displayed on the screen, and a gesture recognizer for detecting gestures made on the screen by the pointing mechanism. The button is responsive to at least two different button gestures made on the screen on or near the button. A process implementing the gesture sensitive button of the present invention includes: providing a button image on a computer screen; detecting a gesture made on the screen by a pointer such as a stylus, mouse, or trackball; determining whether the gesture is associated with the button image; and initiating one of at least two processes if the gesture is associated with the button image. The gesture sensitive button conserves real estate on the computer screen by permitting a single button to control multiple functions and processes.</p> <p>MainClaim: A gesture sensitive button for a graphical user interface comprising:</p> <p>a digital processor,</p> <p>a display screen coupled to said digital processor;</p> <p>a pointer for pointing to locations on said display screen;</p> <p>a button image displayed on said display screen, said digital processor being responsive without any intermediate input to at least two different button gestures made by said pointer on said display screen at any location over said button image; and</p> <p>gesture recognition means for detecting gestures made on said display screen by said pointer and operative to initiate a process in said digital processor that is determined by a recognizable button gesture made with said pointer on said display screen which selects said button image and which has meaning to said digital processor based upon a context associated with said button image wherein the gesture recognition means is arranged such that the function associated with each of said button gestures will be initiated and executed in an identical manner regardless of the location over the button image that the gesture was made,</p> <p>wherein said digital processor is operable such that when said gesture recognition means recognizes a particular recognizable button gesture for said button image, said digital processor provides feedback relative to said button confirming that said button image has been selected, said feedback relative to said button also indicative of the particular function associated with said particular recognizable button gesture.</p>									
7,623,119	Graphical functions by gestures	Nokia Corporation	Autio; Markku Tapio Jarvio; Jami Jarkko Juhani	345	G09G	20040421	7	95%	<input type="checkbox"/>
<p>Abstract: A method for operating a computer through a touch sensitive display interface includes displaying a computer generated graphical image on a touch sensitive display using display software. The display software includes programs used to display the graphical image (e.g., display driver and web browser), and is responsive to inputs at a first, active portion (e.g., coinciding with toolbars, hyperlinks) of the touch sensitive display when the graphic image is displayed, and is non-responsive to a second, inactive portion. In the method, an input character is received at the second, inactive portion of the touch sensitive display, and is compared to a stored command character that is associated with a separate corresponding computer command. The separate corresponding computer command is executed if the input character matches the command character. In one embodiment, one particular input character results in emulating a right mouse button by displaying a submenu of shortcut icons, and the method is implemented by operation of a computer program in a mobile station.</p> <p>MainClaim: A computer readable medium having computer instructions for performing actions comprising: displaying a computer generated graphical image and at least one active area comprising an attribute on a touch sensitive display using a</p>									

displaying software program, the attribute comprising at least one of a scrolling operator, a toolbar icon and a hyperlink, said displaying software program being responsive to inputs at only a first active portion of the touch sensitive display when said graphical image is displayed, and non-responsive to a second inactive portion of the display; receiving an input character at the second inactive portion of said touch sensitive display; comparing said input character to a stored command character that is associated with a separate corresponding computer command; and executing the separate corresponding computer command if said input character matches said command character, wherein said separate corresponding computer command is to display a submenu at the touch sensitive display, said submenu comprising a plurality of shortcut links each to a different executable command.

2005/0237308	Graphical functions by gestures	Nokia Corporation	Autio, Markku Tapio Jarvio, Jami Jarkko Juhani	345	G09G	20040421	4	94%	<input type="checkbox"/>
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Abstract: A method for operating a computer through a touch sensitive display interface includes displaying a computer generated graphical image on a touch sensitive display using display software. The display software includes programs used to display the graphical image (e.g., display driver and web browser), and is responsive to inputs at a first, active portion (e.g., coinciding with toolbars, hyperlinks) of the touch sensitive display when the graphic image is displayed, and is non-responsive to a second, inactive portion. In the method, an input character is received at the second, inactive portion of the touch sensitive display, and is compared to a stored command character that is associated with a separate corresponding computer command. The separate corresponding computer command is executed if the input character matches the command character. In one embodiment, one particular input character results in emulating a right mouse button by displaying a submenu of shortcut icons, and the method is implemented by operation of a computer program in a mobile station.

MainClaim: In an electronic device for displaying a graphical image at a touch sensitive user interface using a displaying software program, and for storing a separate computer command apart from the displaying software program, the improvement comprising a computer program embodied in a computer readable medium comprising instructions to cause a computer to: receive an input at a portion of the touch sensitive user interface that is not recognized as active by the display program; compare said received input to a stored command character that is associated with the separate computer command; and execute the separate computer command only if the received input matches the stored command character.

2008/0002888	Apparatus, method, device and computer program product providing enhanced text copy capability with touch input display	Nokia Corporation	Yuan; Shijun	382	G06K	20060629	13	94%	<input type="checkbox"/>
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Abstract: A device includes a display having touch sensitive display surface that is responsive to pen-based user input, and a control unit that is bidirectionally coupled to the display. The control unit is responsive to a user selecting displayed text from a first display location using the pen, and is further responsive to a first signal generated using the pen, to copy the selected displayed text to a buffer associated with a text window and to display the copied text in the text window. The control unit is further responsive to the user selecting a second display location using the pen, and to a second signal, to copy the displayed text from the text window to the second display location, thereby implementing a copy and paste function. A cut and paste function may also be implemented.

MainClaim: A method, comprising: selecting displayed text from a first display location using a pen in combination with a touch sensitive surface; in response to a first signal generated using the pen, copying the selected displayed text to a buffer associated with a text window and displaying the copied text in the text window; selecting a second display location using the pen; and in response to a second signal, copying the displayed text from the buffer to the second display location.

5,379,430	Object-oriented system locator system	Taligent, Inc.	Nguyen; Frank T.	707	G06F	19930804	0	100%	<input checked="" type="checkbox"/>
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Abstract: A method and system for adding system components (documents, tools, fonts, libraries, etc.) to a computer system without running an installation program. A location framework is employed to locate system components whose properties match those specified in a search criteria. The framework receives notification from the system when system components whose properties match the search criteria are added to or removed from the system.

MainClaim: A computer implemented method for dynamically adding support for hardware or software components with one or more properties to an operating system active on a computer with a memory, comprising the steps of:

- (a) specifying a target hardware or software component search criteria including one or more properties;
- (b) querying the operating system to identify one or more hardware or software components that meet the target hardware or software component search criteria;
- (c) returning hardware or software components meeting the target hardware or software component search criteria; and
- (d) adding support for the hardware and software components to the operating system without rebooting the operating system.

2007/0050756	Component architecture	Nokia Corporation	Paller; Gabor	717	G06F	20050824	4	95%	<input type="checkbox"/>
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Abstract: A self-organising software for controlling a device, which software contains at least two components. Each component includes at least one interface for connecting with other components, wherein each of the components itself contains information defining component rules. The rules contained by the components define how components can be connected with each other components so that no external rule databases are necessary.

MainClaim: A device including self-organising software that includes at least two components each including at least one interface for connecting with other components, wherein each of the components contains information defining component rules according to which that component can be connected with other components.

2005/0160414	System and method for dynamically adding features to software applications	Nokia Corporation	Parnanen, Matti Laaksonen, Jari Rosendahl, Sami Mansikkamaki, Harri	717	G06F	20040121	2	95%	<input type="checkbox"/>
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Abstract: A method, device, system, and a computer program product where features are dynamically added to software applications. These applications are added using a framework for a general unchangeable application programming interface

(API) that adds any feature to any application.

MainClaim: A method for adding computer software features dynamically to a software application by establishing a framework for a application programming interface (API) that adds a feature to an application, the method comprising: requesting from an application interworking framework a feature matching a consumer interest of a consumer application; using the consumer interest and a feature capability to identify a provider; providing the feature, if the provider is identified, to the consumer application; and utilizing the feature at the consumer application.

2010/0005481	Method of Maintaining Applications in a Computing Device	NOKIA CORPORATION	Lewis; Simon I Litovski; Ivan	719	G06F	20051215	3	94%	<input type="checkbox"/>
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Abstract: A method is provided for managing the application lifecycle for user applications on a computing device. The method can centrally manage application lifecycle (including installation, execution status, removal) application capabilities long-lived OS level application owned resources (e.g. push connections, alarms) security for any application, regardless of application type or model or execution environment.

MainClaim: A method of managing application lifecycle for user applications on a computing device, the method comprising providing an application management system (AMS) for managing a plurality of application models and a plurality of application environments, wherein the AMS is implemented as a component within an operating system for the computing device and grants to the operating system control for all application management functionality on the device.

7,710,290	System and method for situational location relevant invocable speed reference	Apple Inc.	Johnson; William J.	340	G08B	20070622	0	100%	<input checked="" type="checkbox"/>
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Abstract: Situational location dependent information is transmitted from a server data processing system to a receiving data processing system. The server data processing system communicates with the receiving data processing system in a manner by pushing content when appropriate. A candidate delivery event associated with a current positional attribute of the receiving data processing system is recognized and a situational location of the remote data processing system is determined. The candidate delivery event may be a location and/or direction change, device state change, or movement exceeding a movement tolerance. The situational location of the remote data processing system may be its location, direction, location and direction, proximity to a location, state change, or location and/or direction relative to a previous location and/or direction, or combinations thereof. A set of delivery content from a deliverable content database is transmitted from the server data processing system to the receiving data processing system according to the situational location of the receiving data processing system, and according to delivery constraints. The delivery content is configurable by authorized administrators on an instant activation basis for proactive delivery.

MainClaim: A speed reference invocation method in a data processing system, said method comprising: receiving an invocable speed reference according to a situational location of a user of said data processing system; presenting information for said invocable speed reference to said user; and automatically invoking said speed reference upon selection for invocation by said user, wherein said invocable speed reference is a phone number and wherein said step of automatically invoking said speed reference upon selection for invocation by said user includes automatically making a call with said phone number upon selection for invocation by said user.

2009/0222438	Method, system, and apparatus for location-aware search	Nokia Corporation and Recordation Form Cover Sheet	Strandell; Toni I Aarnio; Ari I Quiroz-Castro; Carlos	707	G06F	20080229	1	94%	<input type="checkbox"/>
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Abstract: Performing location-aware search involves intercepting a network request targeted for an Internet-based search engine. The network request includes a location-dependent query containing a location term, and the location term cannot be used by the search engine to positively determine a target location. A location descriptor that can be used by the search engine to positively determine a target location is determined via a location database. The location database may include a location sensor such as GPS. The network request is modified to replace the location term with the location descriptor, and the modified network request is sent to the search engine.

MainClaim: An apparatus comprising: a network interface capable of communicating with an Internet-based search engine; a processor coupled to the network interface; a location database; and memory coupled to the processor and the location database, wherein the memory includes instructions that cause the processor to: intercept a network request targeted for the search engine, wherein the network request includes a location-dependent query containing a location term, wherein the location term cannot be used by the search engine to positively determine a target location; determine, via a location database of the apparatus, a location descriptor that can be used by the search engine to positively determine the target location; modify the network request to replace the location term with the location descriptor; and send the modified network request to the search engine.

5,485,076	High efficiency auxiliary switching power supplies	Apple Computer, Inc.	Schoenwald; David S. Forge; Charles O.	323	H02M	19940816	0	100%	<input checked="" type="checkbox"/>
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Abstract: Method and apparatus for producing an auxiliary voltage in a switching power supply. One or more auxiliary windings are coupled to the main inductor of the switching power supply. A synchronous switch is used in conjunction with the auxiliary winding to provide rectification and additionally provides waveform averaging which improves efficiency and voltage regulation over varying load conditions.

MainClaim: In a switching power supply for producing a first output having a controlling circuit controlling a first switch connected to a first end of a first transformer winding, and the first output connected to the second end of the first transformer winding, a secondary output comprising:

a second transformer winding inductively coupled to the first transformer winding,

a second switch connected to the second transformer winding,

drive coupling connected from the controlling circuit to the second switch for switching the second switch in synchrony with the first switch, and

a filter capacitor connected across the second switch and the second transformer winding for filtering; the secondary output.

	Synchronous								
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6,696,772	rectification	Nokia Corporation	Nieminen; Pentti	307	H02J	20020612	4	96%	<input type="checkbox"/>
<p>Abstract: A direct-current converter converts an input voltage into an output voltage. It has and which comprises an operating voltage source, a power transformer having a primary side and secondary side, an input voltage source connected to the power transformer, at least one first power switch disposed on the primary side, and at least one second power switch disposed on the secondary side and rectifying the output voltage. The direct-current converter also has a regulating circuit, which is connected to the first power switch and the second power switch to control the timing of their switching functions, and an auxiliary power source arranged to supply power to the regulating circuit and connected to the operating voltage.</p> <p>MainClaim: A direct-current converter which converts an input voltage into an output voltage, comprising:</p> <p>a power transformer having a primary side and a secondary side,</p> <p>an input voltage source connected to said power transformer, at least one first power switch disposed on said primary side, and at least one second power switch disposed on said secondary side and serving to rectify the output voltage,</p> <p>a regulating circuit, which is connected to said first power switch and to said second power switch to control the timing of their switching action, and</p> <p>an auxiliary power source, which has been arranged to supply power to said regulating circuit and produce an output voltage.</p>									
6,671,193	Power source and arrangement for restricting the short-circuit current or rectifier	Nokia Corporation	Pelkonen; Seppo	363	H02H	20020115	1	93%	<input type="checkbox"/>
<p>Abstract: A power source with an arrangement for restricting short-circuit current includes at least a primary-side switch block, a transformer unit and a rectifier. The rectifier includes switching transistors for rectifying the secondary side of the transformer. Operation of the rectifier depends on a control from a pulse-forming part of the primary-side switch block. Control for the switching transistors in the rectifier is interrupted when the output current of the rectifier exceeds a limit value. At least one other switch element is arranged parallel to each of the switching transistors in the rectifier to realize a secondary-side rectification in an overload situation.</p> <p>MainClaim: A power source with an arrangement for restricting a short-circuit current, said power source comprising:</p> <p>a primary-side switch block,</p> <p>a transformer unit having a transformer primary side and a transformer secondary side, said primary-side switch block connected to said transformer primary side, and</p> <p>a rectifier connected to said transformer secondary side for generating an output signal of the power source and having at least one switching transistor, a rectifier switching circuit for controlling said at least one switching transistor, wherein said rectifier switching circuit is arranged to be cut off in an overload situation, and at least one switch element connected in parallel with said at least one switching transistor, whereby rectification at the secondary side is realized in an overload situation by said at least one switch element,</p> <p>wherein said primary-side switch block includes a pulse-forming part for controlling the primary-side switch block and for generating a control signal proportional to the output signal of the power source and an arrangement for feeding the control signal from said pulse forming part to said rectifier switching circuit, said rectifier switching circuit controlling said at least one switching transistor in response to the control signal generated by said pulse-forming part.</p>									
5,657,211	Method and circuit for controlling the output characteristics of a switched-mode power supply	Nokia Technology GmbH	Brockmann; Hans-Jurgen	363	H02M	19960521	3	93%	<input type="checkbox"/>
<p>Abstract: The invention relates to a method and a circuit to control the output voltage and current of a switched-mode power supply. In order to restrict the output current, a voltage value proportional to the primary current of a switched-mode power supply is measured and compared to a variable reference voltage U_{ext} the value of which is determined by the total effect of the constant charging current of a capacitor C_{ext} and a discharge circuit operating in step with the secondary diode of the power supply. If the voltage value proportional to the primary current is bigger than said reference voltage, the switching pulses of the primary current switch are shortened. In order to restrict the output voltage, an image voltage is generated for the secondary voltage of the power supply transformer which is filtered and rectified and combined with the aforementioned reference voltage in order to produce pulse-width-modulated switching pulses of the primary current switch.</p> <p>MainClaim: A circuit to control the output current and output voltage in a switched-mode power supply that comprises a transformer (T1) equipped with primary and secondary windings (11, 12, 13) through which power is transferred from the primary to the secondary, and a first switching element (Q1) on the primary side to interrupt the primary current (I_p) flowing through the primary winding (11) of said transformer, which circuit comprises on the primary side</p> <p>a control circuit (F1) to regulate the output voltage of the power supply by means of pulse width modulation by adjusting the pulse ratio of the switching pulses of said first switching element (Q1),</p> <p>means (14, S1, R_s, C_{ext}) for producing a first reference voltage (U_{ext}), and</p> <p>means (D2, R2, C2, I_a, R5, D3, C3, C4) for producing a first voltage signal (U_b), characterized in that it further comprises on the primary side means (R11-R14) for producing a combination of said first reference voltage (U_{ext}) and first voltage signal (U_b) and for taking said combination to said control circuit (F1) in order to produce said switching pulses.</p>									

5,566,064	High efficiency supply for electroluminescent panels	Apple Computer, Inc.	Schoenwald; David S. Forge; Charles O.	363	H02M	19950526	0	100%	<input type="checkbox"/>
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Abstract: Apparatus for operating electroluminescent panels. An electroluminescent panel is driven by a voltage source feeding a modified bridge driven by a pulse width modulated signal. By using a pulse frequency above the range of human hearing and a modulating signal that is a sine wave of the proper frequency for operating the panel, a sine wave is generated across the panel without requiring bulky low frequency magnetic components.

MainClaim: Apparatus for operating an electroluminescent panel comprising:

a DC source having positive and negative terminals;

first and second capacitors connected in series between the positive and negative terminals of the DC source forming a voltage divider;

a first output terminal for the electroluminescent panel connected to the junction of the first and second capacitors;

a transformer having first and second windings, each of the first and second windings having a start and an end, the start of the first winding connected to the positive terminal of the DC source and the start of the second winding connected to the negative terminal of the DC source;

first and second series connected switches, the first switch connected to the end of the first transformer winding and the second switch connected to the end of the second transformer winding;

a second output terminal for the electroluminescent panel connected to the junction of the first and second switches; and

switch driving means for driving the first and second switches in complementary fashion with a pulse width modulated switching signal.

6,696,772	Synchronous rectification	Nokia Corporation	Nieminen; Pentti	307	H02J	20020612	4	93%	<input type="checkbox"/>
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Abstract: A direct-current converter converts an input voltage into an output voltage. It has and which comprises an operating voltage source, a power transformer having a primary side and secondary side, an input voltage source connected to the power transformer, at least one first power switch disposed on the primary side, and at least one second power switch disposed on the secondary side and rectifying the output voltage. The direct-current converter also has a regulating circuit, which is connected to the first power switch and the second power switch to control the timing of their switching functions, and an auxiliary power source arranged to supply power to the regulating circuit and connected to the operating voltage.

MainClaim: A direct-current converter which converts an input voltage into an output voltage, comprising:

a power transformer having a primary side and a secondary side,

an input voltage source connected to said power transformer, at least one first power switch disposed on said primary side, and at least one second power switch disposed on said secondary side and serving to rectify the output voltage,

a regulating circuit, which is connected to said first power switch and to said second power switch to control the timing of their switching action, and

an auxiliary power source, which has been arranged to supply power to said regulating circuit and produce an output voltage.

5,657,211	Method and circuit for controlling the output characteristics of a switched-mode power supply	Nokia Technology GmbH	Brockmann; Hans-Jurgen	363	H02M	19960521	3	92%	<input type="checkbox"/>
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Abstract: The invention relates to a method and a circuit to control the output voltage and current of a switched-mode power supply. In order to restrict the output current, a voltage value proportional to the primary current of a switched-mode power supply is measured and compared to a variable reference voltage U_{ext} the value of which is determined by the total effect of the constant charging current of a capacitor C_{ext} and a discharge circuit operating in step with the secondary diode of the power supply. If the voltage value proportional to the primary current is bigger than said reference voltage, the switching pulses of the primary current switch are shortened. In order to restrict the output voltage, an image voltage is generated for the secondary voltage of the power supply transformer which is filtered and rectified and combined with the aforementioned reference voltage in order to produce pulse-width-modulated switching pulses of the primary current switch.

MainClaim: A circuit to control the output current and output voltage in a switched-mode power supply that comprises a transformer (T1) equipped with primary and secondary windings (11, 12, 13) through which power is transferred from the primary to the secondary, and a first switching element (Q1) on the primary side to interrupt the primary current (I_p) flowing through the primary winding (11) of said transformer, which circuit comprises on the primary side

a control circuit (F1) to regulate the output voltage of the power supply by means of pulse width modulation by adjusting the pulse ratio of the switching pulses of said first switching element (Q1),

means (14, S1, R_s , C_{ext}) for producing a first reference voltage (U_{ext}), and

means (D2, R2, C2, I_a , R5, D3, C3, C4) for producing a first voltage signal (U_b), characterized in that it further comprises on the primary side means (R11-R14) for producing a combination of said first reference voltage (U_{ext}) and first voltage signal (U_b) and

for taking said combination to said control circuit (F1) in order to produce said switching pulses.

7,382,634	Voltage multiplier with charge recovery	Nokia Corporation	Buchmann; Michael	363	H02M	20031022	2	92%	<input type="checkbox"/>
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Abstract: Capacitive voltage multiplier for generating voltage pulses, preferably up to 100 V, that are higher than the supply voltage for displays, non-volatile memories and corresponding units especially in small electronic devices, such as handheld telecommunication terminals or corresponding devices, wherein the multiplier comprises a switching capacitor circuit (21) provided with capacitors and switches for charging the capacitors in parallel and discharging them in series in order to deliver a high voltage pulse. The multiplier further comprises a diode chain circuit (22) consisting of a diode-chain and pumping capacitors for delivering high voltage current. The inventive system allows the output high voltage to be switched on and held with little longtime drop and with small switching losses and able to supply a load current without significant ripple. Additionally switching the high voltage on and off does not result in efficiency loss.

MainClaim: Capacitive voltage multiplier for generating voltage pulses, preferably up to 100 V, that are higher than the supply voltage for displays, non-volatile memories and corresponding units especially in small electronic devices, such as handheld telecommunication terminals or corresponding devices, wherein the multiplier comprises a switching capacitor circuit (21) coupled between input (31) and output (32) terminals of the multiplier, said switching capacitor circuit (21) provided with capacitors and switches for charging the capacitors in parallel and discharging them in series in order to deliver a high voltage pulse, characterised in that the multiplier further comprises a diode chain circuit (22) coupled between said input (31) and output (32) terminals of the multiplier, said diode chain circuit (22) comprising a diode-chain and pumping capacitors for delivering high voltage current.

5,490,053	Methods and apparatus for auxiliary trickle power supply	Apple Computer, Inc.	Tkacenko; Nikola Sontag, III; Harold L.	363	H02M	19930930	0	100%	<input type="checkbox"/>
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Abstract: Circuit arrangements and methods are disclosed for providing trickle voltages and currents when a main power supply is unavailable or, alternatively, for providing auxiliary power. In one embodiment, a trickle power supply consists of a bilaterally conducting semiconductor diode device such as a SIDAC receiving an unregulated DC input voltage through a resistor. The SIDAC is contemplated to have a specified breakover voltage V_{bo} and current carrying capability chosen according to designer preference. A first capacitor is coupled between the SIDAC and a primary side of a step-down pulse transformer providing a specified reduction in voltage from a secondary side relative to the voltage applied to the primary side. The resistor, the first capacitor, and the SIDAC together form a modified RC resonant circuit oscillation characteristic. When the unregulated DC input voltage is applied, the first capacitor will charge up to the breakover voltage V_{bo} of the SIDAC, whereafter the SIDAC becomes strongly conducting and charge is rapidly discharged to ground from the first capacitor through the SIDAC. When the stored charge has been depleted, the SIDAC becomes nonconducting, and charge is thereafter again accumulated in the first capacitor. The alternate charging and discharging of the first capacitor according to the V_{bo} of the SIDAC produces an oscillating pulse waveform. The pulse waveform is subsequently reduced in magnitude by the pulse transformer, and thereafter routed through voltage regulating means to adjust the reduced voltage and current of the oscillating pulse waveform to an output trickle voltage and current of specified magnitude.

MainClaim: A trickle power supply for generating trickle voltages and currents, said trickle power supply comprising:

charge storage means coupled to an unregulated direct current (DC) source for receiving and storing electric charge;

bidirectionally conducting semiconductor diode means coupled to the charge storage means for enabling said charge storage means to alternately charge and discharge, thereby generating a periodic oscillating waveform having a plurality of alternating charging and discharging profiles;

voltage reducing means coupled to said charge storage means and said bidirectionally conducting semiconductor diode means for converting said periodic oscillating waveform into a reduced voltage periodic oscillating waveform, and

voltage regulation means coupled to said voltage reducing means for accumulating and converting said reduced periodic oscillating waveform into regulated voltage and current outputs comprising said trickle voltages and currents.

6,696,772	Synchronous rectification	Nokia Corporation	Nieminen; Pentti	307	H02J	20020612	4	94%	<input type="checkbox"/>
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Abstract: A direct-current converter converts an input voltage into an output voltage. It has and which comprises an operating voltage source, a power transformer having a primary side and secondary side, an input voltage source connected to the power transformer, at least one first power switch disposed on the primary side, and at least one second power switch disposed on the secondary side and rectifying the output voltage. The direct-current converter also has a regulating circuit, which is connected to the first power switch and the second power switch to control the timing of their switching functions, and an auxiliary power source arranged to supply power to the regulating circuit and connected to the operating voltage.

MainClaim: A direct-current converter which converts an input voltage into an output voltage, comprising:

a power transformer having a primary side and a secondary side,

an input voltage source connected to said power transformer, at least one first power switch disposed on said primary side, and at least one second power switch disposed on said secondary side and serving to rectify the output voltage,

a regulating circuit, which is connected to said first power switch and to said second power switch to control the timing of their switching action, and

an auxiliary power source, which has been arranged to supply power to said regulating circuit and produce an output voltage.

5,978,235	Primary adjusted switched-mode power supply	Nokia Technology GmbH	Lampinen; Pertti	363		19980107	1	93%	<input type="checkbox"/>
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Abstract: In order to adjust the output voltage and output current of a galvanically isolated switched-mode power supply, on the primary side there is formed an auxiliary voltage (15) proportional to the secondary voltage, and said auxiliary voltage is

studied by means of a window comparator, so that when the auxiliary voltage is within the reference window, there is applied fixed power adjustment, and when the auxiliary voltage falls outside the reference window ($>max$, $<min$), the quantity of electric power fed in by the isolation transformer of the primary side is restricted. Most advantageously the auxiliary voltage is formed by means of an auxiliary coil (12b) contained in the isolation transformer, and the reverse threshold voltages of two zener diodes represent the limit values of the reference window.

MainClaim: A method for adjusting the output voltage and output current of a switched-mode power supply that is galvanically isolated by means of an isolation transformer, comprising the steps of:

providing a quantity of power to said isolation transformer,

on a primary side, providing an auxiliary voltage proportional to a secondary voltage,

monitoring said auxiliary voltage by means of a window comparator, for restricting the quantity of electric power fed into the isolation transformer by the primary side when the auxiliary voltage falls outside a reference window, and otherwise providing the quantity of electric power as a fixed quantity.

7,382,634	Voltage multiplier with charge recovery	Nokia Corporation	Buchmann; Michael	363	H02M	20031022	2	93%	<input type="checkbox"/>
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Abstract: Capacitive voltage multiplier for generating voltage pulses, preferably up to 100 V, that are higher than the supply voltage for displays, non-volatile memories and corresponding units especially in small electronic devices, such as handheld telecommunication terminals or corresponding devices, wherein the multiplier comprises a switching capacitor circuit (21) provided with capacitors and switches for charging the capacitors in parallel and discharging them in series in order to deliver a high voltage pulse. The multiplier further comprises a diode chain circuit (22) consisting of a diode-chain and pumping capacitors for delivering high voltage current. The inventive system allows the output high voltage to be switched on and held with little longtime drop and with small switching losses and able to supply a load current without significant ripple. Additionally switching the high voltage on and off does not result in efficiency loss.

MainClaim: Capacitive voltage multiplier for generating voltage pulses, preferably up to 100 V, that are higher than the supply voltage for displays, non-volatile memories and corresponding units especially in small electronic devices, such as handheld telecommunication terminals or corresponding devices, wherein the multiplier comprises a switching capacitor circuit (21) coupled between input (31) and output (32) terminals of the multiplier, said switching capacitor circuit (21) provided with capacitors and switches for charging the capacitors in parallel and discharging them in series in order to deliver a high voltage pulse, characterised in that the multiplier further comprises a diode chain circuit (22) coupled between said input (31) and output (32) terminals of the multiplier, said diode chain circuit (22) comprising a diode-chain and pumping capacitors for delivering high voltage current.

5,773,963	Method and apparatus for programmably adjusting output voltage of a battery charger	Apple Computer Inc.	Blanc; James J. Gurries; Mark C.	320	H02J	19960829	0	100%	<input type="checkbox"/>
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Abstract: An apparatus for programmably adjusting output voltage of a constant-voltage battery charger is disclosed. The present invention includes a power circuit for generating an output voltage for charging batteries. This power circuit generates this output voltage as a function of an incoming power source and an incoming error signal. The invention further includes a controller for providing a pulse width modulated (PWM) signal operating at a pre-determined frequency. This PWM signal controls the effective divider ratio of a voltage divider network which is implemented, among other things, for generating the error signal to be fed to the power circuit. The present invention varies the effective divider ratio by programmably applying the pulse width modulated signal from the controller. As a result, the output voltage from the power circuit can be varied to optimally charge batteries of differing types and technologies.

MainClaim: A constant-voltage battery charger for charging at least one battery, the battery charger comprising:

a voltage divider network including at least two resistive elements in series and said two resistive elements being disposed in electrical parallel to the at least one battery;

a power circuit for generating an output voltage of the battery charger from an incoming power source and an incoming error signal; said power circuit being adapted for applying the output voltage to the at least one battery and the voltage divider network;

a control circuit including a control resistor serially connected to a MOSFET, said control resistor and said MOSFET being disposed in electrical parallel to one of the at least two resistive elements of the voltage divider network, said control circuit having one end connected to an electrical ground;

a controller being connected to the MOSFET and adapted for switching the MOSFET ON and OFF, said MOSFET being responsive to a pulse width modulated output signal having a programmable duty cycle operating at a pre-determined frequency from the controller; and

a comparison circuit including an operational amplifier for generating the error signal by comparing between a pre-determined voltage reference and the voltage across the control circuit, said comparison circuit being configured to roll off at a frequency much lower than the pre-determined frequency of the pulse width modulated output signal.

6,407,532	Method and apparatus for measuring battery charge and discharge current	Nokia Mobile Phones, Ltd.	Ruha; Antti	320	H01M	20010129	1	93%	<input type="checkbox"/>
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Abstract: Disclosed is a method for charging a battery and circuitry for performing the method. The method includes steps of: (a) generating a charging current (I_{ch}) for a battery; (b) generating a replica current (I_{rep}) of I_{ch} , where $I_{rep}=I_{ch}/N$, where $N>1$; (c) measuring a voltage drop induced by I_{rep} across a measurement resistance; and (d) using the measured voltage drop for controlling a magnitude of I_{ch} . Preferably N is greater than about 10, more preferably N is greater than about 100, and in the most preferred embodiment N is in a range of about 100 to about 1000. The step of generating the charging current (I_{ch}) includes a step of operating a first device having an input node coupled to a source of charging current, the step of generating

the replica current (I_{rep}) includes a step of operating a second device having an input node coupled to the source of charging current; wherein the first device and the second device are both driven with the same control signal. The control signal may be a pulse width modulated signal having a pulse width that is controlled as a function of the measured voltage drop across the measurement resistance, or a DC voltage having an adjustable voltage value. In the preferred embodiment the step of generating the replica current (I_{rep}) includes a step of operating a servo loop to force a potential appearing at an output node of the second device to equal a potential appearing at an output node of the first device. A battery discharge measurement circuit is also disclosed, and operates in accordance with the same principles as the battery charging circuit.

MainClaim: A battery charging circuit, comprising:

a first device driven by a control signal and having an input node coupled to a source of charging current and an output node for coupling a charging current I_{ch} to a battery to be recharged; and

a second device driven by said control signal and having an input node coupled to said source of charging current and an output node coupled to a measurement resistance, wherein a voltage drop across said measurement resistance due to a current flow I_{rep} through said measurement resistance is sensed for controlling current flow through said first device, and wherein I_{rep} is equal to I_{ch}/N , where N is a scaling factor that is greater than unity.

2005/0253556	Battery charging control	Nokia Corporation	Kuiri, Tapio	320	H02J	20040511	1	92%	<input type="checkbox"/>
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Abstract: The invention relates to a battery charging control circuit for controlling a charging of a rechargeable battery by means of a charging component. The battery charging control circuit comprises a switching element, a control component and an energy storage component. The switching element is adapted to connect a battery to a charging component and to disconnect the battery from the charging component. The control component is adapted to control the switching element. The energy storage component is arranged to be loaded by the charging component and to provide a voltage across the energy storage component as a supply voltage to the control component. The invention relates equally to an electronic device comprising such a circuit and to a method of providing a power supply to a control component of such a circuit.

MainClaim: A battery charging control circuit for controlling a charging of a rechargeable battery by means of a charging component, said battery charging control circuit comprising a switching element, a control component and an auxiliary energy storage component, wherein said switching element is adapted to connect a battery to a charging component and to disconnect said battery from said charging component, respectively; wherein said control component is adapted to control said switching element; and wherein said energy storage component is arranged to be loaded by a charging component and to provide a voltage across said energy storage component as a supply voltage to said control component.

2008/0278221	POWER DISTRIBUTION CIRCUIT FOR USE IN A PORTABLE TELECOMMUNICATIONS DEVICE	Nokia Corporation	Rowland; Barry		G05F	20070511	2	92%	<input type="checkbox"/>
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Abstract: A power distribution circuit for use in a personal telecommunications device comprises a switched mode power supply configured to convert an input voltage and current from an energy source into an output voltage and current, a plurality of series-connected charge storage components arranged to be charged by the output voltage and a charge balancing circuit configured to substantially equalise voltages across each of the charge storage components, wherein the charge balancing circuit comprises a charge pump.

MainClaim: A power distribution circuit for use in a portable telecommunications device comprising: a switched mode power supply configured to convert an input voltage and current from an energy source into an output voltage and current; a plurality of series-connected charge storage components arranged to be charged by the output voltage; a charge balancing circuit comprising a charge pump configured to substantially equalise voltages across each of the charge storage components.

7,408,403	Circuits and methods for amplifying signals	Apple Inc.	Farrar; Douglas M. Sander; Wendell B.	330	H03F	20060609	0	100%	<input type="checkbox"/>
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Abstract: The present invention discloses a bus pumping compensation for a pulse modulation circuit such as class D modulators. The compensation according to the present invention provides a compensation current controlled by the output voltage, with the compensation characteristics matching the reverse current for improving circuit efficiency. Embodiments of the present invention also disclose a designable compensation circuit, comprising a linear compensation current, offering a good trade-off between circuit efficiency and ease of design. The present invention compensation circuit is preferably employed in a class D amplifier with substantial reverse current, and most preferably added into a LDO power supply in a class D amplifier circuit to prevent reverse current problem. The disclosed class D amplifier circuit is preferably used in an audio media player.

MainClaim: A method for compensating for reverse power supply current of a modulator, the method comprising: generating a voltage-dependent compensation current for the power supply to compensate for the reverse current, the compensation current controlled by an output voltage of the modulator circuit.

2008/0272750	Device	NOKIA CORPORATION	Aitto-Oja; Timo	323	G05F	20070821	1	94%	<input type="checkbox"/>
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Abstract: A device includes an output and a linear regulator coupled to the output. The device also includes a switching regulator coupled to the output and means for controlling said switching regulator in dependence on power loss in said linear regulator.

MainClaim: A device comprising: an output; a linear regulator coupled to the output; a switching regulator coupled to the output; and means for controlling said switching regulator in dependence on power loss in said linear regulator.

7,538,631	Multi-mode amplitude modulator control method	Nokia Corporation	Immonen; Antti Grigore; Vlad	332	H03C	20070220	1	94%	<input type="checkbox"/>
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Abstract: A power management device providing a power amplifier with power supply voltage is provided. The power management unit includes a parallel-hybrid amplitude modulator apparatus having a linear part configured to track frequency components of an input signal above a determined threshold frequency and a switching part arranged in parallel with the linear part and configured to track frequency components of the input signal below the determined threshold frequency. Additionally, the power management unit includes a current sensing and controlling part configured to determine the level of a direct current component at an output of the linear part and control the switching part to produce an output signal compensating for the direct current component at the output of the linear part to decrease the absolute level of the direct current at the output of the linear part.

MainClaim: A parallel-hybrid amplitude modulator apparatus, comprising: an interface configured to receive an input signal; a

linear part configured to track frequency components of the input signal above a determined threshold frequency; a switching part arranged in parallel with the linear part and configured to track frequency components of the input signal below the determined threshold frequency, wherein the linear part and the switching part are configured to track a varying amplitude of the input signal; and a current sensing and controlling part configured to determine a level of a direct current component at an output of the linear part and control the switching part to produce an output signal configured to compensate the direct current component at the output of the linear part to decrease a absolute level of the direct current at the output of the linear part.

2008/0157895	Multi-mode amplitude modulator control method	Nokia Corporation	Immonen; Antti Grigore; Vlad	332	H03C	20070220	1	94%	<input type="checkbox"/>
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Abstract: A power management device providing a power amplifier with power supply voltage is provided. The power management unit includes a parallel-hybrid amplitude modulator apparatus having a linear part configured to track frequency components of an input signal above a determined threshold frequency and a switching part arranged in parallel with the linear part and configured to track frequency components of the input signal below the determined threshold frequency. Additionally, the power management unit includes a current sensing and controlling part configured to determine the level of a direct current component at an output of the linear part and control the switching part to produce an output signal compensating for the direct current component at the output of the linear part to decrease the absolute level of the direct current at the output of the linear part.

MainClaim: A parallel-hybrid amplitude modulator apparatus, comprising: an interface configured to receive an input signal; a linear part configured to track frequency components of the input signal above a determined threshold frequency; a switching part arranged in parallel with the linear part and configured to track frequency components of the input signal below the determined threshold frequency; and a current sensing and controlling part configured to determine a level of a direct current component at an output of the linear part and control the switching part to produce an output signal compensating for the direct current component at the output of the linear part to decrease a absolute level of the direct current at the output of the linear part.

7,688,046	Power converters having varied switching frequencies	Apple Inc.	Li; Li Patel; Ronil D.	323	H02M	20050725	0	100%	<input type="checkbox"/>
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Abstract: Systems and techniques for performing power conversion operations in a portable device are used to convert an input voltage to a voltage at an output. The conversion operations use a two-stage conversion to convert the input voltage to a first voltage and to convert the first voltage to a second voltage. A switching frequency is altered with changes in the input voltage. The switching frequency is selected based on the input voltage level and/or to maintain a substantially consistent ripple at the output, which can correspond to the first voltage and/or the second voltage.

MainClaim: A method comprising: converting an input voltage from a battery to a voltage at an output using a two-stage conversion to convert the input voltage to a first voltage and to convert the first voltage to a second voltage; determining a decrease in the input voltage from the battery; and decreasing a switching frequency in the two-stage conversion based, at least in part, on the decreased input voltage from the battery to provide improved power efficiency relative to use of a constant switching frequency, wherein decreasing the switching frequency is performed in response to a detected change in the ripple at the output to maintain a substantially consistent ripple at the output.

2009/0315471	METHOD AND DEVICE FOR DRIVING A CIRCUIT ELEMENT	NOKIA CORPORATION	Rowland; Barry	315	H05B	20061228	1	93%	<input type="checkbox"/>
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Abstract: Light emitting diodes (LEDs) are commonly used to backlight liquid crystal display screens for mobile telephones and other display devices. It may be desirable for the LEDs to be gradually dimmed and this can result in noise being emitted by the components of the driving circuit, along with other undesirable effects. A device for driving a circuit element is provided, comprising a voltage source (6, 7, 8) for generating a pulse width modulated (PWM) output voltage signal, a capacitor (9) arranged to filter the PWM output voltage signal; and a switching element (13) characterised in that the switching element (13) is synchronised with the PWM output voltage signal such that when the PWM output voltage signal is at a minimum, the switching element (13) isolates the capacitor (9) and so prevents the capacitor (9) from discharging.

MainClaim: An apparatus comprising: a voltage source for generating a pulse width modulated (PWM) output voltage signal; a capacitor configured to filter the PWM output voltage signal; and a switching element configured to synchronise with the PWM output voltage signal such that when the PWM output voltage signal is at a minimum, the switching element substantially prevents the capacitor from discharging.

2008/0278221	POWER DISTRIBUTION CIRCUIT FOR USE IN A PORTABLE TELECOMMUNICATIONS DEVICE	Nokia Corporation	Rowland; Barry		G05F	20070511	2	93%	<input type="checkbox"/>
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Abstract: A power distribution circuit for use in a personal telecommunications device comprises a switched mode power supply configured to convert an input voltage and current from an energy source into an output voltage and current, a plurality of series-connected charge storage components arranged to be charged by the output voltage and a charge balancing circuit configured to substantially equalise voltages across each of the charge storage components, wherein the charge balancing circuit comprises a charge pump.

MainClaim: A power distribution circuit for use in a portable telecommunications device comprising: a switched mode power supply configured to convert an input voltage and current from an energy source into an output voltage and current; a plurality of series-connected charge storage components arranged to be charged by the output voltage; a charge balancing circuit comprising a charge pump configured to substantially equalise voltages across each of the charge storage components.

5,420,493	Power supply and battery charger	Apple Computer, Inc.	Hargadon; Andrew Young; Steven J. Tonomura; Kihachiro Wallgren; Markus Gurries; Mark	320	H01M	19920630	0	100%	<input type="checkbox"/>
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Abstract: An integrated AC adapter and battery charger is disclosed. The apparatus comprises an AC adapter unit for converting AC power to a DC power and a battery charging apparatus coupled to the AC adapter unit for charging a battery pack. The battery charging apparatus further comprises a microcontroller for sensing the condition of the battery pack or tacks being charged, a memory for storing the proper charging profile for a number of different types of battery packs, and a charging current generator capable of generating a varying charging current based on the microcontroller's determination of the battery's

condition and the charging profile stored in the memory.

MainClaim: A method for charging a battery pack having a first memory for indicating a multiplicity of battery identification data comprising at least a serial number identifying the battery pack, the method comprising the steps of:

inserting the battery pack into a battery charger further coupled to a computer, said battery charger comprising at least a controller, a second memory for storing battery identification data corresponding to a multiplicity of known battery packs, and a charging current generator;

reading the battery identification data of said battery pack from said first memory with the controller;

determining whether the battery pack inserted in said battery charger is one of said known battery packs by comparing said battery identification data read from the battery pack against said battery identification data stored in said battery charger;

reading via said controller from the second memory at least one charging profile corresponding to the battery identification data read from said first memory,

and

charging the battery pack with an electrical current according to the charging profile by varying the electrical current produced by the charging current generator.

6,242,888	Optimization of mobile station battery charging with a two slot charger by sharing a charging period	Nokia Mobile Phones	Cerf; Patrice	320	H02J	20000530	1	92%	<input type="checkbox"/>
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Abstract: A battery charging station includes a first charging circuit for charging a first battery, a second charging circuit for charging a second battery and circuitry that is responsive to a pulse width modulated signal that defines a plurality of repeating charging periods, for selectively allocating, during a single one of the charging periods, battery charging energy first to one of the first charging circuit or the second charging circuit, and then to the other charging circuit. The PWM signal is preferably received from an external battery charging circuit associated with the first battery, and during a single one of the charging periods the battery charging energy is applied first to the first charging circuit and then, if at least one criteria is met, to the second charging circuit. The at least one criteria can include an ability to develop a minimum charging voltage to the second battery during the amount of time remaining within the current charging period, after applying charging energy to the first battery. The first battery may be installed within a device, such as a cellular telephone or a personal communicator, and the PWM signal is received from a battery charging circuit installed within the device and the second battery is located within a (spare) battery pack. During a single one of the charging periods the battery charging energy is applied first to the first charging circuit for recharging the first battery and then is selectively applied to the second charging circuit for recharging the second battery.

MainClaim: A battery charging station, comprising:

a first charging circuit for charging a first battery;

a second charging circuit for charging a second battery; and

circuitry, responsive to a pulse width modulated (PWM) signal that defines a plurality of repeating charging periods, for selectively allocating, during a single one of the charging periods, battery charging energy first to one of the first charging circuit or the second charging circuit, and then to the other charging circuit.

5,559,683	Flyback switching power supply with bootstrapped gate drive	Apple Computer, Inc.	Schoenwald; David S.	363	H02M	19940930	0	100%	<input type="checkbox"/>
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Abstract: Method and apparatus for providing bootstrapped gate drive voltage in a flyback switching power supply. Switching transients and ringing caused by leakage inductance and capacitance in the flyback transformer are captured and used to provide a boosted gate drive voltage for the flyback switch, resulting in lower on resistance and lower switching losses.

MainClaim: In a switching power supply having an input terminal, a common terminal, a controller, a transformer primary having a top primary winding lead and a bottom primary winding lead, the top primary winding lead connected to the input terminal, a switch controlled by the controller, the switch connected between the bottom primary winding lead and common terminal, an improved drive voltage generator comprising:

a series diode connected to the junction of the bottom primary winding lead and the switch;

a capacitor connected between the output of the series diode and common; and

a voltage clamp connected to the output of the series diode, the voltage clamp providing a bootstrapped voltage rising to a voltage higher than the voltage at the input terminal, the bootstrapped voltage being used to drive the switch.

6,696,772	Synchronous rectification	Nokia Corporation	Nieminen; Pentti	307	H02J	20020612	4	96%	<input type="checkbox"/>
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Abstract: A direct-current converter converts an input voltage into an output voltage. It has and which comprises an operating voltage source, a power transformer having a primary side and secondary side, an input voltage source connected to the power transformer, at least one first power switch disposed on the primary side, and at least one second power switch disposed on the secondary side and rectifying the output voltage. The direct-current converter also has a regulating circuit, which is connected to the first power switch and the second power switch to control the timing of their switching functions, and an auxiliary power source arranged to supply power to the regulating circuit and connected to the operating voltage.

MainClaim: A direct-current converter which converts an input voltage into an output voltage, comprising:

a power transformer having a primary side and a secondary side,

an input voltage source connected to said power transformer, at least one first power switch disposed on said primary side, and at least one second power switch disposed on said secondary side and serving to rectify the output voltage,

a regulating circuit, which is connected to said first power switch and to said second power switch to control the timing of their switching action, and

an auxiliary power source, which has been arranged to supply power to said regulating circuit and produce an output voltage.

6,356,468	Arrangement for limiting starting current in a power supply	Nokia Networks Oy	Havukainen; Matti Riihimäki; Juha	363	H02M	20010517	3	95%	<input type="checkbox"/>
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Abstract: The invention disclosed here relates to a method and arrangement for limiting the starting current in a switching power supply. As the operating voltage is switched on in the power supply an uncharged capacitor (C_1) in the power supply represents a short circuit, generating a large starting current which is limited by a limiting element (16) to a desired value. To ensure uninterrupted operation of the switching power supply the limiting element (16) should be bypassed as soon as possible after the switching-on of the operating voltage. Therefore, in parallel with the limiting element (16) there is provided a bypass unit (14) via which the bypass current can be conducted. The limiting element bypass unit (14) is controlled by a control signal which is generated by means of a capacitive voltage divider circuit from the primary voltage.

MainClaim: A method for limiting the starting current in a switching power supply in which

the starting current generated in connection with the charging of a capacitor (C_1) in the switching power supply is limited by a limiting element (16), and

the limiting element (16) is bypassed via a limiting element bypass unit (14) connected in parallel with the limiting element (16) after the operating voltage of the switching power supply has been switched on, when the power supply has started,

characterized in that

a control signal is generated, using capacitive voltage division, from the voltage of a primary winding in a switching transformer, and

the limiting element bypass unit (14) is controlled by means of said control signal.

5,657,211	Method and circuit for controlling the output characteristics of a switched-mode power supply	Nokia Technology GmbH	Brockmann; Hans-Jürgen	363	H02M	19960521	3	93%	<input type="checkbox"/>
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Abstract: The invention relates to a method and a circuit to control the output voltage and current of a switched-mode power supply. In order to restrict the output current, a voltage value proportional to the primary current of a switched-mode power supply is measured and compared to a variable reference voltage U_{ext} the value of which is determined by the total effect of the constant charging current of a capacitor C_{ext} and a discharge circuit operating in step with the secondary diode of the power supply. If the voltage value proportional to the primary current is bigger than said reference voltage, the switching pulses of the primary current switch are shortened. In order to restrict the output voltage, an image voltage is generated for the secondary voltage of the power supply transformer which is filtered and rectified and combined with the aforementioned reference voltage in order to produce pulse-width-modulated switching pulses of the primary current switch.

MainClaim: A circuit to control the output current and output voltage in a switched-mode power supply that comprises a transformer (T1) equipped with primary and secondary windings (11, 12, 13) through which power is transferred from the primary to the secondary, and a first switching element (Q1) on the primary side to interrupt the primary current (I_p) flowing through the primary winding (11) of said transformer, which circuit comprises on the primary side

a control circuit (F1) to regulate the output voltage of the power supply by means of pulse width modulation by adjusting the pulse ratio of the switching pulses of said first switching element (Q1),

means (14, S1, R_s , C_{ext}) for producing a first reference voltage (U_{ext}), and

means (D2, R2, C2, I_a , R5, D3, C3, C4) for producing a first voltage signal (U_b), characterized in that it further comprises on the primary side means (R11-R14) for producing a combination of said first reference voltage (U_{ext}) and first voltage signal (U_b) and for taking said combination to said control circuit (F1) in order to produce said switching pulses.

5,949,160	System and method for double fault protection within a digital camera device	Apple Computer, Inc.	Anderson; Eric C. Fullam; Scott F.	307	H01H	19961008	0	100%	<input type="checkbox"/>
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Abstract: The invention comprises a battery coupled to a power bus, an external power connector coupled to the power bus for receiving an external power plug, and two switching devices for disconnecting the battery from the power bus when the external power plug is coupled to the connector. The battery supplies power to the camera unless the external power plug is coupled to the connector. Upon coupling of the external power plug to the connector, the two switching devices, which are positioned in series between the negative terminal of the battery and the system ground, are opened. The opening of the two switching devices disconnects the battery from the power bus and connector to prevent damage which could be caused by applying an externally supplied voltage from the external power plug across the positive and negative terminals of the battery.

MainClaim: A system for providing double fault protection, comprising:

a battery for generating an internal supply voltage, said battery being coupled to a power bus and a plurality of diodes for voltage clamping said power bus;

an external power connector, coupled to said power bus, for receiving an external power plug; and

first and second switching devices connected in series from said battery from said power bus when said external power plug is inserted.

2009/0097182	Circuitry protection arrangement	Nokia Corporation	Saarinen; Pertti	361	H02H	20071016	1	93%	<input type="checkbox"/>
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Abstract: A circuit and a method are provided for protecting sensitive circuitry from over voltage and over current during a double fault situation. The circuit may be used in a portable electronic device, and may include an over voltage protection component and an over current protection component. The over voltage protection component may be coupled across power supply inputs of a load of the portable electronic device. The over current protection component is configured in the circuit to provide over current protection to the load of the portable electronic device at least when the over current protection component provides over current protection to the over voltage protection component.

MainClaim: A portable device comprising a circuit, wherein the circuit comprises: a first component configured to be coupled across power supply inputs of a load, said power supply inputs configured for receipt of power from an external power source, said first component configured to provide over voltage protection for said load; and a second component coupled to the first component and configured to be coupled to said load, said second component configured to provide over current protection for said load and for said first component, wherein said second component provides over current protection to said load at least when the second component provides over current protection to said first component.

5,572,095	Method and apparatus for driving deflection and high voltage stages in a video display	Apple Computer, Inc.	Krause; Peter	315	H01J	19950721	0	100%	<input type="checkbox"/>
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Abstract: The present invention, generally speaking, provides an improved base drive arrangement for scan and/or EHT output stages in a television or video display monitor. In accordance with one aspect of the invention, by adding just a few components to an existing main base drive circuit, two power transistors may be driven, e.g. a scan output transistor and an EHT output transistor. The two power transistors are switched at the same time, allowing pulse width modulators of the scan and EHT circuits to operate on a common time base. Switching of two power transistors at the same time would usually require a quite complicated design to offset the different storage times of the two devices, thereby achieving high performance but at a considerable cost premium. The base drive circuit of the invention achieve substantial synchronization of the two transistors at minimal cost. In accordance with another aspect of the invention, a base drive circuit uses a low DC supply voltage and a resistive element in series with the main current path in order to produce a more constant maximum base current over frequency.

MainClaim: For use in a video monitor, an apparatus comprising:

a first power transistor connected to power and ground voltages and having a first control electrode;

a second power transistor connected to power and ground voltages and having a second control electrode;

a signal comprising periodic retrace pulses for periodically switching off the first and second power transistors; and

a drive circuit coupled to said signal and to said first and second control electrodes, said circuit comprising:

means for providing a positive drive current to said first and second control electrodes;

means for causing a first negative drive current to flow from said first control electrode, producing a negative voltage at said first control terminal; and

means coupled to said first control electrode and said second control electrode of said second power transistor and responsive to said negative voltage for causing a second negative drive current to flow from said second control electrode.

6,356,468	Arrangement for limiting starting current in a power supply	Nokia Networks Oy	Havukainen; Matti Riihimäki; Juha	363	H02M	20010517	3	92%	<input type="checkbox"/>
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Abstract: The invention disclosed here relates to a method and arrangement for limiting the starting current in a switching power supply. As the operating voltage is switched on in the power supply an uncharged capacitor (C_1) in the power supply represents a short circuit, generating a large starting current which is limited by a limiting element (16) to a desired value. To ensure uninterrupted operation of the switching power supply the limiting element (16) should be bypassed as soon as possible after the switching-on of the operating voltage. Therefore, in parallel with the limiting element (16) there is provided a bypass unit (14) via which the bypass current can be conducted. The limiting element bypass unit (14) is controlled by a control signal which is generated by means of a capacitive voltage divider circuit from the primary voltage.

MainClaim: A method for limiting the starting current in a switching power supply in which

the starting current generated in connection with the charging of a capacitor (C_1) in the switching power supply is limited by a limiting element (16), and

the limiting element (16) is bypassed via a limiting element bypass unit (14) connected in parallel with the limiting element (16) after the operating voltage of the switching power supply has been switched on, when the power supply has started,

characterized in that

a control signal is generated, using capacitive voltage division, from the voltage of a primary winding in a switching transformer, and

the limiting element bypass unit (14) is controlled by means of said control signal.

4,130,862	DC Power supply	Apple Computer, Inc.	Holt; Frederick R.	363	H02M	19780201	0	100%	<input type="checkbox"/>
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Abstract: A direct current (DC) power supply of the single-ended flyback type particularly suited for providing power for integrated circuits is described. The power supply is self-exciting and thus does not employ an auxiliary drive or oscillator. The starting/restarting circuitry provides protection against faults. Because of this fault protection, a relatively simple over-voltage circuit is employed at the output of the supply. An additional primary winding is used to provide protection for no-load conditions.

MainClaim: A direct current power supply comprising:

a transformer having at least one primary winding and one secondary winding, one lead of said primary winding for coupling to a source of direct current;

a transistor having a collector, base, and emitter terminal, said collector terminal coupled to the other lead of said primary winding;

starting means for initiating oscillations such that power may be transferred through said transformer from said primary winding to said secondary winding, said starting means comprising a first resistor and first capacitor coupled to the emitter terminal of said transistor and charging means for charging said first capacitor, said starting circuit for controlling the flow of emitter current so as to initiate said oscillations without damaging said transistor;

rectification means coupled to said secondary winding for providing an output direct current potential;

whereby oscillations are initiated in said direct current power supply without damage to said supply during a fault condition.

6,356,468	Arrangement for limiting starting current in a power supply	Nokia Networks Oy	Havukainen; Matti Riihimaki; Juha	363	H02M	20010517	3	93%	<input type="checkbox"/>
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Abstract: The invention disclosed here relates to a method and arrangement for limiting the starting current in a switching power supply. As the operating voltage is switched on in the power supply an uncharged capacitor (C_1) in the power supply represents a short circuit, generating a large starting current which is limited by a limiting element (16) to a desired value. To ensure uninterrupted operation of the switching power supply the limiting element (16) should be bypassed as soon as possible after the switching-on of the operating voltage. Therefore, in parallel with the limiting element (16) there is provided a bypass unit (14) via which the bypass current can be conducted. The limiting element bypass unit (14) is controlled by a control signal which is generated by means of a capacitive voltage divider circuit from the primary voltage.

MainClaim: A method for limiting the starting current in a switching power supply in which

the starting current generated in connection with the charging of a capacitor (C_1) in the switching power supply is limited by a limiting element (16), and

the limiting element (16) is bypassed via a limiting element bypass unit (14) connected in parallel with the limiting element (16) after the operating voltage of the switching power supply has been switched on, when the power supply has started,

characterized in that

a control signal is generated, using capacitive voltage division, from the voltage of a primary winding in a switching transformer, and

the limiting element bypass unit (14) is controlled by means of said control signal.

7,688,267	Broadband antenna with coupled feed for handheld electronic devices	Apple Inc.	Hill; Robert J.	343	H01Q	20061106	0	100%	<input type="checkbox"/>
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Abstract: Broadband antennas and handheld electronic devices with broadband antennas are provided. A handheld electronic device may have a housing in which electrical components such as integrated circuits and a broadband antenna are mounted. The broadband antenna may have a ground element and a resonating element. The resonating element may have two arms of unequal length and may have a self-resonant element. The antenna may have a feed terminal connected to the self-resonant element and a ground terminal connected to the ground element. The self-resonant element may be near-field coupled to one of the arms of the resonating element. With one suitable arrangement, the self-resonant element may be formed using a conductive rectangular element that is not electrically shorted to the ground element or the arms of the resonating element. The antenna may operate over first and second frequency ranges of interest.

MainClaim: A handheld electronic device antenna, comprising: a ground element; a resonating element comprising a first arm having a first length, a second arm having a second length that is different than the first length, and a self-resonant element that is near-field coupled to the second arm, wherein the self-resonant element is not electrically shorted to the ground element; an antenna ground terminal connected to the ground element; and an antenna feed terminal connected to the self-resonant element.

2009/0005110	Using a conductive support of a speaker assembly as an antenna	Nokia Corporation	Ozden; Sinasi	455	H04M	20070629	4	94%	<input type="checkbox"/>
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Abstract: A speaker assembly is disclosed that includes a conductive support that provides mechanical support for the speaker assembly. The conductive support is configured to function as an antenna. A wireless device is disclosed that includes a speaker

assembly including a conductive support that provides mechanical support for the speaker assembly, and includes a transceiver coupled to the conductive support and configured to communicate radio frequency signals using the conductive support. A method is disclosed that includes providing a speaker assembly including a conductive support that provides mechanical support for the speaker assembly, and providing a transceiver operable to communicate radio frequency signals using the conductive support.

MainClaim: A speaker assembly comprising a conductive support that provides mechanical support for the speaker assembly, wherein the conductive support is configured to function as an antenna.

2010/0123633	APPARATUS AND METHOD OF PROVIDING AN APPARATUS	Nokia Corporation	OZDEN; Sinasi Cviko; Mirsad	343	H01Q	20091113	5	94%	<input type="checkbox"/>
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Abstract: An apparatus and method of providing an apparatus, the apparatus including a conductive cover portion defining at least a portion of an external surface of the apparatus; a feed element configured to capacitively couple radio circuitry to the conductive cover portion at a feed point; a ground plane galvanically connected to the conductive cover portion at a ground point; wherein the feed point and the ground point are separated along a length of the conductive cover portion and configure the conductive cover portion to resonate at a first resonant frequency so as to be operable as an antenna in a first frequency band and wherein the first resonant frequency of the conductive cover portion is controlled by the separation between the feed point and the ground point.

MainClaim: An apparatus comprising; a conductive cover portion defining at least a portion of an external surface of the apparatus; a feed element configured to capacitively couple radio circuitry to the conductive cover portion at a feed point; a ground plane galvanically connected to the conductive cover portion at a ground point; wherein the feed point and the ground point are separated along a length of the conductive cover portion and configure the conductive cover portion to resonate at a first resonant frequency so as to be operable as an antenna in a first frequency band and wherein the first resonant frequency of the conductive cover portion is controlled by the separation between the feed point and the ground point.

2008/0303723	Antenna system	Nokia Corporation	Bengtsson; Erik	343	H01Q	20070606	1	93%	<input type="checkbox"/>
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Abstract: A wireless electronic device is disclosed that includes one or more ground planes and an antenna electrically coupled to the one or more ground planes. The antenna is positioned adjacent to a portion of the one or more ground planes. The wireless electronic device includes a material placed in a position and having a dielectric constant selected to increase an effective electrical size of the one or more ground planes relative to the effective electrical size of the one or more ground planes without the material. Other wireless electronic devices and methods for forming the same are also disclosed.

MainClaim: A wireless electronic device comprising: at least one ground plane; an antenna electrically coupled to the at least one ground plane, the antenna positioned adjacent to a portion of the at least one ground plane; and a material placed in a position and having a dielectric constant selected to increase an effective electrical size of the at least one ground plane relative to the effective electrical size of the at least one ground plane without the material.

5,694,060	CMOS differential twisted-pair driver	Apple Computer, Inc.	Brunst; Roger Van Oprescu; Florin	326	H03F	19941213	0	100%	<input type="checkbox"/>
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Abstract: A CMOS differential twisted-pair driver which utilizes CMOS switches and current sources advantageously. No alternative power supply is required, the switches do not have to be low impedance and the device is low power. The preferred embodiment driver further limits signal overshoot and common mode energy. The signal transmission facility is bi-directional so an off state is provided. It is doubly terminated to provide for symmetry, improved bandwidth and reduces reflective signal noise. The double termination also provides for faster rise and fall times which reduces the systems sensitivity to receiver offset.

MainClaim: A CMOS twisted-pair signal driver responsive to CMOS level signals for coupling to a twisted-pair communication cable for signaling information, said signal driver comprising:

first signal current driving circuitry responsive to a first CMOS level signal logic state for propagating a first signal state over a twisted-pair cable, said first signal current driving circuitry including a terminating resistor through which a first current flows when said first signal state is propagating over said twisted pair cable; and

second signal current driving circuitry responsive to a second CMOS level signal logic state for propagating a second signal state over said twistedpair cable, said second current driving circuitry including the terminating resistor through which a second current flows when said second signal state is propagating over said twisted pair cable;

wherein said first and second signal states have approximately equal amplitudes with opposite sign.

7,519,334	Multi-mode I/O circuitry supporting low interference signaling schemes for high speed digital interfaces	Nokia Corporation	Ruha; Antti Ruotsalainen; Tarmo Tervaluoto; Jussi-Pekka	455	H04B	20011102	2	92%	<input type="checkbox"/>
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Abstract: A multi-mode I/O circuit or cell (10) is provided for transmitting and receiving data between ICs, where each IC contains at least one of the I/O circuits. Each data link includes transmitter circuitry (12) and receiver circuitry (14). The transmitter circuitry sends data to a receiver circuitry in another IC, and the receiver circuitry receives data from a transmitter circuitry in another IC. The I/O circuit is constructed with CMOS-based transistors (e.g., CMOS or BiCMOS) that are selectively interconnected together by a plurality of switches to operate as two single-ended, current or voltage mode links, or as a single differential current or voltage mode link. In the preferred embodiment the transmitter circuitry sends data to the receiver circuitry in another IC over a first pair of adjacently disposed conductors, and the receiver circuitry receives data from the transmitter circuitry in another IC over a second pair of adjacently disposed conductors. The transmitter circuitry and the receiver circuitry are selectively configured by the plurality of switches for operating in a double single-ended voltage mode link mode, a double single-ended current mode link mode, a mode defined by a single differential voltage mode link with a single-ended input drive, a mode defined by a single differential voltage mode link with a differential input drive, a mode defined by a single differential current mode link with a single-ended input drive mode, and a mode defined by a single differential current mode link with a differential input drive. A common I/O circuit may also be provided, and programmed into either the transmitter or the receiver circuit configuration.

MainClaim: A multi-mode Input/Output (I/O) circuit for transmitting and receiving data between integrated circuits (ICs), wherein each IC contains at least one of said I/O circuits, comprising at least one of transmitter circuitry or receiver circuitry, said transmitter circuitry configured to send data to another IC, and said receiver circuitry configured to receive data from another IC, said I/O circuit being constructed with CMOS-based transistors that are selectively interconnected together by switches to operate as two single-ended, current or voltage mode links, and as a single differential current or voltage mode link.

2008/0133799	Control and slow data transmission method for serial interface	Nokia Corporation	Voutilainen; Martti	710	G06F	20071128	1	92%	<input type="checkbox"/>
<p>Abstract: A scalable low voltage signaling (SLVS) serial interface structure is configured as a 0.4V NMOS totem-pole driver structure for both high speed differential signaling and slow speed single-ended signaling using the same 0.4V NMOS totem-pole driver structure. An un-terminated receiver (Rx) and a CMOS inverter comparator powered from a 0.4 volt supply, is used for receiving the slow speed single-ended 0-100 mega bits per second (Mbps) signaling in a data link. A terminated receiver (Rx) and a differential comparator powered from a 0.4 volt supply, is used for receiving the high speed differential 2 giga bits per second (Gbps) signaling in the data link.</p> <p>MainClaim: A module, comprising: a serial interface driver structure configured for both high speed differential signaling and for slow speed single-ended signaling, and a serial interface receiver structure arranged with a selectively connectable resistor termination at its input for receiving both the high speed differential signaling when the resistor termination is selectively connected to said receiver structure input, and for receiving the slow speed single-ended signaling when the resistor termination is selectively disconnected from said receiver structure input.</p>									
5,352,968	Battery charge state determination	Apple Computer, Inc.	Reni; Daniele Culbert; Michael F.	320	G01N	19920528	0	100%	<input type="checkbox"/>
<p>Abstract: Method and apparatus for accurately determining the charge state of a battery is disclosed. The charge state is derived from the battery voltage, which is corrected for errors introduced by temperature and series resistance. Error from series resistance is minimized by either making an open circuit voltage measurement, or by making a plurality of voltage measurements under known load conditions, calculating the series resistance from these measurements, and calculating an equivalent open circuit voltage, compensating for the voltage drop caused by the series resistance of the battery. Errors introduced by temperature induced shifts in battery voltage are corrected by reading the battery temperature and correcting the battery voltage to a reference temperature. The battery voltage corrected for temperature and series resistance effects is used to compute charge state by table look up or algebraically.</p> <p>MainClaim: The method of determining the charge state of a battery comprising the steps of:</p> <p>measuring the temperature of the battery;</p> <p>measuring the open circuit voltage of the battery;</p> <p>subtracting a reference temperature value from the measured battery temperature to form a temperature shift;</p> <p>multiplying the temperature shift by a temperature shift constant to form a temperature shift voltage;</p> <p>adding the temperature shift voltage to the open circuit battery voltage to form the compensated battery voltage; and</p> <p>computing the charge state of the battery from the compensated battery voltage.</p>									
5,460,901	Battery identification	Nokia Mobile Phones Limited	Syrjala; Markku	429	H01M	19930922	1	95%	<input type="checkbox"/>
<p>Abstract: A battery (1) has identification means for enabling an apparatus e.g. a radio telephone or a battery charger, connected to the battery to determine a plurality of battery parameters e.g. temperature and battery capacity using a single measurement, so that, for example, a battery charger can adopt the correct charging regime for the battery type. The identification means is provided by a constant current source (1) and one or more solid state components (D1-D3) having p-n junctions e.g. diodes or transistors coupled in series or in parallel. As the threshold voltage (V_D) of p-n junctions vary with temperature, and the number of components can be made to vary with battery type, by measuring the total voltage drop (V_o) across series connected components or current through parallel connected components which will vary with temperature and the number of components, a single signal can provide information on more than one battery parameter.</p> <p>MainClaim: A battery for use in an electrical apparatus, the battery comprising:</p> <p>a plurality of interconnected cells; and</p> <p>means, operably connected to the cells and variable in response to a first battery parameter, for providing a common identification signal indicative of the first battery parameter and a second independent battery parameter.</p>									
7,301,307	Method and apparatus to charge a battery using determination of battery load current	Nokia Corporation	Hansen; Stig Rafn Froding; Emil Jorgensen; Frank	320	H01M	20040625	3	92%	<input type="checkbox"/>
<p>Abstract: By determining charging current I_{char} and then subsequently utilising that determination of charging current I_{char} in relation to battery current I_{bat} and load current I_{load} as a result of operation of a phone or other electronic device it is possible periodically to adjust the necessary charging current in order to operate the device in terms of recharging the battery to a target charging voltage, as well as providing adequate electrical current for operation of the associated phone or other electronic device.</p> <p>MainClaim: A battery charging method for a portable hand held device, the method comprising applying a charging current across a battery for charging of the battery to attain a charging voltage and determination of load current by periodic interruption in application of the charging current whereby the charging current for the battery is adjusted towards a defined target value for the charging voltage between determinations of the load current for sustained charging of the battery despite variation in load current requirements.</p>									
2005/0285568	Battery charging method and apparatus therefor	Nokia Corporation	Hansen, Stig Rafn Froding, Emil Jorgensen, Frank	320	H02J	20040625	2	92%	<input type="checkbox"/>
<p>Abstract: By determining charging current I_{char} and then subsequently utilising that determination of charging current I_{char} in relation to battery current I_{bat} and load current I_{load} as a result of operation of a phone or other electronic device it is possible</p>									

periodically to adjust the necessary charging current in order to operate the device in terms of recharging the battery to a target charging voltage, as well as providing adequate electrical current for operation of the associated phone or other electronic device.

MainClaim: A battery charging method for a portable hand held device, the method comprising applying a charging current across a battery for charging of the battery to attain a charging voltage and determination of load current by periodic interruption in application of the charging current whereby the charging current for the battery is adjusted towards a defined target value for the charging voltage between determinations of the load current for sustained charging of the battery despite variation in load current requirements.

7,671,804	Tunable antennas for handheld devices	Apple Inc.	Zhang; Zhijun Caballero; Ruben	343	H01Q	20060905	0	100%	<input checked="" type="checkbox"/>
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Abstract: A compact tunable antenna for a handheld electronic device and methods for calibrating and using compact tunable antennas are provided. The antenna can have multiple ports. Each port can have an associated feed and ground. The antenna design can be implemented with a small footprint while covering a large bandwidth. The antenna can have a radiating element formed from a conductive structure such as a patch or helix. The antenna can be shaped to accommodate buttons and other components in the handheld device. The antenna may be connected to a printed circuit board in the handheld device using springs, pogo pins, and other suitable connecting structures. Radio-frequency switches and passive components such as duplexers and diplexers may be used to couple radio-frequency transceiver circuitry to the different feeds of the antenna. Antenna efficiency can be enhanced by avoiding the use of capacitive loading for antenna tuning.

MainClaim: A tunable multipart handheld electronic device patch antenna, comprising: a ground terminal; a substantially planar radiating element located above the ground terminal that is electrically connected to the ground terminal; and at least first and second antenna feeds, wherein the first antenna feed is electrically connected to the radiating element at a first location, wherein the second antenna feed is electrically connected to the radiating element at a second location that is different from the first location, wherein the first antenna feed and the ground terminal form a first antenna port through which antenna signals are transmitted and received, and wherein the second antenna feed and the ground terminal form a second antenna port through which antenna signals are transmitted and received.

2009/0061796	Antenna arrangement	Nokia Corporation	Arkko; Aimo Hallivuori; Juha	455	H01Q	20070827	1	94%	<input type="checkbox"/>
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Abstract: A multi-part, distributed antenna arrangement including: an antenna element as a first part; and a semiconductor chip as a second part, separated from the first part, wherein the semiconductor chip comprises integrated radio frequency circuitry and a coupling element for wirelessly coupling the integrated radio frequency circuitry with the antenna element.

MainClaim: A multi-part, distributed antenna arrangement comprising: an antenna element as a first part; and a semiconductor chip as a second part, galvanically separated from the first part, wherein the semiconductor chip comprises integrated radio frequency circuitry and a wireless coupling element for wirelessly coupling the integrated radio frequency circuitry with the antenna element.

2010/0123633	APPARATUS AND METHOD OF PROVIDING AN APPARATUS	Nokia Corporation	OZDEN; Sinasi Cviko; Mirsad	343	H01Q	20091113	5	94%	<input type="checkbox"/>
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Abstract: An apparatus and method of providing an apparatus, the apparatus including a conductive cover portion defining at least a portion of an external surface of the apparatus; a feed element configured to capacitively couple radio circuitry to the conductive cover portion at a feed point; a ground plane galvanically connected to the conductive cover portion at a ground point; wherein the feed point and the ground point are separated along a length of the conductive cover portion and configure the conductive cover portion to resonate at a first resonant frequency so as to be operable as an antenna in a first frequency band and wherein the first resonant frequency of the conductive cover portion is controlled by the separation between the feed point and the ground point.

MainClaim: An apparatus comprising; a conductive cover portion defining at least a portion of an external surface of the apparatus; a feed element configured to capacitively couple radio circuitry to the conductive cover portion at a feed point; a ground plane galvanically connected to the conductive cover portion at a ground point; wherein the feed point and the ground point are separated along a length of the conductive cover portion and configure the conductive cover portion to resonate at a first resonant frequency so as to be operable as an antenna in a first frequency band and wherein the first resonant frequency of the conductive cover portion is controlled by the separation between the feed point and the ground point.

2009/0005110	Using a conductive support of a speaker assembly as an antenna	Nokia Corporation	Ozden; Sinasi	455	H04M	20070629	4	94%	<input type="checkbox"/>
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Abstract: A speaker assembly is disclosed that includes a conductive support that provides mechanical support for the speaker assembly. The conductive support is configured to function as an antenna. A wireless device is disclosed that includes a speaker assembly including a conductive support that provides mechanical support for the speaker assembly, and includes a transceiver coupled to the conductive support and configured to communicate radio frequency signals using the conductive support. A method is disclosed that includes providing a speaker assembly including a conductive support that provides mechanical support for the speaker assembly, and providing a transceiver operable to communicate radio frequency signals using the conductive support.

MainClaim: A speaker assembly comprising a conductive support that provides mechanical support for the speaker assembly, wherein the conductive support is configured to function as an antenna.

5,254,928	Power management system for battery powered computers	Apple Computer, Inc.	Young; Steven J. Wallgren; Markus	320	H02J	19911001	0	100%	<input checked="" type="checkbox"/>
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Abstract: A power management system for a portable computer is disclosed. The system can determine which one of a plurality of battery packs has been coupled to the system. After determining the type of battery pack, the system recalls from storage the recommended charging pattern for the particular battery pack and begins to charge the battery at the recommended rate. The system's information is used during charging to determine if the battery pack is defective. When the computer is running off the battery pack, the charge counter measures the total amount of charge supplied to the computer and provides this information to the system. When the difference between the total amount of charge supplied to the computer and the total charge available from the battery reaches a predefined limit, the system indicates to the computer that a low-power situation exists and that the computer should prepare for a possible loss-of-power event.

MainClaim: A battery charging circuit with self-adjusting charging voltage levels, the circuit comprising:

first transformer means for converting an A.C. voltage to a D.C. voltage;

oscillator means coupled to the first transformer means for converting the D.C. voltage to a square wave of fixed amplitude but variable duty cycle;

second transformer means coupled to the oscillator means for converting the square wave to a sinusoidal wave, the amplitude of the sinusoidal wave varying directly with the duty cycle of the square voltage wave;

rectifier means coupled to the second transformer means and a battery, for converting the sinusoidal wave to a D.C. charging voltage; and

voltage comparator means having at least two inputs, a first input being coupled to an output of the rectifier means, a second input being coupled to a square wave generator, the output of the comparator means being coupled to the oscillator means, the comparator means decreasing the duty cycle of the oscillator means when the output of the comparator is high, the decrease in the duty cycle resulting in less voltage at the output of the second transformer means.

2005/0285568	Battery charging method and apparatus therefor	Nokia Corporation	Hansen, Stig Rafn Froding, Emil Jorgensen, Frank	320	H02J	20040625	2	94%	<input type="checkbox"/>
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Abstract: By determining charging current I_{char} and then subsequently utilising that determination of charging current I_{char} in relation to battery current I_{bat} and load current I_{load} as a result of operation of a phone or other electronic device it is possible periodically to adjust the necessary charging current in order to operate the device in terms of recharging the battery to a target charging voltage, as well as providing adequate electrical current for operation of the associated phone or other electronic device.

MainClaim: A battery charging method for a portable hand held device, the method comprising applying a charging current across a battery for charging of the battery to attain a charging voltage and determination of load current by periodic interruption in application of the charging current whereby the charging current for the battery is adjusted towards a defined target value for the charging voltage between determinations of the load current for sustained charging of the battery despite variation in load current requirements.

7,301,307	Method and apparatus to charge a battery using determination of battery load current	Nokia Corporation	Hansen; Stig Rafn Froding; Emil Jorgensen; Frank	320	H01M	20040625	3	94%	<input type="checkbox"/>
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Abstract: By determining charging current I_{char} and then subsequently utilising that determination of charging current I_{char} in relation to battery current I_{bat} and load current I_{load} as a result of operation of a phone or other electronic device it is possible periodically to adjust the necessary charging current in order to operate the device in terms of recharging the battery to a target charging voltage, as well as providing adequate electrical current for operation of the associated phone or other electronic device.

MainClaim: A battery charging method for a portable hand held device, the method comprising applying a charging current across a battery for charging of the battery to attain a charging voltage and determination of load current by periodic interruption in application of the charging current whereby the charging current for the battery is adjusted towards a defined target value for the charging voltage between determinations of the load current for sustained charging of the battery despite variation in load current requirements.

7,612,725	Antennas for handheld electronic devices with conductive bezels	Apple Inc.	Hill; Robert J. Schlub; Robert W. Caballero; Ruben	343	H01Q	20070621	0	100%	<input type="checkbox"/>
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Abstract: A handheld electronic device may be provided that contains wireless communications circuitry. The handheld electronic device may have a housing and a display. The display may be attached to the housing a conductive bezel. The handheld electronic device may have one or more antennas for supporting wireless communications. A ground plane in the handheld electronic device may serve as ground for one or more of the antennas. The ground plane and bezel may define an opening. A rectangular slot antenna or other suitable slot antenna may be formed from or within the opening. One or more antenna resonating elements may be formed above the slot. An electrical switch that bridges the slot may be used to modify the perimeter of the slot so as to tune the communications bands of the handheld electronic device.

MainClaim: A handheld electronic device, comprising: a housing having a planar surface with a periphery; a ground plane element mounted to the housing that has portions that define a slot; a conductive bezel that surrounds the periphery of the planar surface of the housing, that surrounds the slot in the ground plane element, and that is electrically connected to the ground plane element; and at least one antenna formed from the ground plane element and the slot.

2010/0123633	APPARATUS AND METHOD OF PROVIDING AN APPARATUS	Nokia Corporation	OZDEN; Sinasi Cviko; Mirsad	343	H01Q	20091113	5	94%	<input type="checkbox"/>
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Abstract: An apparatus and method of providing an apparatus, the apparatus including a conductive cover portion defining at least a portion of an external surface of the apparatus; a feed element configured to capacitively couple radio circuitry to the conductive cover portion at a feed point; a ground plane galvanically connected to the conductive cover portion at a ground point; wherein the feed point and the ground point are separated along a length of the conductive cover portion and configure the conductive cover portion to resonate at a first resonant frequency so as to be operable as an antenna in a first frequency band and wherein the first resonant frequency of the conductive cover portion is controlled by the separation between the feed point and the ground point.

MainClaim: An apparatus comprising; a conductive cover portion defining at least a portion of an external surface of the apparatus; a feed element configured to capacitively couple radio circuitry to the conductive cover portion at a feed point; a ground plane galvanically connected to the conductive cover portion at a ground point; wherein the feed point and the ground point are separated along a length of the conductive cover portion and configure the conductive cover portion to resonate at a first resonant frequency so as to be operable as an antenna in a first frequency band and wherein the first resonant frequency of the conductive cover portion is controlled by the separation between the feed point and the ground point.

2009/0160712	Apparatus and method	Nokia Corporation	Breiter; Richard Troelsen; Jens Pinto; Alexandre Nielsen; Bjarne	343	H01Q	20071221	5	94%	<input type="checkbox"/>
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Abstract: An apparatus including a first conductive cover portion defining an interior surface and an exterior surface of the apparatus; an antenna element, connected to a feed point and arranged to operate in at least a first resonant frequency band; a conductive element, positioned between the interior surface of the first conductive cover portion and the antenna element, and arranged to couple with the first conductive cover portion, wherein the combination of the conductive element and the first conductive cover portion are operable in a second resonant frequency band, different to the first resonant frequency band and are arranged to be contactlessly fed by the antenna element.

MainClaim: An apparatus comprising: a first conductive cover portion defining an interior surface and an exterior surface of the apparatus; an antenna element, connected to a feed point and arranged to operate in at least a first resonant frequency band; a conductive element, positioned between the interior surface of the first conductive cover portion and the antenna element, and arranged to couple with the first conductive cover portion, wherein the combination of the conductive element and the first conductive cover portion are operable in a second resonant frequency band, different to the first resonant frequency band and are arranged to be contactlessly fed by the antenna element.

2009/0005110	Using a conductive support of a speaker assembly as an antenna	Nokia Corporation	Ozden; Sinasi	455	H04M	20070629	4	93%	<input type="checkbox"/>
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Abstract: A speaker assembly is disclosed that includes a conductive support that provides mechanical support for the speaker assembly. The conductive support is configured to function as an antenna. A wireless device is disclosed that includes a speaker assembly including a conductive support that provides mechanical support for the speaker assembly, and includes a transceiver coupled to the conductive support and configured to communicate radio frequency signals using the conductive support. A method is disclosed that includes providing a speaker assembly including a conductive support that provides mechanical support for the speaker assembly, and providing a transceiver operable to communicate radio frequency signals using the conductive support.

MainClaim: A speaker assembly comprising a conductive support that provides mechanical support for the speaker assembly, wherein the conductive support is configured to function as an antenna.

5,418,478	CMOS differential twisted-pair driver	Apple Computer, Inc.	Van Brunt; Roger I Oprescu; Florin	326	H03K	19930730	0	100%	<input type="checkbox"/>
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Abstract: A CMOS differential twisted-pair driver which utilizes CMOS switches and current sources advantageously. No alternative power supply is required, the switches do not have to be low impedance and the device is low power. The preferred embodiment driver further limits signal overshoot and common mode energy. The signal transmission facility is bi-directional so an off state is provided. It is doubly terminated to provide for symmetry, improved bandwidth and reduces reflective signal noise. The double termination also provides for faster rise and fall times which reduces the systems sensitivity to receiver offset.

MainClaim: A CMOS twisted-pair signal driver responsive to CMOS level signals for coupled to a twisted-pair communication cable having first and second signal lines and an impedance, said signal driver comprising:

first signal driving circuitry coupled to receive a first CMOS level signal logic state and for propagating a first signal state over said twisted-pair cable;

second signal driving circuitry coupled to receive a second CMOS level signal logic state and for propagating a second signal state over said twisted pair cable;

tri-state control circuitry for generating a third signal state over said twisted-pair cable, said third signal state having approximately a zero amplitude; and

a terminating resistor coupled between said first and second signal lines, said terminating resistor approximately matching the impedance of the twisted pair cable;

said first signal driving circuitry comprising:

a first switch coupled to a voltage supply source equivalent to said first CMOS level signal, said first switch responsive to and closing upon receipt of said first CMOS level logic state by said signal driver;

a first transistor for performing a current source function coupled between said first switch and said first signal line of said twisted-pair cable;

a second transistor for performing a current source function coupled to said second signal line of said twisted-pair cable; and

a second switch coupled to ground and to said second transistor, said second switch responsive to and closing upon receipt of said first CMOS level logic state by said signal driver.

7,519,334	Multi-mode I/O circuitry supporting low interference signaling schemes for high speed digital interfaces	Nokia Corporation	Ruha; Antti I Ruotsalainen; Tarmo I Tervaluoto; Jussi-Pekka	455	H04B	20011102	2	92%	<input type="checkbox"/>
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Abstract: A multi-mode I/O circuit or cell (10) is provided for transmitting and receiving data between ICs, where each IC contains at least one of the I/O circuits. Each data link includes transmitter circuitry (12) and receiver circuitry (14). The transmitter circuitry sends data to a receiver circuitry in another IC, and the receiver circuitry receives data from a transmitter circuitry in another IC. The I/O circuit is constructed with CMOS-based transistors (e.g., CMOS or BiCMOS) that are selectively interconnected together by a plurality of switches to operate as two single-ended, current or voltage mode links, or as a single differential current or voltage mode link. In the preferred embodiment the transmitter circuitry sends data to the receiver circuitry in another IC over a first pair of adjacently disposed conductors, and the receiver circuitry receives data from the transmitter circuitry in another IC over a second pair of adjacently disposed conductors. The transmitter circuitry and the receiver circuitry are selectively configured by the plurality of switches for operating in a double single-ended voltage mode link mode, a double single-ended current mode link mode, a mode defined by a single differential voltage mode link with a single-ended input drive, a mode defined by a single differential voltage mode link with a differential input drive, a mode defined by a single differential current mode link with a single-ended input drive mode, and a mode defined by a single differential current

mode link with a differential input drive. A common I/O circuit may also be provided, and programmed into either the transmitter or the receiver circuit configuration.

MainClaim: A multi-mode Input/Output (I/O) circuit for transmitting and receiving data between integrated circuits (ICs), wherein each IC contains at least one of said I/O circuits, comprising at least one of transmitter circuitry or receiver circuitry, said transmitter circuitry configured to send data to another IC, and said receiver circuitry configured to receive data from another IC, said I/O circuit being constructed with CMOS-based transistors that are selectively interconnected together by switches to operate as two single-ended, current or voltage mode links, and as a single differential current or voltage mode link.

2003/0087671	Multi-mode I/O circuitry supporting low interference signaling schemes for high speed digital interfaces	Nokia Corporation	Ruha, Antti Ruotsalainen, Tarmo Tervaluoto, Jussi-Pekka	455	H04M	20011102	1	92%	<input type="checkbox"/>
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Abstract: A multi-mode I/O circuit or cell (10) is provided for transmitting and receiving data between ICs, where each IC contains at least one of the I/O circuits. Each data link includes transmitter circuitry (12) and receiver circuitry (14). The transmitter circuitry sends data to a receiver circuitry in another IC, and the receiver circuitry receives data from a transmitter circuitry in another IC. The I/O circuit is constructed with CMOS-based transistors (e.g., CMOS or BiCMOS) that are selectively interconnected together by a plurality of switches to operate as two single-ended, current or voltage mode links, or as a single differential current or voltage mode link. In the preferred embodiment the transmitter circuitry sends data to the receiver circuitry in another IC over a first pair of adjacently disposed conductors, and the receiver circuitry receives data from the transmitter circuitry in another IC over a second pair of adjacently disposed conductors. The transmitter circuitry and the receiver circuitry are selectively configured by the plurality of switches for operating in a double single-ended voltage mode link mode, a double single-ended current mode link mode, a mode defined by a single differential voltage mode link with a single-ended input drive, a mode defined by a single differential voltage mode link with a differential input drive, a mode defined by a single differential current mode link with a single-ended input drive mode, and a mode defined by a single differential current mode link with a differential input drive. A common I/O circuit may also be provided, and programmed into either the transmitter or the receiver circuit configuration.

MainClaim: A multi-mode Input/Output (I/O) circuit for transmitting and receiving data between integrated circuits (ICs), wherein each IC contains at least one of said I/O circuits, comprising at least one of transmitter circuitry or receiver circuitry, said transmitter circuitry sending data to receiver circuitry in another IC, and said receiver circuitry receiving data from transmitter circuitry in another IC, said I/O circuit being constructed with CMOS-based transistors that are selectively interconnected together by switches to operate as two single-ended, current or voltage mode links, or as a single differential current or voltage mode link.

7,595,759	Handheld electronic devices with isolated antennas	Apple Inc.	Schlub; Robert W. Hill; Robert J. Zavala; Juan Caballero; Ruben	343	H01Q	20070104	0	100%	<input type="checkbox"/>
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Abstract: Handheld electronic devices are provided that contain wireless communications circuitry having at least first and second antennas. An antenna isolation element reduces signal interference between the antennas, so that the antennas may be used in close proximity to each other. A planar ground element may be used as a ground by the first and second antennas. The first antenna may be formed using a hybrid planar-inverted-F and slot arrangement in which a planar resonating element is located above a rectangular slot in the planar ground element. The second antenna may be formed from an L-shaped strip. The planar resonating element of the first antenna may have first and second arms. The first arm may resonate at a common frequency with the second antenna and may serve as the isolation element. The second arm may resonate at approximately the same frequency as the slot portion of the hybrid antenna.

MainClaim: Wireless communications circuitry in a handheld electronic device comprising: first and second wireless transceiver circuits that transmit and receive radio-frequency signals; first and second transmission lines associated respectively with the first and second wireless transceiver circuits for conveying the radio frequency signals; first and second antennas, wherein the first antenna is connected to the first transmission line and wherein the second antenna is connected to the second transmission line; and an isolation element associated with the first antenna that resonates in a frequency band in which the second antenna operates and reduces interference between the first antenna and the second antenna during simultaneous antenna operation, wherein the first antenna comprises a hybrid planar-inverted-F and slot antenna and wherein the isolation element is formed as part of a planar-inverted-F resonating element in the hybrid planar-inverted-F and slot antenna.

2009/0005110	Using a conductive support of a speaker assembly as an antenna	Nokia Corporation	Ozden; Sinasi	455	H04M	20070629	4	95%	<input type="checkbox"/>
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Abstract: A speaker assembly is disclosed that includes a conductive support that provides mechanical support for the speaker assembly. The conductive support is configured to function as an antenna. A wireless device is disclosed that includes a speaker assembly including a conductive support that provides mechanical support for the speaker assembly, and includes a transceiver coupled to the conductive support and configured to communicate radio frequency signals using the conductive support. A method is disclosed that includes providing a speaker assembly including a conductive support that provides mechanical support for the speaker assembly, and providing a transceiver operable to communicate radio frequency signals using the conductive support.

MainClaim: A speaker assembly comprising a conductive support that provides mechanical support for the speaker assembly, wherein the conductive support is configured to function as an antenna.

2010/0123633	APPARATUS AND METHOD OF PROVIDING AN APPARATUS	Nokia Corporation	OZDEN; Sinasi Cviko; Mirsad	343	H01Q	20091113	5	95%	<input type="checkbox"/>
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Abstract: An apparatus and method of providing an apparatus, the apparatus including a conductive cover portion defining at least a portion of an external surface of the apparatus; a feed element configured to capacitively couple radio circuitry to the conductive cover portion at a feed point; a ground plane galvanically connected to the conductive cover portion at a ground point; wherein the feed point and the ground point are separated along a length of the conductive cover portion and configure the conductive cover portion to resonate at a first resonant frequency so as to be operable as an antenna in a first frequency band and wherein the first resonant frequency of the conductive cover portion is controlled by the separation between the feed point and the ground point.

MainClaim: An apparatus comprising; a conductive cover portion defining at least a portion of an external surface of the apparatus; a feed element configured to capacitively couple radio circuitry to the conductive cover portion at a feed point; a ground plane galvanically connected to the conductive cover portion at a ground point; wherein the feed point and the ground point are separated along a length of the conductive cover portion and configure the conductive cover portion to resonate at a

first resonant frequency so as to be operable as an antenna in a first frequency band and wherein the first resonant frequency of the conductive cover portion is controlled by the separation between the feed point and the ground point.

2009/0160712	Apparatus and method	Nokia Corporation	Breiter; Richard Troelsen; Jens Pinto; Alexandre Nielsen; Bjarne	343	H01Q	20071221	5	93%	<input type="checkbox"/>
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Abstract: An apparatus including a first conductive cover portion defining an interior surface and an exterior surface of the apparatus; an antenna element, connected to a feed point and arranged to operate in at least a first resonant frequency band; a conductive element, positioned between the interior surface of the first conductive cover portion and the antenna element, and arranged to couple with the first conductive cover portion, wherein the combination of the conductive element and the first conductive cover portion are operable in a second resonant frequency band, different to the first resonant frequency band and are arranged to be contactlessly fed by the antenna element.

MainClaim: An apparatus comprising: a first conductive cover portion defining an interior surface and an exterior surface of the apparatus; an antenna element, connected to a feed point and arranged to operate in at least a first resonant frequency band; a conductive element, positioned between the interior surface of the first conductive cover portion and the antenna element, and arranged to couple with the first conductive cover portion, wherein the combination of the conductive element and the first conductive cover portion are operable in a second resonant frequency band, different to the first resonant frequency band and are arranged to be contactlessly fed by the antenna element.

5,666,006	Circuit offering sequential discharge and simultaneous charge for a multiple battery system and method for charging multiple batteries	Apple Computer, Inc.	Townsley; David B. Blanc; James J.	307	H02J	19940512	0	100%	<input type="checkbox"/>
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Abstract: A circuit enabling simultaneous independent charging, sequential charging and sequential discharging of multiple batteries within a computer system and a method for charging the batteries independent of their technology or chemistry. Each battery of the multiple batteries is incorporated within a battery pack. The battery pack includes at least the battery, but may also include a module for supplying information regarding the battery to a system micro-controller unit to assist the system micro-controller unit in charging of the battery. For such battery packs, the method for charging each battery, regardless of its technology or chemistry and without hardware modification or software downloading of information, includes a monitoring phase, a charging phase and an error phase.

MainClaim: A circuit for at least supplying power to a plurality of components through a main power line within a computer system, said circuit comprising:

a first battery selectively chosen to sequentially discharge its power to said plurality of components through a first battery power output line, and alternatively, to receive power to charge said first battery from a first battery power input line;

a second battery selectively chosen to sequentially discharge power to said plurality of components through a second battery power output line, and alternatively, to receive power to charge said second battery from a second battery power input line;

a first switch; and

a first power line selectively coupled to one of the main power line, said first battery power output line and said second battery power output line by enabling at least said first switch, said first power output line provides power to said plurality of components when coupled thereto, charges said first battery when coupled to said first battery power output line, and alternatively charges said second battery when coupled to said second battery power output line.

6,157,172	Charging method and device	Nokia Mobile Phones Limited	Niemitalo; Paavo Siponen; Sakari	320	H01M	19990611	2	93%	<input type="checkbox"/>
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Abstract: A start up charger and a method of providing an initial charge for a significantly depleted battery of a cellular phone is described in which the charging switch is cycled to provide a pulsed charge to the battery until said battery is charged to the operational voltage threshold of the cellular telephone controller.

MainClaim: A battery charging system for a cellular phone, said cellular phone having a controller constructed to operate the battery charging system when enabled, said controller having a predetermined minimum operating voltage threshold, said charging system comprising:

a charger for connection to the cellular phone to provide a charging current to the battery when the battery is depleted;

a charger switch connected to the charger and to the controller to actuate the charger in response to a signal from the controller when the voltage of the battery falls to an undesirable level;

a comparator connected to sense battery voltage and compare said voltage to said voltage threshold and to enable said controller when said battery voltage is equal to or in excess of said voltage threshold; and

a start up charger module comprising a pulse generator connected to the charger switch to cycle said switch on and off when said start up charger is enabled, said start up charger connected to said comparator and enabled thereby when said battery voltage is depleted below said threshold value.

6,169,388	Charging method and device	Nokia Mobile Phones Limited	Niemitalo; Paavo Siponen; Sakari	320	H02J	20000112	2	93%	<input type="checkbox"/>
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Abstract: A start up charger and a method of providing an initial charge for a significantly depleted battery of a cellular phone is described in which the charging switch is cycled to provide a pulsed charge to the battery until said battery is charged to the operational voltage threshold of the cellular telephone controller.

MainClaim: A battery charging system for a communication device, said device having a controller constructed to operate the battery charging system when enabled, said controller having a predetermined minimum operating voltage threshold, said

charging system comprising:

a charger for connection to the communication device to provide a charging current to the battery when the battery is depleted;

a charger switch connected to the charger and to the controller to actuate the charger in response to a signal from the controller when the voltage of the battery falls to an undesirable level;

a comparator connected to sense battery voltage and compare said voltage to said voltage threshold and to enable said controller when said battery voltage is equal to or in excess of said voltage threshold; and

a start up charger module comprising a pulse generator connected to the charger switch to cycle said switch on and off when said start up charger is enabled, said start up charger connected to said comparator and enabled thereby when said battery voltage is depleted below said threshold value.

2009/0267570	Apparatus for providing boot-up capability signals and associated methods	Nokia Corporation	Paunonen; Tommi	320	H02J	20080428	1	92%	<input type="checkbox"/>
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Abstract: An apparatus for providing a boot-up capability signal for a portable electronic device, the apparatus configured to determine an amount of charge provided to a battery of the device by a charging process, based around one or more powering events, in order to provide for the boot-up capability signal.

MainClaim: An apparatus for providing a boot-up capability signal for a portable electronic device, the apparatus configured to determine an amount of charge provided to a battery of the device by a charging process, based around one or more powering events, in order to provide for the boot-up capability signal.

7,551,142	Hybrid antennas with directly fed antenna slots for handheld electronic devices	Apple Inc.	Zhang; Zhijun Hill; Robert J. Schlub; Robert W. Zavala; Juan Caballero; Ruben	343	H01Q	20071213	0	100%	<input type="checkbox"/>
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Abstract: A handheld electronic device is provided that contains wireless communications circuitry. The wireless communications circuitry may include antennas. An antenna in the handheld electronic device may have a ground plane element. A slot antenna resonating element may be formed from an opening in the ground plane element. A near-field-coupled antenna resonating element may be electromagnetically coupled to the slot antenna resonating element through electromagnetic near-field coupling. A transmission line may directly feed the slot antenna resonating element. The transmission line may indirectly feed the near-field-coupled antenna resonating element through the slot antenna resonating element. The slot antenna resonating element may have one or more associated resonant frequencies and the near-field-coupled antenna resonating element may have one or more associated resonant frequencies. The antenna may be configured to cover one or more distinct communications bands.

MainClaim: A handheld electronic device antenna that is coupled to a transmission line, comprising: a ground plane antenna element; a slot antenna resonating element formed from an opening in the ground plane antenna element; antenna terminals adjacent to the slot antenna resonating element with which the transmission line directly feeds the slot antenna resonating element; and a near-field-coupled antenna resonating element that is indirectly fed by the transmission line through near field coupling with the directly fed slot antenna resonating element, wherein the near-field-coupled antenna resonating element has multiple branches each of which is associated with a separate antenna resonant frequency.

2010/0123633	APPARATUS AND METHOD OF PROVIDING AN APPARATUS	Nokia Corporation	OZDEN; Sinasi Cviko; Mirsad	343	H01Q	20091113	5	93%	<input type="checkbox"/>
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Abstract: An apparatus and method of providing an apparatus, the apparatus including a conductive cover portion defining at least a portion of an external surface of the apparatus; a feed element configured to capacitively couple radio circuitry to the conductive cover portion at a feed point; a ground plane galvanically connected to the conductive cover portion at a ground point; wherein the feed point and the ground point are separated along a length of the conductive cover portion and configure the conductive cover portion to resonate at a first resonant frequency so as to be operable as an antenna in a first frequency band and wherein the first resonant frequency of the conductive cover portion is controlled by the separation between the feed point and the ground point.

MainClaim: An apparatus comprising;a conductive cover portion defining at least a portion of an external surface of the apparatus;a feed element configured to capacitively couple radio circuitry to the conductive cover portion at a feed point;a ground plane galvanically connected to the conductive cover portion at a ground point;wherein the feed point and the ground point are separated along a length of the conductive cover portion and configure the conductive cover portion to resonate at a first resonant frequency so as to be operable as an antenna in a first frequency band and wherein the first resonant frequency of the conductive cover portion is controlled by the separation between the feed point and the ground point.

2009/0160712	Apparatus and method	Nokia Corporation	Breiter; Richard Troelsen; Jens Pinto; Alexandre Nielsen; Bjarne	343	H01Q	20071221	5	92%	<input type="checkbox"/>
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Abstract: An apparatus including a first conductive cover portion defining an interior surface and an exterior surface of the apparatus; an antenna element, connected to a feed point and arranged to operate in at least a first resonant frequency band; a conductive element, positioned between the interior surface of the first conductive cover portion and the antenna element, and arranged to couple with the first conductive cover portion, wherein the combination of the conductive element and the first conductive cover portion are operable in a second resonant frequency band, different to the first resonant frequency band and are arranged to be contactlessly fed by the antenna element.

MainClaim: An apparatus comprising:a first conductive cover portion defining an interior surface and an exterior surface of the apparatus;an antenna element, connected to a feed point and arranged to operate in at least a first resonant frequency band;a conductive element, positioned between the interior surface of the first conductive cover portion and the antenna element, and arranged to couple with the first conductive cover portion,wherein the combination of the conductive element and the first conductive cover portion are operable in a second resonant frequency band, different to the first resonant frequency band and are arranged to be contactlessly fed by the antenna element.

Nielsen; Bjarne |

2009/0160713	Apparatus, methods and computer programs for wireless communication	Nokia Corporation	Breiter; Richard Troelsen; Jens Pinto; Alexandre	343	H01Q	20080610	1	92%	<input type="checkbox"/>
Abstract: An apparatus including a cover defining an exterior surface of the apparatus and including a first conductive cover portion; an antenna, connected to a feed point and configured to operate in at least a first resonant frequency band; a first conductive member; a second conductive member; and wherein the first and second conductive members are configured to couple with the first conductive cover portion, the combination of the first and second conductive members and the first conductive cover portion are operable in a second resonant frequency band, different to the first resonant frequency band and are configured to be contactlessly fed by the antenna. MainClaim: An apparatus comprising: a cover defining an exterior surface of the apparatus and including a first conductive cover portion; an antenna, connected to a feed point and configured to operate in at least a first resonant frequency band; a first conductive member; a second conductive member; and wherein the first and second conductive members are configured to couple with the first conductive cover portion, the combination of the first and second conductive members and the first conductive cover portion are operable in a second resonant frequency band, different to the first resonant frequency band and are configured to be contactlessly fed by the antenna.									
7,705,795	Antennas with periodic shunt inductors	Apple Inc.	Chiang; Bing Springer; Gregory Allen Kough; Douglas B. Ayala; Enrique McDonald; Matthew Ian	343	H01Q	20071218	0	100%	<input type="checkbox"/>
2008/0129612	Antenna for mobile communication terminals	Nokia Corporation	Wang; Hanyang Williams; Stuart	343	H01Q	20071221	1	96%	<input type="checkbox"/>
Abstract: An antenna comprising: a first substantially planar ground plate; a first substantially planar resonator positioned in a plane substantially parallel to the first ground plate; a second substantially planar ground plate positioned in a plane substantially parallel to the first ground plate; two or more connectors for electrically connecting the second ground plate to ground; and one or more connectors for electrically connecting the first resonator to the second ground plate; wherein the first resonator and the second ground plate are connected to at least one of receiver means and transmitter means by antenna feeding means. MainClaim: An antenna comprising: a first substantially planar ground plate; a first substantially planar resonator positioned in a plane substantially parallel to the first ground plate; a second substantially planar ground plate positioned in a plane substantially parallel to the first ground plate; two or more connectors electrically connecting the second ground plate to the first ground plate; and one or more connectors electrically connecting the first resonator to the second ground plate; wherein: the first resonator and the second ground plate are connected to at least one of a receiver and a transmitter by an antenna feed; the first resonator and the second ground plate each have similar dimensions; the first resonator is substantially aligned with the second ground plate; and the second ground plate is positioned between the first ground plate and the first resonator.									
7,439,916	Antenna for mobile communication terminals	Nokia Corporation	Wang; Hanyang Williams; Stuart	343	H01Q	20071221	1	96%	<input type="checkbox"/>
Abstract: An antenna comprising: a first substantially planar ground plate; a first substantially planar resonator positioned in a plane substantially parallel to the first ground plate; a second substantially planar ground plate positioned in a plane substantially parallel to the first ground plate; two or more connectors for electrically connecting the second ground plate to ground; and one or more connectors for electrically connecting the first resonator to the second ground plate; wherein the first resonator and the second ground plate are connected to at least one of receiver means and transmitter means by antenna feeding means. MainClaim: An antenna comprising: a first substantially planar ground plate; a first substantially planar resonator positioned in a plane substantially parallel to the first ground plate; a second substantially planar ground plate positioned in a plane substantially parallel to the first ground plate; two or more connectors electrically connecting the second ground plate to the first ground plate; and one or more connectors electrically connecting the first resonator to the second ground plate; wherein: the first resonator and the second ground plate are connected to at least one of a receiver and a transmitter by an antenna feed; the first resonator and the second ground plate each have similar dimensions; the first resonator is substantially aligned with the second ground plate; and the second ground plate is positioned between the first ground plate and the first resonator.									
7,705,791	Antenna having a plurality of resonant frequencies	Nokia Corporation	Ollikainen; Jani	343	H01Q	20080505	1	94%	<input type="checkbox"/>
5,357,214	Methods and apparatus for microphone preamplification	Apple Computer, Inc.	Heyl; Lawrence F. Farrar; Douglas M.	330	H03F	19930603	0	100%	<input type="checkbox"/>

Abstract: Preamplifying circuitry amplifies sound signals for input into a computer system. A first stage common-emitter amplifier provides high-gain amplification of the input signal, while a second stage amplifier comprising an operational amplifier is suitable for driving a cable with the amplified sound signal. A low-cost constant voltage source comprising a diode and an operational amplifier supplies a voltage reference to both amplifier stages with a very high rejection of system noise. The circuitry and methods of the present invention provide a low-cost, easily manufactured preamplifier suitable for sound input in desktop computing devices.

MainClaim: Apparatus for pre-amplification of an electronic signal from a microphone comprising:

- a microphone input for the electronic signal;
- a voltage reference source comprising
- a first operational amplifier having two inputs and an output,
- a diode coupled to a first input of the first operational amplifier, and

a first capacitor coupled across an electrical connection from the output and a second input of the first operational amplifier;

a common emitter amplifier coupled to the microphone input and the voltage reference source; and

a line driver amplifier coupled to the common emitter amplifier and the voltage reference source, the line driver amplifier having an output for a pre-amplified electronic signal.

2007/0297623	Apparatus and method to provide advanced microphone bias	Nokia Corporation	Kuiri; Tapio	381	H04R	20060626	1	92%	<input type="checkbox"/>
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Abstract: A circuit includes a differential amplifier having a first input for coupling to a first terminal of a microphone and a second input for coupling to a first terminal of a component having an impedance value that is substantially equal to an impedance value of the microphone, where a second terminal of the microphone and a second terminal of the component are coupled to circuit ground. The circuit further includes a first resistance having a first node coupled to a source of microphone bias voltage and a second node coupled to the first terminal of the microphone; and a second resistance having a first node coupled to the source of microphone bias voltage and a second node coupled to the first terminal of the component. Operation of the differential amplifier results in attenuating or suppressing common mode noise and interference present in the microphone bias voltage and in the common potential.

MainClaim: A circuit, comprising: a differential amplifier having a first input for coupling to a first terminal of a microphone and a second input for coupling to a first terminal of a component having an impedance value that is substantially equal to an impedance value of the microphone, where a second terminal of the microphone and a second terminal of the component are coupled to circuit ground; a first resistance having a first node coupled to a source of microphone bias voltage and a second node coupled to the first terminal of the microphone; and a second resistance having a first node coupled to the source of microphone bias voltage and a second node coupled to the first terminal of the component.

5,504,458	CMOS class AB amplifier for driving capacitive and resistive loads	Apple Computer, Inc.	Van Brunt; Roger I Oprescu; Florin	330	H03F	19940930	0	100%	<input type="checkbox"/>
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Abstract: The class AB amplifier is configured to provide low quiescent current while achieving high internal switching rates. The buffer is connected to a large external capacitance which provides external compensation. The amplifier includes an input stage which converts differential voltages to current. An output stage provides an output current and also provides a feedback current into the input stage. A biasing network provides voltage for biasing various nodes within the amplifier. Cross-coupling is provided within the output stage for achieving a low quiescent current. A pair of current limiting circuits, one for p-channel element and another for n-channel elements, is also provided.

MainClaim: An amplifier comprising:

an input stage for converting a differential between a pair of input voltages into a current, said input stage having p-channel and n-channel transistors providing a differential output;

an output stage for providing an output voltage, said output stage having first and second p-channel transistors, and first and second n-channel transistors; wherein

said p-channel transistor of said input stage, said first p-channel transistor of said output stage, said first n-channel transistor of said output stage, and said n-channel transistor of said input stage are connected in series between a high voltage source and a ground;

said second p-channel and n-channel transistors of said output stage are connected in series between said high voltage source and said ground; and

said first and second p-channel and n-channel transistors of said output stage are cross-coupled with a drain of said first p-channel transistor of said output stage connected to a gate of said second n-channel transistor of said output stage and with a drain of said first n-channel transistor of said output stage connected to a gate of said second p-channel transistor of said output stage; and wherein

sizes of said transistors are selected to provide a net amplification of an input differential voltage to said output voltage and to provide a stable quiescent output of about zero volts.

6,111,464	Amplifier having bias circuit self-compensating for VGS process variation and IDS aging	Nokia Networks Oy	Laureanti; Steven J.	330	H03F	19990723	1	94%	<input type="checkbox"/>
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Abstract: An LDMOS RF amplifier having a bias voltage generated through feedback around an LDMOS sense transistor has a sense transistor, a current sensing circuit that monitors current in the sense transistor, and a bias voltage generation circuit controlled by an output of the current sensing circuit. The bias voltage from the bias voltage generation circuit is applied to the gates of both the sense transistor and an LDMOS RF power amplifier transistor. An AC-coupled RF input signal is applied through typical impedance-matching circuitry to the gate of the RF power amplifier transistor, and an AC-coupled output signal is tapped from, and power applied to, the drain of the RF power amplifier transistor through impedance matching circuitry of the type known in the art.

MainClaim: An amplifier comprising

a) a first power transistor, having a gate and a drain;

b) a first sense transistor, having a gate and a drain;

c) a first current sensing circuit having an output and coupled to measure a current flow through the drain of the first sense transistor;

- d) a first bias circuit for generating a first bias voltage, the first bias voltage being coupled to the gate of the first power transistor and to the gate of the first sense transistor, the first bias circuit having a control input coupled to the output of the first current sensing circuit;
- e) circuitry for coupling an input signal to the gate of the first power transistor;
- f) circuitry for coupling an output signal from the drain of the first power transistor and for coupling power to the first power transistor; and
- g) circuitry for coupling power to the first sense transistor;
- h) wherein the first bias circuit is controlled by the output of the first current sensing circuit so as to maintain a constant current in the first sense transistor, and thereby also maintaining a substantially constant quiescent current in the first power transistor.

6,052,032	Radio frequency amplifiers	Nokia Mobile Phones, Ltd.	Jarvinen; Esko	330	H03F	19990309	1	93%	<input type="checkbox"/>
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Abstract: A radio frequency amplifier having a power transistor (Q1) to the base of which is coupled a radio frequency signal to be amplified. An amplified radio frequency signal is provided at the collector of the power transistor (Q1). A control transistor (Qc) has its base coupled to the base of the power transistor (Q1) while a driver transistor (Q2) provides a control bias signal to the bases of the control and power transistors. A differential amplifier (Qd1, Qd2) has a first input coupled to an input bias signal and an output coupled to the base of the driver transistor (Q2). The collector of the control transistor (Qc) is coupled to a second input of the differential amplifier to provide a negative feedback signal to the differential amplifier and the driver transistor (Q2) and thereby to stabilise the operating point of the power transistor (Q1).

MainClaim: A radio frequency amplifier comprising:

a power transistor having an input for receiving a radio frequency signal to be amplified and an output for providing an amplified radio frequency signal;

a control transistor having an input coupled to said input of the power transistor;

a driver transistor having an output coupled to said inputs of the power and control transistors for providing a control bias signal to the power and control transistors; and

a differential amplifier having a first input coupled to an input signal and an output coupled to an input of the driver transistor for providing a driver control signal to the driver transistor,

the control transistor having an output coupled to a second input of the differential amplifier, wherein the output of the control transistor tends to follow the output of the power transistor and provides a negative feedback signal to the differential amplifier.

6,657,481	Current mirror circuit	Nokia Corporation	Rasmussen; Carsten Nielsen; Ivan Riis	327	G05F	20020423	1	92%	<input type="checkbox"/>
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Abstract: A current mirror circuit has an input portion including a first transistor, which is adapted to establish a reference current. It also has an output portion including a second transistor, and a control portion between the input portion and the output portion. The control portion includes a third transistor coupled for controlling the second transistor to generate an output current which is a function of the reference current while inhibiting current leakage from the input portion to the output portion. A lowpass filter is included in the control portion to prevent noise in the input portion from influencing the second transistor.

MainClaim: A current mirror circuit comprising:

an input portion including a first transistor, wherein the first transistor is adapted to establish a reference current;

an output portion including a second transistor;

a control portion between the input portion and the output portion, the control portion including a third transistor coupled for controlling the second transistor to generate an output current which is a function of the reference current while inhibiting current leakage from the input portion to the output portion; and

a lowpass filter included in said control portion,

wherein the lowpass filter is an RC filter and comprises, as its resistive part, a fourth transistor which is biased by a feedback loop into a state of high impedance.

6,400,321	Surface-mountable patch antenna with coaxial cable feed for wireless applications	Apple Computer, Inc.	Fenwick; Stephen C. Astrin; Art Birnbaum; Thomas J. Mariano; Rick Fangonilo; Frank	343	H01Q	20000717	0	100%	<input type="checkbox"/>
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Abstract: The invention includes an antenna assembly. The antenna assembly includes an antenna plate that defines an interior surface. The antenna plate includes a boss that extends from the interior surface of the antenna plate and a feed point. The antenna assembly also includes a ground plate that defines an interior surface. The ground plate includes a probe channel and a boss. Both the probe channel and the boss each extends from the interior surface of the ground plate. The ground plate boss is coupled to the antenna plate boss. The antenna assembly also includes a probe feed having a ground wire coupled to the probe channel and a conductor wire coupled to the feed point.

MainClaim: An antenna assembly comprising:

an antenna plate that defines an interior surface, the antenna plate having a boss that extends from the interior surface of the antenna plate and a feed point;

a ground plate that defines an interior surface, the ground plate having a probe channel and a boss wherein each extends from the interior surface of the ground plate, and wherein the ground plate boss is coupled to the antenna plate boss; and

a probe feed having a ground wire coupled to the probe channel and a conductor wire coupled to the feed point.

6,437,745	Expansion card for wireless data transmission and antenna structure for the same	Nokia Corporation	Vaisanen; Ari Petterson; Juha- Pekka	343	H01Q	20001018	1	92%	<input type="checkbox"/>
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Abstract: The present invention relates to an expansion card and an antenna structure for this expansion card for wireless data transmission, which card (C) comprises a card part (1) to be placed inside an expansion card interface of an electronic device, and which antenna part for receiving and transmitting of signals comprises at least one electroconductive, radiating antenna plane (31) and a ground plane (32) arranged parallel to the same, at a distance, as well as a dielectric (33) between said planes. In the invention, for improving the antenna properties, said antenna structure is placed in a housing part (2) which is connected to the end of the card part (1) and which comprises a cover structure (21) and a bottom structure (22), for extending said antenna structure at least partly outside said interface, wherein the antenna plane (32) is arranged on the side of the cover structure (21), the ground plane (32) is arranged on the side of the bottom structure (22), and said dielectric is arranged a free clearance.

MainClaim: An expansion card for wireless data transmission, which card (C) comprises:

a card part (1) which is arranged to be placed at least partly inside an expansion card interface of an electronic device,

a housing part (2) which is attached at the end of said card part (1) and is arranged to extend at least partly outside said interface, and which comprises a cover structure (21) and a bottom structure (22), and

an antenna structure for receiving and transmitting signals, which structure comprises at least one electroconductive, radiating antenna plane (31) and a ground plane (32) arranged parallel to the same, at a distance, as well as a dielectric (33) between said planes,

characterized in that

for improving the antenna properties, said antenna structure is placed in the housing part (2), wherein said antenna plane (31) is arranged on the side of the cover structure (21), the ground plane (32) is arranged on the side of the bottom structure (22), and as said dielectric is arranged a free clearance.

5,998,972	Method and apparatus for rapidly charging a battery of a portable computing device	Apple Computer, Inc.	Gong; Andrew	320	H02J	19980430	0	100%	<input type="checkbox"/>
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Abstract: Improved techniques for charging batteries within portable computing devices are disclosed. The improved techniques operates to charge a battery at an approximately constant power level by adjusting a charge current as the battery voltage changes. As a result, the battery is able to be charged at a rate that is significantly faster than previously performed. Also, by monitoring the amount of power that is available for charging, the improved techniques ensure that the portable computing device is not starved for power during its operation.

MainClaim: A method for charging a battery within a portable computing device using a charge current, said method comprising:

(a) coupling the portable computing device to a power source;

(b) obtaining a maximum charge current and a maximum charge voltage from the battery;

(c) determining an amount of power from the power source that is available for charging the battery;

(d) determining an efficient charge current based on the battery voltage and the amount of power available; and

(e) producing a charge current based on the lesser of the maximum charge current and the efficient charge current, the charge current being used to charge the battery.

6,169,388	Charging method and device	Nokia Mobile Phones Limited	Niemitalo; Paavo Siponen; Sakari	320	H02J	20000112	2	94%	<input type="checkbox"/>
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Abstract: A start up charger and a method of providing an initial charge for a significantly depleted battery of a cellular phone is described in which the charging switch is cycled to provide a pulsed charge to the battery until said battery is charged to the operational voltage threshold of the cellular telephone controller.

MainClaim: A battery charging system for a communication device, said device having a controller constructed to operate the battery charging system when enabled, said controller having a predetermined minimum operating voltage threshold, said charging system comprising:

a charger for connection to the communication device to provide a charging current to the battery when the battery is depleted;

a charger switch connected to the charger and to the controller to actuate the charger in response to a signal from the controller when the voltage of the battery falls to an undesirable level;

a comparator connected to sense battery voltage and compare said voltage to said voltage threshold and to enable said controller when said battery voltage is equal to or in excess of said voltage threshold; and

a start up charger module comprising a pulse generator connected to the charger switch to cycle said switch on and off when said start up charger is enabled, said start up charger connected to said comparator and enabled thereby when said battery voltage is depleted below said threshold value.

6,157,172	Charging method and device	Nokia Mobile Phones Limited	Niemitalo; Paavo Siponen; Sakari	320	H01M	19990611	2	94%	<input type="checkbox"/>
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Abstract: A start up charger and a method of providing an initial charge for a significantly depleted battery of a cellular phone is described in which the charging switch is cycled to provide a pulsed charge to the battery until said battery is charged to the operational voltage threshold of the cellular telephone controller.

MainClaim: A battery charging system for a cellular phone, said cellular phone having a controller constructed to operate the battery charging system when enabled, said controller having a predetermined minimum operating voltage threshold, said charging system comprising:

a charger for connection to the cellular phone to provide a charging current to the battery when the battery is depleted;

a charger switch connected to the charger and to the controller to actuate the charger in response to a signal from the controller when the voltage of the battery falls to an undesirable level;

a comparator connected to sense battery voltage and compare said voltage to said voltage threshold and to enable said controller when said battery voltage is equal to or in excess of said voltage threshold; and

a start up charger module comprising a pulse generator connected to the charger switch to cycle said switch on and off when said start up charger is enabled, said start up charger connected to said comparator and enabled thereby when said battery voltage is depleted below said threshold value.

7,301,307	Method and apparatus to charge a battery using determination of battery load current	Nokia Corporation	Hansen; Stig Rafn Froding; Emil Jorgensen; Frank	320	H01M	20040625	3	93%	<input type="checkbox"/>
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Abstract: By determining charging current I_{char} and then subsequently utilising that determination of charging current I_{char} in relation to battery current I_{bat} and load current I_{load} as a result of operation of a phone or other electronic device it is possible periodically to adjust the necessary charging current in order to operate the device in terms of recharging the battery to a target charging voltage, as well as providing adequate electrical current for operation of the associated phone or other electronic device.

MainClaim: A battery charging method for a portable hand held device, the method comprising applying a charging current across a battery for charging of the battery to attain a charging voltage and determination of load current by periodic interruption in application of the charging current whereby the charging current for the battery is adjusted towards a defined target value for the charging voltage between determinations of the load current for sustained charging of the battery despite variation in load current requirements.

4,320,498	Auto balancing duplexer for communication lines	Apple Computer, Inc.	Justice; Gregory	370	H04B	19800211	0	100%	<input type="checkbox"/>
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Abstract: A circuit for generating a control signal for use in a communication line duplexer or other isolation means. The transmitted signal at the output of the duplexer is phase detected to detect its real and imaginary components. These components are used to modulate the transmitted signal which is then injected into a feedback loop of the duplexer. This substantially cancels the transmitted signal at the output of the duplexer. The circuit permits the communication line to be terminated in a constant impedance.

MainClaim: In a communications system employing an isolation means for isolating a transmitted signal from a received signal, a circuit for providing a control signal for said isolation means which reduces the magnitude of said transmitted signal at a receiver, comprising:

phase detection means for detecting the real component and imaginary component of said transmitted signal at the output of said isolation means, said phase detection means coupled to receive said transmitted signal and coupled to said isolation means; and,

modulation means for modulating said transmitted signal with said real and imaginary components from said phase detection means so as to provide said control signal, said modulation means coupled to receive said transmitted signal and coupled to said phase detection means and said isolation means;

whereby a control signal is provided which substantially cancels said transmitted signal at said output of said isolation means.

2006/0205375	Measurement circuit and method for measuring the level of an RF signal, and a transmitter including a measurement circuit	Nokia Corporation	Vaisanen; Risto	455	H04K	20050311	1	93%	<input type="checkbox"/>
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Abstract: A measurement circuit for measuring a level of a radio frequency signal comprises a first signal path adapted to conduct a first version of a radio frequency signal and a second signal path adapted to conduct a second version of said radio frequency signal. The first and second versions have different phases. A combining circuit (301, 302, 405, 406, 407, 501, 502, 503, 605, 606, 607, 608, 609, 610, 801, 802) is coupled to receive the first version and the second version of the radio frequency signal. The combining circuit comprises a phase shifter part (301, 405, 406, 605, 606, 607, 801) adapted to change the phase of at least one of the first version and the second version of the radio frequency signal to make the phases of the first version and the second version equal, and an adder part (302, 407) adapted to produce a sum of the first version and the second version the phases of which were made equal, the sum being indicative of the level of the radio frequency signal.

MainClaim: A measurement circuit for measuring a level of a radio frequency signal, comprising: a first signal path adapted to conduct a first version of a radio frequency signal, said first version having a first phase, a second signal path adapted to conduct a second version of said radio frequency signal, said second version having a second phase different than said first phase, and a combining circuit coupled to receive said first version and said second version of said radio frequency signal, wherein said combining circuit comprises a phase shifter part adapted to change the phase of at least one of said first version and said second version of said radio frequency signal to make the phases of said first version and said second version equal, and an adder part adapted to produce a sum of said first version and said second version the phases of which were made equal, said sum being indicative of said level of said radio frequency signal.

2009/0098840	Apparatus and method for measuring the level of RF signals, and a transmitter including a wide band measurement circuit	Nokia Corporation	Vaisanen; Risto	455	H04B	20071011	1	93%	<input type="checkbox"/>
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Abstract: On a radio frequency signal path a transmission phase shifter causes a phase shift. From a first end of said phase shifter comes a first sample, and from a second end of said phase shifter comes a second sample. Another phase shifter changes the phase of the second sample by the same magnitude as said transmission phase shifter. A measurement circuit combines the phase-shifted second sample with a phase-inverted version of the first sample to produce an output indicative of a power level of the original signal on the radio frequency signal path.

MainClaim: An apparatus, comprising: a radio frequency signal path, as a part of said radio frequency signal path a transmission phase shifter, a measurement circuit, a first coupling between a first end of said transmission phase shifter and the measurement circuit, a second coupling between a second end of said transmission phase shifter and the measurement circuit, and as a part of said second coupling a first phase shifter dimensioned to produce a phase shift of same magnitude as said transmission phase shifter; wherein the measurement circuit is configured to combine a signal coming through said second coupling with a phase-inverted version of a signal coming through said first coupling to produce a first output signal indicative of a power level of a first radio frequency signal on said radio frequency signal path.

5,231,364	Phaseshift network for an IQ modulator	Nokia Mobile Phones, Ltd.	Mucke; Lars H.	332	H04L	19920624	1	93%	<input type="checkbox"/>
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Abstract: A phaseshift network (2) exhibits approximately equal impedances to the outputs of an IQ mixer (10), over a range of modulation frequencies (Fm). The phaseshift network furthermore exhibits an approximately equal time delay for the I and Q modulated signals propagating therethrough. The phaseshift network includes a first branch having an input node for receiving a first frequency signal that varies within a range of frequencies about a frequency Fo. The first branch includes a phaseshifter for providing a frequency signal representative of the first input signal that is retarded by a first predetermined number of degrees. The phaseshift network further includes a second branch having an input node for receiving a second frequency signal that varies within a range of frequencies about the frequency Fo. The second branch includes a phaseshifter for providing a frequency signal representative of the second input signal that is advanced by a second predetermined number of degrees. A summer sums together the retarded and advanced frequency signals for providing, at an output node, an output signal that is a summation of the retarded and the advanced frequency signals.

MainClaim: A phaseshift network, comprising:

a first branch having an input node for receiving a first frequency signal that varies within a range of frequencies about a frequency Fo and including means for providing, at an output node of said first branch, a frequency signal representative of the first input signal that is retarded by a first predetermined number of degrees;

a second branch having an input node for receiving a second frequency signal that varies within a range of frequencies about the frequency Fo and including means for providing, at an output node of said second branch, a frequency signal representative of the second input signal that is advanced by a second predetermined number of degrees; and

summing means, having a first input node coupled to said output node of said first branch and a second input node coupled to said output node of said second branch, for summing together the retarded and advanced frequency signals and for providing at an output node an output signal that is a summation of the retarded and the advanced frequency signals; wherein

said second branch includes first circuit means for equalizing an insertion loss of said second branch to an insertion loss of said first branch, and wherein

said first branch includes second circuit means for equalizing an input impedance of said first branch, at Fo, to an input impedance of said second branch, at Fo.

6,054,955	Folded monopole antenna for use with portable communications devices	Apple Computer, Inc.	Schlegel, Jr.; Herbert I. Blaney; Timothy J. Difronzo; Charles M.	343	H01Q	19930823	0	100%	<input type="checkbox"/>
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Abstract: An antenna arrangement of sufficiently small size to be accommodated in the housing of a portable communications device includes a pair of spaced folded monopole antennas. Each antenna includes a first printed circuit board having a conducting surface that forms a ground plane. Mounted on the first circuit board is a second printed circuit board having a right-angled strip of conducting material, which forms a folded monopole radiating element. The folding of the monopole reduces its height, to thereby enable it to fit into small casings and the like. To compensate for the effects of the folded monopole on the electrical match, frequency bandwidth and electromagnetic fields, a shunt inductance is introduced between the monopole and the ground plane. The antennas are mounted within cavities that can be lined or coated with metallic material, to improve the radiation patterns of the antennas and isolate them from the electronic components of the communications system.

MainClaim: An antenna arrangement comprising at least two antennas spaced from one another by a distance related to a frequency band over which communications are to take place, each of said antennas including:

a metallic base plate which is disposed on a first printed circuit board and forms a ground plane;

a folded radiating element formed on a second printed circuit board and having a first linear portion which extends in a direction

generally perpendicular to said base plate and a second linear portion connected to said first portion and extending in a direction generally parallel to said base plate;

a shunt inductance connected between said radiating element and said base plate; and

a cable having a first conductor connected to said first portion of said radiating element and a second conductor connected to said base plate.

5,627,550	Wideband double C-patch antenna including gap-coupled parasitic elements	Nokia Mobile Phones Ltd.	Sanad; Mohamed	343	H01Q	19950615	1	94%	<input type="checkbox"/>
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Abstract: A wide bandwidth, shorted, dual C-patch antenna includes a truncated ground plane, a layer of dielectric material having a first surface overlying the ground plane and an opposing second surface, and an electrically conductive layer overlying the second opposing surface of the dielectric layer. The electrically conductive layer is differentiated into a plurality of antenna elements including a driven antenna element and at least one non-driven, parasitic antenna element. Each of the antenna elements is in the shape of a parallelogram and has one of a rectangular and a non-rectangular (e.g., parabolic, triangular, pentagonal) aperture having a length that extends along a first edge of the electrically conductive layer and a width that extends towards an oppositely disposed second edge. The length has a value that is equal to approximately 20% to approximately 35% of a length of the first edge. The antenna may further include electrically conductive vias or feedthroughs for shorting the electrically conductive layer to the ground plane at a region adjacent to a third edge of the electrically conductive layer. The wide bandwidth antenna may be curved about one or more axes.

MainClaim: An antenna structure, comprising:

a ground plane;

a layer of dielectric material having a first surface overlying said ground plane and an opposing second surface;

an electrically conductive layer overlying said second opposing surface of said dielectric layer, said electrically conductive layer being differentiated into a plurality of antenna elements including a driven antenna element and at least one non-driven, parasitic antenna element, individual ones of said parasitic antenna elements being disposed on opposite sides of said driven antenna element, each of said antenna elements having a shape of a parallelogram and having a first radiating aperture having a length that extends along a first edge of said electrically conductive layer and a width that extends towards an oppositely disposed second edge, said electrically conductive layer further having a second radiating aperture having a length that extends along said first edge of said electrically conductive layer and a width that extends towards said oppositely disposed second edge, said first and second radiating apertures having a zero potential plane disposed therebetween; and

means for coupling at least one of radio frequency energy into and out of said electrically conductive layer of said driven antenna element, said coupling means being located within said zero potential plane and further being located nearer to one of said radiating apertures than the other.

6,348,894	Radio frequency antenna	Nokia Mobile Phones Ltd.	Lahti; Saku	343	H01Q	20000510	1	94%	<input type="checkbox"/>
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Abstract: An RF antenna having a non-planar resonating region for radiating or receiving electromagnetic waves in order to convey communication signals between two electronic devices via a radio link. The resonating region is folded into at least two sections so that the radiating surface of one section is located on a different plane from the radiating surface of the other section. In order to optimize the input impedance of the antenna, an impedance matching part connected to the resonating region is used to provide a short circuit to the resonating region. A signal conduit part is used to feed signals to the resonating region in the proximity of the impedance matching part. Preferably, the antenna is integrated into a system connector of a hand-held communication device so as to allow the hand-held device to communicate with a communication network via a radio link.

MainClaim: An antenna operating in the radio frequency range to be used in a hand-held communication device having a system connector, said radio frequency antenna comprising:

a resonating region to radiate or receive electromagnetic waves carrying the communication signals; and




a feeding region coupled to the resonating region for impedance matching, wherein

the radio frequency antenna is integrated into the system connector so as to allow the hand-held communication device to communicate with a communication network via a radio link.

5,680,144	Wideband, stacked double C-patch antenna having gap-coupled parasitic elements	Nokia Mobile Phones Limited	Sanad; Mohamed	343	H01Q	19960313	1	94%	<input type="checkbox"/>
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Abstract: A stacked, shorted double C-patch antenna (100) has gap-coupled parasitic elements (102a, 106a, 102b, 106b) and one directly fed antenna element (104a). A second fed element (104b) is conductively fed from the directly fed element. The antenna has a truncated ground plane (108) and a bandwidth that is equal to or greater than approximately 70 MHz at a frequency of approximately 850 MHz. The directly fed antenna element is conductively coupled to a transmitter and to a receiver of a communications device, such as a cellular telephone.

MainClaim: A stacked, shorted double C-patch antenna comprising a first antenna element assembly comprised of at least one gap-coupled parasitic element and one directly fed antenna element, said stacked, shorted double C-patch antenna further comprising a second antenna element assembly comprised of at least one gap-coupled parasitic element and one antenna element that is conductively fed from said directly fed antenna element, said first antenna element assembly being disposed in a spaced-apart fashion from said second antenna element assembly by an intervening layer of dielectric material, said antenna having a truncated ground plane and a bandwidth that is equal to or greater than approximately 70 MHz at a frequency of approximately 850 MHz.

5,613,010	Apparatus for reproducing sound with a reduced dynamic range	Apple Computer, Inc.	Heyl; Lawrence F. Austin; Steven E.	381	H04R	19940330	0	100%	
<p>Abstract: An open-loop speaker amplifier and a dynamic range reduction circuit are disclosed. The speaker amplifier includes a bridge driver and a bridge circuit. The bridge circuit includes a first set of switches and a second set of switches. When the first set of switches are activated, a positive current flows through a speaker load. When the second set of switches are activated, a negative current flows through the speaker load. The bridge driver generates a pulse width modulated signal and a delayed pulse width modulated signal to drive the first and second set of switches of the bridge circuit responsive to a modulation signal. The modulation signal maybe for example, a plurality of pulse code modulated samples representing sound. The dynamic range reduction circuit modifies a selected signal to reduce the dynamic range of the sound reproduced based on the modulation signal. The selected signal is either the modulation signal or a reference signal. In one embodiment, the dynamic range reduction circuit modifies the selected signal by processing the selected signal based on a smooth saturating function. In another embodiment, the dynamic range reduction circuit modifies the amplitude of the reference signal based on an envelope size of the modulation signal.</p> <p>MainClaim: An apparatus for reproducing sound with a reduced dynamic range, said sound being encoded in a modulation signal, the apparatus comprising:</p> <p>a mapping function unit configured to receive a first signal and to generate a modified first signal based on said first signal, said first signal being either said modulation signal or a reference signal;</p> <p>said mapping function unit generating an increased amplitude signal as said modified first signal when said first signal has an amplitude below a first predetermined level, said increased amplitude signal being said first signal with an increased amplitude;</p> <p>said mapping function unit generating a decreased amplitude signal as said modified first signal when said first signal has an amplitude above a second predetermined level, said decreased amplitude signal being said first signal with a decreased amplitude;</p> <p>a comparator coupled to said mapping function unit, said comparator receiving said modified first signal and a second signal and generating a pulse width modulation signal based on said modified first signal and said second signal, said second signal being said reference signal if said first signal is said modulation signal, said second signal being said modulation signal if said first signal is said reference signal;</p> <p>a switch circuit operatively coupled to said comparator and to a speaker load, said pulse width modulation signal driving said switch circuit to produce a current flow through said speaker load responsive to said pulse width modulation signal.</p>									
6,466,087	Method and apparatus providing digital error correction for a class D power stage	Nokia Mobile Phones, Ltd.	Ruha; Antti	330	H03F	20001228	1	92%	
<p>Abstract: Disclosed is a method and class D amplifier circuitry for compensating a pulse width modulated (PWM) signal. The method includes steps of generating a PWM signal for application to a driver stage; obtaining a filtered difference between the PWM signal and a version of the same PWM signal after the driver stage; generating a correction signal that is indicative of a sign of the filtered difference; and using the correction signal for adjusting at least one of the leading edge or the trailing edge of the PWM signal so as to compensate the version of the same PWM signal after the driver stage. The steps of obtaining and generating include steps of RC filtering, digital comparison and digital filtering. In the preferred embodiment the step of generating generates a one-bit correction signal. The correction signal is used to compensate the version of the same PWM signal after the driver stage for driver stage non-linearities and for power supply noise and variations. The PWM signal is preferably in a thermometer format, although other formats can be used, and the step of adjusting includes initial steps of combining two successive samples into one longer sample, and interpolating the longer sample by a factor in a range of about two to eight. In the presently preferred embodiment the step of generating generates the PWM signal from a multi-bit signal output from a sigma-delta modulator, where the multi-bit signal has 2^n quantization levels, where n is in a range of about two to about eight.</p> <p>MainClaim: A signal path, comprising:</p> <p>a sigma-delta modulator (SDM) for receiving an N-bit digital signal;</p> <p>a pulse width modulator (PWM) coupled to an output of said SDM for receiving an n-bit digital signal output therefrom, said PWM having an output for outputting a pulse width modulated waveform signal in accordance with said n-bit digital signal;</p> <p>a PWM waveform signal correction circuit coupled to an output of said PWM and outputting a corrected pulse width modulated waveform signal;</p> <p>a class D switching stage coupled to an output of said PWM waveform correction circuit for being driven by said corrected pulse width modulated waveform signal and providing a signal path output for driving a load; and</p> <p>an error measurement block having a first input coupled to said output of said switching stage, a second input coupled to said output of said PWM, and an output coupled to a correction input of said PWM waveform signal correction circuit; said error measurement block obtaining a difference between a first signal appearing at said first input and a second signal appearing at said second input and outputting at said output a digital correction signal that indicates a sign of the difference between said first input signal and second input signal.</p>									
7,641,477	Electromagnetic connector for electronic device	Apple Inc.	DiFonzo; John C. Andre; Bartley K. Lim; Kanye Rohrbach; Matthew Dean Doult; Mark	439	H01R	20080311	0	100%	

			Edward Gery; Jean-Marc						
Abstract: An electrical plug and receptacle relying on magnetic force from an electromagnet to maintain contact are disclosed. The plug and receptacle can be used as part of a power adapter for connecting an electronic device, such as a laptop computer, to a power supply. The plug includes electrical contacts, which are preferably biased toward corresponding contacts on the receptacle. The plug and receptacle each have a magnetic element. The magnetic element on one of the plug or receptacle can be a magnet or ferromagnetic material. The magnetic element on the other of the plug or receptacle is an electromagnet. When the plug and receptacle are brought into proximity, the magnetic attraction between the electromagnet magnet and its complement, whether another magnet or a ferromagnetic material, maintains the contacts in an electrically conductive relationship.									
MainClaim: A connector comprising: a first contact; an electromagnet positioned on the connector, wherein the electromagnet is energizable to produce magnetic attraction; and control circuitry coupled to the electromagnet, the control circuitry detecting a first control signal and controlling energization of the electromagnet based on the first control signal, wherein the first control signal indicates a charged condition of a battery associated with an electronic device, and wherein the control circuitry causes the electromagnet to be de-energized in response to receiving the first control signal.									
7,637,746	Magnetic connector for mobile electronic devices	Nokia Corporation	Lindberg; Phillip Shirgaonkar; Sameer Bjorninen; Kati	439	H01R	20081222	4	92%	<input type="checkbox"/>
Abstract: A magnetic connector for connecting various cables to a mobile electronic device includes a connector part in the mobile electronic device and a connector part attached to the cable. One of the connector parts includes a permanent magnet and the other connector part includes magnetic material or another magnet. The attractive magnetic force between the permanent magnet or the other magnet and the magnetic material keeps the connector parts into engagement. The magnets may themselves form the electrical contacts. The connector parts can also include magnetically operated switches.									
MainClaim: A device comprising a first connector part configured to interact with a second connector part disposed at the end of a cable to be connected to the device, wherein said first connector part includes a magnet that is magnetically attracted to magnetic material disposed on the second connector part and/or wherein magnetic material is disposed on said first connector part which is configured to magnetically attract a magnet disposed on the second connector part such that the magnetic force generated between the magnet and the magnetic material or between the two magnets is utilized for bringing the first connector part and the second connector part into engagement with each other thereby establishing an electrical connection between the cable and the device, and wherein the electrical connection is established by the magnet touching on the magnetic material.									
2009/0111287	Magnetic connector for mobile electronic devices	Nokia Corporation	Lindberg; Phillip Shirgaonkar; Sameer Bjorninen; Kati	439	H01R	20081222	4	92%	<input type="checkbox"/>
Abstract: A magnetic connector for connecting various cables to a mobile electronic device includes a connector part in the mobile electronic device and a connector part attached to the cable. One of the connector parts includes a permanent magnet and the other connector part includes magnetic material or another magnet. The attractive magnetic force between the permanent magnet or the other magnet and the magnetic material keeps the connector parts into engagement. The magnets may themselves form the electrical contacts. The connector parts can also include magnetically operated switches.									
MainClaim: (canceled)									
7,351,066	Electromagnetic connector for electronic device	Apple Computer, Inc.	DiFonzo; John C. Andre; Bartley K. Lim; Kanye Rohrbach; Matthew Dean Doult; Mark Edward Gery; Jean-Marc	439	H01R	20050926	0	100%	<input type="checkbox"/>
Abstract: An electrical plug and receptacle relying on magnetic force from an electromagnet to maintain contact are disclosed. The plug and receptacle can be used as part of a power adapter for connecting an electronic device, such as a laptop computer, to a power supply. The plug includes electrical contacts, which are preferably biased toward corresponding contacts on the receptacle. The plug and receptacle each have a magnetic element. The magnetic element on one of the plug or receptacle can be a magnet or ferromagnetic material. The magnetic element on the other of the plug or receptacle is an electromagnet. When the plug and receptacle are brought into proximity, the magnetic attraction between the electromagnet magnet and its complement, whether another magnet or a ferromagnetic material, maintains the contacts in an electrically conductive relationship.									
MainClaim: An apparatus for electrically connecting an electronic device to an electrical relation, comprising: a first connector having at least one first contact electrically connected to the electronic device; and a second connector positionable adjacent the first connector and having at least one second contact electrically connected to the electrical relation, wherein one of the connectors comprises a magnetic element positioned on the connector and the other connector comprises an electromagnet positioned on the connector, wherein the electromagnet is energizable to produce magnetic attraction with the magnetic element and substantially maintain the first and second contacts of the connectors in an electrically conductive relationship, wherein the apparatus further comprises control circuitry coupled to the electromagnet, the control circuitry detecting a control signal and controlling energization of the electromagnet based on the signal, wherein the control signal indicates a charged condition of a battery associated with the electronic device, and wherein the control circuitry causes the electromagnet to be de-energized in response to receiving the control signal.									
7,637,746	Magnetic connector for mobile electronic devices	Nokia Corporation	Lindberg; Phillip Shirgaonkar; Sameer Bjorninen; Kati	439	H01R	20081222	4	92%	<input type="checkbox"/>
Abstract: A magnetic connector for connecting various cables to a mobile electronic device includes a connector part in the mobile electronic device and a connector part attached to the cable. One of the connector parts includes a permanent magnet and the other connector part includes magnetic material or another magnet. The attractive magnetic force between the permanent magnet or the other magnet and the magnetic material keeps the connector parts into engagement. The magnets may themselves form the electrical contacts. The connector parts can also include magnetically operated switches.									
MainClaim: A device comprising a first connector part configured to interact with a second connector part disposed at the end of a cable to be connected to the device, wherein said first connector part includes a magnet that is magnetically attracted to magnetic material disposed on the second connector part and/or wherein magnetic material is disposed on said first connector									

part which is configured to magnetically attract a magnet disposed on the second connector part such that the magnetic force generated between the magnet and the magnetic material or between the two magnets is utilized for bringing the first connector part and the second connector part into engagement with each other thereby establishing an electrical connection between the cable and the device, and wherein the electrical connection is established by the magnet touching on the magnetic material.

7,467,948	Magnetic connector for mobile electronic devices	Nokia Corporation	Lindberg; Phillip Shirgaonkar; Sameer Bjorninen; Kati	439	H01R	20060608	2	92%	<input type="checkbox"/>
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Abstract: A magnetic connector for connecting various cables to a mobile electronic device includes a connector part in the mobile electronic device and a connector part attached to the cable. One of the connector parts includes a permanent magnet and the other connector part includes magnetic material or another magnet. The attractive magnetic force between the permanent magnet or the other magnet and the magnetic material keeps the connector parts into engagement. The magnets may themselves form the electrical contacts. The connector parts can also include magnetically operated switches.

MainClaim: A connector for electrically and mechanically connecting a cable to a mobile electronic device comprising a first connector part disposed at the end of the cable and a second connector part disposed at the mobile electric device, wherein at least one of said first and said second connector parts includes a magnet that is magnetically attracted to magnetic material disposed on the other of the at least one of said first and said second connector parts such that the magnetic force generated between the magnet and the magnetic material or between the two magnets is utilized for bringing the first connector part and the second connector part into engagement with each other thereby establishing an electrical connection between the cable and the mobile electrical device, and wherein the electrical connection is established by the magnet touching on the magnetic material.

2009/0111287	Magnetic connector for mobile electronic devices	Nokia Corporation	Lindberg; Phillip Shirgaonkar; Sameer Bjorninen; Kati	439	H01R	20081222	4	92%	<input type="checkbox"/>
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Abstract: A magnetic connector for connecting various cables to a mobile electronic device includes a connector part in the mobile electronic device and a connector part attached to the cable. One of the connector parts includes a permanent magnet and the other connector part includes magnetic material or another magnet. The attractive magnetic force between the permanent magnet or the other magnet and the magnetic material keeps the connector parts into engagement. The magnets may themselves form the electrical contacts. The connector parts can also include magnetically operated switches.

MainClaim: (canceled)

6,496,149	Recessed aperture-coupled patch antenna with multiple dielectrics for wireless applications	Apple Computer, Inc.	Birnbaum; Thomas J. Fenwick; Stephen C. Astrin; Arthur W. Mariano; Riecardo	343	H01Q	20010201	0	100%	<input type="checkbox"/>
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Abstract: The present invention provides an aperture-fed patch antenna assembly that is recessed into a conductive surface of an external shell of an electronic device. In one embodiment, an antenna feed attached to a removable core of the electronic device may be removed from the external shell without requiring a manual disconnecting of the antenna feed from a wireless radio modem in the electronic device. The patch antenna assembly includes a shim having an aperture therein and positioned between a primary dielectric and a printed circuit board to create a secondary dielectric between the primary dielectric and the printed circuit board. In one embodiment, the primary dielectric is ceramic and the shim is plastic.

MainClaim: An apparatus for wireless communication, comprising:

an electronic device having an external shell, the external shell having at least two opposing sides enclosing a hollow space therebetween;

a removable core to which a plurality of electrical components are attached, the removable core operatively and removably positioned within the hollow space, wherein one of the plurality of the electrical components is a radio modem;

an antenna feed attached to a side of the removable core and coupled to the radio modem;

a primary dielectric fitted within a recessed opening in one of the opposing sides of the external shell, the recessed opening positioned such that the antenna feed is proximate the primary dielectric when the removable core is operatively and removably positioned within the hollow space;

a metallized patch attached to the primary dielectric, wherein the patch is an antenna;

a shim positioned between the primary dielectric and the antenna feed, the shim having an aperture therein to form a secondary dielectric between the antenna feed and the primary dielectric when the antenna feed is positioned proximate the primary dielectric, a signal to be transmitted from the antenna feed to the primary dielectric via the secondary dielectric.

2009/0160712	Apparatus and method	Nokia Corporation	Breiter; Richard Troelsen; Jens Pinto; Alexandre Nielsen; Bjarne	343	H01Q	20071221	5	92%	<input type="checkbox"/>
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Abstract: An apparatus including a first conductive cover portion defining an interior surface and an exterior surface of the apparatus; an antenna element, connected to a feed point and arranged to operate in at least a first resonant frequency band; a conductive element, positioned between the interior surface of the first conductive cover portion and the antenna element, and arranged to couple with the first conductive cover portion, wherein the combination of the conductive element and the first conductive cover portion are operable in a second resonant frequency band, different to the first resonant frequency band and are arranged to be contactlessly fed by the antenna element.

MainClaim: An apparatus comprising: a first conductive cover portion defining an interior surface and an exterior surface of the apparatus; an antenna element, connected to a feed point and arranged to operate in at least a first resonant frequency band; a conductive element, positioned between the interior surface of the first conductive cover portion and the antenna element, and arranged to couple with the first conductive cover portion, wherein the combination of the conductive element and the first

conductive cover portion are operable in a second resonant frequency band, different to the first resonant frequency band and are arranged to be contactlessly fed by the antenna element.

6,867,738	Recessed aperture-coupled patch antenna with multiple dielectrics for wireless applications	Apple Computer, Inc.	Birnbaum; Thomas J. Fenwick; Stephen C. Astrin; Arthur W. Mariano; Ricardo	343	H01Q	20021203	0	100%	<input type="checkbox"/>
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Abstract: The present invention provides an aperture-fed patch antenna assembly that is recessed into a conductive surface of an external shell of an electronic device. In one embodiment, an antenna feed attached to a removable core of the electronic device may be removed from the external shell without requiring a manual disconnecting of the antenna feed from a wireless radio modem in the electronic device. The patch antenna assembly includes a shim having an aperture therein and positioned between a primary dielectric and a printed circuit board to create a secondary dielectric between the primary dielectric and the printed circuit board. In one embodiment, the primary dielectric is ceramic and the shim is plastic.

MainClaim: A computer, the computer having an external shell and a patch antenna assembly positioned adjacent to the external shell, the patch antenna assembly comprising:

a primary dielectric adjacent to the external shell;

a metallized patch attached to a first side of the primary dielectric, wherein the metallized patch is an antenna;

a shim having a first side and a second opposite side, the first side of the shim positioned proximate a second side of the primary dielectric, the shim having an aperture therein to form a secondary dielectric; and

an antenna feed removably positioned proximate the second side of the shim and coupled to the primary dielectric via the secondary dielectric to transmit a signal from the antenna feed to the primary dielectric.

2009/0160712	Apparatus and method	Nokia Corporation	Breiter; Richard Troelsen; Jens Pinto; Alexandre Nielsen; Bjarne	343	H01Q	20071221	5	92%	<input type="checkbox"/>
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Abstract: An apparatus including a first conductive cover portion defining an interior surface and an exterior surface of the apparatus; an antenna element, connected to a feed point and arranged to operate in at least a first resonant frequency band; a conductive element, positioned between the interior surface of the first conductive cover portion and the antenna element, and arranged to couple with the first conductive cover portion, wherein the combination of the conductive element and the first conductive cover portion are operable in a second resonant frequency band, different to the first resonant frequency band and are arranged to be contactlessly fed by the antenna element.

MainClaim: An apparatus comprising: a first conductive cover portion defining an interior surface and an exterior surface of the apparatus; an antenna element, connected to a feed point and arranged to operate in at least a first resonant frequency band; a conductive element, positioned between the interior surface of the first conductive cover portion and the antenna element, and arranged to couple with the first conductive cover portion, wherein the combination of the conductive element and the first conductive cover portion are operable in a second resonant frequency band, different to the first resonant frequency band and are arranged to be contactlessly fed by the antenna element.

7,311,526	Magnetic connector for electronic device	Apple Inc.	Rohrbach; Matthew Dean Doult; Mark Edward Andre; Bartley K. Lim; Kanye DiFonzo; John C. Gery; Jean-Marc	439	H01R	20050926	0	100%	<input type="checkbox"/>
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Abstract: An electrical plug and receptacle relying on magnetic force to maintain contact are disclosed. The plug and receptacle can be used as part of a power adapter for connecting an electronic device, such as a laptop computer, to a power supply. The plug includes electrical contacts, which are preferably biased toward corresponding contacts on the receptacle. The plug and receptacle each have a magnetic element. The magnetic element on one or both of the plug and receptacle can be a magnet, which is preferably a permanent rare earth magnet although electromagnets may also be used. The magnetic element on the plug or receptacle that does not include a magnet is composed of ferromagnetic material. When the plug and receptacle are brought into proximity, the magnetic attraction between the magnet and its complement, whether another magnet or a ferromagnetic material, maintains the contacts in an electrically conductive relationship.

MainClaim: An apparatus for electrically connecting an electronic device to an electrical relation, comprising: a first connector having a first magnetic element and having at least one first contact electrically connected to the electronic device; and a second connector positionable adjacent the first connector, the second connector having a second magnetic element and having at least one second contact electrically connected to the electrical relation, wherein the at least one first contact comprises a metallic contact extending from a first face of the first connector and biased relative to the first face, wherein magnetic attraction between the first and second magnetic elements substantially maintains the first and second contacts in an electrically conductive relationship, wherein the first and second connectors each comprise two axes of symmetry such that the first and second connectors couple together in only two orientations relative to one another, and wherein the at least one first and second contacts of the first and second connectors each comprise a pair of first path contacts on the connector for establishing a first path of electrical communication between the device and the relation, wherein the pairs of first path contacts form an electrically conductive relationship with one another regardless of which of the two orientations the connectors are magnetically coupled.

7,637,746	Magnetic connector for mobile electronic devices	Nokia Corporation	Lindberg; Phillip Shirgaonkar; Sameer Bjorninen; Kati	439	H01R	20081222	4	93%	<input type="checkbox"/>
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Abstract: A magnetic connector for connecting various cables to a mobile electronic device includes a connector part in the mobile electronic device and a connector part attached to the cable. One of the connector parts includes a permanent magnet and the other connector part includes magnetic material or another magnet. The attractive magnetic force between the permanent magnet or the other magnet and the magnetic material keeps the connector parts into engagement. The magnets may themselves form the electrical contacts. The connector parts can also include magnetically operated switches.

MainClaim: A device comprising a first connector part configured to interact with a second connector part disposed at the end of a cable to be connected to the device, wherein said first connector part includes a magnet that is magnetically attracted to magnetic material disposed on the second connector part and/or wherein magnetic material is disposed on said first connector part which is configured to magnetically attract a magnet disposed on the second connector part such that the magnetic force generated between the magnet and the magnetic material or between the two magnets is utilized for bringing the first connector part and the second connector part into engagement with each other thereby establishing an electrical connection between the cable and the device, and wherein the electrical connection is established by the magnet touching on the magnetic material.

7,467,948	Magnetic connector for mobile electronic devices	Nokia Corporation	Lindberg; Phillip Shirgaonkar; Sameer Bjorninen; Kati	439	H01R	20060608	2	93%	<input type="checkbox"/>
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Abstract: A magnetic connector for connecting various cables to a mobile electronic device includes a connector part in the mobile electronic device and a connector part attached to the cable. One of the connector parts includes a permanent magnet and the other connector part includes magnetic material or another magnet. The attractive magnetic force between the permanent magnet or the other magnet and the magnetic material keeps the connector parts into engagement. The magnets may themselves form the electrical contacts. The connector parts can also include magnetically operated switches.

MainClaim: A connector for electrically and mechanically connecting a cable to a mobile electronic device comprising a first connector part disposed at the end of the cable and a second connector part disposed at the mobile electric device, wherein at least one of said first and said second connector parts includes a magnet that is magnetically attracted to magnetic material disposed on the other of the at least one of said first and said second connector parts such that the magnetic force generated between the magnet and the magnetic material or between the two magnets is utilized for bringing the first connector part and the second connector part into engagement with each other thereby establishing an electrical connection between the cable and the mobile electrical device, and wherein the electrical connection is established by the magnet touching on the magnetic material.

2009/0111287	Magnetic connector for mobile electronic devices	Nokia Corporation	Lindberg; Phillip Shirgaonkar; Sameer Bjorninen; Kati	439	H01R	20081222	4	93%	<input type="checkbox"/>
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Abstract: A magnetic connector for connecting various cables to a mobile electronic device includes a connector part in the mobile electronic device and a connector part attached to the cable. One of the connector parts includes a permanent magnet and the other connector part includes magnetic material or another magnet. The attractive magnetic force between the permanent magnet or the other magnet and the magnetic material keeps the connector parts into engagement. The magnets may themselves form the electrical contacts. The connector parts can also include magnetically operated switches.

MainClaim: (canceled)

7,517,222	Magnetic connector for electronic device	APPLE Inc.	Rohrbach; Matthew Dean Doult; Mark Edward Andre; Bartley K. Lim; Kanye Difonzo; John C. Gery; Jean-Marc	439	H01R	20071022	0	100%	<input type="checkbox"/>
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Abstract: An electrical plug and receptacle relying on magnetic force to maintain contact are disclosed. The plug and receptacle can be used as part of a power adapter for connecting an electronic device, such as a laptop computer, to a power supply. The plug includes electrical contacts, which are preferably biased toward corresponding contacts on the receptacle. The plug and receptacle each have a magnetic element. The magnetic element on one or both of the plug and receptacle can be a magnet, which is preferably a permanent rare earth magnet although electromagnets may also be used. The magnetic element on the plug or receptacle that does not include a magnet is composed of ferromagnetic material. When the plug and receptacle are brought into proximity, the magnetic attraction between the magnet and its complement, whether another magnet or a ferromagnetic material, maintains the contacts in an electrically conductive relationship.

MainClaim: A magnetic connector system comprising: a first connector having a first plurality of electrical contacts and a plurality of magnets; and a second connector having a second plurality of electrical contacts and a magnetic element, the second plurality of electrical contacts being adapted to mate with the first plurality of electrical contacts when the first connector couples to the second connector, wherein the plurality of magnets of the first connector are proximally located and are arranged in opposing polarities with respect to each other so that when the first connector is brought in close proximity to the second connector, magnetic field lines travel through the magnetic element of the second connector from one of the plurality of magnets in the first connector to another one of the plurality of magnets in the first connector, thereby increasing magnetic attraction between the first connector and the second connector.

7,637,746	Magnetic connector for mobile electronic devices	Nokia Corporation	Lindberg; Phillip Shirgaonkar; Sameer Bjorninen; Kati	439	H01R	20081222	4	93%	<input type="checkbox"/>
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Abstract: A magnetic connector for connecting various cables to a mobile electronic device includes a connector part in the mobile electronic device and a connector part attached to the cable. One of the connector parts includes a permanent magnet and the other connector part includes magnetic material or another magnet. The attractive magnetic force between the permanent magnet or the other magnet and the magnetic material keeps the connector parts into engagement. The magnets may themselves form the electrical contacts. The connector parts can also include magnetically operated switches.

MainClaim: A device comprising a first connector part configured to interact with a second connector part disposed at the end of a cable to be connected to the device, wherein said first connector part includes a magnet that is magnetically attracted to magnetic material disposed on the second connector part and/or wherein magnetic material is disposed on said first connector part which is configured to magnetically attract a magnet disposed on the second connector part such that the magnetic force generated between the magnet and the magnetic material or between the two magnets is utilized for bringing the first connector part and the second connector part into engagement with each other thereby establishing an electrical connection between the cable and the device, and wherein the electrical connection is established by the magnet touching on the magnetic material.

2009/0111287	Magnetic connector for mobile electronic devices	Nokia Corporation	Lindberg; Phillip Shirgaonkar; Sameer Bjorninen; Kati	439	H01R	20081222	4	93%	<input type="checkbox"/>
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Abstract: A magnetic connector for connecting various cables to a mobile electronic device includes a connector part in the mobile electronic device and a connector part attached to the cable. One of the connector parts includes a permanent magnet and the other connector part includes magnetic material or another magnet. The attractive magnetic force between the permanent magnet or the other magnet and the magnetic material keeps the connector parts into engagement. The magnets may themselves form the electrical contacts. The connector parts can also include magnetically operated switches.

MainClaim: (canceled)

5,515,514	Peripheral processor card for upgrading a computer	Apple Computer, Inc.	Dhuey; Michael J. Yazdy; Farid A.	710	G06F	19950928	0	100%	<input type="checkbox"/>
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Abstract: Circuit arrangements and methods are disclosed for upgrading an 040-based personal computer system using an optional, peripheral add-in card. In one embodiment, the present invention comprises a PowerPC-based microprocessor, such as the MPC601, having one megabyte of on-board direct mapped level 2 external cache memory arranged as tag and data blocks. The PowerPC-based board is inserted into a processor-direct data path sharing the data and address bus with the 040 microprocessor. System random access memory (RAM), I/O, and other functional blocks are present on the main board comprising the 040-based computer. The MPC601 is coupled via address and data buses to the tag cache, a bus translation unit (BTU), a read only memory (ROM) storing the operating system code for the PowerPC microprocessor, the data cache, a dual frequency clock buffer, and other interface components such as a processor-direct data path including address and data latches. When the computer is turned on, the BTU coupled to the data bus sequentially clears all valid bits in the tag cache, whereafter the cache and memory map are enabled. The 040 processor on the main board is disabled after power-up by using the 040 JTAG test port after inactivating the power-on fast reset. By shifting in appropriate RESET, TCK, and TMS patterns, the 040 will be placed in a nonfunctional, high impedance state. However, DRAM present on the motherboard may be accessed by the 601 after a cache miss. DRAM is accessed via a 601-040 transaction translation operation within the BTU, wherein coded tables map the MPC601 transaction into the appropriate 040 transaction.

MainClaim: A peripheral processor card for upgrading a host personal computer, said host personal computer including a host address bus and a host data bus, and, operatively connected to said host address bus and to said host data bus, a first processor, system memory, and input-output (I/O) units, said peripheral processor card comprising:

a second processor;

a peripheral address bus coupled between said second processor and said host address bus;

a peripheral data bus coupled between said second processor and said host data bus; and

a bus translator unit coupled to said peripheral address bus and to said peripheral data bus and having a plurality of programmable control registers to generate a plurality of control signals to said first processor and to said second processor, said bus translator unit further generating processor shutdown signals which, when received by said first processor, place said first processor in a shutdown state,

said second processor thereafter having control of said system memory and I/O units within said host personal computer.

7,013,398	Data processor architecture employing segregated data, program and control buses	Nokia Corporation	Zhao; Sheng	713	G06F	20011115	1	92%	<input type="checkbox"/>
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Abstract: A mobile station includes an RF transceiver and a user interface. The mobile station further includes a plurality of data processor cores each having a first interface supporting a first bus coupled to an associated one of a plurality of program memories, a second interface supporting a second bus coupled to a common data memory, and a third interface supporting a third bus coupled to at least one input/output device. Each of the first, second and third buses include an address bus that is sourced from the processor core and a data bus. The plurality of data processor cores may be contained within a single integrated circuit package, such as an ASIC, in a System on Chip (SoC) configuration. In this case a first processor core may function as a CPU for controlling the overall operation of the mobile station, including the user interface, while a second processor core functions as a DSP for controlling operation of the RF transceiver. The first interface supports a unidirectional data bus from the program memory, and the second interface and the third interface each support a bidirectional data bus. Each of the plurality of processor cores has the second interface coupled to the common data memory through a common memory control unit, and the third interface is coupled to at least one of a plurality of interface devices through a common control bus unit. Each of the processor cores operates with a clock signal and fetches an instruction from the associated one of the plurality of program memories using the address bus and the data bus of the first interface, the instruction fetch being referenced to a predetermined edge of the clock signal. Each processor core then begins an execution of the fetched instruction on a next occurrence of said predetermined edge of said clock signal. The first interface is responsive to an assertion of a HOLD signal for suspending the fetching of a next instruction from the program memory. The segregation of the program, data and control buses provides for increased efficiencies and bus bandwidth, increasing the number of instructions that are executed per unit of time at a given clock frequency.

MainClaim: A data processor comprising at least two processor cores, each said processor core having a first interface supporting a first bus coupled to an associated one of at least two program memories, a second interface supporting a second bus coupled to a common data memory accessible by each of said at least two processor cores, and a third interface supporting a third bus coupled to at least one input/output device accessible by each of said at least two processor cores, each of said first, second and third buses comprise an address bus that is sourced from one of said processor cores and a data bus, where said at least two processor cores are contained within a single integrated circuit package, and where said integrated circuit package is installed within a mobile station, where a first processor core functions as a CPU for controlling the overall operations of said mobile station, including a user interface, and where a second processor core functions as a DSP for controlling aspects of the wireless operation of said mobile station.

2003/0105906	Data processor architecture employing segregated data, program and control buses	Nokia Corporation	Zhao, Sheng	710	G06F	20011115	1	92%	<input type="checkbox"/>
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Abstract: A mobile station includes an RF transceiver and a user interface. The mobile station further includes a plurality of data processor cores each having a first interface supporting a first bus coupled to an associated one of a plurality of program memories, a second interface supporting a second bus coupled to a common data memory, and a third interface supporting a third bus coupled to at least one input/output device. Each of the first, second and third buses include an address bus that is sourced from the processor core and a data bus. The plurality of data processor cores may be contained within a single integrated circuit package, such as an ASIC, in a System on Chip (SoC) configuration. In this case a first processor core may function as a CPU for controlling the overall operation of the mobile station, including the user interface, while a second processor core functions as a DSP for controlling operation of the RF transceiver. The first interface supports a unidirectional data bus from the program memory, and the second interface and the third interface each support a bidirectional data bus. Each of the plurality of processor cores has the second interface coupled to the common data memory through a common memory control unit, and the third interface is coupled to at least one of a plurality of interface devices through a common control bus unit. Each of the processor cores operates with a clock signal and fetches an instruction from the associated one of the plurality of program memories using the address bus and the data bus of the first interface, the instruction fetch being referenced to a predetermined edge of the clock signal. Each processor core then begins an execution of the fetched instruction on a next occurrence of said predetermined edge of said clock signal. The first interface is responsive to an assertion of a HOLD signal for suspending the fetching of a next instruction from the program memory. The segregation of the program, data and control buses provides for increased efficiencies and bus bandwidth, increasing the number of instructions that are executed per unit of time at a given clock frequency.

MainClaim: A data processor comprising at least one processor core, said processor core having a first interface supporting a first bus coupled to a program memory, a second interface supporting a second bus coupled to a data memory, and a third interface supporting a third bus coupled to at least one input/output device, each of said first, second and third buses comprise an address bus that is sourced from the processor core and a data bus.

5,274,763	Data path apparatus for IO adapter	Apple Computer, Inc.	Banks; John D. (Jano)	710	G06F	19901228	0	100%	<input type="checkbox"/>
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Abstract: A bi-directional data path apparatus coupled between a first bus and a second bus for allowing a plurality of data transferring devices contained on either one of the buses to transfer data to the devices contained on the other bus. The data path apparatus includes latching stations designed to receive data from the first and second buses. The data path apparatus includes a plurality of byte lanes interconnecting the byte latching stations. A control mechanism directs the transfer of data along specific byte lanes and in a specific temporal order depending on the databus size of the devices sending and receiving data.

MainClaim: In a bi-directional bus adapter coupled between a system bus and an IO bus, said buses consisting of data, address and control lines, said system and IO buses containing a plurality of system and IO data transferring devices respectively, said system data transferring devices being 32-bit data transferring devices, said IO data transferring devices being 8-bit, 16-bit or 32-bit data transferring devices, each of which is designed to send and receive data according to its predetermined databus size by generating a bus cycle, a bi-directional data path apparatus coupled between a system bus and an IO bus, said data path apparatus provided to allow said devices contained on either one of said buses to transfer data to the devices contained on the other of said buses, said data path apparatus comprising:

a first set of four signal transfer stations, each of said first set for receiving one byte of data from said system device to be transferred to said IO device;

a second set of four signal transfer stations, each of said second set for receiving one byte of data from said IO device to be transferred to said system device;

first, second, third and fourth byte lanes routed between said first, second, third and fourth system signal transfer stations and said first, second, third and fourth IO signal transfer stations respectively, such that 32-bit system bus devices transfer data with 32-bit IO bus devices on corresponding byte lanes at the same time;

fifth and sixth byte lanes routed between said third and fourth system signal transfer station and said first and second IO signal transfer stations respectively, wherein data transfers of system bus devices to and from 16-bit IO bus devices utilize only said first, second, third and fourth system signal transfer stations and said first and second IO signal transfer stations, such that data transfers occur in two-byte transfer sizes to or from said first and second IO signal transfer stations along said first and second byte lanes and then along said fifth and sixth byte lanes successively; and

seventh and eighth byte lanes routed from said first IO signal transfer station to said second and fourth system signal transfer stations respectively, wherein data transfers of system bus devices to and from 8-bit IO devices utilize only said first, second, third, and fourth system signal transfer stations and said first IO signal transfer station, such that data transfers occur in one-byte transfer sizes to or from said first IO signal transfer station along said first byte lane, said seventh byte lane, said fifth byte lane and said eighth byte lane successively; and

control means for interpreting said bus cycle, such that said control means directs the routing of said data between said system and IO bus devices along said byte lanes, such that all of the data is transferred between said system and IO bus devices according to the databus sizes of those devices sending or receiving data.

2004/0225779	Programmable CPU/interface buffer structure using dual port RAM	Nokia Mobile Phones Limited	Zhao, Sheng Aries, Wong Lin, Ming-Hui	710	G06F	20010330	9	93%	<input type="checkbox"/>
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Abstract: Disclosed is a programmable buffer circuit (16) for interfacing a CPU (12) to a plurality of channel interfaces (14). The buffer circuit includes a dual port memory (18) having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves the plurality of channel interfaces. The buffer circuit further includes an arbitrator (24) for arbitrating access to the dual port memory by individual ones of the channel interfaces over the channel data bus; an address generator (26) for generating dual port memory addresses for reading and writing data using the CPU data bus and the channel data bus; and a control unit (20) and allocator (22) that are programmable by the CPU for specifying individual ones of buffer locations and sizes within the dual port memory for individual ones of the channel interfaces, and for enabling and disabling individual ones of the buffers. The allocator has outputs coupled to the address generator for controlling the generation of addresses thereby, depending on which channel interface is currently selected for access to the dual port memory. The control unit is programmable for operating individual ones of the channel buffers in a block access mode or in a first in/first out (FIFO)

access mode of operation. In a preferred embodiment, at least the dual port memory, the CPU and the plurality of interface channels are contained within a common integrated circuit package, such as an ASIC. By example, one of the plurality of interface channels implements an audio CODEC, another one implements a serial data interface, and another one implements a packet data interface channel. Individual ones of the plurality of interface channels contain a receive interface and a transmit interface, and the allocator includes a corresponding plurality of registers for specifying at least a starting address and a size for each of the receive interface and the transmit interface. The buffer circuit is also programmable for specifying a receive buffer of one channel interface to be a transmit buffer of another channel interface.

MainClaim: A programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces, comprising: a single dual port memory having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves said plurality of channel interfaces; an arbitrator for arbitrating access to said dual port memory by individual ones of said channel interfaces over said channel data bus for selectively storing data in and reading data from said single port memory; an address generator for generating dual port memory addresses for selectively reading data from and writing data to said single dual port memory using said CPU data bus and said channel data bus; and an allocator and control unit programmable by said CPU for specifying individual ones of buffer locations and buffer sizes within said single dual port memory for individual ones of said channel interfaces, and for enabling individual ones of said buffers, said allocator having outputs coupled to said address generator for controlling the generation of addresses thereby depending on which channel interface is currently selected for access to said single dual port memory.

7,054,986	Programmable CPU/interface buffer structure using dual port RAM	Nokia Corporation	Zhao; Sheng Aries; Wong Lin; Ming-Hui	710	G06F	20010330	9	93%	<input type="checkbox"/>
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Abstract: Disclosed is a programmable buffer circuit (16) for interfacing a CPU (12) to a plurality of channel interfaces (14). The buffer circuit includes a dual port memory (18) having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves the plurality of channel interfaces. The buffer circuit further includes an arbitrator (24) for arbitrating access to the dual port memory by individual ones of the channel interfaces over the channel data bus; an address generator (26) for generating dual port memory addresses for reading and writing data using the CPU data bus and the channel data bus; and a control unit (20) and allocator (22) that are programmable by the CPU for specifying individual ones of buffer locations and sizes within the dual port memory for individual ones of the channel interfaces, and for enabling and disabling individual ones of the buffers.

MainClaim: A programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces, comprising: a single dual port memory having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves said plurality of channel interfaces; an arbitrator for arbitrating access to said dual port memory by individual ones of said channel interfaces over said channel data bus for selectively storing data in and reading data from said single dual port memory; an address generator for generating dual port memory addresses for selectively reading data from and writing data to said single dual port memory using said CPU data bus and said channel data bus; and an allocator and control unit programmable by said CPU for specifying individual ones of buffer locations and buffer sizes within said single dual port memory for individual ones of said channel interfaces, and for enabling individual ones of said buffers, said allocator having outputs coupled to said address generator for controlling the generation of addresses thereby depending on which channel interface is currently selected for access to said single dual port memory, wherein in a first case said control unit operates individual ones of channel buffers in a block access mode of operation using a set of channel registers and in a second case said control unit operates said individual ones of channel buffers in a first in/first out (FIFO) access mode of operation using said same set of channel registers.

5,430,849	Data path apparatus for IO adapter	Apple Computer, Inc.	Banks; John D.	710	G06F	19930611	0	100%	<input type="checkbox"/>
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Abstract: A bi-directional data path apparatus coupled between a first bus and a second bus for allowing a plurality of data transferring devices contained on either one of the buses to transfer data to the devices contained on the other bus. The data path apparatus includes latching stations designed to receive data from the first and second buses. The data path apparatus includes a plurality of byte lanes interconnecting the byte latching stations. A control mechanism directs the transfer of data along specific byte lanes and in a specific temporal order depending on the databus size of the devices sending and receiving data.

MainClaim: A bi-directional data path apparatus coupled between first and second buses of the same size, wherein each of said first and second buses include a predetermined number of bus byte lanes, wherein a plurality of first and second data transferring devices are coupled to said first and second buses respectively, each of which is designed to send and receive data on said first and second buses, wherein at least one of said second devices is coupled to only a portion of said predetermined number of bus byte lanes of said second bus, said data path apparatus provided to allow a first device coupled to one of said buses to transfer data to a second device coupled to the other of said buses, said data path apparatus comprising:

a first set of signal transfer stations coupled to said first bus for receiving data from said first device to be transferred to said second device;

a second set of signal transfer stations coupled to said second bus for receiving data from said second device to be transferred to said first device; and

a plurality of interconnecting byte lanes interconnecting said first and second sets of signal transfer stations; and control means coupled to said first and second sets of signal transfer stations for routing data on said plurality of interconnecting byte lanes to complete data transfers between said first bus and said second bus,

such that data is routed between the same bus byte lanes when transfers are between one of said first devices and one of said second devices coupled to all of said predetermined number of byte lanes, and wherein data is routed onto only said portion of said predetermined number of bus byte lanes when transfers are between one of said first devices and said at least one second device, such that data sent from said at least one second device to said first device is routed onto all of said bus byte lanes of said first bus in successive cycles prior to transfer onto said first bus independently of said first device and said at least one second device and such that data received by said at least one second device from said first device is routed onto only said portion of said predetermined number of bus byte lanes in successive cycles independently of said at least one second device and said first device.

2004/0225779	Programmable CPU/interface buffer structure using dual port	Nokia Mobile Phones Limited	Zhao, Sheng Aries; Wong Lin, Ming-Hui	710	G06F	20010330	9	92%	<input type="checkbox"/>
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RAM									
<p>Abstract: Disclosed is a programmable buffer circuit (16) for interfacing a CPU (12) to a plurality of channel interfaces (14). The buffer circuit includes a dual port memory (18) having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves the plurality of channel interfaces. The buffer circuit further includes an arbitrator (24) for arbitrating access to the dual port memory by individual ones of the channel interfaces over the channel data bus; an address generator (26) for generating dual port memory addresses for reading and writing data using the CPU data bus and the channel data bus; and a control unit (20) and allocator (22) that are programmable by the CPU for specifying individual ones of buffer locations and sizes within the dual port memory for individual ones of the channel interfaces, and for enabling and disabling individual ones of the buffers. The allocator has outputs coupled to the address generator for controlling the generation of addresses thereby, depending on which channel interface is currently selected for access to the dual port memory. The control unit is programmable for operating individual ones of the channel buffers in a block access mode or in a first in/first out (FIFO) access mode of operation. In a preferred embodiment, at least the dual port memory, the CPU and the plurality of interface channels are contained within a common integrated circuit package, such as an ASIC. By example, one of the plurality of interface channels implements an audio CODEC, another one implements a serial data interface, and another one implements a packet data interface channel. Individual ones of the plurality of interface channels contain a receive interface and a transmit interface, and the allocator includes a corresponding plurality of registers for specifying at least a starting address and a size for each of the receive interface and the transmit interface. The buffer circuit is also programmable for specifying a receive buffer of one channel interface to be a transmit buffer of another channel interface.</p> <p>MainClaim: A programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces, comprising: a single dual port memory having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves said plurality of channel interfaces; an arbitrator for arbitrating access to said dual port memory by individual ones of said channel interfaces over said channel data bus for selectively storing data in and reading data from said single port memory; an address generator for generating dual port memory addresses for selectively reading data from and writing data to said single dual port memory using said CPU data bus and said channel data bus; and an allocator and control unit programmable by said CPU for specifying individual ones of buffer locations and buffer sizes within said single dual port memory for individual ones of said channel interfaces, and for enabling individual ones of said buffers, said allocator having outputs coupled to said address generator for controlling the generation of addresses thereby depending on which channel interface is currently selected for access to said single dual port memory.</p>									
7,054,986	Programmable CPU/interface buffer structure using dual port RAM	Nokia Corporation	Zhao; Sheng Aries; Wong Lin; Ming-Hui	710	G06F	20010330	9	92%	<input type="checkbox"/>
<p>Abstract: Disclosed is a programmable buffer circuit (16) for interfacing a CPU (12) to a plurality of channel interfaces (14). The buffer circuit includes a dual port memory (18) having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves the plurality of channel interfaces. The buffer circuit further includes an arbitrator (24) for arbitrating access to the dual port memory by individual ones of the channel interfaces over the channel data bus; an address generator (26) for generating dual port memory addresses for reading and writing data using the CPU data bus and the channel data bus; and a control unit (20) and allocator (22) that are programmable by the CPU for specifying individual ones of buffer locations and sizes within the dual port memory for individual ones of the channel interfaces, and for enabling and disabling individual ones of the buffers.</p> <p>MainClaim: A programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces, comprising: a single dual port memory having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves said plurality of channel interfaces; an arbitrator for arbitrating access to said dual port memory by individual ones of said channel interfaces over said channel data bus for selectively storing data in and reading data from said single dual port memory; an address generator for generating dual port memory addresses for selectively reading data from and writing data to said single dual port memory using said CPU data bus and said channel data bus; and an allocator and control unit programmable by said CPU for specifying individual ones of buffer locations and buffer sizes within said single dual port memory for individual ones of said channel interfaces, and for enabling individual ones of said buffers, said allocator having outputs coupled to said address generator for controlling the generation of addresses thereby depending on which channel interface is currently selected for access to said single dual port memory, wherein in a first case said control unit operates individual ones of channel buffers in a block access mode of operation using a set of channel registers and in a second case said control unit operates said individual ones of channel buffers in a first in/first out (FIFO) access mode of operation using said same set of channel registers.</p>									
5,191,653	IO adapter for system and IO buses having different protocols and speeds	Apple Computer, Inc.	Banks; John D. (J.) Karakotsios; Kenneth M. Scalise; Albert M.	710	G06F	19901228	0	100%	<input type="checkbox"/>

Abstract: A bi-directional bus adapter coupling a system bus, which operates at a first speed using a first protocol, and an IO bus, which operates at a second speed using a second protocol, and allowing data transferring devices on either bus to transfer data to or from devices on the other bus. The bus adapter includes a cycle generation mechanism which is responsive to data cycles from one of the buses in order to generate bus cycles needed to complete a data transfer to a device on the other bus. The bus adapter includes a synchronization mechanism for converting the plurality of data cycles generated by the cycle generation mechanism from either the first speed to the second speed or vice versa. The bus adapter includes bi-directional data path mechanism for routing data between the system and IO buses according to said protocols, such that the data path directs bytes of data to specific data lines to perform byte steering and dynamic bus sizing on the data from the system bus to the IO bus. The bus adapter also includes a bi-directional address transceiver mechanism for routing addresses between said system and said IO buses.

MainClaim: A bi-directional bus adapter coupled between first and second buses, said buses consisting of data, address and control lines, said first and second buses containing a plurality of first and second data transferring devices, each generating a first plurality of data cycles designed to send and receive data according to a predetermined databus size, said first and second buses operating at first and second speeds respectively with first and second bus control protocols respectively, said first and second speeds and first and second bus control protocols being different, said bus adapter provided to allow said devices coupled to either of said buses to transfer data to other devices contained on the other of said buses, said bus adapter comprising:

arbitration means responsive to said plurality of data cycles from said devices, said arbitration means for determining ownership based upon priority of both said first and second buses by only one of said devices at any one time, wherein said arbitration means supports said first and second bus control protocols;

bus cycle generation means, responsive to said first plurality of data cycles from one of said devices on one of said buses, for generating a second plurality of data cycles necessary to complete said data transfer to one of said other devices on the other of said buses, such that the bus control protocols of each of said buses is supported during said data transfer;

synchronization means coupled to said bus cycle generation means for converting said second plurality of data cycles from either said first speed to said second speed or said second speed to said first speed;

bi-directional data path means coupled between said data bus of said first bus and said databus of said second bus and responsive to said first plurality of data cycles, said data path for performing data path routing between said first and second buses according to said bus control protocols; and

bi-directional address transceiver means coupled between said databus of said first bus and said databus of said second bus and responsive to said first plurality of data cycles, said transceiver means for routing addresses between said first and said second buses,

wherein devices on either of said buses transfer data to devices on the other of said buses according to their bus control protocols, such that said first and second buses operate as one single bus.

2004/0225779	Programmable CPU/interface buffer structure using dual port RAM	Nokia Mobile Phones Limited	Zhao, Sheng Aries, Wong Lin, Ming-Hui	710	G06F	20010330	9	92%	<input type="checkbox"/>
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Abstract: Disclosed is a programmable buffer circuit (16) for interfacing a CPU (12) to a plurality of channel interfaces (14). The buffer circuit includes a dual port memory (18) having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves the plurality of channel interfaces. The buffer circuit further includes an arbitrator (24) for arbitrating access to the dual port memory by individual ones of the channel interfaces over the channel data bus; an address generator (26) for generating dual port memory addresses for reading and writing data using the CPU data bus and the channel data bus; and a control unit (20) and allocator (22) that are programmable by the CPU for specifying individual ones of buffer locations and sizes within the dual port memory for individual ones of the channel interfaces, and for enabling and disabling individual ones of the buffers. The allocator has outputs coupled to the address generator for controlling the generation of addresses thereby, depending on which channel interface is currently selected for access to the dual port memory. The control unit is programmable for operating individual ones of the channel buffers in a block access mode or in a first in/first out (FIFO) access mode of operation. In a preferred embodiment, at least the dual port memory, the CPU and the plurality of interface channels are contained within a common integrated circuit package, such as an ASIC. By example, one of the plurality of interface channels implements an audio CODEC, another one implements a serial data interface, and another one implements a packet data interface channel. Individual ones of the plurality of interface channels contain a receive interface and a transmit interface, and the allocator includes a corresponding plurality of registers for specifying at least a starting address and a size for each of the receive interface and the transmit interface. The buffer circuit is also programmable for specifying a receive buffer of one channel interface to be a transmit buffer of another channel interface.

MainClaim: A programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces, comprising: a single dual port memory having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves said plurality of channel interfaces; an arbitrator for arbitrating access to said dual port memory by individual ones of said channel interfaces over said channel data bus for selectively storing data in and reading data from said single port memory; an address generator for generating dual port memory addresses for selectively reading data from and writing data to said single dual port memory using said CPU data bus and said channel data bus; and an allocator and control unit programmable by said CPU for specifying individual ones of buffer locations and buffer sizes within said single dual port memory for individual ones of said channel interfaces, and for enabling individual ones of said buffers, said allocator having outputs coupled to said address generator for controlling the generation of addresses thereby depending on which channel interface is currently selected for access to said single dual port memory.

7,054,986	Programmable CPU/interface buffer structure using dual port RAM	Nokia Corporation	Zhao; Sheng Aries; Wong Lin; Ming-Hui	710	G06F	20010330	9	92%	<input type="checkbox"/>
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Abstract: Disclosed is a programmable buffer circuit (16) for interfacing a CPU (12) to a plurality of channel interfaces (14). The buffer circuit includes a dual port memory (18) having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves the plurality of channel interfaces. The buffer circuit further includes an arbitrator (24) for arbitrating access to the dual port memory by individual ones of the channel interfaces over the channel data bus; an address generator (26) for generating dual port memory addresses for reading and writing data using the CPU data bus and the channel data bus; and a control unit (20) and allocator (22) that are programmable by the CPU for specifying individual ones of buffer locations and sizes within the dual port memory for individual ones of the channel interfaces, and for enabling and disabling individual ones of the buffers.

MainClaim: A programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces, comprising: a single dual port memory having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves said plurality of channel interfaces; an arbitrator for arbitrating access to said dual port memory by individual ones of said channel interfaces over said channel data bus for selectively storing data in and reading data from said single dual port memory; an address generator for generating dual port memory addresses for selectively reading data from and writing data to said single dual port memory using said CPU data bus and said channel data bus; and an allocator and control unit programmable by said CPU for specifying individual ones of buffer locations and buffer sizes within said single dual port memory for individual ones of said channel interfaces, and for enabling individual ones of said buffers, said allocator having outputs coupled to said address generator for controlling the generation of addresses thereby depending on which channel interface is currently selected for access to said single dual port memory, wherein in a first case said control unit operates individual ones of channel buffers in a block access mode of operation using a set of channel registers and in a second case said control unit operates said individual ones of channel buffers in a first in/first out (FIFO) access mode of operation using said same set of channel registers.

5,341,480	Method and apparatus for providing a two conductor serial bus	Apple Computer, Inc.	Wasserman; Steven Roskowski; Steven	710	G06F	19920409	0	100%	<input type="checkbox"/>
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Abstract: A method for rapidly transferring serial data in a two conductor busing arrangement in which one conductor is utilized to transfer data and the other conductor is utilized to transfer clock signals, and in which a plurality of components are

connected to the two conductors, at least one of which is capable of acting as a bus master including the steps of providing clock signals on the clock conductor which are active on both edges, placing a special signal on the data conductor to indicate the start of an operation, placing address data on the data conductor to indicate an address on the data conductor, placing data on the data conductor to indicate the type of transfer to be made, acknowledging the receipt of the address by a component being addressed, transferring data on the data conductor, placing a special signal on the data conductor to indicate the end of the data transfer, transferring a signal indicating a parity count, and placing another special signal on the data conductor to indicate the end of the operation.

MainClaim: A method for rapidly transferring serial data in a two conductor busing arrangement in which one conductor is utilized to transfer data and the other conductor is utilized to transfer clock signals, and in which a plurality of components are connected to the two conductors, wherein said components include a first master circuit, a second master circuit, a first slave circuit, a second slave circuit, and a single clock signal generator, comprising the steps of

providing continuously periodic clock signals, from said clock signal generator, on the clock conductor, wherein each one of the clock signals has an active rising edge and an active falling edge,

placing a first special signal, from at least one of said master circuits, on the data conductor to indicate the start of an operation,

attempting to place a first set of address data, from said first master circuit, on the data conductor, wherein said first set of address data specifies an address of said first slave circuit,

attempting to place a second set of address data, from said second master circuit, on the data conductor, wherein said second set of address data specifies an address of said second slave circuit,

comparing, in each of said first and second master circuits, said first set of address data with said second set of address data, and granting the first master circuit access to the data conductor if a predetermined relationship between said first set of address data and said second set of address data is satisfied,

placing data, from said first master circuit, on the data conductor to indicate a transfer requiring one of said first master circuit and said first slave circuit to act as a transmitting circuit, and the other one of said first master circuit and said first slave circuit to act as a receiving circuit,

placing an acknowledge signal, from said first slave circuit, on the data conductor after said first slave circuit verifies that said transmitted first set of address data matches the address of said first slave circuit,

performing said transfer by said transmitting circuit sending data to said receiving circuit,

placing a second special signal, from said transmitting circuit, on the data conductor to indicate the end of the transfer, and

placing a third special signal, from said first master circuit, on the data conductor to indicate the end of the operation.

2008/0195775	Interface	NOKIA CORPORATION	Webb; Neil Crawford; Ashley Jager; Mike	710	G06F	20040630	3	93%	<input type="checkbox"/>
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Abstract: A method of performing a burst read access at a memory device using a multiplexed data/address bus and a control signal including transferring a first portion of address information in a first phase via the multiplexed data/address bus to the memory device; transferring second portion of address information in a second phase via a multiplexed data/address bus to the memory device; transferring a series of data words from the memory via the multiplexed data/address bus; toggling the state of the control signal at the memory device as each data word is transferred; and suspending the transfer of the series of data words from the memory via the multiplexed data/address bus and the toggling of the state of the control signal.

MainClaim: A method of transferring address information from a controller device to a target device via a multiplexed data/address bus comprising: transferring a first portion of address information in a first phase via the multiplexed data/address bus; transferring a second portion of address information in a second phase via a multiplexed data/address bus, wherein the first and second portions are distinct portions of the address information and the first and second phases are distinct and successive.

5,805,927	Direct memory access channel architecture and method for reception of network information	Apple Computer, Inc.	Bowes; Michael J. Childers; Brian A.	710	G06F	19970924	0	100%	<input type="checkbox"/>
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Abstract: An ethernet receive channel, corresponding to an ethernet controller, is contained within a direct memory access (DMA) controller. The DMA controller is connected to the CPU bus of a computer system through a bus interface and is also connected to an I/O bus, which is coupled to one or more I/O controllers, including an ethernet controller. The ethernet receive channel contains a buffer and multiple register sets storing the number of packets to be received for a particular DMA transfer, the address where the next byte of the incoming ethernet packet will be written in memory, and control information for the transfer. The address registers are initially programmed with the starting location for the transfer in main memory, which correspond to segments within chains of contiguous physical memory. During a transfer, the address registers are updated to contain the location where the next portion of the incoming ethernet packet will be written in memory.

MainClaim: A method for transferring packets of data from an input/output (I/O) device to a main memory of a computer system with a direct memory access (DMA) controller, wherein the computer system includes a first bus and a second bus coupled to the DMA controller, and wherein the DMA controller includes a buffer and at least one register set which includes an address register, the method comprising the steps of:

establishing at least one buffer in said main memory, wherein each of said at least one buffer in said main memory comprises at least one segment, and wherein each of said at least one segment corresponds to one of said packets of data;

determining a first packet of said packets of data;

initially setting a number of most significant bits of said address register equal to corresponding most significant bits of an address of a first memory location of said corresponding segment in said main memory;

initially setting a next higher least significant bit over a number of least significant bits of said address register to one;

transferring a portion of said first packet from said I/O device to said buffer in said DMA controller via said second bus;

transferring said portion of said first packet from said buffer in said DMA controller to a location of said corresponding segment in said main memory, via said first bus, wherein said location is indicated by an address stored in said address register, wherein said number of least significant bits of said address register are hardwired to zero, and wherein a number of memory locations corresponding to addresses represented by said number of least significant bits is equal in size to said portion of said first packet;

incrementing said address register by an amount equal in size to said portion of said first packet after transferring each said portion of said first packet from said buffer in said DMA controller to said corresponding segment in said main memory;

repeating said transferring said portion steps and said incrementing said address register step until said first packet is completely transferred to said corresponding segment in said main memory;

transferring status data from a status register of said I/O device to said buffer in said DMA controller in response to a final portion of said first packet being transferred to said corresponding segment;

resetting said number of most significant bits of said address register equal to said corresponding most significant bits of said address of said first memory location of said corresponding segment in said main memory, in response to transferring said final portion of said first packet;

resetting said next higher least significant bit over said number of least significant bits of said address register to zero, wherein an address of a beginning location of said corresponding segment is indicated by said address stored in said address register;

transferring said status data from said buffer in said DMA controller to said beginning location of said corresponding segment;

incrementing said address register by an amount equal in size to said portion of said first packet after transferring said status data from said buffer in said DMA controller to said beginning location of said corresponding segment;

incrementing said address register by an amount equal to a size of one of said at least one segment in response to a final portion of said status data being transferred to said corresponding segment; and

decrementing a packet count by one in response to said final portion of said status data being transferred to said corresponding segment.

7,054,986	Programmable CPU/interface buffer structure using dual port RAM	Nokia Corporation	Zhao; Sheng Aries; Wong Lin; Ming-Hui	710	G06F	20010330	9	96%	<input type="checkbox"/>
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Abstract: Disclosed is a programmable buffer circuit (16) for interfacing a CPU (12) to a plurality of channel interfaces (14). The buffer circuit includes a dual port memory (18) having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves the plurality of channel interfaces. The buffer circuit further includes an arbitrator (24) for arbitrating access to the dual port memory by individual ones of the channel interfaces over the channel data bus; an address generator (26) for generating dual port memory addresses for reading and writing data using the CPU data bus and the channel data bus; and a control unit (20) and allocator (22) that are programmable by the CPU for specifying individual ones of buffer locations and sizes within the dual port memory for individual ones of the channel interfaces, and for enabling and disabling individual ones of the buffers.

MainClaim: A programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces, comprising: a single dual port memory having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves said plurality of channel interfaces; an arbitrator for arbitrating access to said dual port memory by individual ones of said channel interfaces over said channel data bus for selectively storing data in and reading data from said single dual port memory; an address generator for generating dual port memory addresses for selectively reading data from and writing data to said single dual port memory using said CPU data bus and said channel data bus; and an allocator and control unit programmable by said CPU for specifying individual ones of buffer locations and buffer sizes within said single dual port memory for individual ones of said channel interfaces, and for enabling individual ones of said buffers, said allocator having outputs coupled to said address generator for controlling the generation of addresses thereby depending on which channel interface is currently selected for access to said single dual port memory, wherein in a first case said control unit operates individual ones of channel buffers in a block access mode of operation using a set of channel registers and in a second case said control unit operates said individual ones of channel buffers in a first in/first out (FIFO) access mode of operation using said same set of channel registers.

2004/0225779	Programmable CPU/interface buffer structure using dual port RAM	Nokia Mobile Phones Limited	Zhao, Sheng Aries, Wong Lin, Ming-Hui	710	G06F	20010330	9	96%	<input type="checkbox"/>
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individual ones of the buffers. The allocator has outputs coupled to the address generator for controlling the generation of addresses thereby, depending on which channel interface is currently selected for access to the dual port memory. The control unit is programmable for operating individual ones of the channel buffers in a block access mode or in a first in/first out (FIFO) access mode of operation. In a preferred embodiment, at least the dual port memory, the CPU and the plurality of interface channels are contained within a common integrated circuit package, such as an ASIC. By example, one of the plurality of interface channels implements an audio CODEC, another one implements a serial data interface, and another one implements a packet data interface channel. Individual ones of the plurality of interface channels contain a receive interface and a transmit interface, and the allocator includes a corresponding plurality of registers for specifying at least a starting address and a size for each of the receive interface and the transmit interface. The buffer circuit is also programmable for specifying a receive buffer of one channel interface to be a transmit buffer of another channel interface.

MainClaim: A programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces, comprising: a single dual port memory having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves said plurality of channel interfaces; an arbitrator for arbitrating access to said dual port memory by individual ones of said channel interfaces over said channel data bus for selectively storing data in and reading data from said single port memory; an address generator for generating dual port memory addresses for selectively reading data from and writing data to said single dual port memory using said CPU data bus and said channel data bus; and an allocator and control unit programmable by said CPU for specifying individual ones of buffer locations and buffer sizes within said single dual port memory for individual ones of said channel interfaces, and for enabling individual ones of said buffers, said allocator having outputs coupled to said address generator for controlling the generation of addresses thereby depending on which channel interface is currently selected for access to said single dual port memory.

5,634,013	Bus bridge address translator	Apple Computer, Inc.	Childers; Brian A. Baden; Eric A.	710	G06F	19950503	0	100%	<input type="checkbox"/>
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Abstract: A computer bus bridge interconnects first and second buses, the first bus being big-endian and the second bus being little-endian. First address and size signals received from the first bus during a first bus cycle are converted into second address and data unit enable signals for transmission on the second bus during a second bus cycle. The first address comprises a low-order address portion and a remaining upper-order address portion. The data unit enable signals are generated from the low-order address portion and the size signals of the first bus. An address offset is generated from the data unit enable signals. The remaining upper-order address portion of the first address are then concatenated with the address offset and a predetermined lower address portion for use as the second address. The data unit enable signals may designate, say, up to 4 possible data bytes being transferred during a single beat on the second bus. The size signals may designate, say, up to 8 possible contiguous data units being transferred during a single beat on the first bus. Here, byte enable signals are generated by first generating 8 temporary byte enable signals from the low-order address portion and the size signals. Then, 4 of the 8 temporary byte enable signals are selected for use as the byte enable signals on the second bus. The address offset is generated based on presence or absence of assertion of 4 lowest order ones of the 8 temporary byte enable signals.

MainClaim: In a computer bus bridge for interconnecting first and second buses, the first bus having a first endian characteristic and the second bus having a second endian characteristic that is opposite that of the first endian characteristic, an apparatus for converting first address and size signals received from the first bus during a first bus cycle into second address and data unit enable signals for transmission on the second bus during a second bus cycle, wherein each data unit enable signal is for alternatively designating presence or absence of a meaningful data unit, and wherein the first address comprises a low-order address portion and a remaining upper-order address portion, the apparatus comprising:

means for generating the data unit enable signals from the low-order address portion and the size signals of the first bus; and

means for concatenating the remaining upper-order address portion of the first address with a predetermined lower-order address portion for use as the second address.

7,054,986	Programmable CPU/interface buffer structure using dual port RAM	Nokia Corporation	Zhao; Sheng Aries; Wong Lin; Ming-Hui	710	G06F	20010330	9	93%	<input type="checkbox"/>
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Abstract: Disclosed is a programmable buffer circuit (16) for interfacing a CPU (12) to a plurality of channel interfaces (14). The buffer circuit includes a dual port memory (18) having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves the plurality of channel interfaces. The buffer circuit further includes an arbitrator (24) for arbitrating access to the dual port memory by individual ones of the channel interfaces over the channel data bus; an address generator (26) for generating dual port memory addresses for reading and writing data using the CPU data bus and the channel data bus; and a control unit (20) and allocator (22) that are programmable by the CPU for specifying individual ones of buffer locations and sizes within the dual port memory for individual ones of the channel interfaces, and for enabling and disabling individual ones of the buffers.


MainClaim: A programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces, comprising: a single dual port memory having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves said plurality of channel interfaces; an arbitrator for arbitrating access to said dual port memory by individual ones of said channel interfaces over said channel data bus for selectively storing data in and reading data from said single dual port memory; an address generator for generating dual port memory addresses for selectively reading data from and writing data to said single dual port memory using said CPU data bus and said channel data bus; and an allocator and control unit programmable by said CPU for specifying individual ones of buffer locations and buffer sizes within said single dual port memory for individual ones of said channel interfaces, and for enabling individual ones of said buffers, said allocator having outputs coupled to said address generator for controlling the generation of addresses thereby depending on which channel interface is currently selected for access to said single dual port memory, wherein in a first case said control unit operates individual ones of channel buffers in a block access mode of operation using a set of channel registers and in a second case said control unit operates said individual ones of channel buffers in a first in/first out (FIFO) access mode of operation using said same set of channel registers.

2004/0225779	Programmable CPU/interface buffer structure using dual port RAM	Nokia Mobile Phones Limited	Zhao, Sheng Aries, Wong Lin, Ming-Hui	710	G06F	20010330	9	93%	<input type="checkbox"/>
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data bus; and a control unit (20) and allocator (22) that are programmable by the CPU for specifying individual ones of buffer locations and sizes within the dual port memory for individual ones of the channel interfaces, and for enabling and disabling individual ones of the buffers. The allocator has outputs coupled to the address generator for controlling the generation of addresses thereby, depending on which channel interface is currently selected for access to the dual port memory. The control unit is programmable for operating individual ones of the channel buffers in a block access mode or in a first in/first out (FIFO) access mode of operation. In a preferred embodiment, at least the dual port memory, the CPU and the plurality of interface channels are contained within a common integrated circuit package, such as an ASIC. By example, one of the plurality of interface channels implements an audio CODEC, another one implements a serial data interface, and another one implements a packet data interface channel. Individual ones of the plurality of interface channels contain a receive interface and a transmit interface, and the allocator includes a corresponding plurality of registers for specifying at least a starting address and a size for each of the receive interface and the transmit interface. The buffer circuit is also programmable for specifying a receive buffer of one channel interface to be a transmit buffer of another channel interface.

MainClaim: A programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces, comprising: a single dual port memory having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves said plurality of channel interfaces; an arbitrator for arbitrating access to said dual port memory by individual ones of said channel interfaces over said channel data bus for selectibly storing data in and reading data from said single port memory; an address generator for generating dual port memory addresses for selectively reading data from and writing data to said single dual port memory using said CPU data bus and said channel data bus; and an allocator and control unit programmable by said CPU for specifying individual ones of buffer locations and buffer sizes within said single dual port memory for individual ones of said channel interfaces, and for enabling individual ones of said buffers, said allocator having outputs coupled to said address generator for controlling the generation of addresses thereby depending on which channel interface is currently selected for access to said single dual port memory.

5,793,996	Bridge for interconnecting a computer system bus, an expansion bus and a video frame buffer	Apple Computer, Inc.	Childers; Brian A. Baden; Eric A.	710	H01J	19950503	0	100%	
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Abstract: In a computer system an apparatus interconnects a first bus, a second bus and a frame buffer, wherein the first bus and the second bus are of incompatible bus architecture types. For example the first bus may be a loosely coupled bus having split-bus transaction capability, such as the ARBus, and the second bus may be a tightly ordered bus, such as the PCI local bus. The apparatus includes bridge hardware for converting access requests from the first bus into suitable requests for the second bus. Data paths within the apparatus allow data to be routed from one bus to another. The apparatus further includes a frame buffer controller that is accessible from either of the first or second buses for performing read or write operations from/to the frame buffer. Data path logic allows data to be routed from any of the first bus, second bus and frame buffer to any other one of these three locations. In a preferred embodiment, the data paths are fabricated on a first integrated circuit, and all of control logic is fabricated on a second integrated circuit. The partitioning of hardware in this manner allows for an efficient interface to be provided between the two chips.

MainClaim: In a computer system, an apparatus for interconnecting a first bus, a second bus and a frame buffer, the apparatus comprising:

first port means for coupling to the first bus;

second port means for coupling to the second bus;

third port means for coupling to the frame buffer;

data path means for switchably routing data received from any of the first, second and third port means to any other one of the first, second and third port means,

first bus slave interface means comprising:

means for receiving, from a first agent connected to the first bus, a first request to access a second agent connected to the second bus; and

means for forwarding the received first request to a second bus master interface means;

the second bus master interface means, comprising:

means for converting the first request into a second request that is suitable for transmission on the second bus, and for transmitting the second request on the second bus; and

means for controlling the data path means to alternatively route data from the first bus to the second bus, or from the second bus to the first bus in response to the first request alternatively being a write or a read request;

wherein the first bus slave interface means further comprises:

means for receiving, from the first agent connected to the first bus, a third request to access the frame buffer; and

means for forwarding the third request to a frame buffer interface means; and

the frame buffer interface means for controlling the data path means and the frame buffer to alternatively route data from the first bus to the frame buffer, or from the frame buffer to the first bus in response to the third request alternatively being a frame buffer write or a frame buffer read request.

Programmable									
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2004/0225779	CPU/interface buffer structure using dual port RAM	Nokia Mobile Phones Limited	Zhao, Sheng Aries, Wong Lin, Ming-Hui	710	G06F	20010330	9	95%	<input type="checkbox"/>
<p>Abstract: Disclosed is a programmable buffer circuit (16) for interfacing a CPU (12) to a plurality of channel interfaces (14). The buffer circuit includes a dual port memory (18) having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves the plurality of channel interfaces. The buffer circuit further includes an arbitrator (24) for arbitrating access to the dual port memory by individual ones of the channel interfaces over the channel data bus; an address generator (26) for generating dual port memory addresses for reading and writing data using the CPU data bus and the channel data bus; and a control unit (20) and allocator (22) that are programmable by the CPU for specifying individual ones of buffer locations and sizes within the dual port memory for individual ones of the channel interfaces, and for enabling and disabling individual ones of the buffers. The allocator has outputs coupled to the address generator for controlling the generation of addresses thereby, depending on which channel interface is currently selected for access to the dual port memory. The control unit is programmable for operating individual ones of the channel buffers in a block access mode or in a first in/first out (FIFO) access mode of operation. In a preferred embodiment, at least the dual port memory, the CPU and the plurality of interface channels are contained within a common integrated circuit package, such as an ASIC. By example, one of the plurality of interface channels implements an audio CODEC, another one implements a serial data interface, and another one implements a packet data interface channel. Individual ones of the plurality of interface channels contain a receive interface and a transmit interface, and the allocator includes a corresponding plurality of registers for specifying at least a starting address and a size for each of the receive interface and the transmit interface. The buffer circuit is also programmable for specifying a receive buffer of one channel interface to be a transmit buffer of another channel interface.</p> <p>MainClaim: A programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces, comprising: a single dual port memory having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves said plurality of channel interfaces; an arbitrator for arbitrating access to said dual port memory by individual ones of said channel interfaces over said channel data bus for selectibly storing data in and reading data from said single port memory; an address generator for generating dual port memory addresses for selectively reading data from and writing data to said single dual port memory using said CPU data bus and said channel data bus; and an allocator and control unit programmable by said CPU for specifying individual ones of buffer locations and buffer sizes within said single dual port memory for individual ones of said channel interfaces, and for enabling individual ones of said buffers, said allocator having outputs coupled to said address generator for controlling the generation of addresses thereby depending on which channel interface is currently selected for access to said single dual port memory.</p>									
7,054,986	Programmable CPU/interface buffer structure using dual port RAM	Nokia Corporation	Zhao; Sheng Aries; Wong Lin; Ming-Hui	710	G06F	20010330	9	95%	<input type="checkbox"/>
<p>Abstract: Disclosed is a programmable buffer circuit (16) for interfacing a CPU (12) to a plurality of channel interfaces (14). The buffer circuit includes a dual port memory (18) having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves the plurality of channel interfaces. The buffer circuit further includes an arbitrator (24) for arbitrating access to the dual port memory by individual ones of the channel interfaces over the channel data bus; an address generator (26) for generating dual port memory addresses for reading and writing data using the CPU data bus and the channel data bus; and a control unit (20) and allocator (22) that are programmable by the CPU for specifying individual ones of buffer locations and sizes within the dual port memory for individual ones of the channel interfaces, and for enabling and disabling individual ones of the buffers.</p> <p>MainClaim: A programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces, comprising: a single dual port memory having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves said plurality of channel interfaces; an arbitrator for arbitrating access to said dual port memory by individual ones of said channel interfaces over said channel data bus for selectively storing data in and reading data from said single dual port memory; an address generator for generating dual port memory addresses for selectively reading data from and writing data to said single dual port memory using said CPU data bus and said channel data bus; and an allocator and control unit programmable by said CPU for specifying individual ones of buffer locations and buffer sizes within said single dual port memory for individual ones of said channel interfaces, and for enabling individual ones of said buffers, said allocator having outputs coupled to said address generator for controlling the generation of addresses thereby depending on which channel interface is currently selected for access to said single dual port memory, wherein in a first case said control unit operates individual ones of channel buffers in a block access mode of operation using a set of channel registers and in a second case said control unit operates said individual ones of channel buffers in a first in/first out (FIFO) access mode of operation using said same set of channel registers.</p>									
5,655,151	DMA controller having a plurality of DMA channels each having multiple register sets storing different information controlling respective data transfer	Apple Computer, Inc.	Bowes; Michael J. Childers; Brian A.	710	G06F	19940128	0	100%	<input type="checkbox"/>
<p>Abstract: A direct memory access (DMA) controller is connected with the CPU bus of a computer system through a bus interface and also to an I/O bus, which is connectable to one or more I/O controllers. The DMA controller contains multiple channels, each corresponding to a particular I/O controller, which are coupled to both the bus interface and the I/O bus. Each of the channels contains at least one register set storing information for the transfer and a data buffer holding the data during a transfer between the I/O bus and the CPU bus.</p> <p>MainClaim: A direct memory access (DMA) controller designed to be coupled to a first bus and a second bus, said DMA controller comprising:</p> <p>a plurality of DMA channels;</p> <p>a different plurality of register sets corresponding to each channel of said plurality of DMA channels, wherein only one register set of said plurality of register sets corresponding to a particular DMA channel may be active at any one moment, and wherein each register set of the plurality of register sets corresponding to the particular DMA channel stores different information controlling a different DMA transfer via the particular DMA channel; and</p> <p>a data buffer corresponding to each channel of said plurality of DMA channels.</p>									

7,054,986	Programmable CPU/interface buffer structure using dual port RAM	Nokia Corporation	Zhao; Sheng Aries; Wong Lin; Ming-Hui	710	G06F	20010330	9	95%	<input type="checkbox"/>
<p>Abstract: Disclosed is a programmable buffer circuit (16) for interfacing a CPU (12) to a plurality of channel interfaces (14). The buffer circuit includes a dual port memory (18) having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves the plurality of channel interfaces. The buffer circuit further includes an arbitrator (24) for arbitrating access to the dual port memory by individual ones of the channel interfaces over the channel data bus; an address generator (26) for generating dual port memory addresses for reading and writing data using the CPU data bus and the channel data bus; and a control unit (20) and allocator (22) that are programmable by the CPU for specifying individual ones of buffer locations and sizes within the dual port memory for individual ones of the channel interfaces, and for enabling and disabling individual ones of the buffers.</p> <p>MainClaim: A programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces, comprising: a single dual port memory having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves said plurality of channel interfaces; an arbitrator for arbitrating access to said dual port memory by individual ones of said channel interfaces over said channel data bus for selectively storing data in and reading data from said single dual port memory; an address generator for generating dual port memory addresses for selectively reading data from and writing data to said single dual port memory using said CPU data bus and said channel data bus; and an allocator and control unit programmable by said CPU for specifying individual ones of buffer locations and buffer sizes within said single dual port memory for individual ones of said channel interfaces, and for enabling individual ones of said buffers, said allocator having outputs coupled to said address generator for controlling the generation of addresses thereby depending on which channel interface is currently selected for access to said single dual port memory, wherein in a first case said control unit operates individual ones of channel buffers in a block access mode of operation using a set of channel registers and in a second case said control unit operates said individual ones of channel buffers in a first in/first out (FIFO) access mode of operation using said same set of channel registers.</p>									
2004/0225779	Programmable CPU/interface buffer structure using dual port RAM	Nokia Mobile Phones Limited	Zhao, Sheng Aries, Wong Lin, Ming-Hui	710	G06F	20010330	9	95%	<input type="checkbox"/>
<p>Abstract: Disclosed is a programmable buffer circuit (16) for interfacing a CPU (12) to a plurality of channel interfaces (14). The buffer circuit includes a dual port memory (18) having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves the plurality of channel interfaces. The buffer circuit further includes an arbitrator (24) for arbitrating access to the dual port memory by individual ones of the channel interfaces over the channel data bus; an address generator (26) for generating dual port memory addresses for reading and writing data using the CPU data bus and the channel data bus; and a control unit (20) and allocator (22) that are programmable by the CPU for specifying individual ones of buffer locations and sizes within the dual port memory for individual ones of the channel interfaces, and for enabling and disabling individual ones of the buffers. The allocator has outputs coupled to the address generator for controlling the generation of addresses thereby, depending on which channel interface is currently selected for access to the dual port memory. The control unit is programmable for operating individual ones of the channel buffers in a block access mode or in a first in/first out (FIFO) access mode of operation. In a preferred embodiment, at least the dual port memory, the CPU and the plurality of interface channels are contained within a common integrated circuit package, such as an ASIC. By example, one of the plurality of interface channels implements an audio CODEC, another one implements a serial data interface, and another one implements a packet data interface channel. Individual ones of the plurality of interface channels contain a receive interface and a transmit interface, and the allocator includes a corresponding plurality of registers for specifying at least a starting address and a size for each of the receive interface and the transmit interface. The buffer circuit is also programmable for specifying a receive buffer of one channel interface to be a transmit buffer of another channel interface.</p> <p>MainClaim: A programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces, comprising: a single dual port memory having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves said plurality of channel interfaces; an arbitrator for arbitrating access to said dual port memory by individual ones of said channel interfaces over said channel data bus for selectibely storing data in and reading data from said single port memory; an address generator for generating dual port memory addresses for selectively reading data from and writing data to said single dual port memory using said CPU data bus and said channel data bus; and an allocator and control unit programmable by said CPU for specifying individual ones of buffer locations and buffer sizes within said single dual port memory for individual ones of said channel interfaces, and for enabling individual ones of said buffers, said allocator having outputs coupled to said address generator for controlling the generation of addresses thereby depending on which channel interface is currently selected for access to said single dual port memory.</p>									
6,336,166	Memory control device with split read for ROM access	Apple Computer, Inc.	Kelly; James D.	711	G06F	19970407	0	100%	<input type="checkbox"/>
<p>Abstract: In a computer memory system, memory access operations are significantly enhanced by employing a data path between the read only memory (ROM) and the system processor that is separate and independent from the data path or paths between the system processor and the random access memory (i.e., RAM or DRAM). The separate ROM data path includes a full cache line buffer which stores the ROM data until the system data bus is available to transport the ROM data. With a separate ROM data path, that includes a full cache line buffer, memory access operations are more efficiently conducted because a RAM access (i.e., a read or write operation) and a ROM access (i.e., a read operation) can be executed concurrently.</p> <p>MainClaim: A computer system comprising:</p> <p>a processing unit;</p> <p>a memory access control component connected to the processing unit by a system data bus;</p> <p>a random access memory (RAM) connected to the memory access control component by at least one RAM data path; and</p> <p>a read only memory (ROM) connected to the memory access control component by a ROM data path, wherein said ROM data path is separate from said RAM data path and comprises at least one cache line buffer for ROM;</p> <p>wherein said computer system is configured to allow a ROM memory operation to be conducted simultaneously with a transfer between the processing unit and the RAM.</p>									

6,563,739	System and method for transferring data between different types of memory using a common data bus	Nokia Mobile Phones Limited	Aho; Ari Floman; Matti Lipponen; Markku	365	G11C	20001221	1	94%	<input type="checkbox"/>
<p>Abstract: A memory controller for controlling the transfer of data to and from a memory array, wherein the memory array includes a first type of memory and a second type of memory, the first type having a different signalling protocol from the second type of memory, wherein the memory controller comprises: an address decoder having an input for receiving a memory access request, said memory access request including the address of the memory array to be accessed, and an output for outputting the address of the memory array to be accessed; a first sub-controller for generating a plurality of memory interface signals for controlling the first type of memory, said first sub-controller being operated in response to addresses within a first range of addresses output by the address decoder; and a second sub-controller for generating a plurality of memory interface signals for controlling the second type of memory, said second sub-controller being operated in response to addresses within a second, non-overlapping range of addresses output by the address decoder.</p> <p>MainClaim: A system, which controls the transfer of data to and from a plurality of types of memory with each memory type using a different signalling protocol, the system comprising:</p> <p>a controller;</p> <p>at least one address bus coupling the controller to the plurality of types of memory; and</p> <p>a single data bus, coupling the controller to a plurality of types of memory, which transmits the data between the controller and the types of memory; and wherein</p> <p>the controller controls transmitting of addressing signals on the at least one address bus to at least one of the plurality of types of memory to selectively transfer the data to and from storage locations in each of the types of memory.</p>									
6,598,116	Memory interface using only one address strobe line	Nokia Mobile Phones Limited	Aho; Ari Lipponen; Markku Knuutila; Jarno	711	G06F	19991101	3	93%	<input type="checkbox"/>
<p>Abstract: A method for transmitting an address to a memory (3) for the purpose of reading and writing information. The memory (3) comprises memory cells for storing information as well as an address bus (19a) and a data bus (19b). Part of the address is transmitted via said address bus (19a) and part of the address is transmitted via said data bus (19b).</p> <p>MainClaim: A method for transmitting an address to a memory (3) for the purpose of reading and writing information, which memory (3) comprises memory cells for storing information and an address bus (19a) and a data bus (19b), characterized in that part of the address is transmitted via said address bus (19a) and part of the address is transmitted via said data bus (19b), wherein one address strobe line is used to effectuate a transfer of address information from the address bus and the data bus to the memory, and a row address and a column address are transmitted to memory substantially simultaneously and the row address and the column address are read from the address bus and the data bus into a row selector and a column selector substantially simultaneously.</p>									
5,828,856	Dual bus concurrent multi-channel direct memory access controller and method	Apple Computer, Inc.	Bowes; Michael J. Childers; Brian A.	710	G06F	19960321	0	100%	<input type="checkbox"/>
<p>Abstract: A direct memory access (DMA) controller is connected to the CPU bus of a computer system through a bus interface and is also connected to an I/O bus, which is coupled to one or more I/O controllers. Multiple channels, each corresponding to a particular I/O controller, are contained within the DMA controller. The DMA controller controls DMA transfers between the I/O controllers and the main memory of the system and allows multiple transfers to occur concurrently. The DMA controller controls transfers in part through a first arbiter which arbitrates requests for access to the CPU bus coming from the DMA channels and a second arbiter which arbitrates requests for access to the I/O bus coming from the DMA channels and the CPU.</p> <p>MainClaim: A computer system comprising:</p> <p>a first bus;</p> <p>a second bus;</p> <p>a memory unit and a central processing unit coupled to said first bus;</p> <p>a plurality of input/output controllers coupled to said second bus; and</p> <p>a direct memory access controller, coupled to said first bus and said second bus, the direct memory access controller including,</p> <p>a plurality of direct memory access channels including a first channel and a second channel, for transferring data between said first bus and said second bus, wherein the first channel controls data transfers from a first input/output controller of the plurality of input/output controllers and the second channel, concurrently with the first channel controlling data transfers from the first input/output controller, controls data transfers from a second input/output controller of the plurality of input/output controllers, wherein the first and second input/output controllers are two different input/output controllers,</p> <p>a first arbiter coupled to each of said direct memory access channels, said first arbiter selecting one of the first channel or the second channel on behalf of which the direct memory access controller can arbitrate for access to said first bus; and</p> <p>a second arbiter coupled to each of said direct memory access channels, said second arbiter for arbitrating access requests from said plurality of direct memory access channels for said second bus.</p>									
	Programmable		Zhao; Sheng						

7,054,986	CPU/interface buffer structure using dual port RAM	Nokia Corporation	Aries; Wong Lin; Ming-Hui	710	G06F	20010330	9	95%	<input type="checkbox"/>
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Abstract: Disclosed is a programmable buffer circuit (16) for interfacing a CPU (12) to a plurality of channel interfaces (14). The buffer circuit includes a dual port memory (18) having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves the plurality of channel interfaces. The buffer circuit further includes an arbitrator (24) for arbitrating access to the dual port memory by individual ones of the channel interfaces over the channel data bus; an address generator (26) for generating dual port memory addresses for reading and writing data using the CPU data bus and the channel data bus; and a control unit (20) and allocator (22) that are programmable by the CPU for specifying individual ones of buffer locations and sizes within the dual port memory for individual ones of the channel interfaces, and for enabling and disabling individual ones of the buffers.

MainClaim: A programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces, comprising: a single dual port memory having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves said plurality of channel interfaces; an arbitrator for arbitrating access to said dual port memory by individual ones of said channel interfaces over said channel data bus for selectively storing data in and reading data from said single dual port memory; an address generator for generating dual port memory addresses for selectively reading data from and writing data to said single dual port memory using said CPU data bus and said channel data bus; and an allocator and control unit programmable by said CPU for specifying individual ones of buffer locations and buffer sizes within said single dual port memory for individual ones of said channel interfaces, and for enabling individual ones of said buffers, said allocator having outputs coupled to said address generator for controlling the generation of addresses thereby depending on which channel interface is currently selected for access to said single dual port memory, wherein in a first case said control unit operates individual ones of channel buffers in a block access mode of operation using a set of channel registers and in a second case said control unit operates said individual ones of channel buffers in a first in/first out (FIFO) access mode of operation using said same set of channel registers.

2004/0225779	Programmable CPU/interface buffer structure using dual port RAM	Nokia Mobile Phones Limited	Zhao, Sheng Aries, Wong Lin, Ming-Hui	710	G06F	20010330	9	95%	<input type="checkbox"/>
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Abstract: Disclosed is a programmable buffer circuit (16) for interfacing a CPU (12) to a plurality of channel interfaces (14). The buffer circuit includes a dual port memory (18) having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves the plurality of channel interfaces. The buffer circuit further includes an arbitrator (24) for arbitrating access to the dual port memory by individual ones of the channel interfaces over the channel data bus; an address generator (26) for generating dual port memory addresses for reading and writing data using the CPU data bus and the channel data bus; and a control unit (20) and allocator (22) that are programmable by the CPU for specifying individual ones of buffer locations and sizes within the dual port memory for individual ones of the channel interfaces, and for enabling and disabling individual ones of the buffers. The allocator has outputs coupled to the address generator for controlling the generation of addresses thereby, depending on which channel interface is currently selected for access to the dual port memory. The control unit is programmable for operating individual ones of the channel buffers in a block access mode or in a first in/first out (FIFO) access mode of operation. In a preferred embodiment, at least the dual port memory, the CPU and the plurality of interface channels are contained within a common integrated circuit package, such as an ASIC. By example, one of the plurality of interface channels implements an audio CODEC, another one implements a serial data interface, and another one implements a packet data interface channel. Individual ones of the plurality of interface channels contain a receive interface and a transmit interface, and the allocator includes a corresponding plurality of registers for specifying at least a starting address and a size for each of the receive interface and the transmit interface. The buffer circuit is also programmable for specifying a receive buffer of one channel interface to be a transmit buffer of another channel interface.

MainClaim: A programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces, comprising: a single dual port memory having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves said plurality of channel interfaces; an arbitrator for arbitrating access to said dual port memory by individual ones of said channel interfaces over said channel data bus for selectively storing data in and reading data from said single port memory; an address generator for generating dual port memory addresses for selectively reading data from and writing data to said single dual port memory using said CPU data bus and said channel data bus; and an allocator and control unit programmable by said CPU for specifying individual ones of buffer locations and buffer sizes within said single dual port memory for individual ones of said channel interfaces, and for enabling individual ones of said buffers, said allocator having outputs coupled to said address generator for controlling the generation of addresses thereby depending on which channel interface is currently selected for access to said single dual port memory.

5,860,080	Multicasting system for selecting a group of memory devices for operation	Apple Computer, Inc.	James; David V. Stone; Glen D.	711	G06F	19960319	0	100%	<input type="checkbox"/>
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Abstract: A system and method for multicasting control signals to selectively operate one memory device or groups of memory devices comprises a memory controller coupled to a plurality of memory devices by a command bus and a data bus. Each of the plurality of memory devices has a unique identification number. The system provides an addressing scheme in which an individual memory device or groups of memory device can be selected for operation by addressing the devices with a command packet. The memory controller broadcasts a command packet over the command bus to the plurality of memory devices. The packet includes an identification number. At each of the memory devices, selection logic is included to make the memory device operational if the identification number in the packet matches the identification number assigned to the memory device. The address in the packet is preferably encoded such that identification number has the same size regardless of whether a single memory device is being selected for operation or a group of memory devices are being selected for operation. The present invention also includes a method for selecting groups of memory devices for operation by multicasting a select address comprising the steps of: providing an memory identification number to each memory device, transmitting an memory device selection address, comparing the memory device selection address to the memory identification number, and asserting a signal to make the memory device operational if the memory device selection address and the memory identification number match.

MainClaim: In a system having a memory controller coupled by a bus to a plurality of memory devices, a method for activating a group of memory devices for operation, the method comprising the steps of:

providing a unique memory identification number for each memory device;

transmitting, from the memory controller to the plurality of memory devices, a packet including an encoded memory device selection address identifying the group of memory devices, the group including at least two memory devices and less than the

entire plurality of memory devices, and a command;

comparing the encoded memory device selection address to the memory identification number at each one of the plurality of memory devices; and

enabling operation of each memory device where the memory identification number matches the memory device selection address to perform the command at the group of memory devices.

5,890,005	Low power, low interconnect complexity microprocessor and memory interface	Nokia Mobile Phones Limited	Lindholm; Rune	713	H03K	19970602	3	95%	<input type="checkbox"/>
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Abstract: A method is disclosed for reducing the power consumption of an electronic system, such as a wireless or cellular telephone, that has a memory and a device for accessing the memory. The method includes the steps of (a) during a first part of a memory access cycle, applying an address over a bus; (b) during a second part of the memory access cycle, transferring data to or from the memory over at least a portion of the bus; and (c) prior to the step of transferring, selectively inverting or not inverting the data so as to minimize a number of bus signal lines that are required to change state between the first part and the second part of the memory access cycle. In a preferred embodiment of the invention the bus is a multiplexed address/data bus. The method also generates a control signal that is transmitted to the bus for informing a receiving device that the data (or address) being transferred over the multiplexed address/data bus should be inverted before use. Also disclosed is a memory that operates in a burst mode by incrementing or decrementing memory addresses using a clock signal, and that operates with the power saving circuitry to selectively invert or not invert burst mode data read from or written to the memory.

MainClaim: A method for reducing the power consumption of an electronic system having a first device and a second device that are coupled together through a bidirectional bus, comprising the steps of:

during a first part of a bus cycle, applying an address over the bus from the first device to the second device;

during a second part of the bus cycle, transferring data to or from the first device over at least a portion of the bidirectional bus; and

prior to the step of transferring, selectively inverting or not inverting the data, regardless of whether there is to be a chance in direction of data to be transferred over the bidirectional bus, so as to minimize a number of bus signal lines that are required to change state between the first part and the second part of the bus cycle, thereby reducing power consumption by at least reducing an amount of bus capacitance that is required to be charged or discharged in order to transfer the data during the second part of the bus cycle.

2008/0195775	Interface	NOKIA CORPORATION	Webb; Neil Crawford; Ashley Jager; Mike	710	G06F	20040630	3	95%	<input type="checkbox"/>
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Abstract: A method of performing a burst read access at a memory device using a multiplexed data/address bus and a control signal including transferring a first portion of address information in a first phase via the multiplexed data/address bus to the memory device; transferring second portion of address information in a second phase via a multiplexed data/address bus to the memory device; transferring a series of data words from the memory via the multiplexed data/address bus; toggling the state of the control signal at the memory device as each data word is transferred; and suspending the transfer of the series of data words from the memory via the multiplexed data/address bus and the toggling of the state of the control signal.

MainClaim: A method of transferring address information from a controller device to a target device via a multiplexed data/address bus comprising: transferring a first portion of address information in a first phase via the multiplexed data/address bus; transferring a second portion of address information in a second phase via a multiplexed data/address bus, wherein the first and second portions are distinct portions of the address information and the first and second phases are distinct and successive.

4,958,304	Computer with interface for fast and slow memory circuits	Apple Computer, Inc.	Moore; Robin B.	345	G06F	19890912	0	100%	<input type="checkbox"/>
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Abstract: A CPU with an interface to two different RAMs which operate at different rates. The interface circuit includes a decoder which examines the addresses from the CPU and determines whether a faster cycle or slower cycle is needed. The slow RAM provides video signals to a video display. The fast RAM includes an image of the video signals stored in the first RAM. When the video signals are read by the CPU, they are read only from the fast RAM, however, when it is necessary to update the video signals, they are written into both the slow and fast RAMs.

MainClaim: A computer which provides a video signal for a display comprising:

a central processing unit (CPU) which executes a program to provide said video signal for said display;

first and second random-access memories (RAMs) couples to said CPU, both of said memories storing video data, and said CPU accessing said first RAM at a first rate and said second RAM at a second rate, said second rate being faster than said first rate;

video circuits coupled to said first and second RAM, and to said display for generating said video signal from said video data stored in said first RAM for said display, said circuits accessing said first RAM at said first rate, said video data being updated and stored in both said first RAM and said second RAM;

an interface means for providing control between said CPU and said first and second RAMs such that when said CPU is executing said program and needs to read said video data, said interface means causes said video data to read only said second RAM by said CPU thereby allowing said CPU to operate a substantial portion of its time at said second rate.

5,890,005	Low power, low interconnect complexity microprocessor and memory interface	Nokia Mobile Phones Limited	Lindholm; Rune	713	H03K	19970602	3	93%	<input type="checkbox"/>
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Abstract: A method is disclosed for reducing the power consumption of an electronic system, such as a wireless or cellular

telephone, that has a memory and a device for accessing the memory. The method includes the steps of (a) during a first part of a memory access cycle, applying an address over a bus; (b) during a second part of the memory access cycle, transferring data to or from the memory over at least a portion of the bus; and (c) prior to the step of transferring, selectively inverting or not inverting the data so as to minimize a number of bus signal lines that are required to change state between the first part and the second part of the memory access cycle. In a preferred embodiment of the invention the bus is a multiplexed address/data bus. The method also generates a control signal that is transmitted to the bus for informing a receiving device that the data (or address) being transferred over the multiplexed address/data bus should be inverted before use. Also disclosed is a memory that operates in a burst mode by incrementing or decrementing memory addresses using a clock signal, and that operates with the power saving circuitry to selectively invert or not invert burst mode data read from or written to the memory.

MainClaim: A method for reducing the power consumption of an electronic system having a first device and a second device that are coupled together through a bidirectional bus, comprising the steps of:

during a first part of a bus cycle, applying an address over the bus from the first device to the second device;

during a second part of the bus cycle, transferring data to or from the first device over at least a portion of the bidirectional bus; and

prior to the step of transferring, selectively inverting or not inverting the data, regardless of whether there is to be a change in direction of data to be transferred over the bidirectional bus, so as to minimize a number of bus signal lines that are required to change state between the first part and the second part of the bus cycle, thereby reducing power consumption by at least reducing an amount of bus capacitance that is required to be charged or discharged in order to transfer the data during the second part of the bus cycle.

6,598,116	Memory interface using only one address strobe line	Nokia Mobile Phones Limited	Aho; Ari Lipponen; Markku Knuuttila; Jarno	711	G06F	19991101	3	92%	<input type="checkbox"/>
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Abstract: A method for transmitting an address to a memory (3) for the purpose of reading and writing information. The memory (3) comprises memory cells for storing information as well as an address bus (19a) and a data bus (19b). Part of the address is transmitted via said address bus (19a) and part of the address is transmitted via said data bus (19b).

MainClaim: A method for transmitting an address to a memory (3) for the purpose of reading and writing information, which memory (3) comprises memory cells for storing information and an address bus (19a) and a data bus (19b), characterized in that part of the address is transmitted via said address bus (19a) and part of the address is transmitted via said data bus (19b), wherein one address strobe line is used to effectuate a transfer of address information from the address bus and the data bus to the memory, and a row address and a column address are transmitted to memory substantially simultaneously and the row address and the column address are read from the address bus and the data bus into a row selector and a column selector substantially simultaneously.

5,493,666	Memory architecture using page mode writes and single level write buffering	Apple Computer, Inc.	Fitch; Jonathan M.	711	G06F	19950111	0	100%	<input type="checkbox"/>
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Abstract: A memory architecture including a memory cache which uses a single level of write buffering in combination with page mode writes to attain zero wait state operation for most memory accesses by a microprocessor. By the use of such a memory architecture, the speed advantages of more expensive buffering schemes, such as FIFO buffering, are obtained using less complex designs. The memory architecture utilizes same page detection logic and latching circuitry and takes advantage of a feature built into industry standard dynamic RAMs, namely page mode writes, to perform writes to memory which allow the processor to be freed before the write is completed for the most frequently occurring type of write operations.

MainClaim: A memory system having an address bus and a data bus coupled to a dynamic random access memory array, a memory cache coupled to said address bus and said data bus, a tag array coupled to said address bus and a memory controller coupled to a central processing unit and said dynamic random access memory array, said memory system comprising:

a) page mode write control means coupled to said address bus and said memory controller for controlling writes of data on said data bus to said dynamic random access memory array which are within a predetermined memory page;

b) same page detection logic means for determining whether consecutive writes of data on said data bus to said dynamic random access memory array are within said predetermined memory page and generating a latch control signal for latching data on said data bus;

c) latch means coupled to said dynamic random access memory array, said data bus, said page mode write control means and said same page detection logic means for latching data from said data bus which is to be written to said dynamic random access memory array using said latch control signal; said page mode write control means, said latch control signal and said latch means cooperatively operating to provide a single level of write buffering.

2008/0059748	Method, mobile device, system and software for a write method with burst stop and data masks	Nokia Corporation	Klint; Jani J. Floman; Matti Heinonen; Aarne	711	G06F	20070831	2	92%	<input type="checkbox"/>
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Abstract: A method, mobile device, system, and software are devised in order to implement a write method that includes two different types of write commands, depending upon the length of a data burst to memory. A first write command is provided for a first type of burst and/or a second write command is provided for a second type of burst. The first type of burst is a burst of substantially a certain length. The second type of burst has length that is substantially an integer multiple of the length of the first type of burst, such as two or four times the length of the first type of burst.

MainClaim: A method comprising: providing a first write command to use a first type of burst for writing to a memory; or providing a second write command to use a second type of burst for writing to the memory; wherein the second type of burst has length that is substantially an integer multiple of a length of the first type of burst.

	Cache memory systems that accesses main memory without wait								
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5,353,429	states during cache misses, using a state machine and address latch in the memory controller	Apple Computer, Inc.	Fitch; Jonathan M.	711	G06F	19930820	0	100%	<input checked="" type="checkbox"/>
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Abstract: A memory system where a cache miss is fielded with a retry access to main memory, but instead of waiting for the microprocessor to resynchronize and re-initiate the memory cycle, the memory cycle is started immediately. The speed of the tag array is specified so that the status of the cache, hit or miss, is known at the same time that the microprocessor's memory cycle start signal is known to be valid. The addresses are then latched and the memory cycle is started in anticipation of the retried cycle. The access time of memory is then overlapped with microprocessor resynchronization and memory cycle reinitialization. By using this technique, clock cycles are needed for the initial cycle, additional clock cycles are needed to perform the resynchronization, and additional clock cycles are needed for the retried cycle since the data is already waiting from memory. The above-described improvement is implemented by decoupling the direct connection of the memory array from the address bus. Additionally, a state machine modifies the operation of the memory controller so that the access time of the memory is overlapped with microprocessor resynchronization and memory cycle reinitialization.

MainClaim: A computer system including a cache memory system comprising:

- a) a central processing unit coupled to a data bus and an address bus;
- b) a main memory having a predetermined access time coupled to said data bus and to an address latch bus, said main memory for storing data and instructions for use by said central processing unit;
- c) a memory controller means for controlling accesses to said main memory, said memory controller means including i) an address latch coupled to said address bus and said address latch bus, and ii) state machine means for controlling the operation of the memory controller means and the address latch;
- d) a cache memory means coupled to said address bus and said data bus for storing a predetermined subset of said data and instructions for use by said central processing unit;
- e) a cache tag array means coupled to said address bus for storing portions of addresses from said address bus corresponding to addresses of data and instructions stored in said cache memory means and for generating signals indicating for an address on said address bus whether data corresponding to the address on the address bus is stored within said cache memory means, such that if said data corresponding to the address on the address bus is not stored within said cache memory means, said state machine operates to cause the access time of said main memory to be overlapped with resynchronization of said central processing unit and memory cycle reinitialization required to obtain the data from said main memory.

2008/0059748	Method, mobile device, system and software for a write method with burst stop and data masks	Nokia Corporation	Klint; Jani J. Floman; Matti Heinonen; Aarne	711	G06F	20070831	2	92%	<input type="checkbox"/>
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Abstract: A method, mobile device, system, and software are devised in order to implement a write method that includes two different types of write commands, depending upon the length of a data burst to memory. A first write command is provided for a first type of burst and/or a second write command is provided for a second type of burst. The first type of burst is a burst of substantially a certain length. The second type of burst has length that is substantially an integer multiple of the length of the first type of burst, such as two or four times the length of the first type of burst.

MainClaim: A method comprising: providing a first write command to use a first type of burst for writing to a memory; or providing a second write command to use a second type of burst for writing to the memory; wherein the second type of burst has length that is substantially an integer multiple of a length of the first type of burst.

4,742,448	Integrated floppy disk drive controller	Apple Computer, Inc.	Sander; Wendell B. Bailey; Robert	711	G06F	19861218	0	100%	<input checked="" type="checkbox"/>
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Abstract: A floppy disk drive controller interface implemented as an integrated circuit on a single semi-conductor chip. The controller connects to a host computer data bus and one or more floppy disk drives. Based upon clocking and control signals received from a digital computer, the controller generates serial encoded data for recording on a floppy disk and receives serial encoded data previously recorded on a floppy disk. The controller comprises a read control circuit including a read data register, write control means including a write data register, a mode register, a status register, state latches, a decoder and special function registers. The controller operates by the setting and clearing of the state latches and reading or writing the mode register, the status register, the special function registers, the read data register and the write data register. The setting of a state latch and accessing of a register is done simultaneously. The controller, under software control, operates in a synchronous or asynchronous read/write mode, and slow or fast read/write mode.

MainClaim: An integrated circuit floppy disk drive controller formed in a single semiconductor device for interfacing between a digital computer having an address bus and a data bus, and at least one floppy disk drive, said disk drive controller and said computer being coupled by said data bus, said computer generating a clock signal which is input to said controller, said controller comprising:

state storage means for coupling to said computer by said address bus for storing state commands sent by said computer;

decoder means coupled to said state storage means for decoding state commands stored in said state storage means and generating control signals for controlling the operation of a status register means, a read control means and a write control means based upon said decoded commands;

mode storage means coupled to said decoder means and for coupling to said computer, said mode storage means for storing data sent by said computer indicating modes of operation selected by said computer, said modes of operation including at least one of synchronous/asynchronous reading and writing and fast/slow clock;

said status register means coupled to said decoder means, and for coupling to said floppy disk drive and said computer for

storing information regarding the status of said at least one disk drive and the controller for interrogation by said computer, said status being determined by the contents of said mode storage means and said status register means;

said read control means coupled to said mode storage means, and for coupling to said computer and said at least one disk drive for receiving data from said disk drive and sending said data to said computer in a mode of operation as determined by said mode storage means; and

said write control means coupled to said mode storage means, for coupling to said at least one disk drive for receiving data from said computer and sending said data to said disk drive in a mode of operation as determined by said mode storage means.

6,754,740	Interface apparatus for connecting devices operating at different clock rates, and a method of operating the interface	Nokia Corporation	Happonen; Aki	710	G06F	20001211	3	92%	<input type="checkbox"/>
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Abstract: The invention proposes an apparatus (and method) for transferring data between a first device (1) and a memory area of memory means (3a; F_REG) of a second device (3), the apparatus comprising buffer registers for temporarily storing the data (DATA) to be transferred and the address (ADDR) of the memory area to and/or from which the data are to be transferred, and a control means (EL, CTRL) for controlling said buffer registers, characterized by at least two groups of buffer registers ([DATA_REG1, ADDR_REG1], [DATA_REG2, ADDR_REG2]) for storing data and associated addresses transmitted in consecutive data transfer operations, and in that said control means (CTRL) is adapted to generate a control signal (ENABLE) for alternately switching between a first group of buffer registers ([DATA_REG1, ADDR_REG1]) and a second group of buffer registers ([DATA_REG2, ADDR_REG2]) after each of a respective one of consecutive data transfer operations.

MainClaim: An apparatus for transferring data between a first device and a memory area of memory means of a second device, the memory area being determined by an address, within a system which comprises at least one system clock and in which the first device provides at least a first signal indicating data transfer and a second signal indicating the direction of data transfer, the apparatus comprising:

buffer registers for temporarily storing the data to be transferred and the address of the memory area to and/or from which the data are to be transferred; and

a control means for controlling said buffer registers to temporarily store said data and address to be transferred in response to the first signal indicating that data transfer being active and the second signal indicating the direction of data transfer between the first device and the second device, the first and second signals thereby instructing either a write operation or a read operation, wherein at least two groups of buffer registers for storing data and associated addresses transmitted in consecutive data transfer operations, and wherein said control means is adapted to generate a control signal for alternately switching between a first group of buffer registers and a second group of buffer registers of said at least two groups of buffer registers after each of a respective one of consecutive data transfer operations.

5,717,952	DMA controller with mechanism for conditional action under control of status register, prespecified parameters, and condition field of channel command	Apple Computer, Inc.	Christiansen; Kevin M. James; David V. Eckstein; Bruce E.	710	G06F	19941116	0	100%	<input type="checkbox"/>
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Abstract: A DMA controller capable of conditional action under the control of a status register, prespecified parameters, and a condition field of the channel command, and a DMA controller which returns status information to command entry locations that are reserved for this purpose are disclosed. The prespecified parameters may be held in a register having a mask field and a value field, and a test for conditional action may be a masked comparison of the status register and the value field. The condition field determines how the test result is interpreted and allows suppressing or forcing the conditional action during a command.

MainClaim: A direct memory access (DMA) controller comprising a channel including:

a status register;

a first condition register;

a command buffer having a first condition field;

a first combinational logic block having inputs connected to said status register, said first condition register and said first condition field and having an output whose value determines the conditional execution of a first action by said controller; and wherein

said first combinational logic block includes a first subsystem having inputs connected to said status register and said first condition register and having an output, and a second subsystem having inputs connected to said first condition field and said output of said first subsystem, and an output which is the output of said first combinational logic;

said first condition field has two bits and four possible values, said values being used to determine whether said output of said second subsystem is one, zero, equal to said output of said first subsystem, or equal to the complement of the output of said first subsystem; and

said first condition register has a mask field and a value field and the output of said first subsystem is one if and only if those bits of said status register corresponding to one bits of said mask field are equal to the corresponding bits of said value field.

6,694,398	Circuit for selecting interrupt requests in RISC microprocessors	Nokia Corporation	Zhao; Sheng Wong; Aries Lin; Minghui	710	G06F	20010430	5	92%	<input type="checkbox"/>
<p>Abstract: An apparatus and method for prioritizing interrupt requests in a RISC processor. By utilizing hardware to prioritize the requests, processor time is reduced. The acknowledge signal from a priority resolve circuit selects the given service routine entry to branch instruction generating circuit. A lower priority service routine can be interrupted by a higher priority request.</p> <p>MainClaim: An apparatus for resolving interrupt requests, comprising:</p> <p>a selector circuit for receiving a plurality of interrupt requests of different types and producing a single output for each type;</p> <p>a plurality of arbitrator circuits, each receiving an output from said selector circuit;</p> <p>an interrupt vector for storing interrupt service addresses corresponding to each interrupt request and supplying said addresses to said arbitrator;</p> <p>said arbitrators producing an output signal indicating the interrupt request having the highest priority and the interrupt service address associated therewith.</p>									
5,802,550	Processor having an adaptable mode of interfacing with a peripheral storage device	Apple Computer, Inc.	Fullam; Scott Anderson; Eric Schneider; Rodger C.	711	G06F	19960117	0	100%	<input type="checkbox"/>
<p>Abstract: A processor having an adaptable and self-setting mode of interfacing with a peripheral storage device is provided. The processor comprises a variable-parameter controller which enables the processor to adaptably interface with a peripheral storage device. Upon powering up, the controller first interfaces with the peripheral storage device in accordance with a default mode of operation of the peripheral storage device to extract configuration data from the peripheral storage device. The configuration data relates to at least one alternate mode of operation of the peripheral storage device. The controller then interfaces with the peripheral storage device in accordance with the alternate mode of operation. The processor includes a memory device connected to the variable-parameter controller for storing the configuration data so that it is accessible to the controller.</p> <p>MainClaim: A processor having an adaptable mode of interfacing with a peripheral read only memory (ROM) device, wherein said peripheral ROM device is one of a standard-mode ROM device, a nibble-mode ROM device, and a burst-mode ROM device, comprising:</p> <p>a parameter memory for storing information defining timing and control requirements and at least one data access mode of said peripheral ROM device; and</p> <p>a controller connected to said memory for interfacing with said ROM device in accordance with said stored information.</p>									
5,802,351	Data interface	Nokia Mobile Phones Limited	Frampton; Simon	703	G06F	19960205	1	93%	<input type="checkbox"/>
<p>Abstract: A data buffer (23) is positionable between processing devices, such as microcontroller (21) and a digital signal processor (22). Messages are transmitted between the devices via a dual port RAM buffer (31). The amount of storage allocated for transfers in each direction is adjustable via a size register (42) so that, at any particular time, the optimum amount of storage is provided for a transfer in a particular direction. The buffer is particular suited to applications in mobile telephones.</p> <p>MainClaim: A data buffer positionable between a first processing means and a second processing means, comprising:</p> <p>storage means arranged to buffer data signals generated by each of said processing means for reception by the other of said processing means; and</p> <p>programmable storage allocation means arranged to adjust an amount of storage provided by said storage means for buffering data signals generated by each of said processing means;</p> <p>wherein said programmable storage allocation means is comprised of address generating means for generating addressing signals for the writing of data to said storage means or the reading of data from said storage means; and</p> <p>wherein said address signal generating means is arranged to generate addressing signals initiated from a predetermined value, said address signal generating means further including decoding means for selectively applying an offset to said addressing signals, depending upon whether a writing operation or a reading operation is being performed.</p>									
5,692,137	Master oriented bus bridge	Apple Computer, Inc.	Regal; Michael L. Flaig; Charles M.	710	G06F	19950508	0	100%	<input type="checkbox"/>
<p>Abstract: An interface between two buses in different clock domains. The interface includes a master buffer which is used for both master writes and slave reads. A control logic unit for each bus receives signals from a buffer manager which straddles the clock domains to gate latch pulses to the master buffer.</p> <p>MainClaim: An interface for transferring data between a master device on a first bus having timing controlled by a first clock and a slave device on a second bus having timing controlled by a second clock, the interface comprising:</p> <p>a buffer manager for producing a first control signal when a master write is attempted and a second control signal when a slave read is attempted;</p> <p>a first circuit, arranged to receive a clock signal from said first clock and said first control signal, for producing a write latch pulse signal based on said first clock signal;</p> <p>a second circuit, arranged to receive a clock signal from said second clock and said second control signal, for producing a read</p>									

latch pulse signal based on said second clock signal; and

a master buffer, arranged to receive write data from said first bus and read data from said second bus, and arranged to receive said write latch pulse signal and said read latch pulse signal, for producing as an output one of said write data latched by said write latch pulse signal and said read data latched by said read latch pulse signal in accordance with a control signal.

2008/0195775	Interface	NOKIA CORPORATION	Webb; Neil Crawford; Ashley Jager; Mike	710	G06F	20040630	3	95%	<input type="checkbox"/>
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Abstract: A method of performing a burst read access at a memory device using a multiplexed data/address bus and a control signal including transferring a first portion of address information in a first phase via the multiplexed data/address bus to the memory device; transferring second portion of address information in a second phase via a multiplexed data/address bus to the memory device; transferring a series of data words from the memory via the multiplexed data/address bus; toggling the state of the control signal at the memory device as each data word is transferred; and suspending the transfer of the series of data words from the memory via the multiplexed data/address bus and the toggling of the state of the control signal.

MainClaim: A method of transferring address information from a controller device to a target device via a multiplexed data/address bus comprising: transferring a first portion of address information in a first phase via the multiplexed data/address bus; transferring a second portion of address information in a second phase via a multiplexed data/address bus, wherein the first and second portions are distinct portions of the address information and the first and second phases are distinct and successive.

5,371,877	Apparatus for alternatively accessing single port random access memories to implement dual port first-in first-out memory	Apple Computer, Inc.	Drako; Dean M. Yu; Hsin-Tung A.	711	G06F	19911231	0	100%	<input type="checkbox"/>
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Abstract: A circuit for providing the function of a dual port FIFO circuit including a first bank of single port random access memory, a second bank of single port random access memory, apparatus for sequentially writing every other piece of sequential data to an alternate one of the first and second [memory] banks of single port memory, and apparatus for simultaneously reading the earliest written piece of sequential data from the one [each] of the first and second [memory] banks of single port memory not being written during the period data is being written to the other of the [memory] banks of single port memory. By using two banks of single port memory, the cost of dual port memory typically used for a FIFO circuit is substantially reduced.

MainClaim: A circuit for accessing information, said circuit comprising:

a clock supplying a clock signal having a first phase and a second phase;

a first bank of single port random access memory that is accessed for reading during said first phase;

a second bank of single port random access memory that is accessed for reading during said second phase;

read circuitry, coupled to said first bank and to said second bank, sequentially reading every other piece of sequential data from an alternate one of said first bank of memory or said second bank of memory during said first and second clock phases, respectively;

write circuitry writing data into said first bank of memory during said second phase and also writing data into said second bank of memory during said first phase, wherein at least one piece of data may be written to said first bank or to said second bank while an other bank is being read by said read circuitry; and

recovery circuitry supplying data in response to removal of a hold condition, said recovery circuitry comprising:

first address generation circuitry generating a first address in a given clock cycle for addressing said first bank or said second bank;

second address generation circuitry generating a second address in said given clock cycle for addressing said first bank or said second bank wherein said second address is equal to an address succeeding said first address;

delay storage circuitry delaying data output from said first bank and said second bank by one clock cycle; and

multiplexing circuitry supplying information to output terminals from either said read circuitry or from said delay storage circuitry.

6,754,740	Interface apparatus for connecting devices operating at different clock rates, and a method of operating the interface	Nokia Corporation	Happonen; Aki	710	G06F	20001211	3	93%	<input type="checkbox"/>
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Abstract: The invention proposes an apparatus (and method) for transferring data between a first device (1) and a memory area of memory means (3a; F_REG) of a second device (3), the apparatus comprising buffer registers for temporarily storing the data (DATA) to be transferred and the address (ADDR) of the memory area to and/or from which the data are to be transferred, and a control means (EL, CTRL) for controlling said buffer registers, characterized by at least two groups of buffer registers ([DATA_REG1, ADD_REG1], [DATA_REG2, ADD_REG2]) for storing data and associated addresses transmitted in consecutive data transfer operations, and in that said control means (CTRL) is adapted to generate a control signal (ENABLE) for alternately switching between a first group of buffer registers ([DATA_REG1, ADD_REG1]) and a second group of buffer registers ([DATA_REG2, ADD_REG2]) after each of a respective one of consecutive data transfer operations.

MainClaim: An apparatus for transferring data between a first device and a memory area of memory means of a second device, the memory area being determined by an address, within a system which comprises at least one system clock and in which the

first device provides at least a first signal indicating data transfer and a second signal indicating the direction of data transfer, the apparatus comprising:

buffer registers for temporarily storing the data to be transferred and the address of the memory area to and/or from which the data are to be transferred; and

a control means for controlling said buffer registers to temporarily store said data and address to be transferred in response to the first signal indicating that data transfer being active and the second signal indicating the direction of data transfer between the first device and the second device, the first and second signals thereby instructing either a write operation or a read operation, wherein at least two groups of buffer registers for storing data and associated addresses transmitted in consecutive data transfer operations, and wherein said control means is adapted to generate a control signal for alternately switching between a first group of buffer registers and a second group of buffer registers of said at least two groups of buffer registers after each of a respective one of consecutive data transfer operations.

5,504,913	Queue memory with self-handling addressing and underflow	Apple Computer, Inc.	Baden; Eric A.	711	G06F	19920514	0	100%	<input type="checkbox"/>
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Abstract: The present invention reduces the overhead commonly associated with computer queues by not requiring direct addressing of each location in the queue and by not requiring specialized underflow logic. Furthermore, reads and writes to the computer queue of the present invention can be asynchronous. Lastly, the computer queue of the present invention requires less circuitry and is thus physically smaller, requires less power to operate and can operate more quickly than can queues of the prior art.

MainClaim: An improved computer queue memory comprising:

a) a register file, said register file comprising a matrix of rows and columns of transparent latches wherein each said column of transparent latches comprises a word of said queue memory and wherein each said row of transparent latches comprises a bit of each said word of said queue memory;

b) a write addressing shift register, said write addressing shift register comprising a series of flip-flops, each said write addressing flip-flop coupled to address one column of said columns of transparent latches of said register file;

c) a read addressing shift register and a read addressing shift register cycle indicator, said read addressing shift register comprising a series of flip-flops, each said read addressing series flip-flop coupled to select the output of one transparent latch of a first predetermined set of outputs of each said row of transparent latches of said register file and also coupled to select the output of one transparent latch of a second predetermined set of outputs of each said row of transparent latches of said register file, said read addressing shift register cycle indicator coupled to select between said predetermined sets of outputs of each said row of transparent latches of said register file.

6,754,740	Interface apparatus for connecting devices operating at different clock rates, and a method of operating the interface	Nokia Corporation	Happonen; Aki	710	G06F	20001211	3	92%	<input type="checkbox"/>
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Abstract: The invention proposes an apparatus (and method) for transferring data between a first device (1) and a memory area of memory means (3a; F_REG) of a second device (3), the apparatus comprising buffer registers for temporarily storing the data (DATA) to be transferred and the address (ADDR) of the memory area to and/or from which the data are to be transferred, and a control means (EL, CTRL) for controlling said buffer registers, characterized by at least two groups of buffer registers ([DATA_REG1, ADDR_REG1], [DATA_REG2, ADDR_REG2]) for storing data and associated addresses transmitted in consecutive data transfer operations, and in that said control means (CTRL) is adapted to generate a control signal (ENABLE) for alternately switching between a first group of buffer registers ([DATA_REG1, ADDR_REG1]) and a second group of buffer registers ([DATA_REG2, ADDR_REG2]) after each of a respective one of consecutive data transfer operations.

MainClaim: An apparatus for transferring data between a first device and a memory area of memory means of a second device, the memory area being determined by an address, within a system which comprises at least one system clock and in which the first device provides at least a first signal indicating data transfer and a second signal indicating the direction of data transfer, the apparatus comprising:

buffer registers for temporarily storing the data to be transferred and the address of the memory area to and/or from which the data are to be transferred; and

a control means for controlling said buffer registers to temporarily store said data and address to be transferred in response to the first signal indicating that data transfer being active and the second signal indicating the direction of data transfer between the first device and the second device, the first and second signals thereby instructing either a write operation or a read operation, wherein at least two groups of buffer registers for storing data and associated addresses transmitted in consecutive data transfer operations, and wherein said control means is adapted to generate a control signal for alternately switching between a first group of buffer registers and a second group of buffer registers of said at least two groups of buffer registers after each of a respective one of consecutive data transfer operations.

5,815,733	System for handling interrupts in a computer system using asic reset input line coupled to set of status circuits for presetting values in the status circuits	Apple Computer, Inc.	Anderson; Eric C. Johnson; Celeste	710	G06F	19960201	0	100%	<input type="checkbox"/>
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Abstract: The present invention provides an interrupt register for handling interrupt requests received from external devices at a common interrupt terminal of a CPU. The invention provides inputs, outputs, and storage means as part of the interrupt register. The interrupt register inputs and outputs are used for communication with both the external devices and CPU to prevent mishandling of the interrupt requests.

MainClaim: A circuit for facilitating communications between peripherals and a control device, comprising:

a first set of input circuits, at least one of the first set of input circuits being responsive to peripheral signals from a respective peripheral, including a signal pulse and a signal level change from a first level to a second level;

a set of status circuits coupled to the first set of input circuits, responsive to the peripheral signals being received at the first set of input circuits to generate a set of status signals;

a set of output circuits coupled to the set of status circuits, for indicating the set of status signals to the control device; and

an ASIC reset input line coupled to the set of status circuits, for presetting values in the status circuits.

6,694,398	Circuit for selecting interrupt requests in RISC microprocessors	Nokia Corporation	Zhao; Sheng Wong; Aries Lin; Minghui	710	G06F	20010430	5	92%	<input type="checkbox"/>
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Abstract: An apparatus and method for prioritizing interrupt requests in a RISC processor. By utilizing hardware to prioritize the requests, processor time is reduced. The acknowledge signal from a priority resolve circuit selects the given service routine entry to branch instruction generating circuit. A lower priority service routine can be interrupted by a higher priority request.

MainClaim: An apparatus for resolving interrupt requests, comprising:

a selector circuit for receiving a plurality of interrupt requests of different types and producing a single output for each type;

a plurality of arbitrator circuits, each receiving an output from said selector circuit;

an interrupt vector for storing interrupt service addresses corresponding to each interrupt request and supplying said addresses to said arbitrator;

said arbitrators producing an output signal indicating the interrupt request having the highest priority and the interrupt service address associated therewith.

5,546,547	Memory bus arbiter for a computer system having a dsp co-processor	Apple Computer, Inc.	Bowes; Michael J. Yazdy; Farid A.	710	G06F	19940128	0	100%	<input type="checkbox"/>
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Abstract: An arbitration scheme for a computer system in which a digital signal processor resides on the computer system's memory bus without requiring a block of dedicated static random access memory. An arbitration cycle is divided into 10 slices of which 5 slices are provided in each arbitration loop to the digital signal processor. Two slices are provided each to the system's I/O interface and to the peripheral bus controller. A final slice is provided to the system's CPU. A default state when no memory bus resource is requesting the system memory bus parks the memory bus on the CPU. The arbitration scheme provides sufficient bandwidth for real-time signal processing by the digital signal processor operating from the system's dynamic random access memory while also providing sufficient bandwidth for a local area network interface through the system's I/O interface.

MainClaim: A Computer system comprising:

a processing unit;

a system bus coupled to said processing unit;

a main memory system coupled to said system bus;

a digital signal processor coupled to said system bus for utilizing said main memory system as an external memory over said system bus in conjunction with said processing unit using said main memory system over said system bus;

an arbiter in communication with said processing unit and said digital signal processor for processing system bus access requests, said arbiter for providing said digital signal processor with sufficient system bus bandwidth for access to said main memory system so as to facilitate real-time data processing without starving said processing unit from access to said main memory system over said system bus;

an I/O bus interface coupled to said system bus;

an I/O bus in communication with said system bus through said I/O bus interface;

wherein said arbiter is further in communication with said I/O bus interface, said arbiter further arbitrating said system bus to provide sufficient system bus bandwidth to support resources coupled to said I/O bus;

an network port coupled to said I/O bus for connecting said computer system to a local area network;

an expansion card peripheral bus;

an expansion card peripheral bus controller for coupling said peripheral bus to said system bus;

wherein said arbiter is further in communication with said peripheral bus controller, said arbiter further arbitrating said system bus to provide sufficient system bus bandwidth to support resources coupled to said peripheral bus; and

wherein said arbiter designates any one of said processing unit, said digital signal processor, said I/O interface or said peripheral bus controller as the master on said system bus, said arbiter making said designation according to the following state diagram: ##STR1## wherein state I corresponds to the state where said processing unit is assigned ownership of said system bus, states II, IV, VI and VIII correspond to the state where said digital signal processor is assigned ownership of said system bus, states III and VII correspond to the state where said peripheral bus controller is assigned ownership of said system bus, and states V and IX correspond to the state where said I/O bus interface is assigned ownership of said system bus.

7,293,119	DMA data transfer between low-overhead processor and connected external circuitry using transactions log	Nokia Corporation	Beale; John	710	G06F	20011227	2	93%	<input type="checkbox"/>
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Abstract: The present invention relates to a method and system for performing a data transfer between a shared memory (16) of a processor device (10) and a circuitry (20) connected to the processor device (10), wherein the data transfer is performed by triggering a DMA transfer of the data to the processor device, adding the DMA transfer to a transaction log, and providing the transaction log to the processor device, when the transaction log has reached a predetermined depth limit. The processor device is then informed of the DMA transfer of the transaction log, so as to be able to validate the transferred data. Thereby, significant background data movement can be provided without introducing high core overheads at the processor device (10).

MainClaim: A method comprising: performing a data transfer between a memory of a processor device and a circuitry connected to said processor device, wherein said performing comprises setting up at said circuitry a direct memory access for transferring data; triggering at said circuitry a direct memory access transfer of said data to said processor device; adding in said circuitry said direct memory access transfer to a transaction log; providing said transaction log from said circuitry to said processor device, when said transaction log has reached a predetermined limit; and informing said processor device of the availability of said transaction log.

5,961,614	System for data transfer through an I/O device using a memory access controller which receives and stores indication of a data status signal	Apple Computer, Inc.	Christiansen; Kevin M.	710	G06F	19960507	0	100%	<input type="checkbox"/>
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Abstract: A method and system for transferring units of data between a computer memory and an external system in which a DMA controller stores and uses information from an I/O device interfacing with the external system to transfer data more efficiently.

MainClaim: A method of transferring a data unit from a computer system memory and to an external system through an I/O device using a memory access controller, said memory access controller including a register for storing information which the memory access controller uses to control its own operation, said method comprising the steps of:

a first step, executed by said memory access controller, of retrieving said data unit from said computer system memory and transmitting said data unit to said I/O device;

a second step, executed by said I/O device, of transmitting said data unit retrieved and transmitted in said first step to said external system;

a third step, executed by said I/O device, of sending a data status signal to said memory access controller when said second step is complete; and

a fourth step, executed by said memory access controller, of storing an indication of said data status signal sent in said third step in said register.

2004/0225779	Programmable CPU/interface buffer structure using dual port RAM	Nokia Mobile Phones Limited	Zhao, Sheng Aries, Wong Lin, Ming-Hui	710	G06F	20010330	9	93%	<input type="checkbox"/>
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Abstract: Disclosed is a programmable buffer circuit (16) for interfacing a CPU (12) to a plurality of channel interfaces (14). The buffer circuit includes a dual port memory (18) having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves the plurality of channel interfaces. The buffer circuit further includes an arbitrator (24) for arbitrating access to the dual port memory by individual ones of the channel interfaces over the channel data bus; an address generator (26) for generating dual port memory addresses for reading and writing data using the CPU data bus and the channel data bus; and a control unit (20) and allocator (22) that are programmable by the CPU for specifying individual ones of buffer locations and sizes within the dual port memory for individual ones of the channel interfaces, and for enabling and disabling individual ones of the buffers. The allocator has outputs coupled to the address generator for controlling the generation of addresses thereby, depending on which channel interface is currently selected for access to the dual port memory. The control unit is programmable for operating individual ones of the channel buffers in a block access mode or in a first in/first out (FIFO) access mode of operation. In a preferred embodiment, at least the dual port memory, the CPU and the plurality of interface channels are contained within a common integrated circuit package, such as an ASIC. By example, one of the plurality of interface channels implements an audio CODEC, another one implements a serial data interface, and another one implements a packet data interface channel. Individual ones of the plurality of interface channels contain a receive interface and a transmit interface, and the allocator includes a corresponding plurality of registers for specifying at least a starting address and a size for each of the receive interface and the transmit interface. The buffer circuit is also programmable for specifying a receive buffer of one channel interface to be a transmit buffer of another channel interface.

MainClaim: A programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces, comprising: a single dual port memory having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves said plurality of channel interfaces; an arbitrator for arbitrating access to said dual port memory by individual ones of said channel interfaces over said channel data bus for selectively storing data in and reading data from said single port memory; an address generator for generating dual port memory addresses for selectively reading data from and writing data to said single dual port memory using said CPU data bus and said channel data bus; and an allocator and control unit programmable by said CPU for specifying individual ones of buffer locations and buffer sizes within said single dual port memory for individual ones of said channel interfaces, and for enabling individual ones of said buffers, said allocator having outputs coupled to said address generator for controlling the generation of addresses thereby depending on which channel interface is currently selected for

access to said single dual port memory.

7,054,986	Programmable CPU/interface buffer structure using dual port RAM	Nokia Corporation	Zhao; Sheng Aries; Wong Lin; Ming-Hui	710	G06F	20010330	9	93%	<input type="checkbox"/>
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Abstract: Disclosed is a programmable buffer circuit (16) for interfacing a CPU (12) to a plurality of channel interfaces (14). The buffer circuit includes a dual port memory (18) having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves the plurality of channel interfaces. The buffer circuit further includes an arbitrator (24) for arbitrating access to the dual port memory by individual ones of the channel interfaces over the channel data bus; an address generator (26) for generating dual port memory addresses for reading and writing data using the CPU data bus and the channel data bus; and a control unit (20) and allocator (22) that are programmable by the CPU for specifying individual ones of buffer locations and sizes within the dual port memory for individual ones of the channel interfaces, and for enabling and disabling individual ones of the buffers.

MainClaim: A programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces, comprising: a single dual port memory having a first port coupled to a CPU data bus and a second port coupled to a channel data bus that serves said plurality of channel interfaces; an arbitrator for arbitrating access to said dual port memory by individual ones of said channel interfaces over said channel data bus for selectively storing data in and reading data from said single dual port memory; an address generator for generating dual port memory addresses for selectively reading data from and writing data to said single dual port memory using said CPU data bus and said channel data bus; and an allocator and control unit programmable by said CPU for specifying individual ones of buffer locations and buffer sizes within said single dual port memory for individual ones of said channel interfaces, and for enabling individual ones of said buffers, said allocator having outputs coupled to said address generator for controlling the generation of addresses thereby depending on which channel interface is currently selected for access to said single dual port memory, wherein in a first case said control unit operates individual ones of channel buffers in a block access mode of operation using a set of channel registers and in a second case said control unit operates said individual ones of channel buffers in a first in/first out (FIFO) access mode of operation using said same set of channel registers.

5,361,389	Apparatus and method for emulation routine instruction issue	Apple Computer, Inc.	Fitch; Jonathan	703	G06F	19930927	0	100%	<input type="checkbox"/>
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Abstract: An apparatus for emulation routine instruction issue comprises a bus signal router, a state machine, a virtual program counter (VPC) circuit, an emulated program counter (EPC), a summing circuit, an opcode storage register, and a pointer storage register. The VPC circuit maintains the VPC value under the direction of the state machine. In response to a next instruction request issued by the central processing unit (CPU), the state machine outputs the VPC to an instruction address bus, transferring the host instruction stored at the address indicated by the VPC to the instruction bus for issue to the CPU. After a next host instruction request, the state machine updates the VPC value. Concurrent with the execution of the current emulation routine, the state machine prefetches the next emulation routine pointer (NERP) by issuing DMA commands and commands to the EPC, the opcode storage means, and the pointer storage means. If the final host instruction in the current emulation routine has been reached, the state machine assigns the NERP to the VPC and outputs the VPC to the instruction address bus. A method for Emulation Routine Instruction Issue comprises the steps of determining if a next host instruction request has been made by the CPU; outputting the VPC to the instruction address bus; and updating the VPC; and prefetching the NERP concurrent with the execution of the host instructions in the current emulation routine.

MainClaim: An apparatus for issuing instructions during emulation routines to a central processing unit (CPU) of a host computer system, the host computer system also having a memory, a control bus, a data bus, an address bus, and an address instruction bus, said apparatus comprising:

an emulated program counter having a control input, a load input, and an output, for storing an address of a next emulation routine to be executed from the data bus in response to a first control signal on the control input of the emulated program counter, the control input of the emulated program counter coupled to the control bus, the load input of the emulated program counter coupled to the data bus, and the output of the emulated program counter coupled to the address bus;

a pointer storage means having a control input, a data input, and an output, for storing a pointer to the next emulation routine in response to a second control signal on the control input of the pointer storage means, the control input of the pointer storage means coupled to the control bus, the data input of the pointer storage means coupled to the data bus;

a virtual counter generation circuit having a first control input, a second control input, a first data input, a second data input, an address output, and a data output for generating and storing a virtual program counter value, the first control input of the virtual counter generation circuit coupled to the control bus, the first data input of the virtual counter generation circuit coupled to the data bus, the second data input of the virtual counter generation circuit coupled to the output of the pointer storage means, the address output of the virtual counter generation circuit coupled to the instruction address bus, and the data output of the virtual counter generation circuit coupled to the data bus; and

a state machine having a control input, an increment input, and a first control output, for detecting when the emulated program counter has been updated, for controlling the retrieval of a pointer to the next emulation routine to be executed from memory, and for issuing the virtual program counter value to the instruction address bus, the control input and the first control output of the state machine coupled to the control bus, and the increment input coupled to the address bus.

6,694,398	Circuit for selecting interrupt requests in RISC microprocessors	Nokia Corporation	Zhao; Sheng Wong; Aries Lin; Minghui	710	G06F	20010430	5	95%	<input type="checkbox"/>
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Abstract: An apparatus and method for prioritizing interrupt requests in a RISC processor. By utilizing hardware to prioritize the requests, processor time is reduced. The acknowledge signal from a priority resolve circuit selects the given service routine entry to branch instruction generating circuit. A lower priority service routine can be interrupted by a higher priority request.

MainClaim: An apparatus for resolving interrupt requests, comprising:

a selector circuit for receiving a plurality of interrupt requests of different types and producing a single output for each type;

a plurality of arbitrator circuits, each receiving an output from said selector circuit;

an interrupt vector for storing interrupt service addresses corresponding to each interrupt request and supplying said addresses to said arbitrator;

said arbitrators producing an output signal indicating the interrupt request having the highest priority and the interrupt service address associated therewith.

7,437,497	Method and apparatus for encoding memory control signals to reduce pin count	Apple Inc.	Cornelius; William P.	711	G06F	20040823	0	100%	<input type="checkbox"/>
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Abstract: One embodiment of the present invention provides a system that uses encoded memory control signals to reduce pin count on chips that generate and drive memory control signals. During operation, the system receives encoded memory control signals from a memory controller, wherein the memory control signals were encoded to reduce the number of memory control signals, and wherein the encoded memory control signals are received at a buffer chip, which is external to the memory controller. Next, the system decodes the encoded memory control signals on the buffer chip to restore the memory control signals, and then drives the memory control signals from the buffer chip to corresponding memory modules in the system memory. By transferring the memory control signals in encoded form from the memory controller to the buffer chip, fewer pins are required on both the memory controller chip and the buffer chip.

MainClaim: A method for using encoded memory control signals to reduce pin count on chips that generate and drive memory control signals, comprising: receiving encoded memory control signals from a memory controller, wherein the memory control signals were encoded to reduce the number of memory control signals, and wherein the encoded memory control signals are received at a buffer chip which is external to the memory controller and memory modules; decoding the encoded memory control signals on the buffer chip to restore the memory control signals for controlling one or more memory modules, wherein the one or more memory modules are located on integrated circuit (IC) chips that are separate from the buffer chip; and driving the memory control signals from the buffer chip to the one or more memory modules in a system memory, wherein driving the memory control signals involves using a phase-locked loop (PLL) or a delay-locked loop (DLL) within the buffer chip to synchronize the memory control signals with clock signals for the system memory; whereby transferring the memory control signals in encoded form from the memory controller to the buffer chip requires fewer pins on both the memory controller chip and the buffer chip.

2006/0184726	Flexible access and control of Dynamic Random Access Memory	Nokia Corporation	Klint; Jani Floman; Matti Vihmalo; Jukka-Pekka	711	G06F	20050211	2	94%	<input type="checkbox"/>
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Abstract: The invention relates in general to a method for accessing data stored in a dynamic random access memory. To enable flexible use of different types of memory modules, the invention provides addressing data through at least one address bus, controlling at least data flow to and from the dynamic random access memory through at least one control bus, transferring data to and from the dynamic random access memory through at least one data bus, and clocking the dynamic random access memory through at least one clock input, wherein transferring data to and from the dynamic random access memory through the data bus is operated at a variable data flow rate such that the number of data bits transferred on the data bus within one clock cycle is adjustable through at least one command on the control bus.

MainClaim: A method for accessing data stored in a dynamic random access memory, comprising the steps of: addressing data through at least one address bus, controlling at least data flow to and from the dynamic random access memory through at least one control bus, transferring data to and from the dynamic random access memory through at least one data bus, and clocking the dynamic random access memory through at least one clock input, wherein transferring data to and from the dynamic random access memory through the data bus is operated at a variable data flow rate such that the number of data bits transferred on the data bus within one clock cycle is adjustable through at least one command on the control bus.

7,280,054	Integrated circuit interface that encodes information using at least one input signal sampled at two consecutive edge transitions of a clock signal	Nokia Corporation	Floman; Matti Klint; Jani	341	H03M	20041202	2	92%	<input type="checkbox"/>
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Abstract: An integrated circuit, such as a dynamic RAM, includes a plurality of terminals for coupling to signal lines. One of the signal lines is an input signal line that conveys a clock signal, and at least one other signal line is also an input signal line that conveys information that is encoded by a level of the at least one other signal line at n consecutive edge transitions of the clock signal, where $n \geq 2$.

MainClaim: A circuit, comprising a plurality of terminals for coupling to signal lines, where one of the signal lines is an input signal line that conveys a clock signal, and where a plurality of other signal lines are also input signal lines that conveys information that is encoded by a level of each of the plurality of other signal lines when considered together and when sampled at n consecutive edge transitions of the clock signal, where n is greater than or equal to 2.

2006/0132337	Integrated circuit interface that encodes information using at least one input signal sampled at two consecutive edge transitions of a clock signal	Nokia Corporation	Floman; Matti Klint; Jani	341	H03M	20041202	2	92%	<input type="checkbox"/>
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Abstract: An integrated circuit, such as a dynamic RAM, includes a plurality of terminals for coupling to signal lines. One of the signal lines is an input signal line that conveys a clock signal, and at least one other signal line is also an input signal line that conveys information that is encoded by a level of the at least one other signal line at n consecutive edge transitions of the clock signal, where $n \geq 2$.

MainClaim: A circuit, comprising a plurality of terminals for coupling to signal lines, where one of the signal lines is an input signal line that conveys a clock signal, and where at least one other signal line is also an input signal line that conveys information that is encoded by a level of the at least one other signal line at n consecutive edge transitions of the clock signal, where $n \geq 2$.

7,289,383	Reducing the number of power and ground pins required to drive address signals to memory modules	Apple Inc.	Cornelius; William P.	365	G11C	20040823	0	100%	<input type="checkbox"/>
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Abstract: One embodiment of the present invention provides a system that reduces the number of power and ground pins required to drive address signals to system memory. During operation, the system receives address signals associated with a memory operation from a memory controller, wherein the address signals are received at a buffer chip, which is external the memory controller. The system also receives chip select signals associated with the memory operation at the buffer chip. Next, the system uses the chip select signals to identify an active subset of memory modules in the system memory, which are active during the memory operation. The system then uses address drivers on the buffer chip to drive the address signals only to the active subset of memory modules, and not to other memory modules in the system memory. In this way, the buffer chip requires fewer power and ground pins for the address drivers because the address signals are only driven to the active subset of memory modules, instead of being driven to all memory modules in the system memory.

MainClaim: A method for reducing the number of power and ground pins required to drive address signals to system memory, comprising: receiving address signals associated with a memory operation from a memory controller, wherein the address signals are received at a buffer chip, which is external the memory controller; receiving chip select signals associated with the memory operation at the buffer chip; using the chip select signals to identify an active subset of memory modules in the system memory, which are active during the memory operation; and using address drivers on the buffer chip to drive the address signals only to the active subset of memory modules, and not to other memory modules in the system memory; whereby the buffer chip requires fewer power and ground pins for the address drivers because the address signals are only driven to the active subset of memory modules, instead of being driven to all memory modules in the system memory.

2006/0184726	Flexible access and control of Dynamic Random Access Memory	Nokia Corporation	Klint; Jani Floman; Matti Vihmalo; Jukka-Pekka	711	G06F	20050211	2	94%	<input type="checkbox"/>
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Abstract: The invention relates in general to a method for accessing data stored in a dynamic random access memory. To enable flexible use of different types of memory modules, the invention provides addressing data through at least one address bus, controlling at least data flow to and from the dynamic random access memory through at least one control bus, transferring data to and from the dynamic random access memory through at least one data bus, and clocking the dynamic random access memory through at least one clock input, wherein transferring data to and from the dynamic random access memory through the data bus is operated at a variable data flow rate such that the number of data bits transferred on the data bus within one clock cycle is adjustable through at least one command on the control bus.

MainClaim: A method for accessing data stored in a dynamic random access memory, comprising the steps of: addressing data through at least one address bus, controlling at least data flow to and from the dynamic random access memory through at least one control bus, transferring data to and from the dynamic random access memory through at least one data bus, and clocking the dynamic random access memory through at least one clock input, wherein transferring data to and from the dynamic random access memory through the data bus is operated at a variable data flow rate such that the number of data bits transferred on the data bus within one clock cycle is adjustable through at least one command on the control bus.

7,280,054	Integrated circuit interface that encodes information using at least one input signal sampled at two consecutive edge transitions of a clock signal	Nokia Corporation	Floman; Matti Klint; Jani	341	H03M	20041202	2	92%	<input type="checkbox"/>
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Abstract: An integrated circuit, such as a dynamic RAM, includes a plurality of terminals for coupling to signal lines. One of the signal lines is an input signal line that conveys a clock signal, and at least one other signal line is also an input signal line that conveys information that is encoded by a level of the at least one other signal line at n consecutive edge transitions of the clock signal, where $n \geq 2$.

MainClaim: A circuit, comprising a plurality of terminals for coupling to signal lines, where one of the signal lines is an input signal line that conveys a clock signal, and where a plurality of other signal lines are also input signal lines that conveys information that is encoded by a level of each of the plurality of other signal lines when considered together and when sampled at n consecutive edge transitions of the clock signal, where n is greater than or equal to 2.

2006/0132337	Integrated circuit interface that encodes information using at least one input signal sampled at two consecutive edge transitions of a clock signal	Nokia Corporation	Floman; Matti Klint; Jani	341	H03M	20041202	2	92%	<input type="checkbox"/>
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Abstract: An integrated circuit, such as a dynamic RAM, includes a plurality of terminals for coupling to signal lines. One of the signal lines is an input signal line that conveys a clock signal, and at least one other signal line is also an input signal line that conveys information that is encoded by a level of the at least one other signal line at n consecutive edge transitions of the clock signal, where $n \geq 2$.

MainClaim: A circuit, comprising a plurality of terminals for coupling to signal lines, where one of the signal lines is an input signal line that conveys a clock signal, and where at least one other signal line is also an input signal line that conveys information that is encoded by a level of the at least one other signal line at n consecutive edge transitions of the clock signal, where $n \geq 2$.

5,619,471	Memory controller for both interleaved and non-interleaved memory	Apple Computer, Inc.	Nunziata; Ann B.	365	G11C	19950606	0	100%	<input type="checkbox"/>
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Abstract: A system and method for controlling DRAM is described. According to exemplary embodiments of the present invention, a memory subsystem can be populated by end users with any of a variety of DRAM chips. A memory controller will size each memory bank and determine whether paired memory banks are to be configured as interleaved or non-interleaved based upon the detected DRAM population. Bank selection logic is designed to account for both size and status (interleaved or

non-interleaved) when determining which memory bank contains a memory location of interest. Row and column addressing is selected to minimize decoding of an incoming system address and reduce DRAM access time.

MainClaim: A memory system comprising:

a plurality of memory banks, at least two of which are associated with one another for one of interleaved and non-interleaved operations;

a memory controller including:

a size register for storing a size of each of said plurality of memory banks;

an interleave register for storing a status of each of said memory banks as interleaved or non-interleaved based upon said size of said respective memory bank; and

address generation logic which generates a row address based upon an input system address irrespective of said status of said each of said memory banks and which generates a column address based upon said input system address, said size and said status.

6,598,116	Memory interface using only one address strobe line	Nokia Mobile Phones Limited	Aho; Ari Lipponen; Markku Knuutila; Jarno	711	G06F	19991101	3	92%	<input type="checkbox"/>
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Abstract: A method for transmitting an address to a memory (3) for the purpose of reading and writing information. The memory (3) comprises memory cells for storing information as well as an address bus (19a) and a data bus (19b). Part of the address is transmitted via said address bus (19a) and part of the address is transmitted via said data bus (19b).

MainClaim: A method for transmitting an address to a memory (3) for the purpose of reading and writing information, which memory (3) comprises memory cells for storing information and an address bus (19a) and a data bus (19b), characterized in that part of the address is transmitted via said address bus (19a) and part of the address is transmitted via said data bus (19b), wherein one address strobe line is used to effectuate a transfer of address information from the address bus and the data bus to the memory, and a row address and a column address are transmitted to memory substantially simultaneously and the row address and the column address are read from the address bus and the data bus into a row selector and a column selector substantially simultaneously.

5,175,750	Application specific integrated circuit for a serial data bus	Apple Computer, Inc.	Donovan; Paul M. Caruso; Michael P.	375	H04L	19890915	0	100%	<input type="checkbox"/>
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Abstract: An application specific integrated circuit is disclosed for use with a device locatable on a serial data bus of a data communication system. Attention and synch receiving circuitry is provided for receiving an attention and synch signal being transmitted on the serial data bus for synchronizing the device in accordance with the timing of the attention and synch signals. Demodulation circuitry is provided for receiving a command byte signal and a stop bit signal being transmitted on the serial data bus. Demodulation circuitry is provided for demodulating the command byte signal. Reset circuitry is coupled to the demodulation circuitry for receiving the command byte signal if the command byte signal contains a predetermined reset code. Flush circuitry is coupled to the demodulation circuitry for receiving the command byte signal if that signal contains a predetermined flush code. The flush circuitry clears all device specific data in the integrated circuit in response to the predetermined flush code. Listen circuitry is coupled to the demodulation circuitry for receiving the command byte signal if the command byte signal contains a predetermined listen code. Talk circuitry coupled to the demodulation circuitry is provided for receiving the command byte signal if the command byte signal contains a predetermined talk code. The talk circuitry prepares the integrated circuit to transmit data from the device onto the serial data bus at a later period of time in the data bus transaction.

MainClaim: An application specific integrated circuit of a device coupled to a serial data bus of a data communication system, wherein said device includes a plurality of device specific registers for storing device specific data, the application specific integrated circuit comprising:

(a) attention and synch receiving means for receiving an attention and synch signal of a serial bus signal being transmitted on the serial data bus, said attention and synch receiving means synchronizing said device in accordance with the timing of said attention and synch signal;

(b) demodulation means for receiving a command byte signal and a stop bit signal being transmitted on the serial data bus, said command byte signal following said attention and synch signal, said demodulation means for demodulating said command byte signal to form a demodulated command byte signal, wherein said attention and synch signal received by said attention and synch receiving means causes said demodulation means to start to demodulate said command byte signal;

(c) reset means coupled to said demodulation means for receiving said demodulated command byte signal if said demodulated command byte signal contains a predetermined reset code, said reset means for returning resettable circuit, said integrated circuit to an initial state in response to said predetermined reset code;

(d) flush means coupled to said demodulation means for receiving said demodulated command byte signal if said demodulated command byte signal contains a predetermined flush code, said flush means for clearing said device specific data stored in the device specific registers in response to said predetermined flush code;

(e) listen means coupled to said demodulation means for receiving said demodulated command byte signal if said demodulated command byte signal contains a predetermined listen code, said listen means for preparing to receive data from the serial data bus at a later period of time of the data bus transaction, wherein said demodulated command byte signal includes a start bit signal if said command byte signal contains said predetermined listen code, wherein said listen means responds to said start bit signal at said later period of time by utilizing said demodulation means for demodulating a plurality of data bytes of said data being transmitted from said serial data bus for device specific functions of said device; and

(f) talk means coupled to said demodulation means for receiving said demodulated command byte signal if said demodulated

command byte signal contains a predetermined talk code, said talk means for preparing to transmit said device specific data from the device onto the serial data bus at said later period of time of the data bus transaction, wherein said talk means generates said start bit signal if said demodulated command byte signal contains said predetermined talk code, said talk means including modulation means for modulating and transmitting (1) said start bit signal and (2) the plurality of data bytes of said device specific data onto said serial data bus at said later period of time, said integrated circuit minimizing any losses of data during interactions between the serial data bus and said device.

2004/0250002	Accessory control interface	Nokia Corporation	Hellberg, Tino	710	G06F	20040310	1	92%	<input type="checkbox"/>
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Abstract: Disclosed is an interface (10, 40) between a master device (30) and a slave device (20). The interface includes a bit serial bidirectional signal line (10A) for conveying commands and associated data from the master device to the slave device, and for conveying a reset signal, an interrupt signal, and a learning sequence signal for specifying a duration of a bit time for data transferred from the slave device to the master device. The bit serial bidirectional signal line further indicates an accessory device connected/disconnected state to the master device.

MainClaim: An interface between a master device and a slave device, said interface comprising a serial data bidirectional signal line for conveying commands and associated data from said master device to said slave device, said serial data bidirectional signal line further conveying other signals, said other signals comprising a reset signal, an interrupt signal, and a learning sequence signal for specifying a duration of a bit time for data transferred from said slave device to said master device, where said interface comprises a resistance R coupled between the serial data bidirectional signal line and a circuit ground, and a pull up resistance R_{PU} installed in the master device, wherein R and R_{PU} together form a resistor voltage divider network.

7,167,935	Accessory control interface	Nokia Corporation	Hellberg; Tino	710	G06F	20040310	1	92%	<input type="checkbox"/>
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Abstract: Disclosed is an interface (10, 40) between a master device (30) and a slave device (20). The interface includes a bit serial bidirectional signal line (10A) for conveying commands and associated data from the master device to the slave device, and for conveying a reset signal, an interrupt signal, and a learning sequence signal for specifying a duration of a bit time for data transferred from the slave device to the master device. The bit serial bidirectional signal line further indicates an accessory device connected/disconnected state to the master device.

MainClaim: An interface between a master device and a slave device, said interface comprising a serial data bidirectional signal line for conveying commands and associated data from said master device to said slave device, said serial data bidirectional signal line further conveying other signals, said other signals comprising a reset signal, an interrupt signal, and a learning sequence signal for specifying a duration of a bit time for data transferred from said slave device to said master device, where said interface comprises a resistance R coupled between the serial data bidirectional signal line and a circuit ground, and a pull up resistance R_{PU} installed in the master device, wherein R and R_{PU} together form a resistor voltage divider network.

6,742,061	Accessory control interface	Nokia Corporation	Hellberg; Tino	710	G06F	20020916	1	92%	<input type="checkbox"/>
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Abstract: Disclosed is an interface (10, 40) between a master device (30) and a slave device (20). The interface includes a bit serial bidirectional signal line (10A) for conveying commands and associated data from the master device to the slave device, and for conveying a reset signal, an interrupt signal, and a learning sequence signal for specifying a duration of a bit time for data transferred from the slave device to the master device. The bit serial bidirectional signal line further indicates an accessory device connected/disconnected state to the master device.

MainClaim: An interface between a master device and a slave device, said interface comprising a bit serial bidirectional signal line for conveying commands and associated data from said master device to said slave device, said bit serial bidirectional signal line further conveying other signals, said other signals comprising a reset signal, an interrupt signal, and a learning sequence signal for specifying a duration of a bit time for data transferred from said slave device to said master device, where said interface comprises, in said slave device, an Accessory Control Interface chip and an oscillator providing a clock signal to said Accessory Control Interface chip, where the bit time is a multiple of the clock signal, and where said master device adapts the sampling of the data transferred from said slave device in accordance with the specified duration of the bit time.

5,651,126	Method and apparatus for reducing transitions on computer signal lines	Apple Computer, Inc.	Bailey; Robert I Howard; Brian D. I Johnson; Michael D.	711	G06F	19920626	0	100%	<input checked="" type="checkbox"/>
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Abstract: A method and apparatus for eliminating unnecessary address transitions on an DRAM address bus and DRAM write enable line. In a known DRAM controller and DRAM array, all address transitions on the CPU address bus are mirrored by address transitions on the DRAM address bus. The present invention eliminates all address transitions not associated with an actual DRAM access cycle by eliminating the DRAM controller's address multiplexer and replacing it with a multiplexing driver circuit and a bus holder circuit. In a similar fashion, a DRAM write enable circuit eliminates all transitions on the DRAM write enable line that are not associated with actual DRAM access cycles. Although specifically discussed in terms of a DRAM array and its associated circuitry, the portion of the present invention that reduces address transitions on the DRAM address lines could be used in any device currently using a multiplexer.

MainClaim: In a computer system comprising a processor, a memory controller coupled to the processor by a read/write line and a processor address bus including row and column address lines, a memory unit coupled to the memory controller by a memory address bus and memory read/write line, the memory controller having a circuit for eliminating unnecessary transitions on the memory address bus and memory read/write line, the circuit comprising:

first means for reducing memory address bus transitions, said first means being coupled to the memory address bus and the processor address bus for maintaining a value previously driven on the memory address bus while tri-stating the memory controller until the processor initiates a subsequent memory read/write operation, said first means further comprising:

a plurality of pairs of row and column inverter means, the row and column inverter means each having an input and an output, the number of pairs being equal to a number of bits in the memory address bus, the inputs of the row and column inverter means being coupled respectively to the row and column address lines in the processor address bus, each row inverter being controlled by a row address enable signal and each column inverter being controlled by a column address enable signal;

a plurality of output inverter means, each output inverter means having an input and an output, the inputs of each output inverter means being coupled to the outputs of a pair of row and column inverter means and the outputs of the output inverter means forming the memory address bus; and

a plurality of bus holder circuit means, one bus holder circuit means being coupled to the outputs of a pair of row and column inverter means, for maintaining an output driven by one of the pair of row and column inverter means, said each bus holder circuit means comprising:

a first P-channel transistor with a gate, source, and drain;

a first N-channel transistor with a gate, source and drain; and

a bus inverter means with an input and output, the gates of the N-channel and P-channel transistors being coupled together and to the output of the inverter means, the drain of the P-channel transistor and the drain of the N-channel transistor being coupled to the input of the inverter means, the source of the P-channel transistor being coupled to a source of positive voltage and the source of the N-channel transistor being coupled to a ground voltage potential, said input of the bus inverter means being coupled to the outputs of the pair of row and column inverter means and being further coupled to the input of the output inverter means; and

second means for reducing write enable line transition, said second means being coupled to the memory write enable line and the processor read/write line for maintaining a value on a memory write enable line until the processor initiates a subsequent memory read/write operation.

5,890,005	Low power, low interconnect complexity microprocessor and memory interface	Nokia Mobile Phones Limited	Lindholm; Rune	713	H03K	19970602	3	92%	<input type="checkbox"/>
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Abstract: A method is disclosed for reducing the power consumption of an electronic system, such as a wireless or cellular telephone, that has a memory and a device for accessing the memory. The method includes the steps of (a) during a first part of a memory access cycle, applying an address over a bus; (b) during a second part of the memory access cycle, transferring data to or from the memory over at least a portion of the bus; and (c) prior to the step of transferring, selectively inverting or not inverting the data so as to minimize a number of bus signal lines that are required to change state between the first part and the second part of the memory access cycle. In a preferred embodiment of the invention the bus is a multiplexed address/data bus. The method also generates a control signal that is transmitted to the bus for informing a receiving device that the data (or address) being transferred over the multiplexed address/data bus should be inverted before use. Also disclosed is a memory that operates in a burst mode by incrementing or decrementing memory addresses using a clock signal, and that operates with the power saving circuitry to selectively invert or not invert burst mode data read from or written to the memory.

MainClaim: A method for reducing the power consumption of an electronic system having a first device and a second device that are coupled together through a bidirectional bus, comprising the steps of:

during a first part of a bus cycle, applying an address over the bus from the first device to the second device;

during a second part of the bus cycle, transferring data to or from the first device over at least a portion of the bidirectional bus; and

prior to the step of transferring, selectively inverting or not inverting the data, regardless of whether there is to be a change in direction of data to be transferred over the bidirectional bus, so as to minimize a number of bus signal lines that are required to change state between the first part and the second part of the bus cycle, thereby reducing power consumption by at least reducing an amount of bus capacitance that is required to be charged or discharged in order to transfer the data during the second part of the bus cycle.

5,408,622	Apparatus and method for emulation routine control transfer via host jump instruction creation and insertion	Apple Computer, Inc.	Fitch; Jonathan	703	G06F	19930923	0	100%	<input type="checkbox"/>
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Abstract: An apparatus for emulation routine control transfer creates a jump host instruction (JHI) containing the address of a next emulation routine during the execution of a current emulation routine and outputs the JHI at the end of current emulation routine for transfer of host processor control. The apparatus preferably comprises: an emulated program counter (EPC), a summing means, a state machine, a pointer storage means, an opcode storage means, and a jump instruction circuit. The state machine is preferably coupled to control the loading of the EPC, the loading of the opcode storage means, the summing means, the pointer storage means and the operation of the jump instruction circuit. The pointer storage means is preferably coupled between the data bus and the jump instruction circuit. The state machine preferably issues commands on the control bus and directly to the summing means and the jump instruction circuit to prefetch the next emulation routine, create a jump instruction to the beginning of the next emulation routine and assert the jump instruction on the bus at the appropriate time to transfer directly from one emulation routine to the next using the single host jump instruction. The jump host instruction is placed upon the host processor's instruction bus after execution of the final instruction within a current emulation routine. Thus, the execution of the next emulation routine begins immediately after the execution of the jump host instruction, and significant amounts of processing time associated with the dispatch loop are eliminated.

MainClaim: An apparatus for emulation routine control transfer via host jump instruction creation and insertion, said apparatus for transferring control between a currently executing emulation routine and a next emulation routine on a host computer system having a central processing unit and a memory coupled by a control bus, a data bus, and an address bus, each emulation routine having a starting address corresponding to a first host instruction to be executed within the emulation routine, said apparatus comprising:

an emulated program counter having a control input, a load input, and an output, for storing an address of a next source instruction to be emulated, said emulated program counter storing data from the data bus in response to a first signal on the control input of said emulated program counter, the control input of said emulated program counter coupled to the control bus, the load input of said emulated program counter coupled to the data bus, and the output of said emulated program counter coupled to the address bus;

a pointer storage means having a control input, a data input, and a data output, for storing a pointer to the next emulation routine in response to a second signal on the control input of said pointer storage means, the control input of said pointer storage means coupled to the control bus, the data input of said pointer storage means coupled to the data bus;

a jump instruction circuit having a control input, an address input, a data input, an offset input, and an instruction output for creating a jump instruction to the starting address of the next emulation routine, the control input of said jump instruction circuit coupled to the control bus, the address input of said jump instruction circuit coupled to an instruction address bus, the data input of said jump instruction circuit coupled to the data output of said pointer storage means, and the instruction output of said jump instruction circuit coupled to an instruction bus; and

a state machine having a control input, an increment input, an address input, an increment output, a control output, and an offset output, for detecting when said emulated program counter has been updated, for monitoring addresses used by the host computer system, and for controlling the retrieval of a pointer to the next emulation routine to be executed from the memory, the storage of the pointer in said pointer storage means, the creation of the jump instruction, and the assertion of the jump instruction onto the instruction bus after a final host instruction in the currently executing emulation routine has been executed, the control input and the control output of said state machine coupled to the control bus, the increment input of said state machine coupled to the address bus, the address input of said state machine coupled to the instruction address bus, the increment output of said state machine coupled to the data bus, and the offset output of said state machine coupled to the offset input of said jump instruction circuit.

6,694,398	Circuit for selecting interrupt requests in RISC microprocessors	Nokia Corporation	Zhao; Sheng Wong; Aries Lin; Minghui	710	G06F	20010430	5	94%	<input type="checkbox"/>
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Abstract: An apparatus and method for prioritizing interrupt requests in a RISC processor. By utilizing hardware to prioritize the requests, processor time is reduced. The acknowledge signal from a priority resolve circuit selects the given service routine entry to branch instruction generating circuit. A lower priority service routine can be interrupted by a higher priority request.

MainClaim: An apparatus for resolving interrupt requests, comprising:

a selector circuit for receiving a plurality of interrupt requests of different types and producing a single output for each type;

a plurality of arbitrator circuits, each receiving an output from said selector circuit;

an interrupt vector for storing interrupt service addresses corresponding to each interrupt request and supplying said addresses to said arbitrator;

said arbitrators producing an output signal indicating the interrupt request having the highest priority and the interrupt service address associated therewith.

5,574,887	Apparatus and method for emulation routine pointer prefetch	Apple Computer, Inc.	Fitch; Jonathan	703	G06F	19930920	0	100%	<input type="checkbox"/>
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Abstract: An apparatus and method for emulation routine pointer prefetch are disclosed. The apparatus includes an emulated program counter (EPC), a prefetch state machine, a summing device, an opcode storage device, and a pointer storage device. The EPC, opcode storage device and pointer storage device are coupled to a bus to receive, store and output an emulated program counter value, an opcode value and a pointer to a next emulation routine. The EPC, opcode storage device, and pointer storage device are controlled by the prefetch state machine, which also is coupled to the bus to detect a reference to a reserved memory address and stores an updated emulated program counter value in the EPC using the summing device. The prefetch state machine uses the EPC value to prefetch the next source instruction to be emulated in a first memory operation. A portion of the prefetched source instruction is the opcode value and is stored in the opcode storage device. The prefetch state machine uses the opcode value in a second memory operation to retrieve a pointer to a corresponding emulation routine which is stored in the pointer storage device. The method for emulation routine pointer prefetch preferably comprises the steps of determining if a currently executing emulation routine has issued an instruction to update the EPC; prefetching a next source instruction based upon the value of the EPC; and using an opcode within the prefetched source instruction to prefetch a pointer to a next emulation routine corresponding to the prefetched source instruction.

MainClaim: An apparatus for retrieving and storing a pointer to a next emulation routine during execution of a current emulation routine in a computer system having a central processing unit and a memory coupled by a control bus, a data bus, and an address, said apparatus comprising:

an emulated program counter having a control input, a load input, and an output, for storing an address of a next source instruction to be emulated, the emulated program counter storing data on the data bus in response to a first signal on the control input of the emulated program counter, the control input of the emulated program counter coupled to the control bus, the load input of the emulated program counter coupled to the data bus, and the output of the emulated program counter coupled to the address bus;

a pointer storage means having a control input, a data input, and a data output, for storing a pointer to the next emulation routine in response to a second signal on the control input of the pointer storage means, the control input of the pointer storage means coupled to the control bus, the data input of the pointer storage means coupled to the data bus, and the data output of the pointer storage means coupled to the data bus; and

a prefetch state machine having a control input, an increment input, an increment output, and a control output, for detecting when the emulated program counter has been updated, retrieving a pointer to the next emulation routine to be executed from the memory and storing the pointer in the pointer storage means, the control input of the prefetch state machine coupled to the control bus, the increment input of the prefetch state machine coupled to the address bus, and the control output of the prefetch state machine coupled to the control bus.

6,694,398	Circuit for selecting interrupt requests in RISC microprocessors	Nokia Corporation	Zhao; Sheng Wong; Aries Lin; Minghui	710	G06F	20010430	5	93%	<input type="checkbox"/>
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Abstract: An apparatus and method for prioritizing interrupt requests in a RISC processor. By utilizing hardware to prioritize the requests, processor time is reduced. The acknowledge signal from a priority resolve circuit selects the given service routine entry to branch instruction generating circuit. A lower priority service routine can be interrupted by a higher priority request.

MainClaim: An apparatus for resolving interrupt requests, comprising:

a selector circuit for receiving a plurality of interrupt requests of different types and producing a single output for each type;

a plurality of arbitrator circuits, each receiving an output from said selector circuit;

an interrupt vector for storing interrupt service addresses corresponding to each interrupt request and supplying said addresses to said arbitrator;

said arbitrators producing an output signal indicating the interrupt request having the highest priority and the interrupt service address associated therewith.

5,548,780	Method for semaphore communication between incompatible bus locking architectures	Apple Computer, Inc.	Krein; William T.	710	G06F	19940721	0	100%	<input type="checkbox"/>
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Abstract: A semaphore method establishes exclusive access transactions between source and destination nodes in a multiple bus computer system, independent of the bus locking architectures of the component buses. An atomic transaction is selected for each bus protocol to mediate exclusive access transactions involving the corresponding bus, and bridges coupling different pairs of buses monitor these buses for the selected atomic transactions. A source node on one bus (the source bus) initiates an exclusive access transaction to a destination node by launching the selected atomic transaction appropriate for the source bus to the destination node. When the path between the source and the destination nodes requires transit of more than one bus, each bridge that couples a pair of buses in the path detects an incoming atomic transaction on one of these buses and launches an outgoing atomic transactions appropriate for the other bus to the destination node. In this way, the atomic transaction initiated by the source node to establish an exclusive transaction with the destination node is coupled through the buses of the system by a series of selected atomic transactions. Since each bus supports at least one atomic transaction, the semaphore method operates effectively, independent of the bus locking architectures of the buses.

MainClaim: A computer implemented method for granting a source node on a first bus exclusive access to a destination node on a second bus that is coupled to the first bus, the method comprising the steps of:

monitoring the first bus to detect a first selected atomic transaction launched by the source node to the destination node;

launching a second selected atomic transaction to the destination node on the second bus in response to detecting the first selected atomic transaction;

coupling to the source node a value read from the destination node in response to receipt of the second selected atomic transaction at the destination node;

writing a first preselected value to the destination node in response to receipt of the second selected atomic transaction at the destination node, the first preselected value being effective to prevent another source node from gaining access to the destination node; and

granting ownership of the destination node to the source node if the value coupled to the source node from the destination node is a second preselected value.

7,293,119	DMA data transfer between low-overhead processor and connected external circuitry using transactions log	Nokia Corporation	Beale; John	710	G06F	20011227	2	92%	<input type="checkbox"/>
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Abstract: The present invention relates to a method and system for performing a data transfer between a shared memory (16) of a processor device (10) and a circuitry (20) connected to the processor device (10), wherein the data transfer is performed by triggering a DMA transfer of the data to the processor device, adding the DMA transfer to a transaction log, and providing the transaction log to the processor device, when the transaction log has reached a predetermined depth limit. The processor device is then informed of the DMA transfer of the transaction log, so as to be able to validate the transferred data. Thereby, significant background data movement can be provided without introducing high core overheads at the processor device (10).

MainClaim: A method comprising: performing a data transfer between a memory of a processor device and a circuitry connected to said processor device, wherein said performing comprises setting up at said circuitry a direct memory access for transferring data; triggering at said circuitry a direct memory access transfer of said data to said processor device; adding in said circuitry said direct memory access transfer to a transaction log; providing said transaction log from said circuitry to said processor device, when said transaction log has reached a predetermined limit; and informing said processor device of the availability of said transaction log.

6,148,376	Method and apparatus for an improved stack arrangement and operations thereon	Apple Computer, Inc.	Claassen; Stuart L.	711	G06F	19960930	0	100%	<input type="checkbox"/>
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Abstract: An apparatus and method for an improved stack comprises an advantageous indexing scheme and stack arrangement allowing more efficient performance of stack operations. The most-recently-used stack item appears at the top of the stack and the least-recently-used item is at the bottom of the stack. Values in between the top and bottom items are ordered from top to bottom with succeeding less recently used items. An indexing scheme is used to indirectly reference locations of the stack items in the stack. A set of registers is used to reference the locations of the stack items in an embedded memory array. The registers function as pointers to the memory array locations. To promote an item to the top of the stack, the item is identified as the most-recently-used and the contents of the other registers are changed to specify the new locations, e.g. these pointers are shifted down one. Similarly, to insert a new item on to the top of the stack, the pointers are shifted and a new item is written

into the memory array location that contains the least-recently-used item.

MainClaim: An apparatus for an MRU stack, said apparatus directly or indirectly connected to a stack search requesting unit, stack search requesting unit specifying a command and a data value to said MRU stack, said apparatus comprising:

means for receiving a command;

means for receiving a data value;

a stack data module for storing one or more stack data values, said stack data module being coupled to said data value receiving means for receiving a data value as input;

a stack pointer module for referencing stack data values stored in said stack data module, said stack pointer module being coupled to said stack data module to provide as input a reference to one or more stack data values, said stack pointer module including a set of data multiplexers, including one or more multiplexers, a set of registers, including one or more registers wherein an MRU register specifies, either directly or indirectly, a location of a most-recently-used stack data value and an LRU register specifies, either directly or indirectly, a location of a least-recently-used stack data value, and an address multiplexer, said data multiplexers and registers configured such that for each register in the set of registers, there is a corresponding multiplexer in the set of data multiplexers, said corresponding multiplexer arranged and coupled to its corresponding register to receive one or more inputs and provide an output to the corresponding register, the registers in said set of registers arranged and interconnected by the multiplexers such that data values are specified from a most-recently-used data value down to a least-recently-used data value; and

a stack control module for the MRU stack, said stack control module being coupled to said command receiving means for receiving a command as input and further being arranged to transmit an output to the stack search requesting unit, said stack control module further being coupled to said stack pointer module to provide operational control of the stack pointer module functions, said stack control module further being coupled to said stack data module to provide control of the accessing of data to and from the stack data module and to receive as input a stack data value, said stack control module further being coupled to said data value receiving means for receiving a data value as input.

6,721,867	Memory processing in a microprocessor	Nokia Mobile Phones, Ltd.	Launiainen; Aki	711	G06F	20020419	2	92%	<input type="checkbox"/>
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Abstract: The invention relates to memory processing in a microprocessor. The microprocessor comprises a memory indicated by means of alignment boundaries for storing data, at least one register for storing data used during calculation, memory addressing means for indicating the memory by means of the alignment boundaries and for transferring data between the memory and the register, and a hardware shift register, which can be shifted with the accuracy of one bit, and which comprises a data loading zone and a guard zone. The memory addressing means transfer data including a memory addressing which cannot be fitted into the alignment boundary between the memory and the register through the data loading zone in the hardware shift register, and the hardware shift register is arranged to process data using shifts and utilizing the guard zone.

MainClaim: A microprocessor comprising

a memory indicated by means of alignment boundaries for storing data,

at least one register for storing data used during calculation,

memory addressing means for indicating the memory by means of the alignment boundaries and for transferring data between the memory and the register, and

a hardware shift register, which can be shifted with the accuracy of one bit, and which comprises a data loading zone and a guard zone,

and the memory addressing means transfer data including a memory addressing which cannot be fitted into the alignment boundary between the memory and the register through the data loading zone in the hardware shift register, and the hardware shift register is arranged to process data using shifts and utilizing the guard zone.

5,640,599	Interconnect system initiating data transfer over launch bus at source's clock speed and transferring data over data path at receiver's clock speed	Apple Computer, Inc.	Roskowski; Steven G.; Drako; Dean M.; Krein; William T.	710	G06F	19940318	0	100%	<input type="checkbox"/>
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Abstract: A computer interconnect including a plurality of nodes, each node capable of joining to a component of a computer, each node including apparatus for transferring signals between the component and the node, apparatus for storing packets of data, apparatus for signalling each other node that a packet of data exists for transfer to a component associated with that node, apparatus for sensing signals from another node indicating that a packet of data exists for transfer to a component associated with that node, and apparatus for transferring packets of data stored at one node to the apparatus for transferring signals between the component and the node of another node.

MainClaim: In a computer system having a first component and a second component, a computer interconnect for transferring packets of data between the first and second components, the computer interconnect comprising:

a first launch bus;

a first node coupled to the first component;

a second node coupled to the second component, wherein

the first node includes:

a first buffer coupled to the first component for storing a first data packet received from the first component;

a first router coupled to the first launch bus and the first component, the first router for storing a first header associated with the first data packet, the first router for transferring the first header to the second node via the first launch bus at a first clock speed of the first component, the first header indicating that the first data packet exists for transfer to the second node;

a first data path coupled to the first buffer and the second node for transferring the first data packet from the first buffer to the second node at a second clock speed of the second component.

2006/0184710	Bridge between a single channel high speed bus and a multiple channel low speed bus	Nokia Inc.	Valdivia; David A. Karuppampalayam; Jayagopal Lappin; James B. JR.	710	G06F	20050217	2	92%	<input type="checkbox"/>
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Abstract: An apparatus for enabling communication between components in a network device includes a network processor providing data signals based on a PLx format; a multiport I/O controller having an IX bus interface and a plurality of MAC layer interfaces; and a bridge for bi-directionally converting the streaming data from the network processor to the I/O controller.

MainClaim: An apparatus for enabling communication between components in a network device, comprising: a network processor providing data signals based on a PLx format; a multiport I/O controller having an IX bus interface and a plurality of MAC layer interfaces; and a bridge for bi-directionally converting the streaming data from the network processor to the I/O controller.

6,654,811	Backpressure arrangement in client-server environment	Nokia Inc.	Chaskar; Hemant M. Ravikanth; Rayadurgam Said; Inas Vaananen; Pasi Dimitrou; Eleftherios Turkia; Mikko	709	G06F	20000413	2	92%	<input type="checkbox"/>
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Abstract: A line interface card apparatus includes: a packet queue memory for storing packets; a physical layer having first and second buffers, the physical layer being connected to the packet queue memory by a data bus and being connected to a plurality of links; and a queue manager connected to the packet queue memory and to the physical layer by a control bus. Upon one of the plurality of links transmitting a request for data packets to the physical layer, the physical layer transmits the request via the control bus to the queue manager; the queue manager instructs the packet queue memory to transmit requested data packets to the physical layer via the data bus; each data packet is transmitted from the packet queue memory to the physical layer in one or more packet fragments which are stored in one of the first and second buffers, and upon all of the one or more packet fragments of one data packet being stored in one of the first and second buffers, the data packet is transmitted to the link transmitting the request for data packets.

MainClaim: A line interface card apparatus comprising:

a data bus;

a control bus;

a packet queue memory for storing a plurality of data packets;

a physical layer having first and second buffers, said physical layer being connected to said packet queue memory by said data bus and being adapted to be connected to a plurality of links to transmit data from said first and second physical layer buffers on the links;

a queue manager connected to said packet queue memory and to said physical layer by said control bus;

wherein, said queue manager is responsive to said physical layer transmitting to said queue manager via said control bus, a request for a first particular data packet, by instructing said packet queue memory to transfer the first particular data packet to said physical layer via said data bus, the first particular data packet being transferred from said packet queue memory to said physical layer in one or more packet fragments, the packet fragments being stored in one of said first and second buffers for transmission on the certain link, and upon the last fragment of the first particular data packet being transferred to the certain link said queue manager locates a new packet to be transferred to a link in response to a further request.

7,107,471	Method and apparatus for saving power in pipelined processors	Apple Computer, Inc.	Feierbach; Gary F.	713	G06F	20010321	0	100%	<input type="checkbox"/>
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Abstract: Techniques for reducing power consumption in pipelined processors are described. As a method, one embodiment of the present invention reduces power requirements in a pipelined processor by evaluating instructions to be executed to determine the operation type of the instructions, producing activity indicators based upon the operation types of the instructions, and controlling the supply of current to each of the stages such that only selected stages draw current from a power supply.

MainClaim: A microprocessor that operates in a manner that conserves power, the microprocessor comprising: an instruction register for temporarily storing a next instruction to be executed; an instruction evaluation unit that is connected to said instruction register such that said instruction evaluation unit receives said next instruction from said instruction register, said instruction evaluation unit being configured to evaluate said next instruction in order to produce activity indicators by reading an operation type from the instruction and providing an associated signal comprising one of a clock marker or a no-clock marker based upon the operation types of said instructions; a functional unit for executing instructions, said functional unit having a plurality of stages, each of said stages capable of being separately activated or deactivated based upon a respective activity indicator, where said stages of said functional unit are arranged in series; a memory unit for receiving and registering outputs

from the functional unit wherein the amount of time required to register an output from the functional unit comprises time T_r ; a stage activation controller that is connected to said instruction evaluation unit and includes logic gates that utilize said activity indicators in conjunction with a stage activation controller clock pulse C_{SR} to determine which of said stages are to be activated or deactivated and wherein the signal comprising one of a clock marker or a no-clock marker is advanced through a shift register of the stage activation controller such that it takes time T_g to advance each signal comprising one of a clock marker or a no-clock marker a shift register in the stage activation controller; a clock circuit that supplies the stage activation controller clock pulse C_{SR} to said stage activation controller and also provides a functional unit clock pulse C_{FU} to said functional unit wherein the clock pulse C_{FU} is subject to a gate delay of time T_g , and wherein said functional unit clock pulse C_{FU} is time-delayed with respect to said stage activation controller clock pulse C_{SR} by an amount of time greater than the sum of times T_g , T_r , and T_g thereby enabling the respective stage of the functional unit to have its power status adjusted depending the requirements of the instruction entering said respective stage of the functional unit.

2003/0070105	Method for controlling the operation of a processor, and a processor	Nokia Corporation	Launiainen, Aki	713	G06F	20021004	1	92%	<input type="checkbox"/>
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Abstract: The invention relates to a method for controlling the operation of a processor. The processor comprises a core, two or more functional blocks, and decoder arranged to decode of instruction words included in the program code, to be run in one or more of said functional blocks. At least one of said functional blocks is provided with at least two different modes. The mode of at least one of said functional blocks is set in one of said at least two modes at a time. The instruction word is used to transfer information about whether the instruction word pertains to mode setting. Instruction words included in the program code are processed in at least a first decoding step and a second decoding step, wherein in the first decoding step, said information included in the instruction word is examined. On the basis of the examination, it is determined whether the mode of one or more of said functional blocks is to be set or whether the second decoding step is to be taken, in which the instruction word is decoded to be run by one or more of said functional blocks. The invention also relates to a processor and an electronic device, in which the method can be implemented. The invention further relates to a program, in which a program code is provided for implementing the method.

MainClaim: A method for controlling the operation of a processor (1), which processor comprises a core, two or more functional blocks; decoder arranged to decode instruction words included in the program code, to be run in one or more of said functional blocks, at least one of said functional blocks being provided with at least two different modes, and the mode of at least one of said functional blocks being set to one of said at least two modes at a time, wherein the instruction word is used for transmitting information about whether it is an instruction word relating to the setting of a mode, and that instruction words included in the program code are processed in at least a first decoding step and a second decoding step, wherein in the first decoding step, said information attached to the instruction is examined, and after the examination, it is determined whether a mode of one or more of said functional blocks is to be set or whether the second decoding step is to be taken, to decode the instruction word to be run by one or more of said functional blocks.

7,114,089	System for controlling operation of a processor based on information contained within instruction word	Nokia Corporation	Launiainen; Aki	713	G06F	20021004	1	92%	<input type="checkbox"/>
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Abstract: An instruction word is used to transfer information about whether the instruction word pertains to mode setting of a functional block. Instruction words included in the program code are processed in at least a first decoding step and a second decoding step, wherein in the first decoding step, said information included in the instruction word is examined. On the basis of the examination, it is determined whether the mode of one or more functional blocks is to be set or whether the second decoding step is to be taken, in which the instruction word is decoded to be run by one or more of said functional blocks. The invention also relates to a processor and an electronic device, in which the method can be implemented. The invention further relates to a program, in which a program code is provided for implementing the method.

MainClaim: A method for controlling the-operation of a processor, the processor comprising a core, two or more functional blocks, a decoder for decoding instruction words included in a program code to be run in one or more of said functional blocks, at least one of said functional blocks being provided with at least two different modes, and the mode of at least one of said functional blocks being set to one of said at least two modes at a time, the method comprising: transmitting an instruction word containing information about whether it is an instruction word relating to setting of a mode, and processing instruction words included in the program code in at least a first decoding in a first decoding block and a second decoding in a second decoding block, wherein the first decoding comprises: examining said information contained within the instruction word, and after the examination, determining whether a mode of one or more of said functional blocks is to be set or whether the second decoding is to be taken; wherein said second decoding comprises: decoding the instruction word; and executing the decoded instruction word by one or more of said functional blocks.

5,671,446	Method and apparatus for atomically accessing a queue in a memory structure where LIFO is converted to FIFO	Apple Computer, Inc.	Rakity; Philip M. Rustad; Mark D.	710	G06F	19950316	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for storing and retrieving data from a queue implemented on a computer system. A queue memory structure is allocated in a memory device, the queue including a a last-in-fast-out (LIFO) and a first-in-first-out (FIFO). A data element is atomically added to the LIFO when the data element is enqueued to the queue structure, and a data element is atomically removed from the FIFO when the data element is to be dequeued from the queue, thus preventing concurrent processes from disordering the data in the queue. When the FIFO becomes empty, the LIFO is converted to a new FIFO, and this new FIFO is stored in place of the old (empty) FIFO. In one embodiment, a lock is set and the LIFO is converted to a new FIFO only when the lock is previously determined to be clear to prevent additional dequeuers from interrupting a dequeuing process. A high-priority data element can be atomically added to a head list that stores the data element at the front of the queue memory structure. The present invention allows multiple enqueueers and dequeuers on one or more processing elements, including interrupt handlers and other programs, to access the queue without altering interrupt levels and without risk of deadlock.

MainClaim: A method for storing and retrieving data from a queue implemented on a computer system, the method comprising:

- (a) allocating a queue memory structure in a memory device, said memory structure having a last-in-first-out list (LIFO) and a first-in-first-out list (FIFO);
- (b) atomically adding a data element to said LIFO when said data element is enqueued to said queue memory structure;
- (c) atomically removing a data element from said FIFO when said data element is to be dequeued from said queue memory structure; and
- (d) converting said LIFO to a new FIFO and storing said new FIFO as said FIFO when said FIFO is empty.

2009/0106500	Method and Apparatus for Managing Buffers in a Data Processing System	Nokia Siemens Networks GmbH & Co. KG	Hazay; Alon	711	G06F	20081229	1	93%	<input type="checkbox"/>
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Abstract: A buffer management for a data processing system is provided. According to one embodiment, a method for managing buffers in a telephony device is provided. The method comprising providing a plurality of buffers stored in a memory, providing a cache having a pointer pointing to the buffer, scanning the cache to determine if the cache is full, and when the scan determines the cache is not full determining a free buffer from the plurality of buffers, generating a pointer for the free buffer, and placing the generated pointer into the cache.

MainClaim: A method for managing buffers in a telephony device, comprising:providing a plurality of buffers stored in a memory;providing a cache having a pointer pointing to the buffer;scanning the cache to determine if the cache is full; andwhen the scan determines the cache is not fulldetermining a free buffer from the plurality of buffers,generating a pointer for the free buffer, andplacing the generated pointer into the cache.

5,727,233	Byte-mode and burst-mode data transfer mechanism for a high-speed serial interface	Apple Computer, Inc.	Lynch; John Nichols; James B.	710	G06F	19940802	0	100%	<input type="checkbox"/>
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Abstract: A data transfer mechanism for a serial interface is provided whereby data transfer may be precisely controlled, eliminating the need for significant buffering. The data transfer mechanism also provides for flexible data transfer in either a byte mode or a burst mode so as to accommodate any of various telecommunications devices having a range of capabilities and data rates, and minimizes host involvement in the data transfer operation.

MainClaim: In a computer system having a memory including a direct memory access buffer area, and having a direct memory access controller and a serial communications controller connected to a serial port, a method in which one of a first telecommunications device and a second telecommunications device produces a transmit handshake signal to control transfer of transmit data from the memory to said one of the first telecommunications device and the second telecommunications device across a serial link that carries the transmit handshake signal, the method comprising the steps of:

when the first telecommunication device is connected to the serial port:

- a) the first telecommunications device asserting the transmit handshake signal;
- b) the serial communications controller serially transmitting a unit of transmit data to the first telecommunications device across the serial link;
- c) the serial communications controller requesting a data unit from the direct memory access controller;
- d) the direct memory access controller transferring a data unit to the serial communications controller;
- e) the first telecommunication device de-asserting the transmit handshake signal; and
- f) repeating steps a) through e);

whereby transfer of data is controlled by the first telecommunications device on a data-unit-by-data-unit basis; and

when the second telecommunications device is connected to the serial port:

- g) the second telecommunications device asserting the transmit handshake signal;
- h) the serial communications controller serially transmitting a unit of transmit data to the second telecommunications device across the serial link;
- i) the serial communications controller requesting a data unit from the direct memory access controller;
- j) the direct memory access controller transferring a data unit to the serial communications controller; and
- k) repeating steps h) through j) until the second telecommunications device de-asserts the transmit handshake signal;

whereby transfer of data is controlled by the second telecommunications device on a data burst basis.

2006/0004936	Bridge for enabling communication between a FIFO interface and a PL3 bus for a network	Nokia Inc.	Karuppampalayam; Jayagopal Lappin; James B. JR. Messavussu;	710	G06F	20040630	1	92%	<input type="checkbox"/>
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	processor and an I/O card		Adote K.						
<p>Abstract: A bridge for converting a relatively high speed communication interfaces provided by a network processor into another type of relatively high speed interface that is supported by an I/O card in a network device. A proprietary high speed communication interface can be a first-in-first-out (FIFO) streaming data interface. The other type of high speed interface supported by an I/O card can be PL3, PL4, SPI 3, SPI 4, and the like. The network devices can include, routers, switches, firewalls, gateways, and the like. The bridge can be configured as an application specific integrated circuit (ASIC).</p> <p>MainClaim: An apparatus for enabling high speed communication between components in a network device, comprising: a network processor having a proprietary high speed FIFO interface for communicating streaming data regarding at least one link on a network; a bridge for bi-directionally converting the streaming data from the proprietary high speed FIFO interface into data signals based on a PLX format; and an I/O card that is in communication with the network processor through the data signals provided in the PLX format.</p>									
5,001,662	Method and apparatus for multi-gauge computation	Apple Computer, Inc.	Baum; Allen J.	708	G06F	19890428	0	100%	<input type="checkbox"/>
<p>Abstract: Methods and apparatus are provided for performing multi-gauge arithmetic operations in a microprocessor CPU. Special purpose instructions facilitate parallel processing of individual bytes or half words of data words without requiring that the processor's mode be separately controlled. A byte/half word mode flag is provided to control the "width" of narrow gauge operation. Add partial, subtract partial and compare partial instructions operate on corresponding bytes or half words of two operands and return independent byte or half word results. Multiply partial instructions multiply byte or half word multiplicands by a common multiplier and return independent byte or half word products. The multi-gauge arithmetic operations of the present invention have particular application to graphics processing where repetitive operations are performed on large arrays of pixel data.</p> <p>MainClaim: In a digital computer, a method for selectively performing a plurality of arithmetic operations in parallel comprising the steps of:</p> <p>(a) providing a multiplying means for performing an M-bit multiplication and which is selectively partitioned into a plurality of independent sub-multiplying means, each such sub-multiplying means for performing an N-bit multiplication where M and N are integers, with M being greater than N;</p> <p>(b) providing a plurality of independent sign extension logic means individually associated with said plurality of independent sub-multiplying means;</p> <p>(c) selectively enabling said plurality of independent sign extension logic means when said multiplying means is partitioned into said plurality of independent sub-multiplying means;</p> <p>(d) providing a first register means for storing a multiplier;</p> <p>(e) providing a second register means for storing an M-bit word representing a plurality of N-bit multiplicands;</p> <p>(f) asserting said plurality of N-bit multiplicands at said multiplying means;</p> <p>(g) asserting said multiplier at said multiplying means;</p> <p>(h) computing a plurality of independent products of said respective plurality of multiplicands and said multiplier;</p> <p>(i) truncating each of said plurality of independent products to an N-bit result; and</p> <p>(j) concatenating said plurality of N-bit results into an M-bit word.</p>									
6,721,867	Memory processing in a microprocessor	Nokia Mobile Phones, Ltd.	Launiainen; Aki	711	G06F	20020419	2	93%	<input type="checkbox"/>
<p>Abstract: The invention relates to memory processing in a microprocessor. The microprocessor comprises a memory indicated by means of alignment boundaries for storing data, at least one register for storing data used during calculation, memory addressing means for indicating the memory by means of the alignment boundaries and for transferring data between the memory and the register, and a hardware shift register, which can be shifted with the accuracy of one bit, and which comprises a data loading zone and a guard zone. The memory addressing means transfer data including a memory addressing which cannot be fitted into the alignment boundary between the memory and the register through the data loading zone in the hardware shift register, and the hardware shift register is arranged to process data using shifts and utilizing the guard zone.</p> <p>MainClaim: A microprocessor comprising</p> <p>a memory indicated by means of alignment boundaries for storing data,</p> <p>at least one register for storing data used during calculation,</p> <p>memory addressing means for indicating the memory by means of the alignment boundaries and for transferring data between the memory and the register, and</p> <p>a hardware shift register, which can be shifted with the accuracy of one bit, and which comprises a data loading zone and a guard zone,</p> <p>and the memory addressing means transfer data including a memory addressing which cannot be fitted into the alignment boundary between the memory and the register through the data loading zone in the hardware shift register, and the hardware</p>									

shift register is arranged to process data using shifts and utilizing the guard zone.

5,796,989	Method and system for increasing cache efficiency during emulation through operation code organization	Apple Computer, Inc.	Morley; John E. I Himelstein; Mark I.	703	G06F	19970801	0	100%	<input type="checkbox"/>
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Abstract: An emulation system contains reorganized instruction code sequences for a computer, so that the native code which is used to emulate instructions that occur most frequently in a typical environment are grouped together, to thereby minimize instruction cache conflicts. A representative set of programs which operate with the emulated code are run, and statistics are recorded to determine the most frequently occurring emulated instructions. The native code which emulates these most frequently occurring instructions is then arranged so that the portions of the code are statically stored in main memory at consecutive memory locations. As a result, when the native code for a frequently occurring emulated instruction is loaded from the memory into the cache, the likelihood that the cache will contain the native code for subsequent emulated instructions is maximized, and the likelihood of cache conflicts is minimized.

MainClaim: In a computer having a processor which executes instructions in a first instruction set, a main memory, a cache memory, and an emulation program for emulating the operation of a processor which executes instructions from a second, different instruction set, a method for increasing the efficiency of operation of the computer while said emulation program is running, comprising the steps of:

running an emulated program on said computer which is designed to operate with said second instruction set, and executing commands issued by said emulated program through said emulation program;

identifying the instructions from said first instruction set which are executed the most number of times when said emulated program is running;

storing said identified instructions in said main memory at neighboring address locations that are sufficiently close to one another; and

loading said identified instructions into the cache memory such that a predetermined number of said identified instructions are simultaneously stored in the cache memory, wherein said predetermined number is equal to the smallest number of entries that are transferred from the main memory to the cache memory at one time.

7,543,127	Computer system	Nokia Corporation	Kajihara; Masao	711	G06F	20060124	1	92%	<input type="checkbox"/>
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Abstract: A technology for allowing the smooth acquisition of required data when a processor switches working modes in a computer system is provided. According to one aspect of the present invention, the present invention can provide a computer system including a processor having a plurality of working modes, each having a different privilege level from each other; an exclusive memory area related to a selected one of said plurality of working modes; and a connecting means for connecting said processor with said exclusive memory, depending on said working mode.

MainClaim: A computer system comprising: a processor comprising a first working mode, and a second working mode having a different privilege level from said first working mode; a first instruction cache memory area configurable to store program instructions read from main memory and that is accessed by said processor during said first working mode, where the instructions stored in the first instruction cache are the same as instructions stored in the main memory; a second instruction cache memory area configurable to store program instructions read from main memory and that is accessed by said processor during said second working mode, where the instructions stored in the second instruction cache are the same as instructions in the main memory; and circuitry configurable to respond to a current working mode to automatically select one of said first instruction cache memory area or said second instruction cache memory area to provide program instructions to be executed by said processor.

4,970,418	Programmable memory state machine for providing variable clocking to a multimode memory	Apple Computer, Inc.	Masterson; Anthony D.	327	H03K	19890926	0	100%	<input type="checkbox"/>
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Abstract: A circuit for providing control signals of selectable lengths capable of being driven off of either the rising or falling edge of a clock pulse, the circuit comprising apparatus for providing signals indicating a mode of operation for access to a matrix of memory elements, apparatus responsive to the signals provided by the apparatus for providing signals indicating a mode of operation for providing signals indicating a clock period during which a control signal is to commence and the edge of the clock signal at which such signal is to commence, and apparatus responsive to the signals provided by the apparatus for providing signals indicating a mode of operation for providing signals indicating a clock period during which a control signal is to terminate and the edge of the clock signal at which such signal is to terminate.

MainClaim: A circuit for providing control signals of selectable lengths capable of being driven off of either the rising or falling edge of a clock pulse, the circuit comprising means for providing signals indicating a mode of operation for access to a matrix of memory elements, means responsive to the signals provided by the means for providing signals indicating a mode of operation for providing signals indicating a clock period during which a control signal is to commence and the edge of the clock signal at which such signal is to commence, and means responsive to the signals provided by the means for providing signals indicating a mode of operation for providing signals indicating a clock period during which a control signal is to terminate and the edge of the clock signal at which such signal is to terminate.

5,978,859	Implementation of timing between a microprocessor and its peripheral devices	Nokia Telecommunications Oy	Sademaa; Juhani	710	G06F	19970513	1	93%	<input type="checkbox"/>
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Abstract: A method and a circuit arrangement for implementing timing between a microprocessor and its peripheral devices. An address bus and a data bus connect the microprocessor to the peripheral devices to transfer data from the microprocessor to a selected peripheral device, corresponding to writing to the peripheral device, and from a selected peripheral device to the microprocessor, corresponding to reading from the peripheral device. The method comprises generating to the peripheral devices (a) a signal controlling reading (Output Enable), which enables a peripheral device to apply data to the data bus, and (b) a signal controlling writing (Write Enable), which enables data to be written from the data bus to a peripheral device. In order to

simplify the equipment and circuit design, at least the signal (GWE) controlling writing is generated by means of an address decoder from the address currently valid on the address bus in such a manner that the moments of the rising and/or falling edges of the signal are dependent on the value of the address and at the same time independent, within the addressing cycle relating to the peripheral device, of the timing determined by the microprocessor, whereby the assertion period of the signal can be adjusted by means of the value of the address.

MainClaim: A method for implementing a timing between a microprocessor and peripheral devices of a microprocessor system;

peripheral devices having individual timing requirements, and said microprocessor being interconnected with the peripheral devices;

the microprocessor system having

an address bus and a data bus for transferring data from the microprocessor to a selected one of said peripheral devices to thereby write to the selected peripheral device, and for transferring data from a selected one of the peripheral devices to the microprocessor to thereby read from the selected peripheral device, the address appearing on the address bus addressing the selected peripheral device; and

a circuit arrangement for implementing timing between the microprocessor and the peripheral devices, said circuit arrangement comprising means

(a) for generating a reading control signal, which enables the selected peripheral device to apply data to the data bus, and

(b) for generating a writing control signal, which enables data to be written from the data bus to the selected peripheral device,

providing said address to the address bus, said address addressing the selected peripheral device,

providing to the peripheral devices said reading control signal, which controls the reading of data from the selected peripheral device to the data bus,

providing to the peripheral devices the writing control signal which controls the writing of data from the data bus to the selected peripheral device,

the writing control signal being generated by means of an address decoder in response to the address currently valid on the address bus in such a manner that the timing of the rising and/or falling edges of said writing control signal is selected according to said address and is at the same time independent, within an addressing cycle of the selected peripheral device, of the timing determined by the microprocessor, in order to meet the timing requirements of the peripheral device designated by said address.

5,461,649	Method and apparatus for maintaining a state of a state machine during unstable clock conditions without clock delay	Apple Computer Inc.	Bailey; Robert L. Johnson; Mary B.	327	H03K	19940509	0	100%	<input type="checkbox"/>
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Abstract: An apparatus and method for protecting the state of a state machine from an unstable clock signal. The apparatus of one embodiment includes a state register having an input and a first output which provides an output signal corresponding to the state of the state machine and a set or reset input coupled, through a logic circuit, to the first output. The logic circuit is coupled to receive a signal indicating the unstable state of the clock signal. The logic circuit is coupled to receive a signal indicating the unstable state of the clock signal. The logic circuit feeds back the output from the first output to the set or reset input to maintain the state in the state register while the clock signal is unstable. An embodiment of the method comprises storing a state in a state register, receiving a first signal indicating an unstable state of the clock signal and feeding back the output from the state register to the set or reset input while the first signal indicates the unstable clock exits. In an alternative embodiment, the output from the state register is fed back to its input while the first signal indicates the unstable clock exits.

MainClaim: An apparatus for maintaining a state during an unstable clock signal condition, said apparatus comprising:

a state register having a first input and an output which provides an output signal indicative of said state, a clock input coupled to receive a clock signal, and at least one of a second input and a third input; and

a logic circuit coupled to receive said output signal and a signal indicating an unstable state of said clock signal and coupled to said one of said second input and said third input, said logic circuit feeding back said output signal to said one of said second input and said third input to maintain said state while said clock signal is in said unstable state.

5,912,570	Application specific integrated circuit (ASIC) having improved reset deactivation	Nokia Mobile Phones Limited	Kuusisto; Mika	327	H03L	19970108	1	95%	<input type="checkbox"/>
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Abstract: Disclosed is a circuit and method for initializing clocked digital logic and for generating at least one clock signal for the clocked digital logic. The circuit includes at least one flip-flop that is responsive to a stimulus signal becoming active for asserting and then deasserting a reset signal to the clocked digital logic. The at least one flip-flop is clocked with a free-running clock signal. The circuit further includes a gating circuit for generating the at least one clock signal from the free running clock signal, and an edge detector that has an input coupled to the at least one flip-flop and an output coupled to the gating circuit. The edge detector operates to cause the gating circuit to place the at least one clock signal into an inactive state at least one period of the free running clock prior to the reset signal being deasserted, and for holding the at least one clock signal in the inactive state for at least one period of the free running clock subsequent to the reset signal being deasserted. In this manner it is guaranteed that no clock edges are applied to the clocked digital logic (e.g., flip-flops) for a predetermined period of time prior to and after the deassertion of the reset signal. The period of the free running clock signal is predetermined to exceed the

minimum setup and hold times for the flip-flops that comprise the clocked digital logic.

MainClaim: A method for initializing clocked digital logic, comprising the steps of:

in response to a stimulus signal becoming active,

asserting an initialization signal and applying the asserted initialization signal to the clocked digital logic;

during the time that the initialization signal is asserted,

placing one or more clock signals into an inactive state to prevent an occurrence of rising or falling clock edges at inputs of the clocked digital logic;

deasserting the initialization signal; and

placing the one or more clock signals into an active state so as to cause rising and falling clock edges at the inputs of the clocked digital logic.

5,594,919	Method and system for reordering bytes in a data stream	Apple Computer, Inc.	Turkowski; Kenneth E.	712	G06F	19950602	0	100%	<input type="checkbox"/>
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Abstract: A method and system are disclosed for efficiently translating data from one known data sequencing arrangement to an alternative sequencing arrangement. The method consists of the steps of generating a source sequence signal which identifies the ordering of units within the source sequence, generating a destination sequence signal which identifies the ordering of units within the destination sequence, and combining the source signal and destination signal to produce a permutation signal which defines the relationship between the source sequence and the destination sequence. Once the permutation signal has been defined, this permutation signal is applied to the source sequence to allow the reordering of the source sequence into the desired destination sequence. A reordering circuit is used to rearrange the source sequence units into the desired destination sequence units utilizing the permutation signal generated in the present invention. The reordering circuit consists of an array of ordered swap units which contain inputs for source sequence signals and permutation signals, and outputs which propagate destination sequences.

MainClaim: A computer implemented method for translating a source sequence of ordered data units into a destination sequence having a different ordering of said data units, the method comprising the computer implemented steps of:

using machine-specific data unit packing parameters to generate a source sequence signal, E_S , which identifies the ordering of units within the source sequence;

using machine-specific data unit packing parameters to generate a destination sequence signal, E_D , which identifies the ordering of units within the destination sequence;

combining the source sequence signal and the destination sequence signal to produce a permutation signal, E_P , according to the formula:

$$E_P = (E_S \text{ XOR } E_D) \text{ AND } (n-1)$$

where n is equal to the number of data units to be translated and is greater than two; and

reordering the units from the source sequence in response to the permutation signal to produce a translated destination sequence.

6,563,440	Apparatus and method for decoding Huffman codes using leading one/zero string length detection	Nokia Corporation	Kangas; Janne	341	H03M	20011019	4	92%	<input type="checkbox"/>
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Abstract: Decoding Huffman codes is accomplished by identifying consecutive strings of high order ones or zeroes and following consecutive strings of high order ones or zeroes, retrieving a table entry for each string based on its run count and bit value, until the retrieved entry contains the decoding output symbol, or until the remaining bits of the code word number within a predetermined threshold. The remaining bits are used as an offset into a lookup table, but the dimensions of the table have been reduced through elimination of the leading ones and zeroes. The consecutive strings are preferably processed by a hardware accelerator to identify the repeated bit, count the bits in the string and return this information to the host processor. The efficiencies of decoding canonical codes are realized; yet, non-canonical codes can be decoded.

MainClaim: A method for decoding a code word in a series of variable length code words comprising the steps of:

a) detecting the value of a bit in said code word;

b) calculating a current count that starts with said bit and includes, from said series of variable length code words, subsequent, consecutive bits of the same value;

c) based on the current count, retrieving an entry from a decoding table; and

d) based on the retrieved entry, determining whether steps a) through d) are to be repeated for said code word using bits subsequent to those included in the one or more counts in step b).

	Method and system for								
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5,524,256	reordering bytes in a data stream	Apple Computer, Inc.	Turkowski; Kenneth E.	712	G06F	19930507	0	100%	<input type="checkbox"/>
<p>Abstract: A method and system are disclosed for efficiently translating data from one known data sequencing arrangement to an alternative sequencing arrangement. The method consists of the steps of generating a source sequence signal which identifies the ordering of units within the source sequence, generating a destination sequence signal which identifies the ordering of units within the destination sequence, and combining the source signal and destination signal to produce a permutation signal which defines the relationship between the source sequence and the destination sequence. Once the permutation signal has been defined, this permutation signal is applied to the source sequence to allow the reordering of the source sequence into the desired destination sequence. A reordering circuit is used to rearrange the source sequence units into the desired destination sequence units utilizing the permutation signal generated in the present invention. The reordering circuit consists of an array of ordered swap units which contain inputs for source sequence signals and permutation signals, and outputs which propagate destination sequences.</p> <p>MainClaim: A computer implemented method for translating a source sequence of ordered data units into a destination sequence having a different ordering of said data units, comprising the computer implemented steps of:</p> <p>generating a source sequence signal, E_S, which identifies the ordering of units within the source sequence;</p> <p>generating a destination sequence signal, E_D, which identifies the ordering of units within the destination sequence;</p> <p>combining the source sequence signal and the destination sequence signal to produce a permutation signal, E_P, according to the formula:</p> $E_P = (E_S \text{ XOR } E_D) \text{ AND } (n-1)$ <p>where n is equal to the number of data units to be translated; and</p> <p>reordering the units from the source sequence in response to the permutation signal to produce a translated destination sequence, wherein the data unit is an eight-bit byte, and E_S and E_D are digital signals which are defined for source and destination sequences, respectively, and are generated by adding together individual signal elements, wherein the individual signal elements are determined from the following relationships:</p> <p>(i) for bytes ordered within a WORD16, the signal element is equal to 01 hex when the ordering is little-endian;</p> <p>(ii) for WORD16's ordered within a WORD32, the signal element is equal to 02 hex when the ordering is little-endian;</p> <p>(iii) for WORD32's ordered within a WORD64, the signal element is equal to 04 hex when the ordering is little-endian;</p> <p>(iv) for WORD64's ordered within a WORD128, the signal element is equal to 08 hex when the ordering is little-endian;</p> <p>(v) for WORD 128's ordered within a WORD256, the signal element is equal to 10 hex when the ordering is little-endian;</p> <p>(vi) for WORD256's ordered within a WORD512, the signal element is equal to 20 hex when the ordering is little-endian;</p> <p>(vii) for WORD512's ordered within a WORD1024, the signal element is equal to 40 hex when the ordering is little-endian;</p> <p>(viii) for WORD 1024's ordered within a WORD2048, the signal element is equal to 80 hex when the ordering is little-endian; and</p> <p>(ix) for orderings which are big-endian, the signal element is equal to 00 hex.</p>									
6,563,440	Apparatus and method for decoding Huffman codes using leading one/zero string length detection	Nokia Corporation	Kangas; Janne	341	H03M	20011019	4	92%	<input type="checkbox"/>
<p>Abstract: Decoding Huffman codes is accomplished by identifying consecutive strings of high order ones or zeroes and following consecutive strings of high order ones or zeroes, retrieving a table entry for each string based on its run count and bit value, until the retrieved entry contains the decoding output symbol, or until the remaining bits of the code word number within a predetermined threshold. The remaining bits are used as an offset into a lookup table, but the dimensions of the table have been reduced through elimination of the leading ones and zeroes. The consecutive strings are preferably processed by a hardware accelerator to identify the repeated bit, count the bits in the string and return this information to the host processor. The efficiencies of decoding canonical codes are realized; yet, non-canonical codes can be decoded.</p> <p>MainClaim: A method for decoding a code word in a series of variable length code words comprising the steps of:</p> <p>a) detecting the value of a bit in said code word;</p> <p>b) calculating a current count that starts with said bit and includes, from said series of variable length code words, subsequent, consecutive bits of the same value;</p> <p>c) based on the current count, retrieving an entry from a decoding table; and</p> <p>d) based on the retrieved entry, determining whether steps a) through d) are to be repeated for said code word using bits</p>									

subsequent to those included in the one or more counts in step b).

5,467,464	Adaptive clock skew and duty cycle compensation for a serial data bus	Apple Computer, Inc.	Oprescu; Florin I Van Brunt; Roger	713	H03K	19930309	0	100%	<input type="checkbox"/>
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Abstract: The de-skewer utilizes a delay line to generate a set of delayed versions of an input clock signal. A bank of flip-flops compares pulses within the delayed clock signals to a synchronization pulse provided within an input data signal. A detector receives outputs from the flip-flops and selects the delayed clock signal having the least amount of skew based on the values of the output from the flip-flops. A multiplexer outputs the selected delayed clock. The de-skewer provides a simple, open-loop circuit for eliminating skew between parallel transmission paths. The de-skewer is ideally suited for eliminating skew from sources which do not vary significantly as a function of time. In particular, the de-skewer is well-suited for use in a data transmission system providing short bursts of high data rate transmissions. A double-edged de-skewer is also described which is capable of generating a pair of clock signals for use in eliminating duty cycle distortion.

MainClaim: A double-edge de-skewer apparatus for reducing skew between a clock signal and a data signal having a leading edge and a trailing edge, received along first and second communication lines, said apparatus comprising:

a delay line coupled to receive said clock signal from said first communication line for delaying said clock signal to generate a plurality of delayed clock signals;

a first detector coupled to receive said plurality of delayed clock signals from said delay line and said data signal from said second communication line, for comparing the delayed clock signals with said leading edge of the data signal to identify a first delayed clock signal having a least amount of skew with respect to said data signal leading edge; and

a second detector coupled to said delay line and said second communication line for comparing the delayed clock signals with said trailing edge of the data signal to identify a second delayed clock signal having a least amount of skew with respect to said data signal trailing edge;

a first output coupled to said first detector for outputting said first delayed clock signal; and

a second output coupled to said second detector for outputting said second delayed clock signal.

5,446,772	Integrated circuit bus	Nokia Mobile Phones Ltd.	Korhonen; Veijo	375	H04B	19931001	1	92%	<input type="checkbox"/>
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Abstract: An integrated circuit bus for the transmission of a serial data signal, to be used in integrated circuits, wherein the data is clocked only to one addressed register, and thus cross-talk is reduced. In the bus all information signals are contained in one signal. The data transmission is based on pulses of different lengths corresponding to different states.

MainClaim: An integrated bus for transmission of a serial data signal which includes both address bits and data bits, said integrated bus comprising:

a clock pulse source;

a plurality of pairs of data lines and clock lines, each pair coupled to a register;

a signal termination line manifesting first and second states;

circuit means coupled to said signal termination line and and clock pulse source and responsive to said first state on said signal termination line to clock, transform and decode said address bits;

logic means coupled to said circuit means and clock pulse source and responsive to decoded address bits to select one pair of said pairs of data lines and clock lines; and

means for changing said first state on said signal termination line to said second state to enable said data bits to pass to a data line and clock pulses to a clock line of said selected pair of said pairs of data lines and clock lines.

5,045,715	Circuit for generating stretched clock phases on a cycle by cycle basis	Apple Computer, Inc.	Fitch; Jonathan M.	327	H03K	19900319	0	100%	<input type="checkbox"/>
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Abstract: A clock circuit for generating two clock signals, one (CLK) having stretched clock phases on a cycle by cycle basis, and the second (2X CLK) being a clock signal having a frequency twice the frequency of the first clock signal which is phase and edge coherent with the first clock signal, including the stretched clock phases. The circuit inputs a signal generated by an oscillator which is twice the frequency of the CLK signal which is then used to generate the CLK signal for use by a microprocessor, either phase of which can be stretched on demand, while the second 2X CLK signal remains phase coherent with the microprocessor CLK signal.

MainClaim: A circuit for generating first and second clock signals, each cycle of said first and second clock signals having a first phase and a second phase, said second clock signal being twice the frequency of the first clock signal, such that said first and second clock signals are edge and phase coherent during predetermined stretched phases of said first clock signal, said circuit comprising:

a) oscillator means for generating an input clock signal having a frequency which is twice the frequency of said first clock signal;

b) first flip-flop means having a clock input coupled to said oscillator means for generating said first clock signal;

c) stretch logic means coupled to a first input of said first flip-flop means for receiving control signals generated by a processor and for generating a stretch signal indicating phases of said first and second clock signals which are to be stretched based upon said received control signals;

d) inverter means coupled to said stretch logic means and said first flip-flop means for inverting said stretch signal and supplying said inverted stretch signal to a second input of said first flip-flop means;

e) second flip-flop means having a clock input coupled to said oscillator means, and first and second inputs coupled to an output of said first flip-flop means;

f) exclusive OR gate means having a first input coupled to said output of said first flip-flop means for receiving said first clock signal and a second input coupled to an output of said second flip-flop means, said exclusive OR gate means for generating said second clock signal which is input to said stretch logic means and which is twice the frequency said first clock signal and is edge and phase coherent therewith during all phases and all stretched phases of said first clock signal.

5,315,183	Synchronous phase detector circuit	Nokia Mobile Phones Ltd.	Ruotsalainen; Asko	327	H03L	19921221	3	94%	<input type="checkbox"/>
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Abstract: A phase detector for high speed logic circuits including an edge detector circuit responsive to two signals which may contain frequency and phase errors which result in the edges of the signal pulses of the two signals occurring at different times. The edges of the two signal pulses are detected by a phase detector circuit and an output signal provided to a correction circuit that provides a correction signal for the time period between the pulse edges of the signal pulses. The correction circuit output signal is fed back to a local oscillator to minimize the frequency and phase errors. A synchronizing circuit is connected to the output of the correction circuit to synchronously reset the phase detector circuit at the end of the correction signal period.

MainClaim: A phase detection means for high speed logic circuits that functions in a synchronous mode in response to first and second frequency clock signals comprising:

a voltage controlled oscillator circuit for generating a first frequency clock signal VCO,

a reference signal source for generating a second frequency clock signal V_{ref} ,

a source of clock signal XLO

a source of clock signals RFC,

an input signal FVD having a frequency that is a submultiple of the frequency of said first frequency clock signal VCO,

an input signal FRD having a frequency that is a submultiple of said second frequency clock signal V_{REF} , and wherein said frequency of said FRD signal is the same as said frequency of said FVD signal;

a phase detector logic circuit including an edge detector circuit responsive to said FRD, FVD, XLO and RFC signals for producing a first output signal upon the occurrence of one of said FRD and RFC or FVD and XLO signal pairs and a second output signal upon the occurrence of the other of said FRD and RFC or FVD and XLO signal pairs,

a correction circuit responsive to said first and second output signals from said edge detector circuit for producing an output pulse signal beginning in response to said first output signal from said edge detector circuit and ending in response to said second output signal from said edge detector circuit, the duration of said signal from said correction circuit being representative of the duration between the occurrence of said FRD and FVD signals

output means connected to said correction circuit and to said voltage controlled oscillator circuit, said output means responsive to and applying said output pulse signal from said correction circuit to said voltage controlled oscillator circuit to adjust the frequency of said voltage controlled oscillator signal VCO until said FRD signal and said FVD signal occur in phase

and a synchronizing means connected to the output of said correction circuit and to said XLO signal for generating a reset signal synchronous with the end of correction pulse from said correction circuit, said reset signal being connected to said edge detector circuit for resetting said edge detector circuit at the end of said correction pulse.

6,446,198	Vectorized table lookup	Apple Computer, Inc.	Sazegari; Ali	712	G06F	19990930	0	100%	<input type="checkbox"/>
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Abstract: A lookup operation is carried out on a data table by logically dividing the data table into a number of smaller sets of data that can be indexed with a single byte of data. Each set of data consists of two vectors, which constitute the operands for a permute instruction. Only a limited number of bits are required to index into the table during the execution of this instruction. The remaining bits of each index are used as masks into a series of select instructions. The select instruction chooses between two vector components, based on the mask, and places the selected components into a new vector. The mask is generated by shifting one of the higher order bits of the index to the most significant position, and then propagating that bit throughout a byte, for example by means of an arithmetic shift. This procedure is carried out for all of the index bytes in the vector, to generate a select mask. The select mask is then used during a select operation, to choose between the results of permute instructions on different ones of the logically divided sets of data. Multi-byte table entries are retrieved by replicating each index value and adding consecutive values to form multiple consecutive index values that are then used in multiple permute operations.

MainClaim: A method for performing a lookup operation for a table stored in a computer memory, comprising the steps of:

storing an index vector containing multiple index values which respectively designate locations in the table;

performing a plurality of permute operations on different respective sets of data within said table, in accordance with the values in said index vector, to produce a plurality of intermediate result vectors; and

performing at least one select operation on said intermediate result vectors to produce a final result vector of entries from said data table.

2003/0172245	DATA PROCESSING METHOD AND DEVICE FOR PARALLEL STRIDE ACCESS	Nokia Corporation	Takala, Jarmo	711	G06F	20020307	1	92%	<input type="checkbox"/>
<p>Abstract: A method and apparatus for accessing data elements of an N-element data block on N memory locations distributed over Q memory modules via Q parallel accesses. The Q memory modules are addressable in a q-bit module address and an (n-q) bit row address in a power-of-two stride fashion. The row address is selected from (n-q) bits of the index address, and the module address for one of the Q accesses is obtained from bitwise exclusive-OR operation on bits obtained from corresponding positions in a plurality of q-bit fields grouped from the index address.</p> <p>MainClaim: A method of accessing data elements of an N-element data block on N memory locations distributed over Q memory modules via Q parallel accesses, wherein said N memory locations are addressable in an n-bit index address, and said Q memory modules are addressable in a q-bit module address and an (n-q) bit row address, where $N=2^n$ and $Q=2^q$, characterized by: selecting (n-q) bits from the index address for providing the row address; grouping the index address into a plurality of fields comprising a number of first fields, wherein each of the first fields contains q bits; and performing a logical function operation on bits obtained from corresponding positions in said plurality of fields for providing the module address for accessing the data elements in said Q memory modules.</p>									
6,640,296	Data processing method and device for parallel stride access	Nokia Corporation	Takala; Jarmo	711	G06F	20020307	1	92%	<input type="checkbox"/>
<p>Abstract: A method and apparatus for accessing data elements of an N-element data block on N memory locations distributed over Q memory modules via Q parallel accesses. The Q memory modules are addressable in a q-bit module address and an (n-q) bit row address in a power-of-two stride fashion. The row address is selected from (n-q) bits of the index address, and the module address for one of the Q accesses is obtained from bitwise exclusive-OR operation on bits obtained from corresponding positions in a plurality of q-bit fields grouped from the index address.</p> <p>MainClaim: A method of accessing data elements of an N-element data block on N memory locations distributed over Q memory modules via Q parallel accesses, wherein</p> <p>said N memory locations are addressable in an n-bit index address, and</p> <p>said Q memory modules are addressable in a q-bit module address and an (n-q) bit row address, where $N=2^n$ and $Q=2^q$, characterized by:</p> <p>selecting (n-q) bits from the index address for providing the row address;</p> <p>grouping the index address into a plurality of fields comprising a number of first fields, wherein each of the first fields contains q bits; and</p> <p>performing a logical function operation on bits obtained from corresponding positions in said plurality of fields for providing the module address for accessing the data elements in said Q memory modules.</p>									
5,689,517	Apparatus for scannable D-flip-flop which scans test data independent of the system clock	Apple Computer, Inc.	Ruparel; Kamalesh	714	G01R	19960726	0	100%	<input type="checkbox"/>
<p>Abstract: The present invention discloses an apparatus for controlling and observing test data stored in scannable-D-flip-flops independent of a system clock, thereby making the scannable-D-flip-flops well suited for partial scanning Design-For-Test (DFT) techniques. Under the present invention, the scannable-D-flip-flop is comprised of two master latches and one slave latch such that the scannable-D-flip-flops may operate in a normal mode of operation or a scan/test mode of operation. During normal mode of operation, the first master latch operates together with the slave latch in response to the system clock. During the scan/test mode of operation, the second master latch operates together with the slave latch in response to a scan clock. Since the scanning of external test data is controlled by the scan clock, the conventional non-scannable D-flip-flops in the design, which are controlled by the system clock, maintain their previous states during a scanning operation. Also disclosed is a method for performance testing integrated circuits utilizing the scanning application of the scannable-D-flip-flops. This is accomplished by constructing a test circuit that spans the entire silicon die area. By using a special AC-TEST-MODE control signal, the scannable D-flip-flops are set to a "flow-through" mode to provide a direct path through the scannable flip-flops such that the test circuit forms an oscillator in which the frequency of the device can be measured.</p> <p>MainClaim: A scannable D-flip-flop circuit for processing data bits, said scannable D-flip-flop circuit comprising:</p> <p>(a) a first latch circuit coupled to a first input of said scannable D-flip-flop, said first latch circuit receives a first data input signal and a first clock signal and stores said first data input signal in response to said first clock signal during a normal mode of operation, said first latch having an output;</p> <p>(b) a second latch circuit coupled to a second input of said scannable D-flip-flop, said second latch circuit receives a second data input signal and a second clock signal and stores said second data input signal in response to said second clock signal during a scan mode of operation, said second latch having an output;</p> <p>(c) a third latch circuit having a data path and a feedback path wherein said data path is coupled to said output of said first latch circuit and said feedback path is coupled to said output of said second latch circuit, said third latch circuit receives said first data input signal and said first clock signal and stores said first data input signal in response to said first clock signal during said normal mode of operation, said third latch circuit receives said second data input signal and said second clock signal and stores said second data input signal in response to said second clock signal during said scan mode of operation, said third latch circuit is coupled to an output of said D-flip-flop.</p>									
5,907,562	Testable integrated circuit with reduced power dissipation	Nokia Mobile Phones Limited	Wrape; Michael J. Uhari; Tommi	714	G01R	19960731	1	95%	<input type="checkbox"/>

Abstract: An integrated circuit includes a plurality of internal devices that are tested by setting the states of their data registers to respective levels, first forming a known initialization value and then a functional data value. All the data registers used for testing are coupled as one or more shift registers and by clocking data through a serial scan path, test stimuli can be shifted in and results shifted out. The scan path connections are provided in addition to the usual functional operation signal connections. During functional operation, the data transitions in the scan path signals are disabled to reduce the power dissipation associated with driving the scan path signals.

MainClaim: A serial scan test structure in a MOS integrated circuit comprising:

latching means, having a data input, a select input, a test input, and a data output, for receiving a select signal at said select input and a data signal at said data input and latching said data signal to said data output when said select signal is in a first state, and for receiving a test signal at said test input and latching said test signal to said data output when said select signal is in a second state; and

gating means, having a test output along with first and second inputs coupled respectively to said data output and select input of said latching means, for coupling said data output to said test output when said select input is in said second state and for decoupling said data output from said test output when said select input is in said first state, whereby said decoupling reduces power dissipation by said test signal when said select signal is in said first state.

5,047,967	Digital front end for time measurement and generation of electrical signals	Apple Computer, Inc.	Sander; Wendell Sander; Brian	702	G06F	19890719	0	100%	<input checked="" type="checkbox"/>
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Abstract: An integrated circuit cell module for performing precise time measurements for use in applications such as disk drive controllers. The combination of the cell module and a hard disk controller chip creates a complete hard disk controller in a single chip without the need for external analog components normally required for classic phase lock loop hard disk controllers. A problem in designing such a unified chip is that it must be digital in nature. Therefore, the maximum resolution with which signals generated by the disk drive (Rddata signals) can be measured and signals generated by the controller for writing to disk (Wrdata signals) can be generated is dependent on the clock which drives the controller chip. In hard disk controllers, the data rate is such that the minimum distance between adjacent Rddata or Wrdata pulses is approximately 100 ns which would require an oscillator having a speed which would be impractical in a design. This problem is solved using standard CMOS gates to measure the distance between a reference clock and the Rddata pulse to 2 ns. accuracy. This measurement is provided as a binary number to the hard disk controller which uses this information along with the measurement for an adjacent pulse to determine the distance between adjacent pulses (cell time) to within 2 ns. For generating Wrdata pulses, a binary number is input which defines the distance to be delayed from the reference clock. This delay can be any multiple of 4 ns. over the period of the reference clock. Thus, it is possible to create distances between adjacent Wrdata pulses to within 4 ns. increments.

MainClaim: An integrated circuit frontend for coupling to an integrated circuit hard disk drive controller, a central processing unit having a system clock, and a disk drive, said frontend generating timing signals for use by said disk controller using digital circuitry and write pulses for use by said disk drive to write data, and receiving read pulses generated by said disk drive representing read data, said frontend comprising:

(a) clock generator means for converting a system clock signal generated by said system clock having a first frequency into a reference clock signal having a second frequency;

(b) read data time detector means coupled to said clock generator means, said disk drive controller and said disk drive for receiving said read pulses and generating a relative read value output to said disk drive controller, said relative read value representing the location of a particular read pulse relative to said reference clock signal;

(c) write data time generator means coupled to said clock generator, said disk drive controller and said disk drive for receiving a relative write value generated by said disk drive controller which represents the location of a particular write pulse relative to said reference clock signal and generating said write pulses output to said disk drive based upon said relative write value.

5,315,183	Synchronous phase detector circuit	Nokia Mobile Phones Ltd.	Ruotsalainen; Asko	327	H03L	19921221	3	95%	<input type="checkbox"/>
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Abstract: A phase detector for high speed logic circuits including an edge detector circuit responsive to two signals which may contain frequency and phase errors which result in the edges of the signal pulses of the two signals occurring at different times. The edges of the two signal pulses are detected by a phase detector circuit and an output signal provided to a correction circuit that provides a correction signal for the time period between the pulse edges of the signal pulses. The correction circuit output signal is fed back to a local oscillator to minimize the frequency and phase errors. A synchronizing circuit is connected to the output of the correction circuit to synchronously reset the phase detector circuit at the end of the correction signal period.

MainClaim: A phase detection means for high speed logic circuits that functions in a synchronous mode in response to first and second frequency clock signals comprising:

a voltage controlled oscillator circuit for generating a first frequency clock signal VCO,

a reference signal source for generating a second frequency clock signal V_{REF} ,

a source of clock signal XLO

a source of clock signals RFC,

an input signal FVD having a frequency that is a submultiple of the frequency of said first frequency clock signal VCO,

an input signal FRD having a frequency that is a submultiple of said second frequency clock signal V_{REF} , and wherein said frequency of said FRD signal is the same as said frequency of said FVD signal;

a phase detector logic circuit including an edge detector circuit responsive to said FRD, FVD, XLO and RFC signals for producing a first output signal upon the occurrence of one of said FRD and RFC or FVD and XLO signal pairs and a second output signal upon the occurrence of the other of said FRD and RFC or FVD and XLO signal pairs,

a correction circuit responsive to said first and second output signals from said edge detector circuit for producing an output pulse signal beginning in response to said first output signal from said edge detector circuit and ending in response to said second output signal from said edge detector circuit, the duration of said signal from said correction circuit being representative of the duration between the occurrence of said FRD and FVD signals

output means connected to said correction circuit and to said voltage controlled oscillator circuit, said output means responsive to and applying said output pulse signal from said correction circuit to said voltage controlled oscillator circuit to adjust the frequency of said voltage controlled oscillator signal VCO until said FRD signal and said FVD signal occur in phase

and a synchronizing means connected to the output of said correction circuit and to said XLO signal for generating a reset signal synchronous with the end of correction pulse from said correction circuit, said reset signal being connected to said edge detector circuit for resetting said edge detector circuit at the end of said correction pulse.

5,390,223	Divider circuit structure	Nokia Mobile Phones Ltd.	Lindholm; Rune	377	H03K	19920701	2	92%	<input type="checkbox"/>
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Abstract: A divider circuit provides an output signal having a frequency which is equal to the frequency of an input signal divided by an odd integer. This is achieved by feeding back the output from a binary counter through an AND gate, delay flip-flop and an OR gate so that one cycle is added the output of the binary counter.

MainClaim: A divider circuit comprising:

divider means operable to divide the frequency of an input signal by a pre-determined even integer and to supply the divided signal as an output; and

adding means operable to add one cycle to the divided output signal to provide an output signal for said divider whereby the divider output signal has a frequency which is equal to the frequency of said input signal divided by a pre-determined odd integer,

wherein said adding means comprises delay means operable to delay coupling of said input signal to said dividing means by one cycle such that said divider output signal has one cycle added thereto,

wherein said divider means comprises at least one flip-flop coupled in series and said delay means is operable in response to a signal from a first logic means operable to supply the first logic means signal when the outputs from said at least one flip-flop are all in the same state, and

wherein said delay means comprises a flip-flop coupled to the logic means for receiving said first logic means signal therefrom and to supply a signal to a second logic means in response thereto, said second logic means being operable to delay coupling of said input signal to said divider means in response said second logic means signal.

RE39,213	Apparatus and method for increasing a digital camera image capture rate by delaying image processing	Apple Computer, Inc.	Anderson; Eric C. Masukawa; Mike M.	348	H04N	20010202	0	100%	<input type="checkbox"/>
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Abstract: An apparatus for increasing a digital camera image capture rate comprises an imaging device for capturing raw image data, a frame buffer for receiving the image data, a first RAM spooler for transferring the raw image data to a RAM disk, a first flash spooler for transferring the raw image data from the RAW disk to a flash memory, an image processor for processing and compressing the raw data, a second RAM spooler for storing the compressed image data into the RAM disk, and a second flash spooler for transferring the compressed image data from the RAM disk to the flash memory.

MainClaim: A method for increasing a digital camera image capture rate, comprising the steps of: capturing an image upon detecting an image capture request; storing the image in a memory device; repeating the capturing and storing steps if another image capture request is detected; performing image processing and compression on the image; halting the image processing/compression step and returning to the capturing step if another image capture request is detected; and resuming the image processing/compression step after the capturing, storing and repeating steps have been performed.

2009/0273686	Methods, computer program products and apparatus providing improved image capturing	Nokia Corporation	Kaikumaa; Timo Kalevo; Ossi Ilmoniemi; Martti Boden; Rolf Yong; Sin-Hung Baxter; Andrew	348	H04N	20080502	3	93%	<input type="checkbox"/>
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Abstract: The exemplary embodiments of the invention allow for parallel operations within a digital image capturing system. For example, raw image data can be processed while a subsequent image is being captured. In one exemplary embodiment of the invention, a method includes: executing at least one foreground operation within a digital image capturing device; and executing at least one background operation within the digital image capturing device, wherein the at least one foreground operation includes: capturing raw image data via at least one sensor, storing the captured raw image data as an intermediate file, and activating a digital viewfinder, wherein the at least one background operation includes: accessing the intermediate file, performing image processing on the raw image data of the intermediate file to obtain processed image data, and storing the processed image data, wherein the at least one background operation is executed independently of the at least one foreground operation.

MainClaim: A method comprising: executing at least one foreground operation within a digital image capturing device, wherein the at least one foreground operation comprises: capturing raw image data via at least one sensor, storing the captured raw image data as an intermediate file, and activating a digital viewfinder; and executing at least one background operation within the digital image capturing device, wherein the at least one background operation comprises: accessing the intermediate file, performing image processing on the raw image data of the intermediate file to obtain processed image data, and storing the

processed image data, wherein the at least one background operation is executed independently of the at least one foreground operation.

5,867,214	Apparatus and method for increasing a digital camera image capture rate by delaying image processing	Apple Computer, Inc.	Anderson; Eric C. Masukawa; Mike M.	348	H04N	19960411	0	100%	<input type="checkbox"/>
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Abstract: An apparatus for increasing a digital camera image capture rate comprises an imaging device for capturing raw image data, a frame buffer for receiving the image data, a first RAM spooler for transferring the raw image data to a RAM disk, a first flash spooler for transferring the raw image data from the RAM disk to a flash memory, an image processor for processing and compressing the raw data, a second RAM spooler for storing the compressed image data into the RAM disk, and a second flash spooler for transferring the compressed image data from the RAM disk to the flash memory.

MainClaim: A method for increasing a digital camera image capture rate, comprising the steps of:

capturing an image upon detecting an image capture request;

storing the image in a memory device;

repeating the capturing and storing steps if another image capture request is detected;

performing image processing and compression on the image;

halting the image processing/compression step and returning to the capturing step if another image capture request is detected; and

resuming the image processing/compression step after the capturing, storing and repeating steps have been performed.

2009/0273686	Methods, computer program products and apparatus providing improved image capturing	Nokia Corporation	Kaikumaa; Timo Kalevo; Ossi Ilmoniemä; Martti Boden; Rolf Yong; Sin-Hung Baxter; Andrew	348	H04N	20080502	3	92%	<input type="checkbox"/>
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Abstract: The exemplary embodiments of the invention allow for parallel operations within a digital image capturing system. For example, raw image data can be processed while a subsequent image is being captured. In one exemplary embodiment of the invention, a method includes: executing at least one foreground operation within a digital image capturing device; and executing at least one background operation within the digital image capturing device, wherein the at least one foreground operation includes: capturing raw image data via at least one sensor, storing the captured raw image data as an intermediate file, and activating a digital viewfinder, wherein the at least one background operation includes: accessing the intermediate file, performing image processing on the raw image data of the intermediate file to obtain processed image data, and storing the processed image data, wherein the at least one background operation is executed independently of the at least one foreground operation.

MainClaim: A method comprising: executing at least one foreground operation within a digital image capturing device, wherein the at least one foreground operation comprises: capturing raw image data via at least one sensor, storing the captured raw image data as an intermediate file, and activating a digital viewfinder; and executing at least one background operation within the digital image capturing device, wherein the at least one background operation comprises: accessing the intermediate file, performing image processing on the raw image data of the intermediate file to obtain processed image data, and storing the processed image data, wherein the at least one background operation is executed independently of the at least one foreground operation.

5,295,164	Apparatus for providing a system clock locked to an external clock over a wide range of frequencies	Apple Computer, Inc.	Yamamura; Michael	375	H03D	19911223	0	100%	<input type="checkbox"/>
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Abstract: A digital phase lock loop circuit for synchronizing the phase of clock signals delivered to devices through clock tree circuitry with the phase of input clock signals including a first delay line, a second delay line, a phase detector circuit, apparatus for transferring the input clock signals through the first delay line to the phase detector circuit, apparatus for transferring the input clock signals through the second delay line and the clock tree circuitry to the phase detector circuit, apparatus responsive to the difference in phase detected between the clock signals transferred through the first and second delay lines for varying the delay of one of the delay lines to bring the clock signals transferred through the first and second delay lines into phase with one another.

MainClaim: A digital phase lock loop circuit for synchronizing a phase of clock signals delivered to devices through clock tree circuitry with a phase of input clock signals comprising a first delay line, a second delay line, a phase detector circuit, means for transferring the input clock signals through the first delay line to the phase detector circuit, means for simultaneously transferring the input clock signals through the second delay line and the clock tree circuitry to the phase detector circuit, and said phase detector circuit being responsive to the difference in phase detected between the clock signals transferred through the first and second delay lines and varying the delay of one of the delay lines to bring the clock signals transferred through the first and second delay lines into exact phase with one another.

5,315,183	Synchronous phase detector circuit	Nokia Mobile Phones Ltd.	Ruotsalainen; Asko	327	H03L	19921221	3	95%	<input type="checkbox"/>
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Abstract: A phase detector for high speed logic circuits including an edge detector circuit responsive to two signals which may contain frequency and phase errors which result in the edges of the signal pulses of the two signals occurring at different times. The edges of the two signal pulses are detected by a phase detector circuit and an output signal provided to a correction circuit that provides a correction signal for the time period between the pulse edges of the signal pulses. The correction circuit output signal is fed back to a local oscillator to minimize the frequency and phase errors. A synchronizing circuit is connected to the output of the correction circuit to synchronously reset the phase detector circuit at the end of the correction signal period.

MainClaim: A phase detection means for high speed logic circuits that functions in a synchronous mode in response to first and second frequency clock signals comprising:

a voltage controlled oscillator circuit for generating a first frequency clock signal VCO,

a reference signal source for generating a second frequency clock signal V_{REF} ,

a source of clock signal XLO

a source of clock signals RFC,

an input signal FVD having a frequency that is a submultiple of the frequency of said first frequency clock signal VCO,

an input signal FRD having a frequency that is a submultiple of said second frequency clock signal V_{REF} , and wherein said frequency of said FRD signal is the same as said frequency of said FVD signal;

a phase detector logic circuit including an edge detector circuit responsive to said FRD, FVD, XLO and RFC signals for producing a first output signal upon the occurrence of one of said FRD and RFC or FVD and XLO signal pairs and a second output signal upon the occurrence of the other of said FRD and RFC or FVD and XLO signal pairs,

a correction circuit responsive to said first and second output signals from said edge detector circuit for producing an output pulse signal beginning in response to said first output signal from said edge detector circuit and ending in response to said second output signal from said edge detector circuit, the duration of said signal from said correction circuit being representative of the duration between the occurrence of said FRD and FVD signals

output means connected to said correction circuit and to said voltage controlled oscillator circuit, said output means responsive to and applying said output pulse signal from said correction circuit to said voltage controlled oscillator circuit to adjust the frequency of said voltage controlled oscillator signal VCO until said FRD signal and said FVD signal occur in phase

and a synchronizing means connected to the output of said correction circuit and to said XLO signal for generating a reset signal synchronous with the end of correction pulse from said correction circuit, said reset signal being connected to said edge detector circuit for resetting said edge detector circuit at the end of said correction pulse.

5,365,119	Circuit arrangement	Nokia Mobile Phones Ltd.	Kivari; Raimo	327	H03K	19920812	2	92%	<input type="checkbox"/>
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Abstract: A signal generator includes a frequency divider having an input node for receiving a first signal having a first frequency f_1 and a single output node for outputting a second signal having a second frequency f_2 , wherein a ratio f_1/f_2 is equal to an odd number that is equal to or greater than three. A synchronous delay circuit has an input node coupled to the single output node of the frequency divider and an output node for outputting a third signal that is delayed in time with respect to the second signal by an amount that is a function of a period of the first signal. Logic is provided having a first input node coupled to the single output node of the frequency divider and a second input node coupled to the output node of the delay circuit. The logic has an output node for outputting a fourth signal having the second frequency f_2 and a 50% duty cycle. In a further embodiment the signal generator outputs a frequency that is $(2n+1)/2$ of the input frequency, where n any positive integer.

MainClaim: A signal generator, comprising:

frequency divider means having an input node for receiving a first signal having a first frequency f_1 and a single output node for outputting a second signal having a second frequency f_2 , wherein a ratio f_1/f_2 is equal to an odd number that is equal to or greater than three;

delay means having an input node coupled to said single output node of said frequency divider means and an output node for outputting a third signal that is delayed in time with respect to said second signal by an amount that is a function of a period of said first signal, said third signal being synchronized to said first signal; and

logic means having a first input node coupled to said single output node of said frequency divider means and a second input node coupled to said output node of said delay means, said logic means having an output node for outputting a fourth signal having the second frequency f_2 and a 50% duty cycle.

5,103,114	Circuit technique for creating predetermined duty cycle	Apple Computer, Inc.	Fitch; Jonathan M.	327	H03L	19900319	0	100%	<input type="checkbox"/>
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Abstract: A circuit for allowing a clock of any specified duty cycle to be created from a clock of the same frequency using standard digital delay lines. In particular, an EXOR function is implemented to generate a clock signal having a frequency which is twice the frequency of its input signals by using standard logic components such that the active branch for each input edge has an independent path to the output signal. In this manner, if a time delay is introduced into the active branch and only the active branch, the corresponding output edge and only that edge will be delayed by a like amount. Over a complete cycle of the input waveforms, four output edges are produced (two clock cycles). By varying the delay on the input branches, these output edges can be placed independently and arbitrarily within the period. As such, an output waveform having any desired duty cycle can be created independent of the phase relationship between the two input waveforms.

MainClaim: A circuit for receiving first and second input waveforms having substantially the same frequency for generating an output waveform having a frequency which is substantially twice the frequency of said first and second input waveforms and having a duty cycle which is substantially independent of the phase relationship between said first and second input waveforms, said circuit comprising:

a) first gate means for receiving said first input waveform from a first input line containing said first input waveform and an inversion of said second input waveform from a first inverter coupled to a second input line containing said second input waveform;

b) second gate means for receiving said second input waveform from a third input line containing said second waveform and an inversion of said first input waveform from a second inverter coupled to a fourth input line containing said first input waveform, wherein said first and said fourth input lines are isolated by a first buffer means coupled between said first gate means and said second inverter, and said second and third input lines are isolated by a second buffer means coupled between said second gate means and said first inverter;

c) first delay means coupled between said first gate means and said first buffer means for applying a first predetermined delay to said first input waveform;

d) second delay means coupled between said first gate means and said first inverter for applying a second predetermined delay to said inversion of said second input waveform;

e) third delay means coupled between said second gate means and said second inverter for applying a third predetermined delay to said inversion of said first input waveform;

f) fourth delay means coupled between said second gate means and said second buffer means for applying a fourth predetermined delay to said second input waveform; and

g) third gate means coupled to said first and second gate means for receiving outputs from said first and second gate means and producing said output waveform

whereby said output waveform has a frequency which is substantially twice the frequency of said first and second input waveforms and has a duty cycle which is substantially independent of the phase relationship between said first and second input waveforms as determined by said first, second, third and fourth predetermined delays.

5,365,119	Circuit arrangement	Nokia Mobile Phones Ltd.	Kivari; Raimo	327	H03K	19920812	2	92%	<input type="checkbox"/>
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Abstract: A signal generator includes a frequency divider having an input node for receiving a first signal having a first frequency f_1 and a single output node for outputting a second signal having a second frequency f_2 , wherein a ratio f_1/f_2 is equal to an odd number that is equal to or greater than three. A synchronous delay circuit has an input node coupled to the single output node of the frequency divider and an output node for outputting a third signal that is delayed in time with respect to the second signal by an amount that is a function of a period of the first signal. Logic is provided having a first input node coupled to the single output node of the frequency divider and a second input node coupled to the output node of the delay circuit. The logic has an output node for outputting a fourth signal having the second frequency f_2 and a 50% duty cycle. In a further embodiment the signal generator outputs a frequency that is $(2n+1)/2$ of the input frequency, where n any positive integer.

MainClaim: A signal generator, comprising:

frequency divider means having an input node for receiving a first signal having a first frequency f_1 and a single output node for outputting a second signal having a second frequency f_2 , wherein a ratio f_1/f_2 is equal to an odd number that is equal to or greater than three;

delay means having an input node coupled to said single output node of said frequency divider means and an output node for outputting a third signal that is delayed in time with respect to said second signal by an amount that is a function of a period of said first signal, said third signal being synchronized to said first signal; and

logic means having a first input node coupled to said single output node of said frequency divider means and a second input node coupled to said output node of said delay means, said logic means having an output node for outputting a fourth signal having the second frequency f_2 and a 50% duty cycle.

5,390,223	Divider circuit structure	Nokia Mobile Phones Ltd.	Lindholm; Rune	377	H03K	19920701	2	92%	<input type="checkbox"/>
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Abstract: A divider circuit provides an output signal having a frequency which is equal to the frequency of an input signal divided by an odd integer. This is achieved by feeding back the output from a binary counter through an AND gate, delay flip-flop and an OR gate so that one cycle is added the output of the binary counter.

MainClaim: A divider circuit comprising:

divider means operable to divide the frequency of an input signal by a pre-determined even integer and to supply the divided signal as an output; and

adding means operable to add one cycle to the divided output signal to provide an output signal for said divider whereby the divider output signal has a frequency which is equal to the frequency of said input signal divided by a pre-determined odd integer,

wherein said adding means comprises delay means operable to delay coupling of said input signal to said dividing means by one cycle such that said divider output signal has one cycle added thereto,

wherein said divider means comprises at least one flip-flop coupled in series and said delay means is operable in response to a signal from a first logic means operable to supply the first logic means signal when the outputs from said at least one flip-flop are all in the same state, and

wherein said delay means comprises a flip-flop coupled to the logic means for receiving said first logic means signal therefrom and to supply a signal to a second logic means in response thereto, said second logic means being operable to delay coupling of said input signal to said divider means in response said second logic means signal.

6,321,269	Optimized performance for transaction-oriented communications using stream-based network protocols	Apple Computer, Inc.	Walker; Ted W.	709	G06F	19981229	0	100%	<input type="checkbox"/>
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Abstract: A modified stream-based protocol implementation is employed within a network environment to compensate for inefficiencies associated with conventional stream based protocols, such as TCP. Characteristics of a transaction-based protocol are advantageously utilized in client/server data transactions to reduce the number of acknowledgment signals sent upon receipt of data, as well as eliminate delays associated with the buffering of data at the server. These results are accomplished without requiring changes to servers using standard stream-based protocols.

MainClaim: A method for communicating data between computers, comprising the steps of:

issuing a request for data from a first computer to a second computer;

determining the amount of data to be received at said first computer in response to said request;

monitoring data received at the first computer and detecting when the remaining amount of data to be received is less than a predetermined amount; and

sending a preemptive acknowledgment from said first computer to said second computer in response to said detection to prompt said second computer to transmit the remaining data to be sent.

6,757,248	Performance enhancement of transmission control protocol (TCP) for wireless network applications	Nokia Internet Communications Inc.	Li; Xiang Wu; Jing Cheng; Shiduan Ma; Jian	370	G01R	20000614	1	92%	<input type="checkbox"/>
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Abstract: A new Fast Recovery Plus (FR+) mechanism, and associated method, for wireless and/or mobile network applications to control data flow and avoid network congestion in a TCP/IP packet-switched network.

MainClaim: A method of flow control and congestion avoidance congestion in a network, comprising:

transmitting, at a source node, data packets to a destination node, via at least an intermediate node;

receiving, at the destination node, data packets transmitted from the source node, via the intermediate node, and generating a duplicate ACK back to the source node to inform the source node that a data packet was received out-of-order in the network and serves as an indication that a data packet has been lost;

upon receipt of a designated number of duplicate ACKs, at the source node, determining that a data packet has been lost;

initializing a counter, at the source node, and recording a congestion window CWND, a slow start threshold Ssthresh, and a maximal sequence number SN that has been sent into the network;

upon receipt of a next duplicate ACK, at the source node, recording its acknowledged sequence number ACK_SN;

determining, at the source node, if the acknowledged sequence number ACK_SN is no more than a recorded sequence number SN;

if the acknowledged sequence number ACK_SN is more than the recorded sequence number SN, incrementing the counter, at the source node, and re-transmitting a lost packet;

if the acknowledged sequence number ACK_SN is no more than the recorded sequence number SN, determining if the packet loss is due to a transmission error; and

if the packet loss is due to the transmission error, setting, at the source node, the slow start threshold Ssthresh to $\text{Max}(\text{CWND}, (\text{Ssthresh} + \text{CWND})/2)$, wherein said CWND and Ssthresh exhibit values previously recorded.

6,741,555	Enhancement of explicit congestion notification (ECN) for wireless network applications	Nokia Internet Communications Inc.	Li; Xiang Wu; Jing Cheng; Shiduan Ma; Jian	370	H04L	20000614	2	92%	<input type="checkbox"/>
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Abstract: An Explicit Congestion Notification (ECN) method is disclosed for wireless applications to avoid network congestion in a TCP/IP packet-switched network. Such method comprises transmitting, at a source node, data packets to a destination node, via at least an intermediate node; determining, at the intermediate node, if an incipient congestion is encountered, setting a Congestion Experienced (CE) flag in each data packet to notify congestion; sending, at the destination node, an ECN-Echo acknowledgment packet back to the source node to inform congestion; reducing, at the source node, a congestion window and a transmission rate to avoid congestion; if the packet loss is due to congestion, re-transmitting, at the source node, only a lost packet to the destination node; alternatively, if the packet loss is due to transmission error, re-transmitting, the lost packet to the destination node, while increasing a round-trip timeout but maintaining the same congestion window.

MainClaim: A method of avoiding congestion in a network, comprising:

transmitting, at a source node, data packets to a destination node, via at least an intermediate node, each data packet including a Transmission Control Protocol (TCP) header;

determining, at the intermediate node, if an incipient congestion is encountered, and if the incipient congestion is encountered, setting a Congestion Experienced (CE) flag in each data packet which indicates the incipient congestion to notify the incipient congestion to the destination node;

receiving, at the destination node, a CE data packet, setting an Explicit Congestion Notification-Echo (ECN-Echo) flag in the TCP header of an acknowledgment (ACK) packet subsequent to the CE data packet received, and sending an ECN-Echo ACK packet back to the source node to inform that the incipient congestion was encountered in the network on the path from the source node to the destination node;

upon receipt of the ECN-Echo ACK packet, reducing, at the source node, a congestion window and a transmission rate to avoid the congestion, and determining if a packet loss is due to congestion or due to a transmission error, when the incipient congestion is still encountered in the network on the path from the source node to the destination node;

if the packet loss is due to congestion, re-transmitting, at the source node, only a lost packet to the destination node, via the intermediate node; and

if the packet loss is due to the transmission error, re-transmitting, at the source node, the lost packet to the destination node, via the intermediate node, while increasing a round-trip timeout (RTO) but maintaining the same congestion window.

7,502,322	System, method and computer program product for increasing throughput in bi-directional communications	Nokia Corporation	Yu; Jing Hu; Xuelong Ronald	370	H04J	20030930	2	92%	<input type="checkbox"/>
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Abstract: A system, method, and computer program product are provided for bi-directional communication. The system includes a first host capable of transmitting multiplexed data at a first transmission rate and operating with a first congestion window. The first host is also capable of receiving multiplexed data at a second transmission rate from a second host capable of operating with a second congestion window. The first host can be capable of configuring at least one of a size of the first congestion window and a size of the second congestion window based upon first transmission rate, the size of the second congestion window, the second transmission rate and the size of the first congestion window.

MainClaim: An apparatus comprising: a processor configured to transmit multiplexed data at a first transmission rate and operate with a first congestion window, wherein the processor is also configured to receive multiplexed data at a second transmission rate from a second host separate from the apparatus and configured to operate with a second congestion window, and wherein the processor is configured to set at least a size of the second congestion window based upon the first transmission rate, the size of the second congestion window, the second transmission rate and the size of the first congestion window.

5,931,961	Discovery of acceptable packet size using ICMP echo	Apple Computer, Inc.	Ranganathan; Murali Riddle; Guy G.	714	G06F	19960508	0	100%	<input type="checkbox"/>
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Abstract: A network messaging protocol is used to send an arbitrary size packet over the network from a source machine to a destination machine. If the packet is accepted by the routers along the path of the potential network connection, then the destination machine will be able to echo the test message packet back to the source machine and an acceptable packet size is set equal to the test message packet size. If not, after a suitable time out, the source machine will send another test message with a different packet size than the initial arbitrary packet size and wait for echo and repeat the process until an acceptable packet size is discovered.

MainClaim: A method for discovering an acceptable packet size over a path that utilizes a user datagram protocol (UDP) for packets from a source to a destination, said method comprising the steps of:

choosing a first size as a testing size;

sending a test message packet with a test message using an echoing protocol, said test message the size of said testing size from said source to said destination; and

checking during a specified timeout whether said test message packet is successfully echoed back, and if said test message packet is successfully echoed back, setting said acceptable UDP packet size equal to said testing size.

6,741,555	Enhancement of explicit congestion notification (ECN) for wireless network applications	Nokia Internet Communications Inc.	Li; Xiang Wu; Jing Cheng; Shiduan Ma; Jian	370	H04L	20000614	2	94%	<input type="checkbox"/>
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Abstract: An Explicit Congestion Notification (ECN) method is disclosed for wireless applications to avoid network congestion in a TCP/IP packet-switched network. Such method comprises transmitting, at a source node, data packets to a destination node, via at least an intermediate node; determining, at the intermediate node, if an incipient congestion is encountered, setting a Congestion Experienced (CE) flag in each data packet to notify congestion; sending, at the destination node, an ECN-Echo acknowledgment packet back to the source node to inform congestion; reducing, at the source node, a congestion window and a transmission rate to avoid congestion; if the packet loss is due to congestion, re-transmitting, at the source node, only a lost packet to the destination node; alternatively, if the packet loss is due to transmission error, re-transmitting, the lost packet to the destination node, while increasing a round-trip timeout but maintaining the same congestion window.

MainClaim: A method of avoiding congestion in a network, comprising:

transmitting, at a source node, data packets to a destination node, via at least an intermediate node, each data packet including a Transmission Control Protocol (TCP) header;

determining, at the intermediate node, if an incipient congestion is encountered, and if the incipient congestion is encountered, setting a Congestion Experienced (CE) flag in each data packet which indicates the incipient congestion to notify the incipient congestion to the destination node;

receiving, at the destination node, a CE data packet, setting an Explicit Congestion Notification-Echo (ECN-Echo) flag in the TCP header of an acknowledgment (ACK) packet subsequent to the CE data packet received, and sending an ECN-Echo ACK packet back to the source node to inform that the incipient congestion was encountered in the network on the path from the source node to the destination node;

upon receipt of the ECN-Echo ACK packet, reducing, at the source node, a congestion window and a transmission rate to avoid the congestion, and determining if a packet loss is due to congestion or due to a transmission error, when the incipient congestion is still encountered in the network on the path from the source node to the destination node;

if the packet loss is due to congestion, re-transmitting, at the source node, only a lost packet to the destination node, via the intermediate node; and

if the packet loss is due to the transmission error, re-transmitting, at the source node, the lost packet to the destination node, via the intermediate node, while increasing a round-trip timeout (RTO) but maintaining the same congestion window.

7,177,272	System and method for optimizing link throughput in response to non-congestion-related packet loss	Nokia Corporation	Swami; Yogesh	370	H04J	20030625	2	93%	<input type="checkbox"/>
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Abstract: A system, apparatus, and method for providing secure loss recovery for packet loss due to bit errors and other non-congestion-related packet loss occurring over the communication link. An intermediary node in a network between a sending node and a receiving node identifies packet loss due to bit errors (PLB), or other non-congestion-based packet loss, over a network connection between the sending module and the network node. A loss notification signal is sent from the network node to the sending module in response to identification of the non-congestion-based packet loss. The PLB is verified at the sending module. A first loss recovery procedure is performed, different from a second loss recovery procedure associated with congestion-based packet loss, if the PLB is verified at the sending module.

MainClaim: A method for increasing throughput over network connections experiencing data loss due to non-congestion-based packet loss, comprising: identifying, at a network node, non-congestion-based packet loss over a network connection between a sending module and the network node; sending a loss notification signal from the network node to the sending module in response to identification of the non-congestion-based packet loss; verifying the non-congestion-based packet loss at the sending module independently of the receipt of loss notification signals; and performing a first loss recovery procedure, different from a second loss recovery procedure associated with congestion-based packet loss, if the non-congestion-based packet loss is verified at the sending module.

7,170,856	Jitter buffer for a circuit emulation service over an internet protocol network	Nokia Inc.	Ho; Chi Fai Kondapalli; Raghu R. Merani; Lalit Bhat; Ravi Bail Kejriwal; Prabhas Merchant; Shashank	370	H04J	20000512	1	93%	<input type="checkbox"/>
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Abstract: A jitter buffer receives a plurality of data packets comprising a circuit emulation service over internet protocol (CESIP), buffers the plurality of data packets, and plays data from the plurality of data packets at a constant bit rate corresponding to the CESIP.

MainClaim: A method comprising: adjusting the first constant bit rate based on a level of buffered data packets of the first plurality of data packets; receiving a first plurality of data packets comprising a first circuit emulation service over internet protocol; buffering the first plurality of data packets; and playing data from the first plurality of data packets at a first constant bit rate corresponding to the first circuit emulation service over internet protocol, wherein adjusting the first constant bit rate comprises a increasing the first constant bit rate if the level of buffered data packets exceeds a tolerance range; and decreasing the first constant bit rate if the level of buffered data packets drops below the tolerance range.

6,665,729	Data transmission utilizing pre-emptive acknowledgements with transaction-oriented protocols	Apple Computer, Inc.	Walker; Ted W.	709	G06F	20010813	0	100%	<input type="checkbox"/>
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Abstract: A modified stream-based protocol implementation is employed within a network environment to compensate for inefficiencies associated with conventional stream based protocols, such as TCP. Characteristics of a transaction-based protocol are advantageously utilized in client/server data transactions to reduce the number of acknowledgment signals sent upon receipt of data, as well as eliminate delays associated with the buffering of data at the server. These results are accomplished without requiring changes to servers using standard stream-based protocols.

MainClaim: A client computer, comprising:

means for issuing a request for data;

means for determining the amount of data to be received in response to said request;

means for monitoring received data and detecting when the remaining amount of data to be received is less than a predetermined amount; and

means for sending a preemptive acknowledgment in response to said detection.

	System, method and computer program								
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7,502,322	product for increasing throughput in bi-directional communications	Nokia Corporation	Yu; Jing Hu; Xuelong Ronald	370	H04J	20030930	2	92%	<input type="checkbox"/>
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Abstract: A system, method, and computer program product are provided for bi-directional communication. The system includes a first host capable of transmitting multiplexed data at a first transmission rate and operating with a first congestion window. The first host is also capable of receiving multiplexed data at a second transmission rate from a second host capable of operating with a second congestion window. The first host can be capable of configuring at least one of a size of the first congestion window and a size of the second congestion window based upon first transmission rate, the size of the second congestion window, the second transmission rate and the size of the first congestion window.

MainClaim: An apparatus comprising: a processor configured to transmit multiplexed data at a first transmission rate and operate with a first congestion window, wherein the processor is also configured to receive multiplexed data at a second transmission rate from a second host separate from the apparatus and configured to operate with a second congestion window, and wherein the processor is configured to set at least a size of the second congestion window based upon the first transmission rate, the size of the second congestion window, the second transmission rate and the size of the first congestion window.

7,366,096	System and method for movement detection and congestion response for transport layer protocol	Nokia Corporation	Swami; Yogesh Prem	370	H04J	20030221	1	92%	<input type="checkbox"/>
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Abstract: A system, apparatus, and method for determining network capacity and managing network congestion in response to a change in an end-to-end communication path between sender and receiver hosts. A receiver mobility notification is provided by the receiver host to the sender host. The sender host determines whether the receiver host has moved between networks or sub-networks using the receiver mobility notification. If the sender host determines that the receiver host has moved from one network/subnet to another network/subnet, a congestion state at the sender host is reset to correspond to the new end-to-end communication path established between the sender host and the receiver host in the new subnet.

MainClaim: A method for determining network capacity and managing network congestion in response to a change in an end-to-end communication path between a sender host and a receiver host, the method comprising: receiving at the sender host a receiver mobility notification from the receiver host by receiving a mobility flag in a header field of segments sent from the receiver host to the sender host, wherein receiving a mobility flag comprises receiving a mobility bit having a first state indicating no movement from a first subnet to a second subnet and a second state indicating movement from the first subnet to the second subnet; determining at the sender host whether the receiver host has moved from a first subnet to a second subnet using the receiver mobility notification; and resetting a congestion state at the sender host to correspond to a new end-to-end communication path between the sender host and the receiver host in the second subnet, if the sender host determines that the receiver host has moved from the first subnet to the second subnet; and receiving the mobility bit in the first state if the receiver host further moves from the second subnet to one of a third subnet or the first subnet.

7,177,272	System and method for optimizing link throughput in response to non-congestion-related packet loss	Nokia Corporation	Swami; Yogesh	370	H04J	20030625	2	92%	<input type="checkbox"/>
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Abstract: A system, apparatus, and method for providing secure loss recovery for packet loss due to bit errors and other non-congestion-related packet loss occurring over the communication link. An intermediary node in a network between a sending node and a receiving node identifies packet loss due to bit errors (PLB), or other non-congestion-based packet loss, over a network connection between the sending module and the network node. A loss notification signal is sent from the network node to the sending module in response to identification of the non-congestion-based packet loss. The PLB is verified at the sending module. A first loss recovery procedure is performed, different from a second loss recovery procedure associated with congestion-based packet loss, if the PLB is verified at the sending module.

MainClaim: A method for increasing throughput over network connections experiencing data loss due to non-congestion-based packet loss, comprising: identifying, at a network node, non-congestion-based packet loss over a network connection between a sending module and the network node; sending a loss notification signal from the network node to the sending module in response to identification of the non-congestion-based packet loss; verifying the non-congestion-based packet loss at the sending module independently of the receipt of loss notification signals; and performing a first loss recovery procedure, different from a second loss recovery procedure associated with congestion-based packet loss, if the non-congestion-based packet loss is verified at the sending module.

7,007,062	Methods and apparatuses for transferring data	Apple Computer, Inc.	Serenyi; Denis LeCroy; Chris	709	G06F	20010108	0	100%	<input type="checkbox"/>
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Abstract: The present invention provides several methods and apparatuses for transmitting multimedia data using streaming media protocols such as real-time transfer protocols (RTP) and real-time streaming protocols (RTSP) in a computer network environment. A request for RTP data is sent from the caching proxy server to the server. The request may be for one specific type of data or multiple unrelated types of data. The server responds to the request indicating its support for the requested data. The caching proxy server determines whether to proceed or terminate the data transmission process based on the response provided by the server. If it is determined to proceed with the data transmission process, the caching proxy informs the server to send the requested data. The server sends the requested data in a body of a RTP packet. The RTP packet uses a RTP Meta-Info payload format, which includes a body and a field header. The field header includes fields to identify the streaming media data, and the field body includes the requested streaming media data.

MainClaim: A method for operating a caching proxy server comprising:

sending a first request for streaming media data to a server, the first request including a second request for data associated with the streaming media data, the second request including an identifier which represents one of several possible types of the data associated with the streaming media data, wherein the data associated with the streaming media data have an RTP Meta-Information payload format, which includes a field header to identify a type of the data associated with the streaming media data, and a field body to include the data associated with the streaming media data;

receiving a response from the server indicating support for the requested streaming media data;

informing the server to send the supported data associated with the streaming media data;

receiving the streaming media data from the server in a body of a packet;

receiving a third request from a client to send streaming media data; and

sending the requested streaming media data to the client.

7,640,350	Transferring objects within an ongoing file transfer operation	Nokia Corporation	Bouet; Stephane	709	G06F	20011220	1	92%	<input type="checkbox"/>
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Abstract: The invention discloses a method of sending pictures for display individually or as a series of pictures in a mini-clip on a receiving device during a lengthy file transfer. The invention, although not strictly limited to, is particularly suitable for use in a Bluetooth environment using the Object Exchange (OBEX) protocol. In an embodiment of the invention, a picture or series of pictures (710,720,730) are encapsulated within a Application Parameters header of the ongoing long file transfer. When picture data is too large to fit into a single header the data may be segmented and spanned over several headers. The headers contain parameters that define display characteristics such as picture display time and mini-clip or series refresh rate, thereby lending the method particularly well for the display of advertising content.

MainClaim: A method, comprising: transmitting, during an ongoing packet transfer operation in which packets of content are transferred between a sending device and a receiving device, picture data in addition to said content, at least a portion of said picture data for display on a display associated with the receiving device during said ongoing packet transfer, wherein said packet transfer comprises a plurality of packets and at least one of the plurality of packets comprises a payload portion and a separate header portion comprising the at least a portion of said picture data, wherein said picture data is a binary image file having a binary based format used to define transmission of encoded bitmap data; wherein the header portion includes at least one parameter that controls the display of the at least a portion of said picture data on the display associated with the receiving device during the ongoing packet transfer.

5,444,709	Protocol for transporting real time data	Apple Computer, Inc.	Riddle; Guy G.	370	H04J	19930930	0	100%	<input type="checkbox"/>
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Abstract: A real-time data stream is transmitted in data packets from a data source in accordance with a predetermined protocol over a shared network. Data packets of said real-time data stream are received at a data destination connected to the local area network. The data destination then reconstitutes the real-time data stream using information included in the data packets in accordance with the predetermined protocol. More particularly, a plurality of data frames are transmitted from the data source, each including at least one data packet. Each data packet includes a sequence number S identifying the data packet as the Sth data packet transmitted in the data stream and a frame number N identifying the data packet as belonging to an Nth frame transmitted in the data stream. Data packets that are the first data packets in respective frames to which they belong and data packets that are the last data packets in respective frames to which they belong include flags identifying them as such. At least some of the data packets are received at the data destination and, using sequence numbers, frame numbers, and the flags in the data packets, complete data frames received at the data destination are identified. Data frames that are timely received, as judged in relation to received data packets belonging to other frames, are forwarded to a higher-level process. Packets not belonging to complete data frames timely received are discarded. In this manner, the isochronous nature of the real-time data stream is maintained.

MainClaim: A method of transmitting over a shared computer network a data stream captured from a real time data signal as capture is proceeding, comprising the steps of:

transmitting from a data source a plurality of data frames each including a frame number N identifying the data frame as an Nth frame transmitted in said data stream;

receiving at least some of said data frames at a data destination;

judging in relation to receipt of other data frames whether each data frame received has been timely received;

forwarding data frames that have been timely received to a higher level process; and

discarding data frames not timely received;

wherein at least some data frames are transmitted only once regardless of whether or not they are received at said data destination.

2008/0320171	METHOD AND SYSTEM FOR HEADER COMPRESSION	NOKIA CORPORATION	Walsh; Rod Luoma; Juha-Pekka Saarinen; Anne	709	G06F	20080819	1	95%	<input type="checkbox"/>
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Abstract: A compression context for a plurality of packets is established with a receiving device. Each of these packets is associated with one or more reliable multicast protocols, such as the Layered Coding Transform (LCT) protocol, the Asynchronous Layered Coding (ALC) protocol, the FLUTE protocol, the MUPPET protocol, and the NACK-Oriented Reliable Multicast (NORM) protocol. Upon establishment of the compression context, a compressed packet is generated for one of the plurality of packets and transmitted to the receiving device. The compressed packet has a reduced number of bits in its header. Upon receipt, the receiving device decompresses the compressed packet based on the compression context.

MainClaim: A receiver apparatus, comprising:(a) a processor configured to process a compression context for a plurality of packets, the plurality of packets associated with at least a reliable multicast protocol, wherein each of the plurality of packets includes a header having a plurality of header fields; and(b) a receiver coupled to the processor, configured to receive a compressed packet for one of the plurality of packets, the compressed packet having a reduced number of bits in its header;said compressed packet formed by compression in one of a plurality of states ranging from an initialization and refresh state for sending packets having substantially complete header information, to more compressed states for sending one or more packets with headers having progressively more compressed header information, said compression adaptively reverting from said more compressed states to said initialization and refresh state to accommodate unidirectional receivers of the multicast packets, wherein the reverting in compression states is triggered at an expiration of a timer or a sequence counter of the multicast packets;(c) said processor further configured to decompress the compressed packet based on the compression context.

7,558,882	System for header compression of a plurality of packets associated with a reliable multicast protocol	NOKIA Corporation	Walsh; Rod Luoma; Jukka-Pekka Saaranen; Anne	709	G06F	20080819	1	95%	<input type="checkbox"/>
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Abstract: A compression context for a plurality of packets is established with a receiving device. Each of these packets is associated with one or more reliable multicast protocols, such as the Layered Coding Transform (LCT) protocol, the Asynchronous Layered Coding (ALC) protocol, the FLUTE protocol, the MUPPET protocol, and the NACK-Oriented Reliable Multicast (NORM) protocol. Upon establishment of the compression context, a compressed packet is generated for one of the plurality of packets and transmitted to the receiving device. The compressed packet has a reduced number of bits in its header. Upon receipt, the receiving device decompresses the compressed packet based on the compression context.

MainClaim: A receiver apparatus, comprising: (a) a processor configured to process a compression context for a plurality of packets, the plurality of packets associated with at least a reliable multicast protocol, wherein each of the plurality of packets includes a header having a plurality of header fields; and (b) a receiver coupled to the processor, configured to receive a compressed packet for one of the plurality of packets, the compressed packet having a reduced number of bits in its header; said compressed packet formed by compression in one of a plurality of states ranging from an initialization and refresh state for sending packets having substantially complete header information, to more compressed states for sending one or more packets with headers having progressively more compressed header information, said compression adaptively reverting from said more compressed states to said initialization and refresh state to accommodate unidirectional receivers of the multicast packets, wherein the reverting in compression states is triggered at an expiration of a timer or a sequence counter of the multicast packets; (c) said processor further configured to decompress the compressed packet based on the compression context.

7,430,617	Method and system for header compression	Nokia Corporation	Walsh; Rod Luoma; Jukka-Pekka Saaranen; Anne	709	G06F	20031219	1	94%	<input type="checkbox"/>
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Abstract: A compression context for a plurality of packets is established with a receiving device. Each of these packets is associated with one or more reliable multicast protocols, such as the Layered Coding Transform (LCT) protocol, the Asynchronous Layered Coding (ALC) protocol, the FLUTE protocol, the MUPPET protocol, and the NACK-Oriented Reliable Multicast (NORM) protocol. Upon establishment of the compression context, a compressed packet is generated for one of the plurality of packets and transmitted to the receiving device. The compressed packet has a reduced number of bits in its header. Upon receipt, the receiving device decompresses the compressed packet based on the compression context.

MainClaim: A packet transmission method, comprising: (a) establishing with a receiving device a compression context for a plurality of packets, the plurality of packets associated with at least a reliable multicast protocol, wherein each of the plurality of packets includes a header having a plurality of header fields; (b) generating a compressed packet for one of the plurality of packets, the compressed packet having a reduced number of bits in its header; said compressed packet formed by compression in one of a plurality of states ranging from an initialization and refresh state for sending packets having substantially complete header information, to more compressed states for sending one or more packets with headers having progressively more compressed header information, said compression adaptively reverting from said more compressed states to said initialization and refresh state to accommodate unidirectional receivers of the multicast packets, wherein the reverting in compression states is triggered at an expiration of a timer or a sequence counter of the multicast packets; and (c) transmitting the compressed packet to the receiving device.

5,745,699	Dynamic address assignment in an arbitrarily connected network	Apple Computer, Inc.	Lynn; Kerry Eugene Oppenheimer; Alan Ritter; Michael Walker Zweig; Jonathan Marcus Mullins; Jeffery L.	709	G06F	19961018	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for assigning a unique network address to a first node within a network which is arbitrarily connected. The first node may include a shared network resource, such as a networked printer device, or a modem, in addition to a stand-alone computer system. The network may include a network which is wireless, wherein various nodes comprise radio transceiver circuitry, including radio frequency modems. A first provisional network address for use in assigning the unique network address is determined by the first node. The first node broadcasts probes containing the provisional network address until a first probe response to one of the probes is received or a first interval of time elapses. If the first probe response to one of the probes is received, then the first node determines a second provisional network address and repeats selection of the address and broadcasting, until no probe response is received in the first interval of time. Using the first provisional network address, the first node broadcasts forward probes in the network until a second probe response to one of the forward probes is received by the first node or a second period of time has transpired. If a second probe response to one of the forward probes is received by the first node, then the first node determines a third provisional network address and repeats the steps of selecting, broadcasting probes and forward probes until no the response is received in the second interval of time. The final provisional network address may be used as the unique network address for the first node.

MainClaim: In a network comprising a first node and a second node in wireless communication, a method of assigning a unique network address within said network to said first node, comprising the following steps:

- said first node in said network determining a first provisional network address for use in assigning said unique network address;
- said first node broadcasting a first probe containing said first provisional network address until a first probe response to said first probe is received or a first interval of time has transpired;
- if said first probe response to said first probe is received, then said first node determining a second provisional network address and repeating steps b and c, said second provisional network address becoming said first provisional network address, until no said first probe response is received in said first interval of time;
- using said first provisional network address, broadcasting by said second node, a second probe in said network until a second probe response to said second probe is received by said first node or a second period of time has transpired, wherein said

second probe comprises a forward probe that includes a radius remaining number indicating whether another node in said network may re-broadcast said forward probe;

e. if said second probe response to said second probe is received, then said first node determining a third provisional network address and repeating steps b through e, said third provisional network address becoming said first provisional network address, until no said second probe response is received in said second interval of time; and

f. using said first provisional network address as said unique network address for said first node.

7,729,350	Virtual multicast routing for a cluster having state synchronization	Nokia, Inc.	Singh; Ravi I. Bahadur; Rahul Hunt; Peter Frederick	370	H04L	20041230	1	92%	<input type="checkbox"/>
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Abstract: A system, apparatus, and method are directed to managing multicast routing using a network cluster. A cluster master actively participates in multicast control protocol communications with the cluster neighbors, while non-master member nodes, do not participate in the protocols' operation outside of the cluster. However, each cluster member maintains virtually the same protocol state, such that should the master become unavailable, another cluster member may assume the master role with minimum delay. New members to the cluster are synchronized by receiving initial protocol state information from the master. After the initial protocol state synchronization, cluster members actively monitor the network to acquire new protocol state information. In addition, cluster members exchange protocol state information between themselves that may not be obtainable off the network. Filtering of multicast data packets is performed by each cluster member, to load balance multicast data traffic across the cluster members.

MainClaim: A system, comprising: a first network device configured to operate as a cluster master within a cluster, the first network device being configured to direct sending of initial protocol state information to a cluster member when the cluster member is joining the cluster, direct sending of a multicast control protocol packet to at least one network device external to the cluster, receive a multicast data packet, and direct forwarding of the multicast data packet towards a destination when the first network device is associated with the multicast data packet; and a second network device configured to operate as the cluster member within the cluster, the second network device being configured to receive the initial protocol state information from the first network device during a joining of the second network device to the cluster, monitor the network for additional protocol state information, employ the additional protocol state information to update a state of the second network device when additional protocol state information is received, receive a multicast data packet, direct forwarding of the multicast data packet towards a destination when the second network device is associated with the multicast data packet, receive a multicast control protocol packet from the at least one network device external to the cluster, and drop the multicast control protocol packet rather than responding to the multicast control protocol packet.

2004/0264372	Quality of service (QoS) routing for Bluetooth personal area network (PAN) with inter-layer optimization	Nokia Corporation	Huang, Leping	370	H04L	20030627	1	92%	<input type="checkbox"/>
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Abstract: This invention grows out of an appreciation by the inventor that the QoS is an important metric for a Bluetooth (BT) PAN, as unpredictable indoor radio conditions can degrade the QoS and the stability of the routing protocol that is used to guarantee the QoS. In a first aspect this invention provides a traffic measurement embodiment that updates the QoS information in all nodes along the path of a packet. This embodiment functions to monitor the end-to-end QoS quality, and improves the protocol stability. In a second aspect this invention provides a cross-layer optimization embodiment by which the BT Link layer information (e.g., LinkSupervision_Timeout and RSSI) is integrated into the PAN routing protocol, to further enhance the stability of the routing protocol.

MainClaim: A method for operating a wireless network comprised of end nodes and at least one intermediate node, comprising: at an originating node of a session with a destination node, initiating a route search by sending a Route Request message; at the destination node, or another node having knowledge of the destination node, replying to the originating node with a Route Reply message when there is a valid route, where route delay information relative to the responding node is contained within the Route Reply message; and selecting a route with a smallest route delay to send a packet from the originating node to the destination node.

2003/0110291	Method and device for route searching in a bluetooth ad-hoc network	Nokia Corporation	Chen, Hongyuan	709	G06F	20011212	1	92%	<input type="checkbox"/>
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Abstract: A method for transmitting a route request in an ad-hoc network having master nodes and slave nodes includes transmitting the route request to the master nodes of the network via a unicast transmission and transmitting a reply identifying the route. Each node of the network which receives the request performs a route request algorithm. The algorithm may be implemented in the network layer of the device protocol stack or in the link layer of the device protocol stack.

MainClaim: A method for transmitting a route request for a route between a source node and a destination node in an ad-hoc network and for transmitting a reply identifying the route, the ad-hoc network including a plurality of nodes including at least one master node in at least one piconet, said method comprising: transmitting the route request from the receiving node in the ad-hoc network to the at least one master node of said at least one piconet via a unicast transmission; and generating a route reply and sending the route reply to the source node, the route reply identifying the route in the ad-hoc network between the source node and the destination node.

6,831,928	Method and apparatus for ensuring compatibility on a high performance serial bus	Apple Computer, Inc.	Hauck; Jerrold V. Whitby-Stevens; Colin	370	H04J	20000217	0	100%	<input type="checkbox"/>
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Abstract: Various methods for ensuring compatibility between devices utilizing the IEEE 1394-1995 serial bus standard and new implementations of the standard are disclosed. Methods are disclosed which allow border nodes to speed filter a Legacy cloud. Methods are disclosed which allow a BOSS node to speed filter a Legacy cloud. A method for ensuring compatibility is disclosed which comprises the acts of determining whether the B PHY desires to communicate at a speed on a bus having a peer device not capable of communicating at the speed; and speed filtering the peer device if the B PHY determines that the peer device cannot communicate at the speed. Various data packets and methods for transmitting data packets are also disclosed to satisfy the needs discussed herein.

MainClaim: In a data communications system having at least one Legacy cloud coupled to at least one Beta cloud and further

having at least one border node, a method for ensuring compatibility comprising:

waiting until the border node receives a packet;

issuing a data prefix packet by said border node into the Legacy cloud when said border node receives a packet;

determining whether said border node has received or transmitted a Legacy packet; and

appending said Legacy packet onto the end of said data prefix and transmitting said Legacy format packet into said Legacy cloud if said border node has received or transmitted a Legacy packet.

2005/0111490	Communications bus having low latency interrupts and control signals, hotpluggability error detection and recovery, bandwidth allocation, network integrity verification, protocol tunneling and discoverability features	Nokia Corporation	Gillet, Michel	370	H04L	20041007	6	92%	<input type="checkbox"/>
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Abstract: Disclosed are methods and apparatus to control data and command flow over a physical communications channel between a transmitter and a receiver, and more specifically to provide a protocol for a point-to-point serial bus architecture with low latency time for flow control and other signaling, regardless of the length of the data packet frame. The abstract data flow control protocol can be employed by various buses as it interacts only with the lowest protocol layers. Separate buffers for data and control can be used to allow the bus to be compatible with slower buses also to support additional control functions without involving a higher protocol layer.

MainClaim: A communications bus comprising a datalink layer coupled to a physical layer, said datalink layer comprising a multiplexer operable to multiplex at least one abstract protocol to be superimposed on a datalink layer frame and channel protocol.

7,668,202	Communications bus having low latency interrupts and control signals, hotpluggability error detection and recovery, bandwidth allocation, network integrity verification, protocol tunneling and discoverability features	Nokia Corporation	Gillet; Michel	370	H04J	20041007	6	92%	<input type="checkbox"/>
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Abstract: Disclosed are methods and apparatus to control data and command flow over a physical communications channel between a transmitter and a receiver, and more specifically to provide a protocol for a point-to-point serial bus architecture with low latency time for flow control and other signaling, regardless of the length of the data packet frame. The abstract data flow control protocol can be employed by various buses as it interacts only with the lowest protocol layers. Separate buffers for data and control can be used to allow the bus to be compatible with slower buses also to support additional control functions without involving a higher protocol layer.

MainClaim: An apparatus comprising: a communications bus; and a processor configured to implement a protocol stack comprising a datalink layer coupled to a physical layer, where the protocol stack operates with a protocol having frames, where each frame is comprised of a plurality of channels, where each channel is comprised of at least one token, where at least one channel of the plurality of channels is defined as a low latency channel for traffic having a low latency requirement, where said datalink layer is operable to intersperse at least one low latency channel token with tokens from at least one other channel to obtain a set of interspersed tokens, where the processor is further configured to transmit the set of interspersed tokens to another node via the communications bus.

5,150,464	Local area network device startup process	Apple Computer, Inc.	Sidhu; Gursharan S. Oppenheimer; Alan B. Mathis; James E.	709	G06F	19900606	0	100%	<input type="checkbox"/>
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Abstract: Method used by a first entity, typically a computer system, on a communication system for assigning itself a unique address known as a network address, which comprises a network number and a node identification number. The entity determines a unique network address for itself within a local subset of entities known as a local area network (LAN). A signal is then transmitted to determine whether a router is connected to the LAN, and if so, to determine if the network number of the address is within a range allowed by the router. If the network number is not within a range allowed by the router, then another network number is selected from a range of numbers provided by the router and another node ID are selected. It is determined whether this value is being used by any other entities in the LAN, and if so, node ID's are selected until an unused network address is ascertained. If all node ID's for an address are checked, then another network number is selected from the range and node ID's are again selected to determine a unique address. Once a unique address is ascertained, this is stored back into a parameter RAM area for a subsequent power up initialization and is used for the unique identification of the first entity.

MainClaim: In a communication system for transferring data between a plurality of entities coupled together in said communication system, said communication system including subsets of said plurality of entities which each have at least one routing means interconnecting each of said subsets with other subsets in said communication system, said subsets including a local subset of entities which comprises a first entity, a method used by the first entity for assigning itself a unique address on the communication system, comprising the steps of:

a. if a first value is stored in a first storage means, then performing the following steps:

i. storing the first value in a second storage means;

ii. transmitting a first signal to said local subset of entities to determine if the first value is used for the unique identification of another entity in said local subset of entities;

iii. if the first value is used for the unique identification of said another entity in said local subset of entities then receiving a second signal from another entity in said local subset of entities within a first predetermined amount of time;

iv. storing the value in said second storage means in said first storage means;

b. if the first value has not been stored in the first storage means, or if the first value has been stored in the first storage means and the second signal is received then performing the following steps:

i. randomly selecting a third value and storing said third value in the second storage means;

ii. transmitting a third signal to said local subset of entities to determine if the third value is used for the unique identification of said another entity;

iii. if the third value is used for the unique identification of said another entity then receiving a fourth signal from said another entity in said local subset of entities, randomly selecting a fourth value, storing the fourth value in the second storage means and repeating steps b.ii and b.iii until the fourth signal is not received, the fourth value becoming the third value at the beginning of each repetition of step b.ii;

iv. storing the value in said second storage means in said first storage means;

c. transmitting a fifth signal to said local subset of entities to request information from a first routing means coupled to the local subset of entities;

d. if a sixth signal is received from the routing means within a second predetermined period of time, the sixth signal including a list of values for the local subset of entities, then performing the following steps:

i. if a first portion of the value contained within the second storage means does not equal one value in the list of values provided in the sixth signal, then randomly selecting a fifth value from the list of values provided in said sixth signal and storing said fifth value in the second storage means;

ii. transmitting a seventh signal to said local subset of entities to determine if the value contained in the second storage means is used for the unique identification of said another entity;

iii. if the value contained in the second storage means is used for the unique identification of said another entity then receiving an eighth signal from another entity in said local subset of entities, randomly selecting a sixth value from the list of values provided in the sixth signal, and storing the sixth value in the second storage means, said sixth value having a first portion equivalent to the first portion of said second storage means and repeating steps d.ii and d.iii until the eighth signal is not received or until all possible sixth values have been stored in said second storage means;

iv. if all possible sixth values have been stored in the second storage means then randomly selecting a seventh value from said list of values in said sixth signal, and storing said seventh value in said second storage means and repeating step d.ii.;

v. storing the value in said second storage means in said first storage means;

e. using said value in said first storage means as said unique identification for said first entity.

2007/0223494	Method for the resolution of addresses in a communication system	Nokia Corporation	Hyrynen; Altti Korkeila; Janne Hoving; Patrick Kuikka; Mikko	370	H04L	20060621	1	95%	<input type="checkbox"/>
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Abstract: The invention relates to a method for address resolution in a communication system. Each node is configured with a management node physical address. A node assuming the role of a management node transmits a known management node physical address to a via a network segment. The management node physical address is associated with the network segment in the switch. Address resolution queries are unicasted from other nodes to the switch using the management node physical address. The switch relays the queries to the network segment of the management node. From the queries the management node records logical address and physical address pairs pertaining to other nodes.

MainClaim: A method for address resolution in a communication system comprising configuring a management node physical address in a first node and a second node; said first node detecting that it must act as a management node; transmitting said management node physical address from said first node to a switch via a first network segment; associating said management node physical address with said first network segment in said switch; transmitting an address resolution query message from said second node via a second network segment to said switch, said address resolution query message comprising said management node physical address, a logical address of said second node and a physical address of said second node; said switch transmitting said address resolution query to said first network segment; said first node recording an association between said logical address of said second node and the physical address of said second node; and said first node providing to said second node information on at least one association between a physical address and a logical address of a third node.

6,775,258	Apparatus, and associated method, for routing packet data in an ad hoc, wireless communication system	Nokia Corporation	van Valkenburg; Sander Palomar; Marc Solsona	370	H04Q	20000317	3	95%	<input type="checkbox"/>
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Abstract: Apparatus, and an associated method, by which to route packets of data between a data source node and a data

destination node in an ad hoc, wireless network, such as a Bluetooth scatternet. Data routing tables are provided to each node, and header information extracted from a packet header is used by such tables. Routing of a packet of data is effectuated in a hop-by-hop manner to effectuate the communication of the packet from the data source node to the data destination node.

MainClaim: In a multinode, ad hoc, wireless communication system having at least a data source node and a data destination node, and the communication system selectably and dynamically formed of a first piconet at which the data source node is positioned and a second piconet at which a data destination node is positioned, each of the first and at least second piconets having a master node and at least one slave node, the at least one slave node capable of communication of the packets of data only to an associated master node, the data source node forming a selected one of a slave node and a master node of the first piconet and the data destination node a selected one of a slave node and a master node of the second piconet, an improvement of apparatus for facilitating routing of packets of data between the data source node and the data destination node by way of a communication path, the communication path having at least one node, inclusive of the data destination node, said apparatus comprising:

at least one first routing table embodied at each of the at least one node of the communication path and having an incoming data ledger and an outgoing data ledger, said first routing table for facilitating mapping an incoming data packet to an outgoing data packet, said first routing table populated with values extracted from header information of the packets, the packets routed in a first manner using values of the at least one first routing table when the node at which said at least one first routing table is embodied forms a slave node and the packets routed in a second manner using values of the at least one first routing table when the node at which said at least one first routing table is embodied forms a master node.

2007/0291665	LAN TOPOLOGY DETECTION AND ASSIGNMENT OF ADDRESSES	Nokia Corporation	HAUENSTEIN; MARKUS Niggemeier; Peter	370	H04L	20070226	3	95%	<input type="checkbox"/>
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Abstract: A method, system, device and computer program product for automatically detecting a topology of a local area network, LAN. The LAN may be included in a telecommunication node, e.g. a base transceiver station. The LAN includes a central host and further hosts connected to the LAN. The central host sends topology descriptors to the hosts connected to the LAN, the hosts each reporting at least one of the received topology descriptors and other information to the central host. The central host can thus build up a topology data base describing the network topology. The topology descriptors are sent in broadcast frames to the hosts. A host, after having received a topology descriptor, may create one or more dedicated addresses, e.g. from the topology descriptor, and return the address(es) to the central host which may store the address(es).

MainClaim: A method for detecting a network topology of a local area network, the local area network comprising a central host and at least one further host, the method comprising: sending topology descriptors from the central host to the at least one further host; receiving a sent topology descriptor at the at least one further host; each of the at least one further host reporting the received topology descriptor to the central host; the central host building up a topology data base describing the network topology based on the reported received topology descriptors.

7,447,927	Method and apparatus for waking up a sleeping system	Apple Inc.	Siegmund; Dieter W.	713	G06F	20050823	0	100%	<input type="checkbox"/>
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Abstract: One embodiment of the present invention provides a system that wakes up a sleeping target system located on a target LAN (Local Area Network) from a remote system located on a remote LAN. Note that, since the sleeping target system is in a sleep state, it receives packets of a lower-layer protocol which cannot be used by the remote system to directly send packets to the sleeping target system. During operation, the remote system creates a wake-up packet. The remote system then uses a second protocol to send the wake-up packet to a relay agent located on the target LAN. Note that using the upper-layer protocol enables the remote system to communicate with the relay agent even though they are on different LANs. Upon receiving the first wake-up packet, the relay agent uses the lower-layer protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to wake up. Recall that the remote system cannot use the lower-layer protocol to send a wake-up packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs. The remote system overcomes this limitation by first sending a wake-up packet to the relay agent using the upper-layer protocol, which causes the relay agent to send another wake-up packet to the sleeping target system using the lower-layer protocol.

MainClaim: A method for waking up a sleeping target system located on a target LAN (Local Area Network) from a remote system on a remote LAN, wherein the sleeping target system receives packets of a first protocol which cannot be used by the remote system to send a packet directly to the sleeping target system because the remote system and the sleeping target system are on different LANs, the method comprising: creating a first wake-up packet, wherein creating the first wake-up packet involves determining an IP (Internet Protocol) address of a relay agent located on the target LAN based on an IP address of the sleeping target system and a subnet mask; and sending the first wake-up packet to the relay agent using a second protocol; wherein sending the first wake-up packet to the relay agent causes the relay agent to use the first protocol to send a second wake-up packet to the sleeping target system, which causes the sleeping target system to wake up; and wherein the first wake-up packet is a network-layer packet which includes a DHCP (Dynamic Host Configuration Protocol) reply packet whose header contains: a client hardware address field which is set to a link-layer address of the sleeping target system; a client IP address field which is set to a network-layer address associated with the link-layer address of the sleeping target system; and a relay agent network-layer address field which is set to a network-layer address associated with an interface of the relay agent which is coupled with the target LAN, wherein the relay agent located on the target LAN is a DHCP relay agent.

2007/0002822	Multi homing transport protocol on a multi- processor arrangement	Nokia Corporation	Huang; Hui	370	H04J	20060112	1	93%	<input type="checkbox"/>
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Abstract: The invention proposes a processing arrangement (to be used in a communication device, for example), wherein the processing arrangement comprises at least one data processing unit (1), and a communication unit (2) connected to the data processing unit (1), wherein the at least one data processing unit (1) is configured to perform data processing and the communication unit (2) is configured to provide a connection to the external, a packet transport control is used for the connection to the external, in which a plurality of addresses may be assigned to the communication unit (2), and the communication unit and the data processing unit comprise delivering means (13, 23) for delivering packets, which are to be delivered between the data processing unit (1) and the external, via an encapsulated connection (3) between the data processing unit and communication unit. The invention also proposes a corresponding communication method.

MainClaim: A processing arrangement, comprising: at least one data processing unit for performing data processing; and a communication unit, connected to the data processing unit, for providing a connection to an external wherein a packet transport control is used for the connection to the external, in which a plurality of addresses may be assigned to the communication unit, and wherein the communication unit and the data processing unit comprise delivering means for delivering packets, which are to

be delivered between the data processing unit and the external, via an encapsulated connection between the data processing unit and communication unit.

2008/0046571	Pervasive inter-domain dynamic host configuration	Nokia Corporation	Tuononen; Janne Poyhonen; Petteri	709	G06F	20061108	1	93%	<input type="checkbox"/>
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Abstract: There is provided pervasive dynamic host configuration in a communication system comprising a plurality of domains being separated from each other by intermediary devices blocking host configuration messages, including encapsulation-based dynamic host configuration messaging and an enhanced host apparatus for dynamic host configuration.

MainClaim: A method, comprising: obtaining a host configuration message to be transferred from a source entity to a destination entity, the destination entity of the host configuration message being located in a different domain than the source entity of the host configuration message, the domains being separated from each other by intermediary devices configured to block host configuration messages; encapsulating the obtained host configuration message based on an encapsulation procedure; and transferring the encapsulated host configuration message toward the destination entity.

7,613,193	Apparatus, method and computer program product to reduce TCP flooding attacks while conserving wireless network bandwidth	Nokia Corporation	Swami; Yogesh P. Le; Franck	370	H04L	20060203	1	92%	<input type="checkbox"/>
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Abstract: A method for operating a firewall includes: in response to the firewall receiving a TCP SYN request packet that is sent towards a first node from a second node, the TCP SYN request packet comprising a sequence value ("seq"), sending to the second node a SYN|ACK packet, the SYN|ACK packet comprising a seq and an ack_sequence value ("ack_seq"), where ack_seq of the SYN|ACK packet is not equal to the TCP SYN request packet's seq+1; and in response to the firewall receiving a TCP RST packet from the second node, verifying that the seq in the TCP RST packet matches the ack_seq of the SYN|ACK packet and, if it does, designating the connection with the second node as an authorized connection.

MainClaim: A method comprising: in response to a firewall receiving a transport control protocol synchronization (TCP SYN) request packet that is sent towards a first node from a second node, said TCP SYN request packet comprising a sequence value ("seq"), sending to the second node an acknowledgement and synchronization (SYN|ACK) packet, said SYN|ACK packet comprising a seq and an ack_sequence value ("ack_seq"), where ack_seq of the SYN|ACK packet is not equal to the TCP SYN request packet's seq+1, wherein the ack_seq of the SYN|ACK packet is determined by a function that utilizes a secret value known to the firewall, IP address information, and a HASH function, wherein the secret value is not known to the second node; in response to receiving a transport control protocol reset (TCP RST) packet from the second node, verifying that the seq in the TCP RST packet matches the ack_seq of the SYN|ACK packet and, if it does, designating the connection with the second node as an authorized connection; sending an additional transport control protocol (TCP) packet to the second node, where the additional TCP packet does not have a SYN or ACK flag but does comprise a sequence value ("seq") equal to the seq of the TCP SYN request packet; after designating the connection with the second node as an authorized connection, using the seq of an additional received TCP RST packet to construct a synchronization (SYN) packet similar to the original TCP SYN request packet; and sending the constructed SYN packet to the first node to further enable a secure connection.

6,996,624	Reliable real-time transport protocol	Apple Computer, Inc.	LeCroy; Chris Vaughan; Gregory	709	G06F	20010927	0	100%	<input type="checkbox"/>
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Abstract: Reliability is added to RTP by having a client acknowledge to the server each of the RTP packets received by the client, and retransmitting from the server to the client any of the packets that remain unacknowledged subsequent to expiration of a predetermined time duration subsequent to the timestamp. The server continuously determines a maximum number of bytes that may be contained in the RTP packets streaming into the network and, in the event a number of bytes in the RTP packets exceeds the maximum number, discontinues streaming of the RTP packets until it is determined that the number of bytes is less than the maximum number. The server also continuously determines a present streaming rate at which the RTP packets are streamed into the network wherein the present streaming rate exceeds the normal streaming rate.

MainClaim: In a computer network having at least one client and at least one server, said client and said server being selectively in communication with each other over said network, said server streaming into said network a plurality of Real-time Transport Protocol, RTP, packets addressed for said client at a normal streaming rate commensurate with a rate of reading said packets at said client, each of said RTP packets including at least a sequence number and a timestamp, a reliable RTP method comprising:

acknowledging to said server each of said RTP packets received by said client;

re-transmitting from said server to said client any of said RTP packets that remain unacknowledged subsequent to expiration of a predetermined time duration subsequent to said timestamp;

continuously determining a maximum number of bytes that may be contained in said RTP packets streaming into said network and, in the event a number of bytes in said RTP packets exceeds said maximum number, discontinuing streaming of said RTP packets until said determining step indicates said number of bytes is less than said maximum number; and

continuously determining a present streaming rate at which said RTP packets are streamed into said network wherein said present streaming rate exceeds said normal streaming rate.

2004/0186877	Method and device for multimedia streaming	Nokia Corporation	Wang, Ru-Shang Varsa, Viktor Leon, David Aksu, Emre Baris Curcio, Igor Danilo Diego	709	G06F	20030321	1	93%	<input type="checkbox"/>
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Abstract: A method to provide to a sender of RTP packets the actual receiver buffer fullness level in a receiver of the RTP packets at a certain time instant represented as remaining playout duration in time. The receiver sends in an RTCP report the sequence number of a selected RTP packet in the receiver buffer and the time difference between the scheduled playout time of this packet and the current time. Based on this timing information, the sender calculates the amount of time it would take for the receiver buffer to empty if the receiver continues to playout at normal speed and no further RTP packets arrive to the receiver buffer. This receiver buffer fullness level information can be used at the sender to adjust the transmission rate and/or

nominal playout rate of the RTP packets in order to maintain a targeted receiver buffer fullness level.

MainClaim: A method for adaptively controlling fullness level of a receiver buffer in a streaming client in a multimedia streaming system, the streaming system comprising a streaming server capable of providing streaming data in packets at a transmission rate to the streaming client for allowing the client to playout at least a portion of the packets at a playout rate, wherein each packet has a sequence number, and wherein the receiver buffer is used to store at least a portion of the streaming data in order to compensate for a difference between the transmission rate and the playout rate so as to allow the client to have a sufficient amount of the streaming data to playout in a non-disruptive manner, and the stored portion of the streaming data in the receiver buffer includes a sequence of packets to be played out, said sequence including a first packet to be played out and a last packet to be played out, said method comprising the steps of: providing to the server a message including information indicative of remaining playout duration in time in the receiver at a time instant; and adjusting in the server the transmission characteristic at which the streaming data is provided to the client.

7,606,928	Method and device for controlling receiver buffer fullness level in multimedia streaming	Nokia Corporation	Wang; Ru-Shang Varsa; Viktor Leon; David Aksu; Emre Baris Curcio; Igor Danilo Diego	709	G06F	20030321	1	93%	<input type="checkbox"/>
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Abstract: A method to provide to a sender of RTP packets the actual receiver buffer fullness level in a receiver of the RTP packets at a certain time instant represented as remaining playout duration in time. The receiver sends in an RTCP report the sequence number of a selected RTP packet in the receiver buffer and the time difference between the scheduled playout time of this packet and the current time. Based on this timing information, the sender calculates the amount of time it would take for the receiver buffer to empty if the receiver continues to playout at normal speed and no further RTP packets arrive to the receiver buffer. This receiver buffer fullness level information can be used at the sender to adjust the transmission rate and/or nominal playout rate of the RTP packets in order to maintain a targeted receiver buffer fullness level.

MainClaim: A method for adaptively controlling fullness level of a receiver buffer in a streaming client, the streaming client adapted to receive a sequence of packets from a streaming server through a communication link, said method comprising: selecting in the streaming client one of the packets in the sequence to be played out, the selected one packet having a scheduled playout time, wherein the receiver buffer is adapted for storing at least part of the sequence of packets; conveying through the communication link a message from the streaming client to the streaming server including information indicative of the scheduled playout time of the selected packet in the sequence to be played out; and determining in the server the fullness level of the receiver buffer at least partly based on the information for adjusting transmission characteristic in the streaming server, wherein the fullness level is computed based on a sequence number of the selected packet, a time difference between the scheduled playout time of the selected packet and a current time, and the sequence number of a last packet in the sequence to be played out.

2005/0254508	Cooperation between packetized data bit-rate adaptation and data packet re-transmission	Nokia Corporation	Aksu, Emre Baris Leon, David Curcio, Igor	370	H04L	20040513	1	93%	<input type="checkbox"/>
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Abstract: A method for improving a cooperation between a packetized data bit-rate adaptation and a data packet re-transmission transmits data packets from a server to a client with a first bit-rate; stores transmitted data packets in a server buffer; stores transmitted data packets in a client buffer; signals impairment information related to an impairment of transmitted data packets during transmitting to the server, wherein the signaled impairment information is analyzed by the server to decide if a re-transmission of data packets stored in the server buffer is required; and signals client buffer information related to a state of the client buffer to the server, wherein the client buffer information is analyzed by the server to decide if a re-transmission of data packets is required.

MainClaim: A method for improving a cooperation between a packetized data bit-rate adaptation and a data packet re-transmission, comprising: transmitting data packets from a server to a client with a first bit-rate; at least temporarily storing at least one of said transmitted data packets in at least one server buffer; at least temporarily storing at least one of said transmitted data packets in a client buffer; signaling impairment information related to an impairment of at least one of said transmitted data packets during said transmitting to said server, wherein said signaled impairment information is analyzed by said server to decide if a re-transmission of at least one data packet stored in said server buffer from said server to said client is required; signaling client buffer information related to a state of said client buffer to said server; and transmitting data packets from said server to said client with a second bit-rate, wherein said second bit-rate is at least partially determined based on said client buffer information, and wherein at least one data packet transmitted with said first bit-rate and stored in said server buffer is further stored in said server buffer when said transmitting of said data packets from said server to said client with said second bit-rate starts.

5,410,543	Method for connecting a mobile computer to a computer network by using an address server	Apple Computer, Inc.	Seitz; Gregory W. Findley; Sean J. Beisel; Philipp W.	370	H04J	19940705	0	100%	<input type="checkbox"/>
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Abstract: This invention provides a method for connecting a mobile computer to a computer network by using an address server. The mobile computer connects itself to a network and requests an address server to represent it on the network. The address server accepts packets intended for the mobile computer and redirects them to the current actual address of the mobile computer. As the mobile computer moves, it reports its new actual address to the address server, so that packets intended for the mobile computer can be redirected to the new actual address.

MainClaim: A method for connecting a mobile computer to a computer network by using an address server, the method comprising the steps of:

establishing the address server on the network;

representing the mobile computer by a represented address on the address server;

connecting the mobile computer to the network, and reporting its new actual address to the address server;

at the address server, redirecting messages to the represented address to the new actual address of the mobile computer, except blocking broadcasted routing table maintenance protocol messages; and

repeating the connecting and redirecting steps as the mobile computer moves to new addresses on the network.									
2008/0002686	Maintaining an existing connection between nodes	Nokia Corporation	Valli; Jyrki Pohja; Seppo	370	H04L	20061221	1	96%	<input type="checkbox"/>
<p>Abstract: The present invention refers to a method performed in and corresponding nodes constituting a system which is configured to maintain an existing connection between a first node (A) and a second node (B) communicating with each other via a connection within a communication network. Data is communicated between the nodes (A, B) via the connection on the basis of addresses assigned to the respective nodes. The addresses are managed by an address management node (Addr_Serv) of the communication network. The system comprises a detector unit (A2), at the first node (A), configured to detect an outage of the existing connection between the nodes (A, B), a consulting unit (A3), at said first node (A), configured to consult after detecting the outage of the connection, the address management node (Addr_Serv) of the communication network to verify the address assigned to the second node (B), a transceiver unit (AS1), at said address management node (Addr_Serv), configured to return a current address assigned to the second node (B) responsive to a request from the consulting unit to the first node, and a connection re-establisher unit (A5), at said first node (A), configured to re-establish the connection based on the current address assigned to the second node (B).</p> <p>MainClaim: A method of maintaining a connection between a first node and a second node, comprising: detecting, by the first node, an outage of an existing connection between the first and second nodes; consulting, by said first node, after detecting the outage of the connection, an address management node of a communication network to verify an address assigned to the second node; returning, from said address management node, a current address assigned to the second node; and re-establishing the existing connection, by said first node, based on the current address assigned to the second node wherein data is communicated between the first and second nodes on the basis of addresses assigned to the respective nodes, and wherein the addresses are managed by the address management node of the communication network.</p>									
6,930,988	Method and system for fast IP connectivity in a mobile network	Nokia Corporation	Koodli; Rajeev Perkins; Charles E.	370	H04Q	20021028	1	95%	<input type="checkbox"/>
<p>Abstract: An apparatus, system, and method are directed to managing connectivity in a network by expediting the ability of a mobile node to send Internet Protocol (IP) packets subsequent to a handover. The mobile node is configured to determine an unconfirmed address for use on an access router. Upon establishing a link-layer connection, and before establishing a network-layer connection with the access router, the mobile node employs the unconfirmed address to send an IP packet to the access router. Employing the unconfirmed address prior to network-layer connectivity enables the reduction of handover latencies. If the access router determines that the unconfirmed address conflicts with an existing address, the access router provides a message to the mobile node indicating the conflict in addresses. In response to the message, the mobile node performs actions to resolve the address conflict.</p> <p>MainClaim: An apparatus for managing connectivity in a network, comprising:</p> <p>(a) a network interface that employs a packet-based protocol to send and receive packets;</p> <p>(b) a mobile node configured to perform actions, including:</p> <p>determining an unconfirmed address; and</p> <p>if the mobile node is handed over to a router, and a network-layer connection is unestablished with the router, employing the network interface to provide a packet including the unconfirmed address to the router, wherein the mobile node singularly confirms the use of the unconfirmed address.</p>									
7,058,052	System and method for using a mobile router tunneling protocol to locate functionality in a distributed architecture	Nokia Corporation	Westphal; Cedric	370	H04L	20030411	1	95%	<input type="checkbox"/>
<p>Abstract: The system and method provides virtual mobility to an application by using a mobile router tunneling protocol (MRTP). The system and method use a MRTP to enable bi-directional tunneling between gateways so as to facilitate processing at a second network cluster in a way that is transparent to the user.</p> <p>MainClaim: A method performed in an originating gateway communicatively coupled to a first network cluster, comprising: invoking a trigger by an application in the originating gateway when at least one predetermined circumstance occurs; upon receipt of the trigger, maintaining a service location in a fixed network environment using a bi-directional tunnel to a second network cluster according to a mobile router tunneling protocol; receiving a packet addressed in the first network cluster; resolving a new destination in the second network cluster of the received packet based on the maintaining; and forwarding the packet to the resolved destination in a manner that is transparent to a sender of the packet and that does not require further authentication of the sender or encapsulation of the packet.</p>									
7,317,694	Method and apparatus for border node behavior on a full-duplex bus	Apple Inc.	Hauck; Jerrold V. Whitby-Strevens; Colin	370	H04L	20030805	0	100%	<input type="checkbox"/>
<p>Abstract: A method is disclosed for determining and communicating the existence of a hybrid bus. The method comprises the acts of determining whether the node has a connection to a Legacy link layer; if the node determines that it has a connection to a Legacy link layer, then transmitting a Self-ID packet without a Speed Code; and if the node determines that it does not have a connection to a Legacy link layer, then transmitting a Self-ID packet without a Speed Code.</p> <p>MainClaim: In a full-duplex communications system having at least one node compliant with the P1394b standard, a method for determining and communicating the existence of a hybrid bus comprising the acts of: determining whether a node has a connection to a Legacy link layer; if said node determines that it has a connection to a Legacy link layer, then transmitting a Self-ID packet without a Speed Code; and if said node determines that it does not have a connection to a Legacy link layer, then transmitting a Self-ID packet with a Speed Code.</p>									
	Communications bus having low latency interrupts and control signals, hotpluggability error detection and								

2005/0111490	recovery, bandwidth allocation, network integrity verification, protocol tunneling and discoverability features	Nokia Corporation	Gillet, Michel	370	H04L	20041007	6	92%	<input type="checkbox"/>
<p>Abstract: Disclosed are methods and apparatus to control data and command flow over a physical communications channel between a transmitter and a receiver, and more specifically to provide a protocol for a point-to-point serial bus architecture with low latency time for flow control and other signaling, regardless of the length of the data packet frame. The abstract data flow control protocol can be employed by various buses as it interacts only with the lowest protocol layers. Separate buffers for data and control can be used to allow the bus to be compatible with slower buses also to support additional control functions without involving a higher protocol layer.</p> <p>MainClaim: A communications bus comprising a datalink layer coupled to a physical layer, said datalink layer comprising a multiplexer operable to multiplex at least one abstract protocol to be superimposed on a datalink layer frame and channel protocol.</p>									
7,668,202	Communications bus having low latency interrupts and control signals, hotpluggability error detection and recovery, bandwidth allocation, network integrity verification, protocol tunneling and discoverability features	Nokia Corporation	Gillet; Michel	370	H04J	20041007	6	92%	<input type="checkbox"/>
<p>Abstract: Disclosed are methods and apparatus to control data and command flow over a physical communications channel between a transmitter and a receiver, and more specifically to provide a protocol for a point-to-point serial bus architecture with low latency time for flow control and other signaling, regardless of the length of the data packet frame. The abstract data flow control protocol can be employed by various buses as it interacts only with the lowest protocol layers. Separate buffers for data and control can be used to allow the bus to be compatible with slower buses also to support additional control functions without involving a higher protocol layer.</p> <p>MainClaim: An apparatus comprising: a communications bus; and a processor configured to implement a protocol stack comprising a datalink layer coupled to a physical layer, where the protocol stack operates with a protocol having frames, where each frame is comprised of a plurality of channels, where each channel is comprised of at least one token, where at least one channel of the plurality of channels is defined as a low latency channel for traffic having a low latency requirement, where said datalink layer is operable to intersperse at least one low latency channel token with tokens from at least one other channel to obtain a set of interspersed tokens, where the processor is further configured to transmit the set of interspersed tokens to another node via the communications bus.</p>									
7,266,617	Method and apparatus for border node behavior on a full-duplex bus	Apple Inc.	Hauck; Jerrold V. Whitby-Stevens; Colin	710	G06F	20030805	0	100%	<input type="checkbox"/>
<p>Abstract: A method for determining and communicating the existence of a hybrid bus is disclosed. The method determines whether a connected node is a border node and forwards isochronous and asynchronous requests if the node is not a border node. If the node is a border node, a Border low request is issued if there are no asynchronous requests to forward. If there are asynchronous requests to forward then these asynchronous requests are forwarded. A Border low request is issued if there are no isochronous requests to forward; otherwise any isochronous requests to be forwarded are forwarded.</p> <p>MainClaim: In a full-duplex communications system having at least one node in communication with other nodes over a full duplex bus, a method for determining and communicating the existence of a hybrid bus comprising the acts of: determining whether the at least one node is a border node; forwarding isochronous and asynchronous requests if said at least one node is not a border node; and if said at least one node is a border node, then; determining whether said at least one node has any asynchronous requests to forward; issuing a Border_low request if there are no asynchronous requests to forward; forwarding said asynchronous requests if there are asynchronous requests to forward; determining whether there are any isochronous requests to forward; issuing a Border_low request if there are no isochronous requests to forward; and forwarding said isochronous requests if there are isochronous requests to forward; wherein at least one of said Border_low requests communicates to at least one non-border node that said at least one non-border node is communicating on a hybrid bus.</p>									
2005/0111490	Communications bus having low latency interrupts and control signals, hotpluggability error detection and recovery, bandwidth allocation, network integrity verification, protocol tunneling and discoverability features	Nokia Corporation	Gillet, Michel	370	H04L	20041007	6	92%	<input type="checkbox"/>
<p>Abstract: Disclosed are methods and apparatus to control data and command flow over a physical communications channel between a transmitter and a receiver, and more specifically to provide a protocol for a point-to-point serial bus architecture with low latency time for flow control and other signaling, regardless of the length of the data packet frame. The abstract data flow control protocol can be employed by various buses as it interacts only with the lowest protocol layers. Separate buffers for data and control can be used to allow the bus to be compatible with slower buses also to support additional control functions without involving a higher protocol layer.</p> <p>MainClaim: A communications bus comprising a datalink layer coupled to a physical layer, said datalink layer comprising a multiplexer operable to multiplex at least one abstract protocol to be superimposed on a datalink layer frame and channel protocol.</p>									
	Communications bus having low latency interrupts and control signals, hotpluggability error detection and								

7,668,202	recovery, bandwidth allocation, network integrity verification, protocol tunneling and discoverability features	Nokia Corporation	Gillet; Michel	370	H04J	20041007	6	92%	<input type="checkbox"/>
<p>Abstract: Disclosed are methods and apparatus to control data and command flow over a physical communications channel between a transmitter and a receiver, and more specifically to provide a protocol for a point-to-point serial bus architecture with low latency time for flow control and other signaling, regardless of the length of the data packet frame. The abstract data flow control protocol can be employed by various buses as it interacts only with the lowest protocol layers. Separate buffers for data and control can be used to allow the bus to be compatible with slower buses also to support additional control functions without involving a higher protocol layer.</p> <p>MainClaim: An apparatus comprising: a communications bus; and a processor configured to implement a protocol stack comprising a datalink layer coupled to a physical layer, where the protocol stack operates with a protocol having frames, where each frame is comprised of a plurality of channels, where each channel is comprised of at least one token, where at least one channel of the plurality of channels is defined as a low latency channel for traffic having a low latency requirement, where said datalink layer is operable to intersperse at least one low latency channel token with tokens from at least one other channel to obtain a set of interspersed tokens, where the processor is further configured to transmit the set of interspersed tokens to another node via the communications bus.</p>									
7,280,491	Method and apparatus for border node behavior on a full-duplex bus	Apple Inc.	Hauck; Jerrold V. Whitby-Strevens; Colin	370	H04L	20030805	0	100%	<input type="checkbox"/>
<p>Abstract: A method relating to the behavior of border nodes within a high performance serial bus system is disclosed. A method is disclosed for determining a path to a senior border node comprising the acts of: determining whether a B PHY has received a Self-ID packet without a Speed Code on at least one port; and marking the at least one port on the B PHY that was last to receive a Self-ID packet without a Speed Code as the path to the senior border node and canceling by the B PHY of any other ports within the node that have been marked as the path to the senior border node if the B PHY has received a Self-ID packet without a Speed Code on the at least one port.</p> <p>MainClaim: In a full-duplex communications system having at least one B PHY containing at least one port, a method for determining a path to a senior border node comprising the acts of: determining whether a B PHY has received a Self-ID packet without a Speed Code on at least one port; and marking said at least one port on said B PHY that was last to receive a Self-ID packet without a Speed Code as the path to the senior border node and canceling by said B PHY of any other ports within said node that have been marked as the path to the senior border node if said B PHY has received a Self-ID packet without a Speed Code on said at least one port.</p>									
2005/0111490	Communications bus having low latency interrupts and control signals, hotpluggability error detection and recovery, bandwidth allocation, network integrity verification, protocol tunneling and discoverability features	Nokia Corporation	Gillet, Michel	370	H04L	20041007	6	92%	<input type="checkbox"/>
<p>Abstract: Disclosed are methods and apparatus to control data and command flow over a physical communications channel between a transmitter and a receiver, and more specifically to provide a protocol for a point-to-point serial bus architecture with low latency time for flow control and other signaling, regardless of the length of the data packet frame. The abstract data flow control protocol can be employed by various buses as it interacts only with the lowest protocol layers. Separate buffers for data and control can be used to allow the bus to be compatible with slower buses also to support additional control functions without involving a higher protocol layer.</p> <p>MainClaim: A communications bus comprising a datalink layer coupled to a physical layer, said datalink layer comprising a multiplexer operable to multiplex at least one abstract protocol to be superimposed on a datalink layer frame and channel protocol.</p>									
7,668,202	Communications bus having low latency interrupts and control signals, hotpluggability error detection and recovery, bandwidth allocation, network integrity verification, protocol tunneling and discoverability features	Nokia Corporation	Gillet; Michel	370	H04J	20041007	6	92%	<input type="checkbox"/>
<p>Abstract: Disclosed are methods and apparatus to control data and command flow over a physical communications channel between a transmitter and a receiver, and more specifically to provide a protocol for a point-to-point serial bus architecture with low latency time for flow control and other signaling, regardless of the length of the data packet frame. The abstract data flow control protocol can be employed by various buses as it interacts only with the lowest protocol layers. Separate buffers for data and control can be used to allow the bus to be compatible with slower buses also to support additional control functions without involving a higher protocol layer.</p> <p>MainClaim: An apparatus comprising: a communications bus; and a processor configured to implement a protocol stack comprising a datalink layer coupled to a physical layer, where the protocol stack operates with a protocol having frames, where each frame is comprised of a plurality of channels, where each channel is comprised of at least one token, where at least one channel of the plurality of channels is defined as a low latency channel for traffic having a low latency requirement, where said datalink layer is operable to intersperse at least one low latency channel token with tokens from at least one other channel to obtain a set of interspersed tokens, where the processor is further configured to transmit the set of interspersed tokens to another node via the communications bus.</p>									
5,282,270	Network device location using multicast	Apple Computer, Inc.	Oppenheimer; Alan B. Findley; Sean J. Sidhu;	709	H04L	19900606	0	100%	<input type="checkbox"/>

Gursharan S.

Abstract: A method and apparatus for determining the location of an entity using an alias (or entity name) in a communication system. A second node or entity transmits a first signal to a first router connected to a first local network of the communication system including the alias, wherein the alias includes a zone name. The first router forwards a second signal including the entity name from the first signal to other routers in the network until a second router connected to nodes having the zone name in the entity name is located. Each second router translates the second signal into a third signal which includes the alias, and using a first zone multicast address, multicasts the third signal to a first set of nodes. Each node of the first set of nodes determines whether the zone name contained within the alias is equal to a zone identifier for each node of the first set of nodes. Each node having the zone name determines whether the alias contained within the third signal is equal to alias information for the node. A first entity having the alias then transmits a fourth signal, which includes its network address, to the second entity in response to the third signal.

MainClaim: In a communication system for transferring data between a plurality of devices, a method for determining the location of a first entity on the communication system, comprising the steps of:

a. a second entity transmitting a first signal to a first routing means connected to a first local network of the communication system, wherein the first signal includes an alias, wherein the alias includes a zone name, and the first local network includes the second entity;

b. the first routing means translating the first signal into a second signal which includes the alias, and transmitting the second signal to at least one second routing means, each at least one second routing means coupled to at least one second local network of the communication system;

c. each at least one second routing means computing a second zone multicast address from said zone name, translating the second signal into a third signal which includes the alias, and the second zone multicast address, and transmitting the third signal to a first set of nodes, the first set of nodes comprising at least one first node, each node of the first set of nodes having a first zone multicast address, wherein the first zone multicast address is equivalent to the second zone multicast address;

d. each node of the first set of nodes determining whether the zone name contained within the alias is equal to a zone identifier contained in each node of the first set of nodes, the first set of nodes comprising a second set of nodes, each node of the second set of nodes having the zone identifier equal to the zone name contained within the alias

e. each node of the second set of nodes determining whether the alias contained within the third signal is equal to alias information contained within each node of the second set of nodes, the second set of nodes comprising the first entity, the first entity having an alias equal to the alias contained within the third signal; and

f. the first entity transmitting a fourth signal to the second entity, the fourth signal including the address of the first entity.

2007/0291665

LAN TOPOLOGY
DETECTION AND
ASSIGNMENT OF
ADDRESSES

Nokia Corporation

HAUENSTEIN;
MARKUS |
Niggemeier; Peter

370

H04L

20070226 3

95%



Abstract: A method, system, device and computer program product for automatically detecting a topology of a local area network, LAN. The LAN may be included in a telecommunication node, e.g. a base transceiver station. The LAN includes a central host and further hosts connected to the LAN. The central host sends topology descriptors to the hosts connected to the LAN, the hosts each reporting at least one of the received topology descriptors and other information to the central host. The central host can thus build up a topology data base describing the network topology. The topology descriptors are sent in broadcast frames to the hosts. A host, after having received a topology descriptor, may create one or more dedicated addresses, e.g. from the topology descriptor, and return the address(es) to the central host which may store the address(es).

MainClaim: A method for detecting a network topology of a local area network, the local area network comprising a central host and at least one further host, the method comprising: sending topology descriptors from the central host to the at least one further host; receiving a sent topology descriptor at the at least one further host; each of the at least one further host reporting the received topology descriptor to the central host; the central host building up a topology data base describing the network topology based on the reported received topology descriptors.

6,775,258

Apparatus, and
associated method, for
routing packet data in
an ad hoc, wireless
communication system

Nokia Corporation

van Valkenburg;
Sander | Palomar;
Marc Solsona

370

H04Q

20000317 3

94%



Abstract: Apparatus, and an associated method, by which to route packets of data between a data source node and a data destination node in an ad hoc, wireless network, such as a Bluetooth scatternet. Data routing tables are provided to each node, and header information extracted from a packet header is used by such tables. Routing of a packet of data is effectuated in a hop-by-hop manner to effectuate the communication of the packet from the data source node to the data destination node.

MainClaim: In a multinode, ad hoc, wireless communication system having at least a data source node and a data destination node, and the communication system selectively and dynamically formed of a first piconet at which the data source node is positioned and a second piconet at which a data destination node is positioned, each of the first and at least second piconets having a master node and at least one slave node, the at least one slave node capable of communication of the packets of data only to an associated master node, the data source node forming a selected one of a slave node and a master node of the first piconet and the data destination node a selected one of a slave node and a master node of the second piconet, an improvement of apparatus for facilitating routing of packets of data between the data source node and the data destination node by way of a communication path, the communication path having at least one node, inclusive of the data destination node, said apparatus comprising:

at least one first routing table embodied at each of the at least one node of the communication path and having an incoming data ledger and an outgoing data ledger, said first routing table for facilitating mapping an incoming data packet to an outgoing data packet, said first routing table populated with values extracted from header information of the packets, the packets routed in a first manner using values of the at least one first routing table when the node at which said at least one first routing table is embodied forms a slave node and the packets routed in a second manner using values of the at least one first routing table

when the node at which said at least one first routing table is embodied forms a master node.

2007/0189329	System for combining networks of different addressing schemes	Nokia Corporation	Latvala; Mikael	370	H04J	20060622	2	94%	<input type="checkbox"/>
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Abstract: A system for combining networks of different addressing schemes comprises the incorporation of at least one interstitial function between at least one address realm of the one network and at least one address realm of another network for mapping an address between the different addressing schemes. Preferably, the interstitial function uses a public address realm as root address realm wherein the address realms are organized in a hierarchical manner and the address realm without any parents is the root address realm. The location of each node within the combined networks may be expressed as a list of individual realm specific addresses from the different address realms given in a specified order, wherein said listed addresses together form a common universal address of said node.

MainClaim: A method for combining networks of different addressing schemes, comprising: incorporating at least one interstitial function between at least one first address realm of a first network and at least one second address realm of a second network for mapping an address between the different addressing schemes.

5,388,213	Method and apparatus for determining whether an alias is available to uniquely identify an entity in a communications system	Apple Computer, Inc.	Oppenheimer; Alan B. Findley; Sean J. Sidhu; Gursharan S.	709	H04L	19931029	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for determining whether an alias (or entity name) is available for use in a communication system. A transmitting node or entity transmits a first signal including the alias over the communication system. The alias includes a zone name. If the transmitting node receives a reply signal to the first signal, then the alias is not available for use. Otherwise the alias is available for use. The transmitting node transmits the first signal to a first router connected to a first local network of the communication system. The first router forwards a second signal including the entity name from the first signal to other routers in the network until a second router connected to nodes having the zone name in the entity name is located. Each second router translates the second signal into a third signal which includes the alias, and using a first zone multicast address, multicasts the third signal to a first set of nodes. Each node of the first set of nodes determines whether the zone name contained within the alias is equal to a zone identifier for each node of the first set of nodes. Each node having the zone name determines whether the alias contained within the third signal is equal to alias information for the node. If an entity in the first set of nodes has the alias, then the entity transmits a reply signal, which includes its network address, to the transmitting node.

MainClaim: In a communication system for transferring data between a plurality of devices, a method used by a first entity for determining whether an alias is available to uniquely identify said first entity, said first entity being a networkable computer resource, the method comprising the steps of:

A) said first entity broadcasting a first signal to a first local area network, wherein said first entity is directly coupled to said first local network, wherein said first signal includes said alias, said alias including a zone name,

B) a first routing means of said first local area network translating said first signal into a second signal which includes said alias, said first routing means being coupled to at least one second routing means which is directly coupled to at least one second local area network of said communication system,

C) said first routing means forwarding said second signal to said at least one second routing means,

D) said at least one second routing means computing a zone multicast address from said zone name,

E) said at least one second routing means translating said second signal into a third signal which includes said alias and said zone multicast address,

F) if said at least one second local area network includes a first set of nodes having said zone multicast address, then

F1) said at least one second routing means multicasting said third signal over said second network,

F2) if a second entity of said first set of nodes has said alias, then said second entity transmitting a fourth signal to said first entity, said fourth signal including its network address of said second entity,

G) if said first entity receives said fourth signal, then

G1) said first entity entering said network address into a names table in said first entity, said names table associating said network address with said alias, and

G2) said first entity determining that said alias is not available to uniquely identify said first entity; and

H) if said first entity does not receive said fourth signal, said first entity determining that said alias is available to uniquely identify said first entity.

2007/0291665	LAN TOPOLOGY DETECTION AND ASSIGNMENT OF ADDRESSES	Nokia Corporation	HAUENSTEIN; MARKUS Niggemeier; Peter	370	H04L	20070226	3	95%	<input type="checkbox"/>
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Abstract: A method, system, device and computer program product for automatically detecting a topology of a local area network, LAN. The LAN may be included in a telecommunication node, e.g. a base transceiver station. The LAN includes a central host and further hosts connected to the LAN. The central host sends topology descriptors to the hosts connected to the LAN, the hosts each reporting at least one of the received topology descriptors and other information to the central host. The

central host can thus build up a topology data base describing the network topology. The topology descriptors are sent in broadcast frames to the hosts. A host, after having received a topology descriptor, may create one or more dedicated addresses, e.g. from the topology descriptor, and return the address(es) to the central host which may store the address(es).

MainClaim: A method for detecting a network topology of a local area network, the local area network comprising a central host and at least one further host, the method comprising: sending topology descriptors from the central host to the at least one further host; receiving a sent topology descriptor at the at least one further host; each of the at least one further host reporting the received topology descriptor to the central host; the central host building up a topology data base describing the network topology based on the reported received topology descriptors.

2007/0189329	System for combining networks of different addressing schemes	Nokia Corporation	Latvala; Mikael	370	H04J	20060622	2	94%	<input type="checkbox"/>
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Abstract: A system for combining networks of different addressing schemes comprises the incorporation of at least one interstitial function between at least one address realm of the one network and at least one address realm of another network for mapping an address between the different addressing schemes. Preferably, the interstitial function uses a public address realm as root address realm wherein the address realms are organized in a hierarchical manner and the address realm without any parents is the root address realm. The location of each node within the combined networks may be expressed as a list of individual realm specific addresses from the different address realms given in a specified order, wherein said listed addresses together form a common universal address of said node.

MainClaim: A method for combining networks of different addressing schemes, comprising: incorporating at least one interstitial function between at least one first address realm of a first network and at least one second address realm of a second network for mapping an address between the different addressing schemes.

6,775,258	Apparatus, and associated method, for routing packet data in an ad hoc, wireless communication system	Nokia Corporation	van Valkenburg; Sander Palomar; Marc Solsona	370	H04Q	20000317	3	94%	<input type="checkbox"/>
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Abstract: Apparatus, and an associated method, by which to route packets of data between a data source node and a data destination node in an ad hoc, wireless network, such as a Bluetooth scatternet. Data routing tables are provided to each node, and header information extracted from a packet header is used by such tables. Routing of a packet of data is effectuated in a hop-by-hop manner to effectuate the communication of the packet from the data source node to the data destination node.

MainClaim: In a multinode, ad hoc, wireless communication system having at least a data source node and a data destination node, and the communication system selectably and dynamically formed of a first piconet at which the data source node is positioned and a second piconet at which a data destination node is positioned, each of the first and at least second piconets having a master node and at least one slave node, the at least one slave node capable of communication of the packets of data only to an associated master node, the data source node forming a selected one of a slave node and a master node of the first piconet and the data destination node a selected one of a slave node and a master node of the second piconet, an improvement of apparatus for facilitating routing of packets of data between the data source node and the data destination node by way of a communication path, the communication path having at least one node, inclusive of the data destination node, said apparatus comprising:

at least one first routing table embodied at each of the at least one node of the communication path and having an incoming data ledger and an outgoing data ledger, said first routing table for facilitating mapping an incoming data packet to an outgoing data packet, said first routing table populated with values extracted from header information of the packets, the packets routed in a first manner using values of the at least one first routing table when the node at which said at least one first routing table is embodied forms a slave node and the packets routed in a second manner using values of the at least one first routing table when the node at which said at least one first routing table is embodied forms a master node.

6,891,848	Method and apparatus for border node behavior on a full-duplex bus	Apple Computer, Inc.	Hauck; Jerrold V Whitby-Strevens; Colin	370	H04J	20030805	0	100%	<input type="checkbox"/>
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Abstract: A method for determining and communicating the existence of a hybrid bus In a full-duplex communications system having plurality of nodes, wherein one of the nodes is compliant with the P1394b standard and receives a Self-ID packet from the bus, comprising the acts of examining received Self-ID packets by the P1394b compliant node for the absence of a Speed Code; and presuming the existence of a hybrid bus if any of the received Self-ID packets do not contain a Speed Code.

MainClaim: In a full-duplex communications system having plurality of nodes, wherein one of the nodes is compliant with IEEE P1394b high-speed serial bus standard and receives a Self-ID packet from a high-speed serial bus connecting the plurality of node, a method for determining and communicating the existence of a hybrid bus comprising the acts of:

examining received Self-ID packets by IEEE the P1394b compliant node for the absence of a Speed Code; and

determining the existence of a hybrid bus if any of said received Self-ID packets do not contain a Speed Code.

2005/0111490	Communications bus having low latency interrupts and control signals, hotpluggability error detection and recovery, bandwidth allocation, network integrity verification, protocol tunneling and discoverability features	Nokia Corporation	Gillet, Michel	370	H04L	20041007	6	92%	<input type="checkbox"/>
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Abstract: Disclosed are methods and apparatus to control data and command flow over a physical communications channel between a transmitter and a receiver, and more specifically to provide a protocol for a point-to-point serial bus architecture with low latency time for flow control and other signaling, regardless of the length of the data packet frame. The abstract data flow control protocol can be employed by various buses as it interacts only with the lowest protocol layers. Separate buffers for data and control can be used to allow the bus to be compatible with slower buses also to support additional control functions without involving a higher protocol layer.

MainClaim: A communications bus comprising a datalink layer coupled to a physical layer, said datalink layer comprising a

multiplexer operable to multiplex at least one abstract protocol to be superimposed on a datalink layer frame and channel protocol.

7,668,202	Communications bus having low latency interrupts and control signals, hotpluggability error detection and recovery, bandwidth allocation, network integrity verification, protocol tunneling and discoverability features	Nokia Corporation	Gillet; Michel	370	H04J	20041007	6	92%	<input type="checkbox"/>
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Abstract: Disclosed are methods and apparatus to control data and command flow over a physical communications channel between a transmitter and a receiver, and more specifically to provide a protocol for a point-to-point serial bus architecture with low latency time for flow control and other signaling, regardless of the length of the data packet frame. The abstract data flow control protocol can be employed by various buses as it interacts only with the lowest protocol layers. Separate buffers for data and control can be used to allow the bus to be compatible with slower buses also to support additional control functions without involving a higher protocol layer.

MainClaim: An apparatus comprising: a communications bus; and a processor configured to implement a protocol stack comprising a datalink layer coupled to a physical layer, where the protocol stack operates with a protocol having frames, where each frame is comprised of a plurality of channels, where each channel is comprised of at least one token, where at least one channel of the plurality of channels is defined as a low latency channel for traffic having a low latency requirement, where said datalink layer is operable to intersperse at least one low latency channel token with tokens from at least one other channel to obtain a set of interspersed tokens, where the processor is further configured to transmit the set of interspersed tokens to another node via the communications bus.

6,639,918	Method and apparatus for border node behavior on a full-duplex bus	Apple Computer, Inc.	Hauck; Jerrold V. Whitby-Strevens; Colin	370	G06F	20000118	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus relating to the behavior of border nodes within a high performance serial bus system is disclosed. A method for determining and communicating the existence of a hybrid bus is disclosed. A method for determining a path to a senior border node is disclosed, as is a method for identifying a senior border node Various methods for properly issuing gap tokens within a beta cloud are disclosed. A method for returning control to the senior border node is disclosed. A method for determining whether a BOSS node may issue a grant is disclosed.

MainClaim: In a serial bus communications system, a method for determining whether a BOSS node may issue a grant for a pipelined Beta request comprising:

providing a first and second indicator; and

issuing a grant for a pipelined Beta request by the BOSS only when both said first and second indicators are set.

2005/0111490	Communications bus having low latency interrupts and control signals, hotpluggability error detection and recovery, bandwidth allocation, network integrity verification, protocol tunneling and discoverability features	Nokia Corporation	Gillet, Michel	370	H04L	20041007	6	92%	<input type="checkbox"/>
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Abstract: Disclosed are methods and apparatus to control data and command flow over a physical communications channel between a transmitter and a receiver, and more specifically to provide a protocol for a point-to-point serial bus architecture with low latency time for flow control and other signaling, regardless of the length of the data packet frame. The abstract data flow control protocol can be employed by various buses as it interacts only with the lowest protocol layers. Separate buffers for data and control can be used to allow the bus to be compatible with slower buses also to support additional control functions without involving a higher protocol layer.

MainClaim: A communications bus comprising a datalink layer coupled to a physical layer, said datalink layer comprising a multiplexer operable to multiplex at least one abstract protocol to be superimposed on a datalink layer frame and channel protocol.

7,668,202	Communications bus having low latency interrupts and control signals, hotpluggability error detection and recovery, bandwidth allocation, network integrity verification, protocol tunneling and discoverability features	Nokia Corporation	Gillet; Michel	370	H04J	20041007	6	92%	<input type="checkbox"/>
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Abstract: Disclosed are methods and apparatus to control data and command flow over a physical communications channel between a transmitter and a receiver, and more specifically to provide a protocol for a point-to-point serial bus architecture with low latency time for flow control and other signaling, regardless of the length of the data packet frame. The abstract data flow control protocol can be employed by various buses as it interacts only with the lowest protocol layers. Separate buffers for data and control can be used to allow the bus to be compatible with slower buses also to support additional control functions without involving a higher protocol layer.

MainClaim: An apparatus comprising: a communications bus; and a processor configured to implement a protocol stack comprising a datalink layer coupled to a physical layer, where the protocol stack operates with a protocol having frames, where each frame is comprised of a plurality of channels, where each channel is comprised of at least one token, where at least one

channel of the plurality of channels is defined as a low latency channel for traffic having a low latency requirement, where said datalink layer is operable to intersperse at least one low latency channel token with tokens from at least one other channel to obtain a set of interspersed tokens, where the processor is further configured to transmit the set of interspersed tokens to another node via the communications bus.

6,031,833	Method and system for increasing throughput in a wireless local area network	Apple Computer, Inc.	Fickes; Stanley L. Geiger; Edward W. Mincher; Richard W.	370	H04J	19970501	0	100%	<input type="checkbox"/>
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Abstract: Method and system aspects for increasing throughput in a WLAN are provided. In a method aspect, a packet is transmitted from a first end station in the WLAN, the packet including an indication of a next end station in a chain of end stations having data ready for transmission in the WLAN. The method further includes transferring control of access before a predetermined time period has been exceeded to the next end station in the chain of end stations based upon the indicator. In addition, the method includes maintaining access to the network for a plurality of cooperating end stations established through continuous indication of the next end station in the chain of end stations without exceeding a maximum access time. In a system aspect, the system includes a first end station, the first end station transmitting a packet in the WLAN, and a second end station in a chain end stations cooperating with the first end station and acknowledging the packet from the first end station before a predetermined time period has been exceeded, the second end station identifying a next end station in the chain end of end stations to have access in the WLAN. Further, transmission access to the WLAN continues with the next end station in the chain end stations when the predetermined time period is not exceeded between transmitting and acknowledging.

MainClaim: A method for increasing throughput in a wireless local area network (WLAN), the method comprising:

transmitting a packet from a first end station in the WLAN, the packet including an indication of a next end station in a chain of end stations having data ready for transmission in the WLAN;

transferring control of access before a predetermined time period has been exceeded by the first end station to the next end station in the chain of end stations based on the indication;

maintaining access to the network for a plurality of cooperating end stations established through continuous indication of the next end station in the chain of end stations without exceeding a maximum access time.

2007/0237076	Node	Nokia Corporation	Balandin; Sergey Gillet; Michel	370	H04L	20070329	1	93%	<input type="checkbox"/>
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Abstract: A node arranged to communicate with at least one further node; comprising: a buffer arranged to receive data transmitted from the at least one further node; an output arranged to transmit data to the at least one further network element, wherein the data comprises information about the ability for the buffer to receive further data transmitted from the further node.

MainClaim: An apparatus, comprising: a buffer configured to receive data transmitted from at least one node; and an output configured to transmit data to the at least one node, wherein the data comprises information about an ability for the buffer to receive further data transmitted from the node.

2009/0323697	DATA PAYLOAD TRANSMISSION VIA CONTROL PLANE SIGNALING	NOKIA CORPORATION	CELENTANO; Ulrich SALOKANNEL; Juha KAAJA; Harald MARIN; Janne	370	H04L	20080627	1	92%	<input type="checkbox"/>
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Abstract: A system for implementing a communication transports in a configuration that may utilize control plane resources for the conveyance of data. A communication protocol may be originally designed to support planned data conveyance at a data plane. This strategy may improve quality of service for the transport, but may impact the execution speed of communication due to the required overhead involved in scheduling. In view of this limitation, messages that are sensitive to delay may be negatively impacted by scheduling steps occurring in mediums such as described above. Execution speed may be increased by routing certain payloads to the control plane for transmission in a beacon signal, which avoids the overhead inherent in the data plane.

MainClaim: A method, comprising:determining whether at least a portion of data to be transmitted corresponds to at least one transmission condition;if the at least a portion of data corresponds to at least one transmission condition, transmitting the at least a portion of data in a beacon signal packet in a wireless transport; andtransmitting the at least a portion of data using data plane resources in the wireless transport if the at least a portion of data does not correspond to at least one transmission condition.

4,689,786	Local area network with self assigned address method	Apple Computer, Inc.	Sidhu; Gursharan S. Oppenheimer; Alan B. Kenyon, Jr.; Lawrence A. Hochsprung; Ronald R.	370	H04J	19850321	0	100%	<input type="checkbox"/>
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Abstract: A local area network is disclosed including apparatus and methods for transferring data between a plurality of data processing resources ("agents") coupled to a cable. In the preferred embodiment, a plurality of agents are coupled to a common cable for data transmission and reception. An agent newly coupled to the cable dynamically assigns itself a unique address on the cable to which other agents may send data. Once an agent has been assigned a final address, it may then transmit to, and receive data from, other agents on the cable. An agent desiring to send data to a receiving agent follows a three step handshake, wherein the sending agent transmits an "RTS" signal and within a predetermined time must receive a "CTS" signal from the receiving agent. The sending agent then transmits a data frame within a predetermined time after the CTS signal is received. The failure to detect a return CTS signal within the predetermined time denotes a collision condition. Re-transmission is attempted using a linear back off method which is adjusted based on previous cable traffic history.

MainClaim: An apparatus for assigning a unique address to a data processing device coupled to a communication medium to permit the transfer of data between a plurality of said agents on said medium, comprising:

transceiver means coupled to each of said agents for transmitting signals onto said medium and receiving signals transmitted on said medium by another agent;

address assignment means coupled to each of said agents to permit each of said agents to assign itself a unique address on said communication medium, said address assignment means including:

random number generating means for generating a random number within a predefined range for use as a tentative address;

address storage means coupled to said random number generating means for storing said tentative address;

first signal generation means coupled to said address storage means and said transceiver means for generating an enquiry (ENQ) signal and transmitting at least one said ENQ signal to a device having said tentative address on said communication medium;

acknowledge signal receiving means coupled to said transceiver means for receiving an acknowledge (ACK) signal transmitted by an agent other than said agent being assigned a unique address in response to its receipt of said ENQ signal, said acknowledge receiving means signalling said random number generating means to generate another random number as a tentative address upon the receipt of said ACK signal;

timing means coupled to said acknowledge signal receiving means for storing said tentative address as a final address in said address storage means in the absence of the receipt of said ACK signal within a predetermined time (IFG) after the last ENQ signal has been transmitted;

whereby said agent is assigned a unique address on said communication medium.

7,324,549	Synchronisation communication systems	Nokia Corporation	Addy; Tim Vainikka; Markku Viero; Timo Brockington; William Vahataini; Markku	370	H04J	20030305 3	92%	<input type="checkbox"/>
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Abstract: A method and apparatus of transmitting data at a line rate to a bus operating at a bus rate includes transmitting the data in a packet format having a plurality of frames each having a plurality of time slots. Each time slot has successive message groups, and each message group includes a plurality of data messages containing the data and an idle code containing none of the data. A number of idle codes in each frame is selected such that the bus rate matches the line rate. Various communication buses, and methods of synchronizing data are implemented.

MainClaim: A method of transmitting data at a line rate to a bus operating at a bus rate, the method comprising transmitting the data in a packet format consisting of a plurality of frames each having a plurality of time slots, each time slot having successive message groups, wherein each message group comprises a plurality of data messages containing said data and an idle code containing no said data; wherein the number of idle codes in each frame is selected so that the bus rate matches the line rate.

4,661,902	Local area network with carrier sense collision avoidance	Apple Computer, Inc.	Hochsprung; Ronald R. Kenyon, Jr.; Lawrence A. Oppenheimer; Alan B. Sidhu; Gursharan S.	370	G06F	19850321 0	100%	<input type="checkbox"/>
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Abstract: A local area network is disclosed including apparatus and methods for transferring data between a plurality of data processing resources ("agents") coupled to a cable. In the preferred embodiment, a plurality of agents are coupled to a common cable for data transmission and reception. An agent newly coupled to the cable dynamically assigns itself a unique address on the cable to which other agents may send data. Once an agent has been assigned a final address, it may then transmit to, and receive data from, other agents on the cable. An agent desiring to send data to a receiving agent follows a three step handshake, wherein the sending agent transmits an "RTS" signal and within a predetermined time must receive a "CTS" signal from the receiving agent. The sending agent then transmits a data frame within a predetermined time after the CTS signal is received. The failure to detect a return CTS signal within the predetermined time denotes a collision condition. Re-transmission is attempted using a linear back off method which is adjusted based on previous cable traffic history.

MainClaim: A communication medium for transferring data between a plurality of data processing devices ("agents") including a sending agent and a receiving agent, comprising:

sensing means coupled to said sending agent for therein if said medium is currently carrying data of another agent and is thereby in use;

timing means coupled to said sending agent for timing a first predetermined waiting period once said medium is idle and available for use;

first random number generating means coupled to said sending agent for generating a random number within a predefined range corresponding to a second waiting period prior to transmitting data on said communication medium to said receiving agent;

first signal generation means coupled to said sending agent for generating a first signal and transmitting said signal to said receiving agent;

signal receiving means coupled to said sending agent for receiving a signal transmitted from said receiving agent to said sending agent within a second predetermined time (IFG) after said sending agent has transmitted said first signal;

data transmission means coupled to said sending agent for transmitting data to said receiving agent within said IFG time after receiving said signal from said receiving agent;

whereby data is transferred between said sending and receiving agents coupled to said communication medium.

7,324,549	Synchronisation communication systems	Nokia Corporation	Addy; Tim Vainikka; Markku Viero; Timo Brockington; William Vahataini; Markku	370	H04J	20030305	3	92%	<input type="checkbox"/>
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Abstract: A method and apparatus of transmitting data at a line rate to a bus operating at a bus rate includes transmitting the data in a packet format having a plurality of frames each having a plurality of time slots. Each time slot has successive message groups, and each message group includes a plurality of data messages containing the data and an idle code containing none of the data. A number of idle codes in each frame is selected such that the bus rate matches the line rate. Various communication buses, and methods of synchronizing data are implemented.

MainClaim: A method of transmitting data at a line rate to a bus operating at a bus rate, the method comprising transmitting the data in a packet format consisting of a plurality of frames each having a plurality of time slots, each time slot having successive message groups, wherein each message group comprises a plurality of data messages containing said data and an idle code containing no said data; wherein the number of idle codes in each frame is selected so that the bus rate matches the line rate.

7,600,037	Real time transmission of information content from a sender to a receiver over a network by sizing of a congestion window in a connectionless protocol	Apple Inc.	Tucker; Rusty	709	G06F	20060314	0	100%	<input type="checkbox"/>
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Abstract: A stream of packets is started at a slow rate to enable competing streams to achieve transmission rate equilibrium. The transmission window is initialized to a size smaller than an acceptable window advertised by the receiving client. Upon receipt of an acknowledgement from the client that a packet has been successfully transmitted, the size of the transmission window is increased by the size of the acknowledged packet. This increase continues until a threshold is reached, at which time further increases are constrained by the maximum permitted segment size.

MainClaim: A computer-implemented method for real time transmission of information content from a sender to a receiver over a network, comprising the following steps: defining an initial size for a congestion window that establishes a number of successive packets of information that can be transmitted by said sender without acknowledgment from the receiver; transmitting the number of packets established by the congestion window; upon detecting acknowledgment of a packet from the receiver, increasing the size of the congestion window by the size of the acknowledged packet; and continuing to increase the size of the congestion window by the size of an acknowledged packet for each detected acknowledgment until an established threshold is reached.

2007/0286077	COMMUNICATION SYSTEM	Nokia Corporation	Wu; Yi	370	H04L	20070426	1	92%	<input type="checkbox"/>
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Abstract: A method of transmitting data in a communication system. Data packets are transmitted from a first node to a second node on a first channel. An acknowledgement packet is transmitted from the second node to the first node on a second channel in response to receiving a number of packets on the first channel. The number of data packets that the acknowledgment packet is sent in response to is adjustable.

MainClaim: A method of transmitting data in a communication system, comprising: transmitting data packets from a first node to a second node on a first channel; and transmitting an acknowledgement packet from the second node to the first node on a second channel in response to receiving a number of packets on the first channel, wherein the number of data packets that the acknowledgment packet is sent in response to is adjustable.

5,889,962	Method and system for providing an additional identifier for sessions in a file server	Apple Computer, Inc.	Hanif; Mohammad Stinson; Kevin Yanagihara; Kazuhisa	709	G06F	19951013	0	100%	<input type="checkbox"/>
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Abstract: A system and method for increasing the number of entities that can be serviced by a file server. The file server includes a plurality of server session sockets (SSSs), and means for assigning an entity identification number and one of the plurality of SSSs to a request from one of the number of entities, wherein each SSS can support a plurality of entities.

MainClaim: A file server which allows for increasing a number of entities that can be serviced comprising:

a plurality of server session sockets (SSSs), each of the plurality of SSSs comprising an addressable entity within the file server for enabling communications, a plurality of entity identification numbers being associated with each of the plurality of SSSs;

means for assigning a particular SSS of the plurality of SSSs and assigning an entity identification number of the plurality of entity identification numbers associated with the particular SSS of the plurality of SSSs to a request from one of the number of entities; and

means within the file server for matching the entity identification number and the particular SSS to a communication from the one of the number of entities.

2004/0267910	Single-point management system for devices in a cluster	NOKIA INC.	Treppa, Basil Mittal, Ajay Koneru, Srikanth Xu, Laura Matai, Ajay	709	G06F	20030624	2	93%	<input type="checkbox"/>
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Abstract: The present invention provides cluster management from a single application. A user may perform management tasks on all of the devices within the cluster using a GUI or a CLI. The system automatically discovers the members of the cluster and acquires a configuration lock on the devices preventing other users from performing conflicting operations. If a problem occurs during a configuration, the devices may be rolled back to a previous working configuration. A message format is provided to help ensure message integrity beyond the security provided by a secure transport. An aggregator aggregates configuration information and motored data and allows the information to be presented according to a user's requirements.

MainClaim: A system for cluster management that allows the configuration and monitoring of a cluster from a single-point, comprising: a network interface configured to communicate with nodes in the cluster; a memory configured to store information relating to cluster management; a configuration subsystem coupled to a remote management broker, wherein the remote management broker is configured to distribute information between the nodes in the cluster; a processor configured to perform actions, including: accessing the cluster from the single-point; obtaining information relating to devices within the cluster; presenting the information to a user; and determining network management (NM) operations to perform to the cluster; and performing the determined NM operations.

2004/0267913	System for joining a cluster by cloning configuration	NOKIA INC.	Koneru, Srikanth	709	G06F	20030625	1	92%	<input type="checkbox"/>
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Abstract: The present invention clones configuration information onto a device joining a cluster. A Configuration Acquisition System (CAS) component, which, using a list of attributes to be cloned, connects to a cluster member, interacts with the cluster member to retrieve all the attributes, reconciles the values of the attributes from the cluster member with the values of the attributes in its own configuration and applies the reconciled configuration to its Configuration Subsystem.

MainClaim: A method for cloning a node associated with a cluster, comprising: determining configuration information to clone from the cluster; and automatically cloning the configuration information onto the node.

7,587,475	System for joining a cluster by cloning configuration	Nokia Siemens Networks Oy	Koneru; Srikanth	709	G06F	20030625	1	92%	<input type="checkbox"/>
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Abstract: The present invention clones configuration information onto a device joining a cluster. A Configuration Acquisition System (CAS) component, which, using a list of attributes to be cloned, connects to a cluster member, interacts with the cluster member to retrieve all the attributes, reconciles the values of the attributes from the cluster member with the values of the attributes in its own configuration and applies the reconciled configuration to its Configuration Subsystem.

MainClaim: A method for cloning a node associated with a cluster, the method comprising: employing a configuration acquisition system included in the node to determine configuration information to clone from a cluster member accessed by the node by connecting to the cluster member and retrieving the configuration information from the cluster member; automatically cloning the configuration information onto a configuration subsystem of the node; reconciling the retrieved configuration information with a local configuration associated with the configuration acquisition system; applying the reconciled configuration information onto the node; determining when to trigger the cloning of the node; and determining when the cloning is successful and when the cloning is successful adding the node to the cluster, and when the cloning is not successful, creating an error.

7,080,132	Presentation during network address acquisition	Apple Computer, Inc.	Cheshire; Stuart	709	G06F	20010119	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for instructing a processing system to present information. In one embodiment of the invention a server processing system on a network uses the DHCP protocol to provide network configuration information for a client processing system. The server processing system uses DHCP option code 56 to include presentation information with the configuration information sent to the client. Option code 56 allows for text messages to be presented by the client processing system and also allows URL-formatted text that may cause web pages or other internet resources to be presented by the client processing system. Because the presentation information is included with the network configuration information, information is presented when the client processing system uses the configuration information (e.g., upon network initialization).

MainClaim: A method, implemented on a processing system, comprising: receiving a request for network configuration information from a client processing system; sending network configuration information from a server processing system to the client processing system using a Dynamic Host Configuration Protocol ("DHCP"), the network configuration information having added to it, at least one of presentation information, or an address representative or said presentation information formatted in accordance with the DHCP, wherein said presentation information is automatically displayed upon network initialization through the DHCP on the client processing system without any input action from a user of the client processing system, when the client processing system uses the network configuration information.

2003/0088792	System and method for providing exploit protection with message tracking	Nokia, Inc.	Card, James Smith, Gregory J.	713	G06F	20021211	1	94%	<input type="checkbox"/>
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Abstract: A method and system for providing protection from exploits to devices connected to a network. The system and method include a component for determining whether an encapsulation has been applied to an attachment associated with a message and unencapsulating such encapsulated attachment, and a component that performs at least one decompression of the attachment when the attachment is compressed. If it is determined that the message, including the attachment, is to be scanned, a component is included that determines whether a header, body, and/or attachment of the message includes exploits. A device that receives messages that are directed to the network employs the components above to provide exploit protection for at least one of the messages.

MainClaim: A system for providing protection from an exploit to a device connected to a network, comprising: (a) a content filter that receives a message that is directed to the device; (b) a message tracker that is coupled to the content filter and is configured to determine whether the message is an unscanned message; and (c) a scanner component that is coupled to the message tracker and that is configured to receive the unscanned message and to determine whether at least one element of the message includes an exploit.

6,941,478	System and method for providing exploit protection with message tracking	Nokia, Inc.	Card; James Smith; Gregory J.	713	G06F	20021211	2	93%	<input type="checkbox"/>
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Abstract: A method and system for providing protection from exploits to devices connected to a network. The system and method include a component for determining whether an encapsulation has been applied to an attachment associated with a message and unencapsulating such encapsulated attachment, and a component that performs at least one decompression of the attachment when the attachment is compressed. If it is determined that the message, including the attachment, is to be scanned, a component is included that determines whether a header, body, and/or attachment of the message includes exploits. A device that receives messages that are directed to the network employs the components above to provide exploit protection for at least one of the messages.

MainClaim: A system for providing protection from an exploit to a device connected to a network, comprising:

a content filter that receives a message that is directed to the device;

a message tracker that is coupled to the content filter and is configured to perform actions, including:

determining a size of a message component associated with the message;

if the size is less than or equal to a pre-determined size; identifying the message as unscanned;

if the size exceeds the pre-determined size, then:

determining a first value associated with the message, and if the first value is the same as a stored second value associated with the message, identifying the message as a scanned message;

if the size exceeds the pre-determined size, then:

determining the first value associated with the message, and if the first value is different from the stored second value, identifying the message as unscanned; and

a scanner component that is coupled to the message tracker and that is configured to receive the unscanned message and to determine whether at least one element of the message includes an exploit.

2003/0018774	System and method for load balancing in ad hoc networks	Nokia Corporation	Flinck, Hannu Nilsson, Lars Anders	709	G06F	20020612	1	93%	<input type="checkbox"/>
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Abstract: A method and system for load balancing in ad hoc networks. An ad hoc node stores address information associated with a gateway that provides a communication path between an ad hoc network and another network. When other ad hoc nodes request the address information from the gateway, an ad hoc node through which the request passes may respond by providing the information. This allows responding to requests for address information to be load balanced over the nodes of an ad hoc network.

MainClaim: A method for load balancing in a network, comprising: (a) employing a first ad hoc node to store address information associated with a gateway that provides a communication path between an ad hoc network and another network; (b) employing a second ad hoc node to send a request for the address information; and (c) employing the first ad hoc node to provide the address information in reply to the request.

7,013,346	Connectionless protocol	Apple Computer, Inc.	Tucker; Rusty	709	G06F	20001006	0	100%	<input checked="" type="checkbox"/>
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Abstract: Packets transmitted from a server into a computer network are assigned a sequence number, a retransmit time and a time to live. Each packet is retransmitted upon the expiration of the retransmit time if no acknowledgment has been received from a client to which the packet was sent. The packet is removed from a retransmit buffer if the time to live timer expires prior to any acknowledgment being received. Multiple acknowledgments may be combined into a coalesced acknowledgment.

MainClaim: A method for real time transmission of frame-based content between a network server and a network client comprising the steps of:

designating individual packets of said content as either a frame packet that contains information for reconstructing an entire frame of said content or a differential packet that contains changes to a frame;

assigning to each of said packets a sequence number and a timer for retransmission retention, wherein the duration of the timers for frame packets is longer than for differential packets;

transmitting each of said packets to said network client;

detecting an acknowledgment for one or more packets received at said network client;

retransmitting any of said packets for which no acknowledgment is detected if their respective timers have not expired; and

terminating the retention of each packet whose timer has expired, wherein differential packets are removed more frequently than frame packets in order to ensure that critical information is not lost when an acknowledgment is not detected.

7,460,472	System and method for transmitting information in a communication network	Nokia Corporation	Le; Huihua Wu; Haitao Jin; Yuehui Zhang; Dongmei Ma; Jian	370	H04J	20031014	1	95%	<input type="checkbox"/>
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Abstract: A method and system for transmitting information between a sending means and a receiving means using packets for information transmission. The receipt of transmitted packets is acknowledged and unacknowledged packets are retransmitted from the sending means. The amount of transmitted unacknowledged information or the number of consecutive unacknowledged packets is detected, and the reason for information or packet loss is determined based on the amount of transmitted unacknowledged information or the number of consecutive unacknowledged packets. This amount is compared with a path maximum transmission unit (PMTU) to determine the reason for loss. A single or small number of unacknowledged packets is determined to be a result of Bit Error Rate (BER), whereas a larger number of consecutive unacknowledged packets may be determined to be congestion. Congestion control parameters are kept unchanged when the reason for loss is caused by Bit Error Rate (BER), whereas control parameters are changed when the reason for loss is congestion.

MainClaim: A method, comprising: transmitting information between a sender and a receiver using packets for information transmission, wherein the receipt of transmitted packets is acknowledged to the sender, and unacknowledged packets are retransmitted from the sender; detecting one of an amount of transmitted unacknowledged information and a number of consecutive unacknowledged packets; determining a reason for information or packet loss based on the amount of transmitted unacknowledged information or the number of consecutive unacknowledged packets; adjusting transmission parameters by the sender, depending on whether the determined reason is a bit error rate or congestion; the sender enabling bundling wherein

information is bundled in a packet; checking whether bundling is enabled; and changing a determining parameter to determine the reason for information or packet loss depending on whether or not bundling is enabled.

2005/0022089	System and method for a communication network	Nokia Corporation	Le, Huihua Wu, Haitao Jin, Yuehui Zhang, Dongmei Ma, Jian	714	H04Q	20031014	1	95%	<input type="checkbox"/>
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Abstract: A method and system for transmitting information between a sending means and a receiving means using packets for information transmission. The receipt of transmitted packets is acknowledged and unacknowledged packets are retransmitted from the sending means. The amount of transmitted unacknowledged information or the number of consecutive unacknowledged packets is detected, and the reason for information or packet loss is determined based on the amount of transmitted unacknowledged information or the number of consecutive unacknowledged packets. This amount is compared with a path maximum transmission unit (PMTU) to determine the reason for loss. A single or small number of unacknowledged packets is determined to be a result of Bit Error Rate (BER), whereas a larger number of consecutive unacknowledged packets may be determined to be congestion. Congestion control parameters are kept unchanged when the reason for loss is caused by Bit Error Rate (BER), whereas control parameters are changed when the reason for loss is congestion.

MainClaim: A method for transmitting information between a sender and a receiver using packets for information transmission, wherein the receipt of transmitted packets is acknowledged to the sender, and unacknowledged packets are retransmitted from the sender, the method comprising: detecting one of an amount of transmitted unacknowledged information and a number of consecutive unacknowledged packets; determining a reason for information or packet loss based on the amount of transmitted unacknowledged information or the number of consecutive unacknowledged packets; and adjusting transmission parameters by the sender, depending on whether the determined reason is a bit error rate or congestion.

2006/0059256	Signaling a state of a transmission link via a transport control protocol	Nokia Corporation	Kakani; Naveen K.	709	G06F	20040910	1	95%	<input type="checkbox"/>
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Abstract: A method, a system, a sender, a receiver, a device and software applications are shown for transferring data segments, wherein data segments are sent from a sender to a receiver, wherein said sender receives acknowledgements from said receiver, and wherein said acknowledgements acknowledge reception of said sent data segments at said receiver and contain information on whether at least one transmission link within a data network between said sender and receiver undergoes bad transmission conditions. In an embodiment of the invention, timers associated with each of said sent data segments, respectively, are started, and it is decided if it is possible to prolong timers that have expired before acknowledgements of data segments associated with said timers are received at least in partial dependence on said information whether at least one transmission link within a data network between said sender and receiver undergoes bad transmission conditions.

MainClaim: A method for transferring data segments between a sender and a receiver, comprising: sending one or more data segments from said sender to said receiver, and receiving one or more acknowledgements from said receiver, wherein said acknowledgements acknowledge reception of said sent data segments at said receiver and contain information on whether at least one transmission link within a data network between said sender and receiver undergoes bad transmission conditions.

5,742,599	Method and system for supporting constant bit rate encoded MPEG-2 transport over local ATM networks	Apple Computer, Inc.	Lin; Mengjou Periyannan; Alagu Singer; David	370	H04L	19960226	0	100%	<input type="checkbox"/>
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Abstract: A system and method for supporting constant bit rate encoded MPEG-2 transport over local Asynchronous Transfer Mode (ATM) networks. The present invention encapsulates constant bit rate encoded MPEG-2 transport packets, which are 188 bytes in size, in an ATM AAL-5 Protocol Data Unit (PDU), which is 65,535 bytes in size. The method and system includes inserting a plurality of MPEG-2 transport packets into a single AAL-5 PDU, inserting a segment trailer into the ATM packet after every two MPEG packets, and then inserting an ATM trailer at the end of the ATM packet. In a preferred embodiment, 10 or 12 MPEG-2 transport packets are packed into one AAL-5 PDU to yield a throughput 70.36 and 78.98 Mb/s, respectively, thereby supporting fast forward and backward playing of MPEG-2 movies via ATM networks.

MainClaim: A method for encoding a stream of first data packets over a network, the network transmitting data in second data packets whose size is significantly larger than the first data packets, the method comprising the steps of:

- (a) packing a plurality of first data packets into a single second data packet;
- (b) inserting a segment trailer into the single second data packet after at least two first data packets; and
- (c) inserting a trailer at the end of the single second data packet.

2006/0253600	Buffering in streaming delivery	Nokia Corporation	Hannuksela; Miska	709	G06F	20060406	1	92%	<input type="checkbox"/>
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Abstract: Buffering packets of a media stream for transmission from a transmitting device to a receiving device. Media packets are formed from at least one kind of media information in a stream generator; at least one transmission frame is generated on the basis of media packets to be transmitted; packets to be transmitted are formed from the at least one transmission frame; and a transmission schedule is generated for packets to be transmitted. In addition, a first step and a second step of hypothetical decoding are also performed. The first step of hypothetical decoding is performed according to the transmission schedule and comprises buffering the packets to be transmitted according to the transmission schedule to a first hypothetical decoding buffer; and outputting packets from the first hypothetical decoding buffer on a transmission frame basis. The second step of hypothetical decoding comprises controlling the buffer occupancy level of the first hypothetical decoding buffer and the second hypothetical decoding buffer by controlling at least one of the following: the operation of the stream generator; the generation of at least one transmission frame; the transmission schedule.

MainClaim: A method for buffering packets of a media stream comprising: forming media packets from at least one kind of media information in a stream generator; generating at least one transmission frame on the basis of media packets to be transmitted; forming packets to be transmitted from the at least one transmission frame; generating a transmission schedule for packets to be transmitted; performing a first step of hypothetical decoding according to the transmission schedule comprising: buffering the packets to be transmitted according to the transmission schedule to a first hypothetical decoding buffer; and outputting packets from the first hypothetical decoding buffer on a transmission frame basis; performing a second step of hypothetical decoding comprising: buffering packets formed on the basis of the output from the first hypothetical decoding buffer; controlling the buffer occupancy level of the first hypothetical decoding buffer and the second hypothetical decoding

buffer by controlling at least one of the following: the operation of the stream generator; the generation of at least one transmission frame; the transmission schedule.

5,517,494	Method and system of multicast routing for groups with a single transmitter	Apple Computer, Inc.	Green; Mark A.	370	H04L	19940930	0	100%	<input type="checkbox"/>
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Abstract: A method of implementing a multicast routing protocol in routers is provided to manage the assignment of multicast transport addresses and to forward data from a single transmitting endpoint to multiple receiving endpoints. This method in conjunction with a method for implementing the multicast routing protocol as a transport protocol layer service for endpoints provides an internet wide multicast transport service. The multicast transport service provides the capability of transmitting data from a single source to multiple receivers on interconnected networks efficiently and without having to send duplicate copies of the data on any single network. Routers and endpoints transmit and receive multicast packets in a manner which is independent of the network layer datagram protocols used by the multicast transport service. Multicast control packets are exchanged using a multicast transaction protocol which allows routers and endpoints to execute transactions in a manner that does not require either routers to know the state of specific endpoints or endpoints to know the state of specific routers.

MainClaim: A method for creating a multicast distribution tree in a computer system, comprising the steps of:

transmitting, by a listener computer, coupled by a common network, to a first designated router, a join group request which includes a multicast address which contains a network number that identifies a particular network and which requests data from the particular network,

scanning, by the first designated router, the forwarding table of the first designated router to locate the particular multicast request included in the join group request, to determine whether the first designated router is currently receiving data from the particular multicast address, and if not, then

scanning, by the first designated router, the routing table of the first designated router to locate the network number contained in the particular multicast address and a corresponding second designated router, coupled to a network common to that of the first designated router, for receiving data from the particular network, and

requesting, by the first designated router, transmission of data from the particular network through the second designated router.

7,310,335	Multicast routing in ad-hoc networks	Nokia Networks	Garcia-Luna-Aceves; Jose J. Spohn; Marcelo	370	H04L	20001031	1	96%	<input type="checkbox"/>
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Abstract: Multicast routing in ad-hoc networks by exchange of multicast group update information and routing tree information among neighboring routers is disclosed. A router propagates multicast group update information based on the update information and the routing tree information. A router also determines whether to forward multicast data packets based on control information in the multicast data packets and the routing tree information.

MainClaim: A method for communicating multicast group membership information in a network between a plurality of routers in a multicast group, the method comprising: reporting routing tree information from each of the plurality of routers reports to other routers of said plurality of routers, wherein the routing tree information comprises a source tree for a unicast routing protocol; receiving update information at a second router in the network from a first router, said update information comprising update information on a multicast group and a network address of said first router; using said update information to indicate that said first router is becoming a member of said multicast group; determining, based at least in part on said update information and the routing tree information reported by said first router, whether said second router is to transmit said update information so that all members of said multicast group remain connected, by determining if said source tree reported by said first router has said second router as a root of a subtree from which said first router is excluded, and if at least one neighbor router of said second router in said subtree is not a member of said multicast group; and in response to a positive determination, transmitting said update information from said second router to said at least one neighbor router of said second router.

2008/0144532	Address resolution request mirroring	Nokia Corporation	Chamarajanagar; Raveendra Hunt; Peter Kimble; Scott Nguyen; Tuyen	370	H04L	20061215	2	95%	<input type="checkbox"/>
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Abstract: Address Resolution Protocol (ARP) request mirroring can provide a mechanism for synchronizing link-layer adjacency information among network elements. This application can be useful, for example, for internet protocol (IP) routing network elements in a high-availability configuration.

MainClaim: A method, comprising:receiving an address resolution request from an active node;transmitting a second request mirroring the request when the request meets a predetermined condition;updating an address resolution cache based on information in the request; andassuming responsibilities of the active node when the active node fails.

2008/0144634	Selective passive address resolution learning	Nokia Corporation	Chamarajanagar; Raveendra Hunt; Peter Kimble; Scott Nguyen; Tuyen Rashiyanany; Giritharan	370	H04L	20061215	2	95%	<input type="checkbox"/>
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Abstract: Selective passive address resolution protocol (ARP) learning can provide a passive mechanism to synchronize link layer adjacency information among network elements. Selective passive ARP learning can be implemented by a modification to the ARP requests processing of the standby node, with a filter list containing a set of match rules for target network addresses. The implementation, thus, can be a configurable filter that enables software modules to specify a set of internet protocol (IP) addresses that the ARP input engine should monitor.

MainClaim: A method, comprising:receiving an address resolution request from a neighbor node of an active node;updating an address resolution cache based on information in the request when the request meets a predetermined condition; andassuming responsibilities of the active node when the active node fails.

6,069,887	Method and system for synchronization in a wireless local area network	Apple Computer, Inc.	Geiger; Edward W. Fickes; Stanley L. Mincher; Richard W. Mullins; Jeffrey L.	370	H04J	19970528	0	100%	<input type="checkbox"/>
<p>Abstract: Aspects for achieving and utilizing synchronization among end stations in a wireless local area network (WLAN) are provided. In a method aspect, the method includes receiving a packet with a time synchronization field value from a first end station in a second end station of a communication group. The method further includes comparing upon receipt of the packet the time synchronization field value with a local time value in the second end station to determine whether the local time value requires updating to maintain synchronization between the first and second end stations. The comparing further determines whether a difference between the time synchronization field value and the local time value is greater than zero, and when the difference is greater than zero, the local time value is updated to the time synchronization field value. In a system aspect, the system includes at least two end stations, wherein each of the at least two end stations further includes a local clock unit, and a transmit/receive control unit coupled to the local clock unit. A time synchronization field register in the transmit/receive control unit stores a value of the local clock unit, with one of the at least two end stations comparing a time synchronization field register value of a packet upon receipt from another of the at least two end stations with a value of the local clock unit to determine whether updating of the local clock unit is necessary.</p> <p>MainClaim: A method for achieving synchronization among at least two end stations in a communication group of a wireless local area network (WLAN), the method comprising:</p> <p>receiving a packet with a time synchronization field value from a first end station of the at least two end stations by a second end station of the at least two end stations of the communication group; and</p> <p>comparing upon receipt of the packet the time synchronization field value with a local time value in the second end station to determine whether the local time value requires updating to maintain synchronization between the first and second end stations without requiring maintenance of communication with a master node end station by the first and second end stations.</p>									
7,180,915	Apparatus, and an associated method, for facilitating synchronization in a wireless mesh network	Nokia Corporation	Beyer; David A. Arrakoski; Jori Kasslin; Mika	370	H04J	20011221	1	93%	<input type="checkbox"/>
<p>Abstract: Apparatus, and associated method, by which to synchronize nodes in a wireless mesh network, such as a fixed broadband network or a moving ad-hoc mesh network. Time stamps are added to data packets at a reference node defined pursuant to a pseudo hierarchy. The data packets are communicated by the reference node to a receiving node. The time stamp information is extracted therefrom, to provide an indication of a time reference value from which the time stamp information is formed. Registers are maintained at the nodes with updated values of the timing information, used in time synchronization between the nodes of the mesh network.</p> <p>MainClaim: In a wireless mesh network having a first communication station and at least a second communication station, an improvement of apparatus for time-synchronizing communication of data between the first and at least second communication stations, respectively, said apparatus comprising: a network time register coupled to receive a time reference signal of values representative of a reference time, said network time register for buffering and maintaining updated values of the reference time; and a data formatter coupled to said network time register, said data formatter for formatting the data to be communicated between the first and at least second communication stations of the wireless mesh network, the data, once formatted, including indicia associated with the updated values of the reference time buffered at said network time register, further comprising a latch register coupled to said network time register, said latch register for latching buffered values of the reference time buffered at said network time register.</p>									
2009/0213771	FORWARDING IN DISTRIBUTED WIRELESS NETWORKS	Nokia Corporation	Celentano; Ulrico Kaaja; Harald Salokannel; Juha	370	H04B	20080225	1	92%	<input type="checkbox"/>
<p>Abstract: A method, system, and computer program product are disclosed for providing a forwarding feature in the WiMedia MAC communication protocol or in other suitable communication protocols. The method enables a forwarder device to indicate its capability to operate as a forwarder device in its beacon transmissions and to enable an initiating device to utilize the forwarder device for communicating data and/or network control information to destination devices that can be accessed through the forwarder device over two or more hops.</p> <p>MainClaim: A method, comprising:receiving information from a wireless device including an indication of said wireless device's capability to forward data within a network, said information further including descriptive information regarding at least one other wireless device in the network accessible through the wireless device; anddetermining whether to wirelessly transmit data to said wireless device, for forwarding said data to the at least one other wireless device based on said received information.</p>									
2009/0279464	POWER SAVE MECHANISM FOR WIRELESS COMMUNICATION DEVICES	NOKIA CORPORATION	KAKANI; Naveen MAJKOWSKI; Jakub	370	G08C	20080509	1	92%	<input type="checkbox"/>
<p>Abstract: Method, apparatus, and computer program product embodiments are disclosed to enable power save modes of operation between mobile wireless devices for direct data transfer in an infrastructure BSS. An example embodiment inserts in a message that is transmitted by the transmitting mobile wireless device, a specified time when a next active direct data transfer period will start so that the devices can remain in power save mode in a direct data transfer link until that time. Then, when the next active direct data transfer period is about to start, the receiving device sends a trigger signal based on the specified time, the trigger signal indicating that the next period is about to start. This confirms to the transmitting device that the receiving device has awakened, so that the transmitting device may start transmitting the data to the receiving device via the direct data transfer link.</p> <p>MainClaim: A method, comprising:transmitting, by a transmitting wireless device, an indication to a receiving wireless device when a next active direct data transfer period will start so that the devices can remain in power save mode in a direct data transfer link until that time; andreceiving from the receiving device, a trigger signal based on said indication, the trigger signal indicating that the next period is about to start, so that the transmitting device can start transmitting data to the receiving device via the direct data transfer link.</p>									
			Jones; Anne						

7,366,788	Method and apparatus for media data transmission	Apple Inc.	Geagan; Jay Gong; Kevin L. Periyannan; Alagu Singer; David W.	709	G06F	20040226	0	100%	<input type="checkbox"/>
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Abstract: Methods and apparatuses for processing media data transmitted in a data communication medium. A digital processing system is provided with a time related sequence of media data provided to the digital processing system based on a set of data, wherein the set of data indicates a method to transmit the time related sequence of media data according to a transmission protocol. The set of data, itself, is a time related sequence of data associated with the time related sequence of media data. The time related sequence of media data may be presented and/or stored by the digital processing system.

MainClaim: A method implemented by a digital processing system to process media data, said method comprising: retrieving a time related sequence of media data that is received by said digital processing system as packets based on a set of data, wherein said set of data indicates a method to transmit said time related sequence of media data to said digital processing system according to defined packetizing characteristics, and wherein said set of data is a time related sequence of data associated with said time related sequence of media data.

2009/0119594	FAST AND EDITING-FRIENDLY SAMPLE ASSOCIATION METHOD FOR MULTIMEDIA FILE FORMATS	Nokia Corporation	Hannuksela; Miska	715	G06F	20081028	9	95%	<input type="checkbox"/>
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Abstract: Systems and methods for using sample numbers to pair timed metadata samples with media or hint samples is provided. A timed metadata sample can be paired with media or hint samples since a sample number contained in the time media sample is provided relative to the appropriate media or hint track. Additionally, an offset of sample numbers, applicable to scenarios where a plurality of timed metadata samples exist, may be added to the provided sample number to obtain the actual sample number within the media or hint track.

MainClaim: A method of organizing at least one of media and multimedia data in at least one file, comprising:storing a first sample, a first piece of data, a second sample, and a second piece of data in at least one file, the at least one of the media and multimedia data including the first and second samples, the first piece of data being associated with the first sample, and the second piece of data being associated with the second sample;associating a first sample number with the first sample;associating a second sample number with the second sample;including a sample number offset in the at least one file;including a first base sample number associated with the first piece of data in the at least one file, the first sample number being derivable from the sample number offset and the first base sample number; andincluding a second base sample number associated with the second piece of data in the at least one file, the second sample number being derivable from the sample number offset and the second base sample number.

2009/0055417	SEGMENTED METADATA AND INDEXES FOR STREAMED MULTIMEDIA DATA	NOKIA CORPORATION	Hannuksela; Miska M.	707	G06F	20080819	9	94%	<input type="checkbox"/>
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Abstract: A method of organizing streamed data includes storing streamed data in a file, identifying metadata applicable to a subset of the streamed data, and forming at least one group of one or more samples of the streamed data, each sample in a group having identical metadata content for a metadata type. The file may be in accordance with ISO base media file format. The storing streamed data in a file may include storing in a reception hint track. The at least one group may be indicated in a sample group description box. The metadata type may be indicated by a grouping type and grouping instance data, the grouping type specifying semantics of the grouping instance data and the metadata content. The metadata content may comprise a metadata payload and zero or more metadata payload extensions, where the metadata payload is included in a first structure and the zero or more metadata payload extensions are included in a second structure.

MainClaim: A method of organizing streamed data, comprising:storing streamed data in a file;identifying metadata applicable to a subset of the streamed data; andforming at least one group of one or more samples of the streamed data, each sample in a group having identical metadata content for a metadata type.

2009/0177942	SYSTEMS AND METHODS FOR MEDIA CONTAINER FILE GENERATION	NOKIA CORPORATION	Hannuksela; Miska Matias Peltotalo; Jani	714	H03M	20090108	9	94%	<input type="checkbox"/>
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Abstract: A method includes organizing a first media source block in the media container file; calculating forward error correction (FEC) redundancy data based on the first media source block; organizing the FEC redundancy data in at least one FEC reservoir in the media container file; providing, in the media container file, meta data providing an association between the first media source block and the at least one FEC reservoir; storing the first media source block as a first elementary item in the media container file; and providing, in the media container file, information that the first elementary item comprises the first media source block

MainClaim: A method of generating a media container file, comprising:organizing a first media source block in the media container file;calculating forward error correction (FEC) redundancy data based on the first media source block;organizing the FEC redundancy data in at least one FEC reservoir in the media container file;providing, in the media container file, meta data providing an association between the first media source block and the at least one FEC reservoir;storing the first media source block as a first elementary item in the media container file; andproviding, in the media container file, information that the first elementary item comprises the first media source block.

5,894,480	Method and apparatus for operating a multicast system on an unreliable network	Apple Computer, Inc.	Hoffert; Eric M. Green; Mark A.	370	H04J	19971008	0	100%	<input type="checkbox"/>
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Abstract: A multicast network system comprises a data network which provides a medium for data transfer. A media source having a control packet and media packets coupled to the data network broadcasts the control packet and the media packets to the data network and rebroadcasts the control packet in conjunction with the media packets to the data network. A media receiver is coupled to the network and receives the control packet and the media packets from the data network to process the control packet and the media packets to produce a media output.

MainClaim: A multicast network system comprising:

a data network which provides a medium for transfer of digital signals; and

a media source providing to the data network									
a media packet, and									
a control packet including format information that enables processing of the media packet, wherein said control packet is repeatedly transmitted in conjunction with said media packet.									
2006/0080436	System and method for multimedia streaming using interleaved packetization	Nokia Corporation	Wang; Ru-Shang Miller; Keith	709	G06F	20041007	2	92%	<input type="checkbox"/>
Abstract: Methods, devices, systems, program products and computer-implemented methods for communication of non-interleaved and interleaved packets of streamed data are disclosed. A method of streaming multimedia includes transmitting a signal from a client device to a multimedia server. The signal is indicative of desired settings for the client device to receive packets of streamed data. The desired settings include at least one of an amount of a total buffer memory allocated to buffering of interleaved packets and an indication of acceptability of all packetization types available to the server. MainClaim: A method for multimedia streaming, comprising: transmitting a signal from a client device to a multimedia server, the signal being indicative of desired settings for the client device to receive packets of streamed data, wherein the desired settings include at least one of an amount of a total buffer memory allocated to buffering of interleaved packets and an indication of acceptability of all packetization types available to the server.									
6,453,355	Method and apparatus for media data transmission	Apple Computer, Inc.	Jones; Anne Geagan; Jay Gong; Kevin L. Periyannan; Alagu Singer; David W.	709	G06F	19980825	0	100%	<input type="checkbox"/>
Abstract: Methods and apparatuses for processing media data transmitted in a data communication medium. A digital processing system is provided with a time related sequence of media data provided to the digital processing system based on a set of data, wherein the set of data indicates a method to transmit the time related sequence of media data according to a transmission protocol. The set of data, itself, is a time related sequence of data associated with the time related sequence of media data. The time related sequence of media data may be presented and/or stored by the digital processing system. MainClaim: A method implemented by a digital processing system to process media data, said method comprising:									
receiving at said digital processing system a time related sequence of media data which is received by said digital processing system based on a set of data, wherein said set of data indicates a method to transmit said time related sequence of media data to said digital processing system according to a transmission protocol, and wherein said set of data is a time related sequence of data associated with said time related sequence of media data; and									
presenting at said digital processing system a media sequence associated with said time related sequence of media data.									
2009/0119594	FAST AND EDITING-FRIENDLY SAMPLE ASSOCIATION METHOD FOR MULTIMEDIA FILE FORMATS	Nokia Corporation	Hannuksela; Miska	715	G06F	20081028	9	94%	<input type="checkbox"/>
Abstract: Systems and methods for using sample numbers to pair timed metadata samples with media or hint samples is provided. A timed metadata sample can be paired with media or hint samples since a sample number contained in the time media sample is provided relative to the appropriate media or hint track. Additionally, an offset of sample numbers, applicable to scenarios where a plurality of timed metadata samples exist, may be added to the provided sample number to obtain the actual sample number within the media or hint track. MainClaim: A method of organizing at least one of media and multimedia data in at least one file, comprising:storing a first sample, a first piece of data, a second sample, and a second piece of data in at least one file, the at least one of the media and multimedia data including the first and second samples, the first piece of data being associated with the first sample, and the second piece of data being associated with the second sample;associating a first sample number with the first sample;associating a second sample number with the second sample;including a sample number offset in the at least one file;including a first base sample number associated with the first piece of data in the at least one file, the first sample number being derivable from the sample number offset and the first base sample number; andincluding a second base sample number associated with the second piece of data in the at least one file, the second sample number being derivable from the sample number offset and the second base sample number.									
2009/0177942	SYSTEMS AND METHODS FOR MEDIA CONTAINER FILE GENERATION	NOKIA CORPORATION	Hannuksela; Miska Matias Peltotalo; Jani	714	H03M	20090108	9	93%	<input type="checkbox"/>
Abstract: A method includes organizing a first media source block in the media container file; calculating forward error correction (FEC) redundancy data based on the first media source block; organizing the FEC redundancy data in at least one FEC reservoir in the media container file; providing, in the media container file, meta data providing an association between the first media source block and the at least one FEC reservoir; storing the first media source block as a first elementary item in the media container file; and providing, in the media container file, information that the first elementary item comprises the first media source block MainClaim: A method of generating a media container file, comprising:organizing a first media source block in the media container file;calculating forward error correction (FEC) redundancy data based on the first media source block;organizing the FEC redundancy data in at least one FEC reservoir in the media container file;providing, in the media container file, meta data providing an association between the first media source block and the at least one FEC reservoir;storing the first media source block as a first elementary item in the media container file; andproviding, in the media container file, information that the first elementary item comprises the first media source block.									
2009/0055417	SEGMENTED METADATA AND INDEXES FOR STREAMED MULTIMEDIA DATA	NOKIA CORPORATION	Hannuksela; Miska M.	707	G06F	20080819	9	93%	<input type="checkbox"/>

Abstract: A method of organizing streamed data includes storing streamed data in a file, identifying metadata applicable to a subset of the streamed data, and forming at least one group of one or more samples of the streamed data, each sample in a group having identical metadata content for a metadata type. The file may be in accordance with ISO base media file format. The storing streamed data in a file may include storing in a reception hint track. The at least one group may be indicated in a sample group description box. The metadata type may be indicated by a grouping type and grouping instance data, the grouping type specifying semantics of the grouping instance data and the metadata content. The metadata content may comprise a metadata payload and zero or more metadata payload extensions, where the metadata payload is included in a first structure and the zero or more metadata payload extensions are included in a second structure.

MainClaim: A method of organizing streamed data, comprising: storing streamed data in a file; identifying metadata applicable to a subset of the streamed data; and forming at least one group of one or more samples of the streamed data, each sample in a group having identical metadata content for a metadata type.

5,561,670	Method and apparatus for operating a multicast system on an unreliable network	Apple Computer, Inc.	Hoffert; Eric M. I Green; Mark A.	370	H04J	19940513	0	100%	<input type="checkbox"/>
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Abstract: A multicast network system comprises a data network which provides a medium for data transfer. A media source having a control packet and media packets coupled to the data network broadcasts the control packet and the media packets to the data network and rebroadcasts the control packet in conjunction with the media packets to the data network. A media receiver is coupled to the network and receives the control packet and the media packets from the data network to process the control packet and the media packets to produce a media output.

MainClaim: A method of operating a multicast network comprising the steps of:

transmitting a media packet digital signal on the multicast network; and

transmitting a control packet digital signal on the multicast network, wherein the control packet digital signal includes format information on the media packet digital signal.

2006/0080436	System and method for multimedia streaming using interleaved packetization	Nokia Corporation	Wang; Ru-Shang I Miller; Keith	709	G06F	20041007	2	92%	<input type="checkbox"/>
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Abstract: Methods, devices, systems, program products and computer-implemented methods for communication of non-interleaved and interleaved packets of streamed data are disclosed. A method of streaming multimedia includes transmitting a signal from a client device to a multimedia server. The signal is indicative of desired settings for the client device to receive packets of streamed data. The desired settings include at least one of an amount of a total buffer memory allocated to buffering of interleaved packets and an indication of acceptability of all packetization types available to the server.

MainClaim: A method for multimedia streaming, comprising: transmitting a signal from a client device to a multimedia server, the signal being indicative of desired settings for the client device to receive packets of streamed data, wherein the desired settings include at least one of an amount of a total buffer memory allocated to buffering of interleaved packets and an indication of acceptability of all packetization types available to the server.

7,457,255	Method and apparatus for providing link-local IPv4 addressing across multiple interfaces of a network node	Apple Inc.	Cheshire; Stuart D.	370	H04L	20040625	0	100%	<input type="checkbox"/>
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Abstract: A system to provide link-local IPv4 addressing across multiple interfaces of a network-node. The network-node broadcasts an Address Resolution Protocol (ARP) request packet on multiple interfaces which asks for the hardware address of a network node whose link-local IPv4 address is Y. In response, the network-node receives an ARP-reply packet on an interface from a target network-node. If Y is present in the ARP cache and is associated with a different interface, the source network-node chooses a winner interface, and updates the ARP cache so that Y is associated with the winner interface. The network-node sends one or more contention-resolution packets on the loser interface to cause a loser network-node to choose another link-local IPv4 address for itself.

MainClaim: A method for providing link-local addressing across multiple interfaces of a source network-node, comprising: broadcasting an address-resolution request packet on interfaces Z_1 and Z_2 of the source network-node, wherein the source network-node currently associates the link-local protocol-layer address Y with interface Z_1 , and wherein the address-resolution request packet requests a hardware address which is associated with link-local protocol-layer address Y; receiving an address-resolution reply packet at the source network-node on interface Z_2 , thereby causing a contention between interfaces Z_1 and Z_2 ; determining a winner between interfaces Z_1 and Z_2 ; and in response to determining that Z_2 is the winner, associating link-local protocol-layer address Y with interface Z_2 , and sending a contention-resolution packet on interface Z_1 , thereby causing a target network-node whose link-local protocol-layer address is Y to choose a link-local protocol-layer address which is different from Y.

2007/0058606	Routing data packets from a multihomed host	Nokia Corporation	Koskelainen; Juha	370	H04L	20051115	2	93%	<input type="checkbox"/>
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Abstract: The invention allows routing data packets from a multihomed host. A default gateway is associated with each of network addresses associated with the multihomed host. One of the associated network addresses is assigned to a data packet to be sent from the multihomed host as its source address. A routing table of the multihomed host is searched for a route matching a destination address of the data packet. It is determined, in response to one of no route found and the found route being a default route of the routing table, which of the default gateways is associated with the assigned source address, and the data packet is dispatched to this determined default gateway.

MainClaim: A method of routing data packets from a multihomed host, the method comprising: assigning a source address to a data packet to be sent from said multihomed host, said multihomed host having at least two associated network addresses, a default gateway associated with each of said at least two associated network addresses, and said source address being one of said at least two associated network addresses; determining a destination address of said data packet; searching a routing table of said multihomed host for a route for said data packet, said route to match said destination address of said data packet; examining results of said searching; and in response to one of no route found and a found route being a default route of said routing table: determining a default gateway associated with said assigned source address, and dispatching said data packet to said default gateway associated with said assigned source address.

7,296,092	Apparatus for inter-domain communications including a virtual switch for routing data packets between virtual interfaces of the virtual switch	Nokia, Inc.	Nguyen; Tuyen	709	G06F	20040630	1	92%	<input type="checkbox"/>
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Abstract: An apparatus for a multi-domain computer system includes multiple virtual system domains, each having an associated, independent routing instance. A virtual switch is created to forward packets between the domains. The virtual switch is configured to operate substantially as if it were a physical layer-2 switch. The virtual switch and the virtual domains are connected together by virtual interfaces, where the virtual switch, the virtual domains, and the virtual interfaces are all created in software. Further, protocols such as ARP, IP, and/or IPv6 operate over the virtual interfaces in substantially the same way that they would over Ethernet. Also, each domain has a software driver that behaves like an Ethernet driver, and has a 48-bit Ethernet-like address that is used for the physical address.

MainClaim: A network device for inter-domain communications, comprising: a transceiver that is configured to transmit and receive packets over a network based, in part, on a network protocol; and a processor that is configured to create a virtual switch that is configured to receive a packet at one of a plurality of interfaces associated with the virtual switch, wherein the plurality of interfaces includes a plurality of virtual interfaces, and wherein the virtual switch is configured to be associated with at least three virtual interfaces, and to provide the packet at another of the plurality of interfaces, wherein the virtual switch is configured to provide the packet at the other of the plurality of interfaces by determining if a destination address for the packet is included in a neighbor cache table that is associated with the virtual switch, and wherein the virtual switch is further configured to add an entry to a neighbor cache table such that the entry includes a source address of the packet, and further includes the one of the plurality of interfaces that received the packet.

5,796,954	Method and system for maximizing the use of threads in a file server for processing network requests	Apple Computer, Inc.	Hanif; Mohammad Yanagihara; Kazuhisa	709	G06F	19951013	0	100%	<input type="checkbox"/>
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Abstract: A system and method for maximizing the use of threads in a file server process for processing requests received from entities on a network. The file server process includes a first socket and a plurality of second sockets for receiving requests from entities on a network. The file server process comprises a first queue for storing requests received from the first socket, and a second queue for storing requests received from the plurality of second sockets. The file server processes the requests in the first queue with a first set of threads, and processes the requests in the second queue with a second set of threads.

MainClaim: A method for maximizing the use of threads in a file server process for processing requests received from entities on a network, the file server process including a first socket and a plurality of second sockets for receiving requests from entities on a network, the method comprising the steps of:

- (a) providing a first queue for storing requests received from the first socket, the requests received from the first socket including a first type of request for opening a session;
- (b) providing a second queue for storing requests received from the plurality of second sockets, the requests received from the plurality of second sockets being a second type of request;
- (c) processing the first type of request in the first queue with a first set of threads; and
- (d) processing the second type of request in the second queue with a second set of threads.

2004/0215578	Controlling usage of system resources by a network manager	Nokia, Inc.	Das, Debashis	705	H04L	20030409	2	92%	<input type="checkbox"/>
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Abstract: The aspects of the present invention manage an allocation of resources for network devices in a networked system. With an aspect of the invention, a usage of a resource is gauged by a number of tokens that are associated with an action for a designated network device. The action is assigned at least one thread, where a thread corresponds to a process that supports the action. As requested, processes are initiated when an available number of tokens in a token pool can support the action. A request is stored in a request queue if a required number of tokens or threads are not available. The associated action for the designated network device is subsequently initiated when the required number of tokens and threads are available. When an action for a device completes, the assigned tokens and threads are released for reassignment in order to initiate an action for another device.

MainClaim: A method for controlling a system resource, the method comprising: (a) receiving a first request to initiate a first action for a first network device; (b) determining a first required number of tokens that is necessary to execute the first action, wherein the first required number of tokens corresponds to a first usage of the system resource that is allocated to execute the first action; (c) determining an available number of tokens remaining in a token pool; (d) if the available number of tokens is as great as the first required number of tokens, initiating the first action for the first network device; and (e) in response to (d), reducing the available number of tokens by the first number of tokens.

6,744,763	Method and apparatus for media data transmission	Apple Computer, Inc.	Jones; Anne Geagan; Jay Gong; Kevin L. Periyannan; Alagu Singer; David W.	370	H04J	19980825	0	100%	<input type="checkbox"/>
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Abstract: The present invention relates to information which allows transmission of time related data over a data communication medium. In one embodiment, a set of data includes at least one instruction to cause a digital processing system to generate a set of packets representing a time related sequence of media data. The set of packets is associated with a transmission protocol. The set of data includes a time related sequence of data which is associated with the time related sequence of media data.

MainClaim: A computer readable medium containing media data and information which indicates how to transmit said media data from one digital processing system to another digital processing system, said computer readable medium comprising:

a first time related sequence of data; a second time related sequence of data comprising a hint track that indicates how to packetize said first time related sequence of data in a media file for transmission over a network according to a particular network transmission protocol, wherein said second time related sequence of data is associated with said first time related sequence of data.

2009/0119594	FAST AND EDITING-FRIENDLY SAMPLE ASSOCIATION METHOD FOR MULTIMEDIA FILE FORMATS	Nokia Corporation	Hannuksela; Miska	715	G06F	20081028	9	93%	<input type="checkbox"/>
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Abstract: Systems and methods for using sample numbers to pair timed metadata samples with media or hint samples is provided. A timed metadata sample can be paired with media or hint samples since a sample number contained in the time media sample is provided relative to the appropriate media or hint track. Additionally, an offset of sample numbers, applicable to scenarios where a plurality of timed metadata samples exist, may be added to the provided sample number to obtain the actual sample number within the media or hint track.

MainClaim: A method of organizing at least one of media and multimedia data in at least one file, comprising:storing a first sample, a first piece of data, a second sample, and a second piece of data in at least one file, the at least one of the media and multimedia data including the first and second samples, the first piece of data being associated with the first sample, and the second piece of data being associated with the second sample;associating a first sample number with the first sample;associating a second sample number with the second sample;including a sample number offset in the at least one file;including a first base sample number associated with the first piece of data in the at least one file, the first sample number being derivable from the sample number offset and the first base sample number; andincluding a second base sample number associated with the second piece of data in the at least one file, the second sample number being derivable from the sample number offset and the second base sample number.

2009/0177942	SYSTEMS AND METHODS FOR MEDIA CONTAINER FILE GENERATION	NOKIA CORPORATION	Hannuksela; Miska Matias Peltotalo; Jani	714	H03M	20090108	9	92%	<input type="checkbox"/>
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Abstract: A method includes organizing a first media source block in the media container file; calculating forward error correction (FEC) redundancy data based on the first media source block; organizing the FEC redundancy data in at least one FEC reservoir in the media container file; providing, in the media container file, meta data providing an association between the first media source block and the at least one FEC reservoir; storing the first media source block as a first elementary item in the media container file; and providing, in the media container file, information that the first elementary item comprises the first media source block

MainClaim: A method of generating a media container file, comprising:organizing a first media source block in the media container file;calculating forward error correction (FEC) redundancy data based on the first media source block;organizing the FEC redundancy data in at least one FEC reservoir in the media container file;providing, in the media container file, meta data providing an association between the first media source block and the at least one FEC reservoir;storing the first media source block as a first elementary item in the media container file; andproviding, in the media container file, information that the first elementary item comprises the first media source block.

2009/0055417	SEGMENTED METADATA AND INDEXES FOR STREAMED MULTIMEDIA DATA	NOKIA CORPORATION	Hannuksela; Miska M.	707	G06F	20080819	9	92%	<input type="checkbox"/>
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Abstract: A method of organizing streamed data includes storing streamed data in a file, identifying metadata applicable to a subset of the streamed data, and forming at least one group of one or more samples of the streamed data, each sample in a group having identical metadata content for a metadata type. The file may be in accordance with ISO base media file format. The storing streamed data in a file may include storing in a reception hint track. The at least one group may be indicated in a sample group description box. The metadata type may be indicated by a grouping type and grouping instance data, the grouping type specifying semantics of the grouping instance data and the metadata content. The metadata content may comprise a metadata payload and zero or more metadata payload extensions, where the metadata payload is included in a first structure and the zero or more metadata payload extensions are included in a second structure.

MainClaim: A method of organizing streamed data, comprising:storing streamed data in a file;identifying metadata applicable to a subset of the streamed data; andforming at least one group of one or more samples of the streamed data, each sample in a group having identical metadata content for a metadata type.

6,134,243	Method and apparatus for media data transmission	Apple Computer, Inc.	Jones; Anne Geagan; Jay Gong; Kevin L. Periyannan; Alagu Singer; David W.	370	H04J	19980825	0	100%	<input type="checkbox"/>
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Abstract: Methods and apparatuses for processing media data for transmission in a data communication medium. A set of data indicates how to transmit a time related sequence of media data according to a transmission protocol. The set of data, includes a time related sequence of data which is associated with the time related sequence of media data. The set of data may be utilized by a digital processing system to transmit the time related sequence of media data (e.g., by packets generated according to the transmission protocol and the set of data).

MainClaim: A computer readable medium comprising:

a time related sequence of media data;

a set of data which, when pressed by a digital processing system, indicates to said digital presences how to transmit said time related sequence of media data according to a transmission protocol, wherein said set of data is a time related sequence of data associated with and separate from said time related sequence of media data;

a first set of instructions to cause a digital processing system to determine a format of said time related sequence of media data;

a second set of instructions to cause said digital processing system to determine said transmission protocol, wherein said

transmission protocol comprises a packet data protocol.

2009/0119594	FAST AND EDITING-FRIENDLY SAMPLE ASSOCIATION METHOD FOR MULTIMEDIA FILE FORMATS	Nokia Corporation	Hannuksela; Miska	715	G06F	20081028	9	94%	<input type="checkbox"/>
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Abstract: Systems and methods for using sample numbers to pair timed metadata samples with media or hint samples is provided. A timed metadata sample can be paired with media or hint samples since a sample number contained in the time media sample is provided relative to the appropriate media or hint track. Additionally, an offset of sample numbers, applicable to scenarios where a plurality of timed metadata samples exist, may be added to the provided sample number to obtain the actual sample number within the media or hint track.

MainClaim: A method of organizing at least one of media and multimedia data in at least one file, comprising:storing a first sample, a first piece of data, a second sample, and a second piece of data in at least one file, the at least one of the media and multimedia data including the first and second samples, the first piece of data being associated with the first sample, and the second piece of data being associated with the second sample;associating a first sample number with the first sample;associating a second sample number with the second sample;including a sample number offset in the at least one file;including a first base sample number associated with the first piece of data in the at least one file, the first sample number being derivable from the sample number offset and the first base sample number; andincluding a second base sample number associated with the second piece of data in the at least one file, the second sample number being derivable from the sample number offset and the second base sample number.

2009/0177942	SYSTEMS AND METHODS FOR MEDIA CONTAINER FILE GENERATION	NOKIA CORPORATION	Hannuksela; Miska Matias Peltotalo; Jani	714	H03M	20090108	9	93%	<input type="checkbox"/>
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Abstract: A method includes organizing a first media source block in the media container file; calculating forward error correction (FEC) redundancy data based on the first media source block; organizing the FEC redundancy data in at least one FEC reservoir in the media container file; providing, in the media container file, meta data providing an association between the first media source block and the at least one FEC reservoir; storing the first media source block as a first elementary item in the media container file; and providing, in the media container file, information that the first elementary item comprises the first media source block

MainClaim: A method of generating a media container file, comprising:organizing a first media source block in the media container file;calculating forward error correction (FEC) redundancy data based on the first media source block;organizing the FEC redundancy data in at least one FEC reservoir in the media container file;providing, in the media container file, meta data providing an association between the first media source block and the at least one FEC reservoir;storing the first media source block as a first elementary item in the media container file; andproviding, in the media container file, information that the first elementary item comprises the first media source block.

2009/0055417	SEGMENTED METADATA AND INDEXES FOR STREAMED MULTIMEDIA DATA	NOKIA CORPORATION	Hannuksela; Miska M.	707	G06F	20080819	9	92%	<input type="checkbox"/>
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Abstract: A method of organizing streamed data includes storing streamed data in a file, identifying metadata applicable to a subset of the streamed data, and forming at least one group of one or more samples of the streamed data, each sample in a group having identical metadata content for a metadata type. The file may be in accordance with ISO base media file format. The storing streamed data in a file may include storing in a reception hint track. The at least one group may be indicated in a sample group description box. The metadata type may be indicated by a grouping type and grouping instance data, the grouping type specifying semantics of the grouping instance data and the metadata content. The metadata content may comprise a metadata payload and zero or more metadata payload extensions, where the metadata payload is included in a first structure and the zero or more metadata payload extensions are included in a second structure.

MainClaim: A method of organizing streamed data, comprising:storing streamed data in a file;identifying metadata applicable to a subset of the streamed data; andforming at least one group of one or more samples of the streamed data, each sample in a group having identical metadata content for a metadata type.

6,717,952	Method and apparatus for media data transmission	Apple Computer, Inc.	Jones; Anne Geagan; Jay Gong; Kevin L. Periyannan; Alagu Singer; David W.	370	H04J	20021114	0	100%	<input type="checkbox"/>
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Abstract: Methods and apparatuses for processing media data for transmission in a data communication medium. A set of data indicates how to transmit a time related sequence of media data according to a transmission protocol. The set of data, includes a time related sequence of data which is associated with the time related sequence of media data. The set of data may be utilized by a digital processing system to transmit the time related sequence of media data (e.g., by packets generated according to the transmission protocol and the set of data).

MainClaim: A method implemented by a digital processing system for processing media data, said method comprising:

creating on a first digital processing system a set of data to indicate how to packetize a time related sequence of media data for transmission according to defined packetizing characteristics, wherein said set of data varies with different packetizing characteristics; and

storing said set of data on a storage device coupled to the first digital processing system, wherein said set of data is a time related sequence of data associated with said time related sequence of media data.

2009/0119594	FAST AND EDITING-FRIENDLY SAMPLE ASSOCIATION METHOD FOR MULTIMEDIA FILE FORMATS	Nokia Corporation	Hannuksela; Miska	715	G06F	20081028	9	93%	<input type="checkbox"/>
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Abstract: Systems and methods for using sample numbers to pair timed metadata samples with media or hint samples is

provided. A timed metadata sample can be paired with media or hint samples since a sample number contained in the time media sample is provided relative to the appropriate media or hint track. Additionally, an offset of sample numbers, applicable to scenarios where a plurality of timed metadata samples exist, may be added to the provided sample number to obtain the actual sample number within the media or hint track.

MainClaim: A method of organizing at least one of media and multimedia data in at least one file, comprising:storing a first sample, a first piece of data, a second sample, and a second piece of data in at least one file, the at least one of the media and multimedia data including the first and second samples, the first piece of data being associated with the first sample, and the second piece of data being associated with the second sample;associating a first sample number with the first sample;associating a second sample number with the second sample;including a sample number offset in the at least one file;including a first base sample number associated with the first piece of data in the at least one file, the first sample number being derivable from the sample number offset and the first base sample number; andincluding a second base sample number associated with the second piece of data in the at least one file, the second sample number being derivable from the sample number offset and the second base sample number.

2009/0177942	SYSTEMS AND METHODS FOR MEDIA CONTAINER FILE GENERATION	NOKIA CORPORATION	Hannuksela; Miska Matias Peltotalo; Jani	714	H03M	20090108	9	92%	<input type="checkbox"/>
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Abstract: A method includes organizing a first media source block in the media container file; calculating forward error correction (FEC) redundancy data based on the first media source block; organizing the FEC redundancy data in at least one FEC reservoir in the media container file; providing, in the media container file, meta data providing an association between the first media source block and the at least one FEC reservoir; storing the first media source block as a first elementary item in the media container file; and providing, in the media container file, information that the first elementary item comprises the first media source block

MainClaim: A method of generating a media container file, comprising:organizing a first media source block in the media container file;calculating forward error correction (FEC) redundancy data based on the first media source block;organizing the FEC redundancy data in at least one FEC reservoir in the media container file;providing, in the media container file, meta data providing an association between the first media source block and the at least one FEC reservoir;storing the first media source block as a first elementary item in the media container file; andproviding, in the media container file, information that the first elementary item comprises the first media source block.

2009/0055417	SEGMENTED METADATA AND INDEXES FOR STREAMED MULTIMEDIA DATA	NOKIA CORPORATION	Hannuksela; Miska M.	707	G06F	20080819	9	92%	<input type="checkbox"/>
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Abstract: A method of organizing streamed data includes storing streamed data in a file, identifying metadata applicable to a subset of the streamed data, and forming at least one group of one or more samples of the streamed data, each sample in a group having identical metadata content for a metadata type. The file may be in accordance with ISO base media file format. The storing streamed data in a file may include storing in a reception hint track. The at least one group may be indicated in a sample group description box. The metadata type may be indicated by a grouping type and grouping instance data, the grouping type specifying semantics of the grouping instance data and the metadata content. The metadata content may comprise a metadata payload and zero or more metadata payload extensions, where the metadata payload is included in a first structure and the zero or more metadata payload extensions are included in a second structure.

MainClaim: A method of organizing streamed data, comprising:storing streamed data in a file;identifying metadata applicable to a subset of the streamed data; andforming at least one group of one or more samples of the streamed data, each sample in a group having identical metadata content for a metadata type.

6,512,778	Method and apparatus for media data transmission	Apple Computer, Inc.	Jones; Anne Geagan; Jay Gong; Kevin L. Periyannan; Alagu Singer; David W.	370	H04J	20000829	0	100%	<input type="checkbox"/>
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Abstract: Methods and apparatuses for processing media data for transmission in a data communication medium. A set of data indicates how to transmit a time related sequence of media data according to a transmission protocol. The set of data, includes a time related sequence of data which is associated with the time related sequence of media data. The set of data may be utilized by a digital processing system to transmit the time related sequence of media data (e.g., by packets generated according to the transmission protocol and the set of data).

MainClaim: A method implemented by a digital processing system for processing media data, said method comprising:

creating on a first digital processing system a set of data to indicate how to packetize a time related sequence of media data according to a particular network transmission protocol, wherein said set of data varies with different network transmission protocols; and

storing said set of data on a storage device coupled to the first digital processing system, wherein said set of data is a time related sequence of data associated with and separate from said time related sequence of media data.

2009/0119594	FAST AND EDITING-FRIENDLY SAMPLE ASSOCIATION METHOD FOR MULTIMEDIA FILE FORMATS	Nokia Corporation	Hannuksela; Miska	715	G06F	20081028	9	93%	<input type="checkbox"/>
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Abstract: Systems and methods for using sample numbers to pair timed metadata samples with media or hint samples is provided. A timed metadata sample can be paired with media or hint samples since a sample number contained in the time media sample is provided relative to the appropriate media or hint track. Additionally, an offset of sample numbers, applicable to scenarios where a plurality of timed metadata samples exist, may be added to the provided sample number to obtain the actual sample number within the media or hint track.

MainClaim: A method of organizing at least one of media and multimedia data in at least one file, comprising:storing a first sample, a first piece of data, a second sample, and a second piece of data in at least one file, the at least one of the media and multimedia data including the first and second samples, the first piece of data being associated with the first sample, and the second piece of data being associated with the second sample;associating a first sample number with the first sample;associating a second sample number with the second sample;including a sample number offset in the at least one

file;including a first base sample number associated with the first piece of data in the at least one file, the first sample number being derivable from the sample number offset and the first base sample number; andincluding a second base sample number associated with the second piece of data in the at least one file, the second sample number being derivable from the sample number offset and the second base sample number.

2009/0177942	SYSTEMS AND METHODS FOR MEDIA CONTAINER FILE GENERATION	NOKIA CORPORATION	Hannuksela; Miska Matias Peltotalo; Jani	714	H03M	20090108	9	92%	<input type="checkbox"/>
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Abstract: A method includes organizing a first media source block in the media container file; calculating forward error correction (FEC) redundancy data based on the first media source block; organizing the FEC redundancy data in at least one FEC reservoir in the media container file; providing, in the media container file, meta data providing an association between the first media source block and the at least one FEC reservoir; storing the first media source block as a first elementary item in the media container file; and providing, in the media container file, information that the first elementary item comprises the first media source block

MainClaim: A method of generating a media container file, comprising:organizing a first media source block in the media container file;calculating forward error correction (FEC) redundancy data based on the first media source block;organizing the FEC redundancy data in at least one FEC reservoir in the media container file;providing, in the media container file, meta data providing an association between the first media source block and the at least one FEC reservoir;storing the first media source block as a first elementary item in the media container file; andproviding, in the media container file, information that the first elementary item comprises the first media source block.

2009/0055417	SEGMENTED METADATA AND INDEXES FOR STREAMED MULTIMEDIA DATA	NOKIA CORPORATION	Hannuksela; Miska M.	707	G06F	20080819	9	92%	<input type="checkbox"/>
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Abstract: A method of organizing streamed data includes storing streamed data in a file, identifying metadata applicable to a subset of the streamed data, and forming at least one group of one or more samples of the streamed data, each sample in a group having identical metadata content for a metadata type. The file may be in accordance with ISO base media file format. The storing streamed data in a file may include storing in a reception hint track. The at least one group may be indicated in a sample group description box. The metadata type may be indicated by a grouping type and grouping instance data, the grouping type specifying semantics of the grouping instance data and the metadata content. The metadata content may comprise a metadata payload and zero or more metadata payload extensions, where the metadata payload is included in a first structure and the zero or more metadata payload extensions are included in a second structure.

MainClaim: A method of organizing streamed data, comprising:storing streamed data in a file;identifying metadata applicable to a subset of the streamed data; andforming at least one group of one or more samples of the streamed data, each sample in a group having identical metadata content for a metadata type.

6,714,984	Method and apparatus for media data transmission	Apple Computer, Inc.	Jones; Anne Geagan; Jay Gong; Kevin L. Periyannan; Alagu Singer; David W.	709	G06F	20020621	0	100%	<input type="checkbox"/>
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Abstract: Methods and apparatuses for processing media data transmitted in a data communication medium. A digital processing system is provided with a time related sequence of media data provided to the digital processing system based on a set of data, wherein the set of data indicates a method to transmit the time related sequence of media data according to a transmission protocol. The set of data, itself, is a time related sequence of data associated with the time related sequence of media data. The time related sequence of media data may be presented and/or stored by the digital processing system.

MainClaim: A machine readable medium containing executable program instructions, which when executed on a digital processing system cause the digital processing system to perform a method comprising:

retrieving at said digital processing system a time related sequence of media data which is received by said digital processing system based on a set of data, wherein said set of data indicates a method to transmit said time related sequence of media data to said digital processing system according to a transmission protocol, and wherein said set of data is a time related sequence of data associated with said time related sequence of media data; and

presenting at said digital processing system said time related sequence media data.

2009/0119594	FAST AND EDITING-FRIENDLY SAMPLE ASSOCIATION METHOD FOR MULTIMEDIA FILE FORMATS	Nokia Corporation	Hannuksela; Miska	715	G06F	20081028	9	93%	<input type="checkbox"/>
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Abstract: Systems and methods for using sample numbers to pair timed metadata samples with media or hint samples is provided. A timed metadata sample can be paired with media or hint samples since a sample number contained in the time media sample is provided relative to the appropriate media or hint track. Additionally, an offset of sample numbers, applicable to scenarios where a plurality of timed metadata samples exist, may be added to the provided sample number to obtain the actual sample number within the media or hint track.

MainClaim: A method of organizing at least one of media and multimedia data in at least one file, comprising:storing a first sample, a first piece of data, a second sample, and a second piece of data in at least one file, the at least one of the media and multimedia data including the first and second samples, the first piece of data being associated with the first sample, and the second piece of data being associated with the second sample;associating a first sample number with the first sample;associating a second sample number with the second sample;including a sample number offset in the at least one file;including a first base sample number associated with the first piece of data in the at least one file, the first sample number being derivable from the sample number offset and the first base sample number; andincluding a second base sample number associated with the second piece of data in the at least one file, the second sample number being derivable from the sample number offset and the second base sample number.

2009/0177942	SYSTEMS AND METHODS FOR MEDIA CONTAINER FILE GENERATION	NOKIA CORPORATION	Hannuksela; Miska Matias Peltotalo; Jani	714	H03M	20090108	9	92%	<input type="checkbox"/>
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Abstract: A method includes organizing a first media source block in the media container file; calculating forward error correction (FEC) redundancy data based on the first media source block; organizing the FEC redundancy data in at least one FEC reservoir in the media container file; providing, in the media container file, meta data providing an association between the first media source block and the at least one FEC reservoir; storing the first media source block as a first elementary item in the media container file; and providing, in the media container file, information that the first elementary item comprises the first media source block

MainClaim: A method of generating a media container file, comprising:organizing a first media source block in the media container file;calculating forward error correction (FEC) redundancy data based on the first media source block;organizing the FEC redundancy data in at least one FEC reservoir in the media container file;providing, in the media container file, meta data providing an association between the first media source block and the at least one FEC reservoir;storing the first media source block as a first elementary item in the media container file; andproviding, in the media container file, information that the first elementary item comprises the first media source block.

2009/0055417	SEGMENTED METADATA AND INDEXES FOR STREAMED MULTIMEDIA DATA	NOKIA CORPORATION	Hannuksela; Miska M.	707	G06F	20080819	9	92%	<input type="checkbox"/>
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Abstract: A method of organizing streamed data includes storing streamed data in a file, identifying metadata applicable to a subset of the streamed data, and forming at least one group of one or more samples of the streamed data, each sample in a group having identical metadata content for a metadata type. The file may be in accordance with ISO base media file format. The storing streamed data in a file may include storing in a reception hint track. The at least one group may be indicated in a sample group description box. The metadata type may be indicated by a grouping type and grouping instance data, the grouping type specifying semantics of the grouping instance data and the metadata content. The metadata content may comprise a metadata payload and zero or more metadata payload extensions, where the metadata payload is included in a first structure and the zero or more metadata payload extensions are included in a second structure.

MainClaim: A method of organizing streamed data, comprising:storing streamed data in a file;identifying metadata applicable to a subset of the streamed data; andforming at least one group of one or more samples of the streamed data, each sample in a group having identical metadata content for a metadata type.

5,841,989	System and method for efficiently routing data packets in a computer interconnect	Apple Computer, Inc.	James; David V. Stone; Glen D.	709	G06F	19960408	0	100%	<input type="checkbox"/>
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Abstract: A method and system for efficiently routing data packets in a computer interconnect includes a plurality of nodes forming a ringlet, generally including two connections between each pair of nodes configured to allow communication in either direction between each pair of nodes. One sequence of such connections forms a run moving, for example left-to-right between a series of nodes. The other sequence of connections forms a right-to-left run. Selected nodes are configured to provide two cross-over paths, each from one run to the other, so the two runs are linked to form a circle or ringlet. One or more selected nodes provide an optional connection between the two runs, thus allowing a fast path or short cut to the opposing run. A fast path may include a uni- or bidirectional cross through path in an intermediate node. In one preferred embodiment, a single node can provide both cross-over paths, but can also support a cross-between path for each run, allowing a packet to continue on the same run, rather than the default path that crosses over to the opposite run. The method and system includes data information in a packet that can be used to decide whether to switch the packet through a fast path or to let it continue on the "normal" path. Routing decisions are based on a path field within each packet. This field is updated when taking a faster path (for example, a cross-through or cross-between path). The update techniques allow data packet path lengths to be reduced, while also providing a packet-aging capability. A scrubber is provided to manage packet aging and to remove packets that have not been removed from the ringlet but are no longer useful.

MainClaim: A system for efficiently routing data packets, each of the data packets including data information, the system comprising:

a plurality of nodes forming a ringlet; at least one of the plurality of nodes including an optional data path forming a faster path between a first run and a second run in the ringlet for faster transmission of the data packets within the ringlet, and at least one of the plurality of nodes having a scrubber capable of being activated for responding to the data information of the data packets passing therethrough; and

means responsive to the data information within the one of the data packets and the location of the faster paths for reducing the length of the path traversed by the data packet within the ringlet.

2004/0146062	System and method for network card switchovers in an IP network	Nokia Inc.	Parikh, Vimal Gupta, Amar Ho, Chi Fai	370	H04L	20030127	1	92%	<input type="checkbox"/>
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Abstract: The system provides an IP network card that comprises a redundancy configuration register; an interface; and redundancy mapping logic. The redundancy configuration register stores card configuration data. The interface receives slot active signals from other cards. The redundancy mapping logic is communicatively coupled to the register and interface. The logic maps a packet to a slot having an active card based on the data in the register, an address in the packet, and received slot active signals.

MainClaim: A IP network switching system, comprising: a first egress IP network card connectable to a switching device; a second egress IP network card redundant to the first egress IP network card and connectable to the switching device; and an ingress IP network card connectable to the switching device and having hardware-based logic for determining which of the first egress IP network card or the second egress IP network card is active.

6,947,375	System and method for network card switchovers in an IP network	Nokia Inc.	Parikh; Vimal Gupta; Amar Ho; Chi Fai	370	H04L	20030127	1	92%	<input type="checkbox"/>
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Abstract: The system provides an IP network card that comprises a redundancy configuration register; an interface; and redundancy mapping logic. The redundancy configuration register stores card configuration data. The interface receives slot active signals from other cards. The redundancy mapping logic is communicatively coupled to the register and interface. The logic maps a packet to a slot having an active card based on the data in the register, an address in the packet, and received slot active signals.

MainClaim: A IP network switching system, comprising:

a first egress IP network card connectable to a switching device;

a second egress IP network card redundant to the first egress IP network card and connectable to the switching device; and

an ingress IP network card connectable to the switching device and having hardware-based logic for determining which of the first egress IP network card or the second egress IP network card is active;

wherein the ingress IP network card is further connectable to a network node and receives, from the network node, address information corresponding to one of the first or second egress IP network cards;

wherein the logic modifies the address information if the egress IP network card represented by the address information is inactive;

wherein the first egress IP network card is represented by a first address, the second egress IP network card is represented by a second address which differs from the first address by only the least significant bit, and wherein the logic modifies the address information by modifying only the least significant bit.

2009/0296569	Ring network and method for automatic protection switching	Nokia Siemens Networks GmbH & Co. KG	Ramalho Ribeiro Dos Santos; Jose Miguel De Frias Rebelo Nunes; Pedro Ricardo	370	G06F	20060515	1	92%	<input type="checkbox"/>
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Abstract: A method for automatic protection switching in a ring network detects a link failure at a first interface of a node, generates a first link down message and sends the first link down message along the second direction of the ring network. Upon generation or receipt of the first link down message by the redundancy manager, the redundancy manager is unblocked such that non-control frames of the at least one automatic protection switching domain are no longer blocked by the redundancy manager. Upon generation or receipt of the first link down message by one of the nodes, the node having at least one entry assigning an address to the second interface IF2, deletes only the entries in the forwarding database of the node which assign an address to the first interface of said node. Deleted entries are then updated in the forwarding database.

MainClaim: A method for automatic protection switching in a ring network, the ring network comprising at least one automatic protection switching domain and a plurality of nodes; each of the nodes comprising an address, a forwarding database, a first interface and a second interface; each of the nodes being arranged in the ring network such that the first interface faces a first direction and the second interface faces a second direction of the ring network; the forwarding database of each node comprising a plurality of entries; an entry of the forwarding database of a node assigning an address to one of the interfaces of said node; one of the nodes being a redundancy manager, which blocks during normal operation non-control frames of the at least one automatic protection switching domain, the method comprising the steps of: A) detecting a link failure at the first interface of a first one of the nodes; B) generating a first link down message by the first one of the nodes and sending said first link down message along the second direction of the ring network; C) upon generation or receipt of the first link down message by the redundancy manager, unblocking the redundancy manager such that non-control frames of the at least one automatic protection switching domain are no longer blocked by the redundancy manager; D) upon generation or receipt of the first link down message by one of the nodes, said node having at least one entry assigning an address to the second interface IF2, deleting only the entries in the forwarding database of said node which assign an address to the first interface of said node; and E) updating deleted entries in the forwarding database of the node mentioned in step D).

6,829,648	Method and apparatus for preparing media data for transmission	Apple Computer, Inc.	Jones; Anne Geagan; Jay Gong; Kevin L. Periyannan; Alagu Singer; David W.	709	G06F	19991223	0	100%	<input type="checkbox"/>
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Abstract: Methods and apparatuses for processing media data for transmission in a data communication medium. A set of data indicates how to transmit a time related sequence of media data according to a transmission protocol. The set of data, includes a time related sequence of data which is associated with the time related sequence of media data. The set of data may be utilized by a digital processing system to transmit the time related sequence of media data (e.g., by packets generated according to the transmission protocol and the set of data).

MainClaim: A method implemented by a digital processing system for processing media data, said method comprising:

retrieving from a digital storage system a set of data which indicates how to transmit a time related sequence of media data according to defined packetizing characteristics related to communications protocols, wherein said set of data is a time related sequence of data associated with said time related sequence of media data.

2009/0119594	FAST AND EDITING-FRIENDLY SAMPLE ASSOCIATION METHOD FOR MULTIMEDIA FILE FORMATS	Nokia Corporation	Hannuksela; Miska	715	G06F	20081028	9	93%	<input type="checkbox"/>
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Abstract: Systems and methods for using sample numbers to pair timed metadata samples with media or hint samples is provided. A timed metadata sample can be paired with media or hint samples since a sample number contained in the time media sample is provided relative to the appropriate media or hint track. Additionally, an offset of sample numbers, applicable to scenarios where a plurality of timed metadata samples exist, may be added to the provided sample number to obtain the actual sample number within the media or hint track.

MainClaim: A method of organizing at least one of media and multimedia data in at least one file, comprising: storing a first sample, a first piece of data, a second sample, and a second piece of data in at least one file, the at least one of the media and multimedia data including the first and second samples, the first piece of data being associated with the first sample, and the second piece of data being associated with the second sample; associating a first sample number with the first sample; associating a second sample number with the second sample; including a sample number offset in the at least one file; including a first base sample number associated with the first piece of data in the at least one file, the first sample number being derivable from the sample number offset and the first base sample number; and including a second base sample number

associated with the second piece of data in the at least one file, the second sample number being derivable from the sample number offset and the second base sample number.

2009/0177942	SYSTEMS AND METHODS FOR MEDIA CONTAINER FILE GENERATION	NOKIA CORPORATION	Hannuksela; Miska Matias Peltotalo; Jani	714	H03M	20090108	9	92%	<input type="checkbox"/>
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Abstract: A method includes organizing a first media source block in the media container file; calculating forward error correction (FEC) redundancy data based on the first media source block; organizing the FEC redundancy data in at least one FEC reservoir in the media container file; providing, in the media container file, meta data providing an association between the first media source block and the at least one FEC reservoir; storing the first media source block as a first elementary item in the media container file; and providing, in the media container file, information that the first elementary item comprises the first media source block

MainClaim: A method of generating a media container file, comprising:organizing a first media source block in the media container file;calculating forward error correction (FEC) redundancy data based on the first media source block;organizing the FEC redundancy data in at least one FEC reservoir in the media container file;providing, in the media container file, meta data providing an association between the first media source block and the at least one FEC reservoir;storing the first media source block as a first elementary item in the media container file; andproviding, in the media container file, information that the first elementary item comprises the first media source block.

2009/0055417	SEGMENTED METADATA AND INDEXES FOR STREAMED MULTIMEDIA DATA	NOKIA CORPORATION	Hannuksela; Miska M.	707	G06F	20080819	9	92%	<input type="checkbox"/>
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Abstract: A method of organizing streamed data includes storing streamed data in a file, identifying metadata applicable to a subset of the streamed data, and forming at least one group of one or more samples of the streamed data, each sample in a group having identical metadata content for a metadata type. The file may be in accordance with ISO base media file format. The storing streamed data in a file may include storing in a reception hint track. The at least one group may be indicated in a sample group description box. The metadata type may be indicated by a grouping type and grouping instance data, the grouping type specifying semantics of the grouping instance data and the metadata content. The metadata content may comprise a metadata payload and zero or more metadata payload extensions, where the metadata payload is included in a first structure and the zero or more metadata payload extensions are included in a second structure.

MainClaim: A method of organizing streamed data, comprising:storing streamed data in a file;identifying metadata applicable to a subset of the streamed data; andforming at least one group of one or more samples of the streamed data, each sample in a group having identical metadata content for a metadata type.

5,408,506	Distributed time synchronization system and method	Apple Computer, Inc.	Mincher; Richard W. Lynn; Kerry E.	375	H04L	19930709	0	100%	<input type="checkbox"/>
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Abstract: A distributed time synchronization system and method synchronizes nodes within a frequency hopping spread spectrum (FHSS) local area network (LAN) group to a virtual master clock value. Each node system of the present invention comprises a CPU, an input device, a display device, a printer or hard copy device, a given amount of RAM and ROM memory, a data storage device, a local clock, a transmitter/receiver, an antenna, a virtual master clock processor, and a common data bus. The method of the present invention comprises the inclusion of a node's local clock value in a message just prior to transmission over the network, storage of a node's local clock value in RAM after an incoming message has been received, and the calculation of the time delay between the sending node and the receiving node by the virtual master clock processor. The virtual master clock processor utilizes this time delay in maintaining a virtual master clock value, which it uses in adjusting the value of the node's local clock at periodic intervals. This synchronizes the receiving node to the virtual master clock value. If the magnitude of the time delay exceeds a maximum allowed value, the magnitude is clamped to the maximum allowed value, thereby maintaining synchronization within a predetermined tolerance. A node can receive a message transmitted over the FHSS LAN regardless of the message address. Synchronization is therefore maintained without requiring a node to be able to communicate with any specific node within the FHSS LAN group.

MainClaim: A distributed time synchronization system for a wireless communications network having a plurality of node systems, each node system comprising:

a display device for displaying information to the user, the display device having an input;

an input device for inputting information to the system, the input device having an output;

a local clock having an input and an output for providing a timing signal, the input of the local clock for receiving a signal to adjust the local clock;

a transmitter/receiver for receiving and translating radio signals into digital signals and for translating and transmitting digital signals into radio signals in response to digital control signals, the transmitter/receiver coupled to an antenna to receive and transmit radio signals, the transmitter/receiver having an input and an output for processing digital signals;

a virtual master clock processing means for calculating the value of a virtual master clock for the node system, the virtual master clock processing means coupled to the transmitter/receiver, the virtual master clock processing means extracting time synchronization information from each message received over the network during a predetermined time interval and using the synchronization information extracted from each message received to calculate the value of the virtual master clock;

a processing unit for adding synchronization information to each message sent by the transmitter/receiver, and for using the value of the virtual master clock to adjust the local clock, the processing unit having inputs and outputs coupled to the input device, the display device, the local clock, the transmitter/receiver and the virtual master clock processing means; and

a memory for storing data and routines, the memory having inputs and outputs, the memory including a first memory area storing a routine for sending messages with time synchronization information, a second memory area storing a routine for receiving messages and storing a local clock value corresponding to each message received, and a third memory area storing a routine for adjusting the local clock using extracted synchronization information, the first and second memory areas coupled to

the transmitter/receiver and the processing unit, and the third memory area coupled to the local clock and the virtual master clock processing means.

7,274,761	Device synchronisation over a network	Nokia Corporation	Muller; Thomas Joeressen; Olaf Schnitzler; Jurgen Schetelig; Markus	375	H04L	20010621	1	92%	<input type="checkbox"/>
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Abstract: A transceiver for operating in a network wherein the transceiver is arranged to synchronize to a time reference common to the network having distinguishable instances, the transceiver containing a controller for effecting the reading or writing of a real time clock at an identified instance of the common time reference; a transmitter for transmitting an identification of the real time clock value of a first instance and an identification of the first instance, and a receiver for receiving a transmitted identification of a real time clock value and an identification of a first instance.

MainClaim: A device comprising: a controller for reading a real time clock at an identified instance of a common time reference having distinguishable instances, wherein the device is arranged to synchronise to the common time reference; and a transmitter for transmitting, in a network comprising the device and at least one receiver, an identification of the real time clock value for a first instance and an identification of the first instance.

6,959,013	Communication network	Nokia Mobile Phones Limited	Müller; Thomas Joeressen; Olaf J. Schetelig; Markus	370	H04J	19990924	1	92%	<input type="checkbox"/>
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Abstract: A transmitter for transmitting an intermittent sequence of messages to maintain synchronization between the transmitter and a receiver. The transmitter includes control apparatus which provides messages for transmission, each message forms part of a sequence of messages and includes control information and timing information, and transmission apparatus which transmits each message. A receiver for synchronizing with a sequence of the transmitted messages. The receiver includes receiver and synchronization apparatus responsive, when enabled, to the control information in the message to indicate to the control apparatus reception of the message. The control apparatus controls power conservation by disabling the receiver and synchronization apparatus for a period of time dependent upon the timing information and enabling the receiver and synchronization apparatus to receive a following message in the sequence.

MainClaim: A transmitter for transmitting an intermittent sequence of messages to maintain synchronization between the transmitter and at least one receiver, comprising:

control means arranged to provide messages for transmission, each of said messages forming part of said sequence of messages and comprising control information for effecting synchronization, including timing information, wherein said timing information is dependent upon when the transmission of a following message in the sequence occurs; and

transmission means, responsive to said control means, for transmitting each of said messages,

wherein said sequence of messages comprises a sequence of groups of messages each of said groups of messages comprising a plurality of messages in series,

wherein said following message is a message in a following group,

wherein said following group is the next group, and

wherein said control means is arranged to vary the time between the transmission of a pair of successive groups of messages by an amount such that there is coincidence between the time of transmission of a message in the following group of the pair and the expected time of transmission, in the absence of a variation, of a message in the following group.

5,721,818	Method and system for enabling a file server to service multiple networks of the same network protocol family by invoking multiple instances of a network session protocol	Apple Computer, Inc.	Hanif; Mohammad Vierling; Michael Yanagihara; Kazuhisa	709	G06F	19960125	0	100%	<input type="checkbox"/>
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Abstract: A system and method for enabling a file server to service a plurality of physical networks, wherein each of the networks has a network protocol of the same type. The system and method comprises a single instance of a filing protocol, and an object-oriented class for implementing a session protocol. The system and method further comprises means for invoking a plurality of session protocol instances, where each one of the plurality of session protocol instances corresponds to one of the plurality of physical networks. Each one of the plurality of session protocol instances services the corresponding physical network and communicates with the single instance of the filing protocol, which enables the single instance of the filing protocol to service the plurality of physical networks.

MainClaim: A file server capable of servicing a plurality of physical networks of the same network protocol family, the file server comprising:

a single instance of a filing protocol; and

means for invoking a plurality of second protocol instances, each one of the plurality of second protocol instances corresponding to one of the plurality of physical networks, wherein each one of the plurality of second protocol instances services the corresponding physical network and communicates with a single instance of the filing protocol, which enables the single instance of the filing protocol to service the plurality of networks, wherein the second protocol is a session protocol.

7,472,177	System and method for selecting of versions for SNMP communication	Nokia Inc.	Bose; Vijayanti	709	G06F	20040623	1	92%	<input type="checkbox"/>
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Abstract: A system and method are directed towards enabling and/or disabling a selection of a version of a network management protocol, such as SNMP. When a networking system is configured using an earlier version of SNMP, such as version

1 or 2, and is to be reconfigured to employ a later version such as version 3, certain options are to be reconfigured. Such options for example, include usage of a community string. When the networking system is to be configured back to the earlier version, the options are again reconfigured. The present invention enables an administrator of the computing system to manage such changes, in part, by abstracting the switching details, without the need to track a progression of events. Moreover, a state of the versions is tracked, such that if the networking system is switched back to version 1 or 2, the last configured community string value is restored.

MainClaim: A method comprising: providing an interface configured to enable selecting from a plurality of versions of a network management protocol; using the interface to select a first version of the network management protocol from the plurality of versions; providing, through the interface, an option associated with the selected first version; inhibiting access within the interface to another option associated with another version of the network management protocol within the plurality of versions; and saving a configuration associated with the first version, wherein the configuration is based, in part, on a selection of the provided option.

7,320,029	Quality of service definition for data streams	Nokia Corporation	Rinne; Janne Petri Liljeberg; Mika Jouppi; Jarkko Juhani	709	G06F	20010629	6	92%	<input type="checkbox"/>
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Abstract: The invention relates to a device, system and method a method for applying a certain Quality of Service (QoS) to a data stream (31a 31c, 32a 32b, 33a) of an application (31 33) communicating data over a sockets connection. The method comprises providing a uniquely identifiable identifier (UID, Stream Type) the application (31 33) or to the data stream (31a 31c, 32a 32b, 33a) from or to the application, and associating said identifier (UID, Stream Type) with a particular QoS in order to apply the particular QoS to the particular application (31 33) or to the particular data stream (31a 31c, 32a 32b, 33a), which application or data stream is identified by the identifier.

MainClaim: A method comprising: providing a unique identifier (UID, Stream Type) to an application executing in a terminal device, the unique identifier uniquely identifying at least one of the application and the data stream from or to the application; providing the unique identifier in addition to a port number to a protocol stack in the terminal device; determining an association between said identifier and a particular Quality of Service (QoS) policy in the protocol stack using a database stored in said terminal device; determining in the protocol stack within the terminal device QoS parameters contained in the QoS policy; transmitting from said terminal device to the network the QoS parameters to be applied to the data stream from or to the application; and applying the (QoS) parameters to the data stream of the application communicating data over a sockets connection.

2004/0267910	Single-point management system for devices in a cluster	NOKIA INC.	Treppa, Basil Mittal, Ajay Koneru, Srikanth Xu, Laura Matai, Ajay	709	G06F	20030624	2	92%	<input type="checkbox"/>
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Abstract: The present invention provides cluster management from a single application. A user may perform management tasks on all of the devices within the cluster using a GUI or a CLI. The system automatically discovers the members of the cluster and acquires a configuration lock on the devices preventing other users from performing conflicting operations. If a problem occurs during a configuration, the devices may be rolled back to a previous working configuration. A message format is provided to help ensure message integrity beyond the security provided by a secure transport. An aggregator aggregates configuration information and motored data and allows the information to be presented according to a user's requirements.

MainClaim: A system for cluster management that allows the configuration and monitoring of a cluster from a single-point, comprising: a network interface configured to communicate with nodes in the cluster; a memory configured to store information relating to cluster management; a configuration subsystem coupled to a remote management broker, wherein the remote management broker is configured to distribute information between the nodes in the cluster; a processor configured to perform actions, including: accessing the cluster from the single-point; obtaining information relating to devices within the cluster; presenting the information to a user; and determining network management (NM) operations to perform to the cluster; and performing the determined NM operations.

5,898,876	Efficient arbitration within point-to-point ringlet-based computer systems	Apple Computer, Inc.	James; David V.	709	G06F	19970321	0	100%	<input type="checkbox"/>
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Abstract: A method and system for providing arbitration within a ringlet-type interconnect of a computer system are described. By providing different arbitration values as part of out-of-band information and introducing asymmetry at a scrubber node, fair allocation of interconnect bandwidth is achieved. The number of arbitration values can be extended from a basic set to provide additional functionality to handle specialized traffic situations.

MainClaim: A computer system comprising:

a plurality of nodes connected in a ring using a plurality of point-to-point links;

at least one forwarding device associated with each of said plurality of nodes for forwarding data packets and idle symbols via an associated one of said plurality of point-to-point links;

wherein said idle symbols include a field containing a first arbitration value; and

a scrubber associated with one of said plurality of nodes for performing maintenance functions associated with forwarding of said data packets and for converting said first arbitration value to a second arbitration value wherein said first arbitration value commands said plurality of nodes to stop sending said data packets and said second arbitration value permits said plurality of nodes to send one more of said data packets.

6,654,811	Backpressure arrangement in client-server environment	Nokia Inc.	Chaskar; Hemant M. Ravikanth; Rayadurgam Said; Inas Vaananen; Pasi Dimitrou; Eleftherios Turkia; Mikko	709	G06F	20000413	2	96%	<input type="checkbox"/>
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Abstract: A line interface card apparatus includes: a packet queue memory for storing packets; a physical layer having first and second buffers, the physical layer being connected to the packet queue memory by a data bus and being connected to a plurality of links; and a queue manager connected to the packet queue memory and to the physical layer by a control bus. Upon one of the plurality of links transmitting a request for data packets to the physical layer, the physical layer transmits the request via the control bus to the queue manager; the queue manager instructs the packet queue memory to transmit requested data packets to the physical layer via the data bus; each data packet is transmitted from the packet queue memory to the physical layer in one or more packet fragments which are stored in one of the first and second buffers, and upon all of the one or more packet fragments of one data packet being stored in one of the first and second buffers, the data packet is transmitted to the link transmitting the request for data packets.

MainClaim: A line interface card apparatus comprising:

a data bus;

a control bus;

a packet queue memory for storing a plurality of data packets;

a physical layer having first and second buffers, said physical layer being connected to said packet queue memory by said data bus and being adapted to be connected to a plurality of links to transmit data from said first and second physical layer buffers on the links;

a queue manager connected to said packet queue memory and to said physical layer by said control bus;

wherein, said queue manager is responsive to said physical layer transmitting to said queue manager via said control bus, a request for a first particular data packet, by instructing said packet queue memory to transfer the first particular data packet to said physical layer via said data bus, the first particular data packet being transferred from said packet queue memory to said physical layer in one or more packet fragments, the packet fragments being stored in one of said first and second buffers for transmission on the certain link, and upon the last fragment of the first particular data packet being transferred to the certain link said queue manager locates a new packet to be transferred to a link in response to a further request.

2007/0058649	Packet queuing system and method	NOKIA CORPORATION	Kytomaa; Jouni Peltonen; Janne K.	370	H04L	20050614	1	94%	<input type="checkbox"/>
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Abstract: There is disclosed a method of queuing packets received at an input to at least one device for processing, the method comprising the steps of: allocating each received packet to at least one arrival queue of the device; placing each packet in the allocated queue if said queue is not full, otherwise dropping said packet; scheduling packets from the device arrival queue to at least one transfer queue; responsive to transfer of a packet to a transfer queue, generating an interrupt from the device to a processor; at the processor, responsive to receipt of an interrupt, allocating the packet to one of a plurality of processor queues; placing the packet in the allocated processor queue if said queue is not full, otherwise dropping said packet; and scheduling packets from the processor queues for processing.

MainClaim: A method of queuing packets for processing, the method comprising the steps of: a. allocating each received packet to at least one arrival queue; b. placing each packet in the allocated queue if said queue is not full, otherwise dropping said packet; c. scheduling packets from the arrival queue to at least one transfer queue; d. responsive to transfer of a packet to a transfer queue, generating an interrupt; e. responsive to receipt of an interrupt, allocating the packet to one of a plurality of processor queues; f. placing the packet in the allocated processor queue if said queue is not full, otherwise dropping said packet; and g. scheduling packets from the processor queues for processing.

6,914,882	Method and apparatus for improved queuing	Nokia, Inc.	Merani; Lalit Bhat; Ravi Bail	370	H04B	20010330	1	92%	<input type="checkbox"/>
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Abstract: A queue scheduler that distributes a partition worth of bandwidth to a plurality of queues according to a weight assigned to each of the queues. The plurality of queues are arranged from a highest priority to a lowest priority. The queues are serviced by the scheduler until each of the corresponding weights is consumed for each queue. The higher priority queues are serviced before the lower priority queues.

MainClaim: An apparatus comprising:

a plurality of users;

resources that are partitioned according to a ranking of bandwidth associated with users, wherein the resources are partitioned according to a highest bandwidth supported by a node and an amount of bandwidth provided to each of the plurality of users is ranked from highest to lowest; and

a queue scheduler that

a) schedules one or more packets within the node during scheduling cycles, wherein each scheduling cycle is partitioned into regions that are coextensive with the highest bandwidth supported by the node and each schedule cycle is coextensive with a highest counting modulo partitions, and

b) services users associated with the highest bandwidth in at least one partition during each scheduling cycle and services consecutive bandwidth partitions of user associated with lower bandwidths across several cycles, wherein a number of scheduling cycles between servicing of consecutive bandwidth partitions increases as the bandwidth associated with the user decreases and the partition spacing for servicing a lower bandwidth user is determined by multiplying a number of lower bandwidth users that can be serviced by the next highest bandwidth by a partition modulo of the next highest bandwidth.

6,862,627	Method and system for preventing a timeout from reaching a network host	Apple Computer, Inc.	Cheshire; Stuart David	709	G06F	20001212	0	100%	<input type="checkbox"/>
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Abstract: A method and system for preventing a timeout from reaching a network host when bringing up a down link that is

slow to waken. The method generally comprises receiving a request to access an information. If a link along a path to a remote computer containing the information is down, the link is established while concurrently returning a plurality of imposter responses, such as domain names, until the network link is established. Software implementing this method may be stored and executed in any network host. This method is particularly advantageous when waiting for a dial-up telephone connection to a network to be established.

MainClaim: A method comprising:

receiving from a requester a request to access an information;

if a link to a first remote computer containing the information is down, establishing the link while concurrently returning a plurality of imposter responses, which comprise a plurality of imposter domain names that allows the requester to send a request for each of the plurality of the imposter responses to make a communication to the first remote computer appear as uninterrupted and to prevent a timeout to reach the requester, until the link is established, wherein returning the plurality of imposter domain names comprises appending a text string to the domain name to create a current imposter domain name that is one of the plurality of imposter domain names: and instructing the requester that the domain name is an alias for the current imposter domain name.

2004/0267837	System and method for updating network appliances using urgent update notifications	Nokia Inc.	Wang, Bing Lee, Anson Albertao, Felipe Card, James Scott, Robert P.	707	G06F	20030630	1	96%	<input type="checkbox"/>
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Abstract: The invention provides a system and method for updating network appliances using urgent update notifications. The network appliances periodically initiates connection to "poll" updates from the update server and the update server collects IP addresses from the connections and updates an IP address log. The update server obtains updates for the network appliances and determines whether a particular update is urgent. When an urgent update is available, the server delivers an urgent update notification (UUN) to each known network appliance through an existing port used for messaging. Each network appliance receives the UUN and distinguishes it from other messages. In response to the UUN, each network appliance automatically connects to the server, obtains the urgent update and installs the urgent update.

MainClaim: A method for updating network appliances, comprising: determining an urgent update; creating an urgent update notification (UUN) associated with the urgent update; sending the UUN to the network appliances as messages; and providing the urgent update to the network appliances.

6,941,478	System and method for providing exploit protection with message tracking	Nokia, Inc.	Card; James Smith; Gregory J.	713	G06F	20021211	2	94%	<input type="checkbox"/>
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Abstract: A method and system for providing protection from exploits to devices connected to a network. The system and method include a component for determining whether an encapsulation has been applied to an attachment associated with a message and unencapsulating such encapsulated attachment, and a component that performs at least one decompression of the attachment when the attachment is compressed. If it is determined that the message, including the attachment, is to be scanned, a component is included that determines whether a header, body, and/or attachment of the message includes exploits. A device that receives messages that are directed to the network employs the components above to provide exploit protection for at least one of the messages.

MainClaim: A system for providing protection from an exploit to a device connected to a network, comprising:

a content filter that receives a message that is directed to the device;

a message tracker that is coupled to the content filter and is configured to perform actions, including:

determining a size of a message component associated with the message;

if the size is less than or equal to a pre-determined size; identifying the message as unscanned;

if the size exceeds the pre-determined size, then:

determining a first value associated with the message, and if the first value is the same as a stored second value associated with the message, identifying the message as a scanned message;

if the size exceeds the pre-determined size, then:

determining the first value associated with the message, and if the first value is different from the stored second value, identifying the message as unscanned; and

a scanner component that is coupled to the message tracker and that is configured to receive the unscanned message and to determine whether at least one element of the message includes an exploit.

7,134,142	System and method for providing exploit protection for networks	Nokia Inc.	Smith; Gregory J.	726	H04L	20020412	1	94%	<input type="checkbox"/>
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Abstract: A method and system for providing protection from exploits to devices connected to a network. The system and method include a component for determining whether an encapsulation has been applied to an attachment and unencapsulating such encapsulated attachments, a component that performs at least one decompression of the attachment when the attachment is compressed, a component that determines whether a header, body, and/or attachment of a message includes an exploit, and a component that holds and optionally cleans messages that include exploits. A device that receives messages that are directed to the network employs the components above to provide exploit protection for at least one of the messages.

MainClaim: A system for providing protection from exploits to devices connected to a network, comprising: (a) a content filter

that receives a message that is directed to at least one of the devices and that includes a header, a body, and an attachment, wherein the content filter determines an encapsulation that has been applied to the attachment prior to the system receiving the message and unencapsulates the attachment; (b) a decompression component that is coupled to the content filter and that performs at least one decompression of the attachment when the attachment is compressed; (c) a scanner component that is coupled to the decompression component and that determines whether the header includes an exploit, wherein exploit protection software from at least two vendors is employed and wherein the header includes a field having a defined size and the scanner determines that the header includes the exploit when a size of data in the field is other than the defined size; (d) a quarantine component that is coupled to the scanner component and that holds the message when the message includes an exploit; and (e) a device that receives messages that are directed to the network and that employs at least the scanner component to provide exploit protection for at least one of the messages.

7,321,933	Method and system for preventing a timeout from reaching a network host	Apple Inc.	Cheshire; Stuart David	709	G06F	20050120	0	100%	<input checked="" type="checkbox"/>
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Abstract: A method and system for preventing a timeout from reaching a network host when bringing up a down link that is slow to waken. The method generally comprises receiving a request to access an information. If a link along a path to a remote computer containing the information is down, the link is established while concurrently returning a plurality of imposter responses, such as domain names, until the network link is established. Software implementing this method may be stored and executed in any network host. This method is particularly advantageous when waiting for a dial-up telephone connection to a network to be established.

MainClaim: A method of execution of computer readable instructions by a processor comprising: receiving a first request to access an information on a remote computer identified by a domain name; if a link to the remote computer containing the information is down, establishing the link while sending one or more imposter domain names until the link is established.

2009/0129301	Configuring a user device to remotely access a private network	Nokia Corporation and Recordation	Belimpasakis; Petros	370	H04B	20071115	1	92%	<input type="checkbox"/>
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Abstract: Configuring a mobile device to remotely access a private network involves determining, via the private network, first network parameters that enable the mobile device utilize to a computing service of the private network. The device also determines, via a gateway coupled to the private network, second network parameters that allow the mobile to utilize the computing service via a public network. The first and second network parameters are stored on the mobile device. A request is received from a user of the mobile device to access the computing service. It is determined that the mobile device is not on the private network. In response to determining that the mobile device is not on the private network, the second network parameters are utilized to access the computing service via the gateway in response to the request.

MainClaim: An apparatus comprising: at least one network interface, memory, and a processor coupled to the memory and the network interface, wherein the memory stores instructions that causes the processor to: while on the private network: determine first network parameters that enable the apparatus to utilize a computing service of the private network; determine, from a gateway coupled to the private network and the public network, second network parameters that allow the apparatus to utilize the computing service via the public network, wherein the gateway selectively blocks connection attempts from the public network to the private network; and while on the public network: receive a request from the user interface to access the computing service; determine that the apparatus is not on the private network; and utilize the second network parameters to access the computing service via the gateway in response to determining that the apparatus is not on the private network.

6,141,677	Method and system for assigning threads to active sessions	Apple Computer, Inc.	Hanif; Mohammad I Yanagihara; Kazuhisa	718	G06G	19951013	0	100%	<input checked="" type="checkbox"/>
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Abstract: A method and system for processing active AFP sessions by a multithreaded file system process. The file server is coupled to entities on a network, wherein an open AFP session is created when the file server and an entity on the network establish communication, and an active AFP session is created when an AFP session has a pending request. The method and system comprises monitoring the file server for active AFP sessions. When a first active AFP session having at least one AFP request becomes available, the method and system assigns a first one of the threads to the first active AFP session for processing. The method and system preempts the processing of the first active AFP session by the first one of the threads when additional active AFP sessions are available so that the first one of the threads becomes available to process additional active AFP sessions, whereby equal processing time is provided to each one of the active AFP sessions.

MainClaim: A method for processing active sessions by a file system process, wherein a file server is coupled to entities on a network and an open session is created when the file server and an entity on the network establish communication, and wherein an active session is created when an open session has a pending request, the method comprising the steps of:

- (a) monitoring the file server for active sessions;
- (b) assigning a first one of the threads to a first active session having at least one request for processing the first active session;
- (c) preempting the processing of the first active session by the first one of the threads, prior to the complete processing of the first active session, when additional active sessions are available; and
- (d) assigning the first one of the threads to each of the active sessions in a round robin fashion to process one or more requests of each one of the active sessions, whereby equal processing time is provided to each one of the active sessions.

2004/0215578	Controlling usage of system resources by a network manager	Nokia, Inc.	Das, Debashis	705	H04L	20030409	2	93%	<input type="checkbox"/>
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Abstract: The aspects of the present invention manage an allocation of resources for network devices in a networked system. With an aspect of the invention, a usage of a resource is gauged by a number of tokens that are associated with an action for a designated network device. The action is assigned at least one thread, where a thread corresponds to a process that supports the action. As requested, processes are initiated when an available number of tokens in a token pool can support the action. A request is stored in a request queue if a required number of tokens or threads are not available. The associated action for the designated network device is subsequently initiated when the required number of tokens and threads are available. When an action for a device completes, the assigned tokens and threads are released for reassignment in order to initiate an action for another device.

MainClaim: A method for controlling a system resource, the method comprising: (a) receiving a first request to initiate a first action for a first network device; (b) determining a first required number of tokens that is necessary to execute the first action, wherein the first required number of tokens corresponds to a first usage of the system resource that is allocated to execute the first action; (c) determining an available number of tokens remaining in a token pool; (d) if the available number of tokens is as great as the first required number of tokens, initiating the first action for the first network device; and (e) in response to (d), reducing the available number of tokens by the first number of tokens.

6,725,278	Smart synchronization of computer system time clock based on network connection modes	Apple Computer, Inc.	Gonzalez; Julio A.	709	G06F	19980917	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus are provided for performing synchronization of a time clock maintained by a computer system based on the network connection modes of the computer system. The technique allows the time clock of the computer system to be synchronized at the earliest opportunity that will not result in a disruption or inconvenience to the user. When synchronization of the time clock is required, and the computer system does not already have an active network connection, the computer system queries a configuration database to determine its default network connection mode. If the default connection mode is potentially user disruptive (e.g., use of a dial out modem is required), synchronization of the time clock is not performed until an active network connection has been established. If the default connection mode is not likely to be user-disruptive (e.g., doesn't require a modem connection), then a network connection is immediately established to synchronize the time clock.

MainClaim: A method of controlling synchronization of a clock maintained by a processing system, the method comprising:

determining whether a network connection mode of the processing system is user transparent;

if the network connection mode is determined not to be user transparent, then accessing a network to synchronize the clock only when the processing system has an active connection to the network; and

if the connection mode is determined to be user transparent, then establishing an active connection to the network to synchronize the clock when the processor system does not have an active connection to the network.

2005/0289228	System and method for managing a change to a cluster configuration	Nokia Inc.	Srikanth, Koneru Karlekar, Kripakaran	709	G06F	20040625	1	92%	<input type="checkbox"/>
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Abstract: An apparatus and method are directed to managing a configuration of a cluster of members. The invention employs an atomic cluster configuration approach that includes applying a change to the configuration uniformly across the members in the cluster. Each member within the cluster is initialized to a transaction mode. If all members are in the transaction mode, a change is provided to each member, which evaluates the received change. If the change is determined to be unacceptable for any of the members, the change is determined to be globally unacceptable, and is rejected for all the members in the cluster.

MainClaim: A method for managing a configuration change to a cluster, comprising: receiving the configuration change; sending the configuration change to each member of the cluster; determining if the configuration change is unacceptable by any member of the cluster, and if it is determined that the configuration change is unacceptable by any member of the cluster, directing each cluster member to disregard the configuration change; and if each member of the cluster indicates that the configuration change is acceptable, directing each member of the cluster to apply the configuration change.

7,436,783	Method and apparatus for detecting a router that improperly responds to ARP requests	Apple Inc.	Cheshire; Stuart D. Graessley; Joshua V.	370	H04L	20050404	0	100%	<input type="checkbox"/>
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Abstract: One embodiment of the present invention provides a system that detects a non-compliant router that incorrectly responds to all address-resolution-protocol (ARP) requests, including ARP requests for link-local IP addresses. This is accomplished by sending an ARP request asking for an Ethernet address associated with a link-local IP address, wherein the link-local IP address is a reserved link-local IP address, which should not be assigned to any device. If a response is received to the ARP request, the system determines that the response was sent by a non-compliant router that incorrectly responds to all ARP requests, including ARP requests for link-local IP addresses.

MainClaim: A method for detecting a device that incorrectly responds to address-resolution-protocol (ARP) requests, comprising: sending an ARP probe for a link-local address; when a response is received to the ARP probe, sending an ARP request to the responding device asking for an Ethernet address associated with a reserved IP address, wherein the reserved IP address is an IPv4 link-local broadcast address 169.254.255.255 or an IPv4 link-local address 169.254.0.0, which should not be assigned to any device; and if a response is received from the device to the ARP request, placing the address of the device on a black list associated with a range of link-local IP addresses; and ignoring subsequent ARP responses from source addresses in the black list for the link-local address range, so that subsequent ARP responses pertaining to that address range from the device will be ignored.

2007/0058606	Routing data packets from a multihomed host	Nokia Corporation	Koskelainen; Juha	370	H04L	20051115	2	94%	<input type="checkbox"/>
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Abstract: The invention allows routing data packets from a multihomed host. A default gateway is associated with each of network addresses associated with the multihomed host. One of the associated network addresses is assigned to a data packet to be sent from the multihomed host as its source address. A routing table of the multihomed host is searched for a route matching a destination address of the data packet. It is determined, in response to one of no route found and the found route being a default route of the routing table, which of the default gateways is associated with the assigned source address, and the data packet is dispatched to this determined default gateway.

MainClaim: A method of routing data packets from a multihomed host, the method comprising: assigning a source address to a data packet to be sent from said multihomed host, said multihomed host having at least two associated network addresses, a default gateway associated with each of said at least two associated network addresses, and said source address being one of said at least two associated network addresses; determining a destination address of said data packet; searching a routing table of said multihomed host for a route for said data packet, said route to match said destination address of said data packet; examining results of said searching; and in response to one of no route found and a found route being a default route of said routing table: determining a default gateway associated with said assigned source address, and dispatching said data packet to said default gateway associated with said assigned source address.

2008/0144532	Address resolution request mirroring	Nokia Corporation	Chamarajanagar; Raveendra Hunt; Peter Kimble; Scott Nguyen; Tuyen	370	H04L	20061215	2	93%	<input type="checkbox"/>
<p>Abstract: Address Resolution Protocol (ARP) request mirroring can provide a mechanism for synchronizing link-layer adjacency information among network elements. This application can be useful, for example, for internet protocol (IP) routing network elements in a high-availability configuration.</p> <p>MainClaim: A method, comprising:receiving an address resolution request from an active node;transmitting a second request mirroring the request when the request meets a predetermined condition;updating an address resolution cache based on information in the request; andassuming responsibilities of the active node when the active node fails.</p>									
2008/0144634	Selective passive address resolution learning	Nokia Corporation	Chamarajanagar; Raveendra Hunt; Peter Kimble; Scott Nguyen; Tuyen Rashiya many; Giritharan	370	H04L	20061215	2	92%	<input type="checkbox"/>
<p>Abstract: Selective passive address resolution protocol (ARP) learning can provide a passive mechanism to synchronize link layer adjacency information among network elements. Selective passive ARP learning can be implemented by a modification to the ARP requests processing of the standby node, with a filter list containing a set of match rules for target network addresses. The implementation, thus, can be a configurable filter that enables software modules to specify a set of internet protocol (IP) addresses that the ARP input engine should monitor.</p> <p>MainClaim: A method, comprising:receiving an address resolution request from a neighbor node of an active node;updating an address resolution cache based on information in the request when the request meets a predetermined condition; andassuming responsibilities of the active node when the active node fails.</p>									
5,509,126	Method and apparatus for a dynamic, multi-speed bus architecture having a scalable interface	Apple Computer, Inc.	Oprescu; Florin Teener; Michael D.	710	B06F	19930316	0	100%	<input type="checkbox"/>
<p>Abstract: A dynamic, multi-speed bus architecture comprising a plurality of variable speed, fixed size links for coupling a plurality of devices together in an arbitrary network arrangement in which each device coupled to the bus comprises a novel communications node having a scalable interface for enabling the local hosts of the devices to communicate via the multi-speed bus. The interface provided within each node comprises a first module and a second module interconnected via a fixed speed, variable size bus. The first module is coupled to the local host of a device via a fixed speed, fixed size bus for converting a first data packet received from the local host into a second data packet of an appropriate form for transmission on the fixed speed, variable size bus disposed between the two modules. The second module receives the second data packet and converts it into a third data packet of an appropriate form for transmission onto the variable speed, fixed size link coupling the device to the multi-speed bus. The first and second modules further perform the same conversions in reverse so as to provide for reception of data packets transferred on the multi-speed bus. With such a design of the interface disposed between the link of the multi-speed bus and the local host of each device, it is possible to provide the components for performing the data packet transfer conversions necessary to realize a true dynamic, multi-speed bus in addition to providing a truly scalable architecture having upward compatibility with future devices.</p> <p>MainClaim: A method for transferring fixed size, variable length data packets from a first node to a second node via a variable speed, fixed size link forming a multi-speed bus, the first node coupled to a first device comprising a local host for managing the operations of the first device, the method comprising:</p> <p>transferring a fixed size, variable length first data packet generated by the local host of the first device to a first module via a fixed speed, fixed size first bus, the first module comprising a first converter;</p> <p>converting the first data packet into a variable size, variable length second data packet;</p> <p>transferring the second data packet from the first module onto a fixed speed, variable size second bus;</p> <p>supplying the second data packet from the second bus as input to a second module, the second module comprising a second converter and a port connecting the second module to the link;</p> <p>converting the second data packet into a fixed size, variable length third data packet;</p> <p>transferring the third data packet to the second node via the link.</p>									
2006/0184710	Bridge between a single channel high speed bus and a multiple channel low speed bus	Nokia Inc.	Valdivia; David A. Karuppampalayam; Jayagopal Lappin; James B. JR.	710	G06F	20050217	2	93%	<input type="checkbox"/>
<p>Abstract: An apparatus for enabling communication between components in a network device includes a network processor providing data signals based on a PLx format; a multiport I/O controller having an IX bus interface and a plurality of MAC layer interfaces; and a bridge for bi-directionally converting the streaming data from the network processor to the I/O controller.</p> <p>MainClaim: An apparatus for enabling communication between components in a network device, comprising: a network processor providing data signals based on a PLx format; a multiport I/O controller having an IX bus interface and a plurality of MAC layer interfaces; and a bridge for bi-directionally converting the streaming data from the network processor to the I/O controller.</p>									
	Method and apparatus for transmitting and		Mullins; Jeffery L.						

5,404,374	receiving encoded data using multiple frequency coding	Apple Computer, Inc.	Geiger; Edward W.	375	H04K	19930712	0	100%	<input type="checkbox"/>
<p>Abstract: In a communication system including a plurality of networked stations that communicate using a slow frequency hopping system, a method for encoding a packet of data in a transmitting station and decoding the data in a receiving station. In the transmitting station, the packet is divided into data segments. Error correction segments are added to correct the data segments. The segments are fragmented into a series of fragments, and a data error control field is calculated for each fragment and appended thereto. The data units including the segments are transmitted, and in a receiving station all or a portion of the bursts are received. The DEC field for each received fragment is calculated and compared with the received DEC field to determine whether each fragment is good or bad. If there are a sufficient number of fragments in each column, then the data can be reconstructed.</p> <p>MainClaim: In a communication system for networking a plurality of stations, each of which includes a transmitter and a receiver, a method for encoding a packet of data supplied by a Medium Access Control ("MAC") layer in a transmitting station that transmits said data in a series of N bursts and decoding received data units in a receiving station that receives at least one of said bursts, said method comprising the steps of:</p> <p>(a) in said transmitting station, forming said packet into at least one data segment having a first data byte unit and a second data byte unit;</p> <p>(b) forming an error correction (EC) segment from said data segment, said EC segment having a first EC byte unit that corrects errors in said first data byte unit and a second EC byte unit that corrects errors in the second data byte unit;</p> <p>(c) fragmenting each of said data segment and EC segment into a plurality of fragments;</p> <p>(d) for each fragment, calculating a data error control (DEC) field and including said DEC field in the segment associated with said fragment so that each segment together with its associated DEC fields defines a data unit ("DU");</p> <p>(e) transmitting said DUs in a series of N bursts;</p> <p>(f) receiving at least one of said bursts in a receiving station;</p> <p>(g) utilizing the DEC field to mark each fragment in said received bursts as one of good and bad; and</p> <p>(h) defining a plurality of fragment columns, each fragment column defined to include a fragment from each of said N bursts, and, for each of said fragment columns, totaling a number of good fragments, and if said number of good fragments is greater than a number (N-e) that is the minimum number of fragments necessary to reconstruct the data in the fragments of each column, then reconstructing the packet.</p>									
7,324,549	Synchronisation communication systems	Nokia Corporation	Addy; Tim Vainikka; Markku Viero; Timo Brockington; William Vahataini; Markku	370	H04J	20030305	3	95%	<input type="checkbox"/>
<p>Abstract: A method and apparatus of transmitting data at a line rate to a bus operating at a bus rate includes transmitting the data in a packet format having a plurality of frames each having a plurality of time slots. Each time slot has successive message groups, and each message group includes a plurality of data messages containing the data and an idle code containing none of the data. A number of idle codes in each frame is selected such that the bus rate matches the line rate. Various communication buses, and methods of synchronizing data are implemented.</p> <p>MainClaim: A method of transmitting data at a line rate to a bus operating at a bus rate, the method comprising transmitting the data in a packet format consisting of a plurality of frames each having a plurality of time slots, each time slot having successive message groups, wherein each message group comprises a plurality of data messages containing said data and an idle code containing no said data; wherein the number of idle codes in each frame is selected so that the bus rate matches the line rate.</p>									
7,280,524	Receiver controlled isochronous transmission	Nokia Corporation	Muller; Thomas Schnitzler; Jurgen	370	G06F	20010112	1	94%	<input type="checkbox"/>
<p>Abstract: A Bluetooth radio transceiver, for receiving isochronous data, comprising: receiving means for receiving data; determining mean for determining whether the received data has been correctly or incorrectly received; validation means for determining whether the received data is current; and transmission means, in response to received data, a positive acknowledgement of reception when the received data has been correctly received, a negative acknowledgement when the received data has been incorrectly received and the received data is current and a positive acknowledgement when the received data has been incorrectly received and the received data is not current. The determination of whether data is current occurs at the receiver as opposed to the transmitter.</p> <p>MainClaim: A radio transceiver, for receiving data, comprising: receiving means for receiving data; determining means for determining whether the received data has been correctly or incorrectly received; validation means for determining whether the received data is current; transmission means, in response to the received data, a positive acknowledgement of reception when the received data has been correctly received, a negative acknowledgement when the received data has been incorrectly received and the received data is current and a positive acknowledgement when the received data has been incorrectly received and the received data is not current.</p>									
2007/0263708	Receiver Controlled Isochronous Transmission	NOKIA CORPORATION	Muller; Thomas Schnitzler; Jurgen	375	H04B	20070608	1	94%	<input type="checkbox"/>
<p>Abstract: A Bluetooth radio transceiver, for receiving isochronous data, comprising: receiving means for receiving data; determining means for determining whether the received data has been correctly or incorrectly received; validation means for determining whether the received data is current; and transmission means, in response to received data, a</p>									

positive acknowledgement of reception when the received data has been correctly received, a negative acknowledgement when the received data has been incorrectly received and the received data is current and a positive acknowledgement when the received data has been incorrectly received and the received data is not current is described. The determination of whether data is current occurs at the receiver as opposed to the transmitter.

MainClaim: An apparatus comprising: a receiving component configured to receive data; a determining component configured to determine whether the received data has been correctly or incorrectly received; a validation component configured to determine whether the received data satisfies a condition; a transmission component, configured to transmit, in response to the received data, a positive acknowledgement of reception when the received data has been correctly received, a negative acknowledgement when the received data has been incorrectly received and the received data satisfies the condition, and a positive acknowledgement when the received data has been incorrectly received and the received data does not satisfy the condition.

7,624,021	Universal container for audio data	Apple Inc.	Stewart; William G. McCartney; James E. Wyatt; Douglas S.	704	G10L	20040702	0	100%	<input type="checkbox"/>
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Abstract: Storing audio data encoded in any of a plurality of different audio encoding formats is enabled by parametrically defining the underlying format in which the audio data is encoded, in audio format and packet table chunks. A flag can be used to manage storage of the size of the audio data portion of the file, such that premature termination of an audio recording session does not result in an unreadable corrupted file. This capability can be enabled by initially setting the flag to a value that does not correspond to a valid audio data size and that indicates that the last chunk in the file contains the audio data. State information for the audio data, to effectively denote a version of the file, and a dependency indicator for dependent metadata, may be maintained, where the dependency indicator indicates the state of the audio data on which the metadata is dependent.

MainClaim: A method for handling audio information, comprising: storing a set of chunks in a single audio file, wherein said set of chunks includes an audio data chunk and a plurality of metadata chunks; wherein each chunk of said set of chunks includes metadata indicating a chunk size; storing, as part of said single audio file, a flag that initially is in a first state to indicate that a last chunk in said single audio file is said audio data chunk that contains audio data; while parsing said single audio file, a computing device performing the steps of determining whether said flag is in said first state; and if said flag is in said first state, then determining a size for said audio data chunk based on a file size of said single audio file and a starting position of said last chunk in said single audio file; and if said flag is not in said first state, then determining a size for said audio data chunk by reading audio data chunk size information stored in said single audio file.

2009/0119594	FAST AND EDITING-FRIENDLY SAMPLE ASSOCIATION METHOD FOR MULTIMEDIA FILE FORMATS	Nokia Corporation	Hannuksela; Miska	715	G06F	20081028	9	93%	<input type="checkbox"/>
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Abstract: Systems and methods for using sample numbers to pair timed metadata samples with media or hint samples is provided. A timed metadata sample can be paired with media or hint samples since a sample number contained in the time media sample is provided relative to the appropriate media or hint track. Additionally, an offset of sample numbers, applicable to scenarios where a plurality of timed metadata samples exist, may be added to the provided sample number to obtain the actual sample number within the media or hint track.

MainClaim: A method of organizing at least one of media and multimedia data in at least one file, comprising:storing a first sample, a first piece of data, a second sample, and a second piece of data in at least one file, the at least one of the media and multimedia data including the first and second samples, the first piece of data being associated with the first sample, and the second piece of data being associated with the second sample;associating a first sample number with the first sample;associating a second sample number with the second sample;including a sample number offset in the at least one file;including a first base sample number associated with the first piece of data in the at least one file, the first sample number being derivable from the sample number offset and the first base sample number; andincluding a second base sample number associated with the second piece of data in the at least one file, the second sample number being derivable from the sample number offset and the second base sample number.

2009/0055417	SEGMENTED METADATA AND INDEXES FOR STREAMED MULTIMEDIA DATA	NOKIA CORPORATION	Hannuksela; Miska M.	707	G06F	20080819	9	93%	<input type="checkbox"/>
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Abstract: A method of organizing streamed data includes storing streamed data in a file, identifying metadata applicable to a subset of the streamed data, and forming at least one group of one or more samples of the streamed data, each sample in a group having identical metadata content for a metadata type. The file may be in accordance with ISO base media file format. The storing streamed data in a file may include storing in a reception hint track. The at least one group may be indicated in a sample group description box. The metadata type may be indicated by a grouping type and grouping instance data, the grouping type specifying semantics of the grouping instance data and the metadata content. The metadata content may comprise a metadata payload and zero or more metadata payload extensions, where the metadata payload is included in a first structure and the zero or more metadata payload extensions are included in a second structure.

MainClaim: A method of organizing streamed data, comprising:storing streamed data in a file;identifying metadata applicable to a subset of the streamed data; andforming at least one group of one or more samples of the streamed data, each sample in a group having identical metadata content for a metadata type.

2009/0177942	SYSTEMS AND METHODS FOR MEDIA CONTAINER FILE GENERATION	NOKIA CORPORATION	Hannuksela; Miska Matias Peltotalo; Jani	714	H03M	20090108	9	92%	<input type="checkbox"/>
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Abstract: A method includes organizing a first media source block in the media container file; calculating forward error correction (FEC) redundancy data based on the first media source block; organizing the FEC redundancy data in at least one FEC reservoir in the media container file; providing, in the media container file, meta data providing an association between the first media source block and the at least one FEC reservoir; storing the first media source block as a first elementary item in the media container file; and providing, in the media container file, information that the first elementary item comprises the first media source block

MainClaim: A method of generating a media container file, comprising:organizing a first media source block in the media container file;calculating forward error correction (FEC) redundancy data based on the first media source block;organizing the FEC redundancy data in at least one FEC reservoir in the media container file;providing, in the media container file, meta data providing an association between the first media source block and the at least one FEC reservoir;storing the first media source

block as a first elementary item in the media container file; and providing, in the media container file, information that the first elementary item comprises the first media source block.

7,596,223	User control of a secure wireless computer network	Apple Inc.	Vogel, III; "J" Leslie	380	H04L	20000912	0	100%	<input type="checkbox"/>
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Abstract: A wireless network is established between a station and an access point for the network using a sequence of messages that securely transmit authentication information from the station to the access point for validation by the access point, and subsequently transmit a shared key necessary to establish the wireless network from the access point to the station when the station is validated.

MainClaim: A computerized method of establishing a secure wireless communication channel between an access point and a station, the channel being encrypted with a channel key, the method comprising: the access point receiving a connection request from the station to initiate a setup connection between the access point and the station; the access point sending a shared key to the station in response to the connection request if the access point is capable of handling a connection to the station; the access point selecting a secret access point key subsequent to sending the shared key; the access point generating a self-distributed key using the secret access point key; the access point generating a first value using the secret access point key and a second value from the station, wherein the second value has been generated by the station using a secret station key; the access point sending the first value to the station, wherein the station uses the first value and the secret station key to calculate the self-distributed key; the access point receiving an encrypted user name and an encrypted password from the station, wherein the station has encrypted the user name and the password with the self-distributed key; and the access point decrypting the user name and the password to check for validity; the access point encrypting the channel key using the self-distributed key if the user name and the password are valid; and the access point sending the encrypted channel key to the station to cause the station to terminate the setup connection and to establish a secured connection with the access point using the channel key.

7,545,941	Method of initializing and using a security association for middleware based on physical proximity	Nokia Corporation	Sovio; Sampo Ginzboorg; Philip Ekberg; Jan-Erik	380	G06F	20040224	1	93%	<input type="checkbox"/>
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Abstract: A computer system, method, and computer program product for controlling data communication in an ad-hoc network that connects a wireless device and a nearby wireless device. The method stores an application directory, determines a priority for each entry in the application directory, identifies a selected entry based on the priority, and examines the attributes and security parameters associated with the selected entry. When the security parameters indicate to use a secure connection, the method establishes a security association to support the data communication by querying a database for an existing security association that will satisfy the security parameters. When the query is successful, the method reuses the existing security association. When the query is unsuccessful, the method creates a new security association by establishing a privileged side channel to the nearby wireless device, negotiating the new security association over the privileged side channel, and storing the new security association.

MainClaim: A system comprising: a short-range ad hoc network that connects a wireless device to a nearby wireless device, each device including a memory device; and a processor disposed in communication with the memory device, the processor configured to: store an application directory in a middleware layer, the directory having at least one entry, each entry including an application program identifier, attributes, and security parameters; determine a priority for each entry in the application directory; identify a selected entry based on the priority; examine the attributes and the security parameters for the selected entry; and independently establish a security association to support a data communication when the security parameters direct the selected entry to use a secure connection.

2007/0076879	System, method and computer program product for authenticating a data agreement between network entities	Nokia Corporation	Asokan; Nadarajah Nyberg; Kaisa	380	H04K	20051003	1	93%	<input type="checkbox"/>
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Abstract: A method for authenticating a data agreement between first and second network entities can include the first network entity committing to the agreed data value, and transmitting the committed data value and a first random value to the second network entity. The first network entity can receive a second random value, and can then open the committed data value such that the second network entity can check the committed data value. If successful, the second network entity can calculate a third check string, and the first network entity can similarly calculate a fourth check string, based upon the data value and the first and second random values. The first network entity can calculate the fourth check string without the second network entity committing to the data value. The method can then include comparing the check strings such that the agreed data can be considered authenticated based upon the comparison.

MainClaim: A first network entity for authenticating a data agreement with a second network entity, the first network entity comprising: a processing element capable of committing to a first data value by forming a first check string based upon a selected first random value, and transmitting the first check string to the second network entity, wherein the processing element is capable of receiving a selected second random value from the second network entity; thereafter, wherein the processing element is capable of opening the commitment to the first data value by transmitting the first random value to the second network entity such that the second network entity is capable of checking the committed first data value based upon the first check string and a second check string having been calculated based upon the first random value, the second network entity thereafter being capable of calculating a third check string based upon the first data value and the first and second random values, wherein the processing element is capable of calculating a fourth check string based upon a second data value and the first and second random values, the fourth check string being calculated without the second network entity committing to the second data value or opening the commitment to the second data value, wherein the processing element is capable of comparing or facilitating comparison of the third and fourth check strings, the data agreement being authenticated based upon the comparison, and wherein the processing element is capable of comparing or facilitating comparison of the third and fourth check strings when the second network entity successfully checks the committed first data value.

2008/0320308	Method for remote message attestation in a communication system	Nokia Corporation	Kostiainen; Kari Timo Juhani Asokan; Nadarajah	713	H04L	20070620	1	93%	<input type="checkbox"/>
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Abstract: The invention relates to a method for remote attestation. In the method is created a first asymmetric key pair in a trusted platform module in an electronic device. A first public key and software platform state information are certified with an attestation identity key associated with the trusted platform module to produce a first certificate. A second asymmetric key pair

is produced in an application within the electronic device. The second public key is certified with said first secret key to produce a second certificate. A message is signed with the second secret key to provide a message signature in the first electronic device. The message and the message signature, software platform state information, the first certificate and the second certificate are sent to a second electronic device.

MainClaim: A method comprising: creating a first asymmetric key pair in a trusted platform module of a first electronic device, said first asymmetric key pair comprising a first public key and a first secret key; associating said first public key with software platform state information within said first electronic device; certifying said first public key and said software platform state information with an attestation identity key associated with said trusted platform module to produce a first certificate; creating a second asymmetric key pair in an application within said first electronic device, said second asymmetric key pair comprising a second public key and a second secret key; certifying said second public key with said first secret key to produce a second certificate; signing a message with the second secret key to provide a message signature in said first electronic device; providing said message and said message signature to a second electronic device; and providing said software platform state information, said first certificate and said second certificate to said second electronic device.

5,471,503	Scanning method for receiving a transmission in a communication system with slow frequency hopping and coding	Apple Computer, Inc.	Altmaier; Paulette R. Potrebic; Peter J.	375	H04B	19921229	0	100%	<input checked="" type="checkbox"/>
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Abstract: A scanning method for receiving a signal in a frequency hopped communication system that transmits a packet having N segments that are encoded with an error correction code that allows recovery of a packet even if e segments are erasures. A receiving station continuously scans the first p ($1 \leq p \leq e+1$) channels, testing each channel for the existence of a transmission. If detected, a segment is received, and then the receiving station sequences through the remaining channels, receiving the segments if possible, and then applying error correction to the complete transmission. This technique of scanning the first several channels, receiving the first unimpaired segment, and thereby gaining the ability to recover all unimpaired segments enables the full theoretical power of a coded, slow frequency hopped system to be realized.

MainClaim: In a decentralized communication system for communicating between two or more of a plurality of stations each of which includes a transmitter and a receiver, a method for detecting and receiving a packet of data transmitted by an arbitrary transmitting station of said plurality of stations that first encodes and arranges the packet into a plurality of N segments, and then transmits the packets using frequency hopping in a predetermined channel sequence of N radio frequencies, said method comprising the steps of:

(a) in an arbitrary receiving station that is initially unsynchronized with said transmitting station, scanning a subset of frequencies of said N radio frequencies, said subset including a first plurality p ($p < N$) of frequencies in said predetermined channel sequence wherein a scan time for each frequency of said subset is substantially less than the time necessary to receive a segment;

(b) testing for the presence of a transmission on each of said p scanned frequencies;

(c) if a transmission is detected on one of said p scanned frequencies, then performing a receiving step (d), otherwise returning to step (a); and

(d) if a transmission is detected in the step (c), then synchronizing the receiving station with the transmitted packet, receiving the segment, hopping to the next frequency in the predetermined channel sequence and receiving a segment on that channel and continuing to hop and receive until the Nth segment has been received, otherwise returning to step (a).

7,295,546	Method for synchronizing bluetooth packets	Nokia Corporation	Reunam ki; Jukka	370	H04J	20030226	1	93%	<input type="checkbox"/>
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Abstract: In Bluetooth medium rate packets, the access code and the header are frequently modulated by Gaussian Frequency Shift Keying, and the actual payload is phase-modulated by a differential Quadrature Phase Shift Keying or an 8-ary DQPSK scheme. Guard time and a synchronization sequence are placed between the header and the payload parts because of the need to change the modulation scheme and because of the ease in packet transfer. A sequence having a form of ABA is added to a Barker sequence having a form of BABBAAA for providing the synchronization sequence having the form of ABABABBAAA, where A and B are different states in a binary representation.

MainClaim: A method for improving synchronization between one communication device and another communication device using a packet, wherein the packet comprises an access code, a header and a payload segment, and the access code comprises an N-symbol synchronization word for synchronization purposes, wherein N is a positive integer and wherein the N-symbol synchronization word is a generalized Barker sequence either in a first form or a second form with symbols A and B, wherein in the first form the generalized Barker sequence consists of a two-symbol part having a form of BA preceding an N-2 -symbol part, and wherein in the second form the generalized Barker sequence consists of a two-symbol part having a form of AB following a different N-2 -symbol part, and wherein A is different from B in a binary representation, said method comprising: adding at least a 3-symbol sequence having a form of ABA immediately preceding the N-symbol synchronization word when the generalized Barker sequence is in the first form, and adding said at least 3-symbol sequence immediately following the N-symbol synchronization word when the generalized Barker sequence is in the second form.

2004/0165576	Method for synchronizing bluetooth packets	Nokia Corporation	Reunamaki, Jukka	370	H04J	20030226	1	93%	<input type="checkbox"/>
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Abstract: In Bluetooth medium rate packets, the access code and the header are frequently modulated by Gaussian Frequency Shift Keying, and the actual payload is phase-modulated by a differential Quadrature Phase Shift Keying or an 8-ary DQPSK scheme. Guard time and a synchronization sequence are placed between the header and the payload parts because of the need to change the modulation scheme and because of the ease in packet transfer. A sequence having a form of ABA is added to a Barker sequence having a form of BABBAAA for providing the synchronization sequence having the form of ABABABBAAA, where A and B are different states in a binary representation.

MainClaim: A method for improving synchronization between one communication device and another communication device using a packet, wherein the packet comprises an access code, a header and a payload segment, and the access code comprises an N-symbol synchronization word for synchronization purposes, wherein the N-symbol synchronization word is a generalized Barker sequence either in a first form or a second form, wherein in the first form the generalized Barker sequence consists of a

two-symbol part having a form of (BA) preceding an (N-2)-symbol part, and wherein in the second form the generalized Barker sequence consists of a two-symbol part having a form of (AB) following a different (N-2)-symbol part, and wherein A is different from B in a binary representation, said method comprising the step of: extending the synchronization word for providing an extended synchronization word of at least (N+3) symbols by adding at least a 3-symbol sequence having a form of ABA immediately preceding the N-symbol synchronization word when the generalized Barker sequence is in the first form, and adding said at least a 3-symbol sequence immediately following the N-symbol synchronization word when the generalized Barker sequence is in the second form.

7,120,852	Method and apparatus for packet aggregation in a wireless communication network	Nokia Corporation	Terry; John I Jokela; Jari	714	H03M	20040628	1	93%	<input type="checkbox"/>
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Abstract: A method and apparatus for aggregating packets in a wireless communication system. The data to be transmitted is selected and packetized and formed into frames for transmission. Rather than send each frame individually, frames are grouped and transmitted with grouping indicia informing the recipients how to acknowledge successful receipt of the transmitted data. ACKs are sent at a predetermined time, or all together, divided by subcarrier in the case of an OFDMA network.

MainClaim: In a wireless communication system operable to communicate packetized data according to a channel access protocol, an improved method of communicating the data packets, said method comprising the steps of: forming, in a transmitting station, the data to be transmitted into a plurality of packets; selecting a group of packets for aggregate transmission from the plurality of packets; creating grouping indicia associated with the selected packet group in the transmitting station, the grouping indicia being indicative of the recipients of each of the packets and identifying different recipients for at least two packets of the same packet group; and assembling at least one transmission frame including the selected packet group and the grouping indicia.

7,532,862	Method and apparatus for configuring a wireless device through reverse advertising	Apple Inc.	Cheshire; Stuart D.	455	H04B	20020319	0	100%	<input type="checkbox"/>
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Abstract: One embodiment of the present invention provides a system that uses reverse advertising to configure a new wireless device to join an existing wireless network. During operation, the new wireless device broadcasts an advertisement for itself. In response to the advertisement, the new wireless device receives information from an existing wireless device on the existing wireless network. This information specifies how to join the existing wireless network. Next, the new wireless device uses the information to configure itself to join the existing wireless network.

MainClaim: A method for using reverse advertising to configure a new wireless device to join an existing wireless network, comprising: broadcasting a service advertisement from the new wireless device on a new wireless network, wherein the service advertisement can be received by more than one device on the existing wireless network; in response to the service advertisement, the new wireless device receiving information from an existing wireless device that is on the existing wireless network, wherein receiving the information from the existing wireless device involves: receiving a request to join the new wireless network from the existing wireless device; allowing the existing wireless device to join the new wireless network; and receiving information from the existing wireless device specifying how to join the existing wireless network; wherein the new wireless network and the existing wireless network are different networks; wherein the information specifies how to join the existing wireless network and includes a packet which is associated with one or more of: the name of the existing wireless network, encryption key type, encryption key, IP (Internet Protocol) address of the new wireless device, subnet mask, IP gateway address, and DNS (Domain Name System) server address; and enabling the new wireless device to join the existing wireless network based on the information.

2005/0266826	Method for establishing a security association between a wireless access point and a wireless node in a UPnP environment	Nokia Corporation	Vlad, Stirbu	455	H04M	20040601	1	95%	<input type="checkbox"/>
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Abstract: A system and method provide for the intuitive establishment of a security association between devices. To join a network of devices, a user device sends user parameters for the user device to an administrator device using an out-of-band communication protocol. The administrator device sends the user parameters to an access point device using a Universal Plug and Play Simple Object Access Protocol (UPnP SOAP) Set action. The access point device saves the user parameters in a local database. The administrator device retrieves access point parameters from the access point device using the UPnP SOAP Get action. The administrator device sends the access point parameters to the user device using the out-of-band communication protocol. The user device connects to the access point device using the access point parameters to configure a secure connection. Preferably, a location limited channel is used by the user device to communicate with the administrator device.

MainClaim: A user device for establishing a security association, the user device comprising: a memory that holds a security association application; a location limiting component, wherein the location limiting component is configured to: send user parameters to an administrator device; and receive access point parameters from the administrator device; a communication interface, wherein the communication interface connects to an access point using the received access point parameters; and an electronic circuit coupled to the location limiting component and to the communication interface to execute the security association application.

6,985,697	Method and system for wirelessly managing the operation of a network appliance over a limited distance	Nokia, Inc.	Smith; Gregory J Scott; Robert Paxton	455	H04B	20030922	1	94%	<input type="checkbox"/>
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Abstract: A wireless communication interface in a network appliance that enables secure wireless management of the network appliance over a relatively limited (short) distance with a mobile node. The operator of the mobile node is authenticated and communication between the network appliance and the mobile node is encrypted. Even if an unauthorized person was able to be positioned in relatively close proximity to a network appliance such as within the physical confines of a data center, these authentication and encryption measures would make it extremely difficult for unauthorized wireless management of the operation of the network appliance.

MainClaim: A method for enabling management of a network appliance with a mobile node, comprising

enabling the network appliance to provide a beacon, wherein the beacon is created by a radio signal that is generated with

relatively low power;

if the mobile node receives the beacon, enabling the mobile node to pair with the network appliance;

if the mobile node is paired with the network appliance, pushing an application from the mobile node to the network appliance; and

enabling the mobile node to wirelessly communicate at least one management operation to the pushed application over a relatively short distance, wherein the management operation is provided to the network appliance for execution.

2006/0274726	System and method for accessing a web server on a device with a dynamic IP-address residing behind a firewall	Nokia Corporation	Wikman; Johan Dosa; Ferenc Palko; Sakari	370	H04L	20050603	1	93%	<input type="checkbox"/>
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Abstract: A system and method for providing access to a web server on an electronic device positioned within a firewall. A gateway device including a gateway server is provided outside of the firewall. The gateway device includes an IP address that corresponds to the same DNS extension that is used in the DNS name of the web server. When a client device attempts to contact the web server through the DNS name, the request is transmitted to the gateway server, which in turn communicates with the web server.

MainClaim: A method of providing access to a web server on an electronic device residing behind a firewall, comprising: having a gateway server positioned outside of the firewall, the gateway server possessing an IP address corresponding to a predetermined DNS extension, wherein the DNS name of the web server includes the predetermined DNS extension; upon a client device attempting to contact the electronic device using the DNS name, having the gateway server receive the contact attempt and information contained therein; and having the gateway server transmit the information included in the contact attempt to the web server.

7,587,495	Automatic configuration of controller computers in a network	APPLE Inc	Albouze; Jean Francois Margolis; Michael R.	709	G06F	20040826	0	100%	<input type="checkbox"/>
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Abstract: A system for automatic configuration of computers on a network is disclosed. In a first aspect a storage area network is disclosed. The network comprises at least one controller; and a plurality of clients coupled to the at least one controller. The network includes a storage device coupled to the at least one controller and the plurality of clients. The controller upon attachment to the network registers itself and notifies the plurality of clients. The plurality of clients then interrogates the controller. Each of the plurality of clients updates its configuration based upon the interrogation. In a second aspect, a method for configuration of computers in a network is disclosed. The method comprises registering at least one controller upon attachment to the network and notifying a plurality of clients by the at least one controller. The method includes interrogating the at least one controller by each of the plurality of clients. The plurality of clients are updated based upon the interrogation.

MainClaim: An Internet Protocol network comprising: a plurality of controller computers; and a plurality of clients coupled to the plurality of controller computers; wherein the plurality of controller computers in response to attachment to the network are operable to automatically self-register themselves using a discovery mechanism within each of the plurality of clients; and to notify the plurality of clients, and each of the plurality of clients to interrogate the plurality of controller computers and each of the plurality of clients to update its configuration based upon the interrogation; and wherein any of the plurality of clients to start a synchronization sequence to interrogate the plurality of controller computers, filtering out those controller computers which are not part of the network and querying the configuration of a first controller it finds that is coupled to the network, wherein each of the controller computers and each of the plurality of clients perform the following: providing for allocating IP addresses without a Dynamic Host Configuration Protocol (DHCP) server; providing for translating between names and IP addresses without a Domain Name System (DNS) server; and, locating or advertising services without a directory server.

2006/0015513	System, network entities and computer programs for configuration management of a dynamic host configuration protocol framework	Nokia Corporation	Poyhonen; Petteri Tuononen; Janne	707	G06F	20050516	1	92%	<input type="checkbox"/>
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Abstract: A system, network entities and computer programs to provide a dynamic configuration data storage system for both a standard DHCPv4 and DHCPv6 framework. Together with standard DHCPv4 and DHCPv6 protocol functionalities, the invention provides auto-configuration of configuration parameters from network servers to hosts, e.g. to mobile terminals.

MainClaim: A system for configuration management of a dynamic host configuration protocol framework, the system comprising: at least one dynamic host control protocol server; at least one configuration storage; at least one storage manager; and at least one network server; wherein a configuration storage is connected to at least one dynamic host control protocol server and to at least one storage manager, and is configured to store configuration data used by the at least one dynamic host control protocol server; wherein a storage manager is connected to at least one configuration storage and to at least one network server, and is configured to maintain configuration data content in the at least one configuration storage and manage signaling and data transfer between the at least one configuration storage and the at least one network server, wherein a network server is connected to at least one storage manager, and is configured to provide the at least one storage manager with configuration data; and wherein the storage manager dynamically updates configuration data content in the at least one configuration storage.

7,570,939	RFID network arrangement	Apple Inc.	Culbert; Michael	455	H04M	20050906	0	100%	<input type="checkbox"/>
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Abstract: A system for automatic configuration and authentication of network devices is disclosed. A network base station, e.g., a wireless router, includes an RFID transceiver. A network device includes an RFID tag. Then the network device is brought into proximity with the base station, an exchange of information takes place between the RFID transceiver in the base station and the RFID tag in the device. When the network device is powered on, it reads the information in its RFID tag and uses this information to establish a limited connection to the base station. Once connected, the base station and network device exchange authentication and encryption parameters over the limited connection and thus establish a fully functional and secure network connection between the network base station and the network device.

MainClaim: A method for configuring a wireless networking device, the method comprising: interacting with an RFID tag in the

wireless networking device when the networking device is brought into physical proximity with a wireless networking base station, such that the interaction causes configuration information to be exchanged between the RFID tag and an RFID transceiver in the base station that facilitates establishment of a wireless network connection between the networking device and the base station; and storing the configuration information to the RFID tag persistently, whereby future establishment of a wireless connection between the networking device and the base station is established without interacting with an RFID transceiver.

2009/0052421	DISTINGUISHING BETWEEN DEVICES OF DIFFERENT TYPES IN A WIRELESS LOCAL AREA NETWORK (WLAN)	Nokia Corporation	Stirbu; Vlad Saaranen; Mika Hussmann; Holger	370	H04W	20080820	1	93%	<input type="checkbox"/>
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Abstract: A method and system for distinguishing between devices of different types (e.g., mobile and stationary devices) in a wireless local area network (WLAN) in order to provide additional services to one or the other. The method includes obtaining a device type for the terminal, and providing specific services to the terminal if the terminal is a device of a certain type.

MainClaim: A method for distinguishing between device types in a wireless local area network (WLAN) in order to provide additional services to one type of device, the method comprising: obtaining a device type, the device type including one of a mobile type and a stationary type, for a terminal in a wireless local area network; and providing additional device type-specific services to the terminal if the terminal is a first device type belonging to a first device class.

2008/0222701	Using secondary bearer to detect proximity of a device	NOKIA CORPORATION	Saaranen; Mika Hussmann; Holger	726	H04L	20070305	1	92%	<input type="checkbox"/>
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Abstract: A new and unique method or apparatus for providing protected transport of digital content from a first device to a second device, featuring activating a proximity link between the first and second devices; performing proximity detection between the first device and the second device; delivering the digital content from the first device to second device over a communications link when it is determined that the proximity between devices is within a predetermined range. The proximity link may take the form of a wireless link that is limited in its range with adequate authentication mechanisms, and may be either an additional link compared to, for example, a wireless broadband link, or may even form part of the wireless broadband link if its broadband is sufficient. In operation, an actual streaming transfer or other suitable data transfer would be provided from one device to the other device using the additional link, such as the wireless broadband link. In particular, the proximity link may ensure that the physical proximity of the other device is in a certain range.

MainClaim: A method for providing protected transport of digital content from a first device to a second device comprising: activating a proximity link between the first and second devices; performing proximity detection between the first device and the second device; delivering the digital content from the first device to second device over a communications link when it is determined that the proximity between devices is within a predetermined range.

2009/0327713	SYSTEM AND METHOD FOR ESTABLISHING BEARER-INDEPENDENT AND SECURE CONNECTIONS	Nokia Corporation	Marin; Janne Kostianen; Kari Asokan; Nadarajah Moloney; Seamus Ginzboorg; Philip Lafuente; Javier	713	H04L	20061116	1	92%	<input type="checkbox"/>
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Abstract: A system and method for efficiently enabling local security connectivity between electronic devices over multiple bearers. Electronic devices are configured to advertise, over each bearer, their respective configuration parameters for each bearer. After a connection has been established between the electronic devices over a first bearer, the two electronic devices use the first bearer to establish connections over the other bearers using the configuration parameters contained in the advertisements and advertised over the first bearer. Shared keys are established for the other bearers either using keys derived from the first shared key or by using the first secure connection as an out-of-band channel. The present invention also provides for the creation of an ad hoc WLAN connection once a Bluetooth connection has been established.

MainClaim: A method of establishing a secure connection between a first electronic device and a second electronic device over multiple bearers, comprising: establishing a connection with the second electronic device over a first bearer; receiving a first advertisement from the second electronic device over the first bearer, the first advertisement including configuration parameters for at least a portion of the other bearers which are supported by the second electronic device; using the configuration parameters received in the first advertisement to establish connections over at least a portion of the other bearers that are supported by both the first and second electronic devices.

6,523,113	Method and apparatus for copy protection	Apple Computer, Inc.	Wehrenberg; Paul J.	713	H04L	19981109	0	100%	<input type="checkbox"/>
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Abstract: Copy protection techniques that utilize a watermark and a permission key are disclosed. The copy protection techniques can provide single-copy copy protection in addition to different levels of copy protection. The permission key and the watermark can also permit the invention to yield variable levels of copy protection. In one embodiment, content including a watermark is transmitted to a recipient. The recipient is allowed to read the content but not record the content unless the recipient possesses a permission key.

MainClaim: A method of copy protecting content comprising:

receiving content to be recorded, the content including a watermark encoded in the content and the watermark indicating that the content is copy protected;

receiving an encrypted permission key;

decrypting the encrypted permission key providing a decrypted permission key;

extracting the watermark from the content;

comparing the decrypted permission key and the watermark to determine if the decrypted permission key and the watermark match; and

permitting the recording of the content if the decrypted permission key and the watermark match and otherwise prohibiting the

recording of the content.									
6,959,090	Content Protection scheme for a digital recording device	Nokia Corporation	Alve; Jukka Mårtensson; Jan Lidholm; Ola Niemi; Valtteri Tomberg; Juha Kärkäs; Pasi Pekonen; Harri Suominen; Rami	380	H04L	20001120	1	92%	<input type="checkbox"/>

Abstract: A recording device for digital data streams, such as digital TV broadcasts or digitized music, stores copies of program content encrypted by a key unique to the recording device. Distribution of program content is thus discouraged, since intelligible playback of program content would not be obtained on another recording device, which would have a different key. To reduce manufacturing complexity which would result from requiring all bits of a key to inhere in hardware, a first portion of the key inheres in hardware and a second portion is selected from among several candidates residing in a memory device, the key being determined by combining the first and second portions according to predetermined rules. The second portion is reselected at predetermined intervals from among the candidates. Only payload portions of packets are encrypted while header portions are left in the clear in order to facilitate ancillary functions of recorder such as fast forward, fast rewind, and program search.

MainClaim: A method of recording digital data, comprising:

receiving packets of a digital data stream in a recording and playback device;

encrypting the received packets in the recording and playback device according to an encryption key unique to the recording and playback device, wherein the recording and playback device includes a readout path for at least a portion of the encryption key, the readout path being connectable to an external IC tester;

storing the encrypted packets;

arranging the readout path to be disabled by a first irrevocable condition and to be re-enabled by a second irrevocable condition, and

arranging a path essential to functioning of the recording and playback device to be disabled by said second irrevocable condition.

7,424,615	Mutually authenticated secure key exchange (MASKE)	Apple Inc.	Jalbert; Christopher P. Wallace; Leland A. O'Rourke; David M.	713	H04L	20010730	0	100%	<input type="checkbox"/>
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Abstract: The invention provides a cryptographic method which includes receiving at a first entity a second public key M_A . At least one of a first session key K_B and a first secret S_B may be generated based on the second public key M_A . A first random nonce N_B may be generated which may be encrypted with at least one of the first session key K_B and the first secret S_B to obtain an encrypted random nonce. The encrypted random nonce may be transmitted from the first entity. In response to transmitting the encrypted random nonce, the first computer may receive a data signal containing a modification of the first random nonce N_B+1 . If the modification of the first random nonce N_B+1 was correctly performed, then at least one of (i) opening a communication link at the first computer, and (ii) generating a first initialization vector I_B is performed.

MainClaim: A cryptographic method, including: generating, at a first entity, a first public key M_B , the first public key M_B being session specific; receiving from a second entity, at the first entity, a second public key M_A , the second public key M_A being session specific; generating, at the first entity, a first secret S_B by hashing one or more parameters that are known to the first entity and the second entity, at least one of the parameters being a result of hashing one or more of the following: a first password P_B , the first public key M_B , and the second public key M_A ; generating, at the first entity, a first session key K_B , the first session key K_B being different from the first secret S_B , both the first session key K_B and the first secret S_B being computed from the second public key M_A ; encrypting, at the first entity, a first random nonce N_B with the first session key K_B or the first secret S_B to obtain a first encrypted result; encrypting, at the first entity, the first encrypted result with the other one of the first session key K_B or the first secret S_B to obtain an encrypted random nonce; transmitting the encrypted random nonce from the first entity to the second entity; receiving a response to the encrypted random nonce; and authenticating through determining whether the response includes a correct modification of the first random nonce N_B .

7,366,905	Method and system for user generated keys and certificates	Nokia Corporation	Paatero; Lauri	713	H04L	20020228	1	95%	<input type="checkbox"/>
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Abstract: A method and system to allow user generation of a private-public key pair and an associated user generated certificate to establish the identity of a user based upon signing the user generated certificate with a private key of a private-public key pair associated with a certificate issued by a Certification Authority (CA). The user generated certificate thereby allows the user that generated the certificate to establish a secure session with a third party without multiple use of the certificate issued by the CA, typically for use on another network infrastructure. The method and system are particularly useful for establishing a secure session, such as a Secure Socket Layer session using a personal computer, where the CA certificate is associated with a wireless identity module of a wireless device.

MainClaim: A method comprising: having an identity authenticated in a first system; a second system causing a key to be generated for use in the second system; the second system generating a certificate for the key; and establishing the identity of a user in the second system by signing the certificate for the key using the authenticated identity of the user in the first system, wherein the certificate for the key for use in the second system contains usage limitations, including a temporal limit on usage, wherein the temporal limit requires that once a secure socket layer session on the second system is completed, the certificate or a corresponding key is destroyed, wherein said usage limitations also include a limit on use of said key for encryption only, which excludes use of said key for signature verification; and wherein the first system is a wireless communication system and

wherein the second system is a computer connected to an Internet.

2003/0163700	Method and system for user generated keys and certificates	Nokia Corporation	Paatero, Lauri	713	H04L	20020228	1	95%	<input type="checkbox"/>
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Abstract: A method and system to allow user generation of a private-public key pair and an associated user generated certificate to establish the identity of a user based upon signing the user generated certificate with a private key of a private-public key pair associated with a certificate issued by a Certification Authority (CA). The user generated certificate thereby allows the user that generated the certificate to establish a secure session with a third party without multiple use of the certificate issued by the CA, typically for use on another network infrastructure. The method and system are particularly useful for establishing a secure session, such as a Secure Socket Layer session using a personal computer, where the CA certificate is associated with a wireless identity module of a wireless device.

MainClaim: A method of authenticating a user of a second system where the user has an authenticated identity in a first system, comprising the steps of: the second system causing a key to be generated for use in the second system; the second system generating a certificate for the key; and signing the certificate for the key using the authenticated identity of the user in the first system.

2008/0123842	Association of a cryptographic public key with data and verification thereof	Nokia Corporation	Pohja; Seppo	380	H04L	20061103	1	94%	<input type="checkbox"/>
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Abstract: The invention allows a creator of a key pair--a public and a private key--to associate user data with the public key in such a way that verification data needed to cryptographically verify the association can be made public without compromising the key pair. An integer for use as a public exponent in the public key is derived such that it is a function of the user data to be associated with the public key.

MainClaim: A method comprising: generating a first prime number P and a second prime number Q; randomly deriving an integer E as a function of a given random input number a and a bit string representation u of given user data; and generating, in response to the derived integer E and a product (P-1)(Q-1) being relatively prime and further in response to the derived integer E both exceeding 1 and remaining below the product (P-1)(Q-1), a cryptographic key pair comprising a private key and an associated public key with the derived integer E used as a public exponent in the public key in order to create a cryptographic association between the public key and the given user data.

5,444,781	Method and apparatus for decryption using cache storage	Apple Computer Inc.	Lynn; Kerry E. Zweig; Jonathan M. Mincher; Richard W.	380	H04C	19940606	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for decryption using cache storage wherein imported ciphertext is decrypted to produce unencrypted plaintext data. As a communication sequence containing an initialization vector and a block of ciphertext is imported, the initialization vector is applied to a cache and to a decoder. The initialization vector is then compared with other initialization vectors stored in the cache to determine whether the specific initialization vector has previously been received and stored. If the specific initialization vector is found to be stored in the cache, then the PN sequence associated with that initialization vector is written to the decoder, and the stored PN sequence is used to decode the imported ciphertext. If a determination is made that the initialization vector has not been previously received, then the read cache signal instructs the multiplexer to connect the PN generator to the decoder, and the initialization vector is used to generate a new PN sequence. In order to improve the efficiency of future ciphertext decoding utilizing this specific initialization vector, the PN sequence associated with the initialization vector is then stored in the cache together with its corresponding initialization vector. When the next block of ciphertext is received using the same initialization vector, the PN sequence need not be regenerated by the PN generator, but rather may be read from the cache as a stored sequence.

MainClaim: An apparatus for decryption using cache storage, the apparatus comprising:

a memory for storing at least one number sequence;

a control signal responsive to the contents of the memory which indicates whether a selected number sequence is stored in the

a switch having a first sequence input coupled to the output of the memory, for selectively outputting the first sequence input responsive to the indication of the control signal; and

a decoder which receives the output of the switch as a first input and receives encrypted data as a second input, and combines these first and second inputs to produce decrypted data.

7,007,050	Method and apparatus for improved pseudo-random number generation	Nokia Corporation	Saarinén; Markku-Juhani	708	G06F	20010517	6	95%	<input type="checkbox"/>
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Abstract: A pseudo-random number generator (PRNG) for a cryptographic processing system is disclosed in which the PRNG is reseeded at each instance of input entropy and in which a standard timestamp variable used in determining random sequence outputs is replaced with a running counter. The method employed by the PRNG demonstrates increased resistance to iterative-guessing attacks and chosen-input attacks than those of previous technologies. The PRNG is suitable for use in, for example, a mobile telephone system for accomplishing secure communications.

MainClaim: A method for seeding a pseudo-random number generator (PRNG), comprising:

storing a plurality of state variables including an internal key, a seed value and a counter variable based on a hash output in an output buffer for use by a PRNG in determining a random number;

receiving successive input entropy signals;

clearing the output buffer upon receipt of each of said successive input entropy signals; and

calculating new state variables after receipt of each of said successive input entropy signals, wherein each of said successive input entropy signals comprise an input seed and said state variables comprise at least one constant expressed as a binary number, said calculating, in an initial state of the PRNG, further comprises:

receiving the input seed;

concatenating the input seed with a first constant;

determining a first output based on a hash of the concatenated input seed and the first constant;

concatenating the input seed with a second constant;

determining a second output based on a hash of the concatenated input seed and the second constant;

determining a key based on at least a portion of the first output, the key for determining a random number; and

determining a counter variable based on a portion of the second output, the counter variable for determining a random number.

5,452,358	Method and apparatus for improving the security of an electronic codebook encryption scheme utilizing a data dependent encryption function	Apple Computer, Inc.	Normile; James O. I Chu; Ke-Chiang	380	H04L	19940208	0	100%	<input type="checkbox"/>
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Abstract: An apparatus and method for improving the security of an electronic codebook encryption scheme comprises a transmitter unit for encoding or encrypting data and a separate authorized receiver for decoding or decrypting data. Both the transmitter and receiver share a common secret key that has been communicated through a separate channel. The transmitter includes a Mapping Table (MTable) that comprises a table of functions, where a first series of incrementally numbered expressions are equated with a second series of randomly generated numbers. The plaintext is input into the transmitter and applied to the MTable to provide ciphertext. The PN generator supplies a unique random sequence of binary digits. The ciphertext byte and random number byte associated with each byte of plaintext data are exchanged to change the relationships within the MTable. An Inverse Mapping Table (IMTable) is included in the receiver and is created by reversing the relationships between the sequential numbers and the mapping numbers in the MTable. From the encrypted communication, the ciphertext is separated and the respective functions for each ciphertext byte and random number byte are again exchanged, and the associated plaintext byte and random number byte are further exchanged to produce an MTable identical to that of the transmitter and unencrypted plaintext data identical to that originally encoded.

MainClaim: An apparatus for the communication of encrypted data, the apparatus comprising a transmitter for encoding plaintext data, the transmitter comprising:

a first Pseudorandom Number (PN) generator for generating and outputting a first Pseudorandom Number (PN) sequence; and

a Mapping Table (MTable) comprising a plurality of storage positions, the MTable having inputs for receiving plaintext data and the first PN sequence and an output for communicating encrypted ciphertext, the ciphertext being produced by the data dependent mapping of plaintext data.

7,007,050	Method and apparatus for improved pseudo-random number generation	Nokia Corporation	Saarinien; Markku-Juhani	708	G06F	20010517	6	94%	<input type="checkbox"/>
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Abstract: A pseudo-random number generator (PRNG) for a cryptographic processing system is disclosed in which the PRNG is reseeded at each instance of input entropy and in which a standard timestamp variable used in determining random sequence outputs is replaced with a running counter. The method employed by the PRNG demonstrates increased resistance to iterative-guessing attacks and chosen-input attacks than those of previous technologies. The PRNG is suitable for use in, for example, a mobile telephone system for accomplishing secure communications.

MainClaim: A method for seeding a pseudo-random number generator (PRNG), comprising:

storing a plurality of state variables including an internal key, a seed value and a counter variable based on a hash output in an output buffer for use by a PRNG in determining a random number;

receiving successive input entropy signals;

clearing the output buffer upon receipt of each of said successive input entropy signals; and

calculating new state variables after receipt of each of said successive input entropy signals, wherein each of said successive input entropy signals comprise an input seed and said state variables comprise at least one constant expressed as a binary number, said calculating, in an initial state of the PRNG, further comprises:

receiving the input seed;

concatenating the input seed with a first constant;

determining a first output based on a hash of the concatenated input seed and the first constant;

concatenating the input seed with a second constant;

determining a second output based on a hash of the concatenated input seed and the second constant;

determining a key based on at least a portion of the first output, the key for determining a random number; and

determining a counter variable based on a portion of the second output, the counter variable for determining a random number.

5,345,508	Method and apparatus for variable-overhead cached encryption	Apple Computer, Inc.	Lynn; Kerry E. Zweig; Jonathan M. Mincher; Richard W.	380	H04L	19930823	0	100%	<input type="checkbox"/>
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Abstract: A digital encryption structure allows the varying of the computational overhead by selectively reusing, according to the desired level of security, a pseudorandom encoding sequence at the transmitter end and by storing and reusing pseudorandom decoding sequences, associated with one or more transmitters at the receiver end. A public initialization vector is combined with a secret key to produce a deterministic sequence from a pseudorandom number generator. This pseudorandom sequence in turn, is used to convert plaintext to ciphertext. The sequence may be selectively reused by storing the sequence to a transmitter memory cache and iteratively reading the sequence from memory according to a counter which controls the level of security of the encryption system. The ciphertext is decrypted on the receiver end by invertibly combining the ciphertext with the same pseudorandom sequence used by the transmitter to originally encode the plaintext. The pseudorandom sequence is independently generated by the receiver end using the original key and initialization vector used in the transmitter end. Once generated in the receiver, the pseudorandom sequence is stored in a receiver cache for reuse with each iterative use of the stored transmitter pseudorandom sequence.

MainClaim: An apparatus for variable-overhead cached encryption and decryption comprising:

(i) a transmitter for encrypting plaintext data, the transmitter further comprising:

a first memory for storing at least one Pseudorandom Number (PN) sequence and for outputting a selected PN sequence;

an encoder which receives the selected PN sequence from the first memory as a first input and receives the plaintext data as a second input, and responsive to these first and second inputs produces the encrypted data;

(ii) a receiver for decrypting encrypted data, the receiver comprising:

a second memory for storing at least one Pseudorandom Number (PN) sequence;

a receiver PN generator which generates and provides as an output the same selected PN sequence which is received by the encoder;

a control signal responsive to the contents of the second memory which indicates whether the selected PN sequence is stored in the second memory;

switching means having a first sequence input coupled to the output of the second memory and a second sequence input coupled to the output of the receiver PN generator, for outputting one of the sequence inputs responsive to the indication of the control signal; and

a decoder which receives the output of the switching means as a first input and receives the encrypted data as a second input, and combines these first and second inputs to produce decrypted data.

7,007,050	Method and apparatus for improved pseudo-random number generation	Nokia Corporation	Saarinén; Markku-Juhani	708	G06F	20010517	6	95%	<input type="checkbox"/>
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Abstract: A pseudo-random number generator (PRNG) for a cryptographic processing system is disclosed in which the PRNG is reseeded at each instance of input entropy and in which a standard timestamp variable used in determining random sequence outputs is replaced with a running counter. The method employed by the PRNG demonstrates increased resistance to iterative-guessing attacks and chosen-input attacks than those of previous technologies. The PRNG is suitable for use in, for example, a mobile telephone system for accomplishing secure communications.

MainClaim: A method for seeding a pseudo-random number generator (PRNG), comprising:

storing a plurality of state variables including an internal key, a seed value and a counter variable based on a hash output in an output buffer for use by a PRNG in determining a random number;

receiving successive input entropy signals;

clearing the output buffer upon receipt of each of said successive input entropy signals; and

calculating new state variables after receipt of each of said successive input entropy signals, wherein each of said successive input entropy signals comprise an input seed and said state variables comprise at least one constant expressed as a binary number, said calculating, in an initial state of the PRNG, further comprises:

receiving the input seed;

concatenating the input seed with a first constant;									
determining a first output based on a hash of the concatenated input seed and the first constant;									
concatenating the input seed with a second constant;									
determining a second output based on a hash of the concatenated input seed and the second constant;									
determining a key based on at least a portion of the first output, the key for determining a random number; and									
determining a counter variable based on a portion of the second output, the counter variable for determining a random number.									
5,438,622	Method and apparatus for improving the security of an electronic codebook encryption scheme utilizing an offset in the pseudorandom sequence	Apple Computer, Inc.	Normile; James O. Chu; Ke-Chiang	380	H04L	19940121	0	100%	<input type="checkbox"/>

Abstract: A method and apparatus for improving the security of an electronic codebook encryption scheme comprises a transmitter unit for encoding or encrypting data and a separate authorized receiver for decoding or decrypting the data. During the encryption of the plaintext data, a randomly generated offset is introduced into the PN sequence to vary the starting point of the PN sequence as it is applied to the plaintext data. The offset is encrypted with the secret key and the unencrypted IV, encrypted offset, and ciphertext are exported by the transmitter to the receiver for decrypting. The encoded communication is imported by the receiver and the encrypted offset portion is extracted. The receiver combines the encrypted offset with the secret key to decipher the offset value. The offset and PN sequence are then combined with the ciphertext, using an XOR gate, to recover the original plain text from the ciphertext. In an alternative embodiment, the encoding PN sequence is composed of multiple, non-contiguous random sequence segments comprising a two-dimensional array. An incremental IV ID is generated for each IV issued in the creation of a segment. Each random sequence segment is identifiable by its IV ID. The starting point at which the random sequence segments are applied to a string of plaintext data is deferred from the beginning of the first random sequence segment in accordance with a composite offset.

MainClaim: An apparatus for the communication of encrypted data, the apparatus comprising a transmitter which further comprises:

a first Pseudorandom Number (PN) generator for generating a first sequence of pseudorandom numbers;

an offset generator which operates to select a subset of the first sequence of pseudorandom numbers; and

an encoder comprising a first input for receiving the subset of the first sequence of pseudorandom numbers and a second input for receiving an original sequence of plaintext data, in which the encoder combines the subset of the first sequence of pseudorandom numbers and the sequence of plaintext data to produce an encrypted data output.

7,007,050	Method and apparatus for improved pseudo-random number generation	Nokia Corporation	Saarinens; Markku-Juhani	708	G06F	20010517	6	93%	<input type="checkbox"/>
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Abstract: A pseudo-random number generator (PRNG) for a cryptographic processing system is disclosed in which the PRNG is reseeded at each instance of input entropy and in which a standard timestamp variable used in determining random sequence outputs is replaced with a running counter. The method employed by the PRNG demonstrates increased resistance to iterative-guessing attacks and chosen-input attacks than those of previous technologies. The PRNG is suitable for use in, for example, a mobile telephone system for accomplishing secure communications.

MainClaim: A method for seeding a pseudo-random number generator (PRNG), comprising:

storing a plurality of state variables including an internal key, a seed value and a counter variable based on a hash output in an output buffer for use by a PRNG in determining a random number;

receiving successive input entropy signals;

clearing the output buffer upon receipt of each of said successive input entropy signals; and

calculating new state variables after receipt of each of said successive input entropy signals, wherein each of said successive input entropy signals comprise an input seed and said state variables comprise at least one constant expressed as a binary number, said calculating, in an initial state of the PRNG, further comprises:

receiving the input seed;

concatenating the input seed with a first constant;

determining a first output based on a hash of the concatenated input seed and the first constant;

concatenating the input seed with a second constant;

determining a second output based on a hash of the concatenated input seed and the second constant;

determining a key based on at least a portion of the first output, the key for determining a random number; and

determining a counter variable based on a portion of the second output, the counter variable for determining a random number.

6,587,563	Cryptographic system using chaotic dynamics	Apple Computer, Inc.	Crandall; Richard Eugene	380	H04L	19970215	0	100%	<input type="checkbox"/>
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Abstract: The invention is a cryptographic system using chaotic dynamics. A set of initial conditions is generated from the private key and becomes input to the chaotic system. The chaotic system generates a set of final conditions from which the public key is derived. The public key is distributed to the public. The public key can be used to encrypt a message that is then decrypted using the private key. An adjustable back door of the invention derived from a set of interim conditions can be used in conjunction with the public key to derive the private key. The degree of difficulty involved in deriving the private key is dependent on the adjustable back door. That is the value of the back door can be adjusted to vary the difficulty involved in deriving the private key. In one embodiment of the invention, the chaotic system is based on the "N-body" problem to provide cryptographic security.

MainClaim: A method of generating a key in a cryptosystem comprising the steps of:

generating a private key;

deriving a set of initial conditions using said private key;

applying said set of initial conditions as input to an N body chaotic system;

said N body chaotic system generating a set of final conditions from said set of initial conditions; and

generating a hash key from said set of final conditions.

7,007,050	Method and apparatus for improved pseudo-random number generation	Nokia Corporation	Saarinens; Markku-Juhani	708	G06F	20010517	6	93%	<input type="checkbox"/>
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Abstract: A pseudo-random number generator (PRNG) for a cryptographic processing system is disclosed in which the PRNG is reseeded at each instance of input entropy and in which a standard timestamp variable used in determining random sequence outputs is replaced with a running counter. The method employed by the PRNG demonstrates increased resistance to iterative-guessing attacks and chosen-input attacks than those of previous technologies. The PRNG is suitable for use in, for example, a mobile telephone system for accomplishing secure communications.

MainClaim: A method for seeding a pseudo-random number generator (PRNG), comprising:

storing a plurality of state variables including an internal key, a seed value and a counter variable based on a hash output in an output buffer for use by a PRNG in determining a random number;

receiving successive input entropy signals;

clearing the output buffer upon receipt of each of said successive input entropy signals; and

calculating new state variables after receipt of each of said successive input entropy signals, wherein each of said successive input entropy signals comprise an input seed and said state variables comprise at least one constant expressed as a binary number, said calculating, in an initial state of the PRNG, further comprises:

receiving the input seed;

concatenating the input seed with a first constant;

determining a first output based on a hash of the concatenated input seed and the first constant;

concatenating the input seed with a second constant;

determining a second output based on a hash of the concatenated input seed and the second constant;

determining a key based on at least a portion of the first output, the key for determining a random number; and

determining a counter variable based on a portion of the second output, the counter variable for determining a random number.

2004/0236695	Authentication of data	Nokia Corporation	Yang, Fan Koskivirta, Tero Knuutila, Timo	705	H04K	20030814	1	92%	<input type="checkbox"/>
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Abstract: A method and apparatus for authentication of data includes inputting of data into a first layer of a hashing function for rotation based hashing, then inputting results from the first layer to a second layer of the hashing function for substitution based hashing. Feedback is provided from the second layer to the first layer and digests are output from the first and second layers.

MainClaim: A method for authentication of data, the method comprising: inputting data into a first layer of a hashing function for rotation based hashing; inputting results from the first layer to a second layer of the hashing function for substitution based hashing; providing feedback from the second layer to the first layer; and outputting digests from the first and second layers.

	Method and apparatus for authentication of	Nokia Siemens	Yang; Fan						
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7,702,097	data using different hash functions and feedback	Networks Oy	Koskivirta; Tero Knuutila; Timo	380	H04K	20030814	1	92%	<input type="checkbox"/>
<p>Abstract: A method and apparatus for authentication of data includes inputting of data into a first layer of a hashing function for rotation based hashing, then inputting results from the first layer to a second layer of the hashing function for substitution based hashing. Feedback is provided from the second layer to the first layer and digests are output from the first and second layers.</p> <p>MainClaim: A method for outputting digests from a sender to a receiver for data authentication, the method comprising: inputting, by a processor, data into a first layer of a hashing function for rotation based hashing; inputting, by the processor, results from the first layer to a second layer of the hashing function for substitution based hashing; providing, by the processor, feedback from the second layer to the first layer; and outputting, by the processor, digests, corresponding to the data, directly from the first layer to the receiver and directly from the second layer to the receiver for data authentication.</p>									
6,374,217	Fast update implementation for efficient latent semantic language modeling	Apple Computer, Inc.	Bellegarda; Jerome R.	704	G10L	19990312	0	100%	<input type="checkbox"/>
<p>Abstract: Speech or acoustic signals are processed directly using a hybrid stochastic language model produced by integrating a latent semantic analysis language model into an n-gram probability language model. The latent semantic analysis language model probability is computed using a first pseudo-document vector that is derived from a second pseudo-document vector with the pseudo-document vectors representing pseudo-documents created from the signals received at different times. The first pseudo-document vector is derived from the second pseudo-document vector by updating the second pseudo-document vector directly in latent semantic analysis space in response to at least one addition of a candidate word of the received speech signals to the pseudo-document represented by the second pseudo-document vector. Updating precludes mapping a sparse representation for a pseudo-document into the latent semantic space to produce the first pseudo-document vector. A linguistic message representative of the received speech signals is generated.</p> <p>MainClaim: A method for performing speech recognition comprising:</p> <p>receiving speech signals;</p> <p>processing the received speech signals directly using a language model produced by integrating a latent semantic analysis language model into an n-gram probability language model, wherein the latent semantic analysis language model probability is computed using a first pseudo-document vector derived from a second pseudo-document vector, the first and second pseudo-document vectors representing pseudo-documents created from the received speech signals at different points in time; and</p> <p>generating a linguistic message representative of the received speech signals.</p>									
2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivasdas; Sunil Lahti; Tommi	700	G05B	20050609	21	98%	<input type="checkbox"/>
<p>Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshiten distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus.</p> <p>MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.</p>									
7,319,960	Speech recognition method and system	Nokia Corporation	Riis; Soren Koumpis; Konstantinos	704	G10L	20011219	8	96%	<input type="checkbox"/>
<p>Abstract: A speech recognition system uses a phoneme counter to determine the length of a word to be recognized. The result is used to split a lexicon into one or more sub-lexicons containing only words which have the same or similar length to that of the word to be recognized, so restricting the search space significantly. In another aspect, a phoneme counter is used to estimate the number of phonemes in a word so that a transition bias can be calculated. This bias is applied to the transition probabilities between phoneme models in an HNN based recognizer to improve recognition performance for relatively short or long words.</p> <p>MainClaim: A speech recognition system in which a word to be recognized is represented as a sequence of phonetic segment models in which a transition probability represents the probability of the occurrence of a transition between the models, comprising: means for estimating the number of phonetic segments in the word to be recognized; and means for biasing the transition probabilities in dependence on the estimated number of phonetic segments in the word.</p>									
2007/0078653	Language model compression	Nokia Corporation	Olsen; Jesper	704	G10L	20051003	10	95%	<input type="checkbox"/>
<p>Abstract: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities. The method comprises forming at least one group of N-grams from the plurality of N-grams; sorting N-gram probabilities associated with the N-grams of the at least one group of N-grams; and determining a compressed representation of the sorted N-gram probabilities. The at least one group of N-grams may be formed from N-grams of the plurality of N-grams that are conditioned on the same (N-1)-tuple of preceding words. The compressed representation of the sorted N-gram probabilities may be a sampled representation of the sorted N-gram probabilities or may comprise an index into a codebook. The invention further relates to an according computer program product and device, to a storage medium for at least partially storing a language model, and to a device for processing data at least partially based on a language model.</p> <p>MainClaim: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities, said method comprising: forming at least one group of N-grams from said plurality of N-grams; sorting N-gram probabilities associated with said N-grams of said at least one group of N-grams; and determining a compressed representation</p>									

of said sorted N-gram probabilities.

6,778,952	Method for dynamic context scope selection in hybrid N-gram+LSA language modeling	Apple Computer, Inc.	Bellegarda; Jerome R.	704	G06F	20020912	0	100%	<input checked="" type="checkbox"/>
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Abstract: A method and system for dynamic language modeling of a document are described. In one embodiment, a number of local probabilities of a current document are computed and a vector representation of the current document in a latent semantic analysis (LSA) space is determined. In addition, a number of global probabilities based upon the vector representation of the current document in an LSA space is computed. Further, the local probabilities and the global probabilities are combined to produce the language modeling.

MainClaim: A method comprising:

computing a plurality of global probabilities of an input word based on a context having a dynamic scope determined by discounting words observed prior to the input word according to an exponential function, the context represented by a vector in a latent semantic analysis (LSA) space, wherein the vector representation is generated from at least one decomposition matrix of a singular value decomposition of a co-occurrence matrix, W , between M words in a vocabulary V and N documents in a text corpus T and wherein the vector representation v_q at time q is defined as ##EQU6##

where n_q is the number of words observed up to time q , n_p is the number of words observed up to time p , i_p is the index of the word observed at time p , ϵ_p is the normalized entropy of the word observed at time p within T , $0 < \lambda \leq 1$, u_p is the left singular vector at time p of the singular value decomposition of W , and S is the diagonal matrix of singular values of the singular value decomposition of W ;

computing a plurality of local probabilities of the input word; and

combining the local probabilities and the global probabilities to produce a language model probability for the input word.

2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivasdas; Sunil Lahti; Tommi	700	G05B	20050609	21	97%	<input type="checkbox"/>
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Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshiten distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus.

MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.

2007/0078653	Language model compression	Nokia Corporation	Olsen; Jesper	704	G10L	20051003	10	97%	<input type="checkbox"/>
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Abstract: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities. The method comprises forming at least one group of N-grams from the plurality of N-grams; sorting N-gram probabilities associated with the N-grams of the at least one group of N-grams; and determining a compressed representation of the sorted N-gram probabilities. The at least one group of N-grams may be formed from N-grams of the plurality of N-grams that are conditioned on the same (N-1)-tuple of preceding words. The compressed representation of the sorted N-gram probabilities may be a sampled representation of the sorted N-gram probabilities or may comprise an index into a codebook. The invention further relates to an according computer program product and device, to a storage medium for at least partially storing a language model, and to a device for processing data at least partially based on a language model.

MainClaim: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities, said method comprising: forming at least one group of N-grams from said plurality of N-grams; sorting N-gram probabilities associated with said N-grams of said at least one group of N-grams; and determining a compressed representation of said sorted N-gram probabilities.

2006/0074924	Optimization of text-based training set selection for language processing modules	Nokia Corporation	Tilei; Jian Nurminen; Jani K.	707	G06F	20040917	11	96%	<input type="checkbox"/>
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Abstract: A device and a method provide for selection of a database from a corpus using an, optimization function. The method includes defining a size of a database, calculating a distance using a distance function for each pair in a set of pairs, and executing an optimization function using the distance to select each entry saved in the database until the number of saved entries equals the size of the database. Each pair in the set of pairs includes either two entries selected from a corpus or one entry selected from a set of previously selected entries and another entry selected from a set of a remaining portion of the corpus. The distance function may be a Levenshtein distance function or a generalized Levenshtein distance function.

MainClaim: A method of selecting a database from a corpus, the method comprising: defining a size of a database; calculating a coefficient for at least one pair in a set of pairs; and executing a function to select each entry to be saved in the database until a number of entries of the database equals the size of the database.

7,191,118	Method for dynamic context scope selection in hybrid N-gram+LSA language modeling	Apple, Inc.	Bellegarda; Jerome R.	704	G06F	20040812	0	100%	<input checked="" type="checkbox"/>
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Abstract: A method and system for dynamic language modeling of a document are described. In one embodiment, a number of

local probabilities of a current document are computed and a vector representation of the current document in a latent semantic analysis (LSA) space is determined. In addition, a number of global probabilities based upon the vector representation of the current document in an LSA space is computed. Further, the local probabilities and the global probabilities are combined to produce the language modeling.

MainClaim: A method of dynamic language modeling of a document comprising: computing a plurality of local probabilities of a current document; determining a vector representation of the current document in a latent semantic analysis (LSA) space, wherein the current document has a dynamic scope determined by discounting previously observed words according to an exponential function; computing a plurality of global probabilities based upon the vector representation of the current document in an LSA space; and combining the local probabilities and the global probabilities to produce the language modeling.

2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivasdas; Sunil Lahti; Tommi	700	G05B	20050609	21	97%	<input type="checkbox"/>
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Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshiten distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus.

MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.

2007/0078653	Language model compression	Nokia Corporation	Olsen; Jesper	704	G10L	20051003	10	96%	<input type="checkbox"/>
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Abstract: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities. The method comprises forming at least one group of N-grams from the plurality of N-grams; sorting N-gram probabilities associated with the N-grams of the at least one group of N-grams; and determining a compressed representation of the sorted N-gram probabilities. The at least one group of N-grams may be formed from N-grams of the plurality of N-grams that are conditioned on the same (N-1)-tuple of preceding words. The compressed representation of the sorted N-gram probabilities may be a sampled representation of the sorted N-gram probabilities or may comprise an index into a codebook. The invention further relates to an according computer program product and device, to a storage medium for at least partially storing a language model, and to a device for processing data at least partially based on a language model.

MainClaim: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities, said method comprising: forming at least one group of N-grams from said plurality of N-grams; sorting N-gram probabilities associated with said N-grams of said at least one group of N-grams; and determining a compressed representation of said sorted N-gram probabilities.

2006/0074924	Optimization of text-based training set selection for language processing modules	Nokia Corporation	Tilei; Jian Nurminen; Jani K.	707	G06F	20040917	11	96%	<input type="checkbox"/>
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Abstract: A device and a method provide for selection of a database from a corpus using an, optimization function. The method includes defining a size of a database, calculating a distance using a distance function for each pair in a set of pairs, and executing an optimization function using the distance to select each entry saved in the database until the number of saved entries equals the size of the database. Each pair in the set of pairs includes either two entries selected from a corpus or one entry selected from a set of previously selected entries and another entry selected from a set of a remaining portion of the corpus. The distance function may be a Levenshtein distance function or a generalized Levenshtein distance function.

MainClaim: A method of selecting a database from a corpus, the method comprising: defining a size of a database; calculating a coefficient for at least one pair in a set of pairs; and executing a function to select each entry to be saved in the database until a number of entries of the database equals the size of the database.

7,149,695	Method and apparatus for speech recognition using semantic inference and word agglomeration	Apple Computer, Inc.	Bellegarda; Jerome R.	704	G10L	20001013	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for command recognition using semantic inference and word agglomeration is described herein. According to one aspect of the present invention, a method for recognizing a voice command comprises recognizing a sequence of words received as the voice command. The sequence of words is further agglomerated into a sequence of word n-tuples. Semantic inference is applied to the sequence of word n-tuples to recognize the voice command.

MainClaim: A method for recognizing speech, the method comprising: recognizing a sequence of words; processing the sequence of words using word agglomeration that replaces the sequence of words with an associated n-tuple sequence, the n-tuple sequence comprising word n-tuples that are all strings of n consecutive words in the sequence of words, wherein the n-tuple sequence is represented by a vector representation in a semantic space; and classifying the processed sequence of words as a predetermined command based on the vector representation of the n-tuple sequence in the semantic space.

2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivasdas; Sunil Lahti; Tommi	700	G05B	20050609	21	97%	<input type="checkbox"/>
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Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshiten distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus.

MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising;

having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.

2006/0074924	Optimization of text-based training set selection for language processing modules	Nokia Corporation	Tilei; Jian Nurminen; Jani K.	707	G06F	20040917	11	96%	<input type="checkbox"/>
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Abstract: A device and a method provide for selection of a database from a corpus using an, optimization function. The method includes defining a size of a database, calculating a distance using a distance function for each pair in a set of pairs, and executing an optimization function using the distance to select each entry saved in the database until the number of saved entries equals the size of the database. Each pair in the set of pairs includes either two entries selected from a corpus or one entry selected from a set of previously selected entries and another entry selected from a set of a remaining portion of the corpus. The distance function may be a Levenshtein distance function or a generalized Levenshtein distance function.

MainClaim: A method of selecting a database from a corpus, the method comprising: defining a size of a database; calculating a coefficient for at least one pair in a set of pairs; and executing a function to select each entry to be saved in the database until a number of entries of the database equals the size of the database.

2005/0267755	Arrangement for speech recognition	Nokia Corporation	Suontausta, Janne	704	G10L	20040527	15	96%	<input type="checkbox"/>
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Abstract: A speech recognizer comprises a random access memory, a downloader for loading decision trees from a set of decision trees into said random access memory, a vocabulary comprising one or more words of a language, a divider for dividing at least one word of the vocabulary into subwords, and a transcription generator adapted to process at least one subword. The downloader is adapted to download a subset of the set of decision trees at a time into said random access memory. The transcription generator is further adapted to generate at least one phoneme transcription for the subword using the subset of decision trees. The speech recognizer also comprises a combiner for combining the generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words. The invention also relates to a device, a system, a module, a method, a computer program product and a data structure.

MainClaim: A speech recognizer comprising: a random access memory; a downloader for loading decision trees from a set of decision trees into said random access memory; a vocabulary comprising one or more words of a language; a divider for dividing at least one word of said vocabulary into subwords; a transcription generator adapted to process at least one subword, wherein the downloader is adapted to download a subset of the set of decision trees at a time into said random access memory, and the transcription generator is further adapted to generate at least one phoneme transcription for said subword using said subset of the decision trees; and a combiner for combining generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words.

6,477,488	Method for dynamic context scope selection in hybrid n-gram+LSA language modeling	Apple Computer, Inc.	Bellegarda; Jerome R.	704	G06F	20000310	0	100%	<input type="checkbox"/>
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Abstract: A method and system for dynamic language modeling of a document are described. In one embodiment, a number of local probabilities of a current document are computed and a vector representation of the current document in a latent semantic analysis (LSA) space is determined. In addition, a number of global probabilities based upon the vector representation of the current document in an LSA space is computed. Further, the local probabilities and the global probabilities are combined to produce the language modeling.

MainClaim: A method of dynamic language modeling of a document comprising:

computing a plurality of local probabilities of a current document;

determining a vector representation of the current document in a latent semantic analysis (LSA) space, wherein the vector representation of the current document in an LSA space is based upon a plurality of temporally ordered words and is generated from at least one decomposition matrix of a singular value decomposition of a co-occurrence matrix, W, between M words in a vocabulary V and N documents in a text corpus T;

computing a plurality of global probabilities based upon the vector representation of the current document in an LSA space; and

combining the local probabilities and the global probabilities to produce the language modeling.

2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivadas; Sunil Lahti; Tommi	700	G05B	20050609	21	97%	<input type="checkbox"/>
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Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshiten distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus.

MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.

2007/0078653	Language model compression	Nokia Corporation	Olsen; Jesper	704	G10L	20051003	10	97%	<input type="checkbox"/>
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Abstract: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities. The method comprises forming at least one group of N-grams from the plurality of N-grams; sorting N-gram

probabilities associated with the N-grams of the at least one group of N-grams; and determining a compressed representation of the sorted N-gram probabilities. The at least one group of N-grams may be formed from N-grams of the plurality of N-grams that are conditioned on the same (N-1)-tuple of preceding words. The compressed representation of the sorted N-gram probabilities may be a sampled representation of the sorted N-gram probabilities or may comprise an index into a codebook. The invention further relates to an according computer program product and device, to a storage medium for at least partially storing a language model, and to a device for processing data at least partially based on a language model.

MainClaim: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities, said method comprising: forming at least one group of N-grams from said plurality of N-grams; sorting N-gram probabilities associated with said N-grams of said at least one group of N-grams; and determining a compressed representation of said sorted N-gram probabilities.

2006/0074924	Optimization of text-based training set selection for language processing modules	Nokia Corporation	Tilei; Jian Nurminen; Jani K.	707	G06F	20040917	11	96%	<input type="checkbox"/>
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Abstract: A device and a method provide for selection of a database from a corpus using an, optimization function. The method includes defining a size of a database, calculating a distance using a distance function for each pair in a set of pairs, and executing an optimization function using the distance to select each entry saved in the database until the number of saved entries equals the size of the database. Each pair in the set of pairs includes either two entries selected from a corpus or one entry selected from a set of previously selected entries and another entry selected from a set of a remaining portion of the corpus. The distance function may be a Levenshtein distance function or a generalized Levenshtein distance function.

MainClaim: A method of selecting a database from a corpus, the method comprising: defining a size of a database; calculating a coefficient for at least one pair in a set of pairs; and executing a function to select each entry to be saved in the database until a number of entries of the database equals the size of the database.

7,289,950	Extended finite state grammar for speech recognition systems	Apple Inc.	Bellegarda; Jerome R. Silverman; Kim E. A.	704	G06F	20040921	0	100%	<input type="checkbox"/>
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Abstract: An extended finite state grammar structure is generated from a finite state grammar. The extended finite state grammar structure includes word subgraphs representing a set of pre-defined word strings for words in the finite state grammar, and a set of all possible word strings for the words. The extended finite state grammar structure can be used to transform audio input into one or more of the word strings.

MainClaim: A computerized method comprising: generating an extended finite state grammar structure comprising a first word sub-graph representing a set of pre-defined word strings for words in a finite state grammar, and a second word sub-graph representing a set of all possible word strings for the words in the finite state grammar, wherein the extended finite state grammar structure is subsequently used to transform audio input into at least one of the word strings.

2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivasdas; Sunil Lahti; Tommi	700	G05B	20050609	21	96%	<input type="checkbox"/>
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Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshiten distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus.

MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.

2006/0074669	Speech grammars having priority levels	Nokia Corporation	Seppala; Esa H.	704	G10L	20040923	10	95%	<input type="checkbox"/>
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Abstract: In a speech recognition environment where time constraint limits the use of stored grammars in matching with a speech, the phonemes converted words are built into a number of trees of different priority levels so that the number of the trees combined into a concatenated tree for speech recognition is based at least partly on the time constraint. The trees of a lower priority level are used only when the time constraint allows such use and the trees of a higher priority level are used at least partly prior to the trees of a lower priority level being used.

MainClaim: A method of organizing grammars for use in an electronic device, the grammars having grammar items organized into trees of ordered branches, said method comprising: ranking at least a part of the grammar items according to a grammar rule; sorting at least part of the grammar items into grammar groups of different priority levels based at least partly on the ranking; and building at least one tree separately for the grammar groups.

2006/0293889	Error correction for speech recognition systems	Nokia Corporation	Kiss; Imre Leppanen; Jussi Artturi	704	G10L	20050627	3	94%	<input type="checkbox"/>
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Abstract: Words in a sequence of words that is obtained from speech recognition of an input speech sequence are presented to a user, and at least one of the words in the sequence of words is replaced, in case it has been selected by a user for correction. Words with a low recognition confidence value are emphasized; alternative word candidates for the at least one selected word are ordered according to an ordering criterion; after replacing a word, an order of alternative word candidates for neighboring words in the sequence is updated; the replacement word is derived from a spoken representation of the at least one selected word by speech recognition with a limited vocabulary; and the word that replaces the at least one selected word is derived from a spoken and spelled representation of the at least one selected word.

MainClaim: A method for correcting words in a sequence of words that is obtained from speech recognition of an input speech sequence, said method comprising: presenting said sequence of words to a user, wherein each word in said sequence of words is associated with a respective recognition confidence value, and wherein at least one word in said sequence of words is automatically emphasized in dependence on its recognition confidence value; and replacing at least one word in said sequence of words, in case it has been selected by a user for correction.

	Large-vocabulary speech								
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5,839,106	recognition using an integrated syntactic and semantic statistical language model	Apple Computer, Inc.	Bellegarda; Jerome R.	704	G01L	19961217	0	100%	<input type="checkbox"/>
<p>Abstract: Methods and apparatus for performing large-vocabulary speech recognition employing an integrated syntactic and semantic statistical language model. In an exemplary embodiment, a stochastic language model is developed using a hybrid paradigm in which latent semantic analysis is combined with, and subordinated to, a conventional n-gram paradigm. The hybrid paradigm provides an estimate of the likelihood that a particular word, chosen from an underlying vocabulary will occur given a prevailing contextual history. The estimate is computed as a conditional probability that a word will occur given an "integrated" history combining an n-word, syntactic-type history with a semantic-type history based on a much larger contextual framework. Thus, the exemplary embodiment seamlessly blends local language structures with global usage patterns to provide, in a single language model, the proficiency of a short-horizon, syntactic model with the large-span effectiveness of semantic analysis.</p> <p>MainClaim: A speech recognition system, comprising:</p> <p>a pre-processor receiving an acoustic signal and processing the acoustic signal to produce an acoustic feature sequence; and</p> <p>a recognition processor receiving the acoustic feature sequence and processing the acoustic feature sequence using a multiple-span stochastic language model to form a linguistic message, wherein the multiple-span stochastic language model includes a local span providing an immediate word context and a large span providing a global word context.</p>									
2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivasdas; Sunil Lahti; Tommi	700	G05B	20050609	21	97%	<input type="checkbox"/>
<p>Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshiten distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus.</p> <p>MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.</p>									
7,043,431	Multilingual speech recognition system using text derived recognition models	Nokia Corporation	Riis; So Jensen; Ka Pedersen; Morten With	704	G10L	20010831	6	95%	<input type="checkbox"/>
<p>Abstract: There is provided a novel approach for generating multilingual text-to-phoneme mappings for use in multilingual speech recognition systems. The multilingual mappings are based on the weighted output from a neural network text-to-phoneme model, trained on data mixed from several languages. The multilingual mappings used together with a branched grammar decoding scheme is able to capture both inter- and intra-language pronunciation variations which is ideal for multilingual speaker independent recognition systems. A significant improvement in overall system performance is obtained for a multilingual speaker independent name dialing task when applying multilingual instead of language dependent text-to-phoneme mapping.</p> <p>MainClaim: A method of speech recognition in order to identify a speech command as a match to a written text command comprising the steps: providing a text input from a text database; receiving an acoustic input; generating sequences of multilingual phoneme symbols based on said text input by means of a multilingual text-to-phoneme module; generating variations of pronunciations which are recognizable in response to said sequences of multilingual phoneme symbols determined by use of a branched grammar; and comparing said variations of pronunciations with the acoustic input in order to find a match.</p>									
7,319,960	Speech recognition method and system	Nokia Corporation	Riis; Soren Koumpis; Konstantinos	704	G10L	20011219	8	95%	<input type="checkbox"/>
<p>Abstract: A speech recognition system uses a phoneme counter to determine the length of a word to be recognized. The result is used to split a lexicon into one or more sub-lexicons containing only words which have the same or similar length to that of the word to be recognized, so restricting the search space significantly. In another aspect, a phoneme counter is used to estimate the number of phonemes in a word so that a transition bias can be calculated. This bias is applied to the transition probabilities between phoneme models in an HNN based recognizer to improve recognition performance for relatively short or long words.</p> <p>MainClaim: A speech recognition system in which a word to be recognized is represented as a sequence of phonetic segment models in which a transition probability represents the probability of the occurrence of a transition between the models, comprising: means for estimating the number of phonetic segments in the word to be recognized; and means for biasing the transition probabilities in dependence on the estimated number of phonetic segments in the word.</p>									
5,737,490	Method and apparatus for constructing continuous parameter fenonic hidden markov models by replacing phonetic models with continous fenonic models	Apple Computer, Inc.	Austin; Stephen Christopher de Souza; Peter Vincent	704	G01L	19961022	0	100%	<input type="checkbox"/>
<p>Abstract: A method and apparatus for constructing a hidden Markov model comprised of multiple fenones characterized by their duration and a set of acoustic properties. The present invention provides a sequence of fenones to model a speech event. The sequence may undergo modifications to improve the overall performance of the model.</p> <p>MainClaim: A method of constructing a hidden Markov model of a given speech event comprising the steps of:</p>									

providing a sequence of phonetic models representing the given speech event;

creating a plurality of fenones associated with acoustic vectors, wherein each of the plurality of fenones is a hidden Markov model representing an acoustic event; and

creating a fenonic model for said given speech event, wherein each of the sequence of phonetic models is replaced by at least one of the plurality of fenones, such that the fenonic model comprises a sequence of fenones.

7,505,950	Soft alignment based on a probability of time alignment	Nokia Corporation	Tian; Jilei Nurminen; Jani Popa; Victor	706	G06F	20060426	3	96%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for performing soft alignment in Gaussian mixture model (GMM) based and other vector transformations. Soft alignment may assign alignment probabilities to source and target feature vector pairs. The vector pairs and associated probabilities may then be used calculate a conversion function, for example, by computing GMM training parameters from the joint vectors and alignment probabilities to create a voice conversion function for converting speech sounds from a source speaker to a target speaker.

MainClaim: A method comprising: receiving a first sequence of feature vectors associated with a source speaker for processing based on operations controlled by a processor; receiving a second sequence of feature vectors associated with a target speaker; generating a third sequence of joint feature vectors, wherein the generation of each joint feature vector is based on: a first vector from the first sequence; a first vector from the second sequence; and a first probability value representing the probability that the first vector from the first sequence and the first vector from the second sequence are time aligned to the same feature in their respective sequences; and applying the third sequence of joint feature vectors as a part of a voice conversion process.

2008/0082333	Prosody Conversion	NOKIA CORPORATION	Nurminen; Jani K. Helander; Elina	704	G10L	20060929	8	96%	<input type="checkbox"/>
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Abstract: A contour for a syllable (or other speech segment) in a voice undergoing conversion is transformed. The transform of that contour is then used to identify one or more source syllable transforms in a codebook. Information regarding the context and/or linguistic features of the contour being converted can also be compared to similar information in the codebook when identifying an appropriate source transform. Once a codebook source transform is selected, an inverse transformation is performed on a corresponding codebook target transform to yield an output contour. The corresponding codebook target transform represents a target voice version of the same syllable represented by the selected codebook source transform. The output contour may be further processed to improve conversion quality.

MainClaim: A method comprising:(a) receiving data for a plurality of segments of a passage in a source voice, wherein the data for each segment of the plurality models a prosodic component of the source voice for that segment;(b) identifying a target voice entry in a codebook for each of the source voice passage segments, wherein each of the identified target voice entries models a prosodic component of a target voice for a different segment of codebook training material, and wherein the codebook training material is substantially different from the passage; and(c) generating a target voice version of the plurality of passage segments by altering the modeled source voice prosodic component for each segment to replicate the target voice prosodic component modeled by the target voice entry identified for that segment in (b).

2007/0088552	Method and a device for speech recognition	Nokia Corporation	Olsen; Jesper	704	G10L	20051017	9	96%	<input type="checkbox"/>
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Abstract: Method for speech recognition comprising inputting frames comprising samples of an audio signal; forming a feature vector comprising a first number of vector components for each frame; projecting the feature vector onto at least two subspaces so that the number of components of each projected feature vector is less than the first number and the total number of components of the projected feature vectors is the same as the first number; defining a set of mixture models for each projected vector which provides the highest observation probability; analysing the set of mixture models to determine the recognition result. When the recognition result is found, the method comprises determining a confidence measure for the recognition result, the determining comprising determining a probability that the recognition result is correct; determining a normalizing term; and dividing the probability by the normalizing term.

MainClaim: A method for speech recognition comprising: inputting frames comprising samples of an audio signal; forming a feature vector comprising a first number of vector components for each frame; projecting the feature vector onto at least two subspaces so that the number of components of each projected feature vector is less than the first number and the total number of components of the projected feature vectors is the same as the first number; defining a set of mixture models for each projected vector which provides the highest observation probability; analysing the set of mixture models to determine the recognition result; when the recognition result is found, determining a confidence measure for the recognition result, the determining comprising: determining a probability that the recognition result is correct; determining a normalizing term by selecting, for each state, one mixture model among said set of mixture models, which provides the highest likelihood; and dividing the probability by said normalizing term; wherein the method further comprises comparing the confidence measure to a threshold value to determine whether the recognition result is reliable enough.

5,706,397	Speech recognition system with multi-level pruning for acoustic matching	Apple Computer, Inc.	Chow; Yen-Lu	704	G10L	19951005	0	100%	<input type="checkbox"/>
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Abstract: A method of constructing a new active list of phone models from an existing active list of phone models during acoustic matching of a speech recognition system is described. A vector quantized speech vector is compared against each of the phone models in the existing active list to obtain a phone best score for each of the phone models of the existing active list. A best phone best score is determined among all the phone best scores of the phone models to obtain a global best score. A phone model of the phone models from the existing active list is added to the new active list of phone models if the phone best score of that phone model is within a first predetermined value of the global best score. A next phone model of the existing phone of the existing active list is added to the new active list if the phone ending score of that existing phone is within a second predetermined value of a best score of the existing phone model. A next (e.g. first) phone model of a next word of a particular phone model of the existing active list is added to the new active list if the ending score of that particular phone model is within a third predetermined value of the global best score.

MainClaim: A method of constructing a new active list of phone models from an existing active list of phone models during acoustic matching of a speech recognition system, comprising the steps of:

(A) comparing a speech frame against each of the phone models in the existing active list to obtain a phone best score for each of the phone models of the existing active list;

(B) adding a next phone model of a first phone model of the phone models of the existing active list to the new active list if the phone best score of the first phone model is within a first predetermined value of a phone ending score of the first phone model.

7,319,960	Speech recognition method and system	Nokia Corporation	Riis; Soren Koumpis; Konstantinos	704	G10L	20011219	8	96%	<input type="checkbox"/>
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Abstract: A speech recognition system uses a phoneme counter to determine the length of a word to be recognized. The result is used to split a lexicon into one or more sub-lexicons containing only words which have the same or similar length to that of the word to be recognized, so restricting the search space significantly. In another aspect, a phoneme counter is used to estimate the number of phonemes in a word so that a transition bias can be calculated. This bias is applied to the transition probabilities between phoneme models in an HNN based recognizer to improve recognition performance for relatively short or long words.

MainClaim: A speech recognition system in which a word to be recognized is represented as a sequence of phonetic segment models in which a transition probability represents the probability of the occurrence of a transition between the models, comprising: means for estimating the number of phonetic segments in the word to be recognized; and means for biasing the transition probabilities in dependence on the estimated number of phonetic segments in the word.

2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivadas; Sunil Lahti; Tommi	700	G05B	20050609	21	96%	<input type="checkbox"/>
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Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshiten distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus.

MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.

7,043,431	Multilingual speech recognition system using text derived recognition models	Nokia Corporation	Riis; So Jensen; Ka Pedersen; Morten With	704	G10L	20010831	6	96%	<input type="checkbox"/>
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Abstract: There is provided a novel approach for generating multilingual text-to-phoneme mappings for use in multilingual speech recognition systems. The multilingual mappings are based on the weighted output from a neural network text-to-phoneme model, trained on data mixed from several languages. The multilingual mappings used together with a branched grammar decoding scheme is able to capture both inter- and intra-language pronunciation variations which is ideal for multilingual speaker independent recognition systems. A significant improvement in overall system performance is obtained for a multilingual speaker independent name dialing task when applying multilingual instead of language dependent text-to-phoneme mapping.

MainClaim: A method of speech recognition in order to identify a speech command as a match to a written text command comprising the steps: providing a text input from a text database; receiving an acoustic input; generating sequences of multilingual phoneme symbols based on said text input by means of a multilingual text-to-phoneme module; generating variations of pronunciations which are recognizable in response to said sequences of multilingual phoneme symbols determined by use of a branched grammar; and comparing said variations of pronunciations with the acoustic input in order to find a match.

6,154,722	Method and apparatus for a speech recognition system language model that integrates a finite state grammar probability and an N-gram probability	Apple Computer, Inc.	Bellegarda; Jerome R.	704	G10L	19971218	0	100%	<input type="checkbox"/>
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Abstract: A method and an apparatus for a speech recognition system that uses a language model based on an integrated finite state grammar probability and an n-gram probability are provided. According to one aspect of the invention, speech signals are received into a processor of a speech recognition system. The speech signals are processed using a speech recognition system hosting a language model. The language model is produced by integrating a finite state grammar probability and an n-gram probability. In the integration, the n-gram probability is modified based on information provided by the finite state grammar probability; thus, the finite state grammar probability is subordinate to the n-gram probability. The language model is used by a decoder along with at least one acoustic model to perform a hypothesis search on an acoustic sequence to provide a word sequence output. The word sequence generated is representative of the received speech signals.

MainClaim: A method for recognizing speech comprising:

receiving speech signals into a processor;

processing the received speech signals using a language model produced by integrating a finite state grammar probability and an n-gram probability with the finite state grammar probability being subordinated to the n-gram probability, wherein the language model comprises a probability that is specified by the equation $##EQU4##$ where, w_q is the word about to be predicted, H_q is the admissible history for this particular word, G is the probabilistic finite state grammar, S_q is the present sentence up to w_q , and V is the vocabulary to which w_q belongs; and

generating a word sequence representative of the received speech signals.

2006/0064177	System and method for measuring confusion among words in an	Nokia Corporation	Tian; Jilei Sivadas; Sunil	700	G05B	20050609	21	97%	<input type="checkbox"/>
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	adaptive speech recognition system		Lahti; Tommi						
Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshiten distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus. MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.									
7,319,960	Speech recognition method and system	Nokia Corporation	Riis; Soren Koumpis; Konstantinos	704	G10L	20011219	8	97%	<input type="checkbox"/>
Abstract: A speech recognition system uses a phoneme counter to determine the length of a word to be recognized. The result is used to split a lexicon into one or more sub-lexicons containing only words which have the same or similar length to that of the word to be recognized, so restricting the search space significantly. In another aspect, a phoneme counter is used to estimate the number of phonemes in a word so that a transition bias can be calculated. This bias is applied to the transition probabilities between phoneme models in an HNN based recognizer to improve recognition performance for relatively short or long words. MainClaim: A speech recognition system in which a word to be recognized is represented as a sequence of phonetic segment models in which a transition probability represents the probability of the occurrence of a transition between the models, comprising: means for estimating the number of phonetic segments in the word to be recognized; and means for biasing the transition probabilities in dependence on the estimated number of phonetic segments in the word.									
7,043,431	Multilingual speech recognition system using text derived recognition models	Nokia Corporation	Riis; So Jensen; Ka Pedersen; Morten With	704	G10L	20010831	6	96%	<input type="checkbox"/>
Abstract: There is provided a novel approach for generating multilingual text-to-phoneme mappings for use in multilingual speech recognition systems. The multilingual mappings are based on the weighted output from a neural network text-to-phoneme model, trained on data mixed from several languages. The multilingual mappings used together with a branched grammar decoding scheme is able to capture both inter- and intra-language pronunciation variations which is ideal for multilingual speaker independent recognition systems. A significant improvement in overall system performance is obtained for a multilingual speaker independent name dialing task when applying multilingual instead of language dependent text-to-phoneme mapping. MainClaim: A method of speech recognition in order to identify a speech command as a match to a written text command comprising the steps: providing a text input from a text database; receiving an acoustic input; generating sequences of multilingual phoneme symbols based on said text input by means of a multilingual text-to-phoneme module; generating variations of pronunciations which are recognizable in response to said sequences of multilingual phoneme symbols determined by use of a branched grammar; and comparing said variations of pronunciations with the acoustic input in order to find a match.									
6,208,971	Method and apparatus for command recognition using data-driven semantic inference	Apple Computer, Inc.	Bellegarda; Jerome R. Silverman; Kim E. A.	704	G10L	19981030	0	100%	<input type="checkbox"/>
Abstract: A method and apparatus for command recognition using data-driven semantic inference includes recognizing a sequence of words received as the voice command. Data-driven semantic inference is then used with the recognized sequence of words to recognize the voice command. Thus, the command is identified on the basis of the semantics of words of the spoken command rather than the particular grammar of each of predetermined different ways the command could be worded. MainClaim: A method for recognizing a voice command, the method comprising: recognizing a sequence of words received as the voice command; and using data-driven semantic inference with the recognized sequence of words to recognize the voice command.									
2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivasdas; Sunil Lahti; Tommi	700	G05B	20050609	21	96%	<input type="checkbox"/>
Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshiten distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus. MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.									
2006/0074924	Optimization of text-based training set selection for language processing modules	Nokia Corporation	Tilei; Jian Nurminen; Jani K.	707	G06F	20040917	11	95%	<input type="checkbox"/>
Abstract: A device and a method provide for selection of a database from a corpus using an, optimization function. The method									

includes defining a size of a database, calculating a distance using a distance function for each pair in a set of pairs, and executing an optimization function using the distance to select each entry saved in the database until the number of saved entries equals the size of the database. Each pair in the set of pairs includes either two entries selected from a corpus or one entry selected from a set of previously selected entries and another entry selected from a set of a remaining portion of the corpus. The distance function may be a Levenshtein distance function or a generalized Levenshtein distance function.

MainClaim: A method of selecting a database from a corpus, the method comprising: defining a size of a database; calculating a coefficient for at least one pair in a set of pairs; and executing a function to select each entry to be saved in the database until a number of entries of the database equals the size of the database.

2005/0267755	Arrangement for speech recognition	Nokia Corporation	Suontausta, Janne	704	G10L	20040527	15	94%	<input type="checkbox"/>
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Abstract: A speech recognizer comprises a random access memory, a downloader for loading decision trees from a set of decision trees into said random access memory, a vocabulary comprising one or more words of a language, a divider for dividing at least one word of the vocabulary into subwords, and a transcription generator adapted to process at least one subword. The downloader is adapted to download a subset of the set of decision trees at a time into said random access memory. The transcription generator is further adapted to generate at least one phoneme transcription for the subword using the subset of decision trees. The speech recognizer also comprises a combiner for combining the generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words. The invention also relates to a device, a system, a module, a method, a computer program product and a data structure.

MainClaim: A speech recognizer comprising: a random access memory; a downloader for loading decision trees from a set of decision trees into said random access memory; a vocabulary comprising one or more words of a language; a divider for dividing at least one word of said vocabulary into subwords; a transcription generator adapted to process at least one subword, wherein the downloader is adapted to download a subset of the set of decision trees at a time into said random access memory, and the transcription generator is further adapted to generate at least one phoneme transcription for said subword using said subset of the decision trees; and a combiner for combining generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words.

6,836,760	Use of semantic inference and context-free grammar with speech recognition system	Apple Computer, Inc.	Bellegarda; Jerome R. Silverman; Kim E. A.	704	G10L	20000929	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus to use semantic inference with speech recognition systems includes recognizing at least one spoken word, processing the spoken word using a context-free grammar, deriving an output from the context-free grammar, and translating the output to a predetermined command.

MainClaim: A machine-implemented method for speech recognition comprising:

recognizing at least one spoken word;

processing said spoken word using a context-free grammar;

deriving an output from said context-free grammar; and

translating said output into a predetermined command, wherein said translating comprises semantically inferring said predetermined command from said output.

2005/0267755	Arrangement for speech recognition	Nokia Corporation	Suontausta, Janne	704	G10L	20040527	15	96%	<input type="checkbox"/>
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Abstract: A speech recognizer comprises a random access memory, a downloader for loading decision trees from a set of decision trees into said random access memory, a vocabulary comprising one or more words of a language, a divider for dividing at least one word of the vocabulary into subwords, and a transcription generator adapted to process at least one subword. The downloader is adapted to download a subset of the set of decision trees at a time into said random access memory. The transcription generator is further adapted to generate at least one phoneme transcription for the subword using the subset of decision trees. The speech recognizer also comprises a combiner for combining the generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words. The invention also relates to a device, a system, a module, a method, a computer program product and a data structure.

MainClaim: A speech recognizer comprising: a random access memory; a downloader for loading decision trees from a set of decision trees into said random access memory; a vocabulary comprising one or more words of a language; a divider for dividing at least one word of said vocabulary into subwords; a transcription generator adapted to process at least one subword, wherein the downloader is adapted to download a subset of the set of decision trees at a time into said random access memory, and the transcription generator is further adapted to generate at least one phoneme transcription for said subword using said subset of the decision trees; and a combiner for combining generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words.

2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivasdas; Sunil Lahti; Tommi	700	G05B	20050609	21	96%	<input type="checkbox"/>
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Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshtein distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus.

MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.

2006/0074669	Speech grammars having priority levels	Nokia Corporation	Seppala; Esa H.	704	G10L	20040923	10	95%	<input type="checkbox"/>
<p>Abstract: In a speech recognition environment where time constraint limits the use of stored grammars in matching with a speech, the phonemes converted words are built into a number of trees of different priority levels so that the number of the trees combined into a concatenated tree for speech recognition is based at least partly on the time constraint. The trees of a lower priority level are used only when the time constraint allows such use and the trees of a higher priority level are used at least partly prior to the trees of a lower priority level being used.</p> <p>MainClaim: A method of organizing grammars for use in an electronic device, the grammars having grammar items organized into trees of ordered branches, said method comprising: ranking at least a part of the grammar items according to a grammar rule; sorting at least part of the grammar items into grammar groups of different priority levels based at least partly on the ranking; and building at least one tree separately for the grammar groups.</p>									
5,680,510	System and method for generating and using context dependent sub-syllable models to recognize a tonal language	Apple Computer, Inc.	Hon; Hsiao-Wuen Yuan; Bao-Sheng	704	G10L	19950126	0	100%	<input type="checkbox"/>
<p>Abstract: A speech recognition system for Mandarin Chinese comprises a preprocessor, HMM storage, speech identifier, and speech determinator. The speech identifier includes pseudo initials for representing glottal stops that precede syllables of lone finals. The HMM storage stores context dependent models of the initials, finals, and pseudo initials that make the syllables of Mandarin Chinese speech. The models may be dependent on associated initials or finals and on the tone of the syllable. The speech determinator joins the initials and finals and pseudo initials and finals according to the syllables of the speech identifier. The speech determinator then compares input signals of syllables to the joined models to determine the phonetic structure of the syllable and the tone of the syllable. The system also includes a smoother for smoothing models to make recognitions more robust. The smoother comprises an LDM generator and a detailed model modifier. The LDM generator generates less detailed models from the detailed models, and the detailed model modifier smoothes the models with the less detailed models. A method for recognizing Mandarin Chinese speech includes the steps of arranging context dependent, sub-syllable models; comparing an input signal to the arranged models; and selecting the arrangement of models that best matches the input signal to recognize the phonetic structure and tone of the input signal.</p> <p>MainClaim: A speech recognition system for recognizing syllables of a language, the syllables of the language each being formed from an initial sub-syllable and a final sub-syllable, the speech recognition system comprising:</p> <p>a speech identifier for storing a plurality of valid combinations of initial sub-syllables and final sub-syllables;</p> <p>a storage device for storing a plurality of initial sub-syllable models and final sub-syllable models; and</p> <p>a speech determinator for receiving:</p> <p>an input signal to be recognized via a first input;</p> <p>the plurality of valid combinations from the speech identifier via a second input; and</p> <p>the plurality of models from the storage device via a third input;</p> <p>wherein, after the speech determinator receives the input signal, the plurality of valid combinations and the plurality of models, the speech determinator creates appended models from the received plurality of models according to the received plurality of valid combinations, each appended model comprising a final sub-syllable model appended to the end of an initial sub-syllable model, compares the input signal to each appended model, and then generates and outputs a signal indicating one of the appended models that most closely matches the input signal.</p>									
2008/0082333	Prosody Conversion	NOKIA CORPORATION	Nurminen; Jani K. Helander; Elina	704	G10L	20060929	8	95%	<input type="checkbox"/>
<p>Abstract: A contour for a syllable (or other speech segment) in a voice undergoing conversion is transformed. The transform of that contour is then used to identify one or more source syllable transforms in a codebook. Information regarding the context and/or linguistic features of the contour being converted can also be compared to similar information in the codebook when identifying an appropriate source transform. Once a codebook source transform is selected, an inverse transformation is performed on a corresponding codebook target transform to yield an output contour. The corresponding codebook target transform represents a target voice version of the same syllable represented by the selected codebook source transform. The output contour may be further processed to improve conversion quality.</p> <p>MainClaim: A method comprising:(a) receiving data for a plurality of segments of a passage in a source voice, wherein the data for each segment of the plurality models a prosodic component of the source voice for that segment;(b) identifying a target voice entry in a codebook for each of the source voice passage segments, wherein each of the identified target voice entries models a prosodic component of a target voice for a different segment of codebook training material, and wherein the codebook training material is substantially different from the passage; and(c) generating a target voice version of the plurality of passage segments by altering the modeled source voice prosodic component for each segment to replicate the target voice prosodic component modeled by the target voice entry identified for that segment in (b).</p>									
7,319,960	Speech recognition method and system	Nokia Corporation	Riis; Soren Koumpis; Konstantinos	704	G10L	20011219	8	95%	<input type="checkbox"/>
<p>Abstract: A speech recognition system uses a phoneme counter to determine the length of a word to be recognized. The result is used to split a lexicon into one or more sub-lexicons containing only words which have the same or similar length to that of the word to be recognized, so restricting the search space significantly. In another aspect, a phoneme counter is used to estimate the number of phonemes in a word so that a transition bias can be calculated. This bias is applied to the transition probabilities between phoneme models in an HNN based recognizer to improve recognition performance for relatively short or long words.</p> <p>MainClaim: A speech recognition system in which a word to be recognized is represented as a sequence of phonetic segment</p>									

models in which a transition probability represents the probability of the occurrence of a transition between the models, comprising: means for estimating the number of phonetic segments in the word to be recognized; and means for biasing the transition probabilities in dependence on the estimated number of phonetic segments in the word.

2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivasdas; Sunil Lahti; Tommi	700	G05B	20050609	21	95%	<input type="checkbox"/>
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Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshten distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus.

MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.

7,702,509	Unsupervised data-driven pronunciation modeling	Apple Inc.	Bellegarda; Jerome R.	704	G10L	20061121	0	100%	<input type="checkbox"/>
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Abstract: Pronunciation for an input word is modeled by generating a set of candidate phoneme strings having pronunciations close to the input word in an orthographic space. Phoneme sub-strings in the set are selected as the pronunciation. In one aspect, a first closeness measure between phoneme strings for words chosen from a dictionary and contexts within the input word is used to determine the candidate phoneme strings. The words are chosen from the dictionary based on a second closeness measure between a representation of the input word in the orthographic space and orthographic anchors corresponding to the words in the dictionary. In another aspect, the phoneme sub-strings are selected by aligning the candidate phoneme strings on common phoneme sub-strings to produce an occurrence count, which is used to choose the phoneme sub-strings for the pronunciation.

MainClaim: A computerized method comprising: receiving pronunciation data for an out-of-vocabulary word, the pronunciation data comprising phoneme sub-strings selected from candidate phoneme strings having pronunciation data associated with orthographic anchors that are close to a vector representation of the out-of-vocabulary word in an orthographical vector space defined by a dictionary; and reproducing the pronunciation data for the out-of-vocabulary word as an audible signal.

2007/0073541	Method for compressing dictionary data	Nokia Corporation	Tian; Jilei	704	G10L	20061129	5	93%	<input type="checkbox"/>
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Abstract: The invention relates to pre-processing of a pronunciation dictionary for compression in a data processing device, the pronunciation dictionary comprising at least one entry, the entry comprising a sequence of character units and a sequence of phoneme units. According to one aspect of the invention the sequence of character units and the sequence of phoneme units are aligned using a statistical algorithm. The aligned sequence of character units and aligned sequence of phoneme units are interleaved by inserting each phoneme unit at a predetermined location relative to the corresponding character unit.

MainClaim: An electronic device comprising a processing unit and a memory for storing a pre-processed pronunciation dictionary including a first set of units having character units and a second set of units having phoneme units, the units of the first set and the units of the second set being aligned and interleaved by having each phoneme unit at a predetermined location relative to the corresponding character unit, wherein the electronic device is configured to find a matching entry for a text string input from the pre-processed pronunciation dictionary using said first set of units of the entry from the predetermined locations; the electronic device is configured to select from said matching entry phoneme units of said second set of units from predetermined locations; and the electronic device is configured to concatenate the selected phoneme units into a sequence of phoneme units.

7,047,193	Unsupervised data-driven pronunciation modeling	Apple Computer, Inc.	Bellegarda; Jerome R.	704	G10L	20020913	0	100%	<input type="checkbox"/>
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Abstract: Pronunciation for an input word is modeled by generating a set of candidate phoneme strings having pronunciations close to the input word in an orthographic space. Phoneme sub-strings in the set are selected as the pronunciation. In one aspect, a first closeness measure between phoneme strings for words chosen from a dictionary and contexts within the input word is used to determine the candidate phoneme strings. The words are chosen from the dictionary based on a second closeness measure between a representation of the input word in the orthographic space and orthographic anchors corresponding to the words in the dictionary. In another aspect, the phoneme sub-strings are selected by aligning the candidate phoneme strings on common phoneme sub-strings to produce an occurrence count, which is used to choose the phoneme sub-strings for the pronunciation.

MainClaim: A computerized method comprising: generating a set of candidate phoneme strings having pronunciations close to an input word in an orthographic space based on a first closeness measure between phoneme strings for words chosen from a dictionary and contexts within the input word, the choice of words from the dictionary based on a second closeness measure between a representation of the input word in the orthographic space and orthographic anchors corresponding to the words in the dictionary; and selecting phoneme sub-strings from the set as a pronunciation for the input word.

2006/0074924	Optimization of text-based training set selection for language processing modules	Nokia Corporation	Tilei; Jian Nurminen; Jani K.	707	G06F	20040917	11	97%	<input type="checkbox"/>
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Abstract: A device and a method provide for selection of a database from a corpus using an, optimization function. The method includes defining a size of a database, calculating a distance using a distance function for each pair in a set of pairs, and executing an optimization function using the distance to select each entry saved in the database until the number of saved entries equals the size of the database. Each pair in the set of pairs includes either two entries selected from a corpus or one entry selected from a set of previously selected entries and another entry selected from a set of a remaining portion of the corpus. The distance function may be a Levenshtein distance function or a generalized Levenshtein distance function.

MainClaim: A method of selecting a database from a corpus, the method comprising: defining a size of a database; calculating a coefficient for at least one pair in a set of pairs; and executing a function to select each entry to be saved in the database until

a number of entries of the database equals the size of the database.

2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivasdas; Sunil Lahti; Tommi	700	G05B	20050609	21	96%	<input type="checkbox"/>
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Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshiten distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus.

MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.

2007/0078653	Language model compression	Nokia Corporation	Olsen; Jesper	704	G10L	20051003	10	95%	<input type="checkbox"/>
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Abstract: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities. The method comprises forming at least one group of N-grams from the plurality of N-grams; sorting N-gram probabilities associated with the N-grams of the at least one group of N-grams; and determining a compressed representation of the sorted N-gram probabilities. The at least one group of N-grams may be formed from N-grams of the plurality of N-grams that are conditioned on the same (N-1)-tuple of preceding words. The compressed representation of the sorted N-gram probabilities may be a sampled representation of the sorted N-gram probabilities or may comprise an index into a codebook. The invention further relates to an according computer program product and device, to a storage medium for at least partially storing a language model, and to a device for processing data at least partially based on a language model.

MainClaim: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities, said method comprising: forming at least one group of N-grams from said plurality of N-grams; sorting N-gram probabilities associated with said N-grams of said at least one group of N-grams; and determining a compressed representation of said sorted N-gram probabilities.

7,313,523	Method and apparatus for assigning word prominence to new or previous information in speech synthesis	Apple Inc.	Bellegarda; Jerome R. Silverman; Kim E. A.	704	G10L	20030514	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus is provided for generating speech that sounds more natural. In one embodiment, word prominence and latent semantic analysis are used to generate more natural sounding speech. A method for generating speech that sounds more natural may comprise generating synthesized speech having certain word prominence characteristics and applying a semantically-driven word prominence assignment model to specify word prominence consistent with the way humans assign word prominence. A speech representative of a current sentence is generated. The determination is made whether information in the current sentence is new or previously given in accordance with a semantic relationship between the current sentence and a number of preceding sentences. A word prominence is assigned to a word in the current sentence in accordance with the information determination.

MainClaim: An apparatus for assigning word prominence in synthetic speech comprising: a memory having stored thereon a set of instructions; and a processing device coupled with the memory, the processing device, when executing the set of instructions, to generate a speech representative of a current sentence, determine whether an information in the current sentence is new or previously given based on a semantic relationship between the current sentence and a number of preceding sentences, and assign a word prominence to a word in the current sentence in accordance with the information determination.

2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivasdas; Sunil Lahti; Tommi	700	G05B	20050609	21	95%	<input type="checkbox"/>
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Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshiten distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus.

MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.

2009/0157385	Inverse Text Normalization	Nokia Corporation	Tian; Jilei	704	G06F	20071214	14	94%	<input type="checkbox"/>
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Abstract: Embodiments are directed to efficient multilingual inverse text normalization (ITN) of text in spoken form to produce normalized text for display. Embodiments are directed to preprocessing the multilingual text into a language-independent representation, tokenizing text in spoken form, segmenting the tokenized text into ITN items by grouping consecutive words using an ITN lexicon, classifying the ITN items into ITN categories by using the ITN lexicon or tagged information from language model, applying one or more ITN rules that are selected based on the ITN categories into which ITN items have been classified to rewrite the ITN items; and post processing the ITN item and outputting inversely normalized text in written form for display. The ITN lexicon may include ITN lexicon entries that are each located within an ITN category in the ITN lexicon.

MainClaim: A method comprising: segmenting text in spoken form into inverse text normalization items by grouping consecutive words using an inverse text normalization lexicon; classifying the inverse text normalization items into inverse text normalization categories by using the inverse text normalization lexicon; applying one or more inverse text normalization rules

that are selected based on the inverse text normalization categories into which inverse text normalization items have been classified to rewrite the inverse text normalization items; and post processing the inverse text normalization item and outputting inversely normalized text in written form for display.

2005/0267755	Arrangement for speech recognition	Nokia Corporation	Suontausta, Janne	704	G10L	20040527	15	94%	<input type="checkbox"/>
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Abstract: A speech recognizer comprises a random access memory, a downloader for loading decision trees from a set of decision trees into said random access memory, a vocabulary comprising one or more words of a language, a divider for dividing at least one word of the vocabulary into subwords, and a transcription generator adapted to process at least one subword. The downloader is adapted to download a subset of the set of decision trees at a time into said random access memory. The transcription generator is further adapted to generate at least one phoneme transcription for the subword using the subset of decision trees. The speech recognizer also comprises a combiner for combining the generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words. The invention also relates to a device, a system, a module, a method, a computer program product and a data structure.

MainClaim: A speech recognizer comprising: a random access memory; a downloader for loading decision trees from a set of decision trees into said random access memory; a vocabulary comprising one or more words of a language; a divider for dividing at least one word of said vocabulary into subwords; a transcription generator adapted to process at least one subword, wherein the downloader is adapted to download a subset of the set of decision trees at a time into said random access memory, and the transcription generator is further adapted to generate at least one phoneme transcription for said subword using said subset of the decision trees; and a combiner for combining generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words.

7,165,032	Unsupervised data-driven pronunciation modeling	Apple Computer, Inc.	Bellegarda; Jerome R.	704	G10L	20021122	0	100%	<input type="checkbox"/>
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Abstract: Pronunciation for an input word is modeled by generating a set of candidate phoneme strings having pronunciations close to the input word in an orthographic space. Phoneme sub-strings in the set are selected as the pronunciation. In one aspect, a first closeness measure between phoneme strings for words chosen from a dictionary and contexts within the input word is used to determine the candidate phoneme strings. The words are chosen from the dictionary based on a second closeness measure between a representation of the input word in the orthographic space and orthographic anchors corresponding to the words in the dictionary. In another aspect, the phoneme sub-strings are selected by aligning the candidate phoneme strings on common phoneme sub-strings to produce an occurrence count, which is used to choose the phoneme sub-strings for the pronunciation.

MainClaim: A computerized method comprising: receiving, by a client from a server, an orthographic space; generating a set of candidate phoneme strings having pronunciations close to an input word in the orthographic space; and selecting phoneme sub-strings from the set as a pronunciation for the input word.

2006/0074924	Optimization of text-based training set selection for language processing modules	Nokia Corporation	Tilei; Jian Nurminen; Jani K.	707	G06F	20040917	11	96%	<input type="checkbox"/>
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Abstract: A device and a method provide for selection of a database from a corpus using an optimization function. The method includes defining a size of a database, calculating a distance using a distance function for each pair in a set of pairs, and executing an optimization function using the distance to select each entry saved in the database until the number of saved entries equals the size of the database. Each pair in the set of pairs includes either two entries selected from a corpus or one entry selected from a set of previously selected entries and another entry selected from a set of a remaining portion of the corpus. The distance function may be a Levenshtein distance function or a generalized Levenshtein distance function.

MainClaim: A method of selecting a database from a corpus, the method comprising: defining a size of a database; calculating a coefficient for at least one pair in a set of pairs; and executing a function to select each entry to be saved in the database until a number of entries of the database equals the size of the database.

2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivasdas; Sunil Lahti; Tommi	700	G05B	20050609	21	96%	<input type="checkbox"/>
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Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshtein distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus.

MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.

2007/0078653	Language model compression	Nokia Corporation	Olsen; Jesper	704	G10L	20051003	10	95%	<input type="checkbox"/>
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Abstract: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities. The method comprises forming at least one group of N-grams from the plurality of N-grams; sorting N-gram probabilities associated with the N-grams of the at least one group of N-grams; and determining a compressed representation of the sorted N-gram probabilities. The at least one group of N-grams may be formed from N-grams of the plurality of N-grams that are conditioned on the same (N-1)-tuple of preceding words. The compressed representation of the sorted N-gram probabilities may be a sampled representation of the sorted N-gram probabilities or may comprise an index into a codebook. The invention further relates to an according computer program product and device, to a storage medium for at least partially storing a language model, and to a device for processing data at least partially based on a language model.

MainClaim: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities, said method comprising: forming at least one group of N-grams from said plurality of N-grams; sorting N-gram probabilities associated with said N-grams of said at least one group of N-grams; and determining a compressed representation of said sorted N-gram probabilities.

7,353,164	Representation of orthography in a continuous vector space	Apple Inc.	Bellegarda; Jerome R.	704	G06F	20020913	0	100%	<input type="checkbox"/>
<p>Abstract: An orthographic anchor for each word in a dictionary is created in an orthographic space by mapping the words and a set of letter patterns characteristic of the words into the orthographic space. In one aspect the orthographic anchors are row or column vectors resulting from a decomposition of a matrix of feature vectors created by the mapping. In another aspect, a pronunciation for an input word is modeled based on a set of candidate phoneme strings that have pronunciations close to the input word in the orthographic space.</p> <p>MainClaim: A computerized method comprising: mapping words in a dictionary and a set of letter patterns that are characteristic of the words into an orthographic space to create orthographic anchors, each orthographic anchor corresponding to a word in the dictionary, wherein the mapping comprises: creating a matrix of feature vectors from the letter patterns and the words; decomposing the matrix into row vectors and column vectors; and selecting vectors from one of the row vectors and column vectors as the orthographic anchors.</p>									
2006/0074924	Optimization of text-based training set selection for language processing modules	Nokia Corporation	Tilei; Jian Nurminen; Jani K.	707	G06F	20040917	11	96%	<input type="checkbox"/>
<p>Abstract: A device and a method provide for selection of a database from a corpus using an, optimization function. The method includes defining a size of a database, calculating a distance using a distance function for each pair in a set of pairs, and executing an optimization function using the distance to select each entry saved in the database until the number of saved entries equals the size of the database. Each pair in the set of pairs includes either two entries selected from a corpus or one entry selected from a set of previously selected entries and another entry selected from a set of a remaining portion of the corpus. The distance function may be a Levenshtein distance function or a generalized Levenshtein distance function.</p> <p>MainClaim: A method of selecting a database from a corpus, the method comprising: defining a size of a database; calculating a coefficient for at least one pair in a set of pairs; and executing a function to select each entry to be saved in the database until a number of entries of the database equals the size of the database.</p>									
2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivasdas; Sunil Lahti; Tommi	700	G05B	20050609	21	95%	<input type="checkbox"/>
<p>Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshtien distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus.</p> <p>MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.</p>									
2007/0078653	Language model compression	Nokia Corporation	Olsen; Jesper	704	G10L	20051003	10	94%	<input type="checkbox"/>
<p>Abstract: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities. The method comprises forming at least one group of N-grams from the plurality of N-grams; sorting N-gram probabilities associated with the N-grams of the at least one group of N-grams; and determining a compressed representation of the sorted N-gram probabilities. The at least one group of N-grams may be formed from N-grams of the plurality of N-grams that are conditioned on the same (N-1)-tuple of preceding words. The compressed representation of the sorted N-gram probabilities may be a sampled representation of the sorted N-gram probabilities or may comprise an index into a codebook. The invention further relates to an according computer program product and device, to a storage medium for at least partially storing a language model, and to a device for processing data at least partially based on a language model.</p> <p>MainClaim: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities, said method comprising: forming at least one group of N-grams from said plurality of N-grams; sorting N-gram probabilities associated with said N-grams of said at least one group of N-grams; and determining a compressed representation of said sorted N-gram probabilities.</p>									
5,884,261	Method and apparatus for tone-sensitive acoustic modeling	Apple Computer, inc.	de Souza; Peter V. Fineberg; Adam B. Hon; Hsiao-Wuen Yuan; Baosheng	704	G10L	19940707	0	100%	<input type="checkbox"/>
<p>Abstract: Tone-sensitive acoustic models are generated by first generating acoustic vectors which represent the input data. The input data is separated into multiple frames and an acoustic vector is generated for each frame which represents the input data over its corresponding frame. A tone-sensitive parameter is then generated for each of the frames which indicates the tone of the input data at its corresponding frame. Tone-sensitive parameters are generated in accordance with two embodiments. First, a pitch detector may be used to calculate a pitch for each of the frames. If a pitch cannot be detected for a particular frame, then a pitch is created for that frame based on the pitch values of surrounding frames. Second, the cross covariance between the autocorrelation coefficients for each frame and its successive frame may be generated and used as the tone-sensitive parameter. Feature vectors are then created for each frame by appending the tone-sensitive parameter for a frame to the acoustic vector for the same frame. Then, using these feature vectors, acoustic models are created which represent the input data.</p> <p>MainClaim: A method for generating a tone-dependent acoustic model comprising the steps of:</p> <p>(a) generating a plurality of acoustic vectors representing a plurality of input data frames;</p> <p>(b) generating a plurality of tone-sensitive parameters corresponding to said data frames;</p>									

(c) creating a plurality of feature vectors corresponding to said data frames by appending said plurality of tone-sensitive parameters to said plurality of acoustic vectors; and

(d) creating an acoustic model from said plurality of feature vectors.

7,505,950	Soft alignment based on a probability of time alignment	Nokia Corporation	Tian; Jilei Nurminen; Jani Popa; Victor	706	G06F	20060426	3	97%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for performing soft alignment in Gaussian mixture model (GMM) based and other vector transformations. Soft alignment may assign alignment probabilities to source and target feature vector pairs. The vector pairs and associated probabilities may then be used calculate a conversion function, for example, by computing GMM training parameters from the joint vectors and alignment probabilities to create a voice conversion function for converting speech sounds from a source speaker to a target speaker.

MainClaim: A method comprising: receiving a first sequence of feature vectors associated with a source speaker for processing based on operations controlled by a processor; receiving a second sequence of feature vectors associated with a target speaker; generating a third sequence of joint feature vectors, wherein the generation of each joint feature vector is based on: a first vector from the first sequence; a first vector from the second sequence; and a first probability value representing the probability that the first vector from the first sequence and the first vector from the second sequence are time aligned to the same feature in their respective sequences; and applying the third sequence of joint feature vectors as a part of a voice conversion process.

2007/0256189	SOFT ALIGNMENT IN GAUSSIAN MIXTURE MODEL BASED TRANSFORMATION	NOKIA CORPORATION	Tian; Jilei Nurminen; Jani Popa; Victor	800	C12N	20060426	6	97%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for performing soft alignment in Gaussian mixture model (GMM) based and other vector transformations. Soft alignment may assign alignment probabilities to source and target feature vector pairs. The vector pairs and associated probabilities may then be used calculate a conversion function, for example, by computing GMM training parameters from the joint vectors and alignment probabilities to create a voice conversion function for converting speech sounds from a source speaker to a target speaker.

MainClaim: A method for time aligning a first sequence of feature vectors with a second sequence of feature vectors comprising the steps of: receiving a first sequence of feature vectors associated with a source; receiving a second sequence of feature vectors associated with a target; and generating a third sequence of joint feature vectors, wherein the generation of each joint feature vector is based on: a first vector from the first sequence; a first vector from the second sequence; and a first probability value representing the probability that the first vector from the first sequence and the first vector from the second sequence are aligned to the same feature in their respective sequences.

2007/0088552	Method and a device for speech recognition	Nokia Corporation	Olsen; Jesper	704	G10L	20051017	9	97%	<input type="checkbox"/>
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Abstract: Method for speech recognition comprising inputting frames comprising samples of an audio signal; forming a feature vector comprising a first number of vector components for each frame; projecting the feature vector onto at least two subspaces so that the number of components of each projected feature vector is less than the first number and the total number of components of the projected feature vectors is the same as the first number; defining a set of mixture models for each projected vector which provides the highest observation probability; analysing the set of mixture models to determine the recognition result. When the recognition result is found, the method comprises determining a confidence measure for the recognition result, the determining comprising determining a probability that the recognition result is correct; determining a normalizing term; and dividing the probability by the normalizing term.

MainClaim: A method for speech recognition comprising: inputting frames comprising samples of an audio signal; forming a feature vector comprising a first number of vector components for each frame; projecting the feature vector onto at least two subspaces so that the number of components of each projected feature vector is less than the first number and the total number of components of the projected feature vectors is the same as the first number; defining a set of mixture models for each projected vector which provides the highest observation probability; analysing the set of mixture models to determine the recognition result; when the recognition result is found, determining a confidence measure for the recognition result, the determining comprising: determining a probability that the recognition result is correct; determining a normalizing term by selecting, for each state, one mixture model among said set of mixture models, which provides the highest likelihood; and dividing the probability by said normalizing term; wherein the method further comprises comparing the confidence measure to a threshold value to determine whether the recognition result is reliable enough.

7,124,081	Method and apparatus for speech recognition using latent semantic adaptation	Apple Computer, Inc.	Bellegarda; Jerome R.	704	G10L	20010928	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for speech recognition using latent semantic adaptation is described herein. According to one aspect of the present invention, a method for recognizing speech comprises using latent semantic analysis (LSA) to generate an LSA space for a collection of documents and to continually adapt the LSA space with new documents as they become available. Adaptation of the LSA space is optimally two-sided, taking into account the new words in the new documents. Alternatively, adaptation is one-sided, taking into account the new documents but discarding any new words appearing in those documents.

MainClaim: A method for generating a speech recognition database comprising: generating a latent semantic analysis (LSA) space from a training corpus of documents representative of a language, wherein the LSA space includes one or more document vectors; receiving a new document that represents a change in the language; and adapting the LSA space to reflect the change in the language, wherein the adapting includes changing a position of the one or more document vectors in the LSA space by the change in the language.

2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivasdas; Sunil Lahti; Tommi	700	G05B	20050609	21	95%	<input type="checkbox"/>
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Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshiten distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a

HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus.

MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.

2006/0074924	Optimization of text-based training set selection for language processing modules	Nokia Corporation	Tilei; Jian Nurminen; Jani K.	707	G06F	20040917	11	94%	<input type="checkbox"/>
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Abstract: A device and a method provide for selection of a database from a corpus using an, optimization function. The method includes defining a size of a database, calculating a distance using a distance function for each pair in a set of pairs, and executing an optimization function using the distance to select each entry saved in the database until the number of saved entries equals the size of the database. Each pair in the set of pairs includes either two entries selected from a corpus or one entry selected from a set of previously selected entries and another entry selected from a set of a remaining portion of the corpus. The distance function may be a Levenshtein distance function or a generalized Levenshtein distance function.

MainClaim: A method of selecting a database from a corpus, the method comprising: defining a size of a database; calculating a coefficient for at least one pair in a set of pairs; and executing a function to select each entry to be saved in the database until a number of entries of the database equals the size of the database.

2007/0078653	Language model compression	Nokia Corporation	Olsen; Jesper	704	G10L	20051003	10	94%	<input type="checkbox"/>
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Abstract: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities. The method comprises forming at least one group of N-grams from the plurality of N-grams; sorting N-gram probabilities associated with the N-grams of the at least one group of N-grams; and determining a compressed representation of the sorted N-gram probabilities. The at least one group of N-grams may be formed from N-grams of the plurality of N-grams that are conditioned on the same (N-1)-tuple of preceding words. The compressed representation of the sorted N-gram probabilities may be a sampled representation of the sorted N-gram probabilities or may comprise an index into a codebook. The invention further relates to an according computer program product and device, to a storage medium for at least partially storing a language model, and to a device for processing data at least partially based on a language model.

MainClaim: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities, said method comprising: forming at least one group of N-grams from said plurality of N-grams; sorting N-gram probabilities associated with said N-grams of said at least one group of N-grams; and determining a compressed representation of said sorted N-gram probabilities.

5,828,999	Method and system for deriving a large-span semantic language model for large-vocabulary recognition systems	Apple Computer, Inc.	Bellegarda; Jerome R. Chow; Yen-Lu	704	G10L	19960506	0	100%	<input type="checkbox"/>
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Abstract: A system and method for deriving a large-span semantic language model for a large vocabulary recognition system is disclosed. The method and system maps words from a vocabulary into a vector space, where each word is represented by a vector. After the vectors are mapped to the space, the vectors are clustered into a set of clusters, where each cluster represents a semantic event. After clustering the vectors, a probability that a first word will occur given a history of prior words is computed by (i) calculating a probability that the vector representing the first word belongs to each of the clusters; (ii) calculating a probability of each cluster occurring in a history of prior words; and weighting (i) by (ii) to provide the probability.

MainClaim: A method for deriving a large-span semantic language model for a large vocabulary recognition system, the method comprising the steps of:

- (a) mapping words into a vector space, where each word is represented by a vector;
- (b) clustering the vectors into a set of clusters, where each cluster represents a semantic event;
- (c) computing a first probability that a first word will occur given a history of prior words by,
 - (i) calculating a second probability that a vector representing the first word belongs to each of the clusters, the second probability capable of being independent of a location of the first word in a sentence;
 - (ii) calculating a third probability of each cluster occurring in a history of prior words; and
 - (iii) weighting the second probability by the third probability.

2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivasadas; Sunil Lahti; Tommi	700	G05B	20050609	21	95%	<input type="checkbox"/>
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Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshiten distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus.

MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a

prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.

2007/0078653	Language model compression	Nokia Corporation	Olsen; Jesper	704	G10L	20051003	10	95%	<input type="checkbox"/>
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Abstract: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities. The method comprises forming at least one group of N-grams from the plurality of N-grams; sorting N-gram probabilities associated with the N-grams of the at least one group of N-grams; and determining a compressed representation of the sorted N-gram probabilities. The at least one group of N-grams may be formed from N-grams of the plurality of N-grams that are conditioned on the same (N-1)-tuple of preceding words. The compressed representation of the sorted N-gram probabilities may be a sampled representation of the sorted N-gram probabilities or may comprise an index into a codebook. The invention further relates to an according computer program product and device, to a storage medium for at least partially storing a language model, and to a device for processing data at least partially based on a language model.

MainClaim: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities, said method comprising: forming at least one group of N-grams from said plurality of N-grams; sorting N-gram probabilities associated with said N-grams of said at least one group of N-grams; and determining a compressed representation of said sorted N-gram probabilities.

2006/0074924	Optimization of text-based training set selection for language processing modules	Nokia Corporation	Tilei; Jian Nurminen; Jani K.	707	G06F	20040917	11	95%	<input type="checkbox"/>
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Abstract: A device and a method provide for selection of a database from a corpus using an, optimization function. The method includes defining a size of a database, calculating a distance using a distance function for each pair in a set of pairs, and executing an optimization function using the distance to select each entry saved in the database until the number of saved entries equals the size of the database. Each pair in the set of pairs includes either two entries selected from a corpus or one entry selected from a set of previously selected entries and another entry selected from a set of a remaining portion of the corpus. The distance function may be a Levenshtein distance function or a generalized Levenshtein distance function.

MainClaim: A method of selecting a database from a corpus, the method comprising: defining a size of a database; calculating a coefficient for at least one pair in a set of pairs; and executing a function to select each entry to be saved in the database until a number of entries of the database equals the size of the database.

5,832,434	Method and apparatus for automatic assignment of duration values for synthetic speech	Apple Computer, Inc.	Meredith; Scott E.	704	G10L	19970117	0	100%	<input type="checkbox"/>
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Abstract: The present invention automatically determines sound duration values, based on context, for phonetic symbols which are produced during text-to-speech conversion. The context-dependent and static attributes of the phonetic symbols are checked and specified. Then, the phonetic symbols are processed by a set of sequential duration-specification rules which set the duration value for each phonetic symbol.

MainClaim: A system for computing phonetic sound pronunciation duration values, comprising:

computer text memory storing computer text;

phoneme memory storing phonemes representing pronunciation of said text and, corresponding to each of said phonemes, duration value data including a minimum duration value, a maximum duration value, the difference value between the maximum duration value and the minimum duration value, and a duration interval value which is defined in terms of a predetermined number of duration value intervals;

duration rule memory storing duration rules and corresponding duration modification values, each duration modification value being defined in terms of the predetermined number of duration value intervals; and

a processor, coupled to the computer text memory, the phoneme memory and the duration rule memory, for using the duration rules to test the phonemes representing the computer text to determine if any of the duration rules are satisfied and for computing a pronunciation duration value based on modification values of satisfied duration rules.

2005/0267755	Arrangement for speech recognition	Nokia Corporation	Suontausta, Janne	704	G10L	20040527	15	92%	<input type="checkbox"/>
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Abstract: A speech recognizer comprises a random access memory, a downloader for loading decision trees from a set of decision trees into said random access memory, a vocabulary comprising one or more words of a language, a divider for dividing at least one word of the vocabulary into subwords, and a transcription generator adapted to process at least one subword. The downloader is adapted to download a subset of the set of decision trees at a time into said random access memory. The transcription generator is further adapted to generate at least one phoneme transcription for the subword using the subset of decision trees. The speech recognizer also comprises a combiner for combining the generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words. The invention also relates to a device, a system, a module, a method, a computer program product and a data structure.

MainClaim: A speech recognizer comprising: a random access memory; a downloader for loading decision trees from a set of decision trees into said random access memory; a vocabulary comprising one or more words of a language; a divider for dividing at least one word of said vocabulary into subwords; a transcription generator adapted to process at least one subword, wherein the downloader is adapted to download a subset of the set of decision trees at a time into said random access memory, and the transcription generator is further adapted to generate at least one phoneme transcription for said subword using said subset of the decision trees; and a combiner for combining generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words.

2008/0091427	Hierarchical word indexes used for efficient N-gram storage	Nokia Corporation	Olsen; Jesper	704	G10L	20061011	5	92%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for compressing data models, for example, N-gram language models used in speech recognition applications. Words in the vocabulary of the language model are assigned to classes of words, for example,

by syntactic criteria, semantic criteria, or statistical analysis of an existing language model. After word classes are defined, the follower lists for words in the vocabulary may be stored as hierarchical sets of class indexes and word indexes within each class. Hierarchical word indexes may reduce the storage requirements for the N-gram language model by more efficiently representing multiple words in a single list in the same follower list.

MainClaim: A method for storing an N-gram model in a memory of a device, comprising: identifying a plurality of word classes; receiving a vocabulary of words, wherein each word in the vocabulary is associated with at least one of the plurality of classes; associating a follower list with each word in the vocabulary; storing in the memory information associated with a first word in the vocabulary, the information comprising: (1) a first class index corresponding to a class in which at least a subset of the follower list is a member, and (2) a first plurality of word indexes corresponding to at least a subset of the follower list for the first word, wherein said word indexes are indexed based on the first class index.

7,643,990	Global boundary-centric feature extraction and associated discontinuity metrics	Apple Inc.	Bellegarda; Jerome R.	704	G10L	20031023	0	100%	<input checked="" type="checkbox"/>
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Abstract: Portions from time-domain speech segments are extracted. Feature vectors that represent the portions in a vector space are created. The feature vectors incorporate phase information of the portions. A distance between the feature vectors in the vector space is determined. In one aspect, the feature vectors are created by constructing a matrix W from the portions and decomposing the matrix W. In one aspect, decomposing the matrix W comprises extracting global boundary-centric features from the portions. In one aspect, the portions include at least one pitch period. In another aspect, the portions include centered pitch periods.

MainClaim: A machine-implemented method comprising: i. extracting, via a microprocessor, portions from speech segments, the portions surrounding a segment boundary within a phoneme; ii. identifying time samples from the portions; iii. constructing a matrix W containing first data corresponding to the time samples from the portions surrounding the segment boundary within the phoneme and second data corresponding to the portions; iv. deriving feature vectors that represent the portions in a vector space by decomposing the matrix W containing the first data corresponding to the time samples from the portions surrounding the segment boundary within the phoneme and the second data corresponding to the portions; and v. determining a distance between the feature vectors in the vector space.

2008/0082333	Prosody Conversion	NOKIA CORPORATION	Nurminen; Jani K. Helander; Elina	704	G10L	20060929	8	93%	<input type="checkbox"/>
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Abstract: A contour for a syllable (or other speech segment) in a voice undergoing conversion is transformed. The transform of that contour is then used to identify one or more source syllable transforms in a codebook. Information regarding the context and/or linguistic features of the contour being converted can also be compared to similar information in the codebook when identifying an appropriate source transform. Once a codebook source transform is selected, an inverse transformation is performed on a corresponding codebook target transform to yield an output contour. The corresponding codebook target transform represents a target voice version of the same syllable represented by the selected codebook source transform. The output contour may be further processed to improve conversion quality.

MainClaim: A method comprising: (a) receiving data for a plurality of segments of a passage in a source voice, wherein the data for each segment of the plurality models a prosodic component of the source voice for that segment; (b) identifying a target voice entry in a codebook for each of the source voice passage segments, wherein each of the identified target voice entries models a prosodic component of a target voice for a different segment of codebook training material, and wherein the codebook training material is substantially different from the passage; and (c) generating a target voice version of the plurality of passage segments by altering the modeled source voice prosodic component for each segment to replicate the target voice prosodic component modeled by the target voice entry identified for that segment in (b).

7,505,950	Soft alignment based on a probability of time alignment	Nokia Corporation	Tian; Jilei Nurminen; Jani Popa; Victor	706	G06F	20060426	3	93%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for performing soft alignment in Gaussian mixture model (GMM) based and other vector transformations. Soft alignment may assign alignment probabilities to source and target feature vector pairs. The vector pairs and associated probabilities may then be used calculate a conversion function, for example, by computing GMM training parameters from the joint vectors and alignment probabilities to create a voice conversion function for converting speech sounds from a source speaker to a target speaker.

MainClaim: A method comprising: receiving a first sequence of feature vectors associated with a source speaker for processing based on operations controlled by a processor; receiving a second sequence of feature vectors associated with a target speaker; generating a third sequence of joint feature vectors, wherein the generation of each joint feature vector is based on: a first vector from the first sequence; a first vector from the second sequence; and a first probability value representing the probability that the first vector from the first sequence and the first vector from the second sequence are time aligned to the same feature in their respective sequences; and applying the third sequence of joint feature vectors as a part of a voice conversion process.

2007/0256189	SOFT ALIGNMENT IN GAUSSIAN MIXTURE MODEL BASED TRANSFORMATION	NOKIA CORPORATION	Tian; Jilei Nurminen; Jani Popa; Victor	800	C12N	20060426	6	93%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for performing soft alignment in Gaussian mixture model (GMM) based and other vector transformations. Soft alignment may assign alignment probabilities to source and target feature vector pairs. The vector pairs and associated probabilities may then be used calculate a conversion function, for example, by computing GMM training parameters from the joint vectors and alignment probabilities to create a voice conversion function for converting speech sounds from a source speaker to a target speaker.

MainClaim: A method for time aligning a first sequence of feature vectors with a second sequence of feature vectors comprising the steps of: receiving a first sequence of feature vectors associated with a source; receiving a second sequence of feature vectors associated with a target; and generating a third sequence of joint feature vectors, wherein the generation of each joint feature vector is based on: a first vector from the first sequence; a first vector from the second sequence; and a first probability value representing the probability that the first vector from the first sequence and the first vector from the second sequence are aligned to the same feature in their respective sequences.

6,366,884	Method and apparatus for improved duration modeling of phonemes	Apple Computer, Inc.	Bellegarda; Jerome R. Silverman; Kim	704	G10L	19991108	0	100%	<input checked="" type="checkbox"/>
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Abstract: A method and an apparatus for improved duration modeling of phonemes in a speech synthesis system are provided. According to one aspect, text is received into a processor of a speech synthesis system. The received text is processed using a

sum-of-products phoneme duration model that is used in either the formant method or the concatenative method of speech generation. The phoneme duration model, which is used along with a phoneme pitch model, is produced by developing a non-exponential functional transformation form for use with a generalized additive model. The non-exponential functional transformation form comprises a root sinusoidal transformation that is controlled in response to a minimum phoneme duration and a maximum phoneme duration. The minimum and maximum phoneme durations are observed in training data. The received text is processed by specifying at least one of a number of contextual factors for the generalized additive model. An inverse of the non-exponential functional transformation is applied to duration observations, or training data. Coefficients are generated for use with the generalized additive model. The generalized additive model comprising the coefficients is applied to at least one phoneme of the received text resulting in the generation of at least one phoneme having a duration. An acoustic sequence is generated comprising speech signals that are representative of the received text.

MainClaim: A method for producing synthetic speech comprising:

receiving text into a processor;

processing the text using a phoneme duration model, the phoneme duration model produced by developing a functional transformation form with an inflection point for use with a generalized additive model, wherein the generalized additive model is specifically designed to calculate phoneme durations for speech synthesis; and

generating speech signals representative of the received text.

2008/0082333	Prosody Conversion	NOKIA CORPORATION	Nurminen; Jani K. Helander; Elina	704	G10L	20060929	8	96%	<input type="checkbox"/>
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Abstract: A contour for a syllable (or other speech segment) in a voice undergoing conversion is transformed. The transform of that contour is then used to identify one or more source syllable transforms in a codebook. Information regarding the context and/or linguistic features of the contour being converted can also be compared to similar information in the codebook when identifying an appropriate source transform. Once a codebook source transform is selected, an inverse transformation is performed on a corresponding codebook target transform to yield an output contour. The corresponding codebook target transform represents a target voice version of the same syllable represented by the selected codebook source transform. The output contour may be further processed to improve conversion quality.

MainClaim: A method comprising:(a) receiving data for a plurality of segments of a passage in a source voice, wherein the data for each segment of the plurality models a prosodic component of the source voice for that segment;(b) identifying a target voice entry in a codebook for each of the source voice passage segments, wherein each of the identified target voice entries models a prosodic component of a target voice for a different segment of codebook training material, and wherein the codebook training material is substantially different from the passage; and(c) generating a target voice version of the plurality of passage segments by altering the modeled source voice prosodic component for each segment to replicate the target voice prosodic component modeled by the target voice entry identified for that segment in (b).

7,319,960	Speech recognition method and system	Nokia Corporation	Riis; Soren Koumpis; Konstantinos	704	G10L	20011219	8	95%	<input type="checkbox"/>
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Abstract: A speech recognition system uses a phoneme counter to determine the length of a word to be recognized. The result is used to split a lexicon into one or more sub-lexicons containing only words which have the same or similar length to that of the word to be recognized, so restricting the search space significantly. In another aspect, a phoneme counter is used to estimate the number of phonemes in a word so that a transition bias can be calculated. This bias is applied to the transition probabilities between phoneme models in an HNN based recognizer to improve recognition performance for relatively short or long words.

MainClaim: A speech recognition system in which a word to be recognized is represented as a sequence of phonetic segment models in which a transition probability represents the probability of the occurrence of a transition between the models, comprising: means for estimating the number of phonetic segments in the word to be recognized; and means for biasing the transition probabilities in dependence on the estimated number of phonetic segments in the word.

2007/0088552	Method and a device for speech recognition	Nokia Corporation	Olsen; Jesper	704	G10L	20051017	9	95%	<input type="checkbox"/>
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Abstract: Method for speech recognition comprising inputting frames comprising samples of an audio signal; forming a feature vector comprising a first number of vector components for each frame; projecting the feature vector onto at least two subspaces so that the number of components of each projected feature vector is less than the first number and the total number of components of the projected feature vectors is the same as the first number; defining a set of mixture models for each projected vector which provides the highest observation probability; analysing the set of mixture models to determine the recognition result. When the recognition result is found, the method comprises determining a confidence measure for the recognition result, the determining comprising determining a probability that the recognition result is correct; determining a normalizing term; and dividing the probability by the normalizing term.

MainClaim: A method for speech recognition comprising: inputting frames comprising samples of an audio signal; forming a feature vector comprising a first number of vector components for each frame; projecting the feature vector onto at least two subspaces so that the number of components of each projected feature vector is less than the first number and the total number of components of the projected feature vectors is the same as the first number; defining a set of mixture models for each projected vector which provides the highest observation probability; analysing the set of mixture models to determine the recognition result; when the recognition result is found, determining a confidence measure for the recognition result, the determining comprising: determining a probability that the recognition result is correct; determining a normalizing term by selecting, for each state, one mixture model among said set of mixture models, which provides the highest likelihood; and dividing the probability by said normalizing term; wherein the method further comprises comparing the confidence measure to a threshold value to determine whether the recognition result is reliable enough.

6,785,652	Method and apparatus for improved duration modeling of phonemes	Apple Computer, Inc.	Bellegarda; Jerome R. Silverman; Kim	704	G10L	20021219	0	100%	<input type="checkbox"/>
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Abstract: A method and an apparatus for improved duration modeling of phonemes in a speech synthesis system are provided. According to one aspect, text is received into a processor of a speech synthesis system. The received text is processed using a sum-of-products phoneme duration model that is used in either the formant method or the concatenative method of speech generation. The phoneme duration model, which is used along with a phoneme pitch model, is produced by developing a non-exponential functional transformation form for use with a generalized additive model. The non-exponential functional transformation form comprises a root sinusoidal transformation that is controlled in response to a minimum phoneme duration

and a maximum phoneme duration. The minimum and maximum phoneme durations are observed in training data. The received text is processed by specifying at least one of a number of contextual factors for the generalized additive model. An inverse of the non-exponential functional transformation is applied to duration observations, or training data. Coefficients are generated for use with the generalized additive model. The generalized additive model comprising the coefficients is applied to at least one phoneme of the received text resulting in the generation of at least one phoneme having a duration. An acoustic sequence is generated comprising speech signals that are representative of the received text.

MainClaim: A method comprising:

identifying a non-exponential functional transformation that defines a shape containing an inflection point, wherein the functional transformation comprises a root sinusoidal transformation; and

incorporating the functional transformation into a generalized additive model for modeling phoneme durations.

2008/0082333	Prosody Conversion	NOKIA CORPORATION	Nurminen; Jani K. Helander; Elina	704	G10L	20060929	8	96%	<input type="checkbox"/>
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Abstract: A contour for a syllable (or other speech segment) in a voice undergoing conversion is transformed. The transform of that contour is then used to identify one or more source syllable transforms in a codebook. Information regarding the context and/or linguistic features of the contour being converted can also be compared to similar information in the codebook when identifying an appropriate source transform. Once a codebook source transform is selected, an inverse transformation is performed on a corresponding codebook target transform to yield an output contour. The corresponding codebook target transform represents a target voice version of the same syllable represented by the selected codebook source transform. The output contour may be further processed to improve conversion quality.

MainClaim: A method comprising: (a) receiving data for a plurality of segments of a passage in a source voice, wherein the data for each segment of the plurality models a prosodic component of the source voice for that segment; (b) identifying a target voice entry in a codebook for each of the source voice passage segments, wherein each of the identified target voice entries models a prosodic component of a target voice for a different segment of codebook training material, and wherein the codebook training material is substantially different from the passage; and (c) generating a target voice version of the plurality of passage segments by altering the modeled source voice prosodic component for each segment to replicate the target voice prosodic component modeled by the target voice entry identified for that segment in (b).

2007/0088552	Method and a device for speech recognition	Nokia Corporation	Olsen; Jesper	704	G10L	20051017	9	94%	<input type="checkbox"/>
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Abstract: Method for speech recognition comprising inputting frames comprising samples of an audio signal; forming a feature vector comprising a first number of vector components for each frame; projecting the feature vector onto at least two subspaces so that the number of components of each projected feature vector is less than the first number and the total number of components of the projected feature vectors is the same as the first number; defining a set of mixture models for each projected vector which provides the highest observation probability; analysing the set of mixture models to determine the recognition result. When the recognition result is found, the method comprises determining a confidence measure for the recognition result, the determining comprising determining a probability that the recognition result is correct; determining a normalizing term; and dividing the probability by the normalizing term.

MainClaim: A method for speech recognition comprising: inputting frames comprising samples of an audio signal; forming a feature vector comprising a first number of vector components for each frame; projecting the feature vector onto at least two subspaces so that the number of components of each projected feature vector is less than the first number and the total number of components of the projected feature vectors is the same as the first number; defining a set of mixture models for each projected vector which provides the highest observation probability; analysing the set of mixture models to determine the recognition result; when the recognition result is found, determining a confidence measure for the recognition result, the determining comprising: determining a probability that the recognition result is correct; determining a normalizing term by selecting, for each state, one mixture model among said set of mixture models, which provides the highest likelihood; and dividing the probability by said normalizing term; wherein the method further comprises comparing the confidence measure to a threshold value to determine whether the recognition result is reliable enough.

2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivadas; Sunil Lahti; Tommi	700	G05B	20050609	21	93%	<input type="checkbox"/>
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Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshiten distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus.

MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.

6,064,960	Method and apparatus for improved duration modeling of phonemes	Apple Computer, Inc.	Bellegarda; Jerome R. Silverman; Kim	704	G10L	19971218	0	100%	<input type="checkbox"/>
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Abstract: A method and an apparatus for improved duration modeling of phonemes in a speech synthesis system are provided. According to one aspect, text is received into a processor of a speech synthesis system. The received text is processed using a sum-of-products phoneme duration model that is used in either the formant method or the concatenative method of speech generation. The phoneme duration model, which is used along with a phoneme pitch model, is produced by developing a non-exponential functional transformation form for use with a generalized additive model. The non-exponential functional transformation form comprises a root sinusoidal transformation that is controlled in response to a minimum phoneme duration and a maximum phoneme duration. The minimum and maximum phoneme durations are observed in training data. The received text is processed by specifying at least one of a number of contextual factors for the generalized additive model. An inverse of the non-exponential functional transformation is applied to duration observations, or training data. Coefficients are generated for use with the generalized additive model. The generalized additive model comprising the coefficients is applied to at least one

phoneme of the received text resulting in the generation of at least one phoneme having a duration. An acoustic sequence is generated comprising speech signals that are representative of the received text.

MainClaim: A method for producing synthetic speech comprising:

receiving text into a processor;

processing the text using a phoneme duration model, the phoneme duration model produced by developing a non-exponential functional transformation form for use with a generalized additive model, wherein the non-exponential functional transformation is expressed by $##EQU3##$ where x comprises one or more of a plurality of contextual factors influencing the duration of a phoneme, A is the minimum phoneme duration observed in training data, B is the maximum phoneme duration observed in training data, α controls the amount of shrinking and expansion on either side of a main inflection point, and β controls the position of the main inflection point; and

generating speech signals representative of the received text.

2008/0082333	Prosody Conversion	NOKIA CORPORATION	Nurminen; Jani K. Helander; Elina	704	G10L	20060929	8	96%	<input type="checkbox"/>
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Abstract: A contour for a syllable (or other speech segment) in a voice undergoing conversion is transformed. The transform of that contour is then used to identify one or more source syllable transforms in a codebook. Information regarding the context and/or linguistic features of the contour being converted can also be compared to similar information in the codebook when identifying an appropriate source transform. Once a codebook source transform is selected, an inverse transformation is performed on a corresponding codebook target transform to yield an output contour. The corresponding codebook target transform represents a target voice version of the same syllable represented by the selected codebook source transform. The output contour may be further processed to improve conversion quality.

MainClaim: A method comprising: (a) receiving data for a plurality of segments of a passage in a source voice, wherein the data for each segment of the plurality models a prosodic component of the source voice for that segment; (b) identifying a target voice entry in a codebook for each of the source voice passage segments, wherein each of the identified target voice entries models a prosodic component of a target voice for a different segment of codebook training material, and wherein the codebook training material is substantially different from the passage; and (c) generating a target voice version of the plurality of passage segments by altering the modeled source voice prosodic component for each segment to replicate the target voice prosodic component modeled by the target voice entry identified for that segment in (b).

7,319,960	Speech recognition method and system	Nokia Corporation	Riis; Soren Koumpis; Konstantinos	704	G10L	20011219	8	95%	<input type="checkbox"/>
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Abstract: A speech recognition system uses a phoneme counter to determine the length of a word to be recognized. The result is used to split a lexicon into one or more sub-lexicons containing only words which have the same or similar length to that of the word to be recognized, so restricting the search space significantly. In another aspect, a phoneme counter is used to estimate the number of phonemes in a word so that a transition bias can be calculated. This bias is applied to the transition probabilities between phoneme models in an HNN based recognizer to improve recognition performance for relatively short or long words.

MainClaim: A speech recognition system in which a word to be recognized is represented as a sequence of phonetic segment models in which a transition probability represents the probability of the occurrence of a transition between the models, comprising: means for estimating the number of phonetic segments in the word to be recognized; and means for biasing the transition probabilities in dependence on the estimated number of phonetic segments in the word.

2007/0088552	Method and a device for speech recognition	Nokia Corporation	Olsen; Jesper	704	G10L	20051017	9	94%	<input type="checkbox"/>
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Abstract: Method for speech recognition comprising inputting frames comprising samples of an audio signal; forming a feature vector comprising a first number of vector components for each frame; projecting the feature vector onto at least two subspaces so that the number of components of each projected feature vector is less than the first number and the total number of components of the projected feature vectors is the same as the first number; defining a set of mixture models for each projected vector which provides the highest observation probability; analysing the set of mixture models to determine the recognition result. When the recognition result is found, the method comprises determining a confidence measure for the recognition result, the determining comprising determining a probability that the recognition result is correct; determining a normalizing term; and dividing the probability by the normalizing term.

MainClaim: A method for speech recognition comprising: inputting frames comprising samples of an audio signal; forming a feature vector comprising a first number of vector components for each frame; projecting the feature vector onto at least two subspaces so that the number of components of each projected feature vector is less than the first number and the total number of components of the projected feature vectors is the same as the first number; defining a set of mixture models for each projected vector which provides the highest observation probability; analysing the set of mixture models to determine the recognition result; when the recognition result is found, determining a confidence measure for the recognition result, the determining comprising: determining a probability that the recognition result is correct; determining a normalizing term by selecting, for each state, one mixture model among said set of mixture models, which provides the highest likelihood; and dividing the probability by said normalizing term; wherein the method further comprises comparing the confidence measure to a threshold value to determine whether the recognition result is reliable enough.

6,553,344	Method and apparatus for improved duration modeling of phonemes	Apple Computer, Inc.	Bellegarda; Jerome R. Silverman; Kim	704	G01L	20020222	0	100%	<input type="checkbox"/>
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Abstract: A method and an apparatus for improved duration modeling of phonemes in a speech synthesis system are provided. According to one aspect, text is received into a processor of a speech synthesis system. The received text is processed using a sum-of-products phoneme duration model that is used in either the formant method or the concatenative method of speech generation. The phoneme duration model, which is used along with a phoneme pitch model, is produced by developing a non-exponential functional transformation form for use with a generalized additive model. The non-exponential functional transformation form comprises a root sinusoidal transformation that is controlled in response to a minimum phoneme duration and a maximum phoneme duration. The minimum and maximum phoneme durations are observed in training data. The received text is processed by specifying at least one of a number of contextual factors for the generalized additive model. An inverse of the non-exponential functional transformation is applied to duration observations, or training data. Coefficients are generated for use with the generalized additive model. The generalized additive model comprising the coefficients is applied to at least one phoneme of the received text resulting in the generation of at least one phoneme having a duration. An acoustic sequence is

generated comprising speech signals that are representative of the received text.

MainClaim: A method for modeling phoneme durations comprising:

calculating durations for a phoneme using a generalized additive model that incorporates influences of contextual factors on the durations, the generalized additive model including a functional transformation that describes a shape containing an inflection point.

2008/0082333	Prosody Conversion	NOKIA CORPORATION	Nurminen; Jani K. Helander; Elina	704	G10L	20060929	8	96%	<input type="checkbox"/>
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Abstract: A contour for a syllable (or other speech segment) in a voice undergoing conversion is transformed. The transform of that contour is then used to identify one or more source syllable transforms in a codebook. Information regarding the context and/or linguistic features of the contour being converted can also be compared to similar information in the codebook when identifying an appropriate source transform. Once a codebook source transform is selected, an inverse transformation is performed on a corresponding codebook target transform to yield an output contour. The corresponding codebook target transform represents a target voice version of the same syllable represented by the selected codebook source transform. The output contour may be further processed to improve conversion quality.

MainClaim: A method comprising:(a) receiving data for a plurality of segments of a passage in a source voice, wherein the data for each segment of the plurality models a prosodic component of the source voice for that segment;(b) identifying a target voice entry in a codebook for each of the source voice passage segments, wherein each of the identified target voice entries models a prosodic component of a target voice for a different segment of codebook training material, and wherein the codebook training material is substantially different from the passage; and(c) generating a target voice version of the plurality of passage segments by altering the modeled source voice prosodic component for each segment to replicate the target voice prosodic component modeled by the target voice entry identified for that segment in (b).

2007/0088552	Method and a device for speech recognition	Nokia Corporation	Olsen; Jesper	704	G10L	20051017	9	94%	<input type="checkbox"/>
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Abstract: Method for speech recognition comprising inputting frames comprising samples of an audio signal; forming a feature vector comprising a first number of vector components for each frame; projecting the feature vector onto at least two subspaces so that the number of components of each projected feature vector is less than the first number and the total number of components of the projected feature vectors is the same as the first number; defining a set of mixture models for each projected vector which provides the highest observation probability; analysing the set of mixture models to determine the recognition result. When the recognition result is found, the method comprises determining a confidence measure for the recognition result, the determining comprising determining a probability that the recognition result is correct; determining a normalizing term; and dividing the probability by the normalizing term.

MainClaim: A method for speech recognition comprising: inputting frames comprising samples of an audio signal; forming a feature vector comprising a first number of vector components for each frame; projecting the feature vector onto at least two subspaces so that the number of components of each projected feature vector is less than the first number and the total number of components of the projected feature vectors is the same as the first number; defining a set of mixture models for each projected vector which provides the highest observation probability; analysing the set of mixture models to determine the recognition result; when the recognition result is found, determining a confidence measure for the recognition result, the determining comprising: determining a probability that the recognition result is correct; determining a normalizing term by selecting, for each state, one mixture model among said set of mixture models, which provides the highest likelihood; and dividing the probability by said normalizing term; wherein the method further comprises comparing the confidence measure to a threshold value to determine whether the recognition result is reliable enough.

2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivadas; Sunil Lahti; Tommi	700	G05B	20050609	21	93%	<input type="checkbox"/>
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Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshiten distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus.

MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.

5,852,801	Method and apparatus for automatically invoking a new word module for unrecognized user input	Apple Computer, Inc.	Hon; Hsiao-Wuen Chow; Yen-Lu	704	G01L	19951004	0	100%	<input type="checkbox"/>
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Abstract: A method for reducing recognition errors in a speech recognition system that has a user interface, which instructs the user to invoke a new word acquisition module upon a predetermined condition, and that improves the recognition accuracy for poorly recognized words. The user interface of the present invention suggests to a user which unrecognized words may be new words that should be added to the recognition program lexicon. The user interface advises the user to enter words into a new word lexicon that fails to present themselves in an alternative word list for two consecutive tries. A method to improve the recognition accuracy for poorly recognized words via language model adaptation is also provided by the present invention. The present invention increases the unigram probability of an unrecognized word in proportion to the score difference between the unrecognized word and the top one word to guarantee recognition of the same word in a subsequent try. In the event that the score of unrecognized word is unknown (i.e., not in the alternative word list), the present invention increases the unigram probability of the unrecognized word in proportion to the difference between the top one word score and the smallest score in the alternative list.

MainClaim: A computer implemented method for improving the accuracy of a speech recognition system, said method comprising the steps of:

- a) detecting a user speech signal;
- b) if the user speech signal is not found by the user from an alternative user input candidate list, instructing the user to input the user speech signal again;
- c) if the user speech signal is still not found by the user in the alternative user input candidate list, prompting the user to input a representation of the speech signal using a keyboard and invoking a new word module; and
- d) adapting a language model using the new word module.

2006/0293889	Error correction for speech recognition systems	Nokia Corporation	Kiss; Imre Leppanen; Jussi Artturi	704	G10L	20050627	3	97%	<input type="checkbox"/>
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Abstract: Words in a sequence of words that is obtained from speech recognition of an input speech sequence are presented to a user, and at least one of the words in the sequence of words is replaced, in case it has been selected by a user for correction. Words with a low recognition confidence value are emphasized; alternative word candidates for the at least one selected word are ordered according to an ordering criterion; after replacing a word, an order of alternative word candidates for neighboring words in the sequence is updated; the replacement word is derived from a spoken representation of the at least one selected word by speech recognition with a limited vocabulary; and the word that replaces the at least one selected word is derived from a spoken and spelled representation of the at least one selected word.

MainClaim: A method for correcting words in a sequence of words that is obtained from speech recognition of an input speech sequence, said method comprising: presenting said sequence of words to a user, wherein each word in said sequence of words is associated with a respective recognition confidence value, and wherein at least one word in said sequence of words is automatically emphasized in dependence on its recognition confidence value; and replacing at least one word in said sequence of words, in case it has been selected by a user for correction.

2007/0100619	Key usage and text marking in the context of a combined predictive text and speech recognition system	Nokia Corporation	Purho; Juha	704	G10L	20051102	1	94%	<input type="checkbox"/>
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Abstract: A combined predictive speech and text recognition system. The present invention combines the functionality of text input programs with speech input and recognition systems. With the present invention, a user can both manually enter text and speak desired letters, words or phrases. The system receives and analyzes the provided information and provides one or more proposals for the completion of words or phrases. This process can be repeated until an adequate match is found.

MainClaim: A method of using text and speech information to predict a character string that is desired to be entered into an electronic device, comprising: receiving a voice input from a user; receiving designated text input from the user; using a predictive model to generate at least one candidate character string based upon the voice input and the designated text input; and exhibiting the at least one candidate character string to the user.

7,043,431	Multilingual speech recognition system using text derived recognition models	Nokia Corporation	Riis; So Jensen; Ka Pedersen; Morten With	704	G10L	20010831	6	94%	<input type="checkbox"/>
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Abstract: There is provided a novel approach for generating multilingual text-to-phoneme mappings for use in multilingual speech recognition systems. The multilingual mappings are based on the weighted output from a neural network text-to-phoneme model, trained on data mixed from several languages. The multilingual mappings used together with a branched grammar decoding scheme is able to capture both inter- and intra-language pronunciation variations which is ideal for multilingual speaker independent recognition systems. A significant improvement in overall system performance is obtained for a multilingual speaker independent name dialing task when applying multilingual instead of language dependent text-to-phoneme mapping.

MainClaim: A method of speech recognition in order to identify a speech command as a match to a written text command comprising the steps: providing a text input from a text database; receiving an acoustic input; generating sequences of multilingual phoneme symbols based on said text input by means of a multilingual text-to-phoneme module; generating variations of pronunciations which are recognizable in response to said sequences of multilingual phoneme symbols determined by use of a branched grammar; and comparing said variations of pronunciations with the acoustic input in order to find a match.

5,832,428	Search engine for phrase recognition based on prefix/body/suffix architecture	Apple Computer, Inc.	Chow; Yen-Lu Hon; Hsiao-Wuen	704	G10L	19951004	0	100%	<input type="checkbox"/>
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Abstract: A method of constructing a language model for a phrase-based search in a speech recognition system and an apparatus for constructing and/or searching through the language model. The method includes the step of separating a plurality of phrases into a plurality of words in a prefix word, body word, and suffix word structure. Each of the phrases has a body word and optionally a prefix word and a suffix word. The words are grouped into a plurality of prefix word classes, a plurality of body word classes, and a plurality of suffix word classes in accordance with a set of predetermined linguistic rules. Each of the respective prefix, body, and suffix word classes includes a number of prefix words of same category, a number of body words of same category, and a number of suffix words of same category, respectively. The prefix, body, and suffix word classes are then interconnected together according to the predetermined linguistic rules. A method of organizing a phrase search based on the above-described prefix/body/suffix language model is also described. The words in each of the prefix, body, and suffix classes are organized into a lexical tree structure. A phrase start lexical tree structure is then created for the words of all the prefix classes and the body classes having a word which can start one of the plurality of phrases while still maintaining connections of these prefix and body classes within the language model.

MainClaim: A method implemented in a digital processing system of constructing a language model in a speech recognition system, comprising:

receiving speech signals into a processor;

storing a plurality of phrases into a plurality of words in a prefix word, body word, and suffix word structure, wherein each of the phrases has a body word and optionally a prefix word and optionally a suffix word;

grouping the words into a plurality of prefix word classes, a plurality of body word classes, and a plurality of suffix word classes in accordance with a set of predetermined linguistic rules, wherein each of the respective prefix, body, and suffix word classes includes a number of prefix words of a first category, a number of body words of a second category, and a number of suffix words of a third category, respectively;

storing data elements representing interconnections among the prefix, body, and suffix word classes together according to the predetermined linguistic rules, wherein the language model generates signals representative of the received speech signals during a phrase-based search.

2008/0091427	Hierarchical word indexes used for efficient N-gram storage	Nokia Corporation	Olsen; Jesper	704	G10L	20061011	5	96%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for compressing data models, for example, N-gram language models used in speech recognition applications. Words in the vocabulary of the language model are assigned to classes of words, for example, by syntactic criteria, semantic criteria, or statistical analysis of an existing language model. After word classes are defined, the follower lists for words in the vocabulary may be stored as hierarchical sets of class indexes and word indexes within each class. Hierarchical word indexes may reduce the storage requirements for the N-gram language model by more efficiently representing multiple words in a single list in the same follower list.

MainClaim: A method for storing an N-gram model in a memory of a device, comprising: identifying a plurality of word classes; receiving a vocabulary of words, wherein each word in the vocabulary is associated with at least one of the plurality of classes; associating a follower list with each word in the vocabulary; storing in the memory information associated with a first word in the vocabulary, the information comprising: (1) a first class index corresponding to a class in which at least a subset of the follower list is a member, and (2) a first plurality of word indexes corresponding to at least a subset of the follower list for the first word, wherein said word indexes are indexed based on the first class index.

2009/0157385	Inverse Text Normalization	Nokia Corporation	Tian; Jilei	704	G06F	20071214	14	96%	<input type="checkbox"/>
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Abstract: Embodiments are directed to efficient multilingual inverse text normalization (ITN) of text in spoken form to produce normalized text for display. Embodiments are directed to preprocessing the multilingual text into a language-independent representation, tokenizing text in spoken form, segmenting the tokenized text into ITN items by grouping consecutive words using an ITN lexicon, classifying the ITN items into ITN categories by using the ITN lexicon or tagged information from language model, applying one or more ITN rules that are selected based on the ITN categories into which ITN items have been classified to rewrite the ITN items; and post processing the ITN item and outputting inversely normalized text in written form for display. The ITN lexicon may include ITN lexicon entries that are each located within an ITN category in the ITN lexicon.

MainClaim: A method comprising: segmenting text in spoken form into inverse text normalization items by grouping consecutive words using an inverse text normalization lexicon; classifying the inverse text normalization items into inverse text normalization categories by using the inverse text normalization lexicon; applying one or more inverse text normalization rules that are selected based on the inverse text normalization categories into which inverse text normalization items have been classified to rewrite the inverse text normalization items; and post processing the inverse text normalization item and outputting inversely normalized text in written form for display.

2005/0267755	Arrangement for speech recognition	Nokia Corporation	Suontausta, Janne	704	G10L	20040527	15	95%	<input type="checkbox"/>
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Abstract: A speech recognizer comprises a random access memory, a downloader for loading decision trees from a set of decision trees into said random access memory, a vocabulary comprising one or more words of a language, a divider for dividing at least one word of the vocabulary into subwords, and a transcription generator adapted to process at least one subword. The downloader is adapted to download a subset of the set of decision trees at a time into said random access memory. The transcription generator is further adapted to generate at least one phoneme transcription for the subword using the subset of decision trees. The speech recognizer also comprises a combiner for combining the generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words. The invention also relates to a device, a system, a module, a method, a computer program product and a data structure.

MainClaim: A speech recognizer comprising: a random access memory; a downloader for loading decision trees from a set of decision trees into said random access memory; a vocabulary comprising one or more words of a language; a divider for dividing at least one word of said vocabulary into subwords; a transcription generator adapted to process at least one subword, wherein the downloader is adapted to download a subset of the set of decision trees at a time into said random access memory, and the transcription generator is further adapted to generate at least one phoneme transcription for said subword using said subset of the decision trees; and a combiner for combining generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words.

6,704,710	Assigning meanings to utterances in a speech recognition system	Apple Computer, Inc.	Strong; Robert Don	704	G10L	20011012	0	100%	<input type="checkbox"/>
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Abstract: Assigning meanings to spoken utterances in a speech recognition system. A plurality of speech rules is generated, each of the of speech rules comprising a language model and an expression associated with the language model. At one interval (e.g. upon the detection of speech in the system), a current language model is generated from each language model in the speech rules for use by a recognizer. When a sequence of words is received from the recognizer, a set of speech rules which match the sequence of words received from the recognizer is determined. Each expression associated with the language model in each of the set of speech rules is evaluated, and actions are performed in the system according to the expressions associated with each language model in the set of speech rules.

MainClaim: A machine-readable medium having stored thereon a sequence of instructions which when executed by a processing system cause said processing system to perform a method of speech recognition in a speech recognition system, the method comprising:

storing a language model defining the syntax of a set of sequences of words which may be recognized in each of a plurality of speech rules;

storing an expression defining the meaning of each of said set of sequences of words in each of said plurality of speech rules;

providing said language model to a recognizer and responsive thereto, receiving a recognized sequence of words from said

recognizer;

determining a set of said plurality of speech rules which include language models matching said recognized sequence of words; and

evaluating said expression for each of said set of said plurality of speech rules and performing actions according to each said expression which is evaluated.

2006/0074669	Speech grammars having priority levels	Nokia Corporation	Seppala; Esa H.	704	G10L	20040923	10	95%	<input type="checkbox"/>
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Abstract: In a speech recognition environment where time constraint limits the use of stored grammars in matching with a speech, the phonemes converted words are built into a number of trees of different priority levels so that the number of the trees combined into a concatenated tree for speech recognition is based at least partly on the time constraint. The trees of a lower priority level are used only when the time constraint allows such use and the trees of a higher priority level are used at least partly prior to the trees of a lower priority level being used.

MainClaim: A method of organizing grammars for use in an electronic device, the grammars having grammar items organized into trees of ordered branches, said method comprising: ranking at least a part of the grammar items according to a grammar rule; sorting at least part of the grammar items into grammar groups of different priority levels based at least partly on the ranking; and building at least one tree separately for the grammar groups.

2005/0267755	Arrangement for speech recognition	Nokia Corporation	Suontausta, Janne	704	G10L	20040527	15	94%	<input type="checkbox"/>
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Abstract: A speech recognizer comprises a random access memory, a downloader for loading decision trees from a set of decision trees into said random access memory, a vocabulary comprising one or more words of a language, a divider for dividing at least one word of the vocabulary into subwords, and a transcription generator adapted to process at least one subword. The downloader is adapted to download a subset of the set of decision trees at a time into said random access memory. The transcription generator is further adapted to generate at least one phoneme transcription for the subword using the subset of decision trees. The speech recognizer also comprises a combiner for combining the generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words. The invention also relates to a device, a system, a module, a method, a computer program product and a data structure.

MainClaim: A speech recognizer comprising: a random access memory; a downloader for loading decision trees from a set of decision trees into said random access memory; a vocabulary comprising one or more words of a language; a divider for dividing at least one word of said vocabulary into subwords; a transcription generator adapted to process at least one subword, wherein the downloader is adapted to download a subset of the set of decision trees at a time into said random access memory, and the transcription generator is further adapted to generate at least one phoneme transcription for said subword using said subset of the decision trees; and a combiner for combining generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words.

2009/0157385	Inverse Text Normalization	Nokia Corporation	Tian; Jilei	704	G06F	20071214	14	94%	<input type="checkbox"/>
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Abstract: Embodiments are directed to efficient multilingual inverse text normalization (ITN) of text in spoken form to produce normalized text for display. Embodiments are directed to preprocessing the multilingual text into a language-independent representation, tokenizing text in spoken form, segmenting the tokenized text into ITN items by grouping consecutive words using an ITN lexicon, classifying the ITN items into ITN categories by using the ITN lexicon or tagged information from language model, applying one or more ITN rules that are selected based on the ITN categories into which ITN items have been classified to rewrite the ITN items; and post processing the ITN item and outputting inversely normalized text in written form for display. The ITN lexicon may include ITN lexicon entries that are each located within an ITN category in the ITN lexicon.

MainClaim: A method comprising: segmenting text in spoken form into inverse text normalization items by grouping consecutive words using an inverse text normalization lexicon; classifying the inverse text normalization items into inverse text normalization categories by using the inverse text normalization lexicon; applying one or more inverse text normalization rules that are selected based on the inverse text normalization categories into which inverse text normalization items have been classified to rewrite the inverse text normalization items; and post processing the inverse text normalization item and outputting inversely normalized text in written form for display.

5,757,964	System and method for automatic subcharacter unit and lexicon generation for handwriting recognition	Apple Computer, Inc.	Lee; Kai-Fu Chow; Yen-Lu Grajski; Kamil	382	G06K	19970729	0	100%	<input type="checkbox"/>
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Abstract: A system for automatic subcharacter unit and lexicon generation for handwriting recognition comprises a processing unit, a handwriting input device, and a memory wherein a segmentation unit, a subcharacter generation unit, a lexicon unit, and a modeling unit reside. The segmentation unit generates feature vectors corresponding to sample characters. The subcharacter generation unit clusters feature vectors and assigns each feature vector associated with a given cluster an identical label. The lexicon unit constructs a lexical graph for each character in a character set. The modeling unit generates a Hidden Markov Model for each set of identically-labeled feature vectors. After a first set of lexical graphs and Hidden Markov Models have been created, the subcharacter generation unit determines for each feature vector which Hidden Markov Model produces a highest likelihood value. The subcharacter generation unit relabels each feature vector according to the highest likelihood value, after which the lexicon unit and the modeling unit generate a new set of lexical graphs and a new set of Hidden Markov models, respectively. The feature vector relabeling, lexicon generation, and Hidden Markov Model generation are performed iteratively until a convergence criterion is met. The final set of Hidden Markov Model model parameters provide a set of subcharacter units for handwriting recognition, where the subcharacter units are derived from information inherent in the sample characters themselves.

MainClaim: In a handwriting recognition system having a processing unit, a handwriting input device, and a memory, a method for automatic subcharacter unit and lexicon generation comprising the steps of:

retrieving a plurality of sample characters, each sample character representing a reference character within a character set;

partitioning each sample character into a set of segments with associated time intervals;

creating a feature vector corresponding to each segment;

clustering the feature vectors according to a distance metric;

storing in each feature vector a label identifying a cluster with which the feature vector is associated;

creating a pattern recognition model for each set of identically-labeled feature vectors;

selecting a feature vector;

determining which pattern recognition model produces a highest likelihood value for the selected feature vector;

storing a label identifying the pattern recognition model producing the highest likelihood value in the selected feature vector;

determining whether a convergence criterion has been satisfied; and

if said convergence criterion is satisfied, incorporating the segment corresponding to said labeled feature vector into a lexicon of subcharacters for said handwriting recognition system.

2006/0064177	System and method for measuring confusion among words in an adaptive speech recognition system	Nokia Corporation	Tian; Jilei Sivasdas; Sunil Lahti; Tommi	700	G05B	20050609	21	93%	<input type="checkbox"/>
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Abstract: A system and method are proposed for measuring confusability or similarity between given entry pairs, including text string pairs and acoustic model pairs, in systems such as speech recognition and synthesis systems. A string edit distance (Levenshten distance) can be applied to measure distance between any pair of text strings. It also can be used to calculate a confusion measurement between acoustic model pairs of different words and a model-driven method can be used to calculate a HMM model confusion matrix. This model-based approach can be efficiently calculated with low memory and low computational resources. Thus it can improve the speech recognition performance and models trained from text corpus.

MainClaim: A method of measuring confusion between word sequences in a word sequence recognition system, comprising: having a new word sequence entered into an electronic device; creating a new transcription of the new word sequence using a pronunciation-modeling system; computing a distance between the new transcription and at least one prior transcription of a prior word sequence stored in a database if such a prior transcription exists; and if the computed distance is less than a predefined threshold, informing a user of a potential confusion between the new word sequence and the prior word sequence.

2007/0078653	Language model compression	Nokia Corporation	Olsen; Jesper	704	G10L	20051003	10	93%	<input type="checkbox"/>
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Abstract: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities. The method comprises forming at least one group of N-grams from the plurality of N-grams; sorting N-gram probabilities associated with the N-grams of the at least one group of N-grams; and determining a compressed representation of the sorted N-gram probabilities. The at least one group of N-grams may be formed from N-grams of the plurality of N-grams that are conditioned on the same (N-1)-tuple of preceding words. The compressed representation of the sorted N-gram probabilities may be a sampled representation of the sorted N-gram probabilities or may comprise an index into a codebook. The invention further relates to an according computer program product and device, to a storage medium for at least partially storing a language model, and to a device for processing data at least partially based on a language model.

MainClaim: A method for compressing a language model that comprises a plurality of N-grams and associated N-gram probabilities, said method comprising: forming at least one group of N-grams from said plurality of N-grams; sorting N-gram probabilities associated with said N-grams of said at least one group of N-grams; and determining a compressed representation of said sorted N-gram probabilities.

2006/0074924	Optimization of text-based training set selection for language processing modules	Nokia Corporation	Tilei; Jian Nurminen; Jani K.	707	G06F	20040917	11	92%	<input type="checkbox"/>
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Abstract: A device and a method provide for selection of a database from a corpus using an, optimization function. The method includes defining a size of a database, calculating a distance using a distance function for each pair in a set of pairs, and executing an optimization function using the distance to select each entry saved in the database until the number of saved entries equals the size of the database. Each pair in the set of pairs includes either two entries selected from a corpus or one entry selected from a set of previously selected entries and another entry selected from a set of a remaining portion of the corpus. The distance function may be a Levenshtein distance function or a generalized Levenshtein distance function.

MainClaim: A method of selecting a database from a corpus, the method comprising: defining a size of a database; calculating a coefficient for at least one pair in a set of pairs; and executing a function to select each entry to be saved in the database until a number of entries of the database equals the size of the database.

5,796,916	Method and apparatus for prosody for synthetic speech prosody determination	Apple Computer, Inc.	Meredith; Scott E.	704	G10L	19950526	0	100%	<input type="checkbox"/>
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Abstract: In a synthetic speech system intonation of a natural utterance is automatically applied to a synthesized utterance. The present invention applies the desired intonation of the natural utterance to the synthesized utterance by aligning voicing sections of the natural utterance to the synthesized utterance. The voicing sections are initially delineated by voiced versus unvoiced, based on default voicing specifications for the synthetic utterance and on pitch tracker analysis of the natural utterance, and an attempt is made to align individual sections thereby. If no initial alignment occurs then a further attempt is made by varying the default voicing specifications of the synthesized utterance. If alignment is still not achieved, then each of the utterances, natural and synthetic, is considered a single large voicing section, which thus forces alignment therebetween. Once alignment occurs, the intonation of the natural utterance is applied to the synthetic utterance thereby providing the synthetic utterance with the desired, more natural, intonation. Further, the synthetic utterance having intonation specification can be graphically displayed so that the user may view and interactively and graphically modify the intonation specification for the synthetic utterance.

MainClaim: A method for specifying synthetic speech intonation, comprising the steps of:

- (a) obtaining natural pitch and duration values for a natural voicing section of a natural utterance;
- (b) obtaining synthetic pitch and duration values for a synthetic voicing section of a synthetic equivalent to the natural utterance;
- (c) aligning the natural voicing section to the synthetic voicing section; and
- (d) replacing the synthetic pitch and duration values of the synthetic voicing section with the natural pitch and duration values.

2007/0016421	Correcting a pronunciation of a synthetically generated speech object	Nokia Corporation	Nurminen; Jani Mikkola; Hannu Tian; Jilei	704	G10L	20050712	4	94%	<input type="checkbox"/>
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Abstract: This invention relates to a method, a device and a software application product for correcting a pronunciation of a speech object. The speech object is synthetically generated from a text object in dependence on a segmented representation of the text object. It is determined if an initial pronunciation of the speech object, which initial pronunciation is associated with an initial segmented representation of the text object, is incorrect. Furthermore, in case it is determined that the initial pronunciation of the speech object is incorrect, a new segmented representation of the text object is determined, which new segmented representation of the text object is associated with a new pronunciation of the speech object.

MainClaim: A method for correcting a pronunciation of a speech object, wherein said speech object is synthetically generated from a text object in dependence on a segmented representation of said text object, said method comprising: determining if an initial pronunciation of said speech object, which initial pronunciation is associated with an initial segmented representation of said text object, is incorrect; and determining, in case it is determined that said initial pronunciation of said speech object is incorrect, a new segmented representation of said text object, which new segmented representation of said text object is associated with a new pronunciation of said speech object.

6,546,369	Text-based speech synthesis method containing synthetic speech comparisons and updates	Nokia Corporation	Buth; Peter Dufhues; Frank	704	G10L	20000505	3	94%	<input type="checkbox"/>
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Abstract: The invention specifies a simple reproduction method with improved pronunciation for voice-controlled systems with text-based speech synthesis even when the stored train of characters to be synthesized does not follow the general rules of speech reproduction. According to the invention, the method of "copying" the original spoken input text into the otherwise synthesized reproduction text, which is the current state of the art, is avoided, which will significantly increase the acceptance of the user of the voice-controlled system due to the process invented. More specifically, when there is actual spoken speech input that corresponds to a stored train of characters, the converted train of characters is compared to the speech input before reproduction of the train of characters described phonetically according to general rules and converted to a purely synthetic form. When the converted train of characters is found to deviate from the speech input by a value above a threshold value, at least one variation of the converted train of characters is created. This variation is then output instead of the converted train of characters as long as this variation deviates from the speech input by a value below the threshold value.

MainClaim: A reproduction method for voice-controlled systems with text-based speech synthesis, comprising the steps of:

converting a stored string of characters described phonetically according to general rules into a pure synthetic form;

if there is an actually spoken speech input that corresponds to said stored string of characters, comparing said pure synthetic form of said string of characters with said speech input before reproduction of said string of characters;

if a deviation is detected in said pure synthetic form of said string of characters that has a value greater than a threshold value, creating at least one variation of said pure synthetic form of said string of characters;

comparing one of said variations with said speech input; and

outputting one of said variations instead of said pure synthetic form of said string of characters, if the deviation of one of said variations from said speech input is less than said threshold value.

7,043,431	Multilingual speech recognition system using text derived recognition models	Nokia Corporation	Riis; So Jensen; Ka Pedersen; Morten With	704	G10L	20010831	6	92%	<input type="checkbox"/>
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Abstract: There is provided a novel approach for generating multilingual text-to-phoneme mappings for use in multilingual speech recognition systems. The multilingual mappings are based on the weighted output from a neural network text-to-phoneme model, trained on data mixed from several languages. The multilingual mappings used together with a branched grammar decoding scheme is able to capture both inter- and intra-language pronunciation variations which is ideal for multilingual speaker independent recognition systems. A significant improvement in overall system performance is obtained for a multilingual speaker independent name dialing task when applying multilingual instead of language dependent text-to-phoneme mapping.

MainClaim: A method of speech recognition in order to identify a speech command as a match to a written text command comprising the steps: providing a text input from a text database; receiving an acoustic input; generating sequences of multilingual phoneme symbols based on said text input by means of a multilingual text-to-phoneme module; generating variations of pronunciations which are recognizable in response to said sequences of multilingual phoneme symbols determined by use of a branched grammar; and comparing said variations of pronunciations with the acoustic input in order to find a match.

5,602,960	Continuous mandarin chinese speech recognition system	Apple Computer, Inc.	Hon; Hsiao-Wuen Chow; Yen-Lu	704	G10L	19940930	0	100%	<input type="checkbox"/>
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	having an integrated tone classifier		Lee; Kai-Fu						
<p>Abstract: A speech recognition system for continuous Mandarin Chinese speech comprises a microphone, an A/D converter, a syllable recognition system, an integrated tone classifier, and a confidence score augmentor. The syllable recognition system generates N-best theories with initial confidence scores. The integrated tone classifier has a pitch estimator to estimate the pitch of the input once and a long-term tone analyzer to segment the estimated pitch according to the syllables of each of the N-best theories. The long-term tone analyzer performs long-term tonal analysis on the segmented, estimated pitch and generates a long-term tonal confidence signal. The confidence score augmentor receives the initial confidence scores and the long-term tonal confidence signals, modifies each initial confidence score according to the corresponding long-term tonal confidence signal, re-ranks the N-best theories according to the augmented confidence scores, and outputs the N-best theories.</p> <p>MainClaim: An integrated tone classifier for performing long-term tonal analysis of an input signal of continuous speech of a tonal language, the integrated tone classifier comprising:</p> <p>a pitch estimator, having an input coupled to receive the input signal and an output, for estimating the pitch contour of the input signal; and</p> <p>a long-term tone analyzer, having an input coupled to the output of the pitch estimator and an output forming an output of the integrated tone classifier, for segmenting an estimated pitch contour generated by the pitch estimator into units and for performing long-term tonal analysis on the units of the segmented, estimated pitch.</p>									
2008/0082333	Prosody Conversion	NOKIA CORPORATION	Nurminen; Jani K. Helander; Elina	704	G10L	20060929	8	95%	<input type="checkbox"/>
<p>Abstract: A contour for a syllable (or other speech segment) in a voice undergoing conversion is transformed. The transform of that contour is then used to identify one or more source syllable transforms in a codebook. Information regarding the context and/or linguistic features of the contour being converted can also be compared to similar information in the codebook when identifying an appropriate source transform. Once a codebook source transform is selected, an inverse transformation is performed on a corresponding codebook target transform to yield an output contour. The corresponding codebook target transform represents a target voice version of the same syllable represented by the selected codebook source transform. The output contour may be further processed to improve conversion quality.</p> <p>MainClaim: A method comprising:(a) receiving data for a plurality of segments of a passage in a source voice, wherein the data for each segment of the plurality models a prosodic component of the source voice for that segment;(b) identifying a target voice entry in a codebook for each of the source voice passage segments, wherein each of the identified target voice entries models a prosodic component of a target voice for a different segment of codebook training material, and wherein the codebook training material is substantially different from the passage; and(c) generating a target voice version of the plurality of passage segments by altering the modeled source voice prosodic component for each segment to replicate the target voice prosodic component modeled by the target voice entry identified for that segment in (b).</p>									
7,319,960	Speech recognition method and system	Nokia Corporation	Riis; Soren Koumpis; Konstantinos	704	G10L	20011219	8	95%	<input type="checkbox"/>
<p>Abstract: A speech recognition system uses a phoneme counter to determine the length of a word to be recognized. The result is used to split a lexicon into one or more sub-lexicons containing only words which have the same or similar length to that of the word to be recognized, so restricting the search space significantly. In another aspect, a phoneme counter is used to estimate the number of phonemes in a word so that a transition bias can be calculated. This bias is applied to the transition probabilities between phoneme models in an HNN based recognizer to improve recognition performance for relatively short or long words.</p> <p>MainClaim: A speech recognition system in which a word to be recognized is represented as a sequence of phonetic segment models in which a transition probability represents the probability of the occurrence of a transition between the models, comprising: means for estimating the number of phonetic segments in the word to be recognized; and means for biasing the transition probabilities in dependence on the estimated number of phonetic segments in the word.</p>									
2007/0088552	Method and a device for speech recognition	Nokia Corporation	Olsen; Jesper	704	G10L	20051017	9	94%	<input type="checkbox"/>
<p>Abstract: Method for speech recognition comprising inputting frames comprising samples of an audio signal; forming a feature vector comprising a first number of vector components for each frame; projecting the feature vector onto at least two subspaces so that the number of components of each projected feature vector is less than the first number and the total number of components of the projected feature vectors is the same as the first number; defining a set of mixture models for each projected vector which provides the highest observation probability; analysing the set of mixture models to determine the recognition result. When the recognition result is found, the method comprises determining a confidence measure for the recognition result, the determining comprising determining a probability that the recognition result is correct; determining a normalizing term; and dividing the probability by the normalizing term.</p> <p>MainClaim: A method for speech recognition comprising: inputting frames comprising samples of an audio signal; forming a feature vector comprising a first number of vector components for each frame; projecting the feature vector onto at least two subspaces so that the number of components of each projected feature vector is less than the first number and the total number of components of the projected feature vectors is the same as the first number; defining a set of mixture models for each projected vector which provides the highest observation probability; analysing the set of mixture models to determine the recognition result; when the recognition result is found, determining a confidence measure for the recognition result, the determining comprising: determining a probability that the recognition result is correct; determining a normalizing term by selecting, for each state, one mixture model among said set of mixture models, which provides the highest likelihood; and dividing the probability by said normalizing term; wherein the method further comprises comparing the confidence measure to a threshold value to determine whether the recognition result is reliable enough.</p>									
6,311,157	Assigning meanings to utterances in a speech recognition system	Apple Computer, Inc.	Strong; Robert Don	704	G10L	19921231	0	100%	<input type="checkbox"/>
<p>Abstract: Assigning meanings to spoken utterances in a speech recognition system. A plurality of speech rules is generated, each of the of speech rules comprising a language model and an expression associated with the language model. At one interval (e.g. upon the detection of speech in the system), a current language model is generated from each language model in the speech rules for use by a recognizer. When a sequence of words is received from the recognizer, a set of speech rules which match the sequence of words received from the recognizer is determined. Each expression associated with the language model in each of the set of speech rules is evaluated, and actions are performed in the system according to the expressions associated</p>									

with each language model in the set of speech rules.

MainClaim: A method of associating meanings to utterances in a speech recognition system comprising the following steps:

- a. providing a plurality of speech rules, each speech rule comprising a language model and an expression defining a meaning of said speech rule;
- b. generating a current language model from each said language model of said plurality of speech rules and providing said current language model to a recognizer;
- c. said recognizer recognizing words in detected speech by referencing said current language model to generate a recognized sequence of words;
- d. receiving said recognized sequence of words from said recognizer, and determining that said recognized sequence of words matches a phrase of a first speech rule of said plurality of speech rules and that said recognized sequence of words comprises at least one word that matches a phrase of a second speech rule of said plurality of speech rules; and
- e. evaluating a first expression of the first speech rule and a second expression of the second speech rule, wherein the evaluation of the first expression depends on the evaluation of the second expression, and performing actions in said speech recognition system only after evaluating the first and second expressions.

2006/0074669	Speech grammars having priority levels	Nokia Corporation	Seppala; Esa H.	704	G10L	20040923	10	95%	<input type="checkbox"/>
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Abstract: In a speech recognition environment where time constraint limits the use of stored grammars in matching with a speech, the phonemes converted words are built into a number of trees of different priority levels so that the number of the trees combined into a concatenated tree for speech recognition is based at least partly on the time constraint. The trees of a lower priority level are used only when the time constraint allows such use and the trees of a higher priority level are used at least partly prior to the trees of a lower priority level being used.

MainClaim: A method of organizing grammars for use in an electronic device, the grammars having grammar items organized into trees of ordered branches, said method comprising: ranking at least a part of the grammar items according to a grammar rule; sorting at least part of the grammar items into grammar groups of different priority levels based at least partly on the ranking; and building at least one tree separately for the grammar groups.

2009/0157385	Inverse Text Normalization	Nokia Corporation	Tian; Jilei	704	G06F	20071214	14	95%	<input type="checkbox"/>
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Abstract: Embodiments are directed to efficient multilingual inverse text normalization (ITN) of text in spoken form to produce normalized text for display. Embodiments are directed to preprocessing the multilingual text into a language-independent representation, tokenizing text in spoken form, segmenting the tokenized text into ITN items by grouping consecutive words using an ITN lexicon, classifying the ITN items into ITN categories by using the ITN lexicon or tagged information from language model, applying one or more ITN rules that are selected based on the ITN categories into which ITN items have been classified to rewrite the ITN items; and post processing the ITN item and outputting inversely normalized text in written form for display. The ITN lexicon may include ITN lexicon entries that are each located within an ITN category in the ITN lexicon.

MainClaim: A method comprising: segmenting text in spoken form into inverse text normalization items by grouping consecutive words using an inverse text normalization lexicon; classifying the inverse text normalization items into inverse text normalization categories by using the inverse text normalization lexicon; applying one or more inverse text normalization rules that are selected based on the inverse text normalization categories into which inverse text normalization items have been classified to rewrite the inverse text normalization items; and post processing the inverse text normalization item and outputting inversely normalized text in written form for display.

2005/0267755	Arrangement for speech recognition	Nokia Corporation	Suontausta, Janne	704	G10L	20040527	15	94%	<input type="checkbox"/>
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Abstract: A speech recognizer comprises a random access memory, a downloader for loading decision trees from a set of decision trees into said random access memory, a vocabulary comprising one or more words of a language, a divider for dividing at least one word of the vocabulary into subwords, and a transcription generator adapted to process at least one subword. The downloader is adapted to download a subset of the set of decision trees at a time into said random access memory. The transcription generator is further adapted to generate at least one phoneme transcription for the subword using the subset of decision trees. The speech recognizer also comprises a combiner for combining the generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words. The invention also relates to a device, a system, a module, a method, a computer program product and a data structure.

MainClaim: A speech recognizer comprising: a random access memory; a downloader for loading decision trees from a set of decision trees into said random access memory; a vocabulary comprising one or more words of a language; a divider for dividing at least one word of said vocabulary into subwords; a transcription generator adapted to process at least one subword, wherein the downloader is adapted to download a subset of the set of decision trees at a time into said random access memory, and the transcription generator is further adapted to generate at least one phoneme transcription for said subword using said subset of the decision trees; and a combiner for combining generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words.

5,384,892	Dynamic language model for speech recognition	Apple Computer, Inc.	Strong; Robert D.	704	G10L	19921231	0	100%	<input type="checkbox"/>
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Abstract: A method of speech recognition which determines acoustic features in a sound sample; recognizes words comprising the acoustic features based on a language model, which determines the possible sequences of words that may be recognized; and the selection of an appropriate response based on the words recognized. Information about what words may be recognized, under which conditions those words may be recognized, and what response is appropriate when the words are recognized, is stored, in a preferred embodiment, in a data structure called a speech rule. These speech rules are partitioned according to the context in which they are active. When speech is detected, concurrent with acoustic feature extraction, the current state of the computer system is used to determine which rules are active and how they are to be combined in order to generate a language model for word recognition. A language model is dynamically generated and used to find the best interpretation of the acoustic features as a word sequence. This word sequence is then matched against active rules in order to determine the appropriate response. Rules that match all or part of the word sequence contribute data structures representing the "meaning" of the word sequence, and these data structures are used by the rule actions in order to generate an appropriate response to the spoken

utterance.

MainClaim: A method of speech recognition in a speech recognition system comprising the following steps:

a. determining acoustic features in a sound sample;

b. upon commencing said determination of said acoustic features, determining possible combinations of words which may be recognized by said speech recognition system and storing said possible combinations of words as a current language model, said current language model being generated from a plurality of speech rules each comprising a language model and an associated action, each said language model in each of said plurality of speech rules including a plurality of states, words defining transitions between said plurality of states, and terminal states;

c. upon the completion of said generation of said current language model, recognizing words comprising said acoustic features by traversing states in said current language model until reaching said terminal states in said current language model; and

d. subsequent to said step of recognizing words, determining a matched speech rule from said plurality of speech rules used to create said current language model and said words and performing said action associated with said matched speech rule.

2006/0074669	Speech grammars having priority levels	Nokia Corporation	Seppala; Esa H.	704	G10L	20040923	10	95%	<input type="checkbox"/>
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Abstract: In a speech recognition environment where time constraint limits the use of stored grammars in matching with a speech, the phonemes converted words are built into a number of trees of different priority levels so that the number of the trees combined into a concatenated tree for speech recognition is based at least partly on the time constraint. The trees of a lower priority level are used only when the time constraint allows such use and the trees of a higher priority level are used at least partly prior to the trees of a lower priority level being used.

MainClaim: A method of organizing grammars for use in an electronic device, the grammars having grammar items organized into trees of ordered branches, said method comprising: ranking at least a part of the grammar items according to a grammar rule; sorting at least part of the grammar items into grammar groups of different priority levels based at least partly on the ranking; and building at least one tree separately for the grammar groups.

2005/0267755	Arrangement for speech recognition	Nokia Corporation	Suontausta, Janne	704	G10L	20040527	15	94%	<input type="checkbox"/>
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Abstract: A speech recognizer comprises a random access memory, a downloader for loading decision trees from a set of decision trees into said random access memory, a vocabulary comprising one or more words of a language, a divider for dividing at least one word of the vocabulary into subwords, and a transcription generator adapted to process at least one subword. The downloader is adapted to download a subset of the set of decision trees at a time into said random access memory. The transcription generator is further adapted to generate at least one phoneme transcription for the subword using the subset of decision trees. The speech recognizer also comprises a combiner for combining the generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words. The invention also relates to a device, a system, a module, a method, a computer program product and a data structure.

MainClaim: A speech recognizer comprising: a random access memory; a downloader for loading decision trees from a set of decision trees into said random access memory; a vocabulary comprising one or more words of a language; a divider for dividing at least one word of said vocabulary into subwords; a transcription generator adapted to process at least one subword, wherein the downloader is adapted to download a subset of the set of decision trees at a time into said random access memory, and the transcription generator is further adapted to generate at least one phoneme transcription for said subword using said subset of the decision trees; and a combiner for combining generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words.

2009/0157385	Inverse Text Normalization	Nokia Corporation	Tian; Jilei	704	G06F	20071214	14	94%	<input type="checkbox"/>
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Abstract: Embodiments are directed to efficient multilingual inverse text normalization (ITN) of text in spoken form to produce normalized text for display. Embodiments are directed to preprocessing the multilingual text into a language-independent representation, tokenizing text in spoken form, segmenting the tokenized text into ITN items by grouping consecutive words using an ITN lexicon, classifying the ITN items into ITN categories by using the ITN lexicon or tagged information from language model, applying one or more ITN rules that are selected based on the ITN categories into which ITN items have been classified to rewrite the ITN items; and post processing the ITN item and outputting inversely normalized text in written form for display. The ITN lexicon may include ITN lexicon entries that are each located within an ITN category in the ITN lexicon.

MainClaim: A method comprising: segmenting text in spoken form into inverse text normalization items by grouping consecutive words using an inverse text normalization lexicon; classifying the inverse text normalization items into inverse text normalization categories by using the inverse text normalization lexicon; applying one or more inverse text normalization rules that are selected based on the inverse text normalization categories into which inverse text normalization items have been classified to rewrite the inverse text normalization items; and post processing the inverse text normalization item and outputting inversely normalized text in written form for display.

5,761,687	Character-based correction arrangement with correction propagation	Apple Computer, Inc.	Hon; Hsiao-Wuen Beauregard; Gerald T. Hulteen; Eric A.	715	G06F	19951005	0	100%	<input type="checkbox"/>
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Abstract: A method of correcting a text in a data processing system is described. The method includes the step of locating a first incorrect character in the text. A character list of alternative characters for the first incorrect character is then shown to the user who replaces the first incorrect character with a correct character from the character list. The change of the first incorrect character is then propagated through a remainder of the text in accordance with a matching score and a language probability score of the remainder of the text with respect to the correct character to correct any subsequent incorrect character in the text.

MainClaim: A method of correcting a text in a data processing system, comprising the steps of:

(A) recognizing an input pattern using a pattern recognition system and locating a first incorrect character which is a portion of a word in the text;

(B) showing to the user a character list of alternative characters for the first incorrect character and allowing the user to select a correct character which is a portion of a word to replace the first incorrect character from the character list, each of said

alternative characters being a portion of a word;									
(C) propagating a change of the first incorrect character through a remainder of the text in accordance with a matching score and a language probability score of the remainder of the text with respect to the correct character to correct any subsequent incorrect character in the text.									
2006/0293889	Error correction for speech recognition systems	Nokia Corporation	Kiss; Imre Leppanen; Jussi Artturi	704	G10L	20050627	3	98%	<input type="checkbox"/>
<p>Abstract: Words in a sequence of words that is obtained from speech recognition of an input speech sequence are presented to a user, and at least one of the words in the sequence of words is replaced, in case it has been selected by a user for correction. Words with a low recognition confidence value are emphasized; alternative word candidates for the at least one selected word are ordered according to an ordering criterion; after replacing a word, an order of alternative word candidates for neighboring words in the sequence is updated; the replacement word is derived from a spoken representation of the at least one selected word by speech recognition with a limited vocabulary; and the word that replaces the at least one selected word is derived from a spoken and spelled representation of the at least one selected word.</p> <p>MainClaim: A method for correcting words in a sequence of words that is obtained from speech recognition of an input speech sequence, said method comprising: presenting said sequence of words to a user, wherein each word in said sequence of words is associated with a respective recognition confidence value, and wherein at least one word in said sequence of words is automatically emphasized in dependence on its recognition confidence value; and replacing at least one word in said sequence of words, in case it has been selected by a user for correction.</p>									
7,181,388	Method for compressing dictionary data	Nokia Corporation	Tian; Jilei	704	G06F	20021111	3	94%	<input type="checkbox"/>
<p>Abstract: The invention relates to pre-processing of a pronunciation dictionary for compression in a data processing device, the pronunciation dictionary comprising at least one entry, the entry comprising a sequence of character units and a sequence of phoneme units. According to one aspect of the invention the sequence of character units and the sequence of phoneme units are aligned using a statistical algorithm. The aligned sequence of character units and aligned sequence of phoneme units are interleaved by inserting each phoneme unit at a predetermined location relative to the corresponding character unit.</p> <p>MainClaim: A method for pre-processing a pronunciation dictionary for compression in a data processing device, the pronunciation dictionary comprising at least one entry, the entry comprising a sequence of character units and a sequence of phoneme units, the method comprising: aligning said sequence of character units and said sequence of phoneme units using a statistical algorithm so that the alignment between said character units and said phoneme units is determined; and interleaving said aligned sequence of character units and said aligned sequence of phoneme units by inserting each phoneme unit at a predetermined location relative to the corresponding character unit.</p>									
2007/0073541	Method for compressing dictionary data	Nokia Corporation	Tian; Jilei	704	G10L	20061129	5	94%	<input type="checkbox"/>
<p>Abstract: The invention relates to pre-processing of a pronunciation dictionary for compression in a data processing device, the pronunciation dictionary comprising at least one entry, the entry comprising a sequence of character units and a sequence of phoneme units. According to one aspect of the invention the sequence of character units and the sequence of phoneme units are aligned using a statistical algorithm. The aligned sequence of character units and aligned sequence of phoneme units are interleaved by inserting each phoneme unit at a predetermined location relative to the corresponding character unit.</p> <p>MainClaim: An electronic device comprising a processing unit and a memory for storing a pre-processed pronunciation dictionary including a first set of units having character units and a second set of units having phoneme units, the units of the first set and the units of the second set being aligned and interleaved by having each phoneme unit at a predetermined location relative to the corresponding character unit, wherein the electronic device is configured to find a matching entry for a text string input from the pre-processed pronunciation dictionary using said first set of units of the entry from the predetermined locations; the electronic device is configured to select from said matching entry phoneme units of said second set of units from predetermined locations; and the electronic device is configured to concatenate the selected phoneme units into a sequence of phoneme units.</p>									
7,127,394	Assigning meanings to utterances in a speech recognition system	Apple Computer, Inc.	Strong; Robert Don	704	G10L	20040218	0	100%	<input checked="" type="checkbox"/>
<p>Abstract: Assigning meanings to spoken utterances in a speech recognition system. A plurality of speech rules is generated, each of the of speech rules comprising a language model and an expression associated with the language model. At one interval (e.g. upon the detection of speech in the system), a current language model is generated from each language model in the speech rules for use by a recognizer. When a sequence of words is received from the recognizer, a set of speech rules which match the sequence of words received from the recognizer is determined. Each expression associated with the language model in each of the set of speech rules is evaluated, and actions are performed in the system according to the expressions associated with each language model in the set of speech rules.</p> <p>MainClaim: A computer implemented method comprising: determining a set of speech rules which match a spoken sequence of words by searching a current language model, said spoken sequence of words received through an audio input, said current language model generated from a plurality of speech rules according to a current operating context, wherein each of said plurality of speech rules comprises a language model and an expression; and evaluating said expressions in said current language model to assign a meaning to said spoken sequence of words.</p>									
2006/0074669	Speech grammars having priority levels	Nokia Corporation	Seppala; Esa H.	704	G10L	20040923	10	95%	<input type="checkbox"/>
<p>Abstract: In a speech recognition environment where time constraint limits the use of stored grammars in matching with a speech, the phonemes converted words are built into a number of trees of different priority levels so that the number of the trees combined into a concatenated tree for speech recognition is based at least partly on the time constraint. The trees of a lower priority level are used only when the time constraint allows such use and the trees of a higher priority level are used at least partly prior to the trees of a lower priority level being used.</p> <p>MainClaim: A method of organizing grammars for use in an electronic device, the grammars having grammar items organized into trees of ordered branches, said method comprising: ranking at least a part of the grammar items according to a grammar rule; sorting at least part of the grammar items into grammar groups of different priority levels based at least partly on the ranking; and building at least one tree separately for the grammar groups.</p>									
2005/0267755	Arrangement for speech recognition	Nokia Corporation	Suontausta, Janne	704	G10L	20040527	15	94%	<input type="checkbox"/>

Abstract: A speech recognizer comprises a random access memory, a downloader for loading decision trees from a set of decision trees into said random access memory, a vocabulary comprising one or more words of a language, a divider for dividing at least one word of the vocabulary into subwords, and a transcription generator adapted to process at least one subword. The downloader is adapted to download a subset of the set of decision trees at a time into said random access memory. The transcription generator is further adapted to generate at least one phoneme transcription for the subword using the subset of decision trees. The speech recognizer also comprises a combiner for combining the generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words. The invention also relates to a device, a system, a module, a method, a computer program product and a data structure.

MainClaim: A speech recognizer comprising: a random access memory; a downloader for loading decision trees from a set of decision trees into said random access memory; a vocabulary comprising one or more words of a language; a divider for dividing at least one word of said vocabulary into subwords; a transcription generator adapted to process at least one subword, wherein the downloader is adapted to download a subset of the set of decision trees at a time into said random access memory, and the transcription generator is further adapted to generate at least one phoneme transcription for said subword using said subset of the decision trees; and a combiner for combining generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words.

2009/0157385	Inverse Text Normalization	Nokia Corporation	Tian; Jilei	704	G06F	20071214	14	94%	<input type="checkbox"/>
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Abstract: Embodiments are directed to efficient multilingual inverse text normalization (ITN) of text in spoken form to produce normalized text for display. Embodiments are directed to preprocessing the multilingual text into a language-independent representation, tokenizing text in spoken form, segmenting the tokenized text into ITN items by grouping consecutive words using an ITN lexicon, classifying the ITN items into ITN categories by using the ITN lexicon or tagged information from language model, applying one or more ITN rules that are selected based on the ITN categories into which ITN items have been classified to rewrite the ITN items; and post processing the ITN item and outputting inversely normalized text in written form for display. The ITN lexicon may include ITN lexicon entries that are each located within an ITN category in the ITN lexicon.

MainClaim: A method comprising: segmenting text in spoken form into inverse text normalization items by grouping consecutive words using an inverse text normalization lexicon; classifying the inverse text normalization items into inverse text normalization categories by using the inverse text normalization lexicon; applying one or more inverse text normalization rules that are selected based on the inverse text normalization categories into which inverse text normalization items have been classified to rewrite the inverse text normalization items; and post processing the inverse text normalization item and outputting inversely normalized text in written form for display.

5,613,036	Dynamic categories for a speech recognition system	Apple Computer, Inc.	Strong; Robert D.	704	G10L	19950425	0	100%	<input type="checkbox"/>
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Abstract: Maintaining dynamic categories for speech rules in a speech recognition system which has a plurality of speech rules each comprising a language model and action. Each speech rule indicates whether the language model includes a flag identifying whether the words in the language model is dynamic according to changing data in the speech recognition system. At periodic intervals, such as system initialization or application program launch time, for each flag in each speech rule which indicates that words in the language model are dynamic, the words of each of the language model(s) are updated depending upon the state of the system. Concurrent with the determination of acoustic features during speech recognition, a current language model can be created based upon the language models from these speech rules.

MainClaim: A method of maintaining dynamic categories for speech rules in a speech recognition system having an acoustic feature extractor which is separate from said speech rules, said method comprising the following steps:

- creating a plurality of speech rules each comprising a language model and associated action to be performed in said speech recognition system, each said language model including a phrase list having a phrase comprising a sequence of words that may be recognized by a speech recognizer, each of said plurality of speech rules further comprising a dynamic flag identifying whether said words in said sequence of words are dynamic such that additional words may be added to the sequence of words and one of said words in said sequence of words is capable of being deleted from said sequence of words;
- at periodic intervals during run time of said speech recognition system, for each dynamic flag in each said speech rule identifying that said words in said sequence of words are dynamic, dynamically determining said words in each said sequence of words based on data stored in said speech recognition system;
- determining acoustic features in a sound sample, wherein said acoustic features are distinct from said speech rules; and
- creating a current language model based upon each said language model from each of said plurality of said speech rules, and making said current language model available to the speech recognizer.

2006/0074669	Speech grammars having priority levels	Nokia Corporation	Seppala; Esa H.	704	G10L	20040923	10	95%	<input type="checkbox"/>
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Abstract: In a speech recognition environment where time constraint limits the use of stored grammars in matching with a speech, the phonemes converted words are built into a number of trees of different priority levels so that the number of the trees combined into a concatenated tree for speech recognition is based at least partly on the time constraint. The trees of a lower priority level are used only when the time constraint allows such use and the trees of a higher priority level are used at least partly prior to the trees of a lower priority level being used.

MainClaim: A method of organizing grammars for use in an electronic device, the grammars having grammar items organized into trees of ordered branches, said method comprising: ranking at least a part of the grammar items according to a grammar rule; sorting at least part of the grammar items into grammar groups of different priority levels based at least partly on the ranking; and building at least one tree separately for the grammar groups.

2005/0267755	Arrangement for speech recognition	Nokia Corporation	Suontautsa, Janne	704	G10L	20040527	15	94%	<input type="checkbox"/>
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Abstract: A speech recognizer comprises a random access memory, a downloader for loading decision trees from a set of decision trees into said random access memory, a vocabulary comprising one or more words of a language, a divider for dividing at least one word of the vocabulary into subwords, and a transcription generator adapted to process at least one subword. The downloader is adapted to download a subset of the set of decision trees at a time into said random access memory. The transcription generator is further adapted to generate at least one phoneme transcription for the subword using the subset of decision trees. The speech recognizer also comprises a combiner for combining the generated phoneme transcriptions of the

subwords to obtain phoneme transcriptions of said one or more words. The invention also relates to a device, a system, a module, a method, a computer program product and a data structure.

MainClaim: A speech recognizer comprising: a random access memory; a downloader for loading decision trees from a set of decision trees into said random access memory; a vocabulary comprising one or more words of a language; a divider for dividing at least one word of said vocabulary into subwords; a transcription generator adapted to process at least one subword, wherein the downloader is adapted to download a subset of the set of decision trees at a time into said random access memory, and the transcription generator is further adapted to generate at least one phoneme transcription for said subword using said subset of the decision trees; and a combiner for combining generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words.

2009/0157385	Inverse Text Normalization	Nokia Corporation	Tian; Jilei	704	G06F	20071214	14	94%	<input type="checkbox"/>
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Abstract: Embodiments are directed to efficient multilingual inverse text normalization (ITN) of text in spoken form to produce normalized text for display. Embodiments are directed to preprocessing the multilingual text into a language-independent representation, tokenizing text in spoken form, segmenting the tokenized text into ITN items by grouping consecutive words using an ITN lexicon, classifying the ITN items into ITN categories by using the ITN lexicon or tagged information from language model, applying one or more ITN rules that are selected based on the ITN categories into which ITN items have been classified to rewrite the ITN items; and post processing the ITN item and outputting inversely normalized text in written form for display. The ITN lexicon may include ITN lexicon entries that are each located within an ITN category in the ITN lexicon.

MainClaim: A method comprising: segmenting text in spoken form into inverse text normalization items by grouping consecutive words using an inverse text normalization lexicon; classifying the inverse text normalization items into inverse text normalization categories by using the inverse text normalization lexicon; applying one or more inverse text normalization rules that are selected based on the inverse text normalization categories into which inverse text normalization items have been classified to rewrite the inverse text normalization items; and post processing the inverse text normalization item and outputting inversely normalized text in written form for display.

5,390,279	Partitioning speech rules by context for speech recognition	Apple Computer, Inc.	Strong; Robert D.	704	G01L	19921231	0	100%	<input type="checkbox"/>
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Abstract: Partitioning speech recognition rules for generation of a current language model and interpretation in a speech recognition system. Contexts for each of speech recognition rules are determined when each of the speech rules will be active. At one interval (e.g. initialization of the system), common contexts for the speech rules are determined and grouped or partitioned into speech rule sets according to these common contexts. Rapid and efficient generation of a language model upon the detection of a current context at a second interval (e.g. upon the detection of speech in one embodiment) then may be performed. Subsequent to the generation of the language model, interpretation may be performed using the speech recognition rules grouped into these common contexts.

MainClaim: A method of continuous speech recognition including dynamic generation of a current language model and interpretation in a speech recognition system according to a current context comprising the following steps:

- associating with each of a plurality of speech rules, a context wherein each of said speech rules will be active;
- during initialization of said speech recognition system, determining common contexts for said plurality of speech rules, and partitioning said plurality of speech rules into a partition of speech rule sets according to said common contexts wherein each of said plurality of speech rules resides in only one of said speech rule sets of said partition;
- upon the detection of speech, determining said current context of said speech recognition system;
- determining all speech rule sets which each have a context matching said current context, and storing said matched speech rule sets as a context matched set of speech rules;
- dynamically generating a current language model from said context matched set of speech rules in said partition for use by a speech recognizer;
- said speech recognizer using said current language model to recognize words contained in said speech; and
- an interpreter using said context matched set of speech to interpret and perform actions according to said words recognized by said speech recognizer.

2006/0074669	Speech grammars having priority levels	Nokia Corporation	Seppala; Esa H.	704	G10L	20040923	10	95%	<input type="checkbox"/>
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Abstract: In a speech recognition environment where time constraint limits the use of stored grammars in matching with a speech, the phonemes converted words are built into a number of trees of different priority levels so that the number of the trees combined into a concatenated tree for speech recognition is based at least partly on the time constraint. The trees of a lower priority level are used only when the time constraint allows such use and the trees of a higher priority level are used at least partly prior to the trees of a lower priority level being used.

MainClaim: A method of organizing grammars for use in an electronic device, the grammars having grammar items organized into trees of ordered branches, said method comprising: ranking at least a part of the grammar items according to a grammar rule; sorting at least part of the grammar items into grammar groups of different priority levels based at least partly on the ranking; and building at least one tree separately for the grammar groups.

2009/0157385	Inverse Text Normalization	Nokia Corporation	Tian; Jilei	704	G06F	20071214	14	94%	<input type="checkbox"/>
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Abstract: Embodiments are directed to efficient multilingual inverse text normalization (ITN) of text in spoken form to produce normalized text for display. Embodiments are directed to preprocessing the multilingual text into a language-independent representation, tokenizing text in spoken form, segmenting the tokenized text into ITN items by grouping consecutive words using an ITN lexicon, classifying the ITN items into ITN categories by using the ITN lexicon or tagged information from language model, applying one or more ITN rules that are selected based on the ITN categories into which ITN items have been classified to rewrite the ITN items; and post processing the ITN item and outputting inversely normalized text in written form for display. The ITN lexicon may include ITN lexicon entries that are each located within an ITN category in the ITN lexicon.

MainClaim: A method comprising:segmenting text in spoken form into inverse text normalization items by grouping consecutive words using an inverse text normalization lexicon;classifying the inverse text normalization items into inverse text normalization categories by using the inverse text normalization lexicon;applying one or more inverse text normalization rules that are selected based on the inverse text normalization categories into which inverse text normalization items have been classified to rewrite the inverse text normalization items; andpost processing the inverse text normalization item and outputting inversely normalized text in written form for display.

2005/0267755	Arrangement for speech recognition	Nokia Corporation	Suontausta, Janne	704	G10L	20040527	15	94%	<input type="checkbox"/>
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Abstract: A speech recognizer comprises a random access memory, a downloader for loading decision trees from a set of decision trees into said random access memory, a vocabulary comprising one or more words of a language, a divider for dividing at least one word of the vocabulary into subwords, and a transcription generator adapted to process at least one subword. The downloader is adapted to download a subset of the set of decision trees at a time into said random access memory. The transcription generator is further adapted to generate at least one phoneme transcription for the subword using the subset of decision trees. The speech recognizer also comprises a combiner for combining the generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words. The invention also relates to a device, a system, a module, a method, a computer program product and a data structure.

MainClaim: A speech recognizer comprising: a random access memory; a downloader for loading decision trees from a set of decision trees into said random access memory; a vocabulary comprising one or more words of a language; a divider for dividing at least one word of said vocabulary into subwords; a transcription generator adapted to process at least one subword, wherein the downloader is adapted to download a subset of the set of decision trees at a time into said random access memory, and the transcription generator is further adapted to generate at least one phoneme transcription for said subword using said subset of the decision trees; and a combiner for combining generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words.

7,478,037	Assigning meanings to utterances in a speech recognition system	Apple Inc.	Strong; Robert Don	704	G10L	20061013	0	100%	<input type="checkbox"/>
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Abstract: Assigning meanings to spoken utterances in a speech recognition system. A plurality of speech rules is generated, each of the speech rules comprising a language model and an expression associated with the language model. At one interval (e.g. upon the detection of speech in the system), a current language model is generated from each language model in the speech rules for use by a recognizer. When a sequence of words is received from the recognizer, a set of speech rules which match the sequence of words received from the recognizer is determined. Each expression associated with the language model in each of the set of speech rules is evaluated, and actions are performed in the system according to the expressions associated with each language model in the set of speech rules.

MainClaim: A machine implemented method comprising: determining a set of possible operating contexts of a data processing system; generating for each possible operating context in the set of possible operating contexts a language model for use in recognizing a spoken set of words received through an audio input.

2009/0157385	Inverse Text Normalization	Nokia Corporation	Tian; Jilei	704	G06F	20071214	14	94%	<input type="checkbox"/>
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Abstract: Embodiments are directed to efficient multilingual inverse text normalization (ITN) of text in spoken form to produce normalized text for display. Embodiments are directed to preprocessing the multilingual text into a language-independent representation, tokenizing text in spoken form, segmenting the tokenized text into ITN items by grouping consecutive words using an ITN lexicon, classifying the ITN items into ITN categories by using the ITN lexicon or tagged information from language model, applying one or more ITN rules that are selected based on the ITN categories into which ITN items have been classified to rewrite the ITN items; and post processing the ITN item and outputting inversely normalized text in written form for display. The ITN lexicon may include ITN lexicon entries that are each located within an ITN category in the ITN lexicon.

MainClaim: A method comprising:segmenting text in spoken form into inverse text normalization items by grouping consecutive words using an inverse text normalization lexicon;classifying the inverse text normalization items into inverse text normalization categories by using the inverse text normalization lexicon;applying one or more inverse text normalization rules that are selected based on the inverse text normalization categories into which inverse text normalization items have been classified to rewrite the inverse text normalization items; andpost processing the inverse text normalization item and outputting inversely normalized text in written form for display.

5,737,487	Speaker adaptation based on lateral tying for large-vocabulary continuous speech recognition	Apple Computer, Inc.	Bellegarda; Jerome R. Butzberger; John W. Chow; Yen-Lu	704	G10L	19960213	0	100%	<input type="checkbox"/>
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Abstract: A system and method for performing speaker adaptation in a speech recognition system which includes a set of reference models corresponding to speech data from a plurality of speakers. The speech data is represented by a plurality of acoustic models and corresponding sub-events, and each sub-event includes one or more observations of speech data. A degree of lateral tying is computed between each pair of sub-events, wherein the degree of tying indicates the degree to which a first observation in a first sub-event contributes to the remaining sub-events. When adaptation data from a new speaker becomes available, a new observation from adaptation data is assigned to one of the sub-events. Each of the sub-events is then populated with the observations contained in the assigned sub-event based on the degree of lateral tying that was computed between each pair of sub-events. The reference models corresponding to the populated sub-events are then adapted to account for speech pattern idiosyncrasies of the new speaker, thereby reducing the error rate of the speech recognition system.

MainClaim: A method of performing speaker adaptation in a speech recognition system which includes a set of reference models corresponding to speech data from a plurality of speakers, the speech data represented by a plurality of acoustic models and corresponding sub-events, wherein each sub-event includes one or more observations of speech data, the method comprising the steps of:

- (a) computing a degree of lateral tying between each pair of sub-events, wherein the degree of tying indicates the degree to which a first observation in a first sub-event contributes to the remaining sub-events;
- (b) assigning a new observation from adaptation data of a new speaker to one of the sub-events;
- (c) populating each of the sub-events with a transformed version of the observation contained in the assigned sub-event based on the degree of lateral tying computed between each pair of sub-events;

(d) adapting the reference models that correspond to the populated sub-events to account for speech pattern idiosyncrasies of the new speaker, thereby reducing the error rate of the speech recognition system.

2007/0088552	Method and a device for speech recognition	Nokia Corporation	Olsen; Jesper	704	G10L	20051017	9	96%	<input type="checkbox"/>
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Abstract: Method for speech recognition comprising inputting frames comprising samples of an audio signal; forming a feature vector comprising a first number of vector components for each frame; projecting the feature vector onto at least two subspaces so that the number of components of each projected feature vector is less than the first number and the total number of components of the projected feature vectors is the same as the first number; defining a set of mixture models for each projected vector which provides the highest observation probability; analysing the set of mixture models to determine the recognition result. When the recognition result is found, the method comprises determining a confidence measure for the recognition result, the determining comprising determining a probability that the recognition result is correct; determining a normalizing term; and dividing the probability by the normalizing term.

MainClaim: A method for speech recognition comprising: inputting frames comprising samples of an audio signal; forming a feature vector comprising a first number of vector components for each frame; projecting the feature vector onto at least two subspaces so that the number of components of each projected feature vector is less than the first number and the total number of components of the projected feature vectors is the same as the first number; defining a set of mixture models for each projected vector which provides the highest observation probability; analysing the set of mixture models to determine the recognition result; when the recognition result is found, determining a confidence measure for the recognition result, the determining comprising: determining a probability that the recognition result is correct; determining a normalizing term by selecting, for each state, one mixture model among said set of mixture models, which provides the highest likelihood; and dividing the probability by said normalizing term; wherein the method further comprises comparing the confidence measure to a threshold value to determine whether the recognition result is reliable enough.

2007/0256189	SOFT ALIGNMENT IN GAUSSIAN MIXTURE MODEL BASED TRANSFORMATION	NOKIA CORPORATION	Tian; Jilei Nurminen; Jani Popa; Victor	800	C12N	20060426	6	96%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for performing soft alignment in Gaussian mixture model (GMM) based and other vector transformations. Soft alignment may assign alignment probabilities to source and target feature vector pairs. The vector pairs and associated probabilities may then be used calculate a conversion function, for example, by computing GMM training parameters from the joint vectors and alignment probabilities to create a voice conversion function for converting speech sounds from a source speaker to a target speaker.

MainClaim: A method for time aligning a first sequence of feature vectors with a second sequence of feature vectors comprising the steps of: receiving a first sequence of feature vectors associated with a source; receiving a second sequence of feature vectors associated with a target; and generating a third sequence of joint feature vectors, wherein the generation of each joint feature vector is based on: a first vector from the first sequence; a first vector from the second sequence; and a first probability value representing the probability that the first vector from the first sequence and the first vector from the second sequence are aligned to the same feature in their respective sequences.

2004/0039573	Pattern recognition	Nokia Corporation	Vasilache, Marcel	704	G10L	20030327	10	96%	<input type="checkbox"/>
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Abstract: A method for determining a set of distortion measures in a pattern recognition process, where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures. The method comprises comparing (S10) a first feature vector in said sequence with a first number (M1) of templates from a set of templates representing candidate patterns, based on said comparison, selecting (S12) a second number (M2) of templates from said template set, the second number being smaller than the first number, and comparing (S14) a second feature vector only with said selected templates. The method can be implemented in a device for pattern recognition.

MainClaim: A method for determining a set of distortion measures in a pattern recognition process where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures, comprising: comparing a first feature vector in said sequence with a first number of templates from a set of templates representing candidate patterns, based on said comparison, selecting a second number of templates from said template set, the second number being smaller than the first number, and comparing a second feature vector only with said selected templates.

6,052,481	Automatic method for scoring and clustering prototypes of handwritten stroke-based data	Apple Computers, Inc.	Grajski; Kamil A. Chow; Yen-Lu	382	G06K	19940902	0	100%	<input type="checkbox"/>
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Abstract: A system and method for processing stroke-based handwriting data for the purposes of automatically scoring and clustering the handwritten data to form letter prototypes. The present invention includes a method for processing digitized stroke-based handwriting data of known character strings, where each of the character strings is represented by a plurality of mathematical feature vectors. In this method, each one of the plurality of feature vectors is labelled as corresponding to a particular character in the character strings. A trajectory is then formed for each one of the plurality of feature vectors labelled as corresponding to a particular character. After the trajectories are formed, a distance value is calculated for each pair of trajectories corresponding to the particular character using dynamic time warping method. The trajectories which are within a sufficiently small distance of each other are grouped to form a plurality of clusters. The clusters are used to define handwriting prototypes which identify subcategories of the character.

MainClaim: A method for processing digitized stroke-based handwriting data of known character strings, each segment of said known character strings being represented by a feature vector, said method comprising the steps of:

determining a trajectory of said feature vectors in each of said known character strings corresponding to a particular character, an i th one of said trajectories T_i having n of said feature vectors, $T_i = \{P1^i, P2^i, \dots, Pn^i\}$, and a j th one of said trajectories T_j having m of said feature vectors, $T_j = \{P1^j, P2^j, \dots, Pm^j\}$;

determining a separation distance $d_{i,j}$ between each pair of said trajectories T_i and T_j by

forming a distance matrix $D_{i,j}$ where a (k,l) entry $D_{i,j}(k,l)$ of said distance matrix $D_{i,j}$ is equal to a distance between P_k^i , a k th one of said feature vectors of said trajectory T_i , and P_l^j , an l th one of said feature vectors of said trajectory T_j ;

determining an entry-to-entry path in said distance matrix $D_{i,j}$ from $D_{i,j}(1,1)$ to $D_{i,j}(n,m)$ such that a sum of entries along said entry-to-entry path is a minimum, and setting said sum equal to said separation distance $d_{i,j}$; and

grouping said trajectories into clusters, such that said separation distance of a first pair of said trajectories in a first cluster is smaller than said separation distance of a second pair of said trajectories, said trajectories of said second pair being in different ones of said clusters.

2004/0039573	Pattern recognition	Nokia Corporation	Vasilache, Marcel	704	G10L	20030327	10	94%	<input type="checkbox"/>
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Abstract: A method for determining a set of distortion measures in a pattern recognition process, where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures. The method comprises comparing (S10) a first feature vector in said sequence with a first number (M1) of templates from a set of templates representing candidate patterns, based on said comparison, selecting (S12) a second number (M2) of templates from said template set, the second number being smaller than the first number, and comparing (S14) a second feature vector only with said selected templates. The method can be implemented in a device for pattern recognition.

MainClaim: A method for determining a set of distortion measures in a pattern recognition process where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures, comprising: comparing a first feature vector in said sequence with a first number of templates from a set of templates representing candidate patterns, based on said comparison, selecting a second number of templates from said template set, the second number being smaller than the first number, and comparing a second feature vector only with said selected templates.

7,689,638	Method and device for determining and outputting the similarity between two data strings	Nokia Corporation	Theimer; Wolfgang Ross; Andree	708	G06F	20021128	1	93%	<input type="checkbox"/>
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Abstract: The present invention discloses a method and device for determining and outputting a similarity measure between two data strings each data string comprising data entities, comprising: receiving a first data string, receiving a second data string, which is characterized by determining consecutively following data entities in the first data string, determining the relative positions of the consecutively following data entities in the first data string, determining similar data entities with the same order in the second data string, determining the relative positions of the determined data entities in the second data string, determining a matching measure by determining how far the relative positions of data entities in the second data string match with the relative positions of consecutively following data entities in the first data string, and outputting a similarity measure which corresponds to the matching measure of at least one comparison result.

MainClaim: A method comprising: receiving a first data string in an electronic component, receiving a second data string in said electronic component, determining pairs of consecutively following data entities in said first data string in a processing unit, determining the relative positions of said pairs of consecutively following data entities in said first data string in said processing unit, allocating a position label to each of said data entities in the first data string in said processing unit, numbering same data entities according to their relative position in accordance with the position label in said processing unit, determining similar data entities with the same order in said second data string in said processing unit, determining the relative positions of said determined data entities in said second data string in said processing unit, determining a matching measure by determining how far the relative positions of data entities in said second data string match with the relative positions of consecutively following data entities in said first data string in said processing unit, and determining a similarity measure which corresponds to the matching measure of at least one comparison result in said processing unit, repeating said determination of said similarity measure with a number of received second data strings in said processing unit, and outputting by an interface said determined similarity measures for said data strings according to the amount of similarity to said first data string, wherein said first data string of entities and said second data string of entities are data strings relating to one of associative text string, genome analysis, speech recognition, and musical melody.

2007/0256189	SOFT ALIGNMENT IN GAUSSIAN MIXTURE MODEL BASED TRANSFORMATION	NOKIA CORPORATION	Tian; Jilei Nurminen; Jani Popa; Victor	800	C12N	20060426	6	92%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for performing soft alignment in Gaussian mixture model (GMM) based and other vector transformations. Soft alignment may assign alignment probabilities to source and target feature vector pairs. The vector pairs and associated probabilities may then be used calculate a conversion function, for example, by computing GMM training parameters from the joint vectors and alignment probabilities to create a voice conversion function for converting speech sounds from a source speaker to a target speaker.

MainClaim: A method for time aligning a first sequence of feature vectors with a second sequence of feature vectors comprising the steps of: receiving a first sequence of feature vectors associated with a source; receiving a second sequence of feature vectors associated with a target; and generating a third sequence of joint feature vectors, wherein the generation of each joint feature vector is based on: a first vector from the first sequence; a first vector from the second sequence; and a first probability value representing the probability that the first vector from the first sequence and the first vector from the second sequence are aligned to the same feature in their respective sequences.

5,689,617	Speech recognition system which returns recognition results as a reconstructed language model with attached data values	Apple Computer, Inc.	Pallakoff; Matthew G. Rodarmer; Kurt W. Reeves; Arthur Arlo	704	G10L	19950314	0	100%	<input type="checkbox"/>
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Abstract: A speech recognition system operating on a computer system, where the speech recognition system uses a language model with embedded structure and attached data values, and the speech recognition system returns recognition results as a reconstructed language model with embedded structure and attached data values. An application program can receive and traverse the embedded structure of the recognition results and use the attached data values to improve the speed and accuracy of interpretation of the speech recognition results.

MainClaim: A method of speech recognition for a speech recognition system operating on a computer system, comprising the steps of:

the speech recognition system generating a language model with embedded structure and attached data values;

the speech recognition system receiving a sound signal;

the speech recognition system processing the sound signal to extract speech features;

the speech recognition system comparing and matching the speech features to the language model for generating a recognition result having the embedded structure and attached data values of the language model for those portions of the language model matched to the speech features.

2006/0074669	Speech grammars having priority levels	Nokia Corporation	Seppala; Esa H.	704	G10L	20040923	10	96%	<input type="checkbox"/>
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Abstract: In a speech recognition environment where time constraint limits the use of stored grammars in matching with a speech, the phonemes converted words are built into a number of trees of different priority levels so that the number of the trees combined into a concatenated tree for speech recognition is based at least partly on the time constraint. The trees of a lower priority level are used only when the time constraint allows such use and the trees of a higher priority level are used at least partly prior to the trees of a lower priority level being used.

MainClaim: A method of organizing grammars for use in an electronic device, the grammars having grammar items organized into trees of ordered branches, said method comprising: ranking at least a part of the grammar items according to a grammar rule; sorting at least part of the grammar items into grammar groups of different priority levels based at least partly on the ranking; and building at least one tree separately for the grammar groups.

2009/0157385	Inverse Text Normalization	Nokia Corporation	Tian; Jilei	704	G06F	20071214	14	95%	<input type="checkbox"/>
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Abstract: Embodiments are directed to efficient multilingual inverse text normalization (ITN) of text in spoken form to produce normalized text for display. Embodiments are directed to preprocessing the multilingual text into a language-independent representation, tokenizing text in spoken form, segmenting the tokenized text into ITN items by grouping consecutive words using an ITN lexicon, classifying the ITN items into ITN categories by using the ITN lexicon or tagged information from language model, applying one or more ITN rules that are selected based on the ITN categories into which ITN items have been classified to rewrite the ITN items; and post processing the ITN item and outputting inversely normalized text in written form for display. The ITN lexicon may include ITN lexicon entries that are each located within an ITN category in the ITN lexicon.

MainClaim: A method comprising: segmenting text in spoken form into inverse text normalization items by grouping consecutive words using an inverse text normalization lexicon; classifying the inverse text normalization items into inverse text normalization categories by using the inverse text normalization lexicon; applying one or more inverse text normalization rules that are selected based on the inverse text normalization categories into which inverse text normalization items have been classified to rewrite the inverse text normalization items; and post processing the inverse text normalization item and outputting inversely normalized text in written form for display.

2005/0267755	Arrangement for speech recognition	Nokia Corporation	Suontausta, Janne	704	G10L	20040527	15	95%	<input type="checkbox"/>
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Abstract: A speech recognizer comprises a random access memory, a downloader for loading decision trees from a set of decision trees into said random access memory, a vocabulary comprising one or more words of a language, a divider for dividing at least one word of the vocabulary into subwords, and a transcription generator adapted to process at least one subword. The downloader is adapted to download a subset of the set of decision trees at a time into said random access memory. The transcription generator is further adapted to generate at least one phoneme transcription for the subword using the subset of decision trees. The speech recognizer also comprises a combiner for combining the generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words. The invention also relates to a device, a system, a module, a method, a computer program product and a data structure.

MainClaim: A speech recognizer comprising: a random access memory; a downloader for loading decision trees from a set of decision trees into said random access memory; a vocabulary comprising one or more words of a language; a divider for dividing at least one word of said vocabulary into subwords; a transcription generator adapted to process at least one subword, wherein the downloader is adapted to download a subset of the set of decision trees at a time into said random access memory, and the transcription generator is further adapted to generate at least one phoneme transcription for said subword using said subset of the decision trees; and a combiner for combining generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words.

6,122,616	Method and apparatus for diphone aliasing	Apple Computer, Inc.	Henton; Caroline G.	704	G10L	19960703	0	100%	<input type="checkbox"/>
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Abstract: The present invention improves upon electronic speech synthesis using pre-recorded segments of speech to fill in for other missing segments of speech. The formalized aliasing approach of the present invention overcomes the ad hoc aliasing approach of the prior art which oftentimes generated less than satisfactory speech synthesis sound output. By formalizing the relationship between missing speech sound samples and available speech sound samples, the present invention provides a structured approach to aliasing which results in improved synthetic speech sound quality. Further, the formalized aliasing approach of the present invention can be used to lessen storage requirements for speech sound samples by only storing as many sound samples as memory capacity can support.

MainClaim: A method for speech synthesis in an electronic speech synthesis system, the speech synthesis method comprising:

a) storing in a memory of the electronic speech synthesis system a voice table comprised of a set of phonetic waveforms, each phonetic waveform of the set of phonetic waveforms corresponding to a demi-diphone of the voice table;

b) receiving as an input to the electronic speech synthesis system a phonetic string representative of speech to be synthesized by electronic speech system, the phonetic string comprising diphones, the diphones comprising demi-diphones;

c) generating synthetic speech of the phonetic string representative of speech in the electronic speech synthesis system by outputting stored voice table phonetic waveforms by:

- i) retrieving a stored voice table phonetic waveform corresponding to a demi-diphone of the input phonetic string representative of speech in the case of the demi-diphone of the phonetic string representative of speech having a phonetic waveform in the voice table corresponding to the demi-diphone;
- ii) retrieving a stored voice table phonetic waveform not corresponding to a demi-diphone of the input phonetic string representative of speech in the case of the demi-diphone of the phonetic string representative of speech not having a phonetic waveform in the voice table corresponding to the demi-diphone by locating a substitute demi-diphone of the voice table having a corresponding stored voice table phonetic waveform which has phonetic features meeting:

A) a threshold set of phonetic features of the demi-diphone not having a corresponding stored voice table phonetic waveform, wherein the threshold set describes a minimum set of characteristics that must be shared by:

6,546,369	Text-based speech synthesis method containing synthetic speech comparisons and updates	Nokia Corporation	Buth; Peter Dufhues; Frank	704	G10L	20000505	3	94%	<input type="checkbox"/>
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Abstract: The invention specifies a simple reproduction method with improved pronunciation for voice-controlled systems with text-based speech synthesis even when the stored train of characters to be synthesized does not follow the general rules of speech reproduction. According to the invention, the method of "copying" the original spoken input text into the otherwise synthesized reproduction text, which is the current state of the art, is avoided, which will significantly increase the acceptance of the user of the voice-controlled system due to the process invented. More specifically, when there is actual spoken speech input that corresponds to a stored train of characters, the converted train of characters is compared to the speech input before reproduction of the train of characters described phonetically according to general rules and converted to a purely synthetic form. When the converted train of characters is found to deviate from the speech input by a value above a threshold value, at least one variation of the converted train of characters is created. This variation is then output instead of the converted train of characters as long as this variation deviates from the speech input by a value below the threshold value.

MainClaim: A reproduction method for voice-controlled systems with text-based speech synthesis, comprising the steps of:

converting a stored string of characters described phonetically according to general rules into a pure synthetic form;

if there is an actually spoken speech input that corresponds to said stored string of characters, comparing said pure synthetic form of said string of characters with said speech input before reproduction of said string of characters;

if a deviation is detected in said pure synthetic form of said string of characters that has a value greater than a threshold value, creating at least one variation of said pure synthetic form of said string of characters;

comparing one of said variations with said speech input; and

outputting one of said variations instead of said pure synthetic form of said string of characters, if the deviation of one of said variations from said speech input is less than said threshold value.

2007/0016421	Correcting a pronunciation of a synthetically generated speech object	Nokia Corporation	Nurminen; Jani Mikkola; Hannu Tian; Jilei	704	G10L	20050712	4	93%	<input type="checkbox"/>
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Abstract: This invention relates to a method, a device and a software application product for correcting a pronunciation of a speech object. The speech object is synthetically generated from a text object in dependence on a segmented representation of the text object. It is determined if an initial pronunciation of the speech object, which initial pronunciation is associated with an initial segmented representation of the text object, is incorrect. Furthermore, in case it is determined that the initial pronunciation of the speech object is incorrect, a new segmented representation of the text object is determined, which new segmented representation of the text object is associated with a new pronunciation of the speech object.

MainClaim: A method for correcting a pronunciation of a speech object, wherein said speech object is synthetically generated from a text object in dependence on a segmented representation of said text object, said method comprising: determining if an initial pronunciation of said speech object, which initial pronunciation is associated with an initial segmented representation of said text object, is incorrect; and determining, in case it is determined that said initial pronunciation of said speech object is incorrect, a new segmented representation of said text object, which new segmented representation of said text object is associated with a new pronunciation of said speech object.

7,043,431	Multilingual speech recognition system using text derived recognition models	Nokia Corporation	Riis; So Jensen; Ka Pedersen; Morten With	704	G10L	20010831	6	92%	<input type="checkbox"/>
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Abstract: There is provided a novel approach for generating multilingual text-to-phoneme mappings for use in multilingual speech recognition systems. The multilingual mappings are based on the weighted output from a neural network text-to-phoneme model, trained on data mixed from several languages. The multilingual mappings used together with a branched grammar decoding scheme is able to capture both inter- and intra-language pronunciation variations which is ideal for multilingual speaker independent recognition systems. A significant improvement in overall system performance is obtained for a multilingual speaker independent name dialing task when applying multilingual instead of language dependent text-to-phoneme mapping.

MainClaim: A method of speech recognition in order to identify a speech command as a match to a written text command comprising the steps: providing a text input from a text database; receiving an acoustic input; generating sequences of multilingual phoneme symbols based on said text input by means of a multilingual text-to-phoneme module; generating variations of pronunciations which are recognizable in response to said sequences of multilingual phoneme symbols determined by use of a branched grammar; and comparing said variations of pronunciations with the acoustic input in order to find a match.

5,768,422	Method for training an adaptive statistical classifier to discriminate	Apple Computer, Inc.	Yaeger; Larry S.	382	G06K	19950808	0	100%	<input type="checkbox"/>
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	against improper patterns								
<p>Abstract: A statistical classifier that can be used for pattern recognition is trained to recognize negative, or improper patterns as well as proper patterns that are positively associated with desired output classes. A set of training samples includes both the negative and positive patterns, and target output values for the negative patterns are set so that no recognized class is indicated. The negative patterns are selected for training with less frequency than the positive patterns, and their effect on training is also modified, so that training is focused more heavily on positive patterns.</p> <p>MainClaim: A method for training a statistical classifier to estimate the probabilities that input patterns are associated with each of a predetermined set of classes, comprising the steps of:</p> <p>selecting a first, positive set of training patterns each associated with a class in said set;</p> <p>selecting a second, negative set of training patterns not associated with any class in said set;</p> <p>combining said first set and said second sets into a training set;</p> <p>processing training patterns in said training set through a process comprising the following steps for each training pattern that is processed;</p> <p>computing a set of target values corresponding to each class in said set of classes, such that:</p> <p>for a training pattern from said first, positive set, the target value corresponding to its associated class is substantially equal to a first predetermined value, and the other target values of said set of target values are all substantially equal to a second predetermined value that is substantially different from said first predetermined value, and;</p> <p>for a training pattern from said second set, negative set, all of said target values are substantially equal to said second predetermined value; and</p> <p>providing said training pattern and said set of target values to a statistical classifier and training said classifier in accordance therewith.</p>									
7,269,556	Pattern recognition	Nokia Corporation	Kiss; Imre Vasilache; Marcel	704	G10L	20030326	9	94%	<input type="checkbox"/>
<p>Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. A control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance.</p> <p>MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.</p>									
2004/0039572	Pattern recognition	Nokia Corporation	Kiss, Imre Vasilache, Marcel	704	G10L	20030326	11	94%	<input type="checkbox"/>
<p>Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. According to the invention, a control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance.</p> <p>MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.</p>									
2004/0039573	Pattern recognition	Nokia Corporation	Vasilache, Marcel	704	G10L	20030327	10	93%	<input type="checkbox"/>
<p>Abstract: A method for determining a set of distortion measures in a pattern recognition process, where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures. The method comprises comparing (S10) a first feature vector in said sequence with a first number (M1) of templates from a set of templates representing candidate patterns, based on said comparison, selecting (S12) a second number (M2) of templates from said template set, the second number being smaller than the first number, and comparing (S14) a second feature vector only with said selected templates. The method can be implemented in a device for pattern recognition.</p> <p>MainClaim: A method for determining a set of distortion measures in a pattern recognition process where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures, comprising: comparing a first feature vector in said sequence with a first number of templates from a set of templates representing candidate patterns, based on said comparison, selecting a second number of templates from said template set, the second number being smaller than the first number, and comparing a second feature vector only with said selected templates.</p>									

5,805,730	Method for training an adaptive statistical classifier with improved learning of difficult samples	Apple Computer, Inc.	Yaeger; Larry S. Lyon; Richard F.	382	G06K	19950808	0	100%	<input type="checkbox"/>
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Abstract: A statistical classifier that can be used for pattern recognition is trained to recognize negative, or improper patterns as well as proper patterns that are positively associated with desired output classes. A set of training samples includes both the negative and positive patterns, and target output values for the negative patterns are set so that no recognized class is indicated. The negative patterns are selected for training with less frequency than the positive patterns, and their effect on training is also modified, so that training is focused more heavily on improper patterns.

MainClaim: A method for training a statistical classifier to estimate the probability that an input pattern is associated with a predetermined class, comprising the steps of:

defining a set of training patterns, each of which is labeled as belonging to a respective one of a plurality of predetermined classes;

assigning a probability of usage factor to said training patterns from said set for input to the classifier;

selecting individual training patterns;

selectively processing the selected training patterns in the classifier, or skipping the selected patterns, in accordance with said probability of usage factor which is based upon whether the samples have been properly classified previously;

detecting whether the classifier produces an output value which correctly identifies the class to which a processed pattern belongs; and

modifying the probability of usage factor for correctly identified patterns to be different from a probability of usage factor assigned to incorrectly identified patterns.

7,269,556	Pattern recognition	Nokia Corporation	Kiss; Imre Vasilache; Marcel	704	G10L	20030326	9	94%	<input type="checkbox"/>
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Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. A control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance.

MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.

2004/0039572	Pattern recognition	Nokia Corporation	Kiss, Imre Vasilache, Marcel	704	G10L	20030326	11	94%	<input type="checkbox"/>
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Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. According to the invention, a control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance.

MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.

2004/0039573	Pattern recognition	Nokia Corporation	Vasilache, Marcel	704	G10L	20030327	10	93%	<input type="checkbox"/>
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Abstract: A method for determining a set of distortion measures in a pattern recognition process, where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures. The method comprises comparing (S10) a first feature vector in said sequence with a first number (M1) of templates from a set of templates representing candidate patterns, based on said comparison, selecting (S12) a second number (M2) of templates from said template set, the second number being smaller than the first number, and comparing (S14) a second feature vector only with said selected templates. The method can be implemented in a device for pattern recognition.

MainClaim: A method for determining a set of distortion measures in a pattern recognition process where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures, comprising: comparing a first feature vector in said sequence with a first number of templates from a set of templates representing candidate patterns, based on said comparison, selecting a second number of templates from said template set, the second number being smaller than the first number, and comparing a second feature vector only with said selected templates.

5,805,731	Adaptive statistical classifier which provides reliable estimates or	Apple Computer, Inc.	Yaeger; Larry S.	382	G06K	19950808	0	100%	<input type="checkbox"/>
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	output classes having low probabilities		Lyon; Richard F.							
<p>Abstract: A statistical classifier for pattern recognition, such as a neural network, produces a plurality of output signals corresponding to the probabilities that a given input pattern belongs in respective classes. The classifier is trained in a manner such that low probabilities which pertain to classes of interest are not suppressed too greatly. This is achieved by modifying the amount by which error signals, corresponding to classes which are incorrectly identified, are employed in the training process, relative to error signals corresponding to the correct class. As a result, output probabilities for incorrect classes are not forced to a low value as much as probabilities for correct classes are raised.</p> <p>MainClaim: A method for training a statistical classifier, comprising the following steps:</p> <p>selecting a training sample from a collection of training samples, each such training sample being associated with a label class from a predetermined set of distinct classes;</p> <p>providing data pertaining to said training sample as an input signal to the classifier;</p> <p>processing said data within the classifier in accordance with weight values to produce a plurality of output signals which respectively correspond to different classes in said predetermined set of distinct classes,</p> <p>providing a plurality of target signals which respectively correspond to different classes in said predetermined set of distinct classes, wherein the target signal corresponding to said label class is assigned a first predetermined signal value, and the others of said target signals are assigned a second predetermined signal value;</p> <p>determining error signals corresponding to each of said distinct classes, based on differences between said output signals and said target signals;</p> <p>multiplying said error signal which corresponds to said label class by a factor β, where $\beta > 1$; and</p> <p>adjusting said weight values in accordance with said modified error signals.</p>										
7,269,556	Pattern recognition	Nokia Corporation	Kiss; Imre Vasilache; Marcel	704	G10L	20030326	9	94%	<input type="checkbox"/>	
<p>Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. A control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance.</p> <p>MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.</p>										
2004/0039572	Pattern recognition	Nokia Corporation	Kiss, Imre Vasilache, Marcel	704	G10L	20030326	11	94%	<input type="checkbox"/>	
<p>Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. According to the invention, a control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance.</p> <p>MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.</p>										
2004/0039573	Pattern recognition	Nokia Corporation	Vasilache, Marcel	704	G10L	20030327	10	93%	<input type="checkbox"/>	
<p>Abstract: A method for determining a set of distortion measures in a pattern recognition process, where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures. The method comprises comparing (S10) a first feature vector in said sequence with a first number (M1) of templates from a set of templates representing candidate patterns, based on said comparison, selecting (S12) a second number (M2) of templates from said template set, the second number being smaller than the first number, and comparing (S14) a second feature vector only with said selected templates. The method can be implemented in a device for pattern recognition.</p> <p>MainClaim: A method for determining a set of distortion measures in a pattern recognition process where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures, comprising: comparing a first feature vector in said sequence with a first number of templates from a set of templates representing candidate patterns, based on said comparison, selecting a second number of templates from said template set, the second number being smaller than the first number, and comparing a second feature vector only with said selected templates.</p>										
	Merging of language models from two or		Pallakoff; Matthew G. Rodarmer;							

5,651,096	more application programs for a speech recognition system	Apple Computer, Inc.	Kurt W. Reeves; Arthur Arlo	704	G10L	19950314	0	100%	<input type="checkbox"/>
<p>Abstract: A speech recognition system operating on a computer system, which uses a single speech recognizer for all of the currently running application programs and provides a way of efficiently determining the proper destination application program for recognized speech. The speech recognizer uses a language model formed from the merging of the language models from two or more application programs. The merged language model includes data values indicating which application program's language model was the source of the language model elements so that when those elements are recognized, recognition results can be directed to that application program.</p> <p>MainClaim: A method of speech recognition for a speech recognition system operating on a computer system, comprising the steps of:</p> <p>the speech recognition system generating a merged language model from first and second language models corresponding to first and second application programs, and including a data value for an element of the merged language model indicating that the element came from one of the first and second language models;</p> <p>the speech recognition system using the merged language model to identify elements which match a speech signal received at the speech recognition system;</p> <p>the speech recognition system, for each identified element, using the included data value to determine from which of the first and second language models the identified element came; and</p> <p>the speech recognition system directing a recognition result to the application program corresponding to that language model.</p>									
2006/0074669	Speech grammars having priority levels	Nokia Corporation	Seppala; Esa H.	704	G10L	20040923	10	94%	<input type="checkbox"/>
<p>Abstract: In a speech recognition environment where time constraint limits the use of stored grammars in matching with a speech, the phonemes converted words are built into a number of trees of different priority levels so that the number of the trees combined into a concatenated tree for speech recognition is based at least partly on the time constraint. The trees of a lower priority level are used only when the time constraint allows such use and the trees of a higher priority level are used at least partly prior to the trees of a lower priority level being used.</p> <p>MainClaim: A method of organizing grammars for use in an electronic device, the grammars having grammar items organized into trees of ordered branches, said method comprising: ranking at least a part of the grammar items according to a grammar rule; sorting at least part of the grammar items into grammar groups of different priority levels based at least partly on the ranking; and building at least one tree separately for the grammar groups.</p>									
2005/0267755	Arrangement for speech recognition	Nokia Corporation	Suontausta, Janne	704	G10L	20040527	15	93%	<input type="checkbox"/>
<p>Abstract: A speech recognizer comprises a random access memory, a downloader for loading decision trees from a set of decision trees into said random access memory, a vocabulary comprising one or more words of a language, a divider for dividing at least one word of the vocabulary into subwords, and a transcription generator adapted to process at least one subword. The downloader is adapted to download a subset of the set of decision trees at a time into said random access memory. The transcription generator is further adapted to generate at least one phoneme transcription for the subword using the subset of decision trees. The speech recognizer also comprises a combiner for combining the generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words. The invention also relates to a device, a system, a module, a method, a computer program product and a data structure.</p> <p>MainClaim: A speech recognizer comprising: a random access memory; a downloader for loading decision trees from a set of decision trees into said random access memory; a vocabulary comprising one or more words of a language; a divider for dividing at least one word of said vocabulary into subwords; a transcription generator adapted to process at least one subword, wherein the downloader is adapted to download a subset of the set of decision trees at a time into said random access memory, and the transcription generator is further adapted to generate at least one phoneme transcription for said subword using said subset of the decision trees; and a combiner for combining generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words.</p>									
2009/0157385	Inverse Text Normalization	Nokia Corporation	Tian; Jilei	704	G06F	20071214	14	92%	<input type="checkbox"/>
<p>Abstract: Embodiments are directed to efficient multilingual inverse text normalization (ITN) of text in spoken form to produce normalized text for display. Embodiments are directed to preprocessing the multilingual text into a language-independent representation, tokenizing text in spoken form, segmenting the tokenized text into ITN items by grouping consecutive words using an ITN lexicon, classifying the ITN items into ITN categories by using the ITN lexicon or tagged information from language model, applying one or more ITN rules that are selected based on the ITN categories into which ITN items have been classified to rewrite the ITN items; and post processing the ITN item and outputting inversely normalized text in written form for display. The ITN lexicon may include ITN lexicon entries that are each located within an ITN category in the ITN lexicon.</p> <p>MainClaim: A method comprising: segmenting text in spoken form into inverse text normalization items by grouping consecutive words using an inverse text normalization lexicon; classifying the inverse text normalization items into inverse text normalization categories by using the inverse text normalization lexicon; applying one or more inverse text normalization rules that are selected based on the inverse text normalization categories into which inverse text normalization items have been classified to rewrite the inverse text normalization items; and post processing the inverse text normalization item and outputting inversely normalized text in written form for display.</p>									
5,796,863	Method for training an adaptive statistical classifier to balance unigram prior factors	Apple Computer, Inc.	Lyon; Richard F.	382	G06T	19950808	0	100%	<input type="checkbox"/>
<p>Abstract: A statistical classifier is trained in a manner to remove biasing due to unequal frequencies of unigram priors. The relative frequencies of all classes in a training set of sample patterns is determined. Training patterns are then selected from the set and skipped or repeated in dependence upon the relative frequency of the class to which they belong. In this manner, the presentation of samples is balanced across the classes.</p> <p>MainClaim: A method for training a statistical classifier to produce a set of probability estimates more nearly proportional to P</p>									

$(x|c_i)$ than to $P(c_i | x)$, for any hypothetical input pattern x for each class c_i of a set of predetermined classes, using a set of training patterns in which the frequencies of occurrence of said classes are substantially unequal, comprising the steps of:

determining an original relative frequency of occurrence for each class with respect to all of the classes, on the basis of the training patterns in said set;

selecting training patterns sequentially from said set of training patterns in a manner determined in accordance with said original relative frequencies, to thereby reduce disparities between relative frequencies of classes in the sequence of said sequentially selected training patterns, compared to said original relative frequencies; and

supplying said selected training patterns with reduced frequency disparities sequentially to a statistical classifier to train the classifier to estimate the probability $P(c_i | x)$.

7,269,556	Pattern recognition	Nokia Corporation	Kiss; Imre Vasilache; Marcel	704	G10L	20030326	9	94%	<input type="checkbox"/>
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Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. A control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance.

MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.

2004/0039572	Pattern recognition	Nokia Corporation	Kiss, Imre Vasilache, Marcel	704	G10L	20030326	11	93%	<input type="checkbox"/>
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Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. According to the invention, a control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance.

MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.

2004/0039573	Pattern recognition	Nokia Corporation	Vasilache, Marcel	704	G10L	20030327	10	93%	<input type="checkbox"/>
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Abstract: A method for determining a set of distortion measures in a pattern recognition process, where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures. The method comprises comparing (S10) a first feature vector in said sequence with a first number (M1) of templates from a set of templates representing candidate patterns, based on said comparison, selecting (S12) a second number (M2) of templates from said template set, the second number being smaller than the first number, and comparing (S14) a second feature vector only with said selected templates. The method can be implemented in a device for pattern recognition.

MainClaim: A method for determining a set of distortion measures in a pattern recognition process where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures, comprising: comparing a first feature vector in said sequence with a first number of templates from a set of templates representing candidate patterns, based on said comparison, selecting a second number of templates from said template set, the second number being smaller than the first number, and comparing a second feature vector only with said selected templates.

5,878,396	Method and apparatus for synthetic speech in facial animation	Apple Computer, Inc.	Henton; Caroline G.	704	G10L	19980205	0	100%	<input checked="" type="checkbox"/>
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Abstract: The present invention utilizes a novel approach to facial imaging synchronized with synthetic speech. Mapping viseme images to a diphone requires the same 'transitioning' in that the imaging associated with a diphone is not a static image, but rather, a series of images which dynamically depict, with lip, teeth and tongue positioning, the sound transition occurring in the relevant diphone. Each series of lip, teeth, and tongue positioning transitions is referred to herein as a 'diseme.' A diseme (like a diphone) thus begins somewhere during one viseme (phone) and ends somewhere during a following viseme (phone). Due to lip, teeth and tongue position imaging commonality, phones are grouped into archiphonic families. A single diseme, which depicts the transition from a phone in one archiphonic family to another phone in a different archiphonic family, can be used for displaying the transition between any phone in the first archiphonic family to any phone in the second archiphonic family. In this way, the approximately 1800 diphones in General American English can be visually depicted by a relatively small number of disemes, again, due to their similarity in lip, teeth, and tongue image positioning. This results in a mapping between synthetic speech and facial imaging which more accurately reflects the speech transitional movements of a realistic speaker image.

MainClaim: A method for synchronizing facial images to synthetic speech comprising:

a) storing a sequence of facial images from a viseme in a first archiphonic group to a viseme in a second archiphonic group;

b) displaying the sequence of facial images from the viseme in the first archiphonic group to the viseme in the second archiphonic group if a phone from the first archiphonic group is followed by a phone from the second archiphonic group in the synthetic speech.

6,546,369	Text-based speech synthesis method containing synthetic speech comparisons and updates	Nokia Corporation	Buth; Peter Dufhues; Frank	704	G10L	20000505	3	93%	<input type="checkbox"/>
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Abstract: The invention specifies a simple reproduction method with improved pronunciation for voice-controlled systems with text-based speech synthesis even when the stored train of characters to be synthesized does not follow the general rules of speech reproduction. According to the invention, the method of "copying" the original spoken input text into the otherwise synthesized reproduction text, which is the current state of the art, is avoided, which will significantly increase the acceptance of the user of the voice-controlled system due to the process invented. More specifically, when there is actual spoken speech input that corresponds to a stored train of characters, the converted train of characters is compared to the speech input before reproduction of the train of characters described phonetically according to general rules and converted to a purely synthetic form. When the converted train of characters is found to deviate from the speech input by a value above a threshold value, at least one variation of the converted train of characters is created. This variation is then output instead of the converted train of characters as long as this variation deviates from the speech input by a value below the threshold value.

MainClaim: A reproduction method for voice-controlled systems with text-based speech synthesis, comprising the steps of:

converting a stored string of characters described phonetically according to general rules into a pure synthetic form;

if there is an actually spoken speech input that corresponds to said stored string of characters, comparing said pure synthetic form of said string of characters with said speech input before reproduction of said string of characters;

if a deviation is detected in said pure synthetic form of said string of characters that has a value greater than a threshold value, creating at least one variation of said pure synthetic form of said string of characters;

comparing one of said variations with said speech input; and

outputting one of said variations instead of said pure synthetic form of said string of characters, if the deviation of one of said variations from said speech input is less than said threshold value.

2007/0016421	Correcting a pronunciation of a synthetically generated speech object	Nokia Corporation	Nurminen; Jani Mikkola; Hannu Tian; Jilei	704	G10L	20050712	4	92%	<input type="checkbox"/>
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Abstract: This invention relates to a method, a device and a software application product for correcting a pronunciation of a speech object. The speech object is synthetically generated from a text object in dependence on a segmented representation of the text object. It is determined if an initial pronunciation of the speech object, which initial pronunciation is associated with an initial segmented representation of the text object, is incorrect. Furthermore, in case it is determined that the initial pronunciation of the speech object is incorrect, a new segmented representation of the text object is determined, which new segmented representation of the text object is associated with a new pronunciation of the speech object.

MainClaim: A method for correcting a pronunciation of a speech object, wherein said speech object is synthetically generated from a text object in dependence on a segmented representation of said text object, said method comprising: determining if an initial pronunciation of said speech object, which initial pronunciation is associated with an initial segmented representation of said text object, is incorrect; and determining, in case it is determined that said initial pronunciation of said speech object is incorrect, a new segmented representation of said text object, which new segmented representation of said text object is associated with a new pronunciation of said speech object.

5,903,884	Method for training a statistical classifier with reduced tendency for overfitting	Apple Computer, Inc.	Lyon; Richard F. Stafford; William	706	G06F	19950808	0	100%	<input type="checkbox"/>
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Abstract: To prevent overfitting a neural network to a finite set of training samples, random distortions are dynamically applied to the samples each time they are applied to the network during a training session. A plurality of different types of distortions can be applied, which are randomly selected each time a sample is applied to the network. Alternatively, a combination of two or more types of distortion can be applied each time, with the amount of distortion being randomly varied for each type.

MainClaim: A method for training a statistical classifier to recognize input patterns that belong to respective predetermined classes, utilizing a set of training samples which are respectively associated with said classes, comprising the following steps which are repeated over a large number of iterations:

selecting a training sample from said set of training samples;

producing a set of distortion parameters;

selectively distorting said training sample in accordance with said distortion parameters to compute a classifier input pattern; and

training the classifier using said classifier input pattern.

7,269,556	Pattern recognition	Nokia Corporation	Kiss; Imre Vasilache; Marcel	704	G10L	20030326	9	94%	<input type="checkbox"/>
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Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. A control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the

subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance.

MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.

2004/0039572	Pattern recognition	Nokia Corporation	Kiss, Imre Vasilache, Marcel	704	G10L	20030326	11	94%	<input type="checkbox"/>
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Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. According to the invention, a control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance.

MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.

2004/0039573	Pattern recognition	Nokia Corporation	Vasilache, Marcel	704	G10L	20030327	10	93%	<input type="checkbox"/>
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Abstract: A method for determining a set of distortion measures in a pattern recognition process, where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures. The method comprises comparing (S10) a first feature vector in said sequence with a first number (M1) of templates from a set of templates representing candidate patterns, based on said comparison, selecting (S12) a second number (M2) of templates from said template set, the second number being smaller than the first number, and comparing (S14) a second feature vector only with said selected templates. The method can be implemented in a device for pattern recognition.

MainClaim: A method for determining a set of distortion measures in a pattern recognition process where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures, comprising: comparing a first feature vector in said sequence with a first number of templates from a set of templates representing candidate patterns, based on said comparison, selecting a second number of templates from said template set, the second number being smaller than the first number, and comparing a second feature vector only with said selected templates.

6,178,397	System and method for using a correspondence table to compress a pronunciation guide	Apple Computer, Inc.	Fredenburg; Timothy	704	G06F	19981008	0	100%	<input type="checkbox"/>
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Abstract: Parsing routines extract from a conventional pronunciation dictionary an entry, which includes a dictionary word and dictionary phonemes representing the pronunciation of the dictionary word. A correspondence table is used to compress the pronunciation dictionary. The correspondence table includes correspondence sets for a particular language, each set having a correspondence text entry, a correspondence phoneme entry representing the pronunciation of the correspondence text entry and a unique correspondence set identifying symbol. A matching system compares a dictionary entry with the correspondence sets, and replaces the dictionary entry with the symbols representing the best matches. In the absence of a match, symbols representing silent text or unmatched phonemes can be used. The correspondence symbols representing the best matches provide compressed pronunciation dictionary entries. The matching system also generates decoder code sets for subsequently translating the symbol sets. A decoder system uses the decoder code sets for translating symbol sets in the compressed pronunciation dictionary to generate phonemes corresponding to selected text.

MainClaim: A computer data storage medium storing a correspondence table which enables compression of a pronunciation dictionary, the correspondence table comprising:

a plurality of correspondence sets each including

a correspondence text entry that is part of a dictionary word;

a correspondence phoneme entry representing the pronunciation of the correspondence text entry; and

a correspondence symbol for identifying the correspondence set,

wherein at least one said correspondence symbol forms a symbol set for use as a compressed data entry in generating said compressed pronunciation dictionary.

2007/0073541	Method for compressing dictionary data	Nokia Corporation	Tian; Jilei	704	G10L	20061129	5	96%	<input type="checkbox"/>
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Abstract: The invention relates to pre-processing of a pronunciation dictionary for compression in a data processing device, the pronunciation dictionary comprising at least one entry, the entry comprising a sequence of character units and a sequence of phoneme units. According to one aspect of the invention the sequence of character units and the sequence of phoneme units are aligned using a statistical algorithm. The aligned sequence of character units and aligned sequence of phoneme units are interleaved by inserting each phoneme unit at a predetermined location relative to the corresponding character unit.

MainClaim: An electronic device comprising a processing unit and a memory for storing a pre-processed pronunciation dictionary including a first set of units having character units and a second set of units having phoneme units, the units of the first set and the units of the second set being aligned and interleaved by having each phoneme unit at a predetermined location

relative to the corresponding character unit, wherein the electronic device is configured to find a matching entry for a text string input from the pre-processed pronunciation dictionary using said first set of units of the entry from the predetermined locations; the electronic device is configured to select from said matching entry phoneme units of said second set of units from predetermined locations; and the electronic device is configured to concatenate the selected phoneme units into a sequence of phoneme units.

7,181,388	Method for compressing dictionary data	Nokia Corporation	Tian; Jilei	704	G06F	20021111	3	95%	<input type="checkbox"/>
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Abstract: The invention relates to pre-processing of a pronunciation dictionary for compression in a data processing device, the pronunciation dictionary comprising at least one entry, the entry comprising a sequence of character units and a sequence of phoneme units. According to one aspect of the invention the sequence of character units and the sequence of phoneme units are aligned using a statistical algorithm. The aligned sequence of character units and aligned sequence of phoneme units are interleaved by inserting each phoneme unit at a predetermined location relative to the corresponding character unit.

MainClaim: A method for pre-processing a pronunciation dictionary for compression in a data processing device, the pronunciation dictionary comprising at least one entry, the entry comprising a sequence of character units and a sequence of phoneme units, the method comprising: aligning said sequence of character units and said sequence of phoneme units using a statistical algorithm so that the alignment between said character units and said phoneme units is determined; and interleaving said aligned sequence of character units and said aligned sequence of phoneme units by inserting each phoneme unit at a predetermined location relative to the corresponding character unit.

2008/0091427	Hierarchical word indexes used for efficient N-gram storage	Nokia Corporation	Olsen; Jesper	704	G10L	20061011	5	95%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for compressing data models, for example, N-gram language models used in speech recognition applications. Words in the vocabulary of the language model are assigned to classes of words, for example, by syntactic criteria, semantic criteria, or statistical analysis of an existing language model. After word classes are defined, the follower lists for words in the vocabulary may be stored as hierarchical sets of class indexes and word indexes within each class. Hierarchical word indexes may reduce the storage requirements for the N-gram language model by more efficiently representing multiple words in a single list in the same follower list.

MainClaim: A method for storing an N-gram model in a memory of a device, comprising: identifying a plurality of word classes; receiving a vocabulary of words, wherein each word in the vocabulary is associated with at least one of the plurality of classes; associating a follower list with each word in the vocabulary; storing in the memory information associated with a first word in the vocabulary, the information comprising: (1) a first class index corresponding to a class in which at least a subset of the follower list is a member, and (2) a first plurality of word indexes corresponding to at least a subset of the follower list for the first word, wherein said word indexes are indexed based on the first class index.

6,480,621	Statistical classifier with reduced weight memory requirements	Apple Computer, Inc.	Lyon; Richard F.	382	G06K	19950808	0	100%	<input type="checkbox"/>
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Abstract: A neural network has reduced requirements for storing intermodal weight values, as a result of a dual-precision training process. In the forward propagation of training samples, low-resolution weight values are employed. During back-propagation of errors to train the network, higher-resolution values are used. After training, only the lower resolution values need to be stored for further run-time operation, thereby reducing memory requirements.

MainClaim: A method for training and operating a neural network of the type having plural layers of nodes where the nodes of one layer are connected to the nodes of a succeeding layer, and each connection has a weight value associated with it, comprising the steps of:

storing a first set of digital weight values that are respectively associated with said connections, each of the weight values in said first set having a first predetermined number of bits;

storing a second set of digital weight values that are respectively associated with said connections, each of the weight values in said second set having a second predetermined number of bits;

supplying a sample training pattern to the neural network and generating a set of node activation values including output values in accordance with said first set of digital weight values;

determining a set of error values based on the difference between the output values and a set of target values;

computing a set of weight changes dependent on the error values, the node activation values, and the current values of at least said first set of weight values, said weight changes having a greater number of bits of precision than said first number of bits;

adding said weight changes to a set of digital values formed by concatenating said first set of weight values as high-order parts and said second set of weight values as corresponding low-order fraction parts, to produce a set of high-precision updated weights;

substituting said first number of bits of the high-order bits of said high-precision updated weights for said first set of digital weight values; and

substituting said second number of bits of the subsequent bits of said high-precision updated weights for said second set of digital weight values.

7,269,556	Pattern recognition	Nokia Corporation	Kiss; Imre Vasilache; Marcel	704	G10L	20030326	9	94%	<input type="checkbox"/>
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Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. A control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as

the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance.

MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.

2004/0039572	Pattern recognition	Nokia Corporation	Kiss, Imre Vasilache, Marcel	704	G10L	20030326	11	93%	<input type="checkbox"/>
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Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. According to the invention, a control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance.

MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.

2004/0039573	Pattern recognition	Nokia Corporation	Vasilache, Marcel	704	G10L	20030327	10	93%	<input type="checkbox"/>
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Abstract: A method for determining a set of distortion measures in a pattern recognition process, where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures. The method comprises comparing (S10) a first feature vector in said sequence with a first number (M1) of templates from a set of templates representing candidate patterns, based on said comparison, selecting (S12) a second number (M2) of templates from said template set, the second number being smaller than the first number, and comparing (S14) a second feature vector only with said selected templates. The method can be implemented in a device for pattern recognition.

MainClaim: A method for determining a set of distortion measures in a pattern recognition process where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures, comprising: comparing a first feature vector in said sequence with a first number of templates from a set of templates representing candidate patterns, based on said comparison, selecting a second number of templates from said template set, the second number being smaller than the first number, and comparing a second feature vector only with said selected templates.

RE40,458	System and method for using a correspondence table to compress a pronunciation guide	Apple Inc.	Fredenburg; Timothy	704	G06F	20030113	0	100%	<input type="checkbox"/>
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Abstract: Parsing routines extract from a conventional pronunciation dictionary an entry, which includes a dictionary word and dictionary phonemes representing the pronunciation of the dictionary word. A correspondence table is used to compress the pronunciation dictionary. The correspondence table includes correspondence sets for a particular language, each set having a correspondence text entry, a correspondence phoneme entry representing the pronunciation of the correspondence text entry and a unique correspondence set identifying symbol. A matching system compares a dictionary entry with the correspondence sets, and replaces the dictionary entry with the symbols representing the best matches. In the absence of a match, symbols representing silent text or unmatched phonemes can be used. The correspondence symbols representing the best matches provide compressed pronunciation dictionary entries. The matching system also generates decoder code sets for subsequently translating the symbol sets. A decoder system uses the decoder code sets for translating symbol sets in the compressed pronunciation dictionary to generate phonemes corresponding to selected text.

MainClaim: A computer .[.data storage medium storing a correspondence table which enables compression of.]. .Iadd.program product for compressing .Iaddend.a pronunciation dictionary, the .Iadd.computer program product comprising a computer-readable medium containing computer program code for: generating a .Iaddend.correspondence table comprising: a plurality of correspondence sets each including a correspondence text entry that is part of a dictionary word; a correspondence phoneme entry representing the pronunciation of the correspondence text entry; and a correspondence symbol for identifying the correspondence set, wherein at least one said correspondence symbol forms a symbol set for use as a compressed data entry in generating said compressed pronunciation dictionary.

2007/0073541	Method for compressing dictionary data	Nokia Corporation	Tian; Jilei	704	G10L	20061129	5	95%	<input type="checkbox"/>
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Abstract: The invention relates to pre-processing of a pronunciation dictionary for compression in a data processing device, the pronunciation dictionary comprising at least one entry, the entry comprising a sequence of character units and a sequence of phoneme units. According to one aspect of the invention the sequence of character units and the sequence of phoneme units are aligned using a statistical algorithm. The aligned sequence of character units and aligned sequence of phoneme units are interleaved by inserting each phoneme unit at a predetermined location relative to the corresponding character unit.

MainClaim: An electronic device comprising a processing unit and a memory for storing a pre-processed pronunciation dictionary including a first set of units having character units and a second set of units having phoneme units, the units of the first set and the units of the second set being aligned and interleaved by having each phoneme unit at a predetermined location relative to the corresponding character unit, wherein the electronic device is configured to find a matching entry for a text string input from the pre-processed pronunciation dictionary using said first set of units of the entry from the predetermined locations; the electronic device is configured to select from said matching entry phoneme units of said second set of units from predetermined locations; and the electronic device is configured to concatenate the selected phoneme units into a sequence of phoneme units.

2008/0091427	Hierarchical word indexes used for efficient N-gram storage	Nokia Corporation	Olsen; Jesper	704	G10L	20061011	5	95%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for compressing data models, for example, N-gram language models used in

speech recognition applications. Words in the vocabulary of the language model are assigned to classes of words, for example, by syntactic criteria, semantic criteria, or statistical analysis of an existing language model. After word classes are defined, the follower lists for words in the vocabulary may be stored as hierarchical sets of class indexes and word indexes within each class. Hierarchical word indexes may reduce the storage requirements for the N-gram language model by more efficiently representing multiple words in a single list in the same follower list.

MainClaim: A method for storing an N-gram model in a memory of a device, comprising: identifying a plurality of word classes; receiving a vocabulary of words, wherein each word in the vocabulary is associated with at least one of the plurality of classes; associating a follower list with each word in the vocabulary; storing in the memory information associated with a first word in the vocabulary, the information comprising: (1) a first class index corresponding to a class in which at least a subset of the follower list is a member, and (2) a first plurality of word indexes corresponding to at least a subset of the follower list for the first word, wherein said word indexes are indexed based on the first class index.

2005/0267755	Arrangement for speech recognition	Nokia Corporation	Suontausta, Janne	704	G10L	20040527	15	94%	<input type="checkbox"/>
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Abstract: A speech recognizer comprises a random access memory, a downloader for loading decision trees from a set of decision trees into said random access memory, a vocabulary comprising one or more words of a language, a divider for dividing at least one word of the vocabulary into subwords, and a transcription generator adapted to process at least one subword. The downloader is adapted to download a subset of the set of decision trees at a time into said random access memory. The transcription generator is further adapted to generate at least one phoneme transcription for the subword using the subset of decision trees. The speech recognizer also comprises a combiner for combining the generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words. The invention also relates to a device, a system, a module, a method, a computer program product and a data structure.

MainClaim: A speech recognizer comprising: a random access memory; a downloader for loading decision trees from a set of decision trees into said random access memory; a vocabulary comprising one or more words of a language; a divider for dividing at least one word of said vocabulary into subwords; a transcription generator adapted to process at least one subword, wherein the downloader is adapted to download a subset of the set of decision trees at a time into said random access memory, and the transcription generator is further adapted to generate at least one phoneme transcription for said subword using said subset of the decision trees; and a combiner for combining generated phoneme transcriptions of the subwords to obtain phoneme transcriptions of said one or more words.

6,697,779	Combined dual spectral and temporal alignment method for user authentication by voice	Apple Computer, Inc.	Bellegarda; Jerome Naik; Devang Neeracher; Matthias Silverman; Kim	704	G10L	20000929	0	100%	<input type="checkbox"/>
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Abstract: A method and system for training a user authentication by voice signal are described. In one embodiment, during training, a set of all spectral feature vectors for a given speaker is globally decomposed into speaker-specific decomposition units and a speaker-specific recognition unit. During recognition, spectral feature vectors are locally decomposed into speaker-specific characteristic units. The speaker-specific recognition unit is used together with selected speaker-specific characteristic units to compute a speaker-specific comparison unit. If the speaker-specific comparison unit is within a threshold limit, then the voice signal is authenticated. In addition, a speaker-specific content unit is time-aligned with selected speaker-specific characteristic units. If the alignment is within a threshold limit, then the voice signal is authenticated. In one embodiment, if both thresholds are satisfied, then the user is authenticated.

MainClaim: A method of training a user authentication by voice signal, the user authentication based on measuring diagonality deviations, the method comprising:

globally decomposing a set of a plurality of feature vectors into at least one speaker-specific decomposition unit; and

computing a speaker-specific recognition unit from the at least one speaker-specific decomposition unit for subsequent derivation of the diagonality deviations.

2003/0204398	On-line parametric histogram normalization for noise robust speech recognition	Nokia Corporation	Haverinen, Hemmo Kiss, Imre	704	G10L	20020430	3	95%	<input type="checkbox"/>
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Abstract: A method for improving noise robustness in speech recognition, wherein a front-end is used for extracting speech feature from an input speech and for providing a plurality of scaled spectral coefficients. The histogram of the scaled spectral coefficients is normalized to the histogram of a training set using Gaussian approximations. The normalized spectral coefficients are then converted into a set of cepstrum coefficients by a decorrelation module and further subjected to cepstral domain feature-vector normalization.

MainClaim: A method of improving noise robustness in a speech recognition system, the system including a front-end for extracting speech features from an input speech and a back-end for speech recognition based on the extracted features, wherein the front-end comprises: means, responsive to the input speech, for providing data indicative of the input speech at a plurality of time instants; means, responsive to the data segments, for spectrally converting the data segments into a plurality of spectral coefficients having a related probability distribution of values for providing spectral data indicative of the spectral coefficients; and means, responsive to the spectral data, for performing decorrelation conversion on the spectral coefficients for providing the extracted features, characterized by obtaining a parametric representation of the probability distribution of values of the spectral coefficients; modifying the parametric representation based on one or more reference values; and adjusting at least one of the spectral coefficients based on the modified parametric representation for changing the spectral data prior to the decorrelation conversion.

7,197,456	On-line parametric histogram normalization for noise robust speech recognition	Nokia Corporation	Haverinen; Hemmo Kiss; Imre	704	G10L	20020430	2	95%	<input type="checkbox"/>
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Abstract: A method for improving noise robustness in speech recognition, wherein a front-end is used for extracting speech feature from an input speech and for providing a plurality of scaled spectral coefficients. The histogram of the scaled spectral coefficients is normalized to the histogram of a training set using Gaussian approximations. The normalized spectral coefficients are then converted into a set of cepstrum coefficients by a decorrelation module and further subjected to cepstral domain feature-vector normalization.

MainClaim: A method, comprising: providing in a speech recognition system speech data indicative of an input speech at a

plurality of time instants based on the input speech, the speech data comprising a plurality of data segments; spectrally converting the data segments into a plurality of spectral coefficients having a probability distribution of values in spectral domain for providing spectral data indicative of the spectral coefficients based on the data segments; obtaining a parametric representation of the probability distribution of values of the spectral coefficients based on the spectral data; modifying the parametric representation based on one or more reference values for providing a modified parametric representation; adjusting at least one of the spectral coefficients in the spectral domain based on the modified parametric representation for changing the spectral data; and performing decorrelation conversion on the changed spectral data for providing extracted features of the input speech.

2007/0088552	Method and a device for speech recognition	Nokia Corporation	Olsen; Jesper	704	G10L	20051017	9	95%	<input type="checkbox"/>
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Abstract: Method for speech recognition comprising inputting frames comprising samples of an audio signal; forming a feature vector comprising a first number of vector components for each frame; projecting the feature vector onto at least two subspaces so that the number of components of each projected feature vector is less than the first number and the total number of components of the projected feature vectors is the same as the first number; defining a set of mixture models for each projected vector which provides the highest observation probability; analysing the set of mixture models to determine the recognition result. When the recognition result is found, the method comprises determining a confidence measure for the recognition result, the determining comprising determining a probability that the recognition result is correct; determining a normalizing term; and dividing the probability by the normalizing term.

MainClaim: A method for speech recognition comprising: inputting frames comprising samples of an audio signal; forming a feature vector comprising a first number of vector components for each frame; projecting the feature vector onto at least two subspaces so that the number of components of each projected feature vector is less than the first number and the total number of components of the projected feature vectors is the same as the first number; defining a set of mixture models for each projected vector which provides the highest observation probability; analysing the set of mixture models to determine the recognition result; when the recognition result is found, determining a confidence measure for the recognition result, the determining comprising: determining a probability that the recognition result is correct; determining a normalizing term by selecting, for each state, one mixture model among said set of mixture models, which provides the highest likelihood; and dividing the probability by said normalizing term; wherein the method further comprises comparing the confidence measure to a threshold value to determine whether the recognition result is reliable enough.

5,845,238	System and method for using a correspondence table to compress a pronunciation guide	Apple Computer, Inc.	Fredenburg; Timothy	704	G06F	19960618	0	100%	<input type="checkbox"/>
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Abstract: Parsing routines extract from a conventional pronunciation dictionary an entry, which includes a dictionary word and dictionary phonemes representing the pronunciation of the dictionary word. A correspondence table is used to compress the pronunciation dictionary. The correspondence table includes correspondence sets for a particular language, each set having a correspondence text entry, a correspondence phoneme entry representing the pronunciation of the correspondence text entry and a unique correspondence set identifying symbol. A matching system compares a dictionary entry with the correspondence sets, and replaces the dictionary entry with the symbols representing the best matches. In the absence of a match, symbols representing silent text or unmatched phonemes can be used. The correspondence symbols representing the best matches provide compressed pronunciation dictionary entries. The matching system also generates decoder code sets for subsequently translating the symbol sets. A decoder system uses the decoder code sets for translating symbol sets in the compressed pronunciation dictionary to generate phonemes corresponding to selected text.

MainClaim: A system for compressing a pronunciation guide which includes a plurality of guide entries, each entry having a guide word and at least one associated phoneme representing the pronunciation of the word, the system comprising:

memory storing

(1) a correspondence table which includes a plurality of correspondence sets, each set having

(i) a text entry,

(ii) a phoneme entry representing a pronunciation of the text entry, and

(iii) a symbol identifying the correspondence set; and

(2) a matching system for comparing a selected guide word and the associated phonemes with correspondence sets, and storing correspondence symbols which represent matching correspondence sets as a compressed pronunciation guide entry in the memory; and

a processing unit coupled to the memory for controlling the operations of the matching system.

2007/0073541	Method for compressing dictionary data	Nokia Corporation	Tian; Jilei	704	G10L	20061129	5	95%	<input type="checkbox"/>
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Abstract: The invention relates to pre-processing of a pronunciation dictionary for compression in a data processing device, the pronunciation dictionary comprising at least one entry, the entry comprising a sequence of character units and a sequence of phoneme units. According to one aspect of the invention the sequence of character units and the sequence of phoneme units are aligned using a statistical algorithm. The aligned sequence of character units and aligned sequence of phoneme units are interleaved by inserting each phoneme unit at a predetermined location relative to the corresponding character unit.

MainClaim: An electronic device comprising a processing unit and a memory for storing a pre-processed pronunciation dictionary including a first set of units having character units and a second set of units having phoneme units, the units of the first set and the units of the second set being aligned and interleaved by having each phoneme unit at a predetermined location relative to the corresponding character unit, wherein the electronic device is configured to find a matching entry for a text string input from the pre-processed pronunciation dictionary using said first set of units of the entry from the predetermined locations; the electronic device is configured to select from said matching entry phoneme units of said second set of units from predetermined locations; and the electronic device is configured to concatenate the selected phoneme units into a sequence of phoneme units.

2008/0091427	Hierarchical word indexes used for efficient N-gram storage	Nokia Corporation	Olsen; Jesper	704	G10L	20061011	5	95%	<input type="checkbox"/>
<p>Abstract: Systems and methods are provided for compressing data models, for example, N-gram language models used in speech recognition applications. Words in the vocabulary of the language model are assigned to classes of words, for example, by syntactic criteria, semantic criteria, or statistical analysis of an existing language model. After word classes are defined, the follower lists for words in the vocabulary may be stored as hierarchical sets of class indexes and word indexes within each class. Hierarchical word indexes may reduce the storage requirements for the N-gram language model by more efficiently representing multiple words in a single list in the same follower list.</p> <p>MainClaim: A method for storing an N-gram model in a memory of a device, comprising: identifying a plurality of word classes; receiving a vocabulary of words, wherein each word in the vocabulary is associated with at least one of the plurality of classes; associating a follower list with each word in the vocabulary; storing in the memory information associated with a first word in the vocabulary, the information comprising: (1) a first class index corresponding to a class in which at least a subset of the follower list is a member, and (2) a first plurality of word indexes corresponding to at least a subset of the follower list for the first word, wherein said word indexes are indexed based on the first class index.</p>									
7,181,388	Method for compressing dictionary data	Nokia Corporation	Tian; Jilei	704	G06F	20021111	3	95%	<input type="checkbox"/>
<p>Abstract: The invention relates to pre-processing of a pronunciation dictionary for compression in a data processing device, the pronunciation dictionary comprising at least one entry, the entry comprising a sequence of character units and a sequence of phoneme units. According to one aspect of the invention the sequence of character units and the sequence of phoneme units are aligned using a statistical algorithm. The aligned sequence of character units and aligned sequence of phoneme units are interleaved by inserting each phoneme unit at a predetermined location relative to the corresponding character unit.</p> <p>MainClaim: A method for pre-processing a pronunciation dictionary for compression in a data processing device, the pronunciation dictionary comprising at least one entry, the entry comprising a sequence of character units and a sequence of phoneme units, the method comprising: aligning said sequence of character units and said sequence of phoneme units using a statistical algorithm so that the alignment between said character units and said phoneme units is determined; and interleaving said aligned sequence of character units and said aligned sequence of phoneme units by inserting each phoneme unit at a predetermined location relative to the corresponding character unit.</p>									
5,617,486	Continuous reference adaptation in a pattern recognition system	Apple Computer, Inc.	Chow; Yen-Lu deSouza; Peter V. Fineberg; Adam B. Hon; Hsiao-Wuen	382	G06K	19951127	0	100%	<input type="checkbox"/>
<p>Abstract: A pattern recognition system which continuously adapts reference patterns to more effectively recognize input data from a given source. The input data is converted to a set or series of observed vectors and is compared to a set of Markov Models. The closest matching Model is determined and is recognized as being the input data. Reference vectors which are associated with the selected Model are compared to the observed vectors and updated ("adapted") to better represent or match the observed vectors. This updating method retains the value of these observed vectors in a set of accumulation vectors in order to base future adaptations on a broader data set. When updating, the system also may factor in the values corresponding to neighboring reference vectors that are acoustically similar if the data set from the single reference vector is insufficient for an accurate calculation. Every reference vector is updated after every input; thus reference vectors neighboring an updated reference vector may also be updated. The updated reference vectors are then stored by the computer system for use in recognizing subsequent inputs.</p> <p>MainClaim: An apparatus for pattern recognition of data input comprising:</p> <p>means for representing said data input as a set of observed vectors, wherein individual observed vectors of said set of observed vectors represent said data input at a different point in time;</p> <p>means for comparing a first subset of said set of observed vectors to a set of models by comparing a set of reference vectors associated with said set of models to said set of observed vectors and identifying a resultant model which most closely matches said first subset, wherein said resultant model is one of said set of models;</p> <p>means for creating a set of accumulation vectors wherein individual accumulation vectors of said set of accumulation vectors correspond to individual reference vectors of said set of reference vectors, and wherein a first accumulation vector of said set of accumulation vectors stores a first observed vector, and wherein said first observed vector was previously associated with a first reference vector of said set of reference vectors;</p> <p>means for updating said set of reference vectors to create an updated set of reference vectors associated with said set of models to more accurately represent said data input, wherein said means for updating combines said first accumulation vector with said first reference vector; and</p> <p>means for utilizing said updated set of reference vectors in comparing subsequent data input streams to said set of models.</p>									
2004/0039573	Pattern recognition	Nokia Corporation	Vasilache, Marcel	704	G10L	20030327	10	92%	<input type="checkbox"/>
<p>Abstract: A method for determining a set of distortion measures in a pattern recognition process, where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures. The method comprises comparing (S10) a first feature vector in said sequence with a first number (M1) of templates from a set of templates representing candidate patterns, based on said comparison, selecting (S12) a second number (M2) of templates from said template set, the second number being smaller than the first number, and comparing (S14) a second feature vector only with said selected templates. The method can be implemented in a device for pattern recognition.</p> <p>MainClaim: A method for determining a set of distortion measures in a pattern recognition process where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures, comprising: comparing a first feature vector in said sequence with a first number of templates from a set of templates representing candidate patterns, based on said comparison, selecting a second number of templates from said template set, the second number being smaller than the first number, and comparing a second feature vector only with said selected templates.</p>									

5,692,104	Method and apparatus for detecting end points of speech activity	Apple Computer, Inc.	Chow; Yen-Lu Staats; Erik P.	704	G10L	19940927	0	100%	<input type="checkbox"/>
<p>Abstract: A method and apparatus for detecting end points of speech activity in an input signal using spectral representation vectors performs beginning point detection using spectral representation vectors for the spectrum of each sample of the input signal and a spectral representation vector for the steady state portion of the input signal. The beginning point of speech is detected when the spectrum diverges from the steady state portion of the input signal. Once the beginning point has been detected, the spectral representation vectors of the input signal are used to determine the ending point of the sound in the signal. The ending point of speech is detected when the spectrum converges towards the steady state portion of the input signal. After both the beginning and ending of the sound are detected, vector quantization distortion can be used to classify the sound as speech or noise.</p> <p>MainClaim: A method of detecting speech activity in a data input stream comprising the steps of:</p> <p>(a) generating a set of spectral representation vectors to represent the data input stream, wherein each spectral representation vector of the set of spectral representation vectors represents a predetermined portion of the data input stream;</p> <p>(b) generating a steady state spectral representation vector indicative of the state of the data input stream at a first predetermined portion of the data input stream;</p> <p>(c) comparing a spectral representation vector corresponding to the first predetermined portion of the data input stream to the steady state spectral representation vector;</p> <p>(d) determining a first end point of speech activity when the set of spectral representation vectors diverges from the steady state spectral representation vector; and</p> <p>(e) determining a second end point of speech activity when a predetermined number of spectral representation vectors of the set of spectral representation vectors are within a predetermined distance of the steady state spectral representation vector for a continuous predetermined period of time.</p>									
6,772,117	Method and a device for recognizing speech	Nokia Mobile Phones Limited	Laurila; Kari Viikki; Olli	704	G10L	19980409	2	96%	<input type="checkbox"/>
<p>Abstract: In a speech recognition method and apparatus, according to the present invention, feature vectors produced by an analysing unit of a speech recognition device are modified for compensating the effects of noise. According to the invention, feature vectors are normalized using a sliding normalization buffer (31). By means of the method according to the invention, the performance of the speech recognition device improves in situations, wherein the speech recognition device's training phase has been carried out in a noise environment that differs from the noise environment of the actual speech recognition phase.</p> <p>MainClaim: A method for recognising speech, wherein a recognisable speech signal is divided in time into successive frames of specific length, each speech frame is analysed for producing at least one parameter per frame, illustrating the speech signal, said parameters, relating to each frame, are stored in a sliding buffer for minimizing the delay due to the normalization process for calculation of normalisation coefficients for each frame, said parameters are modified utilising said normalisation coefficients and speech recognition is carried out utilising the modified parameters, wherein only part of the successive parameters are stored periodically and at least one parameter is modified on the basis of the parameters stored periodically in order to produce said modified parameter, and for said modification, a standard deviation of said periodically stored parameters is defined, wherein only part of the stored parameters are used at the beginning of the speech recognition.</p>									
2008/0082320	APPARATUS, METHOD AND COMPUTER PROGRAM PRODUCT FOR ADVANCED VOICE CONVERSION	Nokia Corporation	Popa; Victor Nurminen; Jani K. Tian; Jilei	704	G10L	20060929	2	96%	<input type="checkbox"/>
<p>Abstract: An apparatus is provided that includes a converter for training a voice conversion model for converting source encoding parameters characterizing a source speech signal associated with a source voice into corresponding target encoding parameters characterizing a target speech signal associated with a target voice. To reduce the affect of noise on the voice conversion model, the converter may be configured for receiving sequences of source and target encoding parameters, and train the model without one or more frames of the source and target speech signals that have energies less than a threshold energy. After conversion of the respective parameters, then, the converter, a decoder or another component may be configured for reducing the energy of one or more frames of the target speech signal that have an energy less than the threshold energy, where the threshold value may be adaptable based upon models of speech frames and non-speech frames.</p> <p>MainClaim: An apparatus comprising: a converter for training a voice conversion model for converting at least some information characterizing a source speech signal into corresponding information characterizing a target speech signal, wherein the source speech signal is associated with a source voice, and the target speech signal is a representation of the source speech signal associated with a target voice, and wherein the converter is configured for training each voice conversion model by: receiving information characterizing each frame in a sequence of frames of a source speech signal and information characterizing each frame in a sequence of frames of a target speech signal, each frame of the source and target speech signals having an associated energy; comparing the energies of the frames of the source and target speech signals to a threshold energy value, and identifying one or more frames of the source and target speech signals that have energies less than the threshold energy value; and training the voice conversion model based upon the information characterizing at least some of the frames in the sequences of frames of the source and target speech signals, the conversion model being trained without the information characterizing at least some of the identified frames.</p>									
2003/0204398	On-line parametric histogram normalization for noise robust speech recognition	Nokia Corporation	Haverinen, Hemmo Kiss, Imre	704	G10L	20020430	3	95%	<input type="checkbox"/>
<p>Abstract: A method for improving noise robustness in speech recognition, wherein a front-end is used for extracting speech feature from an input speech and for providing a plurality of scaled spectral coefficients. The histogram of the scaled spectral coefficients is normalized to the histogram of a training set using Gaussian approximations. The normalized spectral coefficients are then converted into a set of cepstrum coefficients by a decorrelation module and further subjected to cepstral domain feature-vector normalization.</p>									

MainClaim: A method of improving noise robustness in a speech recognition system, the system including a front-end for extracting speech features from an input speech and a back-end for speech recognition based on the extracted features, wherein the front-end comprises: means, responsive to the input speech, for providing data indicative of the input speech at a plurality of time instants; means, responsive to the data segments, for spectrally converting the data segments into a plurality of spectral coefficients having a related probability distribution of values for providing spectral data indicative of the spectral coefficients; and means, responsive to the spectral data, for performing decorrelation conversion on the spectral coefficients for providing the extracted features, characterized by obtaining a parametric representation of the probability distribution of values of the spectral coefficients; modifying the parametric representation based on one or more reference values; and adjusting at least one of the spectral coefficients based on the modified parametric representation for changing the spectral data prior to the decorrelation conversion.

5,535,305	Sub-partitioned vector quantization of probability density functions	Apple Computer, Inc.	Acero; Alejandro Chow; Yen-Lu Lee; Kai-Fu	704	G10L	19921231	0	100%	<input type="checkbox"/>
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Abstract: A speech recognition memory compression method and apparatus subpartitions probability density function (pdf) space along the hidden Markov model (HMM) index into packets of typically 4 to 8 log-pdf values. Vector quantization techniques are applied using a logarithmic distance metric and a probability weighted logarithmic probability space for the splitting of clusters. Experimental results indicate a significant reduction in memory can be obtained with little increase in overall speech recognition error.

MainClaim: A method for creating a subpartitioned vector quantized memory for the storage of hidden Markov model (HMM) log-probability density functions (log-pdfs) corresponding to a phoneme model having at least one code-book and one state, comprising the following steps:

- organizing the HMM log-pdfs of each code-book by column and grouped by state so that corresponding log-pdf values of each of the HMM log-pdfs form a set of log-pdf value columns;
- subpartitioning the log-pdf value columns into an integer number of equal length packets each packet identified by an associated packet index;
- vector quantizing the subpartitioned packets, creating a set of subpartitioned vector quantization (SVQ) encoding vectors and associated SVQ encoding vector indices;
- constructing an address translation table that is addressable by the packet indices, listing the SVQ encoding vector indices associated with each packet index, for generating, at output, an encoding index corresponding to the packet index used to address the address translation table; and
- constructing a SVQ vector table for storing the set of SVQ encoding vectors in accordance with the associated SVQ encoding vector indices.

2004/0039572	Pattern recognition	Nokia Corporation	Kiss, Imre Vasilache, Marcel	704	G10L	20030326	11	94%	<input type="checkbox"/>
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Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. According to the invention, a control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance.

MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.

7,269,556	Pattern recognition	Nokia Corporation	Kiss; Imre Vasilache; Marcel	704	G10L	20030326	9	94%	<input type="checkbox"/>
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Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. A control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance.

MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.

2007/0256189	SOFT ALIGNMENT IN GAUSSIAN MIXTURE MODEL BASED TRANSFORMATION	NOKIA CORPORATION	Tian; Jilei Nurminen; Jani Popa; Victor	800	C12N	20060426	6	94%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for performing soft alignment in Gaussian mixture model (GMM) based and other vector transformations. Soft alignment may assign alignment probabilities to source and target feature vector pairs. The vector pairs and associated probabilities may then be used calculate a conversion function, for example, by computing GMM training

parameters from the joint vectors and alignment probabilities to create a voice conversion function for converting speech sounds from a source speaker to a target speaker.

MainClaim: A method for time aligning a first sequence of feature vectors with a second sequence of feature vectors comprising the steps of: receiving a first sequence of feature vectors associated with a source; receiving a second sequence of feature vectors associated with a target; and generating a third sequence of joint feature vectors, wherein the generation of each joint feature vector is based on: a first vector from the first sequence; a first vector from the second sequence; and a first probability value representing the probability that the first vector from the first sequence and the first vector from the second sequence are aligned to the same feature in their respective sequences.

5,577,135	Handwriting signal processing front-end for handwriting recognizers	Apple Computer, Inc.	Grajski; Kamil A. Chow; Yen-Lu Lee; Kai-Fu	382	G06K	19940301	0	100%	<input type="checkbox"/>
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Abstract: A handwriting signal processing front-end method and apparatus for a handwriting training and recognition system which includes non-uniform segmentation and feature extraction in combination with multiple vector quantization. In a training phase, digitized handwriting samples are partitioned into segments of unequal length. Features are extracted from the segments and are grouped to form feature vectors for each segment. Groups of adjacent from feature vectors are then combined to form input frames. Feature-specific vectors are formed by grouping features of the same type from each of the feature vectors within a frame. Multiple vector quantization is then performed on each feature-specific vector to statistically model the distributions of the vectors for each feature by identifying clusters of the vectors and determining the mean locations of the vectors in the clusters. Each mean location is represented by a codebook symbol and this information is stored in a codebook for each feature. These codebooks are then used to train a recognition system. In the testing phase, where the recognition system is to identify handwriting, digitized test handwriting is first processed as in the training phase to generate feature-specific vectors from input frames. Multiple vector quantization is then performed on each feature-specific vector to represent the feature-specific vector using the codebook symbols that were generated for that feature during training. The resulting series of codebook symbols effects a reduced representation of the sampled handwriting data and is used for subsequent handwriting recognition.

MainClaim: A front-end processing method for a handwriting recognition system, said method for processing strokes of handwriting training samples comprising a time series of (x,y) coordinates, said method comprising the steps of:

segmenting said strokes based on interrelationships of said (x,y) coordinates into an ordered set of training stroke segments that are non-uniform in length for each of said handwriting training samples;

extracting a first plurality of feature values from each of said training stroke segments, wherein each of said feature values extracted therefrom forms entries of a word-independent training feature vector;

creating a series of feature-specific vectors by grouping said entries corresponding to one of said feature values from contiguous groups of said word-independent training feature vectors;

performing multiple vector quantization by vector quantizing each of said feature-specific vectors to statistically characterize said feature-specific vectors, wherein said vector quantizing includes:

partitioning said feature-specific vectors into a plurality of clusters, wherein each of said clusters includes a mean value and a distribution about said mean value for proximate ones of said feature-specific vectors, and

labelling each of said mean values in each of said clusters with a symbol; and

storing in a plurality of codebooks said mean values and said symbols for each of said clusters to effect a reduced representation of said handwriting training samples.

2004/0039573	Pattern recognition	Nokia Corporation	Vasilache, Marcel	704	G10L	20030327	10	93%	<input type="checkbox"/>
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Abstract: A method for determining a set of distortion measures in a pattern recognition process, where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures. The method comprises comparing (S10) a first feature vector in said sequence with a first number (M1) of templates from a set of templates representing candidate patterns, based on said comparison, selecting (S12) a second number (M2) of templates from said template set, the second number being smaller than the first number, and comparing (S14) a second feature vector only with said selected templates. The method can be implemented in a device for pattern recognition.

MainClaim: A method for determining a set of distortion measures in a pattern recognition process where a sequence of feature vectors is formed from a digitized incoming signal to be recognized, said pattern recognition being based upon said set of distortion measures, comprising: comparing a first feature vector in said sequence with a first number of templates from a set of templates representing candidate patterns, based on said comparison, selecting a second number of templates from said template set, the second number being smaller than the first number, and comparing a second feature vector only with said selected templates.

2004/0039572	Pattern recognition	Nokia Corporation	Kiss, Imre Vasilache, Marcel	704	G10L	20030326	11	92%	<input type="checkbox"/>
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Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. According to the invention, a control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance.

MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.

7,269,556	Pattern recognition	Nokia Corporation	Kiss; Imre Vasilache; Marcel	704	G10L	20030326	9	92%	<input type="checkbox"/>
<p>Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. A control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance.</p> <p>MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.</p>									
5,596,680	Method and apparatus for detecting speech activity using cepstrum vectors	Apple Computer, Inc.	Chow; Yen-Lu Staats; Erik P.	704	G10L	19921231	0	100%	<input type="checkbox"/>
<p>Abstract: A method and apparatus for detecting speech activity in an input signal. The present invention includes performing begin point detection using power/zero crossing. Once the begin point has been detected, the present invention uses the cepstrum of the input signal to determine the endpoint of the sound in the signal. After both the beginning and ending of the sound are detected, the present invention uses vector quantization distortion to classify the sound as speech or noise.</p> <p>MainClaim: A method for detecting an endpoint of speech in an input signal, wherein the input signal is sampled, said method comprising the steps of:</p> <p>generating cepstrum vectors representing each spectrum of individual samples of the input signal;</p> <p>generating a cepstrum vector for a steady state portion of the input signal; and</p> <p>comparing the cepstrum vectors of individual samples with the cepstrum vector for the steady state portion of the input signal to identify the endpoint of speech as that portion of the input signal having a spectrum that converges to the steady state portion of the input signal.</p>									
6,772,117	Method and a device for recognizing speech	Nokia Mobile Phones Limited	Laurila; Kari Viikki; Olli	704	G10L	19980409	2	97%	<input type="checkbox"/>
<p>Abstract: In a speech recognition method and apparatus, according to the present invention, feature vectors produced by an analysing unit of a speech recognition device are modified for compensating the effects of noise. According to the invention, feature vectors are normalized using a sliding normalization buffer (31). By means of the method according to the invention, the performance of the speech recognition device improves in situations, wherein the speech recognition device's training phase has been carried out in a noise environment that differs from the noise environment of the actual speech recognition phase.</p> <p>MainClaim: A method for recognising speech, wherein a recognisable speech signal is divided in time into successive frames of specific length, each speech frame is analysed for producing at least one parameter per frame, illustrating the speech signal, said parameters, relating to each frame, are stored in a sliding buffer for minimizing the delay due to the normalization process for calculation of normalisation coefficients for each frame, said parameters are modified utilising said normalisation coefficients and speech recognition is carried out utilising the modified parameters, wherein only part of the successive parameters are stored periodically and at least one parameter is modified on the basis of the parameters stored periodically in order to produce said modified parameter, and for said modification, a standard deviation of said periodically stored parameters is defined, wherein only part of the stored parameters are used at the beginning of the speech recognition.</p>									
2008/0082320	APPARATUS, METHOD AND COMPUTER PROGRAM PRODUCT FOR ADVANCED VOICE CONVERSION	Nokia Corporation	Popa; Victor Nurminen; Jani K. Tian; Jilei	704	G10L	20060929	2	96%	<input type="checkbox"/>
<p>Abstract: An apparatus is provided that includes a converter for training a voice conversion model for converting source encoding parameters characterizing a source speech signal associated with a source voice into corresponding target encoding parameters characterizing a target speech signal associated with a target voice. To reduce the affect of noise on the voice conversion model, the converter may be configured for receiving sequences of source and target encoding parameters, and train the model without one or more frames of the source and target speech signals that have energies less than a threshold energy. After conversion of the respective parameters, then, the converter, a decoder or another component may be configured for reducing the energy of one or more frames of the target speech signal that have an energy less than the threshold energy, where the threshold value may be adaptable based upon models of speech frames and non-speech frames.</p> <p>MainClaim: An apparatus comprising: a converter for training a voice conversion model for converting at least some information characterizing a source speech signal into corresponding information characterizing a target speech signal, wherein the source speech signal is associated with a source voice, and the target speech signal is a representation of the source speech signal associated with a target voice, and wherein the converter is configured for training each voice conversion model by: receiving information characterizing each frame in a sequence of frames of a source speech signal and information characterizing each frame in a sequence of frames of a target speech signal, each frame of the source and target speech signals having an associated energy; comparing the energies of the frames of the source and target speech signals to a threshold energy value, and identifying one or more frames of the source and target speech signals that have energies less than the threshold energy value; and training the voice conversion model based upon the information characterizing at least some of the frames in the sequences of frames of the source and target speech signals, the conversion model being trained without the information characterizing at least some of the identified frames.</p>									
6,915,257	Method and apparatus for speech coding with voiced/unvoiced determination	Nokia Mobile Phones Limited	Heikkinen; Ari Pietila; Samuli Ruoppila; Vesa	704	G10L	20001221	2	96%	<input type="checkbox"/>

Abstract: This invention presents a voicing determination algorithm for classification of a speech signal segment as voiced or unvoiced. The algorithm is based on a normalized autocorrelation where the length of the window is proportional to the pitch period. The speech segment to be classified is further divided into a number of sub-segments, and the normalized autocorrelation is calculated for each sub-segment if a certain number of the normalized autocorrelation values is above a predetermined threshold, the speech segment is classified as voiced. To improve the performance of the voicing determination algorithm in unvoiced to voiced transients, the normalized autocorrelations of the last sub-segments are emphasized. The performance of the voicing decision algorithm can be enhanced by utilizing also the possible lookahead information.

MainClaim: A method for determining the voicing of a speech signal segment, comprising the steps of: dividing a speech signal segment into sub-segments, determining a value relating to the voicing of respective speech signal sub-segments, comparing said values with a predetermined threshold, and making a decision on the voicing of the speech segment based on the number of the values on one side of the threshold and with emphasis on at least one last sub-segment of the segment.

5,860,064	Method and apparatus for automatic generation of vocal emotion in a synthetic text-to-speech system	Apple Computer, Inc.	Henton; Caroline G.	704	G10L	19970224	0	100%	<input checked="" type="checkbox"/>
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Abstract: A method and apparatus for the automatic application of vocal emotion parameters to text in a text-to-speech system. Predefining vocal parameters for various vocal emotions allows simple selection and application of vocal emotions to text to be output from a text-to-speech system. Further, the present invention is capable of generating vocal emotion with the limited prosodic controls available in a concatenative synthesizer.

MainClaim: A method for automatic application of vocal emotion to previously entered text to be outputted by a synthetic text-to-speech system, said method comprising:

selecting a portion of said previously entered text;

manipulating a visual appearance of the selected text to selectively choose a vocal emotion to be applied to said selected text;

obtaining vocal emotion parameters associated with said selected vocal emotion; and

applying said obtained vocal emotion parameters to said selected text to be outputted by said synthetic text-to-speech system.

2007/0016421	Correcting a pronunciation of a synthetically generated speech object	Nokia Corporation	Nurminen; Jani Mikkola; Hannu Tian; Jilei	704	G10L	20050712	4	92%	<input type="checkbox"/>
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Abstract: This invention relates to a method, a device and a software application product for correcting a pronunciation of a speech object. The speech object is synthetically generated from a text object in dependence on a segmented representation of the text object. It is determined if an initial pronunciation of the speech object, which initial pronunciation is associated with an initial segmented representation of the text object, is incorrect. Furthermore, in case it is determined that the initial pronunciation of the speech object is incorrect, a new segmented representation of the text object is determined, which new segmented representation of the text object is associated with a new pronunciation of the speech object.

MainClaim: A method for correcting a pronunciation of a speech object, wherein said speech object is synthetically generated from a text object in dependence on a segmented representation of said text object, said method comprising: determining if an initial pronunciation of said speech object, which initial pronunciation is associated with an initial segmented representation of said text object, is incorrect; and determining, in case it is determined that said initial pronunciation of said speech object is incorrect, a new segmented representation of said text object, which new segmented representation of said text object is associated with a new pronunciation of said speech object.

5,734,791	Rapid tree-based method for vector quantization	Apple Computer, Inc.	Acero; Alejandro Lee; Kai-Fu Chow; Yen-Lu	704	G10L	19921231	0	100%	<input checked="" type="checkbox"/>
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Abstract: The branching decision for each node in a vector quantization (VQ) binary tree is made by a simple comparison of a pre-selected element of the candidate vector with a stored threshold resulting in a binary decision for reaching the next lower level. Each node has a preassigned element and threshold value. Conventional centroid distance training techniques (such as LBG and k-means) are used to establish code-book indices corresponding to a set of VQ centroids. The set of training vectors are used a second time to select a vector element and threshold value at each node that approximately splits the data evenly. After processing the training vectors through the binary tree using threshold decisions, a histogram is generated for each code-book index that represents the number of times a training vector belonging to a given index set appeared at each index. The final quantization is accomplished by processing and then selecting the nearest centroid belonging to that histogram. Accuracy comparable to that achieved by conventional binary tree VQ is realized but with almost a full magnitude increase in processing speed.

MainClaim: A method for converting a candidate vector signal into a vector quantization (VQ) signal, the candidate vector signal identifying a candidate vector having a plurality of elements, the method comprising the steps of:

(a) applying the candidate vector signal to circuitry which performs a binary search of a binary tree stored in a memory, wherein the candidate vector signal is a digitized representation, wherein the binary tree has intermediate nodes and leaf nodes, and wherein the applying step (a) comprises the steps of:

(i) selecting one of the elements of the candidate vector and comparing the selected element with a corresponding threshold value for each intermediate node traversed in performing the binary search of the binary tree, and

(ii) identifying one of the leaf nodes encountered in the binary search of the binary tree;

(b) identifying, based on the identified leaf node, a set of VQ vectors stored in a memory;

(c) selecting one of the VQ vectors from the identified set of VQ vectors; and

(d) generating the VQ signal identifying the selected VQ vector.									
2004/0039572	Pattern recognition	Nokia Corporation	Kiss, Imre Vasilache, Marcel	704	G10L	20030326	11	95%	<input type="checkbox"/>
Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. According to the invention, a control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance. MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.									
7,269,556	Pattern recognition	Nokia Corporation	Kiss; Imre Vasilache; Marcel	704	G10L	20030326	9	95%	<input type="checkbox"/>
Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. A control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance. MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.									
2007/0256189	SOFT ALIGNMENT IN GAUSSIAN MIXTURE MODEL BASED TRANSFORMATION	NOKIA CORPORATION	Tian; Jilei Nurminen; Jani Popa; Victor	800	C12N	20060426	6	94%	<input type="checkbox"/>
Abstract: Systems and methods are provided for performing soft alignment in Gaussian mixture model (GMM) based and other vector transformations. Soft alignment may assign alignment probabilities to source and target feature vector pairs. The vector pairs and associated probabilities may then be used calculate a conversion function, for example, by computing GMM training parameters from the joint vectors and alignment probabilities to create a voice conversion function for converting speech sounds from a source speaker to a target speaker. MainClaim: A method for time aligning a first sequence of feature vectors with a second sequence of feature vectors comprising the steps of: receiving a first sequence of feature vectors associated with a source; receiving a second sequence of feature vectors associated with a target; and generating a third sequence of joint feature vectors, wherein the generation of each joint feature vector is based on: a first vector from the first sequence; a first vector from the second sequence; and a first probability value representing the probability that the first vector from the first sequence and the first vector from the second sequence are aligned to the same feature in their respective sequences.									
5,717,827	Text-to-speech system using vector quantization based speech encoding/decoding	Apple Computer, Inc.	Narayan; Shankar	704	G10L	19960415	0	100%	<input type="checkbox"/>
Abstract: A text-to-speech system includes a memory storing a set of quantization vectors. A first processing module is responsive to the sound segment codes generated in response to text in the sequence to identify strings of noise compensated quantization vectors for respective sound segment codes in the sequence. A decoder generates a speech data sequence in response to the strings of quantization vectors. An audio transducer is coupled to the processing modules, and generates sound in response to the speech data sequence. The quantization vectors represent a quantization of a sound segment data having a pre-emphasis to de-correlate the sound samples used for quantization and the quantization noise. In decompressing the sound segment data, an inverse linear prediction filter is applied to the identified strings of quantization vectors to reverse the pre-emphasis. Also, the quantization vectors represent quantization of results of pitch filtering of sound segment data. Thus, an inverse pitch filter is applied to the identified strings of quantization vectors in the module of generating the speech data sequence. MainClaim: An apparatus for converting text to speech, comprising: means for translating the text to a sequence of sound segment codes representing speech; means for generating a set of noise compensated quantization vectors by encoding the sound segment codes representing speech using a first set of quantization vectors and then performing a noise shaping filter operation on the first set of quantization vectors; memory storing the set of noise compensated quantization vectors; means, responsive to sound segment codes in the sequence, for identifying strings of noise compensated quantization vectors in the set of noise compensated quantization vectors for respective sound segment codes in the sequence; means, coupled to the means for identifying and the memory, for generating a speech data sequence in response to the strings									

of noise compensated quantization vectors; and

an audio transducer, coupled to the means for generating, to generate sound in response to the speech data sequence.

2006/0235685	Framework for voice conversion	Nokia Corporation	Nurminen; Jani Tian; Jilei Kiss; Imre	704	G10L	20050415	2	96%	<input type="checkbox"/>
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Abstract: This invention relates to a framework for converting a source speech signal associated with a source voice into a target speech signal that is a representation of the source speech signal associated with a target voice. The source speech signal is encoded into samples of encoding parameters, wherein the encoding comprises the step of segmenting the source speech signal into segments based on characteristics of the source speech signal. The samples of the encoding parameters, or a converted representation of the samples of the encoding parameters are then decoded to obtain the target speech signal. Therein, in the encoding, the decoding or in a separate step, samples of parameters related to the source speech signal are converted into samples of parameters related to the target speech signal. Therein, at least one of the encoding and the converting depends on the segments of the source speech signal.

MainClaim: A method for converting a source speech signal associated with a source voice into a target speech signal that is a representation of said source speech signal associated with a target voice, said method comprising: encoding said source speech signal into samples of encoding parameters, wherein said encoding comprises the step of segmenting said source speech signal into segments based on characteristics of said source speech signal, decoding one of said samples of said encoding parameters and a converted representation of said samples of said encoding parameters to obtain said target speech signal, and converting, in one of said encoding, said decoding and a separate step, samples of parameters related to said source speech signal into samples of parameters related to said target speech signal; wherein at least one of said encoding and said converting depends on said segments of said source speech signal.

2005/0091041	Method and system for speech coding	Nokia Corporation	Ramo, Anssi Nurminen, Jani Himanen, Sakari Heikkinen, Ari	704	G10L	20031023	3	95%	<input type="checkbox"/>
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Abstract: A method and device for use in conjunction with an encoder for encoding an audio signal into a plurality of parameters. Based on the behavior of the parameters, such as pitch, voicing, energy and spectral amplitude information of the audio signal, the audio signal can be segmented, so that the parameter update rate can be optimized. The parameters of the segmented audio signal are recorded in a storage medium or transmitted to a decoder so as to allow the decoder to reconstruct the audio signal based on the parameters indicative of the segment audio signals. For example, based on the pitch characteristic, the pitch contour can be approximated by a plurality of contour segments. An adaptive downsampling method is used to update the parameters based on the contour segments so as to reduce the update rate. At the decoder, the parameters are updated at the original rate.

MainClaim: A method of encoding an audio signal having audio characteristics, said method comprising the steps of: segmenting the audio signal into a plurality of segments based on the audio characteristics of the audio signal; and encoding the segments with different encoding settings.

6,055,496	Vector quantization in celp speech coder	Nokia Mobile Phones, Ltd.	Heidari; Alireza Ryan Liu; Fenghua	704	G10L	19980227	1	94%	<input type="checkbox"/>
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Abstract: A process for generation of codevectors in the production of synthetic speech in a communication system employing code-excited linear prediction (CELP) is implemented by dividing frames of sampled speech into sub-frames for which are generated codevectors suitable for excitation of synthesizer filters in the low-bit mode of signal transmission. Vector quantization (VQ) is employed with an algebraic representation of the CELP. A reduction of a sub-frame of 6.7 milliseconds to a vector representation of only 8 pulses results in an insufficiency of candidate codevectors, which insufficiency is overcome by a circular shifting of the codevectors at a cyclical rate equal to the pitch of the original voice signal.

MainClaim: A method of characterizing the excitation vector in a processor of speech operating in accordance with code-excited linear prediction (CELP), the method comprising the steps of:

establishing a set of sub-vectors, each of which comprises several samples of speech;

identifying sub-vectors carrying speech information important for perception of speech by a person listening to the speech;

encoding perceptually important sub-vectors;

setting other ones of the sub-vectors to zero, and constructing the excitation vector of the set of sub-vectors wherein the excitation vector is quantized by the sub-vectors which have been set to zero; and

wherein the total number of the sub-vectors is equal to the integer part of pitch divided by 9 and bounded by 3 and 6 wherein 9 samples of speech are grouped together to form one of said sub-vectors.

5,481,739	Vector quantization using thresholds	Apple Computer, Inc.	Staats; Erik	712	G06F	19930623	0	100%	<input type="checkbox"/>
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Abstract: Methods and apparatus for vector quantization. A threshold generator generates an i threshold (Threshold_i) to be associated with each i quantized vector of n quantized vectors in a vector quantization codebook. The vector quantization codebook and the thresholds are used by a vector quantizer to encode a set of input vectors ($V_1 - V_{TOT}$). The determination that a distance between a vector to be encoded and a quantized vector in a codebook is less than the associated threshold causes a search for the closest vector to terminate for a nearest neighbor vector quantizer. In some embodiments, the vectors comprise samples of continuous signals for sound containing speech, or display signals. In other embodiments, codebook vectors are arranged from most frequently encoded vectors to least frequently encoded vectors.

MainClaim: In a computer system, a method of vector quantization, comprising the following steps:

a. from a training set of vectors, creating a vector quantization codebook representative of a set of training vectors, said codebook comprising a representative set of n quantized vectors from said training vectors;

b. for each i quantized vector (VQ_i) of said n quantized vectors, determining an i threshold ($Threshold_i$) to be associated with said i quantized vector, wherein said i threshold comprises half a distance between said i quantized vector and a k quantized vector (VQ_k) of said n quantized vectors, wherein $i < k \leq n$, and said k quantized vector is the closest quantized vector to said i quantized vectors of a set of quantized vectors having an index k wherein $i < k \leq n$;

c. for each i quantized vector of said n quantized vectors, associating in said vector quantization codebook said i threshold with said i quantized vector; and

d. using said vector quantization codebook to encode a set of input vectors ($V_1 - V_{TOT}$).

7,587,314	Single-codebook vector quantization for multiple-rate applications	Nokia Corporation	Vasilache; Adriana Ramo; Anssi	704	G10L	20050829	2	92%	<input type="checkbox"/>
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Abstract: This invention relates to a method, a device and a software application product for N-level quantization of vectors, wherein N is selectable prior to said quantization from a set of at least two pre-defined values that are smaller than or equal to a pre-defined maximum number of levels M. A reproduction vector for each vector is selected from an N-level codebook of N reproduction vectors that are, for each N in said set of at least two pre-defined values, represented by the first N reproduction vectors of the same joint codebook of M reproduction vectors. The invention further relates to a method, a device and a software application product for retrieving reproduction vectors for vectors that have been N-level quantized, to a system for transferring representations of vectors, to a method, a device and a software application product for determining a joint codebook, and to such a joint codebook itself.

MainClaim: A method comprising: selecting, in an N-level quantization of a vector, wherein N is selectable prior to said quantization from a set of at least two pre-defined values that are smaller than or equal to a pre-defined maximum number of levels M, a reproduction vector for said vector from an N-level codebook of N reproduction vectors that are, for each N in said set of at least two pre-defined values, represented by the first N reproduction vectors of the same joint codebook of M reproduction vectors, and providing an identifier signal that identifies said selected reproduction vector, said method further comprising processing said identifier signal for storage in a storage medium or for transmission on a transmission channel of a communication system.

2007/0055509	Single-codebook vector quantization for multiple-rate applications	Nokia Corporation	Vasilache; Adriana Ramo; Anssi	704	G10L	20050829	2	92%	<input type="checkbox"/>
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Abstract: This invention relates to a method, a device and a software application product for N-level quantization of vectors, wherein N is selectable prior to said quantization from a set of at least two pre-defined values that are smaller than or equal to a pre-defined maximum number of levels M. A reproduction vector for each vector is selected from an N-level codebook of N reproduction vectors that are, for each N in said set of at least two pre-defined values, represented by the first N reproduction vectors of the same joint codebook of M reproduction vectors. The invention further relates to a method, a device and a software application product for retrieving reproduction vectors for vectors that have been N-level quantized, to a system for transferring representations of vectors, to a method, a device and a software application product for determining a joint codebook, and to such a joint codebook itself.

MainClaim: A method for N-level quantization of vectors, wherein N is selectable prior to said quantization from a set of at least two pre-defined values that are smaller than or equal to a pre-defined maximum number of levels M, said method comprising: selecting a reproduction vector for each vector from an N-level codebook of N reproduction vectors that are, for each N in said set of at least two pre-defined values, represented by the first N reproduction vectors of the same joint codebook of M reproduction vectors.

5,490,234	Waveform blending technique for text-to-speech system	Apple Computer, Inc.	Narayan; Shankar	704	G10L	19930121	0	100%	<input type="checkbox"/>
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Abstract: A concatenator for a first digital frame with a second digital frame, such as the ending and beginning of adjacent diphone strings being concatenated to form speech is based on determining an optimum blend point for the first and second digital frames in response to the magnitudes of samples in the first and second digital frames. The frames are then blended to generate a digital sequence representing a concatenation of the first and second frames with reference to the optimum blend point. The system operates by first computing an extended frame in response to the first digital frame, and then finding a subset of the extended frame with matches the second digital frame using a minimum average magnitude difference function over the samples in the subset. The blend point is the first sample of the matching subset. To generate the concatenated waveform, the subset of the extended frame is combined with the second digital frame and concatenated with the beginning segments of the extended frame to produce the concatenated waveform.

MainClaim: An apparatus for concatenating a first digital frame of N samples having respective magnitudes representing a first quasi-periodic waveform and a second digital frame of M samples having respective magnitudes representing a second quasi-periodic waveform, comprising:

a buffer store to store the samples of first and second digital frames;

means, coupled to the buffer store, for determining a blend point for the first and second digital frames in response to magnitudes of samples in the first and second digital frames;

blending means, coupled with the buffer store and the means for determining, for computing a digital sequence representing a concatenation of the first and second quasi-periodic waveforms in response to the first frame, the second frame and the blend point.

2005/0091041	Method and system for speech coding	Nokia Corporation	Ramo, Anssi Nurminen, Jani Himanen, Sakari Heikkinen, Ari	704	G10L	20031023	3	95%	<input type="checkbox"/>
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Abstract: A method and device for use in conjunction with an encoder for encoding an audio signal into a plurality of parameters. Based on the behavior of the parameters, such as pitch, voicing, energy and spectral amplitude information of the

audio signal, the audio signal can be segmented, so that the parameter update rate can be optimized. The parameters of the segmented audio signal are recorded in a storage medium or transmitted to a decoder so as to allow the decoder to reconstruct the audio signal based on the parameters indicative of the segment audio signals. For example, based on the pitch characteristic, the pitch contour can be approximated by a plurality of contour segments. An adaptive downsampling method is used to update the parameters based on the contour segments so as to reduce the update rate. At the decoder, the parameters are updated at the original rate.

MainClaim: A method of encoding an audio signal having audio characteristics, said method comprising the steps of: segmenting the audio signal into a plurality of segments based on the audio characteristics of the audio signal; and encoding the segments with different encoding settings.

2006/0235685	Framework for voice conversion	Nokia Corporation	Nurminen; Jani Tian; Jilei Kiss; Imre	704	G10L	20050415	2	94%	<input type="checkbox"/>
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Abstract: This invention relates to a framework for converting a source speech signal associated with a source voice into a target speech signal that is a representation of the source speech signal associated with a target voice. The source speech signal is encoded into samples of encoding parameters, wherein the encoding comprises the step of segmenting the source speech signal into segments based on characteristics of the source speech signal. The samples of the encoding parameters, or a converted representation of the samples of the encoding parameters are then decoded to obtain the target speech signal. Therein, in the encoding, the decoding or in a separate step, samples of parameters related to the source speech signal are converted into samples of parameters related to the target speech signal. Therein, at least one of the encoding and the converting depends on the segments of the source speech signal.

MainClaim: A method for converting a source speech signal associated with a source voice into a target speech signal that is a representation of said source speech signal associated with a target voice, said method comprising: encoding said source speech signal into samples of encoding parameters, wherein said encoding comprises the step of segmenting said source speech signal into segments based on characteristics of said source speech signal, decoding one of said samples of said encoding parameters and a converted representation of said samples of said encoding parameters to obtain said target speech signal, and converting, in one of said encoding, said decoding and a separate step, samples of parameters related to said source speech signal into samples of parameters related to said target speech signal; wherein at least one of said encoding and said converting depends on said segments of said source speech signal.

2005/0091044	Method and system for pitch contour quantization in audio coding	Nokia Corporation	Ramo, Anssi Nurminen, Jani Himanen, Sakari Heikkinen, Ari	704	G10L	20031023	2	94%	<input type="checkbox"/>
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Abstract: A method and device for improving coding efficiency in audio coding. From the pitch values of a pitch contour of an audio signal, a plurality of simplified pitch contour segments are generated to approximate the pitch contour, based on one or more pre-selected criteria. The contour segments can be linear or non-linear with each contour segment represented by a first end point and a second end point. If the contour segments are linear, then only the information regarding the end points, instead of the pitch values, are provided to a decoder for reconstructing the audio signal. The contour segment can have a fixed maximum length or a variable length, but the deviation between a contour segment and the pitch values in that segment is limited by a maximum value.

MainClaim: A method for improving coding efficiency in audio coding, wherein an audio signal is encoded for providing parameters indicative of the audio signal, the parameters including pitch contour data containing a plurality of pitch values representative of an audio segment in time, said method comprising the steps of: creating, based on the pitch contour data, a plurality of simplified pitch contour segment candidates, each candidate corresponding to a sub-segment of the audio signal; measuring deviation between each of the simplified pitch contour segment candidates and said pitch values in the corresponding sub-segment; selecting one of said candidates based on the measured deviations and one or more pre-selected criteria; and coding the pitch contour data in the sub-segment of the audio signal corresponding to the selected candidate with characteristics of the selected candidate.

5,642,466	Intonation adjustment in text-to-speech systems	Apple Computer, Inc.	Narayan; Shankar	704	G10L	19930121	0	100%	<input type="checkbox"/>
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Abstract: A software-only real time text-to-speech system includes intonation control which does not introduce discontinuities into output speech stream. The text-to-speech system includes a module for translating text to a sequence of sound segment codes and intonation control signals. A decoder is coupled to the translator to produce sets of digital frames of speech data, which represent sounds for the respective sound segment codes in the sequence. An intonation control system is responsive to intonation control signals for modifying a block of one or more frames in the sets of frames of speech data to generate a modified block. The modified block substantially preserves the continuity of the beginning and ending segments of the block with adjacent frames in the sequence. Thus, when the modified block is inserted in the sequence, no discontinuities are introduced and smooth intonation control is accomplished. The intonation control system provides for both pitch and duration control.

MainClaim: An apparatus for adjusting an intonation of a sound wherein the sound is specified by a sequence of frames each comprising a set of digital samples, the apparatus comprising:

means for receiving a set of intonation control signals that indicate a pitch adjustment and a duration adjustment to the sound;

buffer that stores the sequence of frames;

intonation control means that generates an intonation adjusted sequence of frames by accessing a block of one or more frames of the sequence of frames from the buffer and by generating a modified block in response to the intonation control signals and by inserting the modified block into the sequence of frames wherein the intonation control means minimizes discontinuity between a beginning segment and an ending segment of the block and a pair of adjacent frames in the intonation adjusted sequence of frames, wherein the intonation control signals indicate a change in a nominal length of a specified frame of the sequence of frames to indicate the pitch adjustment and indicate a change in a number of frames in the sequence of frames to indicate the duration adjustment, and wherein the intonation control means includes

pitch lowering means for increasing a length N of the specified frame by an amount equal to Δ samples wherein the block of one or more frames consists of the specified frame, the pitch lowering means including means for applying a first weighting function to the block emphasizing the beginning segment to generate a first vector and means for applying a second weighting function to the block emphasizing the ending segment to generate a second vector and means for combining the first vector with the second vector shifted by Δ samples to generate the modified block having a length $N+\Delta$,

pitch raising means for decreasing the length N of the specified frame by an amount equal to Δ samples wherein the block of one or more frames consists of the specified frame and a next frame having a length NR in the sequence of frames, the pitch raising means including means for applying the first weighting function to the block emphasizing the beginning segment to generate the first vector and means for applying the second weighting function to the block emphasizing the ending segment to generate the second vector and means for combining the first vector with the second vector shifted by Δ samples to generate a shortened frame with the next frame to generate the modified block having a length $N-\Delta+NR$,

duration shortening means for modifying the block to reduce the number of frames in the sequence of frames wherein the block consists of a pair of sequential frames having lengths NL and NR respectively, the duration shortening means including means for applying the first weighting function to the block emphasizing the beginning segment to generate the first vector and means for applying the second weighting function to the block emphasizing the ending segment to generate the second vector and means for combining the first vector with the second vector to generate the modified block having the length NL or the length NR , and

duration lengthening means for modifying the block to increase the number of frames in the sequence of frames wherein the block consists of a pair of left and right sequential frames having the lengths NL and NR respectively, the duration lengthening means including means for applying the first weighting function to the block emphasizing the beginning segment to generate the first vector and means for applying the second weighting function to the block emphasizing the ending segment to generate the second vector and means for combining the first vector with the second vector to generate a new frame and means for concatenating the left frame, the new frame, and the right frame to generate the modified block.

2005/0091041	Method and system for speech coding	Nokia Corporation	Ramo, Anssi Nurminen, Jani Himanen, Sakari Heikkinen, Ari	704	G10L	20031023 3	95%	<input type="checkbox"/>
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Abstract: A method and device for use in conjunction with an encoder for encoding an audio signal into a plurality of parameters. Based on the behavior of the parameters, such as pitch, voicing, energy and spectral amplitude information of the audio signal, the audio signal can be segmented, so that the parameter update rate can be optimized. The parameters of the segmented audio signal are recorded in a storage medium or transmitted to a decoder so as to allow the decoder to reconstruct the audio signal based on the parameters indicative of the segment audio signals. For example, based on the pitch characteristic, the pitch contour can be approximated by a plurality of contour segments. An adaptive downsampling method is used to update the parameters based on the contour segments so as to reduce the update rate. At the decoder, the parameters are updated at the original rate.

MainClaim: A method of encoding an audio signal having audio characteristics, said method comprising the steps of: segmenting the audio signal into a plurality of segments based on the audio characteristics of the audio signal; and encoding the segments with different encoding settings.

2008/0275695	Method and system for pitch contour quantization in audio coding	Nokia Corporation	Ramo; Anssi Nurminen; Jani Himanen; Sakari Heikkinen; Ari	704	G10L	20080425 1	94%	<input type="checkbox"/>
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Abstract: A method and device for improving coding efficiency in audio coding. From the pitch values of a pitch contour of an audio signal, a plurality of simplified pitch contour segments are generated to approximate the pitch contour, based on one or more pre-selected criteria. The contour segments can be linear or non-linear with each contour segment represented by a first end point and a second end point. If the contour segments are linear, then only the information regarding the end points, instead of the pitch values, are provided to a decoder for reconstructing the audio signal. The contour segment can have a fixed maximum length or a variable length, but the deviation between a contour segment and the pitch values in that segment is limited by a maximum value.

MainClaim: A method for coding an audio signal for providing parameters indicative of an audio signal, the parameters comprising timewise unaltered pitch contour data containing a plurality of pitch values representative of an audio segment in time, said method comprising: creating, based on the timewise unaltered pitch contour data, a plurality of simplified pitch contour segment candidates, each candidate corresponding to a sub-segment of the audio signal, wherein each sub-segment has a start-point pitch value and an end-point pitch value and each candidate has a start segment point and an end segment point; measuring deviation between each of the simplified pitch contour segment candidates and said pitch values in the corresponding sub-segment; selecting, among said candidates, a plurality of consecutive segment candidates to represent the audio segment based on the measured deviations and one or more pre-selected criteria, wherein the start segment points of at least some selected segment candidates are different from the start-point pitch values of the corresponding sub-segments and the end segment points of at least some selected segment candidates are different from the end-point pitch values of the corresponding sub-segments; and coding the sub-segment of the audio signal corresponding to the selected segment candidate with characteristics of the selected segment candidate.

2005/0091044	Method and system for pitch contour quantization in audio coding	Nokia Corporation	Ramo, Anssi Nurminen, Jani Himanen, Sakari Heikkinen, Ari	704	G10L	20031023 2	94%	<input type="checkbox"/>
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Abstract: A method and device for improving coding efficiency in audio coding. From the pitch values of a pitch contour of an audio signal, a plurality of simplified pitch contour segments are generated to approximate the pitch contour, based on one or more pre-selected criteria. The contour segments can be linear or non-linear with each contour segment represented by a first end point and a second end point. If the contour segments are linear, then only the information regarding the end points, instead of the pitch values, are provided to a decoder for reconstructing the audio signal. The contour segment can have a fixed maximum length or a variable length, but the deviation between a contour segment and the pitch values in that segment is limited by a maximum value.

MainClaim: A method for improving coding efficiency in audio coding, wherein an audio signal is encoded for providing parameters indicative of the audio signal, the parameters including pitch contour data containing a plurality of pitch values representative of an audio segment in time, said method comprising the steps of: creating, based on the pitch contour data, a plurality of simplified pitch contour segment candidates, each candidate corresponding to a sub-segment of the audio signal; measuring deviation between each of the simplified pitch contour segment candidates and said pitch values in the corresponding sub-segment; selecting one of said candidates based on the measured deviations and one or more pre-selected criteria; and coding the pitch contour data in the sub-segment of the audio signal corresponding to the selected candidate with characteristics of the selected candidate.

5,598,505	Cepstral correction vector quantizer for speech recognition	Apple Computer, Inc.	Austin; Stephen C. Fineberg; Adam B.	704	G10L	19940930	0	100%	<input type="checkbox"/>
<p>Abstract: A method for correcting cepstral vectors representative of speech generated in a test environment by use of a vector quantization (VQ) system with a codebook of vectors that was generated using speech and acoustic data from a different (training) environment. The method uses a two-step correction to produce test environment cepstral vectors with reduced non-speech acoustic content. The first correction step subtracts, from the test vector, a coarse correction vector that is computed from an average of test environment cepstral vectors. The second step involves a VQ of the coarsely corrected test vector at each node of the VQ tree. The third step is the addition of a fine correction vector to the coarsely corrected test vector that is generated by subtracting a running (moving) average of the coarsely corrected test vectors associated with the deepest VQ tree node from the VQ vector closest to the coarsely corrected test vector. The method is independent of the means used to generate the cepstral vectors and the corrected output cepstra vectors may be used in various speech processing and classifying systems. The method is adaptable to non-stationary environments.</p> <p>MainClaim: A method for correcting a cepstral test vector representation of speech from an acoustical test environment using a vector quantizer (VQ) encoder having a VQ encoder codebook based on training data from a different acoustical training environment, the method comprising:</p> <p>(a) applying a coarse correction vector from the cepstral test vector, the coarse correction vector being representative of the acoustical training environment without the presence of speech, for producing a coarsely corrected cepstral test vector; and</p> <p>(b) applying a fine correction vector to the coarsely corrected cepstral vector for producing a fine corrected cepstral test vector, the fine correction vector representative of a difference between acoustical test environment with the presence of speech only and the acoustical training environment cepstral training vectors with the presence of speech only.</p>									
7,197,456	On-line parametric histogram normalization for noise robust speech recognition	Nokia Corporation	Haverinen; Hemmo Kiss; Imre	704	G10L	20020430	2	95%	<input type="checkbox"/>
<p>Abstract: A method for improving noise robustness in speech recognition, wherein a front-end is used for extracting speech feature from an input speech and for providing a plurality of scaled spectral coefficients. The histogram of the scaled spectral coefficients is normalized to the histogram of a training set using Gaussian approximations. The normalized spectral coefficients are then converted into a set of cepstrum coefficients by a decorrelation module and further subjected to cepstral domain feature-vector normalization.</p> <p>MainClaim: A method, comprising: providing in a speech recognition system speech data indicative of an input speech at a plurality of time instants based on the input speech, the speech data comprising a plurality of data segments; spectrally converting the data segments into a plurality of spectral coefficients having a probability distribution of values in spectral domain for providing spectral data indicative of the spectral coefficients based on the data segments; obtaining a parametric representation of the probability distribution of values of the spectral coefficients based on the spectral data; modifying the parametric representation based on one or more reference values for providing a modified parametric representation; adjusting at least one of the spectral coefficients in the spectral domain based on the modified parametric representation for changing the spectral data; and performing decorrelation conversion on the changed spectral data for providing extracted features of the input speech.</p>									
2003/0204398	On-line parametric histogram normalization for noise robust speech recognition	Nokia Corporation	Haverinen, Hemmo Kiss, Imre	704	G10L	20020430	3	95%	<input type="checkbox"/>
<p>Abstract: A method for improving noise robustness in speech recognition, wherein a front-end is used for extracting speech feature from an input speech and for providing a plurality of scaled spectral coefficients. The histogram of the scaled spectral coefficients is normalized to the histogram of a training set using Gaussian approximations. The normalized spectral coefficients are then converted into a set of cepstrum coefficients by a decorrelation module and further subjected to cepstral domain feature-vector normalization.</p> <p>MainClaim: A method of improving noise robustness in a speech recognition system, the system including a front-end for extracting speech features from an input speech and a back-end for speech recognition based on the extracted features, wherein the front-end comprises: means, responsive to the input speech, for providing data indicative of the input speech at a plurality of time instants; means, responsive to the data segments, for spectrally converting the data segments into a plurality of spectral coefficients having a related probability distribution of values for providing spectral data indicative of the spectral coefficients; and means, responsive to the spectral data, for performing decorrelation conversion on the spectral coefficients for providing the extracted features, characterized by obtaining a parametric representation of the probability distribution of values of the spectral coefficients; modifying the parametric representation based on one or more reference values; and adjusting at least one of the spectral coefficients based on the modified parametric representation for changing the spectral data prior to the decorrelation conversion.</p>									
2004/0039572	Pattern recognition	Nokia Corporation	Kiss, Imre Vasilache, Marcel	704	G10L	20030326	11	94%	<input type="checkbox"/>
<p>Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. According to the invention, a control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance.</p> <p>MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.</p>									
	Utilization of multiple								

5,704,007	voice sources in a speech synthesizer	Apple Computer, Inc.	Cecys; Mark L.	704	G10L	19961004	0	100%	<input type="checkbox"/>
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Abstract: Utilization of one or more voice sources in a speech synthesizer to provide improved synthetic speech. Having a speech synthesizer with the capability to select among and between a multiplicity of voice sources provides a higher quality and greater variety of possible synthetic speech sounds. This is particularly true when the multiplicity of voice sources are predetermined to have particular speech qualities and spectral content such as may be desired to convey emotional vocal content in synthetic speech.

MainClaim: A synthetic text-to-speech generating method comprising:

generating a set of speech synthesizer control parameters representative of text to be spoken; and

converting the speech synthesizer control parameters into output wave forms representative of the synthetic speech to be spoken by selecting and combining at least two voice sources from a multiplicity of voice sources in a speech synthesizer to generate a combined voice source and by passing the combined voice source through an acoustic model of a human vocal tract.

6,928,410	Method and apparatus for musical modification of speech signal	Nokia Mobile Phones Ltd.	Marila; Juha Ronkainen; Sami Röykkee; Mika Ichikawa; Fumiko	704	G10L	20001106	2	92%	<input type="checkbox"/>
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Abstract: A method and apparatus for modification of a speech signal indicative of a stream of speech data having a plurality of syllables. The method comprises the steps of mapping the stream of speech data from the speech signal into a stream of tone data according to a linguistic rule regarding the syllables for providing a tone signal indicative of the stream of tone data; forming a string of musical notes responsive to the tone signal for providing a carrier signal indicative of the string of musical notes; modulating the carrier signal with the speech signal for providing a modified signal; and providing an audible signal representative of the speech signal, musically modified according to the linguistic rule. The linguistic rule includes an assignment of a tone to a syllable of the speech data based on a vowel of the syllable, a consonant of the syllable, the intonation of the syllable for a monosyllabic language. The musically modified speech signal can be used to indicate an incoming telephone call, a message left on a telephone, a scheduled event, or the like.

MainClaim: A method for modification of a speech signal indicative of a stream of speech data having a plurality of syllables, comprising:

mapping the stream of speech data from the speech signal into a stream of tone data according to a predetermined rule regarding the syllables for providing a tone signal indicative of the stream of tone data, wherein the predetermined rule is based on at least one linguistic characteristic of the syllables;

forming a string of musical notes responsive to the tone signal for providing a carrier signal indicative of the string of musical notes, such that said at least one linguistic characteristic is associated with a musical note;

modulating the carrier signal with the speech signal for providing a modified signal; and

providing an audible signal representative of the speech signal, according to the modified signal, musically modified according to the predetermined rule.

5,930,755	Utilization of a recorded sound sample as a voice source in a speech synthesizer	Apple Computer, Inc.	Cecys; Mark L.	704	G10L	19970107	0	100%	<input type="checkbox"/>
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Abstract: One or more prerecorded sounds are used as a voice source in a speech synthesizer to provide unique synthetic speech sounds. Recording one or more sound samples and then utilizing a speech synthesizer with the capability to select among and between the sound samples as the voice source to the speech synthesizer provides a higher quality and greater variety of possible synthetic speech sounds. This is particularly true when the multiplicity of voice sources are predetermined to have certain desired sound qualities and spectral content such as may be desired to provide synthetic speech of inanimate objects and animals or atypical speech qualities to human synthetic speech.

MainClaim: A parametric synthetic text-to-speech generating method comprising the steps of:

generating a set of speech synthesizer control parameters representative of text to be spoken;

selecting a voice source from a finite set of recorded sound samples of non-human origin; and

converting the speech synthesizer control parameters, based on the voice source, into output wave forms representative of the synthetic speech to be spoken.

6,928,410	Method and apparatus for musical modification of speech signal	Nokia Mobile Phones Ltd.	Marila; Juha Ronkainen; Sami Röykkee; Mika Ichikawa; Fumiko	704	G10L	20001106	2	92%	<input type="checkbox"/>
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Abstract: A method and apparatus for modification of a speech signal indicative of a stream of speech data having a plurality of syllables. The method comprises the steps of mapping the stream of speech data from the speech signal into a stream of tone data according to a linguistic rule regarding the syllables for providing a tone signal indicative of the stream of tone data; forming a string of musical notes responsive to the tone signal for providing a carrier signal indicative of the string of musical notes; modulating the carrier signal with the speech signal for providing a modified signal; and providing an audible signal representative of the speech signal, musically modified according to the linguistic rule. The linguistic rule includes an assignment of a tone to a syllable of the speech data based on a vowel of the syllable, a consonant of the syllable, the intonation of the syllable for a monosyllabic language. The musically modified speech signal can be used to indicate an incoming telephone call, a message left on a telephone, a scheduled event, or the like.

MainClaim: A method for modification of a speech signal indicative of a stream of speech data having a plurality of syllables, comprising:

mapping the stream of speech data from the speech signal into a stream of tone data according to a predetermined rule regarding the syllables for providing a tone signal indicative of the stream of tone data, wherein the predetermined rule is based on at least one linguistic characteristic of the syllables;

forming a string of musical notes responsive to the tone signal for providing a carrier signal indicative of the string of musical notes, such that said at least one linguistic characteristic is associated with a musical note;

modulating the carrier signal with the speech signal for providing a modified signal; and

providing an audible signal representative of the speech signal, according to the modified signal, musically modified according to the predetermined rule.

5,619,717	Vector quantization using thresholds	Apple Computer, Inc.	Staats; Erik	712	G06F	19950607	0	100%	<input type="checkbox"/>
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Abstract: Methods and apparatus for vector quantization. A threshold generator generates an i threshold (Threshold_i) to be associated with each i quantized vector of n quantized vectors in a vector quantization codebook. The vector quantization codebook and the thresholds are used by a vector quantizer to encode a set of input vectors ($V_1 - V_{TOT}$). The determination that a distance between a vector to be encoded and a quantized vector in a codebook is less than the associated threshold causes a search for the closest vector to terminate for a nearest neighbor vector quantizer. In some embodiments, the vectors comprise samples of continuous signals for sound containing speech, or display signals. In other embodiments, codebook vectors are arranged from most frequently encoded vectors to least frequently encoded vectors.

MainClaim: In a computer system, a method of vector quantization, comprising the following steps:

- creating a vector quantization codebook comprising n quantized vectors;
- for each i quantized vector (VQ_i) of said n quantized vectors, determining an i threshold (Threshold_i) to be associated with said i quantized vector;
- for each i quantized vector of said n quantized vectors, associating said i threshold with said i quantized vector in said vector quantization codebook; and
- using said vector quantization codebook to encode a set of input vectors ($V_1 - V_{TOT}$), wherein for each input vector being coded, sequencing using an index j through said vector quantization codebook and determining for each j quantized vector in said vector quantization codebook if the distance between said input vector being coded and said j quantized vector is less than said j threshold associated with said j quantized vector then encoding said input vector and terminating sequencing through said vector quantization codebook.

7,587,314	Single-codebook vector quantization for multiple-rate applications	Nokia Corporation	Vasilache; Adriana Ramo; Anssi	704	G10L	20050829	2	93%	<input type="checkbox"/>
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Abstract: This invention relates to a method, a device and a software application product for N -level quantization of vectors, wherein N is selectable prior to said quantization from a set of at least two pre-defined values that are smaller than or equal to a pre-defined maximum number of levels M . A reproduction vector for each vector is selected from an N -level codebook of N reproduction vectors that are, for each N in said set of at least two pre-defined values, represented by the first N reproduction vectors of the same joint codebook of M reproduction vectors. The invention further relates to a method, a device and a software application product for retrieving reproduction vectors for vectors that have been N -level quantized, to a system for transferring representations of vectors, to a method, a device and a software application product for determining a joint codebook, and to such a joint codebook itself.

MainClaim: A method comprising: selecting, in an N -level quantization of a vector, wherein N is selectable prior to said quantization from a set of at least two pre-defined values that are smaller than or equal to a pre-defined maximum number of levels M , a reproduction vector for said vector from an N -level codebook of N reproduction vectors that are, for each N in said set of at least two pre-defined values, represented by the first N reproduction vectors of the same joint codebook of M reproduction vectors, and providing an identifier signal that identifies said selected reproduction vector, said method further comprising processing said identifier signal for storage in a storage medium or for transmission on a transmission channel of a communication system.

2007/0055509	Single-codebook vector quantization for multiple-rate applications	Nokia Corporation	Vasilache; Adriana Ramo; Anssi	704	G10L	20050829	2	93%	<input type="checkbox"/>
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Abstract: This invention relates to a method, a device and a software application product for N -level quantization of vectors, wherein N is selectable prior to said quantization from a set of at least two pre-defined values that are smaller than or equal to a pre-defined maximum number of levels M . A reproduction vector for each vector is selected from an N -level codebook of N reproduction vectors that are, for each N in said set of at least two pre-defined values, represented by the first N reproduction vectors of the same joint codebook of M reproduction vectors. The invention further relates to a method, a device and a software application product for retrieving reproduction vectors for vectors that have been N -level quantized, to a system for transferring representations of vectors, to a method, a device and a software application product for determining a joint codebook, and to such a joint codebook itself.

MainClaim: A method for N -level quantization of vectors, wherein N is selectable prior to said quantization from a set of at least two pre-defined values that are smaller than or equal to a pre-defined maximum number of levels M , said method comprising: selecting a reproduction vector for each vector from an N -level codebook of N reproduction vectors that are, for each N in said set of at least two pre-defined values, represented by the first N reproduction vectors of the same joint codebook of M reproduction vectors.

2008/0097757	Audio coding	Nokia Corporation	Vasilache; Adriana	704	G10L	20061024	1	92%	<input type="checkbox"/>
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Abstract: Quantized audio data may be represented by a codevector that is associated to a point of an outer shell of a

rectangular truncated lattice. For indexing this codevector, number and positions of non-zero components of the codevector are determined. Moreover, signs of the non-zero components are determined. An index is then calculated by combining at least a term representing determined number and positions of non-zero components and a term representing determined signs of non-zero components. For converting the index into a codevector again, separate information on number and positions of non-zero components of a codevector and on signs of components of this codevector are extracted from the index again. The codevector is then assembled such that it complies with the extracted information on number and positions of the non-zero components and on signs of the non-zero components.

MainClaim: A method comprising: determining number and positions of non-zero components of a codevector, said codevector being associated to a point of an outer shell of a rectangular truncated lattice and representing quantized audio data; determining signs of said non-zero components of said codevector; and calculating an index for said codevector by combining at least a term representing said determined number of non-zero components, a term representing determined positions of non-zero components and a term representing determined signs of non-zero components.

5,812,967	Recursive pitch predictor employing an adaptively determined search window	Apple Computer, Inc.	Poncelon; Dulce Manduchi; Roberto Chu; Ke-Chiang Wu; Hsi-Jung	704	G10L	19960930	0	100%	<input type="checkbox"/>
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Abstract: A method for improved recursive pitch prediction includes providing a search window for pitch estimates based upon a previously computed pitch, computing pitch estimates for the search window, and determining an optimal pitch from the pitch estimates within the search window for a first predetermined number of frames. The method further includes expanding the search window to a full pitch window after the first predetermined number of frames, and calculating pitch estimates for the full pitch window for a second predetermined number of frames. A system for improved recursive pitch prediction includes a speech generator of speech signals, and a central processing unit coupled to the speech generator. The central processing unit further is capable of coordinating pitch estimation of the speech signals, including providing a search window for pitch estimates based upon a previously computed pitch, calculating pitch estimates for the search window, and determining an optimal pitch from the pitch estimates within the search window for a first predetermined number of frames.

MainClaim: A method for improved recursive pitch prediction in digital speech signal processing, the method comprising the steps of:

- a) utilizing a search window that falls within a full pitch window for pitch estimates based upon a location of a previously computed pitch within the search window;
- b) determining pitch estimates for the search window; and
- c) determining an optimal pitch from the pitch estimates within the search window for a first predetermined number of frames, wherein inter-frame correlation of pitch in speech signals is better estimated.

6,915,257	Method and apparatus for speech coding with voiced/unvoiced determination	Nokia Mobile Phones Limited	Heikkinen; Ari Pietila; Samuli Ruoppila; Vesa	704	G10L	20001221	2	95%	<input type="checkbox"/>
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Abstract: This invention presents a voicing determination algorithm for classification of a speech signal segment as voiced or unvoiced. The algorithm is based on a normalized autocorrelation where the length of the window is proportional to the pitch period. The speech segment to be classified is further divided into a number of sub-segments, and the normalized autocorrelation is calculated for each sub-segment if a certain number of the normalized autocorrelation values is above a predetermined threshold, the speech segment is classified as voiced. To improve the performance of the voicing determination algorithm in unvoiced to voiced transients, the normalized autocorrelations of the last sub-segments are emphasized. The performance of the voicing decision algorithm can be enhanced by utilizing also the possible lookahead information.

MainClaim: A method for determining the voicing of a speech signal segment, comprising the steps of: dividing a speech signal segment into sub-segments, determining a value relating to the voicing of respective speech signal sub-segments, comparing said values with a predetermined threshold, and making a decision on the voicing of the speech segment based on the number of the values on one side of the threshold and with emphasis on at least one last sub-segment of the segment.

7,680,651	Signal modification method for efficient coding of speech signals	Nokia Corporation	Tammi; Mikko Jelinek; Milan LaFlamme; Claude Ruoppila; Vesa	704	G10L	20021213	1	94%	<input type="checkbox"/>
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Abstract: In accordance with the exemplary embodiments of the invention there is disclosed at least a method and apparatus for determining a long-term-prediction delay parameter characterizing a long term prediction in a technique using signal modification for digitally encoding a sound signal, the sound signal is divided into a series of successive frames, a feature of the sound signal is located in a previous frame, a corresponding feature of the sound signal is located in a current frame, and the long-term-prediction delay parameter is determined for the current frame while mapping, with the long term prediction, the signal feature of the previous frame with the corresponding signal feature of the current frame. Each divided frame of the sound signal is partitioned into a plurality of signal segments, and at least a part of the signal segments of the frame are warped while constraining the warped signal segments inside the frame.

MainClaim: A method, comprising: storing a sound signal in a storage medium; dividing the sound signal into a series of successive frames; locating, by a device, a pitch pulse in a previous frame of the successive frames; locating a corresponding pitch pulse in a current frame of the successive frames; and forming a delay contour comprising determining a long term prediction delay parameter for the current frame by iterating a function, where the function is of a temporary time variable and locations of the pitch pulses in the previous and current frames, where the delay contour maps, with the long term prediction delay parameter, the pitch pulse of the previous frame to the corresponding pitch pulse of the current frame, and where the function is iterated backwards from the pitch pulse in the current frame towards the pitch pulse in the previous frame to equal a position of the pitch pulse in the previous frame.

2009/0063139	Signal modification method for efficient coding of speech signals	Nokia Corporation	Tammi; Mikko Jelinek; Milan LaFlamme; Claude Ruoppila; Vesa	704	G10L	20081021	1	94%	<input type="checkbox"/>
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Abstract: For determining a long-term-prediction delay parameter characterizing a long term prediction in a technique using signal modification for digitally encoding a sound signal, the sound signal is divided into a series of successive frames, a feature of the sound signal is located in a previous frame, a corresponding feature of the sound signal is located in a current frame, and

the long-term-prediction delay parameter is determined for the current frame while mapping, with the long term prediction, the signal feature of the previous frame with the corresponding signal feature of the current frame. In a signal modification method for implementation into a technique for digitally encoding a sound signal, the sound signal is divided into a series of successive frames, each frame of the sound signal is partitioned into a plurality of signal segments, and at least a part of the signal segments of the frame are warped while constraining the warped signal segments inside the frame. For searching pitch pulses in a sound signal, a residual signal is produced by filtering the sound signal through a linear prediction analysis filter, a weighted sound signal is produced by processing the sound signal through a weighting filter, the weighted sound signal being indicative of signal periodicity, a synthesized weighted sound signal is produced by filtering a synthesized speech signal produced during a last subframe of a previous frame of the sound signal through the weighting filter, a last pitch pulse of the sound signal of the previous frame is located from the residual signal, a pitch pulse prototype of given length is extracted around the position of the last pitch pulse of the sound signal of the previous frame using the synthesized weighted sound signal, and the pitch pulses are located in a current frame using the pitch pulse prototype.

MainClaim: A method, comprising:dividing a sound signal into a series of successive frames;dividing each frame into a number of subframes;producing a residual signal by filtering the sound signal through a linear prediction analysis filter;locating a last pitch pulse of the sound signal of a previous frame from the residual signal;extracting a pitch pulse prototype of given length around the position of the last pitch pulse of the previous frame using the residual signal; andlocating pitch pulses in a current frame using the pitch pulse prototype.

6,212,494	Method for extracting knowledge from online documentation and creating a glossary, index, help database or the like	Apple Computer, Inc.	Boguraev; Branimir K.	704	G06F	19980720	0	100%	<input type="checkbox"/>
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Abstract: A method involving computer-mediated linguistic analysis of online technical documentation to extract and catalog from the documentation knowledge essential to, for example, creating a online help database useful in providing online assistance to users in performing a task. The method comprises stripping markup tags from the documentation, linguistically analyzing and annotating the text, including the steps of morphologically and lexically analyzing the text, disambiguating between possible parts-of-speech for each word, and syntactically analyzing and labeling each word. The method further comprises the steps of combining the linguistically analyzed, annotated, and labeled text and previously stripped markup information into a merged file, mining the merged file for domain knowledge, including the steps of identifying and creating a list of technical terminology, mining the merged file for manifestations of domain primitives and maintaining a list of manifestations of such domain primitives in an observations file, analyzing the discourse context of each sentence or phrase in the merged file, analyzing the frequency of manifestations of domain primitives in the observations file to determine those that are important, expanding the list of key terms by searching for terms sanctioned by a domain primitive deemed important in the previous step, and searching the merged file for larger relations by searching for particular lexico-syntactic patterns involving key terms and manifestations of domain primitives previously identified. The method further comprises the steps of structuring the knowledge thus mined and building a domain catalog.

MainClaim: A machine-readable medium having stored thereon sequences of instructions, which when executed by a processor cause the processor to:

- a) linguistically analyze and annotate text of online documentation to create a linguistically analyzed and annotated text;
- b) mine said linguistically analyzed and annotated text for text representative of said online documentation, including:
 - i) searching for syntactic patterns indicative of key terms and maintaining a list of said key terms,
 - ii) searching for syntactic patterns indicative of manifestations of a domain primitive involving one of said key terms and maintaining a list of said manifestations, and
 - iii) analyzing said list of said manifestations to determine said manifestations that are representative of said online documentation on the basis of frequency of their occurrence; and
- c) combining said list of said key terms and said list of said manifestations that are representative of said online documentation in a domain catalog.

2009/0157385	Inverse Text Normalization	Nokia Corporation	Tian; Jilei	704	G06F	20071214	14	93%	<input type="checkbox"/>
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Abstract: Embodiments are directed to efficient multilingual inverse text normalization (ITN) of text in spoken form to produce normalized text for display. Embodiments are directed to preprocessing the multilingual text into a language-independent representation, tokenizing text in spoken form, segmenting the tokenized text into ITN items by grouping consecutive words using an ITN lexicon, classifying the ITN items into ITN categories by using the ITN lexicon or tagged information from language model, applying one or more ITN rules that are selected based on the ITN categories into which ITN items have been classified to rewrite the ITN items; and post processing the ITN item and outputting inversely normalized text in written form for display. The ITN lexicon may include ITN lexicon entries that are each located within an ITN category in the ITN lexicon.

MainClaim: A method comprising:segmenting text in spoken form into inverse text normalization items by grouping consecutive words using an inverse text normalization lexicon;classifying the inverse text normalization items into inverse text normalization categories by using the inverse text normalization lexicon;applying one or more inverse text normalization rules that are selected based on the inverse text normalization categories into which inverse text normalization items have been classified to rewrite the inverse text normalization items; andpost processing the inverse text normalization item and outputting inversely normalized text in written form for display.

6,192,336	Method and system for searching for an optimal codevector	Apple Computer, Inc.	Manduchi; Roberto Ponceleon; Dulce Chu; Ke-Chiang Wu; Hsi-Jung	704	G10L	19960930	0	100%	<input type="checkbox"/>
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Abstract: Method and system aspects for searching for an optimal codevector from a plurality of codevectors in a codebook, the optimal codevector having a minimum distance to a given vector, are provided. The aspects determine a partial distance with a current vector component of a current codevector and of the given vector, compare the partial distance to a saved renormalized

minimum partial distance, and proceed to a next codevector when the saved renormalized minimum partial distance is smaller than the partial distance. In addition, the present invention proceeds to a next vector component when the partial distance is smaller than the saved renormalized minimum partial distance. When the partial distance computed with each next vector component is smaller than the saved renormalized minimum partial distance, the present invention calculates a full weighted distance value, compares it to a saved minimum full weighted distance, and updates chosen values. The operation then continues with a next codevector until all codevectors have been used. An optimal index to identify the optimal codevector is returned when all codevectors have been used.

MainClaim: A method for searching for an optimal codevector from a plurality of codevectors in a codebook for data modeling of input signals to a data processing system, including a system for processing speech signals, the optimal codevector having a minimum weighted distance to a given vector, the codevectors comprising a plurality of components, the method comprising:

determining, for an input signal to a processing system to convert the input signal from an analog representation to a digital representation, a partial distance between a current vector component of a current codevector and of a corresponding component of the given vector;

comparing the partial distance to a saved renormalized minimum partial distance; and

proceeding to a next codevector when the saved renormalized minimum partial distance is smaller than the partial distance, whereby an optimal representation of the input signal as a digital signal in the processing system is efficiently achieved.

2004/0039572	Pattern recognition	Nokia Corporation	Kiss, Imre Vasilache, Marcel	704	G10L	20030326	11	92%	<input type="checkbox"/>
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Abstract: Pattern recognition, wherein a sequence of feature vectors is formed from a digitized incoming signal, the feature vectors comprising feature vector components, and at least one feature vector is compared with templates of candidate patterns by computing a distortion measure. According to the invention, a control signal based on at least one time-dependent variable of the recognition process is formulated, and the distortion measure is computed using only a subset of the vector components of the feature vector, the subset being chosen in accordance with said control signal. This reduces the computational complexity of the computation, as the dimensionality of the vectors involved in the computation is effectively reduced. Although such a dimension reduction decreases the computational need, it has been found not to significantly impair the classification performance.

MainClaim: A method for pattern recognition, comprising: forming a sequence of feature vectors from a digitized incoming signal, said feature vectors comprising feature vector components, comparing at least one feature vector with templates of candidate patterns by computing a distortion measure including distortion measure contributions, formulating a control signal based on at least one time-dependent variable of the recognition process, and for said at least one feature vector, computing only a subset of said distortion measure contributions using the vector components of said at least one feature vector, said subset being chosen in accordance with said control signal.

7,003,454	Method and system for line spectral frequency vector quantization in speech codec	Nokia Corporation	Rämö; Anssi	704	G10L	20010516	2	92%	<input type="checkbox"/>
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Abstract: A method and system for quantizing LSF vectors in a speech coder, wherein predicted LSF values based on previously decoded output values are used to estimate spectral distortion, along with the residual codebook vectors and the LSF coefficients. The method comprises the steps of obtaining a plurality of quantized LSF coefficients from the respective predicted LSF values and the residual codebook vectors; rearranging the quantized LSF coefficients in the frequency domain in an orderly fashion; obtaining the spectral distortion from the rearranged quantized LSF coefficients and the respective LSF coefficients; and an optimal code vector is selected based on the spectral distortion.

MainClaim: A method of quantizing spectral parameter vectors in a speech coder, wherein a linear predictive filter is used to compute a plurality of spectral parameter coefficients in a frequency domain, and wherein a plurality of predicted spectral parameter values based on previously decoded output values, and a plurality of residual codebook vectors, along with said plurality of spectral parameter coefficients, are used to estimate spectral distortion for selecting an optimal code vector based on the spectral distortion, said method comprising the steps of:

obtaining a plurality of quantized spectral parameter coefficients from the respective predicted spectral parameter values and the residual codebook vectors for forming a quantized spectral representation, the representation having a plurality of elements indicative of said plurality of the quantized spectral parameter coefficients;

rearranging the quantized spectral parameter coefficients in the frequency domain in an orderly fashion such that the elements in the representation are distributed in an ascending order; and

obtaining the spectral distortion from the rearranged quantized spectral parameter coefficients and the respective spectral parameter coefficients.

2003/0014249	Method and system for line spectral frequency vector quantization in speech codec	Nokia Corporation	Ramo, Anssi	704	G10L	20010516	2	92%	<input type="checkbox"/>
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Abstract: A method and system for quantizing LSF vectors in a speech coder, wherein predicted LSF values based on previously decoded output values are used to estimate spectral distortion, along with the residual codebook vectors and the LSF coefficients. The method comprises the steps of obtaining a plurality of quantized LSF coefficients from the respective predicted LSF values and the residual codebook vectors; rearranging the quantized LSF coefficients in the frequency domain in an orderly fashion; obtaining the spectral distortion from the rearranged quantized LSF coefficients and the respective LSF coefficients; and an optimal code vector is selected based on the spectral distortion.

MainClaim: A method of quantizing spectral parameter vectors in a speech coder, wherein a linear predictive filter is used to compute a plurality of spectral parameter coefficients in a frequency domain, and wherein a plurality of predicted spectral parameter values based on previously decoded output values, and a plurality of residual codebook vectors, along with said plurality of spectral parameter coefficients, are used to estimate spectral distortion for selecting an optimal code vector based on the spectral distortion, said method comprising the steps of: obtaining a plurality of quantized spectral parameter coefficients from the respective predicted spectral parameter values and the residual codebook vectors; rearranging the quantized spectral

parameter coefficients in the frequency domain in an orderly fashion; and obtaining the spectral distortion from the rearranged quantized spectral parameter coefficients and the respective spectral parameter coefficients.

5,799,268	Method for extracting knowledge from online documentation and creating a glossary, index, help database or the like	Apple Computer, Inc.	Boguraev; Branimir K.	704	G06F	19940928	0	100%	<input type="checkbox"/>
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Abstract: A method involving computer-mediated linguistic analysis of online technical documentation to extract and catalog from the documentation knowledge essential to, for example, creating an online help database useful in providing online assistance to users in performing a task. The method comprises stripping markup tags from the documentation, linguistically analyzing and annotating the text, including the steps of morphologically and lexically analyzing the text, disambiguating between possible parts-of-speech for each word, and syntactically analyzing and labeling each word. The method further comprises the steps of combining the linguistically analyzed, annotated, and labeled text and previously stripped markup information into a merged file, mining the merged file for domain knowledge, including the steps of identifying and creating a list of technical terminology, mining the merged file for manifestations of domain primitives and maintaining a list of manifestations of such domain primitives in an observations file, analyzing the discourse context of each sentence or phrase in the merged file, analyzing the frequency of manifestations of domain primitives in the observations file to determine those that are important, expanding the list of key terms by searching for terms sanctioned by a domain primitive deemed important in the previous step, and searching the merged file for larger relations by searching for particular lexico-syntactic patterns involving key terms and manifestations of domain primitives previously identified. The method further comprises the steps of structuring the knowledge thus mined and building a domain catalog.

MainClaim: In a computer system having access to online documentation, a method of extracting knowledge from said online documentation, comprising the steps of:

- a) linguistically analyzing and annotating text of said online documentation to create a linguistically analyzed and annotated text;
- b) mining said linguistically analyzed and annotated text for text representative of said online documentation, including the steps of:
 - i) searching for syntactic patterns indicative of key terms and maintaining a list of said key terms;
 - ii) searching for syntactic patterns indicative of manifestations of a domain primitive involving one of said key terms and maintaining a list of said manifestations; and
 - iii) analyzing said list of said manifestations to determine said manifestations that are representative of said online documentation on the basis of frequency of their occurrence; and
- c) combining said list of said key terms and said list of said manifestations that are representative of said online documentation in a domain catalog.

2009/0157385	Inverse Text Normalization	Nokia Corporation	Tian; Jilei	704	G06F	20071214	14	92%	<input type="checkbox"/>
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Abstract: Embodiments are directed to efficient multilingual inverse text normalization (ITN) of text in spoken form to produce normalized text for display. Embodiments are directed to preprocessing the multilingual text into a language-independent representation, tokenizing text in spoken form, segmenting the tokenized text into ITN items by grouping consecutive words using an ITN lexicon, classifying the ITN items into ITN categories by using the ITN lexicon or tagged information from language model, applying one or more ITN rules that are selected based on the ITN categories into which ITN items have been classified to rewrite the ITN items; and post processing the ITN item and outputting inversely normalized text in written form for display. The ITN lexicon may include ITN lexicon entries that are each located within an ITN category in the ITN lexicon.

MainClaim: A method comprising: segmenting text in spoken form into inverse text normalization items by grouping consecutive words using an inverse text normalization lexicon; classifying the inverse text normalization items into inverse text normalization categories by using the inverse text normalization lexicon; applying one or more inverse text normalization rules that are selected based on the inverse text normalization categories into which inverse text normalization items have been classified to rewrite the inverse text normalization items; and post processing the inverse text normalization item and outputting inversely normalized text in written form for display.

7,369,987	Multi-language document search and retrieval system	Apple Inc.	Loofbourrow; Wayne Casseres; David	704	G06F	20061229	0	100%	<input type="checkbox"/>
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Abstract: A multi-lingual indexing and search system is presented that performs tokenization and stemming in a manner which is independent of whether index entries and search terms appear as words in a dictionary. The system includes a tokenizer that separates a string of text into individual word tokens, and eliminates predetermined types of tokens from further processing. The system also includes a stemmer that reduces words to grammatical stems by removing known word-endings associated with the various languages to be supported. The stemmer removes known word endings from the word tokens without any effort to guarantee that the remaining stem is contained in a dictionary. In an embodiment, the stemmer only removes those word endings which are associated with nouns. The system further includes an indexer that stores the stems in an index.

MainClaim: A system for indexing textual content in any of a plurality of languages for searching purposes, comprising: a processing device, comprising: a tokenizer which separates a string of text into individual word tokens, a stemmer which reduces the word tokens to grammatical stems by removing word endings which are associated with any one or more of the languages, without regard to whether the remaining stem is a recognized word in any combination of the plurality of languages, and an indexer which creates an index from the stems; and a computer-readable medium which stores the created index.

2009/0157385	Inverse Text Normalization	Nokia Corporation	Tian; Jilei	704	G06F	20071214	14	92%	<input type="checkbox"/>
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Abstract: Embodiments are directed to efficient multilingual inverse text normalization (ITN) of text in spoken form to produce normalized text for display. Embodiments are directed to preprocessing the multilingual text into a language-independent

representation, tokenizing text in spoken form, segmenting the tokenized text into ITN items by grouping consecutive words using an ITN lexicon, classifying the ITN items into ITN categories by using the ITN lexicon or tagged information from language model, applying one or more ITN rules that are selected based on the ITN categories into which ITN items have been classified to rewrite the ITN items; and post processing the ITN item and outputting inversely normalized text in written form for display. The ITN lexicon may include ITN lexicon entries that are each located within an ITN category in the ITN lexicon.

MainClaim: A method comprising: segmenting text in spoken form into inverse text normalization items by grouping consecutive words using an inverse text normalization lexicon; classifying the inverse text normalization items into inverse text normalization categories by using the inverse text normalization lexicon; applying one or more inverse text normalization rules that are selected based on the inverse text normalization categories into which inverse text normalization items have been classified to rewrite the inverse text normalization items; and post processing the inverse text normalization item and outputting inversely normalized text in written form for display.

7,136,803	Japanese virtual dictionary	Apple Computer, Inc.	Kida; Yasuo Hara; Keisuke	704	G06F	20010925	0	100%	
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Abstract: Methods for converting a source character string to a target character string are described herein. In one aspect of the invention, an exemplary method includes receiving a first character string having the source character string, dividing the first character string into a plurality of sub-strings, converting the plurality of the sub-strings to second character strings through a dictionary, creating third character strings corresponding to the plurality of the sub-strings, analyzing the second and third character strings, constructing fourth character strings from the second and third character strings based on the analysis, creating a candidate list based on the fourth character strings, selecting the target character string from the candidate list and outputting the target character string. Other methods and apparatuses are also described.

MainClaim: A machine implemented method of converting a source character string to a target character string, comprising: dividing a first character string into a plurality of sub-strings, the first character string having the source character string; converting the plurality of sub-strings to second character strings, through a dictionary; creating artificially created words as third character strings corresponding to the plurality of sub-strings; analyzing the second character strings and the third character strings; constructing fourth character strings from the second and third character strings based on the analysis; creating a candidate list based on the fourth character strings; selecting the target character string from the candidate list; and outputting the target character string.

2006/0005129	Method and apparatus for inputting ideographic characters into handheld devices	Nokia Corporation	Wen; Yandong Lu; Meng Zou; Gekai Luo; Donglai Cui; Yanqing Nan; Zhe Gou; Yong Guo; Wenjing	715	G06F	20050531	2	93%	
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Abstract: The present invention provides a method of inputting ideographic characters into a handheld device, comprising steps of: predicting ideographic characters that correspond to symbols inputted by a user, for said user to select; predicting, based on a previous ideographic character that has been selected by said user, ideographic characters that most likely follow said previous ideographic character but cannot form a phrase with said previous ideographic character, for said user to select; and inputting ideographic characters that have been selected by said user into said handheld device. The present invention also provides an apparatus for inputting ideographic characters and a handheld device. According to the invention, more ideographic characters and punctuation marks are automatically predicted, which speeds up the process of inputting ideographic characters into handheld devices.

MainClaim: A method of inputting ideographic characters into a device, the method comprising: predicting ideographic characters that correspond to symbols inputted by a user, for said user to select; predicting, based on a previous ideographic character that has been selected by said user, ideographic characters that most likely follow said previous ideographic character but cannot form a phrase with said previous ideographic character, for said user to select; and inputting ideographic characters that have been selected by said user into said device.

2006/0229864	Method, device, and computer program product for multi-lingual speech recognition	Nokia Corporation	Suontausta; Janne Tian; Jilei	704	G06F	20050407	3	92%	
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Abstract: A method of multi-lingual speech recognition can include determining whether characters in a word are in a source list of a language-specific alphabet mapping table for a language, converting each character not in the source list according to a general alphabet mapping table, converting each converted character according to the language-specific alphabet mapping table, verifying that each character in the word is in a character set of the language, removing characters not in the character set of the language, and identifying a pronunciation of the word.

MainClaim: A method of multi-lingual speech recognition, the method comprising: determining whether characters in a word are in a source list of a language-specific alphabet mapping table for a language; converting each character not in the source list according to a general alphabet mapping table and, where such conversion is performed, converting each converted character according to the language-specific alphabet mapping table for the language; verifying that each character in the word is in a character set of the language; removing characters not in the character set of the language; and identifying a pronunciation of the word.

5,680,480	Method and apparatus for training a recognizer	Apple Computer, Inc.	Beernink; Ernest H. Temkin; David T. Auguste; Donna M.	382	G06K	19940729	0	100%	
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Abstract: A method and apparatus for training a recognizer includes displaying a practice word on a display screen of a pen-based computer system and entering a handwritten word that is similar to the practice word on the display screen. A recognized candidate list that includes candidate words and an associated confidence level for each candidate word is derived from the handwritten word by a recognizer. The confidence level indicates how confidently the handwritten word has been matched to the associated candidate word. The candidate list is displayed and a training database is updated with training data derived from the handwritten word. The training data is used by the recognizer to recognize other handwritten words with greater accuracy. A practice word that is either easily recognized by the recognizer or recognized with difficulty can be displayed, and the easily recognized practice words are randomly retrieved from a dictionary tree of characters to provide words of reasonable length and a variety of types and combinations of characters.

MainClaim: A method for training a recognizer of a pen-based computer system, the method comprising the steps of:

having a pen-based computer system display a practice word on a display screen of said pen-based computer, said practice word being easily recognized accurately by said recognizer when entered as a handwritten word by a user, said easily recognized practice word being displayed when an indication from said user is received to display a practice word that is easily recognized;

having a user of said pen-based computer system enter a first handwritten word that said user desires to be recognized as said practice word into said pen-based computer system using a stylus;

obtaining a recognized candidate list from a recognizer, said candidate list being derived from said first handwritten word and including a plurality of candidate words and an associated confidence level for each of said plurality of candidate words, said confidence level indicating how confidently said first handwritten word has been matched to said associated candidate word, wherein each of said candidate words includes a sequence of a plurality of characters, wherein each of said candidate words has a different recognized meaning from all other candidate words in said candidate list, and wherein each of said candidate words includes a different number, sequence, or identity of characters from said other candidate words;

displaying said candidate list including said plurality of candidate words and said associated confidence levels on said display screen of said pen-based computer system, said candidate words being displayed in an order from the most confidently recognized candidate word to the least confidently recognized candidate word; and

updating a training database with training data derived from said first handwritten word such that when a second handwritten word is entered, said training data may be utilized to recognize said second handwritten word with greater accuracy.

2006/0005129	Method and apparatus for inputting ideographic characters into handheld devices	Nokia Corporation	Wen; Yandong Lu; Meng Zou; Gekai Luo; Donglai Cui; Yanqing Nan; Zhe Gou; Yong Guo; Wenjing	715	G06F	20050531	2	93%	<input type="checkbox"/>
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Abstract: The present invention provides a method of inputting ideographic characters into a handheld device, comprising steps of: predicting ideographic characters that correspond to symbols inputted by a user, for said user to select; predicting, based on a previous ideographic character that has been selected by said user, ideographic characters that most likely follow said previous ideographic character but cannot form a phrase with said previous ideographic character, for said user to select; and inputting ideographic characters that have been selected by said user into said handheld device. The present invention also provides an apparatus for inputting ideographic characters and a handheld device. According to the invention, more ideographic characters and punctuation marks are automatically predicted, which speeds up the process of inputting ideographic characters into handheld devices.

MainClaim: A method of inputting ideographic characters into a device, the method comprising: predicting ideographic characters that correspond to symbols inputted by a user, for said user to select; predicting, based on a previous ideographic character that has been selected by said user, ideographic characters that most likely follow said previous ideographic character but cannot form a phrase with said previous ideographic character, for said user to select; and inputting ideographic characters that have been selected by said user into said device.

6,822,585	Input of symbols	Nokia Mobile Phones, Ltd.	Ni; Jian Gou; Yong Gao; Ninghui	341	G09G	20000915	1	92%	<input type="checkbox"/>
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Abstract: A mobile phone has a display and a keypad which comprises a plurality of keys. Each key has associated with it a plurality of different symbols. The keypad is used to enter symbols in the form of Pinyin strings (25) into the display which are then used to determine a candidate list (26) of Chinese characters which are presented in the display. Symbols are entered into the display by pressing respective keys once or more than one times in rapid succession. Selection of a symbol is only permitted if it corresponds to a valid Pinyin string (25), either in isolation or in combination with one or more symbols entered in a previous selection. Characters chosen from the candidate list are entered into a message (24) in the display.

MainClaim: A method of inputting characters into a terminal the terminal having a display and at least a first symbol entry key and a second symbol entry key the first symbol entry key representing a first set of different symbols and the second symbol entry key representing a second set of different symbols in which use of the first symbol entry key to make a previous selection of a particular symbol from the first set of symbols is used to determine which of those symbols represented by the second symbol entry key is/are selectable in a subsequent selection wherein a character is input-able before a complete set of symbols corresponding to that character is selected.

7,725,838	Communication terminal having a predictive editor application	Nokia Corporation	Williams; Stephen	715	G06F	20061130	2	92%	<input type="checkbox"/>
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Abstract: A communication terminal having a display; a keypad having a plurality of keys associated with several letters each; processor means controlling the display means in accordance with the operation of the keypad; a selectable predictive editor program for generating an output containing words matching a received string of ambiguous key strokes, said predictive editor program has a number of associated vocabularies including at least one language dependent dictionary and at least one dictionary receiving user defined inputs. An editor application is controlled by the processor means communicates with said predictive editor programs for generating matching words based on an ambiguous string of key strokes. Second memory means of the communication terminal for storing user inputted data. The processor means automatically searches said second memory means for words and copies these words into said at least one dictionary for receiving user defined inputs and associated with said predictive editor program.

MainClaim: A communication terminal comprising: a keypad having a plurality of keys associated with several letters each; a processor for receiving a string of ambiguous key strokes from the keypad; a predictive editor program associated with the processor for generating words matching the received string of ambiguous key strokes, said predictive editor program having a number of associated vocabularies including at least one language dependent dictionary and at least one dictionary for receiving user defined inputs; a first editor application, controlled by the processor, operatively associated with said predictive editor program for generating matching words based on said at least one language dependent dictionary and/or said at least one dictionary for receiving user defined inputs; a second editor application controlled by said processor for entering key strokes in an unambiguous form; wherein said second editor is used to edit said matching words generated by said first editor application; and wherein said processor stores the edited words in said at least one dictionary for receiving user defined inputs; wherein said

processor associates a storing time for the edited words stored in said dictionary for receiving user defined inputs and said processor resets the associated storing time with each use of the edited words; and wherein said processor maintains the dictionary containing the edited words dependent on the storing time.

5,408,655	User interface system and method for traversing a database	Apple Computer, Inc.	Oren; Timothy R. Kreitman; Kristee M. Salomon; Gitta B.	715	G06F	19920618	0	100%	<input type="checkbox"/>
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Abstract: A user interface system and method for traversing a database. In one aspect the present invention includes providing a plurality of command options, each of the command options represented by a set of descriptive option index terms characterizing that command option. The set of descriptive option index terms characterizing the command options selected by a user, are compared with sets of document index terms. Each set of document index terms being compared characterizes an electronic document in a hypertext-type database which is selectively linked in that database with the user's present position. The comparisons result in a ranked list of the selectively linked electronic documents. The electronic documents are ranked in accordance with the relevancy of each document with respect to the selected command option. In another aspect of the invention, a plurality of command options are generated and displayed on a computer controlled display system (CCDS), each command option being represented by a portrayed character or personality associable to the user as being biased toward a particular type of information. Each of the command options represent a set of option index terms which characterize that particular command option. The set of option index terms characterizing the command option presently selected are compared with sets of document index terms. Each set of document index terms characterize an electronic document located within the database. The comparisons result in a ranked list of electronic documents, the documents being ranked in accordance with the particular bias of the portrayed character or personality.

MainClaim: A method for a user of a computer system to traverse a database to retrieve an electronic document stored in said database, said method comprising the steps of:

- a) providing a hypertext-type database, said hypertext-type database including a plurality of hypertext-type nodes, each of said hypertext nodes corresponding to an electronic document, wherein each of said hypertext-type nodes may be selectively linked to other of said hypertext-type nodes;
- b) providing a set of descriptive index terms;
- c) indexing said hypertext-type database by assigning a unique first subset of said descriptive index terms to each of said electronic documents;
- d) providing a plurality of first command options on a computer control display system (CCDS), said CCDS coupled to said hypertext-type database, each first command option representing a second subset of said descriptive index terms;
- e) said user selecting a first command option on said CCDS;
- f) comparing said first subset of descriptive index terms of said electronic documents with said second subset of said descriptive index terms of said selected first command option;
- g) producing a ranked list of electronic documents based on said comparing step f), said ranked list of electronic documents having a highest ranked document, and remaining electronic documents selectively linked to said highest ranked document, said highest ranked document representing a user's position, within the hypertext-type database;
- h) providing a plurality of second command options on said CCDS;
- i) said user selecting one of said second command options on said CCDS, said one of said second command options representing a desired electronic document in said ranked list; and
- j) changing said user's position to correspond with said desired electronic document corresponding to said one of said second command options.

2005/0246324	System and associated device, method, and computer program product for performing metadata-based searches	Nokia Inc.	Paalasmaa, Joonas Sorvari, Antti Salmenkaita, Jukka-Pekka	707	G06F	20040430	8	92%	<input type="checkbox"/>
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Abstract: Provided are improve data search and management systems, devices, methods, and computer program products for performing metadata-based searches and displaying the initial results as clusters depending upon search criteria, search results, or physical limitations of a device such as a display. Using clusters provides an intuitive way of displaying results on a compact device with a small screen and limited user interface.

MainClaim: A system for performing metadata-based searching, comprising: a memory capable of storing data files and associated metadata; and a processor interoperably coupled to said memory and capable of searching said metadata to produce results with associated metadata, clustering said results based upon metadata of said results, and displaying said clustered results.

7,565,605	Reorganizing content of an electronic document	Nokia, Inc.	Schohn; Gregory C. Berger; Adam L. Romero; Richard D.	715	G06F	20010508	7	92%	<input type="checkbox"/>
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Abstract: An electronic document is received that represents serial data that contains content of the document and defines an order in which respective portions of the content are to be performed. The serial data of the electronic document is analyzed. Reorganization information is generated for use in delivering the portions of the content, the reorganization information enabling performance in an order different from the order defined by the serial data.

MainClaim: A method comprising: receiving an electronic document represented by serial data that contains content of the document and defines an order in which respective portions of the content are to be presented on a display for viewing, analyzing the serial data of the electronic document by at least one transformation module to determine an order of presentation of the portions of the content different from the order defined by the serial data, the different order of presentation being adapted based upon a performance capability of a display of a target device, and generating, via a processor, reorganization information for use in delivering the portions of the content, the reorganization information enabling presentation of the portions in the different order, wherein generating the reorganization information includes adding a hyperlink to a first sub-document of the portions in the different order, the adding of the hyperlink being performed in response to determining that a location of the hyperlink is separated by at least a predetermined distance from a destination location to which the hyperlink points, the hyperlink being displayed near the beginning of the first sub-document of the portions in the different order, the destination location of the hyperlink being a particular portion of the content that is not at a beginning of the order defined by the serial data, and the destination location being determined based on the content of the serial data and without regard to the ordering of the portions.

5,781,904	User interface system and method for traversing a database	Apple Computer, Inc.	Oren; Timothy R. Kreitman; Kristee M. Salomon; Gitta B.	707	G06F	19970501	0	100%	<input type="checkbox"/>
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Abstract: A user interface system and method for traversing a database. In one aspect the present invention includes providing a plurality of command options, each of the command options represented by a set of descriptive option index terms characterizing that command option. The set of descriptive option index terms characterizing the command options selected by a user are compared with sets of document index terms. Each set of document index terms being compared characterizes an electronic document in a hypertext-type database which is selectively linked in that database with the user's present position. The comparisons result in a ranked list of the selectively linked electronic documents. The electronic documents are ranked in accordance with the relevancy of each document with respect to the selected command option. In another aspect of the invention, a plurality of command options are generated and displayed on a computer controlled display system (CCDS), each command option being represented by a portrayed character or personality associable to the user as being biased toward a particular type of information. Each of the command options represent a set of option index terms which characterize that particular command option. The set of option index terms characterizing the command option presently selected are compared with sets of document index terms. Each set of document index terms characterize an electronic document located within the database. The comparisons result in a ranked list of electronic documents, the documents being ranked in accordance with the particular bias of the portrayed character or personality.

MainClaim: A method for a user of a computer system to use a database to retrieve an electronic document stored in said database, said method comprising:

- a) providing a hypertext-type database, said hypertext-type database including a plurality of hypertext-type nodes, said plurality of hypertext-type nodes corresponding to a plurality of electronic documents, wherein each of said plurality of hypertext-type nodes may be selectively linked to others of said plurality of hypertext-type nodes, the user having a current position within said hypertext-type database;
- b) providing a set of descriptive index terms;
- c) indexing said hypertext-type database by assigning a first subset of said descriptive index terms to each electronic document of said plurality of electronic documents;
- d) receiving user input that specifies a second subset of said descriptive index terms;
- e) comparing said first subset of descriptive index terms of said plurality of electronic documents with said second subset of said descriptive index terms;
- f) presenting a representation of matching electronic documents based on said comparing step e);
- g) receiving user input that selects a selected electronic document from said representation of matching electronic documents; and
- h) changing said user's position within the hypertext-type database to correspond with said selected electronic document.

2005/0246324	System and associated device, method, and computer program product for performing metadata-based searches	Nokia Inc.	Paalasmaa, Joonas Sorvari, Antti Salmenkaita, Jukka-Pekka	707	G06F	20040430	8	92%	<input type="checkbox"/>
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Abstract: Provided are improve data search and management systems, devices, methods, and computer program products for performing metadata-based searches and displaying the initial results as clusters depending upon search criteria, search results, or physical limitations of a device such as a display. Using clusters provides an intuitive way of displaying results on a compact device with a small screen and limited user interface.

MainClaim: A system for performing metadata-based searching, comprising: a memory capable of storing data files and associated metadata; and a processor interoperably coupled to said memory and capable of searching said metadata to produce results with associated metadata, clustering said results based upon metadata of said results, and displaying said clustered results.

7,565,605	Reorganizing content of an electronic document	Nokia, Inc.	Schohn; Gregory C. Berger; Adam L. Romero; Richard D.	715	G06F	20010508	7	92%	<input type="checkbox"/>
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Abstract: An electronic document is received that represents serial data that contains content of the document and defines an order in which respective portions of the content are to be performed. The serial data of the electronic document is analyzed,

Reorganization information is generated for use in delivering the portions of the content, the reorganization information enabling performance in an order different from the order defined by the serial data.

MainClaim: A method comprising: receiving an electronic document represented by serial data that contains content of the document and defines an order in which respective portions of the content are to be presented on a display for viewing, analyzing the serial data of the electronic document by at least one transformation module to determine an order of presentation of the portions of the content different from the order defined by the serial data, the different order of presentation being adapted based upon a performance capability of a display of a target device, and generating, via a processor, reorganization information for use in delivering the portions of the content, the reorganization information enabling presentation of the portions in the different order, wherein generating the reorganization information includes adding a hyperlink to a first sub-document of the portions in the different order, the adding of the hyperlink being performed in response to determining that a location of the hyperlink is separated by at least a predetermined distance from a destination location to which the hyperlink points, the hyperlink being displayed near the beginning of the first sub-document of the portions in the different order, the destination location of the hyperlink being a particular portion of the content that is not at a beginning of the order defined by the serial data, and the destination location being determined based on the content of the serial data and without regard to the ordering of the portions.

5,794,182	Linear predictive speech encoding systems with efficient combination pitch coefficients computation	Apple Computer, Inc.	Manduchi; Roberto Poncelson; Dulce Chu; Ke-Chiang Wu; Hsi-Jung	704	G10L	19960930	0	100%	<input type="checkbox"/>
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Abstract: Method and system aspects for linear predictive speech encoding are disclosed. These aspects comprise the definition of an error function, the computation of an optimal vector of continuous pitch coefficients together with an optimal pitch, and the weighted vector quantization of the continuous pitch coefficients. The techniques allows the faster computation of the optimal combination pitch--continuous coefficient values without substantial loss of optimal results.

MainClaim: A method for linear predictive speech encoding comprising the steps of:

- defining an error function that includes a constant value, the constant value comprising a chosen offset within a predetermined pitch interval;
- determining an optimal continuous vector;
- determining an error from the optimal continuous vector;
- determining if the error is less than a minimum error;
- providing optimal combination pitch-continuous coefficient values based upon in the minimum error; and
- providing a weighted vector quantization of an optimal continuous vector of continuous coefficient values.

7,003,454	Method and system for line spectral frequency vector quantization in speech codec	Nokia Corporation	Rämö; Anssi	704	G10L	20010516	2	97%	<input type="checkbox"/>
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Abstract: A method and system for quantizing LSF vectors in a speech coder, wherein predicted LSF values based on previously decoded output values are used to estimate spectral distortion, along with the residual codebook vectors and the LSF coefficients. The method comprises the steps of obtaining a plurality of quantized LSF coefficients from the respective predicted LSF values and the residual codebook vectors; rearranging the quantized LSF coefficients in the frequency domain in an orderly fashion; obtaining the spectral distortion from the rearranged quantized LSF coefficients and the respective LSF coefficients; and an optimal code vector is selected based on the spectral distortion.

MainClaim: A method of quantizing spectral parameter vectors in a speech coder, wherein a linear predictive filter is used to compute a plurality of spectral parameter coefficients in a frequency domain, and wherein a plurality of predicted spectral parameter values based on previously decoded output values, and a plurality of residual codebook vectors, along with said plurality of spectral parameter coefficients, are used to estimate spectral distortion for selecting an optimal code vector based on the spectral distortion, said method comprising the steps of:

obtaining a plurality of quantized spectral parameter coefficients from the respective predicted spectral parameter values and the residual codebook vectors for forming a quantized spectral representation, the representation having a plurality of elements indicative of said plurality of the quantized spectral parameter coefficients;

rearranging the quantized spectral parameter coefficients in the frequency domain in an orderly fashion such that the elements in the representation are distributed in an ascending order; and

obtaining the spectral distortion from the rearranged quantized spectral parameter coefficients and the respective spectral parameter coefficients.

2003/0014249	Method and system for line spectral frequency vector quantization in speech codec	Nokia Corporation	Ramo, Anssi	704	G10L	20010516	2	97%	<input type="checkbox"/>
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Abstract: A method and system for quantizing LSF vectors in a speech coder, wherein predicted LSF values based on previously decoded output values are used to estimate spectral distortion, along with the residual codebook vectors and the LSF coefficients. The method comprises the steps of obtaining a plurality of quantized LSF coefficients from the respective predicted LSF values and the residual codebook vectors; rearranging the quantized LSF coefficients in the frequency domain in an orderly fashion; obtaining the spectral distortion from the rearranged quantized LSF coefficients and the respective LSF coefficients; and an optimal code vector is selected based on the spectral distortion.

MainClaim: A method of quantizing spectral parameter vectors in a speech coder, wherein a linear predictive filter is used to compute a plurality of spectral parameter coefficients in a frequency domain, and wherein a plurality of predicted spectral

parameter values based on previously decoded output values, and a plurality of residual codebook vectors, along with said plurality of spectral parameter coefficients, are used to estimate spectral distortion for selecting an optimal code vector based on the spectral distortion, said method comprising the steps of: obtaining a plurality of quantized spectral parameter coefficients from the respective predicted spectral parameter values and the residual codebook vectors; rearranging the quantized spectral parameter coefficients in the frequency domain in an orderly fashion; and obtaining the spectral distortion from the rearranged quantized spectral parameter coefficients and the respective spectral parameter coefficients.

5,893,061	Method of synthesizing a block of a speech signal in a celp-type coder	Nokia Mobile Phones, Ltd.	Gortz; Udo	704	G10L	19961106	1	97%	<input type="checkbox"/>
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Abstract: A new scheme to generate the stochastic excitation for a CELP-type speech codec based upon a hybrid stochastic codebook search technique including use of regular pulse excitation codebooks is described. From the ideal RPE sequence the position of the first nonzero pulse and the position of the pulse with maximum amount as well as the overall sign of the RPE sequence are determined. The corresponding target vectors and pulse responses of the synthesis filter are stored in databases belonging to the positions of the maximum pulse, respectively. These databases are used to derive the stochastic codebook via the so-called LBG-algorithm. Once the codebook has become available, the position of the maximum pulse serves as pre-selection measure to limit the search for the "best" candidate vector to a "small" subset of the stochastic codebook.

MainClaim: A method of synthesizing a block of a speech signal in a CELP-type coder, the method comprising the steps of:

applying an excitation vector to a synthesizer filter of the coder, said excitation vector consisting of two gain normalized components derived from an adaptive codebook and from a stochastic codebook,

for limiting the computational effort of the stochastic codebook components search, computing an ideal Regular Pulse Excitation (RPE) sequence followed by

determining four parameters, namely

the position of the first nonzero pulse of the ideal RPE excitation sequence,

the position of the maximum pulse within said RPE excitation sequence,

the overall sign of the regular pulse excitation sequence defined as the respective sign of said maximum pulse, and

the position of the corresponding part of the pulse codebook, as the position of the maximum pulse,

wherein the method further comprises a step of transmitting said four parameters to a speech decoder.

5,630,117	User interface system and method for traversing a database	Apple Computer, Inc.	Oren; Timothy R. Kreitman; Kristee M. Salomon; Gitta B.	707	G06F	19950313	0	100%	<input type="checkbox"/>
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Abstract: A user interface system and method for traversing a database. In one aspect the present invention includes providing a plurality of command options, each of the command options represented by a set of descriptive option index terms characterizing that command option. The set of descriptive option index terms characterizing the command options selected by a user are compared with sets of document index terms. Each set of document index terms being compared characterizes an electronic document in a hypertext-type database which is selectively linked in that database with the user's present position. The comparisons result in a ranked list of the selectively linked electronic documents. The electronic documents are ranked in accordance with the relevancy of each document with respect to the selected command option. In another aspect of the invention, a plurality of command options are generated and displayed on a computer controlled display system (CCDS), each command option being represented by a portrayed character or personality associable to the user as being biased toward a particular type of information. Each of the command options represent a set of option index terms which characterize that particular command option. The set of option index terms characterizing the command option presently selected are compared with sets of document index terms. Each set of document index terms characterize an electronic document located within the database. The comparisons result in a ranked list of electronic documents, the documents being ranked in accordance with the particular bias of the portrayed character or personality.

MainClaim: A method for a user of a computer system to traverse a database to retrieve an electronic document stored in said database, said method comprising the steps of:

a) providing a hypertext-type database, said hypertext-type database including a plurality of hypertext-type nodes, said plurality of hypertext-type nodes corresponding to a plurality of electronic documents, wherein each of said plurality of hypertext-type nodes may be selectively linked to others of said plurality of hypertext-type nodes;

b) providing a set of descriptive index terms;

c) indexing said hypertext-type database by assigning a unique first subset of said descriptive index terms to each electronic document of said plurality of electronic documents;

d) receiving user input that selects a second subset of said descriptive index terms;

e) comparing said first subset of descriptive index terms of said plurality of electronic documents with said second subset of said descriptive index terms;

f) producing a list of electronic documents based on said comparing step e), said list of electronic documents having a first electronic document that represents a user's position within the hypertext-type database;

- g) receiving user input that selects a selected electronic document from said list of electronic documents; and
- h) changing said user's position within the hypertext-type database to correspond with said selected electronic document.

2005/0246324	System and associated device, method, and computer program product for performing metadata-based searches	Nokia Inc.	Paalasmaa, Joonas Sorvari, Antti Salmenkaita, Jukka-Pekka	707	G06F	20040430	8	93%	<input type="checkbox"/>
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Abstract: Provided are improve data search and management systems, devices, methods, and computer program products for performing metadata-based searches and displaying the initial results as clusters depending upon search criteria, search results, or physical limitations of a device such as a display. Using clusters provides an intuitive way of displaying results on a compact device with a small screen and limited user interface.

MainClaim: A system for performing metadata-based searching, comprising: a memory capable of storing data files and associated metadata; and a processor interoperably coupled to said memory and capable of searching said metadata to produce results with associated metadata, clustering said results based upon metadata of said results, and displaying said clustered results.

7,565,605	Reorganizing content of an electronic document	Nokia, Inc.	Schohn; Gregory C. Berger; Adam L. Romero; Richard D.	715	G06F	20010508	7	92%	<input type="checkbox"/>
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Abstract: An electronic document is received that represents serial data that contains content of the document and defines an order in which respective portions of the content are to be performed. The serial data of the electronic document is analyzed. Reorganization information is generated for use in delivering the portions of the content, the reorganization information enabling performance in an order different from the order defined by the serial data.

MainClaim: A method comprising: receiving an electronic document represented by serial data that contains content of the document and defines an order in which respective portions of the content are to be presented on a display for viewing, analyzing the serial data of the electronic document by at least one transformation module to determine an order of presentation of the portions of the content different from the order defined by the serial data, the different order of presentation being adapted based upon a performance capability of a display of a target device, and generating, via a processor, reorganization information for use in delivering the portions of the content, the reorganization information enabling presentation of the portions in the different order, wherein generating the reorganization information includes adding a hyperlink to a first sub-document of the portions in the different order, the adding of the hyperlink being performed in response to determining that a location of the hyperlink is separated by at least a predetermined distance from a destination location to which the hyperlink points, the hyperlink being displayed near the beginning of the first sub-document of the portions in the different order, the destination location of the hyperlink being a particular portion of the content that is not at a beginning of the order defined by the serial data, and the destination location being determined based on the content of the serial data and without regard to the ordering of the portions.

5,432,948	Object-oriented rule-based text input transliteration system	Taligent, Inc.	Davis; Mark E. Lin; Judy	704	G06F	19930426	0	100%	<input type="checkbox"/>
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Abstract: A computer implemented system and method utilizing rules instantiated in objects of an object-oriented operating system to transliterate text as it is input into a computer is disclosed. A number of transliterator objects are created in the storage of the computer, each one of the transliterator objects include transliteration rules arranged in the storage in a preferred order. Each of the transliteration rules contain a first language character string, a second language character string, and logic for comparing the first language character string in each of the transliteration rules to a text string that is entered into a computer to determine a subset of transliteration rules which match the entered text string. The entered text is displayed on a computer display as it is input into a computer and a particular one of the plurality of transliterator objects' logic is utilized in response to the preferred order for selecting one of the subset of transliteration rules and applying it to the first text string to display the second language character string of the selected transliteration rule on the display.

MainClaim: A computer system for transliterating a first text string containing characters from a first language into a second text string containing characters from a second language as it is input to the computer, the system comprising;

(a) a storage;

(b) means for creating a plurality of transliterator objects, each of the plurality of transliterator objects having a plurality of transliteration rules arranged in the storage in a preferred order, each of the plurality of transliteration rules having a first language character string and a second language character string, the transliterator object further having an object method for comparing the first language character string in each of the transliteration rules to the first text string to determine a subset of transliteration rules which exhibit a match;

(c) a display for displaying text as it is entered into a computer;

(d) means responsive to the first text string for selecting one of the plurality of transliterator objects;


(e) means responsive to the first language characters in the first text string for calling the object method in the selected transliterator object; and

(f) means responsive to the preferred order for selecting one of the subset of transliteration rules to the first text string and displaying the second language character string of the selected transliteration rule on the display;

wherein each of the plurality of transliterator objects comprises a method for displaying a transliterator icon representing the transliterator object on the display and the means for selecting one of the plurality of transliterator objects comprises means responsive to a selection of a displayed transliterator icon for selecting a corresponding transliterator object.

Method, device, and									
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2006/0229864	computer program product for multi-lingual speech recognition	Nokia Corporation	Suontausta; Janne Tian; Jilei	704	G06F	20050407	3	92%	<input type="checkbox"/>
<p>Abstract: A method of multi-lingual speech recognition can include determining whether characters in a word are in a source list of a language-specific alphabet mapping table for a language, converting each character not in the source list according to a general alphabet mapping table, converting each converted character according to the language-specific alphabet mapping table, verifying that each character in the word is in a character set of the language, removing characters not in the character set of the language, and identifying a pronunciation of the word.</p> <p>MainClaim: A method of multi-lingual speech recognition, the method comprising: determining whether characters in a word are in a source list of a language-specific alphabet mapping table for a language; converting each character not in the source list according to a general alphabet mapping table and, where such conversion is performed, converting each converted character according to the language-specific alphabet mapping table for the language; verifying that each character in the word is in a character set of the language; removing characters not in the character set of the language; and identifying a pronunciation of the word.</p>									
5,873,111	Method and system for collation in a processing system of a variety of distinct sets of information	Apple Computer, Inc.	Edberg; Peter	715	G06F	19960510	0	100%	<input type="checkbox"/>
<p>Abstract: According to the system and method disclosed herein, the present invention provides a system and method for organizing information to perform accurate and efficient collation for information such as languages of various nationalities and regions. This invention provides a number of improvements over the existing string comparison routines: portability, improved performance, ability to handle Unicode, and improved linguistic capability.</p> <p>MainClaim: A method of organizing information for collating in a processing system which includes collation information, the method comprising:</p> <p>a) arranging the collation information based on a category, the category being divided into a plurality of subcategories, each of the plurality of subcategories including an attribute;</p> <p>b) providing the information for selecting the category and</p> <p>c) selecting a result based upon an intersection of any attribute with any other attribute.</p>									
2006/0229864	Method, device, and computer program product for multi-lingual speech recognition	Nokia Corporation	Suontausta; Janne Tian; Jilei	704	G06F	20050407	3	93%	<input type="checkbox"/>
<p>Abstract: A method of multi-lingual speech recognition can include determining whether characters in a word are in a source list of a language-specific alphabet mapping table for a language, converting each character not in the source list according to a general alphabet mapping table, converting each converted character according to the language-specific alphabet mapping table, verifying that each character in the word is in a character set of the language, removing characters not in the character set of the language, and identifying a pronunciation of the word.</p> <p>MainClaim: A method of multi-lingual speech recognition, the method comprising: determining whether characters in a word are in a source list of a language-specific alphabet mapping table for a language; converting each character not in the source list according to a general alphabet mapping table and, where such conversion is performed, converting each converted character according to the language-specific alphabet mapping table for the language; verifying that each character in the word is in a character set of the language; removing characters not in the character set of the language; and identifying a pronunciation of the word.</p>									
5,873,107	System for automatically retrieving information relevant to text being authored	Apple Computer, Inc.	Borovoy; Richard D. Graves; Michael J. Machiraju; Nagabhushan Rao Vemuri; Sunil	715	G06F	19960329	0	100%	<input type="checkbox"/>
<p>Abstract: Text entry and information retrieval are combined in such a way as to automatically offer an author continuous retrieval of information potentially relevant to the text he is authoring. The author enters text in one portion of the user interface. Keywords are extracted from the text as the author enters them and are used as query words for an information retrieval keywords to a document collection. Those queries return relevant information from the document collection in a second portion of the user interface. The user can then read or ignore the returned information or he can select the returned information to view the full context from which it came.</p> <p>MainClaim: A text authoring system comprising:</p> <p>a data input client for authoring text;</p> <p>a keyword extractor for extracting a keyword from the authored text;</p> <p>an information source;</p> <p>a search engine for querying the information source using the extracted keyword; and,</p> <p>a return of the results of the search engine querying the information source.</p>									
2005/0246324	System and associated device, method, and computer program product for performing	Nokia Inc.	Paalasmaa, Joonas Sorvari, Antti Salmenkaita,	707	G06F	20040430	8	92%	<input type="checkbox"/>

	metadata-based searches		Jukka-Pekka						
Abstract: Provided are improve data search and management systems, devices, methods, and computer program products for performing metadata-based searches and displaying the initial results as clusters depending upon search criteria, search results, or physical limitations of a device such as a display. Using clusters provides an intuitive way of displaying results on a compact device with a small screen and limited user interface. MainClaim: A system for performing metadata-based searching, comprising: a memory capable of storing data files and associated metadata; and a processor interoperably coupled to said memory and capable of searching said metadata to produce results with associated metadata, clustering said results based upon metadata of said results, and displaying said clustered results.									
6,202,058	System for ranking the relevance of information objects accessed by computer users	Apple Computer, Inc.	Rose; Daniel E. Bornstein; Jeremy J. Tienne; Kevin Poncelleon; Dulce B.	706	G06F	19940425	0	100%	
Abstract: Information presented to a user via an information access system is ranked according to a prediction of the likely degree of relevance to the user's interests. A profile of interests is stored for each user having access to the system. Items of information to be presented to a user are ranked according to their likely degree of relevance to that user and displayed in order of ranking. The prediction of relevance is carried out by combining data pertaining to the content of each item of information with other data regarding correlations of interests between users. A value indicative of the content of a document can be added to another value which defines user correlation, to produce a ranking score for a document. Alternatively, multiple regression analysis or evolutionary programming can be carried out with respect to various factors pertaining to document content and user correlation, to generate a prediction of relevance. The user correlation data is obtained from feedback information provided by users when they retrieve items of information. Preferably, the user provides an indication of interest in each document which he or she retrieves from the system. MainClaim: In a computerized information access system, a method for presenting items of information to users, comprising the steps of: <ol style="list-style-type: none"> storing user profiles for users having access to the system, where each user profile is based, at least in part, on the attributes of information the user finds to be of interest; determining an attribute-based relevance factor for an item of information which is indicative of the degree to which an attribute of that item of information matches the profile for a particular user; determining a measure of correlation between the particular user's interests and those of other users who have accessed said item of information; combining said relevance factor and said degree of correlation to produce a ranking score for said item of information; repeating steps b, c and d for each item of information to be presented to said particular user; and displaying the items of information to the user in accordance with their ranking scores. 									
2010/0114944	METHOD AND SYSTEM FOR PROVIDING A VOICE INTERFACE	NOKIA CORPORATION	Adler; Mark R. Kiss; Imre Polifroni; Joseph H. Wu; Tao	707	G06F	20081031	2	92%	
Abstract: Methods and systems for providing a voice interface are disclosed. A classifier voice interface of a user terminal may receive a query, may parse the query to identify an attribute, and may process the query to select a first domain-specific voice interface of a plurality of domain-specific voice interface based on the attribute, wherein each of the domain-specific voice interface comprises specialized information to process queries of different types. The classifier voice interface may further instruct the first domain-specific voice interface to process the query. MainClaim: A method comprising:receiving a query;parsing the query to identify an attribute;processing the query to select a first domain-specific voice interface of a plurality of domain-specific voice interfaces based on the attribute, wherein each of the domain-specific voice interfaces comprises specialized information to process queries of different types; andinstructing the first domain-specific voice interface to process the query.									
5,473,759	Sound analysis and resynthesis using correlograms	Apple Computer, Inc.	Slaney; Malcolm Lyon; Richard F. Naar; Daniel	704	G10L	19930222	0	100%	
Abstract: A system for reconstructing a signal waveform from a correlogram is based upon the recognition that the information in each channel of the correlogram is equivalent to the magnitude of the Fourier transform of a signal. By estimating a signal on the basis of its Short-Time Fourier Transform Magnitude, each channel of information from a cochlear model can be reconstructed. Once this information is retrieved, a signal waveform can be resynthesized through inversion of the cochlear model. The process for reconstructing the cochlear model data can be optimized with the use of techniques for improving the initial estimate of the signal from the magnitude of its Fourier Transform, and by employing information that is known apriori about the signal during the estimation process, such as the characteristics of sound signals. MainClaim: A method for generating a waveform which is a modified representation of an original sound, comprising the steps of: <ol style="list-style-type: none"> filtering the original sound through a plurality of filters to produce a cochleagram containing multiple channels of data each representative of a portion of a frequency range of the original sound; autocorrelating each channel of data in the cochleagram to produce a correlogram; modifying the correlogram in accordance with a desired modification of the original sound; and 									

inverting at least one channel of the modified correlogram to generate a first waveform representative of a modified sound.

6,691,090	Speech recognition system including dimensionality reduction of baseband frequency signals	Nokia Mobile Phones Limited	Laurila; Kari Tian; Jilei	704	G10L	20001024	1	95%	<input type="checkbox"/>
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Abstract: A method for use in a speech recognition system in which a speech waveform to be modelled is represented by a set of feature extracted parameters in the time domain, the method comprising dividing individual ones of one or more of said feature extracted parameters to provide for each divided feature extracted parameter a plurality of frequency channels, and demodulating at least one of the plurality of frequency channels to provide at least one corresponding baseband frequency signal.

MainClaim: A method for use in a speech recognition system in which a speech waveform to be modelled is represented by a set of feature extracted parameters, said method comprising dividing individual ones of one or more of said feature extracted parameters to provide in respect to each divided feature extracted parameter a plurality of frequency channels, demodulating one or more of the plurality of frequency channels to provide respective one or more corresponding baseband frequency signals and applying dimensionality reduction to said at least one of said one or more baseband frequency signals.

2004/0138876	Method and apparatus for artificial bandwidth expansion in speech processing	Nokia Corporation	Kallio, Loura Alku, Paavo Kayhko, Kimmo Kajala, Matti Valve, Paivi	704	G10L	20030110	1	92%	<input type="checkbox"/>
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Abstract: A method and device for improving the quality of speech signals transmitted using an audio bandwidth between 300 Hz and 3.4 kHz. After the received speech signal is divided into frames, zeros are inserted between samples to double the sampling frequency. The level of these aliased frequency components is adjusted using an adaptive algorithm based on the classification of the speech frame. Sound can be classified into sibilants and non-sibilants, and a non-sibilant sound can be further classified into a voiced sound and a stop consonant. The adjustment is based on parameters, such as the number of zero-crossings and energy distribution, computed from the spectrum of the up-sampled speech signal between 300 Hz and 3.4 kHz. A new sound with a bandwidth between 300 Hz and 7.7 kHz is obtained by inverse Fourier transforming the spectrum of the adjusted, up-sampled sound.

MainClaim: A method of improving speech in a plurality of signal segments having speech signals in a time domain, said method characterized by upsampling the signal segments for providing upsampled segments in the time domain; converting the upsampled segments into a plurality of transformed segments having speech spectra in a frequency domain; classifying the speech signals into a plurality of classes based on at least one signal characteristic of the speech signals; modifying the speech spectra in the frequency domain based on the classes for providing modified transformed segments; and converting the modified transformed segments into speech data in the time domain.

6,804,643	Speech recognition	Nokia Mobile Phones Ltd.	Kiss; Imre	704	G10L	20001027	1	92%	<input type="checkbox"/>
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Abstract: A speech recognition feature extractor for extracting speech features from a speech signal, comprising: a time-to-frequency domain transformer (FFT) for generating spectral magnitude values in the frequency domain from the speech signal; a frequency domain filtering block (Mel) for generating a sub-band value relating to spectral magnitude values of a certain frequency sub-band; a compression block (LOG) for compressing said sub-band values; a transformation block (DCT) for obtaining a set of de-correlated features from the compressed sub-band values; and normalising block (CN) for normalising de-correlated features.

MainClaim: A speech recognition feature extractor for extracting speech features from a speech signal, comprising: a time-to-frequency domain transformer for generating spectral magnitude values in the frequency domain from the speech signal;

a frequency domain filtering block for generating a sub-band value relating to spectral magnitude values of a certain frequency sub-band, for each of a group of frequency sub-bands;

a compression block for compressing said sub-band values;

a transform block for obtaining a set of de-correlated features from the sub-band values; and

a normalising block for normalizing features;

said feature extractor comprising a mean emphasising block for emphasizing at least one of the sub-band values after frequency domain filtering, wherein the emphasising is accomplished by addition of a mean value of sub-band signals to said at least one of the sub-band values.

5,724,567	System for directing relevance-ranked data objects to computer users	Apple Computer, Inc.	Rose; Daniel E. Bornstein; Jeremy J. Tiene; Kevin Ponceleon; Dulce B.	707	G06F	19940425	0	100%	<input type="checkbox"/>
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Abstract: An information access system stores items of information in an unstructured global database. When a user requests access to the system, the system delivers to that user an identification of only those items of information which are believed to be relevant to the user's interest. The determination as to the items of information that are relevant to a user is carried out by ranking each available item in accordance with any one or more techniques. In one approach, the content of each document is matched with an adaptive profile of a user's interest. In another approach, a feedback mechanism is provided to allow users to indicate their degree of interest in each item of information. These indications are used to determine whether other users, who have similar or dissimilar interests, will find a particular item to be relevant.

MainClaim: An information access system for automatically presenting users with information items of interest, comprising:

a computer system containing a database of information items available to be presented to users of the system;

at least one access device for enabling users to communicate with the computer system and access any of the items of available information;

means for storing a user profile for each user having access to the available items of information;

means for raking the likely degree of interest for each of the available items of information in accordance with a user profile;

means for presenting the items of information to an access device in order of ranking and enabling a user to retrieve each item;

means for enabling the user to indicate that user's interest in each retrieved item of information; and

means for updating the user's profile in response to indications of interest provided by the user.

2010/0114944	METHOD AND SYSTEM FOR PROVIDING A VOICE INTERFACE	NOKIA CORPORATION	Adler; Mark R. Kiss; Imre Polifroni; Joseph H. Wu; Tao	707	G06F	20081031	2	92%	<input type="checkbox"/>
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Abstract: Methods and systems for providing a voice interface are disclosed. A classifier voice interface of a user terminal may receive a query, may parse the query to identify an attribute, and may process the query to select a first domain-specific voice interface of a plurality of domain-specific voice interface based on the attribute, wherein each of the domain-specific voice interface comprises specialized information to process queries of different types. The classifier voice interface may further instruct the first domain-specific voice interface to process the query.

MainClaim: A method comprising:receiving a query;parsing the query to identify an attribute;processing the query to select a first domain-specific voice interface of a plurality of domain-specific voice interfaces based on the attribute, wherein each of the domain-specific voice interfaces comprises specialized information to process queries of different types; andinstructing the first domain-specific voice interface to process the query.

5,355,329	Digital filter having independent damping and frequency parameters	Apple Computer, Inc.	Lyon; Richard F.	708	G06F	19921214	0	100%	<input type="checkbox"/>
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Abstract: A filter capable of having its damping and frequency parameters independently varied. The filter can be represented in either a digital or an analog computation network. The network comprises four multipliers for multiplying by a frequency term twice and a damping factor twice. In addition, the network comprises two unit delay blocks for temporarily storing previous signal input values for zeros or output values for poles. These stored values are used in computing subsequent outputs. The multipliers are configured with adders and subtractors to compute a next output value as a combination of a current input, a weight $-2+2df+f^2$ $--wd^2$ f^2 times the most recent saved value and a weight $1-2df+wd^2$ f^2 times the previous saved value. Moreover, unity gain at DC can be achieved.

MainClaim: A recursive filter having independent damping and frequency parameters for generating a sequence of output values in discrete time from a sequence of input values, comprising:

a first state storage means and a second state storage means for storing said sequence of output values, wherein two previous values of said sequence of output values are stored and used in calculating a subsequent value of said sequence of output values;

a subtractor means coupled to said first state storage means and said second state storage means for generating a difference between said two previous values of said sequence of output values;

a first multiplier means coupled to said subtractor means for multiplying said difference by a damping parameter;

a second multiplier means coupled to an output of said first multiplier means for multiplying a signal obtained from the output of said first multiplier means by said damping parameter;

a third multiplier means coupled to an output of said second multiplier means for multiplying a signal obtained from the output of said second multiplier means by a frequency parameter;

a fourth multiplier means coupled to an output of said first multiplier means and to an output of said third multiplier means for multiplying a combination of signals obtained from outputs of said first and said third multipliers by said frequency parameter;

a summing means coupled to an output of said fourth multiplier means, said first state storage means, and said second state storage means for generating said subsequent value of said sequence of output values of said recursive filter.

6,756,845	Method and system for compensating non-linearities and time-varying changes of a transfer function acting on an input signal	Nokia Corporation	Mashhour; Ashkan	330	H03F	20020903	1	92%	<input type="checkbox"/>
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Abstract: The described method and system are adapted to reduce the error between an ideally expected output signal and the actual output signal. The proposed adaptation algorithm is able to minimise, for instance in a system with a given transfer function, the error $y-x$ between $y=g(f(x))$ and x , where g is an unknown and/or time-varying function and f the adaptive function for which the characteristic is changed to track g . The proposed adaptation algorithm updates not only the transfer function f at the current input value x , but also the transfer function f at other points corresponding to different input values. One of the applications for such an algorithm is digital predistortion where a transmitter's non-linear characteristic needs to be linearised, in an adaptive manner, since the characteristic exhibits slow changes with temperature, bias, ageing or the like.

MainClaim: Method for compensating deviations of an unknown transfer function from an expected transfer function, and/or for

compensating time-varying changes of a transfer function acting on an input signal, for minimising errors of an output signal generated in dependence on the input signal, which input signal is subjected to a first, adaptive transfer function and to a second, unknown and/or varying transfer function to generate the output signal, the first transfer function being updated for compensating deviations or changes of the second transfer function,

wherein, when updating one point of the first transfer function for a current input signal value, the first transfer function is also updated for at least one other point corresponding to a different input signal value.

5,455,858	Method for automatically composing a telephone dialing string	Apple Computer, Inc.	Lin; Lee M.	379	H04M	19931001	0	100%	<input type="checkbox"/>
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Abstract: A method for automatically composing a telephone dialing string for a telecommunication device having a processor, storage, and a connection to an external telephone system, by storing configuration information for a current location of the telecommunication device in fields for local country code and local area code; by storing configuration information for dialing prefixes for a current external telephone system connected to the telecommunication device in fields for a prefix for a local call, prefix for a long distance call, and prefix for an international call; and by storing a desired telephone number in fields for a desired country code, a desired area code, and a desired telephone number. Then, forming a telephone dialing string by the processor comparing like fields of the desired telephone number to the configuration information for a current location to determine the need for international, long distance and local access prefixes followed by non-redundant country code, area code and telephone number information; and sending the telephone dialing string to the external telephone system.

MainClaim: A method for automatically composing a telephone dialing string for a telecommunication device having a processor, storage, and a connection to an external telephone system, comprising:

storing configuration information for a current location of the telecommunication device in fields with at least a field for storing a local area code;

storing configuration information for dialing prefixes for a current external telephone system connected to the telecommunication device in fields with at least a field for a prefix for a local call, and a field for a prefix for a long distance call;

storing a telephone number desired to be called in fields with at least a field for a desired area code, and a field for a desired telephone number;

forming a telephone dialing string by the processor comparing the stored local area code field to the desired area code field, and

if they match forming the telephone dialing string including the prefix for a local call followed by the desired telephone number, and

if they do not match, forming the telephone dialing string including the prefix for a long distance call followed by the desired area code, followed by the desired telephone number, and

sending said telephone dialing string to said external telephone system.

6,233,450	Calling number identification for a radiotelephone operating within a public or autonomous system	Nokia Mobile Phones Ltd.	Seppanen; Jorma	455	H04Q	19971202	1	93%	<input type="checkbox"/>
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Abstract: A cellular radiotelephone (user terminal) (10) includes a keypad (22) having a plurality of keys (22a, 22b) and a display device (20) for displaying information, including messages, to a user. A method includes the steps of providing the user terminal with an access code for a destination receiving device, and specifying that the user terminal provide a communication signal through at least one communication network to the destination receiving device. The at least one communication network is assumed to have a capability of forwarding received communication signals that include access codes having a predetermined format to destination receiving devices. In response to specifying step, another step is performed that includes determining whether a format of the access code provided to the user terminal differs from the predetermined format. If these formats differ, another step includes modifying the format of the access code provided to the user terminal to produce a modified access code having the predetermined format. A further step includes providing the communication signal, including the modified access code, through the at least one network to the destination receiving device corresponding to the access code originally provided to the user terminal.

MainClaim: An autonomous system, wherein said autonomous system is coupled to a public switched telephone network (PSTN) having a public cellular system, and said autonomous system is capable of operation with a mobile terminal operable in both said autonomous system and in said public cellular system, said autonomous system comprising:

a receiver for receiving a call comprising a first call signal from the mobile terminal, said first call signal including a called number, said called number including an extra network dialing code and an extension portion;

a controller coupled to said receiver, said controller for receiving said first call signal from said receiver and generating a second call signal, wherein said controller compares said extension portion of said called number with a plurality of extension numbers of said autonomous system to determine whether or not said extension portion is within said plurality of extension numbers and, if said extension portion is not within said plurality of extension numbers generates said second call signal including said extra network dialing code and said extension portion, or, if said extension portion is within said plurality of extension numbers, generates said second call signal including said extension portion without including said extra network dialing code; and

an exchange coupled to said controller, said exchange for receiving said second call signal and, if said second call signal includes said extra network dialing code, routing said call externally from said autonomous system to a destination determined by said extra network dialing code and said extension portion, or, if said second call signal does not include said extra network dialing code, said exchange further for routing said call internally within said autonomous system to a destination determined by said extension portion.

6,314,287	Handset and method of operation thereof	Nokia Mobile Phones Limited	Leickel; Torsten Kraft; Christian	455	H04Q	19980202	1	92%	<input type="checkbox"/>
<p>Abstract: A portable radiophone which is adapted to communicate via a cellular network and at least one cordless network, and which comprises a controller unit which controls the communication with said cellular network and said at least one cordless network, and which registers which networks are connected. When a call is to be established, a storage receives a phone number, and the controller unit checks whether the phone number in the storage contains a main number corresponding to the main number of said at least one cordless network. If so, the controller unit determines the extension number of the cordless network for use in the call on the basis of the stored phone number.</p> <p>MainClaim: A method of establishing a call to a phone using a radiophone which is adapted to communicate via a cellular network and at least one cordless network, said radiophone including a controller and a memory, said method comprising steps of:</p> <p>registering in said memory the networks to which the phone is connected, said networks including a cellular network and a cordless network;</p> <p>storing telephone numbers in said memory;</p> <p>by means of said controller, automatically checking with numbers stored in said memory prior to the establishment of a call whether a phone number with which the call is to be established contains a main number corresponding to the main number of said at least one cordless network;</p> <p>determining whether communication is to be via the cellular network or the cordless network based on present location of the radio telephone;</p> <p>extracting a sequence of digits from the stored numbers of said memory for initiating communication via one of said cellular and said cordless networks; and</p> <p>in the case of communication via the cordless network, said extracting step comprises</p> <p>determining the extension number of the cordless network if a main number is identified; and</p> <p>using the extension number of the cordless network when establishing the call via the associated cordless network.</p>									
6,330,442	Call dialing for a mobile terminal operating within a public or autonomous system	Nokia Mobile Phones Ltd.	Seppanen; Jorma	455	H04Q	20010412	1	92%	<input type="checkbox"/>
<p>Abstract: A mobile terminal is provided with an access code for a destination receiving device. The access code specifies that the user terminal provide a communication signal through at least one communication network to the destination receiving device. The at least one communication network is assumed to have a capability of forwarding received communication signals that include access codes having a predetermined format to destination receiving devices. A determination as to whether a format of the access code provided to the user terminal differs from the predetermined format is performed. If these formats differ, another step includes modifying the format of the access code provided to the user terminal to produce a modified access code having the predetermined format in the communication signal.</p> <p>MainClaim: A method for operating a mobile terminal, the method comprising the steps of:</p> <p>providing the mobile terminal with a first access code corresponding to a destination receiving device;</p> <p>initiating a call to the destination receiving device;</p> <p>determining, within the mobile terminal, whether the first access code must be modified to complete the call to the destination receiving device; and</p> <p>if it is determined that the first access code must be modified, performing steps of:</p> <p>modifying, within the mobile terminal, the first access code to produce a second access code; and</p> <p>transmitting a communications signal including the second access code to complete the call to the destination receiving device.</p>									
5,550,967	Method and apparatus for generating and displaying visual cues on a graphic user interface	Apple Computer, Inc.	Brewer; Gregory S. Commons; Peter	345	G06F	19950918	0	100%	<input type="checkbox"/>

Abstract: A user interface includes an object oriented graphic user interface having overlapping windows and provides an access window having topics, index and look for button functions for selection by a user. Through the use of the topics, index or look for functions, a help inquiry is defined. To assist the user, visual cues in the form of coach marks are generated for identifying features on the display. The coach marks are rendered such that they appear animated as if drawn by hand and appear to approximate a geometric object, such as an arrow, a circle, an X, and the like. The coach marks encircle, point to, and/or underline objects, features, icons, folders and other display elements to assist the user in operating the computer system.

MainClaim: In a data processing display system having a display, a method for providing visual cues to a user comprising the steps of:

(a) displaying on said display a user interface having a plurality of objects; and

(b) automatically drawing on said display a coach mark having at least one geometric shape to visually identify at least one of said objects on said user interface to said user, wherein said coach mark is formed by a plurality of pen pictures, wherein each of said plurality of pen pictures is a pixel map having at least two vertically aligned pixels and at least two horizontally aligned pixels, wherein the automatically drawing step (b) includes the steps of:

(i) drawing on said display an initial pen picture for said coach mark, and

(ii) iteratively drawing on said display additional pen pictures for said coach mark over time until said coach mark has been fully rendered on said display.

2006/0230056	Method and a device for visual management of metadata	Nokia Corporation	Aaltonen; Antti	707	G06F	20050406	16	92%	<input type="checkbox"/>
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Abstract: A method and a device for visual management of metadata. An area with a plurality of data elements is visualized (504) to the user who determines (508) a route on the area, said route including a number of preferred elements belonging to the plurality of elements, which is detected (512). The preferred elements shall act as targets for a predefined metadata operation (514), e.g. change of a metadata attribute value.

MainClaim: A method for directing a metadata operation at a number of electronically stored data elements in an electronic device having the steps of visualizing an area with a number of data elements on a display device to a user (504), obtaining control information about a user-defined route between user-defined start and end points on the visualized area comprising said number of data elements (508), specifying based on the route such data elements belonging to said number of data elements over which the route passed (512), and performing the metadata operation on said specified data elements (514).

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	92%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	92%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

6,535,230	Graphical user interface providing consistent behavior for the dragging and dropping of content objects	Apple Computer, Inc.	Celik; Tantek I.	345	G09G	19950807	0	100%	<input type="checkbox"/>
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Abstract: A drag-and-drop operation in a graphical user interface is controlled dependence upon whether the destination for the operation is a content object or a service object. If the destination of a drag-and-drop operation is a content object, the resulting action is to move the dragged object from its original location to the destination. If the destination is a service object, the resulting action is to perform the associated service on the dragged object without affecting the perceived location of the data contained in the dragged object. If the user desires that an operation other than a move be made when dragging an object to a content object, a specified key on a keyboard is pressed, to indicate that the drag-and-drop operation should make a copy, rather than merely move the object. If the source of the dragged object does not permit the user to move the object, the user can be presented with an option to copy the object when the drag-and-drop operation is carried out. Alternatively, rather than requesting the user to indicate a choice each time such a situation occurs, the computer system can be set up to automatically make a copy if the source does not permit the object to be moved.

MainClaim: A method for manipulating objects in a graphical user interfaces for a computer, of the type in which representations of objects stored in a memory are displayed to a user on a display, comprising the steps of:

selecting a first object whose representation is displayed on said display;

dragging the representation of the first object from a first location on the display to a second location associated with a second object;

determining whether said second object is either a service object or a container object;

performing a service with respect to said first object if said second object is a service object;

detecting whether access to said first object is limited;

moving the representation of the first object from said first location to a new location associated with said second object if said second object is a container object, regardless of a source of the first object if access to said first object is not limited; and

prohibiting the representation of the first object to said new location if access to said first object is limited.

2008/0040668	Creating virtual targets in directory structures	Nokia Corporation	Ala-Rantala; Kati	715	G06F	20060810	8	95%	<input type="checkbox"/>
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Abstract: A method includes detecting a first user operation corresponding to a first item in a directory structure. The directory structure represents a hierarchical arrangement of a plurality of items, including the first item, in a memory. The first user operation indicates a start of an item action with the first item. The method also includes, in response to detecting a second user operation corresponding to a second item in the directory structure, creating a virtual target in the second item in the directory structure. The virtual target is a possible location for completion of the item action with the first item. The method further includes, in response to a third user operation indicating completion of the item action with the first item in the virtual target, completing the item action with the first item in the virtual target.

MainClaim: A method comprising: detecting a first user operation corresponding to a first item in a directory structure, the directory structure representing a hierarchical arrangement of a plurality of items, including the first item, in a memory, the first user operation indicating a start of an item action with the first item; in response to detecting a second user operation corresponding to a second item in the directory structure, creating a virtual target in the second item in the directory structure, wherein the virtual target is a possible location for completion of the item action with the first item; and in response to a third user operation indicating completion of the item action with the first item in the virtual target, completing the item action with the first item in the virtual target.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	94%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

2006/0230056	Method and a device for visual management of metadata	Nokia Corporation	Aaltonen; Antti	707	G06F	20050406	16	94%	<input type="checkbox"/>
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Abstract: A method and a device for visual management of metadata. An area with a plurality of data elements is visualized (504) to the user who determines (508) a route on the area, said route including a number of preferred elements belonging to the plurality of elements, which is detected (512). The preferred elements shall act as targets for a predefined metadata operation (514), e.g. change of a metadata attribute value.

MainClaim: A method for directing a metadata operation at a number of electronically stored data elements in an electronic device having the steps of visualizing an area with a number of data elements on a display device to a user (504), obtaining control information about a user-defined route between user-defined start and end points on the visualized area comprising said number of data elements (508), specifying based on the route such data elements belonging to said number of data elements over which the route passed (512), and performing the metadata operation on said specified data elements (514).

5,825,355	Method and apparatus for providing a help based window system using multiple access methods	Apple Computer, Inc.	Palmer; James Edward Coleman; Patricia J. Herman; Jeffrey Alan Cochran; Eli Powers, III; John Richard	345	G06F	19930127	0	100%	<input type="checkbox"/>
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Abstract: The system includes at least one central processing unit (CPU) which is coupled through appropriate input/output (I/O) circuitry to input devices, such as a keyboard, digital pad, mouse and/or track ball. The CPU is coupled to a hard disk drive for the storage of programs and data, and may also be coupled to a network through which the CPU may communicate with a variety of other system resources and devices. The CPU is further coupled to a display device such as a CRT or liquid crystal display, on which the present invention is displayed. The user interface of the present invention includes an object oriented graphic user interface having overlapping windows. The present invention includes an access window having topics, index and look for button functions for selection by a user. Through the use of the topics, index or look for functions, a help inquiry is defined. The selection of one of the button functions results in the CPU generating and displaying entries in a predefined area of the access window. Upon the selection of one of the entries by a user, the CPU displays phrases related to the selected entry in a working area of the access window. The selection of one of the phrases results in the CPU displaying a presentation window on the display, which includes help instruction data to guide the user in the particular help task specified by the entry and phrase selection.

MainClaim: In a computer display system having a central processing unit (CPU) coupled to a display such that data is displayed on said display in windows, a method for instructing a user on how to perform operations using said CPU, the method

comprising the steps of:

A. generating and displaying an access window on said display;

B. generating and displaying within said access window a first access function, a second access function, and a third access function;

C. performing the following steps upon selection of said first access function by a user

2005/0022130	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius, Henna	715	G09G	20040625	11	93%	<input type="checkbox"/>
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Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.

MainClaim: Method for inputting a character into an electronic device, said method comprising: detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected.

7,584,429	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius; Henna	715	G06F	20040625	10	93%	<input type="checkbox"/>
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Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.

MainClaim: A method, comprising: depicting a scroll bar and a button for a search option on a display of an electronic device in an area that is normally reserved for a scroll bar, detecting if a keyboard is connected to said device and suppressing the display of said button for a search option, if the keyboard is connected, detecting an input on said button for activating a temporary input area, activating said temporary input area upon detection of said input, displaying said temporary input area on the display of said electronic device, outputting an audio signal indicating said displaying of said temporary input area, and terminating the display of said temporary input area and deactivating said temporary input area in case that a relevant event is detected, wherein said temporary input area is displayed in a semi-transparent manner superimposed on a standard display area on said display, and wherein input functions in said standard display area superimposed by said temporary input area are deactivated when said temporary input area is displayed.

7,184,024	Method and apparatus for mapping an input location with a displayed functional representation	Nokia Corporation	Eftekhari; Jamshid	345	G09G	20010119	6	92%	<input type="checkbox"/>
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Abstract: A user interface is disclosed which may take a data stream, or file having hyperlinks or functional text embedded therein. The CPU of the user interface may select distinct colors for each hyperlink so that such links are distinguishable. The color selection may be made so that each link has a button that has a matching color for at least one hyperlink. The user interface associates a button having a color with a hyperlink having the same color, such that when the button is actuated, programmed execution of the function associated with the hyperlink occurs. Thus a mapping of button, to color, to hyperlink, to function may be established.

MainClaim: A method in a device having a plurality of character-entry pressure points for selecting a function in a markup language file comprising: a) reading the markup language file; b) detecting a reference in a handheld device to a character encoding having a corresponding function, the corresponding function being displayed in a display of the handheld device; c) illuminating substantially only one character-entry pressure point corresponding to the character encoding, the substantially only one character-entry pressure point being disposed in an input area of the handheld device in proximity to the display of the handheld device, wherein a color associated with a character-entry pressure point when illuminated corresponds to a color of the corresponding navigation function; d) detecting an entry by the character-entry pressure point; and e) triggering the navigation function.

5,600,779	Method and apparatus for providing visual cues in a graphic user interface	Apple Computer, Inc.	Palmer; James E. Powers, III; John R. Coleman; Patricia J. Brewer; Gregory S. Herman; Jeffrey A. Cochran; Eli	345	G06F	19950607	0	100%	<input type="checkbox"/>
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Abstract: A user interface includes an object oriented graphic user interface having overlapping windows and provides an access window having topics, index and look for button functions for selection by a user. Through the use of the topics, index or look for functions, a help inquiry is defined. The selection of one of the button functions results in the generation and display of entries in a predefined area of the access window. Upon the selection of one of the entries by a user, phrases related to the selected entry are displayed in a working area of the access window. The selection of one of the phrases results in the display of a presentation window containing help instruction data to guide the user in the particular help task specified by the entry and phrase selection. To further assist the user, visual cues in the form of coach marks are generated for identifying features on the display which relate to the information disposed within the presentation window, but may identify any feature on the display. The coach marks are displayed generally concurrently with the display of the presentation window. The coach marks are displayed such that they appear animated as if drawn by hand and appear to approximate a geometric object, such as an arrow, a circle, an X, and the like. The coach marks encircle, point to, and/or underline objects, features, icons, folders and other display elements to assist the user in operating the computer system.

MainClaim: In a data processing display system having a display, a method for providing visual cues to a user comprising the steps of:

- (a) displaying on said display a user interface having a plurality of objects;
- (b) automatically drawing on said display a coach mark having at least one geometric shape to visually identify at least one of said objects on said user interface to said user, wherein the automatically drawing step (b) includes

rendering said coach mark over time to achieve the visual appearance of being animated and drawn freehand on said user interface by a human being.

2005/0022130	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius, Henna	715	G09G	20040625	11	93%	<input type="checkbox"/>
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Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.

MainClaim: Method for inputting a character into an electronic device, said method comprising: detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected.

7,584,429	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius; Henna	715	G06F	20040625	10	93%	<input type="checkbox"/>
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Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.

MainClaim: A method, comprising: depicting a scroll bar and a button for a search option on a display of an electronic device in an area that is normally reserved for a scroll bar, detecting if a keyboard is connected to said device and suppressing the display of said button for a search option, if the keyboard is connected, detecting an input on said button for activating a temporary input area, activating said temporary input area upon detection of said input, displaying said temporary input area on the display of said electronic device, outputting an audio signal indicating said displaying of said temporary input area, and terminating the display of said temporary input area and deactivating said temporary input area in case that a relevant event is detected, wherein said temporary input area is displayed in a semi-transparent manner superimposed on a standard display area on said display, and wherein input functions in said standard display area superimposed by said temporary input area are deactivated when said temporary input area is displayed.

7,184,024	Method and apparatus for mapping an input location with a displayed functional representation	Nokia Corporation	Eftekhari; Jamshid	345	G09G	20010119	6	92%	<input type="checkbox"/>
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Abstract: A user interface is disclosed which may take a data stream, or file having hyperlinks or functional text embedded therein. The CPU of the user interface may select distinct colors for each hyperlink so that such links are distinguishable. The color selection may be made so that each link has a button that has a matching color for at least one hyperlink. The user interface associates a button having a color with a hyperlink having the same color, such that when the button is actuated, programmed execution of the function associated with the hyperlink occurs. Thus a mapping of button, to color, to hyperlink, to function may be established.

MainClaim: A method in a device having a plurality of character-entry pressure points for selecting a function in a markup language file comprising: a) reading the markup language file; b) detecting a reference in a handheld device to a character encoding having a corresponding function, the corresponding function being displayed in a display of the handheld device; c) illuminating substantially only one character-entry pressure point corresponding to the character encoding, the substantially only one character-entry pressure point being disposed in an input area of the handheld device in proximity to the display of the handheld device, wherein a color associated with a character-entry pressure point when illuminated corresponds to a color of the corresponding navigation function; d) detecting an entry by the character-entry pressure point; and e) triggering the navigation function.

5,488,685	Method and apparatus for providing visual cues in a graphic user interface	Apple Computer, Inc.	Palmer; James E. Powers, III; John R. Coleman; Patricia J. Brewer; Gregory S. Herman; Jeffrey A. Cochran; Eli	345	G06F	19930127	0	100%	<input type="checkbox"/>
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Abstract: A user interface includes an object oriented graphic user interface having overlapping windows and provides an access window having topics, index and look for button functions for selection by a user. Through the use of the topics, index or look for functions, a help inquiry is defined. The selection of one of the button functions results in the generation and display of entries in a predefined area of the access window. Upon the selection of one of the entries by a user, phrases related to the selected entry are displayed in a working area of the access window. The selection of one of the phrases results in the display of a presentation window containing help instruction data to guide the user in the particular help task specified by the entry and phrase selection. To further assist the user, visual cues in the form of coach marks are generated for identifying features on the display which relate to the information disposed within the presentation window, but may identify any feature on the display. The coach marks are displayed generally concurrently with the display of the presentation window. The coach marks are displayed such that they appear animated as if drawn by hand and appear to approximate a geometric object, such as an arrow, a circle, an X, and the like. The coach marks encircle, point to, and/or underline objects, features, icons, folders and other display elements to assist the user in operating the computer system.

MainClaim: In a data processing display system having a display, a method for providing visual cues to a user comprising the steps of:

- (a) displaying on said display a user interface having a plurality of objects;

(b) displaying on said display, in response to said user providing a first signal by inputting a help inquiry, a coach mark having at least one geometric shape to visually identify at least one of said objects on said user interface to said user,

wherein said coach mark is displayed on said user interface such that said coach mark is rendered over time to achieve the visual appearance of being animated and drawn freehand on said user interface by a human being;

(c) displaying on said display an access window having a first working area and at least one access button function;

(d) selecting one of said at least one access button function;

(e) displaying a plurality of phrases in said first working area;

(f) selecting one of said displayed phrases; and

(g) displaying on said display a presentation window including instruction data related to said selected phrase.

2005/0022130	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius, Henna	715	G09G	20040625	11	94%	<input type="checkbox"/>
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Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.

MainClaim: Method for inputting a character into an electronic device, said method comprising: detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected.

7,584,429	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius; Henna	715	G06F	20040625	10	94%	<input type="checkbox"/>
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Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.

MainClaim: A method, comprising: depicting a scroll bar and a button for a search option on a display of an electronic device in an area that is normally reserved for a scroll bar, detecting if a keyboard is connected to said device and suppressing the display of said button for a search option, if the keyboard is connected, detecting an input on said button for activating a temporary input area, activating said temporary input area upon detection of said input, displaying said temporary input area on the display of said electronic device, outputting an audio signal indicating said displaying of said temporary input area, and terminating the display of said temporary input area and deactivating said temporary input area in case that a relevant event is detected, wherein said temporary input area is displayed in a semi-transparent manner superimposed on a standard display area on said display, and wherein input functions in said standard display area superimposed by said temporary input area are deactivated when said temporary input area is displayed.

7,184,024	Method and apparatus for mapping an input location with a displayed functional representation	Nokia Corporation	Eftekhari; Jamshid	345	G09G	20010119	6	92%	<input type="checkbox"/>
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Abstract: A user interface is disclosed which may take a data stream, or file having hyperlinks or functional text embedded therein. The CPU of the user interface may select distinct colors for each hyperlink so that such links are distinguishable. The color selection may be made so that each link has a button that has a matching color for at least one hyperlink. The user interface associates a button having a color with a hyperlink having the same color, such that when the button is actuated, programmed execution of the function associated with the hyperlink occurs. Thus a mapping of button, to color, to hyperlink, to function may be established.

MainClaim: A method in a device having a plurality of character-entry pressure points for selecting a function in a markup language file comprising: a) reading the markup language file; b) detecting a reference in a handheld device to a character encoding having a corresponding function, the corresponding function being displayed in a display of the handheld device; c) illuminating substantially only one character-entry pressure point corresponding to the character encoding, the substantially only one character-entry pressure point being disposed in an input area of the handheld device in proximity to the display of the handheld device, wherein a color associated with a character-entry pressure point when illuminated corresponds to a color of the corresponding navigation function; d) detecting an entry by the character-entry pressure point; and e) triggering the navigation function.

5,828,374	Method and apparatus for selecting characters along a scroll bar with a slider	Apple Computer, Inc.	Coleman; Patricia J. Palmer; James Edward Powers; Matthew Justin Herman; Jeffrey Alan Cochran; Eli Powers, III; John Richard	345	G06F	19970314	0	100%	<input type="checkbox"/>
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Abstract: An object oriented graphic user interface having overlapping windows and an access window having topics, index and look for button functions may be selected by the user. Through the use of the topics, index, or look for functions, a help inquiry is defined. The access window includes an alpha scroll bar horizontally spanning a defined area of the access window. Characters are displayed along the length of the alpha scroll bar and a slider is provided which may be selectively positioned over a character displayed on the alpha scroll bar. The placement of the slider over a character on the alpha scroll bar results in the CPU displaying help data entries corresponding to the selected character.

MainClaim: A computer display system having a central processing unit (CPU) coupled to a display for displaying data, said display system comprising:

user interface generation means coupled to said CPU for displaying data on said display in windows;

at least one of said windows including a working area for displaying data, said working area having a scroll bar including:

a plurality of characters displayed along said scroll bar;

a slider which may be selectively positioned over a portion of each of said characters using slider positioning means coupled to said CPU, the placement of said slider over a portion of a character resulting in said CPU displaying one or more data entries corresponding to said character selected in said working area; and

a cursor control device coupled to said CPU for positioning a cursor on said display, said cursor control device being controlled by a user; and wherein

one of said one or more data entries may be selected using said cursor control device and said one or more data entries may be scrolled within said working area by moving said cursor within a predetermined area on said display wherein said predetermined area is distinct from said scroll bar;

said windows displayed by said user interface generation means may be selectively positioned at desired locations on said display by said cursor control device; and

said CPU generates a plurality of windows, said window having said scroll bar comprising said working area and a second working area which is distinct from said working area, and wherein one or more data entries in said second working area are displayed in response to a selection of a data entry in said working area.

2005/0022130	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius, Henna	715	G09G	20040625	11	94%	<input type="checkbox"/>
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Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.

MainClaim: Method for inputting a character into an electronic device, said method comprising: detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected.

7,584,429	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius; Henna	715	G06F	20040625	10	94%	<input type="checkbox"/>
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Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.

MainClaim: A method, comprising: depicting a scroll bar and a button for a search option on a display of an electronic device in an area that is normally reserved for a scroll bar, detecting if a keyboard is connected to said device and suppressing the display of said button for a search option, if the keyboard is connected, detecting an input on said button for activating a temporary input area, activating said temporary input area upon detection of said input, displaying said temporary input area on the display of said electronic device, outputting an audio signal indicating said displaying of said temporary input area, and terminating the display of said temporary input area and deactivating said temporary input area in case that a relevant event is detected, wherein said temporary input area is displayed in a semi-transparent manner superimposed on a standard display area on said display, and wherein input functions in said standard display area superimposed by said temporary input area are deactivated when said temporary input area is displayed.

7,184,024	Method and apparatus for mapping an input location with a displayed functional representation	Nokia Corporation	Eftekhari; Jamshid	345	G09G	20010119	6	92%	<input type="checkbox"/>
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Abstract: A user interface is disclosed which may take a data stream, or file having hyperlinks or functional text embedded therein. The CPU of the user interface may select distinct colors for each hyperlink so that such links are distinguishable. The color selection may be made so that each link has a button that has a matching color for at least one hyperlink. The user interface associates a button having a color with a hyperlink having the same color, such that when the button is actuated, programmed execution of the function associated with the hyperlink occurs. Thus a mapping of button, to color, to hyperlink, to function may be established.

MainClaim: A method in a device having a plurality of character-entry pressure points for selecting a function in a markup language file comprising: a) reading the markup language file; b) detecting a reference in a handheld device to a character encoding having a corresponding function, the corresponding function being displayed in a display of the handheld device; c) illuminating substantially only one character-entry pressure point corresponding to the character encoding, the substantially only one character-entry pressure point being disposed in an input area of the handheld device in proximity to the display of the handheld device, wherein a color associated with a character-entry pressure point when illuminated corresponds to a color of the corresponding navigation function; d) detecting an entry by the character-entry pressure point; and e) triggering the navigation function.

			Stern; Mark Ludwig Smith; David Canfield Curbow;						
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5,835,919	Computer-human interface system which manipulates parts between a desktop and a document	Apple Computer, Inc.	David Chaffee; Jennifer Kreegar; Jeffrey Thompson; Michael Corrick; George Jordan; Daniel Piersol; Kurt	715	G06F	19960517	0	100%	<input type="checkbox"/>
<p>Abstract: A document-centered user interface architecture for a computer system employs parts as the fundamental building blocks of all documents. All data is stored in the system as a part, which is comprised of contents and an associated editor. The contents and the functionality of the editor are available to the user wherever the part is located, whether in a document, on a desktop or in a folder. Parts function as containers for other parts, thereby facilitating the compilation and editing of multimedia or compound documents.</p> <p>MainClaim: In a computer system having a user interface that employs a desktop metaphor which includes a workspace within which objects are presented to, and can be manipulated by, a user and in which the contents of documents are displayed to the user for editing in an area of said workspace identified as a window, a method for creating documents, comprising the steps of:</p> <p>storing data within the system in the form of parts, wherein each part has intrinsic contents and can contain other parts as a portion of its contents;</p> <p>displaying the contents of a first part within a window on said desktop;</p> <p>representing a second part as an icon on said desktop outside of said window;</p> <p>selecting and dragging said icon from said desktop to a location within said window;</p> <p>releasing said icon while it is located in said window; and</p> <p>including the contents of said second part as a portion of the contents of said first part in response to the releasing of said icon within said window.</p>									
2008/0040668	Creating virtual targets in directory structures	Nokia Corporation	Ala-Rantala; Kati	715	G06F	20060810	8	93%	<input type="checkbox"/>
<p>Abstract: A method includes detecting a first user operation corresponding to a first item in a directory structure. The directory structure represents a hierarchical arrangement of a plurality of items, including the first item, in a memory. The first user operation indicates a start of an item action with the first item. The method also includes, in response to detecting a second user operation corresponding to a second item in the directory structure, creating a virtual target in the second item in the directory structure. The virtual target is a possible location for completion of the item action with the first item. The method further includes, in response to a third user operation indicating completion of the item action with the first item in the virtual target, completing the item action with the first item in the virtual target.</p> <p>MainClaim: A method comprising: detecting a first user operation corresponding to a first item in a directory structure, the directory structure representing a hierarchical arrangement of a plurality of items, including the first item, in a memory, the first user operation indicating a start of an item action with the first item; in response to detecting a second user operation corresponding to a second item in the directory structure, creating a virtual target in the second item in the directory structure, wherein the virtual target is a possible location for completion of the item action with the first item; and in response to a third user operation indicating completion of the item action with the first item in the virtual target, completing the item action with the first item in the virtual target.</p>									
2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	93%	<input type="checkbox"/>
<p>Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.</p> <p>MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.</p>									
2006/0230056	Method and a device for visual management of metadata	Nokia Corporation	Aaltonen; Antti	707	G06F	20050406	16	93%	<input type="checkbox"/>
<p>Abstract: A method and a device for visual management of metadata. An area with a plurality of data elements is visualized (504) to the user who determines (508) a route on the area, said route including a number of preferred elements belonging to the plurality of elements, which is detected (512). The preferred elements shall act as targets for a predefined metadata operation (514), e.g. change of a metadata attribute value.</p> <p>MainClaim: A method for directing a metadata operation at a number of electronically stored data elements in an electronic device having the steps of visualizing an area with a number of data elements on a display device to a user (504), obtaining control information about a user-defined route between user-defined start and end points on the visualized area comprising said number of data elements (508), specifying based on the route such data elements belonging to said number of data elements over which the route passed (512), and performing the metadata operation on said specified data elements (514).</p>									
	Method and apparatus		Powers, III; John						

5,602,996	for determining window order when one of multiple displayed windows is selected	Apple Computer, Inc.	R. Palmer; James E. Coleman; Patricia J. Herman; Jeffrey A. Cochran; Eli	345	G06F	19950607	0	100%	<input type="checkbox"/>
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Abstract: The display system includes at least one central processing unit (CPU) which is coupled through appropriate input/output (I/O) circuitry to input devices, such as a keyboard, digital pad, mouse and/or trackball. The CPU is coupled to a hard disk drive for the storage of programs and data, and may also be coupled to a network through which the CPU may communicate with a variety of other system resources and devices. The CPU is further coupled to a display device such as a CRT or liquid crystal display, on which the present invention is displayed. The windows include defined areas having window features such as menu bars, command options, text, icons and/or button functions to be executed by the CPU. The help system includes an access window having topics, index and look for button functions for selection by a user. Through the use of the topics, index or look for functions, a help inquiry is defined which results in the CPU generating and displaying a presentation window on the display. Both the access and presentation windows "float" above all other layered windows being displayed regardless of the application currently being executed by the user. Both the access and presentation windows remain active and may be operated upon by the user, as does the top most window immediately below the access or presentation windows being displayed. Other layered windows under the top most application window are inactive, and must be brought to the "top" of the stack immediately below the access or presentation window to be operated upon.

MainClaim: In a computer display system having a central processing unit (CPU) coupled to a display such that data is displayed on said display in a plurality of windows, a method for displaying said windows and operating upon said windows and said data in said windows by a user, comprising the steps of:

generating and displaying each of said plurality of windows at a different window layer according to a window order, wherein any portion of a window at a higher window layer that overlaps with any portion of a window at a lower window layer is displayed such that the portion of the window at the higher window layer covers the portion of the window at the lower window layer, wherein said step of generating and displaying each of said plurality of windows comprises the steps of

generating and displaying a first window at a first window layer, wherein said first window layer is a highest window layer;

generating and displaying a second window at a second window layer, wherein said first window has a portion that does not overlap with said second window;

said user operating on both said first window and said second window without altering the window order of said plurality of windows;

wherein said step of generating and displaying each of said plurality of windows further includes the step of generating and displaying a third window at a third window layer;

wherein said second window layer is higher than said third window layer, said second window is active and said third window is inactive; and

in response to said user selecting said third window, performing the steps of

altering said window order to cause said third window to assume a higher window layer than said second window,

deactivating said second window, and

activating said third window.

2005/0022130	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius, Henna	715	G09G	20040625	11	93%	<input type="checkbox"/>
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Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.

MainClaim: Method for inputting a character into an electronic device, said method comprising: detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected.

7,584,429	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius; Henna	715	G06F	20040625	10	93%	<input type="checkbox"/>
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Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.

MainClaim: A method, comprising: depicting a scroll bar and a button for a search option on a display of an electronic device in an area that is normally reserved for a scroll bar, detecting if a keyboard is connected to said device and suppressing the display of said button for a search option, if the keyboard is connected, detecting an input on said button for activating a temporary input area, activating said temporary input area upon detection of said input, displaying said temporary input area on the display of said electronic device, outputting an audio signal indicating said displaying of said temporary input area, and terminating the display of said temporary input area and deactivating said temporary input area in case that a relevant event is detected, wherein said temporary input area is displayed in a semi-transparent manner superimposed on a standard display area on said display, and wherein input functions in said standard display area superimposed by said temporary input area are

deactivated when said temporary input area is displayed.

6,966,037	Method and apparatus for scrollable cross-point navigation in a calendar user interface	Nokia Corporation	Fredriksson; Linus Nyberg; Urban	715	G06F	20011119	3	92%	<input type="checkbox"/>
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Abstract: Method and apparatus for displaying an electronic calendar in a scrollable cross-point navigation image having two bars, each containing panels corresponding to a separate folder or entry of the calendar's hierarchy of folders and entries. At the intersection of the bars is displayed the current lowest level and the next upper level, if any. In one embodiment, the next higher level is shown in an adjoining panel on a first bar, the next higher level in a next adjoining panel on that bar, until there are no further higher levels to display, at which point the remaining upper-most level folders are displayed. The second bar displays sub-folders or calendar entries within the folder in the focus panel. Moving in the folder hierarchy causes the panels in the first bar to shift to display all intervening levels through the top level.

MainClaim: A method for displaying calendar information in a display associated with an electronic device, comprising:

organizing a plurality of calendar entries into a hierarchy comprising a plurality of calendar groups, at least one of which calendar groups having at least one sublevel of calendar subgroups; and

displaying panels on a display associated with an electronic device, the panels being arranged into two bars of panels with a common focus panel at the intersection of the two bars of panels, each of the panels being linked to and identifying one of (a) one of the plurality of calendar entries, (b) one of the calendar groups, and (c) one of the calendar subgroups,

wherein the focus panel identifies (a) a currently selectable lowest level in the hierarchy and optionally (b) the next higher level, if any,

wherein levels, if any, in the hierarchy higher than that displayed in the focus panel are identified in one of (a) succeeding adjoining panels of a first of the two bars, other panels of the first bar identifying highest level groups in the hierarchy, and (b) other panels of the first bar identifying groups in the hierarchy in the next higher level identified in the focus panel; and

wherein panels of the second of the two bars each identify one of (a) calendar entries, if any, (b) calendar groups, if any, and (c) calendar subgroups, if any, of the same level in the hierarchy as the currently selectable lowest level in the hierarchy identified in the focus panel.

5,812,862	Computer-human interface system for compound documents	Apple Computer, Inc.	Smith; David Canfield Stern; Mark Ludwig Curbow; David Chaffee; Jennifer Kreegar; Jeffrey Thompson; Michael Corrick; George Jordan; Daniel Piersol; Kurt	715	G06T	19930510	0	100%	<input type="checkbox"/>
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Abstract: A document-centered user interface architecture for a computer system employs parts as the fundamental building blocks of all documents. All data is stored in the system as a part, which is comprised of contents and an associated editor. The contents and the functionality of the editor are available to the user wherever the part is located, whether in a document, on a desktop or in a folder. Parts function as containers for other parts, thereby facilitating the compilation and editing of multimedia or compound documents.

MainClaim: In a computer system of the type having a display for displaying the contents of a document as it is created and edited and a pointing device for controlling the manipulation of elements of the document during editing, a computer-human interface for the creation and manipulation of compound documents, comprising:

means storing all of the component objects of a document as parts, wherein each part comprises intrinsic contents and an associated manipulator for the contents;

means for displaying parts to a user;

means responsive to actuation of said device for enabling any displayed part to be selected by the user and moved within the display, and to be placed within another part such that it becomes a portion of the contents of said other part and its contents remain manipulatable by its associated manipulator; and

means for automatically determining a manipulator to be associated with a part within the computer and for launching the determined manipulator upon selection of the part so that its functionality becomes available to the user.

2006/0230056	Method and a device for visual management of metadata	Nokia Corporation	Aaltonen; Antti	707	G06F	20050406	16	93%	<input type="checkbox"/>
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Abstract: A method and a device for visual management of metadata. An area with a plurality of data elements is visualized (504) to the user who determines (508) a route on the area, said route including a number of preferred elements belonging to the plurality of elements, which is detected (512). The preferred elements shall act as targets for a predefined metadata operation (514), e.g. change of a metadata attribute value.

MainClaim: A method for directing a metadata operation at a number of electronically stored data elements in an electronic device having the steps of visualizing an area with a number of data elements on a display device to a user (504), obtaining control information about a user-defined route between user-defined start and end points on the visualized area comprising said number of data elements (508), specifying based on the route such data elements belonging to said number of data elements over which the route passed (512), and performing the metadata operation on said specified data elements (514).

2008/0040668	Creating virtual targets	Nokia Corporation	Ala-Rantala; Kati	715	G06F	20060810	8	93%	<input type="checkbox"/>
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	in directory structures									
<p>Abstract: A method includes detecting a first user operation corresponding to a first item in a directory structure. The directory structure represents a hierarchical arrangement of a plurality of items, including the first item, in a memory. The first user operation indicates a start of an item action with the first item. The method also includes, in response to detecting a second user operation corresponding to a second item in the directory structure, creating a virtual target in the second item in the directory structure. The virtual target is a possible location for completion of the item action with the first item. The method further includes, in response to a third user operation indicating completion of the item action with the first item in the virtual target, completing the item action with the first item in the virtual target.</p> <p>MainClaim: A method comprising: detecting a first user operation corresponding to a first item in a directory structure, the directory structure representing a hierarchical arrangement of a plurality of items, including the first item, in a memory, the first user operation indicating a start of an item action with the first item; in response to detecting a second user operation corresponding to a second item in the directory structure, creating a virtual target in the second item in the directory structure, wherein the virtual target is a possible location for completion of the item action with the first item; and in response to a third user operation indicating completion of the item action with the first item in the virtual target, completing the item action with the first item in the virtual target.</p>										
2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	93%	<input type="checkbox"/>	
<p>Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.</p> <p>MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.</p>										
5,469,540	Method and apparatus for generating and displaying multiple simultaneously-active windows	Apple Computer, Inc.	Powers, III; John R. Palmer; James E. Coleman; Patricia J. Herman; Jeffrey A. Cochran; Eli	715	G06F	19930127	0	100%	<input type="checkbox"/>	
<p>Abstract: The display system includes at least one central processing unit (CPU) which is coupled through appropriate input/output (I/O) circuitry to input devices, such as a keyboard, digital pad, mouse and/or trackball. The CPU is coupled to a hard disk drive for the storage of programs and data, and may also be coupled to a network through which the CPU may communicate with a variety of other system resources and devices. The CPU is further coupled to a display device such as a CRT or liquid crystal display, on which the present invention is displayed. The windows include defined areas having window features such as menu bars, command options, text, icons and/or button functions to be executed by the CPU. The help system includes an access window having topics, index and look for button functions for selection by a user. Through the use of the topics, index or look for functions, a help inquiry is defined which results in the CPU generating and displaying a presentation window on the display. Both the access and presentation windows "float" above all other layered windows being displayed regardless of the application currently being executed by the user. Both the access and presentation windows remain active and may be operated upon by the user, as does the top most window immediately below the access or presentation windows being displayed. Other layered windows under the top most application window are inactive, and must be brought to the "top" of the stack immediately below the access or presentation window to be operated upon.</p> <p>MainClaim: In a computer display system having a central processing unit (CPU) coupled to a display such that data is displayed on said display in a plurality of windows, a method for displaying said windows and operating upon said windows and said data in said windows by a user, comprising the steps of:</p> <p>generating and displaying each of said plurality of windows at a different window layer according to a window order, wherein a window at a higher window layer covers a window at a lower window layer to the extent that any of said windows overlap, wherein said step of generating and displaying each of said plurality of windows comprises the steps of</p> <p>generating and displaying a first window at a first window layer, wherein said first window layer is a highest window layer;</p> <p>generating and displaying a second window at a second window layer, wherein said first window has a portion that does not overlap with said second window;</p> <p>both of said windows being simultaneously active; and</p> <p>said user operating on both said first window and said second window without altering the window order of said plurality of windows.</p>										
2005/0022130	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius, Henna	715	G09G	20040625	11	94%	<input type="checkbox"/>	

MainClaim: Method for inputting a character into an electronic device, said method comprising: detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected.

7,584,429	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius; Henna	715	G06F	20040625	10	94%	<input type="checkbox"/>
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Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.

MainClaim: A method, comprising: depicting a scroll bar and a button for a search option on a display of an electronic device in an area that is normally reserved for a scroll bar, detecting if a keyboard is connected to said device and suppressing the display of said button for a search option, if the keyboard is connected, detecting an input on said button for activating a temporary input area, activating said temporary input area upon detection of said input, displaying said temporary input area on the display of said electronic device, outputting an audio signal indicating said displaying of said temporary input area, and terminating the display of said temporary input area and deactivating said temporary input area in case that a relevant event is detected, wherein said temporary input area is displayed in a semi-transparent manner superimposed on a standard display area on said display, and wherein input functions in said standard display area superimposed by said temporary input area are deactivated when said temporary input area is displayed.

6,966,037	Method and apparatus for scrollable cross-point navigation in a calendar user interface	Nokia Corporation	Fredriksson; Linus Nyberg; Urban	715	G06F	20011119	3	92%	<input type="checkbox"/>
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Abstract: Method and apparatus for displaying an electronic calendar in a scrollable cross-point navigation image having two bars, each containing panels corresponding to a separate folder or entry of the calendar's hierarchy of folders and entries. At the intersection of the bars is displayed the current lowest level and the next upper level, if any. In one embodiment, the next higher level is shown in an adjoining panel on a first bar, the next higher level in a next adjoining panel on that bar, until there are no further higher levels to display, at which point the remaining upper-most level folders are displayed. The second bar displays sub-folders or calendar entries within the folder in the focus panel. Moving in the folder hierarchy causes the panels in the first bar to shift to display all intervening levels through the top level.

MainClaim: A method for displaying calendar information in a display associated with an electronic device, comprising:

organizing a plurality of calendar entries into a hierarchy comprising a plurality of calendar groups, at least one of which calendar groups having at least one sublevel of calendar subgroups; and

displaying panels on a display associated with an electronic device, the panels being arranged into two bars of panels with a common focus panel at the intersection of the two bars of panels, each of the panels being linked to and identifying one of (a) one of the plurality of calendar entries, (b) one of the calendar groups, and (c) one of the calendar subgroups,

wherein the focus panel identifies (a) a currently selectable lowest level in the hierarchy and optionally (b) the next higher level, if any,

wherein levels, if any, in the hierarchy higher than that displayed in the focus panel are identified in one of (a) succeeding adjoining panels of a first of the two bars, other panels of the first bar identifying highest level groups in the hierarchy, and (b) other panels of the first bar identifying groups in the hierarchy in the next higher level identified in the focus panel; and

wherein panels of the second of the two bars each identify one of (a) calendar entries, if any, (b) calendar groups, if any, and (c) calendar subgroups, if any, of the same level in the hierarchy as the currently selectable lowest level in the hierarchy identified in the focus panel.

7,600,197	Graphical user interface having contextual menus	Apple Inc.	Gourdol; Arno Cooley; Daniel	715	G06F	20020712	0	100%	<input type="checkbox"/>
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Abstract: A contextual pop-up menu of frequently used commands is displayed by an application whenever a user carries out a particular action. The contextual menu appears at the location of a cursor, so that the displayed commands are spatially very close to an item on which an action is to be performed. The commands which are displayed in the contextual menu are not limited to those provided by an application associated with the selected item. Other commands, such as system level commands, for help items or other types of user assistance features, can be added to the menu before it is displayed to the user. In addition, plug-in modules can be employed to provide other commands associated with the selected item.

MainClaim: A user interface, comprising: means for selecting an item of content within a window associated with an application program; means for detecting a designated action with respect to said selected item of content; means responsive to said designated action for retrieving a list of commands provided by the application program and associated with said selected item of content; means for receiving other commands, said other commands being selectively provided from at least one other program, which has requested notification of said designated action, based on said selected item of content; means for adding said other commands to said list; and means for displaying said list with said added commands on a computer display.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	97%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the

applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

7,539,795	Methods and apparatus for implementing dynamic shortcuts both for rapidly accessing web content and application program windows and for establishing context-based user environments	Nokia Corporation	Vahtola; Miika	710	G06F	20060130	6	96%	<input type="checkbox"/>
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Abstract: The invention disclosed herein concerns methods and apparatus for implementing dynamic shortcuts for use in navigating web content and application program windows. In particular, the methods and apparatus of the invention allow a user to associate one or more items selected from web content or application program windows with a dynamic shortcut. In one aspect of the invention, a user assigns a keyboard shortcut to one or more web pages viewed during the browsing session. Once assigned a keyboard shortcut, the one or more web pages can be rapidly accessed using the keyboard shortcut. In variations of the invention, the one or more web pages may be assigned an icon accessible from, for example, the desktop. In other aspects of the invention the keyboard shortcut or icon is associated with content or resources derived from multiple sources; such as, for example, web pages located using a browser and application program windows spawned using an application program.

MainClaim: A memory medium storing a computer program executable by a digital processor of an electronic device, the electronic device having a display for displaying a graphical user interface, wherein when the computer program is executed by the digital processor operations are performed for creating a keyboard shortcut for navigating between resources capable of being displayed in the graphical user interface, the operations comprising: receiving a command to associate at least a first resource with the keyboard shortcut; associating the first resource with the keyboard shortcut; receiving a command to associate at least a second resource with the keyboard shortcut; associating the second resource with the keyboard shortcut while maintaining the association of the first resource with the keyboard shortcut so that both the first and second resource can be accessed with the keyboard shortcut, wherein when the second resource is associated with the keyboard shortcut both the first resource and the second resource are visible in the graphical user interface of the electronic device and are arranged within the graphical user interface in accordance with a user-specified arrangement; saving arrangement information describing the user-specified arrangement of the first resource and the second resource within the graphical user interface at the time the second resource is associated with the keyboard shortcut; detecting entry of a key sequence corresponding to the keyboard shortcut associated with the first and second resource; and displaying both the first resource and the second resource in the graphical user interface of the electronic device in response to the detection of the entry of the key sequence corresponding to the keyboard shortcut, wherein the first resource and the second resource are displayed in accordance with the user-specified arrangement described in the arrangement information.

2006/0253788	Method, apparatus and computer program to provide a display screen button placement hint property	Nokia Corporation	Uotila; Aleks Lindfors; Tuija Joki; Auli	715	G06F	20050509	8	94%	<input type="checkbox"/>
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Abstract: Disclosed is a method to develop a graphical user interface that includes entering a data structure that specifies a preferred form of a Button to appear on a display screen, and in response to the data structure, defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism, such as a softkey, in place of a displayable Button for the specific instance of the display screen. Also disclosed is a graphical user interface development system that includes means for receiving a data structure that specifies a preferred form of a Button to appear on a display screen and means, responsive to the data structure, for defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism in place of a displayable Button for the specific instance of the display screen. Also disclosed is a mobile device that has a graphical user interface that includes a display screen, where the graphical user interface is defined at least in part by the use of a Button property string that is interpreted at least in part based on physical characteristics of at least one of the display screen and the mobile device.

MainClaim: A method to develop a graphical user interface, comprising: entering a data structure that specifies a preferred form of a Button to appear on a display screen; and in response to the data structure, defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism in place of a displayable Button for the specific instance of the display screen.

5,859,638	Method and apparatus for displaying and scrolling data in a window-based graphic user interface	Apple Computer, Inc.	Coleman; Patricia J. Palmer; James Edward Powers; Matthew Justin Herman; Jeffrey Alan Cochran; Eli Powers, III; John Richard	345	G09G	19970204	0	100%	<input type="checkbox"/>
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Abstract: A user interface includes an object oriented graphic user interface having overlapping windows and provides an access window having topics, index and look for button functions for selection by a user. Through the use of the topics, index or look for functions, a help inquiry is defined. The access window includes an alpha scroll bar horizontally spanning a defined area of the access window. A plurality of alpha-numeric, symbolic or other characters (collectively "characters") are displayed along the length of the alpha scroll bar. A slider is provided which may be selectively positioned over a character displayed on the alpha scroll bar. The slider may be positioned through user manipulation of a cursor control device. The placement of the slider over a character on the alpha scroll bar results in a central processing unit (CPU) displaying data corresponding to the character selected. Entries are displayed in the defined area beginning alphabetically with the letter over which the slider has been placed.

MainClaim: A data processing display system comprising:

(a) a display for displaying data;

(b) a data processing system coupled to said display, said data processing system displaying data in windows on said display, one of said windows including a data display area for displaying data and including a scroll bar, said scroll bar including:

(i) a plurality of characters displayed along said scroll bar, and

(ii) a slider which may be selectively positioned over a portion of said characters on said display; and

(c) a cursor control device coupled to said data processing system for positioning a cursor in horizontal and vertical directions on said display, said cursor control device being controlled by a user, said cursor control device further operable to selectively position said slider over a portion of said characters on said display;

said data processing system positioning said slider over the portion of said characters based on the positioning of said cursor on said display;

said data processing system displaying data in said data display area in accordance with the positioning of said slider, wherein said data display area is separate from the area in which said slider is displayed, and

wherein said data processing system positions said slider over one of said characters on said display in response to said user inputting a character corresponding to said one character using said cursor control device.

2005/0022130	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius, Henna	715	G09G	20040625	11	94%	<input type="checkbox"/>
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Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.

MainClaim: Method for inputting a character into an electronic device, said method comprising: detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected.

7,584,429	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius; Henna	715	G06F	20040625	10	94%	<input type="checkbox"/>
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Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.

MainClaim: A method, comprising: depicting a scroll bar and a button for a search option on a display of an electronic device in an area that is normally reserved for a scroll bar, detecting if a keyboard is connected to said device and suppressing the display of said button for a search option, if the keyboard is connected, detecting an input on said button for activating a temporary input area, activating said temporary input area upon detection of said input, displaying said temporary input area on the display of said electronic device, outputting an audio signal indicating said displaying of said temporary input area, and terminating the display of said temporary input area and deactivating said temporary input area in case that a relevant event is detected, wherein said temporary input area is displayed in a semi-transparent manner superimposed on a standard display area on said display, and wherein input functions in said standard display area superimposed by said temporary input area are deactivated when said temporary input area is displayed.

7,184,024	Method and apparatus for mapping an input location with a displayed functional representation	Nokia Corporation	Eftekhari; Jamshid	345	G09G	20010119	6	92%	<input type="checkbox"/>
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Abstract: A user interface is disclosed which may take a data stream, or file having hyperlinks or functional text embedded therein. The CPU of the user interface may select distinct colors for each hyperlink so that such links are distinguishable. The color selection may be made so that each link has a button that has a matching color for at least one hyperlink. The user interface associates a button having a color with a hyperlink having the same color, such that when the button is actuated, programmed execution of the function associated with the hyperlink occurs. Thus a mapping of button, to color, to hyperlink, to function may be established.

MainClaim: A method in a device having a plurality of character-entry pressure points for selecting a function in a markup language file comprising: a) reading the markup language file; b) detecting a reference in a handheld device to a character encoding having a corresponding function, the corresponding function being displayed in a display of the handheld device; c) illuminating substantially only one character-entry pressure point corresponding to the character encoding, the substantially only one character-entry pressure point being disposed in an input area of the handheld device in proximity to the display of the handheld device, wherein a color associated with a character-entry pressure point when illuminated corresponds to a color of the corresponding navigation function; d) detecting an entry by the character-entry pressure point; and e) triggering the navigation function.

6,493,006	Graphical user interface having contextual menus	Apple Computer, Inc.	Gourdol; Arno Cooley; Daniel	345	G09G	19960510	0	100%	<input type="checkbox"/>
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Abstract: A contextual pop-up menu of frequently used commands is displayed by an application whenever a user carries out a particular action. The contextual menu appears at the location of a cursor, so that the displayed commands are spatially very close to an item on which an action is to be performed. The commands which are displayed in the contextual menu are not limited to those provided by an application associated with the selected item. Other commands, such as system level commands, for help items or other types of user assistance features, can be added to the menu before it is displayed to the user. In addition, plug-in modules can be employed to provide other commands associated with the selected item.

MainClaim: A method for enabling a computer user to invoke actions that are to be performed on objects appearing on a computer display, comprising the steps of:

detecting a designated action by a user with respect to a selected object under the control of an application program executing on a computer;

determining a data type for the selected object;

retrieving a list of commands provided by the application program which are associated with the determined type of data;

providing a notification from the application program to an operating system executing on the computer, which identifies the designated action and the type of data for the selected object;

selecting, within the operating system, a set of commands based upon said type of data, in response to said notification;

providing said notification to plug-in modules which are registered with the operating system;

selecting, within said plug-in modules, additional commands based upon said type of data, in response to said notification;

providing said set of commands selected by the operating system and said additional commands selected by the plug-in modules to the application program; and

displaying a menu of commands appropriate to the selected type of data, which includes the list of commands retrieved by the application program and the commands selected by the operating system and the plug-in modules.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	97%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

7,539,795	Methods and apparatus for implementing dynamic shortcuts both for rapidly accessing web content and application program windows and for establishing context-based user environments	Nokia Corporation	Vahtola; Miika	710	G06F	20060130	6	94%	<input type="checkbox"/>
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Abstract: The invention disclosed herein concerns methods and apparatus for implementing dynamic shortcuts for use in navigating web content and application program windows. In particular, the methods and apparatus of the invention allow a user to associate one or more items selected from web content or application program windows with a dynamic shortcut. In one aspect of the invention, a user assigns a keyboard shortcut to one or more web pages viewed during the browsing session. Once assigned a keyboard shortcut, the one or more web pages can be rapidly accessed using the keyboard shortcut. In variations of the invention, the one or more web pages may be assigned an icon accessible from, for example, the desktop. In other aspects of the invention the keyboard shortcut or icon is associated with content or resources derived from multiple sources; such as, for example, web pages located using a browser and application program windows spawned using an application program.

MainClaim: A memory medium storing a computer program executable by a digital processor of an electronic device, the electronic device having a display for displaying a graphical user interface, wherein when the computer program is executed by the digital processor operations are performed for creating a keyboard shortcut for navigating between resources capable of being displayed in the graphical user interface, the operations comprising: receiving a command to associate at least a first resource with the keyboard shortcut; associating the first resource with the keyboard shortcut; receiving a command to associate at least a second resource with the keyboard shortcut; associating the second resource with the keyboard shortcut while maintaining the association of the first resource with the keyboard shortcut so that both the first and second resource can be accessed with the keyboard shortcut, wherein when the second resource is associated with the keyboard shortcut both the first resource and the second resource are visible in the graphical user interface of the electronic device and are arranged within the graphical user interface in accordance with a user-specified arrangement; saving arrangement information describing the user-specified arrangement of the first resource and the second resource within the graphical user interface at the time the second resource is associated with the keyboard shortcut; detecting entry of a key sequence corresponding to the keyboard shortcut associated with the first and second resource; and displaying both the first resource and the second resource in the graphical user interface of the electronic device in response to the detection of the entry of the key sequence corresponding to the keyboard shortcut, wherein the first resource and the second resource are displayed in accordance with the user-specified arrangement described in the arrangement information.

2006/0253788	Method, apparatus and computer program to provide a display screen	Nokia Corporation	Uotila; Aleks Lindfors; Tuija	715	G06F	20050509	8	94%	<input type="checkbox"/>
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	button placement hint property		Joki; Auli						
<p>Abstract: Disclosed is a method to develop a graphical user interface that includes entering a data structure that specifies a preferred form of a Button to appear on a display screen, and in response to the data structure, defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism, such as a softkey, in place of a displayable Button for the specific instance of the display screen. Also disclosed is a graphical user interface development system that includes means for receiving a data structure that specifies a preferred form of a Button to appear on a display screen and means, responsive to the data structure, for defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism in place of a displayable Button for the specific instance of the display screen. Also disclosed is a mobile device that has a graphical user interface that includes a display screen, where the graphical user interface is defined at least in part by the use of a Button property string that is interpreted at least in part based on physical characteristics of at least one of the display screen and the mobile device.</p> <p>MainClaim: A method to develop a graphical user interface, comprising: entering a data structure that specifies a preferred form of a Button to appear on a display screen; and in response to the data structure, defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism in place of a displayable Button for the specific instance of the display screen.</p>									
5,669,005	System for automatically embedding or incorporating contents added to a document	Apple Computer, Inc.	Curbow; David Smith; David Canfield Piersol; Kurt Stern; Mark Ludwig	715	G06F	19951011	0	100%	<input type="checkbox"/>
<p>Abstract: A document-centered user interface architecture for a computer system employs parts as the fundamental building blocks of all documents. All data is stored in the system as a part, which is comprised of contents and an associated editor. The contents and the functionality of the editor are available to the user wherever the part is located, whether in a document, on a desktop or in a folder. Parts function as containers for other parts, thereby facilitating the compilation and editing of multimedia or compound documents. When material from one part is inserted into another part, the computer system automatically determines whether the added material is incorporated into the intrinsic contents of the receiving part or embedded as a separately identifiable part.</p> <p>MainClaim: A system for controlling the addition of new material to a document having intrinsic contents that is stored in memory of a computer having a display, said system comprising:</p> <p>means for selecting new material to be added to contents of a document and displaying said new material on said display;</p> <p>first means which identifies the new material as belonging to one of a plurality of categories of material;</p> <p>second means for identifying the intrinsic contents of the document as belonging to one of said categories;</p> <p>means for determining whether the category of the new material is the same as the category of the document's intrinsic contents; and</p> <p>means responsive to said determining means for (a) causing the new material to become incorporated as part of the intrinsic contents of the document and displaying the new material as part of the document's intrinsic contents, when the new material belongs to the same category as the document's intrinsic contents, and for (b) establishing the new material as an object, embedding the object as a separate element in the document and displaying the document with the embedded object when the new material's category is not the same as that of the document's intrinsic contents.</p>									
2006/0230056	Method and a device for visual management of metadata	Nokia Corporation	Aaltonen; Antti	707	G06F	20050406	16	93%	<input type="checkbox"/>
<p>Abstract: A method and a device for visual management of metadata. An area with a plurality of data elements is visualized (504) to the user who determines (508) a route on the area, said route including a number of preferred elements belonging to the plurality of elements, which is detected (512). The preferred elements shall act as targets for a predefined metadata operation (514), e.g. change of a metadata attribute value.</p> <p>MainClaim: A method for directing a metadata operation at a number of electronically stored data elements in an electronic device having the steps of visualizing an area with a number of data elements on a display device to a user (504), obtaining control information about a user-defined route between user-defined start and end points on the visualized area comprising said number of data elements (508), specifying based on the route such data elements belonging to said number of data elements over which the route passed (512), and performing the metadata operation on said specified data elements (514).</p>									
2008/0040668	Creating virtual targets in directory structures	Nokia Corporation	Ala-Rantala; Kati	715	G06F	20060810	8	93%	<input type="checkbox"/>
<p>Abstract: A method includes detecting a first user operation corresponding to a first item in a directory structure. The directory structure represents a hierarchical arrangement of a plurality of items, including the first item, in a memory. The first user operation indicates a start of an item action with the first item. The method also includes, in response to detecting a second user operation corresponding to a second item in the directory structure, creating a virtual target in the second item in the directory structure. The virtual target is a possible location for completion of the item action with the first item. The method further includes, in response to a third user operation indicating completion of the item action with the first item in the virtual target, completing the item action with the first item in the virtual target.</p> <p>MainClaim: A method comprising: detecting a first user operation corresponding to a first item in a directory structure, the directory structure representing a hierarchical arrangement of a plurality of items, including the first item, in a memory, the first user operation indicating a start of an item action with the first item; in response to detecting a second user operation corresponding to a second item in the directory structure, creating a virtual target in the second item in the directory structure, wherein the virtual target is a possible location for completion of the item action with the first item; and in response to a third user operation indicating completion of the item action with the first item in the virtual target, completing the item action with the first item in the virtual target.</p>									
2006/0107205	Determining a main content area of a page	Nokia Corporation	Makela; Mikko	715	G06F	20041112	4	92%	<input type="checkbox"/>

Abstract: A method, a computer program, a computer program product, a device and a system for determining a main content area of a page, determines which area of the page contains a page element that is positioned substantially in the middle of the page with respect to a first direction, and is offset by a pre-defined distance from a border of the page with respect to a second direction that is orthogonal to the first direction, and wherein the area that contains the page element is defined to be the main content area.

MainClaim: A method for determining a main content area of a page, said method comprising: determining which area of said page contains a page element that is positioned substantially in the middle of said page with respect to a first direction, and is offset by a pre-defined distance from a border of said page with respect to a second direction that is substantially orthogonal to said first direction, and defining said area that contains said page element to be said main content area.

5,625,377	Method for controlling a computerized organizer	Apple Computer, Inc.	Jenson; Scott A.	345	G09G	19950526	0	100%	<input type="checkbox"/>
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Abstract: The method of the present invention includes the steps of executing a process to support a number of temporal-based functions and activating at least one of these temporal-based functions. Temporal-based functions of the present invention include a scheduler, to-do list, and a note function. Temporal-based entries can then be moved within and/or between the temporal-based functions. Further, temporal-based entries can be edited for each temporal-based function. Moving temporal-based entries involves the selection of an entry with a pointer mechanism, dragging the entry to a new location, releasing the entry at the new location, and updating a database to reflect the entry's change in position. Editing an entry involves direct editing of an entry, editing through an editing window, or editing of a duration bar associated with an entry. Data entered into a scheduling field of the scheduler function is processed according to its placement within the scheduling field. Annotation entries are separated from appointment entries by an invisible margin in the scheduling field.

MainClaim: A method for entering data into a scheduler comprising:

displaying a scheduling field on a screen of a pen-based computer system, said field having an appointment area and an annotation area, said appointment area and said annotation area being concurrently active;

entering data on said scheduling field with a pointer mechanism; and

processing said data according to its placement on said scheduling field.

2007/0288282	METHOD AND APPARATUS FOR PREVIEWING CHANGES IN COLOR PALETTE	INTELLISYNC CORPORATION C/O NOKIA CORPORATION	Frid-Nielsen; Martin Schwartz; Richard Lee Boye; Steven Ray	705	G06F	20070423	3	93%	<input type="checkbox"/>
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Abstract: A system for processing multiple schedules, constructed in accordance with the principle of the present invention, includes an information processing system having a memory and a processor; an input device for entering user information; a display device for showing scheduling information; an interface for sending and/or receiving information from another source; and means for reconciling two schedules by building synchronized lists, from which the user may effect a reconciliation.

MainClaim: A method of recoloring screen objects, the method including: selecting from a work surface a screen object to which foreground and/or background colors apply; invoking a recolor palette dialog box that includes a sample box; from the dialog box, selecting new palette values for the foreground and/or the background colors; previewing in the sample box the new palette values selected, before applying the new palette values to the screen object; and confirming the new palette values selected and modifying the screen object.

5,457,476	Method for controlling a computerized organizer	Apple Computer, Inc.	Jenson; Scott A.	345	G09G	19930527	0	100%	<input type="checkbox"/>
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Abstract: The method of the present invention includes the steps of executing a process to support a number of temporal-based functions and activating at least one of these temporal-based functions. Temporal-based functions of the present invention include a scheduler, to-do list, and a note function. Temporal-based entries can then be moved within and/or between the temporal-based functions. Further, temporal-based entries can be edited for each temporal-based function. Moving temporal-based entries involves the selection of an entry with a pointer mechanism, dragging the entry to a new location, releasing the entry at the new location, and updating a database to reflect the entry's change in position. Editing an entry involves direct editing of an entry, editing through an editing window, or editing of a duration bar associated with an entry. Data entered into a scheduling field of the scheduler function is processed according to its placement within the scheduling field. Annotation entries are separated from appointment entries by an invisible margin in the scheduling field.

MainClaim: A method for controlling a computerized organizer comprising the steps of:

executing a computer-implemented process which supports a plurality of non-model temporal-based functions including a scheduler, a to-do list and a note function, wherein said scheduler includes an appointment area and an annotation area, said appointment area and said annotation area being separated by an invisible margin such that temporal-based entries corresponding to annotations in said annotation area that are moved across said invisible margin to said appointment area are transformed into temporal-based entries corresponding to appointments and temporal-based entries corresponding to appointments that are moved across said invisible margins into said annotation area are transformed into temporal-based entries corresponding to annotations;

selecting a temporal-based entry within one said temporal-based functions;

moving said temporal-based entry at least within one of said temporal-based functions in response to a user-initiated move command; and

editing a temporal-based entry in response to a user-initiated edit command.

2007/0288282	METHOD AND APPARATUS FOR PREVIEWING CHANGES IN COLOR PALETTE	INTELLISYNC CORPORATION C/O NOKIA CORPORATION	Frid-Nielsen; Martin Schwartz; Richard Lee Boye; Steven Ray	705	G06F	20070423	3	93%	<input type="checkbox"/>
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Abstract: A system for processing multiple schedules, constructed in accordance with the principle of the present invention, includes an information processing system having a memory and a processor; an input device for entering user information; a display device for showing scheduling information; an interface for sending and/or receiving information from another source;

and means for reconciling two schedules by building synchronized lists, from which the user may effect a reconciliation.

MainClaim: A method of recoloring screen objects, the method including: selecting from a work surface a screen object to which foreground and/or background colors apply; invoking a recolor palette dialog box that includes a sample box; from the dialog box, selecting new palette values for the foreground and/or the background colors; previewing in the sample box the new palette values selected, before applying the new palette values to the screen object; and confirming the new palette values selected and modifying the screen object.

5,287,448	Method and apparatus for providing help information to users of computers	Apple Computer, Inc.	Nicol; Anne Kenyon; Lawrence A. Wagner; Annette Sulzen; James T.	715	G06F	19930324	0	100%	<input type="checkbox"/>
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Abstract: A method for presenting help messages to a user in an interactive computer environment in which a help mode operates concurrently with other programs operating in the computer system. The user receives information about an icon by positioning a pointer on the computer's video display over the icon about which more information is desired. The computer then retrieves an appropriate help message based upon user sophistication from a database of help messages stored in its memory and displays it in a graphic bubble on the video display. The graphic bubble is placed so as to not overlap the object about which more help is requested. The graphic bubble is removed as soon as the pointer is moved away from the object.

MainClaim: In a computer system having a video display and a graphic interface, a method of providing help information to a user of said computer system comprising the steps of:

associating a first help message and a second help message with a first pictorial icon having a first pointer sensitive area on a video display of said computer system;

activating a concurrent help mode of said computer system in response to a first user input to said computer system, said concurrent help mode functioning without taking precedence over another program operating in said computer system, said computer system remaining in the concurrent help mode until deactivated;

moving a pointer on said graphic interface over said first pointer sensitive area associated with said first pictorial icon;

selecting one of the first help message and the second help message associated with said first pictorial icon from a help message database stored in said computer's memory based upon a context of the computer system, the context being determined based upon factors including sophistication of the user and a current status of the computer system;

calculating the size of a graphic bubble to contain the selected help message;

locating a selected portion of said graphic interface having a size sufficient to accommodate said graphic bubble;

displaying said selected help message to said user in said graphic bubble on said video display while said pointer is over said first pointer sensitive area, display of said selected help message not preempting operation of another program operating within said computer system, said graphic bubble being positioned within said selected portion; and

removing said selected help message and said graphic bubble from said video display when said pointer is no longer over said first pointer sensitive area.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	95%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

2006/0290661	Re-configuring the standby screen of an electronic device	Nokia Corporation	Innanen; Piia Kangas; Tita With; Mikko Fowlie; Andrew Junkkonen; Laura	345	G09G	20060607	5	94%	<input type="checkbox"/>
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Abstract: An electronic device including a user interface having a display for displaying a standby screen when the device is in an idle state and a user input device, wherein the user interface provides a menu system, for re-configuring the standby screen, that is navigated using the user input device.

MainClaim: An electronic device comprising: a user interface having a display for displaying a standby screen when the device is in an idle state and a user input device, wherein the user interface provides a menu system, for re-configuring the standby screen, that is navigated using the user input device.

2005/0022130	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius, Henna	715	G09G	20040625	11	93%	<input type="checkbox"/>
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Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.

MainClaim: Method for inputting a character into an electronic device, said method comprising: detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected.

5,588,105	Status bar for application windows	Apple Computer, Inc.	Foster; Gregg S. I Capps; Stephen P.	345	G06F	19950224	0	100%	
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Abstract: A status bar characterized by a template generated independently of an application program and displayed on a computer screen in contact with an application window. The template carries at least one active area that can include an icon for controlling the application program or an area which displays information generated by the application program. Alternatively, or additionally, the active area can include "global functions" of the computer system. A method for providing a status bar is characterized by the steps of creating a status bar template having at least one area to be activated, activating at least one area to create a status bar, and displaying the status bar on a computer screen in contact with an associated application window displayed on the computer screen. The step of creating a status bar template can include the steps of creating a plurality of status bar templates, one of which is chosen to be attached to a particular application window.

MainClaim: A computer system for displaying a status bar for a window of an application program comprising:

a central processing unit (CPU);

read/write memory coupled to said CPU;


a computer screen coupled to said CPU;

means for selecting a status bar template from a plurality of predefined status bar templates, said selected status bar template to be associated with an application program, each of said plurality of status bar templates being able to provide a status bar for different application programs usable on said computer system and each template including a different number or type of active area;

means for providing a status bar from said selected status bar template independently of said application program and independently of an application window of said application program;


means for displaying said status bar on said computer screen such that said status bar is displayed external to said window and is visibly associated with a window of said application program which is also displayed on said computer screen, wherein said status bar is associated only with said application program and is always displayed when said window of said associated application program is displayed; and

means for displaying an active area within said status bar, said active area always being displayed within said status bar and being unable to be removed from said status bar while said status bar is displayed, said active area including an icon or a label.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	93%	
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

7,623,119	Graphical functions by gestures	Nokia Corporation	Autio; Markku Tapio Jarvio; Jami Jarkko Juhani	345	G09G	20040421	7	92%	
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Abstract: A method for operating a computer through a touch sensitive display interface includes displaying a computer generated graphical image on a touch sensitive display using display software. The display software includes programs used to display the graphical image (e.g., display driver and web browser), and is responsive to inputs at a first, active portion (e.g., coinciding with toolbars, hyperlinks) of the touch sensitive display when the graphic image is displayed, and is non-responsive to a second, inactive portion. In the method, an input character is received at the second, inactive portion of the touch sensitive display, and is compared to a stored command character that is associated with a separate corresponding computer command. The separate corresponding computer command is executed if the input character matches the command character. In one embodiment, one particular input character results in emulating a right mouse button by displaying a submenu of shortcut icons, and the method is implemented by operation of a computer program in a mobile station.

MainClaim: A computer readable medium having computer instructions for performing actions comprising: displaying a computer generated graphical image and at least one active area comprising an attribute on a touch sensitive display using a displaying software program, the attribute comprising at least one of a scrolling operator, a toolbar icon and a hyperlink, said displaying software program being responsive to inputs at only a first active portion of the touch sensitive display when said graphical image is displayed, and non-responsive to a second inactive portion of the display; receiving an input character at the second inactive portion of said touch sensitive display; comparing said input character to a stored command character that is associated with a separate corresponding computer command; and executing the separate corresponding computer command if

said input character matches said command character, wherein said separate corresponding computer command is to display a submenu at the touch sensitive display, said submenu comprising a plurality of shortcut links each to a different executable command.

5,625,763	Method and apparatus for automatically generating focus ordering in a dialog on a computer system	Apple Computer, Inc.	Cirne; Lewis K.	345	G06F	19950505	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus provides for automatic generation of an intuitive, logical focusing order for items in a dialog window in a computer system. The focus ordering can be generated dynamically at runtime or statically. In particular, the focusing order is based on the locations and types of the items in the dialog box and is generated as follows. A customizable spatial comparison function, called herein "comparison function", is generated such that two items can be compared and an ordering of the items determined. The spatial comparison function extrapolates or imposes on each item being compared a region which is defined by the extent of the item's bounds. The regions are then compared to determine the focus ordering of the item. The items in the dialog box are sorted using the comparison function. The items are then grouped based on their locations and their types. Items that are of a similar type and in the same horizontal or vertical line are grouped together. Any items not yet assigned to a group and whose bounding regions intersect with any existing group's bounding region are added to that existing group. The item groups are then sorted using the comparison function. A focus order list is formed by iterating through the groups in order and iterating through the items in each group in order to form a list that contains an intuitive focus ordering for the items in the dialog.

MainClaim: A method for automatically generating a focus order for items in a dialog on a computer system, the computer system having a processor, storage and a display device having a display screen, said method comprising the steps of:

sorting said items of said dialog by means of a spatial comparison function;

grouping said items of said dialog into one or more groups, an item being assigned to a group according to the item's location on the display screen, each item being in a single group, each group containing one or more items;

sorting said groups by said comparison function; and

listing said focus ordering of said items to form a focus order list by iterating through said groups in sorted order, for each group iterating through the items of the group in sorted order.

2006/0230056	Method and a device for visual management of metadata	Nokia Corporation	Aaltonen; Antti	707	G06F	20050406	16	92%	<input type="checkbox"/>
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Abstract: A method and a device for visual management of metadata. An area with a plurality of data elements is visualized (504) to the user who determines (508) a route on the area, said route including a number of preferred elements belonging to the plurality of elements, which is detected (512). The preferred elements shall act as targets for a predefined metadata operation (514), e.g. change of a metadata attribute value.

MainClaim: A method for directing a metadata operation at a number of electronically stored data elements in an electronic device having the steps of visualizing an area with a number of data elements on a display device to a user (504), obtaining control information about a user-defined route between user-defined start and end points on the visualized area comprising said number of data elements (508), specifying based on the route such data elements belonging to said number of data elements over which the route passed (512), and performing the metadata operation on said specified data elements (514).

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	92%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

5,745,910	Frame structure which provides an interface between parts of a compound document	Apple Computer, Inc.	Piersol; Kurt W. Susser; Joshua B. Rodseth; Richard C.	715	G06T	19960417	0	100%	<input type="checkbox"/>
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Abstract: A document-centered user interface architecture for a computer system employs parts as the fundamental building blocks of all documents. All data is stored in the system as a part, which is comprised of contents and an associated editor. The contents and the functionality of the editor are available to the user wherever the part is located, whether in a document, on a desktop or in a folder. Parts function as containers for other parts, thereby facilitating the compilation and editing of multimedia or compound documents. A data structure, labelled a frame, functions as an interface between a container part and an embedded part, and allows the two parts to negotiate with respect to graphic structure without requiring extensive knowledge of one another's internal constraints.

MainClaim: In a computer system for the creation and/or manipulation of compound documents, wherein a first component of a document is embedded in a second, containing component of the document and each component includes associated contents and a manipulator for those contents, an interface arrangement for defining the relationship between said first and second components, said arrangement comprising:

means storing a first data structure containing information that is shared between said first and second components, said stored

information including a first shape that is determined by said second component and which defines an area within said second component that is available for the placement of the contents of said first component, and a second shape that is determined by said first component and which defines the portion of said area in which the contents of said first component are actually located; and

means storing a second data structure associated with the first data structure and containing information regarding the geometric relationship between said first and second components, said information stored in the second data structure including a third shape that is determined by said second component and which defines a portion of said area in which the contents of said first component can be displayed.

2006/0230056	Method and a device for visual management of metadata	Nokia Corporation	Aaltonen; Antti	707	G06F	20050406	16	94%	<input type="checkbox"/>
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Abstract: A method and a device for visual management of metadata. An area with a plurality of data elements is visualized (504) to the user who determines (508) a route on the area, said route including a number of preferred elements belonging to the plurality of elements, which is detected (512). The preferred elements shall act as targets for a predefined metadata operation (514), e.g. change of a metadata attribute value.

MainClaim: A method for directing a metadata operation at a number of electronically stored data elements in an electronic device having the steps of visualizing an area with a number of data elements on a display device to a user (504), obtaining control information about a user-defined route between user-defined start and end points on the visualized area comprising said number of data elements (508), specifying based on the route such data elements belonging to said number of data elements over which the route passed (512), and performing the metadata operation on said specified data elements (514).

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	92%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

2006/0107205	Determining a main content area of a page	Nokia Corporation	Makela; Mikko	715	G06F	20041112	4	92%	<input type="checkbox"/>
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Abstract: A method, a computer program, a computer program product, a device and a system for determining a main content area of a page, determines which area of the page contains a page element that is positioned substantially in the middle of the page with respect to a first direction, and is offset by a pre-defined distance from a border of the page with respect to a second direction that is orthogonal to the first direction, and wherein the area that contains the page element is defined to be the main content area.

MainClaim: A method for determining a main content area of a page, said method comprising: determining which area of said page contains a page element that is positioned substantially in the middle of said page with respect to a first direction, and is offset by a pre-defined distance from a border of said page with respect to a second direction that is substantially orthogonal to said first direction, and defining said area that contains said page element to be said main content area.

5,570,109	Schedule and to-do list for a pen-based computer system	Apple Computer, Inc.	Jenson; Scott A.	345	G09G	19950227	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for controlling a schedule and a to-do list on a computer display. A computer implemented method of the present invention includes the steps of displaying a calendar controller on a computer display, selecting at least one date on the calendar controller, determining a display mode, and displaying a content area on the computer display. The content are preferably includes either a schedule or a to-do list for the selected date or dates, and both the content area and the calendar controller are concurrently active. A scheduling and to-do list apparatus includes a digital processor, a display coupled to the digital processor, a mechanism for determining a display mode, a mechanism for displaying a calendar controller on the display, a mechanism for selecting at least one date on the calendar controller, and a mechanism for displaying a content area or on the display. The apparatus is preferably implemented as a pen-based computer system, where a primary form of user input comprises strokes made by a stylus upon a tablet overlying the display.

MainClaim: A method for controlling a schedule and a to-do list on a computer display comprising;

displaying a calendar controller on said computer display;

selecting a plurality of dates on said calendar controller;

determining a display mode; and,

displaying a content area on said computer display, said content area comprising at least one of a schedule and a to-do list for said plurality of dates, wherein information is entered into and viewed from said content area while said calendar controller remains visible and active, wherein information corresponding to said plurality of dates is displayed as a part of said schedule.

2007/0288282	METHOD AND APPARATUS FOR PREVIEWING CHANGES	INTELLISYNC CORPORATION C/O NOKIA CORPORATION	Frid-Nielsen; Martin Schwartz; Richard Lee	705	G06F	20070423	3	92%	<input type="checkbox"/>
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IN COLOR PALETTE			Boye; Steven Ray							
Abstract: A system for processing multiple schedules, constructed in accordance with the principle of the present invention, includes an information processing system having a memory and a processor; an input device for entering user information; a display device for showing scheduling information; an interface for sending and/or receiving information from another source; and means for reconciling two schedules by building synchronized lists, from which the user may effect a reconciliation. MainClaim: A method of recoloring screen objects, the method including: selecting from a work surface a screen object to which foreground and/or background colors apply; invoking a recolor palette dialog box that includes a sample box; from the dialog box, selecting new palette values for the foreground and/or the background colors; previewing in the sample box the new palette values selected, before applying the new palette values to the screen object; and confirming the new palette values selected and modifying the screen object.										
6,686,938	Method and system for providing an embedded application toolbar	Apple Computer, Inc.	Jobs; Steven P. Lindsay; Donald J. Wasko; Tim	345	G09G	20000105	0	100%	<input checked="" type="checkbox"/>	
Abstract: A method and system for providing menu tools directly from an operating system includes a computer system having a user interface including a display, a cursor, and a cursor control device, and an operating system. Menu tools are provided to one or more application windows. A menu item associated with a menu tool represents an available operating system function and an interactive icon associated with the menu item may be placed in a toolbar region in one of the application windows for access to the function. A special operating mode is activated for selecting menu items for use in the toolbar and making the function associated with the menu item available to the application by moving the menu item to the toolbar region. The menu item is represented as an interactive icon once the special operating mode is activated. The operating system function associated with the menu item is made available to the application window directly from the operating system by interaction with the icon. The menu item is further represented as an icon in regions of additional application windows which may either be active or subsequently instantiated through inheritance. The special operating mode is activated from a special key on an input device. Menu items are displayed along with menu tools corresponding to available operating system functions. MainClaim: A method in a computer system having a user interface including a display, a cursor, and a cursor control device, and an operating system, the method for providing one or more menu tools from an operating system to one or more applications having one or more application windows, the method comprising the steps of: representing a menu item associated with the one or more menu tools of the operating system as an interactive icon in a region in one of the one or more application windows, the region associated with a special operating mode; and making an operating system function associated with the menu item available to the one of the one or more application windows directly from the operating system by interaction with the interactive icon, wherein the operating system function is adapted to operate on a file within the one or more application windows and is customizable for each of the one or more applications.										
2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	96%	<input type="checkbox"/>	
Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.										
2006/0253788	Method, apparatus and computer program to provide a display screen button placement hint property	Nokia Corporation	Uotila; Aleks Lindfors; Tuija Joki; Auli	715	G06F	20050509	8	94%	<input type="checkbox"/>	
Abstract: Disclosed is a method to develop a graphical user interface that includes entering a data structure that specifies a preferred form of a Button to appear on a display screen, and in response to the data structure, defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism, such as a softkey, in place of a displayable Button for the specific instance of the display screen. Also disclosed is a graphical user interface development system that includes means for receiving a data structure that specifies a preferred form of a Button to appear on a display screen and means, responsive to the data structure, for defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism in place of a displayable Button for the specific instance of the display screen. Also disclosed is a mobile device that has a graphical user interface that includes a display screen, where the graphical user interface is defined at least in part by the use of a Button property string that is interpreted at least in part based on physical characteristics of at least one of the display screen and the mobile device. MainClaim: A method to develop a graphical user interface, comprising: entering a data structure that specifies a preferred form of a Button to appear on a display screen; and in response to the data structure, defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism in place of a displayable Button for the specific instance of the display screen.										
2006/0059436	Handling and scrolling of content on screen	Nokia Corporation	Nurmi; Mikko	715	G06F	20050805	10	92%	<input type="checkbox"/>	
Abstract: The invention relates to a software application adapted for scrolling content on a screen in an application window. The software application includes at least two logically distinct scroll bars in one application window, each of the scroll bars providing scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content. MainClaim: A device for handling content comprising a memory, a processing unit controlling operation of said device according										

to software stored in said memory, a screen for viewing content, said memory comprising a software application adapted for scrolling content on the screen in an application window, wherein the software application comprises: at least two logically distinct scroll bars in one application window, each of the scroll bars providing scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content.

5,664,128	Object storage apparatus for use with data sets in computer applications	Apple Computer, Inc.	Bauer; German Wolfgang	345	G06F	19950223	0	100%	<input type="checkbox"/>
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Abstract: A drawer-like apparatus for storing objects for use with a data set in an application window on a digital computer. The drawer is advantageously associated with a user data set instead of with an application program or an application window. The drawer further includes a visible drawer handle displayed in the application window and a drawer storage area coupled to the visible drawer handle. Unless accessed via the visible drawer handle, at least a majority of the drawer storage area is visually hidden. The drawer storage area is capable of storing a plurality of objects, at least one of the plurality of objects stored within the drawer storage area is represented upon access by a symbolic representation within the drawer storage area. There are two types of drawers, default and customizable. Default drawers are read-only storage devices and store an unalterable number of default objects. On the other hand, customizable drawers have contents that may be changed and are generally used to store user-deposited objects. To control user access to the drawer, the association between the drawer and the data set is inhibitable based on a predetermined availability criteria. Further, each drawer may include a write-enable criteria, which determines whether that drawer is default or customizable to a particular user.

MainClaim: An apparatus for storing objects for use with a data set in an application window on a digital computer, comprising:

a drawer uniquely associated with said data set in said application window, said drawer capable of being displayed within said application window, comprising,

a visible drawer handle having a first height and a first width, said visible drawer handle being configured for display in said application window, and

a drawer storage area coupled to said visible drawer handle, wherein at least a portion of said drawer storage area is displayed with said application window when opened via said visible drawer handle by a user, said drawer storage area being visually coupled to said drawer handle when opened, and wherein said drawer storage area is capable of storing a plurality of objects, at least one of said plurality of objects being visually represented by a symbolic representation displayed within said drawer storage area when opened.

2006/0230056	Method and a device for visual management of metadata	Nokia Corporation	Aaltonen; Antti	707	G06F	20050406	16	92%	<input type="checkbox"/>
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Abstract: A method and a device for visual management of metadata. An area with a plurality of data elements is visualized (504) to the user who determines (508) a route on the area, said route including a number of preferred elements belonging to the plurality of elements, which is detected (512). The preferred elements shall act as targets for a predefined metadata operation (514), e.g. change of a metadata attribute value.

MainClaim: A method for directing a metadata operation at a number of electronically stored data elements in an electronic device having the steps of visualizing an area with a number of data elements on a display device to a user (504), obtaining control information about a user-defined route between user-defined start and end points on the visualized area comprising said number of data elements (508), specifying based on the route such data elements belonging to said number of data elements over which the route passed (512), and performing the metadata operation on said specified data elements (514).

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	92%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

5,748,927	Graphical user interface with icons having expandable descriptors	Apple Computer, Inc.	Stein; Michael Victor Wenker; Paul Richard	345	G06F	19960510	0	100%	<input type="checkbox"/>
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Abstract: A graphical user interface for a computer includes an arrangement of icons that provides for a large number of icons to be present on screen while maintaining a large amount of useable screen space. An icon text description setting out the icon's function is provided adjacent to each icon. The icon text description is presented in truncated form when the icon is not designated by a cursor. When the icon is designated by a cursor, the icon text description is expanded to a full length thereby more fully describing the icon's function. When an icon is designated by a cursor, the text descriptions for undesignated icons are blanked, thereby focusing attention on the designated icon. This arrangement has the desirable effect of providing a user with a ready means of identifying or reaffirming icon function while avoiding the consumption of useful screen space.

MainClaim: A graphical user interface which provides for user selection of a plurality of functions that can be performed via a computer, comprising:

a plurality of icons displayed on a display device and respectively associated with said plurality of user-selectable functions;

a plurality of associated icon descriptors displayed adjacent said icons, each descriptor containing at least a portion of a description of the function represented by an associated icon in a space that is aligned with the respective icon to which the description pertains;

a cursor that can be positioned by a user on said display device to designate one of said icons; and

a display controller responsive to the positioning of said cursor on one of said icons for blanking the display of the descriptions for all the other icons and displaying the entire description of said one icon.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	95%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

2004/0261031	Context dependent auxiliary menu elements	Nokia Corporation	Tuomainen, Kimmo Suomalainen, Sanna M. Konkka, Katja	715	G09G	20030623	2	92%	<input type="checkbox"/>
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Abstract: The invention relates to a method of displaying a menu on a display of an electronic device. The method comprises the steps of displaying one or more selection elements, defining an auxiliary element for at least one selection element, activating one selection element and displaying an auxiliary element only in an active selection element.

MainClaim: A method of displaying a menu on a display of an electronic device, the method comprising the steps of displaying one or more selection elements, defining an auxiliary element for at least one selection element, activating one selection element, and displaying an auxiliary element only in an active selection element.

6,966,037	Method and apparatus for scrollable cross-point navigation in a calendar user interface	Nokia Corporation	Fredriksson; Linus Nyberg; Urban	715	G06F	20011119	3	92%	<input type="checkbox"/>
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Abstract: Method and apparatus for displaying an electronic calendar in a scrollable cross-point navigation image having two bars, each containing panels corresponding to a separate folder or entry of the calendar's hierarchy of folders and entries. At the intersection of the bars is displayed the current lowest level and the next upper level, if any. In one embodiment, the next higher level is shown in an adjoining panel on a first bar, the next higher level in a next adjoining panel on that bar, until there are no further higher levels to display, at which point the remaining upper-most level folders are displayed. The second bar displays sub-folders or calendar entries within the folder in the focus panel. Moving in the folder hierarchy causes the panels in the first bar to shift to display all intervening levels through the top level.

MainClaim: A method for displaying calendar information in a display associated with an electronic device, comprising:

organizing a plurality of calendar entries into a hierarchy comprising a plurality of calendar groups, at least one of which calendar groups having at least one sublevel of calendar subgroups; and

displaying panels on a display associated with an electronic device, the panels being arranged into two bars of panels with a common focus panel at the intersection of the two bars of panels, each of the panels being linked to and identifying one of (a) one of the plurality of calendar entries, (b) one of the calendar groups, and (c) one of the calendar subgroups,

wherein the focus panel identifies (a) a currently selectable lowest level in the hierarchy and optionally (b) the next higher level, if any,

wherein levels, if any, in the hierarchy higher than that displayed in the focus panel are identified in one of (a) succeeding adjoining panels of a first of the two bars, other panels of the first bar identifying highest level groups in the hierarchy, and (b) other panels of the first bar identifying groups in the hierarchy in the next higher level identified in the focus panel; and

wherein panels of the second of the two bars each identify one of (a) calendar entries, if any, (b) calendar groups, if any, and (c) calendar subgroups, if any, of the same level in the hierarchy as the currently selectable lowest level in the hierarchy identified in the focus panel.

7,434,177	User interface for providing consolidation and access	Apple Inc.	Ording; Bas Jobs; Steven P. Lindsay; Donald J.	715	G06F	19991220	0	100%	<input type="checkbox"/>
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Abstract: Methods and systems for providing graphical user interfaces are described. To provide greater access and consolidation to frequently used items in the graphical user interface, a userbar is established which includes a plurality of item representations. To permit a greater number of items to reside in the userbar, a magnification function can be provided which magnifies items within the userbar when they are proximate the cursor associated with the graphical user interface.

MainClaim: A computer system comprising: a display; a cursor for pointing to a position within said display; a bar rendered on said display and having a plurality of tiles associated therewith; and a processor for varying a size of at least one of said plurality of tiles on said display when said cursor is proximate said bar on said display and for repositioning others of said

plurality of tiles along said bar to accommodate the varied size of said one tile.									
2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	94%	<input type="checkbox"/>
Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.									
2005/0229111	Presentation of large pages on small displays	Nokia Corporation	Makela, Mikko	715	G06F	20040407	4	93%	<input type="checkbox"/>
Abstract: This invention relates to method for presenting at least a part of a page, comprising at least partially dividing at least one page into a plurality of areas, presenting said plurality of areas in a first representation, making at least one area of said plurality of areas an active area, and in response to a user operation on said at least one active area, presenting at least one of said at least one active areas in a second representation. Said at least one page may be a Hypertext Markup Language HTML page, or a page of a text document, and said display may be integrated in a portable electronic device. The invention further relates to a device, a system, a computer program and a computer program product. MainClaim: A method for presenting at least a part of a page, comprising: at least partially dividing at least one page into a plurality of areas; presenting said plurality of areas in a first representation, making at least one area of said plurality of areas an active area; and in response to a user operation on said at least one active area, presenting at least one of said at least one active areas in a second representation.									
2006/0107205	Determining a main content area of a page	Nokia Corporation	Makela; Mikko	715	G06F	20041112	4	92%	<input type="checkbox"/>
Abstract: A method, a computer program, a computer program product, a device and a system for determining a main content area of a page, determines which area of the page contains a page element that is positioned substantially in the middle of the page with respect to a first direction, and is offset by a pre-defined distance from a border of the page with respect to a second direction that is orthogonal to the first direction, and wherein the area that contains the page element is defined to be the main content area. MainClaim: A method for determining a main content area of a page, said method comprising: determining which area of said page contains a page element that is positioned substantially in the middle of said page with respect to a first direction, and is offset by a pre-defined distance from a border of said page with respect to a second direction that is substantially orthogonal to said first direction, and defining said area that contains said page element to be said main content area.									
5,898,434	User interface system having programmable user interface elements	Apple Computer, Inc.	Small; Ian S. Chen; Michael Zarakov; Eric L. Mander; Richard L. Vertelney; Laurie J. Mander; Amanda R. Arent; Michael A. Faris; James P. Tycz; Jeffrey E. Knapp; Lewis C.	345	G06F	19940822	0	100%	<input checked="" type="checkbox"/>
Abstract: A user interface having a plurality of user interface elements for marking, finding, organizing, and processing data stored in a computer system. Each element typically has an appearance which is related to the data or function the element is designed to represent or perform. The elements may simply mark data within the document, or may be programmed to cause the computer to perform some function in association with the marked data. Methods of marking data and searching the memory for marked data by use of switches or buttons is disclosed. Further, useful elements for systems such as computerized camera systems, portable multimedia systems, and remote controls are also described. Some of the user interface elements of the present invention may have an appearance and/or functionality dependent upon the context in which the element is used, and/or dependent upon the user's identity. Methods for arranging the elements in stacks, and for providing for automatic application of elements to captured image data are also disclosed. MainClaim: A user interface system for use in a computerized system having a processor, a memory, and an input/output system in communication with said processor and said memory for operating said user interface system, comprising: a plurality of types of user interface elements including means for associating data with one of said user interface elements and means for identifying said user interface elements to said computerized system; means for storing said identifying means for said user interface elements in said memory; means for finding said data associated with said one of said plurality of types of user interface elements in said memory by searching for said identifying means in said memory, wherein said input/output system comprises a first switch, wherein said means for associating data is operative to associate said data with one of said plurality of user interface elements in response to a first signal generated by said first switch, wherein said display device has means for displaying one or more of said types of said user interface elements, wherein a first									

set comprising more than one of said types of user interface elements is associated with an area on said display device, wherein said input/output system comprises means for selecting one of said more than one type of said user interface elements to be displayed in said area, said one of said types of said user interface elements displayed in said area being operative to be associated with said data.

2006/0230056	Method and a device for visual management of metadata	Nokia Corporation	Aaltonen; Antti	707	G06F	20050406	16	93%	<input type="checkbox"/>
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Abstract: A method and a device for visual management of metadata. An area with a plurality of data elements is visualized (504) to the user who determines (508) a route on the area, said route including a number of preferred elements belonging to the plurality of elements, which is detected (512). The preferred elements shall act as targets for a predefined metadata operation (514), e.g. change of a metadata attribute value.

MainClaim: A method for directing a metadata operation at a number of electronically stored data elements in an electronic device having the steps of visualizing an area with a number of data elements on a display device to a user (504), obtaining control information about a user-defined route between user-defined start and end points on the visualized area comprising said number of data elements (508), specifying based on the route such data elements belonging to said number of data elements over which the route passed (512), and performing the metadata operation on said specified data elements (514).

7,184,024	Method and apparatus for mapping an input location with a displayed functional representation	Nokia Corporation	Eftekhari; Jamshid	345	G09G	20010119	6	92%	<input type="checkbox"/>
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Abstract: A user interface is disclosed which may take a data stream, or file having hyperlinks or functional text embedded therein. The CPU of the user interface may select distinct colors for each hyperlink so that such links are distinguishable. The color selection may be made so that each link has a button that has a matching color for at least one hyperlink. The user interface associates a button having a color with a hyperlink having the same color, such that when the button is actuated, programmed execution of the function associated with the hyperlink occurs. Thus a mapping of button, to color, to hyperlink, to function may be established.

MainClaim: A method in a device having a plurality of character-entry pressure points for selecting a function in a markup language file comprising: a) reading the markup language file; b) detecting a reference in a handheld device to a character encoding having a corresponding function, the corresponding function being displayed in a display of the handheld device; c) illuminating substantially only one character-entry pressure point corresponding to the character encoding, the substantially only one character-entry pressure point being disposed in an input area of the handheld device in proximity to the display of the handheld device, wherein a color associated with a character-entry pressure point when illuminated corresponds to a color of the corresponding navigation function; d) detecting an entry by the character-entry pressure point; and e) triggering the navigation function.

2007/0022367	Multidimensional tabbing for electronic devices	Nokia Corporation	Ingrassia; Michael Capin; Tolga Chitturi; Suresh Haro; Antonio	715	G06F	20050630	1	92%	<input type="checkbox"/>
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Abstract: The invention relates to a method for displaying and manipulating a data object on a display of a mobile electronic device utilizing multi-dimensional tabbing. The invention relates also to a means for creating the data object. The method utilizes information arranged in a tree like hierarchy in the memory of the electronic device. The user of the cellular terminal can move back and forth from one level in the tree hierarchy to other level or inside one level by tabbing.

MainClaim: A method for displaying content comprising of multidimensional display object set, the method comprising the steps of: parsing and interpreting markup language syntax which has tags defining multi-dimensional display object sets; and displaying the content on display according to the markup language definition.

5,666,552	Method and apparatus for the manipulation of text on a computer display screen	Apple Computer, Inc.	Greyson; Ann M. Hokit; Jeffrey D. Kaptanoglu; Marjory Wagner; Annette M. Capps; Stephen P.	715	G06F	19950601	0	100%	<input type="checkbox"/>
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Abstract: A means and method for directly manipulating text on a computer display screen. A selected block of text is first identified for manipulation. After being identified, the selected block of text is highlighted on the display screen using contrasting colors or a reverse video. A text manipulation handle associated with the selected text block is displayed. The user may then directly manipulate the selected text block by positioning a cursor within the text manipulation handle and activating a signal generation device. When this occurs, the selected text block may be moved around the display screen while remaining visible using the cursor control device as long as the signal generation device remains active. A shadow image and insertion marker associated with the selected text block is displayed while the selected text block is moveable. A cutting or copying operation may be selected when the signal generation device is activated. The cutting operation removes the selected text block from the available text leaving a blank area at its original position. The copying operation retains the original selected text block in its previous position in the available text. When the signal generation device is deactivated, the selected text block is inserted or pasted into the available text at the position indicated by the insertion marker. The available text is then reformatted to achieve continuity in the lines of available text.

MainClaim: In an interactive computer-controlled display system having a processor, a memory means, a display device coupled to said processor for visibly displaying text, a cursor control device coupled to said processor for interactively positioning a cursor on said display device, and a signal generation device for signaling an active and an inactive control state, a process for directly manipulating a portion of text available for display on said display device, said process comprising the steps of:

selecting a block of text from a set of available text, at least a portion of the available text displayed on said display device;

dragging said selected block of text from a previous position to a new position relative to said available text, at least a portion of said selected block of text being visible as said selected block of text is dragged, said movement of said selected block of text being responsive to movement of said cursor control device;

displaying an insertion marker on said display device, said insertion marker specifying the new position in said available text where said selected block of text is inserted in an inserting step; and

said step of inserting, inserting said selected block of text into said available text, said selected block of text being inserted at said new position pointed to by the insertion marker and reformatting at least a part of said available text such that the at least one part of the available text is unobscured by the insertion of the selected block of text and to provide continuity between said available text and said selected block of text.

2008/0002888	Apparatus, method, device and computer program product providing enhanced text copy capability with touch input display	Nokia Corporation	Yuan; Shijun	382	G06K	20060629	13	92%	<input type="checkbox"/>
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Abstract: A device includes a display having touch sensitive display surface that is responsive to pen-based user input, and a control unit that is bidirectionally coupled to the display. The control unit is responsive to a user selecting displayed text from a first display location using the pen, and is further responsive to a first signal generated using the pen, to copy the selected displayed text to a buffer associated with a text window and to display the copied text in the text window. The control unit is further responsive to the user selecting a second display location using the pen, and to a second signal, to copy the displayed text from the text window to the second display location, thereby implementing a copy and paste function. A cut and paste function may also be implemented.

MainClaim: A method, comprising: selecting displayed text from a first display location using a pen in combination with a touch sensitive surface; in response to a first signal generated using the pen, copying the selected displayed text to a buffer associated with a text window and displaying the copied text in the text window; selecting a second display location using the pen; and in response to a second signal, copying the displayed text from the buffer to the second display location.

5,341,293	User interface system having programmable user interface elements	Apple Computer, Inc.	Vertelney; Laurie J. Erickson; Thomas D. Mountford; S. Joy Thompson-Rohrlich; John A. Salomon; Gitta B. Wong; Yin Y. Venolia; Daniel S. Gomoll; Kathleen M. Hulteen; Eric A.	715	G06F	19920903	0	100%	<input type="checkbox"/>
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Abstract: A user interface element having a plurality of user interface elements for marking, finding, organizing, and processing data within documents stored in an associated computer system are described. Each element typically has an appearance which is uniquely related to the data or the function the element is designed to represent or perform, respectively. In their simplest form, these elements are only used to mark data within a document. Each element, however, can also be programmed to cause the computer to perform some function in association with the marked data, such as printing the data or mailing the data to someone. A user can select particular data within a document using an element and have that data associated with the element in memory. Data marked with common elements can be found by searching for a particular representative element in memory. Users can create their own elements, program elements with their own desired functionality, and modify existing elements. Elements can also be compounded together so as to cause a combination of tasks to be performed by simply activating one element.

MainClaim: A user interface system for use in a computerized system having a processor, a memory, a display and an interactive input/output system in communication with the processor, the memory and the display for operating the user interface system, comprising:

a user interface element including first means for identifying said user interface element to a user, means for marking data displayed within one or more documents on said display with said first identifying means, and second means for identifying said user interface element to said computerized system such that said marked data can subsequently be found by said computerized system through utilization of said second identifying means;

means for storing one or more of said second identifying means for one or more of said user interface elements in said memory as a proxy to said marked data;

means for finding said marked data in said memory by searching for said proxy in said memory; and

means for displaying said marked data on said display after finding said marked data.

2006/0230056	Method and a device for visual management of metadata	Nokia Corporation	Aaltonen; Antti	707	G06F	20050406	16	92%	<input type="checkbox"/>
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Abstract: A method and a device for visual management of metadata. An area with a plurality of data elements is visualized (504) to the user who determines (508) a route on the area, said route including a number of preferred elements belonging to the plurality of elements, which is detected (512). The preferred elements shall act as targets for a predefined metadata operation (514), e.g. change of a metadata attribute value.

MainClaim: A method for directing a metadata operation at a number of electronically stored data elements in an electronic device having the steps of visualizing an area with a number of data elements on a display device to a user (504), obtaining control information about a user-defined route between user-defined start and end points on the visualized area comprising said number of data elements (508), specifying based on the route such data elements belonging to said number of data elements over which the route passed (512), and performing the metadata operation on said specified data elements (514).

5,714,971	Split bar and input/output window control icons for interactive user interface	Apple Computer, Inc.	Shalit; Andrew Jones; Jeremy	345	G09G	19941130	0	100%	<input type="checkbox"/>
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Abstract: An interactive user interface for a computer controlled system to simplify browsing and navigating through information structures. The interface uses a split-pane icon on a window scroll bar, or input and output icons on a window title bar. When activating the split-pane icon by dragging a selected object to it, a new pane opens up displaying the contents of the

object. Where a first or second pane exists, dragging a selected object to the first or second panels input icon, or dragging the output icon of the first pane to the second panels input icon, will display the contents of a selected object in the first or second pane respectively. Other ways of controlling the displays in the same or different windows or panes are also described.

MainClaim: An interactive user interface of a computer including a monitor for displaying objects of said computer on a screen, said interface comprising:

a window of the screen, said window configured for apportionment into a plurality of panes, a first pane having a content region for displaying said objects;

control means located within a first control region of said first pane and within a second control region of a second pane of said window for linking a selected object of said first pane to said second pane; and

means for dragging said selected object from said content region of said first pane to one of said first and second control regions and dropping said object onto said control means, such that said control means, in response to said dropped object, links said selected object to said second pane to thereby enable automatic viewing of contents of said selected object on said second pane.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	93%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

2008/0040668	Creating virtual targets in directory structures	Nokia Corporation	Ala-Rantala; Kati	715	G06F	20060810	8	93%	<input type="checkbox"/>
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Abstract: A method includes detecting a first user operation corresponding to a first item in a directory structure. The directory structure represents a hierarchical arrangement of a plurality of items, including the first item, in a memory. The first user operation indicates a start of an item action with the first item. The method also includes, in response to detecting a second user operation corresponding to a second item in the directory structure, creating a virtual target in the second item in the directory structure. The virtual target is a possible location for completion of the item action with the first item. The method further includes, in response to a third user operation indicating completion of the item action with the first item in the virtual target, completing the item action with the first item in the virtual target.

MainClaim: A method comprising: detecting a first user operation corresponding to a first item in a directory structure, the directory structure representing a hierarchical arrangement of a plurality of items, including the first item, in a memory, the first user operation indicating a start of an item action with the first item; in response to detecting a second user operation corresponding to a second item in the directory structure, creating a virtual target in the second item in the directory structure, wherein the virtual target is a possible location for completion of the item action with the first item; and in response to a third user operation indicating completion of the item action with the first item in the virtual target, completing the item action with the first item in the virtual target.

2006/0059436	Handling and scrolling of content on screen	Nokia Corporation	Nurmi; Mikko	715	G06F	20050805	10	92%	<input type="checkbox"/>
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Abstract: The invention relates to a software application adapted for scrolling content on a screen in an application window. The software application includes at least two logically distinct scroll bars in one application window, each of the scroll bars providing scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content.

MainClaim: A device for handling content comprising a memory, a processing unit controlling operation of said device according to software stored in said memory, a screen for viewing content, said memory comprising a software application adapted for scrolling content on the screen in an application window, wherein the software application comprises: at least two logically distinct scroll bars in one application window, each of the scroll bars providing scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content.

5,404,442	Visible clipboard for graphical computer environments	Apple Computer, Inc.	Foster; Gregg S. Capps; Stephen P. Sharpe; Benjamin W.	345	G06F	19921130	0	100%	<input type="checkbox"/>
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Abstract: Text, graphics, or other selected objects of a computer screen are selected and converted into a "visual clipboard" which is attached to a convenient boundary of the screen. The visible clipboard is preferably implemented on a pen-based computer system where the object is selected by a stylus, is dragged to a boundary, and is converted to a clipboard icon at the boundary. Multiple clipboard icons may be produced by the user, and can be moved from one boundary location to another. The contents of the clipboard can be inserted or "pasted" into an application program by dragging the clipboard icon with the stylus to the desired insertion location. Preferably, each clipboard is provided with indicia representative of the contents of the clipboard.

MainClaim: A method for moving a clipboard icon comprising the steps of:

selecting a clipboard icon on a computer screen having a boundary;

dragging said clipboard icon on said computer screen with a pointing device; and

depositing said clipboard icon, wherein when the clipboard icon is deposited at a location that impinges the boundary on said computer screen, the clipboard icon is displayed in its deposited location, and wherein when said clipboard icon is deposited at a location that does not impinge the boundary on said computer screen, the clipboard icon is converted to an image of application data that is stored within a clipboard memory and the image of said application data is displayed on said computer screen at the deposit location and the application data is inserted in an application program file at a position that corresponds to the deposit location.

7,554,530	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi; Sachi Mori; Eigo	345	G09G	20021223	13	93%	<input type="checkbox"/>
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Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.

MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object that represents data; and selecting the at least one displayed object, where forming the stroke further comprises extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object.

7,623,119	Graphical functions by gestures	Nokia Corporation	Autio; Markku Tapio Jarvio; Jami Jarkko Juhani	345	G09G	20040421	7	92%	<input type="checkbox"/>
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Abstract: A method for operating a computer through a touch sensitive display interface includes displaying a computer generated graphical image on a touch sensitive display using display software. The display software includes programs used to display the graphical image (e.g., display driver and web browser), and is responsive to inputs at a first, active portion (e.g., coinciding with toolbars, hyperlinks) of the touch sensitive display when the graphic image is displayed, and is non-responsive to a second, inactive portion. In the method, an input character is received at the second, inactive portion of the touch sensitive display, and is compared to a stored command character that is associated with a separate corresponding computer command. The separate corresponding computer command is executed if the input character matches the command character. In one embodiment, one particular input character results in emulating a right mouse button by displaying a submenu of shortcut icons, and the method is implemented by operation of a computer program in a mobile station.

MainClaim: A computer readable medium having computer instructions for performing actions comprising: displaying a computer generated graphical image and at least one active area comprising an attribute on a touch sensitive display using a displaying software program, the attribute comprising at least one of a scrolling operator, a toolbar icon and a hyperlink, said displaying software program being responsive to inputs at only a first active portion of the touch sensitive display when said graphical image is displayed, and non-responsive to a second inactive portion of the display; receiving an input character at the second inactive portion of said touch sensitive display; comparing said input character to a stored command character that is associated with a separate corresponding computer command; and executing the separate corresponding computer command if said input character matches said command character, wherein said separate corresponding computer command is to display a submenu at the touch sensitive display, said submenu comprising a plurality of shortcut links each to a different executable command.

2004/0119763	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi, Sachi Mori, Eigo	345	G09G	20021223	12	92%	<input type="checkbox"/>
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Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.

MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object.

5,442,742	Method and apparatus for the manipulation of text on a computer display screen	Apple Computer, Inc.	Greyson; Ann M. Hokit; Jeffrey D. Kaptanoglu; Marjory Wagner; Annette M. Capps; Stephen P.	715	G06F	19931014	0	100%	<input type="checkbox"/>
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Abstract: A means and method for directly manipulating text on a computer display screen. A selected block of text is first identified for manipulation. After being identified, the selected block of text is highlighted on the display screen using contrasting colors or a reverse video. A text manipulation handle associated with the selected text block is displayed. The user may then directly manipulate the selected text block by positioning a cursor within the text manipulation handle and activating a signal generation device. When this occurs, the selected text block may be moved around the display screen while remaining visible using the cursor control device as long as the signal generation device remains active. A shadow image and insertion marker associated with the selected text block is displayed while the selected text block is moveable. A cutting or copying operation may be selected when the signal generation device is activated. The cutting operation removes the selected text block from the available text leaving a blank area at its original position. The copying operation retains the original selected text block in its

previous position in the available text. When the signal generation device is deactivated, the selected text block is inserted or pasted into the available text at the position indicated by the insertion marker. The available text is then reformatted to achieve continuity in the lines of available text.

MainClaim: In an interactive computer-controlled display system having a processor, a memory means, a display device coupled to said processor a cursor control device coupled to said processor for interactively positioning a cursor on said display device, and a signal generation device for signaling an active and an inactive control state, a process for directly manipulating a portion of text displayed on said display device, said process comprising the steps of:

selecting a block of text from a set of available text, at least a portion of said available text displayed on said display device;

dragging said selected block of text from a previous position to a new position relative to said available text, at least a portion of said selected block of text being visible as said selected block of text is dragged, said movement of said selected block of text being responsive to movement of said cursor control device, said dragging step comprising;

displaying a text manipulation handle on said display device, said text manipulation handle comprising a graphic element visually associated with said selected block of text,

determining whether said cursor is visually positioned within said text manipulation handle displayed on the display device,

receiving a signal from said signal generation device indicating that said signal generation device is in an active control state, and

upon determining that said cursor is positioned within the text manipulation handle and while the signal generation device is in an active state, dragging said selected block of text and said text manipulation handle from a previous position to a new position relative to said available text while said signal generation device is in an active control state, at least a portion of said selected block of text being visible as said selected block of text is dragged;

displaying an insertion marker on said display device, said insertion marker comprising a graphic element visually associated with said selected block of text, said insertion marker moving with said selected block of text and is indicative of a position in the available text; and

inserting said selected block of text into said available text, said selected block of text being inserted at said new position, corresponding to the position of the insertion marker, at least a portion of said available text being reformatted to provide continuity between said available text and said inserted block of text.

2008/0002888	Apparatus, method, device and computer program product providing enhanced text copy capability with touch input display	Nokia Corporation	Yuan; Shijun	382	G06K	20060629	13	92%	<input type="checkbox"/>
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Abstract: A device includes a display having touch sensitive display surface that is responsive to pen-based user input, and a control unit that is bidirectionally coupled to the display. The control unit is responsive to a user selecting displayed text from a first display location using the pen, and is further responsive to a first signal generated using the pen, to copy the selected displayed text to a buffer associated with a text window and to display the copied text in the text window. The control unit is further responsive to the user selecting a second display location using the pen, and to a second signal, to copy the displayed text from the text window to the second display location, thereby implementing a copy and paste function. A cut and paste function may also be implemented.

MainClaim: A method, comprising: selecting displayed text from a first display location using a pen in combination with a touch sensitive surface; in response to a first signal generated using the pen, copying the selected displayed text to a buffer associated with a text window and displaying the copied text in the text window; selecting a second display location using the pen; and in response to a second signal, copying the displayed text from the buffer to the second display location.

6,243,071	Tool set for navigating through an electronic book	Apple Computer, Inc.	Shwarts; Scott L. Dunham; David R.	345	G09G	19931103	0	100%	<input type="checkbox"/>
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Abstract: The present invention provides a method for controlling a screen display of an electronic book. The contents of the book are displayed on a screen of the computer system as pages with which the user interacts by a pointer such as a pen or stylus. The navigational tool set performs various functions including one or more of the following: (1) creating page displays for content of the book, (2) providing a navigation interface for identifying material in the book and moving to desired locations, (3) finding character strings located within the book, and (4) accepting handwritten information on pages of the book. The electronic book includes a "bookmark" button which when selected displays a bookmark icon and inserts a bookmark in the book at the page that is currently displayed. Thereafter the user can close the book or move to another page and automatically return to the marked page by selecting the bookmark icon. The user can also move to other pages by scrolling with scroll keys or other navigational devices such as tables of contents browsers and menu pages which are provided on the computer system.

MainClaim: A method of controlling the display of an electronic book on a display screen of a hand-held stylus-based computer having a processor connected to the display screen, a memory connected to the processor, one or more buttons, and a stylus, the method comprising:

opening a book package which contains the electronic book and which resides, at least in part, in the memory of the computer;

displaying a view of a current page of the electronic book on the display screen, the view including at least one navigation button;

displaying a navigation dialog box on the display screen when the navigation button is selected by interaction of the stylus with the display screen, the navigation dialog box having at least a bookmark button and a return to menu button;

placing a bookmark at a preselected page when the bookmark button is selected by interaction of the stylus with the display screen; and

displaying a menu page in the electronic book when the return to menu button is selected by interaction of the stylus with the display screen, the menu page listing one or more destinations within the electronic book which can be reached by selecting a corresponding destination from the menu page.

7,716,580	Web page title shortening	Nokia Corporation	Roto; Virpi Vartiainen; Elina Popescu; Andrei Grassel; Guido Myllyia; Salla Rautava; Mika	715	G06F	20050630	4	92%	<input type="checkbox"/>
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Abstract: A method for shortening a web page title. The method includes determining if a title of a current web page fits in a title display area of a display. If the title fits the title is displayed in the title area. If the title does not fit, it is determined if the title of the current web page starts with a same word as a title of a previous page. If the title of the current web page starts with the same word, at least one word is removed from a beginning portion of the title of the current page that is in common with the title of the previous page, until the title of the current page fits in the title display area, or there are no more common words in the beginning of the title. End words or letters or end words can be removed until the title fits. Missing words may be indicated by adding a predetermined indicator in the area of the missing or removed words.

MainClaim: A method comprising: determining that a title of a current web page does not fit in a title display area of a display; removing at least one word from the title of the current page until the title of the current page fits in the title display area wherein removing the at least one word comprises: determining, by a processor, that the title of the current web page starts with at least one same word as a title of a previous page; and removing at least one word from a beginning portion of the title of the current page that is in common with the title of the previous page; and determining that there is at least one common word in between an end portion of the current title and an end portion of the previous title and removing the at least one common word.

5,524,201	Method of preparing an electronic book for a computer system	Apple Computer, Inc.	Shwartz; Scott L. Dunham; David R.	345	G06E	19931103	0	100%	<input type="checkbox"/>
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Abstract: A method and system for preparing interactive references having pages which can be displayed on the screen of a pointer-based computer system. Some of the reference's pages have "live" features or icons which the user can select to cause various actions such as moving to other locations within the reference, displaying dialog boxes on the screen, etc. The present invention converts a document containing appropriate comments into a set of instructions for an interactive reference according to a defined sequence of steps. First, the document is separated into content blocks delineated by content commands. Each such block can be separately formatted for use in the interactive reference. Next, the system creates page descriptions in which the content blocks are arranged on pages whose boundaries are defined by the display screen of the computer system on which the interactive references will be displayed. In addition, the system prepares instructions for treating pointer actions on buttons and other live screen features. Finally, commands describing the interactive reference, are output. The commands will be provided a format, at least when compiled, that can be stored and processed in the computer on which the interactive reference is displayed.

MainClaim: A method by which a first computer system automatically converts a document to an interactive reference that can be interpreted by and displayed on a second computer system having a display screen sensitive to a pointer, a processor in communication with the display screen, and a memory in communication with the processor such that at least portions of the interactive reference residing in the memory can be retrieved by interaction of the pointer with the display screen, the method comprising the following steps:

separating the document into content blocks delineated by content commands within the document, some content blocks containing templates for live interaction between the pointer and the display screen and other content blocks containing text or a picture;

creating page descriptions in which the content blocks are arranged on pages whose boundaries are defined by the display screen of the second computer;

preparing instructions for treating pointer actions on templates displayed on the display screen; and

outputting commands describing the interactive reference, the commands having a format, at least when compiled, that can be stored in the memory of the second computer system and interpreted by the processor of the second computer system.

7,716,580	Web page title shortening	Nokia Corporation	Roto; Virpi Vartiainen; Elina Popescu; Andrei Grassel; Guido Myllyia; Salla Rautava; Mika	715	G06F	20050630	4	93%	<input type="checkbox"/>
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Abstract: A method for shortening a web page title. The method includes determining if a title of a current web page fits in a title display area of a display. If the title fits the title is displayed in the title area. If the title does not fit, it is determined if the title of the current web page starts with a same word as a title of a previous page. If the title of the current web page starts with the same word, at least one word is removed from a beginning portion of the title of the current page that is in common with the title of the previous page, until the title of the current page fits in the title display area, or there are no more common words in the beginning of the title. End words or letters or end words can be removed until the title fits. Missing words may be indicated by adding a predetermined indicator in the area of the missing or removed words.

MainClaim: A method comprising: determining that a title of a current web page does not fit in a title display area of a display; removing at least one word from the title of the current page until the title of the current page fits in the title display area wherein removing the at least one word comprises: determining, by a processor, that the title of the current web page starts with at least one same word as a title of a previous page; and removing at least one word from a beginning portion of the title of the current page that is in common with the title of the previous page; and determining that there is at least one common word in between an end portion of the current title and an end portion of the previous title and removing the at least one

common word.									
2005/0229119	Method for the presentation and selection of document links in small screen electronic devices	Nokia Corporation	Torvinen, Marko	715	G06F	20040407	2	92%	<input type="checkbox"/>
<p>Abstract: A method, an electronic device and a computer program, for document link presentation and selection in an electronic device. In the method a first hypertext page comprising at least one separate link area is opened in an electronic device. At least part of said first hypertext page is displayed in a view window movable in the area of said first hypertext page. A link area nearest to a first point on said view window is determined. A link list comprising links associated with said link area is formed. As a user selects a first link in the link list and a second hypertext page indicated by the first link is opened in the electronic device.</p> <p>MainClaim: A method for document link presentation and selection in an electronic device, the method comprising: opening a first hypertext page comprising at least one separate link area in said electronic device; displaying at least part of said first hypertext page in a view window movable in the area of said first hypertext page; determining a link area nearest to a first point on said view window; forming a link list comprising links associated with said link area; allowing a user to select a first link in said link list; and opening a second hypertext page indicated by said first link in said electronic device.</p>									
7,478,322	Method and arrangement for displaying hypertext pages	Nokia Corporation	Konttinen; Hannu	715	G06F	20011211	1	92%	<input type="checkbox"/>
<p>Abstract: The invention relates to a method and arrangement for reading hypertext pages especially on mobile phone display screens. A device is provided with a program which "understands" some basic rules of written language such as punctuation, conjunctions connecting parts of sentences, and the direction of reading. A low-resolution display (300) is divided into a navigation pane (320) and read pane (330). The selected hypertext page is decoded, and an overall view thereof, preprocessed in a predetermined manner, is brought into the navigation pane. A length of text cut off according to the said rules is brought at a time into the read pane from the area indicated by a cursor (310). The text is so short that it is easily readable as far as the size of the characters is concerned. The device has predefined key functions to move forward or backward in the text one step at a time or by skipping text passages if desired. The words displayed at a time on the display constitute a factual entity or at least belong to the same factual entity, whereby the reading of the text on the hypertext page is easy despite the limitations of the display. The invention may also be used for data searching in a relatively large mass of information.</p> <p>MainClaim: A method for reading text on hypertext pages, in which received pages are decoded and a certain reading portion of a page, indicated by a cursor, is enlarged onto a display used as an output device, wherein shift commands are defined in order to use the method, the method comprising: preprocessing the pages in order to read the text portion in them, dividing the display into a navigation pane and a read pane; placing an overall view of at least one decoded page to the navigation pane; storing language specific rules of syntax in a memory; sequentially processing the text, based on the stored language specific rules of syntax, to identify a start element and end element, selecting a first text portion between the start element and end element as the reading portion and placing the selected portion on the read pane, and further processing connected portions of the selected text for a new start element and a new end element and selecting the text portion between the new start element and new end element of a second text portion and placing the selected contiguous portion on the read pane, if a shift command is received.</p>									
6,144,380	Method of entering and using handwriting to identify locations within an electronic book	Apple Computer Inc.	Shwartz; Scott L. Dunham; David R.	345	G06F	19970219	0	100%	<input type="checkbox"/>
<p>Abstract: A method for controlling a screen display of an electronic book. The contents of the book are displayed on a screen of the computer system as pages with which the user interacts by a pointer such as a pen or stylus. The content engine performs various functions including one or more of the following: (1) creating page displays for content of the book, (2) providing a navigation interface for identifying material in the book and moving to desired locations, (3) finding character strings located within the book, and (4) accepting handwritten information on pages of the book. The electronic book includes a "bookmark" button which when selected displays a bookmark icon and inserts a bookmark in the book at the page that is currently displayed. Thereafter the user can close the book or move to another page and automatically return to the marked page by selecting the bookmark icon. The user can also move to other pages by scrolling with scroll keys or other navigational devices such as tables of contents browsers and menu pages which are provided on the computer system.</p> <p>MainClaim: A method of processing handwriting written with a pointer on a screen display of a pointer-based computer having a processor connected to the screen display, a memory connected to the processor, a pointer, contents of an electronic book, and one or more buttons, the method comprising:</p> <p>displaying a view of a current page of the book on the display screen;</p> <p>recognizing handwriting as one or more character strings when said handwriting is written in handwriting recognition fields displayed on the screen display, the one or more character strings being used to identify at least one location within the book;</p> <p>displaying handwriting written on the current page of the book after a mark-up button has been selected; and</p> <p>hiding all handwriting and associated text written with said pointer on the current page when the mark-up button is re-selected.</p>									
7,716,580	Web page title shortening	Nokia Corporation	Roto; Virpi Vartiainen; Elina Popescu; Andrei Grassel; Guido Myllyia; Salla Rautava; Mika	715	G06F	20050630	4	92%	<input type="checkbox"/>
<p>Abstract: A method for shortening a web page title. The method includes determining if a title of a current web page fits in a title display area of a display. If the title fits the title is displayed in the title area. If the title does not fit, it is determined if the title of the current web page starts with a same word as a title of a previous page. If the title of the current web page starts with the same word, at least one word is removed from a beginning portion of the title of the current page that is in common with the title of the previous page, until the title of the current page fits in the title display area, or there are no more common words</p>									

in the beginning of the title. End words or letters or end words can be removed until the title fits. Missing words may be indicated by adding a predetermined indicator in the area of the missing or removed words.

MainClaim: A method comprising: determining that a title of a current web page does not fit in a title display area of a display; removing at least one word from the title of the current page until the title of the current page fits in the title display area wherein removing the at least one word comprises: determining, by a processor, that the title of the current web page starts with at least one same word as a title of a previous page; and removing at least one word from a beginning portion of the title of the current page that is in common with the title of the previous page; and determining that there is at least one common word in between an end portion of the current title and an end portion of the previous title and removing the at least one common word.

5,802,516	Method of controlling an electronic book for a computer system	Apple Computer, Inc.	Shwarts; Scott L. Dunham; David R.	707	G06F	19950530	0	100%	
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Abstract: The present invention provides a method for controlling a screen display of an electronic book. The contents of the book are displayed on a screen of the computer system as pages with which the user interacts by a pointer such as a pen or stylus. The content engine performs various functions including one or more of the following: (1) creating page displays for content of the book, (2) providing a navigation interface for identifying material in the book and moving to desired locations, (3) finding character strings located within the book, and (4) accepting handwritten information on pages of the book. The electronic book includes a "bookmark" button which when selected displays a bookmark icon and inserts a bookmark in the book at the page that is currently displayed. Thereafter the user can close the book or move to another page and automatically return to the marked page by selecting the bookmark icon. The user can also move to other pages by scrolling with scroll keys or other navigational devices such as tables of contents browsers and menu pages which are provided on the computer system.

MainClaim: A method of searching a character string in one or more documents provided in an electronic book with the aid of a pointer-based computer having a processor, a memory connected to the processor, a display screen connected to the processor, a pointer, and one or more documents residing, at least in part, in the memory, each of the documents having one or more content records, the method comprising the following steps:

selecting a character string by interaction of the pointer with the display screen, the display screen including a field for accepting handwriting, wherein the computer is arranged to recognize handwriting written in the field as the character string;

encoding an NGRAM for each n successive characters in the character string, the NGRAM being grouped with other NGRAMs from the character string in an array of NGRAMs;

comparing the character string array of NGRAMs against NGRAMs for the content records of at least one document provided in the electronic book;


searching the contents of those content records having NGRAMs containing each element of the character string NGRAM; and

indicating on the display screen the records containing the search string.

7,716,580	Web page title shortening	Nokia Corporation	Roto; Virpi Vartiainen; Elina Popescu; Andrei Grassel; Guido Myllyia; Salla Rautava; Mika	715	G06F	20050630	4	92%	
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Abstract: A method for shortening a web page title. The method includes determining if a title of a current web page fits in a title display area of a display. If the title fits the title is displayed in the title area. If the title does not fit, it is determined if the title of the current web page starts with a same word as a title of a previous page. If the title of the current web page starts with the same word, at least one word is removed from a beginning portion of the title of the current page that is in common with the title of the previous page, until the title of the current page fits in the title display area, or there are no more common words in the beginning of the title. End words or letters or end words can be removed until the title fits. Missing words may be indicated by adding a predetermined indicator in the area of the missing or removed words.

MainClaim: A method comprising: determining that a title of a current web page does not fit in a title display area of a display; removing at least one word from the title of the current page until the title of the current page fits in the title display area wherein removing the at least one word comprises: determining, by a processor, that the title of the current web page starts with at least one same word as a title of a previous page; and removing at least one word from a beginning portion of the title of the current page that is in common with the title of the previous page; and determining that there is at least one common word in between an end portion of the current title and an end portion of the previous title and removing the at least one common word.

6,307,574	Graphical user interface with hierarchical structure for customizable menus and control objects	Apple Computer, Inc.	Ashe; Dylan B. Johnston, Jr.; Robert G. Ruff; Joseph A. Clifford; Daniel	345	G06F	19950508	0	100%	
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Abstract: The program code for control objects in a graphical user interface is organized in a multi-level hierarchial structure. At one level of the structure, each different type of control defines a class of objects. The definition of a class includes most, if not all, of the functionality associated with the objects of that class. In addition, the class definition includes the overall structure of the object, such as the relative positions of different elements which make up the object. The actual appearance of these elements is defined by user selectable software that resides at a lower level of the hierarchy. Using this approach, only one instance of the program code which defines the functionality and overall structure of each object is required, resulting in smaller the overall memory requirements of the program code.

MainClaim: A graphical user interface for a computer, said interface including graphical objects that are displayed on a monitor of the computer and that are accessed by users to control the operation of the computer, said interface comprising a plurality of definitions stored in a memory that are respectively associated with said graphical objects, each of said definitions stored in said memory comprising a hierarchical set of software code modules, including:

a first code module at one level of the hierarchy which defines the structural relationship of elements that constitute a displayed

image of the graphical object; and

a second code module at a lower level of the hierarchy which depends from said first code module, said second code module defining an appearance for each of the elements in the image of the graphical object to be displayed on the monitor.

2006/0253788	Method, apparatus and computer program to provide a display screen button placement hint property	Nokia Corporation	Uotila; Aleks Lindfors; Tuija Joki; Auli	715	G06F	20050509	8	94%	<input type="checkbox"/>
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Abstract: Disclosed is a method to develop a graphical user interface that includes entering a data structure that specifies a preferred form of a Button to appear on a display screen, and in response to the data structure, defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism, such as a softkey, in place of a displayable Button for the specific instance of the display screen. Also disclosed is a graphical user interface development system that includes means for receiving a data structure that specifies a preferred form of a Button to appear on a display screen and means, responsive to the data structure, for defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism in place of a displayable Button for the specific instance of the display screen. Also disclosed is a mobile device that has a graphical user interface that includes a display screen, where the graphical user interface is defined at least in part by the use of a Button property string that is interpreted at least in part based on physical characteristics of at least one of the display screen and the mobile device.

MainClaim: A method to develop a graphical user interface, comprising: entering a data structure that specifies a preferred form of a Button to appear on a display screen; and in response to the data structure, defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism in place of a displayable Button for the specific instance of the display screen.

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	94%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	94%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

5,515,496	Computer system with direct manipulation interface and method of operating same	Apple Computer, Inc.	Kaehler; Edwin B. Kay; Alan C. Wallace; Scott G.	345	G06F	19921224	0	100%	<input type="checkbox"/>
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Abstract: A computer system, including a display screen and a direct input device such as a mouse, with a direct manipulation interface, through which the user can not only cause the computer to perform a predefined task by selectively indicating a symbol representing the task but also edit such symbols and their attributes by causing handle-like figures to appear on the screen near the symbol to be edited. The system is operable in two modes. One is a use mode for having a predefined task carried out and no handle-like figures are shown. The other is an edit-and-use mode wherein the user can cause the handle-like figures to appear or disappear but can also carry out every task that can be carried out in the use mode regardless of whether or not these figures are being displayed.

MainClaim: A computer system with direct manipulation interface, comprising:

a display screen;

a pointing means capable of indicating a position on said display screen;

image-producing means for displaying an image on said display screen, said image including one or more task-calling areas, each of said task-calling areas being individually selectable and each of said task-calling areas being associated with a predefined task to be performed by said computer system;

handle-generating means for generating one or more handle areas associated with and proximal to at least one said task-calling area on said display screen if a handle-generating signal associated with said task-calling area is generated, each of said handle areas corresponding to an interface-modifying operation to be performed by said computer system on said task-calling area, said handle areas being removable in response to a handle-removing signal;

editing means for causing said computer system to respond, if any one of said handle areas is selected, by effecting the task-calling area interface-modifying operation corresponding to said selected handle area; and

task-performing means for causing said computer system to respond, if any one of said task-calling areas is selected, by performing the predefined task associated with said selected task-calling area, when said handle areas are currently being displayed on said display screen.

2004/0261031	Context dependent auxiliary menu elements	Nokia Corporation	Tuomainen, Kimmo Suomalainen, Sanna M. Konkka, Katja	715	G09G	20030623	2	93%	<input type="checkbox"/>
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Abstract: The invention relates to a method of displaying a menu on a display of an electronic device. The method comprises the steps of displaying one or more selection elements, defining an auxiliary element for at least one selection element, activating one selection element and displaying an auxiliary element only in an active selection element.

MainClaim: A method of displaying a menu on a display of an electronic device, the method comprising the steps of displaying one or more selection elements, defining an auxiliary element for at least one selection element, activating one selection element, and displaying an auxiliary element only in an active selection element.

2006/0290661	Re-configuring the standby screen of an electronic device	Nokia Corporation	Innanen; Piia Kangas; Tita With; Mikko Fowlie; Andrew Junkkonen; Laura	345	G09G	20060607	5	93%	<input type="checkbox"/>
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Abstract: An electronic device including a user interface having a display for displaying a standby screen when the device is in an idle state and a user input device, wherein the user interface provides a menu system, for re-configuring the standby screen, that is navigated using the user input device.

MainClaim: An electronic device comprising: a user interface having a display for displaying a standby screen when the device is in an idle state and a user input device, wherein the user interface provides a menu system, for re-configuring the standby screen, that is navigated using the user input device.

2010/0011310	Method, Device, Computer Program and Graphical User Interface Used for the Selection, Movement and De-Selection of an Item	NOKIA CORPORATION	Rainisto; Roope	715	G06F	20050930	4	92%	<input type="checkbox"/>
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Abstract: A method of controlling an action performed as a result of a drag and drop operation, the method including displaying a menu of multiple actions during the drag and drop operation, each of the actions being associated with a different respective portion of a display; and performing an action associated with a portion of the display that coincides with a waypoint in the drag and drop operation.

MainClaim: A method of controlling an action performed as a result of a drag and drop operation, the method comprising: displaying a menu of multiple actions during the drag and drop operation, an action being associated with a respective portion of a display; and performing an action associated with a portion of the display that coincides with a waypoint in the drag and drop operation.

RE39,610	Systems and methods for replacing open windows in a graphical user interface	Apple Computer Inc.	McFarland; Max	715	G06F	20020606	0	100%	<input type="checkbox"/>
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Abstract: Systems and methods for returning windows to an original location are described. When springing already open windows to a new location on a display space, it is desired to return that window to its original location for certain situations. A list is provided when the springing operation is initialized which captures information used to return the sprung window. According to exemplary embodiments, the relocation of various windows is tracked to ensure that each window is returned to an original location.

MainClaim: A method for returning a window to an original position among a plurality of cascaded windows which are rendered on a display space, comprising the steps of: generating a list which provides a front-to-back order of said plurality of cascaded windows and an indicator of whether each of said plurality of cascaded windows is currently in its respective original, cascaded position; .Iadd.storing an initial location and position for a window;.Iaddend. removing said window from said original position; rendering said window at another location on said display space; receiving, at a graphical interface, an indication that said window is to be removed from said another location on said display space; and returning said window to said original position based upon said list generated by said step of generating.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	94%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising:

using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

6,072,488	Systems and methods for replacing open windows in a graphical user interface	Apple Computer, Inc.	McFarland; Max	345	G06F	19950505	0	100%	<input type="checkbox"/>
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Abstract: Systems and methods for returning windows to an original location are described. When springing already open windows to a new location on a display space, it is desired to return that window to its original location for certain situations. A list is provided when the springing operation is initialized which captures information used to return the sprung window. According to exemplary embodiments, the relocation of various windows is tracked to ensure that each window is returned to an original location.

MainClaim: A method for returning a window to an original position among a plurality of cascaded windows which are rendered on a display space, comprising the steps of:

generating a list which provides a front-to-back order of said plurality of cascaded windows and an indicator of whether each of said plurality of cascaded windows is currently in its respective original, cascaded position;

removing said window from said original position;

rendering said window at another location on said display space;

receiving, at a graphical interface, an indication that said window is to be removed from said another location on said display space; and

returning said window to said original position based upon said list generated by said step of generating.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	93%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

7,343,562	Graduated visual and manipulative translucency for windows	Apple Inc.	Bonura; Thomas Silverman; Kim	715	G06F	20031105	0	100%	<input type="checkbox"/>
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Abstract: Methods and systems for providing graphical user interfaces are described. overlaid, Information-bearing windows whose contents remain unchanged for a predetermined period of time become translucent. The translucency can be graduated so that, over time, if the window's contents remain unchanged, the window becomes more translucent. In addition to visual translucency, windows according to the present invention also have a manipulative translucent quality. Upon reaching a certain level of visual translucency, user input in the region of the window is interpreted as an operation on the underlying objects rather than the contents of the overlaying window.

MainClaim: A computer system comprising: display means for depicting a graphical user interface with a window having information; and processor means for rendering said window in an opaque state in response to changing said information and rendering said window in a first translucent state in response to said information being unchanged for greater than a predetermined period of time.

2009/0033684	On-screen marker to assist usability while scrolling	Nokia Corporation	Barrett; Robert Alan	345	G09G	20070803	10	92%	<input type="checkbox"/>
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Abstract: In a non-limiting aspect thereof, the exemplary embodiments of this invention provide a method including placing a marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation, and moving the marker on the display, where the marker moves with the departure point during the scrolling operation.

MainClaim: A computer readable medium encoded with a computer program executable by a processor to perform actions comprising: placing a marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation; and moving the marker on the display, where the marker moves with the departure point during the scrolling operation.

7,607,102	Dynamically changing appearances for user interface elements during drag-and-drop operations	Apple Inc.	Ording; Bas Jobs; Steven P.	715	G06F	20020319	0	100%	<input type="checkbox"/>
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Abstract: A user interface includes elements whose appearance dynamically changes in dependence upon functions associated with the elements. In the case of an icon that is the destination for a drag-and-drop operation, the image displayed for the icon

changes in accordance with the object being dragged to it, to represent the task that will be performed as a result of the drag-and-drop operation. The appearance of other elements involved in drag-and-drop operations can also be varied, to reflect the task at hand. As a result, the user is provided with more intuitive feedback regarding the functions that will be performed by the computer as a result of a drag-and-drop operation.

MainClaim: A method for representing actions to be performed on objects in a computer system as a result of drag-and-drop operations within a graphical user interface, comprising the steps of: classifying objects in said computer system into at least a first type and a second type corresponding to respective first and second actions that can be performed on said objects; displaying at least one icon associated with a classified object; detecting that an icon associated with a classified object has been selected, and determining which type of object is associated with the selected icon; providing a destination icon that is associated with both of said first and second actions; assigning first and second images to said destination icon that respectively correspond to said first and second actions; and displaying said destination icon with said first image or said second image in accordance with the type of object determined to be associated with the selected icon.

2008/0040668	Creating virtual targets in directory structures	Nokia Corporation	Ala-Rantala; Kati	715	G06F	20060810	8	94%	<input type="checkbox"/>
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Abstract: A method includes detecting a first user operation corresponding to a first item in a directory structure. The directory structure represents a hierarchical arrangement of a plurality of items, including the first item, in a memory. The first user operation indicates a start of an item action with the first item. The method also includes, in response to detecting a second user operation corresponding to a second item in the directory structure, creating a virtual target in the second item in the directory structure. The virtual target is a possible location for completion of the item action with the first item. The method further includes, in response to a third user operation indicating completion of the item action with the first item in the virtual target, completing the item action with the first item in the virtual target.

MainClaim: A method comprising: detecting a first user operation corresponding to a first item in a directory structure, the directory structure representing a hierarchical arrangement of a plurality of items, including the first item, in a memory, the first user operation indicating a start of an item action with the first item; in response to detecting a second user operation corresponding to a second item in the directory structure, creating a virtual target in the second item in the directory structure, wherein the virtual target is a possible location for completion of the item action with the first item; and in response to a third user operation indicating completion of the item action with the first item in the virtual target, completing the item action with the first item in the virtual target.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	92%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

7,479,971	Intelligent scrolling	Apple Inc.	Meier; John R. Sullivan; John Mercer; Paul	345	G09G	20061228	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for intelligent scrolling. In a computer system that has a user interface which allows for the movement of items from a first open window to a second open window or to a second region, such as a desktop, the present invention allows a user to select one or more items in the first window, move the selected item(s) to within a predetermined distance from an edge of the first window for a predetermined period of time and cause the viewable portion of the data and/or document within the first window to scroll in a corresponding direction.

MainClaim: A machine-readable storage medium having stored instructions to cause a machine to perform a machine-implemented method for controlling a display, the method comprising: receiving a user selection of an object displayed within a first region on said display; receiving an input indicating a user positioning of said selected object at a predetermined scrolling area which is near an edge of the first region, wherein the predetermined scrolling area does not include selectable user inputs for scrolling said display in a first direction; and scrolling in a first direction, in response to said input, displayed items within said first region, wherein said first region is a directory, wherein the selected object is an item within the directory; and determining that said selected object is no longer in said predetermined scrolling area; and terminating said scrolling of said displayed items within said first region.

2009/0033684	On-screen marker to assist usability while scrolling	Nokia Corporation	Barrett; Robert Alan	345	G09G	20070803	10	92%	<input type="checkbox"/>
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Abstract: In a non-limiting aspect thereof, the exemplary embodiments of this invention provide a method including placing a marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation, and moving the marker on the display, where the marker moves with the departure point during the scrolling operation.

MainClaim: A computer readable medium encoded with a computer program executable by a processor to perform actions comprising: placing a marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation; and moving the marker on the display, where the marker moves with the departure point during the scrolling operation.

6,957,395	Computer interface having a single window mode of operation	Apple Computer, Inc.	Jobs; Steven P. Lindsay; Donald J.	715	G06F	20000104	0	100%	<input type="checkbox"/>
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Abstract: A computer-human interface manages the available space of a computer display in a manner which reduces clutter and confusion caused by multiple open windows. The interface includes a user-selectable mode of operation in which only those

windows associated with the currently active task are displayed on the computer monitor. All other windows relating to non-active tasks are minimized by reducing them in size or replacing them with a representative symbol, such as an icon, so that they occupy a minimal amount of space on the monitor's screen. When a user switches from the current task to a new task, by selecting a minimized window, the windows associated with the current task are automatically minimized as the window pertaining to the new task is displayed at its normal size. As a result, the user is only presented with the window that relates to the current task of interest, and clutter provided by non-active tasks is removed.

MainClaim: A user interface for a computer in which data pertaining to multiple different tasks is displayed in multiple different task windows, respectively, and including a user-selectable mode of operation in which only an active one of the multiple task windows is normally displayed at a time, and a minimized representation is provided for all non-active task windows.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	96%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

2006/0059436	Handling and scrolling of content on screen	Nokia Corporation	Nurmi; Mikko	715	G06F	20050805	10	93%	<input type="checkbox"/>
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Abstract: The invention relates to a software application adapted for scrolling content on a screen in an application window. The software application includes at least two logically distinct scroll bars in one application window, each of the scroll bars providing scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content.

MainClaim: A device for handling content comprising a memory, a processing unit controlling operation of said device according to software stored in said memory, a screen for viewing content, said memory comprising a software application adapted for scrolling content on the screen in an application window, wherein the software application comprises: at least two logically distinct scroll bars in one application window, each of the scroll bars providing scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content.

7,539,795	Methods and apparatus for implementing dynamic shortcuts both for rapidly accessing web content and application program windows and for establishing context-based user environments	Nokia Corporation	Vahtola; Miika	710	G06F	20060130	6	92%	<input type="checkbox"/>
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Abstract: The invention disclosed herein concerns methods and apparatus for implementing dynamic shortcuts for use in navigating web content and application program windows. In particular, the methods and apparatus of the invention allow a user to associate one or more items selected from web content or application program windows with a dynamic shortcut. In one aspect of the invention, a user assigns a keyboard shortcut to one or more web pages viewed during the browsing session. Once assigned a keyboard shortcut, the one or more web pages can be rapidly accessed using the keyboard shortcut. In variations of the invention, the one or more web pages may be assigned an icon accessible from, for example, the desktop. In other aspects of the invention the keyboard shortcut or icon is associated with content or resources derived from multiple sources; such as, for example, web pages located using a browser and application program windows spawned using an application program.

MainClaim: A memory medium storing a computer program executable by a digital processor of an electronic device, the electronic device having a display for displaying a graphical user interface, wherein when the computer program is executed by the digital processor operations are performed for creating a keyboard shortcut for navigating between resources capable of being displayed in the graphical user interface, the operations comprising: receiving a command to associate at least a first resource with the keyboard shortcut; associating the first resource with the keyboard shortcut; receiving a command to associate at least a second resource with the keyboard shortcut; associating the second resource with the keyboard shortcut while maintaining the association of the first resource with the keyboard shortcut so that both the first and second resource can be accessed with the keyboard shortcut, wherein when the second resource is associated with the keyboard shortcut both the first resource and the second resource are visible in the graphical user interface of the electronic device and are arranged within the graphical user interface in accordance with a user-specified arrangement; saving arrangement information describing the user-specified arrangement of the first resource and the second resource within the graphical user interface at the time the second resource is associated with the keyboard shortcut; detecting entry of a key sequence corresponding to the keyboard shortcut associated with the first and second resource; and displaying both the first resource and the second resource in the graphical user interface of the electronic device in response to the detection of the entry of the key sequence corresponding to the keyboard shortcut, wherein the first resource and the second resource are displayed in accordance with the user-specified arrangement described in the arrangement information.

6,664,981	Graphical user interface with hierarchical structure for customizable menus and control objects	Apple Computer, Inc.	Ashe; Dylan B. Johnston, Jr.; Robert G. Ruff; Joseph A. Clifford; Daniel	345	G06F	20010813	0	100%	<input type="checkbox"/>
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Abstract: The program code for control objects in a graphical user interface is organized in a multi-level hierarchical structure. At one level of the structure, each different type of control defines a class of objects. The definition of a class includes most, if not

all, of the functionality associated with the objects of that class. In addition, the class definition includes the overall structure of the object, such as the relative positions of different elements which make up the object. The actual appearance of these elements is defined by user selectable software that resides at a lower level of the hierarchy. Using this approach, only one instance of the program code which defines the functionality and overall structure of each object is required, resulting in smaller the overall memory requirements of the program code.

MainClaim: A graphical user interface for a computer, said interface including graphical objects that are displayed on a monitor of the computer and that are accessed by users to control the operation of the computer, said interface comprising a plurality of definitions that are respectively associated with said graphical objects, each of said definitions comprising a hierarchical set of software code modules, including:

a first code module at one level of the hierarchy which defines the structural relationship of elements that constitute a displayed image of the graphical object; and

a second code module at a lower level of the hierarchy which depends from said first code module, said second code module defining an appearance for each of the elements in the image of the graphical object to be displayed on the monitor.

2006/0253788	Method, apparatus and computer program to provide a display screen button placement hint property	Nokia Corporation	Uotila; Aleks Lindfors; Tuija Joki; Auli	715	G06F	20050509	8	94%	<input type="checkbox"/>
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Abstract: Disclosed is a method to develop a graphical user interface that includes entering a data structure that specifies a preferred form of a Button to appear on a display screen, and in response to the data structure, defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism, such as a softkey, in place of a displayable Button for the specific instance of the display screen. Also disclosed is a graphical user interface development system that includes means for receiving a data structure that specifies a preferred form of a Button to appear on a display screen and means, responsive to the data structure, for defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism in place of a displayable Button for the specific instance of the display screen. Also disclosed is a mobile device that has a graphical user interface that includes a display screen, where the graphical user interface is defined at least in part by the use of a Button property string that is interpreted at least in part based on physical characteristics of at least one of the display screen and the mobile device.

MainClaim: A method to develop a graphical user interface, comprising: entering a data structure that specifies a preferred form of a Button to appear on a display screen; and in response to the data structure, defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism in place of a displayable Button for the specific instance of the display screen.

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	94%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	93%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

7,456,850	Intelligent scrolling	Apple Inc.	Meier; John R. Sullivan; John Mercer; Paul	345	G09G	20031218	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for intelligent scrolling. In a computer system that has a user interface which allows for the movement of items from a first open window to a second open window or to a second region, such as a desktop, the present invention allows a user to select one or more items in the first window, move the selected item(s) to within a predetermined distance from an edge of the first window for a predetermined period of time and cause the viewable portion of the data and/or document within the first window to scroll in a corresponding direction.

MainClaim: A machine implemented method for controlling a display, said method comprising: receiving a user selection of an object displayed within a first region on said display, wherein the user selection selects the object to be a selected object, wherein the object is not a dedicated selectable input for movement of said display; receiving an input indicating a user

positioning of said selected object at a predetermined scrolling area which is near an edge of the first region; and scrolling, in response to said input, displayed items within said first region, wherein said first region is a directory of said items, wherein the selected object is an item within the directory; and determining that said selected object is no longer in said predetermined scrolling area; and terminating said scrolling of said displayed items within said first region.

2006/0059436	Handling and scrolling of content on screen	Nokia Corporation	Nurmi; Mikko	715	G06F	20050805	10	93%	<input type="checkbox"/>
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Abstract: The invention relates to a software application adapted for scrolling content on a screen in an application window. The software application includes at least two logically distinct scroll bars in one application window, each of the scroll bars providing scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content.

MainClaim: A device for handling content comprising a memory, a processing unit controlling operation of said device according to software stored in said memory, a screen for viewing content, said memory comprising a software application adapted for scrolling content on the screen in an application window, wherein the software application comprises: at least two logically distinct scroll bars in one application window, each of the scroll bars providing scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content.

2009/0033684	On-screen marker to assist usability while scrolling	Nokia Corporation	Barrett; Robert Alan	345	G09G	20070803	10	92%	<input type="checkbox"/>
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Abstract: In a non-limiting aspect thereof, the exemplary embodiments of this invention provide a method including placing a marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation, and moving the marker on the display, where the marker moves with the departure point during the scrolling operation.

MainClaim: A computer readable medium encoded with a computer program executable by a processor to perform actions comprising: placing a marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation; and moving the marker on the display, where the marker moves with the departure point during the scrolling operation.

6,734,882	Combined menu-list control element in a graphical user interface	Apple Computer, Inc.	Becker; Thomas W.	345	G06F	20000929	0	100%	<input type="checkbox"/>
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Abstract: A control element for use in a graphical user interface, which combines the display features of the list box element and the pop-up menu element into a single GUI control element. The combined menu list control element is capable of displaying data in multiple states thereby allowing to it to optimally use the available display space for presenting data to the user. By allowing menu list control element to display data as either a list or a menu, it combines the advantages of lists and menus while avoiding their disadvantages.

MainClaim: In a graphical user interface, a method of presenting data using a control element, the method comprising the steps of:

determining, by the graphical user interface, an amount of display space available to display said data; and

configuring, by the graphical user interface, the control element to display said data in one of a first display state and a second display state based on the amount of display space determined to be available, wherein said control element, in said first display state, presents said data as a list, and said control element in said second display state, presents a menu which can be accessed to present said data.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	93%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

2006/0290661	Re-configuring the standby screen of an electronic device	Nokia Corporation	Innanen; Piia Kangas; Tita With; Mikko Fowlie; Andrew Junkkonen; Laura	345	G09G	20060607	5	93%	<input type="checkbox"/>
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Abstract: An electronic device including a user interface having a display for displaying a standby screen when the device is in an idle state and a user input device, wherein the user interface provides a menu system, for re-configuring the standby screen, that is navigated using the user input device.

MainClaim: An electronic device comprising: a user interface having a display for displaying a standby screen when the device is in an idle state and a user input device, wherein the user interface provides a menu system, for re-configuring the standby screen, that is navigated using the user input device.

2009/0033684	On-screen marker to assist usability while scrolling	Nokia Corporation	Barrett; Robert Alan	345	G09G	20070803	10	93%	<input type="checkbox"/>
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Abstract: In a non-limiting aspect thereof, the exemplary embodiments of this invention provide a method including placing a

marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation, and moving the marker on the display, where the marker moves with the departure point during the scrolling operation.

MainClaim: A computer readable medium encoded with a computer program executable by a processor to perform actions comprising: placing a marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation; and moving the marker on the display, where the marker moves with the departure point during the scrolling operation.

6,670,970	Graduated visual and manipulative translucency for windows	Apple Computer, Inc.	Bonura; Thomas I Silverman; Kim	345	G09G	19991220	0	100%	<input type="checkbox"/>
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Abstract: Methods and systems for providing graphical user interfaces are described. overlaid, Information-bearing windows whose contents remain unchanged for a predetermined period of time become translucent. The translucency can be graduated so that, over time, if the window's contents remain unchanged, the window becomes more translucent. In addition to visual translucency, windows according to the present invention also have a manipulative translucent quality. Upon reaching a certain level of visual translucency, user input in the region of the window is interpreted as an operation on the underlying objects rather than the contents of the overlaying window.

MainClaim: A computer system comprising:

a display;

a graphical user interface depicted on said display;

a window having information displayed therein; and

a processor for rendering said window in said graphical user interface in an opaque state in response to changing said information and rendering said window in a first translucent state in response to said information being unchanged for greater than a predetermined period of time.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	94%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

7,216,304	Graphical user interface for computers having variable size icons	Apple Inc.	Gourdol; Arnaud I Lindsay; Donald J.	715	G06F	20000105	0	100%	<input type="checkbox"/>
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Abstract: A computer user interface is provided which allows a user to adjust the size of icons based upon a user's preference or based upon a characteristic of the objects that the icons represent. When the icon sizing is performed according to a user preference, a relative sizing scheme or an arbitrary icon sizing scheme can be employed to variably size icons. Providing the ability to size icons in such a manner allows users to represent a user's categorization of object importance, for example.

MainClaim: A method for varying the size of a plurality of icon images displayed in a display device based upon a user preference value, comprising: storing icon data representative of a plurality of icon images; selecting individual icons to perform variable icon sizing; designating a user preference value for each of the selected icons; generating icon images of different respective sizes, wherein the different sizes of the icon images are based upon said user preference values; and displaying said different sized icon images; wherein the generating step includes sorting icon images into an order based upon said designated preference values, and includes calculating a size gap between said ordered icon images using the following equation: $(\text{max} - \text{min}) / (N - 1)$, where N is the number of applications given a preference, min is a minimum icon size and max is a maximum icon size.

2006/0230056	Method and a device for visual management of metadata	Nokia Corporation	Aaltonen; Antti	707	G06F	20050406	16	94%	<input type="checkbox"/>
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Abstract: A method and a device for visual management of metadata. An area with a plurality of data elements is visualized (504) to the user who determines (508) a route on the area, said route including a number of preferred elements belonging to the plurality of elements, which is detected (512). The preferred elements shall act as targets for a predefined metadata operation (514), e.g. change of a metadata attribute value.

MainClaim: A method for directing a metadata operation at a number of electronically stored data elements in an electronic device having the steps of visualizing an area with a number of data elements on a display device to a user (504), obtaining control information about a user-defined route between user-defined start and end points on the visualized area comprising said number of data elements (508), specifying based on the route such data elements belonging to said number of data elements over which the route passed (512), and performing the metadata operation on said specified data elements (514).

2005/0229111	Presentation of large pages on small displays	Nokia Corporation	Makela, Mikko	715	G06F	20040407	4	93%	<input type="checkbox"/>
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Abstract: This invention relates to method for presenting at least a part of a page, comprising at least partially dividing at least

one page into a plurality of areas, presenting said plurality of areas in a first representation, making at least one area of said plurality of areas an active area, and in response to a user operation on said at least one active area, presenting at least one of said at least one active areas in a second representation. Said at least one page may be a Hypertext Markup Language HTML page, or a page of a text document, and said display may be integrated in a portable electronic device. The invention further relates to a device, a system, a computer program and a computer program product.

MainClaim: A method for presenting at least a part of a page, comprising: at least partially dividing at least one page into a plurality of areas; presenting said plurality of areas in a first representation, making at least one area of said plurality of areas an active area; and in response to a user operation on said at least one active area, presenting at least one of said at least one active areas in a second representation.

2006/0107205	Determining a main content area of a page	Nokia Corporation	Makela; Mikko	715	G06F	20041112	4	93%	<input type="checkbox"/>
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Abstract: A method, a computer program, a computer program product, a device and a system for determining a main content area of a page, determines which area of the page contains a page element that is positioned substantially in the middle of the page with respect to a first direction, and is offset by a pre-defined distance from a border of the page with respect to a second direction that is orthogonal to the first direction, and wherein the area that contains the page element is defined to be the main content area.

MainClaim: A method for determining a main content area of a page, said method comprising: determining which area of said page contains a page element that is positioned substantially in the middle of said page with respect to a first direction, and is offset by a pre-defined distance from a border of said page with respect to a second direction that is substantially orthogonal to said first direction, and defining said area that contains said page element to be said main content area.

5,880,729	Graphical user interfaces having animated control elements	Apple Computer, Inc.	Johnston, Jr.; Robert G. Moller; Elizabeth Robinson Ulrich; Robert	345	G06F	19950505	0	100%	<input checked="" type="checkbox"/>
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Abstract: Systems and methods for providing an enhanced visual appearance to a graphical user interface are described. Control elements portrayed by the graphical user interface on a display are associated with at least two states. When transitioning between states, an animated transition effect can be provided to provide further user or designer customization of the interface appearance.

MainClaim: A method for providing an animated transition effect between a first display state associated with a first functional state of a control element drawn on a graphical user interface of a computer system and a second display state associated with a second functional state of said control element, the method comprising:

drawing said control element in said first display state at a first portion of a display space controlled by said graphical user interface;

receiving, at said graphical user interface, a user input invoking said second functional state of said control element;

evaluating a state table associated with said control element having table entries, each of which is associated with a transition between different combinations of states, to identify a table entry associated with a transition between said first display state and said second display state;

retrieving a sequence of transition images of said control element stored in a memory device, based on the table entry identified, wherein each of said transition images in said sequence provides a portion of a visual effect which creates a transition between said first display state and said second display state;

repeatedly redrawing said control element at said first portion of said display space using said sequence of transition images; and

drawing, after a last of said transition images in said sequence, said control element in said second display state at said first portion of said display space.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	93%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

5,652,714	Method and apparatus for capturing transient events in a multimedia product using an authoring tool on a computer system	Apple Computer, Inc.	Peterson; Alan R. Spohrer; James C.	702	G06F	19940930	0	100%	<input checked="" type="checkbox"/>
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Abstract: According to the invention, a software tool such as an authoring tool provides a mechanism for manipulating transient events within a multimedia product or other content having one or more state machines, each state machine having one or

more states and one or more transitions, each transition connecting a first state with a second state, the first and second states being the same as or different from each other, each transition capable of being associated with one or more transient events and a trigger such that when said trigger occurs it initiates a transition from the transition's first state to the transition's second state, the transient events associated with the transition occurring on the computer system during the transition. The invention provides a mechanism for locating a transient event and displays a graphic reference for the located transient event so that the graphic reference can be used to manipulate the transient event.

MainClaim: An apparatus for locating and capturing a transient event in content using a software tool executing on a computer system having a processor and memory, said apparatus comprising:

at least one state machine within the content, each state machine having one or more states and zero or more transitions, each transition having a first end and a second end, each first end and second end being coupled to a state within the state machine, each transition capable of being associated with one or more transient events and a trigger such that when said trigger occurs it initiates a transition from a first state coupled to the first end of the transition to a second state coupled to the second end of the transition whereby the transient events associated with the transition are caused to occur on the computer system;

locating means for locating one of the transitions in a state machine in the content; and

means for capturing a transient event associated with the located transition, said capturing means providing a reference to the captured transient event; and

user interface means, said user interface arranged to graphically display the provided reference and allow a user to manipulate said graphic reference.

2006/0230056	Method and a device for visual management of metadata	Nokia Corporation	Aaltonen; Antti	707	G06F	20050406	16	92%	<input type="checkbox"/>
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Abstract: A method and a device for visual management of metadata. An area with a plurality of data elements is visualized (504) to the user who determines (508) a route on the area, said route including a number of preferred elements belonging to the plurality of elements, which is detected (512). The preferred elements shall act as targets for a predefined metadata operation (514), e.g. change of a metadata attribute value.

MainClaim: A method for directing a metadata operation at a number of electronically stored data elements in an electronic device having the steps of visualizing an area with a number of data elements on a display device to a user (504), obtaining control information about a user-defined route between user-defined start and end points on the visualized area comprising said number of data elements (508), specifying based on the route such data elements belonging to said number of data elements over which the route passed (512), and performing the metadata operation on said specified data elements (514).

6,188,399	Multiple theme engine graphical user interface architecture	Apple Computer, Inc.	Voas; Ed I Gourdol; Arnaud	345	G06F	19980508	0	100%	<input type="checkbox"/>
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Abstract: Systems and methods for providing a user with increased flexibility and control over the appearance and behavior of objects on a user interface are described. Sets of objects can be grouped into themes to provide a user with a distinct overall impression of the interface. These themes can be invoked by calling a corresponding theme engine. Theme engines can be hard-coded or data-driven.

MainClaim: In a graphical user interface, a method for rendering objects and handling behavior of said objects comprising the steps of:

providing a plurality of themes, each theme controlling an appearance and behavior of objects rendered on said graphical user interface, wherein at least one of said appearance and said behavior is controlled differently for an object when said graphical user interface is operated in accordance with one theme than when said graphical user interface is operated in accordance with another theme;

providing a plurality of theme engines, each theme engine associated with a different theme type, wherein at least one of said theme engines is hard-coded and at least one of said theme engines is a data-driven, parametric engine;

selecting a theme from among said plurality of themes;

identifying one of said plurality of theme engines associated with said selected theme; and

loading, by said identified theme engine, theme data for operating said graphical user interface in accordance with said selected theme.

2006/0230056	Method and a device for visual management of metadata	Nokia Corporation	Aaltonen; Antti	707	G06F	20050406	16	93%	<input type="checkbox"/>
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Abstract: A method and a device for visual management of metadata. An area with a plurality of data elements is visualized (504) to the user who determines (508) a route on the area, said route including a number of preferred elements belonging to the plurality of elements, which is detected (512). The preferred elements shall act as targets for a predefined metadata operation (514), e.g. change of a metadata attribute value.

MainClaim: A method for directing a metadata operation at a number of electronically stored data elements in an electronic device having the steps of visualizing an area with a number of data elements on a display device to a user (504), obtaining control information about a user-defined route between user-defined start and end points on the visualized area comprising said number of data elements (508), specifying based on the route such data elements belonging to said number of data elements over which the route passed (512), and performing the metadata operation on said specified data elements (514).

2007/0157117	Apparatus, method and computer program product providing user interface configurable	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	93%	<input type="checkbox"/>
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	command placement logic								
Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands. MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.									
2006/0158385	User interface for different displays	Nokia Corporation	Etelapera; Esa	345	G06F	20050118	2	92%	<input type="checkbox"/>
Abstract: This invention relates to a method for adjusting a graphical user interface for at least two displays, wherein due to an activation of at least one of at least two displays the graphical user interface is informed about the characteristics of said at least one activated display whereby the graphical user interface is refreshed according to said characteristics. This invention also relates to a display system, to a device, to a graphical user interface and to a computer program product. MainClaim: A method for adjusting a graphical user interface for at least two displays, wherein in response to an activation of at least one of said at least two displays the graphical user interface is refreshed for said activated display according to characteristics of said activated display.									
7,530,026	User interface element with auxiliary function	Apple Inc.	Chaudhri; Imran A. Louch; John Grignon; Andrew M. Christie; Gregory N.	715	G06F	20060307	0	100%	<input type="checkbox"/>
Abstract: A user-activatable dashboard (also referred to as a unified interest layer) contains any number of user interface elements, referred to herein as "widgets," for quick access by a user. In response to a command from a user, the dashboard is invoked and the widgets are shown on the screen. The user can activate the dashboard at any time, causing the dashboard to temporarily replace the existing user interface display on the user's screen. Once the dashboard has been activated, the user can interact with any or all of the widgets, and can configure the dashboard by adding, deleting, moving, or configuring individual widgets as desired. When the user wishes to return to the normal user interface he or she was working with, the user issues a command causing the dashboard to be dismissed. Once the dashboard has been dismissed, the previous user interface state is restored, allowing the user to resume normal interactions with the operating system. MainClaim: A method for displaying auxiliary controls for a user interface element on a display screen, the method comprising: displaying a first side of a user interface element wherein the first side consists of a software accessory with a functionality; responsive to receiving user input to display the auxiliary controls for the software accessory, displaying a second side of the user interface element, the second side comprising the auxiliary controls; and receiving changes to the software accessory via the auxiliary controls, wherein the changes are reflected in the appearance and functionality of the software accessory on the first side of the user interface element.									
2009/0327953	UNIFIED NAVIGATION MODEL BETWEEN MULTIPLE APPLICATIONS	NOKIA CORPORATION	Honkala; Mikko Kinnunen; Kimmo Grassel; Guido Cui; Yan Qing Roto; Virpi Rautava; Mika	715	G06F	20080630	5	93%	<input type="checkbox"/>
Abstract: Web style navigation methods are applied across applications and webpages, whether local or web-based, and hypertext navigation methods used in the web are extended to local applications. Local and web applications are mixed seamlessly so that the user does not perceive any difference between navigation within either one of, or between, those types of applications. The user navigates between different user interface states, in and out of different types of applications. All views and states of views are recorded and the user can switch to a previous view, in the state in which it was viewed, using a back, history or other suitable state recording and retrieval function. MainClaim: A method comprising: opening a first application view in a window of a user interface; detecting an activation a link to a second application view while a state of the user interface is in the first application view; opening the second application view in the window of the user interface; and detecting a selection of a function in a state of the user interface in the second application view as a command to automatically return to the state of the user interface in the first application view in the window of the user interface; and returning the state of the user interface to the first application view.									
7,490,295	Layer for accessing user interface elements	Apple Inc.	Chaudhri; Imran A. Louch; John Grignon; Andrew M. Christie; Gregory N.	715	G06F	20040625	0	100%	<input type="checkbox"/>
Abstract: A user-activatable dashboard contains any number of user interface elements, referred to herein as "widgets," for quick access by a user. In response to a command from a user, the dashboard is invoked and the widgets are shown on the screen. The user can activate the dashboard at any time. Once the dashboard has been activated, the user can interact with any or all of the widgets, and can configure the dashboard by adding, deleting, moving, or configuring individual widgets as desired. When the user wishes to return to the normal user interface he or she was working with, the user issues a command causing the dashboard to be dismissed. Once the dashboard has been dismissed, the previous user interface state is restored, allowing the user to resume normal interactions with the operating system. MainClaim: In a computer system including an operating system comprising a runtime engine that is part of the operating system and a display screen comprising an area displaying a user interface, a method for presenting a dashboard layer, comprising: responsive to a trigger event, activating the dashboard layer in the area displaying the user interface, the dashboard layer comprising a web view in a development environment and executed by the runtime engine, the activation of the dashboard layer thereby providing access to a group of widgets contained by the dashboard layer, wherein at least one of the widgets in the group of widgets was not visible on the display screen prior to activation of the dashboard layer.									
	Methods and apparatus for implementing dynamic shortcuts both								

7,539,795	for rapidly accessing web content and application program windows and for establishing context-based user environments	Nokia Corporation	Vahtola; Miika	710	G06F	20060130	6	94%	<input type="checkbox"/>
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Abstract: The invention disclosed herein concerns methods and apparatus for implementing dynamic shortcuts for use in navigating web content and application program windows. In particular, the methods and apparatus of the invention allow a user to associate one or more items selected from web content or application program windows with a dynamic shortcut. In one aspect of the invention, a user assigns a keyboard shortcut to one or more web pages viewed during the browsing session. Once assigned a keyboard shortcut, the one or more web pages can be rapidly accessed using the keyboard shortcut. In variations of the invention, the one or more web pages may be assigned an icon accessible from, for example, the desktop. In other aspects of the invention the keyboard shortcut or icon is associated with content or resources derived from multiple sources; such as, for example, web pages located using a browser and application program windows spawned using an application program.

MainClaim: A memory medium storing a computer program executable by a digital processor of an electronic device, the electronic device having a display for displaying a graphical user interface, wherein when the computer program is executed by the digital processor operations are performed for creating a keyboard shortcut for navigating between resources capable of being displayed in the graphical user interface, the operations comprising: receiving a command to associate at least a first resource with the keyboard shortcut; associating the first resource with the keyboard shortcut; receiving a command to associate at least a second resource with the keyboard shortcut; associating the second resource with the keyboard shortcut while maintaining the association of the first resource with the keyboard shortcut so that both the first and second resource can be accessed with the keyboard shortcut, wherein when the second resource is associated with the keyboard shortcut both the first resource and the second resource are visible in the graphical user interface of the electronic device and are arranged within the graphical user interface in accordance with a user-specified arrangement; saving arrangement information describing the user-specified arrangement of the first resource and the second resource within the graphical user interface at the time the second resource is associated with the keyboard shortcut; detecting entry of a key sequence corresponding to the keyboard shortcut associated with the first and second resource; and displaying both the first resource and the second resource in the graphical user interface of the electronic device in response to the detection of the entry of the key sequence corresponding to the keyboard shortcut, wherein the first resource and the second resource are displayed in accordance with the user-specified arrangement described in the arrangement information.

2009/0327953	UNIFIED NAVIGATION MODEL BETWEEN MULTIPLE APPLICATIONS	NOKIA CORPORATION	Honkala; Mikko Kinnunen; Kimmo Grassel; Guido Cui; Yan Qing Roto; Virpi Rautava; Mika	715	G06F	20080630	5	93%	<input type="checkbox"/>
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Abstract: Web style navigation methods are applied across applications and webpages, whether local or web-based, and hypertext navigation methods used in the web are extended to local applications. Local and web applications are mixed seamlessly so that the user does not perceive any difference between navigation within either one of, or between, those types of applications. The user navigates between different user interface states, in and out of different types of applications. All views and states of views are recorded and the user can switch to a previous view, in the state in which it was viewed, using a back, history or other suitable state recording and retrieval function.

MainClaim: A method comprising: opening a first application view in a window of a user interface; detecting an activation a link to a second application view while a state of the user interface is in the first application view; opening the second application view in the window of the user interface; and detecting a selection of a function in a state of the user interface in the second application view as a command to automatically return to the state of the user interface in the first application view in the window of the user interface; and returning the state of the user interface to the first application view.

2006/0158385	User interface for different displays	Nokia Corporation	Etelapera; Esa	345	G06F	20050118	2	93%	<input type="checkbox"/>
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Abstract: This invention relates to a method for adjusting a graphical user interface for at least two displays, wherein due to an activation of at least one of at least two displays the graphical user interface is informed about the characteristics of said at least one activated display whereby the graphical user interface is refreshed according to said characteristics. This invention also relates to a display system, to a device, to a graphical user interface and to a computer program product.

MainClaim: A method for adjusting a graphical user interface for at least two displays, wherein in response to an activation of at least one of said at least two displays the graphical user interface is refreshed for said activated display according to characteristics of said activated display.

5,586,237	Method for generating and displaying content-based depictions of computer generated objects	Apple Computer, Inc.	Baecker; Ronald M. Small; Ian S.	345	G06T	19950607	0	100%	<input type="checkbox"/>
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Abstract: A means and method for generating and displaying a content-based depiction of a standard icon on the display of a computer. The depiction is generated upon the occurrence of predetermined events, such as the closure of the document or file associated with the icon, and is displayed in either a static or animated form in place of the standard icon in response to selection signals from a selection device. A single content-based depiction of an icon is generated by creating a representation of the object (file or document) to be depicted, and translating this representation into a scaled-down replica of the representation. This representation may be in the form of a bit-map, a full-scale image, etc. The replica is created by partitioning the representation into a number of equal segments, measuring the percentages of different colors (black and white, gray scale, or color) within each segment, and assigning a single color value to each display element or pixel of the replica based upon the color percentage measured from each corresponding segment of the representation. Animated depictions are created by forming a number of different replicas for each representation to be depicted and then displaying those replicas in a serial sequence to create an animated depiction of the representation. Like the icons these depictions replace when selected, the depictions would be movable to any position on the display through use of the mouse.

MainClaim: A computer-readable storage device having stored thereon a plurality of computer-readable instructions for generating a reduced visual version of an object based on the content of the object and displaying the reduced visual version on a display screen of a computer, the reduced visual version being associated with the object, the computer having memory for storing and displaying the object and further having a processor, the reduced visual version having the functionality of an icon,

the object having a variable visual format based upon information contained by the object, the plurality of computer-readable instructions including a sequence of instructions which, when executed by the computer, cause the computer to perform the steps of:

generating the reduced visual version of the object based on the content of the object by transforming at least a portion of the variable visual format of the object; and

displaying the reduced visual version of the object on the display screen,

wherein the step of generating the reduced visual version comprises producing a representation of the portion, the representation being a visual image of the variable format of the object, and generating the reduced visual version of the portion from the representation, the reduced visual version being a scaled-down visual image resembling the variable format of the object.

2005/0229111	Presentation of large pages on small displays	Nokia Corporation	Makela, Mikko	715	G06F	20040407	4	94%	<input type="checkbox"/>
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Abstract: This invention relates to method for presenting at least a part of a page, comprising at least partially dividing at least one page into a plurality of areas, presenting said plurality of areas in a first representation, making at least one area of said plurality of areas an active area, and in response to a user operation on said at least one active area, presenting at least one of said at least one active areas in a second representation. Said at least one page may be a Hypertext Markup Language HTML page, or a page of a text document, and said display may be integrated in a portable electronic device. The invention further relates to a device, a system, a computer program and a computer program product.

MainClaim: A method for presenting at least a part of a page, comprising: at least partially dividing at least one page into a plurality of areas; presenting said plurality of areas in a first representation, making at least one area of said plurality of areas an active area; and in response to a user operation on said at least one active area, presenting at least one of said at least one active areas in a second representation.

2007/0124669	Presentation of large objects on small displays	NOKIA CORPORATION	Makela; Mikko	715	G06F	20040921	1	93%	<input type="checkbox"/>
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Abstract: A method for presenting at least a part of an object is shown, comprising at least partially dividing at least one object into a plurality of sub-objects, presenting the plurality of sub-objects in a first representation, making at least one sub-object of the plurality of sub-objects an active sub-object, and in response to a user operation on the at least one active sub-object, presenting at least one of the at least one active sub-objects in a second representation. The at least one object may be a 2D object, e.g. a Hypertext Markup Language HTML page or a page of a text document, or a 3D object, e.g. a Virtual Reality Markup Language VRML object, and said display may be integrated in a portable electronic device. The invention further relates to a device, a system, a computer program and a computer program product.

MainClaim: A method for presenting at least a part of an object, comprising: at least partially dividing at least one object into a plurality of sub-objects; presenting said plurality of sub-objects in a first representation, determining at least one sub-object of said plurality of sub-objects to be made an active sub-object; and making said at least one sub-object of said plurality of sub-objects an active sub-object; and in response to a user operation on said at least one active sub-object, presenting at least one of said at least one active sub-objects in a second representation.

7,594,194	Portrayal of navigation objects	Nokia Corporation	Makela; Mikko	715	G06F	20030924	2	93%	<input type="checkbox"/>
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Abstract: The invention relates to a method, a device, a computer program product, a browser and a network element for improved portrayal of navigation objects (1-1 . . . 1-6), wherein at least two navigation objects (1-1 . . . 1-6) are combined into one combined navigation object (4), wherein said combined navigation object (4) is presented, and wherein said at least two navigation objects (1-1 . . . 1-6) are presented, if said combined navigation object (4) is selected.

MainClaim: A method, comprising: scaling a web page that comprises an image map and further content to obtain a scaled web page, wherein said image map contains at least two image hyperlinks, making the scaled version of said image map in said scaled web page selectable as a whole; presenting said scaled web page on a display, and presenting only said image map with said at least two hyperlinks in unscaled format in response to a selection of said selectable scaled version of said image map.

7,546,543	Widget authoring and editing environment	Apple Inc.	Louch; John O. Grignon; Andrew M. Bumgarner; Timothy Wayne Peyton; Eric Steven Drukman; Max	715	G06F	20050603	0	100%	<input type="checkbox"/>
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Abstract: An authoring environment for creating and/or editing user interface elements such as widgets used in a unified interest layer. The authoring environment facilitates creation of widgets that have a consistent appearance and mechanism, and allows third-party developers to easily create widgets that have a look and feel that is consistent with a predefined set of widgets.

MainClaim: A computer-implemented method of creating a widget from a template, the widget to be used in a computer system including an operating system comprising a runtime engine that is part of the operating system, the method executed by a computer and comprising: displaying one or more templates for the widget; receiving first author input selecting a template from the one or more templates as a basis for the widget; displaying a set of predetermined attributes for the widget; receiving second author input selecting one or more predetermined attributes from the set of predetermined attributes; and displaying, within a unified interest layer, the widget incorporating the one or more predetermined attributes, wherein the unified interest layer comprises a web view defined in a development environment and is executed by the runtime engine.

2009/0327953	UNIFIED NAVIGATION MODEL BETWEEN MULTIPLE APPLICATIONS	NOKIA CORPORATION	Honkala; Mikko Kinnunen; Kimmo Grassel; Guido Cui; Yan Qing Roto; Virpi Rautava; Mika	715	G06F	20080630	5	94%	<input type="checkbox"/>
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Abstract: Web style navigation methods are applied across applications and webpages, whether local or web-based, and hypertext navigation methods used in the web are extended to local applications. Local and web applications are mixed seamlessly so that the user does not perceive any difference between navigation within either one of, or between, those types of

applications. The user navigates between different user interface states, in and out of different types of applications. All views and states of views are recorded and the user can switch to a previous view, in the state in which it was viewed, using a back, history or other suitable state recording and retrieval function.

MainClaim: A method comprising: opening a first application view in a window of a user interface; detecting an activation a link to a second application view while a state of the user interface is in the first application view; opening the second application view in the window of the user interface; and detecting a selection of a function in a state of the user interface in the second application view as a command to automatically return to the state of the user interface in the first application view in the window of the user interface; and returning the state of the user interface to the first application view.

7,539,795	Methods and apparatus for implementing dynamic shortcuts both for rapidly accessing web content and application program windows and for establishing context-based user environments	Nokia Corporation	Vahtola; Miika	710	G06F	20060130	6	94%	<input type="checkbox"/>
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Abstract: The invention disclosed herein concerns methods and apparatus for implementing dynamic shortcuts for use in navigating web content and application program windows. In particular, the methods and apparatus of the invention allow a user to associate one or more items selected from web content or application program windows with a dynamic shortcut. In one aspect of the invention, a user assigns a keyboard shortcut to one or more web pages viewed during the browsing session. Once assigned a keyboard shortcut, the one or more web pages can be rapidly accessed using the keyboard shortcut. In variations of the invention, the one or more web pages may be assigned an icon accessible from, for example, the desktop. In other aspects of the invention the keyboard shortcut or icon is associated with content or resources derived from multiple sources; such as, for example, web pages located using a browser and application program windows spawned using an application program.

MainClaim: A memory medium storing a computer program executable by a digital processor of an electronic device, the electronic device having a display for displaying a graphical user interface, wherein when the computer program is executed by the digital processor operations are performed for creating a keyboard shortcut for navigating between resources capable of being displayed in the graphical user interface, the operations comprising: receiving a command to associate at least a first resource with the keyboard shortcut; associating the first resource with the keyboard shortcut; receiving a command to associate at least a second resource with the keyboard shortcut; associating the second resource with the keyboard shortcut while maintaining the association of the first resource with the keyboard shortcut so that both the first and second resource can be accessed with the keyboard shortcut, wherein when the second resource is associated with the keyboard shortcut both the first resource and the second resource are visible in the graphical user interface of the electronic device and are arranged within the graphical user interface in accordance with a user-specified arrangement; saving arrangement information describing the user-specified arrangement of the first resource and the second resource within the graphical user interface at the time the second resource is associated with the keyboard shortcut; detecting entry of a key sequence corresponding to the keyboard shortcut associated with the first and second resource; and displaying both the first resource and the second resource in the graphical user interface of the electronic device in response to the detection of the entry of the key sequence corresponding to the keyboard shortcut, wherein the first resource and the second resource are displayed in accordance with the user-specified arrangement described in the arrangement information.

2006/0064648	Display module, a device, a computer software product and a method for a user interface view	Nokia Corporation	Makela; Mikko	715	G06F	20050915	3	92%	<input type="checkbox"/>
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Abstract: This invention relates to browsing web pages with a mobile device and especially to a display module, which comprises a user interface view, which comprises at least one link to another user interface view as well as a pointer for selecting said link. The link is arranged to execute a pop-up view in said user interface view and that said same link is in addition arranged to execute one other user interface view in the display module. According to the invention, instead of executing said one other user interface view the link in question is transferred to the pop-up view being opened as a selectable function. Further, the invention relates to a device, a method and a computer software product.

MainClaim: A display module, which comprises a user interface view, which comprises at least one link to another user interface view as well as a pointer for selecting said link, which link is arranged to execute a pop-up view in said user interface view and that said same link is in addition arranged to execute said other user interface view in the display module, wherein said pop-up view is arranged to be executed instead of executing said other user interface view, in which pop-up view the link in question is as a selectable function.

6,396,474	Method and apparatus for providing visual feedback during manipulation of text on a computer screen	Apple Computer, Inc.	Johnson, Jr.; Robert G. Jenson; Scott	345	G09G	19971126	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus providing visual feedback to a computer user while dragging selected text is described. As its first step, the processing logic creates a text object from the selected text once the computer user has initiated a drag. Simultaneously, the selected text is visually de-emphasized. Secondly, the processing logic snaps the text object to the cursor so that the text object follows the cursor without obscuring text at the insertion point. Finally, when the computer user selects the final insertion point, the selected text is visually zoomed from the source location to the final insertion point.

MainClaim: An apparatus providing visual feedback while manipulating text, the apparatus comprising:

a) a computer system including:

2004/0119763	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi, Sachi Mori, Eigo	345	G09G	20021223	12	92%	<input type="checkbox"/>
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Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses

an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.

MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object.

7,554,530	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi; Sachi Mori; Eigo	345	G09G	20021223	13	92%	<input type="checkbox"/>
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Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.

MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object that represents data; and selecting the at least one displayed object, where forming the stroke further comprises extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object.

5,801,687	Authoring tool comprising nested state machines for use in a computer system	Apple Computer, Inc.	Peterson; Alan R. Spohrer; James C.	715	G06F	19960925	0	100%	<input type="checkbox"/>
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Abstract: According to the invention, an authoring tool comprises at least one nestable graphic state and transition machine, hereinafter referred to as a "state machine", each state machine comprising one or more states and zero or more transitions, each transition interconnecting a first state, known as the "from__ state", with a second state, known as the "to__ state". The first and second states can be the same state or different states. For each state in the plurality of states there can be any number of transitions, including zero, emanating therefrom and directed thereto. Each state machine has a state designated as its "current state" which changes in response to users actions or other events. Each state machine also has an initial state which is the state that is designated as the current state when the multimedia title is launched. The authoring tool allows an author to view a state machine simultaneously in several different formats, providing a full view and a map view. State machines can be nested, i.e. a state machine can be contained by another state machine. Preferably, separate user and author views are provided so that an author can manipulate a multimedia product and simultaneously observe the effect such manipulation has on the multimedia product from the user's point of view. Preferably, a plurality of modes are provided, each mode being geared toward particular functionality within the invention and a mechanism is provided so that a user of the invention can selectively switch between modes.

MainClaim: An apparatus for authoring nested graphic state machines, wherein said apparatus has a processor and at least one storage medium, said apparatus comprising:

a state machine module for creating a plurality of nested graphic state machines, each graphic state machine representing one or more states of an arbitrary graphic object, wherein at least a portion of said state machine module is stored in said at least one storage medium, and wherein each state machine has one or more arbitrarily arranged states and one or more transitions with each transition interconnecting a first state to a second state, and wherein each state machine has a full view associated to it and each state has a full view associated to it thereby allowing said state machine module to create at least one sub-state machine within a first state machine by containing the full view of the second state machine within the full view of the first state machine; and

a user interface module capable of interacting with said state machine module, wherein said user interface module displays a full view of a state machine and receives user input, wherein said user input can activate a sub-state machine nested within the full view of the state machine being displayed, and wherein said activating causes a full view of the state within the activated sub-state machine to be displayed.

2006/0230056	Method and a device for visual management of metadata	Nokia Corporation	Aaltonen; Antti	707	G06F	20050406	16	92%	<input type="checkbox"/>
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Abstract: A method and a device for visual management of metadata. An area with a plurality of data elements is visualized (504) to the user who determines (508) a route on the area, said route including a number of preferred elements belonging to the plurality of elements, which is detected (512). The preferred elements shall act as targets for a predefined metadata operation (514), e.g. change of a metadata attribute value.

MainClaim: A method for directing a metadata operation at a number of electronically stored data elements in an electronic device having the steps of visualizing an area with a number of data elements on a display device to a user (504), obtaining control information about a user-defined route between user-defined start and end points on the visualized area comprising said number of data elements (508), specifying based on the route such data elements belonging to said number of data elements over which the route passed (512), and performing the metadata operation on said specified data elements (514).

7,503,010	Remote access to layer and user interface elements	Apple Inc.	Chaudhri; Imran A. Louch; John Grignon; Andrew M. Christie; Gregory N.	715	G06F	20060307	0	100%	<input type="checkbox"/>
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Abstract: A user-activatable dashboard (also referred to as a unified interest layer) contains any number of user interface elements, referred to herein as "widgets," for quick access by a user. In response to a command from a user, the dashboard is invoked and the widgets are shown on the screen. The user can activate the dashboard at any time, causing the dashboard to temporarily replace the existing user interface display on the user's screen. Once the dashboard has been activated, the user can interact with any or all of the widgets, and can configure the dashboard by adding, deleting, moving, or configuring individual widgets as desired. When the user wishes to return to the normal user interface he or she was working with, the user issues a command causing the dashboard to be dismissed. Once the dashboard has been dismissed, the previous user interface state is restored, allowing the user to resume normal interactions with the operating system.

MainClaim: In a computer system including a display screen comprising an area displaying a user interface, a method for presenting a layer, comprising: responsive to a trigger event by a user of the computer system, activating a layer configured for the user in the area displaying the user interface on the display screen of the computer system, thereby providing access to a group of widgets visually contained by the layer, wherein at least one widget in the group of widgets is capable of executing separately from the layer and at least one of the widgets in the group of widgets was not visible on the display screen prior to activation of the layer; and wherein the layer displayed on the display screen of the computer system may be accessed by the user from a location remote from the computer system display screen.

2009/0327953	UNIFIED NAVIGATION MODEL BETWEEN MULTIPLE APPLICATIONS	NOKIA CORPORATION	Honkala; Mikko Kinnunen; Kimmo Grassel; Guido Cui; Yan Qing Roto; Virpi Rautava; Mika	715	G06F	20080630	5	93%	<input type="checkbox"/>
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Abstract: Web style navigation methods are applied across applications and webpages, whether local or web-based, and hypertext navigation methods used in the web are extended to local applications. Local and web applications are mixed seamlessly so that the user does not perceive any difference between navigation within either one of, or between, those types of applications. The user navigates between different user interface states, in and out of different types of applications. All views and states of views are recorded and the user can switch to a previous view, in the state in which it was viewed, using a back, history or other suitable state recording and retrieval function.

MainClaim: A method comprising: opening a first application view in a window of a user interface; detecting an activation a link to a second application view while a state of the user interface is in the first application view; opening the second application view in the window of the user interface; and detecting a selection of a function in a state of the user interface in the second application view as a command to automatically return to the state of the user interface in the first application view in the window of the user interface; and returning the state of the user interface to the first application view.

5,825,349	Intelligent scrolling	Apple Computer, Inc.	Meier; John R. Sullivan; John Mercer; Paul	345	G09G	19950606	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for intelligent scrolling. In a computer system that has a user interface which allows for the movement of items from a first open window to a second open window or to a second region, such as a desktop, the present invention allows a user to select one or more items in the first window, move the selected item(s) to within a predetermined distance from an edge of the first window for a predetermined period of time and cause the viewable portion of the data and/or document within the first window to scroll in a corresponding direction.

MainClaim: A file management system for a computer system having a display, a processor and a memory for storing files managed by said file management system, comprising:

a first region displayed on said display having a data display area;

a cursor displayed on said display; and

a first scroll area associated with said first region,

said file management system allowing scrolling of contents displayed in said data display area of said first region in a first direction when said cursor has selected an item which represents a file managed by said file management system and said cursor has been moved with said item to said first scroll area and said cursor is disposed in said first scroll area and wherein said first scroll area scrolls said contents along only said first direction when in a first context,

said file management system allowing said item to be dragged outside of said first region, and

said file management system determining whether to scroll said contents displayed in said first region or to allow said item to be dragged outside of said first region.

2006/0059436	Handling and scrolling of content on screen	Nokia Corporation	Nurmi; Mikko	715	G06F	20050805	10	92%	<input type="checkbox"/>
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Abstract: The invention relates to a software application adapted for scrolling content on a screen in an application window. The software application includes at least two logically distinct scroll bars in one application window, each of the scroll bars providing scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content.

MainClaim: A device for handling content comprising a memory, a processing unit controlling operation of said device according to software stored in said memory, a screen for viewing content, said memory comprising a software application adapted for scrolling content on the screen in an application window, wherein the software application comprises: at least two logically distinct scroll bars in one application window, each of the scroll bars providing scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content.

2009/0033684	On-screen marker to assist usability while scrolling	Nokia Corporation	Barrett; Robert Alan	345	G09G	20070803	10	92%	<input type="checkbox"/>
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Abstract: In a non-limiting aspect thereof, the exemplary embodiments of this invention provide a method including placing a marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation, and moving the marker on the display, where the marker moves with the departure point during the scrolling

operation.

MainClaim: A computer readable medium encoded with a computer program executable by a processor to perform actions comprising: placing a marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation; and moving the marker on the display, where the marker moves with the departure point during the scrolling operation.

6,331,863	Intelligent scrolling	Apple Computer, Inc.	Meier; John R. Sullivan; John Mercer; Paul	345	G09G	19981019	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for intelligent scrolling. In a computer system that has a user interface which allows for the movement of items from a first open window to a second open window or to a second region, such as a desktop, the present invention allows a user to select one or more items in the first window, move the selected item(s) to within a predetermined distance from an edge of the first window for a predetermined period of time and cause the viewable portion of the data and/or document within the first window to scroll in a corresponding direction.

MainClaim: A computer system having a program which comprises:

means for determining if a first item within a data display area of a first region of a display has been selected by a user by positioning a cursor over said first item so that said first item is associated with said cursor for further operation or manipulation;

means for determining if said cursor has been moved with said first item and positioned over a predetermined scrolling area of said first region;

means for determining whether to scroll said contents of said first region or to allow said first item to be moved from said first region to a second region; and

means for scrolling the contents of said data display area of said first region while said cursor is positioned over said predetermined scrolling area and while said first item is associated with said cursor, to display a second item and wherein said predetermined scrolling area scrolls the contents along only a first direction when in a first context.

2009/0033684	On-screen marker to assist usability while scrolling	Nokia Corporation	Barrett; Robert Alan	345	G09G	20070803	10	92%	<input type="checkbox"/>
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Abstract: In a non-limiting aspect thereof, the exemplary embodiments of this invention provide a method including placing a marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation, and moving the marker on the display, where the marker moves with the departure point during the scrolling operation.

MainClaim: A computer readable medium encoded with a computer program executable by a processor to perform actions comprising: placing a marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation; and moving the marker on the display, where the marker moves with the departure point during the scrolling operation.

2006/0059436	Handling and scrolling of content on screen	Nokia Corporation	Nurmi; Mikko	715	G06F	20050805	10	92%	<input type="checkbox"/>
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Abstract: The invention relates to a software application adapted for scrolling content on a screen in an application window. The software application includes at least two logically distinct scroll bars in one application window, each of the scroll bars providing scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content.

MainClaim: A device for handling content comprising a memory, a processing unit controlling operation of said device according to software stored in said memory, a screen for viewing content, said memory comprising a software application adapted for scrolling content on the screen in an application window, wherein the software application comprises: at least two logically distinct scroll bars in one application window, each of the scroll bars providing scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content.

5,303,388	Method to display and rotate a three-dimensional icon with multiple faces	Apple Computer, Inc.	Kreitman; Kristee Mountford; Joy	345	G06F	19930423	0	100%	<input type="checkbox"/>
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Abstract: A manipulable icon is displayed with multiple faces having particular application to computer displays and systems. The icon, which represents information about an object available within the computer, can be manipulated by the user to display different faces or views which provide additional information about the object represented by the icon. The user has the ability to manipulate the icon to see additional views of the icon on the computer display device, either by a mouse stroke selection command, keyboard command or menu selection. This selection causes the icon to move from one view or face of the icon to another view or face of the icon. These additional views thus provide additional space in which the icon can supply additional information to the user. Iconic movement from one face or view to another is also typically accompanied by some sound which indicates execution of the movement.

MainClaim: A method of manipulating a three-dimensional icon on a display screen of a computer system, wherein the three-dimensional icon includes a plurality of faces, each face containing at least one displayed item which is associated with an object stored in the computer system, a first face containing a two-dimensional icon representing a folder or file stored in the computer system and other faces of the three-dimensional icon displaying attributes of said folder or said file, wherein the plurality of faces are joined together to form the three-dimensional icon, wherein the method comprises the steps of:

(A) marking a first button marker on the first face of the plurality of faces of the three-dimensional icon, wherein the first marker associated with a second face of the plurality of faces of the three-dimensional icon, wherein the first face is joined with the second face, when the first face is displayed front most on the display screen and the first button marker is activated by using a cursor control device to position a movable cursor displayed on the display screen onto the first button marker, the three-dimensional icon is rotated such that the second face is displayed front most on the display screen, wherein the movable cursor is controlled by the cursor control device of the computer system to move on the display screen;

(B) marking a second button marker on the second face that is associated with the first face, when the second face is displayed front most and the second button marker is activated by using the cursor control device to position the movable cursor onto the second button marker, the three-dimensional icon is rotated such that the first face is displayed front most;

(C) rotating the three-dimensional icon by activating the first button marker with the movable cursor to display the second face front most; and

(D) rotating the three-dimensional icon by activating the second button marker with the movable cursor to display the first face front most.

7,554,530	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi; Sachi Mori; Eigo	345	G09G	20021223	13	93%	<input type="checkbox"/>
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Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.

MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object that represents data; and selecting the at least one displayed object, where forming the stroke further comprises extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object.

2004/0119763	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi, Sachi Mori, Eigo	345	G09G	20021223	12	93%	<input type="checkbox"/>
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Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.

MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object.

2010/0011310	Method, Device, Computer Program and Graphical User Interface Used for the Selection, Movement and De-Selection of an Item	NOKIA CORPORATION	Rainisto; Roope	715	G06F	20050930	4	93%	<input type="checkbox"/>
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Abstract: A method of controlling an action performed as a result of a drag and drop operation, the method including displaying a menu of multiple actions during the drag and drop operation, each of the actions being associated with a different respective portion of a display; and performing an action associated with a portion of the display that coincides with a waypoint in the drag and drop operation.

MainClaim: A method of controlling an action performed as a result of a drag and drop operation, the method comprising: displaying a menu of multiple actions during the drag and drop operation, an action being associated with a respective portion of a display; and performing an action associated with a portion of the display that coincides with a waypoint in the drag and drop operation.

5,566,248	Method and apparatus for a recognition editor and routine interface for a computer system	Apple Computer, Inc.	Ulrich; Robert R.	382	G06K	19960124	0	100%	<input type="checkbox"/>
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Abstract: A computer system including a CPU, a screen assembly coupled to the CPU, a pointer assembly coupled to the CPU, an application program running on the CPU, a recognizer routine running on the CPU, and a recognition editor and interface (REI) routine running on the CPU and providing an interface between the application program and the recognition routine. The REI routine is operative to display an interface image on the screen of the CPU, receive ink inputs made on the interface image by the pointer mechanism, send ink inputs to the recognition routine, receive recognized objects from the recognition routine, and to send recognized objects to the application program. Preferably, the REI routine also permits recognized objects to be edited on the interface image. By making the user interface of the REI routine separate from the operating system, the application program, and the recognition routine, a consistent user interface is developed for a multiplicity of application programs and recognition routines. A method for interfacing between an application program and a recognizer routine includes the steps of: 1) receiving user inputs from a pointing device into an interface routine; 2) sending the user inputs to a recognizer routine; 3) receiving into the interface routine recognized objects from the recognizer routine; and 4) sending the recognized objects to an application program from the interface routine. The method also preferably includes the step of editing the recognized objects before sending them to the application program.

MainClaim: A computer implemented method for interfacing between an application program and a recognizer routine, each of which are implemented on a computer system, the method comprising the steps of:

displaying a recognition field in an interface area of a display screen of said computer system;

displaying a control field in said interface area;

receiving user inputs into an interface routine implemented on said computer system, said interface routine not integral to either said recognizer routine or an operating system for said computer system, said user inputs comprising inputs made from a pointing device interacting with said interface area;

analyzing said user inputs made from said pointing device interacting with said interface area;

editing said recognition field in said interface area, when appropriate, as determined by said analyzing step;

sending said user inputs to said recognizer routine, when appropriate, as determined by said analyzing step;

receiving a recognized object from said recognizer routine, said recognized object corresponding to at least one of said user inputs;

sending said recognized object to said application, when appropriate, as determined by said analyzing step.

2008/0002888	Apparatus, method, device and computer program product providing enhanced text copy capability with touch input display	Nokia Corporation	Yuan; Shijun	382	G06K	20060629	13	93%	<input type="checkbox"/>
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Abstract: A device includes a display having touch sensitive display surface that is responsive to pen-based user input, and a control unit that is bidirectionally coupled to the display. The control unit is responsive to a user selecting displayed text from a first display location using the pen, and is further responsive to a first signal generated using the pen, to copy the selected displayed text to a buffer associated with a text window and to display the copied text in the text window. The control unit is further responsive to the user selecting a second display location using the pen, and to a second signal, to copy the displayed text from the text window to the second display location, thereby implementing a copy and paste function. A cut and paste function may also be implemented.

MainClaim: A method, comprising: selecting displayed text from a first display location using a pen in combination with a touch sensitive surface; in response to a first signal generated using the pen, copying the selected displayed text to a buffer associated with a text window and displaying the copied text in the text window; selecting a second display location using the pen; and in response to a second signal, copying the displayed text from the buffer to the second display location.

6,686,927	Intelligent scrolling	Apple Computer, Inc.	Meier; John R. Sullivan; John Mercer; Paul	345	G09G	20011030	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for intelligent scrolling. In a computer system that has a user interface which allows for the movement of items from a first open window to a second open window or to a second region, such as a desktop, the present invention allows a user to select one or more items in the first window, move the selected item(s) to within a predetermined distance from an edge of the first window for a predetermined period of time and cause the viewable portion of the data and/or document within the first window to scroll in a corresponding direction.

MainClaim: A computer system having a program which comprises:

means for determining if a first item within a data display area of a first region of a display has been selected by a user by positioning a cursor over said first item so that said first item is associated with said cursor for further operation or manipulation;

means for determining if said cursor has been moved with said first item and positioned over a predetermined scrolling area of a second region; and

means for determining whether to scroll contents of said second region or to allow said first item to be moved from said second region to a third region;

means for scrolling the contents of a data display area of said second region while said cursor is positioned over said predetermined scrolling area and while said first item is associated with said cursor, to display a second item and wherein said predetermined scrolling area scrolls the contents along only a first direction when in a first context.

2009/0033684	On-screen marker to assist usability while scrolling	Nokia Corporation	Barrett; Robert Alan	345	G09G	20070803	10	92%	<input type="checkbox"/>
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Abstract: In a non-limiting aspect thereof, the exemplary embodiments of this invention provide a method including placing a marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation, and moving the marker on the display, where the marker moves with the departure point during the scrolling operation.

MainClaim: A computer readable medium encoded with a computer program executable by a processor to perform actions comprising: placing a marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation; and moving the marker on the display, where the marker moves with the departure point during the scrolling operation.

2006/0059436	Handling and scrolling of content on screen	Nokia Corporation	Nurmi; Mikko	715	G06F	20050805	10	92%	<input type="checkbox"/>
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Abstract: The invention relates to a software application adapted for scrolling content on a screen in an application window. The software application includes at least two logically distinct scroll bars in one application window, each of the scroll bars providing

scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content.

MainClaim: A device for handling content comprising a memory, a processing unit controlling operation of said device according to software stored in said memory, a screen for viewing content, said memory comprising a software application adapted for scrolling content on the screen in an application window, wherein the software application comprises: at least two logically distinct scroll bars in one application window, each of the scroll bars providing scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content.

5,196,838	Intelligent scrolling	Apple Computer, Inc.	Meier; John R. Sullivan; John W. Mercer; Paul	345	G09G	19901228	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for intelligent scrolling. In a computer system that has a user interface which allows for the movement of items from a first open window to a second open window or to a second region, such as a desktop, the present invention allows a user to select one or more items in the first window, move the selected item(s) to within a predetermined distance from an edge of the first window for a predetermined period of time and cause the viewable portion of the data and/or document within the first window to scroll in a corresponding direction.

MainClaim: In a computer controlled display system having a display wherein a plurality of regions may be displayed including at least a first region, said first region having at least a first item within a visible display area of said first region and said first region having at least one item, including a second item, which is not within the visible display area of said first region, a method for scrolling the contents of said first region to display said second item comprising:

selecting at least said first item within said first region by positioning a cursor over said first item and by placing a switch means in a predetermined position so that said first item is associated with said cursor for further operation or manipulation;

positioning said cursor over a predetermined scrolling area;

determining that a predetermined period of time has elapsed while the cursor has been positioned in said predetermined scrolling area; and

scrolling the contents of said first region in a direction corresponding to said predetermined scrolling area to display said second item while said first item remains selected and associated with said cursor.

2006/0059436	Handling and scrolling of content on screen	Nokia Corporation	Nurmi; Mikko	715	G06F	20050805	10	92%	<input type="checkbox"/>
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Abstract: The invention relates to a software application adapted for scrolling content on a screen in an application window. The software application includes at least two logically distinct scroll bars in one application window, each of the scroll bars providing scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content.

MainClaim: A device for handling content comprising a memory, a processing unit controlling operation of said device according to software stored in said memory, a screen for viewing content, said memory comprising a software application adapted for scrolling content on the screen in an application window, wherein the software application comprises: at least two logically distinct scroll bars in one application window, each of the scroll bars providing scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content.

5,561,444	Method and apparatus for providing visual feedback during manipulation of text on a computer screen	Apple Computer, Inc.	Johnston, Jr.; Robert G. Jenson; Scott	345	G09G	19940822	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus providing visual feedback to a computer user while dragging selected text is described. As its first step, the processing logic creates a text object from the selected text once the computer user has initiated a drag. Simultaneously, the selected text is visually de-emphasized. Secondly, the processing logic snaps the text object to the cursor so that the text object follows the cursor without obscuring text at the insertion point. Finally, when the computer user selects the final insertion point, the selected text is visually zoomed from the source location to the final insertion point.

MainClaim: A computer implemented method of providing visual feedback to a computer user during manipulation of selected text on a display device of a computer system, the computer system including a control device for interactively positioning a visible symbol and an insertion caret on the display device, the computer also having a signal generation device for signaling an active state and an inactive state, the method comprising the computer implemented steps of:

a) in response to an active state of the signal generation device while the visible symbol is over the selected text at a source location on said display device:

7,554,530	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi; Sachi Mori; Eigo	345	G09G	20021223	13	92%	<input type="checkbox"/>
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Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.

MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object that represents data; and selecting the at least one displayed object, where forming the stroke further comprises extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object.

2004/0119763	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi, Sachi Mori, Eigo	345	G09G	20021223	12	92%	<input type="checkbox"/>
<p>Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.</p> <p>MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object.</p>									
5,694,151	Method and apparatus for providing visual feedback during manipulation of text on a computer screen	Apple Computer, Inc.	Johnston, Jr.; Robert G. Jenson; Scott	345	G09G	19960401	0	100%	<input type="checkbox"/>
<p>Abstract: A method and apparatus providing visual feedback to a computer user while dragging selected text is described. As its first step, the processing logic creates a text object from the selected text once the computer user has initiated a drag. Simultaneously, the selected text is visually de-emphasized. Secondly, the processing logic snaps the text object to the cursor so that the text object follows the cursor without obscuring text at the insertion point. Finally, when the computer user selects the final insertion point, the selected text is visually zoomed from the source location to the final insertion point.</p> <p>MainClaim: A method for providing visual feedback to a computer user while manipulating selected text displayed on a display device of a computer system, the computer system including a control device for interactively positioning a visible symbol, the control device having a button having a first position and a second position, the method comprising the steps of:</p> <p>a) in response to the button being in the second position while the visible symbol is over a selected text at a source location;</p>									
2004/0119763	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi, Sachi Mori, Eigo	345	G09G	20021223	12	92%	<input type="checkbox"/>
<p>Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.</p> <p>MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object.</p>									
7,554,530	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi; Sachi Mori; Eigo	345	G09G	20021223	13	92%	<input type="checkbox"/>
<p>Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.</p> <p>MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object that represents data; and selecting the at least one displayed object, where forming the stroke further comprises extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object.</p>									
5,452,414	Method of rotating a three-dimensional icon to its original face	Apple Computer, Inc.	Rosendahl; Kristee Mountford; S. Joy Schmucker; Kurt J.	345	G06F	19940411	0	100%	<input type="checkbox"/>
<p>Abstract: A manipulable icon is displayed with multiple faces having particular application to computer displays and systems. The icon, which represents information about an object available within the computer, can be manipulated by the user to display different faces or views which provide additional information about the object represented by the icon. The user has the ability to manipulate the icon to see additional views of the icon on the computer display device, either by a mouse stroke selection command, keyboard command or menu selection. This selection causes the icon to move from one view or face of the icon to another view or face of the icon. These additional views thus provide additional space in which the icon can supply additional information to the user. Iconic movement from one face or view to another is also typically accompanied by some sound which indicates execution of the movement.</p>									

MainClaim: A method of manipulating a three-dimensional icon on a display of a computer system, wherein the three-dimensional icon includes a plurality of faces, each for containing at least one displaying item of information, wherein the plurality of faces are joined together to form the three-dimensional icon, wherein the method comprises the steps of:

(A) displaying a first face of the plurality of faces of the three-dimensional icon front most on the display, said first face containing a first button marker, wherein the first button marker is associated with a second face of the plurality of faces of the three-dimensional icon;

(B) displaying the second face front most on the display by activating the first button marker with a signal generation device;

(C) displaying the three-dimensional icon by again displaying the first face front most on the display after the second face has been displayed front most on the display.

7,554,530	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi; Sachi Mori; Eigo	345	G09G	20021223	13	93%	<input type="checkbox"/>
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Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.

MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object that represents data; and selecting the at least one displayed object, where forming the stroke further comprises extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object.

2004/0119763	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi, Sachi Mori, Eigo	345	G09G	20021223	12	93%	<input type="checkbox"/>
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Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.

MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object.

2010/0011310	Method, Device, Computer Program and Graphical User Interface Used for the Selection, Movement and De-Selection of an Item	NOKIA CORPORATION	Rainisto; Roope	715	G06F	20050930	4	93%	<input type="checkbox"/>
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Abstract: A method of controlling an action performed as a result of a drag and drop operation, the method including displaying a menu of multiple actions during the drag and drop operation, each of the actions being associated with a different respective portion of a display; and performing an action associated with a portion of the display that coincides with a waypoint in the drag and drop operation.

MainClaim: A method of controlling an action performed as a result of a drag and drop operation, the method comprising: displaying a menu of multiple actions during the drag and drop operation, an action being associated with a respective portion of a display; and performing an action associated with a portion of the display that coincides with a waypoint in the drag and drop operation.

5,550,563	Interaction framework system	Taligent, Inc.	Matheny; John R. White; Christopher	345	G09G	19921223	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for an innovative object oriented system. The sequence of events corresponding to a user pressing, moving, and releasing the mouse is called the input syntax. Certain sequences of events are used to indicate particular actions, called semantic operations. This invention discloses the method and apparatus for translating input syntax into semantic operations for an object that supports Select, Peek, Move, AutoScroll, and Drag/Drop (Copy).

MainClaim: In a computer system with a processor, a memory, an object-oriented operating system stored in the memory and a display, an apparatus for providing an object oriented application interface between a pointing device having a pointer graphic and a user-operable button, a keyboard having an option key and an object-oriented application program, the apparatus comprising:

(a) interactable class information stored in the memory as part of the object-oriented operating system, the interactable class information including graphic data representing a display icon and a plurality of methods for drawing and manipulating the display icon on the display;

(b) an interactable object instantiated from the interactable class information and incorporated into the application program, the

object having a display icon visible on the display, and a plurality of methods for manipulating the display icon on the display;

(c) means responsive to a depression of the user-operable button for generating a device event signal;

(d) means responsive to a physical position of the pointer graphic on the display device for generating device position signals;

(e) means responsive to a depression of the option key for generating an option key signal; and

(f) an interactor object responsive to the device event signal, to the device position signals and to the option key signal for calling a first predetermined one of the manipulating methods to move the display icon when the option key is depressed and the user-operable button is depressed.

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	94%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

7,024,626	System and method of producing user interface information messages	Apple Computer, Inc.	Ko; Steve	715	G09G	20011130	0	100%	<input type="checkbox"/>
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Abstract: A system and method for producing notification objects conveying computer warning or error notification information to a computer user is provided. The notification objects point to a target to which the information contained therein relates and are persistent until dismissed by a user or an application. The notification objects are aware of the bounds of their target, and where possible do not obscure any part of their target. These objects are collapsible, allowing the user to minimize the objects, and are also non-modal, allowing a user to fully interact with any running application while the notification objects are visible. These notification objects are only visible when the window containing the target to which the information in the notification object relates is the active window.

MainClaim: A method for notifying a computer user of a computer information message, comprising the steps of:

determining if a condition associated with a received action requires generation of an information message;

selecting an information message to be generated corresponding to said condition;

identifying a target object associated with the action performed by the user, to which the information contained within the notification message relates;

displaying a notification object in a first state, which indicates the target object, contains said information message corresponding to said condition and maintains its position relative to the target object even if the target object is moved, in a persistent manner until dismissed by a user while enabling the user to continue interaction with an application program corresponding to said target object; and

selectively displaying said notification object in a second, collapsed state having a reduced size relative to said first state.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	95%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

6,032,163	Method and apparatus for reformatting paragraphs on a computer screen	Apple Computer, Inc.	Tou; Frederich N. Auguste; Donna M.	715	G06F	19931008	0	100%	<input type="checkbox"/>
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Abstract: A method for reformatting alphanumeric objects displayed on a screen of a pen computer system including the steps of: (a) selecting a plurality of objects to be reformatted; (b) removing object breaks from between the objects; and (c)

reformatting the objects without the removed object breaks. The alphanumeric objects typically comprise a number of words separated by object breaks such as carriage returns, tabs, and paragraph breaks. The process of the present invention removes such object breaks and replaces them with spaces prior to reflowing the word objects between a left margin and a right margin. An apparatus for reformatting alphanumeric objects of the present invention includes a digital process (CPU), memory coupled to the CPU, a screen coupled to the CPU, and a plurality of alphanumeric objects stored in the memory and displayed on the screens. The apparatus further includes a user input mechanism coupled to the CPU for selecting a plurality of alphanumeric objects, a mechanism for removing object breaks from between the selected objects, and a mechanism for reformatting the selected objects without the removed object breaks.

MainClaim: A method for reformatting objects displayed on a screen of a computer system comprising the steps of:

selecting a plurality of objects on said screen to be reformatted, wherein sequentially adjacent objects of said plurality of objects may be separated by one or more object breaks, said selecting step resulting in the provision of a visually modified area on the screen corresponding to said objects selected in said selecting step;

providing a border on said screen surrounding said objects selected in said selecting step, said border being buffered a distance away from said visually modified area on the screen;

at least momentarily engaging a pointing means at least approximately on said border on the screen to provide an indication that said plurality of objects are to be reformatted, and subsequently removing said object breaks from between said objects in response to said indication; and

reformatting said objects without said removed object breaks.

2008/0002888	Apparatus, method, device and computer program product providing enhanced text copy capability with touch input display	Nokia Corporation	Yuan; Shijun	382	G06K	20060629	13	92%	<input type="checkbox"/>
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Abstract: A device includes a display having touch sensitive display surface that is responsive to pen-based user input, and a control unit that is bidirectionally coupled to the display. The control unit is responsive to a user selecting displayed text from a first display location using the pen, and is further responsive to a first signal generated using the pen, to copy the selected displayed text to a buffer associated with a text window and to display the copied text in the text window. The control unit is further responsive to the user selecting a second display location using the pen, and to a second signal, to copy the displayed text from the text window to the second display location, thereby implementing a copy and paste function. A cut and paste function may also be implemented.

MainClaim: A method, comprising: selecting displayed text from a first display location using a pen in combination with a touch sensitive surface; in response to a first signal generated using the pen, copying the selected displayed text to a buffer associated with a text window and displaying the copied text in the text window; selecting a second display location using the pen; and in response to a second signal, copying the displayed text from the buffer to the second display location.

5,434,965	Balloon help system	Taligent, Inc.	Matheny; John R. White; Christopher Goldsmith; David B.	345	G06F	19921223	0	100%	<input type="checkbox"/>
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Abstract: A method, system for providing help information to assist in using an object oriented operating system. The help technique is also oriented to the particular area on the screen that is indicated by a portion of the help information. When a user drags an object on a display screen and drops the object in close proximity with another object, a help display is presented with an indicator pointing to the associated area on the display. The help display provides information on the viability of the drop action and aids the user in navigating through the operation. In a preferred embodiment, the help display is presented in a balloon display pointing to the objects upon which the operation is transpiring.

MainClaim: A display system, comprising:

(a) display means for displaying a plurality of icons;

(b) cursor positioning means for moving a first of said plurality of icons;

(c) means for detecting when said first of the plurality of icons is positioned proximal to a second icon of said plurality of icons;

(d) means for notifying said second of the plurality of icons when said first icon is proximal to said second icon;

(e) means for starting a timer when said first icon is proximal to said second icon;

(f) means for generating a help message indicative of valid actions that can be performed on said first icon and said second icon through communication between said first and second icons; and

(g) means for displaying said help message when said timer has expired.

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	94%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least

one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

7,117,450	Method and apparatus for determining font attributes	Apple Computer, Inc.	Chaudhri; Imran	715	G06F	20020318	0	100%	<input checked="" type="checkbox"/>
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Abstract: A method to determine a font attribute includes: determining a first number and a second number; receiving input resulting from repositioning of a thumb of a slider to a position; and determining a value for the font attribute from the position relative to the first and second numbers. A font attribute is one of: a) font size; b) boldness; c) italic angle; d) baseline offset; e) line spacing; and f) character spacing. In one example, when the thumb is pushed against one end of the slider, at least one of the first number or the second number is adjusted. Another example shows at least one of the first number or the second number is updated when an input such as selecting a value from a list or typing in a value or pushing a thumb against one end of a slider is received.

MainClaim: A method to determine a font attribute, the method comprising: receiving input switching from a first mode to a second mode; replacing, in response to the receiving of the input, a representation of a command which when activated causes the display of a list which allows selection of a value, which specifies a font attribute, from the list, with a slider displaying a thumb at a position along the slider; determining a first number and a second number in response to a user input; receiving input resulting from a sliding of the thumb of the slider to a position along the slider; and determining, after the sliding, a value for the font attribute from the position relative to the slider and the first and second numbers, wherein the position of the thumb selects a font attribute from the list.

2006/0290661	Re-configuring the standby screen of an electronic device	Nokia Corporation	Innanen; Piia Kangas; Tita With; Mikko Fowlie; Andrew Junkkonen; Laura	345	G09G	20060607	5	92%	<input type="checkbox"/>
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Abstract: An electronic device including a user interface having a display for displaying a standby screen when the device is in an idle state and a user input device, wherein the user interface provides a menu system, for re-configuring the standby screen, that is navigated using the user input device.

MainClaim: An electronic device comprising: a user interface having a display for displaying a standby screen when the device is in an idle state and a user input device, wherein the user interface provides a menu system, for re-configuring the standby screen, that is navigated using the user input device.

6,915,490	Method for dragging and dropping between multiple layered windows	Apple Computer Inc.	Ewing; David	715	G06F	20000929	0	100%	<input checked="" type="checkbox"/>
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Abstract: Methods for manipulating a plurality of layered windows on a display are described. Specifically, the manipulation of layered windows includes moving a pointer to a visible portion of a partially hidden window and holding the pointer at the visible portion for a predetermined period of time. Responsive to the holding for a predetermined period of time, the partially hidden window is revealed. The manipulation of the layered windows can be used to drag and drop an icon from an active window to an inactive window. During the drag of an object, holding down a predetermined key on the keyboard can send the top-most-layered window to the back thereby disclosing other windows. If no drop occurs at the end of a drag operation, windows are returned to their original layers. However, if a drop occurs, the window in which the object is dropped becomes the topmost layer while other windows return to their original layers.

MainClaim: A method for manipulating a plurality of windows on a display, comprising the steps of:

displaying a plurality of cascaded, open windows on a display to establish an original display layered order, wherein an active window is the window on a first display layer, windows on a display layer other than the first display layer are inactive windows and at least one of said inactive window is partially hidden;

receiving an indication of an icon being selected;

receiving an indication of the icon being dragged;

monitoring the current location of the icon;

starting a timer, if the icon is found being within a visible portion of first one of said inactive windows; and

displaying said first inactive window on the first display layer, if the icon is found to be held within a visible portion of said first inactive window until said timer is expired.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	93%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

2009/0033684	On-screen marker to assist usability while scrolling	Nokia Corporation	Barrett; Robert Alan	345	G09G	20070803	10	92%	<input type="checkbox"/>
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Abstract: In a non-limiting aspect thereof, the exemplary embodiments of this invention provide a method including placing a marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation, and moving the marker on the display, where the marker moves with the departure point during the scrolling operation.

MainClaim: A computer readable medium encoded with a computer program executable by a processor to perform actions comprising: placing a marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation; and moving the marker on the display, where the marker moves with the departure point during the scrolling operation.

7,584,429	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius; Henna	715	G06F	20040625	10	92%	<input type="checkbox"/>
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Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.

MainClaim: A method, comprising: depicting a scroll bar and a button for a search option on a display of an electronic device in an area that is normally reserved for a scroll bar, detecting if a keyboard is connected to said device and suppressing the display of said button for a search option, if the keyboard is connected, detecting an input on said button for activating a temporary input area, activating said temporary input area upon detection of said input, displaying said temporary input area on the display of said electronic device, outputting an audio signal indicating said displaying of said temporary input area, and terminating the display of said temporary input area and deactivating said temporary input area in case that a relevant event is detected, wherein said temporary input area is displayed in a semi-transparent manner superimposed on a standard display area on said display, and wherein input functions in said standard display area superimposed by said temporary input area are deactivated when said temporary input area is displayed.

5,479,602	Content-based depictions of computer icons	Apple Computer, Inc.	Baecker; Ronald M. I Small; Ian S.	345	G06T	19930611	0	100%	<input type="checkbox"/>
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Abstract: A means and method for generating and displaying a contentbased depiction of a standard icon on the display of a computer is described. The depiction is generated upon the occurrence of predetermined events, such as the closure of the document or file associated with the icon, and is displayed in either a static or animated form in place of the standard icon in response to selection signals from a selection device. A single content-based depiction of an icon is generated by creating a representation of the object (file or document) to be depicted, and translating this representation into a scaled-down replica of the representation. This representation may be in the form of a bit-map, a full-scale image, etc. The replica is created by partitioning the representation into a number of equal segments, measuring the percentages of different colors (black and white, gray scale, or color) within each segment, and assigning a single color value to each display element or pixel of the replica based upon the color percentage measured from each corresponding segment of the representation. Animated depictions are created by forming a number of different replicas for each representation to be depicted and then displaying those replicas in a serial sequence to create an animated depiction of the representation. Like the icons these depictions replace when selected, the depictions would be movable to any position on the display through use of the mouse.

MainClaim: A process for generating a reduced visual version of an object based on the content of the object and displaying the reduced visual version on a display screen of a computer, the reduced visual version being associated with the object, the computer having memory for storing and displaying the object, the reduced visual version having functionality of an icon, the object having a variable visual format based upon information contained by the object, comprising the steps of:

generating the reduced visual version of the object based on the content of the object by transforming at least a portion of the variable visual format of the object; and,

displaying the reduced visual version of the object on the display screen.

7,594,194	Portrayal of navigation objects	Nokia Corporation	Makela; Mikko	715	G06F	20030924	2	94%	<input type="checkbox"/>
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Abstract: The invention relates to a method, a device, a computer program product, a browser and a network element for improved portrayal of navigation objects (1-1 . . . 1-6), wherein at least two navigation objects (1-1 . . . 1-6) are combined into one combined navigation object (4), wherein said combined navigation object (4) is presented, and wherein said at least two navigation objects (1-1 . . . 1-6) are presented, if said combined navigation object (4) is selected.

MainClaim: A method, comprising: scaling a web page that comprises an image map and further content to obtain a scaled web page, wherein said image map contains at least two image hyperlinks, making the scaled version of said image map in said scaled web page selectable as a whole; presenting said scaled web page on a display, and presenting only said image map with said at least two hyperlinks in unscaled format in response to a selection of said selectable scaled version of said image map.

2005/0066286	Portrayal of navigation objects	Nokia Corporation	Makela, Mikko	715	G06F	20030924	1	94%	<input type="checkbox"/>
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Abstract: The invention relates to a method, a device, a computer program product, a browser and a network element for improved portrayal of navigation objects (1-1 . . . 1-6), wherein at least two navigation objects (1-1 . . . 1-6) are combined into one combined navigation object (4), wherein said combined navigation object (4) is presented, and wherein said at least two navigation objects (1-1 . . . 1-6) are presented, if said combined navigation object (4) is selected.

MainClaim: A method for improved portrayal of navigation objects (1-1 . . . 1-6), comprising: combining at least two navigation objects (1-1 . . . 1-6) into one combined navigation object (4), presenting said combined navigation object (4), and presenting said at least two navigation objects (1-1 . . . 1-6), if said combined navigation object (4) is selected.

	Presentation of large								
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2005/0229111	pages on small displays	Nokia Corporation	Makela, Mikko	715	G06F	20040407	4	94%	<input type="checkbox"/>
<p>Abstract: This invention relates to method for presenting at least a part of a page, comprising at least partially dividing at least one page into a plurality of areas, presenting said plurality of areas in a first representation, making at least one area of said plurality of areas an active area, and in response to a user operation on said at least one active area, presenting at least one of said at least one active areas in a second representation. Said at least one page may be a Hypertext Markup Language HTML page, or a page of a text document, and said display may be integrated in a portable electronic device. The invention further relates to a device, a system, a computer program and a computer program product.</p> <p>MainClaim: A method for presenting at least a part of a page, comprising: at least partially dividing at least one page into a plurality of areas; presenting said plurality of areas in a first representation, making at least one area of said plurality of areas an active area; and in response to a user operation on said at least one active area, presenting at least one of said at least one active areas in a second representation.</p>									
5,838,889	Method and apparatus for flipping a double-sided graphic image having different sized first and second sides	Apple Computer, Inc.	Booker; Susan L.	345	G06T	19950518	0	100%	<input type="checkbox"/>
<p>Abstract: Electronic paper which has two sides, reverse of one another, which can be flipped over in response to user generated flip commands is described. When a piece of electronic paper is flipped over, a number of transition views of the paper are generated to give the user the impression that the paper is actually being turned over to reveal a reverse side. Different information can be stored on either side, and the composition of either side can be linked so that changes made to the graphic information on one side affects the graphic information on the other side. In addition, when the amount of graphic information on the reverse side of the paper exceeds the amount of available space normally available on the reverse side when the paper is flipped over, approximately the same amount of space available on the top side, the reverse side is expanded to fit the quantity of information to be displayed on the reverse side. If the reverse side has been expanded, and the user instructs the page to flip back to the top side, the reverse side shrinks back to its original size and then flips back to the top side.</p> <p>MainClaim: A computer system for displaying and manipulating a double-sided graphic image comprising:</p> <p>a processor;</p> <p>a display device coupled to the processor for displaying the graphic image, wherein the graphic image includes a first side and an opposing second side, wherein the first side is not a same size as the second side; and</p> <p>a first input device coupled to provide a flip command to the processor, wherein if the first side is displayed the graphic image is flipped such that the first side is hidden and the second side is displayed in response to the flip command, wherein if the second side is displayed the graphic image is flipped such that the second side is hidden and the first side is displayed in response to the flip command.</p>									
2009/0033684	On-screen marker to assist usability while scrolling	Nokia Corporation	Barrett; Robert Alan	345	G09G	20070803	10	92%	<input type="checkbox"/>
<p>Abstract: In a non-limiting aspect thereof, the exemplary embodiments of this invention provide a method including placing a marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation, and moving the marker on the display, where the marker moves with the departure point during the scrolling operation.</p> <p>MainClaim: A computer readable medium encoded with a computer program executable by a processor to perform actions comprising: placing a marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation; and moving the marker on the display, where the marker moves with the departure point during the scrolling operation.</p>									
7,623,119	Graphical functions by gestures	Nokia Corporation	Autio; Markku Tapio Jarvio; Jami Jarkko Juhani	345	G09G	20040421	7	92%	<input type="checkbox"/>
<p>Abstract: A method for operating a computer through a touch sensitive display interface includes displaying a computer generated graphical image on a touch sensitive display using display software. The display software includes programs used to display the graphical image (e.g., display driver and web browser), and is responsive to inputs at a first, active portion (e.g., coinciding with toolbars, hyperlinks) of the touch sensitive display when the graphic image is displayed, and is non-responsive to a second, inactive portion. In the method, an input character is received at the second, inactive portion of the touch sensitive display, and is compared to a stored command character that is associated with a separate corresponding computer command. The separate corresponding computer command is executed if the input character matches the command character. In one embodiment, one particular input character results in emulating a right mouse button by displaying a submenu of shortcut icons, and the method is implemented by operation of a computer program in a mobile station.</p> <p>MainClaim: A computer readable medium having computer instructions for performing actions comprising: displaying a computer generated graphical image and at least one active area comprising an attribute on a touch sensitive display using a displaying software program, the attribute comprising at least one of a scrolling operator, a toolbar icon and a hyperlink, said displaying software program being responsive to inputs at only a first active portion of the touch sensitive display when said graphical image is displayed, and non-responsive to a second inactive portion of the display; receiving an input character at the second inactive portion of said touch sensitive display; comparing said input character to a stored command character that is associated with a separate corresponding computer command; and executing the separate corresponding computer command if said input character matches said command character, wherein said separate corresponding computer command is to display a submenu at the touch sensitive display, said submenu comprising a plurality of shortcut links each to a different executable command.</p>									
2003/0001899	Semi-transparent handwriting recognition UI	Nokia Corporation	Partanen, Minna Simila, Vesa	345	G09G	20010629	1	92%	<input type="checkbox"/>
<p>Abstract: A user interface of a handwriting recognition system intended for use in small electronic devices, such as PDAs, mobile Telephones and laptop computers. The user interface is a semi-transparent window that opens in response to a user-initiated manuscript input to any point on a touch-activated screen of a display of the electronic device. The semi-transparent window may be resized or moved, as desired by the user, and may be automatically sizable in response to the placement of the</p>									

user's manuscript input on the touch-activated screen.

MainClaim: A user interface for a handwriting recognition system used with a visual display having a screen, said interface comprising: means for opening a semi-transparent window in said display, said semi-transparent window permitting a user to view features of a portion of said display over which said semitransparent window is opened, said semi-transparent window having boundaries which define a contrasting area on said display.

5,664,208	Methods and apparatuses for seamless compound document processing	Apple Computer, Inc.	Pavley; John Franklin Turner, II; John Benton Hanson; Gary Stephen	715	G06F	19950516	0	100%	<input type="checkbox"/>
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Abstract: A compound document in a computer, which includes a first object editor embedded in the compound document for rendering first data in a first data content area of the compound document. The compound document further includes a second object editor embedded in the compound document for rendering second data in a second data content area of the compound document, the first data content area and the second data content area being mutually exclusive. Further, there are embedded a plurality of editing controllers in the compound document for selectively editing attributes of a selection of one of the first and second data. The compound document further includes a data switching system for communicating attribute data between the editing controllers and the first and second object editors, the attribute data representing the attributes of the selection, wherein the data switching system determines which one of the plurality of editing controllers receives the attribute data based on interest registered by each of the plurality of editing controllers with the data switching system.

MainClaim: A compound document in a computer, comprising:

a first object editor embedded in said compound document for rendering first data in a first data content area of said compound document;

a second object editor embedded in said compound document for rendering second data in a second data content area of said compound document, said first data content area and said second data content area being mutually exclusive;

a plurality of editing controllers embedded in said compound document for selectively editing attributes of a selection of one of said first and second data, said editing controllers being displayed in a UI container that does not substantially change in appearance when said first or said second object editor is a focus of user operation; and

a data switching system for communicating attribute data between said editing controllers and said first and second object editors, said attribute data representing said attributes of said selection, wherein said data switching system determines which one of said plurality of editing controllers receives said attribute data based on interest registered by each of said plurality of editing controllers with said data switching system.

2007/0288854	Reusable XForms processor	Nokia Corporation	Koskimies; Oskari	715	G06F	20060613	18	92%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for invoking user interface (UI) functionality by a client application. Data is received from a server, such as a web server, parsed and used to create a hierarchy of application UI objects. A corresponding hierarchy of XForms objects is created, such that each XForms object maps to an application UI object. The user interface is rendered at the client display by displaying objects in the application UI objects hierarchy and invoking the corresponding functionality from the XForms object hierarchy.

MainClaim: A method for invoking user interface functionality on a computing device comprising:receiving a data file comprising markup language data;creating based on the data file a first object hierarchy comprising a plurality of objects, each corresponding to a user interface component;identifying in the first object hierarchy a first object corresponding to a user interface component;creating a second object hierarchy comprising a second object having user interface functionality, said second object associated with said first object;displaying on the computing device a user interface comprising a graphical representation of the first object; andinvoking the user interface functionality of the second object in relation to the graphical representation of the first object on the displayed user interface.

2006/0230056	Method and a device for visual management of metadata	Nokia Corporation	Aaltonen; Antti	707	G06F	20050406	16	92%	<input type="checkbox"/>
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Abstract: A method and a device for visual management of metadata. An area with a plurality of data elements is visualized (504) to the user who determines (508) a route on the area, said route including a number of preferred elements belonging to the plurality of elements, which is detected (512). The preferred elements shall act as targets for a predefined metadata operation (514), e.g. change of a metadata attribute value.

MainClaim: A method for directing a metadata operation at a number of electronically stored data elements in an electronic device having the steps of visualizing an area with a number of data elements on a display device to a user (504), obtaining control information about a user-defined route between user-defined start and end points on the visualized area comprising said number of data elements (508), specifying based on the route such data elements belonging to said number of data elements over which the route passed (512), and performing the metadata operation on said specified data elements (514).

5,838,315	Support for custom user-interaction elements in a graphical, event-driven computer system	Apple Computer, Inc.	Craycroft; Timothy J. Ulrich; Robert R.	345	G06F	19971124	0	100%	<input type="checkbox"/>
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Abstract: Explicit support for custom gadgets is provided, at a system software level, in a manner that is essentially application-transparent. Specific support is provided for the addition of one custom gadget per window. The custom gadget is identified by a specific numeric code in the same manner as the close and zoom boxes. An application simply tells the system software what the custom gadget for a particular window should look like. The code responsible for drawing that window's frame then knows where to find the image of the custom gadget and will render it appropriately. When a user clicks in the custom gadget, the system software notifies the application of the event by means of the numeric code associated with the custom gadget. More particularly, in accordance with one embodiment of the invention, a custom interactive user-interface element is provided in a title bar of a window of an application program in a graphical, event-driven computer system having a computer display. The custom interactive user-interface element is provided by storing information, referring to an icon stored as part of said application program and used to visually represent the custom interactive user-interface element, in a location accessible to

a Window Manager. The Window Manager then draws on the computer display a frame of the window including the icon used to visually represent the custom interactive user-interface element.

MainClaim: For use in a graphical, event-driven computer system having a computer display and a graphical user interface, a method of providing a customer interactive user-interface element in a frame of a window of an application program, in addition to system-defined elements provided in each window displayed by said computer system, said method comprising the steps of:

storing information referring to an icon, stored as part of said application program and used to visually represent the custom interactive user-interface element, in a location accessible to a window manager; and

the window manager drawing on the computer display a frame of the window including drawing, at a size and location determined by the window manager, the icon used to visually represent the custom interactive user-interface element;

wherein clicking on the custom interface user-interface element causes the application to perform a function that is in addition to functions defined as part of the graphical user interface.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	94%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

2006/0253788	Method, apparatus and computer program to provide a display screen button placement hint property	Nokia Corporation	Uotila; Aleks Lindfors; Tuija Joki; Auli	715	G06F	20050509	8	93%	<input type="checkbox"/>
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Abstract: Disclosed is a method to develop a graphical user interface that includes entering a data structure that specifies a preferred form of a Button to appear on a display screen, and in response to the data structure, defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism, such as a softkey, in place of a displayable Button for the specific instance of the display screen. Also disclosed is a graphical user interface development system that includes means for receiving a data structure that specifies a preferred form of a Button to appear on a display screen and means, responsive to the data structure, for defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism in place of a displayable Button for the specific instance of the display screen. Also disclosed is a mobile device that has a graphical user interface that includes a display screen, where the graphical user interface is defined at least in part by the use of a Button property string that is interpreted at least in part based on physical characteristics of at least one of the display screen and the mobile device.

MainClaim: A method to develop a graphical user interface, comprising: entering a data structure that specifies a preferred form of a Button to appear on a display screen; and in response to the data structure, defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism in place of a displayable Button for the specific instance of the display screen.

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	93%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

6,005,566	Aspect and style elements of an improved graphical user interface	Apple Computer, Inc.	Jones; Jeremy A. Mayle; Neil L. Parsons; Paige K. Shalit; Andrew L. M. St. Clair, Jr.; William W. Steele; Oliver W. Strassmann; Steven H. White; Derek R.	345	G06F	19970922	0	100%	<input type="checkbox"/>
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Abstract: A graphical user interface comprises aspect and style elements for controlling the type of information associated with objects displayed on a display screen of a computer system when browsing through the objects. The aspect element controls the

particular type of information displayed for an object on a portion of a window, called a pane, while the style element controls the types of information displayed for all objects within that pane.

MainClaim: An improved graphical user interface for enhancing the ability of a user to browse objects accessible from a computer system, said computer system including a memory for storing the objects, a display monitor for displaying a cursor on a display screen, and a device for manipulating said cursor by a user, said interface comprising:

a window of said screen, said window configured for apportionment into at least one pane for displaying said objects stored in said memory; and

means for controlling information associated with said objects displayed on said pane in response to the user manipulating said cursor when browsing said displayed objects, said controlling means comprising:

a first interface element displayed on the display screen for linking information types and/or object types so as to specify the type of information displayed for each of said objects displayed on said pane, and

a second interface element displayed on the display screen for selecting linked information types and/or objects types so as to vary the types of information initially displayed for all of said objects on said pane.

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	94%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

2006/0253788	Method, apparatus and computer program to provide a display screen button placement hint property	Nokia Corporation	Uotila; Aleks Lindfors; Tuija Joki; Auli	715	G06F	20050509	8	93%	<input type="checkbox"/>
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Abstract: Disclosed is a method to develop a graphical user interface that includes entering a data structure that specifies a preferred form of a Button to appear on a display screen, and in response to the data structure, defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism, such as a softkey, in place of a displayable Button for the specific instance of the display screen. Also disclosed is a graphical user interface development system that includes means for receiving a data structure that specifies a preferred form of a Button to appear on a display screen and means, responsive to the data structure, for defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism in place of a displayable Button for the specific instance of the display screen. Also disclosed is a mobile device that has a graphical user interface that includes a display screen, where the graphical user interface is defined at least in part by the use of a Button property string that is interpreted at least in part based on physical characteristics of at least one of the display screen and the mobile device.

MainClaim: A method to develop a graphical user interface, comprising: entering a data structure that specifies a preferred form of a Button to appear on a display screen; and in response to the data structure, defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism in place of a displayable Button for the specific instance of the display screen.

2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	93%	<input type="checkbox"/>
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Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

7,428,709	Multiple-panel scrolling	Apple Inc.	Forstall; Scott James Christie; Gregory N. Tiene; Kevin John Melton; Donald Dale Lemay; Stephen Loofbourrow; Wayne Russell	715	G06F	20050413	0	100%	<input type="checkbox"/>
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			Kahn; Jessica Hyatt; David						
<p>Abstract: In a scrollable user interface window including two or more panels, a single scroll bar scrolls all of the panels. Panels move in lock-step with one another at certain times, but not at other times, depending on whether the lock-step scrolling would cause blank areas to be displayed. If the user's scroll commands would result in a blank area of a panel being displayed, the scroll command is not performed; rather, the panel remains frozen in its current position, even while other panel(s) do scroll. Thus, the present invention ensures that useful content is displayed at all times in all panels, and no screen real estate is wasted due to scrolling operations.</p> <p>MainClaim: A method for scrolling a plurality of panels in a window, comprising: displaying at least a portion of underlying content in each panel; receiving a scroll command having a scroll direction; scrolling a first panel having a greatest linear measure of underlying content among the panels in the window; and for a second panel: responsive to the linear measure of any additional undisplayed underlying content for the second panel in the scroll direction being greater than or equal to the linear measure of any additional undisplayed underlying content for the first panel in the scroll direction, scrolling the second panel in concert with the scrolling of the first panel; and responsive to the linear measure of any additional undisplayed underlying content for the second panel in the scroll direction being less than the linear measure of any additional undisplayed underlying content for the first panel in the scroll direction, maintaining the scroll position of the second panel.</p>									
2009/0033684	On-screen marker to assist usability while scrolling	Nokia Corporation	Barrett; Robert Alan	345	G09G	20070803	10	94%	<input type="checkbox"/>
<p>Abstract: In a non-limiting aspect thereof, the exemplary embodiments of this invention provide a method including placing a marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation, and moving the marker on the display, where the marker moves with the departure point during the scrolling operation.</p> <p>MainClaim: A computer readable medium encoded with a computer program executable by a processor to perform actions comprising: placing a marker on a display, where the marker is placed automatically at a departure point on the display upon sensing a scrolling operation; and moving the marker on the display, where the marker moves with the departure point during the scrolling operation.</p>									
2006/0059436	Handling and scrolling of content on screen	Nokia Corporation	Nurmi; Mikko	715	G06F	20050805	10	93%	<input type="checkbox"/>
<p>Abstract: The invention relates to a software application adapted for scrolling content on a screen in an application window. The software application includes at least two logically distinct scroll bars in one application window, each of the scroll bars providing scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content.</p> <p>MainClaim: A device for handling content comprising a memory, a processing unit controlling operation of said device according to software stored in said memory, a screen for viewing content, said memory comprising a software application adapted for scrolling content on the screen in an application window, wherein the software application comprises: at least two logically distinct scroll bars in one application window, each of the scroll bars providing scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content.</p>									
5,603,053	System for entering data into an active application currently running in the foreground by selecting an input icon in a palette representing input utility	Apple Computer, Inc.	Gough; Michael L. Holloway; Bruce V.	710	G06F	19960305	0	100%	<input type="checkbox"/>
<p>Abstract: The present invention provides method and apparatus for inputting data to an active application of a computer system. A method of the present invention comprises the steps of creating an input image on a screen of a computer system, detecting the engagement of the input image by a pointer, analyzing the engagement to determine input data, and sending the input data to the active application program. Another method of the present invention comprises the steps of initializing a computer implemented process for intercepting input request calls made by the active application program, creating an input image on the computer system's screen, detecting an engagement of a pointer with the input image, analyzing the engagement to determine potential input data, and sending the input data to the application program. The present invention preferably includes an organizational image including a palette and a number of icons representing input utilities. The icons can be dragged off of the palette to activate a selected utility.</p> <p>MainClaim: A method for launching an input utility for use in entering data into an active application, said active application being a foreground application currently in use by a user, said method comprising:</p> <p>displaying an organizing image on a screen of a computer system wherein said organizing image includes a palette having a plurality of icons representing an input utility displayed on said palette;</p> <p>engaging one of said icons with a pointer means and moving said pointer means to a desired location on said screen;</p> <p>activating said input utility and displaying an input image created for said input utility at about said desired location, said input image dedicating a portion of said screen for data input into said input utility; and</p> <p>linking said input image to said active application such that data input into said input utility is communicated to said active application.</p>									
7,623,119	Graphical functions by gestures	Nokia Corporation	Autio; Markku Tapio Jarvio; Jami Jarkko Juhani	345	G09G	20040421	7	94%	<input type="checkbox"/>
<p>Abstract: A method for operating a computer through a touch sensitive display interface includes displaying a computer generated graphical image on a touch sensitive display using display software. The display software includes programs used to display the graphical image (e.g., display driver and web browser), and is responsive to inputs at a first, active portion (e.g., coinciding with toolbars, hyperlinks) of the touch sensitive display when the graphic image is displayed, and is non-responsive to a second, inactive portion. In the method, an input character is received at the second, inactive portion of the touch sensitive display, and is compared to a stored command character that is associated with a separate corresponding computer command. The separate corresponding computer command is executed if the input character matches the command character. In one</p>									

embodiment, one particular input character results in emulating a right mouse button by displaying a submenu of shortcut icons, and the method is implemented by operation of a computer program in a mobile station.

MainClaim: A computer readable medium having computer instructions for performing actions comprising: displaying a computer generated graphical image and at least one active area comprising an attribute on a touch sensitive display using a displaying software program, the attribute comprising at least one of a scrolling operator, a toolbar icon and a hyperlink, said displaying software program being responsive to inputs at only a first active portion of the touch sensitive display when said graphical image is displayed, and non-responsive to a second inactive portion of the display; receiving an input character at the second inactive portion of said touch sensitive display; comparing said input character to a stored command character that is associated with a separate corresponding computer command; and executing the separate corresponding computer command if said input character matches said command character, wherein said separate corresponding computer command is to display a submenu at the touch sensitive display, said submenu comprising a plurality of shortcut links each to a different executable command.

2008/0002888	Apparatus, method, device and computer program product providing enhanced text copy capability with touch input display	Nokia Corporation	Yuan; Shijun	382	G06K	20060629	13	94%	<input type="checkbox"/>
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Abstract: A device includes a display having touch sensitive display surface that is responsive to pen-based user input, and a control unit that is bidirectionally coupled to the display. The control unit is responsive to a user selecting displayed text from a first display location using the pen, and is further responsive to a first signal generated using the pen, to copy the selected displayed text to a buffer associated with a text window and to display the copied text in the text window. The control unit is further responsive to the user selecting a second display location using the pen, and to a second signal, to copy the displayed text from the text window to the second display location, thereby implementing a copy and paste function. A cut and paste function may also be implemented.

MainClaim: A method, comprising: selecting displayed text from a first display location using a pen in combination with a touch sensitive surface; in response to a first signal generated using the pen, copying the selected displayed text to a buffer associated with a text window and displaying the copied text in the text window; selecting a second display location using the pen; and in response to a second signal, copying the displayed text from the buffer to the second display location.

2005/0237308	Graphical functions by gestures	Nokia Corporation	Autio, Markku Tapio Jarvio, Jami Jarkko Juhani	345	G09G	20040421	4	93%	<input type="checkbox"/>
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Abstract: A method for operating a computer through a touch sensitive display interface includes displaying a computer generated graphical image on a touch sensitive display using display software. The display software includes programs used to display the graphical image (e.g., display driver and web browser), and is responsive to inputs at a first, active portion (e.g., coinciding with toolbars, hyperlinks) of the touch sensitive display when the graphic image is displayed, and is non-responsive to a second, inactive portion. In the method, an input character is received at the second, inactive portion of the touch sensitive display, and is compared to a stored command character that is associated with a separate corresponding computer command. The separate corresponding computer command is executed if the input character matches the command character. In one embodiment, one particular input character results in emulating a right mouse button by displaying a submenu of shortcut icons, and the method is implemented by operation of a computer program in a mobile station.

MainClaim: In an electronic device for displaying a graphical image at a touch sensitive user interface using a displaying software program, and for storing a separate computer command apart from the displaying software program, the improvement comprising a computer program embodied in a computer readable medium comprising instructions to cause a computer to: receive an input at a portion of the touch sensitive user interface that is not recognized as active by the display program; compare said received input to a stored command character that is associated with the separate computer command; and execute the separate computer command only if the received input matches the stored command character.

6,690,356	Method and apparatus for providing visual feedback during manipulation of text on a computer screen	Apple Computer, Inc.	Johnston, Jr.; Robert G. Jenson; Scott	345	G09G	20020429	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus providing visual feedback to a computer user while dragging selected text is described. As its first step, the processing logic creates a text object from the selected text once the computer user has initiated a drag. Simultaneously, the selected text is visually de-emphasized. Secondly, the processing logic snaps the text object to the cursor so that the text object follows the cursor without obscuring text at the insertion point. Finally, when the computer user selects the final insertion point, the selected text is visually zoomed from the source location to the final insertion point.

MainClaim: A computer implemented method of providing visual feedback to a computer user during manipulation of selected text on a display device of a computer system, the computer system including a control device for interactively positioning a visible symbol on the display device, the computer also having a signal generation device for signaling an active state and an inactive state, the method comprising:

- a) creating and displaying a text object of the selected text in response to an active state of the signal generation device while the visible symbol is over the selected text at a source location on the display device;
- b) moving the text object on the display device along a line between the source location and the visible symbol until the text object reaches the visible symbol;
- c) in response to an inactive state of the signal generation device while the visible symbol is over a destination location:

7,554,530	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi; Sachi Mori; Eigo	345	G09G	20021223	13	92%	<input type="checkbox"/>
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Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least

one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.

MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object that represents data; and selecting the at least one displayed object, where forming the stroke further comprises extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object.

5,740,455	Enhanced compound document processing architectures and methods therefor	Apple Computer, Inc.	Pavley; John Franklin Turner, II; John Benton Hanson; Gary Stephen	715	G06F	19950516	0	100%	<input type="checkbox"/>
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Abstract: A computer program product, which includes a computer usable medium having computer readable code embodied therein for processing data in a compound document. The compound document includes a plurality of embedded object editors for respectively rendering data having different interest types in different compound document content areas. The compound document further includes a plurality of editing controllers embedded in the compound document. The inventive computer program product includes computer readable program code configured to cause a computer to detect whether a selection is made in one of the data. Furthermore, there is included computer readable program code configured to cause the computer to effect the filling out of an auditor data structure with attributes of the selection by the object editor that is associated with the data in which the selection is made. The inventive computer program product also includes computer readable program code configured to cause the computer to communicate the attributes embodied in data fields of the auditor data structure from the above-mentioned object editor to selective interested ones of the editing controllers. In one embodiment, both the above-mentioned object editor and the interested editing controllers register with a data switching system to receive attribute data having an interest represented by the attributes of the aforementioned selection.

MainClaim: A computer-implemented method for creating a compound document in a computer, comprising:

embedding a first object editor in said compound document for rendering first data in a first data content area of said compound document, said first object editor representing a container of said compound document;

embedding a second object editor in said compound document for rendering second data in a second data content area of said compound document, said first data content area and said second data content area being mutually exclusive;

embedding a plurality of editing controllers in said compound document for selectively editing attributes of a selection of one of said first and second data;

providing a first auditor data structure including:

first data fields for representing said attributes, said first data fields implementing a first protocol decipherable by at least one of said first object editor and said second object editor, and being further decipherable by said editing controllers; and

providing a data switching system for passing said first auditor data structure between said editing controllers and said first and second object editors, wherein said data switching system determines which one of said plurality of editing controllers receives said first auditor data structure based on interest registered by each of said plurality of editing controllers with said data switching system.

2007/0288854	Reusable XForms processor	Nokia Corporation	Koskimies; Oskari	715	G06F	20060613	18	92%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for invoking user interface (UI) functionality by a client application. Data is received from a server, such as a web server, parsed and used to create a hierarchy of application UI objects. A corresponding hierarchy of XForms objects is created, such that each XForms object maps to an application UI object. The user interface is rendered at the client display by displaying objects in the application UI objects hierarchy and invoking the corresponding functionality from the XForms object hierarchy.

MainClaim: A method for invoking user interface functionality on a computing device comprising:receiving a data file comprising markup language data;creating based on the data file a first object hierarchy comprising a plurality of objects, each corresponding to a user interface component;identifying in the first object hierarchy a first object corresponding to a user interface component;creating a second object hierarchy comprising a second object having user interface functionality, said second object associated with said first object;displaying on the computing device a user interface comprising a graphical representation of the first object; andinvoking the user interface functionality of the second object in relation to the graphical representation of the first object on the displayed user interface.

5,734,901	Electronic mail information associated with native application data	Apple Computer, Inc.	Sidhu; Gursharan S. Fisher; Stephen Holleran; Patrick A. Cleron; Michael Andrew	712	G06F	19950926	0	100%	<input type="checkbox"/>
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Abstract: A computer implemented method and apparatus for providing the functions of electronic mail in a computer system which is integrated within a display or a window under control of a first application program which does not support electronic mail functionality. A set if mail routines displays a mailer on a first portion of the application program's display with application program data displayed in a second portion of the application program's display. The mail routines allow the user to modify the data in the application program via functionality of the application program and modify the mailer via the functionality of the mail routines. The mail routines further allow the user to perform electronic mail functions provided by the mail routines, wherein the electronic mail functions include using the application program data as content of mail messages processed by the mail routines. The functionality of the mail routines can be provided via an event preprocessor inserted into an event processing loop in the application program, wherein the event preprocessor determines whether events are pertinent to the mail routines. If

so, the preprocessor processes the events to provide the electronic mail functionality and allows events which are pertinent to the application program to be processed by the application program.

MainClaim: A computer-implemented method of integrating electronic mail functionality into an application program which does not support said electronic mail functionality, said application program displayed on a computer display, comprising the following steps:

a. executing a set of mail routines wherein said set of mail routines associates a mailer object to said application program and associates a mailer datum object to data native to said application program to thereby integrate said electronic mail functionality into said application program;

b. displaying said mailer on a first portion of said application program and displaying said mailer datum on a second portion of said application program;

c. enabling said user, through said mail routines, to modify said data native to said application program via functionality of said application program and modify said mailer via said functionality of said mail routines; and

d. enabling said user, through said mail routines, to perform electronic mail functions provided by said mail routines by enabling and detecting user modification of said mailer and performing said electronic mail functions responsive thereto; and

wherein said step of enabling said user to perform electronic mail functions provided by said mail routines includes saving said application program data displayed in said second portion of said application program's display as content of mail messages processed by said mail routines.

2005/0210401	Method and system for centralized copy/paste functionality	Nokia Corporation	Ketola, Pekka Mantere, Jussi Karttunen, Juha	715	G06F	20040318 3	94%	<input type="checkbox"/>
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Abstract: This invention relates to a method for transferring data from a source application to a target application. From the application an operation is traced, from which operation at least one item is extracted. The item is saved in a trace log file, from which it can be selected and transferred into said target application. The operation can be e.g. incoming or outgoing call, where the item is a phone number or a contact card. The invention relates also to a device, to a system and to computer program product.

MainClaim: A method for transferring data from a source application to a target application, the method comprising steps for tracing an operation relating to the source application, extracting at least one item from said operation, recording said item into a file, wherein said file is called by the target application for selecting and pasting the item to said target application.

5,983,245	Method and apparatus for implementing universal resource locator menus	Apple Computer, Inc.	Newman; Steve Schillace; Sam	715	G06F	19961227 0	100%	<input checked="" type="checkbox"/>
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Abstract: Disclosed is a method for generating universal resource locator links in a graphical user interface based HTML file. The method includes the operations of selecting one of a picture object and text contained within the graphical user interface based HTML file. Once one of the picture object and text are selected, a short-cut universal resource locator icon is selected. Upon selecting the short-cut universal resource locator icon, a nested menu is displayed. Preferably, the nested menu contains a list of most recently used universal resource locators, and a list of open HTML files. Next, one of the universal resource locators is selected from the list of most recently used universal resource locators and the open HTML file from the list of open HTML files. Once selected, a link is generated from the selected one of the picture object and text contained within the graphical user interface based HTML file to one of the selected universal resource locators from the list of most recently used universal resource locators and the open HTML file.

MainClaim: A method for generating universal resource locator links in a graphical user interface based HTML file, comprising the operations of:

selecting one of a picture object and text contained within the graphical user interface based HTML file;

selecting a short-cut universal resource locator icon;

displaying a nested menu in response to the selecting of the short-cut universal resource locator icon, the nested menu including a list of most recently used universal resource locators and a list of open HTML files, the list of most recently used universal resource locators including at least one universal resource locator, and the list of open HTML files including at least one HTML file, and the nested menu further including a sub-menu containing at least one anchor reference that is associated with at least one open HTML file from the list of open HTML files;

selecting from the nested menu one of the universal resource locators from the list of most recently used universal resource locators and the open HTML file from the list of open HTML files; and

generating a link from the selected one of the picture object and text contained within the graphical user interface based HTML file to one of the selected universal resource locators from the list of most recently used universal resource locators and the open HTML file from the list of open HTML files.

2005/0166161	User input system and method for selecting a file	Nokia Corporation	Makela, Mikko K.	715	G06F	20040128 2	93%	<input type="checkbox"/>
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Abstract: A present invention relates to methods, devices, systems, and a computer program products for selecting files from a file list. The methods, devices, systems and computer program products are configured to provide more efficient ways for selecting a file from a file list in various usage scenarios.

MainClaim: A method for selecting a file from a file list, the method comprising the steps of: determining if there was a file previously selected from the file list; determining if there is a next file listed relative to the previously selected file in the file list; and displaying the file list with the next file highlighted.

2006/0064648	Display module, a device, a computer software product and a method for a user interface view	Nokia Corporation	Makela; Mikko	715	G06F	20050915	3	93%	<input type="checkbox"/>
<p>Abstract: This invention relates to browsing web pages with a mobile device and especially to a display module, which comprises a user interface view, which comprises at least one link to another user interface view as well as a pointer for selecting said link. The link is arranged to execute a pop-up view in said user interface view and that said same link is in addition arranged to execute one other user interface view in the display module. According to the invention, instead of executing said one other user interface view the link in question is transferred to the pop-up view being opened as a selectable function. Further, the invention relates to a device, a method and a computer software product.</p> <p>MainClaim: A display module, which comprises a user interface view, which comprises at least one link to another user interface view as well as a pointer for selecting said link, which link is arranged to execute a pop-up view in said user interface view and that said same link is in addition arranged to execute said other user interface view in the display module, wherein said pop-up view is arranged to be executed instead of executing said other user interface view, in which pop-up view the link in question is as a selectable function.</p>									
2005/0229119	Method for the presentation and selection of document links in small screen electronic devices	Nokia Corporation	Torvinen, Marko	715	G06F	20040407	2	93%	<input type="checkbox"/>
<p>Abstract: A method, an electronic device and a computer program, for document link presentation and selection in an electronic device. In the method a first hypertext page comprising at least one separate link area is opened in an electronic device. At least part of said first hypertext page is displayed in a view window movable in the area of said first hypertext page. A link area nearest to a first point on said view window is determined. A link list comprising links associated with said link area is formed. As a user selects a first link in the link list and a second hypertext page indicated by the first link is opened in the electronic device.</p> <p>MainClaim: A method for document link presentation and selection in an electronic device, the method comprising: opening a first hypertext page comprising at least one separate link area in said electronic device; displaying at least part of said first hypertext page in a view window movable in the area of said first hypertext page; determining a link area nearest to a first point on said view window; forming a link list comprising links associated with said link area; allowing a user to select a first link in said link list; and opening a second hypertext page indicated by said first link in said electronic device.</p>									
5,692,142	Support for custom user-interaction elements in a graphical, event driven computer system	Apple Computer, Inc.	Craycroft; Timothy J. Ulrich; Robert R.	345	G06F	19960201	0	100%	<input type="checkbox"/>
<p>Abstract: Explicit support for custom gadgets is provided, at a system software level, in a manner that is essentially application-transparent. Specific support is provided for the addition of one custom gadget per window. The custom gadget is identified by a specific numeric code in the same manner as the close and zoom boxes. An application simply tells the system software what the custom gadget for a particular window should look like. The code responsible for drawing that window's frame then knows where to find the image of the custom gadget and will render it appropriately. When a user clicks in the custom gadget, the system software notifies the application of the event by means of the numeric code associated with the custom gadget. More particularly, in accordance with one embodiment of the invention, a custom interactive user-interface element is provided in a title bar of a window of an application program in a graphical, event-driven computer system having a computer display. The custom interactive user-interface element is provided by storing information, referring to an icon stored as part of said application program and used to visually represent the custom interactive user-interface element, in a location accessible to a window manager. The window manager then draws on the computer display a frame of the window including the icon used to visually represent the custom interactive user-interface element.</p> <p>MainClaim: For use in a graphical, event-driven computer system having a computer display, a method of providing a custom interactive user-interface element in a frame of a window of an application program, in addition to system-defined elements provided in each window displayed by said computer system, said method comprising the steps of:</p> <p>storing information referring to an icon, stored as part of said application program and used to visually represent the custom interactive user-interface element, in a location accessible to a window manager; and</p> <p>the window manager drawing on the computer display a frame of the window including drawing, at a size and location determined by the window manager, the icon used to visually represent the custom interactive user-interface element.</p>									
2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	94%	<input type="checkbox"/>
<p>Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.</p> <p>MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.</p>									
2006/0253788	Method, apparatus and computer program to provide a display screen	Nokia Corporation	Uotila; Aleks Lindfors; Tuija	715	G06F	20050509	8	93%	<input type="checkbox"/>

	button placement hint property		Joki; Auli						
Abstract: Disclosed is a method to develop a graphical user interface that includes entering a data structure that specifies a preferred form of a Button to appear on a display screen, and in response to the data structure, defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism, such as a softkey, in place of a displayable Button for the specific instance of the display screen. Also disclosed is a graphical user interface development system that includes means for receiving a data structure that specifies a preferred form of a Button to appear on a display screen and means, responsive to the data structure, for defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism in place of a displayable Button for the specific instance of the display screen. Also disclosed is a mobile device that has a graphical user interface that includes a display screen, where the graphical user interface is defined at least in part by the use of a Button property string that is interpreted at least in part based on physical characteristics of at least one of the display screen and the mobile device. MainClaim: A method to develop a graphical user interface, comprising: entering a data structure that specifies a preferred form of a Button to appear on a display screen; and in response to the data structure, defining at least one of a displayable Button placement for a specific instance of a display screen, or the use of another user input mechanism in place of a displayable Button for the specific instance of the display screen.									
2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	92%	<input type="checkbox"/>
Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands. MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.									
6,189,018	Method and apparatus for implementing universal resource locator menus	Apple Computer, Inc.	Newman; Steve Schillace; Sam	715	G06F	19990803	0	100%	<input type="checkbox"/>
Abstract: Disclosed is a method for generating universal resource locator links in a graphical user interface based HTML file. The method includes the operations of selecting one of a picture object and text contained within the graphical user interface based HTML file. Once one of the picture object and text are selected, a short-cut universal resource locator icon is selected. Upon selecting the short-cut universal resource locator icon, a nested menu is displayed. Preferably, the nested menu contains a list of most recently used universal resource locators, and a list of open HTML files. Next, one of the universal resource locators is selected from the list of most recently used universal resource locators and the open HTML file from the list of open HTML files. Once selected, a link is generated from the selected one of the picture object and text contained within the graphical user interface based HTML file to one of the selected universal resource locators from the list of most recently used universal resource locators and the open HTML file. MainClaim: A method for generating a cascaded graphical user interface menu in a webpage authoring environment, the cascaded graphical user interface menu being used for creating universal resource locator links within webpages, the method comprising: retrieving a list of most recently used universal resource locators from memory, the list of most recently used universal resource locators being previously used for creating universal resource locator links within webpages; retrieving a list of open webpage files from memory; creating a first menu data structure; adding entries to the first menu data structure for each universal resource locator in the list of most recently used universal resource locators; adding entries to the first menu data structure for any open webpage files; and displaying the cascaded graphical user interface menu formed in accordance with the first menu data structure, thereby facilitating creation of subsequent universal resource locator links.									
2005/0166161	User input system and method for selecting a file	Nokia Corporation	Makela, Mikko K.	715	G06F	20040128	2	93%	<input type="checkbox"/>
Abstract: A present invention relates to methods, devices, systems, and a computer program products for selecting files from a file list. The methods, devices, systems and computer program products are configured to provide more efficient ways for selecting a file from a file list in various usage scenarios. MainClaim: A method for selecting a file from a file list, the method comprising the steps of: determining if there was a file previously selected from the file list; determining if there is a next file listed relative to the previously selected file in the file list; and displaying the file list with the next file highlighted.									
2008/0104507	Web page dependent browser menu	Nokia Corporation	Nurmi; Mikko	715	G06F	20061031	2	93%	<input type="checkbox"/>
Abstract: A web page is electronically retrieved from a remote site such as a server, using a web browser program. At a graphical display interface is simultaneously displayed a browser toolbar of menu items, at least a portion of the retrieved web									

page, and at least one pre-selected element of the web page. The pre-selected element is displayed at a new position different from an original position in which the pre-selected element exists in the retrieved web page. In an embodiment, the pre-selected element is a login block and the new position is within the toolbar. Methods, devices, embodied programs, and user interfaces are described.

MainClaim: A method for displaying information comprising:electronically retrieving a web page from a remote site with a web browser program;simultaneously displaying on a graphical display interface:a browser toolbar of menu items;at least a portion of the retrieved web page; andat least one pre-selected element of the web page at a new position different from an original position in which the pre-selected element exists in the retrieved web page.

2006/0064648	Display module, a device, a computer software product and a method for a user interface view	Nokia Corporation	Makela; Mikko	715	G06F	20050915	3	93%	<input type="checkbox"/>
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Abstract: This invention relates to browsing web pages with a mobile device and especially to a display module, which comprises a user interface view, which comprises at least one link to another user interface view as well as a pointer for selecting said link. The link is arranged to execute a pop-up view in said user interface view and that said same link is in addition arranged to execute one other user interface view in the display module. According to the invention, instead of executing said one other user interface view the link in question is transferred to the pop-up view being opened as a selectable function. Further, the invention relates to a device, a method and a computer software product.

MainClaim: A display module, which comprises a user interface view, which comprises at least one link to another user interface view as well as a pointer for selecting said link, which link is arranged to execute a pop-up view in said user interface view and that said same link is in addition arranged to execute said other user interface view in the display module, wherein said pop-up view is arranged to be executed instead of executing said other user interface view, in which pop-up view the link in question is as a selectable function.

5,551,055	System for providing locale dependent user interface for presenting control graphic which has different contents or same contents displayed in a predetermined order	Taligent, Inc.	Matheny; John R. White; Christopher Davis; Mark E.	710	G06F	19921223	0	100%	<input checked="" type="checkbox"/>
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Abstract: A method and apparatus for updating an application to conform to unique requirements of a specific locale. The update involves language translation, graphic substitution, and interface element reorientation. For example, the text used in labels, titles, and messages depends upon the selected language. Its direction and orientation may affect the placement and orientation of a menu, menubar, title, scrollbar, or toolbar. Similarly, the selection of icons and other graphical symbols may be culturally dependent. Once localized, user interface elements are stored in a disk dictionary. A disk dictionary is an object that, when given a key, returns a value after reading it in from disk. This disk dictionary is managed by an object called an archive. An archive is responsible for putting together the individual user interface elements that make up a particular presentation.

MainClaim: A graphical user interface command system for use in a computer system having a display and a processor, the system displaying a control graphic on the display, said control graphic presenting information on the display, and executing a command in response to manipulation of the control graphic by a user, the system is configured to display said control graphic in a different particular manner according to associated locales respectively, and comprising:

a memory for storing a command data structure, a plurality of control graphics, and a plurality of locale information for each of said control graphics;

a pre-runtime mechanism operating on the processor for saving parameters in the command data structure indicative of a plurality of command executions;

tracking apparatus for modifying the command data structure as the user manipulates a displayed control graphic to select and execute one of the plurality of command executions and provide for proper control execution;

a locale selector for selecting one of said plurality of locale information; and

display control apparatus, coupled to said memory, said pre-runtime mechanism, said tracking apparatus, and said locale selector, for generating one of said control graphics in a specific manner based on said selected locale information and wherein for different locales said control graphic has different information contents or same information contents displayed in a predetermined order.

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	94%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

5,517,606	Object-oriented menuing system using command objects of an object-	Taligent, Inc.	Matheny; John R. White; Christopher Anderson; David	345	G06F	19940802	0	100%	<input checked="" type="checkbox"/>
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	oriented operation system		R. Schaeffer; Arnold						
<p>Abstract: A method and apparatus for an object based notification system. The notification system is designed in a flexible manner to support change notification in an object based operating system.</p> <p>MainClaim: In a computer operating under control of an object-oriented operating system and having a display, a menu system for displaying on said display, a menu control having at least one user-selectable menu item, said system comprising:</p> <p>(a) memory means for storing a command object with said object-oriented operating system, said command object having status information indicative of an operational state of said command object and having logic for setting said status information;</p> <p>(b) object processing means for creating a menu control object having at least one menu item, said at least one menu item having a data structure containing said command object and data variables controlling a visual appearance of said at least one menu item;</p> <p>(c) object processing means for initializing said menu item data variables by obtaining said status information of said command object and using said status information to set said data variables;</p> <p>(d) display means for displaying said menu item in accordance with said data variables; and wherein</p> <p>(e) said command object includes:</p>									
2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	94%	<input type="checkbox"/>
<p>Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.</p> <p>MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.</p>									
5,644,334	Status indicators of an improved graphical user interface	Apple Computer, Inc.	Jones; Jeremy A. Mayle; Neil L. Parsons; Paige K. Shalit; Andrew L. M. Strassmann; Steven H.	345	G09B	19960311	0	100%	<input type="checkbox"/>
<p>Abstract: An improved graphical user interface comprises novel status indicators pertaining to state attributes associated with objects displayed on a display screen of a computer system. These status indicators are preferably portrayed on a window pane of a display screen as distinct visual cues and are located adjacent to their associated objects to provide a customizable browser framework to a user. A dynamically-adjustable side bar panel provides a designated area within each pane for displaying the status indicators.</p> <p>MainClaim: An improved graphical user interface of a computer system having a display monitor for displaying a cursor on a display screen, said screen having associated therewith a device for controlling said cursor, said interface comprising:</p> <p>a window of said screen, said window configured for apportionment into at least one pane for displaying objects of said system; and</p> <p>status indicator means for positionally displaying state attributes associated with said objects, said status indicator means being displayed on a side bar panel of said pane, said side bar panel having a dynamically-adjustable width configured to one of expand and contract in response to the quantity of said state attributes selected for display.</p>									
2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	94%	<input type="checkbox"/>
<p>Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.</p> <p>MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.</p>									
2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka Iivainen, Jyrki	345	G09G	20030307	30	92%	<input type="checkbox"/>

Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

5,956,736	Object-oriented editor for creating world wide web documents	Apple Computer, Inc.	Hanson; Michael Robert Lilly; John	715	G06F	19960927	0	100%	<input type="checkbox"/>
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Abstract: An object-oriented HTML based editor for creating Web documents to be published on the World Wide Web. Each HTML command is treated as a unique object having associated properties. A user using an input device, such as a mouse, clicks and drags representations of objects representing HTML commands from a palette window on an output display device. The objects are dropped into a representation of a collection of objects in a view window on the output display device. Each one of the objects in the collection of objects may be edited by way of a context sensitive object editor window to customize the Web document. An object is selected by an input device and dragged to the object editor window, where the properties associated with the object are displayed and may be directly manipulated.

MainClaim: A desktop publishing system, comprising:

a) an output display device, said output display device displaying:

2007/0288854	Reusable XForms processor	Nokia Corporation	Koskimies; Oskari	715	G06F	20060613	18	94%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for invoking user interface (UI) functionality by a client application. Data is received from a server, such as a web server, parsed and used to create a hierarchy of application UI objects. A corresponding hierarchy of XForms objects is created, such that each XForms object maps to an application UI object. The user interface is rendered at the client display by displaying objects in the application UI objects hierarchy and invoking the corresponding functionality from the XForms object hierarchy.

MainClaim: A method for invoking user interface functionality on a computing device comprising:receiving a data file comprising markup language data;creating based on the data file a first object hierarchy comprising a plurality of objects, each corresponding to a user interface component;identifying in the first object hierarchy a first object corresponding to a user interface component;creating a second object hierarchy comprising a second object having user interface functionality, said second object associated with said first object;displaying on the computing device a user interface comprising a graphical representation of the first object; andinvoking the user interface functionality of the second object in relation to the graphical representation of the first object on the displayed user interface.

7,479,949	Touch screen device, method, and graphical user interface for determining commands by applying heuristics	Apple Inc.	Jobs; Steven P. Forstall; Scott Christie; Greg Lemay; Stephen O. Herz; Scott van Os; Marcel Ording; Bas Novick; Gregory Westerman; Wayne C. Chaudhri; Imran Coffman; Patrick Lee Kocienda; Kenneth Ganatra; Nitin K. Anzures; Freddy Allen Wyld; Jeremy A. Bush; Jeffrey Matas; Michael Marcos; Paul D. Pisula; Charles J. King; Virgil Scott Blumenberg; Chris Tolmasky; Francisco Ryan Williamson; Richard Boule; Andre M. J. Lamiroux; Henri C.	345	G09G	20080411	0	100%	<input type="checkbox"/>
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Abstract: A computer-implemented method for use in conjunction with a computing device with a touch screen display comprises: detecting one or more finger contacts with the touch screen display, applying one or more heuristics to the one or more finger contacts to determine a command for the device, and processing the command. The one or more heuristics comprise: a heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command, a heuristic for determining that the one or more finger contacts correspond to a two-dimensional screen translation command, and a heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

MainClaim: A computing device, comprising: a touch screen display; one or more processors; memory; and one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including: instructions for detecting one or more finger contacts with the touch screen

display; instructions for applying one or more heuristics to the one or more finger contacts to determine a command for the device; and instructions for processing the command; wherein the one or more heuristics comprise: a vertical screen scrolling heuristic for determining that the one or more finger contacts correspond to a one-dimensional vertical screen scrolling command rather than a two-dimensional screen translation command based on an angle of initial movement of a finger contact with respect to the touch screen display; a two-dimensional screen translation heuristic for determining that the one or more finger contacts correspond to the two-dimensional screen translation command rather than the one-dimensional vertical screen scrolling command based on the angle of initial movement of the finger contact with respect to the touch screen display; and a next item heuristic for determining that the one or more finger contacts correspond to a command to transition from displaying a respective item in a set of items to displaying a next item in the set of items.

2009/0327953	UNIFIED NAVIGATION MODEL BETWEEN MULTIPLE APPLICATIONS	NOKIA CORPORATION	Honkala; Mikko Kinnunen; Kimmo Grassel; Guido Cui; Yan Qing Roto; Virpi Rautava; Mika	715	G06F	20080630	5	92%	<input type="checkbox"/>
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Abstract: Web style navigation methods are applied across applications and webpages, whether local or web-based, and hypertext navigation methods used in the web are extended to local applications. Local and web applications are mixed seamlessly so that the user does not perceive any difference between navigation within either one of, or between, those types of applications. The user navigates between different user interface states, in and out of different types of applications. All views and states of views are recorded and the user can switch to a previous view, in the state in which it was viewed, using a back, history or other suitable state recording and retrieval function.

MainClaim: A method comprising: opening a first application view in a window of a user interface; detecting an activation a link to a second application view while a state of the user interface is in the first application view; opening the second application view in the window of the user interface; and detecting a selection of a function in a state of the user interface in the second application view as a command to automatically return to the state of the user interface in the first application view in the window of the user interface; and returning the state of the user interface to the first application view.

5,479,601	Method and apparatus for processing commands generated by user interface controls in an atomic manner	Taligent, Inc.	Matheny; John R. White; Christopher Anderson; David R.	345	G06F	19950413	0	100%	<input type="checkbox"/>
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Abstract: An object-oriented user interface utilizes object-oriented controls that operate together as a single, atomic group to change data values and are affected as a group by conventional editing "undo" and "redo" actions. In accordance with one embodiment, each control in the group generates a command which modifies a stored control value when the control is manipulated by a user. In response to user activation, a group acceptance control generates a command which causes the data values to be changed to the stored control values. In accordance with another embodiment, each control in the group generates a command which modifies the group acceptance control command. When the group acceptance control command is finally activated, the modified command causes the data values to be changed. The entire control group can also be undone and redone in a single atomic operation which is implemented by placing a mark on an undo stack when an interface session involving a control group is started. When the session ends, all of the commands executed since the mark was placed on the undo stack are collected together into a single command group which can be undone or redone as a unit.

MainClaim: A system for processing, in an atomic manner, commands generated by user interface control objects in order to modify data values corresponding to the user interface control objects in response to the activation of a group acceptance control object having a group acceptance graphic displayed on a display screen, the system comprising:

(a) memory means for storing a command data structure;

(b) processor means for saving a parameter value in the command data structure for each of the data values, each of the user interface control objects having a graphic displayed on the display screen for displaying one of the parameter values;

(c) processor means for modifying one of the saved parameter values in response to a command generated by a user interface control object during a group session as a user manipulates a user interface control graphic to cause a desired change in one of the data values;

(d) processor means for executing a command using the command data structure in response to the activation of the group acceptance control object caused by a user manipulation of the group acceptance graphic in order to change the data values to the parameter values; and

(e) storage means for storing all commands generated by user interface control objects during the group session until the group session is completed.

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	94%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

	Objected oriented		Matheny; John R.						
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5,367,633	notification framework system	Taligent, Inc.	White; Christopher J. Anderson; David R.	345	G06F	19940111	0	100%	<input type="checkbox"/>
<p>Abstract: A method and apparatus for an object based notification system. The notification system is designed in a flexible manner to support change notification in an object based operating system.</p> <p>MainClaim: A method for managing an object-oriented notification system in a computer with a memory, comprising the steps of:</p> <p>(a) storing connection information including notification routing information and connection registration information in the memory of the computer;</p> <p>(b) registering the connection information, including registration information indicative of notification status, in a connection object of the object-oriented notification system;</p> <p>(c) detecting a notification event utilizing the notification routing information in the connection object of the object-oriented notification system; and</p> <p>(d) after detecting the notification event, selectively notifying objects in the object-oriented notification system based on the connection registration information stored in the connection object in the memory of the computer system.</p>									
2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	94%	<input type="checkbox"/>
<p>Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.</p> <p>MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.</p>									
5,627,960	Unified hierarchical and tear off menus in a graphical event-driven computer system	Apple Computer, Inc.	Clifford; Daniel K. J. Craycroft; Timothy J.	345	G06F	19960304	0	100%	<input type="checkbox"/>
<p>Abstract: Explicit support is provided at the system software level for application program tear-off menus in a manner that is essentially application-transparent. All menus are transformed into windows and grouped in a single menu layer for each application, greatly simplifying many of the complexities of navigating through hierarchical and tear-off menus. Each application has its own menu layer that is shown and hidden as the application moves to the foreground and background. Tear-off menus, as with all menus, are hidden and shown with the menu layer, generating the desirable "floating-window" behavior. More particularly, menus are managed in a graphical, event-driven computer system having a computer display by representing the menus as windows, providing a menu layer for containing menus of a computer program, and displaying a menu. Events occurring with respect to the menu layer are detected, in response to which display of the menu is varied.</p> <p>MainClaim: For use in a graphical, event-driven computer system having a computer display, a method of managing a plurality of menus of an application program, comprising the steps of:</p> <p>representing each menu of the plurality of menus as a menu window co-extensive with said menu;</p> <p>providing a display layer of related windows, said display layer being a menu window layer for containing each said menu window;</p> <p>detecting a first event occurring with respect to the menu window layer;</p> <p>in response to said first event, opening a menu window and displaying therein a corresponding menu;</p> <p>detecting a second event occurring with respect to the menu layer; and</p> <p>in response to said second event, varying display of the menu window.</p>									
2003/0169294	Method and device for providing a representation of applications for display on an electronic device	Nokia Corporation	Vatula, Veli-Pekka J. Iivainen, Jyrki	345	G09G	20030307	30	93%	<input type="checkbox"/>
<p>Abstract: In accordance with this invention, there is disclosed a method for providing a representation of a first application to be executed in an electronic device that uses the representation to present information of at least one other application that selects one of the applications for direct display and selects at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications. Further, a user interface and an electronic device are disclosed having a display and being adapted to operate a plurality of applications having a component for providing a representation of one of the applications, a component for using the representation to present information of at least one other of the applications, and a component for selecting one of the applications for direct display and selecting at least another of the applications for indirect display in accordance with information representative of a state of at least one of the applications.</p>									

MainClaim: A method for providing a representation of a first application to be executed in an electronic device, comprising: using said representation to present information of at least one other application; selecting one of said applications for direct display and selecting at least another of said applications for indirect display in accordance with information representative of a state of at least one of said applications.

5,677,710	Recognition keypad	Apple Computer, Inc.	Thompson-Rohrlich; John	345	G09G	19930510	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for inputting data to an active application program running on a computer system includes the steps of displaying the image of a recognition keypad on a screen of the computer system, the keypad being adapted to receive user inputs; analyzing the user inputs to the recognition keypad; and inputting data to an application program running on the computer system based upon the analysis of the user inputs. The recognition keypad includes at least one button and a recognition area having at least two recognition modes. Preferably, the user inputs include inputs from a pointing device, and the recognition modes include a command mode and a character mode. The user preferably enters characters and gestures to the recognition area, and the buttons are preferably modifier buttons operative to modify the entered characters and gestures based on the current recognition mode.

MainClaim: A method for inputting data to a computer system comprising:

displaying an image of a recognition keypad on a screen of a computer system, said keypad having at least one button and a recognition area, said keypad being adapted to receive a user selection input on said button and an indicium including one or more user ink strokes on said recognition area, said recognition area being responsive to no more than a single indicium at any one time and having a plurality of recognition modes, wherein only one of said recognition modes is active at any one time, said button being used to select which of said recognition modes is active such that when said button is in a selected state from said user selection input, one recognition mode is active, and when said button is not in said selected state, a different recognition mode is active;

recognizing said indicium including said ink strokes after said indicium has been entered in said recognition area; and

inputting data to said computer system based upon said recognition mode, such that when a particular one of said recognition modes is active, said computer system receives said data as a first type of data that instructs a function to be performed in said computer system, and when a different one of said recognition modes is active, said computer system receives said data as a second type of data, different from said first type of data, that does not instruct said function to be performed in said computer system.

7,584,429	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius; Henna	715	G06F	20040625	10	95%	<input type="checkbox"/>
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Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.

MainClaim: A method, comprising: depicting a scroll bar and a button for a search option on a display of an electronic device in an area that is normally reserved for a scroll bar, detecting if a keyboard is connected to said device and suppressing the display of said button for a search option, if the keyboard is connected, detecting an input on said button for activating a temporary input area, activating said temporary input area upon detection of said input, displaying said temporary input area on the display of said electronic device, outputting an audio signal indicating said displaying of said temporary input area, and terminating the display of said temporary input area and deactivating said temporary input area in case that a relevant event is detected, wherein said temporary input area is displayed in a semi-transparent manner superimposed on a standard display area on said display, and wherein input functions in said standard display area superimposed by said temporary input area are deactivated when said temporary input area is displayed.

2008/0002888	Apparatus, method, device and computer program product providing enhanced text copy capability with touch input display	Nokia Corporation	Yuan; Shijun	382	G06K	20060629	13	95%	<input type="checkbox"/>
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Abstract: A device includes a display having touch sensitive display surface that is responsive to pen-based user input, and a control unit that is bidirectionally coupled to the display. The control unit is responsive to a user selecting displayed text from a first display location using the pen, and is further responsive to a first signal generated using the pen, to copy the selected displayed text to a buffer associated with a text window and to display the copied text in the text window. The control unit is further responsive to the user selecting a second display location using the pen, and to a second signal, to copy the displayed text from the text window to the second display location, thereby implementing a copy and paste function. A cut and paste function may also be implemented.

MainClaim: A method, comprising: selecting displayed text from a first display location using a pen in combination with a touch sensitive surface; in response to a first signal generated using the pen, copying the selected displayed text to a buffer associated with a text window and displaying the copied text in the text window; selecting a second display location using the pen; and in response to a second signal, copying the displayed text from the buffer to the second display location.

2005/0022130	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius; Henna	715	G09G	20040625	11	95%	<input type="checkbox"/>
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Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.

MainClaim: Method for inputting a character into an electronic device, said method comprising: detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected.

7,444,599	Method and apparatus for controlling a display of a data processing system	Apple Inc.	Chaudhri; Imran Ordning; Bas	715	G06F	20020318	0	100%	<input type="checkbox"/>
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Abstract: A method of controlling a display of a data processing system includes displaying a first list as a scrollable view of items in a first mode; receiving an input to switch from the first mode to a second mode; and displaying, in the second mode, a representation of a command which when activated causes a displays of a second list of the items. Another method of controlling a display of a data processing system includes displaying in a first mode, a slider control which can be positioned in one of a plurality of positions to select a corresponding parameter; receiving an input to switch from the first mode to a second mode; and displaying, in the second mode, a representation of a command which when activated causes a-displays of a list of items corresponding to at least a subset of the plurality of parameters.

MainClaim: A method of controlling a display of a data processing system, said method comprising: displaying a first list as a scrollable view of items in a first mode; responding to receiving an input to resize the window containing the first list, switching from said first mode to a second mode; and displaying, in said second mode after receiving said input, at most one member of the first list along with a representation of a command at a position which when activated at said position causes a display of a second list of said items, wherein said second list of said items contains a plurality of items within a selectable list that are not displayed until said representation of a command is activated; wherein said first list is displayed within a window and said representation is displayed within said window and the window automatically further reduces a height of the window to a minimal size after the switching.

2006/0290661	Re-configuring the standby screen of an electronic device	Nokia Corporation	Innanen; Piia Kangas; Tita With; Mikko Fowlie; Andrew Junkkonen; Laura	345	G09G	20060607	5	93%	<input type="checkbox"/>
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Abstract: An electronic device including a user interface having a display for displaying a standby screen when the device is in an idle state and a user input device, wherein the user interface provides a menu system, for re-configuring the standby screen, that is navigated using the user input device.

MainClaim: An electronic device comprising: a user interface having a display for displaying a standby screen when the device is in an idle state and a user input device, wherein the user interface provides a menu system, for re-configuring the standby screen, that is navigated using the user input device.

2006/0059436	Handling and scrolling of content on screen	Nokia Corporation	Nurmi; Mikko	715	G06F	20050805	10	93%	<input type="checkbox"/>
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Abstract: The invention relates to a software application adapted for scrolling content on a screen in an application window. The software application includes at least two logically distinct scroll bars in one application window, each of the scroll bars providing scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content.

MainClaim: A device for handling content comprising a memory, a processing unit controlling operation of said device according to software stored in said memory, a screen for viewing content, said memory comprising a software application adapted for scrolling content on the screen in an application window, wherein the software application comprises: at least two logically distinct scroll bars in one application window, each of the scroll bars providing scrolling functionality relative to the same orientation of the content and each of the logically distinct scroll bars controlling different part of the content.

6,938,205	Object oriented editor for creating world wide web documents	Apple Computer, Inc.	Hanson; Michael Robert Lilly; John	715	G06F	20000112	0	100%	<input type="checkbox"/>
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Abstract: A desktop publishing system contains an output display device that displays a palette window. The palette window contains a defined objects panel containing a list of defined objects, and an objects panel containing a list of objects. The output display device also displays a view window for displaying a page containing at least one object from one of the list of defined objects and the list of objects. The desktop publishing system also contains an input device that selects the object(s) from one of the list of defined objects and the list of objects for display in the page.

MainClaim: A system for creating web documents, comprising:

an output display device, the output display device displaying:

a first list of objects, the first list of objects including a predefined HTML object as a template for creation of a new object in a web page;

a second list of objects displayed simultaneous with the first list of objects, the second list of objects including a user defined HTML object as a template for creation of a new object in a web page;

a view window for displaying a web page comprising one object generated from one of the first and second lists of objects; and

an input device, the input device selecting one of the first and second lists of objects for creation of the one object in the page.

2007/0288854	Reusable XForms processor	Nokia Corporation	Koskimies; Oskari	715	G06F	20060613	18	95%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for invoking user interface (UI) functionality by a client application. Data is received from a server, such as a web server, parsed and used to create a hierarchy of application UI objects. A corresponding hierarchy of XForms objects is created, such that each XForms object maps to an application UI object. The user interface is rendered at the client display by displaying objects in the application UI objects hierarchy and invoking the corresponding functionality from the XForms object hierarchy.

MainClaim: A method for invoking user interface functionality on a computing device comprising:receiving a data file comprising markup language data;creating based on the data file a first object hierarchy comprising a plurality of objects, each corresponding to a user interface component;identifying in the first object hierarchy a first object corresponding to a user interface component;creating a second object hierarchy comprising a second object having user interface functionality, said second object associated with said first object;displaying on the computing device a user interface comprising a graphical representation of the first object; andinvoking the user interface functionality of the second object in relation to the graphical

representation of the first object on the displayed user interface.									
2006/0150073	Method for inhibiting the execution of a navigating command	Nokia Corporation	Makela; Mikko K.	715	G06F	20041230	8	92%	<input type="checkbox"/>
<p>Abstract: The present invention relates to the field of inhibiting a navigating command associated with an event and in particular to methods, devices and systems for handling such commands in an effective manner. The event generally controls the navigating to a certain item in an application environment is the method determines that the navigating command is to be executed. The method features checking if the navigating command would shift display to an area not actually displayed in the application environment; and in this case inhibiting the execution of the navigating command</p> <p>MainClaim: A method for inhibiting the execution of a navigating command in an application environment, said navigating command being associated with an event, wherein said event controls navigation to a certain item in said application environment, comprising the steps of: determining that said navigating command is to be executed; checking if said navigating command would shift display to an area which is at least partly invisible in said application environment; and if the checking step is affirmative, inhibiting the execution of said navigating command.</p>									
5,513,309	Graphic editor user interface for a pointer-based computer system	Apple Computer, Inc.	Meier; John R. Capps; Stephen P.	345	G06F	19950508	0	100%	<input type="checkbox"/>
<p>Abstract: A graphical editor user interface that is particularly well suited for use in pointer based computer systems. The graphical editor is arranged to permit the user to easily edit various selected graphic objects. The selected objects are highlighted and preferably editing handles are provided at designated positions relative to the selected portions of the object. Additionally, a bounding box is drawn about the selected portions of the object. In various aspects of the invention, the user is then permitted to edit the object by executing specific actions. The editing actions include resizing, duplicating, distorting and moving either the entire object or only the selected portions. After any of the editing maneuvers is performed, the display is updated to reflect any changes made during the editing step. The editing and display updating steps are preferably continually repeated until the pointer is released from the screen in order to provide the user with a visual depiction of the editing operation as it proceeds.</p> <p>MainClaim: A method of editing objects displayed on a screen of a display assembly of a pen based computer system, the method comprising the steps of:</p> <p>selecting a portion of an object to be edited, the selected portion of the object being displayed at an original location on the screen;</p> <p>highlighting the selected portion of the object;</p> <p>drawing a bounding box about the highlighted portion of the object; and</p> <p>editing the object wherein during the editing step a user is permitted to duplicate the selected portion of the object by tapping a stylus on the screen at a location that is within the bounding box, wherein no other actions by the user are required to facilitate the duplication;</p> <p>wherein when a duplication of the selection portion of the object is made, a duplicate of the selected portion of the object is displayed at a position that is offset from the position of the original selected portion of the object in a display updating step.</p>									
7,554,530	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi; Sachi Mori; Eigo	345	G09G	20021223	13	93%	<input type="checkbox"/>
<p>Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.</p> <p>MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object that represents data; and selecting the at least one displayed object, where forming the stroke further comprises extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object.</p>									
2004/0119763	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi, Sachi Mori, Eigo	345	G09G	20021223	12	93%	<input type="checkbox"/>
<p>Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.</p> <p>MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object.</p>									

5,434,929	Method and apparatus for setting character style preferences in a pen-based computer system	Apple Computer, Inc.	Beernink; Ernest H. Auguste; Donna M. Chechetkin; Eugeny	382	G06K	19940712	0	100%	<input checked="" type="checkbox"/>
<p>Abstract: In one method for setting character style preferences according to the present invention, a character style preference area is initially activated. Then, a plurality of variant character styles are displayed for a selected character with each character style representing a distinct way of writing the selected character that is recognized by the system recognizer. Inputs are then received, which indicate and set the probability that an input character style will be in a form similar to the selected character style. Other inputs include the selection of a different character for display, selection of a variant character style from the displayed area, selection of a reset command, and selection of a probability weight for a selected variant. The method further includes the slow redrawing of a selected variant within a selected variant group to demonstrate to the user the input strokes forming the selected variant. A computer system for performing the methods in accordance with the present invention is also described. The apparatus includes the mechanisms for activating a character style preference editor and for drawing a plurality of variant character styles. Also included is a mechanism for setting a use probability factor that is to be associated with the selected character style. Further included are the mechanisms for determining the selection of a probability level for the character styles and for shading the character styles appropriately to reflect the selected probability levels.</p> <p>MainClaim: A method for indicating preferred character handwriting styles in a pen-based computer system that includes an input screen, a stylus for engaging the screen to input handwritten text to the computer system, and a recognizer for recognizing handwritten text, the method comprising the steps of:</p> <p>activating a character style preference editor;</p> <p>displaying a plurality of variant character styles for a selected character, each variant character style representing a distinct style of writing the selected character that is recognizable by the recognizer; and</p> <p>receiving inputs indicative of the likelihood that a handwritten character input with the stylus will have a form analogous to a selected variant character style and setting a use probability factor associated with the selected variant character style in accordance with the input.</p>									
2008/0002888	Apparatus, method, device and computer program product providing enhanced text copy capability with touch input display	Nokia Corporation	Yuan; Shijun	382	G06K	20060629	13	93%	<input type="checkbox"/>
<p>Abstract: A device includes a display having touch sensitive display surface that is responsive to pen-based user input, and a control unit that is bidirectionally coupled to the display. The control unit is responsive to a user selecting displayed text from a first display location using the pen, and is further responsive to a first signal generated using the pen, to copy the selected displayed text to a buffer associated with a text window and to display the copied text in the text window. The control unit is further responsive to the user selecting a second display location using the pen, and to a second signal, to copy the displayed text from the text window to the second display location, thereby implementing a copy and paste function. A cut and paste function may also be implemented.</p> <p>MainClaim: A method, comprising: selecting displayed text from a first display location using a pen in combination with a touch sensitive surface; in response to a first signal generated using the pen, copying the selected displayed text to a buffer associated with a text window and displaying the copied text in the text window; selecting a second display location using the pen; and in response to a second signal, copying the displayed text from the buffer to the second display location.</p>									
2005/0141770	Split on-screen keyboard	Nokia Corporation	Marila, Juha Lantz, Vuokko	382	G06K	20031230	2	93%	<input type="checkbox"/>
<p>Abstract: A device and method for inputting information is disclosed. The device comprises a display, such as a touch-sensitive display, and a memory. The memory comprises a first set of characters, said first set of characters comprising at least two characters, and a second set of characters, said second set of characters comprising at least two characters. The characters in the first set of characters are statistically more likely to be selected in successive order than the characters in the second set of characters. The display is adapted to display, for selection of which character to input, the first set of characters.</p> <p>MainClaim: A device for inputting information, comprising: a display; and a memory comprising a first set of characters, said first set of characters comprising at least two characters, and a second set of characters, said second set of characters comprising at least two characters, wherein the characters in the first set of characters are statistically more likely to be selected in successive order than the characters in the second set of characters, and wherein said display is adapted to display, for selection of which character to input, the first set of characters.</p>									
2005/0022130	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius, Henna	715	G09G	20040625	11	92%	<input type="checkbox"/>
<p>Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.</p> <p>MainClaim: Method for inputting a character into an electronic device, said method comprising: detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected.</p>									
5,745,096	Desk drawer user interface	Apple Computer, Inc.	Ludolph; Frank Norman; George Spiegel; Joel	345	G09G	19961018	0	100%	<input checked="" type="checkbox"/>
<p>Abstract: A display oriented software user interface for the generation and display of a secondary display region within a primary display region of a computer controlled information management system having windows or localized sections of displayable information and icons. The secondary display region, Desk Drawer, providing advanced capabilities to the management system by generating a readily accessible region wherein icons may be placed and always accessed thereafter</p>									

when the secondary display region is present. The presence of the secondary display region may be governed by a separate screen region responsive to the cursor display position.

MainClaim: In a computer controlled information management system including a display screen containing a primary display region, and means for simultaneously and selectively displaying within said primary display region a plurality of display windows and/or icons, some of which may block or partially block the view of others depending on the number of windows and/or icons being displayed at any given time, a display system comprising:

first means for generating and displaying a secondary display region covering at least a portion of said primary display region and any windows and/or icons being displayed within that portion of the primary display region, said secondary display region and its contents, when present, being completely viewable within said display screen such that, while said secondary display region is displayed it is always displayed over and covering other data including said plurality of display windows and/or icons to the extent said plurality of display windows and/or icons are in said portion of said primary display region;

second means for removing said secondary display region from said display screen thereby allowing said primary display region to be viewed in its entirety;

third means for displaying a plurality of icons within said secondary display region upon display of said secondary display region by said first means;

fourth means for selectively transferring icons into said secondary display region when said secondary display region is displayed, by dragging said icons from said primary display region into said secondary display region and depositing said icons into said secondary display region; and

fifth means for selectively transferring icons from said secondary display region, when said secondary display region is displayed, by dragging said icons from said secondary display region to said primary display region, and depositing said icons into said primary display region.

7,554,530	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi; Sachi Mori; Eigo	345	G09G	20021223	13	92%	<input type="checkbox"/>
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Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.

MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object that represents data; and selecting the at least one displayed object, where forming the stroke further comprises extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object.

7,353,461	Method and apparatus for selection control	Nokia Corporation	Davidsson; Marcus Wilstedt; Charlotta	715	G06F	20010626	1	92%	<input type="checkbox"/>
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Abstract: The present invention provides a method and apparatus for selection control using a touch screen, wherein first and second intersecting bars (1, 2) are displayed, preferably near the edge, on the screen (3), and the first bar (1) displays containers (4) and the second bar (2) displays objects (5) contained in one of said containers (4); and an object in the second bar (2) is activated by one touch on said object, or objects displayed in the second bar (2) are replaced by objects contained in a selected container by one touch on said selected container in the first bar (1).

MainClaim: A method for selection control using a touch screen, the method comprising the steps of: displaying first and second intersecting bars, wherein the first bar displays containers and the second bar displays objects contained in a container in an intersection of the bars; and activating a selected object in the second bar by one touch on said selected object, or moving a container different than the container in the intersection of the bars, to the intersection of the bars, by one touch on the different container thereby replacing objects displayed in the second bar by other objects contained in the different container, and activation of a selected object in the second bar by one touch on said selected object.

2004/0119763	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi, Sachi Mori, Eigo	345	G09G	20021223	12	92%	<input type="checkbox"/>
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Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.

MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object.

7,496,836	Method and apparatus for transmitting	Apple Inc.	Hanson; Michael	715	G06F	20050718	0	100%	<input type="checkbox"/>
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	documents over a network		Robert Lilly; John							
<p>Abstract: An object comprising a Web document is transferred by a server to a client over a client-server data communications network. Alternatively, the object comprising the Web document can be executed by the server. The object, in turn, causes each object contained therein to execute and output a representation of the object in whatever format is requested by the client. For example, a client can send a request to the server over the data communications network. The request specifies a particular Web document. The server searches its collection of objects in its object space for the object requested. The server, upon finding the object, and depending upon the nature of the client's request, will transmit the object as is to the client, or execute the object. The object outputs a representation of each object contained within the object in a format specified by the client. Thus, if the client requests an HTML formatted Web document, the server executes the object representing the Web document, passing as input to the object an input argument indicating the output of each object within the Web document is to be formatted in HTML.</p> <p>MainClaim: A computerized method comprising: displaying a set of hypertext template objects, the set comprising default and user-defined hypertext template objects; generating a hypertext object from multiple selected hypertext template objects; modifying a property value in response to input data, the property value associated with the selected hypertext template object; and regenerating the hypertext object using the modified property value.</p>										
2007/0288854	Reusable XForms processor	Nokia Corporation	Koskimies; Oskari	715	G06F	20060613	18	95%		
<p>Abstract: Systems and methods are provided for invoking user interface (UI) functionality by a client application. Data is received from a server, such as a web server, parsed and used to create a hierarchy of application UI objects. A corresponding hierarchy of XForms objects is created, such that each XForms object maps to an application UI object. The user interface is rendered at the client display by displaying objects in the application UI objects hierarchy and invoking the corresponding functionality from the XForms object hierarchy.</p> <p>MainClaim: A method for invoking user interface functionality on a computing device comprising:receiving a data file comprising markup language data;creating based on the data file a first object hierarchy comprising a plurality of objects, each corresponding to a user interface component;identifying in the first object hierarchy a first object corresponding to a user interface component;creating a second object hierarchy comprising a second object having user interface functionality, said second object associated with said first object;displaying on the computing device a user interface comprising a graphical representation of the first object; andinvoking the user interface functionality of the second object in relation to the graphical representation of the first object on the displayed user interface.</p>										
5,396,590	Non-modal method and apparatus for manipulating graphical objects	Apple Computer, Inc.	Kreegar; Jeffrey W.	345	G06F	19920917	0	100%		
<p>Abstract: A computer controlled graphics display system that treats graphical objects in a uniform fashion for consistent, non-modal and direct manipulation of graphics objects. The user, by operating in a visual "point and click" fashion, may select a graphical object or shape and manipulate it in a number of ways without having to activate different modes for different manipulations. Possible manipulations include dragging, scaling, rotating and skewing. More than one shape can be selected and manipulated by compositing intersected shapes with a selection rectangle. The graphic manipulations are platform independent and thus are all carried out by directing the point and click tool.</p> <p>MainClaim: In a computer system utilizing a graphics subsystem and having a cursor positioning device which comprises a switch having at least first and second positions, a method of manipulating graphical objects in a non-modal fashion on a computer display in an interactive computer graphics environment comprising the steps of:</p> <p>monitoring for a graphical object to be selected, said graphical object comprising at least one or more shapes;</p> <p>displaying non-modal object control tools in the proximity of a graphical object that has been selected, said non-modal object control tools including non-modal skew control tools;</p> <p>detecting when one of the displayed non-modal object control tools is selected;</p> <p>monitoring the movement of the cursor positioning device relative to the initial position of a selected non-modal object control tool; and</p> <p>manipulating the selected graphical object as determined by which non-modal object control tool is selected and the subsequent movement of the cursor.</p>										
2004/0119763	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi, Sachi Mori, Eigo	345	G09G	20021223	12	92%		
<p>Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.</p> <p>MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object.</p>										
7,554,530	Touch screen user interface featuring stroke-based object selection and functional	Nokia Corporation	Mizobuchi; Sachi Mori; Eigo	345	G09G	20021223	13	92%		

	object activation								
<p>Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.</p> <p>MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object that represents data; and selecting the at least one displayed object, where forming the stroke further comprises extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object.</p>									
5,530,864	Command object system for an object-oriented software platform	Taligent	Matheny; John R. White; Christopher Anderson; David R.	719	G06F	19921223	0	100%	<input type="checkbox"/>
<p>Abstract: A method and apparatus for a command system is disclosed. Commands include variables that reflect the command's current appearance. This includes status information determinative of the command's state (enabled/disabled), its name, its associated graphic, and whether its appearance is currently valid. Each of these were initialized when the command was created. The invention creates a command including an object's data structure containing a command sequence. The command is added to a list of commands, and initialized as an invalid appearance. Later when the command is selected, the appearance state is recomputed based on the system state.</p> <p>MainClaim: In a computer system, a memory having stored therein an object-oriented software platform for serving a plurality of currently executing client applications, the platform including a data encapsulation system for encapsulating application data in response to encapsulation requests by the plurality of applications, a data selection system for selecting the application data, which is encapsulated by said data encapsulation system in response to selection requests by the applications, and a command object system comprising:</p> <p>a client-subclassable command object base class, resident in the address space of the memory defined by the platform, the command object base class including:</p> <p>a member function, responsive to creation requests from the plurality of applications, wherein each application resides in a unique application address space different than that of the address space of the platform, and wherein the application data resides in the unique address space of a corresponding application, the member function having means for creating at least one command object for use by a requesting application, the command object being created in the application address space of the requesting application; and</p> <p>a member function, responsive to execution requests from the plurality of applications made via a created command object, for executing a predefined document editing operation on the application data, which is selected by said data selection system.</p>									
2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	93%	<input type="checkbox"/>
<p>Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.</p> <p>MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.</p>									
5,682,439	Boxed input correction system and method for pen based computer systems	Apple Computer, Inc.	Beernink; Ernest H. Capps; Stephen P.	382	G06K	19950807	0	100%	<input type="checkbox"/>
<p>Abstract: According to the present invention, a variety of correction methods and systems are disclosed. A first method aspect of the present invention teaches a computer implemented correction method for correcting words and characters entered into a pointer based computer system. The correction method includes the step of receiving a selected word including at least one character, displaying the selected word within a boxed input corrector implemented on the pointer based computer system; receiving a correction input and performing an action indicated by the correction input. The action is determined by a type of the correction input, the types of correction inputs including character editing input, gesture input, navigation input, and external input generated by events external to the boxed input corrector. One embodiment of the present invention teaches a boxed input correction system comprising a pen-based computer system including a central processing unit, memory accessible by the central processing unit, and a dual-function display system having a display screen. The boxed input correction system also includes a boxed input corrector which receives and displays a selected word, receives a correction input indicating an action to be performed on the selected word, and performs the action. When the selected word is an ink word, the boxed input corrector displays the ink word centered within a single box and, when the selected word is a string of one or more well defined characters, the boxed input corrector displays the selected word such that each well defined character has a box associated therewith.</p> <p>MainClaim: A computer implemented correction method for correcting words and characters entered into a pointer based computer system that includes a display screen for displaying a note area and a boxed input corrector, the correction method comprising the computer controlled steps of:</p>									

providing an electronic document capable of maintaining ink words and recognized words;

receiving a selected word from the electronic document including at least one character;

displaying the selected word within said boxed input corrector displayed on said display screen of the pointer based computer system, wherein when the selected word is an ink word, the ink word is displayed centered in said boxed input corrector within a single box, and, when the selected word is a string of one or more well defined characters, the selected word is arranged within the boxed input corrector such that each well defined character has a box associated therewith and when a given character of the selected word is displayed the given character is displayed within its associated box;

receiving a correction input; and

performing an action indicated by the correction input wherein the action performed is determined by a type of the correction input, the types of correction inputs including character editing input, gesture input, navigation input, and external input generated by events external to the boxed input corrector,

wherein types or navigation input include left and right direction commands, and when a left direction command is input, a left most character of the selected word displayed in the note area of the display is visible in the boxed input corrector part of display, and the selected word in the note area has an adjacent word located to the selected word's left, the step of performing the action includes the steps of receiving the adjacent word in the boxed input corrector for correction and changing the selected word in the note area to the adjacent word.

2008/0002888	Apparatus, method, device and computer program product providing enhanced text copy capability with touch input display	Nokia Corporation	Yuan; Shijun	382	G06K	20060629	13	94%	<input type="checkbox"/>
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Abstract: A device includes a display having touch sensitive display surface that is responsive to pen-based user input, and a control unit that is bidirectionally coupled to the display. The control unit is responsive to a user selecting displayed text from a first display location using the pen, and is further responsive to a first signal generated using the pen, to copy the selected displayed text to a buffer associated with a text window and to display the copied text in the text window. The control unit is further responsive to the user selecting a second display location using the pen, and to a second signal, to copy the displayed text from the text window to the second display location, thereby implementing a copy and paste function. A cut and paste function may also be implemented.

MainClaim: A method, comprising: selecting displayed text from a first display location using a pen in combination with a touch sensitive surface; in response to a first signal generated using the pen, copying the selected displayed text to a buffer associated with a text window and displaying the copied text in the text window; selecting a second display location using the pen; and in response to a second signal, copying the displayed text from the buffer to the second display location.

7,580,029	Apparatus and method for handwriting recognition	Nokia Corporation	Liu; Ying Kangas; Jari A. Yanming; Zou Yipu; Gao	345	G09G	20040402	1	92%	<input type="checkbox"/>
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Abstract: An apparatus for handwriting recognition has a touch-sensitive display screen providing a handwriting input area capable of detecting a handwritten user input. The apparatus also has a processing device configured to interpret the handwritten user input as a symbol from a plurality of predefined symbols. The handwriting input area includes a writing start area, and the processing device is configured to provide a visual indication of the writing start area on the display screen. The processing device is configured to interpret the user input as a symbol only if the user input starts within the writing start area.

MainClaim: An apparatus for handwriting recognition, the apparatus comprising: a touch-sensitive display screen providing a handwriting input area capable of detecting a handwritten user input; and a processing device configured to interpret the handwritten user input as a symbol from a plurality of predefined symbols, wherein the handwriting input area includes a writing start area, and wherein said writing start area is substantially smaller than said handwriting input area; wherein the processing device is configured to provide a visual indication of said writing start area on said display screen, and wherein the processing device is configured to interpret the user input as a symbol from the plurality of predefined symbols only if the detected user input is a pen down event within said writing start area and continues as a pen move event in the handwriting input area within a predetermined period of time.

6,104,391	System and method for customizing appearance and behavior of graphical user interfaces	Apple Computer, Inc.	Johnston, Jr.; Robert G. Ulrich; Robert R. Craycroft; Timothy Cobb; Jeffrey R.	345	G06F	19990622	0	100%	<input type="checkbox"/>
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Abstract: Systems and methods for providing a user with increased flexibility and control over the appearance and behavior of objects on a user interface are disclosed. Sets of objects can be grouped into themes to provide a user with a distinct overall impression of the interface. These themes can be switched dynamically by switching pointers to drawing procedures or switching data being supplied to these procedures. To buffer applications from the switchable nature of graphical user interfaces, colors and patterns used to implement the interface objects are abstracted from the interface by, for example, pattern look-up tables.

MainClaim: A computer readable medium comprising:

a first portion having stored therein data relating to a first set of graphical user interface objects and object parts whose individual appearances are associated with a first common theme;

a second portion having stored therein data relating to a second set of graphical user interface objects and object parts, each of which correspond to an associated interface object or object part in said first set, but whose individual appearances are associated with a second common theme different from said first common theme; and

a third portion having stored therein an object, displayable on a user interface, for actuation by a user which selectively

facilitates a change between said first theme and said second theme, whereby a graphical user interface displays interface objects using one of said first set and said second set wherein a predetermined one of said interface objects has a first outline with a first shape when displayed using said first set of interface objects and has a second outline with a second shape when displayed using said second set of interface objects.

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	92%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

7,613,689	Methods and systems for managing data	Apple Inc.	Arrouye; Yan Giampaolo; Dominic Ording; Bas Christie; Gregory Lemay; Stephen Olivier van Os; Marcel Chaudhri; Imran Tiene; Kevin Cisler; Pavel	707	G06F	20060130	0	100%	<input type="checkbox"/>
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Abstract: Systems and methods for managing data, such as metadata. In one exemplary method, metadata from files created by several different software applications are captured, and the captured metadata is searched. The type of information in metadata for one type of file differs from the type of information in metadata for another type of file. Other methods are described and data processing systems and machine readable media are also described.

MainClaim: A machine readable storage medium storing executable program instructions for causing a data processing system to perform a method comprising: receiving input for a search; searching for search results as the input is being received, wherein the searching is begun concurrently as the input for the search is being entered and before entry of the input for the search is completed; displaying a search results display area which shows a plurality of items in the search results display area, wherein a first group of items of the plurality of items are grouped in a first category based on a type of the first group of items and displayed in a first type of view and a second group of items of the plurality of items are grouped in a second category based on a type of the second group of items and simultaneously displayed in a second type of view concurrently with the first group being displayed in the first type of view and wherein the type of the first group of items includes applications, and the second group of items includes email addresses, phone numbers, and contacts and wherein the first type of view is different than the second type of view and wherein the first type of view is an icon view and the second type of view is a list view.

2006/0288280	User-defined changing of page representations	Nokia Corporation	Makela; Mikko	715	G06F	20060511	4	93%	<input type="checkbox"/>
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Abstract: This invention relates to a method for generating a changed representation of a page object, wherein the page object is one of a page and a part of the page, the method comprising retrieving (201; 301) the page object in response to a request (200; 300) for the page; dividing (203; 303) the page object into a set (4a) of sections; and performing (204; 304) changes to the set (4a) of sections according to preference information to obtain a changed set (4b) of sections representing the changed representation of the page object. This invention further relates to a device, a system, a computer program and a computer program product for generating a changed representation of a page object.

MainClaim: A method for generating a changed representation of a page object, wherein said page object is one of a page and a part of said page, said method comprising: retrieving said page object in response to a request for said page; dividing said page object into a set of sections; and performing changes to said set of sections according to preference information to obtain a changed set of sections representing said changed representation of said page object.

7,617,225	Methods and systems for managing data created by different applications	Apple Inc.	Arrouye; Yan Giampaolo; Dominic Ording; Bas Christie; Gregory Lemay; Stephen Olivier van Os; Marcel Chaudhri; Imran Tiene; Kevin Cisler; Pavel	707	G06F	20060131	0	100%	<input type="checkbox"/>
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Abstract: Systems and methods for managing data are provided. Data such as metadata from files created by several different software applications are captured, and the captured metadata is searched. The type of information in metadata for one type of file differs from the type of information in metadata for another type of file. A single search input is received and the search is performed through the metadata and content of the plurality of files and subset of the plurality of files stored on a user's data processing system. The search input is saved in a folder for performing future searches.

MainClaim: A machine implemented method of managing data, the method comprising: capturing metadata for a plurality of files created by a plurality of different software applications which execute on a data processing system, wherein the type of information in metadata for files of a first software application differs from the type of information in metadata for files of a second software application; receiving a search input for performing a single search through the metadata and content of the plurality of files stored on a user's data processing system, wherein the metadata is stored separately from at least some of the content of the plurality of files and wherein the metadata and the content are stored on the user's data processing system; performing, by the user's data processing system, the single search through the metadata of a subset of the plurality of files and through the content of the subset of the plurality of files, wherein the metadata of the subset of the plurality of the files is stored

separately from the content of the subset of the plurality of files; saving, by the user's data processing system, the search input and associating a folder with the search input.

2006/0288280	User-defined changing of page representations	Nokia Corporation	Makela; Mikko	715	G06F	20060511	4	93%	<input type="checkbox"/>
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Abstract: This invention relates to a method for generating a changed representation of a page object, wherein the page object is one of a page and a part of the page, the method comprising retrieving (201; 301) the page object in response to a request (200; 300) for the page; dividing (203; 303) the page object into a set (4a) of sections; and performing (204; 304) changes to the set (4a) of sections according to preference information to obtain a changed set (4b) of sections representing the changed representation of the page object. This invention further relates to a device, a system, a computer program and a computer program product for generating a changed representation of a page object.

MainClaim: A method for generating a changed representation of a page object, wherein said page object is one of a page and a part of said page, said method comprising: retrieving said page object in response to a request for said page; dividing said page object into a set of sections; and performing changes to said set of sections according to preference information to obtain a changed set of sections representing said changed representation of said page object.

7,730,012	Methods and systems for managing data	Apple Inc.	Arrouye; Yan Giampaolo; Dominic Ording; Bas Christie; Gregory Lemay; Stephen Olivier van Os; Marcel Chaudhri; Imran Tiene; Kevin Cisler; Pavel	1	G06F	20040625	0	100%	<input type="checkbox"/>
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Abstract: Systems and methods for managing data, such as metadata. In one exemplary method, metadata from files created by several different software applications are captured, and the captured metadata is searched. The type of information in metadata for one type of file differs from the type of information in metadata for another type of file. Other methods are described and data processing systems and machine readable media are also described.

MainClaim: A machine implemented method of searching data, the method comprising: storing metadata for a plurality of files created by a plurality of different software applications which execute on a data processing system, wherein the type of information in metadata for files of a first software application differs from the type of information in metadata for files of a second software application, the metadata for the plurality of files being stored in a metadata database; storing content from the plurality of files in a content database; searching, by a data processing system, the metadata database and the content database in response to a single command from a user, wherein the single command is entered into a system wide user interface available on the entire data processing system for the plurality of different software applications and wherein an output of the searching is displayed as the user enters a search query and wherein the output of the searching includes executable applications and wherein the executable applications are configured to be launchable from the displayed output.

2006/0288280	User-defined changing of page representations	Nokia Corporation	Makela; Mikko	715	G06F	20060511	4	93%	<input type="checkbox"/>
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Abstract: This invention relates to a method for generating a changed representation of a page object, wherein the page object is one of a page and a part of the page, the method comprising retrieving (201; 301) the page object in response to a request (200; 300) for the page; dividing (203; 303) the page object into a set (4a) of sections; and performing (204; 304) changes to the set (4a) of sections according to preference information to obtain a changed set (4b) of sections representing the changed representation of the page object. This invention further relates to a device, a system, a computer program and a computer program product for generating a changed representation of a page object.

MainClaim: A method for generating a changed representation of a page object, wherein said page object is one of a page and a part of said page, said method comprising: retrieving said page object in response to a request for said page; dividing said page object into a set of sections; and performing changes to said set of sections according to preference information to obtain a changed set of sections representing said changed representation of said page object.

7,333,120	Zooming controller	Apple Inc.	Venolia; Daniel Scott	345	G09G	20030430	0	100%	<input type="checkbox"/>
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Abstract: A method and device for accessing a broad data field having a fine resolution. The user selects a scale which can be varied. The scale controls a range within the data field. By moving the range to encompass different portions of the data field, the user can scan that portion of the data field. The present invention allows the user to simultaneously select the scale while moving the range over different portions of the data field. Thus, the user can "zoom in" and "zoom out" of different portions of the data field. In one embodiment of the present invention, a particular piece of data within the broad data field can be accessed. First, the scale is selectively varied, thereby controlling a range within the data field. Then, the range is moved to encompass portions of the data field in which the piece of data resides. Next, the scale is successively decreased while, simultaneously, points successively closer to the location are kept with the range. The scale is decreased (i.e., increasing the range's resolution) and the range is moved in this manner until the piece of data is actually accessed.

MainClaim: In a computer system, a method of navigating within a set of data items, comprising: displaying a user interface on a display device the user interface comprising a scale and an identifier of a current position along the scale, wherein the scale corresponds to a range including at least a subset of the data items; receiving user input indicating movement; responsive to an indication of movement along a first axis, changing the scale, wherein the scale corresponds to a resolution of the range, such that a change in the scale corresponds to a change in the resolution of the range, wherein changing the scale comprises remapping the user input indicating movement along the first axis from controlling a cursor position on the display device to controlling the change in the scale; and responsive to an indication of movement along a second axis, changing the current position along the scale, wherein changing the current position along the scale comprises remapping the user input indicating movement along the second axis from controlling the cursor position on the display device to controlling the change in to current position along the scale.

2007/0192744	Graphical user interface, electronic device, method and computer program that uses sliders for user input	Nokia Corporation	Reponen; Erika	715	G06F	20060125	4	92%	<input type="checkbox"/>
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Abstract: A graphical user interface including a first slider having a first widget that is movable by a user along a first track and a second slider, integrated within the first widget, wherein the second slider has a second widget that is movable by a user along

a second track.

MainClaim: An electronic device comprising: a display; a user input device; and a processor for controlling the display to display a first slider comprising a first widget that is movable by a user using the user input device along a first track to control the output of the device in a first manner and a second slider comprising a second widget that is movable by a user using the user input device along a second track to control the output of the device in a second manner different to the first manner, wherein the second slider is at least partially integrated within the first widget.

6,727,923	Creation and manipulation of internet location objects in a graphical user interface environment	Apple Computer, Inc.	McInerney; Peter Joseph	345	G09G	19980508	0	100%	<input type="checkbox"/>
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Abstract: Internet location objects are created and displayed as icons in a graphical user interface (GUI) environment. Internet location objects may be manipulated by the user in similar fashion as other GUI objects, e.g., files, folders, aliases, etc. When an object is dragged from within an application into a system window, a drag object describing what is being dragged is passed from the application to the operating system. An application may be aware of Internet location objects and, when an object is dragged from within the application into the system window, may specify that the object being dragged is a URL. Alternatively, the application may be unaware of or not support Internet locations but support generic text drag-and-drop, in which case the application, instead of specifying a "URL drag flavor," specifies a "text drag flavor" as part of the drag object. Depending on the drag flavor, the file manager either causes an Internet location object (URL drag flavor) to be created directly or intelligently parses a text string that has been dragged and dropped onto the user desktop to determine if the text string is likely a URL (text drag flavor). If a text string specified as part of a text flavor drag object is found to likely be a URL, then an Internet location object is created. Otherwise, a different behavior is followed, e.g., a "clipping" object or other object may be created. When the user "opens" an Internet location object, a browser or other assigned program is launched and retrieves the resource identified by the URL stored as part of the Internet location object. The resource may be located remotely or may be located on the local user machine. In particular, a URL can refer to resources that are not "on the net" (and which do not represent cached net resources). For example, URLs can be used to refer to files or directories on hard drives attached to a user machine independently of whether the machine is or has ever been attached to a network. URLs can thus serve a function very similar to aliases.

MainClaim: A GUI-based computer system, comprising:

a CPU;

permanent storage coupled to the CPU;

an application having text and running on the CPU;

within permanent storage, an operating system, including an Internet location manager, the Internet location manager, in response to selecting and transferring text from the application to the operating system by a user, parsing the text to identify a text resource and a URL resource, creating an Internet location object, having both the text resource and the separate URL resource, representing an Internet resource retrievable from the computer system or a remote device, wherein the Internet location object, when activated, causes a program to retrieve said Internet resource from the appropriate device.

2006/0150073	Method for inhibiting the execution of a navigating command	Nokia Corporation	Makela; Mikko K.	715	G06F	20041230	8	92%	<input type="checkbox"/>
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Abstract: The present invention relates to the field of inhibiting a navigating command associated with an event and in particular to methods, devices and systems for handling such commands in an effective manner. The event generally controls the navigating to a certain item in an application environment is the method determines that the navigating command is to be executed. The method features checking if the navigating command would shift display to an area not actually displayed in the application environment; and in this case inhibiting the execution of the navigating command

MainClaim: A method for inhibiting the execution of a navigating command in an application environment, said navigating command being associated with an event, wherein said event controls navigation to a certain item in said application environment, comprising the steps of: determining that said navigating command is to be executed; checking if said navigating command would shift display to an area which is at least partly invisible in said application environment; and if the checking step is affirmative, inhibiting the execution of said navigating command.

2005/0210401	Method and system for centralized copy/paste functionality	Nokia Corporation	Ketola, Pekka Mantere, Jussi Karttunen, Juha	715	G06F	20040318	3	92%	<input type="checkbox"/>
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Abstract: This invention relates to a method for transferring data from a source application to a target application. From the application an operation is traced, from which operation at least one item is extracted. The item is saved in a trace log file, from which it can be selected and transferred into said target application. The operation can be e.g. incoming or outgoing call, where the item is a phone number or a contact card. The invention relates also to a device, to a system and to computer program product.

MainClaim: A method for transferring data from a source application to a target application, the method comprising steps for tracing an operation relating to the source application, extracting at least one item from said operation, recording said item into a file, wherein said file is called by the target application for selecting and pasting the item to said target application.

7,372,473	Zooming controller	Apple Inc.	Venolia; Daniel Scott	345	G09G	20040210	0	100%	<input type="checkbox"/>
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Abstract: A method and device for accessing a broad data field having a fine resolution. The user selects a scale which can be varied. The scale controls a range within the data field. By moving the range to encompass different portions of the data field, the user can scan that portion of the data field. The present invention allows the user to simultaneously select the scale while moving the range over different portions of the data field. Thus, the user can "zoom in" and "zoom out" of different portions of the data field. In one embodiment of the present invention, a particular piece of data within the broad data field can be accessed. First, the scale is selectively varied, thereby controlling a range within the data field. Then, the range is moved to encompass portions of the data field in which the piece of data resides. Next, the scale is successively decreased while, simultaneously, points successively closer to the location are kept with the range. The scale is decreased (i.e., increasing the range's resolution) and the range is moved in this manner until the piece of data is actually accessed.

MainClaim: A method to implement a graphical user interface on a display device of a data processing system having an input device, the method comprising: receiving an input which indicates a movement of the input device while a cursor of the graphical user interface is outside a first region on the display device, the input comprising: a first component which indicates a component of the movement in a first degree of freedom of the input device, and a second component which indicates a component of the movement in a second degree of freedom of the input device; controlling a position of the cursor on the display device in response to the first component and the second component of the input; and adjusting a first parameter corresponding to a scale of data, under control of a first user interface element of the graphical user interface according to the first component of the input, the first user interface element being located within the first region, wherein the adjusting the first parameter causes a range of the data displayed by another user interface element of the graphical user interface to be adjusted based on a value of the first parameter, wherein adjusting the first parameter comprises remapping the first component of the input to control a change in the scale of data.

2007/0192744	Graphical user interface, electronic device, method and computer program that uses sliders for user input	Nokia Corporation	Reponen; Erika	715	G06F	20060125	4	93%	<input type="checkbox"/>
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Abstract: A graphical user interface including a first slider having a first widget that is movable by a user along a first track and a second slider, integrated within the first widget, wherein the second slider has a second widget that is movable by a user along a second track.

MainClaim: An electronic device comprising: a display; a user input device; and a processor for controlling the display to display a first slider comprising a first widget that is movable by a user using the user input device along a first track to control the output of the device in a first manner and a second slider comprising a second widget that is movable by a user using the user input device along a second track to control the output of the device in a second manner different to the first manner, wherein the second slider is at least partially integrated within the first widget.

5,481,666	Object-oriented navigation system	Taligent, Inc.	Nguyen; Frank T. Anderson; David R. Catlin; Timothy J. O.	345	G06F	19930825	0	100%	<input type="checkbox"/>
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Abstract: A technique for navigating between a first and second object in an object-oriented computer system, including a processor with an attached storage and a display uses reference objects to insert references from one object into another. A first document is loaded into the storage and presented on the display. Then, a selection object is created and associated with a selected part of the first document on the display. A reference object is then created and associated with the first selection object in the storage. Then, a second document is loaded into the storage and presented on the display and the reference object is inserted into in the second document. Finally, navigation is enabled via the reference in the second document to the first selection in the first document. Commands can also be performed via a reference on a remote object as if the object resided locally.

MainClaim: A method for navigating between a first and a second document object in a computer system having a processor, a storage attached to and under the control of the processor, a display attached to and under the control of the processor, the first and second document objects each consisting of a container object having therein a plurality of model objects each with a model object interface the method comprising the steps of:

- (a) loading the first document object into the storage and presenting the first document object on the display;
- (b) creating a first selection object associated with the first document object in the storage, the first selection object identifying a selected portion of one of the plurality of model objects;
- (c) creating a reference object having a model object interface;
- (d) inserting a reference to the first selection object into the reference object;
- (e) loading a second document object into the storage and presenting the second document object on the display;
- (f) placing the reference object associated with the first selection object in the second document object as a model object; and
- (g) navigating via the reference object in the second document object to the selected portion of the one of the plurality of model objects in the first document object.

2007/0288854	Reusable XForms processor	Nokia Corporation	Koskimies; Oskari	715	G06F	20060613	18	92%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for invoking user interface (UI) functionality by a client application. Data is received from a server, such as a web server, parsed and used to create a hierarchy of application UI objects. A corresponding hierarchy of XForms objects is created, such that each XForms object maps to an application UI object. The user interface is rendered at the client display by displaying objects in the application UI objects hierarchy and invoking the corresponding functionality from the XForms object hierarchy.

MainClaim: A method for invoking user interface functionality on a computing device comprising: receiving a data file comprising markup language data; creating based on the data file a first object hierarchy comprising a plurality of objects, each corresponding to a user interface component; identifying in the first object hierarchy a first object corresponding to a user interface component; creating a second object hierarchy comprising a second object having user interface functionality, said second object associated with said first object; displaying on the computing device a user interface comprising a graphical representation of the first object; and invoking the user interface functionality of the second object in relation to the graphical representation of the first object on the displayed user interface.

6,714,221	Depicting and setting scroll amount	Apple Computer, Inc.	Christie; Gregory N. King; Nick	345	G06F	20000803	0	100%	<input type="checkbox"/>
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Abstract: A user interface and methods for controlling and presenting information concerning scrolling of an on-screen document are described. In one aspect of the invention, an exemplary method of the invention generates a graphical user interface to provide functionality of controlling a scroll amount for an on-screen document. In this method, a graphical

representation of a scroll activator is displayed to enable the user to activate the scroll function using a cursor control device. In addition, a graphical representation of multiple scroll amount indicators is also displayed along with the graphical representation of the scroll activator. The multiple scroll amount indicators graphically illustrate various magnitudes of scrolling. According to another aspect of the present invention, an exemplary method of the invention provides a coasting function when an on-screen document scrolls. This exemplary method includes detecting a user interaction with a scrolling device, determining that the coasting function is in an enabled state, scrolling the on-screen document while detecting the user interaction, detecting that the user interaction ended, and then continuing to scroll the on-screen document after detecting that the user interaction ended. The user interaction with the scrolling device may end at any portion of the scrolling device. Other aspects of the present invention relating to controlling scrolling of the on-screen document are also described.

MainClaim: A method for generating a graphical user interface to a user, said graphical user interface to provide functionality of controlling a scroll amount for an on-screen document, said method comprising:

displaying a representation of a scroll activator to enable the user to activate the scroll function using a cursor control device; and

displaying a plurality of images representing scroll amount indicators, the plurality of images graphically illustrating various magnitudes of scrolling that correspond to a set of distinct scroll amounts,

wherein the scroll amount indicators are used for a plurality of application programs and the set of distinct scroll amounts is capable of being configured differently for each of the plurality of application programs.

2007/0075976	Method, device computer program and graphical user interface for user input of an electronic device	Nokia Corporation	Kun; Yu Kongqiao; Wang Kangas; Jari	345	G09G	20050930	1	92%	<input type="checkbox"/>
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Abstract: A method of controlling an electronic device including a touch sensitive display the method including displaying a plurality of graphical items on the touch sensitive display where each graphical item has an identity; detecting a coupling, formed by a user, of at least two graphical items, the coupling including, a trace on the touch sensitive display between the at least two graphical items; and, performing an action dependent upon the identity of the coupled graphical items.

MainClaim: A method of controlling an electronic device comprising a touch sensitive display the method comprising: displaying a plurality of graphical items on the touch sensitive display where each graphical item has an identity; detecting a coupling, formed by a user, of at least two graphical items, the coupling comprising, a trace on the touch sensitive display between the at least two graphical items; and, performing an action dependent upon the identity of the coupled graphical items.

2010/0011310	Method, Device, Computer Program and Graphical User Interface Used for the Selection, Movement and De-Selection of an Item	NOKIA CORPORATION	Rainisto; Roope	715	G06F	20050930	4	92%	<input type="checkbox"/>
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Abstract: A method of controlling an action performed as a result of a drag and drop operation, the method including displaying a menu of multiple actions during the drag and drop operation, each of the actions being associated with a different respective portion of a display; and performing an action associated with a portion of the display that coincides with a waypoint in the drag and drop operation.

MainClaim: A method of controlling an action performed as a result of a drag and drop operation, the method comprising: displaying a menu of multiple actions during the drag and drop operation, an action being associated with a respective portion of a display; and performing an action associated with a portion of the display that coincides with a waypoint in the drag and drop operation.

7,728,818	Method, device computer program and graphical user interface for user input of an electronic device	Nokia Corporation	Yu; Kun Wang; Kong Qiao Kangas; Jari	345	G09G	20050930	1	92%	<input type="checkbox"/>
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Abstract: A method of controlling an electronic device including a touch sensitive display the method including displaying a plurality of graphical items on the touch sensitive display where each graphical item has an identity; detecting a coupling, formed by a user, of at least two graphical items, the coupling including, a trace on the touch sensitive display between the at least two graphical items; and, performing an action dependent upon the identity of the coupled graphical items.

MainClaim: A method comprising: displaying a plurality of graphical items on a touch sensitive display where each graphical item has an identity; detecting a coupling, formed by a user, of at least two graphical items, the coupling comprising, a trace on the touch sensitive display between the at least two graphical items, wherein when the user begins to make the trace, an indication is displayed to indicate the item on which the trace began; and, performing an action dependent upon the identity of the coupled graphical items.

5,666,438	Method and apparatus for recognizing handwriting of different users of a pen-based computer system	Apple Computer, Inc.	Beernink; Ernest H. Auguste; Donna M. Meier; John R.	382	G06K	19940729	0	100%	<input type="checkbox"/>
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Abstract: A computer system and method capable of handwriting recognition and user identification are presented. The computer system includes a CPU, a dual-function display assembly and a stylus. The dual-function display assembly senses the relative position of the stylus with respect to the dual-function display. When an appropriate prompt is displayed, a user responds by application of the stylus to the dual-function display to enter user identity, handwriting, handwriting style, handwriting preferences, and other input to the computer system. Using user-specific handwriting preferences and data, improved handwriting recognition for the user is enabled.

MainClaim: A method of recognizing the handwriting of one of several users of a pen-based computer comprising the steps of:

providing a pen-based computer having memory and a dual-function display assembly capable of receiving input and producing output;

providing user-specific handwriting data for a primary user and at least one guest user, said user-specific handwriting data including handwriting style data generically applicable to a corresponding user's handwriting, the handwriting style data including at least one handwriting style preference selected from the group consisting of printing, cursive, mixed printing and cursive, and at least one from the group consisting of recognition speed and word separation;

storing said user-specific handwriting data for said primary user and said at least one guest user in said memory;

displaying a handwriting preferences option on said dual-function display assembly;

directing a pointing device to said preferences option to communicate user interactive events to said pen-based computer, said user interactive events including user identification;

identifying the user of the pen-based computer; and

interpreting the handwriting of said user using said user-specific handwriting data appropriate for said user.

2008/0002888	Apparatus, method, device and computer program product providing enhanced text copy capability with touch input display	Nokia Corporation	Yuan; Shijun	382	G06K	20060629	13	94%	<input type="checkbox"/>
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Abstract: A device includes a display having touch sensitive display surface that is responsive to pen-based user input, and a control unit that is bidirectionally coupled to the display. The control unit is responsive to a user selecting displayed text from a first display location using the pen, and is further responsive to a first signal generated using the pen, to copy the selected displayed text to a buffer associated with a text window and to display the copied text in the text window. The control unit is further responsive to the user selecting a second display location using the pen, and to a second signal, to copy the displayed text from the text window to the second display location, thereby implementing a copy and paste function. A cut and paste function may also be implemented.

MainClaim: A method, comprising: selecting displayed text from a first display location using a pen in combination with a touch sensitive surface; in response to a first signal generated using the pen, copying the selected displayed text to a buffer associated with a text window and displaying the copied text in the text window; selecting a second display location using the pen; and in response to a second signal, copying the displayed text from the buffer to the second display location.

7,623,119	Graphical functions by gestures	Nokia Corporation	Autio; Markku Tapio Jarvio; Jami Jarkko Juhani	345	G09G	20040421	7	92%	<input type="checkbox"/>
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Abstract: A method for operating a computer through a touch sensitive display interface includes displaying a computer generated graphical image on a touch sensitive display using display software. The display software includes programs used to display the graphical image (e.g., display driver and web browser), and is responsive to inputs at a first, active portion (e.g., coinciding with toolbars, hyperlinks) of the touch sensitive display when the graphic image is displayed, and is non-responsive to a second, inactive portion. In the method, an input character is received at the second, inactive portion of the touch sensitive display, and is compared to a stored command character that is associated with a separate corresponding computer command. The separate corresponding computer command is executed if the input character matches the command character. In one embodiment, one particular input character results in emulating a right mouse button by displaying a submenu of shortcut icons, and the method is implemented by operation of a computer program in a mobile station.

MainClaim: A computer readable medium having computer instructions for performing actions comprising: displaying a computer generated graphical image and at least one active area comprising an attribute on a touch sensitive display using a displaying software program, the attribute comprising at least one of a scrolling operator, a toolbar icon and a hyperlink, said displaying software program being responsive to inputs at only a first active portion of the touch sensitive display when said graphical image is displayed, and non-responsive to a second inactive portion of the display; receiving an input character at the second inactive portion of said touch sensitive display; comparing said input character to a stored command character that is associated with a separate corresponding computer command; and executing the separate corresponding computer command if said input character matches said command character, wherein said separate corresponding computer command is to display a submenu at the touch sensitive display, said submenu comprising a plurality of shortcut links each to a different executable command.

2005/0237308	Graphical functions by gestures	Nokia Corporation	Autio, Markku Tapio Jarvio, Jami Jarkko Juhani	345	G09G	20040421	4	92%	<input type="checkbox"/>
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Abstract: A method for operating a computer through a touch sensitive display interface includes displaying a computer generated graphical image on a touch sensitive display using display software. The display software includes programs used to display the graphical image (e.g., display driver and web browser), and is responsive to inputs at a first, active portion (e.g., coinciding with toolbars, hyperlinks) of the touch sensitive display when the graphic image is displayed, and is non-responsive to a second, inactive portion. In the method, an input character is received at the second, inactive portion of the touch sensitive display, and is compared to a stored command character that is associated with a separate corresponding computer command. The separate corresponding computer command is executed if the input character matches the command character. In one embodiment, one particular input character results in emulating a right mouse button by displaying a submenu of shortcut icons, and the method is implemented by operation of a computer program in a mobile station.

MainClaim: In an electronic device for displaying a graphical image at a touch sensitive user interface using a displaying software program, and for storing a separate computer command apart from the displaying software program, the improvement comprising a computer program embodied in a computer readable medium comprising instructions to cause a computer to: receive an input at a portion of the touch sensitive user interface that is not recognized as active by the display program; compare said received input to a stored command character that is associated with the separate computer command; and execute the separate computer command only if the received input matches the stored command character.

6,101,509	Method and apparatus for transmitting documents over a network	Apple Computer, Inc.	Hanson; Michael Robert Lilly; John	715	G06F	19960927	0	100%	<input type="checkbox"/>
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Abstract: An object comprising a Web document is transferred by a server to a client over a client-server data communications network. Alternatively, the object comprising the Web document can be executed by the server. The object, in turn, causes each object contained therein to execute and output a representation of the object in whatever format is requested by the client. For example, a client can send a request to the server over the data communications network. The request specifies a particular Web document. The server searches its collection of objects in its object space for the object requested. The server, upon finding the object, and depending upon the nature of the client's request, will transmit the object as is to the client, or execute the object. The object outputs a representation of each object contained within the object in a format specified by the client. Thus, if the client requests an HTML formatted Web document, the server executes the object representing the Web document, passing as input to the object an input argument indicating the output of each object within the Web document is to be formatted in HTML.

MainClaim: In a client-server computing environment, a method for a server to publish an object which can be represented in different formats to a client coupled to said server over a communications network, comprising said server:

- a) receiving a request for said object from said client over said communications network according to a format define by client;
- b) identifying said object on said server based on said request;
- c) obtaining via an object handler, said object;
- d) processing said object corresponding to said format to form a representation of said object; and
- e) publishing said representation of each of a plurality of objects contained within said object to said client over said communications network in response to said request.

2007/0288854	Reusable XForms processor	Nokia Corporation	Koskimies; Oskari	715	G06F	20060613	18	96%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for invoking user interface (UI) functionality by a client application. Data is received from a server, such as a web server, parsed and used to create a hierarchy of application UI objects. A corresponding hierarchy of XForms objects is created, such that each XForms object maps to an application UI object. The user interface is rendered at the client display by displaying objects in the application UI objects hierarchy and invoking the corresponding functionality from the XForms object hierarchy.

MainClaim: A method for invoking user interface functionality on a computing device comprising:receiving a data file comprising markup language data;creating based on the data file a first object hierarchy comprising a plurality of objects, each corresponding to a user interface component;identifying in the first object hierarchy a first object corresponding to a user interface component;creating a second object hierarchy comprising a second object having user interface functionality, said second object associated with said first object;displaying on the computing device a user interface comprising a graphical representation of the first object; andinvoking the user interface functionality of the second object in relation to the graphical representation of the first object on the displayed user interface.

2006/0150073	Method for inhibiting the execution of a navigating command	Nokia Corporation	Makela; Mikko K.	715	G06F	20041230	8	92%	<input type="checkbox"/>
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Abstract: The present invention relates to the field of inhibiting a navigating command associated with an event and in particular to methods, devices and systems for handling such commands in an effective manner. The event generally controls the navigating to a certain item in an application environment is the method determines that the navigating command is to be executed. The method features checking if the navigating command would shift display to an area not actually displayed in the application environment; and in this case inhibiting the execution of the navigating command

MainClaim: A method for inhibiting the execution of a navigating command in an application environment, said navigating command being associated with an event, wherein said event controls navigation to a certain item in said application environment, comprising the steps of: determining that said navigating command is to be executed; checking if said navigating command would shift display to an area which is at least partly invisible in said application environment; and if the checking step is affirmative, inhibiting the execution of said navigating command.

2006/0107206	Form related data reduction	Nokia Corporation	Koskimies; Oskari	715	G06F	20041112	4	92%	<input type="checkbox"/>
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Abstract: The invention discloses a method, system, server and computer program product of automatically reducing the amount of form related data, e.g. extensible markup language data, sent to a receiving terminal. In the method, a user interface description is analyzed to determine, which parts of the form related data are relevant for the receiving terminal. Based on the analysis, unnecessary parts of the form related data are pruned and the pruned form related data is sent to the receiving terminal. In one embodiment of the invention, XForms is analyzed to determine, which parts of an extensible markup language data are relevant for the receiving terminal.

MainClaim: A method of automatically reducing the amount of form related data sent to a receiving terminal, the method comprising: analyzing a user interface description to determine, which parts of the form related data are relevant for the receiving terminal; pruning; based on the analysis, unnecessary parts of the form related data; and sending the pruned form related data to the receiving terminal.

5,778,404	String inserter for pen-based computer systems and method for providing same	Apple Computer, Inc.	Capps; Stephen P. Beernink; Ernest H. Temkin; David T.	715	G06F	19950807	0	100%	<input type="checkbox"/>
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Abstract: A string inserter for a computer system having a graphical user interface and a pointer capable of interacting with a graphical user interface includes an insertion marker, an insertion initiator, and an insertion implementer. The insertion marker is displayed on a screen of the computer system at an insertion point in displayed text corresponding to a string of text information. The insertion initiator is operative to detect a selection of the insertion marker with a the pointer mechanism of the computer system and to provide an insertion menu on the screen that includes a number of insertion labels. The insertion implementer is responsive to a selection of an insertion label with the pointer and is operative to insert an insertion string corresponding to the selection into the string of text information. A method for inserting an insertion string into a string of text information on a computer system includes the steps of displaying an insertion marker on a screen of the computer system, detecting a selection of the insertion marker with a pointer mechanism of the computer system and providing an insertion menu including a number of insertion labels in response thereto, and detecting a selection of an insertion label and inserting an

insertion string corresponding to this selection into the string of text information.

MainClaim: A string inserter for a computer system having a graphical user interface and a pointer capable of interacting with said graphical user interface comprising:

an insertion marker displayed on a screen of a computer system having a graphical user interface at an insertion point for a string of text information being displayed on said screen, said insertion marker designates said insertion point for the string of text information and is capable of activating an insertion menu;

an insertion initiator operative to detect an insertion selection of said insertion marker with a pointer of said computer system and, in response to said insertion selection of said insertion marker, to provide said insertion menu adjacent to said insertion marker on said screen, said insertion menu including a plurality of insertion labels; and

an insertion implementer responsive to a selection of an insertion label with said pointer and operative to insert an insertion string corresponding to said selection into said string of text information at said insertion point designated by said insertion marker.

2008/0002888	Apparatus, method, device and computer program product providing enhanced text copy capability with touch input display	Nokia Corporation	Yuan; Shijun	382	G06K	20060629	13	93%	<input type="checkbox"/>
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Abstract: A device includes a display having touch sensitive display surface that is responsive to pen-based user input, and a control unit that is bidirectionally coupled to the display. The control unit is responsive to a user selecting displayed text from a first display location using the pen, and is further responsive to a first signal generated using the pen, to copy the selected displayed text to a buffer associated with a text window and to display the copied text in the text window. The control unit is further responsive to the user selecting a second display location using the pen, and to a second signal, to copy the displayed text from the text window to the second display location, thereby implementing a copy and paste function. A cut and paste function may also be implemented.

MainClaim: A method, comprising: selecting displayed text from a first display location using a pen in combination with a touch sensitive surface; in response to a first signal generated using the pen, copying the selected displayed text to a buffer associated with a text window and displaying the copied text in the text window; selecting a second display location using the pen; and in response to a second signal, copying the displayed text from the buffer to the second display location.

5,652,876	Method and apparatus for launching files created by non-resident application programs	Apple Computer, Inc.	Ashe; Dylan B. Kledzik; Nick G.	703	G06F	19960918	0	100%	<input type="checkbox"/>
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Abstract: A method in a computer system enables the translation and opening of a document which was created by an application program no longer resident in the computer system. The method begins by identifying the file format of the target document. Subsequently, all computer resident applications capable of opening the document are identified and translation paths from the document to the accessible application programs are calculated. Each of the available application programs and corresponding translation paths are listed in order of fidelity, with an indicia identifying the preferred path. One of the translation paths is selected and the document is translated into the acceptable format. Following translation of the program, the application is launched and the newly translated document is opened.

MainClaim: A method in a computer system for processing a document created previously by an application program which is not currently accessible by the computer system, comprising the steps of:

determining that the application program that created the document is not accessible by the computer system;

identifying application programs that are accessible by the computer system that are different from the application program that created the document and are capable of translating the document;

calculating translation paths from the document to the accessible application programs;

selecting one of the accessible application programs capable of translating the document; and

using the selected application program to translate the document into a format acceptable to an accessible application program.

2005/0210401	Method and system for centralized copy/paste functionality	Nokia Corporation	Ketola, Pekka Mantere, Jussi Karttunen, Juha	715	G06F	20040318	3	92%	<input type="checkbox"/>
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Abstract: This invention relates to a method for transferring data from a source application to a target application. From the application an operation is traced, from which operation at least one item is extracted. The item is saved in a trace log file, from which it can be selected and transferred into said target application. The operation can be e.g. incoming or outgoing call, where the item is a phone number or a contact card. The invention relates also to a device, to a system and to computer program product.

MainClaim: A method for transferring data from a source application to a target application, the method comprising steps for tracing an operation relating to the source application, extracting at least one item from said operation, recording said item into a file, wherein said file is called by the target application for selecting and pasting the item to said target application.

6,778,195	Zooming controller	Apple Computer, Inc.	Venolia; Daniel Scott	345	G06F	20020222	0	100%	<input type="checkbox"/>
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Abstract: A method and device for accessing a broad data field having a fine resolution. The user selects a scale which can be varied. The scale controls a range within the data field. By moving the range to encompass different portions of the data field, the user can scan that portion of the data field. The present invention allows the user to simultaneously select the scale while moving the range over different portions of the data field. Thus, the user can "zoom in" and "zoom out" of different portions of the data field. In one embodiment of the present invention, a particular piece of data within the broad data field can be

accessed. First, the scale is selectively varied, thereby controlling a range within the data field. Then, the range is moved to encompass portions of the data field in which the piece of data resides. Next, the scale is successively decreased while, simultaneously, points successively closer to the location are kept with the range. The scale is decreased (i.e., increasing the range's resolution) and the range is moved in this manner until the piece of data is actually accessed.

MainClaim: A method for accessing a data field in a data processing system, the method comprising:

when the data processing system is in a first mode:

positioning a cursor to locations on a display screen in response to movement of an input device;

receiving a signal to enter into a second mode;

when the data processing system is in the second mode:

remapping control of the input device to control both a scale and a position, the scale and the position specifying a portion of the data field for access;

adjusting the scale according to movement of the input device along a first axis; and

adjusting the position according to movement of the input device along a second axis.

2007/0192744	Graphical user interface, electronic device, method and computer program that uses sliders for user input	Nokia Corporation	Reponen; Erika	715	G06F	20060125	4	92%	<input type="checkbox"/>
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Abstract: A graphical user interface including a first slider having a first widget that is movable by a user along a first track and a second slider, integrated within the first widget, wherein the second slider has a second widget that is movable by a user along a second track.

MainClaim: An electronic device comprising: a display; a user input device; and a processor for controlling the display to display a first slider comprising a first widget that is movable by a user using the user input device along a first track to control the output of the device in a first manner and a second slider comprising a second widget that is movable by a user using the user input device along a second track to control the output of the device in a second manner different to the first manner, wherein the second slider is at least partially integrated within the first widget.

5,263,134	Method and apparatus for controlling computer displays by using a two dimensional scroll palette	Apple Computer, Inc.	Paal; Adam F. Fernandez; William J.	345	G06F	19920730	0	100%	<input type="checkbox"/>
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Abstract: A computer program provides for the display of window regions on a display screen whereby the content and size of one window region is controllable in two dimensions using means provided in another window region. A cursor device and a signal generation means is used to select the two-dimensional scrolling or resizing of a window region. Controls are also provided to move and terminate window regions. Upon termination, the configuration of window regions is saved on a data storage means for use when the window regions are re-displayed. Cursor movement can be restricted to the horizontal or vertical directions only.

MainClaim: In an interactive computer-controlled display system having a processor, means for accessing displayable information having predetermined dimensions, a data display screen coupled to said processor for displaying said displayable information, and a cursor control device coupled to said processor for interactively positioning a cursor on said lay screen, a computer implemented process for interactively selecting a portion of said displayable information which is displayed within a region of said display screen, said process comprising the steps of:

generating and displaying first window region on said data display screen, said first window region having a border, a first displayed portion of said displayable information being displayed within said border of said first window region such that an undisplayed portion of said displayable information is not displayed on said data display screen;

generating and displaying a second window region being associated with said first window region, said second window region having a border, said second window region being displayed concurrently on said data display screen with said first window region, said border of said second window region corresponding to said predetermined dimensions of said displayable information, said second window region having a third window region within said second window region, said third window region having a border corresponding to said first displayed portion of said displayable information, said third window region being located in a different position on said data display screen than a position of said first window region; and

moving said third window region in two dimensions within said second window region to selectively display a second displayed portion of said displayable information within said border of said first window region, said second displayed portion being different from said first displayed portion.

7,554,530	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi; Sachi Mori; Eigo	345	G09G	20021223	13	92%	<input type="checkbox"/>
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Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke

may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.

MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object that represents data; and selecting the at least one displayed object, where forming the stroke further comprises extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object.

2004/0119763	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi, Sachi Mori, Eigo	345	G09G	20021223	12	92%	<input type="checkbox"/>
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Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.

MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object.

6,061,062	Zooming controller	Apple Computer, Inc.	Venolia; Daniel Scott	345	G06F	19930809	0	100%	<input type="checkbox"/>
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Abstract: A method and device for accessing a broad data field having a fine resolution. The user selects a scale which can be varied. The scale controls a range within the data field. By moving the range to encompass different portions of the data field, the user can scan that portion of the data field. The present invention allows the user to simultaneously select the scale while moving the range over different portions of the data field. Thus, the user can "zoom in" and "zoom out" of different portions of the data field. In one embodiment of the present invention, a particular piece of data within the broad data field can be accessed. First, the scale is selectively varied, thereby controlling a range within the data field. Then, the range is moved to encompass portions of the data field in which the piece of data resides. Next, the scale is successively decreased while, simultaneously, points successively closer to the location are kept with the range. The scale is decreased (i.e., increasing the range's resolution) and the range is moved in this manner until the piece of data is actually accessed.

MainClaim: In a computer system, a method for accessing a data field comprising the steps of;

positioning a moveable cursor to locations on a display screen in response to movement of a cursor positioning device;

remapping control of said cursor positioning device from controlling a position of said moveable cursor to controlling both a scale and a segment of said data field for display on said display screen, wherein said cursor positioning device performs a dual function of controlling movement of said cursor and controlling said scale and said segment, depending on a signal indicated by a switch;

when control of said cursor positioning device is remapped:

increasing said scale at which the data field is displayed according to movement of said cursor positioning device in a first direction of a first axis, wherein sustained movement of said cursor positioning device in said first direction of said first axis continuously increases said scale at which said segment of said data field is displayed;

decreasing the scale at which said data field is displayed according to movement of said cursor positioning device in a second direction in the first axis, wherein continuous movement of said cursor positioning device in said second direction of said first axis continuously decreases said scale at which said segment of said data field is displayed;

controlling which segment of the data field is displayed according to movement of said cursor positioning device in a second axis, wherein continued movement of said cursor positioning device relative to said second axis causes successive segments of said data field to be displayed at the scale which is selected by movement of said cursor positioning device in said first axis.

2007/0192744	Graphical user interface, electronic device, method and computer program that uses sliders for user input	Nokia Corporation	Reponen; Erika	715	G06F	20060125	4	92%	<input type="checkbox"/>
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Abstract: A graphical user interface including a first slider having a first widget that is movable by a user along a first track and a second slider, integrated within the first widget, wherein the second slider has a second widget that is movable by a user along a second track.

MainClaim: An electronic device comprising: a display; a user input device; and a processor for controlling the display to display a first slider comprising a first widget that is movable by a user using the user input device along a first track to control the output of the device in a first manner and a second slider comprising a second widget that is movable by a user using the user input device along a second track to control the output of the device in a second manner different to the first manner, wherein the second slider is at least partially integrated within the first widget.

7,693,856	Methods and systems for managing data	Apple Inc.	Arrouye; Yan Giampaolo; Dominic Carol; Andrew	1	G06F	20050422	0	100%	<input type="checkbox"/>
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Abstract: Systems and methods for managing data, such as metadata or indexes of content of files. In one exemplary method,

notifications to update a metadata database or an index database are combined into a combined notification. According to other aspects, an order among logical locations on a storage device is determined in order to specify a sequence for scanning for files to be indexed. According to another aspect, a method includes determining whether to index a file based on a path name of the file relative to a plurality of predetermined path names.

MainClaim: A machine implemented method of processing data, the method comprising: combining, by a data processing system, notifications into a combined notification for updating a metadata database or an index database wherein each of the notifications indicate a creation or modification of a file on a storage device; updating the metadata database or the index database after receiving the combined notification; filtering the notifications before the combining of notifications using first rules, wherein notifications for files that are not to be indexed are prevented from causing the metadata database or the index database to be updated, wherein the filtering is based on a file pathname of a file and a plurality of predetermined pathnames; filtering at least one of the notifications using second rules in response to filtering the at least one notification using the first rules, wherein the second rules are specific to a location of the file on the storage device, the file corresponding to the at least one notification.

2006/0288280	User-defined changing of page representations	Nokia Corporation	Makela; Mikko	715	G06F	20060511	4	92%	<input type="checkbox"/>
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Abstract: This invention relates to a method for generating a changed representation of a page object, wherein the page object is one of a page and a part of the page, the method comprising retrieving (201; 301) the page object in response to a request (200; 300) for the page; dividing (203; 303) the page object into a set (4a) of sections; and performing (204; 304) changes to the set (4a) of sections according to preference information to obtain a changed set (4b) of sections representing the changed representation of the page object. This invention further relates to a device, a system, a computer program and a computer program product for generating a changed representation of a page object.

MainClaim: A method for generating a changed representation of a page object, wherein said page object is one of a page and a part of said page, said method comprising: retrieving said page object in response to a request for said page; dividing said page object into a set of sections; and performing changes to said set of sections according to preference information to obtain a changed set of sections representing said changed representation of said page object.

5,594,640	Method and apparatus for correcting words	Apple Computer, Incorporated	Capps; Stephen P. Beernink; Ernest H. Meier; John R. Temkin; David	715	G06F	19941019	0	100%	<input type="checkbox"/>
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Abstract: A method for correcting recognized words in a computer system including the steps of: (a) entering an ink object into a computer system with a pointing device; (b) recognizing the ink object as a word object; (c) displaying the word object on a display of the computer system; (d) detecting a correction request made by a user pertaining to the displayed word object; and (e) displaying a list of alternative words for the word object on the display. Preferably, the list of alternative words includes a shifted-case version of the word object, a number of alternative words provided by a word recognizer, and the original ink object that was entered into the computer system. A user can select one of these alternative words to replace the misrecognized word object. Alternatively, a user may enter a word into the computer system by means of a keyboard image to replace the original word object with the newly entered word. When using the keyboard correction mode, the user has the opportunity to add the word to a dictionary list used by a word recognizer of the computer system.

MainClaim: A method for correcting recognized words in a computer system comprising the steps of:

entering handwritten ink data into a computer system with a pointer;

recognizing the handwritten ink data as a word and a number of alternative words, said word and said alternative words being included in a word list;

displaying said word on a display screen of said computer system;

detecting an alternative word list gesture made by said user pertaining to said displayed word with said pointer;

displaying said word list for said displayed word on said display screen in response to detecting said alternative word list gesture; and

detecting a selection of one of said words in said list by said user and replacing said displayed word with said selection.

2008/0002888	Apparatus, method, device and computer program product providing enhanced text copy capability with touch input display	Nokia Corporation	Yuan; Shijun	382	G06K	20060629	13	93%	<input type="checkbox"/>
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Abstract: A device includes a display having touch sensitive display surface that is responsive to pen-based user input, and a control unit that is bidirectionally coupled to the display. The control unit is responsive to a user selecting displayed text from a first display location using the pen, and is further responsive to a first signal generated using the pen, to copy the selected displayed text to a buffer associated with a text window and to display the copied text in the text window. The control unit is further responsive to the user selecting a second display location using the pen, and to a second signal, to copy the displayed text from the text window to the second display location, thereby implementing a copy and paste function. A cut and paste function may also be implemented.

MainClaim: A method, comprising: selecting displayed text from a first display location using a pen in combination with a touch sensitive surface; in response to a first signal generated using the pen, copying the selected displayed text to a buffer associated with a text window and displaying the copied text in the text window; selecting a second display location using the pen; and in response to a second signal, copying the displayed text from the buffer to the second display location.

5,367,453	Method and apparatus for correcting words	Apple Computer, Inc.	Capps; Stephen P. Beernink; Ernest H. Meier; John R. Temkin; David	715	G06F	19930802	0	100%	<input type="checkbox"/>
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Abstract: A method for correcting recognized words in a computer system including the steps or: (a) entering an ink object into

a computer system with a pointing device; (b) recognizing the ink object as a word object; (c) displaying the word object on a display of the computer system; (d) detecting a correction request made by a user pertaining to the displayed word object; and (e) displaying a list of alternative words for the word object on the display. Preferably, the list of alternative words includes a shifted-case version of the word object, a number of alternative words provided by a word recognizer, and the original ink object that was entered into the computer system. A user can select one of these alternative words to replace the misrecognized word object. Alternatively, a user may enter a word into the computer system by means of a keyboard image to replace the original word object with the newly entered word. When using the keyboard correction mode, the user has the opportunity to add the word to a dictionary list used by a word recognizer of the computer system.

MainClaim: A method for correcting recognized words in a computer system comprising the steps of:

entering an ink object into a computer system with a stylus and an input tablet overlaying a display of said computer system;

recognizing the ink object as a word object, wherein said word object is a selected one of a number of alternative recognized word objects for said ink object;

displaying said word object on said display;

detecting an alternative word list gesture made by said user on said tablet over said displayed word object with said stylus;

displaying a list of said alternative word objects for said displayed word object on said display in response to detecting said alternative word list gesture; and

detecting a selection of one of said alternative word objects by said user by engaging said stylus with said tablet over said alternative word object and replacing said displayed word object with said selection.

2008/0002888	Apparatus, method, device and computer program product providing enhanced text copy capability with touch input display	Nokia Corporation	Yuan; Shijun	382	G06K	20060629	13	93%	<input type="checkbox"/>
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Abstract: A device includes a display having touch sensitive display surface that is responsive to pen-based user input, and a control unit that is bidirectionally coupled to the display. The control unit is responsive to a user selecting displayed text from a first display location using the pen, and is further responsive to a first signal generated using the pen, to copy the selected displayed text to a buffer associated with a text window and to display the copied text in the text window. The control unit is further responsive to the user selecting a second display location using the pen, and to a second signal, to copy the displayed text from the text window to the second display location, thereby implementing a copy and paste function. A cut and paste function may also be implemented.

MainClaim: A method, comprising: selecting displayed text from a first display location using a pen in combination with a touch sensitive surface; in response to a first signal generated using the pen, copying the selected displayed text to a buffer associated with a text window and displaying the copied text in the text window; selecting a second display location using the pen; and in response to a second signal, copying the displayed text from the buffer to the second display location.

5,500,929	System for browsing a network resource book with tabs attached to pages	Taligent, Inc.	Dickinson; Robert D.	345	G06F	19930830	0	100%	<input type="checkbox"/>
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Abstract: Browsing through a diverse set of resources residing on a network using a name service protocol is accomplished with an object oriented operating system. A window is displayed with several resource books. A resource book is selected by the user and the computer resources associated with the selected book are displayed in another window. Attached to the page of the book, tabs indicate the type of resources and are used to navigate through the book. Upon selection of a specific resource, the user may direct the resource to implement a task within a directed fashion. Furthermore, the system allows the user to form personal directories to facilitate the selection of frequently utilized resources.

MainClaim: A system for selecting one of a plurality of computer resources, each of the plurality of computer resources having one of a plurality of attribute types, the system being operable with computer apparatus having a workstation including a display and a computer network connecting the plurality of computer resources and the workstation, the system comprising:

(a) first means for displaying a first window and a second window on the display;

(b) second means for displaying a plurality of resource book graphics in the first window, each of the plurality of resource book graphics representative of one of a plurality of resource books, each of the plurality of resource books having an attribute name and an attribute type of at least one of the plurality of computer resources;

(c) third means for selecting one of the plurality of resource books by selecting the corresponding resource book graphic displayed in the first window;

(d) fourth means for displaying a plurality of resource graphics in the second window, each of the plurality of resource graphics being associated with the selected resource book and representative of a computer resource, each computer resource having the same attribute type; and

(e) fifth means for displaying a plurality of tab icons in the second window, each of the plurality of tab icons being representative of one of the plurality of attribute types of the computer resources and corresponding to one of a plurality of resource pages.

7,058,895	Method, system and apparatus for constructing fully personalized and	Nokia Corporation	Kautto-Koivula; Kaisa Huhtaniemi; Marita Lahdesm{hacek	715	G06F	20011220	3	92%	<input type="checkbox"/>
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	contextualized interaction environment for terminals in mobile use		over (a)}ki; Petri Maenp{hacek over (aa)}; Petri							<input type="checkbox"/>
<p>Abstract: A method, system and apparatus for creating personalized and contextualized interaction environment for terminals in mobile use. The method comprises receiving user instruction regarding information displayed on the interface, wherein the interface is represented in the contextualized interaction environment by a node map, updating the internal node map in accordance with the user instruction and displaying the interface in accordance with the updated internal node map. The node map is arranged to represent the user information in a particular context on the interface.</p> <p>MainClaim: A method for updating a user interface in a contextualized interaction environment for use in a computing device, comprising: a. displaying information on the user interface via a node map; i. wherein said node map is arranged to represent said information in a particular context on the user interface by utilizing a content abstraction layer, said content abstraction layer comprising links to at least one of content, applications, services and devices; b. receiving user instruction regarding information displayed on the user interface; c. updating said internal node map in accordance with said user instruction; and d. displaying the user interface in accordance with the updated internal node map.</p>										
5,568,603	Method and system for transparent mode switching between two different interfaces	Apple Computer, Inc.	Chen; Michael Mander; Richard I. Small; Ian S.	345	G06F	19940811	0	100%		<input type="checkbox"/>
<p>Abstract: A method and apparatus for transparently switching between viewing modes in a computer system is described. The method and apparatus of the present invention includes a bounding area and a smaller reference region within that bounding area. The bounding area is typically a computer display screen or a window within that screen. The reference region is an implicitly or explicitly defined boundary within the bounding region. The system and method allows for automatic switching between two viewing techniques within the bounding area, based on the location of the cursor location relative to the defined reference region and bounding area. Switching between viewing modes occurs when the cursor passes across the reference region whether the mouse button is up or down. This allows the user to easily change between viewing methods without having to take explicit steps to switch between the two modes by making a selection from a selection palette or keyboard to initiate the switch.</p> <p>MainClaim: In a computer system including a screen for displaying data, an I/O interface for interacting with said data on said display screen when said I/O interface is activated, and a movement indicator displayed on said screen for showing the movement of said I/O interface, a system for switching between at least two data manipulation modes on said screen comprising:</p> <p>a means for defining a bounding area in which a portion of said data is displayed;</p> <p>said means also for defining a boundary defined within said bounding area;</p> <p>a means for providing said at least two data manipulation modes;</p> <p>a means for switching between said at least two data manipulation modes in response to the location of said movement indicator in relation to said bounding area and said boundary, wherein said switching means switches between said at least two data manipulation modes independent of whether said I/O interface is activated or deactivated.</p>										
7,554,530	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi; Sachi Mori; Eigo	345	G09G	20021223	13	94%		<input type="checkbox"/>
<p>Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.</p> <p>MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object that represents data; and selecting the at least one displayed object, where forming the stroke further comprises extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object.</p>										
2004/0119763	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi, Sachi Mori, Eigo	345	G09G	20021223	12	94%		<input type="checkbox"/>
<p>Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.</p> <p>MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object.</p>										

7,581,164	User interface for accessing presentations	Apple Inc.	Forstall; Scott Melton; Donald Dale Sullivan; John William	715	G06F	20030106	0	100%	<input type="checkbox"/>
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Abstract: A user interface and methods for accessing document presentations are described herein. In one aspect of the invention, an exemplary method of the invention allows a user to directly snapback to a previous accessed document presentation without having to select from a menu of items or go through the intermediate pages. In this method, when a first document presentation is accessed, a first location of the first document presentation is recorded, automatically or manually. Subsequently, when a sequence of additional document presentations originated from the first document presentation is accessed, in response to a first input, without having to select from a menu of items, the first document presentation is directly retrieved from a recorded first location and displayed in a window. In one particular embodiment, a second document presentation is accessed and a second location of the second document presentation is recorded, where the recordation of the second location resets or supercedes the recordation of the first location. Other methods and apparatuses are also described.

MainClaim: A computer implemented method performed by an application, comprising: accessing a first document presentation other than a default initial document presentation; recording a first location of the first document presentation, wherein only one recorded location can be maintained at a given time; accessing a sequence of additional document presentations originated from the first document presentation; automatically displaying a snapback button in response to accessing the sequence of additional document presentations; in response to a first input received from an activation of the snapback button, without having to display and select from a list of documents representing an access history of the sequence of additional document presentations and the first document presentation, directly retrieving the first document presentation from the recorded first location; redisplaying the first document representation retrieved from the recorded first location; and automatically removing the snapback button from display when the first document representation is redisplayed, such that no more snapback functionality can be performed from the redisplayed first document representation, wherein the snapback button is controlled within the same instance of the application.

2008/0295018	Apparatus, method and computer program product providing an adaptive forward button for a browser application	Nokia Corporation	Nurmi; Mikko A. Kraft; Christian Anderson; Erik	715	G06F	20070524	1	94%	<input type="checkbox"/>
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Abstract: Disclosed are apparatus, computer program products, methods and a user interface that operate in conjunction with a forward button or control. In accordance with the exemplary embodiments of this invention a method includes, during a first instance of operation of an application, and in response to linking to a second page from a first, displayed page, saving an identification of the second page in association with an identification of the first page; and during a second instance of operation of the application, after termination of the first instance of operation, and in response to activating a forward button when the first page is displayed, retrieving the saved identification and automatically linking to the second page. A further method operates in response to a user closing a displayed web page, for storing information descriptive of a location of a cursor within the web page and, in response to the web page subsequently being opened, for accessing the stored information and displaying the web page so as to include the cursor positioned at the same location. In the exemplary embodiments the first and second pages may be web pages, or they may be at least one of files and file folders, as two non-limiting examples.

MainClaim: A method, comprising: during a first instance of operation of an application, and in response to linking to a second page from a first, displayed page, saving an identification of the second page in association with an identification of the first page; and during a second instance of operation of the application, after termination of the first instance of operation, and in response to activating a forward button when the first page is displayed, retrieving the saved identification and automatically linking to the second page.

2008/0104507	Web page dependent browser menu	Nokia Corporation	Nurmi; Mikko	715	G06F	20061031	2	94%	<input type="checkbox"/>
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Abstract: A web page is electronically retrieved from a remote site such as a server, using a web browser program. At a graphical display interface is simultaneously displayed a browser toolbar of menu items, at least a portion of the retrieved web page, and at least one pre-selected element of the web page. The pre-selected element is displayed at a new position different from an original position in which the pre-selected element exists in the retrieved web page. In an embodiment, the pre-selected element is a login block and the new position is within the toolbar. Methods, devices, embodied programs, and user interfaces are described.

MainClaim: A method for displaying information comprising: electronically retrieving a web page from a remote site with a web browser program; simultaneously displaying on a graphical display interface: a browser toolbar of menu items; at least a portion of the retrieved web page; and at least one pre-selected element of the web page at a new position different from an original position in which the pre-selected element exists in the retrieved web page.

2005/0114756	Dynamic Internet linking system and method	Nokia Corporation	Lehikoinen, Juha Huuskonen, Pertti Salminen, Ilkka	715	G06F	20031126	1	93%	<input type="checkbox"/>
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Abstract: Creating a dynamic Internet link includes storing terms associated with a bookmarked Internet resource in a bookmark entry, storing a resource name associated with the bookmarked Internet resource in the bookmark entry, and storing a locator identifier associated with the bookmarked Internet resource in the bookmark entry. Updating the dynamic Internet bookmark when the bookmarked Internet resource has changed location by performing a search using stored terms to obtain search results, comparing resource names of resources from the search results from the performed search with the stored resource name of the bookmarked Internet resource to obtain a matching resource having the same resource name, and storing a new locator identifier of the matching resource in the bookmark entry.

MainClaim: A method for creating a dynamic Internet bookmark, the method comprising: storing search criteria associated with a bookmarked Internet resource in a bookmark entry; and storing a resource attribute associated with the bookmarked Internet resource in the bookmark entry.

6,029,214	Input tablet system with user programmable absolute coordinate mode and relative coordinate mode segments	Apple Computer, Inc.	Dorfman; Jonathan H. Della Bona; Mark A.	710	G06F	19951103	0	100%	<input type="checkbox"/>
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Abstract: A computer system includes an input pointer, a tablet having a two-dimensional tablet surface, and a data processor coupled to the tablet and operative to receive coordinate data from the tablet. The coordinate data is preferably in absolute-mode, and the data processor processes the coordinate data such that coordinate data influenced by a first segment of the

tablet surface is processed in a relative-mode fashion, and coordinate data influenced by a second segment of the tablet surface is processed in an absolute-mode fashion. In consequence, the tablet is segmented for simultaneous relative-mode and absolute-mode operation. The segments can take on a number of configurations depending upon the configuration of the computer screen, the application program running, and user preferences. A method for processing input tablet data of the present invention includes the steps of receiving coordinate data from a tablet having a two-dimensional tablet surface, processing the coordinate data in a relative-mode if the data is influenced by proximal positioning of an input pointer with a first segment of the tablet surface, and processing the coordinate data in an absolute-mode if the data is influenced by a proximal positioning of the input pointer with a second segment of the tablet surface. The method further detects commands to change the logical segmentation of the tablet surface, and changes the logical segmentation in response to the detected commands.

MainClaim: A method for processing input tablet data received from an input device, the method comprising:

detecting a user supplied command to change a logical segmentation of a two dimensional tablet surface of a corresponding input tablet;

changing said logical segmentation of said tablet surface in response to said command to include a first logical segment and a second logical segment;

receiving coordinate data from said tablet surface responsive to a proximal positioning of an input pointer with respect to said tablet surface;

processing said coordinate data in a relative mode when said coordinate data corresponds to entries received from the input device on said first logical segment of said tablet surface; and

processing said coordinate data in an absolute mode when said coordinate data corresponds to entries received from the input device on said second logical segment of said tablet surface.

7,623,119	Graphical functions by gestures	Nokia Corporation	Autio; Markku Tapio Jarvio; Jami Jarkko Juhani	345	G09G	20040421	7	92%	<input type="checkbox"/>
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Abstract: A method for operating a computer through a touch sensitive display interface includes displaying a computer generated graphical image on a touch sensitive display using display software. The display software includes programs used to display the graphical image (e.g., display driver and web browser), and is responsive to inputs at a first, active portion (e.g., coinciding with toolbars, hyperlinks) of the touch sensitive display when the graphic image is displayed, and is non-responsive to a second, inactive portion. In the method, an input character is received at the second, inactive portion of the touch sensitive display, and is compared to a stored command character that is associated with a separate corresponding computer command. The separate corresponding computer command is executed if the input character matches the command character. In one embodiment, one particular input character results in emulating a right mouse button by displaying a submenu of shortcut icons, and the method is implemented by operation of a computer program in a mobile station.

MainClaim: A computer readable medium having computer instructions for performing actions comprising: displaying a computer generated graphical image and at least one active area comprising an attribute on a touch sensitive display using a displaying software program, the attribute comprising at least one of a scrolling operator, a toolbar icon and a hyperlink, said displaying software program being responsive to inputs at only a first active portion of the touch sensitive display when said graphical image is displayed, and non-responsive to a second inactive portion of the display; receiving an input character at the second inactive portion of said touch sensitive display; comparing said input character to a stored command character that is associated with a separate corresponding computer command; and executing the separate corresponding computer command if said input character matches said command character, wherein said separate corresponding computer command is to display a submenu at the touch sensitive display, said submenu comprising a plurality of shortcut links each to a different executable command.

2005/0237308	Graphical functions by gestures	Nokia Corporation	Autio, Markku Tapio Jarvio, Jami Jarkko Juhani	345	G09G	20040421	4	92%	<input type="checkbox"/>
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Abstract: A method for operating a computer through a touch sensitive display interface includes displaying a computer generated graphical image on a touch sensitive display using display software. The display software includes programs used to display the graphical image (e.g., display driver and web browser), and is responsive to inputs at a first, active portion (e.g., coinciding with toolbars, hyperlinks) of the touch sensitive display when the graphic image is displayed, and is non-responsive to a second, inactive portion. In the method, an input character is received at the second, inactive portion of the touch sensitive display, and is compared to a stored command character that is associated with a separate corresponding computer command. The separate corresponding computer command is executed if the input character matches the command character. In one embodiment, one particular input character results in emulating a right mouse button by displaying a submenu of shortcut icons, and the method is implemented by operation of a computer program in a mobile station.

MainClaim: In an electronic device for displaying a graphical image at a touch sensitive user interface using a displaying software program, and for storing a separate computer command apart from the displaying software program, the improvement comprising a computer program embodied in a computer readable medium comprising instructions to cause a computer to: receive an input at a portion of the touch sensitive user interface that is not recognized as active by the display program; compare said received input to a stored command character that is associated with the separate computer command; and execute the separate computer command only if the received input matches the stored command character.

5,900,872	Method and apparatus for controlling the tracking of movable control elements in a graphical user interface	Apple Computer, Inc.	Ashe; Dylan B.	345	G06T	19971006	0	100%	<input type="checkbox"/>
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Abstract: In a graphical user interface for computers, a scroll bar tracking and drawing procedure associates elements of the scroll bar with regions on the display. The region for the thumb can move relative to the other regions, and thereby track the movement of the cursor. Within each element's associated region, any desired pattern can be drawn. As a result, the thumb can be non-rectangular in shape. Furthermore, since the image within a region can be any arbitrary pattern, the image for the thumb can be either a complete image, to accommodate live scrolling, or a ghost image to accommodate ghost scrolling. As such, a single procedure can support both modes of operation, and permit the interface to be easily switched between the two.

MainClaim: In a graphical user interface for a computer, which includes a control object having a first element that moves relative to a second element under control of a user-actuated cursor, a method for drawing the first element to track movement of the cursor, comprising the steps of:

defining current display regions for the first and second elements;

detecting movement of the cursor;

calculating a tracking region for the first element in response to the detected movement of the cursor, said tracking region defining a new position for the first element that corresponds to a detected position of the cursor;

calculating a redraw region for the second element which defines an area of the second element's display region that changes as a result of the detected movement of the cursor;

drawing a pattern for the first element in the calculated tracking region; and

drawing a pattern for the second element only in the calculated redraw region in response to the detected movement of the cursor.

7,554,530	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi; Sachi Mori; Eigo	345	G09G	20021223	13	92%	<input type="checkbox"/>
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Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.

MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object that represents data; and selecting the at least one displayed object, where forming the stroke further comprises extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object.

2004/0119763	Touch screen user interface featuring stroke-based object selection and functional object activation	Nokia Corporation	Mizobuchi, Sachi Mori, Eigo	345	G09G	20021223	12	92%	<input type="checkbox"/>
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Abstract: A method is disclosed to operate a touch screen user interface. The method includes forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object. Forming the stroke may further include extending the stroke to a functional object, and activating the functional object with the at least one selected displayed object. If the stroke does not define an area that is totally enclosed by the stroke, the method may further include automatically continuing the stroke such that the area is totally enclosed by the stroke. In this case the stroke may be automatically continued by drawing a line that connects a stroke starting point to a stroke ending point, and by adding touch screen coordinates covered by the line to a list of touch screen coordinates that describe the stroke. If the stroke encloses an area that contains at least a portion of a plurality of displayed objects, each of the displayed objects is simultaneously selected.

MainClaim: A method to operate a touch screen user interface, comprising: forming a stroke that encloses an area that contains at least a portion of at least one displayed object; and selecting the at least one displayed object.

5,867,164	Interactive document summarization	Apple Computer, Inc.	Bornstein; Jeremy J. Cutting; Douglass R. Hatton; John D. Rose; Daniel E.	715	G06F	19950929	0	100%	<input type="checkbox"/>
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Abstract: A real-time interactive document summarization system which allows the user to continuously control the amount of detail to be included in a document summary.

MainClaim: A computer system with a direct manipulation interface comprising:

a continuously variable graphical user control means for setting a level indicator in the computer system;

a separating means for dividing a document into separate portions;

a ranking means for ranking the separate portions of the document from highest to lowest relevance according to the relevance of the separate portions of the document to the document as a whole;

a summary-producing means for extracting as many of the highest ranking separate portions of the document as dictated by the level indicator setting;

a display means for displaying the extracted separate portions of the document on a display screen of the computer system.

			Schohn; Gregory						
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7,565,605	Reorganizing content of an electronic document	Nokia, Inc.	C. J Berger; Adam L. Romero; Richard D.	715	G06F	20010508	7	92%	<input type="checkbox"/>
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Abstract: An electronic document is received that represents serial data that contains content of the document and defines an order in which respective portions of the content are to be performed. The serial data of the electronic document is analyzed. Reorganization information is generated for use in delivering the portions of the content, the reorganization information enabling performance in an order different from the order defined by the serial data.

MainClaim: A method comprising: receiving an electronic document represented by serial data that contains content of the document and defines an order in which respective portions of the content are to be presented on a display for viewing, analyzing the serial data of the electronic document by at least one transformation module to determine an order of presentation of the portions of the content different from the order defined by the serial data, the different order of presentation being adapted based upon a performance capability of a display of a target device, and generating, via a processor, reorganization information for use in delivering the portions of the content, the reorganization information enabling presentation of the portions in the different order, wherein generating the reorganization information includes adding a hyperlink to a first sub-document of the portions in the different order, the adding of the hyperlink being performed in response to determining that a location of the hyperlink is separated by at least a predetermined distance from a destination location to which the hyperlink points, the hyperlink being displayed near the beginning of the first sub-document of the portions in the different order, the destination location of the hyperlink being a particular portion of the content that is not at a beginning of the order defined by the serial data, and the destination location being determined based on the content of the serial data and without regard to the ordering of the portions.

5,504,852	Method for creating a collection of aliases representing computer system files	Apple Computer, Inc.	Thompson-Rohrlich; John	345	G06F	19950302	0	100%	<input type="checkbox"/>
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Abstract: A method for creating and organizing aliases for files stored on a computer system in which the stored files are searched according to defined search criteria. For files meeting the search criteria, aliases to the files are created, and the aliases are organized together in a display window for presenting the results of the search to the computer user. The computer continues to perform these searching and organizing functions as the computer is used, so that the information presented is current and up-to-date.

MainClaim: A method for creating and representing by icons a secondary and parallel organization of files stored on a computer system, in which a primary organization provides a name and storage location for each file stored, said method comprising the steps of:

defining by a computer user a set of specific file characteristics;

after said defining, searching by the computer system for files having said specific file characteristics;

for each file having said specific file characteristics, creating a secondary identifier for the file which leads to the file's primary name and location, and representing the secondary identifier by an icon;

collecting said created secondary identifiers in a group of secondary identifiers to files having said specific file characteristics in common;

representing said group of said secondary identifiers to said user of said computer system by displaying a visual icon for each said group having common characteristics;

repeating said steps of searching, creating, collecting, and representing for the same said specific file characteristics during the operation of the computer by said user; and

removing from said group of secondary identifiers, secondary identifiers for files which no longer meet said specific file characteristics.

2005/0262054	Item type specific structured search	Nokia Corporation	Nurmi, Mikko	707	G06F	20040518	1	95%	<input type="checkbox"/>
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Abstract: The invention discloses a method, a system, a device and a computer program for exploring items from an electronic storage. Items are organized in collections in the electronic storage. According to the invention a collection selection parameter may be determined. The parameter determines how the search results are presented to a user. The contents of at least one collection of the electronic storage are searched and collections comprising at least one item of the determined item type according to the collection selection parameter are chosen. Finally, the chosen collections are presented to the user.

MainClaim: A method for exploring an electronic system comprising at least one collection of one or more items, wherein the method comprises: determining at least one item type to be searched; exploring at least partially the contents of at least one collection of one or more items; and choosing at least one collection comprising at least one item of the determined type.

6,154,758	Text conversion method for computer systems	Apple Computer, Inc.	Chiang; Mike W.	715	G06F	19940513	0	100%	<input type="checkbox"/>
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Abstract: A method is provided for converting displayed text from one format to another. Text is input as handwriting in a pen-based computer and then automatically converted to a typeface text of a first text domain. Upon receipt of a conversion gesture that is recognized by the system as such, the system automatically converts the displayed text from the first text domain to a second character. The displayed text may be initially written as Hiragana and/or Katakana characters. Upon receipt of a conversion gesture, the system automatically converts the Hiragana and Katakana characters to appropriate Kanji characters.

MainClaim: A method of converting characters from one text domain to another text domain in a stylus-based computer in which information may be entered by interaction of a stylus with a display screen, the method comprising the following steps:

(a) identifying text that has been selected on the display screen;

(b) determining whether the stylus has been used to enter a conversion gesture for converting the selected text on the display

screen from a source text domain to a destination text domain;

(c) determining the source text domain of the selected text;

(d) determining an appropriate destination text domain to which the selected text is to be converted; and

(e) replacing at least a portion of the selected text on the display screen with text from the destination text domain determined in step d, wherein the step of replacing at least a portion of the selected text on the display screen include the following steps:

identifying a plurality of candidate text strings from the destination text domain;

ranking those candidate text strings; and

designating a top ranked candidate text string to be used in replacing the selected text.

6,542,170	Communication terminal having a predictive editor application	Nokia Mobile Phones Limited	Williams; Stephen Svensson; Henrik Brun	345	G06F	20000222	1	94%	<input type="checkbox"/>
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Abstract: A communication terminal having a display; a keypad having a plurality of keys associated with several letters each; and a processor controlling the display in accordance with the operation of the keypad. The processor runs a predictive editor program for generating an output containing a word matching a received string of ambiguous key strokes. Furthermore an editor application is controlled by the processor for editing a text based on the predictive editor program's interpretation of key strokes received from the editor application. The editor application stores a list of matching words received from the predictive editor program, at least a part of the text string is displayed in the display. The keypad includes at least one softkey whose functionality is displayed in the display and controlled by the processor. When the editor program runs out of possible word matches to the received key stroke string, the processor changes the functionality of the at least one softkey to a short cut to another editor application for inputting word based upon unambiguous key strokes.

MainClaim: A communication terminal having:

a display;

a keypad having a plurality of keys associated with several letters each; processor means controlling the display means in accordance with the operation of the keypad;

a predictive editor program for generating an output containing words matching a received string of ambiguous key strokes;

an editor application controlled by the processor means for editing a text based on the predictive editor program's interpretation of key strokes received from the editor application, and comprising means for storing a list of matching words received from said predictive editor program, at least a part of said text string is displayed in the display;

said keypad includes at least one softkey whose functionality is displayed in the display and controlled by the processor means; and

when said editor program runs out of possible word matches to the received key stroke string, said processor means automatically without user intervention, changes the functionality of said at least one softkey to a short cut to another editor application for inputting word based upon unambiguous key strokes.

6,223,059	Communication terminal having a predictive editor application	Nokia Mobile Phones Limited	Haestrup; Jan	455	H04B	20000222	1	94%	<input type="checkbox"/>
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Abstract: A communication terminal having a display; a keypad having a plurality of keys associated with several letters each; processor means controlling the display means in accordance with the operation of the keypad. The communication terminal has a predictive editor program for generating an output containing words matching a received string of ambiguous key strokes. Furthermore the communication terminal has on editor application controlled by the processor means for editing a text based on the predictive editor programs interpretation of key strokes. The editor application comprises means for storing string of entered words, means for storing a sequence of key stokes, said sequence is updated upon the occurrence of a new key stroke, and being used as input to the predictive editor program, means for storing a list of matching words received from said predictive editor program. The processor means combines the text string and one word from the list of matching words for displaying in the display of at least a part of said text string and one word from the list of matching words, said one word from the list of matching words is marked in comparison to the remaining part of the text string and added to the text string upon acknowledgement by the user. The terminal comprises means for acknowledging a word suggested by said predictive editor program, and said acknowledging means includes a key on the keypad indicating that a word suggested by said predictive editor program is a part of a compound word, said editor application fixes the suggested word as an acknowledged part of the compound word, resets said sequence of key strokes serving as input for said predictive editor program in order to determine another part of the compound word independently of the acknowledged part of the compound word.

MainClaim: A communication terminal having:

a display;

a keypad having a plurality of keys associated with several letters each;

processor means controlling the display means in accordance with the operation of the keypad;

a selectable predictive editor program for generating an output containing words matching a received string of ambiguous key

strokes;

an editor application controlled by the processor means for editing a text based on the predictive editor programs interpretation of key strokes, and comprising:

means for storing string of entered words,

means for storing a sequence of key strokes, said sequence is updated upon the occurrence of a new key stroke, and being used as input to the predictive editor program,

means for storing a list of matching words received from said predictive editor program,

said processor means combines the text string and one word from the list of matching words for displaying in the display of at least a part of said text string and one word from the list of matching words, said one word from the list of matching words is marked in comparison to the remaining part of the text string and added to the text string upon acknowledgement by the user; and

means for acknowledging a word suggested by said predictive editor program, and said acknowledging means includes a key on the keypad indicating that a word suggested by said predictive editor program is a part of a compound word, said editor application fixes the suggested word as an acknowledged part of the compound word, resets said sequence of key strokes serving as input for said predictive editor program in order to determine another part of the compound word independently of the acknowledged part of the compound word.

7,725,838	Communication terminal having a predictive editor application	Nokia Corporation	Williams; Stephen	715	G06F	20061130	2	94%	<input type="checkbox"/>
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Abstract: A communication terminal having a display; a keypad having a plurality of keys associated with several letters each; processor means controlling the display means in accordance with the operation of the keypad; a selectable predictive editor program for generating an output containing words matching a received string of ambiguous key strokes, said predictive editor program has a number of associated vocabularies including at least one language dependent dictionary and at least one dictionary receiving user defined inputs. An editor application is controlled by the processor means communicates with said predictive editor programs for generating matching words based on an ambiguous string of key strokes. Second memory means of the communication terminal for storing user inputted data. The processor means automatically searches said second memory means for words and copies these words into said at least one dictionary for receiving user defined inputs and associated with said predictive editor program.

MainClaim: A communication terminal comprising: a keypad having a plurality of keys associated with several letters each; a processor for receiving a string of ambiguous key strokes from the keypad; a predictive editor program associated with the processor for generating words matching the received string of ambiguous key strokes, said predictive editor program having a number of associated vocabularies including at least one language dependent dictionary and at least one dictionary for receiving user defined inputs; a first editor application, controlled by the processor, operatively associated with said predictive editor program for generating matching words based on said at least one language dependent dictionary and/or said at least one dictionary for receiving user defined inputs; a second editor application controlled by said processor for entering key strokes in an unambiguous form; wherein said second editor is used to edit said matching words generated by said first editor application; and wherein said processor stores the edited words in said at least one dictionary for receiving user defined inputs; wherein said processor associates a storing time for the edited words stored in said dictionary for receiving user defined inputs and said processor resets the associated storing time with each use of the edited words; and wherein said processor maintains the dictionary containing the edited words dependent on the storing time.

6,731,312	Media player interface	Apple Computer, Inc.	Robbin; Jeff	345	G09G	20010108	0	100%	<input type="checkbox"/>
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Abstract: A computer readable medium contains media player application code which implements the procedures of generating in a user interface an application window having a window frame and a plurality of stiles to define a plurality of panes within said frame, displaying in a first one of said panes a user selectable index of a plurality of media files, displaying in a second one of said first selected information for said media files, and displaying in a third one of said panes second selected information for said media files.

MainClaim: A computer readable medium comprising media player application code which implements the following procedures:

generating in a user interface an application window having a window frame and a plurality of stiles to define a plurality of panes within said frame;

displaying in a first one of said panes a user selectable index of a plurality of media files;

displaying in a second one of said panes first selected information for said media files; and

displaying in a third one of said panes second selected information for said media files

wherein said second and third panes are each initialized with a selection to view all of said user selectable index of the plurality of media files in said first pane.

2010/0131846	METHODS, RENDERING APPLICATION, PORTABLE APPARATUS, AND COMPUTER PROGRAM FOR CREATING A PLAYLIST	NOKIA CORPORATION	Ostergaard; Christian	715	G06F	20070625	9	94%	<input type="checkbox"/>
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Abstract: A mobile communication apparatus includes a display and means for navigating among items displayed on the

display, arranged to enable selection of a first item, in the display view, from a multitude of lists of items. Upon selection of the first item, the selected first item is associated with a playlist including at least the selected item, wherein the item or items in the playlist are arranged in sequential order. A corresponding application, apparatus, user interface, and computer program is also disclosed.

MainClaim: (canceled)

2007/0226638	Selecting a stored content item for use in a task	Nokia Corporation	Kramer; Steffen Markussen; Lars Wass-Danielsen; Peter Kangas; Tita	715	G06F	20060323	3	93%	<input type="checkbox"/>
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Abstract: A user interface, a device, a computer program and a method for using a stored content item in a task including: first means for presenting a first user selectable option for using a stored content item in a first task; second means, responsive to the first means, for presenting simultaneously a second user selectable option, the selection of which presents a first interface for finding a content item for use in the first task, and a third, different, user selectable option, the selection of which presents a second interface for finding a content item for use in the first task.

MainClaim: A user interface for using a stored content item in a task comprising: first means for presenting a first user selectable option for using a stored content item in a first task; and second means, responsive to the first means, for presenting simultaneously a second user selectable option, the selection of which presents a first interface for finding a content item for use in the first task, and a third, different, user selectable option, the selection of which presents a second interface for finding a content item for use in the first task.

2004/0008229	Reconfigurable user interface	Nokia Corporation	Hultcrantz, Johanna Hilma Maria	345	G09G	20020701	1	92%	<input type="checkbox"/>
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Abstract: Devices and methods are disclosed for providing a reconfigurable user interface. The user interface includes a row of folders and a column of bookmarks. The number and sizes of the folders and bookmarks may be selected by the user or chosen to match a particular display device.

MainClaim: An apparatus for generating a user interface for display on a display device, the apparatus comprising a processor programmed to generate a user interface comprising the following elements: a folder row containing folders; a bookmark column intersecting the folder row and containing bookmarks; wherein at least one of the number of folders displayed and the number of bookmarks displayed is determined by a user of the apparatus.

5,659,769	Text services manager	Apple Computer, Inc.	Kida; Yasuo Hara; Keisuke Miyatake; Nobuhiro Harvey; John Derossi; Christopher S. Kurita; Yousuke Tung; Kenny Sung Ching	715	G06F	19930219	0	100%	<input type="checkbox"/>
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Abstract: A computer operating system Text Services Manager (TSM) operates as an interface between an application and a selection of text services, enabling the user to efficiently select from among a variety of text services without regard to the specific protocol requirements of the application. The TSM architecture consists of an application program which receives user input through the input event manager of the operating system toolbox routine. The TSM receives the user input event and controls the transmission of the event to a component manager for redirection to a specific text services component, based on the instructions of the TSM. The text services component processes the input method and returns the processed input to the TSM, where the TSM directs the generation of an appropriate protocol for return of the processed input event to the application.

MainClaim: A programmable computer having a text services management architecture for providing various text services to an application program comprising:

a computer application program;

a text services manager connected to the application program for receiving a first event from the application program directing a text service for the application program and for controlling text servicing of the first event;

component manager means connected to the text services manager for directing the flow of the first event from the text services manager in response to control commands from the text services manager;

text services means connected to the component manager means for receiving and text servicing the first event and for returning a serviced first event to the text services manager; and

event manager means connected between the text services manager and the application program for generating a second event in response to a command from the text services manager, the second event signaling the application program to receive the serviced first event.

5,940,790	Multilingual operation and maintenance interface for a telecommunication exchange	Nokia Telecommunications Oy	Vesterinen; Timo	704	G06F	19960807	1	93%	<input type="checkbox"/>
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Abstract: A multilingual operation and maintenance interface for a telecommunication exchange. The interface includes a plurality of modules and a plurality of resource files. Alphanumeric information in a different target language and related to interactive communication with the interface is included in a resource file. At least one resource file is an intermediate language file including intermediate language information other than alphanumeric information in a target language. An external device is provided to display a control response of the operation and maintenance interface in the target language.

MainClaim: A multilingual operation and maintenance interface for a telecommunications exchange, the multilingual operation and maintenance interface being constructed and arranged to forward a control provided from an external device to a telecommunications exchange, and the multilingual operation and maintenance interface constructed and arranged to forward a

control response to the external device to be displayed in a target language, the multilingual operation and maintenance interface comprising a memory including:

a plurality of program modules; and

a plurality of resource files, wherein:

all alphanumeric information related to interactive communication with the multilingual operation and maintenance interface is separated from program code of the program modules and stored in a resource file in a different target language,

at least one of the resource files is an intermediate language file comprising intermediate language information, the intermediate language information being other than the alphanumeric information in the target language,

when the program modules needed in each operation and maintenance session are loaded, related resource files in a default language and selected ones of the resource files selected by a user are loaded into the memory.

5,548,722	User-centric system for choosing networked services	Apple Computer, Inc.	Jalalian; Afshin Bingham; Christopher R.	709	H01J	19931014	0	100%	<input type="checkbox"/>
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Abstract: A personal computer or workstation on a network includes a quick-choice cache into which are collected the names and aliases of networked devices or services that are expected to be most routinely used by a particular user. The cache is initialized to contain the names and aliases of devices within a network zone assigned to the workstation. This collection of names/aliases is expanded each time the user makes a connection to a device not previously listed. The cache drives a graphic user interface (GUI) that shows the user what service categories are available within the cache, and then when a service category is selected, what specific devices are included within the cache under that service category. The GUI permits quick logical connection to devices whose aliases are stored in the user's cache. A connection map later graphically shows the user what connections he or she has made.

MainClaim: An interconnect system for creating logical interconnections between a user's computer and service-providing devices disposed on a network to which the user's computer is coupled, where said network has a first given plurality of service-providing devices disposed thereon and where the computer's user is apt to utilize a first subset of said first given plurality of service-providing devices more frequently than a second subset of said first given plurality of service-providing devices, said system comprising:

a service-category cache for storing a first plurality of service-type definitions corresponding to said first subset of the service-providing devices of the network, where each service-type definition of said first plurality of service-type definitions in the service-category cache defines a type of service that is provided on the network by the first subset of service-providing devices; and

a plurality of device-choosing caches each corresponding to a service-type definition found in the service-category cache;

wherein for each of said stored service-type definitions, the service-category cache further includes a corresponding pointer for linking the service-type definition to the corresponding device-choosing cache; and

wherein one or more of the device-choosing caches contains a machine-recognizable alias defining a location on the network where there is available a service-providing device that provides a service defined by the corresponding service-type definition.

7,058,895	Method, system and apparatus for constructing fully personalized and contextualized interaction environment for terminals in mobile use	Nokia Corporation	Kautto-Koivula; Kaisa Huhtaniemi; Marita Lahdesmaki; Petri Maenpaa; Petri	715	G06F	20011220	3	93%	<input type="checkbox"/>
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Abstract: A method, system and apparatus for creating personalized and contextualized interaction environment for terminals in mobile use. The method comprises receiving user instruction regarding information displayed on the interface, wherein the interface is represented in the contextualized interaction environment by a node map, updating the internal node map in accordance with the user instruction and displaying the interface in accordance with the updated internal node map. The node map is arranged to represent the user information in a particular context on the interface.

MainClaim: A method for updating a user interface in a contextualized interaction environment for use in a computing device, comprising: a. displaying information on the user interface via a node map; i. wherein said node map is arranged to represent said information in a particular context on the user interface by utilizing a content abstraction layer, said content abstraction layer comprising links to at least one of content, applications, services and devices; b. receiving user instruction regarding information displayed on the user interface; c. updating said internal node map in accordance with said user instruction; and d. displaying the user interface in accordance with the updated internal node map.

7,313,766	Method, system and apparatus for constructing fully personalized and contextualized user interfaces for terminals in mobile use	NOKIA Corporation	Kautto Kioivula; Kaisa Huhtaniemi; Marita Lahdesmaki; Petri Maenpaa; Petri	715	G06F	20011220	1	92%	<input type="checkbox"/>
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Abstract: A method, system and apparatus for enabling users to create customized user interfaces in accordance with their preferences. The user interface is structured as a node map, wherein nodes may be added to the node map in accordance with the user's needs. The nodes may be connected there-between to define relationships between the different nodes. The nodes may have an attachment, an action, an application and/or the like associated therewith. The user may perform a variety of other functions to customize, alter or expand the information depicted on their user interface.

MainClaim: A method, comprising: receiving a user instruction via a user interface in a computing device for initiating creation of a new node in the user interface, the user interface including at least a display component configured to display a node map wherein multiple child nodes are visually displayed as coupled to a parent node; receiving node information from the user via the user interface in the computing device, the node information including at least node linkage information and node name information; generating, in the computing device, a new node in the node map based on the received user node information; and displaying the new node in the node map on the display component.

5,386,494	Method and apparatus for controlling a speech recognition function using a cursor control device	Apple Computer, Inc.	White; George M.	704	G10L	19930621	0	100%	<input type="checkbox"/>
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Abstract: A computer system having speech recognition functionality, a display screen, a microphone, and a mouse having pointer and voice buttons. The voice button located on the mouse is used to turn the microphone "on" and "off". The voice button in conjunction with the mouse are used to signal the computer to display the recognized spoken command. The pointer button located on the mouse is used to provide a standard "point and click" function so that a user can select text or object(s) on the display screen. The computer will apply recognized spoken commands only to the restricted selection. Voice icons are used to aid in the correction of any erroneous interpretation by the speech recognizer circuitry within the computer. A list of alternative commands are displayed in menu format associated with each icon so that the user can use the voice button and mouse to select the desired correct command. The computer then automatically corrects the erroneous interpretation. Each alternative has its own separate menu of synonyms and paraphrases to aid in locating and identifying the correct command.

MainClaim: A method for controlling a speech recognition function for a data processing system, the data processing system having a display, a speech recognition input device, and a cursor control device, the cursor control device having a first selector and a second selector separate from the first selector, the method comprising the steps of:

- (a) displaying at least one object and a moveable cursor on the display;
- (b) controlling the moveable cursor on the display in x and y directions simultaneously in response to user-manipulation of the cursor control device;
- (c) selecting one of the at least one object displayed on the display in response to user-manipulation of the cursor control device and user-manipulation of the first selector of the cursor control device;
- (d) activating the speech recognition function in response to engagement of the second selector of the cursor control device;
- (e) inputting a spoken command for the data processing system by the speech recognition input device; and
- (f) deactivating the speech recognition function in response to disengagement of the second selector of the cursor control device.

7,495,585	Method for inputting characters in electronic device	Nokia Corporation	Vainio; Janne Mikkola; Hannu J. Korhonen; Hannu Himanen; Sakari Nieminen; Toni P. Vaittinen; Tuomas Marila; Juha	341	H03M	20060512	1	95%	<input type="checkbox"/>
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Abstract: According to an aspect of the invention, an enhanced audible feedback solution has been invented for electronic devices using an input device facilitating navigation through a plurality of available user interface input options and confirmation of a selected input option. The electronic device is arranged to define, as a response to detecting a selection of a character on the basis of a detection of a first input to an input device of the electronic device, an audio segment specific to the character. The electronic device is arranged to output the defined audio segment via the audio output means prior to a confirmation by a second input to the input device, the second input being associated with a function adding the character as part of a character sequence entered by the user.

MainClaim: An electronic device comprising a control unit for controlling functions of the electronic device, audio output, and a user input device for navigating through a plurality of available user interface input options and for confirming a selected input option, wherein the electronic device is configured to detect selection of a first input option on the basis of a first input to the input device and confirm the first input option as a response to detection of a second input to the input device, the first input option representing a character and the second input being associated with a function for adding the character as part of a character sequence entered by the user, the control unit is configured to define, as a response to detecting a selection of the character on the basis of the detection of the first input to the input device, an audio segment specific to the character, the control unit is configured to cause an output of the defined audio segment via the audio output prior to the confirmation, the control unit is configured to select a second input option associated with an action relating to the character sequence as a response to detection of a third input to the input device, the control unit is configured to cause an output of an audio segment specific to the action, and the control unit is configured to initiate an action associated with an inputted character sequence as a response to detection of a fourth input following the third input to the input device.

7,584,429	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius; Henna	715	G06F	20040625	10	94%	<input type="checkbox"/>
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Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.

MainClaim: A method, comprising: depicting a scroll bar and a button for a search option on a display of an electronic device in an area that is normally reserved for a scroll bar, detecting if a keyboard is connected to said device and suppressing the display of said button for a search option, if the keyboard is connected, detecting an input on said button for activating a temporary input area, activating said temporary input area upon detection of said input, displaying said temporary input area on the

display of said electronic device, outputting an audio signal indicating said displaying of said temporary input area, and terminating the display of said temporary input area and deactivating said temporary input area in case that a relevant event is detected, wherein said temporary input area is displayed in a semi-transparent manner superimposed on a standard display area on said display, and wherein input functions in said standard display area superimposed by said temporary input area are deactivated when said temporary input area is displayed.

2005/0022130	Method and device for operating a user-input area on an electronic display device	Nokia Corporation	Fabritius, Henna	715	G09G	20040625	11	94%	<input type="checkbox"/>
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Abstract: There is disclosed a method and a device for inputting a character into an electronic device, said method comprising detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected. The relevant event may be another user-input.

MainClaim: Method for inputting a character into an electronic device, said method comprising: detecting an input, activating a temporary input area upon detection of said input, displaying said temporary input area on a display of said electronic device, and terminating the display and deactivating said temporary input area in case that a relevant event is detected.

6,424,362	Auto-summary of document content	Apple Computer, Inc.	Bornstein; Jeremy J. Cutting; Douglass R. Hatton; John D. Rose; Daniel E.	345	G06F	19990201	0	100%	<input type="checkbox"/>
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Abstract: A computer system user interface provides a document summary which allows the user to more easily identify the contents and subject matter of the document.

MainClaim: An automatic method in a computer system comprising the following steps:

a. automatically generating a summary of a document based on the relevance of the document to itself by ranking the separate portions of the document from the highest to lowest relevance according to the relevance of the separate portions of the document to the document as a whole, wherein the system automatically generates a preset amount of summarization according to previously set system or user values;

b. storing the summary of the document in a manner retrievable by a user interface to a computer system upon request by a user.

2005/0246324	System and associated device, method, and computer program product for performing metadata-based searches	Nokia Inc.	Paalasmaa, Joonas Sorvari, Antti Salmenkaita, Jukka-Pekka	707	G06F	20040430	8	92%	<input type="checkbox"/>
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Abstract: Provided are improve data search and management systems, devices, methods, and computer program products for performing metadata-based searches and displaying the initial results as clusters depending upon search criteria, search results, or physical limitations of a device such as a display. Using clusters provides an intuitive way of displaying results on a compact device with a small screen and limited user interface.

MainClaim: A system for performing metadata-based searching, comprising: a memory capable of storing data files and associated metadata; and a processor interoperably coupled to said memory and capable of searching said metadata to produce results with associated metadata, clustering said results based upon metadata of said results, and displaying said clustered results.

7,565,605	Reorganizing content of an electronic document	Nokia, Inc.	Schohn; Gregory C. Berger; Adam L. Romero; Richard D.	715	G06F	20010508	7	92%	<input type="checkbox"/>
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Abstract: An electronic document is received that represents serial data that contains content of the document and defines an order in which respective portions of the content are to be performed. The serial data of the electronic document is analyzed. Reorganization information is generated for use in delivering the portions of the content, the reorganization information enabling performance in an order different from the order defined by the serial data.

MainClaim: A method comprising: receiving an electronic document represented by serial data that contains content of the document and defines an order in which respective portions of the content are to be presented on a display for viewing, analyzing the serial data of the electronic document by at least one transformation module to determine an order of presentation of the portions of the content different from the order defined by the serial data, the different order of presentation being adapted based upon a performance capability of a display of a target device, and generating, via a processor, reorganization information for use in delivering the portions of the content, the reorganization information enabling presentation of the portions in the different order, wherein generating the reorganization information includes adding a hyperlink to a first sub-document of the portions in the different order, the adding of the hyperlink being performed in response to determining that a location of the hyperlink is separated by at least a predetermined distance from a destination location to which the hyperlink points, the hyperlink being displayed near the beginning of the first sub-document of the portions in the different order, the destination location of the hyperlink being a particular portion of the content that is not at a beginning of the order defined by the serial data, and the destination location being determined based on the content of the serial data and without regard to the ordering of the portions.

5,838,323	Document summary computer system user interface	Apple Computer, Inc.	Rose; Daniel E. Bornstein; Jeremy J. Cutting; Douglass R. Hatton; John D.	715	G06F	19950929	0	100%	<input type="checkbox"/>
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Abstract: A computer system user interface provides a document summary which allows the user to more easily identify the contents and subject matter of the document.

MainClaim: An automatic method for presenting a document summary comprising the following steps;

- a. presenting a number of segments of a relevance ranked list of segments of a document to a user on a display;
- b. presenting a summary detail control on said display;
- c. allowing a user to modify said summary detail control; and
- d. varying said number of said segments of said relevance ranked list of segments of said document presented to said user on said display according to said summary detail control.

7,565,605	Reorganizing content of an electronic document	Nokia, Inc.	Schohn; Gregory C. Berger; Adam L. Romero; Richard D.	715	G06F	20010508	7	93%	<input type="checkbox"/>
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Abstract: An electronic document is received that represents serial data that contains content of the document and defines an order in which respective portions of the content are to be performed. The serial data of the electronic document is analyzed. Reorganization information is generated for use in delivering the portions of the content, the reorganization information enabling performance in an order different from the order defined by the serial data.

MainClaim: A method comprising: receiving an electronic document represented by serial data that contains content of the document and defines an order in which respective portions of the content are to be presented on a display for viewing, analyzing the serial data of the electronic document by at least one transformation module to determine an order of presentation of the portions of the content different from the order defined by the serial data, the different order of presentation being adapted based upon a performance capability of a display of a target device, and generating, via a processor, reorganization information for use in delivering the portions of the content, the reorganization information enabling presentation of the portions in the different order, wherein generating the reorganization information includes adding a hyperlink to a first sub-document of the portions in the different order, the adding of the hyperlink being performed in response to determining that a location of the hyperlink is separated by at least a predetermined distance from a destination location to which the hyperlink points, the hyperlink being displayed near the beginning of the first sub-document of the portions in the different order, the destination location of the hyperlink being a particular portion of the content that is not at a beginning of the order defined by the serial data, and the destination location being determined based on the content of the serial data and without regard to the ordering of the portions.

5,877,746	User interface for all-in-one integrated office system	Apple Computer, Inc.	Parks; Gregory A. Parfitt; Richard A. Hill; Charlie Sacher; Heiko	345	G09G	19951116	0	100%	<input type="checkbox"/>
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Abstract: A user interacts with a computer system having a display unit, a processor, a memory and a Cartesian selection device by activating a first major feature; displaying a plurality of labels representing a plurality of options for said first major feature; selecting one of the options by manipulating the Cartesian selection device in a first axis; displaying a plurality of suboptions for the selected option; selecting one of the suboptions by manipulating the Cartesian selection device in a second axis; and selecting a second major feature by either selecting an indicia of the second major feature displayed on the display unit or using a hardbutton coupled to the processor. Both the first and second major feature comprising one of faxing, scanning, and voice mail functions. The user interface system for the computer system comprises a grid of possible user functions. The grid is made up of a plurality of rows and a plurality of columns. Each column within a row has a plurality of subrows, wherein each of the plurality of rows corresponds to a major feature of the computer system, each of the columns within each row corresponds to an option for the corresponding major feature, and each subrow within a column corresponds to a suboption. Only the active cell of the user interface system is displayed at any one time, the active cell being defined as the intersection of the selected row and column.

MainClaim: A user interface system in an integrated office system the integrated office system including a general-purpose computer, a display unit, a printer, an optical input device, a communication device, telephone logic, voice mail logic, and a housing containing the computer the printer, the optical input device, the communication device, the telephone logic, and the voice mail logic, the computer having a processor and a memory coupled to the processor, the user interface system comprising a grid system, the grid comprising possible user functions for the integrated office system, the grid comprising a plurality of rows along a first axis and a plurality of columns along a second axis, the first axis being orthogonal to the second axis, for each of said plurality of rows, each column within said row having a plurality of subrows, wherein each of the plurality of rows corresponds to a major feature of the integrated office system, wherein each of the columns within each row corresponds to an option for the corresponding major feature of said integrated office system, wherein each of said subrows within a column corresponds to a suboption for the corresponding option of the corresponding major feature of the integrated office system, and wherein an active cell of the user interface system being displayed on said display unit, the active cell being defined as the intersection of a selected row and a selected column, wherein each of the plurality of major features of the integrated office system corresponds to one of a plurality of hardbuttons, each of the plurality of hardbuttons coupled to the processor, and wherein selecting a first one of the hardbuttons causes the processor to execute instructions stored in the memory thereby activating the major feature of the integrated office system corresponding to the selected hardbutton, wherein once a major feature of the integrated office system has been activated by selection of a corresponding first one of the plurality of hardbuttons, options within said major feature can be accessed by a user according to the grid system wherein each of the options of the selected major feature of the integrated office system are accessed using a four-way navigation button, the four-way navigation button being coupled to the processor, and wherein the four-way navigation button permits horizontal movement between the columns of a row within the grid system thereby allowing a user to select from among the plurality of options for the selected major feature of the integrated office system, and wherein the four-way navigation button permits vertical movement between the subrows of a column within the grid system thereby allowing a user to select from among the plurality of suboptions for each option of the selected major feature, and wherein the four-way navigation button does not permit movement between rows of the grid system of the user interface system.

6,570,596	Context sensitive pop-up window for a portable phone	Nokia Mobile Phones Limited	Frederiksen; Steen Lillethorup	345	G06F	19990324	1	92%	<input type="checkbox"/>
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Abstract: A portable phone is described having a display, input device for inputting information and instructions, and a control unit controlling the display in dependence on the operation of the input device. The input device includes a navigation device for moving a marker in an active part of the display. The navigation device is provided with a roller body and includes the ability for detecting the rolling and depression of the roller body and for providing control signals in response thereto. In an information

input mode, the control unit moves the marker in the display in dependence on the rolling control signal and generates a pop-up window upon reception of the depression control signal, the pop-up window covering a part of the active display and containing operations which are allowed in a position defined by the marker.

MainClaim: A portable phone having: a display adapted to display data, and input means for inputting both information and instructions to a control unit in the phone, the control unit controlling the display in dependence on the operation of the input means; the input means including:

a moving means in the form of a navigation key for moving a marker in the display; and a request means in the form of a selection key for providing a request to the control unit for displaying operations which are allowed in a position defined by the marker; the control unit generating a pop-up window which covers a part of the display upon reception of the request, and which includes the allowed operations in dependence of the position of the marker; and the navigation key and the selection key allowing a user to navigate between the allowed operations present in the pop-up window, and to select one of these allowed operations, the pop-up window being initiated by the user pressing the selection key.

7,602,378	Method, system, and graphical user interface for selecting a soft keyboard	Apple Inc.	Kocienda; Kenneth Williamson; Richard	345	G09G	20061026	0	100%	<input type="checkbox"/>
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Abstract: A portable electronic device may display one of a plurality of soft keyboards in a first display area and input characters in a second display area. The user may select a key on the soft keyboard, causing a plurality of objects corresponding to the plurality of soft keyboards to be displayed. The user may then select one of the objects, and the soft keyboard corresponding to the selected object is displayed and made operational. The soft keyboards corresponding to the objects not selected are not made operational.

MainClaim: A computer-implemented method, comprising: at a portable electronic device, displaying a single soft keyboard in a first area and a window in a second area on a display of the portable electronic device, wherein the window is configured to display characters selected using a plurality of soft keyboards, wherein the plurality of soft keyboards include a keyboard that is primarily letters, a keyboard that is primarily numbers, and a keyboard that is primarily symbols other than letters and numbers; in response to selection of a keyboard selection soft key by a user, displaying simultaneously a plurality of objects that correspond to the plurality of soft keyboards; in response to selection of one of the plurality of objects by the user, displaying in the first area the soft keyboard that corresponds to the selected object and making operational, of the plurality of soft keyboards, only the soft keyboard corresponding to the selected object.

2009/0160785	USER INTERFACE, DEVICE AND METHOD FOR PROVIDING AN IMPROVED TEXT INPUT	NOKIA CORPORATION	Chen; Xun Rainisto; Roope Anwari; Mohammad	345	G06F	20071221	2	95%	<input type="checkbox"/>
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Abstract: A user interface module for a device having a touch display arranged with virtual keys and at least one first area. The device is adapted to execute at least one application adapted to receive text input and the touch display is arranged to display content associated with the application. The touch display is also arranged to display a text input area upon activation of the application's receiving of text input. The text input area, at least partially, overlaps the at least one first area. The touch display is also arranged to display the content being displayed in the first area as shaded and arranged to display text input received through the text input area clearly.

MainClaim: A user interface module for a device having a touch display arranged with virtual keys and at least one first area, said device being adapted to execute at least one application adapted to receive text input, wherein said touch display is arranged to display content associated with said application and to display a text input area upon activation of said application's receiving of text input which text input area at least partially overlaps said at least one first area and wherein said touch display is arranged to display said content being displayed in said at least one first area as shaded and arranged to display text input received through said text input area clearly.

2009/0327966	ENTERING AN OBJECT INTO A MOBILE TERMINAL	NOKIA CORPORATION	Paajanen; Timo	715	G06F	20080630	1	93%	<input type="checkbox"/>
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Abstract: A mobile terminal for entering an object from a set of objects into the mobile terminal. The mobile terminal can include: a display configured to display, in a first display state, a display area that is divided into a plurality of individually selectable fields that are arranged in a first matrix pattern, and further configured to display, within each of the individually selectable fields of only one of the rows or columns of the first matrix pattern, a plurality of objects such that all the objects together form a second matrix pattern, wherein each of the individually selectable fields represent a particular object having a position within the second matrix pattern which corresponds to the position of the individually selectable field within the first matrix pattern; and an input device configured to determine a position of a pointer with respect to the plurality of individually selectable fields, wherein the pointer is moveable to either of the individually selectable fields for selection of the object represented by the selected field. A corresponding method, computer program product and user interface are also presented.

MainClaim: A method for entering an object from a set of objects into a mobile terminal, the method comprising: displaying, on a display of the mobile terminal, a display area that is divided into a plurality of individually selectable fields that are arranged in a first matrix pattern having rows and columns; presenting in a first display state, within each of the individually selectable fields of only one of the rows or columns of the first matrix pattern, a plurality of objects such that all the objects together form a second matrix pattern having rows and columns, wherein each of the individually selectable fields represent a particular object having a position within the second matrix pattern which corresponds to the position of the individually selectable field within the first matrix pattern; moving a pointer to either of the individually selectable fields for thereby selecting the object represented by the selected field.

2010/0107116	INPUT ON TOUCH USER INTERFACES	NOKIA CORPORATION	Rieman; John Hiitola; Kari Heine; Harri Yli-Nokari; Jyrki Kallio; Markus Kaki; Mika	715	G06F	20081027	5	93%	<input type="checkbox"/>
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5,128,672	Dynamic predictive keyboard	Apple Computer, Inc.	Kaehler; Edwin B.	341	H03M	19901030	0	100%	<input type="checkbox"/>
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Abstract: A keyboard having the ability to predictively display different characters in association with its various keys within a variety of predefined character set layouts, based upon either the character preceeding an insertion point in a corresponding text field on a display or the last character entered from the keyboard is disclosed. Although each key of the keyboard is capable

of displaying numerous different characters, each key represents only one character at a time and each character is displayed at only one key location. The user can also manually change character set layouts. When a user selects a particular key or selects an insertion point within the text field, all keys are updated to display a character set layout that corresponds to the set of characters from which the user would be most likely to want to select a character from next, based upon the frequency of that particular character combination being used in either a particular language or application. The organization of the characters within each character set layout is also based on the frequency of those characters being used in either a particular language or application. The keyboard can be implemented to operate as either a touch-sensitive display or as a collection of interactive images on any of a number of different displays. The keyboard can also be used in conjunction with the special function keys or buttons that are common to computer system for performing function-character command operations.

MainClaim: A dynamic predictive keyboard for communicating information to a display, comprising:

an input means for use in combination with a plurality of key images and operative to output select signals corresponding to said key images in response to one or more of said key images being selected with said input means by a user, each of said select signals corresponding to an action to be taken by said keyboard and/or a device in communication with said keyboard;

predictive means for determining a set of said key images to use in combination with said input means in response to receipt of one or more of said select signals, said set of key images including at least one key image most likely to be next selected by said user; and

means for displaying said key images in association with said input means.

2005/0141770	Split on-screen keyboard	Nokia Corporation	Marila, Juha Lantz, Vuokko	382	G06K	20031230	2	96%	<input type="checkbox"/>
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Abstract: A device and method for inputting information is disclosed. The device comprises a display, such as a touch-sensitive display, and a memory. The memory comprises a first set of characters, said first set of characters comprising at least two characters, and a second set of characters, said second set of characters comprising at least two characters. The characters in the first set of characters are statistically more likely to be selected in successive order than the characters in the second set of characters. The display is adapted to display, for selection of which character to input, the first set of characters.

MainClaim: A device for inputting information, comprising: a display; and a memory comprising a first set of characters, said first set of characters comprising at least two characters, and a second set of characters, said second set of characters comprising at least two characters, wherein the characters in the first set of characters are statistically more likely to be selected in successive order than the characters in the second set of characters, and wherein said display is adapted to display, for selection of which character to input, the first set of characters.

6,043,760	Language-dependent letter input by means of number keys	Nokia Mobile Phones Ltd.	Laakkonen; Kimmo	341	H03M	19980202	1	95%	<input type="checkbox"/>
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Abstract: In an apparatus with a limited keypad (100, 300) several characters can be associated with each key. Characters associated with a key are determined on the basis of the language selected (200) as the operating language of the apparatus. The apparatus comprises a memory element (302) which includes a certain part (302a) for storing information indicating which set of the possible characters entered as push-button commands is in use as well as character set tables (302b-n) for selectively associating certain characters with each key on the basis of the information in said part (302a).

MainClaim: A method for producing character input in a portable terminal of a cellular radio system, the portable terminal having a numeric keypad (100, 300), characterised in that it comprises the steps of:

- (a) producing information (200) concerning which set of the possible characters entered as push-button commands is in use;
- (b) associating each key in the numeric keypad with a certain subset of characters belonging to the selected set of characters;
- (c) selecting a key associated with the desired subset of characters; and
- (d) pressing the key successively until the desired character is produced.

7,642,932	Method of mapping characters for a mobile telephone keypad	Nokia Corporation	Cui; Yanqing Ichikawa; Fumiko	341	H03M	20050614	1	95%	<input type="checkbox"/>
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Abstract: In a mobile communications device used in countries having a prevailing language with a large number of alphabet characters, the keypad is mapped alphabet into two groups and mapping each of the groups to the keypad to provide two independent modes of selection. The user can toggle from one mode to the other by operating a separate switch to enable selections from each of the alphabet groups.

MainClaim: A method of entering text in a mobile communication device comprising the steps of: storing a list of the characters used in a language based on a Thai alphabet to be entered by use of a standard keypad of the mobile communications device; dividing the list of characters into at least first and second groups; adapting a standard keypad of the mobile communications device for operation in a first and second mode selectable by the user by the activation of a dedicated key of the keypad; mapping each of the characters of the first group to a key of the keypad for selection, when the keypad is operating in the first mode; mapping each of the characters of the second group to a key of the keypad for selection, when the keypad is operating in the second mode; selecting an alphabetic character for entry into the mobile communications device; determining which of the first and second groups contains the selected alphabetic character; selecting the mode of operation corresponding to the group containing the selected character; entering the selected character by multi-tapping the key to which the character is mapped; and wherein the first group is comprised only of consonant characters and the second group comprises only non-consonant characters.

7,064,757	Automatic synthesis of font tables for character layout	Apple Computer, Inc.	Opstad; David G. Beaman; Alexander B.	345	G06T	19990507	0	100%	<input type="checkbox"/>
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Abstract: Data tables that are required for the proper processing of font glyphs are automatically synthesized if they do not form part of an original font definition. The synthesized tables are stored in an annex file that is associated with the font, rather than being incorporated into the font definition. As a result, the integrity of the original font data is maintained, and does not adversely affect font protection systems that are based upon font data.

MainClaim: A method for generating an image of a sequence of characters, comprising the steps of: retrieving glyphs from a font which correspond to characters in a string of characters; determining whether the font contains a predetermined data table that pertains to the layout of glyphs; automatically synthesizing said data table, based upon data contained in the font, if the font is determined not to contain said data table; laying out the glyphs in a line, in accordance with the data in said table; and generating an image of the laid-out line of glyphs.

2005/0146528	Arrangement for the scaling of fonts	Nokia Corporation	Kotiranta, Atte	345	G06T	20041230	1	93%	<input type="checkbox"/>
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Abstract: The invention relates to a method for presenting a character by using a scalable vector font. In the method, for said scalable vector font, at least first and second scalable vector fonts are defined, which are alternatives to each other. For optimizing the readability of the character, one of said at least first and second scalable vector fonts is selected to be used for presenting the character. The invention also relates to an electronic device, a computer software product, and a system.

MainClaim: A method for outputting a character by using a scalable vector font, comprising defining, for said scalable vector font, at least a first scalable vector font and a second scalable vector font, which are alternatives to each other, and for optimizing readability of the character, selecting one of said at least first scalable vector font and second scalable vector font for use in said outputting the character.

7,609,268	Arrangement for the scaling of fonts	Nokia Corporation	Kotiranta; Atte	345	G06T	20041230	1	93%	<input type="checkbox"/>
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Abstract: The invention relates to a method for presenting a character by using a scalable vector font. In the method, for said scalable vector font, at least first and second scalable vector fonts are defined, which are alternatives to each other. For optimizing the readability of the character, one of said at least first and second scalable vector fonts is selected to be used for presenting the character. The invention also relates to an electronic device, a computer software product, and a system.

MainClaim: A method for execution in a device for outputting a character by using a scalable vector font, comprising creating in the device, for said scalable vector font, at least a first scalable embedded vector font and a second scalable embedded vector font, which are alternatives to each other, and determining in the device, for a selected size for said character, if there are embedded vector fonts defined and, if not, scaling in the device the scalable vector font to the selected size using said scalable vector font but, if so, for optimizing in the device readability of the character, selecting one of said at least first scalable embedded vector font and second scalable embedded vector font for use in said outputting the character on an output device.

6,847,959	Universal interface for retrieval of information in a computer system	Apple Computer, Inc.	Arrouye; Yan Mortensen; Keith	707	G06F	20000105	0	100%	<input type="checkbox"/>
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Abstract: The present invention provides convenient access to items of information that are related to various descriptors input by a user, by means of a unitary interface which is capable of accessing information in a variety of locations, through a number of different techniques. Using a plurality of heuristic algorithms to operate upon information descriptors input by the user, the present invention locates and displays candidate items of information for selection and/or retrieval. Thus, the advantages of a search engine can be exploited, while listing only relevant object candidate items of information.

MainClaim: A method for locating information in a computer system, comprising the steps of:

inputting an information identifier;

providing said information identifier to a plurality of plug-in modules each using a different heuristic to locate information which matches said identifier;

providing at least one candidate item of information from said modules; and

displaying a representation of said candidate item of information.

2005/0246324	System and associated device, method, and computer program product for performing metadata-based searches	Nokia Inc.	Paalasmaa, Joonas Sorvari, Antti Salmenkaita, Jukka-Pekka	707	G06F	20040430	8	93%	<input type="checkbox"/>
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Abstract: Provided are improve data search and management systems, devices, methods, and computer program products for performing metadata-based searches and displaying the initial results as clusters depending upon search criteria, search results, or physical limitations of a device such as a display. Using clusters provides an intuitive way of displaying results on a compact device with a small screen and limited user interface.

MainClaim: A system for performing metadata-based searching, comprising: a memory capable of storing data files and associated metadata; and a processor interoperably coupled to said memory and capable of searching said metadata to produce results with associated metadata, clustering said results based upon metadata of said results, and displaying said clustered results.

2009/0172571	LIST BASED NAVIGATION FOR DATA ITEMS	NOKIA CORPORATION	VASILACHE; MARCEL Harju; Mikko Antero Nurminen; Jani Kristian Barliga; Bogdan Florin Haverinen; Ilkka Hemmo Parssinen; Kimmo Matias	715	G06F	20071228	1	92%	<input type="checkbox"/>
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Abstract: A user interface provides for contextual navigation in locating desired content based on similarity/dissimilarity criteria. Each item that is identified in a device is provided with at least one multi-dimensional descriptor. A content of each item can be stored remotely from the device. A search criteria is selected that relates to the descriptor and a selected active item. A search is conducted to identify all other items identified in the device that have a relationship with the search criteria. The results are presented to the user and can be ranked according to a selected relationship order.

MainClaim: A method comprising:providing each data item identified in a device with at least one multi-dimensional

descriptor;selecting one component of the at least one multi-dimensional descriptor as an initial search criteria for a selected file;identifying in the device all other data items that have a relationship with the initial criteria; andpresenting the identified items to the user.

7,614,008	Operation of a computer with touch screen interface	Apple Inc.	Ording; Bas	715	G06F	20050916	0	100%	<input checked="" type="checkbox"/>
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Abstract: A touch screen computer executes an application. A method of operating the touch screen computer in response to a user is provided. A virtual input device is provided on the touch screen. The virtual input device comprises a plurality of virtual keys. It is detected that a user has touched the touch screen to nominally activate at least one virtual key, and a behavior of the user with respect to touch is determined. The determined behavior is processed and a predetermined characteristic is associated with the nominally-activated at least one virtual key. A reaction to the nominal activation is determined based at least in part on a result of processing the determined behavior.

MainClaim: A method comprising: at a computing device with a multipoint sensing touch screen display, a processor, and a memory: detecting a touch by a user on the multipoint sensing touch screen display; determining a behavior of the user's touch by processing signals created by the multipoint sensing touch screen display in response to the user's touch, wherein the behavior includes spatial domain behavior and time domain behavior; accessing a data structure in the memory, the data structure comprising data representing: a plurality of virtual keys; and for each virtual key in the plurality of virtual keys: a plurality of predetermined behavioral characteristics, wherein each predetermined behavioral characteristic in the plurality of predetermined behavioral characteristics includes predetermined values of behavior in the spatial domain and/or time domain; and a respective reaction for each respective predetermined behavioral characteristic in the plurality of predetermined behavioral characteristics; matching the determined behavior of the user's touch to a predetermined behavioral characteristic for a virtual key; determining a reaction for the virtual key in the data structure that corresponds to the matched predetermined behavioral characteristic for the virtual key; and performing an action that corresponds to the determined reaction, wherein a first virtual key in the plurality of virtual keys requires a first pressure to be activated, a second virtual key in the plurality of virtual keys requires a second pressure to be activated, and the first pressure is less than the second pressure, and wherein the first virtual key is adjacent to the second virtual key.

2007/0273658	Cursor actuation with fingerprint recognition	Nokia Corporation	Yli-Nokari; Jyrki Tolvanen; Mika P.	345	G06F	20060526	1	92%	<input type="checkbox"/>
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Abstract: A method for controlling a graphical display receives a user input at a touch-sensitive user interface. Responsive to receiving that user input, a user is automatically recognized from biometric data gathered at that touch-sensitive user interface, such as by comparison to a locally stored database of authorized users. A visual cursor at a graphical display is then automatically activated. The visual cursor is removed from the graphical display when the user input is no longer received at the touch-sensitive user interface. So long as the visual cursor is not removed and after user authentication, movement of the visual cursor at the graphical display is made to correspond with movement sensed at the touch-sensitive user interface.

MainClaim: A method comprising:receiving a user input at a touch-sensitive user interface;responsive to the receiving, automatically recognizing a user from biometric data gathered at the touch-sensitive user interface;responsive to recognizing, automatically activating a visual cursor at a graphical display;sensing movement of the user input across the touch-sensitive user interface and moving the visual cursor across the graphical display in correspondence with the sensed planar movement; andautomatically removing the visual cursor from the graphical display when a user input is no longer sensed at the touch-sensitive user interface.

6,266,149	Printer driver with compact representation of drawing environment changes	Apple Computer, Inc.	Zandee; James C.	358	G06F	19960201	0	100%	<input checked="" type="checkbox"/>
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Abstract: A printer driver, for example a QuickDraw printer driver, keeps track of changes in a drawing environment (specified by a GrafPort) by saving State records. Rather than filling up the State with the contents of each pattern and clip region, references to each of these members are stored in the State. This referencing allows each component of a State to be saved separately while still allowing the State to be reproduced precisely when it is time to draw. Referencing can greatly reduce disk accesses and file size, thereby accelerating printing. Referencing also allows significant time to be saved during state comparison. Whereas previous drivers have required a State to GrafPort comparison at translation (drawing) time, in the present method, each reference in the current state may be compared with references from the previous state to see which fields have changed. Comparing references, which may be stored in four bytes, is much faster than comparing large patterns and regions.

MainClaim: Using a computer having a memory system, a method for use in producing a graphic image using a set of graphics primitives each of which is executed in accordance with a current state of a graphics environment at a time when a command invoking the graphics primitive was received, the current state of the graphics environment including a plurality of state elements and being changed at times by an image source, the method comprising the steps of:

each time a state element has changed from when a previous command involving a graphics primitive was received to when a current command involving a graphics primitive was received:

saving in the memory system an instance of that state element containing current information for that state element; and

saving in the memory system a graphics state object including for each of said plurality of state elements a pointer to a most recently saved instance of that state element;

wherein each graphics state object includes a pointer to only one instance of a given state element, and at least some instances of state elements are pointed to by multiple graphics state objects.

2010/0091024	METHOD AND DEVICE FOR GENERATING CUSTOM FONTS	NOKIA CORPORATION	Myadam; Srikanth	345	G06T	20090515	2	92%	<input type="checkbox"/>
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Abstract: The invention provides a method and device for dynamically generating a textured font character. It enables any image to be selected and combined with a chosen character mask to produce a new font having the same content as the image.

MainClaim: A method of dynamically generating and drawing a font character, the method comprising:receiving an instruction to draw the font character;taking as input:(i) a glyph mask defining the shape of the character; and(ii) an image defining the appearance of the character;combining the glyph mask and the image to produce a masked image defining the font character;

anddrawing the masked image to an output device.

6,418,429	Portable browsing interface for information retrieval	Apple Computer, Inc.	Borovoy; Richard Daniel Graves; Michael Hanson; Michael Robert Machiraju; Nagabhushan Rao	707	G06F	19981021	0	100%	
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Abstract: An integrated searching/browsing mechanism employs user-constructed information hierarchies that represent a cognitive framework for the organization of information. The hierarchies are independent of the information itself. This feature permits them to be shared among multiple users, and applied to any of a variety of different sources of information. The hierarchical organization that is provided by the framework gives the user the ability to browse around any available document database in a manner that is intuitive to the user. Two or more hierarchies can be combined to locate documents which match the criteria of both hierarchies, and thereby refine search results to an appropriate level. A relevance feedback mechanism further enhances the browsing experience, by concentrating the search results in areas that are most relevant to documents selected as being of particular interest.

MainClaim: An information retrieval system, comprising:

at least one file stored in a memory which defines a hierarchical relationship of terms describing an organizational framework for information;

a user interface mechanism via which a user selects a level within said hierarchical relationship;

a search query generator responsive to the selection of a level within said hierarchical relationship for constructing a search query of terms that are based upon the selected level;

a search engine which searches a source of information to locate documents which correspond to the search query; and

a display mechanism which displays information about the located documents to a user.

2005/0246324	System and associated device, method, and computer program product for performing metadata-based searches	Nokia Inc.	Paalasmaa, Joonas Sorvari, Antti Salmenkaita, Jukka-Pekka	707	G06F	20040430	8	92%	
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Abstract: Provided are improve data search and management systems, devices, methods, and computer program products for performing metadata-based searches and displaying the initial results as clusters depending upon search criteria, search results, or physical limitations of a device such as a display. Using clusters provides an intuitive way of displaying results on a compact device with a small screen and limited user interface.

MainClaim: A system for performing metadata-based searching, comprising: a memory capable of storing data files and associated metadata; and a processor interoperably coupled to said memory and capable of searching said metadata to produce results with associated metadata, clustering said results based upon metadata of said results, and displaying said clustered results.

6,574,620	Portable browsing interface for information retrieval	Apple Computer, Inc.	Borovoy; Richard Daniel Graves; Michael Hanson; Michael Robert Machiraju; Nagabhushan Rao	707	G06F	20020520	0	100%	
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Abstract: An integrated searching/browsing mechanism employs user-constructed information hierarchies that represent a cognitive framework for the organization of information. The hierarchies are independent of the information itself. This feature permits them to be shared among multiple users, and applied to any of a variety of different sources of information. The hierarchical organization that is provided by the framework gives the user the ability to browse around any available document database in a manner that is intuitive to the user. Two or more hierarchies can be combined to locate documents which match the criteria of both hierarchies, and thereby refine search results to an appropriate level. A relevance feedback mechanism further enhances the browsing experience, by concentrating the search results in areas that are most relevant to documents selected as being of particular interest.

MainClaim: An information retrieval system, comprising:

a search query generator, responsive to a selection of a level within a hierarchical relationship of terms describing an organizational framework for information, for constructing a search query of terms that are based upon the selected level;

a search engine which searches a source of information to locate documents which correspond to the search query; and

a display mechanism which displays information about the located documents to a user.

2005/0246324	System and associated device, method, and computer program product for performing metadata-based searches	Nokia Inc.	Paalasmaa, Joonas Sorvari, Antti Salmenkaita, Jukka-Pekka	707	G06F	20040430	8	92%	
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Abstract: Provided are improve data search and management systems, devices, methods, and computer program products for performing metadata-based searches and displaying the initial results as clusters depending upon search criteria, search results, or physical limitations of a device such as a display. Using clusters provides an intuitive way of displaying results on a compact device with a small screen and limited user interface.

MainClaim: A system for performing metadata-based searching, comprising: a memory capable of storing data files and associated metadata; and a processor interoperably coupled to said memory and capable of searching said metadata to produce results with associated metadata, clustering said results based upon metadata of said results, and displaying said clustered results.

5,579,467	Method and apparatus for formatting a communication	Apple Computer, Inc.	Capps; Stephen P.	715	G06F	19950316	0	100%	<input type="checkbox"/>
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Abstract: A method for automated preparation of a formal communication, in a format such as a facsimile transmission, a letter or a memorandum, from an text object, a graphics object or a general object received by a computer system. The computer system examines the object information and determines (1) the desired format for the communication and (2) the information to be included in the body or substance of the communication. A given format, such as a facsimile transmission, has a corresponding template and a set of associated information queries to be answered to "fill in" the template information items. The computer system determines as many answers as possible for the information queries by examining the object. Any unanswered queries may be answered by the writer or supplier of the object. The computer system then prepares the body of the communication, including identification of people, geographical locations, events, times and dates referred to in the object. A supplemental database connected to the computer system may be used to provides additional identifying information on these people, locations, events, times and dates. A replica of the formal communication may be displayed and/or edited before the communication is transmitted to the intended recipient(s).

MainClaim: A method for creating a communication having a desired format comprising the steps of:

entering a text document into a computer system, said text document having an original format and including message content to be transmitted in a communication to an addressee, concise address information included in said message content to provide said addressee in said communication, and a format identifier, wherein said message content, said concise address information, and said format identifier are all located within a main body portion of the text document such that neither said concise address information nor said format identifier are provided in a heading separate from said message content;

determining a desired format for the communication based upon said format identifier and associating a format template with said desired communication format, said format template having an information slot and an information query associated with said information slot;

analyzing the text document based upon said information query to identify at least some of said concise address information that answers said query and fill in said information slot with database address information stored in and retrieved from a database separate from said text document, said database address information being referred to by said identified concise address information and being in greater amount and having greater detail than said identified concise address information; and

creating a formatted communication having said desired format in accordance with said format template, the desired format being different from said original format, said communication including a template portion and a body portion, the template portion including at least some of said database address information filled in said identification slot, the body portion including said message content to be transmitted to said addressee.

6,049,796	Personal digital assistant with real time search capability	Nokia Mobile Phones Limited	Siitonen; Lasse Ronkka; Risto	707	G06F	19970224	1	92%	<input type="checkbox"/>
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Abstract: The present invention is a method and an apparatus for searching a personal digital assistant (PDA) data base utilizing a search criteria and displaying the result so that the user can determine whether the search yielded the intended result, whether the search needs to be refined, or whether the outcome should be used to initiate an electronic communication such as a telephone call. After successfully obtaining the specific name and recipient information, such as a telephone number, telefax number, numbers for an Internet server and related E-mail address, the numbers may be applied to a telephone for establishing a PSTN or telephone connection. Thereafter the PDA, utilizing the telephone unit links the user to a line or employs data transmission capabilities of a wireless network to send telefaxes, short messages, E-mail and to connect with remote computers. Using a keyboard the user can store data in a data base, alter the data base and input search criteria. The directory is similar in appearance to a telephone book listing where the information comprises at least a name and telephone number or address associated with a particular field in a data base record. Because names are primarily what interests the personal digital assistant users, searches based on the name field typically yields related phone numbers and other record data, although the user is not precluded from searching on other types of information.

MainClaim: A method for operating a personal digital assistant having an input means, a file storage means, a data base, a search engine means, a display means, and an electronic communication means, comprising the steps of:

storing in the data base one or more records, each of the records comprising data elements defining an identifier of a party and communication information required for communicating with the party through a communication link;

in response to an input from a user, selecting one of a plurality of directories, each of said directories comprising one or more entries and being related to a respective type of communication, each of said entries corresponding to at least one of said data elements of one of said records;

in response to the selecting step, displaying each of the one or more entries of the selected directory;

inputting a search key corresponding to at least a portion of at least one of the displayed entries of the selected directory;

comparing the search key to at least one data element corresponding to at least one of the displayed entries and further displaying those ones of the entries which correspond to data elements corresponding to the search key; and

in response to another input by the user, selecting one of the further displayed entries for initiating a communication to a party, the party being identified by the identifier defined by data elements corresponding to the selected entry.

			Howard, Jr.; Albert R. Hoiberg;						
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6,256,622	Logical division of files into multiple articles for search and retrieval	Apple Computer, Inc.	Richard Stevens; Curtis Rose; Daniel Monan; Michael	707	G06F	19980421	0	100%	<input type="checkbox"/>
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Abstract: A single file, such as an HTML document, is logically divided into multiple articles that can be individually recognized and ranked by search engines. The segmentation of a document into separate articles is based upon tokens that are used in document mark-up languages. In addition to the tokens which delineate articles from one another, additional tokens, or tags, are used to create a named location for each article, so that a browser can immediately display an article within a document that is relevant to a search query.

MainClaim: A method for processing data files to determine their relevance to a search query, comprising the steps of:

analyzing the contents of a file to identify a token which signifies the beginning of an article within the file;

storing the location of the article within the file;

detecting the length of the article and storing the detected length; and

determining the relevance of the article to a search query in accordance with its detected length.

7,565,605	Reorganizing content of an electronic document	Nokia, Inc.	Schohn; Gregory C. Berger; Adam L. Romero; Richard D.	715	G06F	20010508	7	92%	<input type="checkbox"/>
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Abstract: An electronic document is received that represents serial data that contains content of the document and defines an order in which respective portions of the content are to be performed. The serial data of the electronic document is analyzed. Reorganization information is generated for use in delivering the portions of the content, the reorganization information enabling performance in an order different from the order defined by the serial data.

MainClaim: A method comprising: receiving an electronic document represented by serial data that contains content of the document and defines an order in which respective portions of the content are to be presented on a display for viewing, analyzing the serial data of the electronic document by at least one transformation module to determine an order of presentation of the portions of the content different from the order defined by the serial data, the different order of presentation being adapted based upon a performance capability of a display of a target device, and generating, via a processor, reorganization information for use in delivering the portions of the content, the reorganization information enabling presentation of the portions in the different order, wherein generating the reorganization information includes adding a hyperlink to a first sub-document of the portions in the different order, the adding of the hyperlink being performed in response to determining that a location of the hyperlink is separated by at least a predetermined distance from a destination location to which the hyperlink points, the hyperlink being displayed near the beginning of the first sub-document of the portions in the different order, the destination location of the hyperlink being a particular portion of the content that is not at a beginning of the order defined by the serial data, and the destination location being determined based on the content of the serial data and without regard to the ordering of the portions.

7,710,397	Mouse with improved input mechanisms using touch sensors	Apple Inc.	Krah; Christoph H. Doar; Jeffrey B. Corbin; Sean Nishibori; Shin Low; Wing Kong	345	G06F	20050603	0	100%	<input type="checkbox"/>
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Abstract: A mouse having improved input methods and mechanisms is disclosed. The mouse is configured with touch sensing areas capable of generating input signals. The touch sensing areas may for example be used to differentiate between left and right clicks in a single button mouse. The mouse may further be configured with force sensing areas capable of generating input signals. The force sensing areas may for example be positioned on the sides of the mouse so that squeezing the mouse generates input signals. The mouse may further be configured with a jog ball capable of generating input signals. The mouse may additionally be configured with a speaker for providing audio feedback when the various input devices are activated by a user.

MainClaim: A mouse, comprising: a housing including a unibody top member covering substantially all of a top surface of the mouse and a bottom member, the unibody top member configured to pivot relative to the bottom member to provide a clicking action; and an internal switch configured to generate an activation signal by the clicking action of the unibody top member, wherein the mouse further comprises; a first touch zone and a second touch zone provided on the surface of the unibody top member; a first touch sensor located underneath the surface of the top member in a region of the first touch zone, the first sensor configured to generate a first touch signal if the top member is touched in the first touch zone; a second touch sensor located underneath the surface of the top member in a region of the second touch zone, the second sensor configured to generate a second touch signal if the top member is touched in the second touch zone; and a control circuit configured to report a first input event if the activation signal and the first touch signal are generated without the second touch signal, to report a second input event if the activation signal and the second touch signal are generated without the first touch signal, to ignore the first touch signal if the first touch signal is generated without the activation signal, and to ignore the second touch signal if the second touch signal is generated without the activation signal.

2009/0303175	Haptic user interface	Nokia Corporation	Koivunen; Rami Arto		G09G	20080605	1	92%	<input type="checkbox"/>
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Abstract: This invention relates to a method, apparatuses and a computer-readable medium having a computer program stored thereon, the method, apparatuses and computer program using a haptic signal perceptible by a user contacting a user interface surface with an input means (device) to indicate a predetermined direction on the user interface surface.

MainClaim: A method comprising: generating a haptic signal perceptible by a user contacting a user interface surface with an input device, the haptic signal being suitable for indicating a predetermined direction on the user interface surface.

5,553,282	Software project history database and method of operation	Taligent, Inc.	Parrish; Jeff W. Maghoul; Farzin Thyagarajan; P.	707	G06F	19941209	0	100%	<input type="checkbox"/>
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Abstract: A distributed program configuration database system is designed for use on a client-server network. The system consists of a plurality of program servers which maintain version information for various program components. A program developer, upon logging into a client terminal on the network, establishes a workspace or project and connects with one of the

servers. After connection to the server has been made, a draft of the program configuration is retrieved from the server. The configuration draft may include information for constructing some of the program components and "bridge" information identifying other program servers where additional program components are located. The workspace uses the component information to assemble components and the bridge information to connect to other servers and retrieve the remaining components in order to assemble the complete source code for a program in the workspace.

MainClaim: An object-oriented apparatus for communicating a job request from a client terminal to a server terminal over a computer network and returning results from the server terminal to the client terminal, the apparatus comprising:

(a) means located in the client terminal for creating an agent object, the agent object comprising means for assembling client terminal information relating to the request, means for establishing a communication path from the client terminal to the server terminal, means for performing a job which produces results at the server terminal;

(b) means located at the client terminal for generating a copy of the agent object;

(c) means located at the client terminal for sending the agent object copy to the server terminal to perform the job; and

(d) means for destroying the agent object copy at the server terminal.

7,653,914	Handling different service versions in a server	Nokia Corporation	Krohn; Petri Jaske; Harri	719	G06F	20020423	6	95%	<input type="checkbox"/>
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Abstract: This invention relates to handling of different service versions in a server that is connected to a communication network. The invention comprises means to load a desired version, two tables and additional data for handling different service versions. The first table contains service key and version information, and serialized service objects. The second table contains names of classes, version information and class files. The additional data is needed for loading the right class from among classes, with the same name, and mapping the right service object version to the right versions of classes.

MainClaim: A method comprising: grouping different versions of service applications and classes in at least one service repository into a first group comprising entries of service objects and a second group comprising entries of classes, forming the entries of the service objects in the first group to include a first information field for representing information about a version of a service and at least one service object, forming the entries of the classes in the second group to include a second information field for representing information about a version of the class, and mapping the service objects with the classes to provision the service applications, wherein the different versions of service applications include different versions of a same service application, and wherein the different versions of classes include different versions of a same class, wherein when executing a desired service application, the method further comprises searching for a service entry of a desired service application from the first group, loading a service object of the service entry of the desired service application from the first group for use by at least one server, using the mapping to discover entries of the classes of the second group associated with said service object of the service entry of the desired service application, and loading the entries of the classes of the second group associated with said service object of the service entry of the desired service application to the server.

2007/0050756	Component architecture	Nokia Corporation	Paller; Gabor	717	G06F	20050824	4	93%	<input type="checkbox"/>
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Abstract: A self-organising software for controlling a device, which software contains at least two components. Each component includes at least one interface for connecting with other components, wherein each of the components itself contains information defining component rules. The rules contained by the components define how components can be connected with each other components so that no external rule databases are necessary.

MainClaim: A device including self-organising software that includes at least two components each including at least one interface for connecting with other components, wherein each of the components contains information defining component rules according to which that component can be connected with other components.

2007/0174697	Generic, WSRF-compliant checkpointing for WS-Resources	Nokia Corporation	Saridakis; Titos Verta; Heikki	714	G06F	20060119	7	93%	<input type="checkbox"/>
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Abstract: A generic, WSRF-compliant checkpointing mechanism for grid services that is based upon the information found in a resource properties document. The resource properties document gives the structure of the entire state of a WS-Resource as a set of properties and their values. The checkpointing mechanism also is based upon the operations for retrieving and replacing the resource properties document of a WS-Resource.

MainClaim: A method of saving and loading checkpoints in a WS-Resource, comprising: receiving a number of instances of a first resource properties document from the WS-Resource, using a GetResourcePropertyDocument standard WSRF operation, each instance of the first resource properties document identifying a plurality of properties of the WS-Resource at a given moment; storing the instances of the first resource properties document in distinguishable locations; retrieving a selected instance of the first resource properties document; and instructing the WS-Resource to use the selected instance to replace the WS-Resource's current state using a PutResourcePropertyDocument standard WSRF operation.

5,537,596	Method and apparatus for overriding resource maps in a computer system	Apple Computer, Inc.	Yu; Dean T. Derossi; Christopher S.	717	G06F	19950417	0	100%	<input type="checkbox"/>
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Abstract: An improved method and apparatus for defining resources in a computer system is presented whereby resource maps in a computer system can be selectively updated by adding resources and superseding resources in an existing resource map by providing a new resource map which overrides the prior resource map.

MainClaim: A method for modifying a computer system to enable the computer system to accommodate new hardware by overriding an original resource map in the computer system, the method comprising the steps of:

loading an original resource map into a linked list during stamp initialization of the computer system, wherein the original resource map defines originally available system resources;

loading an override resource map into the top location of the linked list during stamp initialization of the computer system, the override resource map defining available system resources added to the computer system after the originally available resources;

comparing resource definitions of the original resource map and of the override resource map that define similar resources in order to identify which definitions of the original resource map are to be overridden by the override resource map;

identifying which definitions of the override resource map are to override similar respective definitions of the original resource map by setting a predetermined bit in each of the override map definitions; and

overriding the similar respective definitions of the original resource map.

2009/0006506	METHOD AND SYSTEM FOR GARBAGE COLLECTION OF NATIVE RESOURCES	NOKIA CORPORTION	DiFlora; CRISTIANO	707	G06F	20070628	1	92%	<input type="checkbox"/>
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Abstract: A system and method for enabling automatic and fast garbage collection of native resources. Native code of mixed-language components is directed to perform dynamic allocation of native entities (such as objects, structures, etc.) through a Native Entity Factory (NEF) component instead of using low-level native language operators. Using the NEF component enables tracing dynamic native entity allocations, and driving a virtual machine garbage collector component based on native-heap activity.

MainClaim: A method comprising:receiving a request to create an object in a native heap, the object associated with a managed component;creating the object in the native heap;maintaining an identifier for the object along with a priority indication; andbased on the priority indication, determining whether to scan the managed component for an indication that the managed component may be garbage collected.

5,396,626	Object-oriented locator system	Taligent, Inc.	Nguyen; Frank T.	717	G06F	19930804	0	100%	<input type="checkbox"/>
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Abstract: A method and system for adding components (documents, tools, fonts, libraries, etc.) to a computer system without running an installation program. A location framework is employed to locate components whose properties match those specified in a search criteria. The framework receives notification from the system when components whose properties match the search criteria are added to or removed from the system.

MainClaim: A method in a computer system comprised of a plurality of system entities including a memory and an object-oriented operating system resident in said memory, said object-oriented operating system augmented to accept a client initiated search, each entity, in turn, being comprised of a plurality of hardware or software components and each hardware or software component having predetermined properties, said method determining whether at least one component having properties supplied by a client exists in said computer system at any time while said client is active and supplying the client with the identity of said at least one component, comprising the steps of:

(a) receiving scope criteria from said client indicating a set of said plurality of system entities to be searched, said plurality of system entities comprising network entities, system entities, and application entities;

(b) receiving search criteria from said client indicating hardware or software component properties required by said client, and

(b1) receiving search criteria from said client indicating system component properties;

(c) utilizing said scope criteria and said search criteria to query said object-oriented operating system augmented to accept a client initiated search to identify one or more hardware or software components that satisfy said scope criteria and said search criteria indicating hardware or software component properties, and

(c1) using said scope criteria and said operating system to collect a set of system entities; and

(c2) examining each of said set of system entities collected in step (c1) to determine if any components having system component properties that satisfy said search criteria exist in said each system entity; and

(d) returning to said client identities of components identified in step (c) to enable said client to access one or more of said identified hardware or software components at any time while said client is active.

2005/0160414	System and method for dynamically adding features to software applications	Nokia Corporation	Parnanen, Matti Laaksonen, Jari Rosendahl, Sami Mansikkamaki, Harri	717	G06F	20040121	2	95%	<input type="checkbox"/>
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Abstract: A method, device, system, and a computer program product where features are dynamically added to software applications. These applications are added using a framework for a general unchangeable application programming interface (API) that adds any feature to any application.

MainClaim: A method for adding computer software features dynamically to a software application by establishing a framework for a application programming interface (API) that adds a feature to an application, the method comprising: requesting from an application interworking framework a feature matching a consumer interest of a consumer application; using the consumer interest and a feature capability to identify a provider; providing the feature, if the provider is identified, to the consumer application; and utilizing the feature at the consumer application.

2007/0050756	Component architecture	Nokia Corporation	Paller; Gabor	717	G06F	20050824	4	94%	<input type="checkbox"/>
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Abstract: A self-organising software for controlling a device, which software contains at least two components. Each component includes at least one interface for connecting with other components, wherein each of the components itself contains information defining component rules. The rules contained by the components define how components can be connected with each other components so that no external rule databases are necessary.

MainClaim: A device including self-organising software that includes at least two components each including at least one interface for connecting with other components, wherein each of the components contains information defining component rules according to which that component can be connected with other components.

	Method of Maintaining		Lewis; Simon						
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2010/0005481	Applications in a Computing Device	NOKIA CORPORATION	Litovski; Ivan	719	G06F	20051215	3	94%	<input type="checkbox"/>
<p>Abstract: A method is provided for managing the application lifecycle for user applications on a computing device. The method can centrally manage application lifecycle (including installation, execution status, removal) application capabilities long-lived OS level application owned resources (e.g. push connections, alarms) security for any application, regardless of application type or model or execution environment.</p> <p>MainClaim: A method of managing application lifecycle for user applications on a computing device, the method comprising providing an application management system (AMS) for managing a plurality of application models and a plurality of application environments, wherein the AMS is implemented as a component within an operating system for the computing device and grants to the operating system control for all application management functionality on the device.</p>									
5,835,749	Method and apparatus for providing dynamically linked libraries	Apple Computer, Inc.	Cobb; Jeffrey R.	719	G06F	19950505	0	100%	<input type="checkbox"/>
<p>Abstract: According to the present invention a variety of methods and apparatus for providing dynamically linked libraries are taught. A "standard DLL" is a dynamically linked library (DLL) which is pulled into the data closure of a process by direct reference in the process' root DLL or by direct reference in other DLLs present in the data closure. In contrast, the present invention teaches a "phantom DLL" which is pushed into the data closure of an executable process and is not directly referenced either by the root DLL or by other DLLs present in the data closure. In some embodiments the phantom DLL includes an anonymous initialization routine which the binding manager executes when the phantom DLL is added to a new process data enclosure. By executing the initialization routine the phantom DLL has an opportunity to execute and impact the computing environment of the new process. A method for dynamically binding a root DLL and a plurality of DLLs into an executable process on a computer system includes the steps of storing a collection of standard DLLs and phantom DLLs in a memory of the computer system, receiving a bind command within an operating system function, determining which standard dynamically linked libraries are needed by the root DLL, and determining which phantom dynamically linked libraries are to be used within the executable process.</p> <p>MainClaim: A method for dynamically binding a root fragment and a plurality of dynamically linked libraries into an executable process on a computer system comprising the steps of:</p> <p>storing a DLL collection of standard dynamically linked libraries and phantom dynamically linked libraries in a memory of a computer system;</p> <p>receiving a bind command within an operating system function executing on said computer system to bind dynamically linked libraries with a root fragment into a new executable process, said operating system function initiating a binding manager executing on said computer system to perform the binding process, said binding manager having access to said DLL collection;</p> <p>determining within said binding manager which standard dynamically linked libraries are needed by said root fragment, wherein said standard dynamically linked libraries are known to at least one of said root fragment and another of said standard dynamically linked libraries; and</p> <p>determining which phantom dynamically linked libraries are to be used within said executable process, wherein said phantom dynamically linked libraries are not known to either of said root fragment or said standard dynamically linked libraries needed by said root fragment.</p>									
2008/0148277	Optimizing calls from a managed runtime environment to microkernel extended functionality	Nokia Corporation	di Flora; Cristiano	719	G06F	20061218	10	94%	<input type="checkbox"/>
<p>Abstract: A sequence of function calls may be executed as a single software component, rather than as individual method calls on a operating system, for example, in a microkernel system. Source code from a user application is parsed to identify a plurality of homogeneous function calls, for example, corresponding to sequence of native microkernel method calls. A homogeneous downcall sequence (HDS) is identified in the application source code, and a separate software component (e.g., a native plug-in) is generated to perform the functionality of the HDS. The application code may be modified to remove the plurality of function calls and replace them with a reference to the newly-generated software component. Finally, the modified application code is executed on the server, for example, by a managed runtime environment (MRTE) process. The software component may be invoked and executed as-a-whole by a native process.</p> <p>MainClaim: A method, comprising:receiving a first set of instructions to be executed on a computing device;identifying a plurality of homogeneous function calls in said first set of instructions;creating an executable software component operable to perform functionality corresponding to the plurality of homogeneous function calls; andgenerating a second set of instructions based on said first set of instructions, wherein said second set of instructions does not comprise the identified plurality of homogeneous function calls and does comprise a reference to said executable software component, and wherein an execution of the second set of instructions on the computing device requires said computing device to perform fewer context switches than an execution of the first set of instructions on the computing device.</p>									
6,256,635	Method and apparatus for configuring a computer using scripting	Apple Computer, Inc.	Arrouye; Yan Comiskey; John Nebel; Chris Ford; Richard Guittet; Michel Li; Alice	707	G06F	19980508	0	100%	<input type="checkbox"/>
<p>Abstract: A method and apparatus for configuring a computer. One embodiment of the invention combines all of the prior art control panels related to networking into a consolidated Network Setup Control Panel. In addition, the invention provides for computer configuration by scripting. The configuration may be for a type of system setting or for network configurations and protocols. Through scripting, a computer may be configured locally or remotely on a network. One embodiment of the invention provides for a centralized database or Configuration Library consisting of collected data relating to available configuration settings. This database is not limited to configuration information and can be used as a general database containing information the user desires to store. To modify a configuration by scripting, the invention provides for a Scripting Interface consisting of a Scripting Server and Scripting Plug-In. The Scripting Server receives the script forwarded from a user or network administrator,</p>									

parses the script and determines the appropriate Scripting Plug-In to forward the desired action to. The Scripting Plug-In receives the commands and executes the appropriate actions to modify the configuration as directed.

MainClaim: A method for configuring a computer comprising:

obtaining a dictionary of scriptable commands;

programming a script using scriptable commands from said dictionary;

launching said script on a scripting server;

parsing said script;

forwarding commands contained in said script to at least one Scripting PlugIn; and

modifying configuration settings using said Scripting Plug-In.

2006/0168158	Automated bulk configuration of network devices	Nokia Inc.	Das; Debashis	709	G06F	20051229	4	94%	<input type="checkbox"/>
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Abstract: Multiple devices within a data communication network can be configured according to a single configuration profile. Configuration profile data is stored in a configuration file. Connections are made to individual devices, and the data in the configuration file is transformed into device-specific commands.

MainClaim: A machine-executable method of configuring multiple devices in a data communication network, comprising: (a) receiving a selection of a group of devices to be configured in accordance with a previously-stored configuration profile, the devices of the group being situated in different locations within the data communications network, the configuration profile having previously-stored configuration data that specifies, as to each device of the group, values for multiple configuration parameters corresponding to desired operation of that device; (b) automatically opening a network connection with each of the devices of the group; (c) automatically retrieving identifying data from each of the devices of the group; (d) automatically mapping, for each device of the group and subsequent to step (a), the retrieved identifying data to a corresponding configuration profile deployment routine set; (e) automatically generating device-specific commands for each device of the group, wherein the device-specific commands for each device are generated subsequent to performance of step (d) for that device and are generated using the previously-stored configuration data and the configuration profile deployment routine set mapped to the identifying data for that device; and (f) automatically transmitting the device-specific commands to each device of the group.

7,013,331	Automated bulk configuration of network devices	Nokia, Inc.	Das; Debashis	709	G06F	20021220	3	94%	<input type="checkbox"/>
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Abstract: Multiple devices within a data communication network can be configured according to a single configuration profile. Configuration profile data is stored in a configuration file. Connections are made to individual devices, and the data in the configuration file is transformed into device-specific commands.

MainClaim: A machine-executable method of configuring multiple devices in a data communication network, comprising:

(a) receiving a selection of a group of devices to be configured in accordance with a previously-stored configuration profile, the devices of the group being situated in different locations within the data communications network, the configuration profile having previously-stored configuration data that specifies, as to each device of the group, values for multiple configuration parameters corresponding to desired operation of that device;

(b) automatically opening a network connection with each of the devices of the group;

(c) automatically retrieving identifying data from each of the devices of the group;

(d) automatically mapping, for each device of the group and subsequent to step (a), the retrieved identifying data to a corresponding configuration profile deployment routine set;

(e) automatically generating device-specific commands for each device of the group, wherein the device-specific commands for each device are generated subsequent to performance of step (d) for that device and are generated using the previously-stored configuration data and the configuration profile deployment routine set mapped to the identifying data for that device;

(f) automatically transmitting the device-specific commands to each device of the group;

(g) prior to step (a), providing a configured device having configuration parameters set in conformity with a desired configuration; and

(h) subsequent to step (g), extracting configuration data from the configured device, wherein the extracted configuration data becomes the previously-stored configuration data of step (a), and wherein the previously-stored configuration data is stored in Extensible Markup Language (XML) format.

2004/0123091	Automated bulk configuration of network devices	Nokia Inc.	Das, Debashis	713	G06F	20021220	3	94%	<input type="checkbox"/>
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Abstract: Multiple devices within a data communication network can be configured according to a single configuration profile. Configuration profile data is stored in a configuration file. Connections are made to individual devices, and the data in the configuration file is transformed into device-specific commands.

MainClaim: A machine-executable method of configuring multiple devices in a data communication network, comprising;

providing a configuration profile having configuration data that specifies multiple configuration parameters applicable to each of the multiple devices; retrieving identifying data from each of the devices; mapping, for each device, the retrieved identifying data to a corresponding configuration profile deployment routine set; generating device-specific commands for each device using the configuration data and the configuration profile deployment routine sets mapped to the identifying data for the devices; and transmitting the device-specific commands to each device.

5,519,866	Method and apparatus of incrementally linking components of a modeled computer program	Taligent, Inc.	Lawrence; Roger P. Dance; John R.	717	G06F	19930628	0	100%	<input type="checkbox"/>
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Abstract: A human oriented object programming system provides an interactive and dynamic process for the incremental building of computer programs which facilitates the development of complex computer programs such as operating systems and large applications with graphic user interfaces (GUIs). The program is modeled as a collection of units called components. A component represents a single compilable language element such as a class or a function. The major functionalities are the database, the compiler, build and link mechanism. The database stores the components and properties. The compiler, along with compiling the source code of a property, and generating object code is responsible for calculating the dependencies associated with a component. The build mechanism uses properties of components along with the compiler generated dependencies to correctly and efficiently sequence the compilation of components during a build process. The link mechanism links all object code as the component stores it in the component database. Only updated components require linking operations.

MainClaim: A method for use on a computer system with a memory for incrementally linking a user-modified part of a computer program with previously compiled and linked parts of the computer program, the computer program being comprised of source code stored in the memory and the method comprising the steps of:

(a) receiving into the memory a user-created model of the computer program, the model comprising an ordered collection of components, each of the collection of components having a source code property referencing a portion of the source code in the memory, an object code property specifying a portion of the memory and client information identifying others of the collection of components which must be changed when the each component is changed;

(b) compiling and linking the source code portions in each of the collection of components to store executable object code in the memory portions specified by the object code properties of each of the collection of components;

(c) modifying a first portion of the source code in response to a user request and identifying one of the collection of components having a source code property which references the first source code portion;

(d) accessing the client information of the one component to identify others of the collection of components which must be changed and;

(e) concurrently compiling and linking the one component and all of the other components that must be changed to store new executable object code in the memory portions specified by the object code properties of the one component and the other components identified in step (d).

2005/0060696	Method and a system for constructing control flows graphs of binary executable programs at post-link time	Nokia Corporation	Bicsak, Attila Kiss, Akos Ferenc, Rudolf Gyimothy, Tibor	717	G06F	20030829	9	92%	<input type="checkbox"/>
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Abstract: A method and a system for constructing a control flow graph (CFG, 106) from an executable computer program (104). The solution detects data intermixed with instructions and instruction set changes. The method includes the steps of defining block leader types specifying basic block boundaries in the program (104), building a CFG structure (106) according to the basic blocks found in the program, and adding control flow and addressing information to the CFG (106) by propagating through the basic blocks and internals thereof. The CFG (106) may be then optimised (108) and a compacted executable (112) created as a result.

MainClaim: A method for constructing a control flow graph (CFG) from a computer executable program the instructions of which belong to one or more instruction sets, said method comprising the steps of defining a number of block leader types including at least one type related to an instruction set change, block leaders specifying basic block boundaries in the program, said basic blocks including instructions or data (702), building a CFG structure comprising basic blocks found in the program (708), adding control flow and addressing information to said CFG by propagating through said basic blocks and internals thereof (710).

2001/0034878	METHOD FOR PRODUCING COMPUTER-CONTROLLED SERVICES	NOKIA TELECOMMUNICATIONS OY	AHMAVUO, PEKKA ALA-RANTALA, MARTTI NARVANEN, PIA	717	G06F	19980408	1	92%	<input type="checkbox"/>
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Abstract: The invention relates to a method for producing application-specific computer-controlled services. An application-specific program code is generated automatically and an application-specific computer program for providing said service is formed. In order to perform changes more easily than before, the computer program is divided into three groups. The first group (A) is formed only of such a code that remains the same regardless of the application, and the second and the third group are provided with a code produced by means of said generation in such a way that (a) the second group (B) only includes a code produced by means of said generation and (b) the third group (C) contains a code produced with said generation that is to be changed by the designer after the generation. The generating means (11) are informed of whether the code to be generated is produced for the second or for the third group.

MainClaim: A method for producing application-specific computer-controlled services for a user, the method comprising forming a description file wherein the application for which the service is intended is described with the terms of the application architecture used, generating automatically an application-specific program code from which the application-specific computer program is formed by using software generating means (11) and by following the rules of the application architecture used, and running said computer program in order to provide the user with said service, characterized in that the computer program is divided into different groups in such a way that the first group (A) is formed only of such a program code that remains the same regardless of the application, the second and the third group are provided with a program code produced by means of said

generation in such a way that (a) the second group (B) only includes a program code produced by means of said generation and (b) the third group (C) contains such a code produced with said generating that the designer is intended to change after the generation, and the generating means (11) are informed of whether the code to be generated is produced for the second or for the third group.

7,207,038	Constructing control flows graphs of binary executable programs at post-link time	Nokia Corporation	Bicsak; Attila Kiss; kos Ferenc; Rudolf Gyimothy; Tibor	717	G06F	20030829	9	92%	<input type="checkbox"/>
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Abstract: A method and a system for constructing a control flow graph (CFG, 106) from an executable computer program (104). The solution detects data intermixed with instructions and instruction set changes. The method includes the steps of defining block leader types specifying basic block boundaries in the program (104), building a CFG structure (106) according to the basic blocks found in the program, and adding control flow and addressing information to the CFG (106) by propagating through the basic blocks and internals thereof. The CFG (106) may be then optimised (108) and a compacted executable (112) created as a result.

MainClaim: A method for execution on a signal processing unit for constructing a control flow graph from a computer executable program the instructions of which belong to one or more computer architecture instruction sets, said method comprising defining a number of block leader types including at least one type related to an instruction set change, block leaders specifying basic block boundaries in the program, said basic blocks including instructions or data, building a control flow graph structure comprising basic blocks found in the program, adding control flow and addressing information to said control flow graph by propagating through said basic blocks and internals of said basic blocks and stored on said memory device.

5,325,533	Engineering system for modeling computer programs	Taligent, Inc.	McInerney; Peter J. Bianchi; Curtis A.	717	G06F	19930628	0	100%	<input type="checkbox"/>
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Abstract: A human oriented object programming system provides an interactive and dynamic modeling system to assist in the incremental building of computer programs which facilitates the development of complex computer programs such as operating systems and large applications with graphic user interfaces (GUIs). A program is modeled as a collection of units called components. A component represents a single compilable language element such as a class or a function. The three major functionality are the database, the compiler and the build mechanism. The database stores the components and properties. The compiler, along with compiling the source code of a property, is responsible for calculating the dependencies associated with a component. The build mechanism uses properties of components along with the compiler generated dependencies to correctly and efficiently sequence the compilation of components during a build process.

MainClaim: A method for creating a model of a computer program in a memory of a computer system, comprising the steps of:

(a) the computer system creating a plurality of components, each component representing an element of the computer program in the memory of the computer system;

(b) the computer system creating a plurality of properties associated with each of the components in the memory of the computer system;

(c) the computer system determining the dependencies between each of the components of the computer program; and

(d) the computer system storing each of the components, and their associated properties and dependencies, in a database in the memory of the computer system.

2005/0060696	Method and a system for constructing control flows graphs of binary executable programs at post-link time	Nokia Corporation	Bicsak, Attila Kiss, Akos Ferenc, Rudolf Gyimothy, Tibor	717	G06F	20030829	9	93%	<input type="checkbox"/>
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Abstract: A method and a system for constructing a control flow graph (CFG, 106) from an executable computer program (104). The solution detects data intermixed with instructions and instruction set changes. The method includes the steps of defining block leader types specifying basic block boundaries in the program (104), building a CFG structure (106) according to the basic blocks found in the program, and adding control flow and addressing information to the CFG (106) by propagating through the basic blocks and internals thereof. The CFG (106) may be then optimised (108) and a compacted executable (112) created as a result.

MainClaim: A method for constructing a control flow graph (CFG) from a computer executable program the instructions of which belong to one or more instruction sets, said method comprising the steps of defining a number of block leader types including at least one type related to an instruction set change, block leaders specifying basic block boundaries in the program, said basic blocks including instructions or data (702), building a CFG structure comprising basic blocks found in the program (708), adding control flow and addressing information to said CFG by propagating through said basic blocks and internals thereof (710).

7,207,038	Constructing control flows graphs of binary executable programs at post-link time	Nokia Corporation	Bicsak; Attila Kiss; kos Ferenc; Rudolf Gyimothy; Tibor	717	G06F	20030829	9	92%	<input type="checkbox"/>
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Abstract: A method and a system for constructing a control flow graph (CFG, 106) from an executable computer program (104). The solution detects data intermixed with instructions and instruction set changes. The method includes the steps of defining block leader types specifying basic block boundaries in the program (104), building a CFG structure (106) according to the basic blocks found in the program, and adding control flow and addressing information to the CFG (106) by propagating through the basic blocks and internals thereof. The CFG (106) may be then optimised (108) and a compacted executable (112) created as a result.

MainClaim: A method for execution on a signal processing unit for constructing a control flow graph from a computer executable program the instructions of which belong to one or more computer architecture instruction sets, said method comprising defining a number of block leader types including at least one type related to an instruction set change, block leaders specifying basic block boundaries in the program, said basic blocks including instructions or data, building a control flow graph structure comprising basic blocks found in the program, adding control flow and addressing information to said control flow graph by propagating through said basic blocks and internals of said basic blocks and stored on said memory device.

7,065,533	Method and apparatus for configuring a computer	Apple Computer, Inc.	Arrouye; Yan Comiskey; John Nebel; Chris Ford; Richard Guittet; Michel Li; Alice	707	G06F	20030401	0	100%	<input checked="" type="checkbox"/>
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Abstract: A method and apparatus for configuring a computer. One embodiment of the invention combines all of the prior art control panels related to networking into a consolidated Network Setup Control Panel. In addition, the invention provides for computer configuration by scripting. The configuration may be for a type of system setting or for network configurations and protocols. Through scripting, a computer may be configured locally or remotely on a network. One embodiment of the invention provides for a centralized database or Configuration Library consisting of collected data relating to available configuration settings. This database is not limited to configuration information and can be used as a general database containing information the user desires to store. To modify a configuration by scripting, the invention provides for a Scripting Interface consisting of a Scripting Server and Scripting Plug-In. The Scripting Server receives the script forwarded from a user or network administrator, parses the script and determines the appropriate Scripting Plug-In to forward the desired action to. The Scripting Plug-In receives the commands and executes the appropriate actions to modify the configuration as directed.

MainClaim: A method for configuring a computer comprising: obtaining a database having at least one configuration settings for a computer; obtaining a script having commands for configuring said computer; parsing said script to determine an appropriate Scripting Plug-In for said script, wherein said Scripting Plug-In maintains knowledge of specific fields and methods of objects stored in said database; and forwarding said script to said Scripting Plug-In, wherein said Scripting Plug-In executes said commands thereby configuring said computer.

2006/0168158	Automated bulk configuration of network devices	Nokia Inc.	Das; Debashis	709	G06F	20051229	4	95%	<input type="checkbox"/>
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Abstract: Multiple devices within a data communication network can be configured according to a single configuration profile. Configuration profile data is stored in a configuration file. Connections are made to individual devices, and the data in the configuration file is transformed into device-specific commands.

MainClaim: A machine-executable method of configuring multiple devices in a data communication network, comprising: (a) receiving a selection of a group of devices to be configured in accordance with a previously-stored configuration profile, the devices of the group being situated in different locations within the data communications network, the configuration profile having previously-stored configuration data that specifies, as to each device of the group, values for multiple configuration parameters corresponding to desired operation of that device; (b) automatically opening a network connection with each of the devices of the group; (c) automatically retrieving identifying data from each of the devices of the group; (d) automatically mapping, for each device of the group and subsequent to step (a), the retrieved identifying data to a corresponding configuration profile deployment routine set; (e) automatically generating device-specific commands for each device of the group, wherein the device-specific commands for each device are generated subsequent to performance of step (d) for that device and are generated using the previously-stored configuration data and the configuration profile deployment routine set mapped to the identifying data for that device; and (f) automatically transmitting the device-specific commands to each device of the group.

7,421,484	Automated bulk configuration of network devices	NOKIA, Inc.	Das; Debashis	709	G06F	20051229	1	94%	<input type="checkbox"/>
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Abstract: Multiple devices within a data communication network can be configured according to a single configuration profile. Configuration profile data is stored in a configuration file. Connections are made to individual devices, and the data in the configuration file is transformed into device-specific commands.

MainClaim: A method, comprising: receiving a selection of a group of devices in a data communication network to be configured in accordance with a previously-stored common configuration profile, the devices of the group being situated in different locations within the data communications network, the common configuration profile having previously-stored configuration data that specifies, as to each device of the group, values for multiple configuration parameters corresponding to desired operation of that device; automatically opening a network connection with each of the devices of the group; automatically retrieving identifying data from each of the devices of the group; automatically mapping, for each device of the group and subsequent to receiving the selection, the retrieved identifying data to a corresponding one of multiple configuration profile deployment routine sets, wherein the retrieved identifying data of each device corresponds to a different configuration profile deployment routine set, and each configuration profile deployment routine set includes programming instructions to convert the configuration data from the common configuration profile into device-specific commands to configure the device having the corresponding retrieved identifying data; automatically generating device-specific commands for each device of the group, wherein the device-specific commands for each device are generated subsequent to the automatic mapping for that device and are generated using the previously-stored configuration data of the common configuration profile and the configuration profile deployment routine set corresponding to the identifying data for that device; and automatically transmitting the device-specific commands to each device of the group.

5,574,915	Object-oriented booting framework	Taligent	Lemon; Steven P. Ross; Patrick D.	712	G06F	19931221	0	100%	<input checked="" type="checkbox"/>
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Abstract: An object-oriented framework contains program code for booting a processor with a volatile storage from an attached non-volatile storage. The framework provides a hardware independent boot image base class which can be subclassed to provide boot image program code for each specific hardware configuration. The boot image program code performs low level tasks such as determining the hardware configuration and loading kernel code into the volatile memory. Once the kernel has been loaded into memory it is initialized using the configuration information to provide a hardware-independent platform. Further non-subclassable code is used to establish support for accessing object-oriented shared libraries in the non-volatile storage. Finally an object-oriented environment is established by instantiating a file object from the shared libraries.

MainClaim: An apparatus for booting an object-oriented operating system comprising a kernel program and a plurality of shared libraries containing hardware-independent, object-oriented programs onto a computer system comprising a plurality of hardware devices connected in a configuration, the apparatus comprising:

- (a) a processor;
- (b) a volatile storage attached to and under the control of the processor;

(c) a non-volatile storage attached to and under the control of the processor, the non-volatile storage having the kernel program, the plurality of shared libraries and a hardware-specific boot image program stored therein;

(d) boot image delivery means for loading the boot image program from the non-volatile storage into the volatile storage;

(e) framework setup means for causing the processor to execute the boot image program to load the kernel program from the non-volatile storage into the volatile storage, to determine the configuration of the plurality of hardware devices and to generate configuration data in a universal format; and

(f) framework execution means for causing the processor to initialize the kernel with the configuration data, to start a program which provides paging between the volatile storage and the non-volatile storage and to instantiate an object oriented file system from the shared libraries.

2007/0240171	Device, Method, And Computer Program Product For Accessing A Non-Native Application Executing In Virtual Machine Environment	Nokia Corporation	Biro; Jozsef Boros; Andras	719	G06F	20060329	9	93%	<input type="checkbox"/>
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Abstract: Embodiments of the invention provide a virtual machine application program (VMAPI) interface logically disposed between a non-native application executing in the virtual machine environment and a native middleware application, such as a native high-availability middleware application. The VMAPI is registered as a proxy component with the native middleware application by creating a library instance. The non-native application is registered as a proxied component with the native middleware application by creating another dedicated library instance. A JVM mapper may be logically disposed between the native middleware and the VMAPI that is capable of automatically mapping the JVM to the Java components based on a mapping policy selected from a predefined set of possible mapping policies.

MainClaim: A device for providing access to a non-native application executing in a virtual machine environment, wherein the device comprises: a processing element configured to execute a virtual machine application, including a virtual machine application program interface (VMAPI), to create the virtual machine environment in which the non-native application is configured to execute; the processing element further configured to execute a native middleware application; wherein the VMAPI is logically disposed between the non-native application executing in the virtual machine environment and the native middleware application; wherein the VMAPI is registered as a proxy component with the native middleware application; and wherein the non-native application is registered by the VMAPI as a proxied component with the native middleware application.

2008/0148277	Optimizing calls from a managed runtime environment to microkernel extended functionality	Nokia Corporation	di Flora; Cristiano	719	G06F	20061218	10	92%	<input type="checkbox"/>
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Abstract: A sequence of function calls may be executed as a single software component, rather than as individual method calls on a operating system, for example, in a microkernel system. Source code from a user application is parsed to identify a plurality of homogeneous function calls, for example, corresponding to sequence of native microkernel method calls. A homogeneous downcall sequence (HDS) is identified in the application source code, and a separate software component (e.g., a native plug-in) is generated to perform the functionality of the HDS. The application code may be modified to remove the plurality of function calls and replace them with a reference to the newly-generated software component. Finally, the modified application code is executed on the server, for example, by a managed runtime environment (MRTE) process. The software component may be invoked and executed as-a-whole by a native process.

MainClaim: A method, comprising:receiving a first set of instructions to be executed on a computing device;identifying a plurality of homogeneous function calls in said first set of instructions;creating an executable software component operable to perform functionality corresponding to the plurality of homogeneous function calls; andgenerating a second set of instructions based on said first set of instructions, wherein said second set of instructions does not comprise the identified plurality of homogeneous function calls and does comprise a reference to said executable software component, and wherein an execution of the second set of instructions on the computing device requires said computing device to perform fewer context switches than an execution of the first set of instructions on the computing device.

6,578,042	Method and apparatus for configuring a computer using scripting plug-in	Apple Computer, Inc.	Arrouye; Yan Comiskey; John Nebel; Christopher Ford; Richard Guittet; Michel Li; Alice	707	G06F	20010522	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for configuring a computer. One embodiment of the invention combines all of the prior art control panels related to networking into a consolidated Network Setup Control Panel. In addition, the invention provides for computer configuration by scripting. The configuration may be for a type of system setting or for network configurations and protocols. Through scripting, a computer may be configured locally or remotely on a network. One embodiment of the invention provides for a centralized database or Configuration Library consisting of collected data relating to available configuration settings. This database is not limited to configuration information and can be used as a general database containing information the user desires to store. To modify a configuration by scripting, the invention provides for a Scripting Interface consisting of a Scripting Server and Scripting Plug-In. The Scripting Server receives the script forwarded from a user or network administrator, parses the script and determines the appropriate Scripting Plug-In to forward the desired action to. The Scripting Plug-In receives the commands and executes the appropriate actions to modify the configuration as directed.

MainClaim: A method for configuring a computer comprising:

obtaining a database;

loading said database with configuration settings;

creating at least one Scripting Plug-In associated with commands forwarded from a script; and

modifying said configuration settings in said database using said at least one Scripting Plug-In.									
2006/0168158	Automated bulk configuration of network devices	Nokia Inc.	Das; Debashis	709	G06F	20051229	4	94%	<input type="checkbox"/>
<p>Abstract: Multiple devices within a data communication network can be configured according to a single configuration profile. Configuration profile data is stored in a configuration file. Connections are made to individual devices, and the data in the configuration file is transformed into device-specific commands.</p> <p>MainClaim: A machine-executable method of configuring multiple devices in a data communication network, comprising: (a) receiving a selection of a group of devices to be configured in accordance with a previously-stored configuration profile, the devices of the group being situated in different locations within the data communications network, the configuration profile having previously-stored configuration data that specifies, as to each device of the group, values for multiple configuration parameters corresponding to desired operation of that device; (b) automatically opening a network connection with each of the devices of the group; (c) automatically retrieving identifying data from each of the devices of the group; (d) automatically mapping, for each device of the group and subsequent to step (a), the retrieved identifying data to a corresponding configuration profile deployment routine set; (e) automatically generating device-specific commands for each device of the group, wherein the device-specific commands for each device are generated subsequent to performance of step (d) for that device and are generated using the previously-stored configuration data and the configuration profile deployment routine set mapped to the identifying data for that device; and (f) automatically transmitting the device-specific commands to each device of the group.</p>									
7,013,331	Automated bulk configuration of network devices	Nokia, Inc.	Das; Debashis	709	G06F	20021220	3	94%	<input type="checkbox"/>
<p>Abstract: Multiple devices within a data communication network can be configured according to a single configuration profile. Configuration profile data is stored in a configuration file. Connections are made to individual devices, and the data in the configuration file is transformed into device-specific commands.</p> <p>MainClaim: A machine-executable method of configuring multiple devices in a data communication network, comprising:</p> <p>(a) receiving a selection of a group of devices to be configured in accordance with a previously-stored configuration profile, the devices of the group being situated in different locations within the data communications network, the configuration profile having previously-stored configuration data that specifies, as to each device of the group, values for multiple configuration parameters corresponding to desired operation of that device;</p> <p>(b) automatically opening a network connection with each of the devices of the group;</p> <p>(c) automatically retrieving identifying data from each of the devices of the group;</p> <p>(d) automatically mapping, for each device of the group and subsequent to step (a), the retrieved identifying data to a corresponding configuration profile deployment routine set;</p> <p>(e) automatically generating device-specific commands for each device of the group, wherein the device-specific commands for each device are generated subsequent to performance of step (d) for that device and are generated using the previously-stored configuration data and the configuration profile deployment routine set mapped to the identifying data for that device;</p> <p>(f) automatically transmitting the device-specific commands to each device of the group;</p> <p>(g) prior to step (a), providing a configured device having configuration parameters set in conformity with a desired configuration; and</p> <p>(h) subsequent to step (g), extracting configuration data from the configured device, wherein the extracted configuration data becomes the previously-stored configuration data of step (a), and wherein the previously-stored configuration data is stored in Extensible Markup Language (XML) format.</p>									
2004/0123091	Automated bulk configuration of network devices	Nokia Inc.	Das, Debashis	713	G06F	20021220	3	94%	<input type="checkbox"/>
<p>Abstract: Multiple devices within a data communication network can be configured according to a single configuration profile. Configuration profile data is stored in a configuration file. Connections are made to individual devices, and the data in the configuration file is transformed into device-specific commands.</p> <p>MainClaim: A machine-executable method of configuring multiple devices in a data communication network, comprising: providing a configuration profile having configuration data that specifies multiple configuration parameters applicable to each of the multiple devices; retrieving identifying data from each of the devices; mapping, for each device, the retrieved identifying data to a corresponding configuration profile deployment routine set; generating device-specific commands for each device using the configuration data and the configuration profile deployment routine sets mapped to the identifying data for the devices; and transmitting the device-specific commands to each device.</p>									
5,613,101	Method and apparatus for determining at execution compatibility among client and provider components where provider version linked with client may differ from provider version available at execution	Apple Computer, Inc.	Lillich; Alan W.	709	G06F	19950607	0	100%	<input type="checkbox"/>
<p>Abstract: The invention is a method and apparatus for verifying compatibility between components of a system which share a</p>									

client-provider relationship. Briefly, according to the invention, a current version of a provider and a compatibility range are defined for each of a version of a client and a version of a provider. A version of a provider specifies an oldest implementation provider and an oldest definition provider. When a client is linked with a particular version of a provider it stores an identification for that provider, a current indicator for that version of the provider, called a definition provider, and the oldest implementation provider. At runtime, compatibility checks are performed between a client and available versions of the provider(s), called implementation providers, with which it has been linked. For each available version of each type of provider compatibility exists with the client in three situations. First, if the definition provider and the implementation provider are the same version of that provider, then the client and provider are compatible. Second, if the definition provider, i.e. the version of the provider linked with the client, is newer than the implementation provider, then if the version of the implementation provider is no older than the oldest implementation provider specified in the client, the two are compatible, otherwise they are incompatible. Third, if the definition provider is older than the implementation provider, then if the definition provider is no older than the oldest definition provider specified in the implementation provider, then the two are compatible.

MainClaim: A method for verifying compatibility between modular components in a system having a processor, at least one client component and at least one provider component, the at least one provider component capable of providing services to the at least one client component, a provider component having one or more versions, the at least one client being linked to a version of a provider component during the creation of an executable file of the at least one client and the at least one client, during execution on the processor, using a version of the provider component which is available in the system at the time of execution, wherein the provider component used during execution may be a different version than the provider component to which the client was linked, said method comprising the steps of:

specifying a provider indicator for each provider component, said provider indicator identifying a provider component's type and uniquely identifying the provider component in a manner that distinguishes the provider component from other provider components;

specifying a current indicator for each version of each provider component, said current indicator having a value identifying a version of the provider component in a manner which distinguishes the version from other versions of the provider component;

specifying for each version of each provider component a compatibility range, the compatibility range for a version of a provider component identifying a range of versions of the provider component which are compatible with that version of the provider component such that during execution of a client that version of the provider can be used as long as the client was built using a version of the provider component identified in that version's compatibility range;

specifying for each client component a compatibility range for each provider component to which it is linked, each compatibility range identifying a range of versions of a provider component which can be used to execute the client component;

linking the at least one client to a provider component to construct an executable client component;

associating the at least one client with the current indicator of the linked provider component;

when a client component is executed, determining which of the at least one provider component and versions thereof are available on the system and connecting the client component and the available at least one provider component such that information such as the current indicator and compatibility range of the provider component, the current indicator of a provider component associated with the client component during linking, and the compatibility range of the client can be exchanged between the connected client component and the available at least one provider component;

determining compatibility between the client component and the connected at least one provider component, the determination being based on the current indicator of the at least one provider component, the current indicator of a provider component associated with the client component during linking, and the compatibility range of the newer of the at least one provider component and the client component such that compatibility is found to exist when the current indicator of the at least one provider component and the current indicator of the linked provider component indicate substantially the same version of the provider component or when the current indicator of the older of the at least one provider component and the linked provider component is within the compatibility range of the newer of the at least one provider component and the client component; and

indicating whether compatibility exists.

2010/0005481	Method of Maintaining Applications in a Computing Device	NOKIA CORPORATION	Lewis; Simon Litovski; Ivan	719	G06F	20051215	3	93%	<input type="checkbox"/>
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Abstract: A method is provided for managing the application lifecycle for user applications on a computing device. The method can centrally manage application lifecycle (including installation, execution status, removal) application capabilities long-lived OS level application owned resources (e.g. push connections, alarms) security for any application, regardless of application type or model or execution environment.

MainClaim: A method of managing application lifecycle for user applications on a computing device, the method comprising providing an application management system (AMS) for managing a plurality of application models and a plurality of application environments, wherein the AMS is implemented as a component within an operating system for the computing device and grants to the operating system control for all application management functionality on the device.

7,653,914	Handling different service versions in a server	Nokia Corporation	Krohn; Petri Jaske; Harri	719	G06F	20020423	6	92%	<input type="checkbox"/>
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Abstract: This invention relates to handling of different service versions in a server that is connected to a communication network. The invention comprises means to load a desired version, two tables and additional data for handling different service versions. The first table contains service key and version information, and serialized service objects. The second table contains names of classes, version information and class files. The additional data is needed for loading the right class from among classes, with the same name, and mapping the right service object version to the right versions of classes.

MainClaim: A method comprising: grouping different versions of service applications and classes in at least one service repository into a first group comprising entries of service objects and a second group comprising entries of classes, forming the

entries of the service objects in the first group to include a first information field for representing information about a version of a service and at least one service object, forming the entries of the classes in the second group to include a second information field for representing information about a version of the class, and mapping the service objects with the classes to provision the service applications, wherein the different versions of service applications include different versions of a same service application, and wherein the different versions of classes include different versions of a same class, wherein when executing a desired service application, the method further comprises searching for a service entry of a desired service application from the first group, loading a service object of the service entry of the desired service application from the first group for use by at least one server, using the mapping to discover entries of the classes of the second group associated with said service object of the service entry of the desired service application, and loading the entries of the classes of the second group associated with said service object of the service entry of the desired service application to the server.

6,606,742	Object-oriented interface for portability to diverse operating systems or hardware platforms	Taligent, Inc.	Orton; Debra Lyn Bolton; Eugenie Lee Chernikoff; Daniel F. Goldsmith; David Brook Moeller; Christopher P.	717	G06F	19990820	0	100%	<input checked="" type="checkbox"/>
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Abstract: An object-oriented interface is disclosed for conferring portability for object-oriented programming to diverse operating systems on diverse hardware platforms in a computer system. The object-oriented interface is executable on a plurality of different computer platforms and includes classes of object-oriented methods. The interface is responsive to the object-oriented programming which instantiates its objects from its own classes and invokes the object oriented methods of the interface. Operating system specific, procedural program logic is compiled for use on a given computer platform that includes given computer hardware and a given procedural operating system which is executable on the hardware. A determination is made if the object-oriented methods of the interface to be invoked during runtime execution are present in the program memory of the computer hardware. A runtime loader selectively loads into the program memory any required object-oriented methods of the interface during runtime before their invocation by the object-oriented programming. The object-oriented interface thereby provides native system services to the object-oriented programming from the given computer hardware and procedural operating system.

MainClaim: A computer system for running object-oriented applications, comprising:

a computer platform including a computer hardware and an operating system executable on the computer hardware;

an object-oriented interface specifying object-oriented classes each containing one or more methods, the interface implemented on a plurality of different computer platforms including different combinations of computer hardware and operating systems, the interface used by object-oriented applications to instantiate objects from the classes and invoke the object oriented methods;

a procedural program logic code, specific to the operating system, compiled for use on the computer hardware and responsive to the object-oriented interface to provide native system services from the computer platform;

executable program memory in the computer hardware for runtime execution of the operating system, the object-oriented interface, and the procedural program logic code;

logic to determine if object-oriented methods to be invoked during runtime execution are not present in the executable program memory; and

a runtime loader for loading into the executable program memory object-oriented methods determined to not be present in the executable program memory prior to their runtime execution.

2007/0174697	Generic, WSRF-compliant checkpointing for WS-Resources	Nokia Corporation	Saridakis; Titos Verta; Heikki	714	G06F	20060119	7	93%	<input type="checkbox"/>
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Abstract: A generic, WSRF-compliant checkpointing mechanism for grid services that is based upon the information found in a resource properties document. The resource properties document gives the structure of the entire state of a WS-Resource as a set of properties and their values. The checkpointing mechanism also is based upon the operations for retrieving and replacing the resource properties document of a WS-Resource.

MainClaim: A method of saving and loading checkpoints in a WS-Resource, comprising: receiving a number of instances of a first resource properties document from the WS-Resource, using a GetResourcePropertyDocument standard WSRF operation, each instance of the first resource properties document identifying a plurality of properties of the WS-Resource at a given moment; storing the instances of the first resource properties document in distinguishable locations; retrieving a selected instance of the first resource properties document; and instructing the WS-Resource to use the selected instance to replace the WS-Resource's current state using a PutResourcePropertyDocument standard WSRF operation.

2008/0148277	Optimizing calls from a managed runtime environment to microkernel extended functionality	Nokia Corporation	di Flora; Cristiano	719	G06F	20061218	10	93%	<input type="checkbox"/>
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Abstract: A sequence of function calls may be executed as a single software component, rather than as individual method calls on a operating system, for example, in a microkernel system. Source code from a user application is parsed to identify a plurality of homogeneous function calls, for example, corresponding to sequence of native microkernel method calls. A homogeneous downcall sequence (HDS) is identified in the application source code, and a separate software component (e.g., a native plug-in) is generated to perform the functionality of the HDS. The application code may be modified to remove the plurality of function calls and replace them with a reference to the newly-generated software component. Finally, the modified application code is executed on the server, for example, by a managed runtime environment (MRTE) process. The software component may be invoked and executed as-a-whole by a native process.

MainClaim: A method, comprising:receiving a first set of instructions to be executed on a computing device;identifying a plurality of homogeneous function calls in said first set of instructions;creating an executable software component operable to perform functionality corresponding to the plurality of homogeneous function calls; andgenerating a second set of instructions

based on said first set of instructions, wherein said second set of instructions does not comprise the identified plurality of homogeneous function calls and does comprise a reference to said executable software component, and wherein an execution of the second set of instructions on the computing device requires said computing device to perform fewer context switches than an execution of the first set of instructions on the computing device.

2007/0240171	Device, Method, And Computer Program Product For Accessing A Non-Native Application Executing In Virtual Machine Environment	Nokia Corporation	Biro; Jozsef Boros; Andras	719	G06F	20060329	9	92%	<input type="checkbox"/>
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Abstract: Embodiments of the invention provide a virtual machine application program (VMAPI) interface logically disposed between a non-native application executing in the virtual machine environment and a native middleware application, such as a native high-availability middleware application. The VMAPI is registered as a proxy component with the native middleware application by creating a library instance. The non-native application is registered as a proxied component with the native middleware application by creating another dedicated library instance. A JVM mapper may be logically disposed between the native middleware and the VMAPI that is capable of automatically mapping the JVM to the Java components based on a mapping policy selected from a predefined set of possible mapping policies.

MainClaim: A device for providing access to a non-native application executing in a virtual machine environment, wherein the device comprises: a processing element configured to execute a virtual machine application, including a virtual machine application program interface (VMAPI), to create the virtual machine environment in which the non-native application is configured to execute; the processing element further configured to execute a native middleware application; wherein the VMAPI is logically disposed between the non-native application executing in the virtual machine environment and the native middleware application; wherein the VMAPI is registered as a proxy component with the native middleware application; and wherein the non-native application is registered by the VMAPI as a proxied component with the native middleware application.

5,475,845	Wrapper system for interfacing an object-oriented application to a procedural operating system	Taligent, Inc.	Orton; Debra L. Bolton; Eugenie L. Chernikoff; Daniel F. Goldsmith; David B. Moeller; Christopher P.	719	G06F	19940928	0	100%	<input type="checkbox"/>
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Abstract: An apparatus for enabling an object-oriented application to access in an object-oriented manner a procedural operating system having a native procedural interface is disclosed. The apparatus includes a computer and a memory component in the computer. A code library is stored in the memory component. The code library includes computer program logic implementing an object-oriented class library. The object-oriented class library comprises related object-oriented classes for enabling the application to access in an object-oriented manner services provided by the operating system. The object-oriented classes include methods for accessing the operating system services using procedural function calls compatible with the native procedural interface of the operating system. The computer processes object-oriented statements contained in the application and defined by the class library by executing methods from the class library corresponding to the object-oriented statements.

MainClaim: An apparatus for enabling an object-oriented application to access a procedural operating system including procedural functions saved as executable program logic which are called to access services provided by said procedural operating system, the apparatus comprising:

- (a) a computer;
- (b) a memory component in said computer;
- (c) a code library, stored in the memory component, comprising:

an object-oriented class library means having object classes with member functions for invoking said executable program logic; and

(d) object-oriented operating system means, in said computer, for processing object-oriented statements by inserting into said object-oriented application a reference to said object-oriented class library means so that the application may instantiate objects from said object-oriented class library means and thereafter access the member functions in the instantiated objects to invoke executable program logic which corresponds to said object-oriented statements so as to interface said procedural operating system with said object-oriented application and thus service a request for operating system services by the object-oriented application.

2007/0174697	Generic, WSRF-compliant checkpointing for WS-Resources	Nokia Corporation	Saridakis; Titos Verta; Heikki	714	G06F	20060119	7	93%	<input type="checkbox"/>
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Abstract: A generic, WSRF-compliant checkpointing mechanism for grid services that is based upon the information found in a resource properties document. The resource properties document gives the structure of the entire state of a WS-Resource as a set of properties and their values. The checkpointing mechanism also is based upon the operations for retrieving and replacing the resource properties document of a WS-Resource.

MainClaim: A method of saving and loading checkpoints in a WS-Resource, comprising: receiving a number of instances of a first resource properties document from the WS-Resource, using a GetResourcePropertyDocument standard WSRF operation, each instance of the first resource properties document identifying a plurality of properties of the WS-Resource at a given moment; storing the instances of the first resource properties document in distinguishable locations; retrieving a selected instance of the first resource properties document; and instructing the WS-Resource to use the selected instance to replace the WS-Resource's current state using a PutResourcePropertyDocument standard WSRF operation.

7,007,004	Concurrent operation of a state machine family	Nokia Corporation	Liukkonen; Juha Syrjänen; Jukka Ruusiala; Jarmo Kartesalo; Tomi	707	G06F	20021120	7	92%	<input type="checkbox"/>
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			Ruhtula; Erkki Malmqvist; Markus						
<p>Abstract: The present invention concerns a method and a system for operating state machines concurrently in a computing system. One or more state machine families are generated. Each family comprises one master state machine type for receiving service requests from outside its family and for forwarding the received service requests for servicing, and one or more slave state machine types for receiving and servicing the forwarded service requests. A thread pool is allocated to one or more state machine families. Each thread pool is specific to one state machine family and comprises one or more threads for executing the master instance and slave instances of the corresponding state machine family. State machine instances of one or more generated state machine families are assigned to corresponding threads of the allocated thread pools for execution.</p> <p>MainClaim: A method for operating state machines concurrently in a computing system, wherein the method comprises the steps of:</p> <p>generating one or more state machine families, each family comprising one master state machine type for receiving service requests from outside its family and for forwarding the received service requests for servicing, and one or more slave state machine types for receiving and servicing the forwarded service requests, the master state machine type instantiated as one master instance and at least one slave state machine type instantiated as one or more slave instances, each instance having a message queue of its own,</p> <p>allocating to one or more generated state machine families a thread pool, each thread pool being specific to one state machine family and comprising one or more threads for executing the master instance and slave instances of the corresponding state machine family, and</p> <p>assigning state machine instances of one or more generated state machine families to corresponding threads of the allocated thread pools for execution, a given instance being executed by no more than one thread at any given time and a given thread executing no more than one instance at any given time.</p>									
2007/0240171	Device, Method, And Computer Program Product For Accessing A Non-Native Application Executing In Virtual Machine Environment	Nokia Corporation	Biro; Jozsef Boros; Andras	719	G06F	20060329	9	92%	<input type="checkbox"/>
<p>Abstract: Embodiments of the invention provide a virtual machine application program (VMAPI) interface logically disposed between a non-native application executing in the virtual machine environment and a native middleware application, such as a native high-availability middleware application. The VMAPI is registered as a proxy component with the native middleware application by creating a library instance. The non-native application is registered as a proxied component with the native middleware application by creating another dedicated library instance. A JVM mapper may be logically disposed between the native middleware and the VMAPI that is capable of automatically mapping the JVM to the Java components based on a mapping policy selected from a predefined set of possible mapping policies.</p> <p>MainClaim: A device for providing access to a non-native application executing in a virtual machine environment, wherein the device comprises: a processing element configured to execute a virtual machine application, including a virtual machine application program interface (VMAPI), to create the virtual machine environment in which the non-native application is configured to execute; the processing element further configured to execute a native middleware application; wherein the VMAPI is logically disposed between the non-native application executing in the virtual machine environment and the native middleware application; wherein the VMAPI is registered as a proxy component with the native middleware application; and wherein the non-native application is registered by the VMAPI as a proxied component with the native middleware application.</p>									
5,455,951	Method and apparatus for running an object-oriented program on a host computer with a procedural operating system	Taligent, Inc.	Bolton; Eugenie L. Dattatri; Kayshav	718	G06F	19930719	0	100%	<input type="checkbox"/>
<p>Abstract: An apparatus for enabling an object-oriented application to access in an object-oriented manner a procedural operating system having a native procedural interface is disclosed. The apparatus includes a computer and a memory component in the computer and support for a host system. A code library is stored in the memory component. The code library includes computer program logic implementing an object-oriented class library. The object-oriented class library comprises related object-oriented classes for enabling the application to access in an object-oriented manner services provided by the operating system. The object-oriented classes include methods for accessing the operating system services using procedural function calls compatible with the native procedural interface of the operating system. The computer processes object-oriented statements contained in the application and defined by the class library by executing methods from the class library corresponding to the object-oriented statements. The object-oriented application includes support for multi-tasking.</p> <p>MainClaim: An apparatus for enabling an object-oriented application, including object-oriented statements to access a procedural operating system including procedural functions saved as executable program logic which are called to access services provided by said procedural operating system to enable communications between a host computer and a second computer, comprising:</p> <p>(a) computer;</p> <p>(b) a memory component in said computer;</p> <p>(c) a code library, stored in said memory component, comprising: means for storing said executable program logic in an object-oriented class library; means for interfacing said object-oriented application to said procedural operating system utilizing said executable program logic;</p> <p>(d) means, in said computer, for processing object-oriented statements by inserting said executable program logic which corresponds to said object-oriented statements into said object-oriented application to access said host computer; and</p>									

(e) said host computer comprising a plurality of processors operating in parallel, and wherein one of said plurality of processors contains said means for processing object-oriented statements by inserting said executable program logic which corresponds to said object-oriented statements into said object-oriented application to interface said procedural operating system and facilitate communication with said second computer.

2007/0174697	Generic, WSRF-compliant checkpointing for WS-Resources	Nokia Corporation	Saridakis; Titos Verta; Heikki	714	G06F	20060119	7	93%	<input type="checkbox"/>
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Abstract: A generic, WSRF-compliant checkpointing mechanism for grid services that is based upon the information found in a resource properties document. The resource properties document gives the structure of the entire state of a WS-Resource as a set of properties and their values. The checkpointing mechanism also is based upon the operations for retrieving and replacing the resource properties document of a WS-Resource.

MainClaim: A method of saving and loading checkpoints in a WS-Resource, comprising: receiving a number of instances of a first resource properties document from the WS-Resource, using a GetResourcePropertyDocument standard WSRF operation, each instance of the first resource properties document identifying a plurality of properties of the WS-Resource at a given moment; storing the instances of the first resource properties document in distinguishable locations; retrieving a selected instance of the first resource properties document; and instructing the WS-Resource to use the selected instance to replace the WS-Resource's current state using a PutResourcePropertyDocument standard WSRF operation.

7,007,004	Concurrent operation of a state machine family	Nokia Corporation	Liukkonen; Juha Syrjänen; Jukka Ruusiala; Jarmo Kartesalo; Tomi Ruohutula; Erkki Malmqvist; Markus	707	G06F	20021120	7	92%	<input type="checkbox"/>
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Abstract: The present invention concerns a method and a system for operating state machines concurrently in a computing system. One or more state machine families are generated. Each family comprises one master state machine type for receiving service requests from outside its family and for forwarding the received service requests for servicing, and one or more slave state machine types for receiving and servicing the forwarded service requests. A thread pool is allocated to one or more state machine families. Each thread pool is specific to one state machine family and comprises one or more threads for executing the master instance and slave instances of the corresponding state machine family. State machine instances of one or more generated state machine families are assigned to corresponding threads of the allocated thread pools for execution.

MainClaim: A method for operating state machines concurrently in a computing system, wherein the method comprises the steps of:

generating one or more state machine families, each family comprising one master state machine type for receiving service requests from outside its family and for forwarding the received service requests for servicing, and one or more slave state machine types for receiving and servicing the forwarded service requests, the master state machine type instantiated as one master instance and at least one slave state machine type instantiated as one or more slave instances, each instance having a message queue of its own,

allocating to one or more generated state machine families a thread pool, each thread pool being specific to one state machine family and comprising one or more threads for executing the master instance and slave instances of the corresponding state machine family, and

assigning state machine instances of one or more generated state machine families to corresponding threads of the allocated thread pools for execution, a given instance being executed by no more than one thread at any given time and a given thread executing no more than one instance at any given time.

2007/0240171	Device, Method, And Computer Program Product For Accessing A Non-Native Application Executing In Virtual Machine Environment	Nokia Corporation	Biro; Jozsef Boros; Andras	719	G06F	20060329	9	92%	<input type="checkbox"/>
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Abstract: Embodiments of the invention provide a virtual machine application program (VMAPI) interface logically disposed between a non-native application executing in the virtual machine environment and a native middleware application, such as a native high-availability middleware application. The VMAPI is registered as a proxy component with the native middleware application by creating a library instance. The non-native application is registered as a proxied component with the native middleware application by creating another dedicated library instance. A JVM mapper may be logically disposed between the native middleware and the VMAPI that is capable of automatically mapping the JVM to the Java components based on a mapping policy selected from a predefined set of possible mapping policies.

MainClaim: A device for providing access to a non-native application executing in a virtual machine environment, wherein the device comprises: a processing element configured to execute a virtual machine application, including a virtual machine application program interface (VMAPI), to create the virtual machine environment in which the non-native application is configured to execute; the processing element further configured to execute a native middleware application; wherein the VMAPI is logically disposed between the non-native application executing in the virtual machine environment and the native middleware application; wherein the VMAPI is registered as a proxy component with the native middleware application; and wherein the non-native application is registered by the VMAPI as a proxied component with the native middleware application.

5,404,529	Object-oriented interprocess communication system interface for a procedural operating system	Taligent, Inc.	Chernikoff; Daniel F. Bolton; Eugenie L. Moeller; Christopher P. Dattatri; Kayshav	719	G06F	19930719	0	100%	<input type="checkbox"/>
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Abstract: An apparatus for enabling an object-oriented application to access in an object-oriented manner a procedural operating system having a native procedural interface is disclosed. The apparatus includes a computer and a memory component in the computer. A code library is stored in the memory component. The code library includes computer program logic implementing an object-oriented class library. The object-oriented class library comprises related object-oriented classes for enabling the application to access in an object-oriented manner services provided by the operating system. The object-

oriented classes include methods for accessing the operating system services using procedural function calls compatible with the native procedural interface of the operating system. The computer processes object-oriented statements contained in the application and defined by the class library by executing methods from the class library corresponding to the object-oriented statements. An object-oriented interprocess communication system is employed to enhance communication between threads.

MainClaim: An apparatus for enabling an object-oriented application, including object-oriented statements to access a procedural operating system including procedural functions saved as executable program logic which are called to access services provided by said procedural operating system to facilitate communication with another object-oriented task which is executing on said procedural operating system, comprising:

- (a) a computer;
- (b) a memory component in said computer;
- (c) a code library, stored in the memory component, comprising:

means for storing said executable program logic in an object-oriented class library;

object-oriented operating system means for interfacing said object-oriented application to said procedural operating system utilizing said executable program logic;

(d) means, in said computer, for processing said object-oriented statements by executing methods from the class library corresponding to said object-oriented statements; and

(e) means, in said object-oriented class library including object-oriented, interprocess communication (IPC) classes for enabling said object-oriented application to access said procedural operating system services to communicate with said another object-oriented task during run-time execution of said object-oriented application in said computer.

2007/0174697	Generic, WSRF-compliant checkpointing for WS-Resources	Nokia Corporation	Saridakis; Titos Verta; Heikki	714	G06F	20060119	7	93%	<input type="checkbox"/>
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Abstract: A generic, WSRF-compliant checkpointing mechanism for grid services that is based upon the information found in a resource properties document. The resource properties document gives the structure of the entire state of a WS-Resource as a set of properties and their values. The checkpointing mechanism also is based upon the operations for retrieving and replacing the resource properties document of a WS-Resource.

MainClaim: A method of saving and loading checkpoints in a WS-Resource, comprising: receiving a number of instances of a first resource properties document from the WS-Resource, using a GetResourcePropertyDocument standard WSRF operation, each instance of the first resource properties document identifying a plurality of properties of the WS-Resource at a given moment; storing the instances of the first resource properties document in distinguishable locations; retrieving a selected instance of the first resource properties document; and instructing the WS-Resource to use the selected instance to replace the WS-Resource's current state using a PutResourcePropertyDocument standard WSRF operation.

7,007,004	Concurrent operation of a state machine family	Nokia Corporation	Liukkonen; Juha Syrjänen; Jukka Ruusiala; Jarmo Kartesalo; Tomi Ruotula; Erkki Malmqvist; Markus	707	G06F	20021120	7	92%	<input type="checkbox"/>
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Abstract: The present invention concerns a method and a system for operating state machines concurrently in a computing system. One or more state machine families are generated. Each family comprises one master state machine type for receiving service requests from outside its family and for forwarding the received service requests for servicing, and one or more slave state machine types for receiving and servicing the forwarded service requests. A thread pool is allocated to one or more state machine families. Each thread pool is specific to one state machine family and comprises one or more threads for executing the master instance and slave instances of the corresponding state machine family. State machine instances of one or more generated state machine families are assigned to corresponding threads of the allocated thread pools for execution.

MainClaim: A method for operating state machines concurrently in a computing system, wherein the method comprises the steps of:

generating one or more state machine families, each family comprising one master state machine type for receiving service requests from outside its family and for forwarding the received service requests for servicing, and one or more slave state machine types for receiving and servicing the forwarded service requests, the master state machine type instantiated as one master instance and at least one slave state machine type instantiated as one or more slave instances, each instance having a message queue of its own,

allocating to one or more generated state machine families a thread pool, each thread pool being specific to one state machine family and comprising one or more threads for executing the master instance and slave instances of the corresponding state machine family, and

assigning state machine instances of one or more generated state machine families to corresponding threads of the allocated thread pools for execution, a given instance being executed by no more than one thread at any given time and a given thread executing no more than one instance at any given time.

2007/0240171	Device, Method, And Computer Program Product For Accessing A Non-Native Application Executing In Virtual Machine Environment	Nokia Corporation	Biro; Jozsef Boros; Andras	719	G06F	20060329	9	92%	<input type="checkbox"/>
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Abstract: Embodiments of the invention provide a virtual machine application program (VMAPI) interface logically disposed between a non-native application executing in the virtual machine environment and a native middleware application, such as a native high-availability middleware application. The VMAPI is registered as a proxy component with the native middleware application by creating a library instance. The non-native application is registered as a proxied component with the native middleware application by creating another dedicated library instance. A JVM mapper may be logically disposed between the native middleware and the VMAPI that is capable of automatically mapping the JVM to the Java components based on a mapping policy selected from a predefined set of possible mapping policies.

MainClaim: A device for providing access to a non-native application executing in a virtual machine environment, wherein the device comprises: a processing element configured to execute a virtual machine application, including a virtual machine application program interface (VMAPI), to create the virtual machine environment in which the non-native application is configured to execute; the processing element further configured to execute a native middleware application; wherein the VMAPI is logically disposed between the non-native application executing in the virtual machine environment and the native middleware application; wherein the VMAPI is registered as a proxy component with the native middleware application; and wherein the non-native application is registered by the VMAPI as a proxied component with the native middleware application.

5,379,432	Object-oriented interface for a procedural operating system	Taligent, Inc.	Orton; Debra L. Bolton; Eugenie L. Chernikoff; Daniel F. Goldsmith; David B. Moeller; Christopher P.	719	G06F	19930719	0	100%	<input type="checkbox"/>
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Abstract: An apparatus for enabling an object-oriented application to access in an object-oriented manner a procedural operating system having a native procedural interface is disclosed. The apparatus includes a computer and a memory component in the computer. A code library is stored in the memory component. The code library includes computer program logic implementing an object-oriented class library. The object-oriented class library comprises related object-oriented classes for enabling the application to access in an object-oriented manner services provided by the operating system. The object-oriented classes include methods for accessing the operating system services using procedural function calls compatible with the native procedural interface of the operating system. The computer processes object-oriented statements contained in the application and defined by the class library by executing methods from the class library corresponding to the object-oriented statements.

MainClaim: A computer implemented method for enabling an object-oriented application to interface to a procedural operating system including procedural functions which are called to access services provided by said procedural operating system during run-time execution of said object-oriented application in a computer having a memory component, said computer implemented method comprising the steps of:

(a) locating in said object-oriented application an object-oriented statement which accesses a service provided by said procedural operating system;

(b) translating said object-oriented statement to a procedural function call compatible with said procedural functions which are called to access services provided by said procedural operating system and corresponding to said object-oriented statement; and

(c) executing in the computer said procedural function call compatible with said procedural functions which are called to access services provided by said procedural operating system to thereby cause said procedural operating system to provide the service on behalf of said object-oriented application.

2007/0174697	Generic, WSRF-compliant checkpointing for WS-Resources	Nokia Corporation	Saridakis; Titos Verta; Heikki	714	G06F	20060119	7	93%	<input type="checkbox"/>
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Abstract: A generic, WSRF-compliant checkpointing mechanism for grid services that is based upon the information found in a resource properties document. The resource properties document gives the structure of the entire state of a WS-Resource as a set of properties and their values. The checkpointing mechanism also is based upon the operations for retrieving and replacing the resource properties document of a WS-Resource.

MainClaim: A method of saving and loading checkpoints in a WS-Resource, comprising: receiving a number of instances of a first resource properties document from the WS-Resource, using a GetResourcePropertyDocument standard WSRF operation, each instance of the first resource properties document identifying a plurality of properties of the WS-Resource at a given moment; storing the instances of the first resource properties document in distinguishable locations; retrieving a selected instance of the first resource properties document; and instructing the WS-Resource to use the selected instance to replace the WS-Resource's current state using a PutResourcePropertyDocument standard WSRF operation.

7,007,004	Concurrent operation of a state machine family	Nokia Corporation	Liukkonen; Juha Syrjänen; Jukka Ruusiala; Jarmo Kartesalo; Tomi Ruohutula; Erkki Malmqvist; Markus	707	G06F	20021120	7	92%	<input type="checkbox"/>
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Abstract: The present invention concerns a method and a system for operating state machines concurrently in a computing system. One or more state machine families are generated. Each family comprises one master state machine type for receiving service requests from outside its family and for forwarding the received service requests for servicing, and one or more slave state machine types for receiving and servicing the forwarded service requests. A thread pool is allocated to one or more state machine families. Each thread pool is specific to one state machine family and comprises one or more threads for executing the master instance and slave instances of the corresponding state machine family. State machine instances of one or more generated state machine families are assigned to corresponding threads of the allocated thread pools for execution.

MainClaim: A method for operating state machines concurrently in a computing system, wherein the method comprises the steps of:

generating one or more state machine families, each family comprising one master state machine type for receiving service requests from outside its family and for forwarding the received service requests for servicing, and one or more slave state machine types for receiving and servicing the forwarded service requests, the master state machine type instantiated as one

master instance and at least one slave state machine type instantiated as one or more slave instances, each instance having a message queue of its own,

allocating to one or more generated state machine families a thread pool, each thread pool being specific to one state machine family and comprising one or more threads for executing the master instance and slave instances of the corresponding state machine family, and

assigning state machine instances of one or more generated state machine families to corresponding threads of the allocated thread pools for execution, a given instance being executed by no more than one thread at any given time and a given thread executing no more than one instance at any given time.

2007/0240171	Device, Method, And Computer Program Product For Accessing A Non-Native Application Executing In Virtual Machine Environment	Nokia Corporation	Biro; Jozsef Boros; Andras	719	G06F	20060329	9	92%	<input type="checkbox"/>
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Abstract: Embodiments of the invention provide a virtual machine application program (VMAPI) interface logically disposed between a non-native application executing in the virtual machine environment and a native middleware application, such as a native high-availability middleware application. The VMAPI is registered as a proxy component with the native middleware application by creating a library instance. The non-native application is registered as a proxied component with the native middleware application by creating another dedicated library instance. A JVM mapper may be logically disposed between the native middleware and the VMAPI that is capable of automatically mapping the JVM to the Java components based on a mapping policy selected from a predefined set of possible mapping policies.

MainClaim: A device for providing access to a non-native application executing in a virtual machine environment, wherein the device comprises: a processing element configured to execute a virtual machine application, including a virtual machine application program interface (VMAPI), to create the virtual machine environment in which the non-native application is configured to execute; the processing element further configured to execute a native middleware application; wherein the VMAPI is logically disposed between the non-native application executing in the virtual machine environment and the native middleware application; wherein the VMAPI is registered as a proxy component with the native middleware application; and wherein the non-native application is registered by the VMAPI as a proxied component with the native middleware application.

5,504,892	Extensible object-oriented file system	Taligent, Inc.	Atsatt; Bryan P. Nandkeshwar; Earsh K. Seilnacht; Michael J. Thakkar; Hemantkumar A. Turner; George R. Webster; Roger R.	707	G06F	19940908	0	100%	<input type="checkbox"/>
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Abstract: An object-oriented file system in an object-oriented operating system includes a file system entity class that is subclassed into a volume, directory and file subclass. These classes encapsulate standard file system properties such as name, creation date, and size, as well as standard operations such as create, open, close, and property accessors. Using object-oriented programming, the class properties and operations can easily be modified and extended. Also provided is a convenient and efficient means for searching through the entities, and collecting heterogeneous sets. Further, a category of notification classes is provided for notifying clients when an entity has changed. Still further, user authentication and protection domains are used to protect against unauthorized access. Finally, a means for working with foreign file systems running under different operating systems is provided.

MainClaim: A client-extensible object oriented file system in an object oriented operating system, comprising:

(a) at least one file device for storing and retrieving information;

(b) a processor attached to the file device and having a memory, comprising;

(c) a file system entity base class comprising

member functions for storing and retrieving a plurality of file system entity property attributes including a name, a creation time, and a modification time;

member functions for retrieving a file system entity property attribute representing a physical size allocated;

member functions for retrieving a file system entity property attribute representing a file system entity kind; and

member functions for retrieving a file system entity property attribute representing a home file system kind;

(d) a client-subclassable file class, derived from the file system entity base class and having file member functions and attributes for defining and managing file objects created from the file class, including having means for storing and retrieving information from the file device;

(e) a client-subclassable directory class, derived from the file system entity base class and having directory member functions and attributes for defining and managing directory objects created from the directory class, including a member function for creating a file object from the file class and for associating the created file object with a directory object created from the directory class;

(f) a client-subclassable volume class, derived from the directory class, having volume member functions for controlling the file

device;

(g) wherein the file class, the directory class, and the volume class are subclassable in response to a client subclassing request to derive subclasses to supplement functionality of the file system, and wherein member functions of the file class, directory class, and volume class are invocable in response to client invocation requests and attributes of file objects, directory objects, and volume objects are accessible in response to client access requests.

7,653,914	Handling different service versions in a server	Nokia Corporation	Krohn; Petri Jaske; Harri	719	G06F	20020423	6	96%	<input type="checkbox"/>
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Abstract: This invention relates to handling of different service versions in a server that is connected to a communication network. The invention comprises means to load a desired version, two tables and additional data for handling different service versions. The first table contains service key and version information, and serialized service objects. The second table contains names of classes, version information and class files. The additional data is needed for loading the right class from among classes, with the same name, and mapping the right service object version to the right versions of classes.

MainClaim: A method comprising: grouping different versions of service applications and classes in at least one service repository into a first group comprising entries of service objects and a second group comprising entries of classes, forming the entries of the service objects in the first group to include a first information field for representing information about a version of a service and at least one service object, forming the entries of the classes in the second group to include a second information field for representing information about a version of the class, and mapping the service objects with the classes to provision the service applications, wherein the different versions of service applications include different versions of a same service application, and wherein the different versions of classes include different versions of a same class, wherein when executing a desired service application, the method further comprises searching for a service entry of a desired service application from the first group, loading a service object of the service entry of the desired service application from the first group for use by at least one server, using the mapping to discover entries of the classes of the second group associated with said service object of the service entry of the desired service application, and loading the entries of the classes of the second group associated with said service object of the service entry of the desired service application to the server.

5,519,867	Object-oriented multitasking system	Taligent, Inc.	Moeller; Christopher P. Bolton; Eugenie L. Chernikoff; Daniel F. Nakano; Russell T.	718	G06F	19930719	0	100%	<input type="checkbox"/>
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Abstract: An apparatus for enabling an object-oriented application to access in an object-oriented manner a procedural operating system having a native procedural interface is disclosed. The apparatus includes a computer and a memory component in the computer. A code library is stored in the memory component. The code library includes computer program logic implementing an object-oriented class library. The object-oriented class library comprises related object-oriented classes for enabling the application to access in an object-oriented manner services provided by the operating system. The object-oriented classes include methods for accessing the operating system services using procedural function calls compatible with the native procedural interface of the operating system. The computer processes object-oriented statements contained in the application and defined by the class library by executing methods from the class library corresponding to the object-oriented statements. The object-oriented application includes support for multi-tasking.

MainClaim: An apparatus for enabling an object-oriented application, said application including object-oriented statements, to access in an object-oriented manner a procedural operating system by use of said object-oriented statements, said system providing services, including procedural functions saved as executable program logic that are called to access said services, said apparatus comprising:

(a) a computer;

(b) a memory component in said computer;

(c) a code library, stored in said memory component, comprising means for storing said executable program logic in an object-oriented class library; and means for interfacing said object-oriented application to said procedural operating system utilizing said executable program logic;

(d) means, in said computer, for processing said object-oriented statements by executing methods from said object-oriented class library corresponding to said object-oriented statements; and

(e) means, in said object-oriented class library, including object-oriented thread classes, for enabling said object-oriented application to access said services to spawn, control, and obtain information relating to a thread of execution.

2007/0174697	Generic, WSRF-compliant checkpointing for WS-Resources	Nokia Corporation	Saridakis; Titos Verta; Heikki	714	G06F	20060119	7	93%	<input type="checkbox"/>
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Abstract: A generic, WSRF-compliant checkpointing mechanism for grid services that is based upon the information found in a resource properties document. The resource properties document gives the structure of the entire state of a WS-Resource as a set of properties and their values. The checkpointing mechanism also is based upon the operations for retrieving and replacing the resource properties document of a WS-Resource.

MainClaim: A method of saving and loading checkpoints in a WS-Resource, comprising: receiving a number of instances of a first resource properties document from the WS-Resource, using a GetResourcePropertyDocument standard WSRF operation, each instance of the first resource properties document identifying a plurality of properties of the WS-Resource at a given moment; storing the instances of the first resource properties document in distinguishable locations; retrieving a selected instance of the first resource properties document; and instructing the WS-Resource to use the selected instance to replace the WS-Resource's current state using a PutResourcePropertyDocument standard WSRF operation.

7,007,004	Concurrent operation of a state machine family	Nokia Corporation	Liukkonen; Juha Syrjänen; Jukka Ruusiala; Jarmo Kartesalo; Tomi	707	G06F	20021120	7	93%	<input type="checkbox"/>
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			Ruhtula; Erkki Malmqvist; Markus						
<p>Abstract: The present invention concerns a method and a system for operating state machines concurrently in a computing system. One or more state machine families are generated. Each family comprises one master state machine type for receiving service requests from outside its family and for forwarding the received service requests for servicing, and one or more slave state machine types for receiving and servicing the forwarded service requests. A thread pool is allocated to one or more state machine families. Each thread pool is specific to one state machine family and comprises one or more threads for executing the master instance and slave instances of the corresponding state machine family. State machine instances of one or more generated state machine families are assigned to corresponding threads of the allocated thread pools for execution.</p> <p>MainClaim: A method for operating state machines concurrently in a computing system, wherein the method comprises the steps of:</p> <p>generating one or more state machine families, each family comprising one master state machine type for receiving service requests from outside its family and for forwarding the received service requests for servicing, and one or more slave state machine types for receiving and servicing the forwarded service requests, the master state machine type instantiated as one master instance and at least one slave state machine type instantiated as one or more slave instances, each instance having a message queue of its own,</p> <p>allocating to one or more generated state machine families a thread pool, each thread pool being specific to one state machine family and comprising one or more threads for executing the master instance and slave instances of the corresponding state machine family, and</p> <p>assigning state machine instances of one or more generated state machine families to corresponding threads of the allocated thread pools for execution, a given instance being executed by no more than one thread at any given time and a given thread executing no more than one instance at any given time.</p>									
2007/0240171	Device, Method, And Computer Program Product For Accessing A Non-Native Application Executing In Virtual Machine Environment	Nokia Corporation	Biro; Jozsef Boros; Andras	719	G06F	20060329	9	92%	<input type="checkbox"/>
<p>Abstract: Embodiments of the invention provide a virtual machine application program (VMAPI) interface logically disposed between a non-native application executing in the virtual machine environment and a native middleware application, such as a native high-availability middleware application. The VMAPI is registered as a proxy component with the native middleware application by creating a library instance. The non-native application is registered as a proxied component with the native middleware application by creating another dedicated library instance. A JVM mapper may be logically disposed between the native middleware and the VMAPI that is capable of automatically mapping the JVM to the Java components based on a mapping policy selected from a predefined set of possible mapping policies.</p> <p>MainClaim: A device for providing access to a non-native application executing in a virtual machine environment, wherein the device comprises: a processing element configured to execute a virtual machine application, including a virtual machine application program interface (VMAPI), to create the virtual machine environment in which the non-native application is configured to execute; the processing element further configured to execute a native middleware application; wherein the VMAPI is logically disposed between the non-native application executing in the virtual machine environment and the native middleware application; wherein the VMAPI is registered as a proxy component with the native middleware application; and wherein the non-native application is registered by the VMAPI as a proxied component with the native middleware application.</p>									
5,864,850	Asynchronous-event opening component of a network component system	Apple Computer, Inc.	Nordman; Michael M.	707	G06F	19970227	0	100%	<input type="checkbox"/>
<p>Abstract: An opening part of an extensible and replaceable network-oriented component system opens asynchronous information by maintaining a placeholder until an actual data type determination is made. While this placeholder is being maintained, the progress of the opening process may be monitored and displayed. Upon determining the actual data type of the asynchronous information, the appropriate display part for the data type may be obtained. The network-oriented system includes a novel application programming interface for the opening part that facilitates integration with an underlying software component architecture. Such a highly-modular cooperating layered-arrangement between the network component system and the component architecture allows the opening part to be replaced, extended or modified by other opening-type components, while ensuring that these latter components "seamlessly" interact with existing components and component editors of the system.</p> <p>MainClaim: An extensible and replaceable layered component computing arrangement residing on a computer and coupled to a computer network for opening asynchronous information, the layered arrangement comprising:</p> <p>a component architecture layer interfacing with an operating system to control the operations of the computer, the component architecture layer defining a plurality of computing components;</p> <p>a network component layer coupled to the component architecture layer in cooperating relation; and</p> <p>an opening part defined by the network component layer for opening asynchronous information by maintaining a placeholder for the asynchronous information until an actual data type determination is made for the asynchronous information.</p>									
6,829,758	Interface markup language and method for making application code	Nokia Internet Communications, Inc.	Lewontin; Steve Thrane; Leon	717	G06F	20000714	9	93%	<input type="checkbox"/>
<p>Abstract: An Interface Markup Language ("IML") file specifies abstract server interface definitions called "operations" that return abstract content descriptions called "entities". Each entity specifies a set of operations that the entity can invoke. The combined set of entities and operations together define an abstract flow diagram of an application. A computer readable medium has instructions stored thereon which, when executed by a processor, cause the processor to perform a sequence of steps in</p>									

order to make application code that is based on a flow diagram of an application. The steps include making an IML file that includes an operation list section delimited by an operation list marker and an entity list section delimited by an entity list marker. The operation list section specifies a series of operations supported by an application server. The entity list section describes a set of entities which constitute an interface to an application running on the application server. The steps further include compiling the IML file to make application code.

MainClaim: A method for generating application code comprising:

receiving a non-executable flow diagram of an application;

generating an interface markup language (IML) text file based on the application flow diagram, the IML text file containing operations and entities specifying a structure of the application; and

generating application code or code fragments for the application based on the IML text file.

2006/0168526	Platform-specific application user interface remoting	Nokia Corporation	Stirbu; Vlad	715	G06F	20050112	10	92%	<input type="checkbox"/>
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Abstract: This invention relates to a server-site method, a client-site method, computer program products, a client, a server, a module and a system for remoting a user interface of an application between a server that executes said application and at least one client on which a representation of the user interface is to be rendered, wherein the representation of the user interface is generated at the server under consideration of a user interface description that is specific for a device platform of the at least one client; and wherein the representation of the user interface is transferred to the at least one client. The representation of the user interface may for instance be a memory model representation or a frame buffer representation.

MainClaim: A server-site method for remoting a user interface of an application between a server that executes said application and at least one client on which a representation of said user interface is to be rendered, said method comprising: generating said representation of said user interface at said server under consideration of a user interface description that is specific for a device platform of said at least one client; and transferring said representation of said user interface to said at least one client.

5,790,856	Methods, apparatus, and data structures for data driven computer patches and static analysis of same	Apple Computer, Inc.	Lillich; Alan W.	717	G06F	19950508	0	100%	<input type="checkbox"/>
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Abstract: The present invention teaches a variety of methods, apparatus and data structures for providing data driven patching. According to one embodiment, patches are stored in a known format in a discernible location. In the described embodiment, each fragment code may have a corresponding patch library. This enables the patches to be located and analyzed in a quiescent state. In a method aspect of the present invention, the operating system, or a separate utility program, can evaluate and selectively add patches. Therefore, the present invention introduces a patch integrity validation layer into the patching process. In another method aspect, the invention teaches evaluating the patches in a quiescent state whereby the patches introduced by a program or a combination of programs may be exhaustively evaluated prior to execution.

MainClaim: A computer implemented process intended to execute within a dynamically linked computing environment, the dynamically linked computing environment capable of supporting a plurality of computer implemented processes, the dynamically linked computing environment providing a given function available for use by said plurality of computer implemented processes, the computer implemented process having a dynamically linked and patched library structure comprising:

a root code fragment including root functionality for said computer implemented process, said computer implemented process using said given function, said root code fragment including a main symbol and at least one import symbol, wherein said main symbol is used to launch said computer implemented process after it has been bound to any import library code fragments that it requires;

an import library code fragment linked to said root code fragment by said at least one library import symbol, such that said import library code fragment can be bound to said root code fragment prior to said launch of said computer implemented process; and

a patch library code fragment stored in a predefined format such that the patch library code fragment is discernible when the computer implemented process is in a quiescent state, the patch library code fragment including a patch description data structure having at least one patch descriptor which indicates a patch which is intended to affect said given function utilized by said computer implemented process,

wherein the presence of said patch library code fragment in said dynamically linked and patched library structure is operable to affect a functionality of said given function only with respect to said computer implemented process.

7,207,038	Constructing control flows graphs of binary executable programs at post-link time	Nokia Corporation	Bicsak; Attila Kiss; kos Ferenc; Rudolf Gyimothy; Tibor	717	G06F	20030829	9	93%	<input type="checkbox"/>
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Abstract: A method and a system for constructing a control flow graph (CFG, 106) from an executable computer program (104). The solution detects data intermixed with instructions and instruction set changes. The method includes the steps of defining block leader types specifying basic block boundaries in the program (104), building a CFG structure (106) according to the basic blocks found in the program, and adding control flow and addressing information to the CFG (106) by propagating through the basic blocks and internals thereof. The CFG (106) may be then optimised (108) and a compacted executable (112) created as a result.

MainClaim: A method for execution on a signal processing unit for constructing a control flow graph from a computer executable program the instructions of which belong to one or more computer architecture instruction sets, said method comprising defining a number of block leader types including at least one type related to an instruction set change, block leaders specifying basic block boundaries in the program, said basic blocks including instructions or data, building a control flow graph structure comprising basic blocks found in the program, adding control flow and addressing information to said control flow graph by propagating through said basic blocks and internals of said basic blocks and stored on said memory device.

2005/0060696	Method and a system for constructing control flows graphs of binary executable programs at post-link time	Nokia Corporation	Bicsak, Attila Kiss, Akos Ferenc, Rudolf Gyimothy, Tibor	717	G06F	20030829	9	93%	<input type="checkbox"/>
<p>Abstract: A method and a system for constructing a control flow graph (CFG, 106) from an executable computer program (104). The solution detects data intermixed with instructions and instruction set changes. The method includes the steps of defining block leader types specifying basic block boundaries in the program (104), building a CFG structure (106) according to the basic blocks found in the program, and adding control flow and addressing information to the CFG (106) by propagating through the basic blocks and internals thereof. The CFG (106) may be then optimised (108) and a compacted executable (112) created as a result.</p> <p>MainClaim: A method for constructing a control flow graph (CFG) from a computer executable program the instructions of which belong to one or more instruction sets, said method comprising the steps of defining a number of block leader types including at least one type related to an instruction set change, block leaders specifying basic block boundaries in the program, said basic blocks including instructions or data (702), building a CFG structure comprising basic blocks found in the program (708), adding control flow and addressing information to said CFG by propagating through said basic blocks and internals thereof (710).</p>									
5,875,335	Parameter marshaling techniques for dynamic object-oriented programming languages	Apple Computer, Inc.	Beard; Patrick C.	717	G06F	19960930	0	100%	<input type="checkbox"/>
<p>Abstract: When a method implemented in native compiled code is called from a object-oriented program, the parameters associated with that method are marshaled to convert them from the format of the object-oriented code into one which is appropriate for the compiled code. The marshaling of parameters is carried out in dependence upon the particular type of object with which the parameters are associated. When an aggregate object is marshaled, a pointer to the object is adjusted to point directly to variables for an instance of that object. When an array is marshaled, the pointer is adjusted to point to its individual elements.</p> <p>MainClaim: In a computer which executes a program written in a first, object-oriented program language, a system for marshaling object parameters for executing a method in an other program written in a second program language, comprising:</p> <p>means for calling a method in said other program and passing a parameter to said method;</p> <p>means for determining if said parameter is a reference to a first type of object comprising a reference to a class definition and one or more instance variables;</p> <p>means responsive to a determination that said parameter is a reference to said first type of object, for adjusting said reference to point to said instance variables and for passing the adjusted reference to said method as the parameter;</p> <p>means for determining if said parameter is a reference to a second type of object comprising a reference to a class definition and an array of elements; and</p> <p>means responsive to a determination that said parameter is a reference to said second type of object, for adjusting said reference to point to said elements in said array and for passing the adjusted reference to said method as the parameter.</p>									
2008/0163265	SYSTEM AND METHOD FOR REDUCING THE STATIC FOOTPRINT OF MIXED-LANGUAGE JAVA CLASSES	Nokia Corporation	Flora; Cristiano di	719	G06F	20061229	5	97%	<input type="checkbox"/>
<p>Abstract: A system and a method for minimizing the functionality-gap between Java and native platforms while keeping the impact on each Java API static footprint as small as possible. A Java Runtime Dynamic Invocation API is used for low-level bridging between Java and C/C++, enabling the dynamic invocation of native C/C++ functions and C++ class/object methods from the Java side without adding any additional ad hoc implemented native code to the overall Java component implementation. Thereby, the need to write new native code when implementing a Java component that needs to invoke some native functionality is reduced.</p> <p>MainClaim: A method of reducing the static footprint of mixed-language Java classes in an electronic device, comprising:providing a Java runtime dynamic invocation (JRDI) application program interface (API) configured to interact with Java applications and native APIs; andpermitting the Java applications to manipulate native language entities at run-time via the JRDI API using a plurality of interfaces.</p>									
2005/0283771	System and method for decreasing the memory footprint of applications with automatic memory management systems	Nokia Corporation	Paller, Gabor	717	G06F	20040622	4	94%	<input type="checkbox"/>
<p>Abstract: The techniques described ease the work of garbage collectors by reducing the garbage produced. These embodiments combine the data-flow analysis of native compilers with an extension of the Java Virtual Machine (JVM). A special bytecode is inserted into the original bytecode to explicitly free unused objects. As a result, the garbage collector does not see the object that was explicitly reclaimed and the object doesn't reserve memory after it is not used anymore. The memory footprint of the JVM decreases and the responsiveness is better because the garbage collector has less work and, thus, it interrupts the application more rarely and for less time.</p> <p>MainClaim: A method of decreasing memory footprints produced in an programming environment, the method comprising: analyzing compiled code to identify objects to be reclaimed; modifying the compiled code to include instructions to reclaim objects found from said analysis.</p>									
2008/0148277	Optimizing calls from a managed runtime environment to microkernel extended	Nokia Corporation	di Flora; Cristiano	719	G06F	20061218	10	94%	<input type="checkbox"/>

	functionality								
<p>Abstract: A sequence of function calls may be executed as a single software component, rather than as individual method calls on a operating system, for example, in a microkernel system. Source code from a user application is parsed to identify a plurality of homogeneous function calls, for example, corresponding to sequence of native microkernel method calls. A homogeneous downcall sequence (HDS) is identified in the application source code, and a separate software component (e.g., a native plug-in) is generated to perform the functionality of the HDS. The application code may be modified to remove the plurality of function calls and replace them with a reference to the newly-generated software component. Finally, the modified application code is executed on the server, for example, by a managed runtime environment (MRTE) process. The software component may be invoked and executed as-a-whole by a native process.</p> <p>MainClaim: A method, comprising:receiving a first set of instructions to be executed on a computing device;identifying a plurality of homogeneous function calls in said first set of instructions;creating an executable software component operable to perform functionality corresponding to the plurality of homogeneous function calls; andgenerating a second set of instructions based on said first set of instructions, wherein said second set of instructions does not comprise the identified plurality of homogeneous function calls and does comprise a reference to said executable software component, and wherein an execution of the second set of instructions on the computing device requires said computing device to perform fewer context switches than an execution of the first set of instructions on the computing device.</p>									
6,067,577	Dynamic method resolution for native methods in a dynamic object-oriented programming language	Apple Computer, Inc.	Beard; Patrick C.	719	G06F	19960930	0	100%	<input type="checkbox"/>
<p>Abstract: A variety of mechanisms are disclosed for a dynamically binding native methods in an interpreted bytecode program to functions that are contained in compiled code, such as a dynamically linked library. In one implementation, a shared function is specified by means of a naming convention that is appropriate for the bytecode interpreted program, such as a package of classes. When a native method is to be resolved during loading of a class, the name of the package is examined to see if the method resides in a shared library. If so, it is loaded using techniques that are specific to the compiled code in which the library exists. In another embodiment, a designated base class, or interface, is used to identify the method by which the shared library is to be loaded. In a third type of implementation, a given method requests a class to specify which libraries it needs to be linked to, as it is being loaded, after which the libraries are loaded and the class methods are linked to them.</p> <p>MainClaim: A method for dynamically binding a class of objects for a computer program written in a first interpreted bytecode program language to functions contained in a shared library written in a second program language, during the operation of a computer, comprising the steps of:</p> <p>defining a mechanism in the first program language which associates a reference to a class of objects and the shared library;</p> <p>loading the class of objects into memory of the computer during the execution of a program:</p> <p>detecting the association in said mechanism between the shared library and the class of objects during the loading of the class of objects into memory; and</p> <p>loading an implementation of a method from the shared library into the computer's memory during the loading of the class of objects.</p>									
2008/0163265	SYSTEM AND METHOD FOR REDUCING THE STATIC FOOTPRINT OF MIXED-LANGUAGE JAVA CLASSES	Nokia Corporation	Flora; Cristiano di	719	G06F	20061229	5	97%	<input type="checkbox"/>
<p>Abstract: A system and a method for minimizing the functionality-gap between Java and native platforms while keeping the impact on each Java API static footprint as small as possible. A Java Runtime Dynamic Invocation API is used for low-level bridging between Java and C/C++, enabling the dynamic invocation of native C/C++ functions and C++ class/object methods from the Java side without adding any additional ad hoc implemented native code to the overall Java component implementation. Thereby, the need to write new native code when implementing a Java component that needs to invoke some native functionality is reduced.</p> <p>MainClaim: A method of reducing the static footprint of mixed-language Java classes in an electronic device, comprising:providing a Java runtime dynamic invocation (JRDI) application program interface (API) configured to interact with Java applications and native APIs; andpermitting the Java applications to manipulate native language entities at run-time via the JRDI API using a plurality of interfaces.</p>									
2005/0283771	System and method for decreasing the memory footprint of applications with automatic memory management systems	Nokia Corporation	Paller, Gabor	717	G06F	20040622	4	95%	<input type="checkbox"/>
<p>Abstract: The techniques described ease the work of garbage collectors by reducing the garbage produced. These embodiments combine the data-flow analysis of native compilers with an extension of the Java Virtual Machine (JVM). A special bytecode is inserted into the original bytecode to explicitly free unused objects. As a result, the garbage collector does not see the object that was explicitly reclaimed and the object doesn't reserve memory after it is not used anymore. The memory footprint of the JVM decreases and the responsiveness is better because the garbage collector has less work and, thus, it interrupts the application more rarely and for less time.</p> <p>MainClaim: A method of decreasing memory footprints produced in an programming environment, the method comprising: analyzing compiled code to identify objects to be reclaimed; modifying the compiled code to include instructions to reclaim objects found from said analysis.</p>									
2008/0148277	Optimizing calls from a managed runtime environment to microkernel extended functionality	Nokia Corporation	di Flora; Cristiano	719	G06F	20061218	10	94%	<input type="checkbox"/>

Abstract: A sequence of function calls may be executed as a single software component, rather than as individual method calls on a operating system, for example, in a microkernel system. Source code from a user application is parsed to identify a plurality of homogeneous function calls, for example, corresponding to sequence of native microkernel method calls. A homogeneous downcall sequence (HDS) is identified in the application source code, and a separate software component (e.g., a native plug-in) is generated to perform the functionality of the HDS. The application code may be modified to remove the plurality of function calls and replace them with a reference to the newly-generated software component. Finally, the modified application code is executed on the server, for example, by a managed runtime environment (MRTE) process. The software component may be invoked and executed as-a-whole by a native process.

MainClaim: A method, comprising:receiving a first set of instructions to be executed on a computing device;identifying a plurality of homogeneous function calls in said first set of instructions;creating an executable software component operable to perform functionality corresponding to the plurality of homogeneous function calls; andgenerating a second set of instructions based on said first set of instructions, wherein said second set of instructions does not comprise the identified plurality of homogeneous function calls and does comprise a reference to said executable software component, and wherein an execution of the second set of instructions on the computing device requires said computing device to perform fewer context switches than an execution of the first set of instructions on the computing device.

6,122,675	Replaceable and extensible log component of a network component system	Apple Computer, Inc.	Fisher; Stephen Cleron; Michael A. Bruck; Timo	719	G06F	19970407	0	100%	<input type="checkbox"/>
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Abstract: A log component of an extensible and replaceable network-oriented component system maintains a list of locations explored by a user when navigating a computer network, in addition to organizing various "views" of the list to provide a mental "routing map" relationship between the explored locations. The network-oriented system includes a novel application programming interface for the log component that facilitates integration with an underlying software component architecture. Such a highly-modular cooperating layered-arrangement between the network component system and the component architecture allows the log component to be replaced, extended or modified by other log-type components, while ensuring that these latter components "seamlessly" interact with existing components and component editors of the system.

MainClaim: An extensible and replaceable network-oriented component system for providing navigation services directed to locations of resources coupled to computer networks, the system residing on a computer including a component architecture layer interfacing with an operating system to control the operations of the computer, the system comprising:

a network component layer coupled to the component architecture layer in cooperating relation; and

a log component defined by the network component layer for maintaining a list of selected resource locations explored by a user when navigating the computer networks, the log component being replaceable and extensible by other log-type components in response to the cooperating relationship between the network component layer and the component architecture layer.

2006/0168526	Platform-specific application user interface remoting	Nokia Corporation	Stirbu; Vlad	715	G06F	20050112	10	93%	<input type="checkbox"/>
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Abstract: This invention relates to a server-site method, a client-site method, computer program products, a client, a server, a module and a system for remoting a user interface of an application between a server that executes said application and at least one client on which a representation of the user interface is to be rendered, wherein the representation of the user interface is generated at the server under consideration of a user interface description that is specific for a device platform of the at least one client; and wherein the representation of the user interface is transferred to the at least one client. The representation of the user interface may for instance be a memory model representation or a frame buffer representation.

MainClaim: A server-site method for remoting a user interface of an application between a server that executes said application and at least one client on which a representation of said user interface is to be rendered, said method comprising: generating said representation of said user interface at said server under consideration of a user interface description that is specific for a device platform of said at least one client; and transferring said representation of said user interface to said at least one client.

6,829,758	Interface markup language and method for making application code	Nokia Internet Communications, Inc.	Lewontin; Steve Thrane; Leon	717	G06F	20000714	9	92%	<input type="checkbox"/>
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Abstract: An Interface Markup Language ("IML") file specifies abstract server interface definitions called "operations" that return abstract content descriptions called "entities". Each entity specifies a set of operations that the entity can invoke. The combined set of entities and operations together define an abstract flow diagram of an application. A computer readable medium has instructions stored thereon which, when executed by a processor, cause the processor to perform a sequence of steps in order to make application code that is based on a flow diagram of an application. The steps include making an IML file that includes an operation list section delimited by an operation list marker and an entity list section delimited by an entity list marker. The operation list section specifies a series of operations supported by an application server. The entity list section describes a set of entities which constitute an interface to an application running on the application server. The steps further include compiling the IML file to make application code.

MainClaim: A method for generating application code comprising:

receiving a non-executable flow diagram of an application;

generating an interface markup language (IML) text file based on the application flow diagram, the IML text file containing operations and entities specifying a structure of the application; and

generating application code or code fragments for the application based on the IML text file.

6,344,855	Encapsulated network entity reference of a network component system for integrating object oriented software components	Apple Computer, Inc.	Fisher; Stephen Cleron; Michael A. Bruck; Timo	345	G06F	19990726	0	100%	<input type="checkbox"/>
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Abstract: A network-oriented component system efficiently accesses information from a network resource located on a

computer network by creating an encapsulated network entity that contains a reference to that resource. The encapsulated entity is preferably implemented as a network component stored on a computer remotely displaced from the referenced resource. In addition, the encapsulated entity may be manifested as a visual object on a graphical user interface of a computer screen. Such visual manifestation allows a user to easily manipulate the entity in order to display the contents of the resource on the screen or to electronically forward the entity over the network.

MainClaim: A computer readable medium containing executable program instructions for efficiently accessing information from a network resource located on a computer network for display on a computer coupled to the network, the network resource having one or more associated data types, each data type being accessible by a corresponding object-oriented software component, the executable program instructions comprising program instructions for:

defining at least one network component that integrates the object-oriented software components needed to access the one or more data types associated with the network resource;

creating an encapsulated entity component containing a reference to a location of the network resource on the computer network, the encapsulated entity component also identifying the at least one network component that was defined for the network resource;

storing the encapsulated entity component as a visual object on the computer;

in response to manipulation of the visual object with a pointing device, displaying the contents of the network resource on a screen of the computer by invoking the object-oriented software components integrated by the at least one identified network component.

6,829,758	Interface markup language and method for making application code	Nokia Internet Communications, Inc.	Lewontin; Steve Thrane; Leon	717	G06F	20000714	9	93%	<input type="checkbox"/>
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Abstract: An Interface Markup Language ("IML") file specifies abstract server interface definitions called "operations" that return abstract content descriptions called "entities". Each entity specifies a set of operations that the entity can invoke. The combined set of entities and operations together define an abstract flow diagram of an application. A computer readable medium has instructions stored thereon which, when executed by a processor, cause the processor to perform a sequence of steps in order to make application code that is based on a flow diagram of an application. The steps include making an IML file that includes an operation list section delimited by an operation list marker and an entity list section delimited by an entity list marker. The operation list section specifies a series of operations supported by an application server. The entity list section describes a set of entities which constitute an interface to an application running on the application server. The steps further include compiling the IML file to make application code.

MainClaim: A method for generating application code comprising:

receiving a non-executable flow diagram of an application;

generating an interface markup language (IML) text file based on the application flow diagram, the IML text file containing operations and entities specifying a structure of the application; and

generating application code or code fragments for the application based on the IML text file.

2006/0168526	Platform-specific application user interface remoting	Nokia Corporation	Stirbu; Vlad	715	G06F	20050112	10	92%	<input type="checkbox"/>
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Abstract: This invention relates to a server-site method, a client-site method, computer program products, a client, a server, a module and a system for remoting a user interface of an application between a server that executes said application and at least one client on which a representation of the user interface is to be rendered, wherein the representation of the user interface is generated at the server under consideration of a user interface description that is specific for a device platform of the at least one client; and wherein the representation of the user interface is transferred to the at least one client. The representation of the user interface may for instance be a memory model representation or a frame buffer representation.

MainClaim: A server-site method for remoting a user interface of an application between a server that executes said application and at least one client on which a representation of said user interface is to be rendered, said method comprising: generating said representation of said user interface at said server under consideration of a user interface description that is specific for a device platform of said at least one client; and transferring said representation of said user interface to said at least one client.

5,724,506	Replaceable and extensible connection dialog component of a network component system	Apple Computer, Inc.	Cleron; Michael A. Evans; John S. Fisher; Stephen Holleran; Patrick A. Ford; Richard Donnelly; Richard J. Bruck; Timo	709	G06F	19950505	0	100%	<input type="checkbox"/>
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Abstract: A connection dialog component of an extensible and replaceable network-oriented component system enables a user to specify address information of a particular resource coupled to a computer network. The network-oriented system includes novel application programming interfaces for the connection dialog component that facilitates integration with an underlying software component architecture. Such a highly-modular cooperating layered-arrangement between the network component system and the component architecture allows the connection dialog component to be replaced, extended or modified by other connection dialog-type components, while ensuring that these latter components "seamlessly" interact with existing components and component editors of the system.

MainClaim: An extensible and replaceable network-oriented component system for providing services directed to resources coupled computer networks, the system residing on a computer including a component architecture layer interfacing with an operating system to control the operations of the computer, the system comprising:

a network component layer coupled to the component architecture layer in cooperating relation; and

a connection dialog component defined by the network component layer for enabling a user to specify address information of a particular resource coupled to the computer networks, the connection dialog component being replaceable and extensible by other connection dialog-type components in response to the cooperating relationship between the network component layer and the component architecture layer.

2006/0168526	Platform-specific application user interface remoting	Nokia Corporation	Stirbu; Vlad	715	G06F	20050112	10	93%	<input type="checkbox"/>
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Abstract: This invention relates to a server-site method, a client-site method, computer program products, a client, a server, a module and a system for remoting a user interface of an application between a server that executes said application and at least one client on which a representation of the user interface is to be rendered, wherein the representation of the user interface is generated at the server under consideration of a user interface description that is specific for a device platform of the at least one client; and wherein the representation of the user interface is transferred to the at least one client. The representation of the user interface may for instance be a memory model representation or a frame buffer representation.

MainClaim: A server-site method for remoting a user interface of an application between a server that executes said application and at least one client on which a representation of said user interface is to be rendered, said method comprising: generating said representation of said user interface at said server under consideration of a user interface description that is specific for a device platform of said at least one client; and transferring said representation of said user interface to said at least one client.

6,829,758	Interface markup language and method for making application code	Nokia Internet Communications, Inc.	Lewontin; Steve Thrane; Leon	717	G06F	20000714	9	93%	<input type="checkbox"/>
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Abstract: An Interface Markup Language ("IML") file specifies abstract server interface definitions called "operations" that return abstract content descriptions called "entities". Each entity specifies a set of operations that the entity can invoke. The combined set of entities and operations together define an abstract flow diagram of an application. A computer readable medium has instructions stored thereon which, when executed by a processor, cause the processor to perform a sequence of steps in order to make application code that is based on a flow diagram of an application. The steps include making an IML file that includes an operation list section delimited by an operation list marker and an entity list section delimited by an entity list marker. The operation list section specifies a series of operations supported by an application server. The entity list section describes a set of entities which constitute an interface to an application running on the application server. The steps further include compiling the IML file to make application code.

MainClaim: A method for generating application code comprising:

receiving a non-executable flow diagram of an application;

generating an interface markup language (IML) text file based on the application flow diagram, the IML text file containing operations and entities specifying a structure of the application; and

generating application code or code fragments for the application based on the IML text file.

2007/0288854	Reusable XForms processor	Nokia Corporation	Koskimies; Oskari	715	G06F	20060613	18	92%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for invoking user interface (UI) functionality by a client application. Data is received from a server, such as a web server, parsed and used to create a hierarchy of application UI objects. A corresponding hierarchy of XForms objects is created, such that each XForms object maps to an application UI object. The user interface is rendered at the client display by displaying objects in the application UI objects hierarchy and invoking the corresponding functionality from the XForms object hierarchy.

MainClaim: A method for invoking user interface functionality on a computing device comprising:receiving a data file comprising markup language data;creating based on the data file a first object hierarchy comprising a plurality of objects, each corresponding to a user interface component;identifying in the first object hierarchy a first object corresponding to a user interface component;creating a second object hierarchy comprising a second object having user interface functionality, said second object associated with said first object;displaying on the computing device a user interface comprising a graphical representation of the first object; andinvoking the user interface functionality of the second object in relation to the graphical representation of the first object on the displayed user interface.

5,659,751	Apparatus and method for dynamic linking of computer software components	Apple Computer, Inc.	Heninger; Andrew G.	719	G06F	19921203	0	100%	<input type="checkbox"/>
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Abstract: An apparatus and method for the dynamic (execution time) linking of object oriented software components is disclosed. The present invention comprises a computer system including a set of at least two software components. This invention provides a method and means for dynamically linking object oriented software components during run time execution of the program. The present includes two main features. First, a query function is provided to allow an application component to determine, during program execution time, the name and location of library classes available for use. Second, the application component can create (instantiate) instances of derived classes of an abstract base class. The application component can manipulate the instantiated object using the abstract interface provided by the base class definition. The implementation of the present invention involves processing at two steps in the software generation cycle. First, the prior art static linker must be modified to provide processing support for the present invention at link time. Second, the main features of the present invention are performed at program execution time.

MainClaim: In an object-oriented computer system having a processor and a memory coupled to the processor, a computer implemented process for dynamically linking an abstract base class with an un-named derived class, said process comprising the steps of:

providing an explicitly named abstract base class with interface parameters, said abstract base class residing in said memory;

providing a call to an object function, said call to an object function naming only said abstract base class with interface parameters;

converting said call to a dynamically generated search string corresponding to said abstract base class with interface parameters;

providing a library symbol table defining a correspondence between said abstract base class with interface parameters and a derived class name, said library symbol table residing in said memory, said library symbol table being provided after compilation of software in said computer system;

searching said library symbol table for an occurrence of said search string corresponding to said abstract base class with interface parameters, said library symbol table having a derived class name corresponding to said abstract base class with interface parameters, said searching step being performed by said processor;

retrieving instantiation information corresponding to said derived class name from said library symbol table, said retrieving step being performed by said processor; and

instantiating an instance of a derived class using said instantiation information corresponding to said derived class name, said instance of said derived class derived from said abstract base class with interface parameters, said explicitly named abstract base class with interface parameters thereby being dynamically linked to said instance of a derived class, said instantiating step being performed by said processor, said instance of said derived class being stored in said memory.

2008/0163265	SYSTEM AND METHOD FOR REDUCING THE STATIC FOOTPRINT OF MIXED-LANGUAGE JAVA CLASSES	Nokia Corporation	Flora; Cristiano di	719	G06F	20061229	5	95%	<input type="checkbox"/>
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Abstract: A system and a method for minimizing the functionality-gap between Java and native platforms while keeping the impact on each Java API static footprint as small as possible. A Java Runtime Dynamic Invocation API is used for low-level bridging between Java and C/C++, enabling the dynamic invocation of native C/C++ functions and C++ class/object methods from the Java side without adding any additional ad hoc implemented native code to the overall Java component implementation. Thereby, the need to write new native code when implementing a Java component that needs to invoke some native functionality is reduced.

MainClaim: A method of reducing the static footprint of mixed-language Java classes in an electronic device, comprising:providing a Java runtime dynamic invocation (JRDI) application program interface (API) configured to interact with Java applications and native APIs; andpermitting the Java applications to manipulate native language entities at run-time via the JRDI API using a plurality of interfaces.

6,829,758	Interface markup language and method for making application code	Nokia Internet Communications, Inc.	Lewontin; Steve Thrane; Leon	717	G06F	20000714	9	93%	<input type="checkbox"/>
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Abstract: An Interface Markup Language ("IML") file specifies abstract server interface definitions called "operations" that return abstract content descriptions called "entities". Each entity specifies a set of operations that the entity can invoke. The combined set of entities and operations together define an abstract flow diagram of an application. A computer readable medium has instructions stored thereon which, when executed by a processor, cause the processor to perform a sequence of steps in order to make application code that is based on a flow diagram of an application. The steps include making an IML file that includes an operation list section delimited by an operation list marker and an entity list section delimited by an entity list marker. The operation list section specifies a series of operations supported by an application server. The entity list section describes a set of entities which constitute an interface to an application running on the application server. The steps further include compiling the IML file to make application code.

MainClaim: A method for generating application code comprising:

receiving a non-executable flow diagram of an application;

generating an interface markup language (IML) text file based on the application flow diagram, the IML text file containing operations and entities specifying a structure of the application; and

generating application code or code fragments for the application based on the IML text file.

7,653,914	Handling different service versions in a server	Nokia Corporation	Krohn; Petri Jaske; Harri	719	G06F	20020423	6	92%	<input type="checkbox"/>
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Abstract: This invention relates to handling of different service versions in a server that is connected to a communication network. The invention comprises means to load a desired version, two tables and additional data for handling different service versions. The first table contains service key and version information, and serialized service objects. The second table contains names of classes, version information and class files. The additional data is needed for loading the right class from among classes, with the same name, and mapping the right service object version to the right versions of classes.

MainClaim: A method comprising: grouping different versions of service applications and classes in at least one service repository into a first group comprising entries of service objects and a second group comprising entries of classes, forming the entries of the service objects in the first group to include a first information field for representing information about a version of a service and at least one service object, forming the entries of the classes in the second group to include a second information field for representing information about a version of the class, and mapping the service objects with the classes to provision the service applications, wherein the different versions of service applications include different versions of a same service application, and wherein the different versions of classes include different versions of a same class, wherein when executing a desired service application, the method further comprises searching for a service entry of a desired service application from the first group, loading a service object of the service entry of the desired service application from the first group for use by at least one server, using the mapping to discover entries of the classes of the second group associated with said service object of the service entry of the desired service application, and loading the entries of the classes of the second group associated with said service object of the service entry of the desired service application to the server.

	System for providing								
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5,548,779	system services for a device to a client using stack definition and stack description of a stack having top, intermediate, and bottom service objects	Taligent	Andert; Glenn P. Norman; George W.	709	G06F	19931221	0	100%	<input type="checkbox"/>
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Abstract: A method and system for providing services in an object oriented system. The method and system are in the form of an interface reference framework of objects which create services in response to requests. Clients request services which are created in response to the requests. In response to the request the framework first develops a description of the service. The description is in the form of a stack of descriptions of services. From the stack descriptions the actual services are created by maker objects.

MainClaim: In a computer system having a processor, a memory, and a device connected to the computer system via a communication medium, an interface reference framework for providing system services for the device to a client application executing on the computer system, while insulating the client application from the details of how the device is connected to the computer system and how the system services, which access the device, are created, the interface reference framework comprising:

(a) a plurality of service class definitions, each service class defining a service object having means for communicating according to a predefined interface;

(b) a plurality of service maker class definitions in the memory, each service maker class defining a service maker object having means for creating in the memory a corresponding service object from one of the service class definitions; and

(c) means for providing to the client application an interface reference object corresponding to the device, wherein the interface reference object includes

means for receiving from the client application a top interface for defining a protocol for the system services for the device;

means for creating a stack description in the memory, identifying a bottom service for communicating with the device, a top service for communicating with the client application according to the top interface, and an intermediate service for communicating with the top and bottom services over the communication medium according to their predefined interfaces;

means for making from the stack definition a service stack in the memory and for returning a reference to the service stack to the client application so that the client application can use the service stack to communicate with the device according to the service protocol defined by the top interface, the means for making the service stack including

means for iterating through the stack description and creating a corresponding service maker object in the memory from one of the service maker class definitions for each of the services identified in the stack definition;

means for polymorphically activating the service maker objects to create a corresponding service object from one of the service class definitions to create the service stack having a top service object communicating with an intermediate service object, which, in turn, communicates with a bottom service object.

2007/0050756	Component architecture	Nokia Corporation	Paller; Gabor	717	G06F	20050824	4	93%	<input type="checkbox"/>
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Abstract: A self-organising software for controlling a device, which software contains at least two components. Each component includes at least one interface for connecting with other components, wherein each of the components itself contains information defining component rules. The rules contained by the components define how components can be connected with each other components so that no external rule databases are necessary.

MainClaim: A device including self-organising software that includes at least two components each including at least one interface for connecting with other components, wherein each of the components contains information defining component rules according to which that component can be connected with other components.

5,933,646	Software manager for administration of a computer operating system	Apple Computer, Inc.	Hendrickson; B. Winston Scown; Gregory Palmer; James E. Bowers; Robert Cobb; Jeffrey R.	717	G06F	19960510	0	100%	<input type="checkbox"/>
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Abstract: A software manager enables a computer user to administer software elements within a computer operating system. The software manager comprises a configuration database storing information including a prevailing state and a dependency listing for each of the software components within the system. The software manager also comprises a user interface which allows the computer user to view the stored information and permits the user to specify changes to the prevailing states. Finally, the software manager comprises a software manager server which communicates with the user interface and the configuration database, effects the user specified changes, and updates the stored information to reflect those changes. A user of the software manager can readily obtain an overall "picture" of a prevailing system configuration, use that picture to make intelligent decisions with respect to system modification, and thereby administer the operating system environment in a seamless, efficient, and robust manner.

MainClaim: A software manager enabling a computer user to administer software components within a computer operating system, comprising:

a configuration database storing information including a prevailing state and a dependency listing for each of said software components, the dependency listing for a given software component describing interdependencies between the given software component and other aspects of the computer operating system;

a user interface allowing said computer user to view said stored information and permitting said user to specify changes to said

prevailing states; and									
a software manager server communicating with said user interface and said configuration database, for effecting said user specified changes and for updating said stored information to reflect said changes.									
7,690,007	Mapping of dynamic link libraries in a computing device	Nokia Corporation	Thoelke; Andrew	719	G06F	20041028	1	92%	<input type="checkbox"/>
<p>Abstract: A dynamic link library (DLL) in a computing device is provided in the form of a first part and an extension part. The first part has selected entry point ordinals by which an application program may link to first functions. The application program may only link to further functions via the extension part of the DLL.</p> <p>MainClaim: A method of operating a computing device having an operating system and a dynamic link library containing a plurality of functions accessible by an executable program, each function in the dynamic link library being associated with an ordinal number, the method comprising: configuring the computing device to provide the dynamic link library as a first part and an extension part, the first part and the extension part each containing one or more of the plurality of functions; executing the executable program using a processor of the computing device to cause the executable program to link to functions in the first part directly by means of the associated ordinal numbers; and executing the executable program using said processor of the computing device to cause the executable program to link to functions in the extension part indirectly via a further library containing additional functions.</p>									
5,911,069	Exception handling techniques for native methods bound to SOM classes	Apple Computer, Inc.	Beard; Patrick C.	719	G06F	19960930	0	100%	<input type="checkbox"/>
<p>Abstract: When an object-oriented program calls a native SOM method, a data structure is created for handling exceptions. If an exception occurs during the execution of the SOM method, data values relating to the exception are placed in the data structure, and it is labeled to identify its type. This label is used to select a class within the object-oriented program having properties similar to the exception. An instance of this class is allocated, and the exception data is copied into the object, which can then be used to generate an exception within the object-oriented program.</p> <p>MainClaim: A method for mapping exceptions which occur during a method implemented in a first programming language to exceptions that can be recognized in a second, object-oriented programming language, comprising the steps of:</p> <p>calling a method that is implemented in the first language;</p> <p>generating a pointer to a data structure that is employed by methods in the first language, and passing said pointer to a method that is implemented in the first language;</p> <p>determining whether said data structure contains data which indicates that an exception has occurred;</p> <p>identifying a class of objects in the second language which corresponds to an exception that has occurred;</p> <p>creating an instantiation of the identified class;</p> <p>copying data which identifies the exception that has occurred into said instantiation; and</p> <p>generating an exception in said second language from said instantiation.</p>									
2008/0163265	SYSTEM AND METHOD FOR REDUCING THE STATIC FOOTPRINT OF MIXED-LANGUAGE JAVA CLASSES	Nokia Corporation	Flora; Cristiano di	719	G06F	20061229	5	97%	<input type="checkbox"/>
<p>Abstract: A system and a method for minimizing the functionality-gap between Java and native platforms while keeping the impact on each Java API static footprint as small as possible. A Java Runtime Dynamic Invocation API is used for low-level bridging between Java and C/C++, enabling the dynamic invocation of native C/C++ functions and C++ class/object methods from the Java side without adding any additional ad hoc implemented native code to the overall Java component implementation. Thereby, the need to write new native code when implementing a Java component that needs to invoke some native functionality is reduced.</p> <p>MainClaim: A method of reducing the static footprint of mixed-language Java classes in an electronic device, comprising:providing a Java runtime dynamic invocation (JRDI) application program interface (API) configured to interact with Java applications and native APIs; andpermitting the Java applications to manipulate native language entities at run-time via the JRDI API using a plurality of interfaces.</p>									
2005/0283771	System and method for decreasing the memory footprint of applications with automatic memory management systems	Nokia Corporation	Paller, Gabor	717	G06F	20040622	4	94%	<input type="checkbox"/>
<p>Abstract: The techniques described ease the work of garbage collectors by reducing the garbage produced. These embodiments combine the data-flow analysis of native compilers with an extension of the Java Virtual Machine (JVM). A special bytecode is inserted into the original bytecode to explicitly free unused objects. As a result, the garbage collector does not see the object that was explicitly reclaimed and the object doesn't reserve memory after it is not used anymore. The memory footprint of the JVM decreases and the responsiveness is better because the garbage collector has less work and, thus, it interrupts the application more rarely and for less time.</p> <p>MainClaim: A method of decreasing memory footprints produced in an programming environment, the method comprising: analyzing compiled code to identify objects to be reclaimed; modifying the compiled code to include instructions to reclaim objects found from said analysis.</p>									
	Optimizing calls from a								

2008/0148277	managed runtime environment to microkernel extended functionality	Nokia Corporation	di Flora; Cristiano	719	G06F	20061218	10	94%	<input type="checkbox"/>
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Abstract: A sequence of function calls may be executed as a single software component, rather than as individual method calls on a operating system, for example, in a microkernel system. Source code from a user application is parsed to identify a plurality of homogeneous function calls, for example, corresponding to sequence of native microkernel method calls. A homogeneous downcall sequence (HDS) is identified in the application source code, and a separate software component (e.g., a native plug-in) is generated to perform the functionality of the HDS. The application code may be modified to remove the plurality of function calls and replace them with a reference to the newly-generated software component. Finally, the modified application code is executed on the server, for example, by a managed runtime environment (MRTE) process. The software component may be invoked and executed as-a-whole by a native process.

MainClaim: A method, comprising:receiving a first set of instructions to be executed on a computing device;identifying a plurality of homogeneous function calls in said first set of instructions;creating an executable software component operable to perform functionality corresponding to the plurality of homogeneous function calls; andgenerating a second set of instructions based on said first set of instructions, wherein said second set of instructions does not comprise the identified plurality of homogeneous function calls and does comprise a reference to said executable software component, and wherein an execution of the second set of instructions on the computing device requires said computing device to perform fewer context switches than an execution of the first set of instructions on the computing device.

5,929,852	Encapsulated network entity reference of a network component system	Apple Computer, Inc.	Fisher; Stephen Cleron; Michael A. Bruck; Timo	345	G06T	19980115	0	100%	<input type="checkbox"/>
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Abstract: A network-oriented component system efficiently accesses information from a network resource located on a computer network by creating an encapsulated network entity that contains a reference to that resource. The encapsulated entity is preferably implemented as a network component stored on a computer remotely displaced from the referenced resource. In addition, the encapsulated entity may be manifested as a visual object on a graphical user interface of a computer screen. Such visual manifestation allows a user to easily manipulate the entity in order to display the contents of the resource on the screen or to electronically forward the entity over the network.

MainClaim: A method of efficiently accessing information from a network resource located on a computer network for display on a computer coupled to the network, the network resource having one or more associated data types, each data type being accessible by a corresponding object-oriented software component, the method comprising the steps of:

defining at least one network component that integrates the object-oriented software components needed to access the one or more data types associated with the network resource;

creating an encapsulated entity component containing a reference to a location of the network resource on the computer network, the encapsulated entity component also identifying the at least one network component that was defined for the network resource;

storing the encapsulated entity component as a visual object on the computer;

in response to manipulation of the visual object with a pointing device, displaying the contents of the network resource on a screen of the computer by invoking the object-oriented software components integrated by the at least one identified network component.

6,829,758	Interface markup language and method for making application code	Nokia Internet Communications, Inc.	Lewontin; Steve Thrane; Leon	717	G06F	20000714	9	93%	<input type="checkbox"/>
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Abstract: An Interface Markup Language ("IML") file specifies abstract server interface definitions called "operations" that return abstract content descriptions called "entities". Each entity specifies a set of operations that the entity can invoke. The combined set of entities and operations together define an abstract flow diagram of an application. A computer readable medium has instructions stored thereon which, when executed by a processor, cause the processor to perform a sequence of steps in order to make application code that is based on a flow diagram of an application. The steps include making an IML file that includes an operation list section delimited by an operation list marker and an entity list section delimited by an entity list marker. The operation list section specifies a series of operations supported by an application server. The entity list section describes a set of entities which constitute an interface to an application running on the application server. The steps further include compiling the IML file to make application code.

MainClaim: A method for generating application code comprising:

receiving a non-executable flow diagram of an application;

generating an interface markup language (IML) text file based on the application flow diagram, the IML text file containing operations and entities specifying a structure of the application; and

generating application code or code fragments for the application based on the IML text file.

2006/0168526	Platform-specific application user interface remoting	Nokia Corporation	Stirbu; Vlad	715	G06F	20050112	10	93%	<input type="checkbox"/>
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Abstract: This invention relates to a server-site method, a client-site method, computer program products, a client, a server, a module and a system for remoting a user interface of an application between a server that executes said application and at least one client on which a representation of the user interface is to be rendered, wherein the representation of the user interface is generated at the server under consideration of a user interface description that is specific for a device platform of the at least one client; and wherein the representation of the user interface is transferred to the at least one client. The representation of the user interface may for instance be a memory model representation or a frame buffer representation.

MainClaim: A server-site method for remotng a user interface of an application between a server that executes said application and at least one client on which a representation of said user interface is to be rendered, said method comprising: generating said representation of said user interface at said server under consideration of a user interface description that is specific for a device platform of said at least one client; and transferring said representation of said user interface to said at least one client.

6,029,207	Apparatus and method for dynamic linking of computer software components	Apple Computer, Inc.	Heninger; Andrew G.	719	G06F	19970819	0	100%	<input type="checkbox"/>
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Abstract: An apparatus and method for the dynamic (execution time) linking of object oriented software components is disclosed. The present invention comprises a computer system including a set of at least two software components. This invention provides a method and means for dynamically linking object oriented software components during run time execution of the program. The present invention includes two main features. First, a query function is provided to allow an application component to determine, during program execution time, the name and location of library classes available for use. Second, the application component can create (instantiate) instances of derived classes of an abstract base class. The application component can manipulate the instantiated object using the abstract interface provided by the base class definition. The implementation of the present invention involves processing at two steps in the software generation cycle. First, the prior art static linker must be modified to provide processing support for the present invention at link time. Second, the main features of the present invention are performed at program execution time.

MainClaim: In a computer system having a processor, a data storage means coupled to said processor, and a plurality of software components coupled to said processor, said plurality of software components containing processor instructions executed by said processor during run time execution, a process for dynamically linking said plurality of software components during run time execution, said process comprising the steps of:

querying said plurality of software components for the identity of derived classes associated with an explicitly named abstract base class, said derived classes declared in one of said plurality of software components;

instantiating an instance associated with one of said derived classes without explicitly naming said derived class.

2008/0163265	SYSTEM AND METHOD FOR REDUCING THE STATIC FOOTPRINT OF MIXED-LANGUAGE JAVA CLASSES	Nokia Corporation	Flora; Cristiano di	719	G06F	20061229	5	95%	<input type="checkbox"/>
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Abstract: A system and a method for minimizing the functionality-gap between Java and native platforms while keeping the impact on each Java API static footprint as small as possible. A Java Runtime Dynamic Invocation API is used for low-level bridging between Java and C/C++, enabling the dynamic invocation of native C/C++ functions and C++ class/object methods from the Java side without adding any additional ad hoc implemented native code to the overall Java component implementation. Thereby, the need to write new native code when implementing a Java component that needs to invoke some native functionality is reduced.

MainClaim: A method of reducing the static footprint of mixed-language Java classes in an electronic device, comprising: providing a Java runtime dynamic invocation (JRDI) application program interface (API) configured to interact with Java applications and native APIs; and permitting the Java applications to manipulate native language entities at run-time via the JRDI API using a plurality of interfaces.

6,829,758	Interface markup language and method for making application code	Nokia Internet Communications, Inc.	Lewontin; Steve Thrane; Leon	717	G06F	20000714	9	93%	<input type="checkbox"/>
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MainClaim: A method for generating application code comprising:

receiving a non-executable flow diagram of an application;

generating an interface markup language (IML) text file based on the application flow diagram, the IML text file containing operations and entities specifying a structure of the application; and


generating application code or code fragments for the application based on the IML text file.

7,653,914	Handling different service versions in a server	Nokia Corporation	Krohn; Petri Jaske; Harri	719	G06F	20020423	6	92%	<input type="checkbox"/>
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Abstract: This invention relates to handling of different service versions in a server that is connected to a communication network. The invention comprises means to load a desired version, two tables and additional data for handling different service versions. The first table contains service key and version information, and serialized service objects. The second table contains names of classes, version information and class files. The additional data is needed for loading the right class from among classes, with the same name, and mapping the right service object version to the right versions of classes.

MainClaim: A method comprising: grouping different versions of service applications and classes in at least one service repository into a first group comprising entries of service objects and a second group comprising entries of classes, forming the entries of the service objects in the first group to include a first information field for representing information about a version of a service and at least one service object, forming the entries of the classes in the second group to include a second information field for representing information about a version of the class, and mapping the service objects with the classes to provision the

service applications, wherein the different versions of service applications include different versions of a same service application, and wherein the different versions of classes include different versions of a same class, wherein when executing a desired service application, the method further comprises searching for a service entry of a desired service application from the first group, loading a service object of the service entry of the desired service application from the first group for use by at least one server, using the mapping to discover entries of the classes of the second group associated with said service object of the service entry of the desired service application, and loading the entries of the classes of the second group associated with said service object of the service entry of the desired service application to the server.

5,615,400	System for object oriented dynamic linking based upon a catalog of registered function set or class identifiers	Apple Computer, Inc.	Cowsar; George C. Plummer; Christopher J. Quinn; Michael J.	719	G06F	19930630	0	100%	
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Abstract: A system is provided for managing code resources for use by client applications in a computer, wherein the computer has internal memory storing at least one client application. The apparatus comprises a resource set catalog stored in the internal memory. The resource set catalog identifies a plurality of function sets of functions by respective function set IDs. Further, the resource set catalog includes set records which characterize the functions within the respective sets. A dispatch engine, in the internal memory, linked with a client application, supplies a particular function set ID in response to a call by the client application of a particular function which is a member of a corresponding function set identified by the particular function set ID. A lookup engine in the internal memory, coupled with the resource set catalog and the dispatch engine, is responsive to the particular function set ID to look up a set record for a corresponding function set in the resource set catalog. Finally, a link engine in the internal memory and coupled with the dispatch engine returns the particular function to the client application in response to the set record. Thus, because the link engine is responsive to the set record, which is not linked with the client, the client need not be aware of changes in the structure of the library in which the particular function set resides. Thus, the function set can be moved into and out of internal memory, revised, placed in different sections of internal memory, and otherwise handled independently of the client, without requiring re-compilation of the client application.

MainClaim: A computer, comprising

a central processing unit;

non-volatile memory;

high-speed memory;

a library of function sets, each function set including at least one member function, embodied in the high-speed memory;

computer readable program code comprising one or more client applications embodied in the non-volatile memory and capable of utilizing and residing in the high-speed memory; and

computer readable program code means, embodied in the non-volatile memory, for managing use of functions by said one or more client applications, the computer readable program code means comprising:

computer readable program code means for causing the computer to store a dispatch record for said one or more client applications, each said dispatch record for said one or more client applications including a function set ID for each of said plurality of function sets used by said client application;


computer readable program dispatch code means responsive to a call by the client application of a particular member function and to the dispatch record for causing the computer to supply a request for a link to a function set having the particular member function; and

computer readable program link code means, responsive to the request for the link to the function set and to the function set ID in the dispatch record, for causing the computer to link the particular member function to the client application wherein the link code means includes

computer readable program code means for causing said computer to create a resource set catalog, the resource set catalog identifying function sets in the library by respective function set IDs, and storing a plurality of set records which characterize member functions within respective sets;

computer readable program lookup code means for causing the computer to look up a set record for the function set in the resource set catalog based on the corresponding function set ID; and


programmable code means, responsive to the set record, for causing the computer to return the particular member function to the client application.

7,653,914	Handling different service versions in a server	Nokia Corporation	Krohn; Petri Jaske; Harri	719	G06F	20020423	6	92%	
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Abstract: This invention relates to handling of different service versions in a server that is connected to a communication network. The invention comprises means to load a desired version, two tables and additional data for handling different service versions. The first table contains service key and version information, and serialized service objects. The second table contains names of classes, version information and class files. The additional data is needed for loading the right class from among classes, with the same name, and mapping the right service object version to the right versions of classes.

MainClaim: A method comprising: grouping different versions of service applications and classes in at least one service repository into a first group comprising entries of service objects and a second group comprising entries of classes, forming the entries of the service objects in the first group to include a first information field for representing information about a version of a service and at least one service object, forming the entries of the classes in the second group to include a second information

field for representing information about a version of the class, and mapping the service objects with the classes to provision the service applications, wherein the different versions of service applications include different versions of a same service application, and wherein the different versions of classes include different versions of a same class, wherein when executing a desired service application, the method further comprises searching for a service entry of a desired service application from the first group, loading a service object of the service entry of the desired service application from the first group for use by at least one server, using the mapping to discover entries of the classes of the second group associated with said service object of the service entry of the desired service application, and loading the entries of the classes of the second group associated with said service object of the service entry of the desired service application to the server.

5,410,681	Interpreter for performing remote testing of computer systems	Apple Computer, Inc.	Jessen; Jay A. Nagaraian; Palanivelu Flynn; Sean L. Schneider; James A.	703	G06F	19940802	0	100%	
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Abstract: An interpretive language comprises instructions making up part of the first sequence of instructions (a test "script"). The first language comprises a first set of instructions, the first set of instructions causes a first computer system (a "host" in a preferred embodiment) to issue a series of commands to a second computer system (a "target") in order to cause the second computer system to emulate user activity on the second computer system. User activity includes emulating typing text and/or moving a mouse cursor position. The language further comprises a second set of instructions which cause the first computer system to issue a series of commands to the second computer system in order to cause the second computer system to respond to the first computer system with its state. This state includes user interface objects, and applications running in the target, etc. The language further comprises a third set of instructions, the third set of instructions causing the first computer system to issue a sequence of commands to the second computer system to respond in a predefined manner. These instructions indicate that the target computer system is to respond in within a given period of time, listen for further commands, etc. This is useful for repeatable and systematic testing of computer systems having a variety of hardware and software combinations for compatibility testing. Multitasking using "threads" for control of different targets using different test routines is also provided.

MainClaim: A testing system for testing a target computer system, the target computer system having a display for displaying a plurality of user interface objects, the plurality of user interface objects having a plurality of states, the testing system comprising:

a host computer system coupled to said target computer system, said host computer system interpreting a sequence of instructions to test said target computer system, the sequence of instructions containing a plurality of instructions from a predefined language, the predefined language including a first set of instructions and a second set of instructions;

said host computer system interpreting instructions from the first set of instructions to cause the host computer system to issue a first series of commands to said target computer system;

said target computer system emulating user activity on said target computer system responsive to said first series of commands, wherein at least one state of said plurality of states is changed responsive to said target computer system emulating user activity;


said host computer system interpreting instructions from the second set of instructions to cause the host computer system to issue a second series of commands to the target computer system;

said target computer system transmitting to the host computer system data indicative of the state of a specified user interface object of said plurality of user interface objects responsive to the second series of commands.

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	92%	
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

RE39,486	Extensible, replaceable network component system	Apple Computer, Inc.	Cloron; Michael A. Fisher; Stephen Bruck; Timo	719	G06F	20030403	0	100%	
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Abstract: An extensible and replaceable network-oriented component system provides a platform for developing networking navigation components that operate on a variety of hardware and software computer systems. These navigation components include key integrating components along with components configured to deliver conventional services directed to computer networks, such as Gopher-specific and Web-specific components. Communication among these components is achieved through novel application programming interfaces (APIs) to facilitate integration with an underlying software component architecture. Such a high-modular cooperating layered-arrangement between the network component system and the component architecture allows any existing component to be replaced, and allows new components to be added, without affecting operation of the network component system.

MainClaim: An extensible and replaceable layered component computing arrangement residing on a computer coupled to a computer network, the layered arrangement comprising: a software component architecture layer interfacing with an operating system to control the operations of the computer, the software component architecture layer defining a plurality of computing components; and a network component layer for developing network navigation components that provide services directed to

the computer network, the network component layer includes application programming interfaces; and a first class included in the application programming interfaces to construct a first network navigation object that represents different network resources available on the computer network, wherein the network component layer coupled to the software component architecture layer in integrating relation to facilitate communication among the computing and network navigation components.

2006/0168526	Platform-specific application user interface remoting	Nokia Corporation	Stirbu; Vlad	715	G06F	20050112	10	92%	<input type="checkbox"/>
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Abstract: This invention relates to a server-site method, a client-site method, computer program products, a client, a server, a module and a system for remoting a user interface of an application between a server that executes said application and at least one client on which a representation of the user interface is to be rendered, wherein the representation of the user interface is generated at the server under consideration of a user interface description that is specific for a device platform of the at least one client; and wherein the representation of the user interface is transferred to the at least one client. The representation of the user interface may for instance be a memory model representation or a frame buffer representation.

MainClaim: A server-site method for remoting a user interface of an application between a server that executes said application and at least one client on which a representation of said user interface is to be rendered, said method comprising: generating said representation of said user interface at said server under consideration of a user interface description that is specific for a device platform of said at least one client; and transferring said representation of said user interface to said at least one client.

5,669,000	Interpreter for performing remote testing of computer systems	Apple Computer, Inc.	Jessen; Jay Alan Nagarajan; Palanivelu Flynn; Sean Ludlow Schneider; James Alan	717	G06F	19950131	0	100%	<input type="checkbox"/>
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Abstract: An interpretive language comprises instructions making up part of the first sequence of instructions (a test "script"). The first language comprises a first set of instructions, the first set of instructions causes a first computer system (a "host" in a preferred embodiment) to issue a series of commands to a second computer system (a "target") in order to cause the second computer system to emulate user activity on the second computer system. User activity includes emulating typing text and/or moving a mouse cursor position. The language further comprises a second set of instructions which cause the first computer system to issue a series of commands to the second computer system in order to cause the second computer system to respond to the first computer system with its state. This state includes user interface objects, and applications running in the target, etc. The language further comprises a third set of instructions, the third set of instructions causing the first computer system to issue a sequence of commands to the second computer system to respond in a predefined manner. These instructions indicate that the target computer system is to respond in within a given period of time, listen for further commands, etc. This is useful for repeatable and systematic testing of computer systems having a variety of hardware and software combinations for compatibility testing. Multitasking using "threads" for control of different targets using different test routines is also provided.

MainClaim: An interpretive language for use with a first computer system coupled to a second computer system, the first computer system causing the second computer system to perform a plurality of specified actions according to one or more commands contained in the interpretive language, the interpretive language comprising:

a. a set of descriptors which define a plurality of abstractions, the second computer system having a display for displaying a plurality of user interface objects, the plurality of abstractions being descriptive of said plurality of user interface objects, said descriptors comprising a plurality of traits;

b. a first set of commands which direct emulated user actions to be performed on the user interface objects; and

c. a second set of commands, each user interface object of the plurality of user interface objects having a state, the second set of commands requesting information regarding the state of one or more user interface objects of the plurality of user interface objects.

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	92%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

5,784,619	Replaceable and extensible notebook component of a network component	Apple Computer, Inc.	Evans; John S. Cleron; Michael A. Fisher; Stephen Holleran; Patrick A. Bruck; Timo	719	G06F	19971009	0	100%	<input type="checkbox"/>
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Abstract: A notebook component of an extensible and replaceable network-oriented component system records locations of resources coupled to a computer network. The network-oriented system includes a novel application programming interface for the notebook component that facilitates integration with an underlying software component architecture. Such a highly-modular cooperating layered-arrangement between the network component system and the component architecture allows the notebook component to be replaced, extended or modified by other notebook-type components, while ensuring that these latter components "seamlessly" interact with existing components and component editors of the system.

MainClaim: An extensible and replaceable network-oriented component system for recording locations of resources coupled to computer networks, the system residing on a computer including a component architecture layer interfacing with an operating system to control the operations of the computer, the system comprising:

a network component layer coupled to the component architecture layer in cooperating relation; and

a notebook component defined by the network component layer for recording a reference to a resource coupled to the computer networks, the notebook component being replaceable and extensible by other notebook-type components in response to the cooperating relationship between the network component layer and the component architecture layer, wherein said component architecture layer and said network component layer cooperate via an application programming interface to embed components within one another to form a compound document including mixed data types and formats.

2006/0168526	Platform-specific application user interface remoting	Nokia Corporation	Stirbu; Vlad	715	G06F	20050112	10	92%	<input type="checkbox"/>
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Abstract: This invention relates to a server-site method, a client-site method, computer program products, a client, a server, a module and a system for remoting a user interface of an application between a server that executes said application and at least one client on which a representation of the user interface is to be rendered, wherein the representation of the user interface is generated at the server under consideration of a user interface description that is specific for a device platform of the at least one client; and wherein the representation of the user interface is transferred to the at least one client. The representation of the user interface may for instance be a memory model representation or a frame buffer representation.

MainClaim: A server-site method for remoting a user interface of an application between a server that executes said application and at least one client on which a representation of said user interface is to be rendered, said method comprising: generating said representation of said user interface at said server under consideration of a user interface description that is specific for a device platform of said at least one client; and transferring said representation of said user interface to said at least one client.

6,829,758	Interface markup language and method for making application code	Nokia Internet Communications, Inc.	Lewontin; Steve Thrane; Leon	717	G06F	20000714	9	92%	<input type="checkbox"/>
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Abstract: An Interface Markup Language ("IML") file specifies abstract server interface definitions called "operations" that return abstract content descriptions called "entities". Each entity specifies a set of operations that the entity can invoke. The combined set of entities and operations together define an abstract flow diagram of an application. A computer readable medium has instructions stored thereon which, when executed by a processor, cause the processor to perform a sequence of steps in order to make application code that is based on a flow diagram of an application. The steps include making an IML file that includes an operation list section delimited by an operation list marker and an entity list section delimited by an entity list marker. The operation list section specifies a series of operations supported by an application server. The entity list section describes a set of entities which constitute an interface to an application running on the application server. The steps further include compiling the IML file to make application code.

MainClaim: A method for generating application code comprising:

receiving a non-executable flow diagram of an application;

generating an interface markup language (IML) text file based on the application flow diagram, the IML text file containing operations and entities specifying a structure of the application; and

generating application code or code fragments for the application based on the IML text file.

2006/0150073	Method for inhibiting the execution of a navigating command	Nokia Corporation	Makela; Mikko K.	715	G06F	20041230	8	92%	<input type="checkbox"/>
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Abstract: The present invention relates to the field of inhibiting a navigating command associated with an event and in particular to methods, devices and systems for handling such commands in an effective manner. The event generally controls the navigating to a certain item in an application environment is the method determines that the navigating command is to be executed. The method features checking if the navigating command would shift display to an area not actually displayed in the application environment; and in this case inhibiting the execution of the navigating command

MainClaim: A method for inhibiting the execution of a navigating command in an application environment, said navigating command being associated with an event, wherein said event controls navigation to a certain item in said application environment, comprising the steps of: determining that said navigating command is to be executed; checking if said navigating command would shift display to an area which is at least partly invisible in said application environment; and if the checking step is affirmative, inhibiting the execution of said navigating command.

5,907,843	Replaceable and extensible navigator component of a network component system	Apple Computer, Inc.	Cleron; Michael A. Nordman; Michael M.	707	G06F	19970227	0	100%	<input type="checkbox"/>
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Abstract: An extensible and replaceable network-oriented component system provides a platform for developing network navigation components that operate on a variety of hardware and software computer systems. These navigation components assist users in navigating from information locations quickly and accurately. Also, these navigation components may be modified or replaced with new navigation components for embedding various types of information therein. Communication among these components is achieved through novel application programming interfaces (APIs) to facilitate integration with an underlying software component architecture. Such a highly-modular cooperating layered-arrangement between the network component system and the component architecture allows any existing component to be replaced, and allows new components to be added, without affecting operation of the network component system.

MainClaim: An extensible and replaceable layered component computing arrangement residing on a computer coupled to a computer network for navigating between information locations on the computer network, the layered arrangement comprising:

a component architecture layer interfacing with an operating system to control the operations of the computer, the component architecture layer defining a plurality of computing components;

a network component layer coupled to the component architecture layer in cooperating relation and comprising application programming interfaces delivered in the form of objects in a class hierarchy that include a CyberItem class for constructing a

first network navigation object representing a network resource available at any location on the computer network; and

a navigator component part for embedding information from the computer network therein and presenting the embedded information to a user.

2006/0168526	Platform-specific application user interface remoting	Nokia Corporation	Stirbu; Vlad	715	G06F	20050112	10	93%	<input type="checkbox"/>
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Abstract: This invention relates to a server-site method, a client-site method, computer program products, a client, a server, a module and a system for remoting a user interface of an application between a server that executes said application and at least one client on which a representation of the user interface is to be rendered, wherein the representation of the user interface is generated at the server under consideration of a user interface description that is specific for a device platform of the at least one client; and wherein the representation of the user interface is transferred to the at least one client. The representation of the user interface may for instance be a memory model representation or a frame buffer representation.

MainClaim: A server-site method for remoting a user interface of an application between a server that executes said application and at least one client on which a representation of said user interface is to be rendered, said method comprising: generating said representation of said user interface at said server under consideration of a user interface description that is specific for a device platform of said at least one client; and transferring said representation of said user interface to said at least one client.

2006/0150073	Method for inhibiting the execution of a navigating command	Nokia Corporation	Makela; Mikko K.	715	G06F	20041230	8	92%	<input type="checkbox"/>
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Abstract: The present invention relates to the field of inhibiting a navigating command associated with an event and in particular to methods, devices and systems for handling such commands in an effective manner. The event generally controls the navigating to a certain item in an application environment is the method determines that the navigating command is to be executed. The method features checking if the navigating command would shift display to an area not actually displayed in the application environment; and in this case inhibiting the execution of the navigating command

MainClaim: A method for inhibiting the execution of a navigating command in an application environment, said navigating command being associated with an event, wherein said event controls navigation to a certain item in said application environment, comprising the steps of: determining that said navigating command is to be executed; checking if said navigating command would shift display to an area which is at least partly invisible in said application environment; and if the checking step is affirmative, inhibiting the execution of said navigating command.

5,640,537	Apparatus for causing a computer system to respond to emulated user interaction in the absence of actual user interaction	Apple Computer, Inc.	Jessen; Jay Alan Nagarajan; Palanivelu Flynn; Sean Ludlow Schneider; James Alan	703	G06F	19940822	0	100%	<input type="checkbox"/>
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Abstract: An apparatus for testing a first computer system. Means for emulating user interaction on the first computer system and a means for determining the state of user interface objects on the display and the operating status of the first computer system is provided. In various embodiments, the means for emulating user interaction comprises a means for emulating keyboard and mouse input on the first computer system. The means for emulating mouse movement comprises a means for updating data structures in the first computer system, such that when the data structures are updated, user control of the keyboard and mouse is emulated. Means for determining the attributes of windows displayed on a display of the first computer system is provided, along with means for determining the attributes of menus on the displayed on the first computer system and means for determining the current position of the cursor of the first computer system, among other user interface objects. Abstractions of these user interface objects are transmitted between the first computer system and the testing means. The control of the first computer system is performed by a second computer system to provide repeatable testing on a variety of computer systems for diagnosis of faults.

MainClaim: An apparatus for testing a first computer system, the first computer system having a memory, a display and an operating status, the display displaying a plurality of user interface objects, the memory storing a plurality of abstract representations of said plurality of user interface objects, wherein each abstract representation of said plurality of abstract representations represents a corresponding user interface object of said plurality of user interface objects, wherein each abstract representation of said plurality of abstract representations includes data indicating a state of said corresponding user interface object, the apparatus comprising:

a. emulating means for causing the first computer system to respond as though a user had interacted with the first computer system in a predefined manner in an absence of actual user interaction in the predefined manner, and

b. determining means for determining the state indicated by said data stored in said abstract representation of a user interface object of said plurality of user interface objects and for determining the operating status of the first computer system.

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	92%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

7,233,972	Method and apparatus for coordination of	Apple Inc.	Minow; Martin A.	709	G06F	20020528	0	100%	<input type="checkbox"/>
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	client/server processes								
<p>Abstract: The invention provides for the coordination of client/server processes. One or more embodiments provide a completion object comprised of various states of completion of a client request. The completion object may be manipulated to transition from one state to another by both the client and server. The following states of completion may be provided: idle, ready, active, completing, completed, and acknowledged. In the idle state, the completion object is obtained by the client (by constructing a new object or retrieving an existing object that has been recycled). In the ready state, the request has been initialized but not yet issued to the server or I/O device. In the active state, the server processes the I/O request. In the completing state, the server has completed the I/O operations requested but has not yet stored the results. In the completed state, the server stores the results to be returned to the client and notifies the client. At the acknowledged state, the client examines the results, performs additional operations and frees up the completion object for use by another client request. Depending on the state of the completion object, a request to cancel the I/O operations may require varying actions. The completion object provides the ability to easily and quickly determine where in the completion process an I/O request is. Further, when a client request is canceled, the completion object provides the ability to easily identify the actions necessary to properly cancel the request.</p> <p>MainClaim: A system comprising: one or more processors; a memory coupled to said one or more processors; one or more sequences of instructions which, when executed by said one or more processors, cause said one or more processors to perform the steps of: obtaining a completion object associated with a first request from at least one client to at least one server, wherein said completion object indicates a state of completion of said first request; transitioning said completion object from indicating a first state of completion of said first request to indicating a second state of completion of said first request in response to a message from said at least one client; and transitioning said completion object from indicating a third state of completion of said first request to indicating a fourth state of completion of said first request in response to a message from said at least one server; wherein said second state of completion and said third state of completion are the same state of completion.</p>									
7,007,004	Concurrent operation of a state machine family	Nokia Corporation	Liukkonen; Juha Syrjänen; Jukka Ruusiala; Jarmo Kartesalo; Tomi Ruohtula; Erkki Malmqvist; Markus	707	G06F	20021120	7	92%	<input type="checkbox"/>
<p>Abstract: The present invention concerns a method and a system for operating state machines concurrently in a computing system. One or more state machine families are generated. Each family comprises one master state machine type for receiving service requests from outside its family and for forwarding the received service requests for servicing, and one or more slave state machine types for receiving and servicing the forwarded service requests. A thread pool is allocated to one or more state machine families. Each thread pool is specific to one state machine family and comprises one or more threads for executing the master instance and slave instances of the corresponding state machine family. State machine instances of one or more generated state machine families are assigned to corresponding threads of the allocated thread pools for execution.</p> <p>MainClaim: A method for operating state machines concurrently in a computing system, wherein the method comprises the steps of:</p> <p>generating one or more state machine families, each family comprising one master state machine type for receiving service requests from outside its family and for forwarding the received service requests for servicing, and one or more slave state machine types for receiving and servicing the forwarded service requests, the master state machine type instantiated as one master instance and at least one slave state machine type instantiated as one or more slave instances, each instance having a message queue of its own,</p> <p>allocating to one or more generated state machine families a thread pool, each thread pool being specific to one state machine family and comprising one or more threads for executing the master instance and slave instances of the corresponding state machine family, and</p> <p>assigning state machine instances of one or more generated state machine families to corresponding threads of the allocated thread pools for execution, a given instance being executed by no more than one thread at any given time and a given thread executing no more than one instance at any given time.</p>									
5,519,862	Concurrent processing apparatus with incremental command objects	Taligent, Inc.	Schaeffer; Arnold Goldsmith; David B. Moeller; Christopher P. Heninger; Andrew G.	717	G06F	19930226	0	100%	<input type="checkbox"/>
<p>Abstract: A method and apparatus for an innovative object oriented framework system is disclosed. The system uses an innovative load architecture for a framework application by multiple users. The load architecture implements functions, static data and classes in a more flexible manner than prior operating systems.</p> <p>MainClaim: Apparatus for incrementally modifying data in response to device event signals, the apparatus comprising:</p> <p>(a) a tracking object responsive to a first device event signal for instantiating a command object having attributes identifying data to be modified, first logic for initiating a data modification operation and second logic for continuing a data modification operation;</p> <p>(b) a model object comprising a plurality of methods for updating the data;</p> <p>(c) means responsive to the first device event signal for transmitting a copy of the command object to the model object, for storing the command object copy therein and for executing the command object copy first logic to call one of the plurality of model object methods to modify a portion of the data identified by the command object copy attributes;</p> <p>(d) means responsive to a second device event signal for instantiating a first command delta object having first delta attributes identifying data to be modified and for transmitting the first command delta object to the command object copy, the first command delta object using the first delta attributes to update the command object copy attributes and executing the second logic in the command object copy to call one of the plurality of model object methods to modify a portion of the data identified</p>									

by the command object copy attributes.

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	92%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

5,459,865	Runtime loader	Taligent Inc.	Heninger; Andrew G. Nakano; Russell T. Palevich; Jack H.	718	G06F	19930405	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for an innovative object oriented framework system is disclosed. The system uses an innovative load architecture for a framework application by multiple users. The load architecture implements functions, static data and classes in a more flexible manner than prior operating systems.

MainClaim: An apparatus for running a task with an object-oriented operating system in a first address space in response to a run command generated in a second address space, said operating system including a first object class with a data structure for holding said run command and run command parameters and with member functions for initialization and synchronization of said task on a computer with an attached storage including said first and said second address spaces, said apparatus comprising:

(a) means responsive to said run command for creating a command object from said first object class for encapsulating initialization and synchronization information associated with said task in said second address space of said storage of said computer;

(b) means for transmitting said command object to said first address space by communicating with said object-oriented operating system in said storage of said computer; and

(c) means in said first address space and responsive to said run command contained in said command object for executing said member functions in said command object to create, initialize and run said task.

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	92%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

6,708,332	Run-time modules for dynamically adjusting computer operation	Apple Computer, Inc.	Murphy; Colm J. Kateley; James Han; Byron Fitzgerald-Smith; Ken	717	G06F	20010813	0	100%	<input type="checkbox"/>
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Abstract: Code module interfaces are provided which allow a user to adjust the functionality of a program at run-time. The code module interfaces (CMIs) can be selectively activated by a user at run-time. Then, the control software will call the CMIs at various instances, for example, at startup, after each state change in the control software, at idle time and when the control software has completed all of its tasks. Alternatively, when each CMI is loaded, it can specify at which state change(s) that CMI is to be called to increase speed of operation.

MainClaim: A computer having stored thereon a computer program including at least one code module interface (CMI) defined by a first set of software code and a state machine defined by a second set of software code having a plurality of states each state having at least one predetermined exit criterion, said program executable by the computer for causing the computer to perform the steps of:

registering said at least one CMI during an initialization state of said state machine;

determining, based on said step of registering, at least one state within said state machine upon exit of which said at least one CMI is to be executed;

executing said CMI when said computer exits said at least one determined state within said computer program; and

re-entering said computer program at a state determined by said CMI, when said CMI executing step has ended, wherein functionality of said state machine is adjusted without altering said second set of software codes.

2007/0101119	Methods and apparatus for automatically multi-booting a computer system	Nokia Corporation	Vesterinen; Timo Saksio; Mauri Molin; Sakari	713	G06F	20060822	5	93%	<input type="checkbox"/>
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Abstract: The invention allows automatically multi-booting a computer. Each functional mode of a computer having at least two operating systems installed is associated with one of the operating systems. Functional mode information identifying a particular functional mode of the computer is stored by a recovery system. While starting the computer, a boot loader receives the stored functional mode information, selects the operating system associated with the particular functional mode, and activates the selected operating system for the computer.

MainClaim: An automatically multi-bootable computer system comprising: a computer having at least two operating systems installed, the computer being in one out of multiple functional modes, each of the multiple functional modes associated with one of the at least two operating systems, and each of at least two of the multiple functional modes associated with different ones of the at least two operating systems; a computer state manager configured to store functional mode information, wherein the functional mode information identifies a particular functional mode the computer system will assume when the computer system is re-started for a pre-determined reason; and a boot loader configured to receive the stored functional mode information and to activate the operating system associated with the particular functional mode identified by the functional mode information when re-starting the computer for the pre-determined reason.

7,657,734	Methods and apparatus for automatically multi-booting a computer system	Nokia Corporation	Vesterinen; Timo Saksio; Mauri Molin; Sakari	713	G06F	20060822	5	92%	<input type="checkbox"/>
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Abstract: The invention allows automatically multi-booting a computer. Each functional mode of a computer having at least two operating systems installed is associated with one of the operating systems. Functional mode information identifying a particular functional mode of the computer is stored by a recovery system. While starting the computer, a boot loader receives the stored functional mode information, selects the operating system associated with the particular functional mode, and activates the selected operating system for the computer.

MainClaim: An automatically multi-bootable computer system comprising: a computer having at least two operating systems installed, the computer being in one out of multiple functional modes, each of the multiple functional modes associated with one of the at least two operating systems, and each of at least two of the multiple functional modes associated with different ones of the at least two operating systems; a computer state manager configured to store functional mode information, wherein the functional mode information identifies a particular functional mode the computer will assume when the computer is re-started for a pre-determined reason; and a boot loader configured to receive the stored functional mode information and to activate the operating system associated with the particular functional mode identified by the functional mode information when re-starting the computer for the pre-determined reason; wherein the computer state manager comprises a recovery system for recovering the computer from a fault condition; the pre-determined reason for re-starting the computer comprises an occurrence of a fault condition; and the particular functional mode comprises a fault recovery functional mode.

6,253,228	Method and apparatus for updating and synchronizing information between a client and a server	Apple Computer, Inc.	Ferris; Michael Popp; Nicolas Forstall; Scott D'Harcourt; Charles	709	G06F	19970331	0	100%	<input type="checkbox"/>
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Abstract: The present invention provides a method and apparatus for integrating applets running on a client with the application logic for applications running on a server. The mechanism of the present invention provides two significant advantages over the prior art: the synchronization of state, and the recognition of user actions in the browser including the invocation of the appropriate application logic in the server. Instead of using the FORM element available in HTML, individual active applets are available and may be created that obtain user input (e.g. a checkbox, textbox, button, etc.). A hidden applet called the Applet Group Controller is created which handles communication between the applets on the browser and the application logic on the server. The Applet Group Controller maintains an association with each applet that maintains the keys and values of any parameters and variables for the applet. In a preferred embodiment, upon the invocation of an event, the association instructs an Action Coordinator to invoke an action. The Action Coordinator obtains and transmits a list of all of the keys and their values to the server. The server invokes the appropriate application logic and transmits the keys and their values (as updated during the execution of the application logic) back to the Action Coordinator. The Action Coordinator then pushes the updated values out to the applets (through their Associations) at which time the browser's display is updated with the new values.

MainClaim: A method for synchronizing information between a client and a server comprising the steps of:

initializing a communication system between said client and said server, said communication system comprising a plurality of objects, said objects capable of:

maintaining keys and values;

accepting user input; and

determining when to invoke an action;

wherein said initializing a communication system further comprises creating a server dictionary of said values on said server;

said client constructing a first package, wherein said first package is comprised of said keys and values;

said client transmitting said first package to said server;

synchronizing information between said server and said client comprising the steps of:

said server using said first package;

updating said server dictionary with said keys and values from said first package;

binding said server dictionary's values to variables in said server;

said server constructing synchronization information based on said first package, wherein said constructing synchronization information comprises the steps of:

comparing said bound variables with said server dictionary's values;

placing said keys and said values that have changed in said synchronization information;

said server transmitting said synchronization information to said objects;

said objects updating said client with said synchronization information.

2006/0150073	Method for inhibiting the execution of a navigating command	Nokia Corporation	Makela; Mikko K.	715	G06F	20041230	8	93%	<input type="checkbox"/>
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Abstract: The present invention relates to the field of inhibiting a navigating command associated with an event and in particular to methods, devices and systems for handling such commands in an effective manner. The event generally controls the navigating to a certain item in an application environment is the method determines that the navigating command is to be executed. The method features checking if the navigating command would shift display to an area not actually displayed in the application environment; and in this case inhibiting the execution of the navigating command

MainClaim: A method for inhibiting the execution of a navigating command in an application environment, said navigating command being associated with an event, wherein said event controls navigation to a certain item in said application environment, comprising the steps of: determining that said navigating command is to be executed; checking if said navigating command would shift display to an area which is at least partly invisible in said application environment; and if the checking step is affirmative, inhibiting the execution of said navigating command.

2007/0288854	Reusable XForms processor	Nokia Corporation	Koskimies; Oskari	715	G06F	20060613	18	93%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for invoking user interface (UI) functionality by a client application. Data is received from a server, such as a web server, parsed and used to create a hierarchy of application UI objects. A corresponding hierarchy of XForms objects is created, such that each XForms object maps to an application UI object. The user interface is rendered at the client display by displaying objects in the application UI objects hierarchy and invoking the corresponding functionality from the XForms object hierarchy.

MainClaim: A method for invoking user interface functionality on a computing device comprising:receiving a data file comprising markup language data;creating based on the data file a first object hierarchy comprising a plurality of objects, each corresponding to a user interface component;identifying in the first object hierarchy a first object corresponding to a user interface component;creating a second object hierarchy comprising a second object having user interface functionality, said second object associated with said first object;displaying on the computing device a user interface comprising a graphical representation of the first object; andinvoking the user interface functionality of the second object in relation to the graphical representation of the first object on the displayed user interface.

2004/0172622	Systems, methods and computer program products for performing a task in a software application	Nokia Inc.	Francis, William G.	717	G06F	20030228	2	92%	<input type="checkbox"/>
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Abstract: A method for performing a task in a software application begins by determining a state of at least one data item, such as by determining a state of at least one configuration setting. After determining the states of the data items, at least one data item is identified based upon the state of the data items. For example, data items having a non-configured state can be identified. Thereafter, at least one operational display of the software application is presented based upon the identified data items. For example, the operational displays presented can comprise electronic pages formatted for display by a connectivity application. Each operational display presented includes at least one field for receiving at least one identified data item. After presenting the operational displays of the software application, the identified data items are received into the fields of the respective operational displays.

MainClaim: A method of performing a task in a software application capable of presenting at least one operational display during operation, the method comprising: determining a state of at least one data item; identifying at least one data item based upon the state of the at least one data item; presenting at least one operational display of the software application based upon the identified at least one data item, wherein each operational display presented includes at least one field for receiving at least one identified data item; and receiving the at least one identified data item into the at least one field of the respective at least one operational display.

7,448,042	Method and apparatus for providing inter-application accessibility	Apple Inc.	Engber; Michael Scott Fullerton; Guyerik B. Louch; John Owen Aitken; Kevin Bartlett Ozer; Ali	719	G06F	20030506	0	100%	<input type="checkbox"/>
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Abstract: Methods and apparatuses for providing inter-application accessibility. Embodiments of the present invention provide a framework independent, introspective, extensible technique for describing and interacting with interfaces across application processes, in which an accessibility client dynamically discovers aspects of an element (e.g., a User Interface (UI) element) by asking for its lists of actions and attributes. For example, an accessibility client application can have framework independent access to accessibility server applications written in different frameworks, such as Cocoa, Carbon, Java, or others. Since the lists of attributes and actions are introspected at run time, an accessibility client can be dynamically extensible to handle new attributes and actions that are added to the accessibility server after the accessibility client is made. The accessibility servers

have the flexibility to describe any aspect of an interface without limitation; and, the accessibility clients can interact with the accessibility servers (e.g., to perform actions) without a priori information about the interface element.

MainClaim: A method for a first application process to access a user interface element, the method comprising: obtaining, at the first application process, a representation of the user interface element; retrieving, at the first application process and from a second application process, a list of attributes of the user interface element; the first application process calling a first function of the user interface element provided by the second application process to determine whether a particular attribute selected from the list of the attributes is modifiable; in response to a result returned from the first function, the first application examining the result to determine whether the particular attribute selected from the list of the attributes is modifiable; and if it is determined that the particular attribute is modifiable based on the examination of the result of calling the first function, the first application process calling a second function of the user interface element to set the particular attribute to a value to modify a behavior of a user interface item displayed at a display supported by the user interface element.

2007/0288854	Reusable XForms processor	Nokia Corporation	Koskimies; Oskari	715	G06F	20060613	18	94%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for invoking user interface (UI) functionality by a client application. Data is received from a server, such as a web server, parsed and used to create a hierarchy of application UI objects. A corresponding hierarchy of XForms objects is created, such that each XForms object maps to an application UI object. The user interface is rendered at the client display by displaying objects in the application UI objects hierarchy and invoking the corresponding functionality from the XForms object hierarchy.

MainClaim: A method for invoking user interface functionality on a computing device comprising: receiving a data file comprising markup language data; creating based on the data file a first object hierarchy comprising a plurality of objects, each corresponding to a user interface component; identifying in the first object hierarchy a first object corresponding to a user interface component; creating a second object hierarchy comprising a second object having user interface functionality, said second object associated with said first object; displaying on the computing device a user interface comprising a graphical representation of the first object; and invoking the user interface functionality of the second object in relation to the graphical representation of the first object on the displayed user interface.

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	94%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

7,363,587	Method and apparatus for supporting real-time collaboration	Apple Inc.	Schaeffer; Arnold J Anderson; David R. Palevich; Jack H.	715	G06F	20020725	0	100%	<input type="checkbox"/>
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Abstract: A collaboration system synchronizes an application or applications running on one or more computer systems. Each of the applications has a local data copy and the applications commence operation by creating consistent local copies from a common third copy. The consistency is maintained by distributing address space independent selections and commands to each application as they are entered at a controlling system. The selections and commands are generated by directly manipulating a presentation of each local data copy. When a selection and command arrive at a destination, the selection is used to find and selection the data and the command is applied to the data located by the selection.

MainClaim: A method for supporting real time collaboration between a first collaborating computer, having a user interface and containing a first local data copy in a first local address space in a memory of the first collaborating computer and connected by a network to a second collaborating computer having a second user interface and containing a second local data copy in a second local address space in a memory of the second collaborating computer, the method comprising: (a) generating in the first local memory address space in the first collaborating computer, an address space independent selection of the first local data copy, which selection does not directly point at data in the first local data copy; (b) generating with the user interface, an address space independent command that modifies the selection generated in step (a); (c) sending the selection and command from the first collaborating computer over the network to the second collaborating computer; (d) using the selection in the second local memory address space to find and select a data portion from the second local data copy; (e) applying the command in the second local memory address space to the data portion selected in step (d); (f) generating in the second local memory address space in the second collaborating computer, a second address space independent selection of the second local data copy, which selection does not directly point at data in the second local data copy; (g) generating with the second user interface, a second address space independent command that modifies the selection generated in step (f); (h) sending the second selection and second command from the second collaborating computer over the network to the first collaborating computer; (i) using the second selection in the first local memory address space to find and select a data portion from the first local data copy; and (j) applying the second command in the first local memory address space to the data portion selected in step (i).

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	92%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data

processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

6,947,967	Method and apparatus for updating and synchronizing information between a client and a server	Apple Computer	Ferris; Michael Popp; Nicolas Forstall; Scott D'Harcourt; Charles	709	G06F	20010522	0	100%	<input type="checkbox"/>
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Abstract: The present invention provides a method and apparatus for integrating applets running on a client with the application logic for applications running on a server. The mechanism of the present invention provides two significant advantages over the prior art: the synchronization of state, and the recognition of user actions in the browser including the invocation of the appropriate application logic in the server. Instead of using the FORM element available in HTML, individual active applets are available and may be created that obtain user input (e.g. a checkbox, textbox, button, etc.). A hidden applet called the Applet Group Controller is created which handles communication between the applets on the browser and the application logic on the server. The Applet Group Controller maintains an association with each applet that maintains the keys and values of any parameters and variables for the applet. In a preferred embodiment, upon the invocation of an event, the association instructs an Action Coordinator to invoke an action. The Action Coordinator obtains and transmits a list of all of the keys and their values to the server. The server invokes the appropriate application logic and transmits the keys and their values (as updated during the execution of the application logic) back to the Action Coordinator. The Action Coordinator then pushes the updated values out to the applets (through their Associations) at which time the browser's display is updated with the new values.

MainClaim: A method for synchronizing information between a first computer and a second computer comprising:

initializing a communication system between a first computer and a second computer;

accepting user input at said first computer;

creating first computer values associated with said user input;

said first computer constructing a first package, wherein said first package comprises said first computer values;

transmitting said first package to said second computer;

said second computer constructing synchronization information based on said first package, wherein said constructing synchronization information comprises:

comparing said first computer values from said first package with second computer variables;

associating information resulting from said comparing with said synchronization information;

said second computer transmitting said synchronization information to said first computer;

updating said first computer with said synchronization information.

2006/0150073	Method for inhibiting the execution of a navigating command	Nokia Corporation	Makela; Mikko K.	715	G06F	20041230	8	93%	<input type="checkbox"/>
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Abstract: The present invention relates to the field of inhibiting a navigating command associated with an event and in particular to methods, devices and systems for handling such commands in an effective manner. The event generally controls the navigating to a certain item in an application environment is the method determines that the navigating command is to be executed. The method features checking if the navigating command would shift display to an area not actually displayed in the application environment; and in this case inhibiting the execution of the navigating command

MainClaim: A method for inhibiting the execution of a navigating command in an application environment, said navigating command being associated with an event, wherein said event controls navigation to a certain item in said application environment, comprising the steps of: determining that said navigating command is to be executed; checking if said navigating command would shift display to an area which is at least partly invisible in said application environment; and if the checking step is affirmative, inhibiting the execution of said navigating command.

2006/0107206	Form related data reduction	Nokia Corporation	Koskimies; Oskari	715	G06F	20041112	4	92%	<input type="checkbox"/>
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Abstract: The invention discloses a method, system, server and computer program product of automatically reducing the amount of form related data, e.g. extensible markup language data, sent to a receiving terminal. In the method, a user interface description is analyzed to determine, which parts of the form related data are relevant for the receiving terminal. Based on the analysis, unnecessary parts of the form related data are pruned and the pruned form related data is sent to the receiving terminal. In one embodiment of the invention, XForms is analyzed to determine, which parts of an extensible markup language data are relevant for the receiving terminal.

MainClaim: A method of automatically reducing the amount of form related data sent to a receiving terminal, the method comprising: analyzing a user interface description to determine, which parts of the form related data are relevant for the receiving terminal; pruning; based on the analysis, unnecessary parts of the form related data; and sending the pruned form related data to the receiving terminal.

2007/0288854	Reusable XForms processor	Nokia Corporation	Koskimies; Oskari	715	G06F	20060613	18	92%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for invoking user interface (UI) functionality by a client application. Data is received from a server, such as a web server, parsed and used to create a hierarchy of application UI objects. A corresponding hierarchy of XForms objects is created, such that each XForms object maps to an application UI object. The user interface is

rendered at the client display by displaying objects in the application UI objects hierarchy and invoking the corresponding functionality from the XForms object hierarchy.

MainClaim: A method for invoking user interface functionality on a computing device comprising:receiving a data file comprising markup language data;creating based on the data file a first object hierarchy comprising a plurality of objects, each corresponding to a user interface component;identifying in the first object hierarchy a first object corresponding to a user interface component;creating a second object hierarchy comprising a second object having user interface functionality, said second object associated with said first object;displaying on the computing device a user interface comprising a graphical representation of the first object; andinvoking the user interface functionality of the second object in relation to the graphical representation of the first object on the displayed user interface.

5,781,189	Embedding internet browser/buttons within components of a network component system	Apple Computer, Inc.	Holleran; Patrick A. Evans; John S. Cleron; Michael A. Fisher; Stephen Bruck; Timo	345	G06F	19950505	0	100%	<input type="checkbox"/>
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Abstract: A network-oriented component system facilitates development of customized user interfaces to computer networks by embedding entities that reference resources located on the networks into components of the system. The embedded entities are preferably manifested as visual objects displayed on a graphical user interface of a computer screen that a user may manipulate to effectuate the embedding process. The "container" components are preferably compound documents having contents that include different data types and formats.

MainClaim: A method for developing a customized user interface of a computer that displays information obtained from a resource of a computer network on a display screen, the display screen having associated therewith a pointing device, the method comprising the steps of:

generating a document for display on the screen;

associating a visual object with a network entity component configured to reference the resource of the computer network;

embedding the network entity component within the document by dragging and dropping the visual object onto the document with the pointing device; and

clicking on the visual object with the pointing device to display the information from the resource on the screen.

2007/0288854	Reusable XForms processor	Nokia Corporation	Koskimies; Oskari	715	G06F	20060613	18	93%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for invoking user interface (UI) functionality by a client application. Data is received from a server, such as a web server, parsed and used to create a hierarchy of application UI objects. A corresponding hierarchy of XForms objects is created, such that each XForms object maps to an application UI object. The user interface is rendered at the client display by displaying objects in the application UI objects hierarchy and invoking the corresponding functionality from the XForms object hierarchy.

MainClaim: A method for invoking user interface functionality on a computing device comprising:receiving a data file comprising markup language data;creating based on the data file a first object hierarchy comprising a plurality of objects, each corresponding to a user interface component;identifying in the first object hierarchy a first object corresponding to a user interface component;creating a second object hierarchy comprising a second object having user interface functionality, said second object associated with said first object;displaying on the computing device a user interface comprising a graphical representation of the first object; andinvoking the user interface functionality of the second object in relation to the graphical representation of the first object on the displayed user interface.

2006/0168526	Platform-specific application user interface remoting	Nokia Corporation	Stirbu; Vlad	715	G06F	20050112	10	93%	<input type="checkbox"/>
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Abstract: This invention relates to a server-site method, a client-site method, computer program products, a client, a server, a module and a system for remoting a user interface of an application between a server that executes said application and at least one client on which a representation of the user interface is to be rendered, wherein the representation of the user interface is generated at the server under consideration of a user interface description that is specific for a device platform of the at least one client; and wherein the representation of the user interface is transferred to the at least one client. The representation of the user interface may for instance be a memory model representation or a frame buffer representation.

MainClaim: A server-site method for remoting a user interface of an application between a server that executes said application and at least one client on which a representation of said user interface is to be rendered, said method comprising: generating said representation of said user interface at said server under consideration of a user interface description that is specific for a device platform of said at least one client; and transferring said representation of said user interface to said at least one client.

2006/0150073	Method for inhibiting the execution of a navigating command	Nokia Corporation	Makela; Mikko K.	715	G06F	20041230	8	92%	<input type="checkbox"/>
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Abstract: The present invention relates to the field of inhibiting a navigating command associated with an event and in particular to methods, devices and systems for handling such commands in an effective manner. The event generally controls the navigating to a certain item in an application environment is the method determines that the navigating command is to be executed. The method features checking if the navigating command would shift display to an area not actually displayed in the application environment; and in this case inhibiting the execution of the navigating command

MainClaim: A method for inhibiting the execution of a navigating command in an application environment, said navigating command being associated with an event, wherein said event controls navigation to a certain item in said application environment, comprising the steps of: determining that said navigating command is to be executed; checking if said navigating command would shift display to an area which is at least partly invisible in said application environment; and if the checking step is affirmative, inhibiting the execution of said navigating command.

6,308,326	Run-time modules for dynamically adjusting computer operation	Apple Computer, Inc.	Murphy; Colm J. Kateley; James Han; Byron Fitzgerald-Smith; Ken	717	G06F	19990108	0	100%	<input type="checkbox"/>
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Abstract: Code module interfaces are provided which allow a user to adjust the functionality of a program at run-time. The code module interfaces (CMIs) can be selectively activated by a user at run-time. Then, the control software will call the CMIs at various instances, for example, at startup, after each state change in the control software, at idle time and when the control software has completed all of its tasks. Alternatively, when each CMI is loaded, it can specify at which state change(s) that CMI is to be called to increase speed of operation.

MainClaim: At least one storage medium, readable by a computer, having stored thereon a computer program including at least one code module interface (CMI) defined by a first set of software code and a state machine defined by a second set of software code having a plurality of states each state having at least one predetermined exit criterion, said program executable by the computer for causing the computer to perform the steps of:

registering said at least one CMI during an initialization state of said state machine;

determining, based on said step of registering, at least one state within said state machine upon exit of which said at least one CMI is to be executed;

executing said CMI when said computer exits said at least one determined state within said computer program; and

re-entering said computer program at a state determined by said CMI, when said CMI executing step has ended, whereing functionality of said state machine is adjusted without altering said second set of software code.

2007/0101119	Methods and apparatus for automatically multi-booting a computer system	Nokia Corporation	Vesterinen; Timo Saksio; Mauri Molin; Sakari	713	G06F	20060822	5	93%	<input type="checkbox"/>
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Abstract: The invention allows automatically multi-booting a computer. Each functional mode of a computer having at least two operating systems installed is associated with one of the operating systems. Functional mode information identifying a particular functional mode of the computer is stored by a recovery system. While starting the computer, a boot loader receives the stored functional mode information, selects the operating system associated with the particular functional mode, and activates the selected operating system for the computer.

MainClaim: An automatically multi-bootable computer system comprising: a computer having at least two operating systems installed, the computer being in one out of multiple functional modes, each of the multiple functional modes associated with one of the at least two operating systems, and each of at least two of the multiple functional modes associated with different ones of the at least two operating systems; a computer state manager configured to store functional mode information, wherein the functional mode information identifies a particular functional mode the computer system will assume when the computer system is re-started for a pre-determined reason; and a boot loader configured to receive the stored functional mode information and to activate the operating system associated with the particular functional mode identified by the functional mode information when re-starting the computer for the pre-determined reason.

7,657,734	Methods and apparatus for automatically multi-booting a computer system	Nokia Corporation	Vesterinen; Timo Saksio; Mauri Molin; Sakari	713	G06F	20060822	5	93%	<input type="checkbox"/>
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Abstract: The invention allows automatically multi-booting a computer. Each functional mode of a computer having at least two operating systems installed is associated with one of the operating systems. Functional mode information identifying a particular functional mode of the computer is stored by a recovery system. While starting the computer, a boot loader receives the stored functional mode information, selects the operating system associated with the particular functional mode, and activates the selected operating system for the computer.

MainClaim: An automatically multi-bootable computer system comprising: a computer having at least two operating systems installed, the computer being in one out of multiple functional modes, each of the multiple functional modes associated with one of the at least two operating systems, and each of at least two of the multiple functional modes associated with different ones of the at least two operating systems; a computer state manager configured to store functional mode information, wherein the functional mode information identifies a particular functional mode the computer will assume when the computer is re-started for a pre-determined reason; and a boot loader configured to receive the stored functional mode information and to activate the operating system associated with the particular functional mode identified by the functional mode information when re-starting the computer for the pre-determined reason; wherein the computer state manager comprises a recovery system for recovering the computer from a fault condition; the pre-determined reason for re-starting the computer comprises an occurrence of a fault condition; and the particular functional mode comprises a fault recovery functional mode.

5,446,842	Object-oriented collaboration system	Taligent, Inc.	Schaeffer; Arnold Anderson; David R. Palevich; Jack H. Rosenstein; Larry S.	709	G06F	19930226	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for an innovative object oriented framework system is disclosed. The system uses an innovative framework architecture to provide concurrent access to a framework application by multiple users. The users can collaborate over the application and jointly produce a finished product.

MainClaim: An apparatus for supporting real-time collaboration of at least two users of an application on at least two computers joined via a communication link, including means for initiating processing steps of said application by user commands, including a command object with logic and data for performing a command and an associated selection object with logic and data specifying the target of said command, and means for generating the same view to the results of said processing steps on displays of said users, comprising:

(a) means for issuing a first user command object by a first one of said users determining certain ones of said processing steps of said application;

(b) means for generating a first user selection object specifying first data associated with said first user command object in response to a user selection of said first data;

(c) means for distributing said first user command object and said first user selection object to a second user involved in said

collaboration utilizing said communication link joining said at least two computers; and

(d) processing means for executing said first user command and said first user selection object in said application for said first user and said second user involved in said collaboration.

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	93%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

7,712,109	Dialog item interface definition object	Apple Inc.	Cirne; Lewis K.	719	G06F	20030521	0	100%	<input type="checkbox"/>
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Abstract: An object-oriented item is used to define the behavior of an item in a dialog box in a windows environment. A class hierarchical library is established with a base class setting up initial definitions of instance variables and methods used to define the behavior of a customized item. An applications developer can create customized items for a dialog box by creating subclasses. The subclasses will inherit portions of the superclasses, and the developer will customize the items by overriding certain methods. The object, an instance of the class, is referenced by a resource associated with an application.

MainClaim: A computer implemented method for managing items in a dialog box, comprising the steps of: executing an instruction calling for said dialog box; reading, by a dialog manager, a dialog resource associated with said dialog box; reading, by the dialog manager, a dialog item list resource referenced by said dialog resource to access a list of said items in said dialog box, said list of said items being in said dialog item list resource, and including a first reference to an object oriented class, a location for each item in said list of said items, and a class name for at least a subset of items in said list of said items; following, by the dialog manager, said first reference to said object oriented class, said object oriented class representing a definition of a first item in said list of said items; managing said first item, based on an instance of said object oriented class, by responding to events defined by said definition of the first item and executing at least one method from said instance of said object oriented class, using said dialog manager, said at least one method corresponding to said events, wherein said object oriented class is part of an object oriented class structure that includes a base class and at least one subclass, the object oriented structure allowing for the subclass to inherit methods defined in the base class.

2007/0157117	Apparatus, method and computer program product providing user interface configurable command placement logic	Nokia Corporation	Viitala; Tomi	715	G06F	20051220	29	93%	<input type="checkbox"/>
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Abstract: In accordance with but one exemplary embodiment of this invention a computer program is embodied on a tangible computer-readable medium. The execution of the computer program by a data processor of a device results in operations that include operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

MainClaim: A computer program embodied on a tangible computer-readable medium the execution of which by a data processor of a device results in operations comprising operating a command placement manager to map an instance of a user interface (UI) command specification to at least one control of a UI in accordance with information defining a device configuration, where the command specification is comprised of a prioritized list of commands.

7,529,841	Method and apparatus for updating and synchronizing information between a client and server	Apple Inc.	Ferris; Michael Popp; Nicolas Forstall; Scott D'Harcourt; Charles	709	G06F	20050919	0	100%	<input type="checkbox"/>
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Abstract: The present invention provides a method and apparatus for integrating applets running on a client with the application logic for applications running on a server. The mechanism of the present invention provides two significant advantages over the prior art: the synchronization of state, and the recognition of user actions in the browser including the invocation of the appropriate application logic in the server. Instead of using the FORM element available in HTML, individual active applets are available and may be created that obtain user input (e.g. a checkbox, textbox, button, etc.). A hidden applet called the Applet Group Controller is created which handles communication between the applets on the browser and the application logic on the server. The Applet Group Controller maintains an association with each applet that maintains the keys and values of any parameters and variables for the applet. In a preferred embodiment, upon the invocation of an event, the association instructs an Action Coordinator to invoke an action. The Action Coordinator obtains and transmits a list of all of the keys and their values to the server. The server invokes the appropriate application logic and transmits the keys and their values (as updated during the execution of the application logic) back to the Action Coordinator. The Action Coordinator then pushes the updated values out to the applets (through their Associations) at which time the browser's display is updated with the new values.

MainClaim: A method of synchronizing information between a client and a server comprising: receiving at a server from a client a package comprising (a) an action data indicating an action to be performed by the server and (b) a key and a value corresponding to the key; determining an action logic associated with the action; binding the key to a variable associated with the action logic; and using the value corresponding to the key to update the variable at the server prior to performing the action; wherein one or more of the action, the key, and the value are associated with an applet running on the client; the applet is associated with a display page being rendered at the client; the server does not maintain a state information associated with a state of the variable with respect to the display page as rendered at the client; and using the value to update the variable at the

server synchronizes the variable at the server with a corresponding value associated with the display page prior to the action being performed.

2007/0288854	Reusable XForms processor	Nokia Corporation	Koskimies; Oskari	715	G06F	20060613	18	93%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for invoking user interface (UI) functionality by a client application. Data is received from a server, such as a web server, parsed and used to create a hierarchy of application UI objects. A corresponding hierarchy of XForms objects is created, such that each XForms object maps to an application UI object. The user interface is rendered at the client display by displaying objects in the application UI objects hierarchy and invoking the corresponding functionality from the XForms object hierarchy.

MainClaim: A method for invoking user interface functionality on a computing device comprising:receiving a data file comprising markup language data;creating based on the data file a first object hierarchy comprising a plurality of objects, each corresponding to a user interface component;identifying in the first object hierarchy a first object corresponding to a user interface component;creating a second object hierarchy comprising a second object having user interface functionality, said second object associated with said first object;displaying on the computing device a user interface comprising a graphical representation of the first object; andinvoking the user interface functionality of the second object in relation to the graphical representation of the first object on the displayed user interface.

5,566,346	System for constructing hardware device interface software systems independent of operating systems including capability of installing and removing interrupt handlers	Taligent, Inc.	Andert; Glenn P. Lemon; Steven P.	710	G06F	19931221	0	100%	<input type="checkbox"/>
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Abstract: An object-oriented input/output (IO) system represents an interface between clients of the IO system and peripheral devices, such that the clients can access the peripheral devices by utilizing IO services offered by the IO system. The IO system includes one or more object-oriented IO servicers for receiving IO service requests from clients, and for generating IO commands in accordance with the IO service requests. One or more object-oriented access managers, coupled to the IO servicers and the peripheral devices, access the peripheral devices as instructed by the IO commands such that the IO service requests are satisfied. The peripheral devices may transmit interrupts to a kernel while operating in accordance with the IO commands. One or more object-oriented interrupt servicers, coupled to the kernel receive and decode the interrupts from the peripheral devices. One or more object-oriented interrupt handlers, coupled to the interrupt servicers, process the decoded interrupts. The IO system cited here includes an operating system independent execution environment for the various I/O servicers, each of which is designed in such a way as to support a variety of interchangeable operating systems.

MainClaim: Apparatus for constructing hardware device interface software systems for servicing Input/Output (IO) devices, the apparatus comprising:

- (a) a processor;
- (b) a memory attached to and under the control of the processor;
- (c) at least one IO device attached to the processor; and
- (d) an IO service ensemble, responsive to IO requests from a user, for providing a pre-defined set of IO services for the device, the ensemble including

interrupt handler means, residing in a kernel address space of the memory, for servicing interrupts from the device; and

device access manager means, residing in a user-mode address space of the memory and cooperating with the interrupt handler means, for accessing the device according to user-provided, device-specific access rules to initiate an IO operation with the device and for reserving buffers in the memory, if necessary, to service the IO requests and to service responses from the device, the device access manager means including means for installing the interrupt handler means in the memory and including death watch means for removing the interrupt handler means from the memory if the device access manager means is destroyed.

2007/0240171	Device, Method, And Computer Program Product For Accessing A Non-Native Application Executing In Virtual Machine Environment	Nokia Corporation	Biro; Jozsef Boros; Andras	719	G06F	20060329	9	92%	<input type="checkbox"/>
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Abstract: Embodiments of the invention provide a virtual machine application program (VMAPI) interface logically disposed between a non-native application executing in the virtual machine environment and a native middleware application, such as a native high-availability middleware application. The VMAPI is registered as a proxy component with the native middleware application by creating a library instance. The non-native application is registered as a proxied component with the native middleware application by creating another dedicated library instance. A JVM mapper may be logically disposed between the native middleware and the VMAPI that is capable of automatically mapping the JVM to the Java components based on a mapping policy selected from a predefined set of possible mapping policies.

MainClaim: A device for providing access to a non-native application executing in a virtual machine environment, wherein the device comprises: a processing element configured to execute a virtual machine application, including a virtual machine application program interface (VMAPI), to create the virtual machine environment in which the non-native application is configured to execute; the processing element further configured to execute a native middleware application; wherein the VMAPI is logically disposed between the non-native application executing in the virtual machine environment and the native middleware application; wherein the VMAPI is registered as a proxy component with the native middleware application; and wherein the non-native application is registered by the VMAPI as a proxied component with the native middleware application.

7,694,289	Method for embedding object codes in source	Apple Inc.	Stattenfield; Keith	717	G06F	20051205	0	100%	<input type="checkbox"/>
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	codes									
<p>Abstract: Methods for embedding codes executable in a first system having a first microprocessor into codes executable in a second system having a second microprocessor are described herein. In one aspect of the invention, an exemplary method includes providing first codes having a routine, the first codes being compilable to be executed in the first system, and compiling the first codes, resulting in second codes; the second codes comprising opcodes of the routine executable by the first system, which convert the second codes into third codes automatically, the third codes being compilable to be executed by the second system; this is followed by compiling the third codes, resulting in the fourth codes being executable in the second system, and linking the fourth codes, generating an executable image and executing the executable image in the second system. Other methods and apparatuses are also described.</p> <p>MainClaim: A computer implemented method for processing source codes, the method comprising: creating a data structure containing opcodes of one or more instructions of a routine based on a listing file without using an object file associated with the listing file, wherein the listing file and the object file are generated by compiling a first source code using a first compiler and intended to be executable by a first platform, wherein the first source code includes the routine having the one or more instructions and recognizable by the first compiler associated with the first platform; and generating an executable image based on a compilation of a second source code and the created data structure using a second compiler dedicated to a second platform different than the first platform, wherein the executable image, when loaded into a code area of a memory of the second platform, accesses the data structure loaded within a data area of the memory to perform a task of the routine of the first source code.</p>										
2008/0148277	Optimizing calls from a managed runtime environment to microkernel extended functionality	Nokia Corporation	di Flora; Cristiano	719	G06F	20061218	10	93%		
<p>Abstract: A sequence of function calls may be executed as a single software component, rather than as individual method calls on a operating system, for example, in a microkernel system. Source code from a user application is parsed to identify a plurality of homogeneous function calls, for example, corresponding to sequence of native microkernel method calls. A homogeneous downcall sequence (HDS) is identified in the application source code, and a separate software component (e.g., a native plug-in) is generated to perform the functionality of the HDS. The application code may be modified to remove the plurality of function calls and replace them with a reference to the newly-generated software component. Finally, the modified application code is executed on the server, for example, by a managed runtime environment (MRTE) process. The software component may be invoked and executed as-a-whole by a native process.</p> <p>MainClaim: A method, comprising:receiving a first set of instructions to be executed on a computing device;identifying a plurality of homogeneous function calls in said first set of instructions;creating an executable software component operable to perform functionality corresponding to the plurality of homogeneous function calls; andgenerating a second set of instructions based on said first set of instructions, wherein said second set of instructions does not comprise the identified plurality of homogeneous function calls and does comprise a reference to said executable software component, and wherein an execution of the second set of instructions on the computing device requires said computing device to perform fewer context switches than an execution of the first set of instructions on the computing device.</p>										
5,479,589	Object-oriented system for selecting a graphic image on a display	Taligent, Inc.	Peterson; John Jain; Rajiv Seidl; Robert	345	G06T	19930804	0	100%		
<p>Abstract: A method and apparatus for defining customizable pick, hit or find detection criteria for geometric types and using the results of the search as a basis for determining whether to perform an action. According to the inventive method, a search protocol is defined for geometric types. The search criteria is compared with graphic objects to determine whether the object matches the criteria. Based on the results of the comparison, an output is produced. In addition to allowing customized hit criteria for primitive geometric types, the hit object framework allows hit criteria to be specified for geometric types created by the application developer.</p> <p>MainClaim: An apparatus for selecting a graphic image displayed on a graphic display utilizing a plurality of objects organized in an object-oriented operating system, each of said objects containing one or more geometric attributes of a graphic image, match criteria and an action to be taken if a match occurs, comprising:</p> <p>(a) an object-oriented operating system;</p> <p>(b) a data processor controlled by said operating system;</p> <p>(c) a display device controlled by said data processor for displaying a plurality of pixels to form a graphic image, each of said plurality of pixels having pixel data for :controlling said display device to display an appearance for each of said plurality of pixels;</p> <p>(d) storage means with a plurality of locations for storing said pixel data;</p> <p>(e) an object of said object-oriented operating system including a class containing one or more geometric attributes of a graphic image, match criteria and an action to be taken if a match occurs defining a search protocol;</p> <p>(f) means for detecting a graphic image which matches said one or more geometric attributes and satisfies said match criteria utilizing a geometry matrix and said one or more geometric attributes to determine if said match criteria is satisfied;</p> <p>(g) means for producing an output based on said action to be taken if a match occurs; and</p> <p>(h) means for modifying an image of said graphic image.</p>										
6,351,842	Method for producing computer-controlled services	Nokia Telecommunications Oy	Ahmavuo; Pekka Ala-Rantala; Martti Narvanen; Pia	717	G06F	19980408	2	92%		
<p>Abstract: The invention relates to a method for producing application-specific computer-controlled services. An application-</p>										

specific program code is generated automatically and an application-specific computer program for providing the service is formed. In order to perform changes more easily than before, the computer program is divided into three groups. The first group is formed only of such a code that remains the same regardless of the application, and the second and the third group are provided with a code produced by the generation in such a way that (a) the second group only includes a code produced by the generation and (b) the third group contains a code produced with the generation that is to be changed by the designer after the generation. The generating device is informed of whether the code to be generated is produced for the second or for the third group.

MainClaim: A method for producing application-specific computer-controlled services for a user, the method comprising:

forming a description file describing an application for an intended service, the description file formed with terms of an application architecture used;

generating automatically an application-specific program code from which an application-specific computer program is formed by using software generating means and by following the terms of the application architecture used; and

running said application-specific computer program in order to provide the user with said intended service;

wherein the forming of the application-specific computer program further comprises dividing the application-specific computer program into different groups in such a way that

a first group (A) is formed only of such a program code that remains the same regardless of the application; and

a second and a third group are provided with a program code produced by said software generating means in such a way that (a) the second group (B) only includes a program code produced by said software generating means and (b) the third group (C) contains such a program code produced with said software generating means that a designer is intended to change after the generation; and

informing the software generating means whether a program code to be generated is produced for the second or for the third group.

5,544,302	Object-oriented framework for creating and using container objects with built-in properties	Taligent, Inc.	Nguyen; Frank T.	345	G06F	19930603	0	100%	<input type="checkbox"/>
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Abstract: An object-oriented framework is used to create container objects which are, in turn, used to hold both other objects and information in order to organize the information in a variety of ways. The framework contains a set of pre-defined class information which allows container objects to be constructed or instantiated. An instantiated container object can be accessed by a multitude of users and may contain other objects which can hold information defining other containers, such as shelves and trash cans, or which can hold information representing physical "things" such as locations, maps and people. The pre-defined class information includes member functions which provide default editing operations such as cut, copy, paste, drag, drop, selection, move, undo and redo, which editing operations are applicable to all objects in the container. Member functions are also provided to generate one or more presentations on a display which represent the container.

MainClaim: A method for organizing information in a memory of a computer system, the memory having an address space for an object-oriented operating system and an address space for an application program, the method comprising the steps of:

(a) storing information defining a container class in the operating system address space of the memory, the container class being comprised of a data structure for holding information, a member function for constructing a container object from the container class, a first member function for inserting information identifying a containable object into the data structure, plurality of member functions for performing editing operations and a second member function for inserting information identifying an editing operation into the data structure;

(b) executing the constructing member function to instantiate a container object in the application program address space of the memory;

(c) executing the first inserting member function of the instantiated container object to insert information identifying a containable object into the data structure of the instantiated container object;

(d) executing one of the editing member functions in the instantiated container object to perform an editing operation on the containable object identified by information in the data structure of the instantiated container object; and

(e) executing the second inserting member function to insert information identifying the editing operation performed in step (d) into the data structure of the instantiated container object so that the editing operation may be undone and redone.

7,058,895	Method, system and apparatus for constructing fully personalized and contextualized interaction environment for terminals in mobile use	Nokia Corporation	Kautto-Koivula; Kaisa Huhtaniemi; Marita Lahdesm{hacek over (a)}ki; Petri Maenp{hacek over (aa)}; Petri	715	G06F	20011220	3	94%	<input type="checkbox"/>
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Abstract: A method, system and apparatus for creating personalized and contextualized interaction environment for terminals in mobile use. The method comprises receiving user instruction regarding information displayed on the interface, wherein the interface is represented in the contextualized interaction environment by a node map, updating the internal node map in accordance with the user instruction and displaying the interface in accordance with the updated internal node map. The node

map is arranged to represent the user information in a particular context on the interface.

MainClaim: A method for updating a user interface in a contextualized interaction environment for use in a computing device, comprising: a. displaying information on the user interface via a node map; i. wherein said node map is arranged to represent said information in a particular context on the user interface by utilizing a content abstraction layer, said content abstraction layer comprising links to at least one of content, applications, services and devices; b. receiving user instruction regarding information displayed on the user interface; c. updating said internal node map in accordance with said user instruction; and d. displaying the user interface in accordance with the updated internal node map.

6,976,249	Method for embedding object codes in source codes	Apple Computer, Inc.	Stattenfield; Keith	717	G06F	20011112	0	100%	<input type="checkbox"/>
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Abstract: Methods for embedding codes executable in a first system having a first microprocessor into codes executable in a second system having a second microprocessor are described herein. In one aspect of the invention, an exemplary method includes providing first codes having a routine, the first codes being compilable to be executed in the first system, and compiling the first codes, resulting in second codes; the second codes comprising opcodes of the routine executable by the first system, which convert the second codes into third codes automatically, the third codes being compilable to be executed by the second system; this is followed by compiling the third codes, resulting in the fourth codes being executable in the second system, and linking the fourth codes, generating an executable image and executing the executable image in the second system. Other methods and apparatuses are also described.

MainClaim: A computer implemented method for processing source codes, the method comprising:

compiling a first source code using a first compiler to generate an object file containing object codes and a listing file containing opcodes of instructions of the first source code, the first source code including a routine having one or more instructions only executable by a first platform and recognizable by the first compiler dedicated to the first platform;

creating a data structure containing the opcodes of the one or more instructions of the routine based on the listing file without using the object file; and

generating an executable image based on a compilation of a second source code and the created data structure using a second compiler dedicated to a second platform different than the first platform, wherein the executable image, when loaded into a code area of a memory of the second platform, accesses the data structure loaded within a data area of the memory to perform a task of the routine of the first source code.

2005/0283771	System and method for decreasing the memory footprint of applications with automatic memory management systems	Nokia Corporation	Paller, Gabor	717	G06F	20040622	4	93%	<input type="checkbox"/>
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Abstract: The techniques described ease the work of garbage collectors by reducing the garbage produced. These embodiments combine the data-flow analysis of native compilers with an extension of the Java Virtual Machine (JVM). A special bytecode is inserted into the original bytecode to explicitly free unused objects. As a result, the garbage collector does not see the object that was explicitly reclaimed and the object doesn't reserve memory after it is not used anymore. The memory footprint of the JVM decreases and the responsiveness is better because the garbage collector has less work and, thus, it interrupts the application more rarely and for less time.

MainClaim: A method of decreasing memory footprints produced in an programming environment, the method comprising: analyzing compiled code to identify objects to be reclaimed; modifying the compiled code to include instructions to reclaim objects found from said analysis.

2008/0148277	Optimizing calls from a managed runtime environment to microkernel extended functionality	Nokia Corporation	di Flora; Cristiano	719	G06F	20061218	10	93%	<input type="checkbox"/>
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Abstract: A sequence of function calls may be executed as a single software component, rather than as individual method calls on a operating system, for example, in a microkernel system. Source code from a user application is parsed to identify a plurality of homogeneous function calls, for example, corresponding to sequence of native microkernel method calls. A homogeneous downcall sequence (HDS) is identified in the application source code, and a separate software component (e.g., a native plug-in) is generated to perform the functionality of the HDS. The application code may be modified to remove the plurality of function calls and replace them with a reference to the newly-generated software component. Finally, the modified application code is executed on the server, for example, by a managed runtime environment (MRTE) process. The software component may be invoked and executed as-a-whole by a native process.

MainClaim: A method, comprising:receiving a first set of instructions to be executed on a computing device;identifying a plurality of homogeneous function calls in said first set of instructions;creating an executable software component operable to perform functionality corresponding to the plurality of homogeneous function calls; andgenerating a second set of instructions based on said first set of instructions, wherein said second set of instructions does not comprise the identified plurality of homogeneous function calls and does comprise a reference to said executable software component, and wherein an execution of the second set of instructions on the computing device requires said computing device to perform fewer context switches than an execution of the first set of instructions on the computing device.

2004/0073904	Method and apparatus for accelerating program execution in platform-independent virtual machines	Nokia Corporation	Hill, Tapio	718	G06F	20021015	2	92%	<input type="checkbox"/>
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Abstract: A method and apparatus for accelerating program execution in platform-independent systems by eliminating repeated hot spot recognition in virtual machines. Optimization information for programs operable on a target device is stored. It is determined whether stored optimization information exists for a current program available on the target device, and if so, the optimization information associated with the current program is retrieved. The retrieved optimization information is used to identify program code segments earlier identified for optimization processing. Portions of the current program not identified for optimization processing are interpreted via an interpreter, and at substantially the same time, the program code segments identified for optimization processing to native code of the target device are compiled. Using the stored optimization information

eliminates the need to analyze the program for program hot spots each time the program is loaded.

MainClaim: A method for increasing execution speed of platform-independent programs on a target device, comprising: storing optimization information for one or more programs operable on the target device; determining whether stored optimization information exists for a current program; retrieving the optimization information for the current program if the optimization information exists for the current program; using the retrieved optimization information to identify one or more program code segments of the program identified for optimization processing; and interpreting portions of the current program that are not identified for optimization processing, and concurrently compiling the one or more program code segments identified for optimization processing to native code of the target device.

6,871,349	Method and apparatus for relaying events intended for a first application program to a second application program	Apple Computer, Inc.	Akhond; Hossein David Scown; Gregory George Kaminar; Johnathon Paul	719	G06F	20000929	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for processing with a preferred processing application having a preferred identifier, an event associated with an object created by a dedicated creator application is provided. The method includes the steps of receiving the event, intercepting the event with a relay application program, and forwarding, with the relay application program, the intercepted event to the preferred processing application program.

MainClaim: A computer-related method for processing, with a preferred processing application program having a second creator type, an event associated with an object generated by a dedicated creator application program having a first creator type, wherein each application program has a creator type, the method comprising:

causing a relay application program to assume the first creator type;

intercepting the event with said relay application program; and

forwarding, with said relay application program, said intercepted event to the preferred processing application program, wherein the event would otherwise be directed to a dedicated processing application program having the first creator type;

installing said relay application program wherein installing said relay application program comprises receiving an install command, changing said creator type for all application programs having said first creator type to a third creator type, placing said relay application program in condition for launching at a predetermined time, and providing user accessibility to said selection application program via a selection graphic user interface (GUI);

installing a selection application program; and

selecting, with said selection application program, the preferred processing application program.

2004/0172622	Systems, methods and computer program products for performing a task in a software application	Nokia Inc.	Francis, William G.	717	G06F	20030228	2	92%	<input type="checkbox"/>
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Abstract: A method for performing a task in a software application begins by determining a state of at least one data item, such as by determining a state of at least one configuration setting. After determining the states of the data items, at least one data item is identified based upon the state of the data items. For example, data items having a non-configured state can be identified. Thereafter, at least one operational display of the software application is presented based upon the identified data items. For example, the operational displays presented can comprise electronic pages formatted for display by a connectivity application. Each operational display presented includes at least one field for receiving at least one identified data item. After presenting the operational displays of the software application, the identified data items are received into the fields of the respective operational displays.

MainClaim: A method of performing a task in a software application capable of presenting at least one operational display during operation, the method comprising: determining a state of at least one data item; identifying at least one data item based upon the state of the at least one data item; presenting at least one operational display of the software application based upon the identified at least one data item, wherein each operational display presented includes at least one field for receiving at least one identified data item; and receiving the at least one identified data item into the at least one field of the respective at least one operational display.

7,669,145	Multi-repository display system using separate presentation, adaption and access layers	Apple Inc.	Arrouye; Yan Findley; Sean J. Mortensen; Keith L.	715	G06F	20020920	0	100%	<input type="checkbox"/>
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Abstract: A software object display system using an adaptation layer to obtain information concerning a number of software objects is described. The adaptation layer communicates to a presentation layer which produces a display for the software objects. The adaptation layer isolates the presentation layer from the details of the structures of the software objects to be displayed. The adaptation layer provides a standard set of data to the presentation layer for the presentation layer to display.

MainClaim: A system for providing users with access to different types of software objects contained in multiple heterogeneous repositories, comprising: a display system that displays the different types of software objects from different respective repositories in a hierarchical arrangement, wherein an adaptation layer provides object-based information for object selection from the respective one of the different repositories; a user interface device via which a user can select more than one of the displayed software objects at the same time, with at least one of the selected software objects being a first type of object from a first repository, and another of the selected objects being a second type of object from a second repository different from said first repository; and a unit that interprets a command directed to the selected objects according to the type of each selected object, respectively, and applies the interpreted versions of the command to the corresponding selected objects.

2007/0288854	Reusable XForms processor	Nokia Corporation	Koskimies; Oskari	715	G06F	20060613	18	94%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for invoking user interface (UI) functionality by a client application. Data is

received from a server, such as a web server, parsed and used to create a hierarchy of application UI objects. A corresponding hierarchy of XForms objects is created, such that each XForms object maps to an application UI object. The user interface is rendered at the client display by displaying objects in the application UI objects hierarchy and invoking the corresponding functionality from the XForms object hierarchy.

MainClaim: A method for invoking user interface functionality on a computing device comprising: receiving a data file comprising markup language data; creating based on the data file a first object hierarchy comprising a plurality of objects, each corresponding to a user interface component; identifying in the first object hierarchy a first object corresponding to a user interface component; creating a second object hierarchy comprising a second object having user interface functionality, said second object associated with said first object; displaying on the computing device a user interface comprising a graphical representation of the first object; and invoking the user interface functionality of the second object in relation to the graphical representation of the first object on the displayed user interface.

2006/0107206	Form related data reduction	Nokia Corporation	Koskimies; Oskari	715	G06F	20041112	4	93%	<input type="checkbox"/>
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Abstract: The invention discloses a method, system, server and computer program product of automatically reducing the amount of form related data, e.g. extensible markup language data, sent to a receiving terminal. In the method, a user interface description is analyzed to determine, which parts of the form related data are relevant for the receiving terminal. Based on the analysis, unnecessary parts of the form related data are pruned and the pruned form related data is sent to the receiving terminal. In one embodiment of the invention, XForms is analyzed to determine, which parts of an extensible markup language data are relevant for the receiving terminal.

MainClaim: A method of automatically reducing the amount of form related data sent to a receiving terminal, the method comprising: analyzing a user interface description to determine, which parts of the form related data are relevant for the receiving terminal; pruning; based on the analysis, unnecessary parts of the form related data; and sending the pruned form related data to the receiving terminal.

6,738,077	Dynamic generation and automated distribution of user interface from database model	Apple Computer, Inc.	Wendker; Andreas W. Noyau; Eric	345	G06F	20000718	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for automatically and dynamically generating a user interface for a client based upon a database model. An application server creates a user interface description in accordance with the database model. The description is then distributed to the client, which interprets the description and creates the user interface therefrom.

MainClaim: A method comprising the steps of:

receiving a data model of a database, said data model containing a plurality of entities, each entity describing a type of data object associated with said database;

classifying said plurality of entities into entity types, said classifying including:

determining whether a first entity in the plurality of entities satisfies a first set of conditions; and

classifying the first entity as a first entity type upon determining that the first entity satisfies the first set of conditions;

creating a description of a user interface, said description based upon said classification of said plurality of entities; and

distributing said description to a client, said client enabled thereupon to generate elements of said user interface that permits a user of said client to transact with said database in a manner conforming to said data model.

2006/0288402	Security component for dynamic properties framework	Nokia Corporation	Sathish; Sailesh	726	H04L	20050620	1	92%	<input type="checkbox"/>
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Abstract: This invention relates to dynamic properties framework and particularly to a security framework for the dynamic properties framework. The dynamic properties framework comprises at least one property, each of which have a metadata interface for providing information of the property in question, which metadata interface comprises an owner tag and a visibility tag. A security method comprises steps for determining a class of a component and for providing said component with various rights for the property according to the class of said component as well as according to the owner and the visibility tag of said property.

MainClaim: A method for security in a dynamic properties framework comprising at least one property, each of which have a metadata interface for providing information of the property in question, which metadata interface comprises an owner tag and a visibility tag, said method comprising steps for determining a class of a component and providing said component with various rights for the property according to the class of said component as well as according to the owner and the visibility tag of said property.

5,748,896	Remote network administration methods and apparatus	Apple Computer, Inc.	Daly; Una T. Huang; Ying-Kuei Ann Parker; Robert D. Firenze; Mary E.	709	G06F	19951227	0	100%	<input type="checkbox"/>
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Abstract: A method for managing network services on the plurality of network servers in a computer network. The method includes the step of providing at least one service component in a component repository. The service component corresponds to one of the network services. There is also included the step of providing a server manager component, which communicates with the component repository to ascertain the presence of the service component. Additionally, the method includes the step of executing a service object associated with the service component. When executed, the service object communicates with the plurality of network servers to obtain network service instantiation data relating to instantiations of the one of the network services on the plurality of network servers. The method also includes the step of passing the network service instantiation data to a server manager window component for displaying a status of the instantiations responsive to the network service instantiation data.

MainClaim: A remote network administration apparatus for managing network services on a plurality of network servers in a computer network, comprising:

a component repository, said component repository containing service components, each of said service components corresponds to one of said network services;

a service object, said service object being associated with a first one of said service components, said service object, when executed, communicates with said plurality of network servers to obtain network service instantiation data relating to instantiations of a first one of said network services on said plurality of network servers, said first one of said network services being a network service that corresponds to said first one of said service components;

a server manager component for receiving said network service instantiation data from said service object;

a server manager window representing the user interface component for said server manager component, said server manager window displaying a status of said instantiations responsive to said network service instantiation data.

2006/0168158	Automated bulk configuration of network devices	Nokia Inc.	Das; Debashis	709	G06F	20051229	4	96%	<input type="checkbox"/>
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Abstract: Multiple devices within a data communication network can be configured according to a single configuration profile. Configuration profile data is stored in a configuration file. Connections are made to individual devices, and the data in the configuration file is transformed into device-specific commands.

MainClaim: A machine-executable method of configuring multiple devices in a data communication network, comprising: (a) receiving a selection of a group of devices to be configured in accordance with a previously-stored configuration profile, the devices of the group being situated in different locations within the data communications network, the configuration profile having previously-stored configuration data that specifies, as to each device of the group, values for multiple configuration parameters corresponding to desired operation of that device; (b) automatically opening a network connection with each of the devices of the group; (c) automatically retrieving identifying data from each of the devices of the group; (d) automatically mapping, for each device of the group and subsequent to step (a), the retrieved identifying data to a corresponding configuration profile deployment routine set; (e) automatically generating device-specific commands for each device of the group, wherein the device-specific commands for each device are generated subsequent to performance of step (d) for that device and are generated using the previously-stored configuration data and the configuration profile deployment routine set mapped to the identifying data for that device; and (f) automatically transmitting the device-specific commands to each device of the group.

7,013,331	Automated bulk configuration of network devices	Nokia, Inc.	Das; Debashis	709	G06F	20021220	3	95%	<input type="checkbox"/>
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Abstract: Multiple devices within a data communication network can be configured according to a single configuration profile. Configuration profile data is stored in a configuration file. Connections are made to individual devices, and the data in the configuration file is transformed into device-specific commands.

MainClaim: A machine-executable method of configuring multiple devices in a data communication network, comprising:

(a) receiving a selection of a group of devices to be configured in accordance with a previously-stored configuration profile, the devices of the group being situated in different locations within the data communications network, the configuration profile having previously-stored configuration data that specifies, as to each device of the group, values for multiple configuration parameters corresponding to desired operation of that device;

(b) automatically opening a network connection with each of the devices of the group;

(c) automatically retrieving identifying data from each of the devices of the group;

(d) automatically mapping, for each device of the group and subsequent to step (a), the retrieved identifying data to a corresponding configuration profile deployment routine set;

(e) automatically generating device-specific commands for each device of the group, wherein the device-specific commands for each device are generated subsequent to performance of step (d) for that device and are generated using the previously-stored configuration data and the configuration profile deployment routine set mapped to the identifying data for that device;

(f) automatically transmitting the device-specific commands to each device of the group;

(g) prior to step (a), providing a configured device having configuration parameters set in conformity with a desired configuration; and

(h) subsequent to step (g), extracting configuration data from the configured device, wherein the extracted configuration data becomes the previously-stored configuration data of step (a), and wherein the previously-stored configuration data is stored in Extensible Markup Language (XML) format.

2004/0123091	Automated bulk configuration of network devices	Nokia Inc.	Das, Debashis	713	G06F	20021220	3	95%	<input type="checkbox"/>
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Abstract: Multiple devices within a data communication network can be configured according to a single configuration profile. Configuration profile data is stored in a configuration file. Connections are made to individual devices, and the data in the configuration file is transformed into device-specific commands.

MainClaim: A machine-executable method of configuring multiple devices in a data communication network, comprising: providing a configuration profile having configuration data that specifies multiple configuration parameters applicable to each of the multiple devices; retrieving identifying data from each of the devices; mapping, for each device, the retrieved identifying data to a corresponding configuration profile deployment routine set; generating device-specific commands for each device using the configuration data and the configuration profile deployment routine sets mapped to the identifying data for the devices; and

transmitting the device-specific commands to each device.

5,371,884	Processor fault recovery system	Taligent, Inc.	Ross; Patrick D.	714	G06F	19931221	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for an innovative, object-oriented hardware independent interface to the external world. The interrupt services are part of an overall IO model providing an object base IO system that supports dynamic configuration of the system. Object processing is architected into even the lowest lever routines in the preferred embodiment of the invention. This includes an object oriented design all the way down to interrupt processing abstractions. These interrupt abstractions provide an architecturally sound framework for the dynamic installation, configuration, and timely execution of interrupt handlers.

MainClaim: An apparatus for providing processor run-time fault recovery for a processor fault that is recoverable or partially recoverable which occurs during processing of a sequence of kernal operations, the apparatus comprising:

- (a) a processor;
- (b) a storage under the control of and attached to the processor, the storage having a plurality of locations, each of the plurality of locations having an address for storing code for one kernal operation of the sequence of kernal operations;
- (c) means, responsive to the processor fault, for trapping the processor fault and for generating a fault indication;
- (d) means, responsive to the fault indication, for identifying a faulting kernal operation in the sequence of kernal operations, which faulting operation is responsible for the processor fault;
- (e) means, responsive to the identification of the faulting kernal operation, for disabling the sequence of kernal operations containing the faulting kernal operation; and
- (f) means for processing without the use of said disabled sequence of kernal operations containing the faulting kernal operation.

7,007,004	Concurrent operation of a state machine family	Nokia Corporation	Liukkonen; Juha Syrjänen; Jukka Ruusiala; Jarmo Kartesalo; Tomi Ruohtula; Erkki Malmqvist; Markus	707	G06F	20021120	7	93%	<input type="checkbox"/>
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Abstract: The present invention concerns a method and a system for operating state machines concurrently in a computing system. One or more state machine families are generated. Each family comprises one master state machine type for receiving service requests from outside its family and for forwarding the received service requests for servicing, and one or more slave state machine types for receiving and servicing the forwarded service requests. A thread pool is allocated to one or more state machine families. Each thread pool is specific to one state machine family and comprises one or more threads for executing the master instance and slave instances of the corresponding state machine family. State machine instances of one or more generated state machine families are assigned to corresponding threads of the allocated thread pools for execution.

MainClaim: A method for operating state machines concurrently in a computing system, wherein the method comprises the steps of:

generating one or more state machine families, each family comprising one master state machine type for receiving service requests from outside its family and for forwarding the received service requests for servicing, and one or more slave state machine types for receiving and servicing the forwarded service requests, the master state machine type instantiated as one master instance and at least one slave state machine type instantiated as one or more slave instances, each instance having a message queue of its own,

allocating to one or more generated state machine families a thread pool, each thread pool being specific to one state machine family and comprising one or more threads for executing the master instance and slave instances of the corresponding state machine family, and

assigning state machine instances of one or more generated state machine families to corresponding threads of the allocated thread pools for execution, a given instance being executed by no more than one thread at any given time and a given thread executing no more than one instance at any given time.

6,701,428	Retrieval of services by attribute	Apple Computer, Inc.	Harvey, III; John Daniels; Andrew Michael Saunders; William James	713	G06F	19970428	0	100%	<input type="checkbox"/>
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Abstract: An automatic method and apparatus for providing services on a computer system. A set of services is established providing different functionality for the computer system. With each of the set of services an attribute is stored for identifying characteristics of the function of each of the set of services. Then, the first set of services can be retrieved by a first set of attributes which is specified irrespective of any locales which may be defined in the computer system. Thus, characteristics or attributes of most importance to a service may be used to describe it and used for retrieval of such services. The establishing of the first set of services includes building a structure which references each of the first set of services. Retrieving may include maintaining a reference to one of the services in the structure and iterating through the structure in order to retrieve a subsequent one of the services. An iterator may be created which is used to iterate through the database of services and provide the services to application or system programs.

MainClaim: An automatic method for providing locales on a computer system comprising:

establishing a set of localization services, said set of localization services specifying localization services required for said locales;

storing with each of said localization services an attribute for identifying locale-related characteristics of said each of said

localization services, said attribute including:

a name which identifies a type of localization service; and

a value which uniquely identifies said each of said localization services among other of said localization services having said name;

defining a first locale which specifies a first set of attributes of a first set of said localization services; and

loading said first locale by retrieving said first set of localization services by said first set of attributes without specifying said first locale directly in the process of retrieving said first set of localization services.

2006/0106800	System and method for localization of electronic devices	Nokia Corporation	Ollikainen; Jukka Viitala; Tomi	707	G06F	20041101	3	92%	<input type="checkbox"/>
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Abstract: Embodiments of the present invention include device, methods, and computer code products for localization of electronic devices. The device includes a file system including a data item, and a localization system adapted to localize a received pathname using a stored identifier associated with the pathname. The pathname includes at least one data item name.

MainClaim: An electronic device, comprising: a file system including a data item; and a localization system adapted to localize a received pathname using a stored identifier associated with the pathname, the pathname including at least one data item name.

6,427,231	System and method for multiple entry point access to an object	Apple Computer, Inc.	Burke; Glenn S. Zacharias; Gail	717	G06F	19950804	0	100%	<input type="checkbox"/>
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Abstract: The invention allows a functional object in a dynamic language to be efficiently used as both a directly-invoked function and as a method in a generic function. This allows a language to combine the two concepts, simplifying the language semantics. As a preferred embodiment, a method object when created comprises as contiguous fields a header, a method-information section, a function prolog, and the method body. When called as a component of a generic function, one entry point is at the method body or at the method-information field. When called directly, another entry point exists at the function prolog field.

MainClaim: A process of using a method object stored in a memory of a computer, said method object configured for operation by a processor in accordance with a dynamic object-oriented programming language, said process comprising the steps of:

creating said method object comprising a method-information field stored at a fixed location relative to a starting memory location of said method object and a variable size method body of program code stored at another location, said method-information field containing an offset identifying the location of said method body;

executing one of an ordinary function call program statement and a generic function call program statement during run time to invoke said method body of said method object; and

entering said method object at one of a first entry point to directly invoke said method body in response to execution of the ordinary function call and a second entry point to invoke said method body in the context of a generic function dispatch in response to execution of the generic function call, wherein said first entry point is different from said second entry point and other than the location of said method body, said first and second entry points enabling the processor to execute the program code contained in the method body.

2005/0060696	Method and a system for constructing control flows graphs of binary executable programs at post-link time	Nokia Corporation	Bicsak, Attila Kiss, Akos Ferenc, Rudolf Gyimothy, Tibor	717	G06F	20030829	9	94%	<input type="checkbox"/>
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Abstract: A method and a system for constructing a control flow graph (CFG, 106) from an executable computer program (104). The solution detects data intermixed with instructions and instruction set changes. The method includes the steps of defining block leader types specifying basic block boundaries in the program (104), building a CFG structure (106) according to the basic blocks found in the program, and adding control flow and addressing information to the CFG (106) by propagating through the basic blocks and internals thereof. The CFG (106) may be then optimised (108) and a compacted executable (112) created as a result.

MainClaim: A method for constructing a control flow graph (CFG) from a computer executable program the instructions of which belong to one or more instruction sets, said method comprising the steps of defining a number of block leader types including at least one type related to an instruction set change, block leaders specifying basic block boundaries in the program, said basic blocks including instructions or data (702), building a CFG structure comprising basic blocks found in the program (708), adding control flow and addressing information to said CFG by propagating through said basic blocks and internals thereof (710).

7,207,038	Constructing control flows graphs of binary executable programs at post-link time	Nokia Corporation	Bicsak; Attila Kiss; kos Ferenc; Rudolf Gyimothy; Tibor	717	G06F	20030829	9	94%	<input type="checkbox"/>
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Abstract: A method and a system for constructing a control flow graph (CFG, 106) from an executable computer program (104). The solution detects data intermixed with instructions and instruction set changes. The method includes the steps of defining block leader types specifying basic block boundaries in the program (104), building a CFG structure (106) according to the basic blocks found in the program, and adding control flow and addressing information to the CFG (106) by propagating through the basic blocks and internals thereof. The CFG (106) may be then optimised (108) and a compacted executable (112) created as a result.

MainClaim: A method for execution on a signal processing unit for constructing a control flow graph from a computer executable program the instructions of which belong to one or more computer architecture instruction sets, said method comprising defining a number of block leader types including at least one type related to an instruction set change, block leaders specifying basic block boundaries in the program, said basic blocks including instructions or data, building a control flow graph structure comprising basic blocks found in the program, adding control flow and addressing information to said control flow

graph by propagating through said basic blocks and internals of said basic blocks and stored on said memory device.

7,457,815	Method and apparatus for automatically providing network services	Apple Inc.	Hsu; Karl Jouaux; Francois Kim; Ernest Lue-Sang; Ron Turner; Melissa Wendker; Andreas	707	G06F	20030327	0	100%	<input type="checkbox"/>
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Abstract: An embodiment of the invention is directed to a method and apparatus for automatically providing network services in a way that improves upon the prior art. Systems implementing aspects of the invention can, for instance, provide developers with a mechanism for creating Web Services without having to write low-level SOAP, XML, or WSDL code. The system utilizes a rule-based approach to provide a mechanism for dynamically reconfiguring the system with requiring redeployment of the entire system.

MainClaim: A network services assistant computer program in a storage medium comprising computer program code executed by a processor to: obtain a database schema of a database; analyze said database schema to determine a hierarchical structure within a plurality of database fields in said database; integrate a user input and the hierarchical structural information from the analysis of said database schema; generate programmatically based on the integrated user input and the hierarchical structural information a set of operation rules for utilizing said database fields, the set of operation rules for utilizing said database fields comprising one or more rules for examining one or more of database specific, table specific, and field specific privileges; generate a set of operation rules for translating an output of a query to said database into one of a plurality of data communication languages; and store said set of operation rules for utilizing said database fields and said set of operation rules for translating an output of a query to said database into one of a plurality of data communication languages in a manner that makes the respective sets of operation rules available to a rule engine configured to implement them.

2008/0133586	Ontology-based modification of structured representations of properties	Nokia Corporation	Sathish; Sailesh Marnadi; Prabhakar Marks; Bennett David	707	G06F	20061130	1	94%	<input type="checkbox"/>
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Abstract: A request for modification of a structured representation of properties is received, wherein the modification comprises one of adding a specific property to the structured representation of properties, removing a specific property from the structured representation of properties, and changing a specific property in the structured representation of properties. Based on an ontology for the structured representation of properties, it is determined where the specific property has to be added to, removed from or changed in the structured representation of properties to satisfy the request.

MainClaim: A method, comprising: receiving a request for modification of a structured representation of properties, said modification comprising one of adding a specific property to said structured representation of properties, removing a specific property from said structured representation of properties, and changing a specific property in said structured representation of properties; and determining, based on an ontology for said structured representation of properties, where said specific property has to be added to, removed from or changed in said structured representation of properties to satisfy said request.

2006/0248537	System and method for domain security with script objects	Nokia Corporation	Marks; Bennett	719	G06F	20050406	1	92%	<input type="checkbox"/>
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Abstract: A method of providing domain security with script objects includes generating an exception when a first script object with a first owner attempts access to a second script object with a second owner, generating a dialogue to the second owner querying for the grant of access rights to the second script object, and carrying out instructions whether to grant the first script object access rights to the second script object, wherein the instructions are responsive to the generated dialogue to the second owner.

MainClaim: A method of providing domain security with script objects, the method comprising: generating an exception when a first script object with a first owner attempts access to a second script object with a second owner; generating a dialogue to the second owner querying for the grant of access rights to the second script object; and carrying out instructions whether to grant the first script object access rights to the second script object, wherein the instructions are responsive to the generated dialogue to the second owner.

2005/0268308	System and method for implementing a general application program interface	Nokia Corporation	Tang, Haitao Poyhonen, Petteri	719	G06F	20040528	1	92%	<input type="checkbox"/>
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Abstract: Systems and methods relating to an application program interface (API) are disclosed. The method relates to a computer implemented method of attaching an application to a generic API. The method includes receiving a mapping request in an API, the mapping request having been triggered by an application, selecting one or more candidate mapping modules from a group of mapping modules registered with the API, accessing at least one of information and rules indicative of an association between the application and one or more mapping modules, and selecting one or more target mapping modules for use with the application based on the information and rules.

MainClaim: A computer implemented method of attaching an application to a mapping module using generic Application Program Interface (API), the method comprising: a) receiving a mapping request in an API, said mapping request having been triggered by an application; b) selecting one or more candidate mapping modules from a group of mapping modules registered with said API; c) accessing at least one of information and rules indicative of an association between said application and one or more mapping modules; and d) selecting one or more target mapping modules for use with said application based on said at least one of information and rules.

6,430,685	Method and apparatus for enabling a computer system	Apple Computer, Inc.	Yu; Dean T. Derossi; Christopher S.	713	G06F	19951113	0	100%	<input type="checkbox"/>
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Abstract: A system and method for utilizing generic computer operating system software for computer hardware systems designed subsequent to the operating system software. The system and method of the present invention employ a separate modular software file called a System Enabler that has all patches, code, data and resources needed to make a particular computer system operational. The System Enabler file is matched to a particular hardware system and may be bundled with that hardware system. During computer system start up the System Enabler file modifies the generic operating system software for optimum operation with the particular computer hardware system.

MainClaim: A computing system comprising:

one of various types of processors for executing software; and

a software operating system for use by said processor, the operating system comprising

a boot-up file for beginning execution of an initial portion of a boot-up routine which initial portion of said boot-up routine identifies the type of processor present and passes execution of the boot-up routine; and

a self-contained enabler file, containing processor-specific information, which receives execution of the boot-up routine from said operating system and enables said operating system to execute application programs in the identified one of various types of processors using said processor-specific information, said enabler file being initially stored in a read-write memory device so that said enabler file may be replaced with an updated enabler file when system changes are made in said computing system.

2009/0307676	Dead Functions Elimination in Dynamic Linked Libraries for Code Size Reduction of Operating Systems in Embedded Systems	Nokia Corporation	Price; Howard Antonic; Aleksandar	717	G06F	20070405	3	93%	<input type="checkbox"/>
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Abstract: This invention relates to a method for reducing the size of a set of computer code by replacing unused functions in the set of code with void functions having no operative content. The invention may be applied to a core operating system in order to reduce the amount of code that is permanently loaded on a computing device while the device is operating, thereby potentially reducing the requirements for both read-only non-execute-in-place memory and randomly addressable memory. The removed functionality may be provided separately in read-only memory if desired, so that it can be loaded when needed.

MainClaim: A method of reducing the size of a set of computer code intended for use in a computing device, the code comprising a plurality of files, each specifying one or more functions for performing computing tasks, the method comprising: identifying functions within the set of code that: i) are available to be called by others of the functions; and ii) will not be called by others of the functions when the files are executed on the computing device; and removing from the set of code at least part of the content defining the identified functions while retaining, in place of each identified function, a void function of reduced size.

2007/0101119	Methods and apparatus for automatically multi-booting a computer system	Nokia Corporation	Vesterinen; Timo Saksio; Mauri Molin; Sakari	713	G06F	20060822	5	93%	<input type="checkbox"/>
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Abstract: The invention allows automatically multi-booting a computer. Each functional mode of a computer having at least two operating systems installed is associated with one of the operating systems. Functional mode information identifying a particular functional mode of the computer is stored by a recovery system. While starting the computer, a boot loader receives the stored functional mode information, selects the operating system associated with the particular functional mode, and activates the selected operating system for the computer.

MainClaim: An automatically multi-bootable computer system comprising: a computer having at least two operating systems installed, the computer being in one out of multiple functional modes, each of the multiple functional modes associated with one of the at least two operating systems, and each of at least two of the multiple functional modes associated with different ones of the at least two operating systems; a computer state manager configured to store functional mode information, wherein the functional mode information identifies a particular functional mode the computer system will assume when the computer system is re-started for a pre-determined reason; and a boot loader configured to receive the stored functional mode information and to activate the operating system associated with the particular functional mode identified by the functional mode information when re-starting the computer for the pre-determined reason.

7,657,734	Methods and apparatus for automatically multi-booting a computer system	Nokia Corporation	Vesterinen; Timo Saksio; Mauri Molin; Sakari	713	G06F	20060822	5	92%	<input type="checkbox"/>
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Abstract: The invention allows automatically multi-booting a computer. Each functional mode of a computer having at least two operating systems installed is associated with one of the operating systems. Functional mode information identifying a particular functional mode of the computer is stored by a recovery system. While starting the computer, a boot loader receives the stored functional mode information, selects the operating system associated with the particular functional mode, and activates the selected operating system for the computer.

MainClaim: An automatically multi-bootable computer system comprising: a computer having at least two operating systems installed, the computer being in one out of multiple functional modes, each of the multiple functional modes associated with one of the at least two operating systems, and each of at least two of the multiple functional modes associated with different ones of the at least two operating systems; a computer state manager configured to store functional mode information, wherein the functional mode information identifies a particular functional mode the computer will assume when the computer is re-started for a pre-determined reason; and a boot loader configured to receive the stored functional mode information and to activate the operating system associated with the particular functional mode identified by the functional mode information when re-starting the computer for the pre-determined reason; wherein the computer state manager comprises a recovery system for recovering the computer from a fault condition; the pre-determined reason for re-starting the computer comprises an occurrence of a fault condition; and the particular functional mode comprises a fault recovery functional mode.

6,865,670	Method and apparatus for enabling a computer system	Apple Computer, Inc.	Yu; Dean T. Derossi; Christopher S.	713	G06F	20011221	0	100%	<input type="checkbox"/>
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Abstract: A system and method for utilizing generic computer operating system software for computer hardware systems designed subsequent to the operating system software. The system and method of the present invention employs a separate modular software file called a System Enabler that has all patches, code, data and resources needed to make a particular computer system operational. The System Enabler file is matched to a particular hardware system and may be bundled with that hardware system. During computer system start up the System Enabler file modifies the generic operating system software for optimum operation with the particular computer hardware system.

MainClaim: A method to boot a computer system, the method comprising:

selecting a hardware-specific boot routine designed to boot current hardware of the computer system in executing a generic

operating system, the hardware-specific boot routine being initially stored in a read-write memory device such that when hardware of the computer system is changed an updated hardware-specific boot routine can be installed in the read-write memory device to boot the computer system; and

executing the hardware-specific boot routine to enable the generic operating system to boot the current hardware of the computer system.

2009/0307676	Dead Functions Elimination in Dynamic Linked Libraries for Code Size Reduction of Operating Systems in Embedded Systems	Nokia Corporation	Price; Howard Antonic; Aleksandar	717	G06F	20070405	3	93%	<input type="checkbox"/>
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Abstract: This invention relates to a method for reducing the size of a set of computer code by replacing unused functions in the set of code with void functions having no operative content. The invention may be applied to a core operating system in order to reduce the amount of code that is permanently loaded on a computing device while the device is operating, thereby potentially reducing the requirements for both read-only non-execute-in-place memory and randomly addressable memory. The removed functionality may be provided separately in read-only memory if desired, so that it can be loaded when needed.

MainClaim: A method of reducing the size of a set of computer code intended for use in a computing device, the code comprising a plurality of files, each specifying one or more functions for performing computing tasks, the method comprising: identifying functions within the set of code that: i) are available to be called by others of the functions; and ii) will not be called by others of the functions when the files are executed on the computing device; and removing from the set of code at least part of the content defining the identified functions while retaining, in place of each identified function, a void function of reduced size.

2007/0101119	Methods and apparatus for automatically multi-booting a computer system	Nokia Corporation	Vesterinen; Timo Saksio; Mauri Molin; Sakari	713	G06F	20060822	5	92%	<input type="checkbox"/>
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Abstract: The invention allows automatically multi-booting a computer. Each functional mode of a computer having at least two operating systems installed is associated with one of the operating systems. Functional mode information identifying a particular functional mode of the computer is stored by a recovery system. While starting the computer, a boot loader receives the stored functional mode information, selects the operating system associated with the particular functional mode, and activates the selected operating system for the computer.

MainClaim: An automatically multi-bootable computer system comprising: a computer having at least two operating systems installed, the computer being in one out of multiple functional modes, each of the multiple functional modes associated with one of the at least two operating systems, and each of at least two of the multiple functional modes associated with different ones of the at least two operating systems; a computer state manager configured to store functional mode information, wherein the functional mode information identifies a particular functional mode the computer system will assume when the computer system is re-started for a pre-determined reason; and a boot loader configured to receive the stored functional mode information and to activate the operating system associated with the particular functional mode identified by the functional mode information when re-starting the computer for the pre-determined reason.

7,657,734	Methods and apparatus for automatically multi-booting a computer system	Nokia Corporation	Vesterinen; Timo Saksio; Mauri Molin; Sakari	713	G06F	20060822	5	92%	<input type="checkbox"/>
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Abstract: The invention allows automatically multi-booting a computer. Each functional mode of a computer having at least two operating systems installed is associated with one of the operating systems. Functional mode information identifying a particular functional mode of the computer is stored by a recovery system. While starting the computer, a boot loader receives the stored functional mode information, selects the operating system associated with the particular functional mode, and activates the selected operating system for the computer.

MainClaim: An automatically multi-bootable computer system comprising: a computer having at least two operating systems installed, the computer being in one out of multiple functional modes, each of the multiple functional modes associated with one of the at least two operating systems, and each of at least two of the multiple functional modes associated with different ones of the at least two operating systems; a computer state manager configured to store functional mode information, wherein the functional mode information identifies a particular functional mode the computer will assume when the computer is re-started for a pre-determined reason; and a boot loader configured to receive the stored functional mode information and to activate the operating system associated with the particular functional mode identified by the functional mode information when re-starting the computer for the pre-determined reason; wherein the computer state manager comprises a recovery system for recovering the computer from a fault condition; the pre-determined reason for re-starting the computer comprises an occurrence of a fault condition; and the particular functional mode comprises a fault recovery functional mode.

6,486,897	Multi-repository display system using separate presentation, adaptation and access layers	Apple Computer, Inc.	Arrouye; Yan Findley; Sean J. Mortensen; Keith L.	345	G06F	19980929	0	100%	<input type="checkbox"/>
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Abstract: A software object display system using an adaptation layer to obtain information concerning a number of software objects is described. The adaptation layer communicates to a presentation layer which produces a display for the software objects. The adaptation layer isolates the presentation layer from the details of the structures of the software objects to be displayed. The adaptation layer provides a standard set of data to the presentation layer so that the presentation layer to provide for a display.

MainClaim: A method of forming a hierarchical display of software objects, comprising:

providing a software object;

checking the software object with an adaptation layer, the adaptation layer being adapted to determine display information for the software object and determine any children objects of the software object, the adaptation layer interfacing with a plurality of access units for different types of software objects, each access unit being a different independent source of display information data; and

producing a hierarchical display using display information provided by the adaptation layer, the hierarchical display including different types of software objects, wherein the display information includes the name of the software object.

2007/0288854	Reusable XForms processor	Nokia Corporation	Koskimies; Oskari	715	G06F	20060613	18	93%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for invoking user interface (UI) functionality by a client application. Data is received from a server, such as a web server, parsed and used to create a hierarchy of application UI objects. A corresponding hierarchy of XForms objects is created, such that each XForms object maps to an application UI object. The user interface is rendered at the client display by displaying objects in the application UI objects hierarchy and invoking the corresponding functionality from the XForms object hierarchy.

MainClaim: A method for invoking user interface functionality on a computing device comprising:receiving a data file comprising markup language data;creating based on the data file a first object hierarchy comprising a plurality of objects, each corresponding to a user interface component;identifying in the first object hierarchy a first object corresponding to a user interface component;creating a second object hierarchy comprising a second object having user interface functionality, said second object associated with said first object;displaying on the computing device a user interface comprising a graphical representation of the first object; andinvoking the user interface functionality of the second object in relation to the graphical representation of the first object on the displayed user interface.

2006/0107206	Form related data reduction	Nokia Corporation	Koskimies; Oskari	715	G06F	20041112	4	92%	<input type="checkbox"/>
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Abstract: The invention discloses a method, system, server and computer program product of automatically reducing the amount of form related data, e.g. extensible markup language data, sent to a receiving terminal. In the method, a user interface description is analyzed to determine, which parts of the form related data are relevant for the receiving terminal. Based on the analysis, unnecessary parts of the form related data are pruned and the pruned form related data is sent to the receiving terminal. In one embodiment of the invention, XForms is analyzed to determine, which parts of an extensible markup language data are relevant for the receiving terminal.

MainClaim: A method of automatically reducing the amount of form related data sent to a receiving terminal, the method comprising: analyzing a user interface description to determine, which parts of the form related data are relevant for the receiving terminal; pruning; based on the analysis, unnecessary parts of the form related data; and sending the pruned form related data to the receiving terminal.

5,860,008	Method and apparatus for decompiling a compiled interpretive code	Apple Computer, Inc.	Bradley; Shayne P.	717	G06F	19960202	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for decompiling a compiled, interpretive code characterized by the steps of creating an array of names and an array of literals from a plurality of compiled, interpretive code bytes and sequentially converting each code byte into a code fragment utilizing the code byte, the array of names, and the array of literals. Each code fragment is added to a code fragment array. Pattern matching is performed on the code fragment array to produce a source language listing describing a high-level functioning of the code bytes that is readily understood by a programmer. The pattern matching includes a linear sequence of matching steps that are ordered such that matching steps of less ambiguity are performed prior to related matching steps of greater ambiguity. The code fragment array is preferably searched for at least one pattern for each known construct used in the source language, and appropriate source language text is added for matched constructs. The process is preferably implemented on a frame-based pen computer system.

MainClaim: A computer-implemented process for decompiling a compiled interpretive code into a source language comprising the steps of:

creating an array of names and an array of literals from information stored in a compiled frame object, said compiled frame object including a plurality of compiled, interpretive code bytes;

sequentially converting each of said code bytes utilizing said code byte, said array of names, and said array of literals, into a code fragment and adding said code fragment to a code fragment array;

performing pattern matching on said code fragment array to produce a source language listing describing a high-level functioning of said code bytes, said pattern matching including a linear sequence of matching steps that are ordered such that matching steps of less ambiguity are performed prior to related matching steps of greater ambiguity.

2005/0060696	Method and a system for constructing control flows graphs of binary executable programs at post-link time	Nokia Corporation	Bicsak, Attila Kiss, Akos Ferenc, Rudolf Gyimothy, Tibor	717	G06F	20030829	9	92%	<input type="checkbox"/>
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Abstract: A method and a system for constructing a control flow graph (CFG, 106) from an executable computer program (104). The solution detects data intermixed with instructions and instruction set changes. The method includes the steps of defining block leader types specifying basic block boundaries in the program (104), building a CFG structure (106) according to the basic blocks found in the program, and adding control flow and addressing information to the CFG (106) by propagating through the basic blocks and internals thereof. The CFG (106) may be then optimised (108) and a compacted executable (112) created as a result.

MainClaim: A method for constructing a control flow graph (CFG) from a computer executable program the instructions of which belong to one or more instruction sets, said method comprising the steps of defining a number of block leader types including at least one type related to an instruction set change, block leaders specifying basic block boundaries in the program, said basic blocks including instructions or data (702), building a CFG structure comprising basic blocks found in the program (708), adding control flow and addressing information to said CFG by propagating through said basic blocks and internals thereof (710).

7,207,038	Constructing control flows graphs of binary executable programs at post-link time	Nokia Corporation	Bicsak; Attila Kiss; kos Ferenc; Rudolf Gyimothy; Tibor	717	G06F	20030829	9	92%	<input type="checkbox"/>
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Abstract: A method and a system for constructing a control flow graph (CFG, 106) from an executable computer program (104). The solution detects data intermixed with instructions and instruction set changes. The method includes the steps of

defining block leader types specifying basic block boundaries in the program (104), building a CFG structure (106) according to the basic blocks found in the program, and adding control flow and addressing information to the CFG (106) by propagating through the basic blocks and internals thereof. The CFG (106) may be then optimised (108) and a compacted executable (112) created as a result.

MainClaim: A method for execution on a signal processing unit for constructing a control flow graph from a computer executable program the instructions of which belong to one or more computer architecture instruction sets, said method comprising defining a number of block leader types including at least one type related to an instruction set change, block leaders specifying basic block boundaries in the program, said basic blocks including instructions or data, building a control flow graph structure comprising basic blocks found in the program, adding control flow and addressing information to said control flow graph by propagating through said basic blocks and internals of said basic blocks and stored on said memory device.

5,546,586	Method and apparatus for vectorizing the contents of a read only memory device without modifying underlying source code	Apple Computer, Inc.	Wetmore; Russ Nguyen; Philip	717	G06F	19930506	0	100%	<input checked="" type="checkbox"/>
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Abstract: A method and apparatus for generating an object file that facilitates patching and the introduction of new function. The present invention accomplishes this without disturbing the original source file. The present invention is particularly useful in the generation of programs that will exist on a static device such as a Read Only Memory (ROM) device. The present invention requires that access to routines in the object file be referenced through a vector table located in Random Access Memory (RAM). If a routine in ROM must be patched (i.e. replaced) or if new function is added, the vector table is modified. Modification may be either changing the contents of an existing entry (replacement) or adding a new entry (new function). Generally, this modification involves the steps of: identifying the entry points in the object file to create a vector source table, generating a vector object table from the vector source table; generating a symbol table from the vector object table; comparing entry points in the object files to entries in the symbol table; when a match is found, modifying the entry point of the object file to reference a corresponding entry in the vector table. Since the only the object file is modified, the original source file is not disturbed.

MainClaim: A method for generating a vectorized object file comprising the computer-implemented steps of:

- compiling one or more source files to create one or more object files;
- identifying entry points in said one or more object files, wherein each entry point is a location in said one or more object files which may be entered via a symbolic reference;
- creating a vector table source file from said identified entry points, wherein said vector table source file is a file that contains entries that correspond to routines in said one or more object files, wherein each entry contains information about a corresponding routine;
- generating a vector table object file from said vector table source file, wherein said vector table object file is an object file that contains modules that correspond to routines in the one or more object files;
- generating a vectorized object file from said one or more object files based on said vector table object file, wherein said vectorized object file is an object file in which entry points have been replaced by pointers into the vector table object file;
- generating a vector table initialization file from said vector table source file, wherein said vector table initialization file is a file that contains routines that, when executed, initialize the vector table pointers; and
- appending said vector table initialization file to said vectorized object file.

7,207,038	Constructing control flows graphs of binary executable programs at post-link time	Nokia Corporation	Bicsak; Attila Kiss; kos Ferenc; Rudolf Gyimothy; Tibor	717	G06F	20030829	9	93%	<input type="checkbox"/>
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Abstract: A method and a system for constructing a control flow graph (CFG, 106) from an executable computer program (104). The solution detects data intermixed with instructions and instruction set changes. The method includes the steps of defining block leader types specifying basic block boundaries in the program (104), building a CFG structure (106) according to the basic blocks found in the program, and adding control flow and addressing information to the CFG (106) by propagating through the basic blocks and internals thereof. The CFG (106) may be then optimised (108) and a compacted executable (112) created as a result.

MainClaim: A method for execution on a signal processing unit for constructing a control flow graph from a computer executable program the instructions of which belong to one or more computer architecture instruction sets, said method comprising defining a number of block leader types including at least one type related to an instruction set change, block leaders specifying basic block boundaries in the program, said basic blocks including instructions or data, building a control flow graph structure comprising basic blocks found in the program, adding control flow and addressing information to said control flow graph by propagating through said basic blocks and internals of said basic blocks and stored on said memory device.

2005/0060696	Method and a system for constructing control flows graphs of binary executable programs at post-link time	Nokia Corporation	Bicsak, Attila Kiss, Akos Ferenc, Rudolf Gyimothy, Tibor	717	G06F	20030829	9	92%	<input type="checkbox"/>
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Abstract: A method and a system for constructing a control flow graph (CFG, 106) from an executable computer program (104). The solution detects data intermixed with instructions and instruction set changes. The method includes the steps of defining block leader types specifying basic block boundaries in the program (104), building a CFG structure (106) according to the basic blocks found in the program, and adding control flow and addressing information to the CFG (106) by propagating through the basic blocks and internals thereof. The CFG (106) may be then optimised (108) and a compacted executable (112) created as a result.

MainClaim: A method for constructing a control flow graph (CFG) from a computer executable program the instructions of which belong to one or more instruction sets, said method comprising the steps of defining a number of block leader types

including at least one type related to an instruction set change, block leaders specifying basic block boundaries in the program, said basic blocks including instructions or data (702), building a CFG structure comprising basic blocks found in the program (708), adding control flow and addressing information to said CFG by propagating through said basic blocks and internals thereof (710).

5,428,744	Object-oriented system for building a graphic image on a display	Taligent, Inc.	Webb; Richard D. Cabral; Arthur W.	345	G06F	19930830	0	100%	<input type="checkbox"/>
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Abstract: A method and system for processing graphic objects on a computer with a memory and an attached display and performing binary constructive area geometry (CAG) operations on area-defining geometries such as rectangle, ellipses, and polygons in an object oriented operating system. The operations include the construction of an area and the display of area geometries on an external device. The system allows application programmers to efficiently develop and share software for displaying a plurality of complex views including overlapping views and translucent views.

MainClaim: A method for combining a plurality of graphic geometries stored as a hierarchy of graphic objects in an object-oriented operating system, said objects including logic and data defined by a plurality of classes on a computer with a storage and an attached display, comprising the steps of:

(a) defining a first class in said storage representative of a plurality of geometric figures including logic and data representative of basic geometries;

(b) creating a second class in said storage representative of a plurality of geometric figure operations including logic and data for performing union, difference, intersection and exclusive-or of said first class geometries;

(c) creating a third class in said storage including logic and data for accepting a plurality of first classes and a plurality of second classes and generating a data structure containing said plurality of graphic geometries stored as a hierarchy of objects in said object-oriented operating system;

(d) applying a geometric figure operation to a first and a second geometric figure to create a resultant geometric figure by extracting a pair of first classes from said data structure and applying a second class to said pair of first classes to generate said resultant geometric figure;

(e) repeating step (d) until a root is encountered in said data structure containing said plurality of graphic geometries stored as a hierarchy of objects in said object-oriented operating system; and

(f) displaying said resultant geometric figure on said display.

6,351,842	Method for producing computer-controlled services	Nokia Telecommunications Oy	Ahmavuo; Pekka Ala-Rantala; Martti Narvanen; Pia	717	G06F	19980408	2	92%	<input type="checkbox"/>
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Abstract: The invention relates to a method for producing application-specific computer-controlled services. An application-specific program code is generated automatically and an application-specific computer program for providing the service is formed. In order to perform changes more easily than before, the computer program is divided into three groups. The first group is formed only of such a code that remains the same regardless of the application, and the second and the third group are provided with a code produced by the generation in such a way that (a) the second group only includes a code produced by the generation and (b) the third group contains a code produced with the generation that is to be changed by the designer after the generation. The generating device is informed of whether the code to be generated is produced for the second or for the third group.

MainClaim: A method for producing application-specific computer-controlled services for a user, the method comprising:

forming a description file describing an application for an intended service, the description file formed with terms of an application architecture used;

generating automatically an application-specific program code from which an application-specific computer program is formed by using software generating means and by following the terms of the application architecture used; and

running said application-specific computer program in order to provide the user with said intended service;

wherein the forming of the application-specific computer program further comprises dividing the application-specific computer program into different groups in such a way that

a first group (A) is formed only of such a program code that remains the same regardless of the application; and

a second and a third group are provided with a program code produced by said software generating means in such a way that (a) the second group (B) only includes a program code produced by said software generating means and (b) the third group (C) contains such a program code produced with said software generating means that a designer is intended to change after the generation; and

informing the software generating means whether a program code to be generated is produced for the second or for the third group.

7,428,634	Retrieval of services by attribute	Apple Inc.	Harvey, III; John Daniels; Andrew Michael Saunders; William James	713	G06F	20040126	0	100%	<input type="checkbox"/>
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Abstract: An automatic method and apparatus for providing services on a computer system. A set of services is established

providing different functionality for the computer system. With each of the set of services an attribute is stored for identifying characteristics of the function of each of the set of services. Then, the first set of services can be retrieved by a first set of attributes which is specified irrespective of any locales which may be defined in the computer system. Thus, characteristics or attributes of most importance to a service may be used to describe it and used for retrieval of such services. The establishing of the first set of services includes building a structure which references each of the first set of services. Retrieving may include maintaining a reference to one of the services in the structure and iterating through the structure in order to retrieve a subsequent one of the services. An iterator may be created which is used to iterate through the database of services and provide the services to application or system programs.

MainClaim: An automatic method of providing locales on a computer system comprising: establishing a set of localization services, said set of localization services specifying localization services required for said locales; associating with each of said localization services an attribute for identifying characteristics of the corresponding localization services without specifying a locale, wherein the attribute comprises, a name that identifies a type of localization service; and a value that further distinguishes said each of said localization services among other of said localization services having said name; and defining a first locale that specifies a set of attributes of a first set of said localization services.

2006/0106800	System and method for localization of electronic devices	Nokia Corporation	Ollikainen; Jukka Viitala; Tomi	707	G06F	20041101	3	92%	<input type="checkbox"/>
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Abstract: Embodiments of the present invention include device, methods, and computer code products for localization of electronic devices. The device includes a file system including a data item, and a localization system adapted to localize a received pathname using a stored identifier associated with the pathname. The pathname includes at least one data item name.

MainClaim: An electronic device, comprising: a file system including a data item; and a localization system adapted to localize a received pathname using a stored identifier associated with the pathname, the pathname including at least one data item name.

5,790,860	Method and apparatus for patching code residing on a read only memory device	Apple Computer, Inc.	Wetmore; Russ Nguyen; Philip Batista; Ricardo	717	G06F	19950328	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for generating patching resources in an information processing system having operating instructions on a Read Only Memory Device. The present invention simplifies the patch generation and installation processes. A patch resource is generated and used by a patch installation process. Patch resources are generated for each ROM version by comparing previous ROM versions to the new ROM version. A patch resource is comprised of a plurality of entries, each of which defines a vector table address, an offset into the vector table and the routine to be inserted. By comparing routines between the ROM versions, routines which are different or new are identified. These routines will become patch resource entries. For patch installation, the ROM version number for the installed ROM is determined; the proper patching resource is retrieved, and the patch resource entries cause the patches to be installed. Patch installation is performed by the steps of modifying vector tables to include the addresses for the new routines.

MainClaim: A computer system comprising:

a ROM device containing a first version of operating software, said first version of operating software comprising a first plurality of routines, wherein each routine of said first plurality of routines corresponds to a routine of a second plurality of routines in a second version of operating software;

a RAM device coupled to said ROM device, said RAM device storing a plurality of vector tables, said plurality of vector tables including a plurality of vector table entries;

wherein said plurality of vector table entries include references to each routine of said first plurality of routines that is identical to said corresponding routine of said second plurality of routines;

wherein said plurality of vector table entries include references to a load location of each routine of said second plurality of routines that is different from said corresponding routine of said first plurality of routines.

7,207,038	Constructing control flows graphs of binary executable programs at post-link time	Nokia Corporation	Bicsak; Attila Kiss; kos Ferenc; Rudolf Gyimothy; Tibor	717	G06F	20030829	9	92%	<input type="checkbox"/>
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Abstract: A method and a system for constructing a control flow graph (CFG, 106) from an executable computer program (104). The solution detects data intermixed with instructions and instruction set changes. The method includes the steps of defining block leader types specifying basic block boundaries in the program (104), building a CFG structure (106) according to the basic blocks found in the program, and adding control flow and addressing information to the CFG (106) by propagating through the basic blocks and internals thereof. The CFG (106) may be then optimised (108) and a compacted executable (112) created as a result.

MainClaim: A method for execution on a signal processing unit for constructing a control flow graph from a computer executable program the instructions of which belong to one or more computer architecture instruction sets, said method comprising defining a number of block leader types including at least one type related to an instruction set change, block leaders specifying basic block boundaries in the program, said basic blocks including instructions or data, building a control flow graph structure comprising basic blocks found in the program, adding control flow and addressing information to said control flow graph by propagating through said basic blocks and internals of said basic blocks and stored on said memory device.

2005/0060696	Method and a system for constructing control flows graphs of binary executable programs at post-link time	Nokia Corporation	Bicsak, Attila Kiss, Akos Ferenc, Rudolf Gyimothy, Tibor	717	G06F	20030829	9	92%	<input type="checkbox"/>
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Abstract: A method and a system for constructing a control flow graph (CFG, 106) from an executable computer program (104). The solution detects data intermixed with instructions and instruction set changes. The method includes the steps of defining block leader types specifying basic block boundaries in the program (104), building a CFG structure (106) according to the basic blocks found in the program, and adding control flow and addressing information to the CFG (106) by propagating through the basic blocks and internals thereof. The CFG (106) may be then optimised (108) and a compacted executable (112) created as a result.

MainClaim: A method for constructing a control flow graph (CFG) from a computer executable program the instructions of which belong to one or more instruction sets, said method comprising the steps of defining a number of block leader types including at least one type related to an instruction set change, block leaders specifying basic block boundaries in the program, said basic blocks including instructions or data (702), building a CFG structure comprising basic blocks found in the program (708), adding control flow and addressing information to said CFG by propagating through said basic blocks and internals thereof (710).

5,687,366	Crossing locale boundaries to provide services	Apple Computer, Inc.	Harvey, III; John Daniels; Andrew Michael Saunders; William James	707	G06F	19950505	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus in a computer system for providing localized services on a computer system. Responsive to a request from a first process requesting a first international function, a database is scanned for a first service which provides the first international function. The database is arranged by locale. If the first service does exist in a first locale in the database, then a second locale in the database is scanned for the first service. If the second locale contains the first service then the first service is retrieved and made available to the first process. Thus, services for first process may span locale boundaries in the database wherein the first process references at least two services which reside in at least two of the locales. The functions include sorting service functions, formatting service functions.

MainClaim: An automatic method for providing international services on a computer system comprising the following steps:

- establishing a set of services, said set of services specifying different functions required for said international services;
- storing said services into a database in said computer system arranged by different locales;
- detecting a request from a first process requesting a first international function;
- responsive to said request, scanning in said database for a first service which provides said first international function, and if said first service does not exist in a first locale in said database, then scanning in a second locale in said database; and
- if said second locale contains said first service then retrieving said first service and making said first service available to said first process.

2006/0106800	System and method for localization of electronic devices	Nokia Corporation	Ollikainen; Jukka Viitala; Tomi	707	G06F	20041101	3	92%	<input type="checkbox"/>
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Abstract: Embodiments of the present invention include device, methods, and computer code products for localization of electronic devices. The device includes a file system including a data item, and a localization system adapted to localize a received pathname using a stored identifier associated with the pathname. The pathname includes at least one data item name.

MainClaim: An electronic device, comprising: a file system including a data item; and a localization system adapted to localize a received pathname using a stored identifier associated with the pathname, the pathname including at least one data item name.

7,673,127	Method and apparatus for enabling a computer system by loading and executing an updated hardware specific boot routine to modify the operating system	Apple Inc.	Yu; Dean T. Derossi; Christopher S.	713	G06F	20050204	0	100%	<input type="checkbox"/>
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Abstract: A system and method for utilizing generic computer operating system software for computer hardware systems designed subsequent to the operating system software. The system and method of the present invention employs a separate modular software file called a System Enabler that has all patches, code, data and resources needed to make a particular computer system operational. The System Enabler file is matched to a particular hardware system and may be bundled with that hardware system. During computer system start up the System Enabler file modifies the generic operating system software for optimum operation with the particular computer hardware system.

MainClaim: A method to boot a computer system, the method comprising: loading a hardware-specific boot routine designed to boot current hardware of the computer system in executing an operating system, the hardware-specific boot routine being initially stored in a read-write memory device such that when the computer system is changed an updated hardware-specific boot routine can be installed in the read-write memory device to boot the changed computer system; and executing the hardware-specific boot routine that modifies the operating system to enable the operating system to boot the current hardware of the computer system.

2009/0307676	Dead Functions Elimination in Dynamic Linked Libraries for Code Size Reduction of Operating Systems in Embedded Systems	Nokia Corporation	Price; Howard Antonic; Aleksandar	717	G06F	20070405	3	93%	<input type="checkbox"/>
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Abstract: This invention relates to a method for reducing the size of a set of computer code by replacing unused functions in the set of code with void functions having no operative content. The invention may be applied to a core operating system in order to reduce the amount of code that is permanently loaded on a computing device while the device is operating, thereby potentially reducing the requirements for both read-only non-execute-in-place memory and randomly addressable memory. The removed functionality may be provided separately in read-only memory if desired, so that it can be loaded when needed.

MainClaim: A method of reducing the size of a set of computer code intended for use in a computing device, the code comprising a plurality of files, each specifying one or more functions for performing computing tasks, the method comprising: identifying functions within the set of code that: i) are available to be called by others of the functions; and ii) will not be called by others of the functions when the files are executed on the computing device; and removing from the set of code at least part of the content defining the identified functions while retaining, in place of each identified function, a void function of reduced size.

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2007/0101119	Methods and apparatus for automatically multi-booting a computer system	Nokia Corporation	Vesterinen; Timo Saksio; Mauri Molin; Sakari	713	G06F	20060822	5	92%	<input type="checkbox"/>
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Abstract: The invention allows automatically multi-booting a computer. Each functional mode of a computer having at least two operating systems installed is associated with one of the operating systems. Functional mode information identifying a particular functional mode of the computer is stored by a recovery system. While starting the computer, a boot loader receives the stored functional mode information, selects the operating system associated with the particular functional mode, and activates the selected operating system for the computer.

MainClaim: An automatically multi-bootable computer system comprising: a computer having at least two operating systems installed, the computer being in one out of multiple functional modes, each of the multiple functional modes associated with one of the at least two operating systems, and each of at least two of the multiple functional modes associated with different ones of the at least two operating systems; a computer state manager configured to store functional mode information, wherein the functional mode information identifies a particular functional mode the computer system will assume when the computer system is re-started for a pre-determined reason; and a boot loader configured to receive the stored functional mode information and to activate the operating system associated with the particular functional mode identified by the functional mode information when re-starting the computer for the pre-determined reason.

7,657,734	Methods and apparatus for automatically multi-booting a computer system	Nokia Corporation	Vesterinen; Timo Saksio; Mauri Molin; Sakari	713	G06F	20060822	5	92%	<input type="checkbox"/>
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Abstract: The invention allows automatically multi-booting a computer. Each functional mode of a computer having at least two operating systems installed is associated with one of the operating systems. Functional mode information identifying a particular functional mode of the computer is stored by a recovery system. While starting the computer, a boot loader receives the stored functional mode information, selects the operating system associated with the particular functional mode, and activates the selected operating system for the computer.

MainClaim: An automatically multi-bootable computer system comprising: a computer having at least two operating systems installed, the computer being in one out of multiple functional modes, each of the multiple functional modes associated with one of the at least two operating systems, and each of at least two of the multiple functional modes associated with different ones of the at least two operating systems; a computer state manager configured to store functional mode information, wherein the functional mode information identifies a particular functional mode the computer will assume when the computer is re-started for a pre-determined reason; and a boot loader configured to receive the stored functional mode information and to activate the operating system associated with the particular functional mode identified by the functional mode information when re-starting the computer for the pre-determined reason; wherein the computer state manager comprises a recovery system for recovering the computer from a fault condition; the pre-determined reason for re-starting the computer comprises an occurrence of a fault condition; and the particular functional mode comprises a fault recovery functional mode.

6,188,995	Method and apparatus for enforcing software licenses	Apple Computer, Inc.	Garst; Blaine Serlet; Bertrand	705	G06F	19970728	0	100%	<input type="checkbox"/>
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Abstract: The present invention comprises a method and apparatus for enforcing software licenses for resource libraries such as an application program interface (API), a toolkit, a framework, a runtime library, a dynamic link library (DLL), an applet (e.g. a Java or ActiveX applet), or any other reusable resource. The present invention allows the resource library to be selectively used only by authorized end user software programs. The present invention can be used to enforce a "per-program" licensing scheme for a resource library whereby the resource library is licensed only for use with particular software programs. In one embodiment, a license text string and a corresponding license key are embedded in a program that has been licensed to use a resource library. The license text string and the license key are supplied, for example, by a resource library vendor to a program developer who wants to use the resource library with an end user program being developed. The license text string includes information about the terms of the license under which the end user program is allowed to use the resource library. The license key is used to authenticate the license text string. The resource library in turn is provided with means for reading the license text string and the license key, and for determining, using the license key, whether the license text string is authentic and whether the license text string has been altered. Resource library functions are made available only to a program having an authentic and unaltered license text string.

MainClaim: In a computer operating environment comprising a software program and a software resource, an apparatus for limiting use of said software resource by said software program, comprising:

an access authorization indicator associated with said software program, said access authorization indicator comprising one or more license terms for use of said software resource;

a digital signature of said access authorization indicator;

means in said software resource for reading said access authorization indicator;

means in said software resource for determining whether said access authorization indicator is valid;

means for allowing said software program to use said software resource only if said access authorization indicator is determined to be valid.

7,444,624	Method for the secure interpretation of programs in electronic devices	Nokia Corporation	Tarkkala; Lauri	717	G06F	20050310	1	96%	<input type="checkbox"/>
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Abstract: The invention relates to method for secure interpretation of a program in an electronic device. An interpreted program is loaded and a stub executable is formed using a prototype stub executable. The stub executable is associated with the interpreted program. At least one second capability also is assigned to the interpreted program and further to the stub executable. The stub executable invokes at least one function in a shared interpreter library to interpret the interpreted program. An interpreter engine checks whether the interpreted program refers an external interpreted program code section. The interpreter engine infers at least one second capability for the external interpreted program code section. The interpreter

engine disallows the execution of said external interpreted program code section if said at least one first capability is not a subset of said at least one second capability.

MainClaim: A method, comprising: providing at least one shared interpreter library and a prototype stub executable in an electronic device; loading an interpreted program in said electronic device; forming a stub executable using said prototype stub executable in said electronic device, said stub executable being an application executed within an operating system in said electronic device; associating said stub executable with said interpreted program in said electronic device; assigning at least one second capability to said stub executable; executing said stub executable in said electronic device in a separate process context; indicating, by said stub executable, to said at least one shared interpreter library said interpreted program; invoking, by said stub executable, at least one function in said at least one shared interpreter library to interpret said interpreted program; checking whether an external interpreted program code section is referred by the interpreted program; loading said external interpreted program code section in said electronic device; inferring at least one first capability for said external interpreted program code section; and disallowing the execution of said external interpreted program code section if said at least one second capability is not a subset of said at least one first capability.

2006/0117305	Method for the secure interpretation of programs in electronic devices	Nokia Corporation	Tarkkala; Lauri	717	G06F	20050310	1	95%	<input type="checkbox"/>
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Abstract: The invention relates to method for secure interpretation of a program in an electronic device. An interpreted program is loaded and a stub executable is formed using a prototype stub executable. The stub executable is associated with the interpreted program. At least one second capability also is assigned to the interpreted program and further to the stub executable. The stub executable invokes at least one function in a shared interpreter library to interpret the interpreted program. An interpreter engine checks whether the interpreted program refers an external interpreted program code section. The interpreter engine infers at least one second capability for the external interpreted program code section. The interpreter engine disallows the execution of said external interpreted program code section if said at least one first capability is not a subset of said at least one second capability.

MainClaim: A method for the secure interpretation of a program in an electronic device, the method comprising: providing at least one shared interpreter library and a prototype stub executable in said electronic device; loading an interpreted program in said electronic device; forming a stub executable using said prototype stub executable in said electronic device; associating said stub executable with said interpreted program in said electronic device; assigning at least one second capability to said stub executable; and executing said stub executable in said electronic device.

2009/0300583	Apparatus, Method, and Computer Program Product for Performing a Software Build	NOKIA CORPORATION	Cork; Peter Joseph Korhonen; Tomi Tapio	717	G06F	20080530	1	94%	<input type="checkbox"/>
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Abstract: In accordance with an example embodiment of the present invention, an apparatus, comprising at least one receiver configured to receive a first software build information and at least one transmitter configured to send a computer program, wherein the computer program is based at least in part on the first software build information and a second software build information, is disclosed.

MainClaim: An apparatus, comprising: at least one receiver configured to receive a first software build information; and at least one transmitter configured to send a computer program, wherein said computer program is based at least in part on said first software build information and a second software build information.

7,523,146	Apparatus and method for peer-to-peer N-way synchronization in a decentralized environment	Apple Inc.	Holt; Joe Freedman; Gordie Forstall; Scott	707	G06F	20050621	0	100%	<input type="checkbox"/>
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Abstract: An apparatus and method of synchronizing a datum between a plurality of stores is disclosed. A version history is associated with the datum in each store. The version history has one or more entries, and each entry has an identifier and a value. The identifier identifies a store that has modified the datum, and the value indicates a number of modifications to the datum made by the store. When synchronizing the datum between stores, the version histories of the datum are compared to determine whether one version history is subordinate to another version history. The datum in the store having the subordinate version history is then replaced with the datum having the dominant version history. When compared, a conflict resolution by a user is required if the version histories are not identical, if the version histories do not have all the same identifiers, and if one version history does not contain all of the identifiers with equal or greater values of those in the other version history.

MainClaim: A method of synchronizing a datum between a plurality of stores, the method comprising: associating a version history with the datum in each store, each of the version histories identifying one or more stores that have modified the datum, the version histories comprising a first version history associated with the datum in a first store and a second version history associated with the datum in a second store, the first version history comprising a loser array having one or more losing version histories, if any, that have lost a conflict resolution; comparing the first and second version histories of the datum in the first and second stores when the datum is synchronized between the first and second stores; determining whether one of the version histories in one store is subordinate to the version history in another store when comparing the version histories by determining whether the second version history is contained in the loser array of the first version history or whether the second version history is subordinate to one of the one or more losing version histories contained in the loser array of the first version history; designating the second version history as a subordinate version history and the first version history as a dominant version history if the second version history is contained in the loser array or is subordinate to one of the losing version histories in the loser array; and replacing the datum in the store having the subordinate version history with the datum in the store having the dominant version history.

2008/0208920	Efficient detection of deleted objects against a stateless content directory service	NOKIA CORPORATION	Stirbu; Vlad Markkanen; Panu S.	707	G06F	20070228	2	92%	<input type="checkbox"/>
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Abstract: The exemplary embodiments of this invention provides a method and apparatus that features synchronizing of data objects in a client device with a server in a system since a last synchronization between the client device and the server by obtaining a list of added or modified data objects since the last synchronization, updating a cached object list on the client device with the list of added or modified data objects, obtaining a sorted list of existing data objects from the server, and detecting deleted data objects based on the comparison between the updated cached object list and the sorted object list. In particular, the synchronizing may include a control point periodically synchronizing the data objects with a content directory service (CDS) in a Universal Plug and Play (UPnP) device architecture (UDA).

MainClaim: A method comprising:synchronizing of data objects in a client device with a server in a system since a last synchronization between the client device and the server byobtaining a list of added or modified data objects since the last synchronization;updating a cached object list on the client device with the list of added or modified data objects;obtaining a list of existing data objects from the server; anddetecting deleted data objects based on the comparison between the updated cached object list and the sorted object list.

7,536,383	Method and apparatus for searching metadata	Apple Inc.	Colclasure; Kaelin Lee Tucker; Ruxton J. Suinn; Bradley Rm Hornkvist; John Martin Arrouye; Yan Callaghan; Brent	707	G06F	20060804	0	100%	<input type="checkbox"/>
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Abstract: Methods and apparatuses for searching metadata are described herein. In one embodiment, an example of a process for search metadata includes, but is not limited to, in response to a search query for metadata stored in one or more of metadata stores, the search query is partitioned into multiple search query segments. Thereafter, searches corresponding to the search query segments are performed, where each search is performed independently within the one or more metadata stores. Other methods and apparatuses are also described.

MainClaim: A machine-implemented method, comprising: in response to a search query for metadata stored in one or more of a plurality of metadata stores, partitioning the search query into a plurality of search query segments; for each search query, allocating a system thread having a time slice with a predetermined time period; and performing searches corresponding to the plurality of search query segments, each search being performed independently within the one or more metadata stores within a corresponding time slice of a corresponding system thread in a round-robin manner, including storing a search state and a partial search result in a queue at the end of the time slice if the respective search has not been finished, such that the respective search can be carried on in a subsequent time slice.

2008/0208920	Efficient detection of deleted objects against a stateless content directory service	NOKIA CORPORATION	Stirbu; Vlad Markkanen; Panu S.	707	G06F	20070228	2	92%	<input type="checkbox"/>
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Abstract: The exemplary embodiments of this invention provides a method and apparatus that features synchronizing of data objects in a client device with a server in a system since a last synchronization between the client device and the server by obtaining a list of added or modified data objects since the last synchronization, updating a cached object list on the client device with the list of added or modified data objects, obtaining a sorted list of existing data objects from the server, and detecting deleted data objects based on the comparison between the updated cached object list and the sorted object list. In particular, the synchronizing may include a control point periodically synchronizing the data objects with a content directory service (CDS) in a Universal Plug and Play (UPnP) device architecture (UDA).

MainClaim: A method comprising:synchronizing of data objects in a client device with a server in a system since a last synchronization between the client device and the server byobtaining a list of added or modified data objects since the last synchronization;updating a cached object list on the client device with the list of added or modified data objects;obtaining a list of existing data objects from the server; anddetecting deleted data objects based on the comparison between the updated cached object list and the sorted object list.

6,262,729	Method and apparatus for binding user interface objects to application objects	Apple Computer, Inc.	Marcos; Paul Weber; Arnaud Tevanian; Avie Willrich; Rebecca Eades Herzer; Stefanie Federighi; Craig	345	G06F	19970414	0	100%	<input type="checkbox"/>
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Abstract: A graphical user interface (GUI) and accompanying functionality for binding Web page definitional elements to a back-end state (e.g., client- or server-side back-end state) and custom logic is provided. In one embodiment, a template containing definitional elements, custom logic, and bindings are generated that define all or a portion of a Web page based on input received and functionality provided by the invention.

MainClaim: A method for specifying a binding between a user interface element in a Web page and a back-end state item of a Web page application using a graphical user interface (GUI) executing in a computer system comprising:

displaying in an element palette of said GUI, wherein said element palette is user defined, a Hypertext Markup Language (HTML) user interface element, said HTML user interface element being associated with an object class having a plurality of attributes and behavior for generating a Hypertext Markup Language (HTML) definition for said HTML user interface element;

dragging said HTML user interface element from said user defined element palette into a first window of said GUI to include said user interface element in the definition of a Web page;

displaying a graphical representation of said HTML user interface element in said first window of said GUI;

displaying in a second window of said GUI one or more variables of a back-end state of a Web page application that are compatible with said object class;

selecting one of said one or more variables for dynamic binding to said object class;

determining whether there is a single attribute of said object class that is fundamental to the definition of said HTML user interface element;

performing (a)-(c) if said single attribute exists:

(a) creating a binding between said single attribute and said one of said one or more variables;

(b) displaying in said graphical representation of said HTML user interface element said one of said one or more variables;

(c) displaying in said GUI the name of said single attribute; and saving said binding as a part of a definition of said Web page.

2007/0288854	Reusable XForms processor	Nokia Corporation	Koskimies; Oskari	715	G06F	20060613	18	96%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for invoking user interface (UI) functionality by a client application. Data is received from a server, such as a web server, parsed and used to create a hierarchy of application UI objects. A corresponding hierarchy of XForms objects is created, such that each XForms object maps to an application UI object. The user interface is rendered at the client display by displaying objects in the application UI objects hierarchy and invoking the corresponding functionality from the XForms object hierarchy.

MainClaim: A method for invoking user interface functionality on a computing device comprising:receiving a data file comprising markup language data;creating based on the data file a first object hierarchy comprising a plurality of objects, each corresponding to a user interface component;identifying in the first object hierarchy a first object corresponding to a user interface component;creating a second object hierarchy comprising a second object having user interface functionality, said second object associated with said first object;displaying on the computing device a user interface comprising a graphical representation of the first object; andinvoking the user interface functionality of the second object in relation to the graphical representation of the first object on the displayed user interface.

2005/0262049	System, method, device, and computer code product for implementing an XML template	Nokia Corporation	Somppi, Ville	707	G06F	20040505	3	92%	<input type="checkbox"/>
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Abstract: A system, method, device, and computer code product for implementing an XML template having user-defined keywords is disclosed. Embodiments of the invention can be configured to identify user-defined keyword definitions in the XML template, identify the user-defined keywords in the XML template, replace the user-defined keywords with user-defined data, and removed the user-defined keyword definitions to form a usable XML document.

MainClaim: A method for converting an XML template including user-defined keywords into a usable XML document, the method comprising: identifying user-defined keyword definitions in the XML template; identifying user-defined keywords in the XML template; replacing the user-defined keywords with data corresponding to the user-defined keywords; and removing the user-defined keywords and user-defined keyword definitions from the XML template.

7,171,674	Method and apparatus for "just-in-time" dynamic loading and unloading of computer software libraries	Apple Computer, Inc.	Arrouye; Yan J. Findley; Sean J. Mortensen; Keith L.	719	G06F	20010830	0	100%	<input type="checkbox"/>
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Abstract: A method and system for providing "just-in-time" dynamic loading and unloading of libraries. Library code is loaded into memory just prior to the actual execution of a routine in that library and is unloaded from memory after the execution of the library routine is completed. According to the present invention, a library structure having a library loader and a library implementation module. The library loader provides the same entry points as the library itself and contains code to drive the loading and unloading of the library implementation module which actually contains the code to implement the library call. At the beginning of the execution of an application or other software module, the library loaders for libraries needed by that application or other software module, are loaded into memory and unloaded upon completion of that application or other software module. The library loaders control the loading and unloading of the library implementation modules, which contain the actual code which implements the library call, so that the library code itself is only in memory while in use during execution of the library call. A sequence of library calls to the same library is preferably detected and managed so as to avoid unnecessary unloading/reloading of the same library.

MainClaim: A computer system for dynamically and automatically loading and unloading a software library to and from memory in a computer, said software library including one or more library routines and capable of being referenced by an application or other software module, said computer system comprising: one or more library structures, each library structure corresponding to a software library, each library structure including a library implementation module containing code for implementing the corresponding software library and a library loader containing entry points corresponding to entry points of the corresponding software library and code for loading and unloading the corresponding library implementation module; and software to perform operations comprising determining which libraries are potentially needed during execution of the application or other software module; loading into memory a library loader for each potentially needed library, said loading occurring anytime before any library of the potentially needed library is executed by the application or other software module; loading into memory a library implementation module for a software library, said loading occurring prior to when a library routine of the software library is to be executed by the application or other software module; executing the loaded library implementation module for the library routine being executed; and automatically unloading from memory the library implementation module after the execution of the library routine is completed while keeping the library loader in memory until the execution of the application or the other software module is completed, wherein the software library is scheduled to be unloaded automatically without an explicit unload request from the application or other software module and without using a count.

2008/0148277	Optimizing calls from a managed runtime environment to microkernel extended functionality	Nokia Corporation	di Flora; Cristiano	719	G06F	20061218	10	92%	<input type="checkbox"/>
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Abstract: A sequence of function calls may be executed as a single software component, rather than as individual method calls on a operating system, for example, in a microkernel system. Source code from a user application is parsed to identify a plurality of homogeneous function calls, for example, corresponding to sequence of native microkernel method calls. A homogeneous downcall sequence (HDS) is identified in the application source code, and a separate software component (e.g., a native plug-in) is generated to perform the functionality of the HDS. The application code may be modified to remove the plurality of function calls and replace them with a reference to the newly-generated software component. Finally, the modified application code is executed on the server, for example, by a managed runtime environment (MRTE) process. The software component may be invoked and executed as-a-whole by a native process.

MainClaim: A method, comprising:receiving a first set of instructions to be executed on a computing device;identifying a plurality of homogeneous function calls in said first set of instructions;creating an executable software component operable to perform functionality corresponding to the plurality of homogeneous function calls; andgenerating a second set of instructions

based on said first set of instructions, wherein said second set of instructions does not comprise the identified plurality of homogeneous function calls and does comprise a reference to said executable software component, and wherein an execution of the second set of instructions on the computing device requires said computing device to perform fewer context switches than an execution of the first set of instructions on the computing device.

6,314,566	Method and apparatus for "Just-in-Time" dynamic loading and unloading of computer software libraries	Apple Computer, Inc.	Arrouye; Yan J. Findley; Sean J. Mortensen; Keith L.	717	G06F	19980929	0	100%	<input checked="" type="checkbox"/>
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Abstract: A method and system for providing "just-in-time" dynamic loading and unloading of libraries. Library code is loaded into memory just prior to the actual execution of a routine in that library and is unloaded from memory after the execution of the library routine is completed. According to the present invention, a library structure having a library loader and a library implementation module. The library loader provides the same entry points as the library itself and contains code to drive the loading and unloading of the library implementation module which actually contains the code to implement the library call. At the beginning of the execution of an application or other software module, the library loaders for libraries needed by that application or other software module, are loaded into memory and unloaded upon completion of that application or other software module. The library loaders control the loading and unloading of the library implementation modules, which contain the actual code which implements the library call, so that the library code itself is only in memory while in use during execution of the library call. A sequence of library calls to the same library is preferably detected and managed so as to avoid unnecessary unloading/reloading of the same library.

MainClaim: A method for dynamically and automatically loading and unloading a software library to and out of memory in a computer, said software library including one or more library routines and capable of being referenced by an application or other software module, said method comprising the steps of:

determining which software libraries are potentially needed during execution of the application or other software module;

loading into memory a library loader for each potentially needed library, said loading occurring anytime before a library routine of the potentially needed library is executed by the application or other software module;

loading into memory a library implementation module for a software library, said loading occurring prior to when a library routine of the software library is to be executed by the application or other software module;

executing the loaded library implementation module for the library routine being executed; and

automatically unloading from memory the library implementation module after the execution of the library routine is completed, wherein the software library is unloaded automatically without an explicit unload request from the application or other software module.

2008/0148277	Optimizing calls from a managed runtime environment to microkernel extended functionality	Nokia Corporation	di Flora; Cristiano	719	G06F	20061218	10	92%	<input type="checkbox"/>
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Abstract: A sequence of function calls may be executed as a single software component, rather than as individual method calls on a operating system, for example, in a microkernel system. Source code from a user application is parsed to identify a plurality of homogeneous function calls, for example, corresponding to sequence of native microkernel method calls. A homogeneous downcall sequence (HDS) is identified in the application source code, and a separate software component (e.g., a native plug-in) is generated to perform the functionality of the HDS. The application code may be modified to remove the plurality of function calls and replace them with a reference to the newly-generated software component. Finally, the modified application code is executed on the server, for example, by a managed runtime environment (MRTE) process. The software component may be invoked and executed as-a-whole by a native process.

MainClaim: A method, comprising:receiving a first set of instructions to be executed on a computing device;identifying a plurality of homogeneous function calls in said first set of instructions;creating an executable software component operable to perform functionality corresponding to the plurality of homogeneous function calls; andgenerating a second set of instructions based on said first set of instructions, wherein said second set of instructions does not comprise the identified plurality of homogeneous function calls and does comprise a reference to said executable software component, and wherein an execution of the second set of instructions on the computing device requires said computing device to perform fewer context switches than an execution of the first set of instructions on the computing device.

2007/0061791	Method, apparatus and computer program product enabling full pre-emptive scheduling of green threads on a virtual machine	Nokia Corporation	Hartikainen; Vesa-Matti Mikael	717	G06F	20051011	5	92%	<input type="checkbox"/>
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Abstract: Disclosed is a computer program product, a method and a device to execute a native code thread in a virtual machine environment. The method includes, prior to executing the native code thread, storing a pointer pointing to a current top of a native stack; initiating generation of an interrupt; beginning execution of the native code thread; upon an occurrence of the interrupt, determining if the native code thread is still executing and, if it is; recording a current status of the native code thread; interrupting execution of the native code thread; and when returning to execute the interrupted native code thread, retrieving the stored state of the native code thread.

MainClaim: A method to execute a native code thread in a virtual machine environment, comprising: prior to executing the native code thread, storing a pointer pointing to a current top of a stack; initiating generation of an interrupt; beginning execution of the native code thread; upon an occurrence of the interrupt, determining if the native code thread is still executing and, if it is; recording a state of the native code thread; interrupting execution of the native code thread; when returning to execute the interrupted native code thread, retrieving the stored state of the native code thread.

5,499,343	Object-oriented networking system with	Taligent, Inc.	Pettus; Christopher	709	G06F	19931217	0	100%	<input checked="" type="checkbox"/>
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	dynamically configurable communication links		E.							
<p>Abstract: Novel object-oriented client-server facility (CSF) and networking service facility (NSF) interfaces implement communication between application programs residing in client and server nodes of a distributed services network. The CSF interface includes remote procedure call (RPC) objects for invoking and responding to service requests at the nodes, and application programming interface (API) objects for transporting those requests between the nodes. However, the API objects only provide communication transports within a node. Accordingly, the API and RPC objects interact with dynamically-configurable protocol stacks within the NSF interfaces to complete the transport mechanism needed by an application program on the client node when accessing services on a remote server node. A preferred embodiment provides an efficient way to perform object operations in a broadcast fashion over a communication network and ensures the receipt and execution of the operation by each target of the broadcast.</p> <p>MainClaim: A multi-node computer network system for connecting a client node to a server node over a plurality of alternate communication links, the computer network system comprising:</p> <p>(a) a network having a plurality of alternate communication links, each of the alternate communication links using a different network protocol;</p> <p>(b) a server node attached to the network by a first reconfigurable protocol stack;</p> <p>(c) a client node attached to the network by a second reconfigurable protocol stack and having an application program running therein for generating a service request;</p> <p>(d) a service program located in the server node for providing a service to the application program, the service program being accessible by the plurality of alternate communication links and having means for reconfiguring the first reconfigurable protocol stack to connect the service program to the plurality of alternate communication links using a network protocol appropriate for each of the alternate communication links;</p> <p>(e) a directory server located in the client node for receiving a service object from the service program, the service object including reconfiguration data for each of the alternate communication links; and</p> <p>(f) networking means responsive to the service request or retrieving the service object from the directory server and using the data therein to reconfigure the second reconfigurable protocol stack to connect the application program to the plurality of alternate communication links using a network protocol appropriate for each of the alternate communication links.</p>										
7,320,029	Quality of service definition for data streams	Nokia Corporation	Rinne; Janne Petri Liljeberg; Mika Jouppi; Jarkko Juhani	709	G06F	20010629	6	95%		
<p>Abstract: The invention relates to a device, system and method a method for applying a certain Quality of Service (QoS) to a data stream (31a 31c, 32a 32b, 33a) of an application (31 33) communicating data over a sockets connection. The method comprises providing a uniquely identifiable identifier (UID, Stream Type) the application (31 33) or to the data stream (31a 31c, 32a 32b, 33a) from or to the application, and associating said identifier (UID, Stream Type) with a particular QoS in order to apply the particular QoS to the particular application (31 33) or to the particular data stream (31a 31c, 32a 32b, 33a), which application or data stream is identified by the identifier.</p> <p>MainClaim: A method comprising: providing a unique identifier (UID, Stream Type) to an application executing in a terminal device, the unique identifier uniquely identifying at least one of the application and the data stream from or to the application; providing the unique identifier in addition to a port number to a protocol stack in the terminal device; determining an association between said identifier and a particular Quality of Service (QoS) policy in the protocol stack using a database stored in said terminal device; determining in the protocol stack within the terminal device QoS parameters contained in the QoS policy; transmitting from said terminal device to the network the QoS parameters to be applied to the data stream from or to the application; and applying the (QoS) parameters to the data stream of the application communicating data over a sockets connection.</p>										
7,317,912	Software development environment	Nokia Corporation	Pakarinen; Kari Torkkeli; Juha	455	H04M	20040216	4	94%		
<p>Abstract: The invention relates to arranging data transfer in a data system between software components implementing mobile communication applications in a software development environment. The data system comprises adapters for the different software components and for transferring data of a broker component between different adapters, wherein the adapter provides an interface to the broker component for at least one software component connected thereto. Addressing information is maintained in the broker component about the adapters in the data system. A first adapter in the data system is activated for a first software component and a second adapter for a second software component in response to a need for data transfer between the first software component and the second software component. Data is transferred in the broker component between the first adapter and the second adapter in accordance with the addressing information.</p> <p>MainClaim: A method of arranging data transfer in a data system between software components implementing mobile communication applications in a software development environment, the data system comprising at least a first software component and a second software component, at least one of the software components comprising program code for controlling a mobile station, the data system further comprising adapters for the different software components and a broker component for transferring data between different adapters, wherein an adapter provides an interface to the broker component for at least one software component connected to the adapter, and wherein addressing information is maintained in the broker component about the adapters in the data system, in which method a first adapter in the data system is activated for a first software component and a second adapter for a second software component in response to a need for data transfer between the first software component and the second software component, and data is transferred in the broker component between the first adapter and the second adapter in accordance with the addressing information.</p>										
2007/0106541	Method for the construction and execution of a distributed workflow in a communication system	Nokia Corporation	Raisanen; Vilho	705	G06F	20060609	4	93%		

Abstract: The invention relates to a method for construction of a distributed workflow. A workflow specification comprising the invocation of a number of locatable functions is obtained. The workflow specification is divided into partitions based on the host nodes where the locatable functions are hosted. From the partitions are generated stub configuration rules for each host node, which implement the workflow execution in a given host node. The stub configuration rules are provided to the host nodes. The workflow is executed by exchanging messages between the host nodes along the lines of the original workflow. The workflow may be associated with implementation of a service or it may be for the purposes of network management.

MainClaim: A method for the construction of distributed workflows in a communication system comprising at least a stub configuration node and at least one host node, the method comprising: obtaining a workflow specification comprising the invocation at least one locatable function and identifiers for said at least one locatable function; determining said at least one locatable function from said workflow specification; determining, for said at least one locatable function, at least one trigger condition; finding a host node for said at least one locatable function based on the identifier for said locatable function; partitioning said workflow specification to at least one partition, said at least one partition being associated with a given host node among said at least one host node, said given host node hosting at least one first locatable function invoked in said at least one partition, said at least one first locatable function being among said at least one locatable function; generating at least a first stub configuration rule set from a first partition among said at least one partition in said stub configuration node; and providing from said stub configuration node said first stub configuration rule set to a first host node among said at least one host node with which the first partition is associated.

5,515,508	Client server system and method of operation including a dynamically configurable protocol stack	Taligent, Inc.	Pettus; Christopher E. Loomis; Donald R. Warren; Christina E.	709	G06F	19931217	0	100%	<input type="checkbox"/>
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Abstract: Novel object-oriented client-server facility (CSF) and networking service facility (NSF) interfaces implement communication between application programs residing in client and server nodes of a distributed services network. The CSF interface includes remote procedure call (RPC) objects for invoking and responding to service requests at the nodes, and application programming interface (API) objects for transporting those requests between the nodes. However, the API objects only provide communication transports within a node. Accordingly, the API and RPC objects interact with dynamically-configurable protocol stacks within the NSF interfaces to complete the transport mechanism needed by an application program on the client node when accessing services on a remote server node.

MainClaim: A computer network system comprising:

(a) a pre-configured network having a plurality of alternate communication links, each of the alternate communication links using a different network protocol;

(b) at least one client node having an application program executing therein;

(c) a directory service in the client node having a plurality of service objects stored therein, each of the plurality of service objects including a network address and a configuration object containing a configuration command needed to access a particular service on the network;

(d) means in the client node and controlled by the application program for generating a service request to request a network service with a first predetermined network protocol;

(e) a dynamically configurable protocol stack in the client node, for connecting the service request generating means to one of the plurality of communication links, the protocol stack having means responsive to a configuration command for translating the first predetermined network protocol into another network protocol and being comprised of a plurality of layer objects, each of the plurality of layer objects being derived from a base layer object and having data representing state information and member functions for identifying adjacent layer objects and wherein each of the plurality of layer objects are vertically linked to a second different one of the plurality of layer objects and wherein the protocol stack includes shim objects inserted between two layer objects and having member functions for providing functionality between the two layer objects;

(f) means responsive to the service request for accessing the directory service to obtain a service object necessary to access the requested service;

(g) means for extracting the configuration object from the obtained service object;

(h) means for establishing a data path from the application program to the protocol stack; and

(i) means for sending the configuration object over the data path to the first protocol stack to configure the first protocol stack using the configuration command in the configuration object.

7,320,029	Quality of service definition for data streams	Nokia Corporation	Rinne; Janne Petri Liljeberg; Mika Jouppi; Jarkko Juhani	709	G06F	20010629	6	94%	<input type="checkbox"/>
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Abstract: The invention relates to a device, system and method a method for applying a certain Quality of Service (QoS) to a data stream (31a 31c, 32a 32b, 33a) of an application (31 33) communicating data over a sockets connection. The method comprises providing a uniquely identifiable identifier (UID, Stream Type) the application (31 33) or to the data stream (31a 31c, 32a 32b, 33a) from or to the application, and associating said identifier (UID, Stream Type) with a particular QoS in order to apply the particular QoS to the particular application (31 33) or to the particular data stream (31a 31c, 32a 32b, 33a), which application or data stream is identified by the identifier.

MainClaim: A method comprising: providing a unique identifier (UID, Stream Type) to an application executing in a terminal device, the unique identifier uniquely identifying at least one of the application and the data stream from or to the application; providing the unique identifier in addition to a port number to a protocol stack in the terminal device; determining an association between said identifier and a particular Quality of Service (QoS) policy in the protocol stack using a database stored in said terminal device; determining in the protocol stack within the terminal device QoS parameters contained in the QoS policy;

transmitting from said terminal device to the network the QoS parameters to be applied to the data stream from or to the application; and applying the (QoS) parameters to the data stream of the application communicating data over a sockets connection.

7,317,912	Software development environment	Nokia Corporation	Pakarinen; Kari Torkkeli; Juha	455	H04M	20040216	4	93%	<input type="checkbox"/>
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Abstract: The invention relates to arranging data transfer in a data system between software components implementing mobile communication applications in a software development environment. The data system comprises adapters for the different software components and for transferring data of a broker component between different adapters, wherein the adapter provides an interface to the broker component for at least one software component connected thereto. Addressing information is maintained in the broker component about the adapters in the data system. A first adapter in the data system is activated for a first software component and a second adapter for a second software component in response to a need for data transfer between the first software component and the second software component. Data is transferred in the broker component between the first adapter and the second adapter in accordance with the addressing information.

MainClaim: A method of arranging data transfer in a data system between software components implementing mobile communication applications in a software development environment, the data system comprising at least a first software component and a second software component, at least one of the software components comprising program code for controlling a mobile station, the data system further comprising adapters for the different software components and a broker component for transferring data between different adapters, wherein an adapter provides an interface to the broker component for at least one software component connected to the adapter, and wherein addressing information is maintained in the broker component about the adapters in the data system, in which method a first adapter in the data system is activated for a first software component and a second adapter for a second software component in response to a need for data transfer between the first software component and the second software component, and data is transferred in the broker component between the first adapter and the second adapter in accordance with the addressing information.

2007/0106541	Method for the construction and execution of a distributed workflow in a communication system	Nokia Corporation	Raisanen; Vilho	705	G06F	20060609	4	93%	<input type="checkbox"/>
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Abstract: The invention relates to a method for construction of a distributed workflow. A workflow specification comprising the invocation of a number of locatable functions is obtained. The workflow specification is divided into partitions based on the host nodes where the locatable functions are hosted. From the partitions are generated stub configuration rules for each host node, which implement the workflow execution in a given host node. The stub configuration rules are provided to the host nodes. The workflow is executed by exchanging messages between the host nodes along the lines of the original workflow. The workflow may be associated with implementation of a service or it may be for the purposes of network management.

MainClaim: A method for the construction of distributed workflows in a communication system comprising at least a stub configuration node and at least one host node, the method comprising: obtaining a workflow specification comprising the invocation at least one locatable function and identifiers for said at least one locatable function; determining said at least one locatable function from said workflow specification; determining, for said at least one locatable function, at least one trigger condition; finding a host node for said at least one locatable function based on the identifier for said locatable function; partitioning said workflow specification to at least one partition, said at least one partition being associated with a given host node among said at least one host node, said given host node hosting at least one first locatable function invoked in said at least one partition, said at least one first locatable function being among said at least one locatable function; generating at least a first stub configuration rule set from a first partition among said at least one partition in said stub configuration node; and providing from said stub configuration node said first stub configuration rule set to a first host node among said at least one host node with which the first partition is associated.

6,429,880	Method and apparatus for binding user interface objects to application objects	Apple Computer, Inc.	Marcos; Paul Weber; Arnaud Tevanian; Avie Willrich; Rebecca Eades Herzer; Stefanie Federighi; Craig	345	G06F	20010425	0	100%	<input type="checkbox"/>
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Abstract: A graphical user interface (GUI) and accompanying functionality for binding Web page definitional elements to a back-end state (e.g., client- or server-side back-end state) and custom logic is provided. In one embodiment, a template containing definitional elements, custom logic, and bindings are generated that define all or a portion of a Web page based on input received and functionality provided by the invention.

MainClaim: A graphical user interface (GUI) object connection generation system comprising:

a computer having a central processing unit, storage, and display;

at least one back-end state item;

at least one Hypertext Markup Language (HTML) definitional element with a plurality of attributes and behaviors for generating HTML;

a first GUI element capable of displaying on said display an object browser containing a graphical representation of said at least one back-end state item;

a second GUI element capable of displaying on said display an element palette containing a graphical representation of said at least one HTML definitional element;

in said processing unit using said storage a means for creating a dynamic binding between said at least one back-end state item and said at least one HTML definitional element; and

in said processing unit using said storage a means for displaying said graphical representation of said binding on said display.

2007/0288854	Reusable XForms processor	Nokia Corporation	Koskimies; Oskari	715	G06F	20060613	18	96%	<input type="checkbox"/>
<p>Abstract: Systems and methods are provided for invoking user interface (UI) functionality by a client application. Data is received from a server, such as a web server, parsed and used to create a hierarchy of application UI objects. A corresponding hierarchy of XForms objects is created, such that each XForms object maps to an application UI object. The user interface is rendered at the client display by displaying objects in the application UI objects hierarchy and invoking the corresponding functionality from the XForms object hierarchy.</p> <p>MainClaim: A method for invoking user interface functionality on a computing device comprising:receiving a data file comprising markup language data;creating based on the data file a first object hierarchy comprising a plurality of objects, each corresponding to a user interface component;identifying in the first object hierarchy a first object corresponding to a user interface component;creating a second object hierarchy comprising a second object having user interface functionality, said second object associated with said first object;displaying on the computing device a user interface comprising a graphical representation of the first object; andinvoking the user interface functionality of the second object in relation to the graphical representation of the first object on the displayed user interface.</p>									
2005/0262049	System, method, device, and computer code product for implementing an XML template	Nokia Corporation	Somppi, Ville	707	G06F	20040505	3	92%	<input type="checkbox"/>
<p>Abstract: A system, method, device, and computer code product for implementing an XML template having user-defined keywords is disclosed. Embodiments of the invention can be configured to identify user-defined keyword definitions in the XML template, identify the user-defined keywords in the XML template, replace the user-defined keywords with user-defined data, and removed the user-defined keyword definitions to form a usable XML document.</p> <p>MainClaim: A method for converting an XML template including user-defined keywords into a usable XML document, the method comprising: identifying user-defined keyword definitions in the XML template; identifying user-defined keywords in the XML template; replacing the user-defined keywords with data corresponding to the user-defined keywords; and removing the user-defined keywords and user-defined keyword definitions from the XML template.</p>									
5,732,275	Method and apparatus for managing and automatically updating software programs	Apple Computer, Inc.	Kullick; Steven Titus; Diane	717	G06F	19960111	0	100%	<input type="checkbox"/>
<p>Abstract: A software program running on a computer is automatically managed, monitored and updated with a newer version in a completely automated fashion, without interruption of its primary function, and in a manner that is completely transparent to the user of the computer. This is achieved by means of a control module that performs the functions of locating and identifying other versions of its associated program, determining whether the other versions are older or newer than currently stored versions, and downloading a newer version. Multiple versions of the program can remain accessible on the computer, and the control module manages the launching of a particular version that may be required. Statistical data relating to the launching and operation of the program is collected, and uploaded to a central location on a regular basis.</p> <p>MainClaim: A software module stored in memory of a computer for managing an application program executed on the computer, comprising:</p> <p>means for receiving an instruction to launch an application program on the computer and for determining whether multiple versions of the application program are stored in memory associated with the computer;</p> <p>means for selecting one of the stored versions of the application program, pursuant to specified criteria; and</p> <p>means for generating a command to launch the selected version of the application program.</p>									
6,928,579	Crash recovery system	Nokia Corporation	ijä ; Gunnar Larsson; Alexander	714	G06F	20010627	3	94%	<input type="checkbox"/>
<p>Abstract: A client device is connectable to a server via a communication network for receiving new software packages. The client device includes a pair of system partitions designated as current and backup system partitions and at least one package partition on which all installed system packages are saved. A central processing unit of the client device uses the contents of the current system partition. In response to an startup failure or a runtime failure, the client device reboots using the backup system partition and allows a user to selectively install any of the software packages saved on the at least one package partition.</p> <p>MainClaim: A method for recovering from startup and runtime failures of a software system in a computer environment including a client device, comprising the steps of:</p> <p>(a) providing a persistent memory in the client device including at least first and second system partitions and at least one package partition, wherein runtime components of the software system are installed on the first and second system partitions and all installed software packages of the software system are saved on the at least one package partition;</p> <p>(b) designating one of the first and second system partitions as a current system partition and the other of the first and second system partitions as a backup system partition;</p> <p>(c) using the current system partition by a central processing unit of the client device for controlling the client device;</p> <p>(d) rebooting the software system of the client device using the backup system partition in response to one of an startup failure, a runtime failure of the software system of the client device, and a user request;</p> <p>(e) designating the backup system partition as the new current system partition;</p> <p>(f) creating a new backup system partition from the new current system partition; and</p>									

(g) reinstalling the entire software system by installing all of the software packages residing on the at least one package partition after said step (f).

2005/0240795	Resource management system and method	Nokia Corporation	Paller, Gabor Cofta, Piotr Majakangas, Jaana	714	H04L	20040427	1	92%	<input type="checkbox"/>
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Abstract: A method and apparatus for resource management are disclosed. The method includes detecting a change in availability of one or more resources, determining whether a dependency exists between the resources and a managed component, and propagating the change in availability to the managed component when a dependency exists. The apparatus for resource management includes a media manager adapted to detect a change in availability of one or more resources, a resource inventory having information indicative of one or more dependencies between the resources and one or more managed components, and a management agent adapted to propagate the change in availability to a managed component when a dependency exists between the managed component and the resources.

MainClaim: A method of resource management, comprising: detecting a change in availability of one or more resources; determining whether a dependency exists between said one or more resources and a managed component; and propagating said change in availability to said managed component when said step of determining determines the existence of a dependency.

7,716,674	Streaming server administration protocol	Apple Inc.	Murata; John	719	G06F	20001006	0	100%	<input type="checkbox"/>
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Abstract: Network server information has traditionally been obtained through the use of operating systems functions and calls. By adding URL protocol code to the network server, such data may be obtained by use of a URL. In the URL, path information for the container in the server where such data resides is included. Specific server data may be retrieved, or such data may be retrieved recursively among several levels of containers. System calls and other functions may also be added to the URL path name for searching for particular data, or similar types of data through successive levels of containers. The protocol allows server administrators to access server data, in real time, from any user device in a network in which the server resides.

MainClaim: A method for obtaining internal server data from a computer network having a client and a server, the method comprising the following steps: generating at the client an HTTP path name having an identity of a container within the server that contains administrative data about the server; transmitting a request including the HTTP path name from the client to the server; determining at the server whether the HTTP path name includes the identity of the container of the server; if the HTTP path name does not include the identity of the container, transmitting an HTML page from the server; if the HTTP path name includes the identity of the container: processing at the server the HTTP path name to retrieve a snapshot of the identified container of the server, the snapshot representing a current copy of content in the identified container, said snapshot being a hierarchy of containers specifying types, names, values and read/write attributes of information copied from the server's internal structures using an API (Application Program Interface); generating at the server, from the snapshot, a response including the administrative data corresponding to the HTTP path name; and transmitting the response from the server to the client, wherein a new snapshot is generated if no snapshot is included in the HTTP path name of the request, and the new snapshot invalidates a previous snapshot.

6,721,871	Method and apparatus for synchronizing data stores with respect to changes in folders	Nokia Corporation	Piispanen; Jussi Sahinoja; Mikko	712	G06F	20020402	1	95%	<input type="checkbox"/>
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Abstract: A method using SyncML, or other similar markup language, by which two devices (11 12) synchronize how data is organized in respective data stores (11c 12c) maintained by the devices (11 12), and devices (11 12) operating according to the method as well as a corresponding computer program by which either of the devices (11 12) is operable according to the method. According to the method, the two devices (11 12) synchronize their respective data stores (11c 12c) with respect to folders for containing data units and possibly other folders by steps (31e 31j) of exchanging messages (21) that include data identification elements (28 29) that refer to the folders in order to be able to synchronize the data stores (11c 1 12c) with respect to the folders, with the data identification elements (28 29) provided in the message external to any reference to data units.

MainClaim: A method, for use by a first sync agent (11b 12b) operative in association with a first data store (11c 12c) and by a second sync agent (11b 12b) operative in association with a second data store (11c 12c), by which the first data store (11c 12c) is synchronized with the second data store (11c 12c), the data stores (11c 12c) each being used for storing data as data units in folders by a first and second respective application (11a 12a) distinct from the first and second sync agents (11b 12b), the folders in combination defining a data structure, the method comprising:

a step (31a) in which the first and second sync agents (11b 12b) establish a transport connection (14) for enabling communication between the first and second sync agents (11b 12b); and

a step (31e 31j) in which the second sync agent (11b 12b) communicates via the transport connection (14) a message (21) to the first sync agent (11b 12b), the message (21) expressed using a markup language and having at least one data identification element (2627) embedded in a non-data element field of a protocol command element;

wherein information about a change in the data structure of the first or second data store (11c 12c) includes identification of folders, in the information is transmitted in said message; and

further wherein said information about a change in the data structure of the first or second data store (11c 12c) is placed in the at least one data identification element (2627).

2003/0191827	Method and apparatus for synchronizing how data is stored in different data stores	NOKIA CORPORATION	Piispanen, Jussi Sahinoja, Mikko	709	G06F	20020402	1	95%	<input type="checkbox"/>
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Abstract: A method using SyncML, or other similar markup language, by which two devices (11 12) synchronize how data is organized in respective data stores (11c 12c) maintained by the devices (11 12), and devices (11 12) operating according to the method as well as a corresponding computer program by which either of the devices (11 12) is operable according to the method. According to the method, the two devices (11 12) synchronize their respective data stores (11c 12c) with respect to folders for containing data units and possibly other folders by steps (31e 31j) of exchanging messages (21) that include data identification elements (28 29) that refer to the folders in order to be able to synchronize the data stores (11c 1 12c) with respect

to the folders, with the data identification elements (28 29) provided in the message external to any reference to data units.

MainClaim: A method, for use by a first sync agent (11b 12b) operative in association with a first data store (11c 12c) and by a second sync agent (11b 12b) operative in association with a second data store (11c 12c), by which the first data store (11c 12c) is synchronized with the second data store (11c 12c), the data stores (11c 12c) each being used for storing data as data units in folders by a first and second respective application (11a 12a) distinct from the first and second sync agents (11b 12b), the folders in combination defining a data structure, the method comprising: a step (31a) in which the first and second sync agents (11b 12b) establish a transport connection (14) for enabling communication between the first and second sync agents (11b 12b); and a step (31e 31j) in which the second sync agent (11b 12b) communicates via the transport connection (14) a message (21) to the first sync agent (11b 12b), the message (21) expressed using a markup language and having at least one data identification element (26 27); wherein information about a change in the data structure of the first or second data store (11c 12c) is transmitted in said message; and further wherein said information about a change in the data structure of the first or second data store (11c 12c) is placed in the at least one data identification element (26 27).

7,565,410	Distributed network	Nokia Corporation	Stickler; Patrick	709	G06F	20020528	1	94%	<input type="checkbox"/>
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Abstract: A method and apparatus resolves a symbolic identified to a physical data stream. The method and apparatus is particularly suited to resolving physical datastreams in a dynamic distributed network environment. The symbolic identifier is generated in a process resident on a terminal connected to a network. The physical datastream is resourced by a repository. Resource such as servers capable of performing such a resolution, are organized in a hierarchical relationship.

MainClaim: A resource locating system for receiving a query from a client process resident on a terminal connected to a network, the system comprising a plurality of resource location servers connected to the network, each of said resource location servers including a query resolution application to parse a query to extract a resource name and corresponding management path, a register containing a set of predefined management paths of differing scope and a table binding addresses to resource names of at least some of said predefined management paths, said register further including an address being associated with another one of said predefined management paths, the query resolution application being further configured to provide said client process with an address corresponding to one of a resource name and a predefined management path.

5,566,337	Method and apparatus for distributing events in an operating system	Apple Computer, Inc.	Szymanski; Steven J. Saulpaugh; Thomas E. Keenan; William J.	710	G06F	19940513	0	100%	<input type="checkbox"/>
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Abstract: In a computer including an operating system, an event producer for generating an event and detecting that an event has occurred in the computer and an event consumer which need to be informed when events occur in the computer, a system for distributing events including a store for storing a specific set of events of which the at least one event consumer is to be informed, an event manager control unit for receiving the event from the event producer, comparing the received event to the stored set of events, and distributing an appropriate event to an appropriate event consumer, and a distributor for receiving the event from the control unit and directing the control unit to distribute an appropriate event to an appropriate event consumer.

MainClaim: In a computer including at least one event producer for detecting that an event has occurred in the computer and generating an event and at least one event consumer which needs to be informed when events occur in the computer, a system for distributing events comprising:

storing means for storing a specific set of events of which said at least one event consumer is to be informed;

event manager control means for receiving the event from the event producer, comparing the received event to the stored set of events, and distributing an appropriate event to an appropriate event consumer; and

distributor means for receiving the event from the control means and directing said control means to distribute an appropriate event to an appropriate event consumer.

2007/0130336	Resource control	Nokia Corporation	Hietala; Marko J. Ojanaho; Janne J.	709	G06F	20051206	1	95%	<input type="checkbox"/>
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Abstract: In a method for controlling an access to at least one resource by a plurality of clients, at least one set of rules is selected from a plurality of available sets of rules upon occurrence of an event relating to an access to the at least one resource by at least one of the clients. The selection depends at least on one of the type of the event, a state of at least one of the clients and a system state. The selected at least one set of rules is applied, resulting in a decision. The access to the at least one resource is then controlled according to this decision.

MainClaim: A method for controlling an access to at least one resource by a plurality of clients, said method comprising: selecting at least one set of rules from a plurality of available sets of rules upon occurrence of an event relating to an access to said at least one resource by at least one of said clients, said selection depending at least on one of a type of said event, a state of at least one of said clients and a system state; applying said selected at least one set of rules, resulting in a decision; and controlling an access to said at least one resource according to said decision.

7,685,297	Resource control	Nokia Corporation	Hietala; Marko J. Ojanaho; Janne J.	709	G06F	20051206	1	95%	<input type="checkbox"/>
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Abstract: In a method for controlling an access to at least one resource by a plurality of clients, at least one set of rules is selected from a plurality of available sets of rules upon occurrence of an event relating to an access to the at least one resource by at least one of the clients. The selection depends at least on one of the type of the event, a state of at least one of the clients and a system state. The selected at least one set of rules is applied, resulting in a decision. The access to the at least one resource is then controlled according to this decision.

MainClaim: A method comprising: selecting at least one set of rules from a plurality of available sets of rules upon occurrence of an event relating to an access to at least one resource by at least one of a plurality of clients, each client of said plurality of clients being configured to manage another feature of a single device, said selection depending at least on one of a type of said event, a state of at least one of said clients and a system state; applying said selected at least one set of rules, resulting in a decision; and controlling an access to said at least one resource according to said decision, wherein said event is a received request from one of said clients relating to said access to at least one resource and said decision is a decision as to what extent said request is granted; and wherein said plurality of available set of rules comprises at least a mixing rulebase comprising a list of predefined ongoing activities, a list of predefined incoming requests, and a combination of each predefined ongoing activity with each predefined incoming request, wherein each combination comprises at least one rule indicating how the incoming request is handled and at least one rule indicating the implications of the incoming request on the ongoing activity.

	Object-oriented network protocol configuration								
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5,548,723	system utilizing a dynamically configurable protocol stack	Taligent, Inc.	Pettus; Christopher E.	709	G06F	19931217	0	100%	<input type="checkbox"/>
<p>Abstract: Novel object-oriented client-server facility (CSF) and networking service facility (NSF) interfaces implement communication between application programs residing in client and server nodes of a distributed services network. The CSF interface includes remote procedure call (RPC) objects for invoking and responding to service requests at the nodes, and application programming interface (API) objects for transporting those requests between the nodes. However, the API objects only provide communication transports within a node. Accordingly, the API and RPC objects interact with dynamically-configurable protocol stacks within the NSF interfaces to complete the transport mechanism needed by an application program on the client node when accessing services on a remote server node.</p> <p>MainClaim: A multi-node computer network system for connecting a client node to a server node so that the client node may request services from the server node via a remote procedure call, the computer network system comprising:</p> <p>(a) a client node and a server node, each node having at least one processor and a memory attached to the at least one processor and under the control of the at least one processor wherein the client node further includes a directory service containing a plurality of service objects, each corresponding to a remote service and each including a reference to a stack definition;</p> <p>(b) a network for connecting the client and server nodes for communication therebetween, the network having a predefined network protocol characterized by a plurality of protocol layers;</p> <p>(c) wherein the client node includes means for communicating over the network under the control of a dynamically reconfigurable protocol stack, the stack comprising a plurality of layer objects, each layer object corresponding to one of the protocol layers of the protocol;</p> <p>(d) means for determining a protocol definition of the network protocol wherein the means for determining a protocol definition includes means for accessing the directory service to obtain a service object and for thereby obtaining a reference to a stack definition as the protocol definition; and</p> <p>(e) means, responsive to the protocol definition, for configuring the layer objects of the protocol stack so that the client node may deliver a remote procedure call to the server node over the network in accordance with the network protocol to request a service from the server node, wherein the means for configuring includes means for instantiating a plurality of layer objects to form a protocol stack corresponding to the protocol definition, and wherein the means for configuring includes means for providing a session service access point for referencing the protocol stack, and</p> <p>where in the client node further includes means for storing the session service access point in the directory service so that subsequent accesses of the corresponding remote service may use the session service access point to access the corresponding protocol stack.</p>									
7,320,029	Quality of service definition for data streams	Nokia Corporation	Rinne; Janne Petri Liljeberg; Mika Jouppi; Jarkko Juhani	709	G06F	20010629	6	95%	<input type="checkbox"/>
<p>Abstract: The invention relates to a device, system and method a method for applying a certain Quality of Service (QoS) to a data stream (31a 31c, 32a 32b, 33a) of an application (31 33) communicating data over a sockets connection. The method comprises providing a uniquely identifiable identifier (UID, Stream Type) the application (31 33) or to the data stream (31a 31c, 32a 32b, 33a) from or to the application, and associating said identifier (UID, Stream Type) with a particular QoS in order to apply the particular QoS to the particular application (31 33) or to the particular data stream (31a 31c, 32a 32b, 33a), which application or data stream is identified by the identifier.</p> <p>MainClaim: A method comprising: providing a unique identifier (UID, Stream Type) to an application executing in a terminal device, the unique identifier uniquely identifying at least one of the application and the data stream from or to the application; providing the unique identifier in addition to a port number to a protocol stack in the terminal device; determining an association between said identifier and a particular Quality of Service (QoS) policy in the protocol stack using a database stored in said terminal device; determining in the protocol stack within the terminal device QoS parameters contained in the QoS policy; transmitting from said terminal device to the network the QoS parameters to be applied to the data stream from or to the application; and applying the (QoS) parameters to the data stream of the application communicating data over a sockets connection.</p>									
7,317,912	Software development environment	Nokia Corporation	Pakarinen; Kari Torkkeli; Juha	455	H04M	20040216	4	93%	<input type="checkbox"/>
<p>Abstract: The invention relates to arranging data transfer in a data system between software components implementing mobile communication applications in a software development environment. The data system comprises adapters for the different software components and for transferring data of a broker component between different adapters, wherein the adapter provides an interface to the broker component for at least one software component connected thereto. Addressing information is maintained in the broker component about the adapters in the data system. A first adapter in the data system is activated for a first software component and a second adapter for a second software component in response to a need for data transfer between the first software component and the second software component. Data is transferred in the broker component between the first adapter and the second adapter in accordance with the addressing information.</p> <p>MainClaim: A method of arranging data transfer in a data system between software components implementing mobile communication applications in a software development environment, the data system comprising at least a first software component and a second software component, at least one of the software components comprising program code for controlling a mobile station, the data system further comprising adapters for the different software components and a broker component for transferring data between different adapters, wherein an adapter provides an interface to the broker component for at least one software component connected to the adapter, and wherein addressing information is maintained in the broker component about the adapters in the data system, in which method a first adapter in the data system is activated for a first software component and a second adapter for a second software component in response to a need for data transfer between the first software component and the second software component, and data is transferred in the broker component between the first adapter and the second adapter in accordance with the addressing information.</p>									

2007/0106541	Method for the construction and execution of a distributed workflow in a communication system	Nokia Corporation	Raisanen; Vilho	705	G06F	20060609	4	93%	<input type="checkbox"/>
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Abstract: The invention relates to a method for construction of a distributed workflow. A workflow specification comprising the invocation of a number of locatable functions is obtained. The workflow specification is divided into partitions based on the host nodes where the locatable functions are hosted. From the partitions are generated stub configuration rules for each host node, which implement the workflow execution in a given host node. The stub configuration rules are provided to the host nodes. The workflow is executed by exchanging messages between the host nodes along the lines of the original workflow. The workflow may be associated with implementation of a service or it may be for the purposes of network management.

MainClaim: A method for the construction of distributed workflows in a communication system comprising at least a stub configuration node and at least one host node, the method comprising: obtaining a workflow specification comprising the invocation at least one locatable function and identifiers for said at least one locatable function; determining said at least one locatable function from said workflow specification; determining, for said at least one locatable function, at least one trigger condition; finding a host node for said at least one locatable function based on the identifier for said locatable function; partitioning said workflow specification to at least one partition, said at least one partition being associated with a given host node among said at least one host node, said given host node hosting at least one first locatable function invoked in said at least one partition, said at least one first locatable function being among said at least one locatable function; generating at least a first stub configuration rule set from a first partition among said at least one partition in said stub configuration node; and providing from said stub configuration node said first stub configuration rule set to a first host node among said at least one host node with which the first partition is associated.

7,194,692	Method and apparatus for binding user interface objects to application objects	Apple Computer, Inc.	Marcos; Paul Weber; Arnaud Tevanian; Avie Willrich; Rebecca Eades Herzer; Stefanie Federighi; Craig	715	G06F	20020627	0	100%	<input type="checkbox"/>
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Abstract: A graphical user interface (GUI) and accompanying functionality for binding Web page definitional elements to a back-end state (e.g., client- or server-side back-end state) and custom logic is provided. In one embodiment, a template containing definitional elements, custom logic, and bindings are generated that define all or a portion of a Web page based on input received and functionality provided by the invention.

MainClaim: An apparatus for generating binding statements of a web page template comprising: a graphical user interface (GUI) executing on a computer; at least one back-end state item graphically depicted in said GUI by a first graphical element; at least one definitional element graphically depicted in said GUI by a second graphical element; and wherein said GUI is configured to provide a dynamic binding between said at least one definitional element and said at least one back-end state item in response to graphical manipulation by a user of said first graphical element and said second graphical element; and wherein said GUI is configured to generate a statement text representing logic for executing said dynamic binding.

2007/0288854	Reusable XForms processor	Nokia Corporation	Koskimies; Oskari	715	G06F	20060613	18	95%	<input type="checkbox"/>
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Abstract: Systems and methods are provided for invoking user interface (UI) functionality by a client application. Data is received from a server, such as a web server, parsed and used to create a hierarchy of application UI objects. A corresponding hierarchy of XForms objects is created, such that each XForms object maps to an application UI object. The user interface is rendered at the client display by displaying objects in the application UI objects hierarchy and invoking the corresponding functionality from the XForms object hierarchy.

MainClaim: A method for invoking user interface functionality on a computing device comprising: receiving a data file comprising markup language data; creating based on the data file a first object hierarchy comprising a plurality of objects, each corresponding to a user interface component; identifying in the first object hierarchy a first object corresponding to a user interface component; creating a second object hierarchy comprising a second object having user interface functionality, said second object associated with said first object; displaying on the computing device a user interface comprising a graphical representation of the first object; and invoking the user interface functionality of the second object in relation to the graphical representation of the first object on the displayed user interface.

2005/0262049	System, method, device, and computer code product for implementing an XML template	Nokia Corporation	Somppi, Ville	707	G06F	20040505	3	92%	<input type="checkbox"/>
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Abstract: A system, method, device, and computer code product for implementing an XML template having user-defined keywords is disclosed. Embodiments of the invention can be configured to identify user-defined keyword definitions in the XML template, identify the user-defined keywords in the XML template, replace the user-defined keywords with user-defined data, and removed the user-defined keyword definitions to form a usable XML document.

MainClaim: A method for converting an XML template including user-defined keywords into a usable XML document, the method comprising: identifying user-defined keyword definitions in the XML template; identifying user-defined keywords in the XML template; replacing the user-defined keywords with data corresponding to the user-defined keywords; and removing the user-defined keywords and user-defined keyword definitions from the XML template.

5,491,800	Object-oriented remote procedure call networking system	Taligent, Inc.	Goldsmith; Amy M. Goldsmith; David B. Pettus; Christopher E.	709	G06F	19931220	0	100%	<input type="checkbox"/>
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Abstract: A client-server facility (CSF) interface and networking service facility (NSF) interface implement communication between application programs residing in client and server nodes of a distributed services network. The CSF interface includes remote procedure call (RPC) objects for invoking and responding to service requests at the nodes, and application programming interface (API) objects for transporting those requests between the nodes. However, the API objects only provide communication transports within a node. Accordingly, the API and RPC objects interact with dynamically-configurable protocol stacks within the NSF interfaces to complete the transport mechanism needed by an application program on the client node when accessing services on a remote server node.

MainClaim: A system for implementing remote procedure call services over a computer network having a plurality of alternate

communication links, each of the plurality of alternate communication links having a different network protocol, the system comprising:

(a) a client node having a source network address:

(b) a server node having a task application program executing therein to provide services;

(c) a memory in the client node with a system address space and a process address space having an application program executing therein for generating a service request;

(d) a first dynamically-configurable protocol stack in the system address space configurable for connecting the client node to one of the plurality of alternate communication links by packaging data according to the network protocol of the one communication link:

(e) means responsive to the service request for providing a service object to the application program, the service object containing information for configuring the first dynamically-configurable protocol stack and destination network address of the task application program;

(f) means responsive to the service request for instantiating an API object in the client node, which API object establishes a stream extending from the application program in the process address space to the first dynamically-configurable protocol stack in system address space and inserts the service object into the data stream to configure the first dynamically-configurable protocol stack;

(g) means responsive to the configuration of the dynamically-configurable protocol stack for instantiating a first RPC object in the client node which creates a service request packet containing the service request, the source network address and the destination network address;

(h) a second dynamically-configurable protocol stack in the server node configured to connect the server node to the one alternate communication link by unpackaging data according to the network protocol of the one communication link: and

(i) interface means in the server node for receiving the service request packet and providing the service request packet to the task application program.

7,320,029	Quality of service definition for data streams	Nokia Corporation	Rinne; Janne Petri Liljeberg; Mika Jouppi; Jarkko Juhani	709	G06F	20010629	6	95%	<input type="checkbox"/>
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Abstract: The invention relates to a device, system and method a method for applying a certain Quality of Service (QoS) to a data stream (31a 31c, 32a 32b, 33a) of an application (31 33) communicating data over a sockets connection. The method comprises providing a uniquely identifiable identifier (UID, Stream Type) the application (31 33) or to the data stream (31a 31c, 32a 32b, 33a) from or to the application, and associating said identifier (UID, Stream Type) with a particular QoS in order to apply the particular QoS to the particular application (31 33) or to the particular data stream (31a 31c, 32a 32b, 33a), which application or data stream is identified by the identifier.

MainClaim: A method comprising: providing a unique identifier (UID, Stream Type) to an application executing in a terminal device, the unique identifier uniquely identifying at least one of the application and the data stream from or to the application; providing the unique identifier in addition to a port number to a protocol stack in the terminal device; determining an association between said identifier and a particular Quality of Service (QoS) policy in the protocol stack using a database stored in said terminal device; determining in the protocol stack within the terminal device QoS parameters contained in the QoS policy; transmitting from said terminal device to the network the QoS parameters to be applied to the data stream from or to the application; and applying the (QoS) parameters to the data stream of the application communicating data over a sockets connection.

7,317,912	Software development environment	Nokia Corporation	Pakarinen; Kari Torkkeli; Juha	455	H04M	20040216	4	93%	<input type="checkbox"/>
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Abstract: The invention relates to arranging data transfer in a data system between software components implementing mobile communication applications in a software development environment. The data system comprises adapters for the different software components and for transferring data of a broker component between different adapters, wherein the adapter provides an interface to the broker component for at least one software component connected thereto. Addressing information is maintained in the broker component about the adapters in the data system. A first adapter in the data system is activated for a first software component and a second adapter for a second software component in response to a need for data transfer between the first software component and the second software component. Data is transferred in the broker component between the first adapter and the second adapter in accordance with the addressing information.

MainClaim: A method of arranging data transfer in a data system between software components implementing mobile communication applications in a software development environment, the data system comprising at least a first software component and a second software component, at least one of the software components comprising program code for controlling a mobile station, the data system further comprising adapters for the different software components and a broker component for transferring data between different adapters, wherein an adapter provides an interface to the broker component for at least one software component connected to the adapter, and wherein addressing information is maintained in the broker component about the adapters in the data system, in which method a first adapter in the data system is activated for a first software component and a second adapter for a second software component in response to a need for data transfer between the first software component and the second software component, and data is transferred in the broker component between the first adapter and the second adapter in accordance with the addressing information.

2007/0106541	Method for the construction and execution of a distributed workflow in a communication system	Nokia Corporation	Raisanen; Vilho	705	G06F	20060609	4	93%	<input type="checkbox"/>
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Abstract: The invention relates to a method for construction of a distributed workflow. A workflow specification comprising the invocation of a number of locatable functions is obtained. The workflow specification is divided into partitions based on the host nodes where the locatable functions are hosted. From the partitions are generated stub configuration rules for each host node, which implement the workflow execution in a given host node. The stub configuration rules are provided to the host nodes. The workflow is executed by exchanging messages between the host nodes along the lines of the original workflow. The workflow may be associated with implementation of a service or it may be for the purposes of network management.

MainClaim: A method for the construction of distributed workflows in a communication system comprising at least a stub configuration node and at least one host node, the method comprising: obtaining a workflow specification comprising the invocation at least one locatable function and identifiers for said at least one locatable function; determining said at least one locatable function from said workflow specification; determining, for said at least one locatable function, at least one trigger condition; finding a host node for said at least one locatable function based on the identifier for said locatable function; partitioning said workflow specification to at least one partition, said at least one partition being associated with a given host node among said at least one host node, said given host node hosting at least one first locatable function invoked in said at least one partition, said at least one first locatable function being among said at least one locatable function; generating at least a first stub configuration rule set from a first partition among said at least one partition in said stub configuration node; and providing from said stub configuration node said first stub configuration rule set to a first host node among said at least one host node with which the first partition is associated.

5,577,250	Programming model for a coprocessor on a computer system	Apple Computer, Inc.	Anderson; Eric C. Svendsen; Hugh B. Sohn; A. Phillip	718	G06F	19941220	0	100%	<input type="checkbox"/>
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Abstract: A computer system having a processor and a coprocessor, a method and apparatus for developing and executing tasks on a coprocessor. A teamwork operating system for utilizing the coprocessor, e.g. a digital signal processor, resides in part on the processor and in part on the coprocessor. Such a teamwork operating system provides for optimum throughput of work through the coprocessor. An Application Programming Interface (API) is provided to facilitate the development of host application programs that will utilize the coprocessor. A Task Programming Interface (TPI) and a Task Unit Definition Language (TUDL) are provided to facilitate the development of coprocessor code for execution on the coprocessor.

MainClaim: A computer system comprising:

a) a memory containing an application program and a coprocessor operating system, wherein the coprocessor operating system includes a host portion and a coprocessor portion, wherein said host portion provides a plurality of macros for constructing coprocessor tasks;

b) a storage device containing a plurality of coprocessor task units;

c) a processor coupled to said memory and said storage device, wherein said processor is configured to execute said application program and said host portion, wherein execution of said application program causes said processor to execute said plurality of macros, wherein execution of said plurality of macros causes said processor to construct a plurality of coprocessor tasks, wherein each coprocessor task of said plurality of coprocessor tasks includes information inserted from at least one coprocessor task unit of said plurality of coprocessor task units, wherein execution of said macros further causes said processor to insert said plurality of coprocessor tasks into a run list; and

d) a coprocessor coupled to said memory and said storage device, said coprocessor being configured to execute said coprocessor portion, wherein execution of said coprocessor portion causes said coprocessor to sequentially execute said plurality of coprocessor tasks in said run list.

2008/0104601	Scheduler for multiple software tasks to share reconfigurable hardware	Nokia Corporation	Kaneko; Naoto Takahashi; Kiyotaka	718	G06F	20061026	2	92%	<input type="checkbox"/>
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Abstract: Software tasks executing on a computer system, such as run-time applications in a real-time operating system (RTOS), are scheduled with respect to requested use of a reconfigurable hardware device on the system. Configuration data associated with the software tasks may be loaded or unloaded based on a priority level associated with the device request, the time of the request, and the current state of the configuration memory of the device. Additionally, statistics regarding device usage and application execution history are used to anticipate a device request from a software task, and to preemptively load configuration data for the software task into the configuration memory of the device.

MainClaim: An electronic device, comprising: a processor controlling at least some operations of the electronic device; a memory storing computer executable instructions that, when executed by the processor, cause the electronic device to perform a method for scheduling software tasks, the method comprising: receiving from a first software task a first request for use of a reconfigurable hardware device; determining a first priority level associated with the first request; storing configuration data associated with the first request; determining that the first request is to be granted, based at least in part on the first priority level; and providing the first software task with access to the reconfigurable hardware device.

5,764,992	Method and apparatus for automatic software replacement	Apple Computer, Inc.	Kullick; Steven Titus; Diane	717	G06F	19950606	0	100%	<input type="checkbox"/>
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Abstract: A software program running on a computer automatically replaces itself with a newer version in a completely automated fashion, without interruption of its primary function, and in a manner that is completely transparent to the user of the computer. This is achieved by means of a logic module that is incorporated into programs. The logic module performs the functions of locating and identifying other versions of its associated program, determining whether the other versions are older or newer than the currently running version, and replacing older versions of itself with a newer version. As part of this operation, the logic module can copy the newer version to its current location, move the older version to a secondary location, and remove older versions of itself that have been replaced by a newer version. The new version that is to replace an older version can reside on an individual computer, or can be present on a server to which a number of computers are connected via a network. With this arrangement, software upgrades can be effected in an efficient and automatic manner, without resort to any external resources.

MainClaim: A method for automatically updating software programs on a computer, comprising the steps, of:

storing an updated version of a program at a designated location in a remote memory that is accessible to the computer;

launching a current version of the program that is stored in memory of the computer, wherein said current version carries out the following steps independent of functions performed by any resource external to said current version:

detecting whether a version of the program is stored in the designated location;

determining whether a detected version of the program stored at the designated location is more recent than the current version of the program which is running;

replacing the current version of the program with a more recent version that is stored at the designated location; and

subsequently executing the more recent version of the program on the computer.

6,928,579	Crash recovery system	Nokia Corporation	ijä ; Gunnar Larsson; Alexander	714	G06F	20010627	3	94%	<input type="checkbox"/>
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Abstract: A client device is connectable to a server via a communication network for receiving new software packages. The client device includes a pair of system partitions designated as current and backup system partitions and at least one package partition on which all installed system packages are saved. A central processing unit of the client device uses the contents of the current system partition. In response to an startup failure or a runtime failure, the client device reboots using the backup system partition and allows a user to selectively install any of the software packages saved on the at least one package partition.

MainClaim: A method for recovering from startup and runtime failures of a software system in a computer environment including a client device, comprising the steps of:

(a) providing a persistent memory in the client device including at least first and second system partitions and at least one package partition, wherein runtime components of the software system are installed on the first and second system partitions and all installed software packages of the software system are saved on the at least one package partition;

(b) designating one of the first and second system partitions as a current system partition and the other of the first and second system partitions as a backup system partition;

(c) using the current system partition by a central processing unit of the client device for controlling the client device;

(d) rebooting the software system of the client device using the backup system partition in response to one of an startup failure, a runtime failure of the software system of the client device, and a user request;

(e) designating the backup system partition as the new current system partition;

(f) creating a new backup system partition from the new current system partition; and

(g) reinstalling the entire software system by installing all of the software packages residing on the at least one package partition after said step (f).

7,461,088	Superset file browser	Apple Inc.	Thorman; Christopher P. Stein; Michael V.	707	G06F	20031215	0	100%	<input type="checkbox"/>
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Abstract: A superset file browser permits a user to view, in a single display, the superset (i.e., the set union) of file objects from two or more designated file system locations (i.e., directories) on one or more computer systems (local or remote). The uniqueness, or overlap, of file objects between the different designated locations is indicated graphically--typically through the use of different colors and/or icons, alphanumeric labels, popup text, ToolTip text or a combination of these techniques. A superset file browser also permits one-to-many and many-to-many distribution, collection and synchronization operations on the displayed file objects.

MainClaim: A file browser method, comprising: designating a plurality of file system locations, wherein each file system location is associated with zero or more file objects; and displaying a superset of the file objects associated with each of the designated file system locations in a single display on a display unit.

2008/0040668	Creating virtual targets in directory structures	Nokia Corporation	Ala-Rantala; Kati	715	G06F	20060810	8	92%	<input type="checkbox"/>
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Abstract: A method includes detecting a first user operation corresponding to a first item in a directory structure. The directory structure represents a hierarchical arrangement of a plurality of items, including the first item, in a memory. The first user operation indicates a start of an item action with the first item. The method also includes, in response to detecting a second user operation corresponding to a second item in the directory structure, creating a virtual target in the second item in the directory structure. The virtual target is a possible location for completion of the item action with the first item. The method further includes, in response to a third user operation indicating completion of the item action with the first item in the virtual target, completing the item action with the first item in the virtual target.

MainClaim: A method comprising: detecting a first user operation corresponding to a first item in a directory structure, the directory structure representing a hierarchical arrangement of a plurality of items, including the first item, in a memory, the first user operation indicating a start of an item action with the first item; in response to detecting a second user operation corresponding to a second item in the directory structure, creating a virtual target in the second item in the directory structure, wherein the virtual target is a possible location for completion of the item action with the first item; and in response to a third user operation indicating completion of the item action with the first item in the virtual target, completing the item action with the first item in the virtual target.

6,023,558	Graphics compression for an emulation system	Apple Computer, Inc.	Grabowski; John R.	358	H04N	19960815	0	100%	<input type="checkbox"/>
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Abstract: Compressing graphic data for a first computer system, e.g. an emulated system, on a second computer system. For each scanline of the graphic data for the first computer system, a number of colors present on the scanline are counted. A new color palette for the scanline is formed at a reduced representation. Then, a representation of each color of each pixel on the

scanline is converted to the new palette. The scanline is then run-length encoded. The graphic data is compressed so that it can be, for example, transmitted between a client (e.g. an X client) and a server (e.g. an X server) and conserve network bandwidth.

MainClaim: An automatic method for compressing graphic data for a first computer system on a second computer system comprising the following steps:

- a. for each scanline of said graphic data for said first computer system, counting a number of colors present on said scanline;
- b. forming a new color palette for said scanline at a reduced representation;
- c. converting a representation of each color of each pixel on said scanline to said new palette; and
- d. run-length encoding said scanline.

2010/0091024	METHOD AND DEVICE FOR GENERATING CUSTOM FONTS	NOKIA CORPORATION	Myadam; Srikanth	345	G06T	20090515	2	92%	<input type="checkbox"/>
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Abstract: The invention provides a method and device for dynamically generating a textured font character. It enables any image to be selected and combined with a chosen character mask to produce a new font having the same content as the image.

MainClaim: A method of dynamically generating and drawing a font character, the method comprising: receiving an instruction to draw the font character; taking as input: (i) a glyph mask defining the shape of the character; and (ii) an image defining the appearance of the character; combining the glyph mask and the image to produce a masked image defining the font character; and drawing the masked image to an output device.

5,533,192	Computer program debugging system and method	Apple Computer, Inc.	Hawley; Robert J. Jemie; Patricia A.	714	G06F	19940421	0	100%	<input type="checkbox"/>
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Abstract: A program debugging system has a core unit that includes a plurality of debugger memory areas, each uniquely associated with a corresponding one of a plurality of debuggers. The core unit responds to an exception condition by selecting one debugger from the plurality of debuggers, selection being made by determining which one of the debuggers is associated with the program exception. Then, computer state information and debugger state information are stored into a selected one of the debugger memory areas that is exclusively associated with the selected debugger, and the selected debugger is activated. A new debugger may register with the core unit, so that the new debugger is added to the plurality of debuggers. The activated debugger may send a debugging command to the core unit, which responds by updating debugger state information based on the received debugging command, and storing the updated debugger state information into the selected debugger memory area. When a debugger relinquishes control of the computer, the core unit retrieves the updated debugger state information from the selected debugger memory area, and controls the hardware resources in accordance therewith. If the updated debugger state information includes an indication that a breakpoint is set, the core unit sets a breakpoint that includes information associating the set breakpoint with the selected debugger. When the breakpoint is triggered, the core unit identifies from the breakpoint information which of the debuggers the breakpoint is associated with, and activates the identified debugger.

MainClaim: In a program debugging system for debugging a program, a debugger core unit comprising:

a plurality of debugger memory areas, each exclusively associated with a corresponding one of a plurality of debuggers;

means, responsive to an exception condition associated with the program, for selecting one debugger from the plurality of debuggers, wherein selection is made by determining which one of the plurality of debuggers is associated with the exception condition;

means, coupled to the selecting means, for storing computer state information into a selected one of the plurality of debugger memory areas, the selected debugger memory area being exclusively associated with the selected debugger;

means, coupled to the selecting means, for storing debugger state information into the selected debugger memory area; and

means, coupled to the selecting means, for activating the selected debugger.

2007/0061791	Method, apparatus and computer program product enabling full pre-emptive scheduling of green threads on a virtual machine	Nokia Corporation	Hartikainen; Vesa- Matti Mikael	717	G06F	20051011	5	96%	<input type="checkbox"/>
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Abstract: Disclosed is a computer program product, a method and a device to execute a native code thread in a virtual machine environment. The method includes, prior to executing the native code thread, storing a pointer pointing to a current top of a native stack; initiating generation of an interrupt; beginning execution of the native code thread; upon an occurrence of the interrupt, determining if the native code thread is still executing and, if it is; recording a current status of the native code thread; interrupting execution of the native code thread; and when returning to execute the interrupted native code thread, retrieving the stored state of the native code thread.

MainClaim: A method to execute a native code thread in a virtual machine environment, comprising: prior to executing the native code thread, storing a pointer pointing to a current top of a stack; initiating generation of an interrupt; beginning execution of the native code thread; upon an occurrence of the interrupt, determining if the native code thread is still executing and, if it is; recording a state of the native code thread; interrupting execution of the native code thread; when returning to execute the interrupted native code thread, retrieving the stored state of the native code thread.

5,448,735	Task organization for execution using linked records referencing code modules	Apple Computer, Inc.	Anderson; Eric C. Svendsen; Hugh B.	718	G06F	19950106	0	100%	<input type="checkbox"/>
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Abstract: An apparatus and method of grouping tasks for execution by a processor, such as a digital signal processor. At least

one task datum, is created the task datum including an identifier of a first task, and a reference to a next task datum. The task datum is placed into a task list which may contain references to any number of tasks. A reference is created to a first module datum in the task datum, the first module datum representing a first executable module of the first task. The first module datum is linked with any number of modules having functions related to the first executable module. By grouping the related modules which form a task together, error conditions, and data for each of the tasks and modules may be handled more efficiently. Modules may reference common storage areas they require so that unnecessary loading/saving of data in those common storage areas may be avoided.

MainClaim: A computer-implemented method of executing a first task, said first task including a plurality of subtasks, the method comprising the steps of:

A) identifying a first task record,

wherein the first task record has an identifier that identifies said first task,

wherein the first task record is linked to a first module record of a plurality of

module records,

wherein the plurality of module records are sequentially linked to each other in a list that begins with said first module record and ends with a last module record,

wherein each module record of said plurality of module records is linked to a corresponding code module of a plurality of code modules,

wherein each code module of said plurality of code modules contains a set of executable functions which implement a subtask of said plurality of subtasks;

B) establishing said first module record as a current module record by following a link from said first task record to said first module record;

C) identifying a current code module of said plurality of code modules that corresponds to said current module record by following a link from said current module record;

D) executing said set of executable functions contained in the current code module; and

E) if said current module record is not said last module record, then

E1) establishing a next module record of said plurality of module records as said current module record by following a link from said current module record, and

E2) repeating steps C) through E).

2008/0104601	Scheduler for multiple software tasks to share reconfigurable hardware	Nokia Corporation	Kaneko; Naoto Takahashi; Kiyotaka	718	G06F	20061026	2	92%	<input type="checkbox"/>
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Abstract: Software tasks executing on a computer system, such as run-time applications in a real-time operating system (RTOS), are scheduled with respect to requested use of a reconfigurable hardware device on the system. Configuration data associated with the software tasks may be loaded or unloaded based on a priority level associated with the device request, the time of the request, and the current state of the configuration memory of the device. Additionally, statistics regarding device usage and application execution history are used to anticipate a device request from a software task, and to preemptively load configuration data for the software task into the configuration memory of the device.

MainClaim: An electronic device, comprising: a processor controlling at least some operations of the electronic device; a memory storing computer executable instructions that, when executed by the processor, cause the electronic device to perform a method for scheduling software tasks, the method comprising: receiving from a first software task a first request for use of a reconfigurable hardware device; determining a first priority level associated with the first request; storing configuration data associated with the first request; determining that the first request is to be granted, based at least in part on the first priority level; and providing the first software task with access to the reconfigurable hardware device.

6,263,421	Virtual memory system that is portable between different CPU types	Apple Computer, Inc.	Anderson; Eric W.	712	G06F	19950602	0	100%	<input type="checkbox"/>
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Abstract: A virtual memory for a computer system is provided that is portable between different central processing unit (CPU) types. The system includes a high level virtual memory (HLVM) having high level program codes that are independent of a specific CPU type, a low memory vector table (LMVT) coupled to the HLVM that dispatches a call in response to a high level program code received from the HLVM, and a low level virtual memory (LLVM) coupled to the LMVT having low level program codes that depend on a specific CPU type. The method of operating the virtual memory system includes the steps of generating a high level virtual memory (HLVM) instruction from high level program codes that are independent of specific CPU characteristics and receiving the HLVM instruction in a low memory vector table (LMVT). The method further includes the steps of dispatching an address from the LMVT in response to the HLVM instruction, receiving the address from the LMVT in a low level virtual memory (LLVM), and executing CPU-specific instructions according to program codes in the LLVM corresponding to the address received from the LMVT.

MainClaim: A virtual memory system that is portable between different central processing unit (CPU) types, the system comprising:

a high level virtual memory (HLVM) having high level program codes that manage the virtual memory system and are

independent of any specific CPU type;

a low memory vector table (LMVT) coupled to the HLVM that dispatches an address call in response to a high level program code request from the HLVM;

a low level virtual memory (LLVM) coupled to the LMVT having low level virtual memory management program codes that depend on a specific CPU type, wherein the LLVM receives the address call from the LMVT, which provides an interface between the HLVM and the LLVM, and the address call provides a location of a corresponding low level program code in the LLVM, and, in response to the address call from the LMVT, the LLVM returns data to the HLVM.

7,484,127	Method and system for preserving crash dump in a diskless system	Nokia Siemens Networks OY	Babu; Venkatesh	714	G06F	20050113	1	95%	<input type="checkbox"/>
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Abstract: The invention discloses a method for preserving crash dump data in case of operating system crash in a diskless device. The method and the system according to the invention uses two stage booting where in a primary and a secondary kernel are loaded. The primary kernel is a compact kernel that comprises a limited set of functionality and the secondary kernel is a fully functional kernel used for running applications. In case of a crash of the secondary kernel, the kernel prepares a jump back to the primary kernel. Then the primary kernel preserves the crash dump support data and secondary kernel's RAM contents by sending it to a remote system which can store it on a nonvolatile memory.

MainClaim: A method, comprising: loading and booting a primary operating system kernel; preparing environment for booting a secondary operating system kernel by said primary kernel; loading and booting a secondary operating system kernel, wherein both said primary kernel and said secondary kernel are loaded and booted before a crash; in case of a crash, preparing said secondary kernel for jumping back to said primary kernel; and preserving crash dump data and jumping back to said primary kernel for storing the preserved data.

2006/0156057	Method and system for preserving crash dump in a diskless system	Nokia Corporation	Babu; Venkatesh	714	G06F	20050113	1	95%	<input type="checkbox"/>
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Abstract: The invention discloses a method for preserving crash dump data in case of operating system crash in a diskless device. The method and the system according to the invention uses two stage booting where in a primary and a secondary kernel are loaded. The primary kernel is a compact kernel that comprises a limited set of functionality and the secondary kernel is a fully functional kernel used for running applications. In case of a crash of the secondary kernel, the kernel prepares a jump back to the primary kernel. Then the primary kernel preserves the crash dump support data and secondary kernel's RAM contents by sending it to a remote system which can store it on a nonvolatile memory.

MainClaim: A method for preserving crash dump in a diskless system in a situation where operating system crashes, which method comprising: loading and booting a primary operating system kernel; preparing environment for booting a secondary operating system kernel by means of said primary kernel; loading and booting a secondary operating system kernel; wherein in case of crash: preparing said secondary kernel for jumping back to said primary kernel; and preserving crash dump data and jumping back to said primary kernel for storing the preserved data.

6,728,729	Accessing media across networks	Apple Computer, Inc.	Jawa; Amandeep Robbin; Jeffrey L. Heller; David	707	G06F	20030425	0	100%	<input type="checkbox"/>
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Abstract: Method and apparatus for accessing media across networks. The present invention generally allows for media to be provided across a network. A client requests media information from a server so the client can create a local representation of the server's database. The client is then able to manage the media information locally. When the client selects the desired media, it requests the selection from across the network. The server then delivers the selected media.

MainClaim: A method of retrieving media across a network comprising:

connecting to a network that includes a server;

querying the server for server capabilities;

receiving a response to the server capabilities query that describes the server;

querying the server for database enumeration;

receiving a response to the database enumeration query that describes at least one database, the description including how much media is available and how many media collections are available from the at least one database;

selecting a database from among the at least one database;

querying the server for an enumeration of media collections in the selected database;

receiving a response to the media collection enumeration query that describes the media collections;

selecting a media collection from among the described media collections;

querying the server for data associated with the selected media collection, the media collection data query capable of requesting a different level of detail than would be given by default;

receiving a response to the media collection data query that describes data associated with the selected media collection in the requested level of detail;

determining what media is required based upon the media collection;

requesting media from the server when the media is required; and

receiving the requested media.

2008/0005184	Method and Apparatus for the Synchronization and Storage of Metadata	Nokia Corporation	Myllyla; Tomi Sorvari; Antti	707	G06F	20060630	2	95%	<input type="checkbox"/>
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Abstract: Aspects of the invention described herein provide a method and apparatus for the synchronization of metadata across various metadata repositories. According to the invention, upon synchronization of a local metadata repository and at least one remote metadata repository, metadata values are stored in a local collection or mediator database. The mediator database facilitates conflict resolution across metadata repositories. The invention further provides a repository-specific metadata memory to enable the storage of repository-specific metadata histories to further enhance management and synchronization of the metadata.

MainClaim: A method of synchronizing metadata between two or more metadata repositories, the method comprising the steps of:(a) transferring metadata fields of a home metadata repository to at least one specific remote metadata repository;(b) saving the metadata fields of the at least one specific remote metadata repository in a table of a collection attached to the home metadata repository;(c) comparing data in the metadata fields of the home metadata repository, the at least one specific remote metadata repository and the collection tables to identify inconsistent data in the metadata fields; and(d) updating the metadata fields of the home metadata repository, the at least one specific remote metadata repository or the collection tables for specific remote repositories to eliminate the inconsistent data.

7,725,431	Method and apparatus for the synchronization and storage of metadata	Nokia Corporation	Myllyla; Tomi Sorvari; Antti	707	G06F	20060630	2	95%	<input type="checkbox"/>
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Abstract: Aspects of the invention described herein provide a method and apparatus for the synchronization of metadata across various metadata repositories. According to the invention, upon synchronization of a local metadata repository and at least one remote metadata repository, metadata values are stored in a local collection or mediator database. The mediator database facilitates conflict resolution across metadata repositories. The invention further provides a repository-specific metadata memory to enable the storage of repository-specific metadata histories to further enhance management and synchronization of the metadata.

MainClaim: A method comprising: accessing metadata fields of at least one specific remote metadata repository; saving replicas of the metadata fields of the at least one specific remote metadata repository in a collection table attached to the home metadata repository, said replicas of the metadata fields being gathered in at least one previous synchronization between the home metadata repository and the at least one specific remote metadata repository; comparing, by a processor, data in the metadata fields of the home metadata repository to data in the metadata fields of the at least one specific remote metadata repository to identify inconsistent data in the metadata fields; comparing, by the processor, data in the metadata fields of at least one of the home metadata repository and the at least one specific remote metadata repository to data in the metadata fields of the collection table to determine change, made to at least one of the home metadata repository and the at least one specific remote metadata repository, with respect to said at least one previous synchronization between the home metadata repository and the at least one specific remote metadata repository; and updating, by the processor, the metadata fields of one or more of the home metadata repository, the at least one specific remote metadata repository and the collection table based at least in part on determined change, made to at least one of the home metadata repository and the at least one specific remote metadata repository, with respect to said at least one previous synchronization between the home metadata repository and the at least one specific remote metadata repository.

2008/0201299	Method and System for Managing Metadata	NOKIA CORPORATION	Lehikoinen; Juha Salminen; Ilkka Huuskonen; Pertti Sorsa; Timo Lakkala; Harri Hakala; Tero Karhu; Mika	707	G06F	20041129	2	94%	<input type="checkbox"/>
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Abstract: Methods and systems for managing metadata are described. The method comprises steps of receiving a request from an application to access a metadata attribute corresponding to a piece of content, determining whether the application is authorized to access the metadata attribute, retrieving the metadata attribute upon determining that the application is authorized to access the metadata attribute, and transmitting the metadata attribute to the application. A metadata storage medium may be accessed and searched for the metadata attribute. A system for associating content data, context data, and an event is also described. The system allows for a user to search for content data based upon context data. Another method for associating data is described. The method includes steps of initiating a multi-media call session, initiating an application independent of the multi-media call session, and associating collected metadata from the application and the multi-media call session.

MainClaim: A method for managing metadata, the method comprising steps of:receiving a request from an application to access a metadata attribute corresponding to a piece of content;determining whether the application is authorized to access the metadata attribute;retrieving the metadata attribute upon determining that the application is authorized to access the metadata attribute; andtransmitting the metadata attribute to the application,wherein the metadata attribute is stored in a metadata storage medium separate from the piece of content.

5,966,545	System for interfacing network applications with different versions of a network protocol by providing base class at session level and invoking subclass from base class at session level	Apple Computer, Inc.	Hanif; Mohammad Yanagihara; Kazuhisa	710	G06F	19960125	0	100%	<input type="checkbox"/>
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Abstract: A system and method for allowing a network application to interface with both a first transaction protocol and a second transaction protocol. The system and method provides an object-oriented base class for use by the network application. A first subclass is invoked from the base class when the network application interfaces the first protocol, and a second subclass is invoked from the base class when the network application interfaces the second protocol. The network application is made compatible with the first protocol by invoking the first subclass, and made compatible with the second protocol by invoking the

second subclass.

MainClaim: A method for allowing a network application to interface with a first protocol and a second protocol, the first and second protocols residing on a file server, the method comprising the steps of:

(a) providing a base class residing on the file server at the session level of an Open Systems Interconnection (OSI) reference model for use by the network application;

(b) invoking a first subclass at the session level of the OSI reference model from the base class when interfacing the first protocol; and

(c) invoking a second subclass at the session level of the OSI reference model from the base class when interfacing the second protocol,

whereby invoking the first subclass makes the network application compatible with the first protocol, and invoking the second subclass makes the network application compatible with the second protocol.

7,320,029	Quality of service definition for data streams	Nokia Corporation	Rinne; Janne Petri Liljeberg; Mika Jouppi; Jarkko Juhani	709	G06F	20010629	6	92%	<input type="checkbox"/>
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Abstract: The invention relates to a device, system and method a method for applying a certain Quality of Service (QoS) to a data stream (31a 31c, 32a 32b, 33a) of an application (31 33) communicating data over a sockets connection. The method comprises providing a uniquely identifiable identifier (UID, Stream Type) the application (31 33) or to the data stream (31a 31c, 32a 32b, 33a) from or to the application, and associating said identifier (UID, Stream Type) with a particular QoS in order to apply the particular QoS to the particular application (31 33) or to the particular data stream (31a 31c, 32a 32b, 33a), which application or data stream is identified by the identifier.

MainClaim: A method comprising: providing a unique identifier (UID, Stream Type) to an application executing in a terminal device, the unique identifier uniquely identifying at least one of the application and the data stream from or to the application; providing the unique identifier in addition to a port number to a protocol stack in the terminal device; determining an association between said identifier and a particular Quality of Service (QoS) policy in the protocol stack using a database stored in said terminal device; determining in the protocol stack within the terminal device QoS parameters contained in the QoS policy; transmitting from said terminal device to the network the QoS parameters to be applied to the data stream from or to the application; and applying the (QoS) parameters to the data stream of the application communicating data over a sockets connection.

6,256,658	Apparatus for executing a plurality of program segments having different object code types in a single program or processor environment	Apple Computer, Inc.	Mourey; Jean-Charles D. Parent; Sean R. Jones; Bruce K. Lillich; Alan W. Eidt; Erik L. Traut; Eric P.	718	G06F	19950322	0	100%	<input type="checkbox"/>
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Abstract: The invention provides a method and apparatus for switching between execution of a plurality of object code types having different conventions for invoking program procedures and performing stack manipulations. The invention may also be used to switch between different calling conventions within a single object code type. Briefly according to the invention, a computer system comprises a routine descriptor, a stack switch frame, a mode switching mechanism for switching from a first processor, code or calling convention type to a second processor, code or calling convention type and means for executing instructions in various code types. A routine descriptor describes a program or code segment and its code type and calling conventions. A routine descriptor contains, among other information, a "mixed mode" field which is set to a specific, predetermined value such as a value indicating an instruction which is not legal in the runtime environment of a first processor, code or calling convention type. When that instruction is encountered, control is transferred to the mode switching mechanism. A routine descriptor also contains a "procedure information" field which is set to a value indicating the convention for invoking a program segment and performing appropriate stack manipulations. When a routine calls a routine having a different stack model, the mode switching mechanism uses a stack switch frame to provide a transition between the two different stack types.

MainClaim: A method for executing a plurality of modes in a program or processor environment in a computer system having at least one central processing unit and a memory, said method comprising the steps of:

allocating memory space for a routine descriptor;

setting a pointer to the address of the routine descriptor,

setting contents of a first field in the routine descriptor equal to a nonvalid instruction, the field being positioned in the routine descriptor such that the pointer to the routine descriptor points to the contents of the field;

executing contents of the field;

switching from a first mode to a second mode when executing contents of the field which are equal to a nonvalid instruction; and

after further processing returning to the first mode.

2007/0061791	Method, apparatus and computer program product enabling full pre-emptive scheduling of green threads on a virtual machine	Nokia Corporation	Hartikainen; Vesa-Matti Mikael	717	G06F	20051011	5	92%	<input type="checkbox"/>
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Abstract: Disclosed is a computer program product, a method and a device to execute a native code thread in a virtual machine environment. The method includes, prior to executing the native code thread, storing a pointer pointing to a current top of a native stack; initiating generation of an interrupt; beginning execution of the native code thread; upon an occurrence of the interrupt, determining if the native code thread is still executing and, if it is; recording a current status of the native code thread; interrupting execution of the native code thread; and when returning to execute the interrupted native code thread, retrieving the stored state of the native code thread.

MainClaim: A method to execute a native code thread in a virtual machine environment, comprising: prior to executing the native code thread, storing a pointer pointing to a current top of a stack; initiating generation of an interrupt; beginning execution of the native code thread; upon an occurrence of the interrupt, determining if the native code thread is still executing and, if it is; recording a state of the native code thread; interrupting execution of the native code thread; when returning to execute the interrupted native code thread, retrieving the stored state of the native code thread.

2005/0060696	Method and a system for constructing control flows graphs of binary executable programs at post-link time	Nokia Corporation	Bicsak, Attila Kiss, Akos Ferenc, Rudolf Gyimothy, Tibor	717	G06F	20030829	9	92%	<input type="checkbox"/>
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Abstract: A method and a system for constructing a control flow graph (CFG, 106) from an executable computer program (104). The solution detects data intermixed with instructions and instruction set changes. The method includes the steps of defining block leader types specifying basic block boundaries in the program (104), building a CFG structure (106) according to the basic blocks found in the program, and adding control flow and addressing information to the CFG (106) by propagating through the basic blocks and internals thereof. The CFG (106) may be then optimised (108) and a compacted executable (112) created as a result.

MainClaim: A method for constructing a control flow graph (CFG) from a computer executable program the instructions of which belong to one or more instruction sets, said method comprising the steps of defining a number of block leader types including at least one type related to an instruction set change, block leaders specifying basic block boundaries in the program, said basic blocks including instructions or data (702), building a CFG structure comprising basic blocks found in the program (708), adding control flow and addressing information to said CFG by propagating through said basic blocks and internals thereof (710).

7,207,038	Constructing control flows graphs of binary executable programs at post-link time	Nokia Corporation	Bicsak; Attila Kiss; kos Ferenc; Rudolf Gyimothy; Tibor	717	G06F	20030829	9	92%	<input type="checkbox"/>
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Abstract: A method and a system for constructing a control flow graph (CFG, 106) from an executable computer program (104). The solution detects data intermixed with instructions and instruction set changes. The method includes the steps of defining block leader types specifying basic block boundaries in the program (104), building a CFG structure (106) according to the basic blocks found in the program, and adding control flow and addressing information to the CFG (106) by propagating through the basic blocks and internals thereof. The CFG (106) may be then optimised (108) and a compacted executable (112) created as a result.

MainClaim: A method for execution on a signal processing unit for constructing a control flow graph from a computer executable program the instructions of which belong to one or more computer architecture instruction sets, said method comprising defining a number of block leader types including at least one type related to an instruction set change, block leaders specifying basic block boundaries in the program, said basic blocks including instructions or data, building a control flow graph structure comprising basic blocks found in the program, adding control flow and addressing information to said control flow graph by propagating through said basic blocks and internals of said basic blocks and stored on said memory device.

6,954,860	Network copy protection for database programs	Apple Computer, Inc.	Thatcher; Jonathan Maeckel; Clay	380	H04L	20010501	0	100%	<input type="checkbox"/>
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Abstract: Improved techniques for implementing Network Copy Protection for database programs are disclosed. The techniques can provide Network Copy Protection across various platforms and/or connection protocols. Accordingly, the database programs can detect unlicensed use of the software even when different platforms and/or connection protocols are used by two instances (software copies) of the same database program. When unlicensed use of software is detected, access to data can be denied. As will be appreciated, in addition to supporting more conventional communication protocols, more prevalent connection protocols can be supported.

MainClaim: A method of providing network copy protection for database programs operating in a computer network, said method comprising:

sending a request for connection, said request being sent by a first database program to a second database program operating on said computer network, wherein said first and second database programs can respectively access first and second databases which each store a plurality of tables therein, and wherein said first database program and said second database program respectively operate on different computing platforms;

determining, by said second database program, whether another copy of said first database program is connected to said second database program; and

granting, by said second database program, said request for connection requested by said first database program when said determining determines that another copy of said first database program is not connected to said database program, thereby allowing network copy protection to be implemented for database programs operating in different computing environments.

2005/0120106	System and method for distributing software updates to a network appliance	Nokia, Inc.	Albertao, Felipe	709	G06F	20031202	1	94%	<input type="checkbox"/>
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Abstract: Methods and systems are directed to enabling automatic delivery and installation software changes over a network to a network device, such as a network appliance. An update policy associated with the network device is generated that includes information associated with how to select a software change, when the software change is to be delivered, and when it is installed on the network device. The network device monitors a distribution service for available software changes based in part on the update policy. When a software change substantially satisfies the update policy, the network device is enabled to request delivery of that software change. The delivery of the software change may include the changed software and a component upon which the software change may be dependent. When and how the software changes are installed on the network device is

determined in part by using the update policy.

MainClaim: A network device for managing a software change over a network, comprising: a transceiver arranged to send and to receive a packet over the network; a processor, coupled to the transceiver, that is configured to perform actions, including: determining an update policy associated with the network device; determining an availability of the software change based in part on the update policy; selecting the software change based in part on the update policy; receiving the software change through a distribution service according to the update policy; and installing the software change on the network device according to the update policy.

5,452,456	Apparatus for executing a plurality of program segments having different object code types in a single program or processor environment	Apple Computer, Inc.	Mourey; Jean-Charles D. Parent; Sean R. Jones; Bruce K. Lillich; Alan W. Eidt; Erik L. Traut; Eric P.	713	G06F	19921218	0	100%	<input type="checkbox"/>
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Abstract: The invention provides a method and apparatus for switching between execution of a plurality of object code types having different conventions for invoking program procedures and performing stack manipulations. The invention may also be used to switch between different calling conventions within a single object code type. Briefly according to the invention, a computer system comprises a routine descriptor, a stack switch frame, a mode switching mechanism for switching from a first processor, code or calling convention type to a second processor, code or calling convention type and means for executing instructions in various code type codes. A routine descriptor describes a program or code segment and its code type and calling conventions. A routine descriptor contains, among other information, a "mixed mode" field which is set to a specific, predetermined value such as a value indicating an instruction which is not legal in the runtime environment of a first processor, code or calling convention type. When that instruction is encountered, control is transferred to the mode switching mechanism. A routine descriptor also contains a "procedure information" field which is set to a value indicating the convention for invoking a program segment and performing appropriate stack manipulations. When a routine calls a routine having a different stack model, the mode switching mechanism uses a stack switch frame to provide a transition between the two different stack types.

MainClaim: An apparatus for executing a plurality of modes in a processor environment in a computer system having a processor and a memory, said apparatus comprising:

a mixed mode field for differentiating between modes, said mixed mode field capable of specifying at least a first and second state, said mixed mode field being set to a specific, predetermined value when in said second state;

means for specifying a software routine;

a procedure information field for indicating a mechanism capable of initiating the execution of the specified software routine and for specifying one or more characteristics of parameters to be used by the executing specified software routine;

means for setting said mixed mode field to a specific, predetermined value, said setting means arranged for accessing said mixed mode field;

means for setting said procedure information field to indicate an initiating mechanism and parameter characteristics for the specified software routine;

means for determining the value of the mixed mode field, said determining means arranged for accessing the value of said mixed mode field;

means for switching from a first mode to a second mode, said switching means being coupled to said determining means and being activated in response to a determination that said mixed mode field has said specific, predetermined value;

means for using the execution initiating mechanism and the parameter characteristics specified by the procedure information field to invoke the specified software routine, thereby causing the specified software routine to execute, said using means being coupled to said switching means such that said using means is invoked when said switching means switches from a first mode to a second mode; and

means for returning to the first mode, said returning means being activated upon completion of the execution of the specified software routine.

2007/0061791	Method, apparatus and computer program product enabling full pre-emptive scheduling of green threads on a virtual machine	Nokia Corporation	Hartikainen; Vesa-Matti Mikael	717	G06F	20051011	5	92%	<input type="checkbox"/>
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Abstract: Disclosed is a computer program product, a method and a device to execute a native code thread in a virtual machine environment. The method includes, prior to executing the native code thread, storing a pointer pointing to a current top of a native stack; initiating generation of an interrupt; beginning execution of the native code thread; upon an occurrence of the interrupt, determining if the native code thread is still executing and, if it is; recording a current status of the native code thread; interrupting execution of the native code thread; and when returning to execute the interrupted native code thread, retrieving the stored state of the native code thread.

MainClaim: A method to execute a native code thread in a virtual machine environment, comprising: prior to executing the native code thread, storing a pointer pointing to a current top of a stack; initiating generation of an interrupt; beginning execution of the native code thread; upon an occurrence of the interrupt, determining if the native code thread is still executing and, if it is; recording a state of the native code thread; interrupting execution of the native code thread; when returning to execute the interrupted native code thread, retrieving the stored state of the native code thread.

	Method and a system for constructing control		Bicsak, Attila Kiss, Akos						
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2005/0060696	flows graphs of binary executable programs at post-link time	Nokia Corporation	Ferenc, Rudolf Gyimothy, Tibor	717	G06F	20030829	9	92%	<input type="checkbox"/>
<p>Abstract: A method and a system for constructing a control flow graph (CFG, 106) from an executable computer program (104). The solution detects data intermixed with instructions and instruction set changes. The method includes the steps of defining block leader types specifying basic block boundaries in the program (104), building a CFG structure (106) according to the basic blocks found in the program, and adding control flow and addressing information to the CFG (106) by propagating through the basic blocks and internals thereof. The CFG (106) may be then optimised (108) and a compacted executable (112) created as a result.</p> <p>MainClaim: A method for constructing a control flow graph (CFG) from a computer executable program the instructions of which belong to one or more instruction sets, said method comprising the steps of defining a number of block leader types including at least one type related to an instruction set change, block leaders specifying basic block boundaries in the program, said basic blocks including instructions or data (702), building a CFG structure comprising basic blocks found in the program (708), adding control flow and addressing information to said CFG by propagating through said basic blocks and internals thereof (710).</p>									
7,207,038	Constructing control flows graphs of binary executable programs at post-link time	Nokia Corporation	Bicsak; Attila Kiss; kos Ferenc; Rudolf Gyimothy; Tibor	717	G06F	20030829	9	92%	<input type="checkbox"/>
<p>Abstract: A method and a system for constructing a control flow graph (CFG, 106) from an executable computer program (104). The solution detects data intermixed with instructions and instruction set changes. The method includes the steps of defining block leader types specifying basic block boundaries in the program (104), building a CFG structure (106) according to the basic blocks found in the program, and adding control flow and addressing information to the CFG (106) by propagating through the basic blocks and internals thereof. The CFG (106) may be then optimised (108) and a compacted executable (112) created as a result.</p> <p>MainClaim: A method for execution on a signal processing unit for constructing a control flow graph from a computer executable program the instructions of which belong to one or more computer architecture instruction sets, said method comprising defining a number of block leader types including at least one type related to an instruction set change, block leaders specifying basic block boundaries in the program, said basic blocks including instructions or data, building a control flow graph structure comprising basic blocks found in the program, adding control flow and addressing information to said control flow graph by propagating through said basic blocks and internals of said basic blocks and stored on said memory device.</p>									
6,854,116	Execution control for process task	Apple Computer, Inc.	Anderson; Eric C. Svendsen; Hugh B.	718	G06F	19980114	0	100%	<input checked="" type="checkbox"/>
<p>Abstract: Method and means for controlling the execution sequence of a first sequence of modules in a first task. The first sequence of modules are linked to one another and have at least one sequence of execution. The method stores in each of the first sequence of modules a skip value representing which of subsequent modules to execute. The method executes the first of the first sequence of said modules, and then executes the next of the modules indicated by the skip value. Conservation of processor bandwidth is accomplished by avoiding the loading of modules which will not be executed. Method and means are further provided for simultaneous activation/deactivation of a set of tasks by a processor, each of the tasks normally executed in a sequential fashion by one or more processors. A list of tasks to be activated/deactivated is stored, including the timing relationship for the activation process. The list is then implemented as frame numbers for activation and requested state in the actual task list. The executing processor compares the requested state to the actual state for each task, and if different, compares the value of the activation frame with the current frame. If the current frame equals or exceeds the activation frame, then the requested active state is transferred to the actual state.</p> <p>MainClaim: A method in a computer system of executing a first sequence of modules in a first task, said first sequence of modules linked to one another and having at least one sequence of execution, comprising:</p> <p>a. storing in each of said first sequence of modules a skip value indicating a next module in said first sequence of modules to execute;</p> <p>b. executing a first module of said first sequence of said modules; and</p> <p>c. executing said next module of said first sequence of modules indicated by the skip value stored in a currently executed module, skipping any module between the currently executed module and said next module, wherein each module of said first sequence of modules comprises at least one digital signal processing data structure.</p>									
2003/0120706	Method and a system for executing operating system functions, as well as an electronic device	Nokia Corporation	Harjula, Teemu	718	G06F	20021220	4	92%	<input type="checkbox"/>
<p>Abstract: The invention relates to a method for using resources in a system comprising at least one processor and at least a first set of resources and a second set of resources. At least a first operating system is processed in said at least one processor, and a second operating system is processed in said at least one processor, of which operating systems at least one is substantially a real-time operating system. Said first set of resources is controlled by resource services of the first operating system to be executed in the first operating system, and said second set of resources is controlled by resource services of the second operating system to be executed in the second operating system. In the system, to use a resource of said first set from the operating system, a function call comprising information about said resource of the first set is formed in the second operating system. Said function call is transferred to an interface block formed between the operating systems in the system, for forming a service call on the basis of the information included in said function call, to start the resource service of the first operating system. The invention also relates to a system and an electronic device, in which the method is applied, as well as to a computer program comprising program commands implementing the method.</p> <p>MainClaim: A method for using resources in a system comprising at least one processor and at least a first set of resources and a second set of resources, wherein at least a first operating system is executed in said at least one processor and a second operating system is executed in said at least one processor, of which operating systems at least one is substantially a real-time operating system, said first set of resources is controlled by resource services of the first operating system to be executed in the first operating system, and said second set of resources is controlled by resource services of the second operating system to be executed in the second operating system, wherein for using one of said first set of resources from the second operating system, a function call is formed in the second operating system, comprising information about said resource of the first set, and that</p>									

said function call is transferred to an interface block formed between the operating systems in the system, in which on the basis of data included in said function call, a service call is formed to start the resource service of the first operating system.

7,581,223	Method and a system for executing operating system functions, as well as an electronic device	Nokia Corporation	Harjula; Teemu	718	G06F	20021220	4	92%	<input type="checkbox"/>
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Abstract: A method is provided for use in a system. The system comprises at least one processor. A first operating system and a second operating system are processed in the processor. A first set of resources is controlled by resource services of the first operating system to be executed in the first operating system, and a second set of resources is controlled by resource services of the second operating system to be executed in the second operating system. To use a resource of the first set, a function call comprising information about the resource of the first set is formed in the second operating system. The function call is transferred to an interface block formed between the operating systems. In response to the function call, a service call on the basis of the information included in the function call is formed to start the resource service of the first operating system.

MainClaim: A method, for use in a device having a first and a second operating systems each controlling a set of resources, at least one of said operating systems being a real-time operating system, said method comprising: forming a function call in the second operating system, said function call comprising information about a resource of the set of resources controlled by the first operating system, transferring said function call to an interface block formed between the operating systems, examining the information included in said function call in said interface block to determine the resource that the function call is related to, forming a service call requesting the resource on the basis of the examination in said interface block, and transferring said service call to the first operating system for starting a resource service in the first operating system, wherein the resource service forms a response, and the method further comprises transferring the response via said interface block to the second operating system, wherein in said interface block, a delayed function call is determined to be executed in the second operating system, and wherein transforming the response to the second operating system comprises transferring the response to the second operating system in the delayed functional call.

6,951,019	Execution control for processor tasks	Apple Computer, Inc.	Anderson; Eric C. Svendsen; Hugh B.	718	G06F	20010928	0	100%	<input type="checkbox"/>
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Abstract: Method and means for controlling the execution sequence of a first sequence of modules in a first task. The first sequence of modules are linked to one another and have at least one sequence of execution. The method stores in each of the first sequence of modules a skip value representing which of subsequent modules to execute. The method executes the first of the first sequence of said modules, and then executes the next of the modules indicated by the skip value. Conservation of processor bandwidth is accomplished by avoiding the loading of modules which will not be executed. Method and means are further provided for simultaneous activation/deactivation of a set of tasks by a processor, each of the tasks normally executed in a sequential fashion by one or more processors. A list of tasks to be activated/deactivated is stored, including the timing relationship for the activation process. The list is then implemented as frame numbers for activation and requested state in the actual task list. The executing processor compares the requested state to the actual state for each task, and if different, compares the value of the activation frame with the current frame. If the current frame equals or exceeds the activation frame, then the requested active state is transferred to the actual state.

MainClaim: A computer-readable medium having executable instructions to cause a processing unit to perform a method to control the activation of a sequence of tasks, each of the tasks normally executed in a sequential fashion by the processing unit, the method comprising:

- determining a state of a simultaneous task semaphore;
- if the simultaneous task semaphore is not set, executing a first task and terminating;
- if the simultaneous task semaphore is set, determining if a client which references the first task has control of the simultaneous task semaphore, and if not, terminating;
- if the simultaneous task semaphore is set and the client which references the first task has control of the simultaneous task semaphore, determining if a toggle active flag is set;
- if the toggle active flag is set, toggling a first task execution flag and terminating;
- if the toggle active flag is not set, determining whether the first task execution flag is set; and
- if the first task execution flag is set, executing the first task, otherwise halting the first task.

2003/0120706	Method and a system for executing operating system functions, as well as an electronic device	Nokia Corporation	Harjula, Teemu	718	G06F	20021220	4	92%	<input type="checkbox"/>
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Abstract: The invention relates to a method for using resources in a system comprising at least one processor and at least a first set of resources and a second set of resources. At least a first operating system is processed in said at least one processor, and a second operating system is processed in said at least one processor, of which operating systems at least one is substantially a real-time operating system. Said first set of resources is controlled by resource services of the first operating system to be executed in the first operating system, and said second set of resources is controlled by resource services of the second operating system to be executed in the second operating system. In the system, to use a resource of said first set from the operating system, a function call comprising information about said resource of the first set is formed in the second operating system. Said function call is transferred to an interface block formed between the operating systems in the system, for forming a service call on the basis of the information included in said function call, to start the resource service of the first operating system. The invention also relates to a system and an electronic device, in which the method is applied, as well as to a computer program comprising program commands implementing the method.

MainClaim: A method for using resources in a system comprising at least one processor and at least a first set of resources and a second set of resources, wherein at least a first operating system is executed in said at least one processor and a second operating system is executed in said at least one processor, of which operating systems at least one is substantially a real-time operating system, said first set of resources is controlled by resource services of the first operating system to be executed in the first operating system, and said second set of resources is controlled by resource services of the second operating system to be

executed in the second operating system, wherein for using one of said first set of resources from the second operating system, a function call is formed in the second operating system, comprising information about said resource of the first set, and that said function call is transferred to an interface block formed between the operating systems in the system, in which on the basis of data included in said function call, a service call is formed to start the resource service of the first operating system.

7,581,223	Method and a system for executing operating system functions, as well as an electronic device	Nokia Corporation	Harjula; Teemu	718	G06F	20021220	4	92%	<input type="checkbox"/>
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Abstract: A method is provided for use in a system. The system comprises at least one processor. A first operating system and a second operating system are processed in the processor. A first set of resources is controlled by resource services of the first operating system to be executed in the first operating system, and a second set of resources is controlled by resource services of the second operating system to be executed in the second operating system. To use a resource of the first set, a function call comprising information about the resource of the first set is formed in the second operating system. The function call is transferred to an interface block formed between the operating systems. In response to the function call, a service call on the basis of the information included in the function call is formed to start the resource service of the first operating system.

MainClaim: A method, for use in a device having a first and a second operating systems each controlling a set of resources, at least one of said operating systems being a real-time operating system, said method comprising: forming a function call in the second operating system, said function call comprising information about a resource of the set of resources controlled by the first operating system, transferring said function call to an interface block formed between the operating systems, examining the information included in said function call in said interface block to determine the resource that the function call is related to, forming a service call requesting the resource on the basis of the examination in said interface block, and transferring said service call to the first operating system for starting a resource service in the first operating system, wherein the resource service forms a response, and the method further comprises transferring the response via said interface block to the second operating system, wherein in said interface block, a delayed function call is determined to be executed in the second operating system, and wherein transforming the response to the second operating system comprises transferring the response to the second operating system in the delayed functional call.

7,062,766	Embedded system with interrupt handler for multiple operating systems	Nokia Corporation	Ronkka; Risto Saarinen; Vesa Kantola; Janne Leskela; Jyrki Lempinen; Kim Purhonen; Anu	718	G06F	20030722	1	92%	<input type="checkbox"/>
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Abstract: A communication device includes one processor to run at least two operating systems simultaneously. The at least two operating systems include a first operating system for mobile station functions having a first group of threads, the mobile station functions including operations for communicating with another device, and a second operating system for data processing functions having a second group of threads, the data processing functions including operations for processing data internally in the communication device, where the operating systems communicate with each other. The communication device further includes at least one user interface, provides for generating an interrupt, provides for selecting a thread to execute as a result of the interrupt including a common interrupt handler for the at least two operating systems, and provides for transmitting interrupt data to the operating system from which the thread was selected, including the thread to execute.

MainClaim: A communication device comprising: one processor to run at least two operating systems simultaneously, wherein the at least two operating systems include: a first operating system for mobile station functions comprising a first group of threads, the mobile station functions including operations for communicating with another device, and a second operating system for data processing functions comprising a second group of threads, the data processing functions comprising operations for processing data internally in the communication device, the first and second operating systems communicating with each other, the communication device further comprising at least one user interface, means for generating an interrupt to the processor, means for selecting a thread from said first group of threads and second group of threads to execute as a result of said interrupt and as defined by any applications, said means for selecting including at least one at least partly common interrupt handler for said at least two operating systems, and means for transmitting interrupt data to the operating system from which the thread was selected including said thread to execute.

6,304,891	Execution control for processor tasks	Apple Computer, Inc.	Anderson; Eric C. Svendsen; Hugh B.	718	G06F	19920930	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for controlling the execution sequence of a first sequence of modules in a first task are provided. The first sequence of modules are linked to one another and have at least one sequence of execution. The method stores in each of the first sequence of modules a skip value representing which of subsequent modules to execute. The method executes the first of the first sequence of said modules, and then executes the next of the modules indicated by the skip value. Conservation of processor bandwidth is accomplished by avoiding the loading of modules which will not be executed. A method and apparatus are further provided for simultaneous activation/deactivation of a set of tasks by a processor, each of the tasks normally executed in a sequential fashion by one or more processors. A list of tasks to be activated/deactivated is stored, including the timing relationship for the activation process. The list is then implemented as frame numbers for activation and requested state in the actual task list. The executing processor compares the requested state to the actual state for each task, and if different, compares the value of the activation frame with the current frame. If the current frame equals or exceeds the activation frame, then the requested active state is transferred to the actual state.

MainClaim: A method of controlling the activation of a sequence of tasks by a processing system comprising at least one processor, wherein each task of the tasks has a current state, comprising the following steps:

- a. determining tasks which require synchronization;
- b. adding a reference to each task of the tasks which require synchronization to a synchronization list, the reference including a task state request indicating a requested state for the task and time frame offset indicating a relative time frame during which to place the task in the requested state;
- c. for each task in said synchronization list,
- i. setting a state flag indicating the requested state and

- ii. determining a modify time frame in which to place the task in the requested state based on the time frame offset;
- d. then, in a current time frame subsequent to the completion of the performance of step c, performing the following steps for each task which requires synchronization;
- i. determining whether the requested state is equal to the current state of the task;
- ii. if the requested state is not equal to the current state of the task and the current time frame equals the modify time frame for the task, then modifying the current state of the task to be the requested state; and
- iii. if the current state of the task is active, then executing the task.

2003/0120706	Method and a system for executing operating system functions, as well as an electronic device	Nokia Corporation	Harjula, Teemu	718	G06F	20021220	4	92%	<input type="checkbox"/>
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Abstract: The invention relates to a method for using resources in a system comprising at least one processor and at least a first set of resources and a second set of resources. At least a first operating system is processed in said at least one processor, and a second operating system is processed in said at least one processor, of which operating systems at least one is substantially a real-time operating system. Said first set of resources is controlled by resource services of the first operating system to be executed in the first operating system, and said second set of resources is controlled by resource services of the second operating system to be executed in the second operating system. In the system, to use a resource of said first set from the operating system, a function call comprising information about said resource of the first set is formed in the second operating system. Said function call is transferred to an interface block formed between the operating systems in the system, for forming a service call on the basis of the information included in said function call, to start the resource service of the first operating system. The invention also relates to a system and an electronic device, in which the method is applied, as well as to a computer program comprising program commands implementing the method.

MainClaim: A method for using resources in a system comprising at least one processor and at least a first set of resources and a second set of resources, wherein at least a first operating system is executed in said at least one processor and a second operating system is executed in said at least one processor, of which operating systems at least one is substantially a real-time operating system, said first set of resources is controlled by resource services of the first operating system to be executed in the first operating system, and said second set of resources is controlled by resource services of the second operating system to be executed in the second operating system, wherein for using one of said first set of resources from the second operating system, a function call is formed in the second operating system, comprising information about said resource of the first set, and that said function call is transferred to an interface block formed between the operating systems in the system, in which on the basis of data included in said function call, a service call is formed to start the resource service of the first operating system.

7,581,223	Method and a system for executing operating system functions, as well as an electronic device	Nokia Corporation	Harjula; Teemu	718	G06F	20021220	4	92%	<input type="checkbox"/>
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Abstract: A method is provided for use in a system. The system comprises at least one processor. A first operating system and a second operating system are processed in the processor. A first set of resources is controlled by resource services of the first operating system to be executed in the first operating system, and a second set of resources is controlled by resource services of the second operating system to be executed in the second operating system. To use a resource of the first set, a function call comprising information about the resource of the first set is formed in the second operating system. The function call is transferred to an interface block formed between the operating systems. In response to the function call, a service call on the basis of the information included in the function call is formed to start the resource service of the first operating system.

MainClaim: A method, for use in a device having a first and a second operating systems each controlling a set of resources, at least one of said operating systems being a real-time operating system, said method comprising: forming a function call in the second operating system, said function call comprising information about a resource of the set of resources controlled by the first operating system, transferring said function call to an interface block formed between the operating systems, examining the information included in said function call in said interface block to determine the resource that the function call is related to, forming a service call requesting the resource on the basis of the examination in said interface block, and transferring said service call to the first operating system for starting a resource service in the first operating system, wherein the resource service forms a response, and the method further comprises transferring the response via said interface block to the second operating system, wherein in said interface block, a delayed function call is determined to be executed in the second operating system, and wherein transforming the response to the second operating system comprises transferring the response to the second operating system in the delayed functional call.

7,698,297	Accessing digital media	Apple Inc.	Jawa; Amandeep Robbin; Jeffrey L. Heller; David	709	G06F	20040312	0	100%	<input type="checkbox"/>
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Abstract: Method and apparatus for accessing media across networks. The present invention generally allows for media to be provided across a network. A client requests media information from a server so the client can create a local representation of the server's database. The client is then able to manage the media information locally. When the client selects the desired media, it requests the selection from across the network. The server then delivers the selected media.

MainClaim: A method of retrieving digital media comprising: querying a server for database enumeration; receiving a response to the database enumeration query that includes at least information about at least one digital media database coupled to the server, wherein the information about the at least one digital media database includes at least metadata about one or more remote records within the at least one digital media database, and wherein the one or more remote records pertain to one or more of digital media, digital media metadata or media collection data; using the metadata to effectively provide a first representation of the one or more remote records; querying the server for information required to populate one or more local records associated with the metadata after receiving the metadata; receiving the information required to populate the one or more local records associated with the metadata in response to the querying of the server; populating the one or more local records after receiving the information required to populate the one or more local records, thereby effectively providing one or more populated records based on the metadata associated with the one or more remote records; using the one or more populated records to effectively provide a second representation of the one or more remote records; and subsequently retrieving digital media associated with at least one of the populated records, wherein the one or more local records are part of a local database, and wherein said populating of the one or more local records operates to replicate at least a portion of the digital

media database to the local database, and wherein the first representation provides a first level of detail with respect to the one or more remote records, wherein the second representation provides a second level of detail with respect to the one or more remote records, and wherein the second level of detail represents the one or more records in greater detail than the first level of detail.

2008/0201299	Method and System for Managing Metadata	NOKIA CORPORATION	Lehikoinen; Juha Salminen; Ilkka Huuskonen; Pertti Sorsa; Timo Lakkala; Harri Hakala; Tero Karhu; Mika	707	G06F	20041129	2	95%	<input type="checkbox"/>
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Abstract: Methods and systems for managing metadata are described. The method comprises steps of receiving a request from an application to access a metadata attribute corresponding to a piece of content, determining whether the application is authorized to access the metadata attribute, retrieving the metadata attribute upon determining that the application is authorized to access the metadata attribute, and transmitting the metadata attribute to the application. A metadata storage medium may be accessed and searched for the metadata attribute. A system for associating content data, context data, and an event is also described. The system allows for a user to search for content data based upon context data. Another method for associating data is described. The method includes steps of initiating a mufti-media call session, initiating an application independent of the mufti-media call session, and associating collected metadata from the application and the mufti-media call session.

MainClaim: A method for managing metadata, the method comprising steps of:receiving a request from an application to access a metadata attribute corresponding to a piece of content;determining whether the application is authorized to access the metadata attribute;retrieving the metadata attribute upon determining that the application is authorized to access the metadata attribute; andtransmitting the metadata attribute to the application,wherein the metadata attribute is stored in a metadata storage medium separate from the piece of content.

7,725,431	Method and apparatus for the synchronization and storage of metadata	Nokia Corporation	Myllyla; Tomi Sorvari; Antti	707	G06F	20060630	2	94%	<input type="checkbox"/>
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Abstract: Aspects of the invention described herein provide a method and apparatus for the synchronization of metadata across various metadata repositories. According to the invention, upon synchronization of a local metadata repository and at least one remote metadata repository, metadata values are stored in a local collection or mediator database. The mediator database facilitates conflict resolution across metadata repositories. The invention further provides a repository-specific metadata memory to enable the storage of repository-specific metadata histories to further enhance management and synchronization of the metadata.

MainClaim: A method comprising: accessing metadata fields of at least one specific remote metadata repository; saving replicas of the metadata fields of the at least one specific remote metadata repository in a collection table attached to the home metadata repository, said replicas of the metadata fields being gathered in at least one previous synchronization between the home metadata repository and the at least one specific remote metadata repository; comparing, by a processor, data in the metadata fields of the home metadata repository to data in the metadata fields of the at least one specific remote metadata repository to identify inconsistent data in the metadata fields; comparing, by the processor, data in the metadata fields of at least one of the home metadata repository and the at least one specific remote metadata repository to data in the metadata fields of the collection table to determine change, made to at least one of the home metadata repository and the at least one specific remote metadata repository, with respect to said at least one previous synchronization between the home metadata repository and the at least one specific remote metadata repository; and updating, by the processor, the metadata fields of one or more of the home metadata repository, the at least one specific remote metadata repository and the collection table based at least in part on determined change, made to at least one of the home metadata repository and the at least one specific remote metadata repository, with respect to said at least one previous synchronization between the home metadata repository and the at least one specific remote metadata repository.

2008/0005184	Method and Apparatus for the Synchronization and Storage of Metadata	Nokia Corporation	Myllyla; Tomi Sorvari; Antti	707	G06F	20060630	2	94%	<input type="checkbox"/>
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Abstract: Aspects of the invention described herein provide a method and apparatus for the synchronization of metadata across various metadata repositories. According to the invention, upon synchronization of a local metadata repository and at least one remote metadata repository, metadata values are stored in a local collection or mediator database. The mediator database facilitates conflict resolution across metadata repositories. The invention further provides a repository-specific metadata memory to enable the storage of repository-specific metadata histories to further enhance management and synchronization of the metadata.

MainClaim: A method of synchronizing metadata between two or more metadata repositories, the method comprising the steps of:(a) transferring metadata fields of a home metadata repository to at least one specific remote metadata repository;(b) saving the metadata fields of the at least one specific remote metadata repository in a table of a collection attached to the home metadata repository;(c) comparing data in the metadata fields of the home metadata repository, the at least one specific remote metadata repository and the collection tables to identify inconsistent data in the metadata fields; and(d) updating the metadata fields of the home metadata repository, the at least one specific remote metadata repository or the collection tables for specific remote repositories to eliminate the inconsistent data.

7,249,168	Method and apparatus for automated remote volume mounting using a plug-in installed on a client	Apple Inc.	Ryder; Scott	709	G06F	20001228	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for remotely and automatically mounting volumes over a network. The invention uses an interface, such as a web browser, to authenticate a client on a server. The server supplies volume mounting parameters specific to the authenticated client via a plug-in installed on the client. The plug-in then interacts, in one embodiment of the invention, with file system software on the client and automatically mounts the volume(s) in accordance with the supplied parameters.

MainClaim: A method for automatically mounting a plurality of remote volumes to a client, comprising: without receiving a request from a user of said client to mount said plurality of remote volumes, logging into a first server; via a plug-in module installed on the client, receiving a set of mounting parameters from the first server; and at the client, automatically mounting said plurality of volumes utilizing said returned parameters, said volumes after mounting behaving as native to said client, even though said volumes are located remote to said client.

2004/0268145	Apparatus, and method for implementing remote client integrity verification	Nokia, Inc.	Watkins, Craig Richard Lichtenwalter, Brian Schall, Steven Patrick Cain, Adam Douglas Myers, Daniel James III	726	G06F	20030624	1	92%	<input type="checkbox"/>
<p>Abstract: Apparatus, system, method and computer program product for verifying the integrity of remote network devices that request access to network services and resources. Unintended computer programs such as viruses, worms, or Trojan horses, may compromise remote devices. The invention involves downloading verification software over the web into the web browser of a client for the purpose of performing checks to verify the integrity and security of the client's device or system. The results of such checks are returned over the web to be used in security decisions involving authentication and the grant of authorization to access services and resources.</p> <p>MainClaim: An apparatus for verifying the security integrity of remote network devices, comprising: a proxy device for receiving a request for network services by at least one remote network device and performing a security integrity scanning operation on the requesting remote network device; and an authorization processing unit and access control rules unit for determining if the remote network device is authorized to access the requested network services based on the results of the security scanning operation.</p>									
5,911,065	System and method for providing cooperative interrupts in a preemptive task scheduling environment	Apple Computer, Inc.	Williams; Russell T. Jacklin; Kelly B. Robbin; Jeffrey L. Iarocci; John J.	718	G06F	19970805	0	100%	<input type="checkbox"/>
<p>Abstract: A system and method for executing applications written in a cooperative scheduling environment in a preemptive task scheduling environment, ensuring that the time sequence for the delivery of interrupts is not altered in the preemptive task scheduling environment, efficiently disabling all cooperative interrupts in response to a request from an application, efficiently scheduling all cooperative interrupts, and efficiently executing emulated instructions while preserving the integrity of the emulated instructions. The system and method utilize a process server to enforce the cooperative scheduling, a cooperative interrupt server and a holds queue to enforce the interrupt requirements, and special context data to ensure the compatibility of applications designed using an old instruction set architecture.</p> <p>MainClaim: In a computer-based system having a processor, a controller, a memory module, and a preemptive operating system that does not support cooperative scheduling, a method for executing within the preemptive operating system, a first application designed to operate on a cooperative scheduling operating system, comprising the steps of:</p> <p>receiving a cooperative interrupt associated with the first application;</p> <p>storing an address of a completion routine, associated with the first application, in a queue allocated in the memory module, said completion routine including an interrupt handling procedure for servicing said cooperative interrupt;</p> <p>determining if said completion routine is permitted to execute; and</p> <p>executing said completion routine under control of a cooperative interrupt server responsive to said queue, if said completion routine is permitted to execute.</p>									
2003/0120706	Method and a system for executing operating system functions, as well as an electronic device	Nokia Corporation	Harjula, Teemu	718	G06F	20021220	4	94%	<input type="checkbox"/>
<p>Abstract: The invention relates to a method for using resources in a system comprising at least one processor and at least a first set of resources and a second set of resources. At least a first operating system is processed in said at least one processor, and a second operating system is processed in said at least one processor, of which operating systems at least one is substantially a real-time operating system. Said first set of resources is controlled by resource services of the first operating system to be executed in the first operating system, and said second set of resources is controlled by resource services of the second operating system to be executed in the second operating system. In the system, to use a resource of said first set from the operating system, a function call comprising information about said resource of the first set is formed in the second operating system. Said function call is transferred to an interface block formed between the operating systems in the system, for forming a service call on the basis of the information included in said function call, to start the resource service of the first operating system. The invention also relates to a system and an electronic device, in which the method is applied, as well as to a computer program comprising program commands implementing the method.</p> <p>MainClaim: A method for using resources in a system comprising at least one processor and at least a first set of resources and a second set of resources, wherein at least a first operating system is executed in said at least one processor and a second operating system is executed in said at least one processor, of which operating systems at least one is substantially a real-time operating system, said first set of resources is controlled by resource services of the first operating system to be executed in the first operating system, and said second set of resources is controlled by resource services of the second operating system to be executed in the second operating system, wherein for using one of said first set of resources from the second operating system, a function call is formed in the second operating system, comprising information about said resource of the first set, and that said function call is transferred to an interface block formed between the operating systems in the system, in which on the basis of data included in said function call, a service call is formed to start the resource service of the first operating system.</p>									
7,581,223	Method and a system for executing operating system functions, as well as an electronic device	Nokia Corporation	Harjula; Teemu	718	G06F	20021220	4	94%	<input type="checkbox"/>
<p>Abstract: A method is provided for use in a system. The system comprises at least one processor. A first operating system and a second operating system are processed in the processor. A first set of resources is controlled by resource services of the first operating system to be executed in the first operating system, and a second set of resources is controlled by resource services of the second operating system to be executed in the second operating system. To use a resource of the first set, a function call comprising information about the resource of the first set is formed in the second operating system. The function call is</p>									

transferred to an interface block formed between the operating systems. In response to the function call, a service call on the basis of the information included in the function call is formed to start the resource service of the first operating system.

MainClaim: A method, for use in a device having a first and a second operating systems each controlling a set of resources, at least one of said operating systems being a real-time operating system, said method comprising: forming a function call in the second operating system, said function call comprising information about a resource of the set of resources controlled by the first operating system, transferring said function call to an interface block formed between the operating systems, examining the information included in said function call in said interface block to determine the resource that the function call is related to, forming a service call requesting the resource on the basis of the examination in said interface block, and transferring said service call to the first operating system for starting a resource service in the first operating system, wherein the resource service forms a response, and the method further comprises transferring the response via said interface block to the second operating system, wherein in said interface block, a delayed function call is determined to be executed in the second operating system, and wherein transforming the response to the second operating system comprises transferring the response to the second operating system in the delayed functional call.

2007/0061791	Method, apparatus and computer program product enabling full pre-emptive scheduling of green threads on a virtual machine	Nokia Corporation	Hartikainen; Vesa-Matti Mikael	717	G06F	20051011	5	93%	<input type="checkbox"/>
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Abstract: Disclosed is a computer program product, a method and a device to execute a native code thread in a virtual machine environment. The method includes, prior to executing the native code thread, storing a pointer pointing to a current top of a native stack; initiating generation of an interrupt; beginning execution of the native code thread; upon an occurrence of the interrupt, determining if the native code thread is still executing and, if it is; recording a current status of the native code thread; interrupting execution of the native code thread; and when returning to execute the interrupted native code thread, retrieving the stored state of the native code thread.

MainClaim: A method to execute a native code thread in a virtual machine environment, comprising: prior to executing the native code thread, storing a pointer pointing to a current top of a stack; initiating generation of an interrupt; beginning execution of the native code thread; upon an occurrence of the interrupt, determining if the native code thread is still executing and, if it is; recording a state of the native code thread; interrupting execution of the native code thread; when returning to execute the interrupted native code thread, retrieving the stored state of the native code thread.

6,381,694	System for automatic recovery from software problems that cause computer failure	Apple Computer, Inc.	Yen; John	713	H04L	19940218	0	100%	<input type="checkbox"/>
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Abstract: A system for recovering from certain types of system software startup problems employs a user-hidden secondary startup volume stored in the computer. During a normal startup procedure, if an error is detected which would normally result in a startup failure, the computer's startup routine branches to an alternate startup application stored in the secondary volume. This startup application boots the computer from a minimal operating system stored in the secondary volume. As a result, the user is not left with a non-functioning computer. As further features of the invention, the startup application can attempt to automatically fix the detected problem, or it can suggest possible steps to be taken by the user, in order to fix the problem that resulted in the need to use the alternate startup application.

MainClaim: In a computer, a system for recovering from software problems that interfere with proper startup of the computer, comprising:

a storage mechanism having at least a main storage area from which operating system software is normally retrieved and loaded into working memory during startup of the computer, and a secondary area storing at least those portions of said operating system software which are necessary to start the computer;

means for detecting a software problem that interferes with proper startup of the computer;

means for attempting to fix a detected software problem; and

means responsive to the detection of said problem for loading the portions of the operating system stored in said secondary area into said main area when the problem is not fixed by said attempting means; and

means for rebooting the computer after said portions of the operating system have been loaded into said main area, to thereby enable the computer to be started.

6,928,579	Crash recovery system	Nokia Corporation	ijä ; Gunnar Larsson; Alexander	714	G06F	20010627	3	92%	<input type="checkbox"/>
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Abstract: A client device is connectable to a server via a communication network for receiving new software packages. The client device includes a pair of system partitions designated as current and backup system partitions and at least one package partition on which all installed system packages are saved. A central processing unit of the client device uses the contents of the current system partition. In response to an startup failure or a runtime failure, the client device reboots using the backup system partition and allows a user to selectively install any of the software packages saved on the at least one package partition.

MainClaim: A method for recovering from startup and runtime failures of a software system in a computer environment including a client device, comprising the steps of:

(a) providing a persistent memory in the client device including at least first and second system partitions and at least one package partition, wherein runtime components of the software system are installed on the first and second system partitions and all installed software packages of the software system are saved on the at least one package partition;

(b) designating one of the first and second system partitions as a current system partition and the other of the first and second system partitions as a backup system partition;

- (c) using the current system partition by a central processing unit of the client device for controlling the client device;
- (d) rebooting the software system of the client device using the backup system partition in response to one of an startup failure, a runtime failure of the software system of the client device, and a user request;
- (e) designating the backup system partition as the new current system partition;
- (f) creating a new backup system partition from the new current system partition; and
- (g) reinstalling the entire software system by installing all of the software packages residing on the at least one package partition after said step (f).

6,694,435	Method of obfuscating computer instruction streams	Apple Computer, Inc.	Kiddy; Raymond R.	713	G06F	20010725	0	100%	<input type="checkbox"/>
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Abstract: Methods and apparatuses for obfuscating computer instruction streams. In one aspect of the invention, an exemplary method includes breaking each of at least two operative instruction streams into a plurality of parts and interleaving the parts into a new instruction stream. In another aspect of the invention, an exemplary method includes breaking each of at least two operative instruction streams into a plurality of parts and interleaving the parts with obfuscation codes into a new instruction stream. The obfuscation codes interrelate the parts from different instruction streams to prevent reversal of interleaving.

MainClaim: A method comprising:

breaking each of at least two operative instruction streams into a plurality of parts;

interleaving the parts into a new instruction stream.

2004/0073904	Method and apparatus for accelerating program execution in platform-independent virtual machines	Nokia Corporation	Hill, Tapio	718	G06F	20021015	2	92%	<input type="checkbox"/>
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Abstract: A method and apparatus for accelerating program execution in platform-independent systems by eliminating repeated hot spot recognition in virtual machines. Optimization information for programs operable on a target device is stored. It is determined whether stored optimization information exists for a current program available on the target device, and if so, the optimization information associated with the current program is retrieved. The retrieved optimization information is used to identify program code segments earlier identified for optimization processing. Portions of the current program not identified for optimization processing are interpreted via an interpreter, and at substantially the same time, the program code segments identified for optimization processing to native code of the target device are compiled. Using the stored optimization information eliminates the need to analyze the program for program hot spots each time the program is loaded.

MainClaim: A method for increasing execution speed of platform-independent programs on a target device, comprising: storing optimization information for one or more programs operable on the target device; determining whether stored optimization information exists for a current program; retrieving the optimization information for the current program if the optimization information exists for the current program; using the retrieved optimization information to identify one or more program code segments of the program identified for optimization processing; and interpreting portions of the current program that are not identified for optimization processing, and concurrently compiling the one or more program code segments identified for optimization processing to native code of the target device.

7,150,012	Method and apparatus for accelerating program execution in platform-independent virtual machines	Nokia Corporation	Hill; Tapio	717	G06F	20021015	1	92%	<input type="checkbox"/>
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Abstract: A method and apparatus for accelerating program execution in platform-independent systems by eliminating repeated hot spot recognition in virtual machines. Optimization information for programs operable on a target device is stored. It is determined whether stored optimization information exists for a current program available on the target device, and if so, the optimization information associated with the current program is retrieved. The retrieved optimization information is used to identify program code segments earlier identified for optimization processing. Portions of the current program not identified for optimization processing are interpreted via an interpreter, and at substantially the same time, the program code segments identified for optimization processing to native code of the target device are compiled. Using the stored optimization information eliminates the need to analyze the program for program hot spots each time the program is loaded.

MainClaim: A method for increasing execution speed of platform-independent programs on a target device, comprising: determining optimization information for one or more programs during a first execution of the one or more programs on the target device; storing the optimization information for the one or more programs in response to the first execution of the one or more programs; determining whether the stored optimization information exists for a current program; retrieving the optimization information for the current program if the optimization information exists for the current program; using the retrieved optimization information to identify one or more program code segments of the program identified for optimization processing; and interpreting portions of the current program that are not identified for optimization processing, and concurrently compiling the one or more program code segments identified for optimization processing to native code of the target device.

6,167,449	System and method for identifying and locating services on multiple heterogeneous networks using a query by type	Apple Computer, Inc.	Arnold; Kevin M. Fisher; David M.	709	G06F	19971119	0	100%	<input type="checkbox"/>
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Abstract: A computer-implemented method and apparatus for identifying and locating computer network services. The invention gives an application the ability to search for network services in a manner independent of the network communication protocol used by the network. The invention can thus operate as a layer of abstraction between the Transport and Network Layers and the Application Layer of the Open Systems Interconnect (OSI) Reference Model of network architecture and suite of protocols. The invention gives the client application the ability to browse for network services based on the type of service (such

as remote file access, mail, Web, domain name registration, etc.), rather than having to know the name or location of the service or the underlying network communication protocol used by the service. Some of the contemplated service name identification protocols used to find the requested types of services include Internet-related protocols such as Domain Name Service (DNS) and Lightweight Directory Access Protocol (LDAP), as well as Service Location Protocol (SLP), running on top of the Transport Control Protocol/Internet Protocol (TCP/IP).

MainClaim: A computer-implemented method comprising:

receiving a request from an application program for a type of network service;

selecting which of multiple heterogeneous networks will be accessed; and

forwarding said request to at least one of a service manager's network access components configured to search for providers of said type of network service by querying the selected one of said multiple heterogeneous networks.

7,516,236	Method to improve perceived access speed to data network content using a multicast channel and local cache	Nokia Corporation	Walsh; Rod Grundstrom; Mika Hakulinen; Harri	709	G06F	20011221	1	95%	<input type="checkbox"/>
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Abstract: A method for increasing a user's perceived access speed to content available from a data network. The method utilizes a multicast channel and the selection of group data to be sent over that channel.

MainClaim: A method, comprising: monitoring an interaction network; obtaining one or more measurement values corresponding to the monitoring of the interaction network; selecting data, wherein selection is based upon one or more of the measurement values corresponding to the monitoring of the interaction network; and sending the selected data over a multicast network, wherein the data is selected based upon number of requests for the data that originate from a broadcast cell.

2007/0162165	SYSTEM AND METHOD FOR USING WEB SYNDICATION PROTOCOLS AS AN OUT-OF-BAND UPnP SERVICE DISCOVERY SYSTEM	Nokia Corporation	Stirbu; Vlad Belimpasakis; Petros	700	G05B	20061201	1	93%	<input type="checkbox"/>
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Abstract: An architecture where Web Syndication mechanisms such as RSS/Atom feeds can be used to discover remote UPnP devices for environments where the standard UPnP discovery mechanism (e.g. SSDP) does not work due to bearer-induced limitations or policy restrictions along the path. The present invention can be used to enable remote access to UPnP Networks. The present invention allows for the extension of usage of UPnP protocols and services beyond the physical boundaries of the home network. The present invention does not involve the use of multicast messages, which are problematic over uncontrolled networks such as the Internet. The present invention also has a low level of complexity; as SSDP is the only portion of the UPnP stack is altered.

MainClaim: An electronic device, comprising: a processor; and a memory unit operatively connected to the processor and including: computer code for using SSDP advertisements transmitted within a network to collect network information about local UPnP devices and services that are available within the network; and computer code for aggregating the network information into a RSS feed for transmission to at least one remote device outside of the network.

7,493,373	Providing service distribution between distributed applications	Nokia Corporation	Takaluoma; Antti Kangas; Petri	709	G06F	20041227	1	93%	<input type="checkbox"/>
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Abstract: A system is provided to facilitate distribution of a service between a first application and a second application. The system includes a remote socket object, a service registry, and a service mapper. The service mapper receives notification from the service registry indicating registration of the remote socket object created in response to a request for a service at the first application. The service mapper requests an active subscription list from the service registry and selects a subscription record from the active subscription list. The subscription record is associated with the second application. The service mapper sends the selected subscription record to the second application using a remote device port mapped to a localhost port and receives a service record from the second application including a socket for communicating with the second application. The service mapper sends a modified service record that includes a localhost socket mapped to the socket to the service registry that registers the second application using information from the modified service record.

MainClaim: A service mapping method for facilitating distribution of a service between a first application and a second application, the method comprising: receiving a first notification from a service registry, the first notification indicating registration of a remote socket object, the remote socket object created by a service mapper in response to a request for a service at a first application; requesting, by the service mapper, one or more active subscription from the service registry; receiving, by the service mapper, the one or more active subscription from the service registry; selecting, by the service mapper, a subscription record from the received one or more active subscription, the subscription record associated with a second application and with the request for the service at the first application; sending the selected subscription record from the service mapper to the second application using a remote device port mapped to a localhost port; receiving, by the service mapper, a service record from the second application, wherein the service record includes a socket for communicating with the second application; modifying, by the service mapper, the received service record to include a localhost socket mapped to the socket; and sending the modified service record to the service registry from the service mapper, wherein the service registry registers the second application using information from the modified service record to facilitate distribution of the service between the first application and the second application.

7,694,341	Run-time code injection to perform checks	Apple Inc.	Mensch; James Hauck; Jerry Misra; Ronnie	726	H04L	20050818	0	100%	<input type="checkbox"/>
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Abstract: A digital rights management system permits an application owner to cause code to be injected into the application's run-time instruction stream so as to restrict execution of that application to specific hardware platforms. In a first phase, an authorizing entity (e.g., an application owner or platform manufacturer) authorizes one or more applications to execute on a given hardware platform. Later, during application run-time, code is injected that performs periodic checks are made to determine if the application continues to run on the previously authorized hardware platform. If a periodic check fails, at least part of the application's execution string is terminated--effectively rendering the application non-usable. The periodic check is transparent to the user and difficult to circumvent.

MainClaim: A digital rights management method, comprising: selecting an execution unit associated with an application;

injecting first instructions into the selected execution unit to generate a cryptologic challenge; obtaining a response to the cryptologic challenge; and halting the execution unit if the obtained response does not satisfy the cryptologic challenge.

2007/0067617	SIMPLE SCALABLE AND CONFIGURABLE SECURE BOOT FOR TRUSTED MOBILE PHONES	NOKIA CORPORATION	Tarkkala; Lauri	713	G06F	20060906	1	97%	<input type="checkbox"/>
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Abstract: A method, apparatus, system and computer program product are provided for booting up a system using a secure boot framework. In particular, a secure boot mechanism (i.e., a mechanism that enforces that only authenticated programs and/or events are executed on a particular platform) is provided that has an unlimited number of authorized boot configurations, while requiring only a minimal amount of secure/confidential storage. The secure boot mechanism further provides for the separation of run-time and management functionality, which allows other authorization mechanisms to be plugged-in later on. In addition, the authorized secure boot configurations (i.e., the definition of the secure boot state) can be kept in insecure storage, such as a system disk (e.g., flash memory). Finally, the disclosed secure boot mechanism is further beneficial because it builds upon existing TCG techniques, causing it to require minimal implementation where TCG techniques are implemented.

MainClaim: A method of booting up a system using a secure boot framework, the system comprising a computational engine and a secure environment operating within the computational engine and isolated from one or more programs, functions and resources operating outside the secure environment, the method comprising: executing a secure enforcement function located outside the secure environment, said secure enforcement function configured to ensure that only authorized program modules are executed on the system; and executing at least one program module using the secure enforcement function, if the program module is authorized prior to execution.

2008/0077801	Protecting interfaces on processor architectures	Nokia Corporation	Ekberg; Jan-Erik	713	H04N	20060925	1	95%	<input type="checkbox"/>
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Abstract: A method, an apparatus and a computer program product are disclosed for verifying the trustworthiness of a software in an apparatus, and switching a hardware signal in the apparatus into a first state when the software is not trustworthy.

MainClaim: A method comprising: verifying trustworthiness of a software in an apparatus; and switching a hardware signal in the apparatus into a first state when said software is not trustworthy.

2008/0104382	System and method for a distributed and flexible configuration of a TCG TPM-based local verifier	Nokia Corporation	Tarkkala; Lauri	713	G06F	20061101	1	95%	<input type="checkbox"/>
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Abstract: An improved system and method for efficiently implementing a remotely manageable secure boot on a Trusted Computing Group defined Trusted Platform Module. Various embodiments of the present invention enable a boot process which does not require a dependency on prior RIM certificates, while still requiring a dependency on the sequencing of the boot process.

MainClaim: A method of loading a component in a secure boot process, comprising: checking a first register for a pre-requisite state before loading the component; if the pre-requisite state exists in the first register, loading the component; updating a second register with a hash value of an image of the component; and updating the first register to indicate that the component has been loaded.

7,607,000	Method for booting an operating system	Apple Inc.	Smith; Mike I Sokol, Jr.; Joseph	713	G06F	20030513	0	100%	<input type="checkbox"/>
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Abstract: A method for accelerating an operating system boot process is disclosed. In one exemplary embodiment, during a first operating system boot, information regarding the physical locations of disk access performed by the operating system to complete the boot are recorded and stored in a control data file. The control data file is used during a second operating system boot to predict which data will be required during the second operating system boot, and to populate a cache with that data. The cache can then be used to improve the second operating system boot to improve the boot time. In one embodiment, the information is independent of a file system of the operating system. In another embodiment, the cache can be populated by copying data from a mass storage device to a cache, and when the data is used, it can be moved from the cache to another cache.

MainClaim: A method for booting an operating system (OS), comprising: recording an information regarding at least one disk access performed during a first OS boot, said information specifies at least a physical location of said at least one disk access; after recording, storing said information in a set of control data; after storing, populating a cache during a second OS boot using said set of control data without using an operational file system of said OS; after populating, reading at least one datum necessary for said second OS boot from said cache, wherein the OS performs the recording, storing, populating, and reading; recording a set of cache statistics, said set of cache statistics to determine an accuracy of said set of control data; and merging said set of cache statistics and said set of control data into a second set of control data, said second set of control data to be used in a third OS boot, wherein the set of cache statistics comprises a recorded first playlist size identifying a size of the set of control data; and further comprising: determining a second playlist size identifying the size of the second set of control data; if the second playlist size is smaller by a predetermined margin than the recorded first playlist size, then discarding the set of control data and excluding the set of control data in the merge.

2008/0010395	Performance optimization in solid-state media	Nokia Corporation	Mylly; Kimmo I Floman; Matti	711	G06F	20060706	1	92%	<input type="checkbox"/>
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Abstract: A host device is coupled to a peripheral device such as a multi media card or the like, where the peripheral device includes a solid state data storage segment. The peripheral device has means for initiating a defragmentation function, such as registers for comparing a current performance measure against a threshold performance metric, or block validity parameters received from the host device for the data storage segment of the peripheral device. Once met, the means for initiating cause a defragmentation function to execute on the data storage segment. A logical layer of the data storage segment is accessed by the host device and a physical layer of the data storage segment is accessed by the peripheral device. The defragmentation program may be resident on either the host or peripheral device. Defragmentation may be enabled to execute automatically once initiated, such as by a continuous or periodic background scan of current performance of the data storage segment.

MainClaim: A method for managing a computer readable storage media of a peripheral device, comprising: coupling a host device to a peripheral device that comprises a solid state data storage segment; responsive to means in the peripheral device for initiating a defragmentation function, executing the defragmentation function on the data storage segment by accessing a logical layer of the data storage segment with the host device and accessing a physical layer of the data storage segment with the peripheral device.

7,721,059	Performance optimization in solid-	Nokia Corporation	Mylly; Kimmo I	711	G06F	20060706	1	92%	
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	state media		Floman; Matti							<input type="checkbox"/>
<p>Abstract: A host device is coupled to a peripheral device such as a multi media card or the like, where the peripheral device includes a solid state data storage segment. The peripheral device has means for initiating a defragmentation function, such as registers for comparing a current performance measure against a threshold performance metric, or block validity parameters received from the host device for the data storage segment of the peripheral device. Once met, the means for initiating cause a defragmentation function to execute on the data storage segment. A logical layer of the data storage segment is accessed by the host device and a physical layer of the data storage segment is accessed by the peripheral device. The defragmentation program may be resident on either the host or peripheral device. Defragmentation may be enabled to execute automatically once initiated, such as by a continuous or periodic background scan of current performance of the data storage segment.</p> <p>MainClaim: A method comprising: connecting a host device to a peripheral device that comprises a solid state data storage segment; and initiating in the peripheral device defragmentation function, and executing the defragmentation function on the data storage segment, wherein the solid state data storage segment comprises a register storing, upon receipt from the host device, block validity and sequences for data that are used to initiate the defragmentation function.</p>										
2010/0138613	Data Caching	Nokia Corporation	Parker; Jason	711	G06F	20090622	1	92%		<input type="checkbox"/>
<p>Abstract: The invention relates to a method for improving caching efficiency in a computing device. It utilises metadata, that describes attributes of the data to which it relates, to determine an appropriate caching strategy for the data. The caching strategy may be based on the type of the data, and/or on the expected access of the data.</p> <p>MainClaim: An apparatus comprising: at least one processor; and at least one memory including computer program code; the at least one memory and the computer program code configured to, with the at least one processor, cause the apparatus at least to perform: receiving an instruction to access a set of data; retrieving metadata associated with the set of data; in dependence on the metadata, determining a caching strategy for the set of data; and enabling the requested access to the set of data by implementing the caching strategy.</p>										
6,141,044	Method and system for coherent image group maintenance in memory	Apple Computer, Inc.	Anderson; Eric C. Masukawa; Mike	348	H04N	19960926	0	100%		<input type="checkbox"/>
<p>Abstract: A method and system for maintaining coherent image relationships within identified image groups in a memory system of a digital image capture device includes storing a plurality of groups of related images on a removable storage device in a hierarchical manner, and providing an alias identifier for an image file when the removable storage device has reached its storage capacity, wherein the alias identifier identifies the image file stored in a storage device of the digital image capture device. The method and system further includes providing the image file with a same file name and a substitute extension designation to correlate the image file on the storage device with an empty file of the same name on the removable storage device.</p> <p>MainClaim: A method for maintaining coherent image relationships within identified image groups in a memory system of a digital image capture device, the method comprising:</p> <p>storing a plurality of groups of related images on a removable storage device in a hierarchical manner; and</p> <p>providing an alias identifier for an image file when the removable storage device has reached its storage capacity, wherein the alias identifier identifies the image file stored in a storage device of the digital image capture device, wherein the image file is provided with a same file name and a substitute extension designation to correlate the image file on the storage device with an empty file of the same name on the removable storage device.</p>										
2009/0273686	Methods, computer program products and apparatus providing improved image capturing	Nokia Corporation	Kaikumaa; Timo Kalevo; Ossi Ilmoniemä; Martti Boden; Rolf Yong; Sin-Hung Baxter; Andrew	348	H04N	20080502	3	92%		<input type="checkbox"/>
<p>Abstract: The exemplary embodiments of the invention allow for parallel operations within a digital image capturing system. For example, raw image data can be processed while a subsequent image is being captured. In one exemplary embodiment of the invention, a method includes: executing at least one foreground operation within a digital image capturing device; and executing at least one background operation within the digital image capturing device, wherein the at least one foreground operation includes: capturing raw image data via at least one sensor, storing the captured raw image data as an intermediate file, and activating a digital viewfinder, wherein the at least one background operation includes: accessing the intermediate file, performing image processing on the raw image data of the intermediate file to obtain processed image data, and storing the processed image data, wherein the at least one background operation is executed independently of the at least one foreground operation.</p> <p>MainClaim: A method comprising: executing at least one foreground operation within a digital image capturing device, wherein the at least one foreground operation comprises: capturing raw image data via at least one sensor, storing the captured raw image data as an intermediate file, and activating a digital viewfinder; and executing at least one background operation within the digital image capturing device, wherein the at least one background operation comprises: accessing the intermediate file, performing image processing on the raw image data of the intermediate file to obtain processed image data, and storing the processed image data, wherein the at least one background operation is executed independently of the at least one foreground operation.</p>										
5,497,422	Message protection mechanism and graphical user interface therefor	Apple Computer, Inc.	Tysen; Atticus N. Sidhu; Gursharan Chang; C. Victor Calamera; Pablo	713	H04L	19930930	0	100%		<input type="checkbox"/>
<p>Abstract: A digitally signed message, protected with a chain of certificates from the sender's immediate certifier up through an ultimate certifier, is transmitted to a recipient together with the entire certificate chain. The entire certificate chain is stored in a single signer file accessible by the sender. Drag-and-drop gestures of a graphical user interface are used by the sender to sign and certify the message, and an icon is provided on the recipient's display to initiate verification.</p> <p>MainClaim: A method for transferring a first message from a source computer system to a destination using a plurality of protection keys and verification keys, each of said protection keys having a corresponding verification key, said source computer system having an operating system and having a display including a graphic workspace with icons displayed thereon, one of said icons representing said first message and another of said icons representing a second file, said second file having a type field indicating that said second file is a signer file, said second file further identifying a first protection key, comprising the steps of:</p>										

said source computer system determining, in response to user input indicating selection of said first message icon in conjunction with said second file icon, that the type field of said second file indicates that said second file is a signer file;

said source computer system invoking a signer routine of said operating system in response to said step of determining, and said source computer system identifying said first message and said second file to said signer routine, said signer routine obtaining said first protection key from said second file and creating a protected message from said first message in accordance with said first protection key; and

transferring via a transmission medium said protected message to said destination in conjunction with a chain of at least two certificates, said chain including a first certificate and there being a respective prior certificate in said chain for each certificate in said chain except said first certificate, each certificate in said chain including a respective verification key protected in accordance with a respective next one of said protection keys, the verification key in each given certificate in said chain except said first certificate corresponding to the protection key according to which the verification key in the prior certificate to said given certificate is protected, and the verification key in said first certificate corresponding to said first protection key.

7,461,259	Method and apparatus to provide secure mobile file system	Nokia Corporation	Lakshmi Narayanan; Ram Gopal	713	H04L	20040630	1	92%	<input type="checkbox"/>
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Abstract: In an exemplary embodiment of this invention there is disclosed a mobile wireless terminal (50) that includes a transceiver (52) for coupling the mobile wireless terminal to a wireless network operator (60), a controller (54) and a memory (56). The memory may be assumed to store a file system program (56A) executable by the controller, and to be operable to store a file having a file data portion (14) for containing file data and a data structure, such as a file header (10), having fields for containing values. A plurality of the fields contain a value of a public cryptographic key (24) associated with a file creator, a seed value (26), an encrypted seed value (28) obtained by encrypting the seed value with a private cryptographic key of the file creator, and a file integrity value (30) obtained using the encrypted seed value and the file data. By the use of the preferred embodiments a file can be traced-back through a plurality of file handlers to a creator of the file.

MainClaim: A method comprising: in response to a file creator creating a file, obtaining a seed value; encrypting the seed value using a private cryptographic key associated with the file creator to form an encrypted seed value; storing as part of the file a public cryptographic key associated with the file creator, the seed value and the encrypted seed value; computing a file integrity value using the encrypted seed value and file data; and storing as part of the file the computed file integrity value.

2006/0015731	Method and apparatus to provide secure mobile file system	Nokia Corporation	Lakshmi Narayanan; Ram Gopal	713	H04L	20040630	1	92%	<input type="checkbox"/>
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Abstract: In an exemplary embodiment of this invention there is disclosed a mobile wireless terminal (50) that includes a transceiver (52) for coupling the mobile wireless terminal to a wireless network operator (60), a controller (54) and a memory (56). The memory may be assumed to store a file system program (56A) executable by the controller, and to be operable to store a file having a file data portion (14) for containing file data and a data structure, such as a file header (10), having fields for containing values. A plurality of the fields contain a value of a public cryptographic key (24) associated with a file creator, a seed value (26), an encrypted seed value (28) obtained by encrypting the seed value with a private cryptographic key of the file creator, and a file integrity value (30) obtained using the encrypted seed value and the file data. By the use of the preferred embodiments a file can be traced-back through a plurality of file handlers to a creator of the file.

MainClaim: A method to process a file, comprising: in response to a file creator creating the file, obtaining a seed value; encrypting the seed value using a private cryptographic key associated with the file creator to form an encrypted seed value; storing as part of the file a public cryptographic key associated with the file creator, the seed value and the encrypted seed value; computing a file integrity value using the encrypted seed value and file data; and storing as part of the file the computed file integrity value.

7,103,779	Method and apparatus for incremental code signing	Apple Computer, Inc.	Kiehlreiber; Perry I Brouwer; Michael	713	H04L	20030918	0	100%	<input type="checkbox"/>
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Abstract: The present invention discloses a method for quickly and easily authenticating large computer program. The system operates by first sealing the computer program with digital signature in an incremental manner. Specifically, the computer program is divided into a set of pages and a hash value is calculated for each page. The set of hash values is formed into a hash value array and then the hash value array is then sealed with a digital signature. The computer program is then distributed along with the hash value array and the digital signature. To authenticate the computer program, a recipient first verifies the authenticity of the hash value array with the digital signature and a public key. Once the hash value array has been authenticated, the recipient can then verify the authenticity of each page of the computer program by calculating a hash of a page to be loaded and then comparing with an associated hash value in the authenticated hash value array. If the hash values do not match, then execution may be halted.

MainClaim: A method for sealing a computer program, said method comprising: dividing said computer program into a plurality of pages, wherein said dividing is based on size of memory allocation in memory; calculating a hash value for each of said pages; creating a hash array with said hash values of said pages; creating a digital signature for said hash array; and grouping said computer program with said hash array and said digital signature.

2008/0195868	Rollback-Resistant Code-Signing	NOKIA CORPORATION	Asokan; Nadarajah I Paatero; Lauri	713	H04L	20070212	1	93%	<input type="checkbox"/>
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Abstract: A code signature methodology that allows recovery from incorrectly signed software while preventing rollbacks is described herein. When software is signed, the code signature is based not only on the current version of executable code and information corresponding to the current version of executable code, but also includes a history value based on a previous version of the executable code. Each history value is unknown until each version of the software is validly signed. Thus, the code signature technique allows a signing entity to continue using the same signing key even after recovering from an attack, can be used with and without pre-configured trust roots, and allows a device to upgrade from one version of software to another version of the software while skipping intermediate versions.

MainClaim: One or more computer readable media storing computer readable instructions that, when executed, perform a method comprising: a) receiving a software package corresponding to a version of a software; b) identifying from the software package a code signature and an executable software corresponding to the version of the software; c) determining a validation hash by decrypting the code signature using a public key of an entity from which the software package is believed received; d) creating an independent hash based on the executable software, secondary information corresponding to the version of the software, and information corresponding to a previous version of the software; and e) determining that the executable software

is validated only when the validation hash matches the independent hash.

7,500,098	Secure mode controlled memory	Nokia Corporation	Paatero; Lauri	713	H04L	20040319	1	92%	<input type="checkbox"/>
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Abstract: The present invention relates to a method of, and a system for, enhancing data security, which data is to be executed in an electronic device (101) comprising a secure execution environment (104) to which access is restricted. A basic idea of the present invention is that, at device boot, data in the form of e.g. program code is copied from permanent memory (112) to temporary memory (110). The integrity of this program code must be verified to ensure that the program code has not been altered during the transmission between the memories. Further, a new secret key is generated in the secure execution environment. This new secret key is used by a device processor (103) to encrypt the program code to be stored in the temporary memory in order to ensure that the program code is kept secret during transmission. The device processor thereafter writes the encrypted program code into the temporary memory.

MainClaim: A method of enhancing data security comprising: reading strongly encrypted data external to a secure execution environment of an electronic device to which access is restricted, wherein said strongly encrypted data comprises program code to be executed in said electronic device, verifying, in said secure execution environment, the integrity of said strongly encrypted data; generating in said secure execution environment of said electronic device to which access is restricted, a new secret key for less strongly encrypting said verified data; less strongly encrypting, in said secure execution environment, the verified data by means of said new secret key; writing the less strongly encrypted data into storage, wherein at least some of said storage is external to said secure execution environment, and repeating each of said above-recited actions.

2005/0210287	Secure mode controlled memory	Nokia Corporation	Paatero, Lauri	726	H04L	20040319	1	92%	<input type="checkbox"/>
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Abstract: The present invention relates to a method of, and a system for, enhancing data security, which data is to be executed in an electronic device (101) comprising a secure execution environment (104) to which access is restricted. A basic idea of the present invention is that, at device boot, data in the form of e.g. program code is copied from permanent memory (112) to temporary memory (110). The integrity of this program code must be verified to ensure that the program code has not been altered during the transmission between the memories. Further, a new secret key is generated in the secure execution environment. This new secret key is used by a device processor (103) to encrypt the program code to be stored in the temporary memory in order to ensure that the program code is kept secret during transmission. The device processor thereafter writes the encrypted program code into the temporary memory.

MainClaim: A method of enhancing data security, which data is to be executed in an electronic device (101) comprising a secure execution environment (104) to which access is restricted, the method comprising the steps of: generating (S303), in said secure execution environment, a new secret key repeatedly; verifying (S302), in said secure execution environment, the integrity of data to be written into storage (110); encrypting (S304), in said secure execution environment, the data by means of said new secret key; and writing (S305) the encrypted data into storage.

7,577,306	Digital image coding system having self-adjusting selection criteria for selecting a transform function	Apple Inc.	Wu; Hsi-Jung Tian; Yu Tina Lu; Jian Chu; Ke-Chiang	382	G06K	20060516	0	100%	<input type="checkbox"/>
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Abstract: In a digital signal processing system, a method for selecting a transform function to apply to an input signal based on characteristics of the signal, and for self-adjusting criteria which are used in selecting a transform function to apply to a subsequent signal. Characteristics are obtained from the signal. The characteristics are compared to adjustable criteria which are used in selecting a transform function. Differing criteria are maintained for the different selectable transform functions. A record is maintained of transform functions selected and the particular characteristics that caused the selection. Based on the ability of a transform function to minimally define the coded signal, an inverse transform function is selected to decode the signal. The criteria used in selecting a transform function to apply to a subsequent signal are adjusted based on a quality measure of the decoded signal and the record of selected transform functions.

MainClaim: A computer-implemented method for coding a block using a processor to perform the following of pixels of a digitized video image using a selectable one of a plurality of coding functions, comprising: establishing automatic adjustable selection criteria for selecting a coding function; measuring a predetermined characteristic of the block to obtain a characteristic value; selecting a coding function based on said selection criteria and said characteristic value; coding the block according to said coding function from said selecting to obtain a coded block; performing a quality measurement of said coded block; and automatically adjusting said selection criteria based on said quality measurement, whereby quality measures of subsequent blocks are improved through adjusted selection criteria for selecting coding functions.

2008/0247657	Method for Encoding Images, and an Image Coder	NOKIA CORPORATION	Kalevo; Ossi Vahteri; Joni Henrikki Dobrin; Bogdan-Paul Karczewicz; Marta	382	G06K	20071009	5	95%	<input type="checkbox"/>
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Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of the neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one classification.

MainClaim: (canceled)

7,567,719	Method for encoding images, and an image coder	Nokia Corporation	Kalevo; Ossi Vahteri; Joni Dobrin; Bogdan-Paul Karczewicz; Marta	382	G06K	20071009	3	95%	<input type="checkbox"/>
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Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighboring block (L, U) of said block (C) to be predicted according to the contents of the neighboring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one classification.

MainClaim: A method for encoding a digital image in a block-based manner into an encoded bitstream, the method comprising: performing by an encoder a prediction for a block to be coded with respect to a reference block, wherein displacement between the block to be coded and the reference block is represented by a horizontal displacement and a vertical displacement; defining

by said encoder an ordered list of each possible horizontal and vertical displacements in a rank order; and providing by said encoder a signal, in the encoded bitstream, representative of the rank of the horizontal displacement and the vertical displacement in the ordered list.

2007/0140342	APPARATUS, AND ASSOCIATED METHOD, FOR FORMING A COMPRESSED MOTION VECTOR FIELD UTILIZING PREDICTIVE MOTION CODING	Nokia Corporation	Karczewicz; Marta Lainema; Jani Dobrin; Bogdan-Paul	375	H04N	20061212	2	93%	<input type="checkbox"/>
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Abstract: Apparatus, and an associated method, motion compensates coding of video sequences. Motion compensated prediction is utilized in the representation of motion vector fields. Reduced numbers of bits are required to represent the motion vector field while maintaining a low prediction error, thereby facilitating improved communication of, and recreation of, video frames forming a video sequence.

MainClaim: A method of decoding encoded information representative of a video sequence, said video sequence comprising a plurality of video frames, said decoding method comprising: identifying a coding mode of encoded information representative of a segment of a current frame of said video sequence, the coding mode being one of at least a first coding mode and a second coding mode; and reconstructing the segment of the current frame of the video sequence; wherein reconstructing is performed using a first motion field model derived using motion compensated prediction with respect to a previously-encoded frame of the video sequence if the identified coding mode is the first coding mode; and wherein reconstructing is performed using a second motion field model based on a motion field model determined for an adjacent previously-encoded segment of the current frame if the identified coding mode is the second coding mode.

6,011,864	Digital image coding system having self-adjusting selection criteria for selecting a transform function	Apple Computer, Inc.	Wu; Hsi-Jung Tian; Yu Tina Lu; Jian Chu; Ke-Chiang	382	G06K	19960703	0	100%	<input type="checkbox"/>
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Abstract: In a digital signal processing system, a method for selecting a transform function to apply to an input signal based on characteristics of the signal, and for self-adjusting criteria which are used in selecting a transform function to apply to a subsequent signal. Characteristics are obtained from the signal. The characteristics are compared to adjustable criteria which are used in selecting a transform function. Differing criteria are maintained for the different selectable transform functions. A record is maintained of transform functions selected and the particular characteristics that caused the selection. Based on the ability of a transform function to minimally define the coded signal, an inverse transform function is selected to decode the signal. The criteria used in selecting a transform function to apply to a subsequent signal are adjusted based on a quality measure of the decoded signal and the record of selected transform functions.

MainClaim: A computer-implemented method for transforming a block of pixels within a frame of a digitized video image using a selectable one of a set of transform functions, each transform function having an inverse transform function, and each block having a predetermined set of image characteristics, the method comprising the steps of:

associating the transform functions with the set of image characteristics, with predetermined quantization values, and with adjustable thresholds associated with the image characteristics;

obtaining respective characteristic values for the image characteristics of a block;

selecting a transform function from the set of transform functions based on comparisons between said characteristic values and said adjustable thresholds;

applying said transform function to the block to form a transformed block;

quantizing said transformed block using a quantization value to form a quantized block;

selecting an inverse transform function whose application minimally covers said quantized block;

inversely quantizing said quantized block to form an inversely quantized block;

applying said inverse transform function to said inversely quantized block to form a decoded block;

obtaining a quality value for said decoded block by obtaining a peak signal-to-noise ratio for said decoded block;

updating said adjustable thresholds based on said quality value and said characteristic values;

establishing histograms of characteristic values for each of the image characteristics and associated transform functions and quantization values;

recording said characteristic values in histograms referenced by said transform function and said quantization value;

selecting a statistical function to apply to said histograms;

applying said statistical function to said histograms; and

updating said adjustable thresholds with data from application of said statistical function to said histograms by

selecting an order statistic based on the quality value, transform function, and quantizer value;

applying said order statistic to said histograms to obtain new thresholds; and

updating said adjustable thresholds with said new thresholds.

2001/0017942	Method for encoding images, and an image coder	Nokia Mobile Phones Ltd.	Kalevo, Ossi Vahteri, Joni Henrikki Dobrin, Bogdan-Paul Karczewicz, Marta	382	G06K	20010119	5	95%	<input type="checkbox"/>
<p>Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of said neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one said classification.</p> <p>MainClaim: A method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR), characterized in that in the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined, a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of said neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one said classification.</p>									
7,295,713	Method for encoding images, and an image coder	Nokia Corporation	Kalevo; Ossi Vahteri; Joni Henrikki Dobrin; Bogdan-Paul Karczewicz; Marta	382	G06K	20050606	4	95%	<input type="checkbox"/>
<p>Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of said neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one said classification.</p> <p>MainClaim: A method for encoding a digital image in a block-based manner, in which a spatial prediction for a block is performed to reduce amount of information to be transmitted, wherein the method comprises: determining a classification for at least two neighboring blocks of a block to be predicted according to the image contents of said neighboring blocks; selecting a sub-set of prediction methods from a set of available prediction methods on the basis of the classifications of said at least two neighboring blocks; defining an arrangement for the list of said sub-set of prediction methods in a rank order, said rank order determined on the basis of the classifications of said at least two neighboring blocks, wherein each prediction method in the said list has a unique rank with respect to each of the other prediction methods; selecting a prediction method for the block to be predicted from said sub-set of prediction methods; forming a spatial prediction for the block to be predicted using the selected prediction method; and providing a signal representative of rank of the selected prediction method.</p>									
2008/0247657	Method for Encoding Images, and an Image Coder	NOKIA CORPORATION	Kalevo; Ossi Vahteri; Joni Henrikki Dobrin; Bogdan-Paul Karczewicz; Marta	382	G06K	20071009	5	95%	<input type="checkbox"/>
<p>Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of the neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one classification.</p> <p>MainClaim: (canceled)</p>									
5,596,659	Preprocessing and postprocessing for vector quantization	Apple Computer, Inc.	Normile; James O. Wang; Katherine S. Wu; Hsi-Jung	382	G06K	19920901	0	100%	<input type="checkbox"/>
<p>Abstract: Improved preprocessing and postprocessing for vector quantization, for example, for encoding an image. In one embodiment, the luminosity of the vectors in an image are used to determine the codes for vector quantization. In another embodiment, a median filter is performed to eliminate motion artifacts. In another embodiment, temporal filtering is applied once the difference between an earlier frame and a current frame exceeds a threshold. Embodiments are also provided for adaptive temporal filtering based on temporal "no change" blocks and their errors. Embodiments are provided for different regions of images which reference different codebooks, and regions of variable size. Embodiments are also provided for shared and variable size codebooks for different images or other data.</p> <p>MainClaim: A method of encoding an image comprising the following steps:</p> <p>a. adaptively preprocessing a first bitstream representative of said image in order to eliminate spatial redundancy by selectively subsampling individual vectors in said image based upon luminance of said individual vectors, reduce noise and control data rate, and generate a second bitstream on which to perform vector quantization, wherein said individual vectors include a block of adjacent pixels in said image;</p> <p>b. applying vector quantization to said second bitstream in order to create a third bitstream comprising a codebook and indices referencing said codebook; and</p> <p>c. performing index packing on said indices in said third bitstream in order to generate a fourth bitstream, said fourth bitstream including a single base address into said codebook for a plurality of said indices in said third bitstream and an associated offset value each for each of said plurality of indices from said single base address to reference entries in said codebook.</p>									
	Size reduction method								

2003/0161542	and device for compressed images	Nokia Corporation	Ridge, Justin	382	G06K	20020228	3	94%	<input type="checkbox"/>
<p>Abstract: A method and device for reducing a compressed image to a target size by reducing the quality of the image by a quality scaling factor. Image statistics inherent to the image are used to compute the size reduction as a function of the quality scaling factor. Using the relationship between the quality and the size of the image, an estimated quality scaling factor is obtained based on the target size in an iterative process until the size reduction corresponding to the estimated quality scaling factor is substantially equal to the target reduction.</p> <p>MainClaim: A method of reducing the size of an input image to a target size by using a quality scaling factor to reduce image quality, wherein the size reduction is effected by a reduction factor estimated from the quality scaling factor and image statistics inherent to the input image, said method comprising the steps of: selecting a range of quality scaling factors based on the target size; obtaining a range of reduction factors based on the selected range of quality scaling factors for determining a quality-size relationship; computing an estimated quality scaling factor corresponding to the target size based on the quality-size relationship; obtaining an estimated reduction factor based on the estimated quality scaling factor for providing a difference between the target size and the size reduction effected by the estimated reduction factor; and refining the range of the quality scaling factors for reducing the difference until the difference falls within a predetermined limit.</p>									
6,931,159	Size reduction method and device for compressed images	Nokia Corporation	Ridge; Justin	382	G06K	20020228	3	94%	<input type="checkbox"/>
<p>Abstract: A method and device for reducing a compressed image to a target size by reducing the quality of the image by a quality scaling factor. Image statistics inherent to the image are used to compute the size reduction as a function of the quality scaling factor. Using the relationship between the quality and the size of the image, an estimated quality scaling factor is obtained based on the target size in an iterative process until the size reduction corresponding to the estimated quality scaling factor is substantially equal to the target reduction.</p> <p>MainClaim: A method of reducing the size of an input image to a target size by using a quality scaling factor to reduce image quality, wherein the size reduction is effected by a reduction factor estimated from the quality scaling factor and image statistics inherent to the input image, said method comprising the steps of:</p> <p>selecting a range of quality scaling factors based on the target size;</p> <p>obtaining a range of reduction factors based on the selected range of quality scaling factors for determining a quality-size relationship;</p> <p>computing an estimated quality scaling factor corresponding to the target size based on the quality-size relationship;</p> <p>obtaining an estimated reduction factor based on the estimated quality scaling factor for providing a difference between the target size and the size reduction effected by the estimated reduction factor; and</p> <p>refining the range of the quality scaling factors for reducing the difference until the difference falls within a predetermined limit.</p>									
2001/0017942	Method for encoding images, and an image coder	Nokia Mobile Phones Ltd.	Kalevo, Ossi Vahteri, Joni Henrikki Dobrin, Bogdan-Paul Karczewicz, Marta	382	G06K	20010119	5	94%	<input type="checkbox"/>
<p>Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of said neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one said classification.</p> <p>MainClaim: A method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR), characterized in that in the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined, a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of said neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one said classification.</p>									
5,822,465	Image encoding by vector quantization of regions of an image and codebook updates	Apple Computer, Inc.	Normile; James Oliver Wang; Katherine Shu-Wei	382	G06K	19950607	0	100%	<input type="checkbox"/>
<p>Abstract: Improved method and apparatus for vector quantization (VQ) to build a codebook for the compression of data. The codebook or "tree" is initialized by establishing N initial nodes and creating the remainder of the codebook as a binary codebook. Children entries are split upon determination of various attributes, such as maximum distortion, population, etc. Vectors obtained from the data are associated with the children nodes, and then representative children entries are recalculated. This splitting/reassociation continues iteratively until a difference in error associated with the previous children and current children becomes less than a threshold. This splitting and reassociating process continues until the maximum number of terminal nodes is created in the tree, a total error or distortion threshold has been reached or some other criterion. The data may then be transmitted as a compressed bitstream comprising a codebook and indices referencing the codebook.</p> <p>MainClaim: An apparatus for encoding an image represented by a plurality of blocks of pixels, said apparatus comprising:</p> <p>a preprocessor configured to select a portion of the plurality of blocks to subsample by calculating values indicative of distortion caused by subsampling the plurality of blocks;</p> <p>the preprocessor being further configured to subsample the portion of the plurality of blocks into subsampled blocks to reduce the amount of data that must be encoded to encode the image; and</p> <p>an encoder configured to receive the subsampled blocks from said preprocessor and non-subsampled blocks, said encoder being further configured to encode the subsampled blocks and the non-subsampled blocks with separate codebooks.</p>									

2001/0017942	Method for encoding images, and an image coder	Nokia Mobile Phones Ltd.	Kalevo, Ossi Vahteri, Joni Henrikki Dobrin, Bogdan-Paul Karczewicz, Marta	382	G06K	20010119	5	94%	<input type="checkbox"/>
<p>Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of said neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one said classification.</p> <p>MainClaim: A method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR), characterized in that in the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined, a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of said neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one said classification.</p>									
2003/0161542	Size reduction method and device for compressed images	Nokia Corporation	Ridge, Justin	382	G06K	20020228	3	94%	<input type="checkbox"/>
<p>Abstract: A method and device for reducing a compressed image to a target size by reducing the quality of the image by a quality scaling factor. Image statistics inherent to the image are used to compute the size reduction as a function of the quality scaling factor. Using the relationship between the quality and the size of the image, an estimated quality scaling factor is obtained based on the target size in an iterative process until the size reduction corresponding to the estimated quality scaling factor is substantially equal to the target reduction.</p> <p>MainClaim: A method of reducing the size of an input image to a target size by using a quality scaling factor to reduce image quality, wherein the size reduction is effected by a reduction factor estimated from the quality scaling factor and image statistics inherent to the input image, said method comprising the steps of: selecting a range of quality scaling factors based on the target size; obtaining a range of reduction factors based on the selected range of quality scaling factors for determining a quality-size relationship; computing an estimated quality scaling factor corresponding to the target size based on the quality-size relationship; obtaining an estimated reduction factor based on the estimated quality scaling factor for providing a difference between the target size and the size reduction effected by the estimated reduction factor; and refining the range of the quality scaling factors for reducing the difference until the difference falls within a predetermined limit.</p>									
6,931,159	Size reduction method and device for compressed images	Nokia Corporation	Ridge; Justin	382	G06K	20020228	3	94%	<input type="checkbox"/>
<p>Abstract: A method and device for reducing a compressed image to a target size by reducing the quality of the image by a quality scaling factor. Image statistics inherent to the image are used to compute the size reduction as a function of the quality scaling factor. Using the relationship between the quality and the size of the image, an estimated quality scaling factor is obtained based on the target size in an iterative process until the size reduction corresponding to the estimated quality scaling factor is substantially equal to the target reduction.</p> <p>MainClaim: A method of reducing the size of an input image to a target size by using a quality scaling factor to reduce image quality, wherein the size reduction is effected by a reduction factor estimated from the quality scaling factor and image statistics inherent to the input image, said method comprising the steps of:</p> <p>selecting a range of quality scaling factors based on the target size;</p> <p>obtaining a range of reduction factors based on the selected range of quality scaling factors for determining a quality-size relationship;</p> <p>computing an estimated quality scaling factor corresponding to the target size based on the quality-size relationship;</p> <p>obtaining an estimated reduction factor based on the estimated quality scaling factor for providing a difference between the target size and the size reduction effected by the estimated reduction factor; and</p> <p>refining the range of the quality scaling factors for reducing the difference until the difference falls within a predetermined limit.</p>									
6,618,509	Digital image coding system having self-adjusting selection criteria for selecting a transform function	Apple Computer, Inc.	Wu; Hsi-Jung Tian; Yu Tina Lu; Jian Chu; Ke-Chiang	382	G06K	20010409	0	100%	<input type="checkbox"/>
<p>Abstract: In a digital signal processing system, a method for selecting a transform function to apply to an input signal based on characteristics of the signal, and for self-adjusting criteria which are used in selecting a transform function to apply to a subsequent signal. Characteristics are obtained from the signal. The characteristics are compared to adjustable criteria which are used in selecting a transform function. Differing criteria are maintained for the different selectable transform functions. A record is maintained of transform functions selected and the particular characteristics that caused the selection. Based on the ability of a transform function to minimally define the coded signal, an inverse transform function is selected to decode the signal. The criteria used in selecting a transform function to apply to a subsequent signal are adjusted based on a quality measure of the decoded signal and the record of selected transform functions.</p> <p>MainClaim: A computer-implemented method for coding a block of pixels of a digitized video image using a selectable one of a plurality of coding functions, the method comprising:</p> <p>establishing adjustable selection criteria for selecting a coding function;</p> <p>measuring a predetermined characteristic of the block to obtain a characteristic value;</p> <p>selecting a coding function based on said adjustable selection criteria and said characteristic value;</p>									

coding the block according to said coding function to obtain a coded block;

performing a quality measurement of said coded block;

adjusting said adjustable selection criteria for selecting a coding function, utilizing said quality measurement such that quality measurements of subsequent blocks are improved; and

establishing historical records of quality values and characteristic values and associated coding functions and quantization values.

7,295,713	Method for encoding images, and an image coder	Nokia Corporation	Kalevo; Ossi Vahteri; Joni Henrikki Dobrin; Bogdan-Paul Karczewicz; Marta	382	G06K	20050606	4	95%	<input type="checkbox"/>
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Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of said neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one said classification.

MainClaim: A method for encoding a digital image in a block-based manner, in which a spatial prediction for a block is performed to reduce amount of information to be transmitted, wherein the method comprises: determining a classification for at least two neighboring blocks of a block to be predicted according to the image contents of said neighboring blocks; selecting a sub-set of prediction methods from a set of available prediction methods on the basis of the classifications of said at least two neighboring blocks; defining an arrangement for the list of said sub-set of prediction methods in a rank order, said rank order determined on the basis of the classifications of said at least two neighboring blocks, wherein each prediction method in the said list has a unique rank with respect to each of the other prediction methods; selecting a prediction method for the block to be predicted from said sub-set of prediction methods; forming a spatial prediction for the block to be predicted using the selected prediction method; and providing a signal representative of rank of the selected prediction method.

2008/0247657	Method for Encoding Images, and an Image Coder	NOKIA CORPORATION	Kalevo; Ossi Vahteri; Joni Henrikki Dobrin; Bogdan-Paul Karczewicz; Marta	382	G06K	20071009	5	95%	<input type="checkbox"/>
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Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of the neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one classification.

MainClaim: (canceled)

7,567,719	Method for encoding images, and an image coder	Nokia Corporation	Kalevo; Ossi Vahteri; Joni Dobrin; Bogdan-Paul Karczewicz; Marta	382	G06K	20071009	3	95%	<input type="checkbox"/>
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Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighboring block (L, U) of said block (C) to be predicted according to the contents of the neighboring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one classification.

MainClaim: A method for encoding a digital image in a block-based manner into an encoded bitstream, the method comprising: performing by an encoder a prediction for a block to be coded with respect to a reference block, wherein displacement between the block to be coded and the reference block is represented by a horizontal displacement and a vertical displacement; defining by said encoder an ordered list of each possible horizontal and vertical displacements in a rank order; and providing by said encoder a signal, in the encoded bitstream, representative of the rank of the horizontal displacement and the vertical displacement in the ordered list.

6,229,917	Digital image coding system having self-adjusting selection criteria for selecting a transform function	Apple Computer, Inc.	Wu; Hsi-Jung Tian; Yu Tina Lu; Jian Chu; Ke-Chiang	382	G06K	19990914	0	100%	<input type="checkbox"/>
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Abstract: In a digital signal processing system, a method for selecting a transform function to apply to an input signal based on characteristics of the signal, and for self-adjusting criteria which are used in selecting a transform function to apply to a subsequent signal. Characteristics are obtained from the signal. The characteristics are compared to adjustable criteria which are used in selecting a transform function. Differing criteria are maintained for the different selectable transform functions. A record is maintained of transform functions selected and the particular characteristics that caused the selection. Based on the ability of a transform function to minimally define the coded signal, an inverse transform function is selected to decode the signal. The criteria used in selecting a transform function to apply to a subsequent signal are adjusted based on a quality measure of the decoded signal and the record of selected transform functions.

MainClaim: A computer-implemented method for coding a block of pixels of a digitized video image using a selectable one of a plurality of coding functions, comprising the steps of:

establishing adjustable selection criteria for selecting a coding function;

measuring a predetermined characteristic of the block to obtain a characteristic value;

selecting a coding function based on said adjustable selection criteria and said characteristic value;

coding the block according to said coding function to obtain a coded block;

performing a quality measurement of said coded block comprising the steps of:

selecting a decoding function independent of selecting said coding function;

decoding said coded block to obtain a decoded block; and

performing a quality measurement of said decoded block;

adjusting said adjustable selection criteria for selecting a coding function utilizing said quality measurement such that quality measurements of subsequent blocks are improved;

accumulating an historical record of detected characteristics of blocks and selected decoding functions; and

adjusting said adjustable selection criteria based on said historical record.

7,295,713	Method for encoding images, and an image coder	Nokia Corporation	Kalevo; Ossi Vahteri; Joni Henrikki Dobrin; Bogdan-Paul Karczewicz; Marta	382	G06K	20050606	4	95%	<input type="checkbox"/>
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Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of said neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one said classification.

MainClaim: A method for encoding a digital image in a block-based manner, in which a spatial prediction for a block is performed to reduce amount of information to be transmitted, wherein the method comprises: determining a classification for at least two neighboring blocks of a block to be predicted according to the image contents of said neighboring blocks; selecting a sub-set of prediction methods from a set of available prediction methods on the basis of the classifications of said at least two neighboring blocks; defining an arrangement for the list of said sub-set of prediction methods in a rank order, said rank order determined on the basis of the classifications of said at least two neighboring blocks, wherein each prediction method in the said list has a unique rank with respect to each of the other prediction methods; selecting a prediction method for the block to be predicted from said sub-set of prediction methods; forming a spatial prediction for the block to be predicted using the selected prediction method; and providing a signal representative of rank of the selected prediction method.

2001/0017942	Method for encoding images, and an image coder	Nokia Mobile Phones Ltd.	Kalevo, Ossi Vahteri, Joni Henrikki Dobrin, Bogdan-Paul Karczewicz, Marta	382	G06K	20010119	5	95%	<input type="checkbox"/>
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Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of said neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one said classification.

MainClaim: A method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR), characterized in that in the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined, a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of said neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one said classification.

2008/0247657	Method for Encoding Images, and an Image Coder	NOKIA CORPORATION	Kalevo; Ossi Vahteri; Joni Henrikki Dobrin; Bogdan-Paul Karczewicz; Marta	382	G06K	20071009	5	95%	<input type="checkbox"/>
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Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of the neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one classification.

MainClaim: (canceled)

7,519,229	Video coding system providing separate coding chains for dynamically selected small-size or full-size playback	Apple, Inc.	Wallace; Gregory Kent Guo; Haitao Oslick; Mitchell	382	G06K	20040330	0	100%	<input type="checkbox"/>
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Abstract: Embodiments of the present invention provide a coding system that codes data according to a pair of coding chains. A first coding chain generates coded video data that can be decoded by itself to represent a source video sequence of a small size, such as a size sufficient to support the real time playback and display features of a video editing application. The second coding chain generates coded video data representing supplementary data, which when decoded in conjunction with the coded video data of the first coding chain, yields the source video sequence for full-size display. The output of the first coding chain may be

stored in memory in a file structure that can be accessed independently of the second chain's output and, therefore, it facilitates real time decoding and playback.

MainClaim: A video coding method, comprising: organizing each frame of input video into a plurality of blocks of pixels, for each block: coding the block as a plurality of coefficients according to a predetermined transform, quantizing the block of coefficients according to a quantization parameter, extracting a sub-set of coefficients; coding a pair of sub-sets according to run length coding and storing the result therefrom in a first file, wherein the run length coding of the pair of sub-sets is done according to a scan direction that: progresses across a first sub-set of the pair in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein, advances to a highest frequency coefficient of a second sub-set of the pair, and progresses across the second sub-set in a zig-zag from the highest frequency coefficient to a lowest frequency coefficient therein, coding the remaining coefficients according to run length coding and storing the results therefrom in a second file separate from the first file.

2006/0078049	Method and system for entropy coding/decoding of a video bit stream for fine granularity scalability	Nokia Corporation	Bao; Yiliang Karczewicz; Marta Ridge; Justin Wang; Xianglin	375	H04N	20041013	1	96%	<input type="checkbox"/>
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Abstract: A method, program product and device for encoding and/or decoding video data can include treating coefficients in the enhancement layer corresponding to a non-zero coefficient in the base layer differently than a coefficient in the enhancement layer corresponding to a zero coefficient in the base layer. The sign of the base layer quantized coefficient can also be used as it indicates how the reconstructed error differs from the original signal. The coefficient of independent spatial transforms can be arranged into subbands and the encoding of the subbands can utilize spatial information and coded block flags and end of block flags to reduce bit rate. Rather than feeding the coefficients into a context-based adaptive binary arithmetic coding engine on a block-by-block basis, the subbands can be passed into the engine. Subband coefficients may be removed in a controlled manner, leading to a reduced bit-rate.

MainClaim: A method of encoding video data into a bit stream, said method comprising: calculating transform coefficients for base layer blocks of video data; calculating transform coefficients for enhancement layer blocks of video data; arranging the transform coefficients from multiple enhancement layer blocks into subbands; and encoding into a bit stream a coded region flag for a region of enhancement layer coefficients, corresponding to a region of base layer coefficients, only if it is determined that the base layer region contains only zero-valued coefficients.

2009/0016626	JOINT CODING OF MULTIPLE TRANSFORM BLOCKS WITH REDUCED NUMBER OF COEFFICIENTS	Nokia Corporation	Zhang; Cixun Ugur; Kemal Lainema; Jani Hallapuro; Antti Olli	382	G06K	20080612	4	96%	<input type="checkbox"/>
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Abstract: A system and method for video/image encoding and decoding, where transform coefficients associated with a plurality of blocks are reorganized and coded together. Various embodiments perform transform and quantization and generate transform coefficients, where the coefficients of the transform blocks are reorganized and interleaved. Additionally, an encoding process involves coding only a subset of the transform coefficients belonging to the transform blocks resulting in one or more transform blocks less than the original number of transform blocks, and putting this into a bitstream. A decoding process involves decoding the one or more resulting transform blocks including the subset of transform coefficients from the bitstream, the transform coefficients being put in an array and decoded. The decoder de-interleaves the decoded transform coefficients and any remaining coefficients of the one or more transform blocks are filled in according to a plurality of different methods. After the one or more transform blocks are fully decoded, inverse transform and inverse quantization are performed and residual data is generated.

MainClaim: A method of encoding at least one of a video and an image signal, comprising: transform coding a signal into a plurality of transform blocks; quantizing transform coefficients of the plurality of transform blocks; reorganizing and interleaving the transform coefficients of the plurality of transform blocks; and entropy encoding a subset of the interleaved transform coefficients.

2006/0013302	Method and system for entropy decoding for scalable video bit stream	Nokia Corporation	Bao; Yiliang Karczewicz; Marta Ridge; Justin	375	H04N	20040714	1	96%	<input type="checkbox"/>
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Abstract: A method, program product and apparatus for decoding from a scalable bit stream the binarization results of a video sequence by selectively decoding syntax elements and avoiding redundancy in coding. The result is a decrease in the size of the compressed bit stream of an enhancement layer bit stream. One method includes determining whether a skipping flag in the base layer macro block of the video data is set, and decoding a skipping flag from an enhancement layer macro block of the video data, corresponding to the base layer macro block, only if the base layer macro block skipping flag is set. Another method includes determining which of a plurality of blocks in a base layer macro block contain zero coefficients, decoding an abbreviated coded block pattern (CBP) of an enhancement layer macro block, where the CBP includes a number of digits equal to the number of blocks in said base layer macro block containing only zero coefficients, and then generating a complete CBP for the enhancement layer based on the results of said decoding. Yet another method includes decoding a CBP value of a base layer macro block and differentially decoding a CBP value for an enhancement layer macro block relative to the CBP of the base layer macro block. An additional method includes determining the zero-value coefficients in a block of a base layer, decoding a coded block flag for a corresponding block in an enhancement layer, and determining, based on the value of said encoded block flag, whether any of the zero-coefficients become non-zero coefficients in said enhancement block.

MainClaim: A method of decoding a scalable bit stream comprising encoded video data, said method comprising: determining whether a base layer macro block of said video data contains no non-zero coefficients; and decoding a skipping flag for an enhancement layer macro block of said video data, corresponding to said base layer macro block, only if it is determined that said base layer macro block contains no non-zero coefficients.

7,145,952	Dynamic selection of field/frame-based MPEG video encoding	Apple Computer, Inc.	Klavington; Jason	375	H04B	20020107	0	100%	<input type="checkbox"/>
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Abstract: A discrete cosine transform (DCT) level enhancement to Motion Picture Experts Group (MPEG) video encoding is described that results in a more concise bitstream than MPEG encoding without the enhancement. One degree of freedom provided by the MPEG encoding specifications is whether a frame- or field-based DCT operation will be used. In the field-based DCT operations, luminance sub-blocks are built from even or odd rows of the original image, which correspond to the top and bottom fields in field-based video. This allows the encoder to take advantage of the higher correlation between rows for the same field, especially in field-based video with a high level of motion. In one embodiment, both field- and frame-based DCT operations are performed and the results are quantized. On a macroblock-by-macroblock basis, the option that results in the

fewest non-zero coefficients is selected and those coefficients are used for run-time encoding.

MainClaim: A method comprising: performing a first encoding transformation on a set of data representing a video frame as frame-based data to generate an array of frame-based coefficient data including chrominance data and a first representation of luminance data; performing a second encoding transformation on the set of data representing the video frame as field-based data to generate an array of field-based coefficient data including chrominance data and a second representation of the luminance data; determining a number of non-zero coefficients within the array of the frame-based data; determining a number of non-zero coefficients within the array for the field-based data; selecting either the array of frame-based data or the array of field-based data based, at least in part, on the number of non-zero coefficients in the frame-based data and the field-based data; and converting an ordering of the arrays of selected data.

6,879,268	Adaptive variable length coding of digital video	Nokia Corporation	Karczewicz; Marta	341	H03M	20030729	1	95%	<input type="checkbox"/>
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Abstract: The invention relates to a method of adaptive variable length coding in which a set of data symbols comprising a certain first number of data symbols having a first value and a certain second number of data symbols having values other than the first value are represented by variable length codewords. According to the invention, at least one characteristic of the variable length coding applied to the data symbols is adapted according to the second number of data symbols which have values other than the first value. The invention also relates to a corresponding method of variable length decoding, as well as an encoder and decoder which implement the variable length coding and decoding methods according to the invention.

MainClaim: A method of variable length coding a set of data symbols comprising a certain first number of data symbols having a first value and a certain second number of data symbols having values other than said first value, wherein at least one characteristic of the variable length coding applied to the data symbols is adapted according to said certain second number of data symbols which have values other than the first value.

6,690,307	Adaptive variable length coding of digital video	Nokia Corporation	Karczewicz; Marta	341	H03M	20020122	1	95%	<input type="checkbox"/>
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Abstract: The invention relates to a method of adaptive variable length coding in which a set of data symbols comprising a certain first number of data symbols having a first value and a certain second number of data symbols having values other than the first value are represented by variable length codewords. According to the invention, at least one characteristic of the variable length coding applied to the data symbols is adapted according to the second number of data symbols which have values other than the first value. The invention also relates to a corresponding method of variable length decoding, as well as an encoder and decoder which implement the variable length coding and decoding methods according to the invention.

MainClaim: A method of variable length encoding a set of data symbols comprising a number of first data symbols having a first value and a number of second data symbols having values other than said first value, the encoding method comprising performing a mapping operation between said set of data symbols and a set of variable length codewords, in which variable length codewords are selected from said set of variable length codewords to form a set of encoded values comprising variable length codewords representative of the set of data symbols, wherein the set of variable length codewords and/or the mapping between said data symbols and said set of variable length codewords is adapted in dependence on said number of second data symbols.

2009/0016626	JOINT CODING OF MULTIPLE TRANSFORM BLOCKS WITH REDUCED NUMBER OF COEFFICIENTS	Nokia Corporation	Zhang; Cixun Ugur; Kemal Lainema; Jani Hallapuro; Antti Olli	382	G06K	20080612	4	95%	<input type="checkbox"/>
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Abstract: A system and method for video/image encoding and decoding, where transform coefficients associated with a plurality of blocks are reorganized and coded together. Various embodiments perform transform and quantization and generate transform coefficients, where the coefficients of the transform blocks are reorganized and interleaved. Additionally, an encoding process involves coding only a subset of the transform coefficients belonging to the transform blocks resulting in one or more transform blocks less than the original number of transform blocks, and putting this into a bitstream. A decoding process involves decoding the one or more resulting transform blocks including the subset of transform coefficients from the bitstream, the transform coefficients being put in an array and decoded. The decoder de-interleaves the decoded transform coefficients and any remaining coefficients of the one or more transform blocks are filled in according to a plurality of different methods. After the one or more transform blocks are fully decoded, inverse transform and inverse quantization are performed and residual data is generated.

MainClaim: A method of encoding at least one of a video and an image signal, comprising: transform coding a signal into a plurality of transform blocks; quantizing transform coefficients of the plurality of transform blocks; reorganizing and interleaving the transform coefficients of the plurality of transform blocks; and entropy encoding a subset of the interleaved transform coefficients.

7,079,695	Digital image coding system having self-adjusting selection criteria for selecting a transform function	Apple Computer, Inc.	Wu; Hsi-Jung Tian; Yu Tina Lu; Jian Chu; Ke-Chiang	382	G06K	20030807	0	100%	<input type="checkbox"/>
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Abstract: In a digital signal processing system, a method for selecting a transform function to apply to an input signal based on characteristics of the signal, and for self-adjusting criteria which are used in selecting a transform function to apply to a subsequent signal. Characteristics are obtained from the signal. The characteristics are compared to adjustable criteria which are used in selecting a transform function. Differing criteria are maintained for the different selectable transform functions. A record is maintained of transform functions selected and the particular characteristics that caused the selection. Based on the ability of a transform function to minimally define the coded signal, an inverse transform function is selected to decode the signal. The criteria used in selecting a transform function to apply to a subsequent signal are adjusted based on a quality measure of the decoded signal and the record of selected transform functions.

MainClaim: A machine-implemented method for coding a block of pixels of a digitized image using a selectable one of a plurality of coding functions, the method comprising: establishing adjustable selection criteria for selecting a coding function; measuring a characteristic of the block to obtain a characteristic value; selecting a coding function based on said adjustable selection criteria and said characteristic value; coding the block according to said coding function to obtain a coded block; performing a quality measurement of said coded block; and adjusting said adjustable selection criteria, based on said quality measurement, for use in determining which coding function is to be selected from the plurality of coding functions to code at least one further block.

7,295,713	Method for encoding images, and an image	Nokia Corporation	Kalevo; Ossi Vahteri; Joni Henrikki Dobrin;	382	G06K	20050606	4	94%	<input type="checkbox"/>
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	coder		Bogdan-Paul Karczewicz; Marta							<input type="checkbox"/>
<p>Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of said neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one said classification.</p> <p>MainClaim: A method for encoding a digital image in a block-based manner, in which a spatial prediction for a block is performed to reduce amount of information to be transmitted, wherein the method comprises: determining a classification for at least two neighboring blocks of a block to be predicted according to the image contents of said neighboring blocks; selecting a sub-set of prediction methods from a set of available prediction methods on the basis of the classifications of said at least two neighboring blocks; defining an arrangement for the list of said sub-set of prediction methods in a rank order, said rank order determined on the basis of the classifications of said at least two neighboring blocks, wherein each prediction method in the said list has a unique rank with respect to each of the other prediction methods; selecting a prediction method for the block to be predicted from said sub-set of prediction methods; forming a spatial prediction for the block to be predicted using the selected prediction method; and providing a signal representative of rank of the selected prediction method.</p>										
2008/0247657	Method for Encoding Images, and an Image Coder	NOKIA CORPORATION	Kalevo; Ossi Vahteri; Joni Henrikki Dobrin; Bogdan-Paul Karczewicz; Marta	382	G06K	20071009	5	94%		<input type="checkbox"/>
<p>Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of the neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one classification.</p> <p>MainClaim: (canceled)</p>										
7,567,719	Method for encoding images, and an image coder	Nokia Corporation	Kalevo; Ossi Vahteri; Joni Dobrin; Bogdan-Paul Karczewicz; Marta	382	G06K	20071009	3	94%		<input type="checkbox"/>
<p>Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighboring block (L, U) of said block (C) to be predicted according to the contents of the neighboring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one classification.</p> <p>MainClaim: A method for encoding a digital image in a block-based manner into an encoded bitstream, the method comprising: performing by an encoder a prediction for a block to be coded with respect to a reference block, wherein displacement between the block to be coded and the reference block is represented by a horizontal displacement and a vertical displacement; defining by said encoder an ordered list of each possible horizontal and vertical displacements in a rank order; and providing by said encoder a signal, in the encoded bitsream, representative of the rank of the horizontal displacement and the vertical displacement in the ordered list.</p>										
7,430,335	Pre-processing method and system for data reduction of video sequences and bit rate reduction of compressed video sequences using spatial filtering	Apple Inc	Dumitras; Adriana Normile; James Oliver Salsbury; Ryan R.	382	G06K	20030813	0	100%		<input type="checkbox"/>
<p>Abstract: Methods for pre-processing video sequences prior to compression to provide data reduction of the video sequence. Also, after compression of the pre-processed video sequence, the bit rate of the pre-processed and compressed video sequence will be lower than the bit rate of the video sequence after compression but without pre-processing. Pre-processing may include spatial anisotropic diffusion filtering such as Perona-Malik filtering, Fallah-Ford filtering, or omni-directional filtering that extends Perona-Malik filtering to perform filtering in at least one diagonal direction. Pre-processing may also include performing filtering differently on a foreground region than on a background region of a video frame. This method includes identifying pixel locations having pixel values matching characteristics of human skin and determining a bounding shape for each contiguous grouping of matching pixel locations. The foreground region is comprised of pixel locations contained in a bounding shape and the background region is comprised of all other pixel locations.</p> <p>MainClaim: A method of pre-filtering an original video sequence, the original video sequence comprising a plurality of frames, each frame comprising a plurality of pixel locations where each pixel location comprises a pixel value, the method comprising: a) setting a current frame of the original video sequence; b) identifying a region-of-interest in the current frame; c) specifying a bounding shape that encloses at least a portion of the region-of-interest; and d) filtering pixel locations in the bounding shape differently than other pixel locations in the current frame.</p>										
2007/0171987	Method for optical flow field estimation using adaptive Filtering	Nokia Corporation	Trimeche; Mejdi	375	H04B	20060120	4	95%		<input type="checkbox"/>
<p>Abstract: A motion estimation process in video coding takes into account the estimates in the immediate spatio-temporal neighborhood, through an adaptive filtering mechanism, in order to produce a smooth and coherent optical flow field at each pixel position. The adaptive filtering mechanism includes a recursive LMS filter based on pixel-wise algorithm for obtaining motion vectors in a reference image of a video image frame, while consecutively scanning through individual pixels of the image frame. This motion estimation process is particularly well suited for the estimation of small displacements within consecutive video frames, and can be applied in several applications such as super-resolution, stabilization, denoising of video sequences. The method is also well suited for high frame rate video capture.</p> <p>MainClaim: A method of motion estimation in a video sequence having a plurality of video frames, the video frames including a first frame having a plurality of first pixels and a second frame having a plurality of second pixels, each second pixel having a corresponding first pixel, each of the second pixels having an intensity value, wherein the first frame and the second frame are separated by a time interval, said method comprising the steps of: scanning the first frame and the second frame in a</p>										

predetermined pattern to cover part or all of the second pixels; for each second pixel to be matched in said part or all of the second pixels, defining a search area in the first frame; filtering the first pixels in the search area with a coefficient matrix having a plurality of coefficients, each coefficient corresponding to one pixel in the search area, for providing an estimated intensity value; computing an error value between the estimated intensity value and the intensity value of said each second pixel to be matched; updating the coefficients in the coefficient matrix based on the error value for providing an updated coefficient matrix; and determining a motion vector for said each second pixel to be matched at least partially based on at least part of the updated coefficient matrix and the time interval.

7,242,815	Adaptive filter	Nokia Corporation	Kalevo; Ossi Karczewicz; Marta	382	G06T	20040120	3	94%	<input type="checkbox"/>
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Abstract: In order to remove blocking artefacts from a frame which has been coded by blocks and then decoded, a certain number of pixels (n) is selected for examination from both sides of the block boundary (30). The number of pixels selected for examination depends on the image content of the frame in the environment of the block boundary, particularly on the difference of the pixel values across the block boundary (30) and the size of the quantization step of the transformation coefficients used in the transformation coding of the blocks.

MainClaim: A video encoder comprising a block boundary filtering block for removing blocking artefacts due to block boundaries between image blocks in a frame of a digital video signal, the block boundary filtering block being arranged to perform an adaptive block boundary filtering operation on a block boundary between a first image block on a first side of the block boundary and a second image block on a second side of the block boundary by: selecting a certain number of pixels for examination on both sides of the block boundary; determining a first activity measure representative of a variation in pixel value between pixels on the first side of the block boundary by examining the values of pixels selected for examination on the first side of the block boundary; determining a second activity measure representative of a variation in pixel value between pixels on the second side of the block boundary by examining the values of pixels selected for examination on the second side of the block boundary; selecting a number of pixels to be filtered from the pixels selected for examination; determining a new value for a pixel selected for filtering on the first side of the block boundary on the basis of pixels that appear in a filtering window set around the pixel to be filtered, the size of the filtering window being dependent at least in part upon the first activity measure determined on the first side of the block boundary; and determining a new value for a pixel selected for filtering on the second side of the block boundary on the basis of pixels that appear in a filtering window set around the pixel to be filtered, the size of the filtering window being dependent at least in part upon the second activity measure determined on the second side of the block boundary.

2008/0069203	METHOD FOR SUB-PIXEL VALUE INTERPOLATION	Nokia Corporation	Karczewicz; Marta Hallapuro; Antti Olli	375	H04B	20070815	2	93%	<input type="checkbox"/>
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Abstract: A method of interpolation in video coding in which an image comprising pixels arranged in rows and columns and represented by values having a specified dynamic range, the pixels in the rows residing at unit horizontal locations and the pixels in the columns residing at unit vertical locations, is interpolated to generate values for sub-pixels at fractional horizontal and vertical locations, the method comprising: a) when values for sub-pixels at half unit horizontal and unit vertical locations, and unit horizontal and half unit vertical locations are required, interpolating such values directly using weighted sums of pixels residing at unit horizontal and unit vertical locations; b) when values for sub-pixels at half unit horizontal and half unit vertical locations are required, interpolating such values directly using a weighted sum of values for sub-pixels residing at half unit horizontal and unit vertical locations calculated according to step (a); and c) when values for sub-pixels at quarter unit horizontal and quarter unit vertical locations are required, interpolating such values by taking the average of at least one pair of a first pair of values of a sub-pixel located at a half unit horizontal and unit vertical location, and a sub-pixel located at a unit horizontal and half unit vertical location and a second pair of values of a pixel located at a unit horizontal and unit vertical location, and a sub-pixel located at a half unit horizontal and half unit vertical location.

MainClaim: A method for sub-pixel value interpolation to determine values for sub-pixels situated within a rectangular bounded region defined by four corner pixels with no intermediate pixels between the corners, the pixels and sub-pixels being arranged in rows and columns, the pixel and sub-pixel locations being representable mathematically within the rectangular bounded region using the co-ordinate notation $K/2^N$, $L/2^N$, K and L being positive integers having respective values between zero and 2^N , N being a positive integer greater than one and representing a particular degree of sub-pixel value interpolation, the method comprising: interpolating a sub-pixel value for a sub-pixel having co-ordinates with odd values of both K and L, according to a predetermined choice of a weighted average of the value of a nearest-neighbouring pixel and the value of the sub-pixel situated at co-ordinates $1/2$, $1/2$, and a weighted average of the values of a pair of diagonally-opposed sub-pixels having co-ordinates with even values of both K and L, including zero, situated within a quadrant of the rectangular bounded region defined by corner pixels having co-ordinates $1/2$, $1/2$ and the nearest neighbouring pixel; interpolating sub-pixel values for sub-pixels having co-ordinates with K equal to an even value and L equal zero and sub-pixels having co-ordinates with K equal to zero and L equal to an even value, used in the interpolation of the sub-pixels having co-ordinates with odd values of both K and L, using weighted sums of the values of pixels located in rows and columns respectively; and interpolating sub-pixel values for sub-pixels having co-ordinates with even values of both K and L, used in the interpolation of sub-pixel values for the sub-pixels having co-ordinates with odd values of both K and L, using a predetermined choice of either a weighted sum of the values of sub-pixels having co-ordinates with K equal to an even value and L equal to zero and the values of sub-pixels having corresponding co-ordinates in immediately adjacent rectangular bounded regions, or a weighted sum of the values of sub-pixels having co-ordinates with K equal to zero and L equal to an even value and the values of sub-pixels having corresponding co-ordinates in immediately adjacent bounded rectangular regions.

7,403,568	Pre-processing method and system for data reduction of video sequences and bit rate reduction of compressed video sequences using temporal filtering	Apple Inc.	Dumitras; Adriana Normile; James Oliver Salsbury; Ryan R.	375	H04N	20030813	0	100%	<input type="checkbox"/>
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Abstract: Methods for pre-processing video sequences prior to compression to provide data reduction of the video sequence. In addition, after compression of the pre-processed video sequence, the bit rate of the pre-processed and compressed video sequence will be lower than the bit rate of the video sequence after compression but without pre-processing. A temporal filtering method is provided for pre-processing of video frames of a video sequence. In the method, pixel values of successive frames are filtered when the difference in the pixel values between the successive frames are within high and low threshold values. The high and low threshold values are determined adaptively depending on the illumination level of a video frame to provide variability of filtering strength depending on the illumination levels of a video frame.

MainClaim: A method of pre-filtering an original video sequence, the original video sequence comprising a plurality of frames,

each frame comprising a plurality of pixel locations where each pixel location comprises a pixel value and is identifiable by pixel location coordinates, the method comprising: a) setting a current unencoded frame and a next unencoded frame of the original video sequence; b) computing a statistical value representative of a luminance attribute of the current frame; c) determining a pixel value difference between a pixel value at pixel location coordinates in the next frame and a pixel value at the pixel location coordinates in the current frame; and d) filtering the pixel values at the pixel location coordinates in the current frame and the next frame if the pixel value difference is within a low threshold value and a high threshold value, the low and high threshold values being based on the statistical value.

2007/0171987	Method for optical flow field estimation using adaptive Filtering	Nokia Corporation	Trimeche; Mejdi	375	H04B	20060120	4	95%	<input type="checkbox"/>
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Abstract: A motion estimation process in video coding takes into account the estimates in the immediate spatio-temporal neighborhood, through an adaptive filtering mechanism, in order to produce a smooth and coherent optical flow field at each pixel position. The adaptive filtering mechanism includes a recursive LMS filter based on pixel-wise algorithm for obtaining motion vectors in a reference image of a video image frame, while consecutively scanning through individual pixels of the image frame. This motion estimation process is particularly well suited for the estimation of small displacements within consecutive video frames, and can be applied in several applications such as super-resolution, stabilization, denoising of video sequences. The method is also well suited for high frame rate video capture.

MainClaim: A method of motion estimation in a video sequence having a plurality of video frames, the video frames including a first frame having a plurality of first pixels and a second frame having a plurality of second pixels, each second pixel having a corresponding first pixel, each of the second pixels having an intensity value, wherein the first frame and the second frame are separated by a time interval, said method comprising the steps of: scanning the first frame and the second frame in a predetermined pattern to cover part or all of the second pixels; for each second pixel to be matched in said part or all of the second pixels, defining a search area in the first frame; filtering the first pixels in the search area with a coefficient matrix having a plurality of coefficients, each coefficient corresponding to one pixel in the search area, for providing an estimated intensity value; computing an error value between the estimated intensity value and the intensity value of said each second pixel to be matched; updating the coefficients in the coefficient matrix based on the error value for providing an updated coefficient matrix; and determining a motion vector for said each second pixel to be matched at least partially based on at least part of the updated coefficient matrix and the time interval.

7,242,815	Adaptive filter	Nokia Corporation	Kalevo; Ossi Karczewicz; Marta	382	G06T	20040120	3	94%	<input type="checkbox"/>
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Abstract: In order to remove blocking artefacts from a frame which has been coded by blocks and then decoded, a certain number of pixels (n) is selected for examination from both sides of the block boundary (30). The number of pixels selected for examination depends on the image content of the frame in the environment of the block boundary, particularly on the difference of the pixel values across the block boundary (30) and the size of the quantization step of the transformation coefficients used in the transformation coding of the blocks.

MainClaim: A video encoder comprising a block boundary filtering block for removing blocking artefacts due to block boundaries between image blocks in a frame of a digital video signal, the block boundary filtering block being arranged to perform an adaptive block boundary filtering operation on a block boundary between a first image block on a first side of the block boundary and a second image block on a second side of the block boundary by: selecting a certain number of pixels for examination on both sides of the block boundary; determining a first activity measure representative of a variation in pixel value between pixels on the first side of the block boundary by examining the values of pixels selected for examination on the first side of the block boundary; determining a second activity measure representative of a variation in pixel value between pixels on the second side of the block boundary by examining the values of pixels selected for examination on the second side of the block boundary; selecting a number of pixels to be filtered from the pixels selected for examination; determining a new value for a pixel selected for filtering on the first side of the block boundary on the basis of pixels that appear in a filtering window set around the pixel to be filtered, the size of the filtering window being dependent at least in part upon the first activity measure determined on the first side of the block boundary; and determining a new value for a pixel selected for filtering on the second side of the block boundary on the basis of pixels that appear in a filtering window set around the pixel to be filtered, the size of the filtering window being dependent at least in part upon the second activity measure determined on the second side of the block boundary.

2008/0069203	METHOD FOR SUB-PIXEL VALUE INTERPOLATION	Nokia Corporation	Karczewicz; Marta Hallapuro; Antti Olli	375	H04B	20070815	2	93%	<input type="checkbox"/>
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Abstract: A method of interpolation in video coding in which an image comprising pixels arranged in rows and columns and represented by values having a specified dynamic range, the pixels in the rows residing at unit horizontal locations and the pixels in the columns residing at unit vertical locations, is interpolated to generate values for sub-pixels at fractional horizontal and vertical locations, the method comprising: a) when values for sub-pixels at half unit horizontal and unit vertical locations, and unit horizontal and half unit vertical locations are required, interpolating such values directly using weighted sums of pixels residing at unit horizontal and unit vertical locations; b) when values for sub-pixels at half unit horizontal and half unit vertical locations are required, interpolating such values directly using a weighted sum of values for sub-pixels residing at half unit horizontal and unit vertical locations calculated according to step (a); and c) when values for sub-pixels at quarter unit horizontal and quarter unit vertical locations are required, interpolating such values by taking the average of at least one pair of a first pair of values of a sub-pixel located at a half unit horizontal and unit vertical location, and a sub-pixel located at a unit horizontal and half unit vertical location and a second pair of values of a pixel located at a unit horizontal and unit vertical location, and a sub-pixel located at a half unit horizontal and half unit vertical location.

MainClaim: A method for sub-pixel value interpolation to determine values for sub-pixels situated within a rectangular bounded region defined by four corner pixels with no intermediate pixels between the corners, the pixels and sub-pixels being arranged in rows and columns, the pixel and sub-pixel locations being representable mathematically within the rectangular bounded region using the co-ordinate notation $K/2^N$, $L/2^N$, K and L being positive integers having respective values between zero and 2^N , N being a positive integer greater than one and representing a particular degree of sub-pixel value interpolation, the method comprising: interpolating a sub-pixel value for a sub-pixel having co-ordinates with odd values of both K and L, according to a predetermined choice of a weighted average of the value of a nearest-neighbouring pixel and the value of the sub-pixel situated at co-ordinates $1/2$, $1/2$, and a weighted average of the values of a pair of diagonally-opposed sub-pixels having co-ordinates with even values of both K and L, including zero, situated within a quadrant of the rectangular bounded region defined by corner pixels having co-ordinates $1/2$, $1/2$ and the nearest neighbouring pixel; interpolating sub-pixel values for sub-pixels having co-ordinates with K equal to an even value and L equal zero and sub-pixels having co-ordinates with K equal to zero and L equal to an even value, used in the interpolation of the sub-pixels having co-ordinates with odd values of both K and L, using weighted sums of the values of pixels located in rows and columns respectively; and interpolating sub-pixel values for sub-pixels having

co-ordinates with even values of both K and L, used in the interpolation of sub-pixel values for the sub-pixels having co-ordinates with odd values of both K and L, using a predetermined choice of either a weighted sum of the values of sub-pixels having co-ordinates with K equal to an even value and L equal to zero and the values of sub-pixels having corresponding co-ordinates in immediately adjacent rectangular bounded regions, or a weighted sum of the values of sub-pixels having co-ordinates with K equal to zero and L equal to an even value and the values of sub-pixels having corresponding co-ordinates in immediately adjacent bounded rectangular regions.

5,649,030	Vector quantization	Apple Computer, Inc.	Normile; James Oliver Wang; Katherine Shu-Wei	382	H04N	19950315	0	100%	<input type="checkbox"/>
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Abstract: Improved method and apparatus for vector quantization (VQ) to build a codebook for the compression of data. The codebook or "tree" is initialized by establishing N initial nodes and creating the remainder of the codebook as a binary codebook. Children entries are split upon determination of various attributes, such as maximum distortion, population, etc. Vectors obtained from the data are associated with the children nodes, and then representative children entries are recalculated. This splitting/reassociation continues iteratively until a difference in error associated with the previous children and current children becomes less than a threshold. This splitting and reassociating process continues until the maximum number of terminal nodes is created in the tree, a total error or distortion threshold has been reached or some other criterion. The data may then be transmitted as a compressed bitstream comprising a codebook and indices referencing the codebook.

MainClaim: An automatic method in an encoding device of vector quantization of an image comprising the following steps:

- a. initializing N initial nodes in a vector quantizer tree in a dynamic storage device of said encoding device;
- b. sampling a vector from said image;
- c. determining a node in said vector quantizer tree which is a best representative sample of the vector sampled from said image;
- d. associating the vector with said node in said vector quantizer tree in said dynamic storage device;
- e. sampling a next vector from said image;
- f. repeating steps c-f until there are no more vectors to be sampled from said image, said next vector becoming said vector;
- g. determining which of the nodes in said tree is the most distorted node in said tree;
- h. splitting said most distorted node into two children nodes in said dynamic storage device;
- i. associating a first portion of the vectors associated with said most distorted node with a first of said children nodes in said dynamic storage device, and a second portion of the vectors associated with said most distorted node with a second of said children nodes in said dynamic storage device;
- j. determining a current error of the two children nodes compared to the first and second portions of the vectors;
- k. if the change in error between the current error and a previous error is less than an error threshold then proceeding to step l otherwise determining new values of said first and second children, and proceeding to step i, said current error becoming said previous error;
- l. repeating steps g through k until the number of terminal nodes in said vector quantizer tree has reached a desired population; and
- m. associating indices with each of the terminal nodes in said vector quantizer tree in said dynamic storage device.

2003/0161542	Size reduction method and device for compressed images	Nokia Corporation	Ridge, Justin	382	G06K	20020228	3	93%	<input type="checkbox"/>
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Abstract: A method and device for reducing a compressed image to a target size by reducing the quality of the image by a quality scaling factor. Image statistics inherent to the image are used to compute the size reduction as a function of the quality scaling factor. Using the relationship between the quality and the size of the image, an estimated quality scaling factor is obtained based on the target size in an iterative process until the size reduction corresponding to the estimated quality scaling factor is substantially equal to the target reduction.

MainClaim: A method of reducing the size of an input image to a target size by using a quality scaling factor to reduce image quality, wherein the size reduction is effected by a reduction factor estimated from the quality scaling factor and image statistics inherent to the input image, said method comprising the steps of: selecting a range of quality scaling factors based on the target size; obtaining a range of reduction factors based on the selected range of quality scaling factors for determining a quality-size relationship; computing an estimated quality scaling factor corresponding to the target size based on the quality-size relationship; obtaining an estimated reduction factor based on the estimated quality scaling factor for providing a difference between the target size and the size reduction effected by the estimated reduction factor; and refining the range of the quality scaling factors for reducing the difference until the difference falls within a predetermined limit.

6,931,159	Size reduction method and device for compressed images	Nokia Corporation	Ridge; Justin	382	G06K	20020228	3	93%	<input type="checkbox"/>
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Abstract: A method and device for reducing a compressed image to a target size by reducing the quality of the image by a quality scaling factor. Image statistics inherent to the image are used to compute the size reduction as a function of the quality scaling factor. Using the relationship between the quality and the size of the image, an estimated quality scaling factor is obtained based on the target size in an iterative process until the size reduction corresponding to the estimated quality scaling

factor is substantially equal to the target reduction.

MainClaim: A method of reducing the size of an input image to a target size by using a quality scaling factor to reduce image quality, wherein the size reduction is effected by a reduction factor estimated from the quality scaling factor and image statistics inherent to the input image, said method comprising the steps of:

selecting a range of quality scaling factors based on the target size;

obtaining a range of reduction factors based on the selected range of quality scaling factors for determining a quality-size relationship;

computing an estimated quality scaling factor corresponding to the target size based on the quality-size relationship;

obtaining an estimated reduction factor based on the estimated quality scaling factor for providing a difference between the target size and the size reduction effected by the estimated reduction factor; and

refining the range of the quality scaling factors for reducing the difference until the difference falls within a predetermined limit.

2001/0017942	Method for encoding images, and an image coder	Nokia Mobile Phones Ltd.	Kalevo, Ossi Vahteri, Joni Henrikki Dobrin, Bogdan-Paul Karczewicz, Marta	382	G06K	20010119	5	93%	<input type="checkbox"/>
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Abstract: The invention relates to a method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR). In the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined. In the method a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of said neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one said classification.

MainClaim: A method for encoding a digital image, in which method the digital image is divided into blocks (C, L, U, UL, UR), characterized in that in the method a spatial prediction for a block (C) is performed to reduce the amount of information to be transmitted, wherein at least one prediction method (P1-P13) is defined, a classification is determined for at least one neighbouring block (L, U) of said block (C) to be predicted according to the contents of said neighbouring block (L, U), and a prediction method (P1-P13) is selected for the current block (C) on the basis of at least one said classification.

7,643,693	Fast lossless encoder for digitized analog data	Apple Inc.	Crandall; Richard E Jones; Evan T Klivington; Jason Oslick; Mitchell	382	G06K	20040416	0	100%	<input type="checkbox"/>
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Abstract: Lossless compression and the corresponding decompression of image and audio data are enabled using a combination of dynamic prediction and Golomb coding. First, data is converted from the RGB domain into the YUV domain. Next, a dynamic prediction algorithm is run to express pixel values as differential values rather than original bit values. Prediction coefficients are re-evaluated on the fly enabling additional compression because of more accurate predictors. An Adaptive Golomb Engine next performs an additional compression step, using an adaptive form of Golomb encoding in which mean values are variable across the data. The use of variable mean values reduces the deleterious effects found in conventional Golomb encoding in which localized regions of similar data are inefficiently coded if their bit values are uncommon in the data as a whole.

MainClaim: A computer-implemented method for compressing a stream of image or audio data, the data stream received from a data source, the method executed by a processor and comprising: applying a dynamic prediction function to the stream of image or audio data received from the data source by using dynamically predicted coefficient values associated with the data according to non-linear feedback to yield a first compressed stream of image or audio data; applying a Golomb coding function to the first compressed stream of data to yield a second compressed stream of image or audio data; and outputting the second compressed stream of data to a computer-readable storage medium.

2006/0233255	Fine granularity scalability (FGS) coding efficiency enhancements	Nokia Corporation	Ridge; Justin Bao; Yiliang Karczewicz; Marta Wang; Xianglin	375	H04N	20060412	1	93%	<input type="checkbox"/>
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Abstract: Scalable video coding techniques include encoding blocks by scan position within a coding cycle in decreasing order to increase the probability of the next symbol will be non-zero. When truncating a fine granularity singularity (FGS) slice, instead of removing a constant fraction of every slice, the fraction is a truncation ration that is set to depend on the temporal level of the slice being truncated.

MainClaim: A method of decoding scalable video data, the method comprising: identifying one or more coefficient blocks in a frame of scalable video data to be decoded during a decoding pass; computing a scan position for each identified coefficient block; processing the identified coefficient blocks in an order based in part on the computed scan positions corresponding to the identified coefficient blocks; and decoding zero or more coefficients for each of the processed coefficient blocks.

2007/0094035	Audio coding	Nokia Corporation	Vasilache; Adriana	704	G10L	20051021	1	92%	<input type="checkbox"/>
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Abstract: An audio coding method is described that includes receiving an input audio signal, splitting the input audio signal into at least two sub-bands, downscaling the at least two sub-band with a factor depending at least on a standard deviation of the corresponding sub-band, companding each of the at least downsampled sub-bands, and quantizing the companded, downsampled sub-bands with a lattice quantizer.

MainClaim: A method for audio encoding comprising: receiving an input audio signal, splitting the input audio signal into at least two sub-bands, scaling the at least two sub-bands with a first factor, companding each of the at least two scaled sub-bands, and quantizing the companded, scaled sub-bands.

7,583,844	Method, device, and system for processing of still images in the compressed domain	Nokia Corporation	Fehmi; Chebil Asad; Islam	382	G06K	20050311	1	92%	<input type="checkbox"/>
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Abstract: The present invention concerns the manipulation and especially the filtering of image data in the compressed domain. A method and a device is provided which allows for manipulating image data in the compressed domain transformed from image

data in the spatial domain with the help of a wavelet-based transform algorithm. The advantage of the inventive concept is to accelerate the filtering in time, such that underlying constraints in device computational power, storage, memory, and electrical power consumption are applicable for image manipulation/filtering.

MainClaim: Method, comprising: at a consumer electronic device, providing compressed image data in a compressed domain obtained from image data in a spatial domain by a subband encoder, in particular based on a wavelet transform; at the consumer electronic device, providing a transformed linear function $F(k)$ in the compressed domain of a linear function $f(k)$ defined in the spatial domain, wherein the transformed linear function $F(k)$ is obtainable by transforming the linear function $f(k)$ from the spatial domain into the compressed domain, wherein the linear function $f(k)$ is composed of at least one out of a group comprising at least one linear offset K and at least one linear scaling factor λ , wherein the linear function $f(k)$ is applicable to the image data in the spatial domain to obtain modified image data in the spatial domain; and at the consumer electronic device, applying the transformed linear function $F(k)$ to a defined number of subbands of the compressed image data for modifying the image data in the compressed domain resulting in modified subbands.

7,391,812	Adaptively post filtering encoded video	Apple Inc.	Pun; Thomas Handley; Maynard Kumar; Roger Nie; Xiaochun Wu; Hsi-Jung	375	H04N	20030430	0	100%	<input checked="" type="checkbox"/>
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Abstract: Some embodiments of the invention provide a method of decoding an encoded video signal that includes a plurality of successive encoded images. The method initially receives an encoded image of the video signal. It then decodes the encoded image. The method next examines the decoded image to determine whether the decoded image satisfies at least one criterion for performing a post-filter operation on the decoded image. Only if the decoded image satisfies the criterion, the method performs the post-filter operation on the decoded image. The criterion in some embodiments is whether the amount of time for applying the post-filter operation exceeds the remaining amount of time that the method has to process the received image. Some embodiments of the invention provide a method of post-filtering a current image that was decoded from an encoded video signal, which includes a plurality of successive encoded images. The current image has several sub-sections. The method selects a sub-section of the current image. It then determines whether the selected sub-section satisfies at least one condition for performing a post-filter operation on the selected sub-section. The method next performs the post-filter operation on the selected sub-section only if the selected sub-section satisfies the criterion.

MainClaim: A method of performing a post-filter operation after decoding video, said video comprising a plurality of successive images, wherein the method has a particular amount of time to process an image that it receives, the method comprising: a) receiving an image; b) determining whether there is sufficient time to perform a post-filter operation on the received image, said determining comprising: i) computing an estimate of the time necessary for performing a post-filter operation on the received image; and ii) determining whether the computed time estimate is less than the time that the method has to process the image; and c) performing the post-filter operation on the received image only if there is sufficient time to perform the post-filter operation.

7,599,565	Method and device for transform-domain video editing	Nokia Corporation	Kurceren; Ragip Chebil; Fehmi Islam; Asad	382	G06K	20040310	1	95%	<input type="checkbox"/>
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Abstract: A method and device for editing video data to achieve a video effect in a video sequence. From an encoder, transform coefficients of part of the video sequence are obtained. The transform coefficients are mixed with other transform coefficients in a combining module. The output of the combining module is quantized and further processed to provide an edited video bitstream. In the combining module, transform coefficients are multiplied with weighting parameters to achieve different video effects. Furthermore, logo data from a memory can be transformed into further transform coefficients for mixing in order to achieve a logo insertion effect. Moreover, prediction error and motion compensation information obtained from video data can be used to provide a reference frame, and the transform data from the reference frame can be used for mixing to achieve a blending effect.

MainClaim: A method comprising: acquiring in a video decoder video data indicative of a plurality of first transform coefficients from a first bitstream; acquiring in the video decoder video data indicative of a plurality of second transform coefficients different from the first transform coefficients, obtaining first predicted video data based on motion information from a second bitstream and a previously constructed part of the second bitstream; performing transform operation on the first predicted video data for obtaining a plurality of third transform coefficients; and combining the first transform coefficients, the second transform coefficients and the third transform coefficients for achieving a video effect.

2006/0285587	Image processing of DCT-based video sequences in compressed domain	Nokia Corporation	Luo; Jiangcong Chebil; Fehmi Islam; Asad	375	H04N	20050621	1	95%	<input type="checkbox"/>
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Abstract: This invention relates to a method for applying at least one of contrast adjustment and brightness adjustment to a compressed, motion compensated DCT-based video sequence corresponding to an image processing operation, comprising the steps of providing the compressed, motion compensated DCT-based video sequence, applying the image processing operation on the video sequence in compressed domain resulting in an image processed, compressed video sequence, wherein the applying is executed by adjusting of DCT-components defining the DCT-based video sequence.

MainClaim: A method for applying at least one of contrast adjustment and brightness adjustment to a compressed, motion compensated DCT-based video sequence corresponding to an image processing operation, comprising the steps of: providing said compressed, motion compensated DCT-based video sequence; and applying said image processing operation on said video sequence in compressed domain resulting in an image processed, compressed video sequence, wherein said applying is executed by adjusting DCT-components defining said DCT-based video sequence.

2005/0201467	Method and device for transform-domain video editing	Nokia Corporation	Kurceren; Ragip Chebil; Fehmi Islam; Asad	375	H04N	20040310	1	95%	<input type="checkbox"/>
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Abstract: A method and device for editing video data to achieve a video effect in a video sequence. From an encoder, transform coefficients of part of the video sequence are obtained. The transform coefficients are mixed with other transform coefficients in a combining module. The output of the combining module is quantized and further processed to provide an edited video bitstream. In the combining module, transform coefficients are multiplied with weighting parameters to achieve different video effects. Furthermore, logo data from a memory can be transformed into further transform coefficients for mixing in order to achieve a logo insertion effect. Moreover, prediction error and motion compensation information obtained from video data can be used to provide a reference frame, and the transform data from the reference frame can be used for mixing to achieve a blending effect.

MainClaim: A method of editing a bitstream carrying video data indicative of a video sequence, said method comprising:

acquiring from the bitstream data indicative of transform coefficients of at least part of the video sequence; and modifying the acquired data in the transform domain for providing modified data in a modified bitstream in order to achieve a video effect in said at least part of the video sequence.

5,812,199	System and method for estimating block motion in a video image sequence	Apple Computer, Inc.	Lu; Jian Chu; Ke-Chiang Tian; Yu Tina Wu; Hsi-Jung	375	H04N	19960711	0	100%	<input type="checkbox"/>
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Abstract: A system for estimating block motion from a previous frame to a current frame, wherein motion vectors have been computed for blocks in the previous frame. The system comprises a P-checkerboard processor, an S-checkerboard processor and a block matching engine. The a P-checkerboard processor selects a first current block from a primary checkerboard pattern, retrieves motion vectors for reference blocks in the previous frame, and uses the retrieved motion vectors to generate a temporal search window. The block matching engine locates in the temporal search window a block which best matches the first current block, and determines the current motion vector from the best matching block to the first current block. Alternatively, the a P-checkerboard processor can use the retrieved motion vectors to interpolate the current motion vector. The S-checkerboard processor selects a second current block from a secondary checkerboard pattern, and uses the current motion vector to generate a spatial dynamic search window. The block matching processor locates in the spatial search window the block which best matches the second current block, and determines the current motion vector from the best matching block to the second current block.

MainClaim: A method for estimating block motion from a previous frame to a current frame, wherein the motion vectors for the previous frame are known, comprising the steps of:

(a) selecting a block from the current frame;

(b) retrieving the known previous motion vector for a block in the previous frame; and

(c) using the known previous motion vector to determine the current motion vector for the selected block.

2005/0201462	Method and device for motion estimation in scalable video editing	Nokia Corporation	Ridge, Justin Bao, Yiliang Karczewicz, Marta	375	H04N	20040309	2	96%	<input type="checkbox"/>
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Abstract: A motion estimation procedure for bitrate scalability and spatial scalability, wherein an original video frame is divided into a plurality of rectangular blocks of coefficients and a plurality of reference blocks are formed from an offset of the rectangular blocks in both x and y directions. For a given original video frame, one or more reference frames are selected so that a plurality of differences between the reference blocks and the rectangular blocks can be computed partly based on the summation of the differences between individual coefficients in each block. A weighted sum of the differences is computed and minimized so as to optimize the offset.

MainClaim: A method for motion estimation in coding video data indicative of a video sequence including a plurality of video frames, each frame containing a plurality of coefficients at different locations of the frame, said method comprising: selecting at least one reference frame for a given original video frame; partitioning said original video frame into rectangular blocks of coefficients; forming at least one reference block of coefficients from an offset of the rectangular blocks; computing the differences between said at least one reference block and the rectangular blocks; and optimizing the offset.

2009/0003443	PRIORITY-BASED TEMPLATE MATCHING INTRA PREDICTION VIDEO AND IMAGE CODING	Nokia Corporation	Guo; Yi Wang; Ye-Kui Li; Houqiang	375	H04N	20080625	1	96%	<input type="checkbox"/>
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Abstract: Template matching intra prediction based on a given priority is provided. Priority values of all, or a subset of the pixels on a border between a current block and a reconstructed area are calculated. A border pixel with the highest priority is used as the center of a template block. A search for the best matched candidate template is performed in the reconstructed area. Distortion metrics between known pixels in the to-match template and corresponding pixels in candidate templates are calculated and compared. The candidate template with the smallest distortion metric value is chosen as the best match. Corresponding pixels of the best-matched candidate template in the searching area are used as predictors of the unknown pixels in the template centered at the pixel with the highest priority, and the predicted pixels are marked as known. The process is repeated until all pixels in the current block are marked as known.

MainClaim: A method of encoding, comprising: prioritizing template blocks according to at least one criterion known to at least an encoder, wherein the template blocks include at least a portion of a to-be-intra predicted block and a reconstructed region; searching the reconstructed region for a best matched candidate template to match up with the prioritized template block during intra-prediction of the to-be-intra prediction block; predicting unknown pixels of the to-be-intra predicted block utilizing corresponding pixels of the best matched candidate template; and marking predicted pixels as known.

6,954,502	Method for encoding and decoding video information, a motion compensated video encoder and a corresponding decoder	Nokia Mobile Phones Ltd.	Lainema; Jani	375	H04N	20040203	2	96%	<input type="checkbox"/>
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Abstract: A method for encoding video information is presented, where a piece of current video information is segmented into macroblocks and a certain number of available macroblock segmentations for segmenting a macroblock into blocks is defined. Furthermore, for each available macroblock segmentation at least one available prediction method is defined, each of which prediction methods produces prediction motion coefficients for blocks within said macroblock, resulting in a certain finite number of available macroblock-segmentation—prediction-method pairs. For a macroblock one of the available macroblock-segmentation—prediction-method pairs is selected, and thereafter the macroblock is segmented into blocks and prediction motion coefficients for the blocks within said macroblock are produced using the selected macroblock-segmentation—prediction-method pair. A corresponding decoding method, an encoder and a decoder are also presented.

MainClaim: An encoder for performing motion compensated encoding of video information, said encoder being arranged to derive prediction motion coefficients for blocks within a macroblock of a video frame being encoded from motion coefficients of at least one prediction block that is a previously encoded macroblock or block within said video frame, the encoder being further arranged to:

specify a certain number of available macroblock segmentations that define possible ways in which a macroblock can be segmented into blocks;

specify at least one available prediction method for each available macroblock segmentation, thereby providing a certain finite number of available macroblock-segmentation—prediction-method pairs, each prediction method defining a method for deriving prediction motion coefficients for blocks within a macroblock using motion coefficients of at least one prediction block;

select a macroblock-segmentation—prediction method pair among the available macroblock-segmentation—prediction method pairs;

segment a macroblock using the macroblock segmentation specified by the selected macroblock-segmentation—prediction-method pair; and

derive prediction motion coefficients for blocks within said macroblock using the prediction method specified by the selected macroblock-segmentation—prediction-method pair.

5,267,334	Encoding/decoding moving images with forward and backward keyframes for forward and reverse display	Apple Computer, Inc.	Normille; James O. Yeh; Chia L. Wright; Daniel W. Chu; Ke-Chiang C.	382	G06K	19930121	0	100%	<input type="checkbox"/>
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Abstract: A method of removing frame redundancy in a computer system for a sequence of moving images. The method comprises detecting a first scene change in the sequence of moving images and generating a first keyframe containing complete scene information for a first image. The first keyframe is known, in a preferred embodiment, as a "forward-facing" keyframe or intra frame, and it is normally present in CCITT compressed video data. The process then comprises generating at least one intermediate compressed frame, the at least one intermediate compressed frame containing difference information from the first image for at least one image following the first image in time in the sequence of moving images. In a preferred embodiment, this at least one frame is known as an inter frame. Finally, detecting a second scene change in the sequence of moving images and generating a second keyframe containing complete scene information for an image displayed at the time just prior to the second scene change. This is known, in the preferred embodiment, as a "backward-facing" keyframe. The first keyframe and the at least one intermediate compressed frame are linked for forward play, and the second keyframe and the intermediate compressed frames are linked in reverse for reverse play. In a preferred embodiment, the intra frame is used for generation of complete scene information when the images are played in the forward direction. When this sequence is played in reverse, the backward-facing keyframe is used for the generation of complete scene information.

MainClaim: A method of encoding a first sequence of moving images as a second sequence of images in a computer system comprising:

a. detecting a first scene change in the first sequence of moving images and generating a first keyframe containing complete scene information for a first image detected at said first scene change in the first sequence of moving images for play of the second sequence of images in the forward direction;

b. generating at least one intermediate frame for the second sequence of images following said first keyframe, the at least one intermediate frame containing difference information from the first image for at least one image following the first image in time in the first sequence of moving images; and

c. detecting a second scene change in the first sequence of moving images and generating a second keyframe following said at least one intermediate frame in the second sequence of images, said second keyframe containing complete scene information prior to the second scene change in the first sequence of moving images for play of the second sequence of images in reverse.

2006/0115001	Indicating regions within a picture	Nokia Corporation	Wang; Ye-Kui Hannuksela; Miska	375	H04N	20060119	3	94%	<input type="checkbox"/>
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Abstract: A method for indicating size, shape and location of a region within a digital picture the picture being divided into a set of blocks. A value for at least one size parameter, which is indicative of a number of the blocks within said region is defined, and a value for at least one shape evolution parameter, which is indicative of a selection order of the blocks in said region is selected. Then preferably the values for said at least one size parameter and said at least one shape evolution parameter are encoded into a bitstream of a video sequence in order to indicate size, shape and location of the region within the picture.

MainClaim: A method for indicating size, shape and location of a region within a digital picture, the picture being divided into a set of blocks, the method comprising: defining a value for at least one size parameter being indicative of a number of the blocks within said region, and selecting a value for at least one shape evolution parameter being indicative of a selection order of the blocks into said region.

2006/0120464	Grouping of image frames in video coding	Nokia Corporation	Hannuksela; Miska	375	H04B	20060125	2	94%	<input type="checkbox"/>
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Abstract: A method of decoding a compressed video sequence, wherein image frames are entered into a buffer memory in connection with the decoding. The video sequence includes an indication relating to at least one discontinuity in the numbering of the image frames, which indication is decoded from the video sequence. Then, in response to the indication, the buffer memory is configured to provide a number of image frames corresponding to a discontinuity in the numbering of the image frames, and the image frames provided by the buffer memory are used in the decoding process. Preferably, said indication informs that at least one discontinuity in the numbering of the image frames in the video sequence are intentional, and the number of image frames provided by the buffer memory are used in place of image frames that do not exist at a decoder.

MainClaim: A method for decoding a compressed video sequence, wherein image frames are entered into a buffer memory in connection with the decoding, the method comprising: decoding from the video sequence an indication related to at least one discontinuity of numbering of the image frames; configuring, in response to the indication, the buffer memory to provide a number of image frames corresponding to a discontinuity in the numbering of the image frames; and using the image frames in the buffer memory in the decoding process.

2007/0110154	Random access points in video encoding	Nokia Corporation	Wang; Yi-Kui Hannuksela; Miska	375	H04N	20061229	3	94%	<input type="checkbox"/>
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Abstract: In a method of encoding/decoding a video sequence, which is composed of video frames, a first video frame and a

second video frame are divided into a set of coding blocks, and at least one of the coding blocks of the first video frame is encoded by intra-coding. Then a first reliable region in the first video frame that comprises at least one intra-coded coding block and a second reliable region in the second video frame are determined. At least one coding block of the second reliable region is predicted from said first reliable region, and said second reliable region in said video sequence is encoded such that an inter-prediction information dependency on coding blocks outside said first reliable region is prevented.

MainClaim: A method of encoding a video sequence, the video sequence being composed of video frames, the method comprising dividing a first video frame and a second video frame into a set of coding blocks, encoding at least one of said coding blocks of the first video frame by intra-coding, determining a first reliable region in the first video frame that comprises at least one intra-coded coding block, determining a second reliable region in the second video frame, predicting at least one coding block of the second reliable region from said first reliable region, and encoding said second reliable region in said video sequence such that an inter-prediction information dependency on coding blocks outside said first reliable region is prevented.

7,376,280	Video encoding and decoding	Apple Inc	Handley; Maynard Kumar; Roger Pun; Thomas Nie; Xiaochun Wu; Hsi-Jung	382	G06K	20030430	0	100%	<input type="checkbox"/>
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Abstract: A method for encoding video with a two-dimensional (2D) transform separable to two one-dimensional (1D) transforms. The method receives an array of values for a sub-section of an image, performs a first 1D-transform of the array, transposes the resulting array, and performs a second 1D-transform of the array resulting from the transpose. The method, without performing another transpose, generates a data stream using a transposed scan order based on the values of the array resulting from the second transform. A method for decoding video encoded by a 2D transform, which separable to two 1D transforms. The method receives a data stream containing encoded values for an image, parses out the values into an array using a transposed scan order, performs a first 1D-inverse transform on the array, transposes the resulting array, and performs a second 1D-inverse transform of the array resulting from the transpose to produce a decoded output.

MainClaim: A method of dynamically transposing an image-value array associated with a video image, the method comprising: a) identifying a pattern of coefficients of the image-value array; b) determining whether a particular set of transpose operations exists for the identified pattern of coefficients; c) when the particular set of transpose operations exists for the identified pattern, using the particular set of transpose operations to transpose the image-value array; and d) when the particular set of transpose operations does not exist for the identified pattern, using a default set of transpose operations to transpose the image-value array.

2009/0016626	JOINT CODING OF MULTIPLE TRANSFORM BLOCKS WITH REDUCED NUMBER OF COEFFICIENTS	Nokia Corporation	Zhang; Cixun Ugur; Kemal Lainema; Jani Hallapuro; Antti Olli	382	G06K	20080612	4	95%	<input type="checkbox"/>
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Abstract: A system and method for video/image encoding and decoding, where transform coefficients associated with a plurality of blocks are reorganized and coded together. Various embodiments perform transform and quantization and generate transform coefficients, where the coefficients of the transform blocks are reorganized and interleaved. Additionally, an encoding process involves coding only a subset of the transform coefficients belonging to the transform blocks resulting in one or more transform blocks less than the original number of transform blocks, and putting this into a bitstream. A decoding process involves decoding the one or more resulting transform blocks including the subset of transform coefficients from the bitstream, the transform coefficients being put in an array and decoded. The decoder de-interleaves the decoded transform coefficients and any remaining coefficients of the one or more transform blocks are filled in according to a plurality of different methods. After the one or more transform blocks are fully decoded, inverse transform and inverse quantization are performed and residual data is generated.

MainClaim: A method of encoding at least one of a video and an image signal, comprising: transform coding a signal into a plurality of transform blocks; quantizing transform coefficients of the plurality of transform blocks; reorganizing and interleaving the transform coefficients of the plurality of transform blocks; and entropy encoding a subset of the interleaved transform coefficients.

7,149,251	Apparatus, and associated method, for forming a compressed motion vector field utilizing predictive motion coding	Nokia Corporation	Karczewicz; Marta Lainema; Jani Dobrin; Bogdan-Paul	375	H04B	20040213	1	95%	<input type="checkbox"/>
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Abstract: Apparatus, and an associated method, motion compensates coding of video sequences. Motion compensated prediction is utilized in the representation of motion vector fields. Reduced numbers of bits are required to represent the motion vector field while maintaining a low prediction error, thereby facilitating improved communication of, and recreation of, video frames forming a video sequence.

MainClaim: A method of decoding encoded information representative of a video sequence, said video sequence comprising a plurality of video frames, said decoding method comprising the steps of: receiving encoded information representative of a segment of a current frame of said video sequence; identifying a coding mode of the encoded information, the coding mode being one of at least a first coding mode and a second coding mode; and reconstructing the segment of the current frame of the video sequence; wherein the reconstructing step is performed using a first motion field model derived using motion compensated prediction with respect to a previously-encoded frame of the video sequence if the identified coding mode is the first coding mode; and wherein the reconstructing step is performed using a second motion field model based on a motion field model determined for an adjacent previously-encoded segment of the current frame if the identified coding mode is the second coding mode.

2007/0140342	APPARATUS, AND ASSOCIATED METHOD, FOR FORMING A COMPRESSED MOTION VECTOR FIELD UTILIZING PREDICTIVE MOTION CODING	Nokia Corporation	Karczewicz; Marta Lainema; Jani Dobrin; Bogdan-Paul	375	H04N	20061212	2	95%	<input type="checkbox"/>
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Abstract: Apparatus, and an associated method, motion compensates coding of video sequences. Motion compensated prediction is utilized in the representation of motion vector fields. Reduced numbers of bits are required to represent the motion vector field while maintaining a low prediction error, thereby facilitating improved communication of, and recreation of, video

frames forming a video sequence.

MainClaim: A method of decoding encoded information representative of a video sequence, said video sequence comprising a plurality of video frames, said decoding method comprising: identifying a coding mode of encoded information representative of a segment of a current frame of said video sequence, the coding mode being one of at least a first coding mode and a second coding mode; and reconstructing the segment of the current frame of the video sequence; wherein reconstructing is performed using a first motion field model derived using motion compensated prediction with respect to a previously-encoded frame of the video sequence if the identified coding mode is the first coding mode; and wherein reconstructing is performed using a second motion field model based on a motion field model determined for an adjacent previously-encoded segment of the current frame if the identified coding mode is the second coding mode.

7,379,956	Encoding and decoding data arrays	Apple Inc.	Kumar; Roger Handley; Maynard Pun; Thomas Nie; Xiaochun Wu; Hsi-Jung	708	G06F	20030430	0	100%	<input type="checkbox"/>
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Abstract: Some embodiments of the invention provide a method of performing a Discrete Cosine Transform ("DCT") encoding or decoding coefficients of a data array by (1) multiplying the coefficients by a scalar value before the encoding or decoding, and then (2) dividing the encoded or decoded coefficients by the scalar value. When used in conjunction with fixed-point arithmetic, this method increases the precision of the encoded and decoded results. In addition, some embodiments provide a method of performing a two-dimensional (2D) Inverse Discrete Cosine Transform ("iDCT"). This method splits a pre-multiplication operation of the iDCT into two or more separate stages. When used in conjunction with fixed-point arithmetic, this splitting increases the precision of the decoded results of the iDCT.

MainClaim: A method comprising: decoding an encoded video stream that has been encoded according to a two-dimensional (2D) transform encoding operation that is separable into two one-dimensional (1D) transform operations, the encoded video stream comprising a plurality of encoded values for a plurality of encoded video images, said decoding comprising: parsing encoded values out of the data stream and creating a two-dimensional data array that stores the encoded values in a particular scan order, wherein the values in the created data array are encoded in both dimensions of the array; multiplying each value in the data array by a scalar value, wherein the data array is an array of data values from a video image; performing a first 1D inverse transform to the data array resulting from the multiplying; transposing the data array resulting from the first 1D inverse transform; performing a second 1D inverse transform to the data array resulting from the transposing; and dividing by the scalar value each value in the data array resulting from the second 1D inverse transform to produce a data array comprising decoded values, the data array comprising decoded values being produced without a second transposing step.

2004/0062307	Method and system for selecting interpolation filter type in video coding	Nokia Corporation	Hallapuro, Antti Lainema, Jani Karczewicz, Marta	375	H04N	20030709	1	96%	<input type="checkbox"/>
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Abstract: A method and system for coding a video sequence based on motion compensated prediction, wherein an interpolation filter is used to generate predicted pixel values for picture blocks in the video sequence. The interpolation filter for use in conjunction with a multi-picture type is shorter or having fewer coefficients than the interpolation filter for use in conjunction with a single-picture type. As such, the complexity of the interpolation filter for the multi-picture type can be reduced. Furthermore, the interpolation filter may be changed based on the characteristics of the block, the size and/or the shape of the block.

MainClaim: A method of encoding a video sequence comprising a number of pictures, in which a picture of the video sequence is divided into blocks and a block of said picture is encoded using one of a number of different types of motion compensated prediction, including at least a single-picture prediction type that employs motion compensated prediction to generate predicted pixel values for the block by using an interpolation filter operating on pixel values of a single reference picture in said video sequence and a multi-picture prediction type that employs motion compensated prediction to generate predicted pixel values for the block by using an interpolation filter operating on pixel values of more than one reference picture in said video sequence, wherein the complexity of the interpolation filter used to generate predicted pixel values for the block is dependent upon a characteristic of the block.

7,349,473	Method and system for selecting interpolation filter type in video coding	Nokia Corporation	Hallapuro; Antti Lainema; Jani Karczewicz; Martz	375	H04B	20030709	1	96%	<input type="checkbox"/>
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Abstract: A method and system for coding a video sequence based on motion compensated prediction, wherein an interpolation filter is used to generate predicted pixel values for picture blocks in the video sequence. The interpolation filter for use in conjunction with a multi-picture type is shorter or having fewer coefficients than the interpolation filter for use in conjunction with a single-picture type. As such, the complexity of the interpolation filter for the multi-picture type can be reduced. Furthermore, the interpolation filter may be changed based on the characteristics of the block, the size and/or the shape of the block.

MainClaim: A method of motion compensated prediction, said method comprising: selecting an interpolation filter to be used during motion compensated prediction of a picture block in dependence on a type of motion compensated prediction used for the picture block, wherein the type of motion compensation prediction is either a single-picture type, in which a prediction for the picture block is formed using a single reference picture, or a multi-picture prediction type, in which a prediction for the picture block is formed using more than one reference picture, and wherein the interpolation filter for the multi-picture prediction type has fewer coefficients than the interpolation filter for the single-picture prediction type.

2009/0016626	JOINT CODING OF MULTIPLE TRANSFORM BLOCKS WITH REDUCED NUMBER OF COEFFICIENTS	Nokia Corporation	Zhang; Cixun Ugur; Kemal Lainema; Jani Hallapuro; Antti Olli	382	G06K	20080612	4	95%	<input type="checkbox"/>
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Abstract: A system and method for video/image encoding and decoding, where transform coefficients associated with a plurality of blocks are reorganized and coded together. Various embodiments perform transform and quantization and generate transform coefficients, where the coefficients of the transform blocks are reorganized and interleaved. Additionally, an encoding process involves coding only a subset of the transform coefficients belonging to the transform blocks resulting in one or more transform blocks less than the original number of transform blocks, and putting this into a bitstream. A decoding process involves decoding the one or more resulting transform blocks including the subset of transform coefficients from the bitstream, the transform coefficients being put in an array and decoded. The decoder de-interleaves the decoded transform coefficients and any remaining coefficients of the one or more transform blocks are filled in according to a plurality of different methods. After

the one or more transform blocks are fully decoded, inverse transform and inverse quantization are performed and residual data is generated.

MainClaim: A method of encoding at least one of a video and an image signal, comprising: transform coding a signal into a plurality of transform blocks; quantizing transform coefficients of the plurality of transform blocks; reorganizing and interleaving the transform coefficients of the plurality of transform blocks; and entropy encoding a subset of the interleaved transform coefficients.

5,719,961	Adaptive technique for encoder and decoder signal transformation	Apple Computer, Inc.	Normile; James Oliver Wang; Katherine Shu-wei Chu; Ke-Chiang Ponceleon; Dulce Beatriz Wu; Hsi-Jung	382	G06K	19960329	0	100%	<input type="checkbox"/>
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Abstract: A signal processing system determines the characteristic of a signal for encoding or decoding by examining and classifying such signal, and then applies a transformation or inverse transformation to such signal. Depending on classification of the signal, various transforms or inverse transforms are applicable adaptively thereto.

MainClaim: A computer implemented method of adaptively encoding an image, comprising:

partitioning the image into a plurality of blocks, each block having at least one block coefficient derived from pixel values of the block;

for each block:

classifying the block according to its block coefficients as one of a plurality of discrete block types;

responsive to the block type of the block, dynamically configuring and applying to the block selected operations from group of operations consisting of:

a discrete cosine transform of the block;

a quantization of the block;

a variable length encoding of the block;

an inverse quantization of the block; and,

an inverse discrete cosine transform;

wherein there is at least one block type for which the discrete cosine transform is not selected;

applying to the block each of the selected operation.

2004/0066974	Context-based adaptive variable length coding for adaptive block transforms	Nokia Corporation	Karczewicz, Marta Ridge, Justin	382	G06K	20021003	1	95%	<input type="checkbox"/>
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Abstract: A method and system for coding an image using context-based adaptive VLC where transform coefficients are partitioned into blocks having a block dimension of $4n \times 4m$ (with n, m being positive integer equal to or greater than 1). Each block is scanned in a zigzag manner to produce an ordered vector of coefficients having a length of $16n \times m$. The ordered vector is sub-sampled in an interleaved manner to produce $n \times m$ sub-sampled sequences of transform coefficients prior to encoding the transform coefficients using an entropy encoder.

MainClaim: A method of image coding using data indicative of an image, characterized by forming at least a block of transform coefficients from the image data, by scanning the block of transform coefficients for providing a sequence of transform coefficients, by sub-sampling the transform coefficients in the sequence in an interleaved manner for providing a plurality of sub-sampled sequences of transform coefficients, and by coding the sub-sampled sequences of transform coefficients using an entropy encoder.

6,795,584	Context-based adaptive variable length coding for adaptive block transforms	Nokia Corporation	Karczewicz; Marta Ridge; Justin	382	G06K	20021003	1	95%	<input type="checkbox"/>
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Abstract: A method and system for coding an image using context-based adaptive VLC where transform coefficients are partitioned into blocks having a block dimension of $4n \times 4m$ (with n, m being positive integer equal to or greater than 1). Each block is scanned in a zigzag manner to produce an ordered vector of coefficients having a length of $16n \times m$. The ordered vector is sub-sampled in an interleaved manner to produce $n \times m$ sub-sampled sequences of transform coefficients prior to encoding the transform coefficients using an entropy encoder.

MainClaim: A method of image coding using data indicative of an image, characterized by

forming at least a block of transform coefficients from the image data, by

scanning the block of transform coefficients for providing a sequence of transform coefficients, by

sub-sampling the transform coefficients in the sequence in an interleaved manner for providing a plurality of sub-sampled sequences of transform coefficients, and by

coding the sub-sampled sequences of transform coefficients using an entropy encoder.

6,118,903	Image compression method and apparatus which satisfies a predefined bit budget	Nokia Mobile Phones, Ltd.	Liu; Qin	382	G06K	19980715	1	95%	<input type="checkbox"/>
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Abstract: A DCT based lossy compression method for compressing a digitized image composed of a matrix of image samples to provide a compressed image which satisfies a predefined bit budget. The digitized image is first sub-divided into blocks (e.g. of size 8x8 pixels). A discrete cosine transform (DCT) comprising a set of DCT coefficients is then derived for each block. A quantization table is selected from a set of quantization tables and, using the selected table, the coefficients of each DCT are quantized. A zero-value index, corresponding to the average number of zero value quantized DCT coefficients per DCT, is determined. A predicted zero-value index is calculated using said predefined bit budget and a quantization table selected from said set of tables using the determined index and the predicted index. Using that selected table, the unquantized coefficients of the DCTs are re-quantized and the requantized coefficients compressed using run-length encoding and Huffman encoding.

MainClaim: A method of compressing a digitised image composed of a matrix of image samples to provide a compressed image which satisfies a predefined bit budget, the method comprising the steps of:

7,692,682	Video encoding in a video conference	Apple Inc.	Pun; Thomas Wu; Hsi Jung Jeong; Hyeonkuk	348	H04N	20050428	0	100%	<input type="checkbox"/>
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Abstract: Some embodiments provide an architecture for establishing multi-participant video conferences. This architecture has a central distributor that receives video images from two or more participants. From the received images, the central distributor generates composite images that the central distributor transmits back to the participants. Each composite image includes a set of sub images, where each sub image belongs to one participant. In some embodiments, the central distributor saves network bandwidth by removing each particular participant's image from the composite image that the central distributor sends to the particular participant. In some embodiments, images received from each participant are arranged in the composite in a non-interleaved manner. For instance, in some embodiments, the composite image includes at most one sub-image for each participant, and no two sub-images are interleaved.

MainClaim: A method of encoding an image during a video conference with multiple participants, the method comprising: generating a composite image comprising at least two sub-images for at least two participants; and constraint encoding each sub-image separately, wherein said constraint encoding comprises encoding each sub-image based on a set of constraints that allow the encoding of the sub-image to be independent of the encoding of any other sub-image.

2006/0120464	Grouping of image frames in video coding	Nokia Corporation	Hannuksela; Miska	375	H04B	20060125	2	94%	<input type="checkbox"/>
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Abstract: A method of decoding a compressed video sequence, wherein image frames are entered into a buffer memory in connection with the decoding. The video sequence includes an indication relating to at least one discontinuity in the numbering of the image frames, which indication is decoded from the video sequence. Then, in response to the indication, the buffer memory is configured to provide a number of image frames corresponding to a discontinuity in the numbering of the image frames, and the image frames provided by the buffer memory are used in the decoding process. Preferably, said indication informs that at least one discontinuity in the numbering of the image frames in the video sequence are intentional, and the number of image frames provided by the buffer memory are used in place of image frames that do not exist at a decoder.

MainClaim: A method for decoding a compressed video sequence, wherein image frames are entered into a buffer memory in connection with the decoding, the method comprising: decoding from the video sequence an indication related to at least one discontinuity of numbering of the image frames; configuring, in response to the indication, the buffer memory to provide a number of image frames corresponding to a discontinuity in the numbering of the image frames; and using the image frames in the buffer memory in the decoding process.

2006/0120451	Grouping of image frames in video coding	Nokia Corporation	Hannuksela; Miska	375	H04N	20060125	1	94%	<input type="checkbox"/>
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Abstract: A method for encoding a video sequence comprising an independent sequence of image frames, wherein at least one reference image frame is predictable from at least one previous image frame that is earlier than the previous reference image frame in decoding order. An indication of at least one image frame is encoded into the video sequence, which indicated image frame is the first image frame, in decoding order, of the independent sequence, said at least one reference image frame being included in the sequence. In the decoding phase, the indication of at least one image frame is decoded from the video sequence, and the decoding of the video sequence is started from said first image frame of the independent sequence, whereby the video sequence is decoded without prediction from any image frame decoded prior to said first image frame.

MainClaim: A method for encoding a video sequence comprising an independent sequence of image frames, wherein at least one reference image frame is predictable from at least one previous image frame that is earlier than the previous reference image frame in decoding order, the method comprising: encoding into the video sequence an indication of at least one image frame, which is the first image frame, in decoding order, of the independent sequence, said at least one reference image frame being included in the sequence.

2006/0115001	Indicating regions within a picture	Nokia Corporation	Wang; Ye-Kui Hannuksela; Miska	375	H04N	20060119	3	94%	<input type="checkbox"/>
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Abstract: A method for indicating size, shape and location of a region within a digital picture the picture being divided into a set of blocks. A value for at least one size parameter, which is indicative of a number of the blocks within said region is defined, and a value for at least one shape evolution parameter, which is indicative of a selection order of the blocks in said region is selected. Then preferably the values for said at least one size parameter and said at least one shape evolution parameter are encoded into a bitstream of a video sequence in order to indicate size, shape and location of the region within the picture.

MainClaim: A method for indicating size, shape and location of a region within a digital picture, the picture being divided into a set of blocks, the method comprising: defining a value for at least one size parameter being indicative of a number of the blocks within said region, and selecting a value for at least one shape evolution parameter being indicative of a selection order of the blocks into said region.

5,212,742	Method and apparatus for encoding/decoding image data	Apple Computer, Inc.	Normile; James O. Yeh; Chia L. Wright; Daniel W. Chu; Ke-Chiang	382	G06K	19910524	0	100%	<input type="checkbox"/>
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Abstract: An apparatus and method for processing video data for compression/decompression in real-time. The apparatus comprises a plurality of compute modules, in a preferred embodiment, for a total of four compute modules coupled in parallel. Each of the compute modules has a processor, dual port memory, scratch-pad memory, and an arbitration mechanism. A first

bus couples the compute modules and a host processor. Lastly, the device comprises a shared memory which is coupled to the host processor and to the compute modules with a second bus. The method handles assigning portions of the image for each of the processors to operate upon.

MainClaim: A method in a video display system of partitioning an image for processing by N processing units coupled in parallel to an input means for receiving said image, said image of dimensions of H rows and W columns, comprising the following steps:

a. initializing an index variable i;

b. assigning an ith horizontal region of said image in the input means to an ith processing unit, said ith region starting at a ith starting position and ending at the ith starting position offset by a partition length value of H/N, said ith region comprising W columns, and H/N and an overlap number of complete rows, said overlap number of rows being shared with a next processor, and

c. incrementing said index variable i and repeating step b if said index variable i is less than N.

2006/0115001	Indicating regions within a picture	Nokia Corporation	Wang; Ye-Kui Hannuksela; Miska	375	H04N	20060119	3	92%	<input type="checkbox"/>
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Abstract: A method for indicating size, shape and location of a region within a digital picture the picture being divided into a set of blocks. A value for at least one size parameter, which is indicative of a number of the blocks within said region is defined, and a value for at least one shape evolution parameter, which is indicative of a selection order of the blocks in said region is selected. Then preferably the values for said at least one size parameter and said at least one shape evolution parameter are encoded into a bitstream of a video sequence in order to indicate size, shape and location of the region within the picture.

MainClaim: A method for indicating size, shape and location of a region within a digital picture, the picture being divided into a set of blocks, the method comprising: defining a value for at least one size parameter being indicative of a number of the blocks within said region, and selecting a value for at least one shape evolution parameter being indicative of a selection order of the blocks into said region.

2007/0110154	Random access points in video encoding	Nokia Corporation	Wang; Yi-Kui Hannuksela; Miska	375	H04N	20061229	3	92%	<input type="checkbox"/>
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Abstract: In a method of encoding/decoding a video sequence, which is composed of video frames, a first video frame and a second video frame are divided into a set of coding blocks, and at least one of the coding blocks of the first video frame is encoded by intra-coding. Then a first reliable region in the first video frame that comprises at least one intra-coded coding block and a second reliable region in the second video frame are determined. At least one coding block of the second reliable region is predicted from said first reliable region, and said second reliable region in said video sequence is encoded such that an inter-prediction information dependency on coding blocks outside said first reliable region is prevented.

MainClaim: A method of encoding a video sequence, the video sequence being composed of video frames, the method comprising dividing a first video frame and a second video frame into a set of coding blocks, encoding at least one of said coding blocks of the first video frame by intra-coding, determining a first reliable region in the first video frame that comprises at least one intra-coded coding block, determining a second reliable region in the second video frame, predicting at least one coding block of the second reliable region from said first reliable region, and encoding said second reliable region in said video sequence such that an inter-prediction information dependency on coding blocks outside said first reliable region is prevented.

5,237,397	Color video data processing	Apple Computer, Inc.	Mighdoll; Lee S. Krueger; Mark Leak; Bruce A.	375	H04N	19911224	0	100%	<input checked="" type="checkbox"/>
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Abstract: A method for determining if uncompressed color video data was previously compressed and decompressed. Each block of color video data is examined to determine if the block was previously compressed with a predetermined compression algorithm that for example, selected fewer colors than were present in the original data. If it is determined that such compression has previously occurred, on recompression, a different algorithm is used to prevent introduction of color distortions.

MainClaim: An improved method for use in a system which receives uncompressed digital data and compresses the digital data, comprising the steps of:

determining if the digital data has been previously compressed and decompressed with a predetermined type of compression; and,

compressing the digital data so as to provide compressed data consistent with said predetermined type of compression, if it is determined that the digital data has been previously compressed with said predetermined type of compression.

6,697,521	Method and system for achieving coding gains in wavelet-based image codecs	Nokia Mobile Phones Ltd.	Islam; Asad Chebil; Fehmi	382	G06K	20010615	1	92%	<input type="checkbox"/>
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Abstract: A method and system for coding a RGB image in an encoder and a decoder. In the encoder, the RGB image components are converted into YUV components. One or more of the lower bit-planes of YUV components are eliminated before the YUV components are transformed by forward wavelet transform and coded into a codestream for transmission. In the decoder, the codestream is decoded and transformed by inverse wavelet transform into a set of reconstructed YUV components. The bit-planes of these reconstructed YUV components are up-shifted so that the up-shifted YUV components are structurally equivalent to the original YUV components before they are adjusted in the encoder. However, the lower bit-planes that come into being due to the up-shifting are all set to zero. The up-shifted YUV components are then converted into the RGB component of the reconstructed image.

MainClaim: A method of encoding an image separated into a plurality of first color components of a first color space, wherein the first color components are converted into a plurality of second color components of a second color space different from the first color space, each of the second color components having a number of more-significant bit-planes and a first number of less-significant bit-planes, said encoding method comprising the steps of:

adjusting the second color components by changing the first number of less-significant bit-planes of at least one of the second color components to a second number smaller than the first number;

transforming the adjusted second color components based on a forward wavelet transformation for providing transformed image;

data; and									
coding the transformed image data for forming a bitstream indicative of the transformed image data.									
2003/0002734	Method and system for achieving coding gains in wavelet-based image codecs	Nokia Mobile Phones Ltd.	Islam, Asad Chebil, Fehmi	382	G06K	20010615	1	92%	<input type="checkbox"/>
<p>Abstract: A method and system for coding a RGB image in an encoder and a decoder. In the encoder, the RGB image components are converted into YUV components. One or more of the lower bit-planes of YUV components are eliminated before the YUV components are transformed by forward wavelet transform and coded into a codestream for transmission. In the decoder, the codestream is decoded and transformed by inverse wavelet transform into a set of reconstructed YUV components. The bit-planes of these reconstructed YUV components are up-shifted so that the up-shifted YUV components are structurally equivalent to the original YUV components before they are adjusted in the encoder. However, the lower bit-planes that come into being due to the up-shifting are all set to zero. The up-shifted YUV components are then converted into the RGB component of the reconstructed image.</p> <p>MainClaim: A method of encoding an image separated into a plurality of first color components of a first color space, wherein the first color components are converted into a plurality of second color components of a second color space different from the first color space, each of the second color components having a number of more-significant bit-planes and a first number of less-significant bit-planes, said encoding method comprising the steps of: adjusting the second color components by changing the first number of less-significant bit-planes of at least one of the second color components to a second number smaller than the first number; transforming the adjusted second color components based on a forward wavelet transformation for providing transformed image data; and coding the transformed image data for forming a bitstream indicative of the transformed image data.</p>									
7,453,938	Target bitrate estimator, picture activity and buffer management in rate control for video coder	Apple Inc.	Haskell; Barin Geoffrey Dumitras; Adriana Normile; James Wu; Hsi-Jung Nie; Xiaochun Puri; Atul	375	H04B	20040330	0	100%	<input type="checkbox"/>
<p>Abstract: A rate control system is disclosed for video coding applications. The rate controller assigns a quantization parameter for video data in a picture in response to complexity indicators indicative of spatial complexity, motion complexity and/or bits per pel of the picture. A virtual buffer based quantizer parameter is proposed based on a virtual buffer fullness analysis and a target rate estimate, which is derived from the complexity indicators. A second quantizer parameter is proposed from a linear regression analysis of quantizer parameters used to code previously coded pictures of similar type (e.g., I pictures, P pictures or B pictures). A coding policy decision unit defines a final quantizer parameter from a comparison of the two proposed quantizer parameters.</p> <p>MainClaim: A quantizer selection method, comprising: calculating a normalized average activity level of a picture from on image information of the picture, adjusting a base quantizer value according to the picture's normalized average activity level, and selecting a quantizer value for the picture based on the adjusted quantizer value, wherein the calculating comprises: for a plurality of macroblocks in the picture, calculating variances of image data for a plurality of blocks therein, from minimum variance levels of the macroblocks, calculating minimum activity levels of the macroblocks, wherein the minimum activity of each macroblock is calculated as: $actmin=1+\min(blkvar1, blkvar2, blkvar3, blkvar4)$, where blkvar represents the variances of 8x8 blocks within a respective macroblock, and normalizing the minimum activity levels of the macroblocks, wherein the normalized minimum activity per macroblock is calculated as: $xxxxxxx.ti-mes.xxxxx \# \# EQU00014 \# \#$ where actminavg is a sum of actmin values for all macroblocks in a previously processed picture and the actnorm values for all macroblocks in the picture are averaged to obtain the normalized average activity level of the picture.</p>									
2007/0025441	Method, module, device and system for rate control provision for video encoders capable of variable bit rate encoding	Nokia Corporation	Ugur; Kemal Lainema; Jani Liu; Yuxin Zoe	375	H04N	20050728	5	97%	<input type="checkbox"/>
<p>Abstract: In general, a methodology of rate control for a video encoding is provided, which is implementable by the means of a method, a device, a computer program and/or a video encoder. A frame encoding process is performed for each frame in that an initial quantization parameter is calculated for being used as a quantization parameter for encoding a current frame. Each group of macroblocks within the current frame is encoded group by group; i.e. group-wise. A score value is determined after macroblock encoding of a current group of macroblocks. In case the score value exceeds a pre-defined threshold, the quantization parameter for encoding the next group of macroblocks is adjusted; otherwise, the macroblock encoding is continued with the quantization parameter which is currently used for encoding the current group of macroblocks.</p> <p>MainClaim: Method of rate control for a video encoder, comprising: performing a frame encoding process for each frame including: determining an initial quantization parameter for being used as a quantization parameter for encoding a current frame; and encoding groups of macroblocks within the current frame, wherein said macroblock encoding process for group of macroblocks includes: determining a score value after encoding of a current group of macroblocks; if the score value exceeds a pre-defined threshold, adjusting the quantization parameter for encoding a next group of macroblocks; and otherwise, continuing macroblock encoding with the quantization parameter currently valid.</p>									
2007/0147497	System and method for progressive quantization for scalable image and video coding	Nokia Corporation	Bao; Yiliang Karczewicz; Marta Ridge; Justin Wang; Xianglin	375	H04N	20060721	2	96%	<input type="checkbox"/>
<p>Abstract: An improved system and method for dequantizing progressively quantized signals in scalable image and video coding. A decoder performs simple dequantization, such as normal uniform dequantization, on coded content using a quantization index and a nominal quantization step size to obtain a nominal reconstruction level. The result is then adjusted by adding the reconstruction offset to obtain the final reconstruction value.</p> <p>MainClaim: A method of processing scalable content coding, comprising: quantizing a scalable content portion to create a plurality of quantization intervals, the quantization including the calculation of an optimal reconstruction level for each quantization interval; determining a reconstruction offset for each quantization interval, the reconstruction offset comprising the</p>									

difference between a nominal reconstruction level and the optimal construction interval; and coding the reconstruction offset for each quantization interval in a bitstream containing the quantized content.

7,477,689	Video decoder architecture and method for using same	Nokia Corporation	Karczewicz; Marta Kurceren; Ragip	375	H04N	20040616	9	96%	<input type="checkbox"/>
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Abstract: A decoder and method for using a new picture or frame type is provided. This type is referred to a an SP-picture. The temporal redundancies are not exploited in I-frames, compression efficiency of I-frame coding is significantly lower than the predictive coding. A method allows use of motion compensated predictive coding to exploit temporal redundancy in the sequence while still allowing perfect reconstruction of the frame using different reference frames. Methods using this new picture type provide for error resilience/recovery, bandwidth scalability, bitstream switching, processing scalability, random access and other functions. The SP-type picture provides for, among other functions, switching between different bitstreams, random access, fast forward and fast error-recovery by replacing I-pictures to increase the coding efficiency. As will be demonstrated, SP-pictures have the property that identical SP-frames may be obtained even when they are predicted using different reference frames.

MainClaim: A video processing method, said method comprising: placing a plurality of SP-pictures at fixed intervals within a first bitstream; generating an I-picture and an SP-picture for each one of said plurality of SP-pictures in said first bitstream; forming a second bitstream by storing said I-picture at a temporal location preceding said each one of said plurality of SP-pictures in said first bitstream; and storing said SP-picture in said second bitstream at same temporal locations as each of said SP-pictures in said first bitstream.

7,492,820	Rate control for video coder employing adaptive linear regression bits modeling	Apple Inc.	Puri; Atul	375	H04N	20040330	0	100%	<input type="checkbox"/>
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Abstract: A rate control system is disclosed for video coding applications. The rate controller assigns a quantization parameter for video data in a picture in response to complexity indicators indicative of spatial complexity, motion complexity and/or bits per pel of the picture. A virtual buffer based quantizer parameter is proposed based on a virtual buffer fullness analysis and a target rate estimate, which is derived from the complexity indicators. A second quantizer parameter is proposed from a linear regression analysis of quantizer parameters used to code previously coded pictures of similar type (e.g., I pictures, P pictures or B pictures). A coding policy decision unit defines a final quantizer parameter from a comparison of the two proposed quantizer parameters.

MainClaim: A quantizer estimator, comprising: a linear regression unit to generate a quantizer estimate from input values of prior quantizer selections and coding rates, first memory to store predetermined values of quantizer selections and coding rates, the table indexed by a complexity indicator signal, second memory to store quantizer selections and coding rates of previously coded P pictures, and a selector selectively coupling an input to the linear regression unit to the first memory when a picture type signal indicates an I picture and to the second memory when the picture type signal indicates a P picture.

2007/0025441	Method, module, device and system for rate control provision for video encoders capable of variable bit rate encoding	Nokia Corporation	Ugur; Kemal Lainema; Jani Liu; Yuxin Zoe	375	H04N	20050728	5	96%	<input type="checkbox"/>
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Abstract: In general, a methodology of rate control for a video encoding is provided, which is implementable by the means of a method, a device, a computer program and/or a video encoder. A frame encoding process is performed for each frame in that an initial quantization parameter is calculated for being used as a quantization parameter for encoding a current frame. Each group of macroblocks within the current frame is encoded group by group; i.e. group-wise. A score value is determined after macroblock encoding of a current group of macroblocks. In case the score value exceeds a pre-defined threshold, the quantization parameter for encoding the next group of macroblocks is adjusted; otherwise, the macroblock encoding is continued with the quantization parameter which is currently used for encoding the current group of macroblocks.

MainClaim: Method of rate control for a video encoder, comprising: performing a frame encoding process for each frame including: determining an initial quantization parameter for being used as a quantization parameter for encoding a current frame; and encoding groups of macroblocks within the current frame, wherein said macroblock encoding process for group of macroblocks includes: determining a score value after encoding of a current group of macroblocks; if the score value exceeds a pre-defined threshold, adjusting the quantization parameter for encoding a next group of macroblocks; and otherwise, continuing macroblock encoding with the quantization parameter currently valid.

2007/0147497	System and method for progressive quantization for scalable image and video coding	Nokia Corporation	Bao; Yiliang Karczewicz; Marta Ridge; Justin Wang; Xianglin	375	H04N	20060721	2	96%	<input type="checkbox"/>
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Abstract: An improved system and method for dequantizing progressively quantized signals in scalable image and video coding. A decoder performs simple dequantization, such as normal uniform dequantization, on coded content using a quantization index and a nominal quantization step size to obtain a nominal reconstruction level. The result is then adjusted by adding the reconstruction offset to obtain the final reconstruction value.

MainClaim: A method of processing scalable content coding, comprising: quantizing a scalable content portion to create a plurality of quantization intervals, the quantization including the calculation of an optimal reconstruction level for each quantization interval; determining a reconstruction offset for each quantization interval, the reconstruction offset comprising the difference between a nominal reconstruction level and the optimal construction interval; and coding the reconstruction offset for each quantization interval in a bitstream containing the quantized content.

7,477,689	Video decoder architecture and method for using same	Nokia Corporation	Karczewicz; Marta Kurceren; Ragip	375	H04N	20040616	9	96%	<input type="checkbox"/>
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Abstract: A decoder and method for using a new picture or frame type is provided. This type is referred to a an SP-picture. The temporal redundancies are not exploited in I-frames, compression efficiency of I-frame coding is significantly lower than the predictive coding. A method allows use of motion compensated predictive coding to exploit temporal redundancy in the sequence while still allowing perfect reconstruction of the frame using different reference frames. Methods using this new picture type provide for error resilience/recovery, bandwidth scalability, bitstream switching, processing scalability, random access and other functions. The SP-type picture provides for, among other functions, switching between different bitstreams, random access, fast forward and fast error-recovery by replacing I-pictures to increase the coding efficiency. As will be demonstrated, SP-

pictures have the property that identical SP-frames may be obtained even when they are predicted using different reference frames.

MainClaim: A video processing method, said method comprising: placing a plurality of SP-pictures at fixed intervals within a first bitstream; generating an I-picture and an SP-picture for each one of said plurality of SP-pictures in said first bitstream; forming a second bitstream by storing said I-picture at a temporal location preceding said each one of said plurality of SP-pictures in said first bitstream; and storing said SP-picture in said second bitstream at same temporal locations as each of said SP-pictures in said first bitstream.

7,295,612	Determining the number of unidirectional and bidirectional motion compensated frames to be encoded for a video sequence and detecting scene cuts in the video sequence	Apple Inc.	Haskell; Barin Geoffrey Dumitras; Adriana Puri; Atul	375	H04N	20030909	0	100%	<input type="checkbox"/>
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Abstract: Methods for processing a set of successive video frames in two passes to determine the number of bidirectional (B) and unidirectional (P) motion compensated frames to be encoded in a video coding system. During the first pass, motion vectors and motion costs are computed for each frame and a derived cost value is computed based on the motion cost of at least one frame. The derived cost value is used to determine the number (N_B) of B-frames to be encoded in the set of successive frames. In the second pass, the set of successive frames are encoded where N_B frames are encoded as B-frames and some or all motion vectors computed in the first pass are re-used in the second pass. A scene cut detection method is also provided where an impulse-like increase in a ratio of motion costs is monitored.

MainClaim: A method of processing a plurality of frames to determine a number of bidirectional motion compensated (B) frames to be encoded in a set of successive frames in the plurality of frames, the method comprising: a) computing motion vectors for at least one frame in the set of successive frames, wherein the computed motion vectors for each particular frame are based only on the particular frame and a preceding frame; b) determining a motion cost value for at least one frame in the set of successive frames; c) determining a derived cost value based on the motion cost value for at least one frame in the set of successive frames; and d) determining the number of B-frames to be encoded in the set of successive frames based on the derived cost value.

2006/0109902	Compressed domain temporal segmentation of video sequences	Nokia Corporation	Yu; Jon Chebil; Fehmi Islam; Asad	375	H04N	20041119	2	97%	<input type="checkbox"/>
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Abstract: A method for detecting scene changes in a video sequence in the compressed domain. DC images are extracted from the macroblocks of the video frames. Histogram differences and pixel difference of the DC images are used for scene cut detection, and the changes in the histogram differences are used for gradual scene change detection. Thus, scene cut detection is based on first order derivatives of the histogram and gradual scene change detection is based on second order derivatives of the histogram. If the macroblocks are intra-coded, they are used to compute the exact DC images. If the macroblocks are not intra-coded, motion information in the frame is partially used for scene change detection.

MainClaim: A method to detect a scene change in a video sequence comprising a plurality of frames in the compressed domain, said method comprising: obtaining DC images of at least part of said plurality of frames; obtaining the histograms of the DC images based on changed parts of the frames; computing the absolute sum of histogram difference between different DC images; and identifying the scene change in the video sequence based on the absolute sum of histogram difference.

7,477,689	Video decoder architecture and method for using same	Nokia Corporation	Karczewicz; Marta Kurceren; Ragip	375	H04N	20040616	9	96%	<input type="checkbox"/>
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Abstract: A decoder and method for using a new picture or frame type is provided. This type is referred to a an SP-picture. The temporal redundancies are not exploited in I-frames, compression efficiency of I-frame coding is significantly lower than the predictive coding. A method allows use of motion compensated predictive coding to exploit temporal redundancy in the sequence while still allowing perfect reconstruction of the frame using different reference frames. Methods using this new picture type provide for error resilience/recovery, bandwidth scalability, bitstream switching, processing scalability, random access and other functions. The SP-type picture provides for, among other functions, switching between different bitstreams, random access, fast forward and fast error-recovery by replacing I-pictures to increase the coding efficiency. As will be demonstrated, SP-pictures have the property that identical SP-frames may be obtained even when they are predicted using different reference frames.

MainClaim: A video processing method, said method comprising: placing a plurality of SP-pictures at fixed intervals within a first bitstream; generating an I-picture and an SP-picture for each one of said plurality of SP-pictures in said first bitstream; forming a second bitstream by storing said I-picture at a temporal location preceding said each one of said plurality of SP-pictures in said first bitstream; and storing said SP-picture in said second bitstream at same temporal locations as each of said SP-pictures in said first bitstream.

2009/0304084	COMBINED MOTION VECTOR AND REFERENCE INDEX PREDICTION FOR VIDEO CODING	NOKIA CORPORATION	Hallapuro; Antti Olli Ugur; Kemai Lainema; Jani		H04N	20090319	1	96%	<input type="checkbox"/>
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Abstract: A system and method for improving the coding efficiency of motion vector information in video coding. According to various embodiments, a list of motion vector predictor candidates is arranged according to predefined rules. Each motion vector also has a reference index associated with it. One of the motion vector candidates is then selected as a predictor based on predefined rules, or the selection is explicitly signaled in the bitstream. The reference index associated with the selected motion vector is used as a reference index for the current block. The reference index is predicted along with the motion vector. Such embodiments can improve the compression efficiency of modern video codecs.

MainClaim: A method for encoding an image, comprising: ordering a plurality of motion vector predictors of a current image block, wherein a rank order of each motion vector predictor of the plurality of motion vector predictors is determined based at least in part on at least one of a coding mode of a block from which the respective motion vector predictor is derived and a reference index of the block from which the respective motion vector predictor is derived; selecting a particular motion vector predictor of the current image block from the plurality of motion vector predictors; and at least selectively providing in an encoded bitstream an indication representative of the rank order of the selected motion vector predictor.

	Method and apparatus								
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6,721,455	for icon compression and decompression	Apple Computer, Inc.	Gourdol; Arnaud	382	G06K	19980508	0	100%	<input checked="" type="checkbox"/>
<p>Abstract: A method and apparatus for compressing and decompressing small amounts of image data, such as icon image data, is disclosed. The image data is transformed from RGB color space data to luminance and chrominance data. The chrominance data is then reduced by means of a thinning or averaging process. Run length encoding is performed on the luminance data and reduced chrominance data to compress for storage. The invention allows accurate and efficient storage and use of a small amount of compressed image data, particularly for continuous tone icons.</p> <p>MainClaim: A method for compressing image data of a graphical icon, comprising the steps of:</p> <p>receiving image data of a graphical icon having a size which is less than a 256×256 pixel array in a first format;</p> <p>transforming said image data of said graphical icon from said first format to a luminance format comprising luminance and chrominance data values;</p> <p>reducing the number of chrominance data values by a factor of N:1, where N>1;</p> <p>run length encoding said luminance data values and said reduced chrominance data values to generate a compressed data stream; and</p> <p>storing said compressed data stream in a memory device.</p>									
2007/0172120	Compression of images for computer graphics	Nokia Corporation	Roimela; Kimmo Aarnio; Tomi Itaranta; Joonas	382	G06K	20060124	8	96%	<input type="checkbox"/>
<p>Abstract: A method for encoding an image having color components of each image pixel represented by a value of a high dynamic range, the method comprising: decomposing the image into a plurality of image blocks; separating, from the high dynamic range value of each pixel, color information and intensity information of the pixels in said image blocks; and compressing the color information of the pixels in said image blocks and the intensity information of the pixels in said image blocks independently of each other to provide compressed image data.</p> <p>MainClaim: A method for encoding an image having color components of each image pixel represented by a value of a high dynamic range, the method comprising: decomposing the image into a plurality of image blocks; separating, from the high dynamic range value of each pixel, color information and intensity information of the pixels in said image blocks; and compressing the color information of the pixels in said image blocks and the intensity information of the pixels in said image blocks independently of each other to provide compressed image data.</p>									
2007/0076971	Compression of images for computer graphics	Nokia Corporation	Roimela; Kimmo Aarnio; Tomi Itaranta; Joonas	382	G06K	20050930	3	95%	<input type="checkbox"/>
<p>Abstract: A method for encoding an image having color components of each image pixel represented by a value of a high dynamic range (HDR), the method comprising: decomposing the image into image blocks; determining a scaling factor for each image block, said scaling factor, when applied to a corresponding image block, for converting the values of the color components into a normalized range; and compressing the normalized image blocks and the scaling factors of each image block independently of each other, whereby the normalized image blocks are encoded according to a low dynamic range (LDR) compression method. In a decoding phase, the encoded image data are decomposed into encoded image blocks, which are decoded according to the LDR compression method. The values of the color components are scaled with a corresponding scaling factor included in the auxiliary data; and the scaled image blocks are composed into an image with the original dynamic range.</p> <p>MainClaim: A method for encoding an image of pixels having color components represented by values of high dynamic range, the method comprising: decomposing the image into a plurality of image blocks; determining a scaling factor for each image block, said scaling factor, when applied to a corresponding image block, converting the values of the color components of the pixels in said image block into a normalized range; and compressing image data of normalized image blocks and scaling factors of each image block independently of each other, whereby the image data of the normalized image blocks is encoded according to a low dynamic range compression method.</p>									
5,047,853	Method for compressing and decompressing color video data that uses luminance partitioning	Apple Computer, Inc.	Hoffert; Eric M. Mighdoll; Lee S.	375	H04N	19900319	0	100%	<input checked="" type="checkbox"/>
<p>Abstract: A data compression method which recognizes the adverse conditions of duochrominance-isoluminance and nonlinear color distribution. A mxn block of pixel data is examined to compute two colors and a bitmap which best represent the block generally using a luminance partitioning technique. The original data and the compressed data are examined to determine if the resultant decompressed image will contain artifact associated with duochrominance-isoluminance or nonlinear color distribution. If these artifacts will occur in the decompressed data, the decompressed data is not used but rather the block is represented by storing the color of each pixel. This method produces compressed images of excellent quality.</p> <p>MainClaim: In a compression method for compressing digital color video pixel data which uses luminance values for determining compressed color data where fewer colors are used to represent the compressed data than are found in the data presented for compression, an improvement comprising the steps of:</p> <p>determining if the video pixel data presented for compression has duochrominance and isoluminance which are not within predetermined limits of duochrominance and isoluminance; and</p> <p>representing said video data presented for compression by a method which is substantially independent of relying on luminance values for determining colors used to represent the compressed data, when said duochrominance and isoluminance are not within said predetermined limits.</p>									
2007/0172120	Compression of images for computer graphics	Nokia Corporation	Roimela; Kimmo Aarnio; Tomi Itaranta; Joonas	382	G06K	20060124	8	92%	<input type="checkbox"/>
<p>Abstract: A method for encoding an image having color components of each image pixel represented by a value of a high</p>									

dynamic range, the method comprising: decomposing the image into a plurality of image blocks; separating, from the high dynamic range value of each pixel, color information and intensity information of the pixels in said image blocks; and compressing the color information of the pixels in said image blocks and the intensity information of the pixels in said image blocks independently of each other to provide compressed image data.

MainClaim: A method for encoding an image having color components of each image pixel represented by a value of a high dynamic range, the method comprising: decomposing the image into a plurality of image blocks; separating, from the high dynamic range value of each pixel, color information and intensity information of the pixels in said image blocks; and compressing the color information of the pixels in said image blocks and the intensity information of the pixels in said image blocks independently of each other to provide compressed image data.

2009/0067734	Methods and apparatuses for encoding and decoding an image	Nokia Corporation	Kalevo; Ossi	382	G06K	20080818	2	92%	<input type="checkbox"/>
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Abstract: A method as well as a system, a device, an encoding apparatus, a decoding apparatus, a module and a computer software product for image processing is disclosed. The image comprises a pixel matrix, in which the pixels comprise a first number of bits. The pixel matrix is divided to two or more blocks of pixels. The pixels are processed on a block-by-block basis to form encoded pixel values including a certain second number of bits. Bit strings are formed on the basis of the encoded pixels. When decoding the image the bit strings are examined to find out the encoding method used in encoding the pixel, and decoding is performed on a block-by-block basis to retrieve pixel values of the image.

MainClaim: An apparatus comprising: a determining element for defining two or more blocks of pixels from a pixel matrix, said pixels comprising a first number of bits; an encoding element configured to process the pixels of one block at a time to form encoded pixel values comprising a certain second number of bits; and a bit string composer for forming bit strings on the basis of the encoded pixel values.

7,042,943	Method and apparatus for control of rate-distortion tradeoff by mode selection in video encoders	Apple Computer, Inc.	Haskell; Barin Geoffrey I Dumitras; Adriana I Puri; Atul	375	H04B	20030707	0	100%	<input type="checkbox"/>
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Abstract: A Method And Apparatus For Control of Rate-Distortion Tradeoff by Mode Selection in Video Encoders is Disclosed. The system of the present invention first selects a distortion value D near a desired distortion value. Next, the system determines a quantizer value Q using the selected distortion value D. The system then calculates a Lagrange multiplier lambda using the quantizer value Q. Using the selected Lagrange multiplier lambda and quantizer value Q, the system begins encoding pixelblocks. If the system detects a potential buffer overflow, then the system will increase the Lagrange multiplier lambda. If the Lagrange multiplier lambda exceeds a maximum lambda threshold then the system will increase the quantizer value Q. If the system detects a potential buffer underflow, then the system will decrease the Lagrange multiplier lambda. If the Lagrange multiplier lambda falls below a minimum lambda threshold then the system will decrease the quantizer value Q.

MainClaim: A method of controlling rate distortion in a video compression and encoding system, said method comprising: selecting a distortion value D near a desired distortion value; determining quantizer value Q using said distortion value D; calculating a Lagrange multiplier lambda using said quantizer value Q; encoding a pixelblock using said Lagrange multiplier lambda and said quantizer value Q; increasing said Lagrange multiplier lambda when a buffer exceeds an overflow threshold value and increasing said quantizer value Q if said Lagrange multiplier lambda exceeds a maximum lambda threshold; and decreasing said Lagrange multiplier lambda when a buffer falls below an underflow threshold value and decreasing said quantizer value Q if said Lagrange multiplier lambda falls below a minimum lambda threshold.

7,477,689	Video decoder architecture and method for using same	Nokia Corporation	Karczewicz; Marta Kurceren; Ragip	375	H04N	20040616	9	98%	<input type="checkbox"/>
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Abstract: A decoder and method for using a new picture or frame type is provided. This type is referred to as an SP-picture. The temporal redundancies are not exploited in I-frames, compression efficiency of I-frame coding is significantly lower than the predictive coding. A method allows use of motion compensated predictive coding to exploit temporal redundancy in the sequence while still allowing perfect reconstruction of the frame using different reference frames. Methods using this new picture type provide for error resilience/recovery, bandwidth scalability, bitstream switching, processing scalability, random access and other functions. The SP-type picture provides for, among other functions, switching between different bitstreams, random access, fast forward and fast error-recovery by replacing I-pictures to increase the coding efficiency. As will be demonstrated, SP-pictures have the property that identical SP-frames may be obtained even when they are predicted using different reference frames.

MainClaim: A video processing method, said method comprising: placing a plurality of SP-pictures at fixed intervals within a first bitstream; generating an I-picture and an SP-picture for each one of said plurality of SP-pictures in said first bitstream; forming a second bitstream by storing said I-picture at a temporal location preceding said each one of said plurality of SP-pictures in said first bitstream; and storing said SP-picture in said second bitstream at same temporal locations as each of said SP-pictures in said first bitstream.

2007/0025441	Method, module, device and system for rate control provision for video encoders capable of variable bit rate encoding	Nokia Corporation	Ugur; Kemal I Lainema; Jani I Liu; Yuxin Zoe	375	H04N	20050728	5	97%	<input type="checkbox"/>
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Abstract: In general, a methodology of rate control for a video encoding is provided, which is implementable by the means of a method, a device, a computer program and/or a video encoder. A frame encoding process is performed for each frame in that an initial quantization parameter is calculated for being used as a quantization parameter for encoding a current frame. Each group of macroblocks within the current frame is encoded group by group; i.e. group-wise. A score value is determined after macroblock encoding of a current group of macroblocks. In case the score value exceeds a pre-defined threshold, the quantization parameter for encoding the next group of macroblocks is adjusted; otherwise, the macroblock encoding is continued with the quantization parameter which is currently used for encoding the current group of macroblocks.

MainClaim: Method of rate control for a video encoder, comprising: performing a frame encoding process for each frame including: determining an initial quantization parameter for being used as a quantization parameter for encoding a current frame; and encoding groups of macroblocks within the current frame, wherein said macroblock encoding process for group of macroblocks includes: determining a score value after encoding of a current group of macroblocks; if the score value exceeds a pre-defined threshold, adjusting the quantization parameter for encoding a next group of macroblocks; and otherwise,

continuing macroblock encoding with the quantization parameter currently valid.

7,693,220	Transmission of video information	Nokia Corporation	Wang; Ru-Shang Kurceren; Ragip Varsa; Viktor Miller; Keith	375	H04B	20040223	3	97%	<input type="checkbox"/>
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Abstract: The present invention relates to a method for transmitting video information, in which a bitstream is formed comprising a set of frames comprising macroblocks. At least one switching frame is formed into the bitstream, macroblocks of the switching frame are arranged into a first and a second group of macroblocks, each macroblock of the first group of macroblocks are encoded by a first encoding method to provide a switching point for continuing the transmission of video information with another bitstream formed from the video information; and macroblocks of the second group of macroblocks are encoded by another encoding method. Errors in transmission of video information are reduced by forming at least one SP-encoded frame by predictively encoding the macroblocks; replacing part of the SP-encoded macroblocks with intra encoded blocks; and transmitting the encoded frame containing both predictively and intra encoded macroblocks instead of the SP-encoded frame.

MainClaim: A method for transmitting video information from an encoder in which at least one bitstream is formed from the video information comprising a set of frames, the frames comprising macroblocks, wherein the method comprises: forming a plurality of switching frames into said bitstream; arranging macroblocks of each switching frame of said plurality of switching frames into a first group of macroblocks and a second group of macroblocks; encoding each macroblock of said first group of macroblocks in said each switching frame by a first encoding method to provide a switching point for continuing transmission of video information with another bitstream formed from the video information; and encoding macroblocks of said second group of macroblocks in said each switching frame by a second encoding method wherein successive switching frames of said plurality of switching frames do not have corresponding groups of macroblocks encoded by said first encoding method.

7,646,437	Look-ahead system and method for pan and zoom detection in video sequences	Apple Inc.	Dumitras; Adriana Haskell; Barin G	348	H04N	20030903	0	100%	<input type="checkbox"/>
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Abstract: A look-ahead system and method for pan and zoom detection in video sequences is disclosed. The system and method use motion vectors in a reference coordinate system to identify pans and zooms in video sequences. The identification of pans and zooms enables parameter switching for improved encoding in various video standards (e.g., H.264) and improved video retrieval of documentary movies and other video sequences in video databases or other storage devices.

MainClaim: A method of detecting at least one of a pan and a zoom in a video sequence, comprising: selecting a set of frames from a video sequence from an image database; determining a set of motion vectors for each frame in the set of frames using a motion analysis block executed by a processor; determining a motion angle for each motion vector using the motion analysis block; identifying at least two largest regions in each frame using a look-ahead detector executed by the processor, wherein the first largest region includes motion vectors with substantially similar motion angles and occupies a largest number of pixels in a frame and the second largest region includes motion vectors with substantially similar motion angles and occupies a second largest number of pixels in a frame; determining percentages of each frame covered by each of the at least two largest regions using the look-ahead detector; determining a statistical measure of the motion angles for at least one of the two largest regions using the look-ahead detector; and comparing the percentages and statistical measure to threshold values to identify at least one of a pan and a zoom in the video sequence using the look-ahead detector.

2006/0109902	Compressed domain temporal segmentation of video sequences	Nokia Corporation	Yu; Jon Chebil; Fehmi Islam; Asad	375	H04N	20041119	2	96%	<input type="checkbox"/>
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Abstract: A method for detecting scene changes in a video sequence in the compressed domain. DC images are extracted from the macroblocks of the video frames. Histogram differences and pixel difference of the DC images are used for scene cut detection, and the changes in the histogram differences are used for gradual scene change detection. Thus, scene cut detection is based on first order derivatives of the histogram and gradual scene change detection is based on second order derivatives of the histogram. If the macroblocks are intra-coded, they are used to compute the exact DC images. If the macroblocks are not intra-coded, motion information in the frame is partially used for scene change detection.

MainClaim: A method to detect a scene change in a video sequence comprising a plurality of frames in the compressed domain, said method comprising: obtaining DC images of at least part of said plurality of frames; obtaining the histograms of the DC images based on changed parts of the frames; computing the absolute sum of histogram difference between different DC images; and identifying the scene change in the video sequence based on the absolute sum of histogram difference.

6,954,502	Method for encoding and decoding video information, a motion compensated video encoder and a corresponding decoder	Nokia Mobile Phones Ltd.	Lainema; Jani	375	H04N	20040203	2	95%	<input type="checkbox"/>
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Abstract: A method for encoding video information is presented, where a piece of current video information is segmented into macroblocks and a certain number of available macroblock segmentations for segmenting a macroblock into blocks is defined. Furthermore, for each available macroblock segmentation at least one available prediction method is defined, each of which prediction methods produces prediction motion coefficients for blocks within said macroblock, resulting in a certain finite number of available macroblock-segmentation—prediction-method pairs. For a macroblock one of the available macroblock-segmentation—prediction-method pairs is selected, and thereafter the macroblock is segmented into blocks and prediction motion coefficients for the blocks within said macroblock are produced using the selected macroblock-segmentation—prediction-method pair. A corresponding decoding method, an encoder and a decoder are also presented.

MainClaim: An encoder for performing motion compensated encoding of video information, said encoder being arranged to derive prediction motion coefficients for blocks within a macroblock of a video frame being encoded from motion coefficients of at least one prediction block that is a previously encoded macroblock or block within said video frame, the encoder being further arranged to:

specify a certain number of available macroblock segmentations that define possible ways in which a macroblock can be segmented into blocks;

specify at least one available prediction method for each available macroblock segmentation, thereby providing a certain finite number of available macroblock-segmentation—prediction-method pairs, each prediction method defining a method for deriving

prediction motion coefficients for blocks within a macroblock using motion coefficients of at least one prediction block;									
select a macroblock-segmentation—prediction method pair among the available macroblock-segmentation—prediction method pairs;									
segment a macroblock using the macroblock segmentation specified by the selected macroblock-segmentation—prediction-method pair; and									
derive prediction motion coefficients for blocks within said macroblock using the prediction method specified by the selected macroblock-segmentation—prediction-method pair.									
2005/0201462	Method and device for motion estimation in scalable video editing	Nokia Corporation	Ridge, Justin Bao, Yiliang Karczewicz, Marta	375	H04N	20040309	2	94%	<input type="checkbox"/>
Abstract: A motion estimation procedure for bitrate scalability and spatial scalability, wherein an original video frame is divided into a plurality of rectangular blocks of coefficients and a plurality of reference blocks are formed from an offset of the rectangular blocks in both x and y directions. For a given original video frame, one or more reference frames are selected so that a plurality of differences between the reference blocks and the rectangular blocks can be computed partly based on the summation of the differences between individual coefficients in each block. A weighted sum of the differences is computed and minimized so as to optimize the offset. MainClaim: A method for motion estimation in coding video data indicative of a video sequence including a plurality of video frames, each frame containing a plurality of coefficients at different locations of the frame, said method comprising: selecting at least one reference frame for a given original video frame; partitioning said original video frame into rectangular blocks of coefficients; forming at least one reference block of coefficients from an offset of the rectangular blocks; computing the differences between said at least one reference block and the rectangular blocks; and optimizing the offset.									
7,092,580	System and method using edge processing to remove blocking artifacts from decompressed images	Apple Computer, Inc.	Chu; Ke-Chiang Lu; Jian Tian; Yu Tina Wu; Hsi-Jung	382	G06K	20040517	0	100%	<input type="checkbox"/>
Abstract: A system and method using edge processing to remove blocking artifacts comprises an edge processor having an image converter for building an edge representation of a received image, a statistics analyzer for compiling a histogram containing edge intensities of the edge representation, a reference calculator for using the histogram to compute reference values corresponding to the blocking artifacts and an artifact remover for identifying and removing the blocking artifacts using the computed reference values. MainClaim: A processor to remove selected artifacts from an image, the processor comprising: an image converter to create a representation of said image, said representation to show artifact intensities within said image; a statistics analyzer coupled to said image converter to create a statistical data set of artifact intensities for a selected portion of artifacts of said image, the selected portion of the artifacts being at selected locations within said image; and an artifact remover coupled to said statistics analyzer to identify and delete said selected artifacts from said selected locations of said image according to said statistical data set.									
2009/0161982	Restoring images	Nokia Corporation	Tico; Marius Vehvilainen; Markku	382	G06K	20071219	5	92%	<input type="checkbox"/>
Abstract: The specification and drawings present a new method, apparatus and software product for restoring (i.e., de-noising and/or stabilizing) images using similar blocks of pixels of one or more different sizes in one or more available image frames of the same scene for providing, e.g., multi-frame image restoration/de-noising/stabilization. MainClaim: A method, comprising: identifying one or more similar blocks of a block in one or more image frames of a scene using a predetermined criterion, wherein said block comprises a plurality of pixels and is comprised in a reference image frame, said reference image frame being one of said one or more image frames; and restoring said block by combining, using a predetermined algorithm, pixel signals of the plurality of pixels comprised in said block with corresponding pixel signals of said one or more similar blocks identified for said block.									
6,798,918	System and method using edge processing to remove blocking artifacts from decompressed images	Apple Computer, Inc.	Chu; Ke-Chiang Lu; Jian Tian; Yu Tina Wu; Hsi-Jung	382	G06K	20020417	0	100%	<input type="checkbox"/>
Abstract: A system and method using edge processing to remove blocking artifacts comprises an edge processor having an image converter for building an edge representation of a received image, a statistics analyzer for compiling a histogram containing edge intensities of the edge representation, a reference calculator for using the histogram to compute reference values corresponding to the blocking artifacts and an artifact remover for identifying and removing the blocking artifacts using the computed reference values. MainClaim: A method for processing an image, the method comprising:									
determining artifact intensities within the image, wherein the artifact intensities indicate edge intensities within the image;									
compiling, from the artifact intensities within the image, a distribution of number of occurrences for a plurality of artifact intensity levels at a plurality of locations in the image;									
identifying artifacts from the distribution and the artifact intensities within the image; and									
deleting the artifacts from the image.									
2009/0161982	Restoring images	Nokia Corporation	Tico; Marius Vehvilainen; Markku	382	G06K	20071219	5	92%	<input type="checkbox"/>

Abstract: The specification and drawings present a new method, apparatus and software product for restoring (i.e., de-noising and/or stabilizing) images using similar blocks of pixels of one or more different sizes in one or more available image frames of the same scene for providing, e.g., multi-frame image restoration/de-noising/stabilization.

MainClaim: A method, comprising: identifying one or more similar blocks of a block in one or more image frames of a scene using a predetermined criterion, wherein said block comprises a plurality of pixels and is comprised in a reference image frame, said reference image frame being one of said one or more image frames; and restoring said block by combining, using a predetermined algorithm, pixel signals of the plurality of pixels comprised in said block with corresponding pixel signals of said one or more similar blocks identified for said block.

6,757,434	Region-of-interest tracking method and device for wavelet-based video coding	Nokia Corporation	Miled; Mohamed Khames Ben Hadj Chebil; Fehmi	382	G06K	20021112	2	92%	<input type="checkbox"/>
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Abstract: A method and device for tracking a region-of-interest in a sequence of image frames, wherein the boundary of the target region of a previous frame is projected onto the current frame so that a search area in the current frame can be established. For every pixel in the search area in the current frame, a search window is established in the previous frame so as to find a matched pixel within the search window. If the matched pixel is within the ROI of the previous frame, then the corresponding pixel in the current frame is preliminarily considered as a pixel within the ROI of the current frame. This backward matching is carried out using a low pass subband in the wavelet domain. The preliminary ROI in the current frame is then refined using edge detection in a high frequency subband.

MainClaim: A method of tracking a target region in an image frame based on a target region of a previous image frame in a sequence of image frames, each of said sequence of image frames comprising a plurality of pixels, said method characterized by:

determining a search area in said image frame based on at least a part of the target region in said previous frame, said search area comprising a plurality of first pixels, each pixel having at least one corresponding first pixel value; and

for the first pixels in the search area:

determining a further search area in said previous frame, said further search area including a plurality of second pixels among the plurality of pixels in the previous frames, each second pixel having at least one corresponding second pixel value and a region status;

finding a match between the first pixel value of said first pixels among the second pixel values for locating a reference second pixel; and

determining the region status of at least one of said first pixels based on the region status of the reference second pixel for determining the target region in said image frame based on the region status of said at least one first pixel.

2004/0091158	Region-of-interest tracking method and device for wavelet-based video coding	Nokia Corporation	Miled, Mohamed Khames Ben Hadj Chebil, Fehmi	382	G06K	20021112	1	92%	<input type="checkbox"/>
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Abstract: A method and device for tracking a region-of-interest in a sequence of image frames, wherein the boundary of the target region of a previous frame is projected onto the current frame so that a search area in the current frame can be established. For every pixel in the search area in the current frame, a search window is established in the previous frame so as to find a matched pixel within the search window. If the matched pixel is within the ROI of the previous frame, then the corresponding pixel in the current frame is preliminarily considered as a pixel within the ROI of the current frame. This backward matching is carried out using a low pass subband in the wavelet domain. The preliminary ROI in the current frame is then refined using edge detection in a high frequency subband.

MainClaim: A method of tracking a target region in an image frame based on a target region of a previous image frame in a sequence of image frames, each of said sequence of image frames comprising a plurality of pixels, said method characterized by: determining a search area in said image frame based on at least a part of the target region in said previous frame, said search area comprising a plurality of first pixels, each pixel having at least one corresponding first pixel value; and for the first pixels in the search area: determining a further search area in said previous frame, said further search area including a plurality of second pixels among the plurality of pixels in the previous frames, each second pixel having at least one corresponding second pixel value and a region status; finding a match between the first pixel value of said first pixels among the second pixel values for locating a reference second pixel; and determining the region status of at least one of said first pixels based on the region status of the reference second pixel for determining the target region in said image frame based on the region status of said at least one first pixel.

6,389,177	System and method using edge processing to remove blocking artifacts from decompressed images	Apple Computer, Inc.	Chu; Ke-Chiang Lu; Jian Tian; Yu Tina Wu; Hsi-Jung	382	G06K	19960702	0	100%	<input type="checkbox"/>
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Abstract: A system and method using edge processing to remove blocking artifacts comprises an edge processor having an image converter for building an edge representation of a received image, a statistics analyzer for compiling a histogram containing edge intensities of the edge representation, a reference calculator for using the histogram to compute reference values corresponding to the blocking artifacts and an artifact remover for identifying and removing the blocking artifacts using the computed reference values.

MainClaim: An edge processor for removing selected blocking artifacts from a decompressed image, comprising:

an image converter for creating an edge representation to show edge intensities and locations arranged along block edges within said image;

a statistics analyzer coupled to said image converter, said statistics analyzer creating a data set containing said edge intensities which correspond to said selected blocking artifacts; and

an artifact remover coupled to said statistics analyzer, said artifact remover using said data set to exclusively identify and exclusively operate on and remove said selected blocking artifacts from said image.

2003/0035581	Method and system for measuring perceptual distortion in images	Nokia Mobile Phones, Ltd.	Islam, Asad	382	G06K	20010813	1	93%	<input type="checkbox"/>
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Abstract: A method and system for detecting and measuring different visually important errors in a reproduced image, as compared to the original image. The visually important errors include the blocking, blurring and ringing artifacts. Using directional filters to process the original and reproduced images into edge images. From the edge images, compute the errors related to true edges and false edges. From the original and reproduced images, compute luminance/color variations in smooth areas. The true edges are edges that are present in the original image. The false edges are edges that are present in the reproduced image but not in the original image.

MainClaim: A method of evaluating quality of a second image reproduced from a first image, said method comprising the steps of: obtaining a first edge image from the first image using an edge filtering process; obtaining a second edge image from the second image using the edge filtering process, wherein each of the first image, the second image, the first edge image and the second edge image comprises a plurality of pixels arranged in a same array of pixel locations, and each of said plurality of pixels has a pixel intensity, and wherein the pixel intensity at a pixel location of the first edge image is indicative of whether an edge is present in the first image at said pixel location, and the pixel intensity at a pixel location of the second edge image is indicative of whether an edge is present in the second image at said pixel location; and for a given pixel location, determining a first value indicative of a difference between the pixel intensity of the first edge image and the second edge image, if an edge is present in the first image at said given pixel location; determining a second value indicative of a difference between the pixel intensity of the first edge image and the second edge image, if an edge is present in the second image but not present in the first image at said given pixel location; and summing the first value and the second value for providing a summed value indicative of a measure of the quality.

2009/0161982	Restoring images	Nokia Corporation	Tico; Marius Vehvilainen; Markku	382	G06K	20071219	5	93%	<input type="checkbox"/>
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Abstract: The specification and drawings present a new method, apparatus and software product for restoring (i.e., de-noising and/or stabilizing) images using similar blocks of pixels of one or more different sizes in one or more available image frames of the same scene for providing, e.g., multi-frame image restoration/de-noising/stabilization.

MainClaim: A method, comprising: identifying one or more similar blocks of a block in one or more image frames of a scene using a predetermined criterion, wherein said block comprises a plurality of pixels and is comprised in a reference image frame, said reference image frame being one of said one or more image frames; and restoring said block by combining, using a predetermined algorithm, pixel signals of the plurality of pixels comprised in said block with corresponding pixel signals of said one or more similar blocks identified for said block.

6,757,434	Region-of-interest tracking method and device for wavelet-based video coding	Nokia Corporation	Miled; Mohamed Khames Ben Hadj Chebil; Fehmi	382	G06K	20021112	2	92%	<input type="checkbox"/>
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Abstract: A method and device for tracking a region-of-interest in a sequence of image frames, wherein the boundary of the target region of a previous frame is projected onto the current frame so that a search area in the current frame can be established. For every pixel in the search area in the current frame, a search window is established in the previous frame so as to find a matched pixel within the search window. If the matched pixel is within the ROI of the previous frame, then the corresponding pixel in the current frame is preliminarily considered as a pixel within the ROI of the current frame. This backward matching is carried out using a low pass subband in the wavelet domain. The preliminary ROI in the current frame is then refined using edge detection in a high frequency subband.

MainClaim: A method of tracking a target region in an image frame based on a target region of a previous image frame in a sequence of image frames, each of said sequence of image frames comprising a plurality of pixels, said method characterized by:

determining a search area in said image frame based on at least a part of the target region in said previous frame, said search area comprising a plurality of first pixels, each pixel having at least one corresponding first pixel value; and

for the first pixels in the search area:

determining a further search area in said previous frame, said further search area including a plurality of second pixels among the plurality of pixels in the previous frames, each second pixel having at least one corresponding second pixel value and a region status;

finding a match between the first pixel value of said first pixels among the second pixel values for locating a reference second pixel; and

determining the region status of at least one of said first pixels based on the region status of the reference second pixel for determining the target region in said image frame based on the region status of said at least one first pixel.

7,616,829	Reducing undesirable block based image processing artifacts by DC image filtering	Apple Inc.	Billbrey; Brett Ouzilevski; Alexei V.	382	G06K	20031029	0	100%	<input type="checkbox"/>
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Abstract: A post-processing manager provides reconstructed block based picture post-processing that is uncoupled from picture decoding by dividing a reconstructed image that was encoded using block based processing into non-overlapping blocks, creating a DC image by computing the DC value of each block, creating a zero mean image by subtracting the DC value of each block from the corresponding pixels of that block, filtering the DC image and adding the filtered DC image to the zero mean image. A weak filtering operation can be applied to reduce blocking artifacts, and a strong filtering operation can be applied to smooth luminance transitions.

MainClaim: A method for improving block based reconstructed image quality, the method comprising: dividing a reconstructed image that was encoded using block based processing into non-overlapping blocks of a specified size using a hardware post-processing manager; creating a DC image by computing a DC value of each block, wherein the DC image consists of

components having a zero frequency; creating a zero mean image by subtracting the DC value of each block from the corresponding pixels of that block, wherein the zero mean image consists of low-frequency and high-frequency components having a non-zero frequency; for each DC value in the DC image in response to an absolute difference between the DC value and each of a specified number of proximate DC values being less than a specified threshold value applying a weak filtering operation to that DC value using the hardware post-processing manager in order to reduce blocking artifacts; and creating a corrected image by adding the filtered DC image to the zero mean image.

7,242,815	Adaptive filter	Nokia Corporation	Kalevo; Ossi Karczewicz; Marta	382	G06T	20040120	3	94%	<input type="checkbox"/>
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Abstract: In order to remove blocking artefacts from a frame which has been coded by blocks and then decoded, a certain number of pixels (n) is selected for examination from both sides of the block boundary (30). The number of pixels selected for examination depends on the image content of the frame in the environment of the block boundary, particularly on the difference of the pixel values across the block boundary (30) and the size of the quantization step of the transformation coefficients used in the transformation coding of the blocks.

MainClaim: A video encoder comprising a block boundary filtering block for removing blocking artefacts due to block boundaries between image blocks in a frame of a digital video signal, the block boundary filtering block being arranged to perform an adaptive block boundary filtering operation on a block boundary between a first image block on a first side of the block boundary and a second image block on a second side of the block boundary by: selecting a certain number of pixels for examination on both sides of the block boundary; determining a first activity measure representative of a variation in pixel value between pixels on the first side of the block boundary by examining the values of pixels selected for examination on the first side of the block boundary; determining a second activity measure representative of a variation in pixel value between pixels on the second side of the block boundary by examining the values of pixels selected for examination on the second side of the block boundary; selecting a number of pixels to be filtered from the pixels selected for examination; determining a new value for a pixel selected for filtering on the first side of the block boundary on the basis of pixels that appear in a filtering window set around the pixel to be filtered, the size of the filtering window being dependent at least in part upon the first activity measure determined on the first side of the block boundary; and determining a new value for a pixel selected for filtering on the second side of the block boundary on the basis of pixels that appear in a filtering window set around the pixel to be filtered, the size of the filtering window being dependent at least in part upon the second activity measure determined on the second side of the block boundary.

7,548,583	Generation and use of masks in MPEG video encoding to indicate non-zero entries in transformed macroblocks	Apple Inc.	Klivington; Jason	375	H04B	20050809	0	100%	<input type="checkbox"/>
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Abstract: During Motion Picture Experts Group (MPEG) video encoding a two-dimensional discrete cosine transform (DCT) is performed on data representing an original image. The resulting coefficients are then quantized, which typically results in many zero coefficients. Because of the nature of most video data, most higher-order coefficients are typically zero and the lower-order coefficients (i.e., those grouped towards the upper left of the matrix) are more likely to be non-zero. To reduce the lengths of runs among the lower-order coefficients, the coefficients can be encoded in a zig-zag pattern. In one embodiment, the zig-zag pattern is maintained and one or more masks are generated based on the output of the quantization phase. The one or more masks are used to identify the coefficients within the matrix that are non-zero. This reduces the number of accesses to memory required to encode the non-zero coefficients and runs of zero coefficients.

MainClaim: A method comprising: transforming a set of n coefficients representing video data from a zig-zag order to a second order, n is an integer greater than 1; generating an n-bit mask indicating whether the individual coefficients in the second order are non-zero; determining using the mask, a number of leading zero coefficients for the non-zero coefficients; storing the mask as one or more vectors, wherein the stored vectors are factored so that the sum of the mask can be determined using only shift and bitwise OR operations; retrieving the non-zero coefficients; encoding, by an encoder, the set of coefficients based on the number of leading zero coefficients determined from the mask and corresponding non-zero entries; and transmitting the encoded set of coefficients in an encoded video bitstream.

2007/0223826	FINE GRAINED SCALABILITY ORDERING FOR SCALABLE VIDEO CODING	Nokia Corporation	Ridge; Justin Wang; Xianglin Hallapuro; Antti Karczewicz; Marta	382	G06K	20070321	2	92%	<input type="checkbox"/>
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Abstract: Methods, devices, and computer code products for encoding and decoding a video signal involving encoding blocks of the video signal by scan position within a coding cycle in decreasing order to increase the probability that the next symbol will be non-zero. Scalable video decoding techniques can include setting a state variable for a block to a run length if the state variable for the current block is zero otherwise decrementing the state variable if it is not zero. The current coefficient for the block can be set to the terminating value if the state variable is zero otherwise the coefficient can be set to zero if the state variable is not zero.

MainClaim: A method for decoding an encoded scalable video signal in groups of subbands, the scalable video signal including blocks, each subband comprising coefficients from each block, the method comprising: for each decoding group of subbands; for each decoding block; checking whether or not all the coefficients in the decoded group of subbands in the decoded block have been decoded, and when it is determined that any coefficients have not been decoded: reading a run length from the encoded video signal; identifying a coefficient index based on a decoded subband in the decoded group of subbands in the decoded block and the run-length; setting value of the coefficient corresponding to the coefficient index in the decoded block based on a coefficient level; repeating said checking until all coefficients in the decoded group of subbands in the decoded block have been decoded.

2007/0126853	Variable length codes for scalable video coding	Nokia Corporation	Ridge; Justin Karczewicz; Marta Bao; Yiliang Wang; Xianglin	348	H04N	20060829	2	92%	<input type="checkbox"/>
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Abstract: A method for coding spatial and quality enhancement information in scalable video coding using variable length codes. Conventional systems have been capable of using variable length codes only with non-scalable video coding. In the present invention, the coded block pattern for each block of information, significance passes, and refinement passes can all be coded with different types of variable length codes.

MainClaim: A method for decoding a bit stream representative of a block of data, the method comprising: identifying the presence of an illegal symbol within the bit stream; and if an illegal symbol is identified, determining, based on the illegal symbol, a maximum magnitude of coefficients decoded from the bit stream.

2007/0053425	Variable length codes for scalable video coding	Nokia Corporation	Ridge; Justin Karczewicz; Marta Bao; Yiliang Wang; Xianglin	375	H04B	20060720	1	92%	<input type="checkbox"/>
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Abstract: A method for coding spatial and quality enhancement information in scalable video coding using variable length codes. Conventional systems have been capable of using variable length codes only with non-scalable video coding. In the present invention, the coded block pattern for each block of information, significance passes, and refinement passes can all be coded with different types of variable length codes.

MainClaim: A method of decoding quality enhancement information in a video portion using variable length codes, comprising: receiving a video portion including a base layer and a quality enhancement layer; decoding significance values from the quality enhancement layer using a first variable-length code, the significance values indicating whether coefficients that were zero in the base layer and any previous enhancement layers are non-zero in the quality enhancement layer; and decoding from the quality enhancement layer refinement bits using a second variable-length code, the refinement bits enabling coefficients that were non-zero in the base layer or any previous enhancement layer to be represented with greater precision.

6,985,529	Generation and use of masks in MPEG video encoding to indicate non-zero entries in transformed macroblocks	Apple Computer, Inc.	Klivington; Jason	375	H04B	20020107	0	100%	<input checked="" type="checkbox"/>
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Abstract: During Motion Picture Experts Group (MPEG) video encoding a two-dimensional discrete cosine transform (DCT) is performed on data representing an original image. The resulting coefficients are then quantized, which typically results in many zero coefficients. Because of the nature of most video data, most higher-order coefficients are typically zero and the lower-order coefficients (i.e., those grouped towards the upper left of the matrix) are more likely to be non-zero. To reduce the lengths of runs among the lower-order coefficients, the coefficients can be encoded in a zig-zag pattern. In one embodiment, the zig-zag pattern is maintained and one or more masks are generated based on the output of the quantization phase. The one or more masks are used to identify the coefficients within the matrix that are non-zero. This reduces the number of accesses to memory required to encode the non-zero coefficients and runs of zero coefficients.

MainClaim: A method comprising:

transforming a set of coefficients representing video data from a zig-zag order to a second order;

generating a mask indicating whether the individual coefficients in the second order are non-zero;

determining using the mask, a number of leading zero coefficients for the non-zero coefficients;

retrieving the non-zero coefficients; and

encoding the set of coefficients based on the number of leading zero coefficients determined from the mask and corresponding non-zero entries.

2007/0223826	FINE GRAINED SCALABILITY ORDERING FOR SCALABLE VIDEO CODING	Nokia Corporation	Ridge; Justin Wang; Xianglin Hallapuro; Antti Karczewicz; Marta	382	G06K	20070321	2	92%	<input type="checkbox"/>
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Abstract: Methods, devices, and computer code products for encoding and decoding a video signal involving encoding blocks of the video signal by scan position within a coding cycle in decreasing order to increase the probability that the next symbol will be non-zero. Scalable video decoding techniques can include setting a state variable for a block to a run length if the state variable for the current block is zero otherwise decrementing the state variable if it is not zero. The current coefficient for the block can be set to the terminating value if the state variable is zero otherwise the coefficient can be set to zero if the state variable is not zero.

MainClaim: A method for decoding an encoded scalable video signal in groups of subbands, the scalable video signal including blocks, each subband comprising coefficients from each block, the method comprising: for each decoding group of subbands; for each decoding block; checking whether or not all the coefficients in the decoded group of subbands in the decoded block have been decoded, and when it is determined that any coefficients have not been decoded: reading a run length from the encoded video signal; identifying a coefficient index based on a decoded subband in the decoded group of subbands in the decoded block and the run-length; setting value of the coefficient corresponding to the coefficient index in the decoded block based on a coefficient level; repeating said checking until all coefficients in the decoded group of subbands in the decoded block have been decoded.

2007/0126853	Variable length codes for scalable video coding	Nokia Corporation	Ridge; Justin Karczewicz; Marta Bao; Yiliang Wang; Xianglin	348	H04N	20060829	2	92%	<input type="checkbox"/>
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Abstract: A method for coding spatial and quality enhancement information in scalable video coding using variable length codes. Conventional systems have been capable of using variable length codes only with non-scalable video coding. In the present invention, the coded block pattern for each block of information, significance passes, and refinement passes can all be coded with different types of variable length codes.


MainClaim: A method for decoding a bit stream representative of a block of data, the method comprising: identifying the presence of an illegal symbol within the bit stream; and if an illegal symbol is identified, determining, based on the illegal symbol, a maximum magnitude of coefficients decoded from the bit stream.

7,336,837	Method and system for coding/decoding of a video bit stream for fine granularity scalability	Nokia Corporation	Ridge; Justin Bao; Yiliang Karczewicz; Marta Wang; Xianglin	382	G06K	20050111	1	92%	<input type="checkbox"/>
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Abstract: Methods, computer code products and devices for encoding and/or decoding video data in multiple passes, the video data having a multiple components each component including multiple coefficients. The method can starting the next pass of the

encoding or decoding process immediately after the end of the current encoding or decoding pass for a given component without regard to whether other components have finished the current encoding or decoding pass. In addition, stagger delays and dampers can be used to more closely regulate the encoding or decoding process to ensure that one component is not encoded or decoded too quickly with respect to other components.

MainClaim: A method of decoding video data in a plurality of passes, the video data having a plurality of components each component including a plurality of coefficients, the method comprising: determining whether there is a non-zero coefficient to decode for a first component in a first pass; if there is a non-zero coefficient to decode for the first component in the first pass, decoding the non-zero coefficient for the first component in the first pass; if there is not a non-zero coefficient to decode for the first component in the first pass, determining whether there is a non-zero coefficient to decode for the first component in a second pass; if there is a non-zero coefficient to decode for the first component in the second pass, decoding the non-zero coefficient for the first component in the second pass determining whether there is a non-zero coefficient to decode for a second component in the first pass; if there is a non-zero coefficient to decode for the second component in the first pass, decoding the non-zero coefficient for the second component in the first pass; if there is not a non-zero coefficient to decode for the second component in the first pass, determining whether there is a non-zero coefficient to decode for the second component in the second pass; if there is a non-zero coefficient to decode for the second component in the second pass, decoding the non-zero coefficient for the second component in the second pass.

5,046,119	Method and apparatus for compressing and decompressing color video data with an anti-aliasing mode	Apple Computer, Inc.	Hoffert; Eric M. Miller; Gavin S. P. Mighdoll; Lee S. Winner; Stephanie L.	382	G06K	19900316	0	100%	
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Abstract: An adaptive compression/decompression method for color video data with an anti-aliasing mode. 4x4 blocks of pixel data are examined to determine which one of four compression techniques should be used on each block. User settable thresholds can be used to shift the types of compression used. Highest compression is obtained when more data is stored in run length blocks of single colors and lowest compression when more data is stored as two colors with a 32-bit bitmap for each 4x4 block. One type of compression used provides anti-aliasing.

MainClaim: A method for compressing digital video color data comprising the steps of:


considering the video data in blocks of $n \times n$ pixels;

determining two diverse colors for each of said blocks by examining the n^2 pixels in each of said blocks;

determining if the difference in said two diverse colors for each of said blocks is greater than a first threshold value, and

if said difference is greater than said first threshold value, representing said block with four colors and a $2 \times n \times n$ bitmap, two of said four colors being intermediate colors calculated from said two diverse colors, said bitmap for selecting among said four colors,

if said difference is less than said first threshold value, representing said block as one color.

2007/0172120	Compression of images for computer graphics	Nokia Corporation	Roimela; Kimmo Aarnio; Tomi Itaranta; Joonas	382	G06K	20060124	8	92%	
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Abstract: A method for encoding an image having color components of each image pixel represented by a value of a high dynamic range, the method comprising: decomposing the image into a plurality of image blocks; separating, from the high dynamic range value of each pixel, color information and intensity information of the pixels in said image blocks; and compressing the color information of the pixels in said image blocks and the intensity information of the pixels in said image blocks independently of each other to provide compressed image data.

MainClaim: A method for encoding an image having color components of each image pixel represented by a value of a high dynamic range, the method comprising: decomposing the image into a plurality of image blocks; separating, from the high dynamic range value of each pixel, color information and intensity information of the pixels in said image blocks; and compressing the color information of the pixels in said image blocks and the intensity information of the pixels in said image blocks independently of each other to provide compressed image data.

7,339,991	Method and apparatus for variable accuracy inter-picture timing specification for digital video encoding with reduced requirements of division operations	Apple Inc.	Haskell; Barin Geoffrey Singer; David William Dumitras; Adriana Puri; Atul	375	H04N	20040302	0	100%	
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Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is performed by simple shifts.

MainClaim: For a stream comprising first, second, and third video pictures, a method comprising: computing a scaling value that is based on (i) a power of two value, (ii) a first order difference value between an order value for the third video picture and an order value for the first video picture, and (iii) a second order difference value between an order value for the second video picture and the order value for the first video picture; and computing a particular motion vector for the second video picture from the scaling value and a motion vector for the third video picture.

7,477,689	Video decoder architecture and method for using same	Nokia Corporation	Karczewicz; Marta Kurceren; Ragip	375	H04N	20040616	9	97%	
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Abstract: A decoder and method for using a new picture or frame type is provided. This type is referred to as an SP-picture. The temporal redundancies are not exploited in I-frames, compression efficiency of I-frame coding is significantly lower than the predictive coding. A method allows use of motion compensated predictive coding to exploit temporal redundancy in the sequence while still allowing perfect reconstruction of the frame using different reference frames. Methods using this new picture type provide for error resilience/recovery, bandwidth scalability, bitstream switching, processing scalability, random access and other functions. The SP-type picture provides for, among other functions, switching between different bitstreams, random access, fast forward and fast error-recovery by replacing I-pictures to increase the coding efficiency. As will be demonstrated, SP-pictures have the property that identical SP-frames may be obtained even when they are predicted using different reference frames.

MainClaim: A video processing method, said method comprising: placing a plurality of SP-pictures at fixed intervals within a first bitstream; generating an I-picture and an SP-picture for each one of said plurality of SP-pictures in said first bitstream; forming a second bitstream by storing said I-picture at a temporal location preceding said each one of said plurality of SP-pictures in said first bitstream; and storing said SP-picture in said second bitstream at same temporal locations as each of said SP-pictures in said first bitstream.

2007/0025441	Method, module, device and system for rate control provision for video encoders capable of variable bit rate encoding	Nokia Corporation	Ugur; Kemal Lainema; Jani Liu; Yuxin Zoe	375	H04N	20050728	5	96%	<input type="checkbox"/>
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Abstract: In general, a methodology of rate control for a video encoding is provided, which is implementable by the means of a method, a device, a computer program and/or a video encoder. A frame encoding process is performed for each frame in that an initial quantization parameter is calculated for being used as a quantization parameter for encoding a current frame. Each group of macroblocks within the current frame is encoded group by group; i.e. group-wise. A score value is determined after macroblock encoding of a current group of macroblocks. In case the score value exceeds a pre-defined threshold, the quantization parameter for encoding the next group of macroblocks is adjusted; otherwise, the macroblock encoding is continued with the quantization parameter which is currently used for encoding the current group of macroblocks.

MainClaim: Method of rate control for a video encoder, comprising: performing a frame encoding process for each frame including: determining an initial quantization parameter for being used as a quantization parameter for encoding a current frame; and encoding groups of macroblocks within the current frame, wherein said macroblock encoding process for group of macroblocks includes: determining a score value after encoding of a current group of macroblocks; if the score value exceeds a pre-defined threshold, adjusting the quantization parameter for encoding a next group of macroblocks; and otherwise, continuing macroblock encoding with the quantization parameter currently valid.

2007/0110154	Random access points in video encoding	Nokia Corporation	Wang; Yi-Kui Hannuksela; Miska	375	H04N	20061229	3	96%	<input type="checkbox"/>
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Abstract: In a method of encoding/decoding a video sequence, which is composed of video frames, a first video frame and a second video frame are divided into a set of coding blocks, and at least one of the coding blocks of the first video frame is encoded by intra-coding. Then a first reliable region in the first video frame that comprises at least one intra-coded coding block and a second reliable region in the second video frame are determined. At least one coding block of the second reliable region is predicted from said first reliable region, and said second reliable region in said video sequence is encoded such that an inter-prediction information dependency on coding blocks outside said first reliable region is prevented.

MainClaim: A method of encoding a video sequence, the video sequence being composed of video frames, the method comprising dividing a first video frame and a second video frame into a set of coding blocks, encoding at least one of said coding blocks of the first video frame by intra-coding, determining a first reliable region in the first video frame that comprises at least one intra-coded coding block, determining a second reliable region in the second video frame, predicting at least one coding block of the second reliable region from said first reliable region, and encoding said second reliable region in said video sequence such that an inter-prediction information dependency on coding blocks outside said first reliable region is prevented.

7,194,035	Method and apparatus for improved coding mode selection	Apple Computer, Inc.	Dumitras; Adriana Haskell; Barin Geoffry Puri; Atul	375	H04N	20030707	0	100%	<input type="checkbox"/>
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Abstract: Some embodiments provide a method of performing mode selection in a video compression and encoding system. The method encodes with several encoding modes from a set of encoding modes. The method computes a distortion value for each encoding mode from the several encoding modes. The method computes a bit rate value for each encoding mode from the several encoding modes. The method computes a Lagrangian value for each encoding mode from the several encoding modes, using the distortion value, the bit rate value, and a Lagrangian multiplier. The method selects an encoding mode based on the Lagrangian values. In some embodiments, computing the distortion value includes using a function that reduces the effects of outliers. In some embodiments, the Lagrangian multiplier is a slow varying Lagrangian multiplier that varies at a slower rate than a varying reference Lagrangian multiplier for a reference encoding mode. In yet some embodiments, the method clusters the Lagrangian values.

MainClaim: A method of performing mode selection in a video compression and encoding system, said method comprising: encoding with a plurality of encoding modes from a set of encoding modes; computing a distortion value for each encoding mode from the plurality of encoding modes; computing a bit rate value for each encoding mode from the plurality of encoding modes; computing a Lagrangian value for each encoding mode from the plurality of encoding modes using said distortion value, said bit rate value, and a Lagrangian multiplier; clustering said Lagrangian values; and selecting an encoding mode based on said Lagrangian values by selecting a mode 0 encoding method if said mode 0 encoding method is in a specific cluster.

7,477,689	Video decoder architecture and method for using same	Nokia Corporation	Karczewicz; Marta Kurceren; Ragip	375	H04N	20040616	9	98%	<input type="checkbox"/>
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Abstract: A decoder and method for using a new picture or frame type is provided. This type is referred to as an SP-picture. The temporal redundancies are not exploited in I-frames, compression efficiency of I-frame coding is significantly lower than the predictive coding. A method allows use of motion compensated predictive coding to exploit temporal redundancy in the sequence while still allowing perfect reconstruction of the frame using different reference frames. Methods using this new picture type provide for error resilience/recovery, bandwidth scalability, bitstream switching, processing scalability, random access and other functions. The SP-type picture provides for, among other functions, switching between different bitstreams, random access, fast forward and fast error-recovery by replacing I-pictures to increase the coding efficiency. As will be demonstrated, SP-pictures have the property that identical SP-frames may be obtained even when they are predicted using different reference frames.

MainClaim: A video processing method, said method comprising: placing a plurality of SP-pictures at fixed intervals within a

first bitstream; generating an I-picture and an SP-picture for each one of said plurality of SP-pictures in said first bitstream; forming a second bitstream by storing said I-picture at a temporal location preceding said each one of said plurality of SP-pictures in said first bitstream; and storing said SP-picture in said second bitstream at same temporal locations as each of said SP-pictures in said first bitstream.

2007/0025441	Method, module, device and system for rate control provision for video encoders capable of variable bit rate encoding	Nokia Corporation	Ugur; Kemal Lainema; Jani Liu; Yuxin Zoe	375	H04N	20050728	5	96%	<input type="checkbox"/>
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Abstract: In general, a methodology of rate control for a video encoding is provided, which is implementable by the means of a method, a device, a computer program and/or a video encoder. A frame encoding process is performed for each frame in that an initial quantization parameter is calculated for being used as a quantization parameter for encoding a current frame. Each group of macroblocks within the current frame is encoded group by group; i.e. group-wise. A score value is determined after macroblock encoding of a current group of macroblocks. In case the score value exceeds a pre-defined threshold, the quantization parameter for encoding the next group of macroblocks is adjusted; otherwise, the macroblock encoding is continued with the quantization parameter which is currently used for encoding the current group of macroblocks.

MainClaim: Method of rate control for a video encoder, comprising: performing a frame encoding process for each frame including: determining an initial quantization parameter for being used as a quantization parameter for encoding a current frame; and encoding groups of macroblocks within the current frame, wherein said macroblock encoding process for group of macroblocks includes: determining a score value after encoding of a current group of macroblocks; if the score value exceeds a pre-defined threshold, adjusting the quantization parameter for encoding a next group of macroblocks; and otherwise, continuing macroblock encoding with the quantization parameter currently valid.

2005/0129111	Transform-domain video editing	Nokia Corporation	Kurceren, Ragip Chebil, Fehmi Islam, Asad	375	H04N	20031216	1	96%	<input type="checkbox"/>
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Abstract: A method and device for editing a video sequence while the sequence is in a compressed format. In order to achieve a video effect, editing data indicative of the video effect is applied to residual data from a compressed bitstream. The residual data can be residual error data, transformed residual error data, quantized transformed residual error data or coded, quantized, transformed residual error data. The video effects include fading-in to a color or to a set of colors, fading-out from a color or a set of color, or fading-in from color components in color video frames to color components in monochrome video frames. The editing operations can be multiplication or addition or both.

MainClaim: A method of editing a bitstream carrying video data indicative of a video sequence, wherein the video data comprises residual data in the video sequence, said method comprising: obtaining the residual data from the bitstream; and modifying the residual data for providing further data in a modified bitstream in order to achieve a video effect.

5,253,053	Variable length decoding using lookup tables	Apple Computer, Inc.	Chu; Ke-Chiang Normile; James O. Yeh; Chia L. Wright; Daniel W.	375	H04N	19901231	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for decoding a variable length codeword (VLC) by reading a VLC, the VLC having a maximum length of X bits. The VLC is used as an index into a first table, wherein the first table contains decoded values for all possible VLC's with Y bits not equal to any value in a first set of values. Y is typically less than X and comprises, in the preferred embodiment, the most significant bits of the VLC. If the first Y bits of the VLC are not equal to any value in a first set of values then a second value is returned from the first table. If the first Y bits of the VLC are equal to any value in a first set of values, then a pointer to a second table is returned from the first table. The VLC is used as an index into the second table, and a third value is returned from the second table.

MainClaim: In a data processing apparatus, a method for decoding a variable length codeword (VLC), said VLC being a portion of an encoded bitstream in said data processing apparatus comprising the following steps:

- reading a VLC from said encoded bitstream, the VLC having a maximum length of X bits;
- using the VLC as an index into a first table, the first table containing decoded values for all possible VLC's with first Y bits not equal to any value in a first set of values, wherein Y is less than X, and if the first Y bits of the VLC are not equal to any value in the first set of values then returning a second decoded value from the first table; and
- if the first Y bits of the VLC are equal to any value in the first set of values, then returning a pointer to a second table from the first table, using the VLC as an index into the second table, and returning a third decoded value from the second table.

7,636,395	Method and device for splicing video data in compressed domain	Nokia Corporation	Yongfang; Liang Fehmi; Chebil Asad; Islam	375	H04N	20050314	1	95%	<input type="checkbox"/>
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Abstract: The present invention provides a method, a module, and a device, which enable splicing of MPEG-4 simple profile compatible bitstreams in compressed domain into a seamless bitstream. The method of the present invention enables splicing on devices with constraints in processing power, storage and memory capacity and limited electrical supply. The splicing is based on a mode and/or format translation operated both in compressed domain.

MainClaim: A method, comprising: providing a compressed first input bitstream and a compressed second input bitstream to be spliced, said first and second input bitstreams being compatible with MPEG-4 simple profile; and performing for each frame in the input bitstreams a mode translation in compressed domain by establishing a Video Object, Video Object Layer, and Video Object Plane with packet resynchronization in an output bitstream; adjusting a Video Object Plane time increment field for each frame in the input bitstreams to correspond to an output Video Object Plane time increment resolution field; removing data partitioning, if one of the input bitstreams uses partitioned data error resilience, by obtaining data of a first data partition and a second data partition and rearranging the data of each macro-block; and if one of the input bitstream uses Reversible Variable-Length Codes, re-encoding each macro-block by reversible variable-length decoding, variable-length encoding each macro-block, and including the macro-block into the output bitstream; otherwise copying transform coefficients included in the macro-block to the output bitstream; wherein said mode translation in compressed domain is performed for each macro-block in the video packet in the input bit streams and for each video packet in the frame thereof.

6,696,993	Variable length coding	Nokia Corporation	Karczewicz; Marta	341	H03M	20020322	1	95%	<input type="checkbox"/>
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Abstract: The invention relates to a method of variable length coding in which data symbols are arranged into a number of sets, each of which comprises at least a first data symbol. At least two sets of variable length codewords are provided for variable length coding the data symbols and the sets of data symbols are variable length coded in a coding sequence, starting from a first set and progressing to a last set of data symbols. For a given set of data symbols, other than the first set of data symbols in the coding sequence, a set of cumulative information measures is determined, each of which is representative of a total amount of information required to variable length code the first data symbols of all the sets of data symbols preceding the given set of data symbols in the coding sequence using a predetermined one of the at least two sets of variable length codewords. The set of cumulative information measures is examined to determine which of the at least two sets of variable length codewords provides the smallest cumulative information measure and a codeword is selected to variable length code the first data symbol of the given set of data symbols from the set of variable length codewords which provides the smallest cumulative information measure. A corresponding encoder, decoding method and decoder are also described.

MainClaim: A method of variable length coding data symbols, said data symbols being arranged in a number of sets of data symbols, each set of data symbols comprising at least a first data symbol, at least two sets of variable length codewords being provided for variable length coding said data symbols, said number of sets of data symbols being variable length coded in a coding sequence, from a first set of data symbols to a last set of data symbols, characterised in that the method comprises:

for a given set of data symbols in said coding sequence other than the first set of data symbols, determining for each one of said at least two sets of variable length codewords a total amount of information required to variable length code the first data symbols of all sets of data symbols preceding said given set of data symbols in said coding sequence by determining a set of cumulative information measures;

examining said set of cumulative information measures to determine which of said at least two set of variable length codewords provides the smallest cumulative information measure; and

selecting a codeword for variable length coding said first data symbol of said given set of data symbols from the set of variable length codewords which provides the smallest cumulative information measure.

2006/0203920	Method and device for splicing video data in compressed domain	Nokia Corporation	Yongfang; Liang Fehmi; Chebil Asad; Islam	375	H04B	20050314	1	95%	<input type="checkbox"/>
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Abstract: The present invention provides a method, a module, and a device, which enable splicing of MPEG-4 simple profile compatible bitstreams in compressed domain into a seamless bitstream. The method of the present invention enables splicing on devices with constraints in processing power, storage and memory capacity and limited electrical supply. The splicing is based on a mode and/or format translation operated both in compressed domain.

MainClaim: A method for splicing two compressed input bitstreams being compatible with MPEG-4 simple profile into a spliced output bitstream of MPEG-4 simple profile with packet resynchronization; said method comprising: providing a compressed first input bitstream (35) and a compressed second input bitstream (37) to be spliced; performing for each frame in the input bitstreams a mode translation in compressed domain by establishing a Video Object, Video Object Layer, and Video Object Plane with packet resynchronization in the output bitstream; adjusting the VOP time increment field for each frame in the input bitstreams to correspond to the output VOP time increment resolution field. removing data partitioning, if one of the input bitstreams uses partitioned data error resilience, by obtaining data of a first data partition and second data partition and rearranging the data of each macro-block; and if one of the input bitstream uses Reversible Variable-Length Codes, re-encoding each macro-block by reversible variable-Length decoding, variable-length encoding each macro-block, and including the macro-block into the output bitstream; otherwise copying transform coefficients included in the macro-block to the output bitstream; wherein said mode translation in compressed domain is performed for each macro-block in the video packet in the input bit streams and for each video packet in the frame thereof.

6,707,459	Adjustment of color values for optimized image processing	Apple Computer, Inc.	Graves; Eric Ubillos; Randy	345	G09G	20010201	0	100%	<input type="checkbox"/>
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Abstract: A method for processing an image of a given file type is disclosed. The method involves converting the image into data formatted for a new pixel type, the new pixel type is closely correlated with and has all the components of pixels for the given file type. In addition, the method includes processing the data formatted in the new pixel type using standard image processing routines, these standard routines being designed for data having different components of pixels than the new pixel type and the given file type.

MainClaim: A method comprising:

defining a new pixel type for the purpose of image processing;

updating codecs to support handling of images formatted in said new pixel type;

converting an image stored in a given file type into data formatted in said new pixel type, the given file type having two or more channels of image information in a specific order wherein the converting comprises reordering two or more channels of the given file type; and

processing said data formatted in said new pixel type using standard image processing routines, said new pixel type containing all the channels of pixels of said given file type, said standard routines designed for a given data format having a color space different than that of said given file type and said new pixel type.

2007/0076971	Compression of images for computer graphics	Nokia Corporation	Roimela; Kimmo Aarnio; Tomi Itaranta; Joonas	382	G06K	20050930	3	94%	<input type="checkbox"/>
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Abstract: A method for encoding an image having color components of each image pixel represented by a value of a high dynamic range (HDR), the method comprising: decomposing the image into image blocks; determining a scaling factor for each image block, said scaling factor, when applied to a corresponding image block, for converting the values of the color components into a normalized range; and compressing the normalized image blocks and the scaling factors of each image block independently of each other, whereby the normalized image blocks are encoded according to a low dynamic range (LDR) compression method. In a decoding phase, the encoded image data are decomposed into encoded image blocks, which are decoded according to the LDR compression method. The values of the color components are scaled with a corresponding scaling

factor included in the auxiliary data; and the scaled image blocks are composed into an image with the original dynamic range.

MainClaim: A method for encoding an image of pixels having color components represented by values of high dynamic range, the method comprising: decomposing the image into a plurality of image blocks; determining a scaling factor for each image block, said scaling factor, when applied to a corresponding image block, converting the values of the color components of the pixels in said image block into a normalized range; and compressing image data of normalized image blocks and scaling factors of each image block independently of each other, whereby the image data of the normalized image blocks is encoded according to a low dynamic range compression method.

7,242,411	Adjustment of color values for optimized image processing	Apple Inc.	Graves; Eric Ubillos; Randy	345	G09G	20040302	0	100%	<input type="checkbox"/>
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Abstract: A method for processing an image of a given file type is disclosed. The method involves converting the image into data formatted for a new pixel type, the new pixel type is closely correlated with and has all the components of pixels for the given file type. In addition, the method includes processing the data formatted in the new pixel type using standard image processing routines, these standard routines being designed for data having different components of pixels than the new pixel type and the given file type.

MainClaim: A method comprising: defining a new pixel type for the purpose of processing images of a given file type, said given file type having a plurality of channels of image data, wherein defining said new pixel type comprises providing a corresponding channel for each channel of said given file type; updating codecs to support handling of images formatted in said new pixel type; converting an image stored in said given file type into data formatted in said new pixel type; and processing said data formatted in said new pixel type using standard image processing routines, said standard routines designed for a color space different than that of said given file type and said new pixel type.

2007/0076971	Compression of images for computer graphics	Nokia Corporation	Roimela; Kimmo Aarnio; Tomi Itaranta; Joonas	382	G06K	20050930	3	94%	<input type="checkbox"/>
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Abstract: A method for encoding an image having color components of each image pixel represented by a value of a high dynamic range (HDR), the method comprising: decomposing the image into image blocks; determining a scaling factor for each image block, said scaling factor, when applied to a corresponding image block, for converting the values of the color components into a normalized range; and compressing the normalized image blocks and the scaling factors of each image block independently of each other, whereby the normalized image blocks are encoded according to a low dynamic range (LDR) compression method. In a decoding phase, the encoded image data are decomposed into encoded image blocks, which are decoded according to the LDR compression method. The values of the color components are scaled with a corresponding scaling factor included in the auxiliary data; and the scaled image blocks are composed into an image with the original dynamic range.

MainClaim: A method for encoding an image of pixels having color components represented by values of high dynamic range, the method comprising: decomposing the image into a plurality of image blocks; determining a scaling factor for each image block, said scaling factor, when applied to a corresponding image block, converting the values of the color components of the pixels in said image block into a normalized range; and compressing image data of normalized image blocks and scaling factors of each image block independently of each other, whereby the image data of the normalized image blocks is encoded according to a low dynamic range compression method.

6,115,496	Method and apparatus for accelerating image data compression	Apple Computer, Inc.	Nguyen; Hungviet H. Moledina; Riaz A. Chen; Kok S.	382	G06K	19980120	0	100%	<input type="checkbox"/>
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Abstract: The present invention is directed to systems and methods for compressing image data while at the same time, the speed of compression, the compression ratio (that is, reduced memory requirements) and the perceptibility of the decompressed image, even when the image data is compressed without segregation into its scanned and non-scanned components. Exemplary embodiments achieve such improved perceptibility regardless of whether the images are monochrome (having varying grey scale values) or color. In addition, improved perceptibility is realized in a manner which permits image data including scanned and/or unscanned images to be compressed in real-time.

MainClaim: A method for processing a frame of image data comprising the steps of:

partitioning said frame of image data into a plurality of partitioned blocks of pixels;

identifying each partitioned block as being color variant or color invariant, including identifying partitioned blocks of pixels as being of a user-specified classification, and storing information which identifies those partitioned blocks identified as being of the user-specified classification;

storing color values of at least some of said pixels; storing information which identifies each partitioned block as being color variant or color invariant; and

compressing the partitioned blocks of pixels of the frame of image data in groups by retrieving the information which identifies each partitioned block as being either color variant or color invariant, controlling a retrieval of said color values in response to said retrieved information, and retrieving stored color values for all pixels in each group of partitioned blocks when any one of said partitioned blocks within the group is identified as being color variant.

2007/0172120	Compression of images for computer graphics	Nokia Corporation	Roimela; Kimmo Aarnio; Tomi Itaranta; Joonas	382	G06K	20060124	8	93%	<input type="checkbox"/>
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Abstract: A method for encoding an image having color components of each image pixel represented by a value of a high dynamic range, the method comprising: decomposing the image into a plurality of image blocks; separating, from the high dynamic range value of each pixel, color information and intensity information of the pixels in said image blocks; and compressing the color information of the pixels in said image blocks and the intensity information of the pixels in said image blocks independently of each other to provide compressed image data.

MainClaim: A method for encoding an image having color components of each image pixel represented by a value of a high dynamic range, the method comprising: decomposing the image into a plurality of image blocks; separating, from the high dynamic range value of each pixel, color information and intensity information of the pixels in said image blocks; and compressing the color information of the pixels in said image blocks and the intensity information of the pixels in said image blocks independently of each other to provide compressed image data.

	Method and apparatus								
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5,768,481	for compression of digitized image data using a dynamic band recompression scheme	Apple Computer, Inc.	Chan; Allen M. Chen; Kok S.	358	G06F	19950605	0	100%	<input type="checkbox"/>
<p>Abstract: The present invention is directed to systems and methods for encoding (for example, compressing) image data while at the same time, improving both the compression ratio and the perceptibility of the decoded (for example, decompressed) image using a dynamic band recompression scheme. In accordance with exemplary embodiments, portions of a compressed image are decompressed upon occurrence of a predetermined condition prior to compression of an entire frame of image data, and then recompressed with subsequent portions of the original image. Exemplary embodiments achieve enhanced fidelity in a decompressed image even when the image data is compressed without segregation into its scanned and non-scanned components.</p> <p>MainClaim: A method for compressing a frame of image data comprising the steps of:</p> <p>processing a portion of the frame of image data;</p> <p>encoding image data included in said portion of the frame of image data; and</p> <p>dynamically decoding portions of said encoded image data, prior to encoding the entire frame of image data, in response to a predetermined condition.</p>									
2007/0172120	Compression of images for computer graphics	Nokia Corporation	Roimela; Kimmo Aarnio; Tomi Itaranta; Joonas	382	G06K	20060124	8	94%	<input type="checkbox"/>
<p>Abstract: A method for encoding an image having color components of each image pixel represented by a value of a high dynamic range, the method comprising: decomposing the image into a plurality of image blocks; separating, from the high dynamic range value of each pixel, color information and intensity information of the pixels in said image blocks; and compressing the color information of the pixels in said image blocks and the intensity information of the pixels in said image blocks independently of each other to provide compressed image data.</p> <p>MainClaim: A method for encoding an image having color components of each image pixel represented by a value of a high dynamic range, the method comprising: decomposing the image into a plurality of image blocks; separating, from the high dynamic range value of each pixel, color information and intensity information of the pixels in said image blocks; and compressing the color information of the pixels in said image blocks and the intensity information of the pixels in said image blocks independently of each other to provide compressed image data.</p>									
6,728,315	Method and apparatus for variable accuracy inter-picture timing specification for digital video encoding with reduced requirements for division operations	Apple Computer, Inc.	Haskell; Barin Geoffrey Singer; David William Dumitras; Adriana Puri; Atul	375	H04N	20021206	0	100%	<input type="checkbox"/>
<p>Abstract: A method and apparatus for performing motion estimation in a digital video system is disclosed. Specifically, the present invention discloses a system that quickly calculates estimated motion vectors in a very efficient manner. In one embodiment, a first multiplicand is determined by multiplying a first display time difference between a first video picture and a second video picture by a power of two scale value. This step scales up a numerator for a ratio. Next, the system determines a scaled ratio by dividing that scaled numerator by a second first display time difference between said second video picture and a third video picture. The scaled ratio is then stored calculating motion vector estimations. By storing the scaled ratio, all the estimated motion vectors can be calculated quickly with good precision since the scaled ratio saves significant bits and reducing the scale is performed by simple shifts.</p> <p>MainClaim: A method of performing motion estimation in a digital video system, said method comprising:</p> <p>determining a first multiplicand by multiplying a first display time difference between a first video picture and a second video picture by a power of two value;</p> <p>determining a scaled ratio by dividing said multiplicand by a second first display time difference between said second video picture and a third video picture; and</p> <p>storing said scaled ratio for calculating motion vector estimations.</p>									
7,477,689	Video decoder architecture and method for using same	Nokia Corporation	Karczewicz; Marta Kurceren; Ragip	375	H04N	20040616	9	97%	<input type="checkbox"/>
<p>Abstract: A decoder and method for using a new picture or frame type is provided. This type is referred to a an SP-picture. The temporal redundancies are not exploited in I-frames, compression efficiency of I-frame coding is significantly lower than the predictive coding. A method allows use of motion compensated predictive coding to exploit temporal redundancy in the sequence while still allowing perfect reconstruction of the frame using different reference frames. Methods using this new picture type provide for error resilience/recovery, bandwidth scalability, bitstream switching, processing scalability, random access and other functions. The SP-type picture provides for, among other functions, switching between different bitstreams, random access, fast forward and fast error-recovery by replacing I-pictures to increase the coding efficiency. As will be demonstrated, SP-pictures have the property that identical SP-frames may be obtained even when they are predicted using different reference frames.</p> <p>MainClaim: A video processing method, said method comprising: placing a plurality of SP-pictures at fixed intervals within a first bitstream; generating an I-picture and an SP-picture for each one of said plurality of SP-pictures in said first bitstream; forming a second bitstream by storing said I-picture at a temporal location preceding said each one of said plurality of SP-pictures in said first bitstream; and storing said SP-picture in said second bitstream at same temporal locations as each of said SP-pictures in said first bitstream.</p>									
7,693,220	Transmission of video	Nokia Corporation	Wang; Ru-Shang Kurceren; Ragip	375	H04B	20040223	3	96%	<input type="checkbox"/>

	information		Varsa; Viktor Miller; Keith						
<p>Abstract: The present invention relates to a method for transmitting video information, in which a bitstream is formed comprising a set of frames comprising macroblocks. At least one switching frame is formed into the bitstream, macroblocks of the switching frame are arranged into a first and a second group of macroblocks, each macroblock of the first group of macroblocks are encoded by a first encoding method to provide a switching point for continuing the transmission of video information with another bitstream formed from the video information; and macroblocks of the second group of macroblocks are encoded by another encoding method. Errors in transmission of video information are reduced by forming at least one SP-encoded frame by predictively encoding the macroblocks; replacing part of the SP-encoded macroblocks with intra encoded blocks; and transmitting the encoded frame containing both predictively and intra encoded macroblocks instead of the SP-encoded frame.</p> <p>MainClaim: A method for transmitting video information from an encoder in which at least one bitstream is formed from the video information comprising a set of frames, the frames comprising macroblocks, wherein the method comprises: forming a plurality of switching frames into said bitstream; arranging macroblocks of each switching frame of said plurality of switching frames into a first group of macroblocks and a second group of macroblocks; encoding each macroblock of said first group of macroblocks in said each switching frame by a first encoding method to provide a switching point for continuing transmission of video information with another bitstream formed from the video information; and encoding macroblocks of said second group of macroblocks in said each switching frame by a second encoding method wherein successive switching frames of said plurality of switching frames do not have corresponding groups of macroblocks encoded by said first encoding method.</p>									
2006/0285589	Video coding	Nokia Corporation	Hannuksela; Miska M.	375	H04N	20060615	4	96%	<input type="checkbox"/>
<p>Abstract: A method of encoding a video signal representing a sequence of pictures, the method comprising encoding a first picture (or segment of a picture) of the sequence without reference to another picture of the sequence to produce a picture (I0) and encoding said first picture (or segment of a picture) with reference to another picture (I4) of the sequence to produce a corresponding temporally predicted picture (P4) or segment of a picture.</p> <p>MainClaim: A method of encoding a video signal representing a sequence of pictures to form an encoded video signal, the method comprising receiving a first picture or a part thereof, encoding the first picture or said part thereof, using a first encoding mode, without reference to another picture of the sequence to form a first encoded representation of the first picture or said part thereof, and encoding said first picture or said part thereof, using a second encoding mode, with reference to another picture of the sequence to produce a corresponding temporally predicted second encoded representation of the first picture or said part thereof .</p>									
7,548,664	Producing smooth motion compensated frames by combining multiple interpolation results	Apple Inc.	Suchard; Christophe	382	G06K	20071207	0	100%	<input type="checkbox"/>
<p>Abstract: An interpolation manager constructs multiple motion compensated interpolated frames between two existing frames, and then fuses the multiple interpolated frames into a single output frame. The interpolation manager constructs each of the multiple interpolated frames between the existing frames by selecting a pixel set from each existing frame, generating associated meshes, estimating flow motions in each direction, generating corresponding motion compensated meshes, computing warped images corresponding to each of the existing frames and combining the warped images into an interpolated frame. For each constructed interpolated frame, the interpolation manager uses different classification criteria to select the pixel sets, such that the pixel sets selected for each of the motion compensated interpolated frames vary, and hence the interpolated frames vary as well. The interpolation manager fuses the multiple interpolated frames into a single, output interpolated frame.</p> <p>MainClaim: A method for producing a video frame, comprising: using a processor to perform the following steps: constructing N interpolated frames between two existing frames F1 and F2, wherein N comprises an integer with a value of at least 2, and wherein each of the N interpolated frames was generated according to a different interpolation algorithm; and generating a final interpolated frame by, for each pixel (x, y) in the final interpolated frame: determining one corresponding pixel from each of the N interpolated frames, for a total of N corresponding pixels; determining, based on the N corresponding pixels, a color; and setting the pixel (x, y) to the determined color.</p>									
2009/0161982	Restoring images	Nokia Corporation	Tico; Marius Vehvilainen; Markku	382	G06K	20071219	5	92%	<input type="checkbox"/>
<p>Abstract: The specification and drawings present a new method, apparatus and software product for restoring (i.e., de-noising and/or stabilizing) images using similar blocks of pixels of one or more different sizes in one or more available image frames of the same scene for providing, e.g., multi-frame image restoration/de-noising/stabilization.</p> <p>MainClaim: A method, comprising: identifying one or more similar blocks of a block in one or more image frames of a scene using a predetermined criterion, wherein said block comprises a plurality of pixels and is comprised in a reference image frame, said reference image frame being one of said one or more image frames; and restoring said block by combining, using a predetermined algorithm, pixel signals of the plurality of pixels comprised in said block with corresponding pixel signals of said one or more similar blocks identified for said block.</p>									
7,321,700	Producing smooth motion compensated frames by combining multiple interpolation results	Apple Inc.	Suchard; Christophe	382	G06K	20040415	0	100%	<input type="checkbox"/>
<p>Abstract: An interpolation manager constructs multiple motion compensated interpolated frames between two existing frames, and then fuses the multiple interpolated frames into a single output frame. The interpolation manager constructs each of the multiple interpolated frames between the existing frames by selecting a pixel set from each existing frame, generating associated meshes, estimating flow motions in each direction, generating corresponding motion compensated meshes, computing warped images corresponding to each of the existing frames and combining the warped images into an interpolated frame. For each constructed interpolated frame, the interpolation manager uses different classification criteria to select the pixel sets, such that the pixel sets selected for each of the motion compensated interpolated frames vary, and hence the interpolated frames vary as well. The interpolation manager fuses the multiple interpolated frames into a single, output interpolated frame.</p> <p>MainClaim: A method for robustly producing a motion compensated interpolation video frame, the method comprising: constructing N motion compensated interpolated frames between two existing frames F1 and F2, wherein N comprises an integer with a value of at least 2; and generating a final motion compensated interpolated frame by, for each pixel (x, y) in the final motion compensated interpolated frame: determining one corresponding pixel from each of the N motion compensated</p>									

interpolated frames, for a total of N corresponding pixels; selecting one pixel of the N corresponding pixels; and setting the pixel (x, y) to the selected pixel.

2007/0171987	Method for optical flow field estimation using adaptive Filtering	Nokia Corporation	Trimeche; Mejdi	375	H04B	20060120	4	96%	<input type="checkbox"/>
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Abstract: A motion estimation process in video coding takes into account the estimates in the immediate spatio-temporal neighborhood, through an adaptive filtering mechanism, in order to produce a smooth and coherent optical flow field at each pixel position. The adaptive filtering mechanism includes a recursive LMS filter based on pixel-wise algorithm for obtaining motion vectors in a reference image of a video image frame, while consecutively scanning through individual pixels of the image frame. This motion estimation process is particularly well suited for the estimation of small displacements within consecutive video frames, and can be applied in several applications such as super-resolution, stabilization, denoising of video sequences. The method is also well suited for high frame rate video capture.

MainClaim: A method of motion estimation in a video sequence having a plurality of video frames, the video frames including a first frame having a plurality of first pixels and a second frame having a plurality of second pixels, each second pixel having a corresponding first pixel, each of the second pixels having an intensity value, wherein the first frame and the second frame are separated by a time interval, said method comprising the steps of: scanning the first frame and the second frame in a predetermined pattern to cover part or all of the second pixels; for each second pixel to be matched in said part or all of the second pixels, defining a search area in the first frame; filtering the first pixels in the search area with a coefficient matrix having a plurality of coefficients, each coefficient corresponding to one pixel in the search area, for providing an estimated intensity value; computing an error value between the estimated intensity value and the intensity value of said each second pixel to be matched; updating the coefficients in the coefficient matrix based on the error value for providing an updated coefficient matrix; and determining a motion vector for said each second pixel to be matched at least partially based on at least part of the updated coefficient matrix and the time interval.

2008/0170126	Method and system for image stabilization	Nokia Corporation	Tico; Marius Alenius; Sakari Vehvilainen; Markku	348	H04N	20070419	1	92%	<input type="checkbox"/>
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Abstract: A method of improving image quality of a digital image is provided. In particular, the motion blur in an image taken in a long exposure time is reduced by dividing the exposure time into several shorter periods and capturing a series of images in those shorter periods. Among the images, one reference image is selected and the remaining images are registered in reference to the reference image by image warping, for example. After identifying the pixels in each of the remaining images and the corresponding pixels in the reference image, a weighting factor is assigned to each of the pixels in the remaining images based on the similarity in the pixel values between the remaining images and reference image. A weight average operation is carried out to sum the corresponding pixels in the reference and the remaining images to generate the final image.

MainClaim: A method of image stabilization, comprising: adjusting geometrically a plurality of image frames in reference to a reference frame for providing a plurality of adjusted image frames, wherein each of the reference frame and the adjusted image frames comprises a plurality of pixels, each pixel having a pixel value, wherein each of the pixels in at least an image section of each adjusted image frame has a corresponding pixel in the reference frame; and determining a weighting factor for each pixel in said at least image section based on similarity between the pixel values of said each pixel and the corresponding pixel for generating a resulting image frame based on the pixel value of said each pixel adjusted by the weighting factor and the pixel value of the corresponding pixel in the reference frame.

2009/0161982	Restoring images	Nokia Corporation	Tico; Marius Vehvilainen; Markku	382	G06K	20071219	5	92%	<input type="checkbox"/>
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Abstract: The specification and drawings present a new method, apparatus and software product for restoring (i.e., de-noising and/or stabilizing) images using similar blocks of pixels of one or more different sizes in one or more available image frames of the same scene for providing, e.g., multi-frame image restoration/de-noising/stabilization.

MainClaim: A method, comprising: identifying one or more similar blocks of a block in one or more image frames of a scene using a predetermined criterion, wherein said block comprises a plurality of pixels and is comprised in a reference image frame, said reference image frame being one of said one or more image frames; and restoring said block by combining, using a predetermined algorithm, pixel signals of the plurality of pixels comprised in said block with corresponding pixel signals of said one or more similar blocks identified for said block.

5,930,387	Method and apparatus for encoding color image data using dynamic color matching	Apple Computer, Inc.	Chan; Allen M. Chen; Kok S.	382	H04N	19971204	0	100%	<input type="checkbox"/>
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Abstract: The present invention is related to systems and methods for compressing image data while at the same time, improving both the compression ratio and the perceptibility of the decompressed image using a dynamic color matching scheme. Such features are achieved even when the image data is compressed without segregation into its scanned and non-scanned components. Color variant data is encoded using a dynamic color matching scheme to enhance the color fidelity of a decompressed image obtained from the encoded color variant data. As a result, improved perceptibility of decompressed images is achieved regardless of whether scanned images, non-scanned images or any combination thereof are collectively compressed. Such improved perceptibility is achieved regardless of whether the images are monochrome (having varying grey scale values) or color. In addition, improved perceptibility is realized in a manner which permits image data including scanned and/or unscanned images to be compressed in real-time.

MainClaim: A method for processing a frame of image data comprising the steps of:

encoding each detected color in said frame of image data with an index value to a look-up table during compression of said frame of image data;

storing a plurality of color values in said look-up table which correspond to each of said detected colors; and

dynamically updating said plurality of color values stored in said look-up table when a number of colors detected in said frame of image data exceeds a predetermined number, including iteratively reducing a number of bits used to detect each color prior to the step of encoding until the number of detected colors is less than or equal to the predetermined number.

	Compression of images		Roimela; Kimmo						
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2007/0172120	for computer graphics	Nokia Corporation	Aarnio; Tomi Itaranta; Joonas	382	G06K	20060124	8	93%	<input type="checkbox"/>
<p>Abstract: A method for encoding an image having color components of each image pixel represented by a value of a high dynamic range, the method comprising: decomposing the image into a plurality of image blocks; separating, from the high dynamic range value of each pixel, color information and intensity information of the pixels in said image blocks; and compressing the color information of the pixels in said image blocks and the intensity information of the pixels in said image blocks independently of each other to provide compressed image data.</p> <p>MainClaim: A method for encoding an image having color components of each image pixel represented by a value of a high dynamic range, the method comprising: decomposing the image into a plurality of image blocks; separating, from the high dynamic range value of each pixel, color information and intensity information of the pixels in said image blocks; and compressing the color information of the pixels in said image blocks and the intensity information of the pixels in said image blocks independently of each other to provide compressed image data.</p>									
6,016,360	Method and apparatus for encoding color image data	Apple Computer, Inc.	Nguyen; Hungviet H. Moledina; Riaz A.	382	G06K	19971015	0	100%	<input type="checkbox"/>
<p>Abstract: The present invention is directed to systems and methods for compressing image data while at the same time, improving both the compression ratio and the perceptibility of the decompressed image, even when the image data is compressed without segregation into its scanned and non-scanned components. In accordance with exemplary embodiments, color data is encoded in a manner which optimizes the color fidelity of a decompressed image obtained from the encoded color data. As a result, improved perceptibility of decompressed images is achieved regardless of whether scanned images, non-scanned images or any combination thereof are collectively compressed. Exemplary embodiments achieve such improved perceptibility regardless of whether the images are monochrome (having varying grey scale values) or color. In addition, improved perceptibility is realized in a manner which permits image data including scanned and/or unscanned images to be compressed in real-time.</p> <p>MainClaim: A method for processing a frame of image data comprising the steps of:</p> <p>representing a color of each pixel in said frame of image data by at least one color component;</p> <p>compressing said frame of image data, said step of compressing further including steps of:</p> <p>(i) prequantizing the at least one color component of the image data by selectively eliminating all but at least one most significant bit of each at least one color component used to represent the color of each pixel in said frame of image data; and</p> <p>(ii) encoding the remaining bits of the prequantized data to compress the prequantized data;</p> <p>storing the encoded remaining bits as compressed image data; and</p> <p>varying the bits which are selectively eliminated from each at least one color component, from one frame of said image data relative to another frame of said image data.</p>									
2007/0172120	Compression of images for computer graphics	Nokia Corporation	Roimela; Kimmo Aarnio; Tomi Itaranta; Joonas	382	G06K	20060124	8	93%	<input type="checkbox"/>
<p>Abstract: A method for encoding an image having color components of each image pixel represented by a value of a high dynamic range, the method comprising: decomposing the image into a plurality of image blocks; separating, from the high dynamic range value of each pixel, color information and intensity information of the pixels in said image blocks; and compressing the color information of the pixels in said image blocks and the intensity information of the pixels in said image blocks independently of each other to provide compressed image data.</p> <p>MainClaim: A method for encoding an image having color components of each image pixel represented by a value of a high dynamic range, the method comprising: decomposing the image into a plurality of image blocks; separating, from the high dynamic range value of each pixel, color information and intensity information of the pixels in said image blocks; and compressing the color information of the pixels in said image blocks and the intensity information of the pixels in said image blocks independently of each other to provide compressed image data.</p>									
5,790,705	Compression techniques for substantially lossless digital image data storage	Apple Computer, Inc.	Anderson; Eric C. Dalke; George W.	382	G06T	19960913	0	100%	<input type="checkbox"/>
<p>Abstract: A method for compressing digital image of more than a first predetermined number into the first predetermined number of bits in a substantially lossless manner includes determining a plurality of ranges in which input image data falls and comparing current image data with the plurality of ranges. The method further includes preserving a second predetermined number of bits of the current image data based upon which of the plurality of ranges the current image data falls to encode the current image data as an image value comprising the first predetermined number of bits. A system includes means for determining a plurality of ranges in which input image data falls and means for comparing current image data with the plurality of ranges, the means for comparing coupled to the means for determining. The system further includes means for preserving a second predetermined number of bits of the current image data based upon which of the plurality of ranges the current image data falls to encode the current image data as an image value comprising the first predetermined number of bits, the means for preserving coupled to the means for determining and the means for comparing.</p> <p>MainClaim: A method for compressing digital image of more than a first predetermined number of bits into the first predetermined number of bits in a substantially lossless manner, the method comprising:</p> <p>determining a plurality of ranges in which input image data falls:</p> <p>comparing current image data with the plurality of ranges; and</p> <p>preserving six bits of the current image data based upon which of the plurality of ranges the current image data falls to encode</p>									

the current image data as an image value comprising the first predetermined number of bits, wherein when six bits of data are preserved, the step of determining ranges identifies a first range when the most significant bit (NSB) of image data is a one, a second range when the two MSBs of the image data are zero-one, a third range when the three MSBs of image data are zero-zero-one, and a fourth range when the three MSBs of the image data are a zero-zero-zero.

2009/0067734	Methods and apparatuses for encoding and decoding an image	Nokia Corporation	Kalevo; Ossi	382	G06K	20080818	2	92%	<input type="checkbox"/>
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Abstract: A method as well as a system, a device, an encoding apparatus, a decoding apparatus, a module and a computer software product for image processing is disclosed. The image comprises a pixel matrix, in which the pixels comprise a first number of bits. The pixel matrix is divided to two or more blocks of pixels. The pixels are processed on a block-by-block basis to form encoded pixel values including a certain second number of bits. Bit strings are formed on the basis of the encoded pixels. When decoding the image the bit strings are examined to find out the encoding method used in encoding the pixel, and decoding is performed on a block-by-block basis to retrieve pixel values of the image.

MainClaim: An apparatus comprising: a determining element for defining two or more blocks of pixels from a pixel matrix, said pixels comprising a first number of bits; an encoding element configured to process the pixels of one block at a time to form encoded pixel values comprising a certain second number of bits; and a bit string composer for forming bit strings on the basis of the encoded pixel values.

5,805,735	Method and apparatus for compression of digitized image data using variable color fidelity	Apple Computer, Inc.	Chen; Kok S. Karlsson; Magnus L. Chan; Allen M. Nguyen; Hungviet H. Chen; Marilyn	382	G06K	19971113	0	100%	<input type="checkbox"/>
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Abstract: The present invention is directed to systems and methods for compressing image data without segregating the image data into scanned and non-scanned components, while at the same time, improving both the compression ratio and the perceptibility of the decompressed image. Improved perceptibility is realized regardless of whether the image data includes scanned images, non-scanned images or any combination thereof. Further, improved perceptibility is realized regardless of whether the images are monochrome or color.

MainClaim: A method for processing a frame of image data, comprising the steps of:

partitioning the frame of image data into partitioned blocks;

compressing the image data within each of said partitioned blocks by representing data of a block which is determined to include color variations with fewer bits per color for each color than data of a block which is determined not to include color variations; and

storing the compressed image data as a representation of the image.

2007/0172120	Compression of images for computer graphics	Nokia Corporation	Roimela; Kimmo Aarnio; Tomi Itaranta; Joonas	382	G06K	20060124	8	92%	<input type="checkbox"/>
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Abstract: A method for encoding an image having color components of each image pixel represented by a value of a high dynamic range, the method comprising: decomposing the image into a plurality of image blocks; separating, from the high dynamic range value of each pixel, color information and intensity information of the pixels in said image blocks; and compressing the color information of the pixels in said image blocks and the intensity information of the pixels in said image blocks independently of each other to provide compressed image data.

MainClaim: A method for encoding an image having color components of each image pixel represented by a value of a high dynamic range, the method comprising: decomposing the image into a plurality of image blocks; separating, from the high dynamic range value of each pixel, color information and intensity information of the pixels in said image blocks; and compressing the color information of the pixels in said image blocks and the intensity information of the pixels in said image blocks independently of each other to provide compressed image data.

7,456,760	Complexity-aware encoding	Apple Inc.	Normile; Jim Pun; Thomas Shi; Xiaojin Tong; Xin Wu; Hsi-Jung	341	H03M	20060911	0	100%	<input type="checkbox"/>
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Abstract: Techniques for encoding data based at least in part upon an awareness of the decoding complexity of the encoded data and the ability of a target decoder to decode the encoded data are disclosed. In some embodiments, a set of data is encoded based at least in part upon a state of a target decoder to which the encoded set of data is to be provided. In some embodiments, a set of data is encoded based at least in part upon the states of multiple decoders to which the encoded set of data is to be provided.

MainClaim: A method for encoding a set of data, comprising: receiving a set of data to be encoded; and encoding the set of data based at least in part upon a state of a target decoder to which the encoded set of data is to be provided, wherein encoding the set of data based at least in part upon the state of the target decoder comprises: determining a target decoding complexity for the encoded set of data, and assigning decoding complexity costs to each of one or more coding tools used to encode the set of data and using the one or more coding tools, or a selected subset thereof, to encode the set of data in a manner such that a total complexity cost of decoding the set of data, determined based at least in part on the assigned decoding complexity cost of each respective coding tool that is used to encode the set of data, does not exceed the target decoding complexity.

2008/0088743	METHOD, ELECTRONIC DEVICE, SYSTEM, COMPUTER PROGRAM PRODUCT AND CIRCUIT ASSEMBLY FOR REDUCING ERROR IN VIDEO CODING	Nokia Corporation	Zhu; Chunbo Wang; Ye-Kui Li; Houqiang	348	H04N	20061016	1	94%	<input type="checkbox"/>
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Abstract: A method, electronic device, computer program product, system and circuit assembly are provided for allocating one or more redundant pictures by taking into consideration the information content of the primary pictures, with which the

redundant pictures would be associated. In particular, primary pictures that are determined to be more sensitive to transmission loss or corruption may be allocated one or more redundant pictures, while those that are less sensitive may not be so allocated. By selectively allocating redundant pictures to only those primary pictures that are more sensitive, the method disclosed reduces the amount of overhead associated with redundant pictures and increases the coding efficiency, without sacrificing the integrity of the video data.

MainClaim: A method of reducing error in encoding video data comprising one or more primary pictures, said method comprising: evaluating the information content of at least one of the one or more primary pictures; and determining, based at least in part on the information content of the primary picture, a number of redundant picture(s) to associate with the primary picture, wherein the information content of the redundant picture corresponds to the information content of the primary picture.

2007/0160137	Error resilient mode decision in scalable video coding	Nokia Corporation	Guo; Yi Wang; Ye-Kui Li; Houqiang	375	H04B	20070108	1	93%	<input type="checkbox"/>
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Abstract: An encoder for use in scalable video coding has a mechanism to perform macroblock mode selection for the enhancement layer pictures. The mechanism includes a distortion estimator for each macroblock that reacts to channel errors such as packet losses or errors in video segments affected by error propagation; a Lagrange multiple selector for selecting a weighting factor according to estimated or signaled channel error rate, and a mode decision module or algorithm to choose the optimal mode based on encoding parameters. The mode decision module is configured to select the coding mode based on a sum of the estimated coding distortion and the estimated coding rate multiplied by the weighting factor.

MainClaim: A method of scalable video coding for coding video segments including a plurality of base layer pictures and enhancement layer pictures, wherein each enhancement layer picture comprises a plurality of macroblocks arranged in one or more layers and wherein a plurality of macroblock coding modes are arranged for coding a macroblock in the enhancement layer picture subject to coding distortion, said method comprising: estimating the coding distortion affecting reconstructed video segments in different macroblock coding modes according to a target channel error rate; and selecting one of the macroblock coding modes for coding the macroblock based on the estimated coding distortion.

2007/0183676	VIDEO CODING AND DECODING	Nokia Corporation	Hannuksela; Miska Wang; Ye-Kui	382	G06K	20070416	2	92%	<input type="checkbox"/>
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Abstract: A video coding and decoding method, wherein a picture is first divided into sub-pictures corresponding to one or more subjectively important picture regions and to a background region sub-picture, which remains after the other sub-pictures are removed from the picture. The sub-pictures are formed to conform to predetermined allowable groups of video coding macroblocks (MBs). The allowable groups of MBs can be, for example, of rectangular shape. The picture is then divided into slices so that each sub-picture is encoded independent of other sub-pictures except for the background region sub-picture, which may be coded using another sub-pictures. The slices of the background sub-picture are formed in a scan-order with skipping over MBs that belong to another sub-picture. The background sub-picture is only decoded if all the positions and sizes of all other sub-pictures can be reconstructed on decoding the picture.

MainClaim: A method comprising: encoding a first picture, dividing a second picture into a set of regular shaped coding blocks having a predetermined alignment in relation to the area of the picture, each coding block corresponding to at least one group of elementary coding elements; determining at least one shape within the second picture; selecting at least one subset of the coding blocks defining at least one area covering the at least one determined shape; determining as at least one separate coding object the selected at least one subset of the coding blocks; determining as a background object the subset of the coding blocks that corresponds to the part of the second picture that excludes the at least one separate coding object; encoding the at least one separate coding object; encoding as one coding object the background object; and predicting at least one coding block of the background object from the first picture.

7,668,240	Method and apparatus for variable accuracy inter-picture timing specification for digital video encoding	Apple Inc.	Haskell; Barin Geoffrey Singer; David William Dumitras; Adriana Puri; Atul	375	H04B	20070110	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for variable accuracy inter-picture timing specification for digital video encoding is disclosed. Specifically, the present invention discloses a system that allows the relative timing of nearby video pictures to be encoded in a very efficient manner. In one embodiment, the display time difference between a current video picture and a nearby video picture is determined. The display time difference is then encoded into a digital representation of the video picture. In a preferred embodiment, the nearby video picture is the most recently transmitted stored picture. For coding efficiency, the display time difference may be encoded using a variable length coding system or arithmetic coding. In an alternate embodiment, the display time difference is encoded as a power of two to reduce the number of bits transmitted.

MainClaim: An encoder comprising: at least one module for encoding a first video picture, a second video picture, a third video picture, a first order value of the first video picture, a second order value of the second video picture, and a third order value of the third video picture, wherein the first, second, and third order values are for computing a motion vector for the second video picture based on a motion vector for the third video picture; and a storage for storing the encoded first video picture, the encoded second video picture, the encoded third video picture, the encoded first order value, the encoded second order value and the encoded third order value in a bitstream.

2007/0189398	VIDEO CODING	Nokia Corporation	Hannuksela; Miska Caglar; Kerem	375	H04B	20070220	2	96%	<input type="checkbox"/>
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Abstract: A method of encoding a video signal representing a sequence of pictures, the method comprising comparing a first picture with a second picture, calculating a measure of the similarity between the first and the second pictures, comparing the measure of similarity with a predetermined criterion of similarity and, when the measure of similarity does not meet the predetermined criterion of similarity, outputting an indicator indicating that a non-temporally predictive error concealment method should be used by a subsequent decoder and, when the measure of similarity meets the predetermined criterion of similarity, outputting an indicator indicating that a temporally predictive error concealment method should be used by a subsequent decoder.

MainClaim: A method of encoding a video signal representing a sequence of pictures to form an encoded video signal, the method comprising: comparing a first picture of the sequence or a part of the first picture with a second picture of the sequence; calculating a measure of similarity between said first picture of the sequence or said part of the first picture and the second picture; comparing the measure of similarity with a predetermined criterion of similarity; and outputting an error concealment method indicator based on a result of said comparison for indicating a type of error concealment method to be used in a corresponding decoding process for said first picture of the sequence or said part of the first picture.

2008/0267299	VIDEO CODING	Nokia Corporation	Hannuksela; Miska Caglar; Kerem	375	H04N	20080711	3	96%	<input type="checkbox"/>
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Abstract: A method of encoding a video signal representing a sequence of pictures, the method comprising comparing a first picture with a second picture, calculating a measure of the similarity between the first and the second pictures, comparing the measure of similarity with a predetermined criterion of similarity and, when the measure of similarity does not meet the predetermined criterion of similarity, outputting an indicator indicating that a non-temporally predictive error concealment method should be used by a subsequent decoder and, when the measure of similarity meets the predetermined criterion of similarity, outputting an indicator indicating that a temporally predictive error concealment method should be used by a subsequent decoder.

MainClaim: A method of encoding a video signal representing a sequence of pictures to form an encoded video signal, the method comprising: generating an error concealment algorithm type indicator for a picture or a part thereof, the error concealment algorithm type indicator for providing an indication of a type of error concealment algorithm, said indication to be used as the basis for choosing, in a corresponding decoding process, a particular error concealment algorithm of the type indicated; and providing the error concealment algorithm type indicator, for use in the corresponding decoding process, separate from an indication of an encoding mode for the picture.

2007/0183676	VIDEO CODING AND DECODING	Nokia Corporation	Hannuksela; Miska Wang; Ye-Kui	382	G06K	20070416	2	95%	<input type="checkbox"/>
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Abstract: A video coding and decoding method, wherein a picture is first divided into sub-pictures corresponding to one or more subjectively important picture regions and to a background region sub-picture, which remains after the other sub-pictures are removed from the picture. The sub-pictures are formed to conform to predetermined allowable groups of video coding macroblocks (MBs). The allowable groups of MBs can be, for example, of rectangular shape. The picture is then divided into slices so that each sub-picture is encoded independent of other sub-pictures except for the background region sub-picture, which may be coded using another sub-pictures. The slices of the background sub-picture are formed in a scan-order with skipping over MBs that belong to another sub-picture. The background sub-picture is only decoded if all the positions and sizes of all other sub-pictures can be reconstructed on decoding the picture.

MainClaim: A method comprising: encoding a first picture, dividing a second picture into a set of regular shaped coding blocks having a predetermined alignment in relation to the area of the picture, each coding block corresponding to at least one group of elementary coding elements; determining at least one shape within the second picture; selecting at least one subset of the coding blocks defining at least one area covering the at least one determined shape; determining as at least one separate coding object the selected at least one subset of the coding blocks; determining as a background object the subset of the coding blocks that corresponds to the part of the second picture that excludes the at least one separate coding object; encoding the at least one separate coding object; encoding as one coding object the background object; and predicting at least one coding block of the background object from the first picture.

7,551,674	Using order difference for calculating motion vector	Apple Inc.	Haskell; Barin Geoffrey Singer; David William Dumitras; Adriana Puri; Atul	375	H04B	20070808	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for variable accuracy inter-picture timing specification for digital video encoding is disclosed. Specifically, the present invention discloses a system that allows the relative timing of nearby video pictures to be encoded in a very efficient manner. In one embodiment, the display time difference between a current video picture and a nearby video picture is determined. The display time difference is then encoded into a digital representation of the video picture. In a preferred embodiment, the nearby video picture is the most recently transmitted stored picture. For coding efficiency, the display time difference may be encoded using a variable length coding system or arithmetic coding. In an alternate embodiment, the display time difference is encoded as a power of two to reduce the number of bits transmitted.

MainClaim: For a stream comprising a first video picture, a second video picture, and a third video picture, a method of decoding video with a video decoder, the method comprising: at the video decoder: computing a first order difference between an order value for the second video picture and an order value for the first video picture; computing a second order difference between an order value for the third video picture and said order value for said first video picture; calculating a particular motion vector for said second video picture by multiplying a motion vector for the third video picture with a particular value that is based on said first order difference and said second order difference; and with the video decoder, decoding at least one video picture by using the computed motion vectors.

2008/0267299	VIDEO CODING	Nokia Corporation	Hannuksela; Miska Caglar; Kerem	375	H04N	20080711	3	96%	<input type="checkbox"/>
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Abstract: A method of encoding a video signal representing a sequence of pictures, the method comprising comparing a first picture with a second picture, calculating a measure of the similarity between the first and the second pictures, comparing the measure of similarity with a predetermined criterion of similarity and, when the measure of similarity does not meet the predetermined criterion of similarity, outputting an indicator indicating that a non-temporally predictive error concealment method should be used by a subsequent decoder and, when the measure of similarity meets the predetermined criterion of similarity, outputting an indicator indicating that a temporally predictive error concealment method should be used by a subsequent decoder.

MainClaim: A method of encoding a video signal representing a sequence of pictures to form an encoded video signal, the method comprising: generating an error concealment algorithm type indicator for a picture or a part thereof, the error concealment algorithm type indicator for providing an indication of a type of error concealment algorithm, said indication to be used as the basis for choosing, in a corresponding decoding process, a particular error concealment algorithm of the type indicated; and providing the error concealment algorithm type indicator, for use in the corresponding decoding process, separate from an indication of an encoding mode for the picture.

2009/0041117	Coding Scene Transitions in Video Coding	Nokia Corporation	Hannuksela; Miska	375	H04N	20081007	2	95%	<input type="checkbox"/>
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Abstract: A method of generating a scene transition in a video sequence between a first and a second scene is provided. One of the scenes comprises independently decodable video frames coded according to a first frame format, and video frames coded according to a second frame format, one of the video frames according to the second frame format being predicted from one other video frame. The presentation time of one video frame of the first scene is determined to be equal to that of one scene transition video frame of the second scene during the scene transition. Scene transition information is determined for one video frame of one scene for generating a scene transition with a decoder. One scene transition video frame of the first scene, one scene transition video frame of the second scene, and the scene transition information are coded in the encoder into the video sequence.

MainClaim: A method comprising: receiving a video frame of a first scene of a video sequence wherein the first scene is an ending scene, a video frame of a second scene of the video sequence wherein the second scene is a beginning scene, and scene

transition information, coded in a decoder, and wherein at least one of said scenes includes independently decodable video frames coded in accordance with at least a first frame format and video frames coded in accordance with a second frame format where at least one of the video frames coded according to the second frame format is predicted from at least one other video frame; decoding the coded video frame of the first scene; decoding the coded video frame of the second scene; decoding the coded scene transition information; and generating a scene transition by using the decoded video frame of the first scene, the decoded video frame of the second scene, and the decoded scene transition information.

2008/0095234	SYSTEM AND METHOD FOR IMPLEMENTING LOW-COMPLEXITY MULTI-VIEW VIDEO CODING	Nokia Corporation	Wang; Ye-Kui Hannuksela; Miska Chen; Ying	375	H04N	20070912	2	94%	<input type="checkbox"/>
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Abstract: A system and method for implementing low complexity multi-view video coding. According to various embodiments, single-loop decoding is applied to multi-view video coding. For N coded views, where only M of the N views are to be displayed, only those M views are required to be fully decoded and stored to a decoded picture buffer (DPB) when needed. Pictures of other views are only partially decoded or simply parsed and do not have to be stored into the DPB. Various embodiments also provide for an encoder that encodes multi-view video bitstreams in accordance with the single-loop decoding concept, as well as a decoder that utilizes single-loop decoding to decode and output on a subset of the encoded views from a multi-view bitstream.

MainClaim: A method of encoding multiview video content into a bitstream, comprising: encoding a plurality of picture sequences into coded pictures; and encoding signal information including a signal element into the bitstream, the signal element indicating that, for the display of a subset of the plurality of picture sequences, only pictures from the subset of the plurality of picture sequences need to be fully decoded.

7,548,584	Using order value for computing motion vector	Apple Inc.	Haskell; Barin Geoffry Singer; David William Dumitras; Adriana Puri; Atul	375	H04B	20070808	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for variable accuracy inter-picture timing specification for digital video encoding is disclosed. Specifically, the present invention discloses a system that allows the relative timing of nearby video pictures to be encoded in a very efficient manner. In one embodiment, the display time difference between a current video picture and a nearby video picture is determined. The display time difference is then encoded into a digital representation of the video picture. In a preferred embodiment, the nearby video picture is the most recently transmitted stored picture. For coding efficiency, the display time difference may be encoded using a variable length coding system or arithmetic coding. In an alternate embodiment, the display time difference is encoded as a power of two to reduce the number of bits transmitted.

MainClaim: For a stream comprising a first video picture, a second video picture, and a third video picture, a method of decoding video with a video decoder, the method comprising: at the video decoder: computing a particular value that is based on a first order difference value and a second order difference value, wherein (i) the first order difference value is representative of a difference between an order value for the third video picture and an order value for the first video picture; and (ii) the second order difference value is representative of a difference between an order value for the second video picture and the order value of the first video picture, wherein an order value for a particular video picture is representative of a position for the particular video picture in a sequence of video pictures; computing a motion vector for the second video picture based on the particular value and a motion vector for the third video picture; computing another motion vector for the second video picture based on the motion vector for the third video picture; and with the video decoder, decoding at least one video picture by using the computed motion vectors.

2008/0267299	VIDEO CODING	Nokia Corporation	Hannuksela; Miska Caglar; Kerem	375	H04N	20080711	3	96%	<input type="checkbox"/>
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Abstract: A method of encoding a video signal representing a sequence of pictures, the method comprising comparing a first picture with a second picture, calculating a measure of the similarity between the first and the second pictures, comparing the measure of similarity with a predetermined criterion of similarity and, when the measure of similarity does not meet the predetermined criterion of similarity, outputting an indicator indicating that a non-temporally predictive error concealment method should be used by a subsequent decoder and, when the measure of similarity meets the predetermined criterion of similarity, outputting an indicator indicating that a temporally predictive error concealment method should be used by a subsequent decoder.

MainClaim: A method of encoding a video signal representing a sequence of pictures to form an encoded video signal, the method comprising: generating an error concealment algorithm type indicator for a picture or a part thereof, the error concealment algorithm type indicator for providing an indication of a type of error concealment algorithm, said indication to be used as the basis for choosing, in a corresponding decoding process, a particular error concealment algorithm of the type indicated; and providing the error concealment algorithm type indicator, for use in the corresponding decoding process, separate from an indication of an encoding mode for the picture.

2009/0041117	Coding Scene Transitions in Video Coding	Nokia Corporation	Hannuksela; Miska	375	H04N	20081007	2	95%	<input type="checkbox"/>
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Abstract: A method of generating a scene transition in a video sequence between a first and a second scene is provided. One of the scenes comprises independently decodable video frames coded according to a first frame format, and video frames coded according to a second frame format, one of the video frames according to the second frame format being predicted from one other video frame. The presentation time of one video frame of the first scene is determined to be equal to that of one scene transition video frame of the second scene during the scene transition. Scene transition information is determined for one video frame of one scene for generating a scene transition with a decoder. One scene transition video frame of the first scene, one scene transition video frame of the second scene, and the scene transition information are coded in the encoder into the video sequence.

MainClaim: A method comprising: receiving a video frame of a first scene of a video sequence wherein the first scene is an ending scene, a video frame of a second scene of the video sequence wherein the second scene is a beginning scene, and scene transition information, coded in a decoder, and wherein at least one of said scenes includes independently decodable video frames coded in accordance with at least a first frame format and video frames coded in accordance with a second frame format where at least one of the video frames coded according to the second frame format is predicted from at least one other video frame; decoding the coded video frame of the first scene; decoding the coded video frame of the second scene; decoding the coded scene transition information; and generating a scene transition by using the decoded video frame of the first scene, the decoded video frame of the second scene, and the decoded scene transition information.


	SYSTEM AND METHOD								
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2008/0095234	FOR IMPLEMENTING LOW-COMPLEXITY MULTI-VIEW VIDEO CODING	Nokia Corporation	Wang; Ye-Kui Hannuksela; Miska Chen; Ying	375	H04N	20070912	2	94%	<input type="checkbox"/>
<p>Abstract: A system and method for implementing low complexity multi-view video coding. According to various embodiments, single-loop decoding is applied to multi-view video coding. For N coded views, where only M of the N views are to be displayed, only those M views are required to be fully decoded and stored to a decoded picture buffer (DPB) when needed. Pictures of other views are only partially decoded or simply parsed and do not have to be stored into the DPB. Various embodiments also provide for an encoder that encodes multi-view video bitstreams in accordance with the single-loop decoding concept, as well as a decoder that utilizes single-loop decoding to decode and output on a subset of the encoded views from a multi-view bitstream.</p> <p>MainClaim: A method of encoding multiview video content into a bitstream, comprising: encoding a plurality of picture sequences into coded pictures; and encoding signal information including a signal element into the bitstream, the signal element indicating that, for the display of a subset of the plurality of picture sequences, only pictures from the subset of the plurality of picture sequences need to be fully decoded.</p>									
7,292,636	Using order value for processing a video picture	Apple Inc.	Haskell; Barin Geoffrey Singer; David William Dumitras; Adriana Puri; Atul	375	H04B	20040302	0	100%	<input type="checkbox"/>
<p>Abstract: A method and apparatus for variable accuracy inter-picture timing specification for digital video encoding is disclosed. Specifically, the present invention discloses a system that allows the relative timing of nearby video pictures to be encoded in a very efficient manner. In one embodiment, the display time difference between a current video picture and a nearby video picture is determined. The display time difference is then encoded into a digital representation of the video picture. In a preferred embodiment, the nearby video picture is the most recently transmitted stored picture. For coding efficiency, the display time difference may be encoded using a variable length coding system or arithmetic coding. In an alternate embodiment, the display time difference is encoded as a power of two to reduce the number of bits transmitted.</p> <p>MainClaim: For a bitstream comprising a first video picture, a second video picture, and a third video picture, a method of decoding comprising: computing a particular value that is based on (i) a first order difference value between an order value for the third video picture and an order value for the first video picture, and (ii) a second order difference value between an order value for the second video picture and the order value for the first video picture; computing a particular motion vector for the second video picture based on the particular value and a motion vector for the third video picture; and decoding at least one video picture by using the computed motion vector.</p>									
7,477,689	Video decoder architecture and method for using same	Nokia Corporation	Karczewicz; Marta Kurceren; Ragip	375	H04N	20040616	9	97%	<input type="checkbox"/>
<p>Abstract: A decoder and method for using a new picture or frame type is provided. This type is referred to as an SP-picture. The temporal redundancies are not exploited in I-frames, compression efficiency of I-frame coding is significantly lower than the predictive coding. A method allows use of motion compensated predictive coding to exploit temporal redundancy in the sequence while still allowing perfect reconstruction of the frame using different reference frames. Methods using this new picture type provide for error resilience/recovery, bandwidth scalability, bitstream switching, processing scalability, random access and other functions. The SP-type picture provides for, among other functions, switching between different bitstreams, random access, fast forward and fast error-recovery by replacing I-pictures to increase the coding efficiency. As will be demonstrated, SP-pictures have the property that identical SP-frames may be obtained even when they are predicted using different reference frames.</p> <p>MainClaim: A video processing method, said method comprising: placing a plurality of SP-pictures at fixed intervals within a first bitstream; generating an I-picture and an SP-picture for each one of said plurality of SP-pictures in said first bitstream; forming a second bitstream by storing said I-picture at a temporal location preceding said each one of said plurality of SP-pictures in said first bitstream; and storing said SP-picture in said second bitstream at same temporal locations as each of said SP-pictures in said first bitstream.</p>									
2006/0285589	Video coding	Nokia Corporation	Hannuksela; Miska M.	375	H04N	20060615	4	97%	<input type="checkbox"/>
<p>Abstract: A method of encoding a video signal representing a sequence of pictures, the method comprising encoding a first picture (or segment of a picture) of the sequence without reference to another picture of the sequence to produce a picture (I0) and encoding said first picture (or segment of a picture) with reference to another picture (I4) of the sequence to produce a corresponding temporally predicted picture (P4) or segment of a picture.</p> <p>MainClaim: A method of encoding a video signal representing a sequence of pictures to form an encoded video signal, the method comprising receiving a first picture or a part thereof, encoding the first picture or said part thereof, using a first encoding mode, without reference to another picture of the sequence to form a first encoded representation of the first picture or said part thereof, and encoding said first picture or said part thereof, using a second encoding mode, with reference to another picture of the sequence to produce a corresponding temporally predicted second encoded representation of the first picture or said part thereof.</p>									
2007/0189398	VIDEO CODING	Nokia Corporation	Hannuksela; Miska Caglar; Kerem	375	H04B	20070220	2	96%	<input type="checkbox"/>
<p>Abstract: A method of encoding a video signal representing a sequence of pictures, the method comprising comparing a first picture with a second picture, calculating a measure of the similarity between the first and the second pictures, comparing the measure of similarity with a predetermined criterion of similarity and, when the measure of similarity does not meet the predetermined criterion of similarity, outputting an indicator indicating that a non-temporally predictive error concealment method should be used by a subsequent decoder and, when the measure of similarity meets the predetermined criterion of similarity, outputting an indicator indicating that a temporally predictive error concealment method should be used by a subsequent decoder.</p> <p>MainClaim: A method of encoding a video signal representing a sequence of pictures to form an encoded video signal, the method comprising: comparing a first picture of the sequence or a part of the first picture with a second picture of the sequence; calculating a measure of similarity between said first picture of the sequence or said part of the first picture and the second picture; comparing the measure of similarity with a predetermined criterion of similarity; and outputting an error concealment method indicator based on a result of said comparison for indicating a type of error concealment method to be used in a corresponding decoding process for said first picture of the sequence or said part of the first picture.</p>									
			Kumar; Roger						

7,239,721	Adaptive motion estimation	Apple Inc.	Pun; Thomas Nie; Xiaochun Wu; Hsi-Jung	382	G06K	20030430	0	100%	
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Abstract: Some embodiments of the invention provide a method of performing motion estimation for an array of image values obtained from a current image. The method starts with an initial estimate of the motion of the current image. The method then determines whether the initial estimate of the motion of the current image array between the current image and a reference image is acceptable. If not, the method specifies a first value for a parameter for performing the motion estimation. Otherwise, the method specifies a second value for the parameter. The method then performs a motion estimation operation based on the specified value of the parameter. One example of a specified parameter is the size of the window that the motion estimation operation uses. Another example is the starting level for a hierarchical motion estimation operation that it performs. A hierarchical motion estimation operation searches the reference frame at several different levels of granularity.

MainClaim: A method of performing a hierarchical motion estimation for an array of image values obtained from a current image, the hierarchical motion estimation operation specifying a hierarchical progression of searches at different resolutions in a reference image, wherein the hierarchical progression starts from coarser resolutions to finer resolutions, wherein the method starts with an initial estimate of the motion of the current image, the method comprising: a) determining whether the initial estimate of the motion of the current image array between the current image and a reference image is acceptable; b) specifying a first value for a first resolution parameter for performing the hierarchical motion estimation operation when the initial estimate is not acceptable, said first resolution parameter specifying a starting resolution value in the hierarchical progression; c) specifying a second value for the first resolution parameter for performing the hierarchical motion estimation operation when the initial estimate is acceptable, wherein the second resolution value is different from the first resolution value; d) performing the hierarchical motion estimation operation based on the specified value for the first resolution parameter.

2007/0171987	Method for optical flow field estimation using adaptive Filtering	Nokia Corporation	Trimeche; Mejdi	375	H04B	20060120	4	92%	
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Abstract: A motion estimation process in video coding takes into account the estimates in the immediate spatio-temporal neighborhood, through an adaptive filtering mechanism, in order to produce a smooth and coherent optical flow field at each pixel position. The adaptive filtering mechanism includes a recursive LMS filter based on pixel-wise algorithm for obtaining motion vectors in a reference image of a video image frame, while consecutively scanning through individual pixels of the image frame. This motion estimation process is particularly well suited for the estimation of small displacements within consecutive video frames, and can be applied in several applications such as super-resolution, stabilization, denoising of video sequences. The method is also well suited for high frame rate video capture.

MainClaim: A method of motion estimation in a video sequence having a plurality of video frames, the video frames including a first frame having a plurality of first pixels and a second frame having a plurality of second pixels, each second pixel having a corresponding first pixel, each of the second pixels having an intensity value, wherein the first frame and the second frame are separated by a time interval, said method comprising the steps of: scanning the first frame and the second frame in a predetermined pattern to cover part or all of the second pixels; for each second pixel to be matched in said part or all of the second pixels, defining a search area in the first frame; filtering the first pixels in the search area with a coefficient matrix having a plurality of coefficients, each coefficient corresponding to one pixel in the search area, for providing an estimated intensity value; computing an error value between the estimated intensity value and the intensity value of said each second pixel to be matched; updating the coefficients in the coefficient matrix based on the error value for providing an updated coefficient matrix; and determining a motion vector for said each second pixel to be matched at least partially based on at least part of the updated coefficient matrix and the time interval.

5,970,461	System, method and computer readable medium of efficiently decoding an AC-3 bitstream by precalculating computationally expensive values to be used in the decoding algorithm	Apple Computer, Inc.	Chatterton; Geoffrey W.	704	G06K	19961223	0	100%	
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Abstract: A method and system for providing an inverse transform for an audio compression decoding algorithm in software precalculates a plurality of identified values; each of which is computationally intensive. The method and system then performs a pre-inverse transform complex multiply utilizing a first portion of the identified values and an array of input coefficients to provide a plurality of intermediate values. Thereafter, an inverse transform complex multiply and a post inverse transform multiply are combined to provide a combined complex multiply operation. The combined complex multiply operation uses a second portion of the identified values and the intermediate values provides the inverse transform. Accordingly, through the use of the present invention, the number of instructions for implementing the inverse transform can be substantially minimized. In the prior art, the method for performing the inverse discrete cosine transform (IDCT) in the AC-3 algorithm is extremely inefficient for software decoder implementations. Through the use of the present invention, the algorithm performance on a superscalar processor as measured by issued instructions is improved by a factor on the order of 43.

MainClaim: A method for providing an audio signal in an audio signal reception system, the method comprising the steps of:

- a) receiving a digitally compressed audio signal;
- b) decoding the digitally compressed audio signal, wherein the decoding comprises the steps of,
 - b1) precalculating a plurality of identified values, which is computationally intensive) wherein the identified values comprise values which are used more than once in the iteration of steps b2) or b3);
 - b2) performing a pre-inverse transform complex multiply utilizing a first portion of the identified values and an array of input coefficients to provide a plurality of intermediate values; and
 - b3) combining an inverse transform complex multiply and a post inverse transform multiply to provide a combined complex multiply operation, the combined complex multiply operation utilizing a second portion of the identified values and the plurality of intermediate values to provide the inverse transform for the array of input coefficients; and

c) outputting the decoded audio signal to a speaker system.

7,610,195	Decoding of predictively coded data using buffer adaptation	Nokia Corporation	Ojanpera; Juha	704	G10L	20060601	1	92%	<input type="checkbox"/>
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Abstract: A decoder (e.g., an AAC-LTP decoder) receives a stream containing coded audio data and prediction data. The coded data is upsampled or downsampled during decoding. Portions of the decoded data are stored in a buffer for use in decoding subsequent coded data. The buffer into which the decoded data is placed has different dimensions than a buffer used in a coder when generating the coded data. A portion of the data in the decoder buffer is identified and modified with interleaved zero values so as to correspond to the dimensions of the prediction coding buffer in the coder.

MainClaim: A method comprising: receiving a stream containing coded data and predictive information associated with the coded data, the predictive information having been generated based on data in a predictive coding buffer; receiving a factor indicative of an amount by which the coded data is to be either upsampled or downsampled as part of decoding the coded data; generating decoded data from the coded data using the received factor and the predictive information; buffering at least a portion of the decoded data in one or more buffers, at least one of the one or more buffers having at least one dimension different from a corresponding dimension of the prediction coding buffer; identifying at least a portion of the buffered decoded data for use in decoding subsequent coded data; and modifying the identified data to correspond to the at least one prediction coding buffer dimension.

2007/0282600	DECODING OF PREDICTIVELY CODED DATA USING BUFFER ADAPTATION	NOKIA CORPORATION	Ojanpera; Juha	704	G10L	20060601	1	92%	<input type="checkbox"/>
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Abstract: A decoder (e.g., an AAC-LTP decoder) receives a stream containing coded audio data and prediction data. The coded data is upsampled or downsampled during decoding. Portions of the decoded data are stored in a buffer for use in decoding subsequent coded data. The buffer into which the decoded data is placed has different dimensions than a buffer used in a coder when generating the coded data. A portion of the data in the decoder buffer is identified and modified with interleaved zero values so as to correspond to the dimensions of the prediction coding buffer in the coder.

MainClaim: A method comprising:receiving a stream containing coded data and predictive information associated with the coded data, the predictive information having been generated based on data in a predictive coding buffer;receiving a factor indicative of an amount by which the coded data is to be either upsampled or downsampled as part of decoding the coded data;generating decoded data from the coded data using the received factor and the predictive information;buffering at least a portion of the decoded data in one or more buffers, at least one of the one or more buffers having at least one dimension different from a corresponding dimension of the prediction coding buffer;identifying at least a portion of the buffered decoded data for use in decoding subsequent coded data; andmodifying the identified data to correspond to the at least one prediction coding buffer dimension.

2006/0047522	Method, apparatus and computer program to provide predictor adaptation for advanced audio coding (AAC) system	Nokia Corporation	Ojanpera; Juha Petteri	704	G10L	20040826	1	92%	<input type="checkbox"/>
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Abstract: This invention provides a method, an apparatus and a computer program to process an audio signal. The method includes encoding an audio signal in accordance with a first type of encoding at least in part by operating a predictor to generate, in each of a plurality of audio frequency bands, an error signal such that for certain spectral bands only a residual signal is quantized. The method then transmits the encoded audio signal and, if available, related predictor data to a receiver. For a case where the receiver is compatible with a second type of encoding and is not compatible with receiving the predictor data, the method signals the receiver that the predictor data is not present. The method then further modifies the encoded audio signal to be compatible with the second type of encoding, while removing an effect of the operation of the predictor on the encoded audio signal.

MainClaim: A method to process an audio signal, comprising: encoding an audio signal in accordance with a first type of encoding at least in part by operating a predictor to generate, in each of a plurality of audio frequency bands, an error signal such that for certain spectral bands only a residual signal is quantized; transmitting the encoded audio signal and, if available, related predictor data to a receiver; for a case where the receiver is compatible with a second type of encoding and is not compatible with receiving the predictor data, signaling the receiver that the predictor data is not present; and modifying the encoded audio signal to be compatible with the second type of encoding, while removing an effect of the operation of the predictor on the encoded audio signal.

7,418,037	Method of performing rate control for a compression system	Apple Inc.	Nie; Xiaochun Pun; Thomas Kumar; Roger Wu; Hsi-Jung	375	H04N	20030430	0	100%	<input type="checkbox"/>
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Abstract: A rate controller for allocating a bit budget for video frames to be encoded is disclosed. The rate controller of the present invention considers many different factors when determining the frame bit budget including: desired video quality, target bit rate, frame type (intra-frame or inter-frame), frame duration, intra-frame frequency, frame complexity, intra-block frequency within an intra-frame, buffer overflow, buffer underflow, and the encoded video frame quality for a possible second pass.

MainClaim: A method of encoding digital video information into a bit stream, said method comprising: determining a default bit budget for a video frame to be digitally encoded into said bit stream; examining a plurality of factors related to said video frame or said bit stream; adjusting said default bit budget according to said plurality of factors to generate an adjusted target bit budget for said video frame, wherein said adjusted target bit budget is based upon an average frame display duration comprising an historical average frame display duration; and using said adjusted target bit budget to encode the video frame.

2006/0239563	Method and device for compressed domain video editing	Nokia Corporation	Chebil; Fehmi Kurceren; Ragip Islam; Asad Friis; Soren	382	G06K	20050425	1	97%	<input type="checkbox"/>
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Abstract: When a video stream is edited in compressed domain to achieve video editing effects, the edited bitstream may violate the receiver buffer fullness requirement. In order to comply with the buffer fullness requirement, buffer parameters in the bitstream and the file format are adjusted to ensure that the buffer will not become underflow or overflow due to video

editing. As such, re-encoding the entire bitstream is not needed. If the editing effect is a slow-motion effect, a fast motion effect or a black-and-white effect, the buffer parameter to be adjusted can be the transmission rate. If the editing effect is a black-and-white effect, a cutting effect, a merging effect or a fading effect, the compressed frame sized can be adjusted.

MainClaim: A method for use in video editing for modifying at least one video frame in a video stream in order to achieve at least one video editing effect, the video editing carried out in a receiver receiving video data in the video stream, the receiver having a buffer for storing the received video data for decoding so as to allow the video stream to be played out, the buffer having a buffer fullness requirement, wherein the video data is received and played out based on a plurality of parameters such that the receiver buffer is prevented from violating of the buffer fullness requirement, and wherein the video editing effect affects the receiving and playing of the video data, said method comprising: selecting at least one video editing effect; and adjusting at least one of the parameters based on the selected at least one video editing effect so that video data is received and played out in compliance with the buffer fullness requirement, wherein said adjusting is carried out before modifying said one or more video frames in compressed domain for achieving the selected at least one video editing effect.

2006/0285589	Video coding	Nokia Corporation	Hannuksela; Miska M.	375	H04N	20060615	4	95%	<input type="checkbox"/>
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Abstract: A method of encoding a video signal representing a sequence of pictures, the method comprising encoding a first picture (or segment of a picture) of the sequence without reference to another picture of the sequence to produce a picture (I0) and encoding said first picture (or segment of a picture) with reference to another picture (I4) of the sequence to produce a corresponding temporally predicted picture (P4) or segment of a picture.

MainClaim: A method of encoding a video signal representing a sequence of pictures to form an encoded video signal, the method comprising receiving a first picture or a part thereof, encoding the first picture or said part thereof, using a first encoding mode, without reference to another picture of the sequence to form a first encoded representation of the first picture or said part thereof, and encoding said first picture or said part thereof, using a second encoding mode, with reference to another picture of the sequence to produce a corresponding temporally predicted second encoded representation of the first picture or said part thereof.

2007/0183494	Buffering of decoded reference pictures	Nokia Corporation	Hannuksela; Miska	375	H04B	20070108	1	95%	<input type="checkbox"/>
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Abstract: A method of decoding a scalable video data stream comprising a base layer and at least one enhancement layer, the method comprising: decoding pictures of the video data stream according to a first decoding algorithm, if pictures only from the base layer are to be decoded; and decoding pictures of the video data stream according to a second decoding algorithm, if pictures from the base layer and from at least one enhancement layer are to be decoded.

MainClaim: A method of decoding a scalable video data stream comprising a base layer and at least one enhancement layer, the method comprising: decoding pictures of the video data stream according to a first decoding algorithm, if pictures only from the base layer are to be decoded; and decoding pictures of the video data stream according to a second decoding algorithm, if pictures from the base layer and from at least one enhancement layer are to be decoded.

5,625,374	Method for parallel interpolation of images	Apple Computer, Inc.	Turkowski; Kenneth E.	345	G09G	19930907	0	100%	<input type="checkbox"/>
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Abstract: The present invention is a method for performing a parallel interpolation between corresponding pixel characteristics within a packed foreground pixel data word and a packed background pixel data word. A blending factor is used to indicate the extent to which the pixel characteristics are scaled, where the scaling is related to a power of two. The pixel characteristics within each packed data word are scaled simultaneously. The method of the present invention preferably comprises the steps of: creating shifted versions of the packed foreground pixel data word and the packed background pixel data word; inserting a guard bit into the most-significant bit (MSB) position of each pixel characteristic within the two shifted packed data words; adding the two shifted packed data words to create a packed result data word, where the packed result data word corresponds to a 50% blending; and adding a packed adjustment data word formed from either the packed foreground or background data word to the packed result data word based upon the exact value of the blending factor. Upon completion of the method, the packed result data word is interpreted as a packed composite pixel data word.

MainClaim: A method for combining images using parallel interpolation between a packed foreground pixel data word having a plurality of foreground pixel characteristics and a packed background pixel data word having a plurality of background pixel characteristics, the interpolation specified by a blending factor and resulting in the creation of a packed composite pixel data word having a plurality of composite pixel characteristics, the method comprising the steps of:

retrieving the packed foreground pixel data word, the packed background pixel data word, and the blending factor;

creating a packed first data word from the packed foreground pixel data word and a packed second data word from the packed background pixel data word;

inserting a guard bit into the most-significant bit (MSB) position of each pixel characteristic within the packed first data word and the packed second data word; and

adding the packed first data word and the packed second data word to create a packed composite pixel data word.

2008/0001961	High Dynamic Range Texture Filtering	NOKIA CORPORATION	Roimela; Kimmo Aarnio; Tomi Itaranta; Joonas	345	G09G	20060630	2	92%	<input type="checkbox"/>
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Abstract: Bit patterns storing floating point data values are interpreted as integer values during various graphical data processing operations. For example, when bilinearly filtering color intensity data for bitmap regions closest to a designated sampling point, the bit patterns representing each of those color intensities are interpreted as integers instead of floating point values. Bit patterns can also be treated as integers when trilinearly filtering color intensity data from multiple bitmaps. After processing the bit fields as integers, the results are then interpreted as floating point values.

MainClaim: A method of processing graphic data to generate an image on a display, comprising:(a) identifying image data corresponding to multiple regions of at least one bitmap, wherein the image data corresponding to each of the multiple regions includes at least one bit pattern storing a floating point data value;(b) calculating a bit pattern associated with the multiple regions using an integer value of each of the at least one bit patterns; and(c) generating a bit pattern to display an image corresponding to the at least one bitmap, wherein the generated bit pattern is based on the bit pattern calculated in (b).

7,088,776	Method and apparatus for variable accuracy inter-picture timing	Apple Computer, Inc.	Haskell; Barin Geoffrey Singer; David William	375	H04B	20021108	0	100%	<input type="checkbox"/>
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	specification for digital video encoding		Dumitras; Adriana Puri; Atul						
Abstract: A method and apparatus for variable accuracy inter-picture timing specification for digital video encoding is disclosed. Specifically, the present invention discloses a system that allows the relative timing of nearby video pictures to be encoded in a very efficient manner. In one embodiment, the display time difference between a current video picture and a nearby video picture is determined. The display time difference is then encoded into a digital representation of the video picture. In a preferred embodiment, the nearby video picture is the most recently transmitted stored picture. For coding efficiency, the display time difference may be encoded using a variable length coding system or arithmetic coding. In an alternate embodiment, the display time difference is encoded as a power of two to reduce the number of bits transmitted. MainClaim: A method of specifying digital video information, said method comprising: determining a first display time difference between a first video picture and a nearby video picture; and encoding said first video picture and said first display time difference into a first digitally encoded video picture, wherein said first display time difference is encoded more than once in said first digitally encoded video picture.									
2006/0285589	Video coding	Nokia Corporation	Hannuksela; Miska M.	375	H04N	20060615	4	97%	<input type="checkbox"/>
Abstract: A method of encoding a video signal representing a sequence of pictures, the method comprising encoding a first picture (or segment of a picture) of the sequence without reference to another picture of the sequence to produce a picture (I0) and encoding said first picture (or segment of a picture) with reference to another picture (I4) of the sequence to produce a corresponding temporally predicted picture (P4) or segment of a picture. MainClaim: A method of encoding a video signal representing a sequence of pictures to form an encoded video signal, the method comprising receiving a first picture or a part thereof, encoding the first picture or said part thereof, using a first encoding mode, without reference to another picture of the sequence to form a first encoded representation of the first picture or said part thereof, and encoding said first picture or said part thereof, using a second encoding mode, with reference to another picture of the sequence to produce a corresponding temporally predicted second encoded representation of the first picture or said part thereof .									
7,693,220	Transmission of video information	Nokia Corporation	Wang; Ru-Shang Kurceren; Ragip Varsa; Viktor Miller; Keith	375	H04B	20040223	3	96%	<input type="checkbox"/>
Abstract: The present invention relates to a method for transmitting video information, in which a bitstream is formed comprising a set of frames comprising macroblocks. At least one switching frame is formed into the bitstream, macroblocks of the switching frame are arranged into a first and a second group of macroblocks, each macroblock of the first group of macroblocks are encoded by a first encoding method to provide a switching point for continuing the transmission of video information with another bitstream formed from the video information; and macroblocks of the second group of macroblocks are encoded by another encoding method. Errors in transmission of video information are reduced by forming at least one SP-encoded frame by predictively encoding the macroblocks; replacing part of the SP-encoded macroblocks with intra encoded blocks; and transmitting the encoded frame containing both predictively and intra encoded macroblocks instead of the SP-encoded frame. MainClaim: A method for transmitting video information from an encoder in which at least one bitstream is formed from the video information comprising a set of frames, the frames comprising macroblocks, wherein the method comprises: forming a plurality of switching frames into said bitstream; arranging macroblocks of each switching frame of said plurality of switching frames into a first group of macroblocks and a second group of macroblocks; encoding each macroblock of said first group of macroblocks in said each switching frame by a first encoding method to provide a switching point for continuing transmission of video information with another bitstream formed from the video information; and encoding macroblocks of said second group of macroblocks in said each switching frame by a second encoding method wherein successive switching frames of said plurality of switching frames do not have corresponding groups of macroblocks encoded by said first encoding method.									
7,477,689	Video decoder architecture and method for using same	Nokia Corporation	Karczewicz; Marta Kurceren; Ragip	375	H04N	20040616	9	96%	<input type="checkbox"/>
Abstract: A decoder and method for using a new picture or frame type is provided. This type is referred to a an SP-picture. The temporal redundancies are not exploited in I-frames, compression efficiency of I-frame coding is significantly lower than the predictive coding. A method allows use of motion compensated predictive coding to exploit temporal redundancy in the sequence while still allowing perfect reconstruction of the frame using different reference frames. Methods using this new picture type provide for error resilience/recovery, bandwidth scalability, bitstream switching, processing scalability, random access and other functions. The SP-type picture provides for, among other functions, switching between different bitstreams, random access, fast forward and fast error-recovery by replacing I-pictures to increase the coding efficiency. As will be demonstrated, SP-pictures have the property that identical SP-frames may be obtained even when they are predicted using different reference frames. MainClaim: A video processing method, said method comprising: placing a plurality of SP-pictures at fixed intervals within a first bitstream; generating an I-picture and an SP-picture for each one of said plurality of SP-pictures in said first bitstream; forming a second bitstream by storing said I-picture at a temporal location preceding said each one of said plurality of SP-pictures in said first bitstream; and storing said SP-picture in said second bitstream at same temporal locations as each of said SP-pictures in said first bitstream.									
6,160,921	Error diffusion with homogeneous distribution in highlight and shadow regions	Apple Computer, Inc.	Marcu; Gabriel G.	382	G06K	19980615	0	100%	<input type="checkbox"/>
Abstract: To eliminate artifacts resulting from the quantization of images by means of an error diffusion process, a determination is made whether a current pixel being processed is within a shadow or highlight region of an image. If so, a dot of a complementary value is placed in the region only if a distance constraint between the current pixel and neighbor dots is satisfied. If the distance constraint is not satisfied, the placement of the dot is postponed. The distance constraint is based upon the grayscale level of the current pixel. A road map for determining the distance to other dots is defined in a manner such that it expands further from the location of the current pixel as the grayscale value of that pixel approaches the extreme limits of the grayscale range. As a result, a homogenous distribution of dots in highlight and shadow regions of an image is produced. MainClaim: A method for quantizing image data, comprising the steps of:									
retrieving image data for a selected pixel of an image;									

determining whether the selected pixel lies within a highlight or shadow region of the image;

detecting whether another pixel within a predetermined distance of the selected pixel has a quantized value representative of a dot that is complementary to the determined region of the image, when the selected pixel is determined to be in a highlight or shadow region of the image;

quantizing the image data for the selected pixel to a value representative of a dot that is complementary to the determined region of the image if no other pixel within said predetermined distance has a quantized value representative of a dot that is complementary to the determined region of the image; and

otherwise quantizing the image data for the selected pixel to a value associated with the determined region of the image.

7,352,896	Method for interpolation and sharpening of images	Nokia Corporation	Rantanen; Henry Kalevo; Ossi	382	G06K	20031014	1	92%	<input type="checkbox"/>
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Abstract: A method, a system, a device, a storage means, and a computer software product for sharpening colours in an image, in which a first colour component is interpolated and sharpened in such a way that the effect of the colour component is computed in different directions, the highest and/or lowest value of the computed values is selected to represent the greatest and/or smallest change, after which the colour component is sharpened, if the ratio between the highest and lowest values falls within predetermined limit values. The second colour component is sharpened on the basis of the sharpening of said first colour component. After the sharpening, the second colour component is interpolated, wherein the result is a sharpened and interpolated three-colour image.

MainClaim: A method comprising: locating pixels comprising information of a first colour component of an image at least partly in locations different from the pixels comprising information of a second colour component of said image; interpolating said first colour component and said second colour component; sharpening at least said first colour component by: computing the change of the first colour component in at least two different directions to obtain at least two original change values, selecting at least a maximum value and a minimum value to obtain at least two change values based on said at least two original change values, and determining a ratio based on said change values; and controlling the sharpening of said second colour component based on the sharpening of said first colour component.

2004/0075755	Method for interpolation and sharpening of images	Nokia Corporation	Rantanen, Henry Kalevo, Ossi	348	H04N	20031014	1	92%	<input type="checkbox"/>
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Abstract: A method, a system, a device, a storage means, and a computer software product for sharpening colours in an image, in which a first colour component is interpolated and sharpened in such a way that the effect of the colour component is computed in different directions, the highest and/or lowest value of the computed values is selected to represent the greatest and/or smallest change, after which the colour component is sharpened, if the ratio between the highest and lowest values falls within predetermined limit values. The second colour component is sharpened on the basis of the sharpening of said first colour component. After the sharpening, the second colour component is interpolated, wherein the result is a sharpened and interpolated three-colour image.

MainClaim: A method for sharpening colours in an image comprising at least a first and a second colour component, the pixels comprising information of the first colour component being located at least partly in locations different from the pixels comprising information of the second colour component, in which method said first colour component and said second colour component are interpolated, and at least said first colour component is sharpened, wherein the sharpening of said second colour component is controlled on the basis of the sharpening of said first colour component.

6,115,049	Method and apparatus for high performance antialiasing which minimizes per pixel storage and object data bandwidth	Apple Computer, Inc.	Winner; Stephanie L. Kelley; Michael W.	345	G06T	19960930	0	100%	<input checked="" type="checkbox"/>
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Abstract: The present invention is an improved system and method of antialiasing which generates a coverage mask which is retained long enough to achieve geometric precision. The coverage mask information is retained throughout the compositing stage of the image generation. A system for antialiasing an image according to the present invention is comprised of a means for compositing an image, wherein the image is composited using coverage mask data of a pixel, and means for storage of data during image compositing, the storage means coupled to the compositing means.

MainClaim: A method for antialiasing of silouhettes and geometrics with shared vertices comprising:

controlling a blend function and hidden surface removal by using coverage data information for each pixel of an image, wherein the coverage data information comprises a coverage mask, a depth value, opacity information, and a plurality of flags for each pixel, wherein the coverage mask is provided using a plurality of buffers; and

compositing the image based upon the coverage data information, wherein the compositing may occur either in a single pass or in a plurality of passes for each pixel, wherein the compositing is not performed by placing fragments and non-fragments in separate buffers, wherein for the plurality of passes, the compositing comprises:

storing in a first buffer data composited in previous passes, and

storing in a second buffer a composite of the data in the first buffer and data received during a current pass.

2008/0001961	High Dynamic Range Texture Filtering	NOKIA CORPORATION	Roimela; Kimmo Aarnio; Tomi Itaranta; Joonas	345	G09G	20060630	2	92%	<input type="checkbox"/>
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Abstract: Bit patterns storing floating point data values are interpreted as integer values during various graphical data processing operations. For example, when bilinearly filtering color intensity data for bitmap regions closest to a designated sampling point, the bit patterns representing each of those color intensities are interpreted as integers instead of floating point values. Bit patterns can also be treated as integers when trilinearly filtering color intensity data from multiple bitmaps. After

processing the bit fields as integers, the results are then interpreted as floating point values.

MainClaim: A method of processing graphic data to generate an image on a display, comprising:(a) identifying image data corresponding to multiple regions of at least one bitmap, wherein the image data corresponding to each of the multiple regions includes at least one bit pattern storing a floating point data value;(b) calculating a bit pattern associated with the multiple regions using an integer value of each of the at least one bit patterns; and(c) generating a bit pattern to display an image corresponding to the at least one bitmap, wherein the generated bit pattern is based on the bit pattern calculated in (b).

6,188,797	Decoder for programmable variable length data	Apple Computer, Inc.	Moledina; Riaz A. Lam; Heng-Mun Claassen; Stuart L.	382	G06K	19970527	0	100%	<input type="checkbox"/>
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Abstract: An improved binary tree and decoder are disclosed wherein all the codewords are moved to one side of a binary tree. A compressed bit stream is fed to a decoder. The decoder uses a parser, an address generator, and the binary tree to determine the codewords contained in the compressed bit stream. The decoder examines the variable length encoded bits and compares them with the binary tree at each level to determine if the codeword is complete. The parser detects the end of the codeword and generates an offset for the address generator. The address generator uses the binary tree and offset to generate a block address for each unique codeword. The block address is then used to output uncompressed data from a pattern look up table.

MainClaim: A method for decoding variable length encoded data comprising the steps of:

reading a compressed bit stream of data;

parsing the stream of compressed bit data into variable length codewords using a multi-level binary coding tree which is pruned to one side, wherein each level of the pruned binary tree has an associated level content number that equals the number of leaves on that level of the tree, and wherein the step of parsing the stream of data comprises the steps of:

comparing the binary value of bits in the data stream to the value of a corresponding number of level content numbers for the binary tree;

detecting when the value of the level content numbers is greater than the binary value of the bits in the data stream; and

providing an indication that the codeword is complete upon such detection;

generating an address to a look-up table for each codeword; and

outputting decoded data from the look-up table corresponding to the variable length codewords.

6,980,138	Method and a system for variable-length decoding, and a device for the localization of codewords	Nokia Corporation	Vassiliadis; Stamatis Nikara; Jari Takala; Jarmo Liuha; Petri	341	H03M	20030618	3	94%	<input type="checkbox"/>
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Abstract: A method and associated decoder, system, device and storage means for decoding codewords of variable length from a bit stream, in which minimum and maximum lengths are defined for the codewords, wherein the bit stream is processed in parts, each part being subjected to a search for codewords, and where found codewords are decoded. At least partly overlapping fields are extracted from the bit stream part in such a way that the starting point of at least two fields is a possible starting point of a codeword in that part. In at least one field, the end of the codeword is searched, and the data related to the codeword is determined on the basis of the end point of the codeword. Data relating to at least one codeword is used to determine the occurrence of the codeword intended to be decoded in a field, and the found codeword is decoded.

MainClaim: A method for decoding codewords of variable length from a bit stream, in which minimum and maximum lengths are defined for the codewords, in which method the bit stream to be decoded is processed in parts, each part of the bit stream is subjected to a search for codewords, and found codewords are decoded, wherein in the method, at least partly overlapping fields are extracted from the part of the bit stream to be processed in such a way that the starting point of at least two fields is a possible starting point for a codeword in said bit stream part, a codeword end is searched from at least one field, and data related to the codeword is determined on the basis of the end point of the codeword, and the data related to at least one codeword is used to determine the occurrence of the codeword to be decoded in the field, and the found codeword is decoded.

2004/0070525	Method and a system for variable-length decoding, and a device for the localization of codewords	Nokia Corporation	Vassiliadis, Stamatis Nikara, Jari Takala, Jarmo Liuha, Petri	341	H03M	20030618	3	94%	<input type="checkbox"/>
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Abstract: A method and associated decoder, system, device and storage means for decoding codewords of variable length from a bit stream, in which minimum and maximum lengths are defined for the codewords, wherein the bit stream is processed in parts, each part being subjected to a search for codewords, and where found codewords are decoded. At least partly overlapping fields are extracted from the bit stream part in such a way that the starting point of at least two fields is a possible starting point of a codeword in that part. In at least one field, the end of the codeword is searched, and the data related to the codeword is determined on the basis of the end point of the codeword. Data relating to at least one codeword is used to determine the occurrence of the codeword intended to be decoded in a field, and the found codeword is decoded.

MainClaim: A method for decoding codewords of variable length from a bit stream, in which minimum and maximum lengths are defined for the codewords, in which method the bit stream to be decoded is processed in parts, each part of the bit stream is subjected to a search for codewords, and found codewords are decoded, wherein in the method, at least partly overlapping fields are extracted from the part of the bit stream to be processed in such a way that the starting point of at least two fields is a possible starting point for a codeword in said bit stream part, a codeword end is searched from at least one field, and data related to the codeword is determined on the basis of the end point of the codeword, and the data related to at least one codeword is used to determine the occurrence of the codeword to be decoded in the field, and the found codeword is decoded.

6,563,440	Apparatus and method for decoding Huffman codes using leading one/zero string length	Nokia Corporation	Kangas; Janne	341	H03M	20011019	4	92%	<input type="checkbox"/>
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[illegible]

are defined for the codewords, in which method the bit stream to be decoded is processed in parts, each part of the bit stream is subjected to a search for codewords, and found codewords are decoded, wherein in the method, at least partly overlapping fields are extracted from the part of the bit stream to be processed in such a way that the starting point of at least two fields is a possible starting point for a codeword in said bit stream part, a codeword end is searched from at least one field, and data related to the codeword is determined on the basis of the end point of the codeword, and the data related to at least one codeword is used to determine the occurrence of the codeword to be decoded in the field, and the found codeword is decoded.

2007/0046504	Adaptive variable length codes for independent variables	Nokia Corporation	Ridge; Justin Karczewicz; Marta Bao; Yiliang Wang; Xianglin	341	H03M	20060828	1	94%	<input type="checkbox"/>
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Abstract: A method for coding spatial and quality enhancement information in scalable video coding using variable length codes. Conventional systems have been capable of using variable length codes only with non-scalable video coding. In the present invention, the coded block pattern for each block of information, significance passes, and refinement passes can all be coded with different types of variable length codes. The present invention also provides for a variable length encoder/decoder that dynamically adapts to the actual symbol probability. The encoder/decoder of the present invention counts the number of times each symbol is coded. Based upon these counts, the encoder/decoder selects how many symbols to group when forming a code word. The encoder also uses these counts to select the specific codeword that should be used.

MainClaim: A method for decoding compressed data from a bit stream, the method comprising: fetching a codeword representing a symbol vector including at least one symbol from the bit stream; decoding the codeword using a variable length code, the decoding of the codeword yielding the symbol vector including at least one symbol; adding the at least one symbol from the symbol vector to a buffer; updating the variable length code based at least in part upon the probability distribution of symbols previously decoded; and returning the next symbol from the buffer.

7,515,765	Image sharpness management	Apple Inc.	MacDonald; Lindsay William Bouzit; Samira	382	G06K	20040818	0	100%	<input type="checkbox"/>
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Abstract: Methods, media, and a system provide image sharpness management for electronic images. Pixel values for an unmodified image are processed relative to spatial frequency bands for that image. An average pixel value is acquired for each of the spatial frequency bands and used to alter the corresponding pixel value of the image. A resulting modified image exhibits enhancement of sharpness, based on adjustments for each of the spatial frequency bands. In one embodiment, the average pixel value is adjusted based on an expected viewing distance of an observer. In another embodiment, the average pixel value is adjusted based on the ability of a display device to reproduce spatial frequencies in the image.

MainClaim: A method comprising: using at least one processor to perform steps, comprising, transforming an image into a plurality of spatial frequency bands; calculating average values for each of the spatial frequency bands; weighting each of the spatial frequency bands by a Modulation Transfer Function (MTF) ratio value; and after said weighting, adjusting a relative amplitude of different ones of the spatial frequency bands to generate a modified image using an adjustment value associated with the average values.

2009/0046944	Restoration of Color Components in an Image Model	NOKIA CORPORATION	Bilcu; Radu Ciprian Alenius; Sakari Trimeche; Mejdi Vehvilainen; Markku	382	G06K	20050104	1	94%	<input type="checkbox"/>
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Abstract: This invention relates to a method for improving image quality of a digital image captured with an imaging module comprising at least imaging optics and an image sensor, where the image is formed through the imaging optics, the image consisting of at least one colour component. In the method, the degradation information of each colour component of the image is found and is used for improving image quality. The degradation information of each colour component is specified by a point-spread function. Each colour component is restored by the degradation function. The image can be unprocessed image data. The invention also relates to several alternatives for implementing the restoration, and for controlling and regularizing the inverse process independently of the image degradation. The invention also relates to a device, to a module, to a system and to a computer program products and to a program modules.

MainClaim: A method for developing a model for improving image quality of a digital image comprising: finding degradation information of each of at least one colour component of said image, obtaining a degradation function according to the degradation information, and restoring said each colour component by said degradation function.

2009/0091645	Multi-exposure pattern for enhancing dynamic range of images	Nokia Corporation	Trimeche; Mejdi Tico; Marius Pylkkanen; Tom	348	H04N	20071003	1	93%	<input type="checkbox"/>
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Abstract: The specification and drawings present a new method, apparatus and software product for enhancing a dynamic range of an image with a multi-exposure pixel pattern taken by an image sensor of a camera for one or more color channels, wherein a plurality of groups of pixels of the image sensor have different exposure times (e.g., pre-selected or adjusted by a user through a user interface using a viewfinder feedback, or adjusted by a user through a user interface after taking and storing RAW image, etc.). Processing of the captured image for constructing an enhanced image of the image for each of the one or more color channels can be performed using weighted combination of exposure times of pixels having different pre-selected exposure times according to a predetermined criterion.

MainClaim: A method comprising: separating an image, captured with an image sensor with a multi-exposure pixel pattern for one or more color channels with a plurality of groups of pixels of said image sensor having different exposure times, for each color of said one or more color channels and for each exposure time of said different exposure times, into sub-images comprising pixels with exposure values only for one exposure time of said different exposure times and pixels with missing exposure values for exposure times different from said one exposure time; interpolating exposure values for said pixels with missing exposure values in each sub-image of said sub-images using a predetermined algorithm for providing interpolated images of said sub-images; and combining said interpolated images for each of said one or more color channels according to a predetermined criterion to provide an enhanced image of said image for each of said one or more color channels for enhancing a dynamic range of said image.

7,289,667	Method and apparatus for enhancing a digital image by applying an inverse histogram-based pixel mapping function to pixels of the digital image	Nokia Corporation	Nenonen; Petri Vehvilainen; Markku	382	G06K	20041004	1	93%	<input type="checkbox"/>
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Abstract: A method and associated device wherein an inverse histogram based pixel mapping step is combined with an edge enhancement step such as unsharp masking. In such an arrangement the inverse histogram based pixel mapping step improves the performance of the unsharp masking step, serving to minimize the enhancement of noise components while desired signal components are sharpened.

MainClaim: A method for enhancing a digital image which includes a plurality of image pixels each being represented by a pixel value, said method comprising: applying an inverse histogram-based pixel mapping function to at least a set of image pixels of said image pixels, wherein the inverse histogram-based pixel mapping function modifies pixel values of the set of image pixels in accordance with their frequency of occurrence such that a contrast of the digital image is reduced for image pixels that have values with a frequency of occurrence exceeding a pre-determined amount.

7,627,481	Adapting masking thresholds for encoding a low frequency transient signal in audio data	Apple Inc.	Kuo; Shyh-Shiaw Baumgarte; Frank	704	G10L	20050419	0	100%	
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Abstract: An improved audio coding technique encodes audio having a low frequency transient signal, using a long block, but with a set of adapted masking thresholds. Upon identifying an audio window that contains a low frequency transient signal, masking thresholds for the long block may be calculated as usual. A set of masking thresholds calculated for the 8 short blocks corresponding to the long block are calculated. The masking thresholds for low frequency critical bands are adapted based on the thresholds calculated for the short blocks, and the resulting adapted masking thresholds are used to encode the long block of audio data. The result is encoded audio with rich harmonic content and negligible coder noise resulting from the low frequency transient signal.

MainClaim: A volatile or non-volatile machine-readable storage medium storing one or more sequences of instructions which, when executed by one or more processors, cause the one or more processors to perform: in response to determining that a first window of audio data does not contain a low frequency transient signal, computing a first group of masking thresholds for a first long block that corresponds to the first window of audio data; and based on said first group of masking thresholds, encoding said first long block of audio data; in response to identifying a low frequency transient signal in a second window of audio data, computing a second group of masking thresholds for short blocks corresponding to the second window of audio data; selecting one or more particular masking thresholds, from the second group of masking thresholds, for use in encoding a second long block of audio data that corresponds to the second window of audio data; and encoding, based on the one or more particular masking thresholds, the second long block of audio data.

2008/0130903	Method, system, apparatus and computer program product for stereo coding	Nokia Corporation	Ojanpera; Juha	381	G11B	20061130	1	93%	
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Abstract: A method, system, apparatus and computer program product are provided for improved stereo coding. In particular, the method, system, apparatus and computer program product provide a technique for performing Mid-Side (M/S) stereo coding, in which an additional step is added to the coding process, whereby a parameter that is used in determining when the mid and side signals will be used instead of the left and right input signals is modified prior to making the selection between the signal pairs. In particular, the masking threshold associated with either the left or the right input signal may be modified based on a relationship between the energies of the two input signals. In addition, once the selection between the signal pairs has been made, the masking thresholds of the selected signals may be further modified, again based on a relationship between the energies of the left and right input signals.

MainClaim: A method of stereo coding, said method comprising:receiving a left and a right input signal;deriving left and right masking thresholds associated with respective left and right input signals; andmodifying at least one of the left or the right masking thresholds based at least in part on a relationship between energy associated with respective left and right input signals.

2009/0043590	Noise Detection for Audio Encoding by Mean and Variance Energy Ratio	Nokia Corporation	Ojanpera; Juha	704	G10L	20081020	1	92%	
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Abstract: The techniques described are utilized for detection of noise and noise-like segments in audio coding. The techniques can include performing a prediction gain calculation, an energy compaction calculation, and a mean and variation energy calculation. Signal adaptive noise decisions can be made both in time and frequency dimensions. The techniques can be embodied as part of an AAC (advanced audio coding) encoder to detect noise and noise-like spectral bands. This detected information is transmitted in a bitstream using a signaling method defined for a perceptual noise substitution (PNS) encoding tool of the AAC encoder

MainClaim: A method, comprising:calculating mean and variance energies for each frequency band of a signal;defining boundaries for a ratio of the mean and variance energies in each frequency band of the signal; anddetermining if each frequency band of the signal is noise or noise-like using the defined boundaries and a stage of two or more decisions.

5,701,405	Method and apparatus for directly evaluating a parameter interpolation function used in rendering images in a graphics system that uses screen partitioning	Apple Computer, Inc.	Kelley; Michael W. Winner; Stephanie L.	345	G06F	19950621	0	100%	
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Abstract: A method and apparatus for directly evaluating a parameter interpolation function in a computer graphic system that renders a geometric entity (such as a polygon) by partitioning a display device into a number of local regions. The computer graphic system initially determines that a first set of pixels in a first local region of the display device is covered by a geometric entity. A geometric entity's boundary defining data (e.g., the geometric entity's vertex coordinates defined relative to a display device coordinate system) is employed to generate a local set of coordinates that are defined relative to a first local coordinate system of the first local region for all pixels of the first set of pixels. A first local parameter interpolation function, which represents the parameter values for all pixels of the first set of pixels when these pixels are defined relative to the first local coordinate system, is then generated. The local parameter interpolation function and the local set of coordinates are used to directly calculate the parameter values of the pixels of the first set of pixels.

MainClaim: A computer graphics system adapted to be coupled to a display device for displaying pixel data representing geometric entities comprising:

- (a) a screen partitioning circuit for partitioning said display device into a plurality of local regions, determining that a first geometric entity covers a first set of pixels in a first local region of the display device, and generating a first geometric entity's boundary defining data that is defined relative to a display device coordinate system;
- (b) a first local coordinate generator coupled to said screen partitioning circuit for receiving said first geometric entity's boundary defining data and generating in response thereto a first local set of coordinates, defined relative to a first local coordinate system of said first local region, for all pixels of said first set of pixels;
- (c) a first local parameter interpolation function generator generating a first local parameter interpolation function, representing parameter values for all pixels of said first set of pixels when these pixels are defined relative to said first local coordinate system; and
- (d) a first local parameter interpolator coupled to said first local coordinate generator and said first local parameter interpolation function generator, said first local parameter interpolator directly calculating the parameter values for each pixel of said first set of pixels by using said first local parameter interpolation function and said first local set of coordinates.

2004/0207642	Determining a coverage mask for a pixel	Nokia Corporation	Crisu, Dan Cotofana, Sorin Vassiliadis, Stamatis Liuha, Petri	345	G09G	20030415	2	92%	<input type="checkbox"/>
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Abstract: The invention relates to a method, a device, a system and a software program product for determining for a pixel a coverage mask reflecting an orientation and possibly a distance from the pixel center of an original edge vector. The pixel is to be employed for displaying at least a part of a geometric primitive on a display, and the original edge vector represents an oriented edge of the geometric primitive. The method comprises as a first step determining one of four quadrants of a Cartesian coordinate system to which the original edge vector belongs due to its orientation. The original edge vector is then transposed into a predetermined one of the four quadrants. Next, a stored coverage mask is fetched, which is associated at least indirectly to the transposed edge vector. Finally, the fetched coverage mask is transformed to the quadrant to which the original edge vector belongs.

MainClaim: A method for determining for a pixel a coverage mask reflecting an orientation of an original edge vector, which pixel is to be employed for displaying at least a part of a geometric primitive on a display, wherein said original edge vector represents an oriented edge of said geometric primitive, said method comprising: a) determining one of four quadrants of a Cartesian coordinate system to which said original edge vector belongs due to its orientation; b) transposing said original edge vector into a predetermined one of said four quadrants; c) fetching a stored coverage mask which is associated at least indirectly to said transposed edge vector; and d) transforming said fetched coverage mask to said quadrant to which said original edge vector belongs.

7,006,110	Determining a coverage mask for a pixel	Nokia Corporation	Crisu, Dan Cotofana, Sorin Vassiliadis, Stamatis Liuha, Petri	345	G09G	20030415	2	92%	<input type="checkbox"/>
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Abstract: The invention relates to a method, a device, a system and a software program product for determining for a pixel a coverage mask reflecting an orientation and possibly a distance from the pixel center of an original edge vector. The pixel is to be employed for displaying at least a part of a geometric primitive on a display, and the original edge vector represents an oriented edge of the geometric primitive. The method comprises as a first step determining one of four quadrants of a Cartesian coordinate system to which the original edge vector belongs due to its orientation. The original edge vector is then transposed into a predetermined one of the four quadrants. Next, a stored coverage mask is fetched, which is associated at least indirectly to the transposed edge vector. Finally, the fetched coverage mask is transformed to the quadrant to which the original edge vector belongs.

MainClaim: A method for determining for a pixel a coverage mask reflecting an orientation of an original edge vector, which pixel is to be employed for displaying at least a part of a geometric primitive on a display, wherein said original edge vector represents an oriented edge of said geometric primitive, said method comprising:

- a) determining one of four quadrants of a Cartesian coordinate system to which said original edge vector belongs due to its orientation;
- b) transposing said original edge vector into a predetermined one of said four quadrants;
- c) fetching a stored coverage mask which is associated at least indirectly to said transposed edge vector;
- d) transforming said fetched coverage mask to said quadrant to which said original edge vector belongs; and

defining representative edge vectors having different, predetermined orientations, said representative edge vectors being distributed by said predetermined orientations in a rotationally symmetric manner to said four quadrants of said Cartesian coordinate system, such that if the set of representative edge vectors defined for one quadrant is rotated in steps of 90°, the resulting edge vectors correspond exactly to the set of representative edge vectors defined for another quadrant, said method further comprising after step b) selecting one of said representative edge vectors in said predetermined quadrant, which representative edge vector has a similar orientation as said transposed edge vector, wherein step c) comprises fetching a stored coverage mask which is associated to said selected representative edge vector and thereby indirectly to said transposed edge vector; and

wherein a first representative edge vector of said predetermined quadrant lies on a first border to a first neighboring quadrant of said predetermined quadrant, wherein a representative edge vector lying on a second border to a second neighboring quadrant of said predetermined quadrant constitutes a first representative edge vector of said second neighboring quadrant, wherein in case said transposed edge vector has a similar orientation as said first representative edge vector of said second neighboring quadrant, said method comprises as an exceptional additional step after step b) selecting said first representative edge vectors

of said predetermined quadrant as representative edge vector, wherein step c) comprises fetching a stored coverage mask which is associated to said selected representative edge vector, and as an exceptional additional step after step c) correcting said fetched coverage mask.

5,396,583	Cylindrical to planar image mapping using scanline coherence	Apple Computer, Inc.	Chen; Shenchang E. Miller; Gavin S. P.	345	G06F	19921013	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for generating perspective views of a scene. With a viewing position at the center of to be cylindrical environment map, different views can be obtained by rotating the viewing direction either horizontally or vertically. The horizontal construction method of the present invention generally involves the steps of: determining the portion of the cylindrical map to be viewed; vertically interpolating pixel values in the portion of the cylindrical map to be viewed and mapping to a viewing plane; and displaying the viewing plane. The vertical construction method of the present invention generally involves the steps of: determining the portion of the cylindrical map to be viewed; vertically interpolating pixel values in the portion of the cylindrical map to be viewed and mapping to a vertical plane; horizontally interpolating pixel values in the vertical plane and mapping to the viewing plane; and displaying the viewing plane.

MainClaim: In a computer controlled display system, a method for displaying perspective corrected portions of an environment map comprising the steps of:

a) providing a cylindrical environment map, said cylindrical environment map comprised of a plurality of pixel shading values ordered in a first plurality of scanlines;

b) identifying a first portion of said cylindrical environment map;

c) mapping said first portion to a viewing plane having a second plurality of pixel shading values ordered in a second plurality of scanlines, said mapping including determining a plurality of scaling factors and applying the scaling factor corresponding to a scanline of said first plurality of scanlines to each pixel shading value in said scanline to obtain said second plurality of pixel shading values, said viewing plane having pre-determined dimensions; and

d) displaying said viewing plane.

2007/0139408	Reflective image objects	Nokia Corporation	Keranen; Jaakko	345	G06T	20051219	1	92%	<input type="checkbox"/>
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Abstract: A method of computer graphics is shown for rendering reflections on surfaces of a three-dimensional object. An environment image to be reflected is determined and a normal vector is computed for at least one reflective vertex of the object; the normal vector is rotated into view-space and an environment map of the image to be reflected is computed using a reflection vector determined on the basis of the rotated normal vector; the opacity of the vertex is determined as a function of an angle between the viewpoint vector and the normal vector; the colors of the object are determined by blending its colors with the colors of the object's background as a function of the opacity; and the object and the environment map are drawn on the object by adding the color values of the environment map to the color values of the object.

MainClaim: A method of computer graphics for rendering reflections on surfaces of a three-dimensional object, the method comprising: determining at least one environment image to be reflected; computing a normal vector for at least one reflective vertex of the object; rotating the normal vector into view-space; computing an environment map of the image to be reflected using a reflection vector determined based on the normal vector rotated into view-space; determining opacity of the at least one reflective vertex as a function of an angle between a viewpoint vector and the normal vector; determining color values of the object by blending colors of the object with colors of a background of the object as a function of the opacity; and drawing the object and the environment map on the object by adding color values of the environment map to the color values of the object.

6,577,305	Apparatus and method for performing setup operations in a 3-D graphics pipeline using unified primitive descriptors	Apple Computer, Inc.	Duluk, Jr.; Jerome F. Hessel; Richard E. Arnold; Vaughn T. Benkual; Jack Cuan; George Dodgen; Stephen L. Fang; Emerson S. Hsu; Hengwei Trivedi; Sushma S.	345	G06T	19990820	0	100%	<input type="checkbox"/>
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Abstract: The present invention provides post tile sorting setup in a tiled graphics pipeline architecture. In particular, the present invention determines a set of clipping points that identify intersections of a primitive with a tile. The mid-pipeline setup unit is adapted to compute a minimum depth value for that part of the primitive intersecting the tile. The mid-pipeline setup unit can be adapted to process primitives with x-coordinates that are screen based and y-coordinates that are tile based. Additionally, to the mid-pipeline setup unit is adapted to represent both line segments and triangles as quadrilaterals, wherein not all of a quadrilateral's vertices are required to describe a triangle.

MainClaim: A three-dimensional (3-D) graphics processor for generating a rendered image from image data including vertices describing a plurality of graphics primitives, the processor comprising:

(1) a sort unit comprising: (1a) logic spatially sorting the plurality of graphics primitives according to their location within the rendered two-dimensional image; and (1b) logic outputting the spatially sorted primitives according to their spatial sorting; and

(2) a setup unit comprising (2a) logic computing spatial derivatives of the spatially sorted primitives received from the sort unit; and (2b) logic converting at least some of the spatially sorted primitives into a uniform quadrilateral representation having four vertices.

7,006,110	Determining a coverage mask for a pixel	Nokia Corporation	Crisu; Dan Cotofana; Sorin Vassiliadis; Stamatis Liuha; Petri	345	G09G	20030415	2	92%	<input type="checkbox"/>
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Abstract: The invention relates to a method, a device, a system and a software program product for determining for a pixel a

coverage mask reflecting an orientation and possibly a distance from the pixel center of an original edge vector. The pixel is to be employed for displaying at least a part of a geometric primitive on a display, and the original edge vector represents an oriented edge of the geometric primitive. The method comprises as a first step determining one of four quadrants of a Cartesian coordinate system to which the original edge vector belongs due to its orientation. The original edge vector is then transposed into a predetermined one of the four quadrants. Next, a stored coverage mask is fetched, which is associated at least indirectly to the transposed edge vector. Finally, the fetched coverage mask is transformed to the quadrant to which the original edge vector belongs.

MainClaim: A method for determining for a pixel a coverage mask reflecting an orientation of an original edge vector, which pixel is to be employed for displaying at least a part of a geometric primitive on a display, wherein said original edge vector represents an oriented edge of said geometric primitive, said method comprising:

- a) determining one of four quadrants of a Cartesian coordinate system to which said original edge vector belongs due to its orientation;
- b) transposing said original edge vector into a predetermined one of said four quadrants;
- c) fetching a stored coverage mask which is associated at least indirectly to said transposed edge vector;
- d) transforming said fetched coverage mask to said quadrant to which said original edge vector belongs; and

defining representative edge vectors having different, predetermined orientations, said representative edge vectors being distributed by said predetermined orientations in a rotationally symmetric manner to said four quadrants of said Cartesian coordinate system, such that if the set of representative edge vectors defined for one quadrant is rotated in steps of 90°, the resulting edge vectors correspond exactly to the set of representative edge vectors defined for another quadrant, said method further comprising after step b) selecting one of said representative edge vectors in said predetermined quadrant, which representative edge vector has a similar orientation as said transposed edge vector, wherein step c) comprises fetching a stored coverage mask which is associated to said selected representative edge vector and thereby indirectly to said transposed edge vector; and

wherein a first representative edge vector of said predetermined quadrant lies on a first border to a first neighboring quadrant of said predetermined quadrant, wherein a representative edge vector lying on a second border to a second neighboring quadrant of said predetermined quadrant constitutes a first representative edge vector of said second neighboring quadrant, wherein in case said transposed edge vector has a similar orientation as said first representative edge vector of said second neighboring quadrant, said method comprises as an exceptional additional step after step b) selecting said first representative edge vectors of said predetermined quadrant as representative edge vector, wherein step c) comprises fetching a stored coverage mask which is associated to said selected representative edge vector, and as an exceptional additional step after step c) correcting said fetched coverage mask.

2004/0207642	Determining a coverage mask for a pixel	Nokia Corporation	Crisu, Dan Cotofana, Sorin Vassiliadis, Stamatis Liuha, Petri	345	G09G	20030415	2	92%	<input type="checkbox"/>
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Abstract: The invention relates to a method, a device, a system and a software program product for determining for a pixel a coverage mask reflecting an orientation and possibly a distance from the pixel center of an original edge vector. The pixel is to be employed for displaying at least a part of a geometric primitive on a display, and the original edge vector represents an oriented edge of the geometric primitive. The method comprises as a first step determining one of four quadrants of a Cartesian coordinate system to which the original edge vector belongs due to its orientation. The original edge vector is then transposed into a predetermined one of the four quadrants. Next, a stored coverage mask is fetched, which is associated at least indirectly to the transposed edge vector. Finally, the fetched coverage mask is transformed to the quadrant to which the original edge vector belongs.

MainClaim: A method for determining for a pixel a coverage mask reflecting an orientation of an original edge vector, which pixel is to be employed for displaying at least a part of a geometric primitive on a display, wherein said original edge vector represents an oriented edge of said geometric primitive, said method comprising: a) determining one of four quadrants of a Cartesian coordinate system to which said original edge vector belongs due to its orientation; b) transposing said original edge vector into a predetermined one of said four quadrants; c) fetching a stored coverage mask which is associated at least indirectly to said transposed edge vector; and d) transforming said fetched coverage mask to said quadrant to which said original edge vector belongs.

7,447,374	Method and apparatus for an intuitive digital image processing system that enhances digital images	Apple Inc.	Reid; Russell	382	G06K	20030106	0	100%	<input type="checkbox"/>
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Abstract: Some embodiments provide an intuitive system for digital image processing. In some embodiments, the system of the present invention allows a user to enhance digital images that appear dark or dull. In some embodiments, the user activates an image enhancement button on a graphical user interface using cursor control device such as a mouse button. In some embodiments, the digital image enhancement system is implemented using a nonlinear brightness level transformation correction and a pseudo gamma correction.

MainClaim: A method of enhancing a digital image defined by reference to a plurality of color components, said method comprising: analyzing the content of said digital image to determine a black cutoff pixel and a white cutoff pixel, wherein analyzing the content of said digital image comprises analyzing color values of said digital image along at least two color components; and performing a non-linear brightness level correction based upon said black cutoff pixel and said white cutoff pixel, wherein performing a non-linear brightness level correction comprises synthesizing a separate brightness level transformation for each of the analyzed color components based on the color components' respective pair of black and white cutoff values obtained from said black cutoff pixel and said white cutoff pixel.

2005/0123193	Image adjustment with	Nokia Corporation	Lamberg, Markku Oja, Joni Vuori,	382	G06K	20031205	1	93%	<input type="checkbox"/>
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	tone rendering curve		Tero Bjorknas, Kristina						
<p>Abstract: The invention relates to a method for rendering images on display devices with improved quality. To allow adjusting luminance values of pixels depending on image information, it is proposed that contents of said image are analysed at least partially, a tone rendering curve based on said analysed image content is determined and luminance values of pixels within said image are adjusted according to said determined tone rendering curve.</p> <p>MainClaim: A method for rendering images on display devices with improved quality with the steps of: analysing at least partially contents of said image determining a tone rendering curve based on said analysed image content, and adjusting luminance values of pixels within said image according to said determined tone rendering curve.</p>									
5,623,262	Multi-word variable length encoding and decoding	Apple Computer, Inc.	Normile; James O. Wang; Katherine Shu-wei Chu; Ke-Chiang Ponceleon; Dulce B. Wu; Hsi-Jung	341	H03M	19940817	0	100%	<input type="checkbox"/>
<p>Abstract: Decoding and encoding of variable length data words and data strings is accelerated by testing for and processing more than one word or string per encoding or decoding cycle. In an encoding scheme wherein fixed length data words are encoded into variable length data strings, decoding is carried out by first receiving a data stream having a plurality of encoded data strings contained therein, and then testing at least a portion of the data stream to determine whether the portion contains one of a number of selected sets of multiple data strings. If the portion of the data stream contains one of the selected sets of multiple data strings, the multiple data strings are decoded into a corresponding set of multiple data words. This decoding procedure allows a plurality of encoded data strings to be decoded in a single decoding cycle. The procedure may be implemented using either a single lookup table or a set of split-level lookup tables. The above procedure may also be applied to an encoding scheme wherein variable length data words are transformed into fixed length encoded data strings to encode the variable length data words. Furthermore, the above procedure may be applied to an encoding scheme wherein variable length data words are transformed into variable length data strings to both encode and decode the variable length data words and data strings.</p> <p>MainClaim: A method for decoding a data stream, comprising the steps of:</p> <p>receiving a data stream;</p> <p>testing at least a portion of said data stream to determine whether said portion contains an index comprising a plurality of data strings and associated with an entry in a table; and</p> <p>in response to a determination that said portion contains an index, decoding each data string contained in the index into a corresponding data word by retrieving the corresponding data words from the entry.</p>									
6,563,440	Apparatus and method for decoding Huffman codes using leading one/zero string length detection	Nokia Corporation	Kangas; Janne	341	H03M	20011019	4	96%	<input type="checkbox"/>
<p>Abstract: Decoding Huffman codes is accomplished by identifying consecutive strings of high order ones or zeroes and following consecutive strings of high order ones or zeroes, retrieving a table entry for each string based on its run count and bit value, until the retrieved entry contains the decoding output symbol, or until the remaining bits of the code word number within a predetermined threshold. The remaining bits are used as an offset into a lookup table, but the dimensions of the table have been reduced through elimination of the leading ones and zeroes. The consecutive strings are preferably processed by a hardware accelerator to identify the repeated bit, count the bits in the string and return this information to the host processor. The efficiencies of decoding canonical codes are realized; yet, non-canonical codes can be decoded.</p> <p>MainClaim: A method for decoding a code word in a series of variable length code words comprising the steps of:</p> <p>a) detecting the value of a bit in said code word;</p> <p>b) calculating a current count that starts with said bit and includes, from said series of variable length code words, subsequent, consecutive bits of the same value;</p> <p>c) based on the current count, retrieving an entry from a decoding table; and</p> <p>d) based on the retrieved entry, determining whether steps a) through d) are to be repeated for said code word using bits subsequent to those included in the one or more counts in step b).</p>									
6,980,138	Method and a system for variable-length decoding, and a device for the localization of codewords	Nokia Corporation	Vassiliadis; Stamatis Nikara; Jari Takala; Jarmo Liuha; Petri	341	H03M	20030618	3	92%	<input type="checkbox"/>
<p>Abstract: A method and associated decoder, system, device and storage means for decoding codewords of variable length from a bit stream, in which minimum and maximum lengths are defined for the codewords, wherein the bit stream is processed in parts, each part being subjected to a search for codewords, and where found codewords are decoded. At least partly overlapping fields are extracted from the bit stream part in such a way that the starting point of at least two fields is a possible starting point of a codeword in that part. In at least one field, the end of the codeword is searched, and the data related to the codeword is determined on the basis of the end point of the codeword. Data relating to at least one codeword is used to determine the occurrence of the codeword intended to be decoded in a field, and the found codeword is decoded.</p> <p>MainClaim: A method for decoding codewords of variable length from a bit stream, in which minimum and maximum lengths are defined for the codewords, in which method the bit stream to be decoded is processed in parts, each part of the bit stream is subjected to a search for codewords, and found codewords are decoded, wherein in the method, at least partly overlapping fields are extracted from the part of the bit stream to be processed in such a way that the starting point of at least two fields is</p>									

a possible starting point for a codeword in said bit stream part, a codeword end is searched from at least one field, and data related to the codeword is determined on the basis of the end point of the codeword, and the data related to at least one codeword is used to determine the occurrence of the codeword to be decoded in the field, and the found codeword is decoded.

2004/0070525	Method and a system for variable-length decoding, and a device for the localization of codewords	Nokia Corporation	Vassiliadis, Stamatis Nikara, Jari Takala, Jarmo Liuha, Petri	341	H03M	20030618	3	92%	<input type="checkbox"/>
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Abstract: A method and associated decoder, system, device and storage means for decoding codewords of variable length from a bit stream, in which minimum and maximum lengths are defined for the codewords, wherein the bit stream is processed in parts, each part being subjected to a search for codewords, and where found codewords are decoded. At least partly overlapping fields are extracted from the bit stream part in such a way that the starting point of at least two fields is a possible starting point of a codeword in that part. In at least one field, the end of the codeword is searched, and the data related to the codeword is determined on the basis of the end point of the codeword. Data relating to at least one codeword is used to determine the occurrence of the codeword intended to be decoded in a field, and the found codeword is decoded.

MainClaim: A method for decoding codewords of variable length from a bit stream, in which minimum and maximum lengths are defined for the codewords, in which method the bit stream to be decoded is processed in parts, each part of the bit stream is subjected to a search for codewords, and found codewords are decoded, wherein in the method, at least partly overlapping fields are extracted from the part of the bit stream to be processed in such a way that the starting point of at least two fields is a possible starting point for a codeword in said bit stream part, a codeword end is searched from at least one field, and data related to the codeword is determined on the basis of the end point of the codeword, and the data related to at least one codeword is used to determine the occurrence of the codeword to be decoded in the field, and the found codeword is decoded.

5,579,455	Rendering of 3D scenes on a display using hierarchical z-buffer visibility	Apple Computer, Inc.	Greene; Edward C. Kass; Michael H. Miller; Gavin S. P.	345	G06T	19930730	0	100%	<input type="checkbox"/>
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Abstract: A hierarchical Z-buffer scan-conversion algorithm that does well on both (a) quickly rejecting most of the hidden geometry in a model, and (b) exploiting the spatial and temporal coherence of the images being generated. The method uses two hierarchical data structures, an object-space octree and an image-space Z-pyramid, in order to accelerate scan conversion. The two hierarchical data structures make it possible to reject hidden geometry very rapidly while rendering visible geometry with the speed of scan conversion. For animation purposes, the algorithm is also able to exploit temporal coherence. The resulting method is well suited to models with high depth complexity, achieving significant speedup in some cases compared to ordinary scan conversion.

MainClaim: Apparatus for use in rendering a 3D scene onto a display, said display having a display area divided into a plurality of display cells, said 3D scene comprising at least one surface divided into a plurality of surface cells, each of said surface cells corresponding to a respective one of said display cells, said apparatus comprising a depth buffer having a plurality of granularity levels proceeding from a finest level to a coarsest level,

each of said granularity levels containing at least one Z-max element,

each of the Z-max elements in said finest granularity level covering a respective one of said display cells,

each of the Z-max elements in a granularity level coarser than said finest granularity level corresponding to and covering all of the display cells covered by a respective group of the Z-max elements in the next finer granularity level,

each of said Z-max elements which covers a display cell into which a surface cell has been rendered, containing a depth value indicating the depth in said 3D scene of the farthest surface cell which is rendered into the group of display cells covered by said Z-max element.

7,391,418	Three dimensional image processing	Nokia Corporation	Pulli; Kari Strandtoft; Asger	345	G06T	20021015	1	92%	<input type="checkbox"/>
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Abstract: A method of preparing on a first device object files used for rendering two-dimensional images of three-dimensional objects on a second device by processing object files containing data defining triangle primitives representing at least one three-dimensional object to determine a rendering order in which the triangle primitives may be rendered for creating a two-dimensional image in which the hidden surfaces are removed. A plurality of planar triangle primitives corresponding to a plurality of surface portions of the at least one object as vertex data are stored on the first device. The method can be used in a mobile phone.

MainClaim: A method of preparing object files on a first device that are used for rendering two-dimensional images of three-dimensional objects on a second device by processing object files containing data defining triangle primitives representing at least one three-dimensional object to determine a rendering order in which said triangle primitives may be rendered for creating a two-dimensional image in which the hidden surfaces are removed comprising the steps of: a) storing a plurality of planar triangle primitives corresponding to a plurality of surface portions of said at least one object in an object file, wherein said plurality of triangle primitives are represented by vertex data arranged according to an original order, b) selecting a triangle that does not potentially occlude any of the unprocessed triangles to start a triangle strip, c) selecting a neighboring triangle to add to the last triangle in the triangle strip, d) determining whether the selected neighboring triangle has the potential to occlude any of the unprocessed triangles, e) adding the selected neighboring triangle to the strip and going back to step c) if the selected neighboring triangle does not have the potential to occlude any of the unprocessed triangles, f) going back to step b) to start a new triangle strip if the selected neighboring triangle has the potential to occlude any of the unprocessed triangles, and g) repeating steps b) to f) until all the triangles in the object file are processed.

2008/0225046	THREE DIMENSIONAL IMAGE PROCESSING	NOKIA CORPORATION	Pulli; Kari Strandtoft; Asger	345	G06T	20080530	1	92%	<input type="checkbox"/>
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Abstract: A method of preparing on object files a first device that are used for rendering two-dimensional images of three-dimensional objects on a second device by processing data defining triangle primitives representing at least one three-dimensional object. A plurality of planar triangle primitives corresponding to a plurality of surface portions of the object are stored, where the plurality of triangle primitives are represented by vertex data.

MainClaim: A method of preparing object files on a first device that are used for rendering two-dimensional images of three-dimensional objects on a second device by processing data defining triangle primitives representing at least one three-

dimensional object comprising:storing a plurality of planar triangle primitives corresponding to a plurality of surface portions of said at least one object, wherein said plurality of triangle primitives are represented by vertex data,determining the planes of symmetry of said three-dimensional object,storing planes of symmetry data in the object file,culling all vertex data from one side of each said planes of symmetry,transferring said object file from said first device to said second device, anddisplaying said image on said second device by mirroring said vertex data in said planes of symmetry and rendering said image.

2008/0225047	THREE DIMENSIONAL IMAGE PROCESSING	NOKIA CORPORATION	Pulli; Kari Strandtoft; Asger	345	G06T	20080530	1	92%	<input type="checkbox"/>
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Abstract: A method of preparing on a first device object files used for rendering two-dimensional images of three-dimensional objects on a second device by processing object files containing data defining triangle primitives representing at least one three-dimensional object to determine a rendering order in which the triangle primitives may be rendered for creating a two-dimensional image in which the hidden surfaces are removed. A plurality of planar triangle primitives corresponding to a plurality of surface portions of the at least one object as vertex data are stored on the first device.

MainClaim: An apparatus comprising image processing means for rendering images of three-dimensional objects on a display, means for storing vertex data, means for storing planes of symmetry data and means for mirroring vertex data in a symmetry plane.

7,688,328	Luminance point correction without luminance degradation	Apple Inc.	Chen; Kok Marcu; Gabriel G.	345	G09G	20051102	0	100%	<input type="checkbox"/>
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Abstract: White point is corrected without degrading luminance on a display device. A white point manager modifies the balance between red, green and blue according to a target white point up to a threshold gray value. As the gray scale approaches white from the threshold gray value, the white point manager blends the balance between red, green and blue from the target white point substantially towards the native white point for the display device, so as not to degrade luminance as the gray scale approaches white.

MainClaim: A method for correcting white point without degrading luminance on a display device, the display device having a native luminance point, the method executed by a processor and comprising: for a first set of gray values occupying a first side of a threshold gray value, modifying, by the processor, a balance among a plurality of constituent color components according to a target white point up to the threshold gray value; and for a second set of gray values occupying a second side of the threshold gray value, blending, by the processor, the balance among the plurality of constituent color components from the target white point substantially towards the native luminance point in a plurality of consecutive gray levels between the target white point to the native white point for the display device.

7,486,304	Display device with dynamic color gamut	Nokia Corporation	Bergquist; Johan Wennstam; Carl	345	G09G	20051221	2	92%	<input type="checkbox"/>
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Abstract: The specification and drawings present a new method, apparatus and software product for dynamically adjusting a color gamut of a display (e.g., a field sequential color display) and further adjusting a luminance of the display in an electronic device by adjusting and turning on field duties of primary colors. During each color field, the other primary colors of light sources supporting the display can be turned on at their respective fractions of their color field. These fractions can be continuously tunable in order to control the color coordinate of each primary color dynamically thus adjusting the color gamut and the luminance of the display.

MainClaim: A method for dynamically adjusting a display in an electronic device, comprising the steps of: determining field duties of N primary colors in K color fields using a predefined procedure, wherein Nv3 and KvN; and determining for each color field of said K color fields further field duties of colors of said N-1 primary colors not included in said each color field using a predetermined criterion to dynamically control each of said N primary colors, such that said colors with said further field duties can be used in said color fields for dynamically adjusting a color gamut of said display.

2007/0139449	Display device with dynamic color gamut	Nokia Corporation	Bergquist; Johan Wennstam; Carl	345	G09G	20051221	2	92%	<input type="checkbox"/>
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Abstract: The specification and drawings present a new method, apparatus and software product for dynamically adjusting a color gamut of a display (e.g., a field sequential color display) and further adjusting a luminance of the display in an electronic device by adjusting and turning on field duties of primary colors. During each color field, the other primary colors of light sources supporting the display can be turned on at their respective fractions of their color field. These fractions can be continuously tunable in order to control the color coordinate of each primary color dynamically thus adjusting the color gamut and the luminance of the display.

MainClaim: A method for dynamically adjusting a display in an electronic device, comprising the steps of: determining field duties of N primary colors in K color fields using a predefined procedure, wherein Nv3 and KvN; and determining for each color field of said K color fields further field duties of colors of said N-1 primary colors not included in said each color field using a predetermined criterion to dynamically control each of said N primary colors, such that said colors with said further field duties can be used in said color fields for dynamically adjusting a color gamut of said display.

2009/0244113	Display device with dynamic color gamut	Nokia Corporation	Bergquist; Johan Wennstam; Carl	313	G09G	20090114	2	92%	<input type="checkbox"/>
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Abstract: The specification and drawings present a new method, apparatus and software product for dynamically adjusting a color gamut of a display (e.g., a field sequential color display) and further adjusting a luminance of the display in an electronic device by adjusting and turning on field duties of primary colors. During each color field, the other primary colors of light sources supporting the display can be turned on at their respective fractions of their color field. These fractions can be continuously tunable in order to control the color coordinate of each primary color dynamically thus adjusting the color gamut and the luminance of the display.

MainClaim: A method, comprising:determining field duties of N primary colors in K color fields using a predefined procedure, wherein Nv3 and KvN; anddetermining for each color field of said K color fields further field duties of colors of said N primary colors not included in said each color field using a predetermined criterion to dynamically control each of said N primary colors, such that said colors with said further field duties in said color fields are for dynamically adjusting a color gamut of a display.

6,972,772	White point correction without luminance degradation	Apple Computer, Inc.	Chen; Kok Marcu; Gabriel G.	345	G09G	20030813	0	100%	<input type="checkbox"/>
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Abstract: White point is corrected without degrading luminance on a display device. A white point manager modifies the balance between red, green and blue according to a target white point up to a threshold gray value. As the gray scale approaches white from the threshold gray value, the white point manager blends the balance between red, green and blue from the target white point substantially towards the native white point for the display device, so as not to degrade luminance as the gray scale approaches white.

MainClaim: A method for correcting white point without degrading luminance on a display device, the display device having a native white point, the method comprising:

for a first range of gray values up to a threshold gray value, modifying a balance between red, green and blue according to a target white point; and

for a second range of gray values exceeding the threshold gray value, blending the balance between red, green and blue from the target white point substantially towards the native white point for the display device.

2007/0139449	Display device with dynamic color gamut	Nokia Corporation	Bergquist; Johan Wennstam; Carl	345	G09G	20051221	2	92%	<input type="checkbox"/>
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Abstract: The specification and drawings present a new method, apparatus and software product for dynamically adjusting a color gamut of a display (e.g., a field sequential color display) and further adjusting a luminance of the display in an electronic device by adjusting and turning on field duties of primary colors. During each color field, the other primary colors of light sources supporting the display can be turned on at their respective fractions of their color field. These fractions can be continuously tunable in order to control the color coordinate of each primary color dynamically thus adjusting the color gamut and the luminance of the display.

MainClaim: A method for dynamically adjusting a display in an electronic device, comprising the steps of: determining field duties of N primary colors in K color fields using a predefined procedure, wherein Nv3 and KvN; and determining for each color field of said K color fields further field duties of colors of said N-1 primary colors not included in said each color field using a predetermined criterion to dynamically control each of said N primary colors, such that said colors with said further field duties can be used in said color fields for dynamically adjusting a color gamut of said display.

7,486,304	Display device with dynamic color gamut	Nokia Corporation	Bergquist; Johan Wennstam; Carl	345	G09G	20051221	2	92%	<input type="checkbox"/>
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Abstract: The specification and drawings present a new method, apparatus and software product for dynamically adjusting a color gamut of a display (e.g., a field sequential color display) and further adjusting a luminance of the display in an electronic device by adjusting and turning on field duties of primary colors. During each color field, the other primary colors of light sources supporting the display can be turned on at their respective fractions of their color field. These fractions can be continuously tunable in order to control the color coordinate of each primary color dynamically thus adjusting the color gamut and the luminance of the display.

MainClaim: A method for dynamically adjusting a display in an electronic device, comprising the steps of: determining field duties of N primary colors in K color fields using a predefined procedure, wherein Nv3 and KvN; and determining for each color field of said K color fields further field duties of colors of said N-1 primary colors not included in said each color field using a predetermined criterion to dynamically control each of said N primary colors, such that said colors with said further field duties can be used in said color fields for dynamically adjusting a color gamut of said display.

2009/0244113	Display device with dynamic color gamut	Nokia Corporation	Bergquist; Johan Wennstam; Carl	313	G09G	20090114	2	92%	<input type="checkbox"/>
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Abstract: The specification and drawings present a new method, apparatus and software product for dynamically adjusting a color gamut of a display (e.g., a field sequential color display) and further adjusting a luminance of the display in an electronic device by adjusting and turning on field duties of primary colors. During each color field, the other primary colors of light sources supporting the display can be turned on at their respective fractions of their color field. These fractions can be continuously tunable in order to control the color coordinate of each primary color dynamically thus adjusting the color gamut and the luminance of the display.

MainClaim: A method, comprising: determining field duties of N primary colors in K color fields using a predefined procedure, wherein Nv3 and KvN; and determining for each color field of said K color fields further field duties of colors of said N primary colors not included in said each color field using a predetermined criterion to dynamically control each of said N primary colors, such that said colors with said further field duties in said color fields are for dynamically adjusting a color gamut of a display.

6,122,411	Method and apparatus for storing high and low resolution images in an imaging device	Apple Computer, Inc.	Shen; David W. Holzhauser; Lisa D. Ropa; Amanda	382	G06K	19940216	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus for automatically switching the resolution of an image stored in a memory when the memory can no longer store another image with the present resolution. A processor first determines the amount of available memory in the memory for storing image data. The resolution is then automatically switched from a high resolution to a low resolution when available memory is above a first predetermined level and below a second predetermined level.

MainClaim: An imaging apparatus for storing an image, said apparatus having a plurality of resolution settings including at least a high resolution setting and a low resolution setting, comprising:

resolution selecting means for selecting a resolution setting from the plurality of resolution settings;

an integrating opto-electronic imaging device for producing a set of image signals for each image according to the resolution settings;

means for storing the image signals, wherein a high resolution image takes up more space than a low resolution image;

means for determining the available memory in said storing means;

means for automatically changing the resolution setting from high to low when the available memory in the storing means is above a first predetermined level and below a second predetermined level, and

display means for displaying at least the selected resolution setting and the number of images that can be further stored in said storing means for the selected resolution setting.

2006/0146144	Digital imaging with autofocus	Nokia Corporation	Salmelin; Eero Haavisto; Janne Kalevo; Ossi	348	H04N	20050105	1	92%	<input type="checkbox"/>
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Abstract: In digital imaging, in a case where the full resolution digital image needs to be scaled down before presenting it on a display, before the image is scaled down, statistical data is gathered from said the full resolution image data, whereby the gathered statistical data is attached to the image for further processing. The invention relates to a method, to a device, to an imaging module and to a computer program product.

MainClaim: A method in digital imaging, comprising at least the steps of providing a full resolution image, providing a scaled down partial resolution image based on said full resolution image, and calculating statistical data based on data of the full resolution image and providing said statistical data together with data of the scaled down image for further processing steps.

7,492,958	Digital imaging with autofocus	Nokia Corporation	Salmelin; Eero Haavisto; Janne Kalevo; Ossi	382	G06K	20050105	1	92%	<input type="checkbox"/>
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Abstract: In digital imaging, in a case where the full resolution digital image needs to be scaled down before presenting it on a display, before the image is scaled down, statistical data is gathered from said the full resolution image data, whereby the gathered statistical data is attached to the image for further processing. The invention relates to a method, to a device, to an imaging module and to a computer program product.

MainClaim: A method comprising capturing a full resolution digital image data, providing a partial resolution image data based on said full resolution image data, calculating statistical data relating to a focusing state of the full resolution image data, and sending said statistical data and the partial resolution image data together for defining autofocus for the image.

6,307,935	Method and apparatus for fast elliptic encryption with direct embedding	Apple Computer, Inc.	Crandall; Richard E. Garst; Blaine	380	H04L	19970718	0	100%	<input type="checkbox"/>
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Abstract: The present invention takes advantage of a quadratic-only ambiguity for x-coordinates in elliptic curve algebra as a means for encrypting plaintext directly onto elliptic curves. The encrypting of plaintext directly onto elliptic curves is referred to herein as "direct embedding". When performing direct embedding, actual plaintext is embedded as a "+" or "-" x-coordinate. The sender specifies using an extra bit whether + or - is used so that the receiver can decrypt appropriately. In operation there are two public initial x-coordinates such that two points $P1^+$ and $P1^-$ lie respectively on two curves E^+ and E^- . A parcel of text x_{text} is selected that is no more than q bits in length. The curve (E^+ or E^-) that contains x_{text} is determined. A random number r is chosen and used to generate a coordinate x_q using the public key of a receiving party. An elliptic add operation is used with the coordinate x_q and the parcel of text to generate a message coordinate x_m . A clue x_c is generated using the random number and the point P from the appropriate curve E^\pm . The sign that holds for x_{text} is determined and called g. The message coordinate x_m , the clue x_c , and the sign g are sent as a triple to the receiving party. The receiving party uses the clue x_c and its private key to generate coordinate x_q . Using the sign g and coordinate x_q , the text can be recovered.

MainClaim: A computer usable medium having computer readable program code embodied therein for encrypting a plaintext message in a sender computer system, said computer program product comprising computer readable program code configured to cause a computer to:

select a parcel of plaintext x_{text} ;

determine for which of two elliptic curves E^+ and E^- x_{text} is a valid coordinate;

generate a message coordinate x_m using a random value r, a public key from a public key/private key pair, and x_{text} ;

generate a clue value x_c by elliptic multiplication of a random number r and an appropriate initial public point P^d ;

generate a sign value g, wherein said sign value designates said elliptic curve;

represent an encrypted message by said message coordinate, said clue, and said sign.

7,007,050	Method and apparatus for improved pseudo-random number generation	Nokia Corporation	Saarienen; Markku-Juhani	708	G06F	20010517	6	94%	<input type="checkbox"/>
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Abstract: A pseudo-random number generator (PRNG) for a cryptographic processing system is disclosed in which the PRNG is reseeded at each instance of input entropy and in which a standard timestamp variable used in determining random sequence outputs is replaced with a running counter. The method employed by the PRNG demonstrates increased resistance to iterative-guessing attacks and chosen-input attacks than those of previous technologies. The PRNG is suitable for use in, for example, a mobile telephone system for accomplishing secure communications.

MainClaim: A method for seeding a pseudo-random number generator (PRNG), comprising:

storing a plurality of state variables including an internal key, a seed value and a counter variable based on a hash output in an output buffer for use by a PRNG in determining a random number;

receiving successive input entropy signals;

clearing the output buffer upon receipt of each of said successive input entropy signals; and

calculating new state variables after receipt of each of said successive input entropy signals, wherein each of said successive input entropy signals comprise an input seed and said state variables comprise at least one constant expressed as a binary number, said calculating, in an initial state of the PRNG, further comprises:

receiving the input seed;

concatenating the input seed with a first constant;

determining a first output based on a hash of the concatenated input seed and the first constant;

concatenating the input seed with a second constant;

determining a second output based on a hash of the concatenated input seed and the second constant;

determining a key based on at least a portion of the first output, the key for determining a random number; and

determining a counter variable based on a portion of the second output, the counter variable for determining a random number.

5,631,966	Audio signal conversion using frequency band division	Apple Computer, Inc.	Heyl; Lawrence F.	381	G10L	19940210	0	100%	<input checked="" type="checkbox"/>
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Abstract: The present invention includes a system and method for audio signal conversion using frequency band division. By making use of the statistical properties of an audio signal, the system and method achieves significant coding efficiency, on the order of twice that achieved by linear PCM. Quantization is performed on multiple frequency bands of audio data which have different power density characteristics and sample rate requirements.

MainClaim: A system for encoding an analog audio input signal comprising

analog band splitter means, coupled to said analog audio input signal, for generating a first band audio signal and a second band audio signal,

first gain controlled amplifier means, coupled to said first band audio signal, for generating an amplitude controlled first band signal,

second gain controlled amplifier means, coupled to said second band audio signal for generating an amplitude controlled second band signal,

analog multiplexer means, coupled to said amplitude controlled first band signal and said amplitude controlled second band signal, for generating an analog time division multiplexed signal, and

analog to digital converter means, coupled to said analog time division multiplexed signal, for generating a digitized time division multiplexed signal,

wherein said first and said second gain controlled amplifier means are transconductance cells with a linear transfer characteristic.

5,786,782	Multiplexed signal conversion	Nokia Mobile Phones Ltd.	Ostman; Kjell Kolehmainen; Timo Jokinen; Harri	341	H03M	19961218	1	93%	<input type="checkbox"/>
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Abstract: A/D and D/A converters are effectively utilized in a mobile phone, for example, by multiplexing the signals before the conversion. Both time division multiplexing and frequency division multiplexing can be used. When frequency division multiplexing is used, the IF signal (D) coming from the radio part and the baseband signal (A) coming from the microphone are summed (30) before the A/D conversion (31). The converted signal (K, L) is directed through filters (32, 34) in separate branches to digital signal processing (28). After that, the coded microphone signal (I, Q) is modulated (41, 42) to the intermediate frequency and added to the received, decoded baseband signal (M). The summed signal is directed to a D/A converter (45) and thereafter the signals are again separated by means of filters (46, 47). When time division multiplexing is used, the arrangement can also be used for measuring other signals of the mobile station.

MainClaim: A method for digital signal processing of two analog input signals (A, D), in which the input signals (A, D) are converted by an analog-to-digital converter (24; 31) to digital form (G, H; K, L) before digital signal processing (28) and by a digital-to-analog converter (45) back to analog form after the signal processing, characterized in that before the digital signal processing:

a) the analog input signals are combined (23; 30) by multiplexing into a combined multiplex signal,

b) an analog-to-digital conversion (24; 31) is performed on the combined multiplex signal, and

c) the A/D-converted, digitized combined signal is demultiplexed (25; 32, 34) into two separate digital signals (G, H; K, L), which are directed in different branches to each said signal processing (28); wherein

a first one of said analog input signals forms a part of a reception signal path and a second one of said analog input signals forms a part of a transmission signal path.

7,721,208	Multi-media center for computing systems	Apple Inc.	Madden; Thomas	715	G06F	20051010	0	100%	<input checked="" type="checkbox"/>
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Abstract: Various "media-components" are provided in a "multi-media center." In modular architecture, a module-controller communicates with media-modules provided for various media-components. A media-module can include or obtain data pertaining to a particular media-component, identify media-player(s), and access information related to their media. However, the media-modules are isolated from each other, and the module-controller effectively controls output generated in response to user input. A user interface library is provided for the media-modules. Media-modules can obtain a template or other tools from the library and construct their user interface (e.g., menus). Media-modules can also identify a media-player that can be initiated

in response to user input. Subsequently, the media-controller forwards user input to the media-player.

MainClaim: A method, implemented by a computing system, of providing a multi-media center that includes a plurality of media-components, said method comprising: configuring a plurality of media-modules for said multi-media center, wherein each of said plurality of media-modules represents a media-component in said multi-media-center, wherein each of said plurality of media-components includes: digital media and an application program to access digital media; initiating a module-controller that communicates directly with each of said plurality of media-modules; receiving by said module-controller an input associated with said multi-media center; and determining, by said module-controller, an output in response to said input, wherein the output is controlled by the module-controller, wherein at least one of said plurality of media-modules is identified to process and generate a response to said input received by said module-controller; wherein the plurality of media-modules are isolated from each other and do not directly communicate with each other, and wherein the plurality of media-modules are dynamically removed or added to the multi-media center.

2010/0131846	METHODS, RENDERING APPLICATION, PORTABLE APPARATUS, AND COMPUTER PROGRAM FOR CREATING A PLAYLIST	NOKIA CORPORATION	Ostergaard; Christian	715	G06F	20070625	9	92%	<input type="checkbox"/>
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Abstract: A mobile communication apparatus includes a display and means for navigating among items displayed on the display, arranged to enable selection of a first item, in the display view, from a multitude of lists of items. Upon selection of the first item, the selected first item is associated with a playlist including at least the selected item, wherein the item or items in the playlist are arranged in sequential order. A corresponding application, apparatus, user interface, and computer program is also disclosed.

MainClaim: (canceled)

7,539,795	Methods and apparatus for implementing dynamic shortcuts both for rapidly accessing web content and application program windows and for establishing context-based user environments	Nokia Corporation	Vahtola; Miika	710	G06F	20060130	6	92%	<input type="checkbox"/>
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Abstract: The invention disclosed herein concerns methods and apparatus for implementing dynamic shortcuts for use in navigating web content and application program windows. In particular, the methods and apparatus of the invention allow a user to associate one or more items selected from web content or application program windows with a dynamic shortcut. In one aspect of the invention, a user assigns a keyboard shortcut to one or more web pages viewed during the browsing session. Once assigned a keyboard shortcut, the one or more web pages can be rapidly accessed using the keyboard shortcut. In variations of the invention, the one or more web pages may be assigned an icon accessible from, for example, the desktop. In other aspects of the invention the keyboard shortcut or icon is associated with content or resources derived from multiple sources; such as, for example, web pages located using a browser and application program windows spawned using an application program.

MainClaim: A memory medium storing a computer program executable by a digital processor of an electronic device, the electronic device having a display for displaying a graphical user interface, wherein when the computer program is executed by the digital processor operations are performed for creating a keyboard shortcut for navigating between resources capable of being displayed in the graphical user interface, the operations comprising: receiving a command to associate at least a first resource with the keyboard shortcut; associating the first resource with the keyboard shortcut; receiving a command to associate at least a second resource with the keyboard shortcut; associating the second resource with the keyboard shortcut while maintaining the association of the first resource with the keyboard shortcut so that both the first and second resource can be accessed with the keyboard shortcut, wherein when the second resource is associated with the keyboard shortcut both the first resource and the second resource are visible in the graphical user interface of the electronic device and are arranged within the graphical user interface in accordance with a user-specified arrangement; saving arrangement information describing the user-specified arrangement of the first resource and the second resource within the graphical user interface at the time the second resource is associated with the keyboard shortcut; detecting entry of a key sequence corresponding to the keyboard shortcut associated with the first and second resource; and displaying both the first resource and the second resource in the graphical user interface of the electronic device in response to the detection of the entry of the key sequence corresponding to the keyboard shortcut, wherein the first resource and the second resource are displayed in accordance with the user-specified arrangement described in the arrangement information.

7,560,637	Graphical user interface and methods of use thereof in a multimedia player	Apple Inc.	Robbin; Jeffrey L. Jobs; Steve Wasko; Timothy Christie; Greg Chaudhri; Imran	84	G01H	20050928	0	100%	<input type="checkbox"/>
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Abstract: In a portable multimedia device, a method, apparatus, and system for providing user supplied configuration data are described. In one embodiment, a hierarchically ordered graphical user interface is provided. A first order, or home, interface provides a highest order of user selectable items each of which, when selected, results in an automatic transition to a lower order user interface associated with the selected item. In one of the described embodiments, the lower order interface includes other user selectable items associated with the previously selected item from the higher order user interface.

MainClaim: A method of assisting user interaction with a multimedia asset player by way of a pairwise bi-directional user interface, said method comprising: displaying a first order user interface having a first list of user selectable items each of at least a plurality of which points to at least another list of user selectable items; receiving a user selection of one of the user selectable items from the first list, said receiving the user selection of one of the user selectable items from the first list including at least (i) successively highlighting one or more of the user selectable items from the first list using a rotational user action with respect to a user input device of the multimedia asset player and (ii) accepting a selection of one of the highlighted user selectable items; and automatically transitioning to and displaying a second order user interface based upon the selected one of the user selectable items from the first list, the second order user interface having a second list of user selectable items pointed to by the selected one of the user selectable items from the first list, wherein each of at least a plurality of the user selectable items in the second list points back to the corresponding one of the user selectable items in the first list and points forward to at least one user selectable item in a third list of user selectable items displayed by a corresponding third order user interface.

2010/0131846	METHODS, RENDERING APPLICATION, PORTABLE APPARATUS, AND COMPUTER PROGRAM FOR CREATING A PLAYLIST	NOKIA CORPORATION	Ostergaard; Christian	715	G06F	20070625	9	93%	<input type="checkbox"/>
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Abstract: A mobile communication apparatus includes a display and means for navigating among items displayed on the display, arranged to enable selection of a first item, in the display view, from a multitude of lists of items. Upon selection of the first item, the selected first item is associated with a playlist including at least the selected item, wherein the item or items in the playlist are arranged in sequential order. A corresponding application, apparatus, user interface, and computer program is also disclosed.

MainClaim: (canceled)

2007/0226638	Selecting a stored content item for use in a task	Nokia Corporation	Kramer; Steffen Markussen; Lars Wass-Danielsen; Peter Kangas; Tita	715	G06F	20060323	3	92%	<input type="checkbox"/>
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Abstract: A user interface, a device, a computer program and a method for using a stored content item in a task including: first means for presenting a first user selectable option for using a stored content item in a first task; second means, responsive to the first means, for presenting simultaneously a second user selectable option, the selection of which presents a first interface for finding a content item for use in the first task, and a third, different, user selectable option, the selection of which presents a second interface for finding a content item for use in the first task.

MainClaim: A user interface for using a stored content item in a task comprising: first means for presenting a first user selectable option for using a stored content item in a first task; and second means, responsive to the first means, for presenting simultaneously a second user selectable option, the selection of which presents a first interface for finding a content item for use in the first task, and a third, different, user selectable option, the selection of which presents a second interface for finding a content item for use in the first task.

2009/0249206	METHOD, APPARATUS AND COMPUTER PROGRAM PRODUCT FOR PRESENTING A MEDIA HISTORY	Nokia Corporation	Stahlberg; Jani Jukka	711	G06F	20080328	4	92%	<input type="checkbox"/>
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Abstract: A method for presenting a media history may include determining whether actuation of a function initiation mechanism corresponds to a first actuation characteristic or a second actuation characteristic in which the first actuation characteristic is associated with invocation of a first function on a single object of a particular class and the second actuation characteristic is associated with invocation of a second function operable on a plurality of objects of the particular class. The method may further include initiating the first function or the second function based on the determined actuation characteristic. A corresponding apparatus and computer program product are also provided.

MainClaim: A method comprising: determining whether actuation of a function initiation mechanism corresponds to a first actuation characteristic or a second actuation characteristic in which the first actuation characteristic is associated with invocation of a first function on a single object of a particular class and the second actuation characteristic is associated with invocation of a second function operable on a plurality of objects of the particular class; and initiating the first function or the second function based on the determined actuation characteristic.

7,521,625	Graphical user interface and methods of use thereof in a multimedia player	Apple Inc.	Robbin; Jeffrey L. Jobs; Steve Wasko; Timothy Christie; Greg Chaudhri; Imran	84	G10H	20061207	0	100%	<input type="checkbox"/>
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Abstract: In a portable multimedia device, a method, apparatus, and system for providing user supplied configuration data are described. In one embodiment, a hierarchically ordered graphical user interface are provided. A first order, or home, interface provides a highest order of user selectable items each of which, when selected, results in an automatic transition to a lower order user interface associated with the selected item. In one of the described embodiments, the lower order interface includes other user selectable items associated with the previously selected item from the higher order user interface.

MainClaim: A method of assisting user interaction with a portable and pocket sized multimedia asset player by way of a hierarchically ordered user interface, the multimedia asset player comprising a display and a rotational input device, the method comprising: displaying a first order user interface comprising a first list of user selectable items, receiving at least one first rotational user input via the rotational input device, successively visually distinguishing one of the user selectable items in the first list as the first rotational user input is received, thereafter receiving a user selection of the one of the user selectable items in the first list being visually distinguished, automatically transitioning to and displaying a second order user interface comprising a second list of user selectable items in response to the user selection, the second order user interface being based on the user selection, wherein after the user selection is made with respect to the first order user interface, the first list of user selectable items is removed from being displayed and the second order user interface is displayed in its place, the second order user interface comprising a list of media assets each of which is associated with the user selection from the first list of user selectable items, and wherein after the user selection is made with respect to the first order user interface, the user selection with respect to the first order user interface is noted so that if a user operates to transition backwards from the second order user interface back to the first order user interface, the previously selected one of the user selectable items in the first list of user selectable items is visually distinguished as the first list of user selectable items are subsequently displayed in the first order user interface, receiving a user selection of a media asset from the list of media assets, and playing the selected media asset on the multimedia asset player.

2010/0131846	METHODS, RENDERING APPLICATION, PORTABLE APPARATUS, AND COMPUTER PROGRAM FOR CREATING A PLAYLIST	NOKIA CORPORATION	Ostergaard; Christian	715	G06F	20070625	9	93%	<input type="checkbox"/>
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Abstract: A mobile communication apparatus includes a display and means for navigating among items displayed on the display, arranged to enable selection of a first item, in the display view, from a multitude of lists of items. Upon selection of the first item, the selected first item is associated with a playlist including at least the selected item, wherein the item or items in

the playlist are arranged in sequential order. A corresponding application, apparatus, user interface, and computer program is also disclosed.

MainClaim: (canceled)

7,281,214	Automatically updating user programmable input sensors to perform user specified functions	Apple Inc.	Fadell; Anthony M.	715	G06F	20030903	0	100%	<input type="checkbox"/>
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Abstract: In a portable multimedia device, a method, apparatus, and system for automatically updating programmable buttons on a remote client device using a set of user preferences is described. A remote client device is coupled (either wired or wirelessly) to the host computer and the preference file is passed to the remote client device which uses the preference file to automatically update any programmable buttons included therein to execute the desired suite of functions. In some cases, a combination of buttons can be used to perform a particular function whereas in other cases, a single button can be associated with a particular function.

MainClaim: A method of automatically updating a number of user programmable input sensors in a client device, comprising: generating a host preference file at a host computer, wherein the host preference file includes information relating to the functionality of the user programmable input sensors; passing the host preference file from the host computer to the client device when the host computer is coupled to the client device; and automatically updating only those user programmable input sensors in the client device that are different than the host preference file, wherein the user programmable input sensors remain updated whether or not the client device and host computer are coupled with each other.

2009/0249206	METHOD, APPARATUS AND COMPUTER PROGRAM PRODUCT FOR PRESENTING A MEDIA HISTORY	Nokia Corporation	Stahlberg; Jani Jukka	711	G06F	20080328	4	92%	<input type="checkbox"/>
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Abstract: A method for presenting a media history may include determining whether actuation of a function initiation mechanism corresponds to a first actuation characteristic or a second actuation characteristic in which the first actuation characteristic is associated with invocation of a first function on a single object of a particular class and the second actuation characteristic is associated with invocation of a second function operable on a plurality of objects of the particular class. The method may further include initiating the first function or the second function based on the determined actuation characteristic. A corresponding apparatus and computer program product are also provided.

MainClaim: A method comprising: determining whether actuation of a function initiation mechanism corresponds to a first actuation characteristic or a second actuation characteristic in which the first actuation characteristic is associated with invocation of a first function on a single object of a particular class and the second actuation characteristic is associated with invocation of a second function operable on a plurality of objects of the particular class; and initiating the first function or the second function based on the determined actuation characteristic.

7,166,791	Graphical user interface and methods of use thereof in a multimedia player	Apple Computer, Inc.	Robbin; Jeffrey L. Jobs; Steve Wasko; Timothy Christie; Greg Chaudhri; Imran	84	G09B	20021028	0	100%	<input type="checkbox"/>
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Abstract: In a portable multimedia device, a method, apparatus, and system for providing user supplied configuration data are described. In one embodiment, a hierarchically ordered graphical user interface are provided. A first order, or home, interface provides a highest order of user selectable items each of which, when selected, results in an automatic transition to a lower order user interface associated with the selected item. In one of the described embodiments, the lower order interface includes other user selectable items associated with the previously selected item from the higher order user interface.

MainClaim: A method of assisting user interaction with a multimedia asset player by way of a hierarchically ordered user interface, the multimedia asset player having a front surface that includes a display and a rotational input device, said method comprising: displaying a first order user interface having a first list of user selectable items; receiving at least one first rotational user input via the rotational input device; successively visually distinguishing one of the user selectable items in the first list as the first rotational user input is received; thereafter receiving a user selection of the one of the user selectable items in the first list being visually distinguished; and automatically transitioning to and displaying a second order user interface having a second list of user selectable items in response to the user selection, the second order user interface being based upon the user selection, wherein after the user selection is made with respect to the first order user interface, the first list of user selectable items is removed from being displayed and the second order user interface is displayed in its place, the second order user interface includes a second number of user selectable items each of which is associated with the user selection from the first list of user selectable items, wherein after the user selection is made with respect to the first order user interface, the user selection with respect to the first order user interface is noted so that if a user operates to transition backwards from the second order user interface back to the first order user interface, the previously selected one of the user selectable items in the first list of user selectable items is visually distinguished as the first list of user selectable items are subsequently displayed in the first order user interface, and wherein the multimedia asset player is portable and pocket-sized.

2010/0131846	METHODS, RENDERING APPLICATION, PORTABLE APPARATUS, AND COMPUTER PROGRAM FOR CREATING A PLAYLIST	NOKIA CORPORATION	Ostergaard; Christian	715	G06F	20070625	9	94%	<input type="checkbox"/>
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Abstract: A mobile communication apparatus includes a display and means for navigating among items displayed on the display, arranged to enable selection of a first item, in the display view, from a multitude of lists of items. Upon selection of the first item, the selected first item is associated with a playlist including at least the selected item, wherein the item or items in the playlist are arranged in sequential order. A corresponding application, apparatus, user interface, and computer program is also disclosed.

MainClaim: (canceled)

2007/0226638	Selecting a stored content item for use in a task	Nokia Corporation	Kramer; Steffen Markussen; Lars Wass-Danielsen; Peter Kangas; Tita	715	G06F	20060323	3	92%	<input type="checkbox"/>
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Abstract: A user interface, a device, a computer program and a method for using a stored content item in a task including: first means for presenting a first user selectable option for using a stored content item in a first task; second means, responsive to the first means, for presenting simultaneously a second user selectable option, the selection of which presents a first interface for finding a content item for use in the first task, and a third, different, user selectable option, the selection of which presents a second interface for finding a content item for use in the first task.

MainClaim: A user interface for using a stored content item in a task comprising: first means for presenting a first user selectable option for using a stored content item in a first task; and second means, responsive to the first means, for presenting simultaneously a second user selectable option, the selection of which presents a first interface for finding a content item for use in the first task, and a third, different, user selectable option, the selection of which presents a second interface for finding a content item for use in the first task.

2006/0069998	User-interface application for media file management	Nokia Corporation	Artman; Tuomas Koskela; Sami	715	G06F	20040927	1	92%	<input type="checkbox"/>
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Abstract: A media management user-interface (UI) application that provides access to media items and media files and provides browsing and search capabilities for locating media items within media files. The UI application of the present invention relies on a hierarchical display of various levels or categories of media files and, as such, the application is uniquely suited for portable digital devices having small displays. The hierarchical display of media file levels allows the user to easily browse through levels to identify a desired media file and to locate and display a desired media item. In addition, the UI application of the present invention provides for an easily activated search function that provides for keyword searches to be performed based on information that has been associated with media files and media items. Thus, the application provides for the visual presentation of search results in a manner that is highly user-friendly and allows the user to efficiently browse the search results to locate the desired media item.

MainClaim: A user-interface application for providing access to media items on a display of a digital device, the application comprising a computer readable storage medium having computer-readable program instructions embodied in the medium, the computer-readable program instructions comprising: first instructions for generating a media management view of one or more media item classification levels, wherein each level includes one or more media item icons; second instructions for defining a focus point within one of the media item classification levels, wherein the focus point has a fixed position within the view and selects one of the one or more icons within the level for presentation of the one or more media items associated with the icon.

7,667,124	Graphical user interface and methods of use thereof in a multimedia player	Apple Inc.	Robbin; Jeffrey L. Jobs; Steve Wasko; Timothy Christie; Greg Chaudhri; Imran	84	G10H	20061129	0	100%	<input type="checkbox"/>
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Abstract: In a portable multimedia device, a method, apparatus, and system for providing user supplied configuration data are described. In one embodiment, a hierarchically ordered graphical user interface are provided. A first order, or home, interface provides a highest order of user selectable items each of which, when selected, results in an automatic transition to a lower order user interface associated with the selected item. In one of the described embodiments, the lower order interface includes other user selectable items associated with the previously selected item from the higher order user interface.

MainClaim: In a portable, pocket-sized multimedia asset player having a display on a front face of the media asset player, a method of selecting and playing a multimedia asset from a group of multimedia assets stored therein, comprising: displaying at a home interface on the display, the home interface including at least: a playlist list item corresponding to a number of playlists stored in the multimedia asset player, wherein each playlist is a group of multimedia assets, an artists list item corresponding to all of a number of artists each of which is associated with at least one of the stored multimedia assets, and a songs list item associated with each of the stored multimedia assets; highlighting a desired one of the playlist list item, the artists list item, or the songs list item; receiving a selection of the highlighted item; and automatically transitioning to a second interface based upon the selected item, wherein when the selected item is the artists list item, then the second interface is an artists interface that includes an all item corresponding to all artists stored in the multimedia asset player and a list of named artists each of which has at least one associated song stored in the multimedia asset player, and wherein said method further comprises: receiving a selection of the all item from the artist interface; automatically transitioning to an albums interface that includes an all item and a list of albums associated with each of the named artists; receiving a selection of the all item from the album interface; and automatically transitioning to an all songs interface that includes a list of all songs stored in the multimedia asset player.

2010/0131846	METHODS, RENDERING APPLICATION, PORTABLE APPARATUS, AND COMPUTER PROGRAM FOR CREATING A PLAYLIST	NOKIA CORPORATION	Ostergaard; Christian	715	G06F	20070625	9	93%	<input type="checkbox"/>
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Abstract: A mobile communication apparatus includes a display and means for navigating among items displayed on the display, arranged to enable selection of a first item, in the display view, from a multitude of lists of items. Upon selection of the first item, the selected first item is associated with a playlist including at least the selected item, wherein the item or items in the playlist are arranged in sequential order. A corresponding application, apparatus, user interface, and computer program is also disclosed.

MainClaim: (canceled)

7,706,637	Host configured for interoperation with coupled portable media player device	Apple Inc.	Marriott; Greg	382	G06K	20060927	0	100%	<input type="checkbox"/>
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2009/0064049	Automated grouping of image and other user data	Nokia Corporation	Pyhalammi; Seppo Haggman; Kai Soitinaho; Jouni Sihvola; Tuomo	715	G06F	20081110	4	92%	<input type="checkbox"/>
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Abstract: A user selects a data file (e.g., an image file) from an interface (e.g., a thumbnail view). Upon selecting a file from the interface, the contents of that file are presented to the user in an appropriate manner (e.g., providing an enlarged image display). The selected file is also moved to a separate folder. As the contents of additional files are presented to the user, those files are also moved to the separate folder. A new folder is created when the user returns to the interface and selects another file from that interface, or alternatively, upon instruction from the user to create a new folder. The user may then rename or otherwise modify the folder(s).

MainClaim: A system for organizing image files, comprising:a wireless mobile device, including:a digital camera,a memory for storing image files for images captured with the digital camera, and a communication interface with a wireless communication network for transmission of image files stored in the memory; and a server, including:a server communications interface through which image files are received from the wireless mobile device via the wireless communication network,a server memory for storing image files received through the server communications interface, and a processor configured to perform steps comprising:(a) displaying a file selection user interface presenting thumbnail images for each of a plurality of image files stored in the server memory, wherein selection of a thumbnail from said interface generates a display of an enlarged image corresponding to the selected thumbnail,(b) receiving from the file selection user interface a selection of a first thumbnail corresponding to a first image file of the plurality,(c) creating a first file folder based upon the selection received in step (b),(d) storing the first image file in the first file folder based on the selection received in step (b),(e) deleting the first image file from another folder based on the selection received in step (b),(f) receiving an instruction to generate, without an intervening redisplay of the file selection user interface, a display of an enlarged image corresponding to a second image file of the plurality,(g) storing the second image file in the first folder and deleting the second image file from another folder based on the instruction received in step (f),(h) redisplaying the file selection user interface,(i) receiving from the file selection user interface a selection of a third thumbnail corresponding to a third image file of the plurality,(j) storing the third image file in the first file folder based on the selection received in step (i),(k) opening a second folder having image files stored therein,(l) receiving a selection of a fourth image file of the plurality from the file selection user interface, and(m) storing the fourth image file in the second folder based on the selection received in step (l).

2009/0064044	Automated Grouping of Image and Other User Data	Nokia Corporation	Pyhalammi; Seppo Haggman; Kai Soitinaho; Jouni Sihvola; Tuomo	715	G06F	20081110	4	92%	<input type="checkbox"/>
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Abstract: A user selects a data file (e.g., an image file) from an interface (e.g., a thumbnail view). Upon selecting a file from the interface, the contents of that file are presented to the user in an appropriate manner (e.g., providing an enlarged image display). The selected file is also moved to a separate folder. As the contents of additional files are presented to the user, those files are also moved to the separate folder. A new folder is created when the user returns to the interface and selects another file from that interface, or alternatively, upon instruction from the user to create a new folder. The user may then rename or otherwise modify the folder(s).

MainClaim: A machine-readable medium having machine-executable instructions for:storing a plurality of user data files in a first folder in a memory;receiving a selection of a first user data file of the plurality of user data files;creating a second folder within said memory;storing the first user data file in the second folder in response to the selection of the first user data file;receiving a user instruction to present a second user data file of the plurality of user data files; andstoring the second user data file in the second folder in response to the instruction to present the second user data file.

7,623,740	Image scaling arrangement	Apple Inc.	Marriott; Greg Boettcher; Jesse Dowdy; Thomas Heller; David Miller; Jeff Robbin; Jeffrey L.	382	G06K	20080624	0	100%	<input type="checkbox"/>
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Abstract: Methods and system for transferring images between devices are disclosed. For example, differently scaled images by a host device may be automatically and/or selectively be transferred to a media player for display. In turn, appropriately scaled images may be transferred automatically and/or selectively to another display device for example a TV, camera or printer. The selectivity may occur either at the host level or at the player level.

MainClaim: A method for utilizing a portable media device as a media server, the method comprising: receiving, at a portable media device, a set of files, wherein the set of files include a plurality of files being the same media converted into different formats, wherein at least some of the formats represent a format that cannot be natively displayed by the portable media device but can be natively displayed by a device connected to the portable media device; storing the set of files; receiving a command to display the media in a first selected format that can be natively displayed by a first device connected to the portable media device; retrieving a file, from the set of files, that corresponds to the first selected format; and transmitting the file corresponding to the first determined format to the first device.

2009/0064049	Automated grouping of image and other user data	Nokia Corporation	Pyhalammi; Seppo Haggman; Kai Soitinaho; Jouni Sihvola; Tuomo	715	G06F	20081110	4	93%	<input type="checkbox"/>
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Abstract: A user selects a data file (e.g., an image file) from an interface (e.g., a thumbnail view). Upon selecting a file from the interface, the contents of that file are presented to the user in an appropriate manner (e.g., providing an enlarged image display). The selected file is also moved to a separate folder. As the contents of additional files are presented to the user, those files are also moved to the separate folder. A new folder is created when the user returns to the interface and selects another file from that interface, or alternatively, upon instruction from the user to create a new folder. The user may then rename or otherwise modify the folder(s).

MainClaim: A system for organizing image files, comprising:a wireless mobile device, including:a digital camera,a memory for storing image files for images captured with the digital camera, and a communication interface with a wireless communication network for transmission of image files stored in the memory; and a server, including:a server communications interface through which image files are received from the wireless mobile device via the wireless communication network,a server memory for storing image files received through the server communications interface, and a processor configured to perform steps comprising:(a) displaying a file selection user interface presenting thumbnail images for each of a plurality of image files stored in the server memory, wherein selection of a thumbnail from said interface generates a display of an enlarged image corresponding to the selected thumbnail,(b) receiving from the file selection user interface a selection of a first thumbnail corresponding to a first image file of the plurality,(c) creating a first file folder based upon the selection received in step (b),(d) storing the first image file in the first file folder based on the selection received in step (b),(e) deleting the first image file from another folder based on the selection received in step (b),(f) receiving an instruction to generate, without an intervening redisplay of the file selection user interface, a display of an enlarged image corresponding to a second image file of the plurality,(g) storing the second image file in the first folder and deleting the second image file from another folder based on the instruction received in step (f),(h) redisplaying the file selection user interface,(i) receiving from the file selection user interface a selection of a third thumbnail corresponding to a third image file of the plurality,(j) storing the third image file in the first file folder based on the selection received in step (i),(k) opening a second folder having image files stored therein,(l) receiving a selection of a fourth image file of the plurality from the file selection user interface, and(m) storing the fourth image file in the second folder based on the selection received in step (l).

2009/0064044	Automated Grouping of Image and Other User Data	Nokia Corporation	Pyhalammi; Seppo Haggman; Kai Soitinaho; Jouni Sihvola; Tuomo	715	G06F	20081110	4	93%	<input type="checkbox"/>
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Abstract: A user selects a data file (e.g., an image file) from an interface (e.g., a thumbnail view). Upon selecting a file from the interface, the contents of that file are presented to the user in an appropriate manner (e.g., providing an enlarged image display). The selected file is also moved to a separate folder. As the contents of additional files are presented to the user, those files are also moved to the separate folder. A new folder is created when the user returns to the interface and selects another file from that interface, or alternatively, upon instruction from the user to create a new folder. The user may then rename or otherwise modify the folder(s).

MainClaim: A machine-readable medium having machine-executable instructions for: storing a plurality of user data files in a first folder in a memory; receiving a selection of a first user data file of the plurality of user data files; creating a second folder within said memory; storing the first user data file in the second folder in response to the selection of the first user data file; receiving a user instruction to present a second user data file of the plurality of user data files; and storing the second user data file in the second folder in response to the instruction to present the second user data file.

5,594,509	Method and apparatus for audio-visual interface for the display of multiple levels of information on a display	Apple Computer, Inc.	Florin; Fabrice Buettner; Michael Corey; Glenn Fritsche; Janey Maresca; Peter Miller; Peter Purdy; Bill Sharpe; Stuart West; Nick	725	H04N	19930622	0	100%	<input type="checkbox"/>
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Abstract: An interactive audio-visual (A/V) transceiver is advantageously coupled to a television and/or telephone (T/T) cable, a TV, a video recorder (VCR), and other A/V devices. The A/V transceiver switches data between a program/service provider and the connected A/V devices. In one embodiment, the transceiver includes three primary modules, a main module including a CPU, a system bus, system memory, an infra-red (IR) control unit, an audio-visual bus, an A/V decoder, an A/V processor, and an A/V encoder, an A/V connect module including a number of tuner/demodulators and a switch, and an optional CD ROM module. The A/V transceiver hardware is complemented with an operating system and software program which supports the functions provided in the A/V user interface. Additionally, a remote control device is provided to communicate with the A/V transceiver to interactively manage selection of program and service sources, selection program and service offerings from any selected source, viewing of selected program offerings, and interaction with selected service offerings. The remote control device is advantageously provided with a basic A/V control button group, an interactive control button group, an auxiliary control button group and a numeric key pad to facilitate control of the transceiver. The interactive control button group includes an info button, a list button, a categories button, a pix button, a mark button, a jump button, and a pointing device consisting of up, down, left, and right arrow buttons, and a center select button.

MainClaim: An interactive user interface and audio-visual (A/V) system comprising:

a transceiver coupled to art audio-visual (A/V) display for receiving audio-visual signals in an electronic signal spectrum from a signal source, said transceiver including interface generation means for causing said A/V display to display an interface, said interface including selectively displayed multiple levels of information related to an audio-visual program viewed on said A/V display, wherein said multiple levels of information include information received by said transceiver over a plurality of information tracks;

control means in communication with said transceiver for permitting a user viewing said A/V display to selectively display said multiple levels of information on said A/V display;

wherein said interface is displayed in an overlay region that includes at least one direction cue to identify at least one direction on said A/V display corresponding to at least one additional level of information.

2003/0086694	Recording program scheduling information in an electronic calendar	Nokia Corporation	Davidsson, Marcus	386	H04N	20011107	3	95%	<input type="checkbox"/>
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Abstract: The present invention allows a person to add TV program information into an electronic calendar of a multimedia apparatus. A user accesses an electronic programming guide and selects a program of interest from the guide. The guide is stored either at a remote location, or locally after having been downloaded from a source. Upon selection of a TV program in the guide, an entry is then automatically entered into the user's electronic calendar at the appropriate day and time using the information from the guide corresponding to the selected TV program. The entry displayed can be the name of the selected program and the channel of its broadcast. At the time of the broadcast of the selected program, an indication may be displayed on the television as a reminder. The user may alternatively enter the appropriate G-code directly in the electronic calendar. The multimedia apparatus will then, in background and without interrupting the electronic calendar function, retrieve from the guide TV program information corresponding to the G-code.

MainClaim: A method for entering information relating to a scheduled broadcast program into an electronic calendar comprising: accessing an electronic calendar capable of storing a plurality of events at a plurality of times; displaying the accessed electronic calendar on an electronic display; accessing an electronic programming guide, the electronic programming guide listing a plurality of scheduled broadcast programs, and comprising information associated with each of the plurality of scheduled broadcast programs; displaying the accessed electronic programming guide on the electronic display; and selecting at least one of the plurality of scheduled broadcast programs in the accessed electronic programming guide, and thereby transferring information, associated with the at least one selected broadcast program, from the electronic programming guide to the accessed electronic calendar as at least one new entry, each new entry containing the information for a corresponding selected program and being stored in the electronic calendar at a time corresponding to a broadcast time of the respective at least one selected broadcast program.

6,910,191	Program guide data selection device	Nokia Corporation	Segeber; Tomas Bernhardson; Marcus	715	G06F	20011102	3	93%	<input type="checkbox"/>
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Abstract: A digital interactive television set device for selecting program guide data corresponding to available programming content. A processor filters the programming guide data according to different filter categories and also individual filter ranges

associated with respective categories, and provides a corresponding display on the television. A graphical user interface provides a horizontal scroll bar with scroll bar elements signifying individual filter ranges of the filter categories, such that when selected individually, scroll bar elements of a vertical scroll bar signify individual program content items from the program data that fall within the filter category and range of the selected horizontal bar element, at least one of the scroll bar elements of the horizontal scroll bar comprising a multiple depiction of more than one of the individual filter ranges of filter categories, whereby an individual one of the filter ranges may be selected from the multiple depiction.

MainClaim: A programming guide data selection device for selecting program guide data corresponding to available programming content, comprising:


a processor operable to filter the programming guide data according to different filter categories and individual filter ranges associated with the respective categories, and

a graphical user interface to provide first and second transversely extending and intersecting scroll bars which each comprise a plurality of scroll bar elements that can be scrolled successively through a focus region positioned at the intersection of the first and second scroll bars,

the scroll bar elements of the first scroll bar signifying individual filter ranges of the filter categories, which are individually selectable by being scrolled into the focus region, such that when selected individually, the scroll bar elements of the second scroll bar signify individual program content items from the program data that fall within the filter category and range of the selected first scroll bar element, said individual program content items being individually selectable by scrolling the second scroll bar to place the element of the second scroll bar corresponding to the program item into the focus region,

at least one of the scroll bar elements of the first scroll bar comprising a multiple depiction of more than one of said individual filter ranges of the filter categories selectable from the multiple depiction individually by being moved into the focus region, and

a viewing region for viewing a program content item selected in the focus region.

5,583,560	Method and apparatus for audio-visual interface for the selective display of listing information on a display	Apple Computer, Inc.	Florin; Fabrice Buettner; Michael Corey; Glenn Fritsche; Janey Maresca; Peter Miller; Peter Purdy; Bill Sharpe; Stuart West; Nick	725	H04N	19930622	0	100%	
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Abstract: An interactive audio-visual (A/V) transceiver is advantageously coupled to a television and/or telephone (T/T) cable, a TV, a video recorder (VCR), and other A/V devices. The A/V transceiver switches data between a program/service provider and the connected A/V devices. In one embodiment, the transceiver includes three primary modules, a main module including a CPU, a system bus, system memory, an infra-red (IR) control unit, an audio-visual bus, an A/V decoder, an A/V processor, and an A/V encoder, an A/V connect module including a number of tuner/demodulators and a switch, and an optional CD ROM module. The A/V transceiver hardware is complemented with an operating system and software program which supports the functions provided in the A/V user interface. Additionally, a remote control device is provided to communicate with the A/V transceiver to interactively manage selection of program and service sources, selection program and service offerings from any selected source, viewing of selected program offerings, and interaction with selected service offerings. The remote control device is advantageously provided with a basic A/V control button group, an interactive control button group, an auxiliary control button group and a numeric key pad to facilitate control of the transceiver. The interactive control button group includes an info button, a list button, a categories button, a pix button, a mark button, a jump button, and a pointing device consisting of up, down, left, and right arrow buttons, and a center select button.


MainClaim: An audio-visual system comprising:

a transceiver coupled to an audio-visual (A/V) display for receiving audio-visual signals in an electronic signal spectrum from a signal source, said transceiver including an interface generator for displaying a listing interface on said A/V display, said interface generator including a list generator for selectively displaying listing information related to audio-visual programs which may be viewed on said A/V display;

a controller in communication with said transceiver for permitting a user viewing said A/V display to selectively display said listing information on said A/V display;

wherein said controller includes a control having an activator for activating said list generator in said transceiver, the activation of said list generator resulting in said listing interface being displayed on said A/V display; and

wherein said listing interface includes a picture in a picture (PIP) window in which an audio-visual program viewed by said user prior to said activation of said list generator is displayed in said PIP window.

2003/0086694	Recording program scheduling information in an electronic calendar	Nokia Corporation	Davidsson, Marcus	386	H04N	20011107	3	95%	
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Abstract: The present invention allows a person to add TV program information into an electronic calendar of a multimedia apparatus. A user accesses an electronic programming guide and selects a program of interest from the guide. The guide is stored either at a remote location, or locally after having been downloaded from a source. Upon selection of a TV program in the guide, an entry is then automatically entered into the user's electronic calendar at the appropriate day and time using the information from the guide corresponding to the selected TV program. The entry displayed can be the name of the selected program and the channel of its broadcast. At the time of the broadcast of the selected program, an indication may be displayed on the television as a reminder. The user may alternatively enter the appropriate G-code directly in the electronic calendar. The multimedia apparatus will then, in background and without interrupting the electronic calendar function, retrieve from the guide TV program information corresponding to the G-code.

MainClaim: A method for entering information relating to a scheduled broadcast program into an electronic calendar comprising: accessing an electronic calendar capable of storing a plurality of events at a plurality of times; displaying the accessed electronic calendar on an electronic display; accessing an electronic programming guide, the electronic programming guide listing a plurality of scheduled broadcast programs, and comprising information associated with each of the plurality of scheduled broadcast programs; displaying the accessed electronic programming guide on the electronic display; and selecting at least one of the plurality of scheduled broadcast programs in the accessed electronic programming guide, and thereby transferring information, associated with the at least one selected broadcast program, from the electronic programming guide to the accessed electronic calendar as at least one new entry, each new entry containing the information for a corresponding selected program and being stored in the electronic calendar at a time corresponding to a broadcast time of the respective at least one selected broadcast program.

6,910,191	Program guide data selection device	Nokia Corporation	Segeberg; Tomas Bernhardson; Marcus	715	G06F	20011102	3	93%	<input type="checkbox"/>
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Abstract: A digital interactive television set device for selecting program guide data corresponding to available programming content. A processor filters the programming guide data according to different filter categories and also individual filter ranges associated with respective categories, and provides a corresponding display on the television. A graphical user interface provides a horizontal scroll bar with scroll bar elements signifying individual filter ranges of the filter categories, such that when selected individually, scroll bar elements of a vertical scroll bar signify individual program content items from the program data that fall within the filter category and range of the selected horizontal bar element, at least one of the scroll bar elements of the horizontal scroll bar comprising a multiple depiction of more than one of the individual filter ranges of filter categories, whereby an individual one of the filter ranges may be selected from the multiple depiction.

MainClaim: A programming guide data selection device for selecting program guide data corresponding to available programming content, comprising:

a processor operable to filter the programming guide data according to different filter categories and individual filter ranges associated with the respective categories, and

a graphical user interface to provide first and second transversely extending and intersecting scroll bars which each comprise a plurality of scroll bar elements that can be scrolled successively through a focus region positioned at the intersection of the first and second scroll bars,

the scroll bar elements of the first scroll bar signifying individual filter ranges of the filter categories, which are individually selectable by being scrolled into the focus region, such that when selected individually, the scroll bar elements of the second scroll bar signify individual program content items from the program data that fall within the filter category and range of the selected first scroll bar element, said individual program content items being individually selectable by scrolling the second scroll bar to place the element of the second scroll bar corresponding to the program item into the focus region,

at least one of the scroll bar elements of the first scroll bar comprising a multiple depiction of more than one of said individual filter ranges of the filter categories selectable from the multiple depiction individually by being moved into the focus region, and

a viewing region for viewing a program content item selected in the focus region.

7,565,036	Image scaling arrangement	Apple Inc.	Marriott; Greg Boettcher; Jesse Dowdy; Thomas Heller; David Miller; Jeff Robbin; Jeffrey L.	382	G06K	20070516	0	100%	<input type="checkbox"/>
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Abstract: Methods and system for transferring images between devices is disclosed. For example, differently scaled images by a host device may automatically and/or selectively be transferred to a media player for display. In turn, appropriately scaled images may be transferred automatically and/or selectively to another display device for example a TV, camera or printer. The selectivity may occur either at the host level or at the player level.

MainClaim: A computing device, comprising: a data storage device for storing at least a plurality of media items; and a media management module configured to at least (i) receive a media request for at least one media item from a portable media device; (ii) obtain information regarding characteristics for the portable media device; (iii) obtain, based on the characteristics, a set of media items for each of the at least one media item being requested by the media request; and (iv) cause the set of media items to be sent to the portable media device.

2009/0064049	Automated grouping of image and other user data	Nokia Corporation	Pyhalammi; Seppo Haggman; Kai Soitinaho; Jouni Sihvola; Tuomo	715	G06F	20081110	4	93%	<input type="checkbox"/>
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Abstract: A user selects a data file (e.g., an image file) from an interface (e.g., a thumbnail view). Upon selecting a file from the interface, the contents of that file are presented to the user in an appropriate manner (e.g., providing an enlarged image display). The selected file is also moved to a separate folder. As the contents of additional files are presented to the user, those files are also moved to the separate folder. A new folder is created when the user returns to the interface and selects another file from that interface, or alternatively, upon instruction from the user to create a new folder. The user may then rename or otherwise modify the folder(s).

MainClaim: A system for organizing image files, comprising: a wireless mobile device, including: a digital camera, a memory for storing image files for images captured with the digital camera, and a communication interface with a wireless communication network for transmission of image files stored in the memory; and a server, including: a server communications interface through which image files are received from the wireless mobile device via the wireless communication network, a server memory for storing image files received through the server communications interface, and a processor configured to perform steps comprising: (a) displaying a file selection user interface presenting thumbnail images for each of a plurality of image files stored in the server memory, wherein selection of a thumbnail from said interface generates a display of an enlarged image corresponding to the selected thumbnail, (b) receiving from the file selection user interface a selection of a first thumbnail corresponding to a first image file of the plurality, (c) creating a first file folder based upon the selection received in step (b), (d) storing the first image file in the first file folder based on the selection received in step (b), (e) deleting the first image file from

another folder based on the selection received in step (b),(f) receiving an instruction to generate, without an intervening redisplay of the file selection user interface, a display of an enlarged image corresponding to a second image file of the plurality, (g) storing the second image file in the first folder and deleting the second image file from another folder based on the instruction received in step (f),(h) redisplaying the file selection user interface,(i) receiving from the file selection user interface a selection of a third thumbnail corresponding to a third image file of the plurality,(j) storing the third image file in the first file folder based on the selection received in step (i),(k) opening a second folder having image files stored therein,(l) receiving a selection of a fourth image file of the plurality from the file selection user interface, and(m) storing the fourth image file in the second folder based on the selection received in step (l).

2009/0064044	Automated Grouping of Image and Other User Data	Nokia Corporation	Pyhalammi; Seppo Haggman; Kai Soitinaho; Jouni Sihvola; Tuomo	715	G06F	20081110	4	92%	<input type="checkbox"/>
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Abstract: A user selects a data file (e.g., an image file) from an interface (e.g., a thumbnail view). Upon selecting a file from the interface, the contents of that file are presented to the user in an appropriate manner (e.g., providing an enlarged image display). The selected file is also moved to a separate folder. As the contents of additional files are presented to the user, those files are also moved to the separate folder. A new folder is created when the user returns to the interface and selects another file from that interface, or alternatively, upon instruction from the user to create a new folder. The user may then rename or otherwise modify the folder(s).

MainClaim: A machine-readable medium having machine-executable instructions for:storing a plurality of user data files in a first folder in a memory;receiving a selection of a first user data file of the plurality of user data files;creating a second folder within said memory;storing the first user data file in the second folder in response to the selection of the first user data file;receiving a user instruction to present a second user data file of the plurality of user data files; andstoring the second user data file in the second folder in response to the instruction to present the second user data file.

7,433,546	Image scaling arrangement	Apple Inc.	Marriott; Greg Boettcher; Jesse Dowdy; Thomas Heller; David Miller; Jeff Robbin; Jeffrey L.	382	G06K	20041025	0	100%	<input type="checkbox"/>
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Abstract: Methods and system for transferring images between devices is disclosed. For example, differently scaled images by a host device may automatically and/or selectively be transferred to a media player for display. In turn, appropriately scaled images may be transferred automatically and/or selectively to another display device for example a TV, camera or printer. The selectivity may occur either at the host level or at the player level.

MainClaim: A method of transferring image data between a host device and a portable media device, the portable media device being capable of storing and playing media items, the method comprising: at the host device, designating at least one image for downloading to the portable media device; at the host device, producing an image collection for each requested image, each image collection containing new versions of the requested image, each new version having a different image profile based on the capabilities of the portable media device; and at the host device, sending the image collection including each version of the requested image to the portable media device.

2009/0064049	Automated grouping of image and other user data	Nokia Corporation	Pyhalammi; Seppo Haggman; Kai Soitinaho; Jouni Sihvola; Tuomo	715	G06F	20081110	4	93%	<input type="checkbox"/>
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Abstract: A user selects a data file (e.g., an image file) from an interface (e.g., a thumbnail view). Upon selecting a file from the interface, the contents of that file are presented to the user in an appropriate manner (e.g., providing an enlarged image display). The selected file is also moved to a separate folder. As the contents of additional files are presented to the user, those files are also moved to the separate folder. A new folder is created when the user returns to the interface and selects another file from that interface, or alternatively, upon instruction from the user to create a new folder. The user may then rename or otherwise modify the folder(s).

MainClaim: A system for organizing image files, comprising:a wireless mobile device, including:a digital camera,a memory for storing image files for images captured with the digital camera, and a communication interface with a wireless communication network for transmission of image files stored in the memory; and a server, including:a server communications interface through which image files are received from the wireless mobile device via the wireless communication network,a server memory for storing image files received through the server communications interface, and a processor configured to perform steps comprising:(a) displaying a file selection user interface presenting thumbnail images for each of a plurality of image files stored in the server memory, wherein selection of a thumbnail from said interface generates a display of an enlarged image corresponding to the selected thumbnail,(b) receiving from the file selection user interface a selection of a first thumbnail corresponding to a first image file of the plurality,(c) creating a first file folder based upon the selection received in step (b),(d) storing the first image file in the first file folder based on the selection received in step (b),(e) deleting the first image file from another folder based on the selection received in step (b),(f) receiving an instruction to generate, without an intervening redisplay of the file selection user interface, a display of an enlarged image corresponding to a second image file of the plurality, (g) storing the second image file in the first folder and deleting the second image file from another folder based on the instruction received in step (f),(h) redisplaying the file selection user interface,(i) receiving from the file selection user interface a selection of a third thumbnail corresponding to a third image file of the plurality,(j) storing the third image file in the first file folder based on the selection received in step (i),(k) opening a second folder having image files stored therein,(l) receiving a selection of a fourth image file of the plurality from the file selection user interface, and(m) storing the fourth image file in the second folder based on the selection received in step (l).

2009/0064044	Automated Grouping of Image and Other User Data	Nokia Corporation	Pyhalammi; Seppo Haggman; Kai Soitinaho; Jouni Sihvola; Tuomo	715	G06F	20081110	4	93%	<input type="checkbox"/>
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Abstract: A user selects a data file (e.g., an image file) from an interface (e.g., a thumbnail view). Upon selecting a file from the interface, the contents of that file are presented to the user in an appropriate manner (e.g., providing an enlarged image display). The selected file is also moved to a separate folder. As the contents of additional files are presented to the user, those files are also moved to the separate folder. A new folder is created when the user returns to the interface and selects another file from that interface, or alternatively, upon instruction from the user to create a new folder. The user may then rename or otherwise modify the folder(s).

MainClaim: A machine-readable medium having machine-executable instructions for:storing a plurality of user data files in a

first folder in a memory;receiving a selection of a first user data file of the plurality of user data files;creating a second folder within said memory;storing the first user data file in the second folder in response to the selection of the first user data file;receiving a user instruction to present a second user data file of the plurality of user data files; andstoring the second user data file in the second folder in response to the instruction to present the second user data file.

5,621,456	Methods and apparatus for audio-visual interface for the display of multiple program categories	Apple Computer, Inc.	Florin; Fabrice Buettner; Michael Corey; Glenn Fritsche; Janey Maresca; Peter Miller; Peter Purdy; Bill Sharpe; Stuart West; Nick	725	H04N	19930622	0	100%	<input type="checkbox"/>
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Abstract: An interactive audio-visual (A/V) transceiver is advantageously coupled to a television and/or telephone (T/T) cable, a TV, a video recorder (VCR), and other A/V devices. The A/V transceiver switches data between a program/service provider and the connected A/V devices. In one embodiment, the transceiver includes three primary modules, a main module including a CPU, a system bus, system memory, an infra-red (IR) control unit, an audio-visual bus, an A/V decoder, an A/V processor, and an A/V encoder, an A/V connect module including a number of tuner/demodulators and a switch, and an optional CD ROM module. The A/V transceiver hardware is complemented with an operating system and software program which supports the functions provided in the A/V user interface. Additionally, a remote control device is provided to communicate with the A/V transceiver to interactively manage selection of program and service sources, selection program and service offerings from any selected source, viewing of selected program offerings, and interaction with selected service offerings. The remote control device is advantageously provided with a basic A/V control button group, an interactive control button group, an auxiliary control button group and a numeric key pad to facilitate control of the transceiver. The interactive control button group includes an info button, a list button, a categories button, a pix button, a mark button, a jump button, and a pointing device consisting of up, down, left, and right arrow buttons, and a center select button.

MainClaim: An interactive user interface and audio-visual (A/V) system, comprising:

a transceiver coupled to an A/V display for receiving A/V signals, said transceiver including interface generation means for displaying an interface on said A/V display:

control means in communication with said transceiver for permitting a user viewing said A/V display to display A/V programs on said A/V display;

wherein said interface generation means further includes an A/V listing interface for causing said A/V display to selectively display a program listing, said program listing including information related to A/V programs viewable on said A/V display;

wherein said A/V listing interface displays a picture in a picture (PIP) window in which the audio-visual program viewed by said user prior to said activation of said A/V listing means is displayed.

2003/0086694	Recording program scheduling information in an electronic calendar	Nokia Corporation	Davidsson, Marcus	386	H04N	20011107	3	95%	<input type="checkbox"/>
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Abstract: The present invention allows a person to add TV program information into an electronic calendar of a multimedia apparatus. A user accesses an electronic programming guide and selects a program of interest from the guide. The guide is stored either at a remote location, or locally after having been downloaded from a source. Upon selection of a TV program in the guide, an entry is then automatically entered into the user's electronic calendar at the appropriate day and time using the information from the guide corresponding to the selected TV program. The entry displayed can be the name of the selected program and the channel of its broadcast. At the time of the broadcast of the selected program, an indication may be displayed on the television as a reminder. The user may alternatively enter the appropriate G-code directly in the electronic calendar. The multimedia apparatus will then, in background and without interrupting the electronic calendar function, retrieve from the guide TV program information corresponding to the G-code.

MainClaim: A method for entering information relating to a scheduled broadcast program into an electronic calendar comprising: accessing an electronic calendar capable of storing a plurality of events at a plurality of times; displaying the accessed electronic calendar on an electronic display; accessing an electronic programming guide, the electronic programming guide listing a plurality of scheduled broadcast programs, and comprising information associated with each of the plurality of scheduled broadcast programs; displaying the accessed electronic programming guide on the electronic display; and selecting at least one of the plurality of scheduled broadcast programs in the accessed electronic programming guide, and thereby transferring information, associated with the at least one selected broadcast program, from the electronic programming guide to the accessed electronic calendar as at least one new entry, each new entry containing the information for a corresponding selected program and being stored in the electronic calendar at a time corresponding to a broadcast time of the respective at least one selected broadcast program.

6,910,191	Program guide data selection device	Nokia Corporation	Seegerberg; Tomas Bernhardson; Marcus	715	G06F	20011102	3	93%	<input type="checkbox"/>
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Abstract: A digital interactive television set device for selecting program guide data corresponding to available programming content. A processor filters the programming guide data according to different filter categories and also individual filter ranges associated with respective categories, and provides a corresponding display on the television. A graphical user interface provides a horizontal scroll bar with scroll bar elements signifying individual filter ranges of the filter categories, such that when selected individually, scroll bar elements of a vertical scroll bar signify individual program content items from the program data that fall within the filter category and range of the selected horizontal bar element, at least one of the scroll bar elements of the horizontal scroll bar comprising a multiple depiction of more than one of the individual filter ranges of filter categories, whereby an individual one of the filter ranges may be selected from the multiple depiction.

MainClaim: A programming guide data selection device for selecting program guide data corresponding to available programming content, comprising:

a processor operable to filter the programming guide data according to different filter categories and individual filter ranges

associated with the respective categories, and

a graphical user interface to provide first and second transversely extending and intersecting scroll bars which each comprise a plurality of scroll bar elements that can be scrolled successively through a focus region positioned at the intersection of the first and second scroll bars,

the scroll bar elements of the first scroll bar signifying individual filter ranges of the filter categories, which are individually selectable by being scrolled into the focus region, such that when selected individually, the scroll bar elements of the second scroll bar signify individual program content items from the program data that fall within the filter category and range of the selected first scroll bar element, said individual program content items being individually selectable by scrolling the second scroll bar to place the element of the second scroll bar corresponding to the program item into the focus region,


at least one of the scroll bar elements of the first scroll bar comprising a multiple depiction of more than one of said individual filter ranges of the filter categories selectable from the multiple depiction individually by being moved into the focus region, and

a viewing region for viewing a program content item selected in the focus region.

7,521,623	Music synchronization arrangement	Apple Inc.	Bowen; Adam	84	G10H	20041124	0	100%	
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Abstract: The invention generally pertains to a hand-held computing device. More particularly, the invention pertains to a computing device that is capable of controlling the speed of the music so as to affect the mood and behavior of the user during an activity such as exercise. By way of example, the speed of the music can be controlled to match the pace of the activity (synching the speed of the music to the activity of the user) or alternatively it can be controlled to drive the pace of the activity (increasing or decreasing the speed of the music to encourage a greater or lower pace). One aspect of the invention relates to adjusting the tempo (or some other attribute) of the music being outputted from the computing device. By way of example, a songs tempo may be increased or decreased before or during playing. Another aspect of the invention relates to selecting music for outputting based on tempo (or some other attribute). For example, the computing device may only play songs having a particular tempo. Yet another aspect of the invention relates to both selecting music based on tempo and adjusting the tempo of the music.

MainClaim: A method of playing music with a hand-held media player having at least a user interface arranged to receive a tactile input event applied by a user, wherein a plurality of audio tracks with different original tempos are stored on the hand-held media player, comprising: receiving an indication of a range of tempos from a slow tempo to a fast tempo from the user, wherein the user specifies the range of tempos by applying a corresponding tactile input event directly at the user interface; adjusting the original tempos of the plurality of audio tracks based on a tempo of an event associated with the user, wherein the original tempo of the plurality of audio tracks is increased if the tempo of the event associated with the user is less than the slow tempo and wherein the original tempo of the plurality of audio tracks is decreased if the tempo of the event associated with the user is greater than the fast tempo; and playing the plurality of audio tracks at the adjusted tempo.

2007/0297292	Method, computer program product and device providing variable alarm noises	Nokia Corporation	Kraft; Christian Nielsen; Peter Dam Ojala; Kalle	368	G04C	20060621	1	92%	
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Abstract: Exemplary embodiments of the invention describe a methodology for providing variable alarm sounds. The method includes: selecting a first alarm sound from a set of alarm sounds; playing the first alarm sound at a predetermined first time; in response to a user input, selecting a second alarm sound from the same or a different set of alarm sounds; and playing the second alarm sound at a second time, wherein the second time is chronologically after the first time and the second alarm sound is different from the first alarm sound.

MainClaim: A method comprising: selecting a first alarm sound from a set of alarm sounds; playing the first alarm sound at a predetermined first time; in response to a user input, selecting a second alarm sound from the same or a different set of alarm sounds; and playing the second alarm sound at a second time, wherein the second time is chronologically after the first time and the second alarm sound is different from the first alarm sound.

2009/0249206	METHOD, APPARATUS AND COMPUTER PROGRAM PRODUCT FOR PRESENTING A MEDIA HISTORY	Nokia Corporation	Stahlberg; Jani Jukka	711	G06F	20080328	4	92%	
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Abstract: A method for presenting a media history may include determining whether actuation of a function initiation mechanism corresponds to a first actuation characteristic or a second actuation characteristic in which the first actuation characteristic is associated with invocation of a first function on a single object of a particular class and the second actuation characteristic is associated with invocation of a second function operable on a plurality of objects of the particular class. The method may further include initiating the first function or the second function based on the determined actuation characteristic. A corresponding apparatus and computer program product are also provided.

MainClaim: A method comprising: determining whether actuation of a function initiation mechanism corresponds to a first actuation characteristic or a second actuation characteristic in which the first actuation characteristic is associated with invocation of a first function on a single object of a particular class and the second actuation characteristic is associated with invocation of a second function operable on a plurality of objects of the particular class; and initiating the first function or the second function based on the determined actuation characteristic.

7,596,761	Application user interface with navigation bar showing current and prior application contexts	Apple Inc.	Lemay; Stephen O. Forstall; Scott Christie; Greg Ording; Bas Chaudhri; Imran Van Os; Marcel Anzures; Freddy Allen	715	G06F	20060724	0	100%	
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Abstract: A graphical user interface for a portable electronic device includes an application display region that displays a current application context of an application and a navigation bar adjacent to the application display region. The navigation bar includes two horizontally adjacent regions, comprising a current context region for displaying an indicator of the current application

context and a prior context region for displaying an indicator of an application context preceding the current application context. The application display region simulates shifting of the application display in a first direction upon detecting user selection of the prior context region, and simulates shifting of the application display in a second direction, opposite the first direction, upon detecting user selection of an application context different from the current application context and the prior application context.

MainClaim: A method of navigating between application contexts in a portable device, comprising: displaying a current application context of a music player application in an application display region of a display; displaying a navigation bar adjacent to the application display region, the navigation bar including at least three horizontally adjacent regions, comprising a current context region for displaying an indicator of a second application context comprising the current application context, a prior context region for displaying an indicator of a first application context comprising an application context preceding the second application context, and a link region for displaying an indicator of a third application context, wherein: the current context region, the prior context region, and the link region each maintain a fixed location on the display in the navigation bar, and the third application context includes a player that controls a song playing in the music player application; upon detecting user selection of the prior context region, shifting operation of the portable device to the first application context, including displaying in the prior context region of the navigation bar an indicator of a fourth application context comprising an application context of the music player application that preceded the first application context; and upon detecting user selection of the link region, shifting operation of the portable device to the third application context, including displaying in the prior context region of the navigation bar an indicator of the second application context.

2008/0282158	GLANCE AND CLICK USER INTERFACE	Nokia Corporation	Aaltonen; Antti Roykkee; Mika		G06F	20070511	1	95%	<input type="checkbox"/>
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Abstract: A user interface includes a first region configured to provide information on and access to content applications of a device and services accessible via the device, a second region configured to provide information on and access to communication applications of the device and services accessible via the device, and a divider between the first area and the second area. The divider includes a time based segment that includes a movable icon. Each of the first and second region can be divided into a first section for creating new and available content and communication application objects, a second section for active content and communication application objects, and a third section for created/received/stored content and past/recent communication objects. The movable icon can be used to select sections for viewing the underlying objects and links.

MainClaim: A user interface comprising: a first region configured to provide information on and access to content applications of a device; and a second region configured to provide information on and access to communication applications of the device.

2010/0107116	INPUT ON TOUCH USER INTERFACES	NOKIA CORPORATION	Rieman; John Hiitola; Kari Heine; Harri Yli-Nokari; Jyrki Kallio; Markus Kaki; Mika	715	G06F	20081027	5	95%	<input type="checkbox"/>
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2010/0138782	ITEM AND VIEW SPECIFIC OPTIONS	NOKIA CORPORATION	Rainisto; Roope	715	G06F	20081130	1	94%	<input type="checkbox"/>
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Abstract: A method that includes detecting an activation of a selectable item, determining if the activation is one of a first type or a second type, and if the activation is of the first type, presenting a list of application specific options associated with an application view corresponding to the selectable item, and if the activation is of the second type, presenting a list of item specific options associated with the selected item.

MainClaim: A method comprising: detecting an activation of a selectable item on an application view; determining if the activation is one of a first type or a second type; and if the activation is of the first type, presenting a menu of application specific options associated with an application view corresponding to the selected item; and if the activation is of the second type, presenting a menu of item specific options associated with the selected item.

7,694,225	Method and apparatus for producing a packaged presentation	Apple Inc.	Weber; Ralf Mitchell; Jeffrey Wasko; Tim	715	G06F	20030106	0	100%	<input type="checkbox"/>
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Abstract: Some embodiments of the invention provide a computerized method for creating a scene selection from a marker for a multi-image content. The method allows identification of a multi-image content. The multi-image content includes several markers. Each marker represents an image of the multi-image content. The markers are identified to generate several scenes. Each generated scene is referenced to its corresponding marker from which it is identified.

MainClaim: A computerized method for creating a menu for a presentation of a multi-image content, said method comprising: in a content editing application: displaying images of the multi-image content; defining a plurality of markers for the multi-image content, said defining comprising associating each particular marker with a particular image of the multi-image content; and displaying a representation of a marker, wherein the representation comprises a thumbnail image of the image associated with the marker, wherein the representation is displayed in a first display area, wherein a selection of the representation displays the image associated with the marker in a second display area; and in a content packaging application: receiving the plurality of defined markers; and from the plurality of markers, generating the menu to comprise a plurality of selectable references that correspond to the plurality of markers, said generating comprising associating each particular selectable reference with the particular image associated with the particular selectable reference's corresponding marker, wherein a selection of a particular selectable reference causes the presentation to commence at the particular image associated with the particular selectable reference.

2010/0131846	METHODS, RENDERING APPLICATION, PORTABLE APPARATUS, AND COMPUTER PROGRAM FOR CREATING A PLAYLIST	NOKIA CORPORATION	Ostergaard; Christian	715	G06F	20070625	9	94%	<input type="checkbox"/>
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Abstract: A mobile communication apparatus includes a display and means for navigating among items displayed on the display, arranged to enable selection of a first item, in the display view, from a multitude of lists of items. Upon selection of the first item, the selected first item is associated with a playlist including at least the selected item, wherein the item or items in the playlist are arranged in sequential order. A corresponding application, apparatus, user interface, and computer program is also disclosed.

MainClaim: (canceled)

7,671,756	Portable electronic device with alert silencing	Apple Inc.	Herz; Scott Keen; Dan	340	G08B	20070628	0	100%	<input type="checkbox"/>
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Abstract: In some embodiments, audible alerts issued by a portable electronic device can be silenced in response to user smacks on the body of the device. These audible alerts are initiated by applications running on the device, such as email, phone, alarm, and/or timer applications. In some embodiments, the device includes one or more accelerometers that detect and signal the user smacks. In some embodiments, the alert response mode of the device (such as whether it rings or vibrates to signal an alert) can be changed in response to predefined patterns of user smacks.

MainClaim: A computer-implemented method, comprising: at a portable electronic device: detecting with an accelerometer associated with the device a movement of the portable device; determining whether the movement is due to a predetermined type of user gesture exerted on the portable electronic device, wherein the predetermined type of user gesture is a smack exerted on the portable electronic device; and if the movement is due to the predetermined type of user gesture and the portable electronic device is emitting an audible alert signal, silencing the audible alert signal and, in addition to silencing the audible alert signal, at least one of: silencing subsequent audible alerts for a predetermined period of time; silencing subsequent audible alerts of a similar alert category for a predetermined period of time; and placing the portable device into an inaudible alert mode.

2009/0219252	APPARATUS, METHOD AND COMPUTER PROGRAM PRODUCT FOR MOVING CONTROLS ON A TOUCHSCREEN	Nokia Corporation	Jarventie; Heli Margit Jurvanen; Laura Katariina Hiltunen; Kirsi-Maria Nurmi; Mikko Antero	345	G06F	20080228	4	94%	<input type="checkbox"/>
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Abstract: An apparatus, method and computer program product are provided for facilitating blind usage of an electronic device having a touchscreen. The electronic device may sense the location of a user's finger on the touchscreen and generate, at that location, an output associated with an object capable of being selected. Generating the output may include displaying an icon and/or generating a sensation associated with the object. Alternatively, generating an output may include generating a sensation or tactile feedback that guides the user to the location of an icon associated with the object. In addition, or alternatively, each of a plurality of objects may have a different sensation associated therewith. The electronic device may output the sensation of the various objects upon receipt of a tactile input at different locations on the touchscreen, so that the user can move his or her finger around the touchscreen until he can feel the desired object.

MainClaim: An apparatus comprising: a processor configured to: detect a tactile input on a touch sensitive input device; determine a location of the tactile input; and cause an output to be generated proximate the determined location, wherein at least one of an orientation of the output or the output itself is determined based at least in part on an anticipated action by a user.

2009/0033617	Haptic User Interface	NOKIA CORPORATION	Lindberg; Phillip John Niemela; Sami Johannes	345	G09G	20070802	1	93%	<input type="checkbox"/>
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Abstract: It is presented a method comprising: generating at least one haptic user interface component using an array of haptic elements; detecting user input applied to at least one haptic element associated with one of said at least one haptic user interface component; and executing software code associated with activation of said one of said at least one user interface component. A corresponding apparatus, computer program product and user interface are also presented.

MainClaim: A method comprising: generating at least one haptic user interface component using an array of haptic elements; detecting user input applied to at least one haptic element associated with one of said at least one haptic user interface component; and executing software code associated with activation of said one of said at least one user interface component.

2010/0107116	INPUT ON TOUCH USER INTERFACES	NOKIA CORPORATION	Rieman; John Hiitola; Kari Heine; Harri Yli-Nokari; Jyrki Kallio; Markus Kaki; Mika	715	G06F	20081027	5	93%	<input type="checkbox"/>
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7,574,672	Text entry interface for a portable communication device	Apple Inc.	Jobs; Steven P. Forstall; Scott Christie; Greg Ording; Bas Chaudhri; Imran Lemay; Stephen O. Van Os; Marcel Anzures; Freddy Allen Matas; Mike	715	G06F	20060724	0	100%	<input type="checkbox"/>
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Abstract: A method includes displaying a first tray and a second tray in a display of the portable communications device. The first tray is configured to display one of more characters that were selected by a user using a click wheel. The second tray includes a first plurality of icons that correspond to a set of characters and one or more recommended words. The first tray includes a first region in a graphical user interface and the second tray includes a second region in the graphical user interface. Scrolling through the first plurality of icons and the one or more recommended words occurs in accordance with one or more navigation commands received from a click wheel.

MainClaim: A method comprising: at a portable electronic device: simultaneously displaying one or more characters selected by a user, a first plurality of icons that correspond to a set of characters, and one or more recommended words, wherein the first plurality of icons and the one or more recommended words comprise a set; and sequentially scrolling through the set comprising the first plurality of icons and the one or more recommended words in accordance with one or more received navigation commands, wherein the sequential scrolling wraps around from one end of the set to another end of the set.

2009/0256808	DEVICE AND METHOD FOR STROKE BASED GRAPHIC INPUT	NOKIA CORPORATION	Kun; Yu Ming; Zou Yan Qiao; Wang Kong	345	G06F	20080410	2	96%	<input type="checkbox"/>
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Abstract: A user interface includes a touch screen configured to receive stroke input(s). The user interface is arranged to display a graphical trace of the received stroke input on the touch screen and to determine whether a criterion is fulfilled and if so remove at least a portion of the graphical trace, wherein the criterion is based on the received stroke input.

MainClaim: A user interface comprising a touch screen adapted to receive stroke input, wherein said user interface is configured to display a graphical trace of said received stroke input on said touch screen and to determine whether a criterion is fulfilled and if so remove at least a portion of said graphical trace, wherein said criterion is based on said received stroke input.

2008/0182599	METHOD AND APPARATUS FOR USER INPUT	NOKIA CORPORATION	Rainisto; Roope Elsila; Janne Schuele; Martin Melaanvu; Henri	455	H04Q	20070131	2	96%	<input type="checkbox"/>
Abstract: A method including activating an application, determining if data or at least a portion of a message is present and displaying candidate selections related to the data or at least a portion of the message that are available to the user for selection where the candidate selections supplement a user input related to the data or portion of the message. MainClaim: A method comprising: activating an application; determining if data or at least a portion of a message is present; and displaying candidate selections related to the data or at least a portion of the message that are available to the user for selection where the candidate selections supplement a user input related to the data or portion of the message.									
2009/0160785	USER INTERFACE, DEVICE AND METHOD FOR PROVIDING AN IMPROVED TEXT INPUT	NOKIA CORPORATION	Chen; Xun Rainisto; Roope Anwari; Mohammad	345	G06F	20071221	2	95%	<input type="checkbox"/>
Abstract: A user interface module for a device having a touch display arranged with virtual keys and at least one first area. The device is adapted to execute at least one application adapted to receive text input and the touch display is arranged to display content associated with the application. The touch display is also arranged to display a text input area upon activation of the application's receiving of text input. The text input area, at least partially, overlaps the at least one first area. The touch display is also arranged to display the content being displayed in the first area as shaded and arranged to display text input received through the text input area clearly. MainClaim: A user interface module for a device having a touch display arranged with virtual keys and at least one first area, said device being adapted to execute at least one application adapted to receive text input, wherein said touch display is arranged to display content associated with said application and to display a text input area upon activation of said application's receiving of text input which text input area at least partially overlaps said at least one first area and wherein said touch display is arranged to display said content being displayed in said at least one first area as shaded and arranged to display text input received through said text input area clearly.									
7,581,186	Media manager with integrated browsers	Apple Inc.	Dowdy; Thomas Heller; David Jones; Anne	715	G06F	20060911	0	100%	<input type="checkbox"/>
Abstract: Methods and systems that improve the way media is played, sorted, modified, stored and cataloged are disclosed. One aspect relates to a browse window that allows a user to navigate through and select images that are related to media items. Another aspect relates to a graphical user interface of a media management program that utilizes multiple browse windows. Another aspect relates to simultaneously displayed media browse windows whose operations are integrated together so that the content shown therein is automatically synched when selections are made. Another aspect relates to resetting browsed content to the currently playing media. MainClaim: A graphical user interface providing image-based browsing of data with respect to a display screen associated with a computing device, said graphical user interface comprising: an image browser window generated by an application program operating on the computing device, the image browser window concurrently including a first browsing region and a second browsing region, the first browsing region displaying descriptive information regarding one or more digital assets, and the second browsing region displaying a plurality of images associated with the one or more digital assets, wherein the second browsing region displays the plurality of images on the display device, each of the images pertaining to an associated digital asset, the second browsing region including at least: a primary image position displaying one of the plurality of images selected as a primary image; and a plurality of secondary image positions, each of said secondary image positions displaying a different one of the plurality of images other than the primary image, and wherein the data shown in the first and second browsing regions is automatically synched when selections are made in the first and second browsing regions.									
2010/0131846	METHODS, RENDERING APPLICATION, PORTABLE APPARATUS, AND COMPUTER PROGRAM FOR CREATING A PLAYLIST	NOKIA CORPORATION	Ostergaard; Christian	715	G06F	20070625	9	93%	<input type="checkbox"/>
Abstract: A mobile communication apparatus includes a display and means for navigating among items displayed on the display, arranged to enable selection of a first item, in the display view, from a multitude of lists of items. Upon selection of the first item, the selected first item is associated with a playlist including at least the selected item, wherein the item or items in the playlist are arranged in sequential order. A corresponding application, apparatus, user interface, and computer program is also disclosed. MainClaim: (canceled)									
7,509,588	Portable electronic device with interface reconfiguration mode	Apple Inc.	Van Os; Marcel Anzures; Freddy Allen Forstall; Scott Christie; Greg Ording; Bas Chaudhri; Imran Lemay; Stephen O.	715	G06F	20060724	0	100%	<input type="checkbox"/>
Abstract: A portable electronic device displays a plurality of icons (e.g., graphical objects) in a region in a touch-sensitive display; detects a predefined user action, with respect to the touch-sensitive display, for initiating a predefined user interface reconfiguration process; and varies positions of one or more icons in the plurality of icons in response to detecting the predefined user action. The varying includes varying the positions of the one or more icons about respective average positions. MainClaim: A method, comprising: displaying a first plurality of icons in a first region in a touch-sensitive display; detecting a first predefined user action, with respect to the touch-sensitive display, for initiating a predefined user interface reconfiguration process; and varying positions of multiple icons of the first plurality of icons in response to detecting the first predefined user action, wherein the varying includes varying the positions of each icon of the multiple icons about a respective average position distinct from the respective average positions of other icons of the multiple icons, and wherein each respective icon oscillates in a region substantially centered on the respective average position of the respective icon.									
			Rieman; John Hiitola; Kari						

2010/0107116	INPUT ON TOUCH USER INTERFACES	NOKIA CORPORATION	Heine; Harri Yli-Nokari; Jyrki Kallio; Markus Kaki; Mika	715	G06F	20081027	5	94%	<input type="checkbox"/>
2010/0107067	INPUT ON TOUCH BASED USER INTERFACES	NOKIA CORPORATION	Vaisanen; Matti	715	G06F	20081027	2	94%	<input type="checkbox"/>
2009/0006991	UNLOCKING A TOUCH SCREEN DEVICE	NOKIA CORPORATION	Lindberg; Phillip John Niemela; Sami Johannes	715	G06F	20070629	5	94%	<input type="checkbox"/>

Abstract: A method for unlocking a touch screen device includes providing a touch screen device in an idle mode. An area or region displayed on a screen of the device in the idle mode is contacted or activated to reveal at least one application icon associated with an active/unlocked state of the device. The region is moved, expanded or dragged to an edge of the device to change a state of the device to an active/unlocked mode and activate the revealed application.

MainClaim: A method comprising:providing a touch screen device in an idle mode;contacting an icon displayed on a screen of the device in the idle mode and moving the icon on the screen to reveal at least one application icon associated with an active/unlocked state of the device; andmoving the icon to an unlock region of the device to change a state of the device to an active/unlocked mode and activate an application associated with the revealed application icon.

7,729,791	Portable media playback device including user interface event passthrough to non-media-playback processing	Apple Inc.	Boettcher; Jesse	700	G06F	20060911	0	100%	<input type="checkbox"/>
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Abstract: A method of operating a portable electronics device can include integrated operation of media playback processing and non-media-playback processing (such as, for example, a game). The method can include receiving an event corresponding to operation of a user interface item by a user of the portable electronics device. The received event can be provided to the non-media-playback processing. The non-media-playback processing can determine whether to cause an action corresponding to the provided received event with respect to the non-media-playback processing. For an event determined by the non-media-playback processing to not cause an action corresponding to the provided received event with respect to the non-media-playback processing, the provided received event can be provided to the media playback processing. Typically, the operating performed by the media playback processing based on the event can be the processing that would otherwise be performed by the media playback processing if the non-media-playback processing was not even occurring.

MainClaim: A method of integrated operation of media playback processing and non-media-playback processing by a portable electronic device, the method comprising: receiving a user input event for selecting an operation to be performed by the portable electronic device; operating in a mode by the portable electronic device suitable for processing the selected operation without further user interaction by, providing the received event directly to the media playback processing; passing the received event directly to the non-media playback processing by the media playback processing; if the non-media playback processing determines that selected operation is to be performed by the non-media playback processing, then the non-media playback processing performs the selected operation, otherwise, automatically passing the received event to the media playback processing; and performing the selected operation corresponding to the received event by the media playback processing.

2009/0249206	METHOD, APPARATUS AND COMPUTER PROGRAM PRODUCT FOR PRESENTING A MEDIA HISTORY	Nokia Corporation	Stahlberg; Jani Jukka	711	G06F	20080328	4	92%	<input type="checkbox"/>
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Abstract: A method for presenting a media history may include determining whether actuation of a function initiation mechanism corresponds to a first actuation characteristic or a second actuation characteristic in which the first actuation characteristic is associated with invocation of a first function on a single object of a particular class and the second actuation characteristic is associated with invocation of a second function operable on a plurality of objects of the particular class. The method may further include initiating the first function or the second function based on the determined actuation characteristic. A corresponding apparatus and computer program product are also provided.

MainClaim: A method comprising:determining whether actuation of a function initiation mechanism corresponds to a first actuation characteristic or a second actuation characteristic in which the first actuation characteristic is associated with invocation of a first function on a single object of a particular class and the second actuation characteristic is associated with invocation of a second function operable on a plurality of objects of the particular class; andinitiating the first function or the second function based on the determined actuation characteristic.

7,313,809	Convergence-enabled DVD and web system	Apple, Inc.	Mohan; Fergal John Brodersen; Rainer	725	H04N	20000410	0	100%	<input type="checkbox"/>
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Abstract: A system integrates a DVD system and a WWW web browser. Universal Resource Locator (URL) information corresponding to sites accessible by the browser are stored in fields within the DVD data. When a user actuates a DVD element that has a corresponding URL, the web browser displays information from that site. When the user actuates an HTML menu or other browser-implemented feature, the DVD system accesses a portion of the DVD data specified in the menu. This arrangement provides for two-way communication, i.e., HTML in the browser is able to control DVD content and vice-versa. Having the WWW information embedded in the DVD brings a number of benefits, the foremost of which is the ability to write a "one size fits all" template web page that can interrogate the DVD for URL information and present WWW content corresponding to the URL synchronized with the DVD information.

MainClaim: A system for generating information representative of the contents of a DVD, the DVD having been authored such that the information includes embedded commands to populate one or more General DVD Parameter Registers (GPRMs), the system comprising: a DVD unit for playing the DVD and generating information representative of the contents of a DVD and, upon receiving a certain command embedded in the information, writing indicia of a current position of play within the DVD into the one or more GPRMs; a media unit adapted to receive the information and extract a TXTDT_MG data structure associated with the DVD, and further adapted to display video content extracted from the information; and a browser for displaying content designated by Universal Resource Locators (URLs), the URLs being derived by using the GPRMs to index into the TXTDT_MG data structure.

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2005/0108644	Media diary incorporating media and timeline views	Nokia Corporation	Andrea Myka, Andreas Huhtela-Bremer, Laura Jung, Younghee Schybergson, Olof Metsatahti, Vesa Macke, Annika Hakari, Tomi Lindholm, Christian Oksanen, Olli	715	G11B	20040303	1	92%	<input type="checkbox"/>
<p>Abstract: A media diary application implemented in a digital communication device. The media diary provides for a media view that present media files associated with a period of time and a timeline view that provides access to the media files according to periods of time in the timeline.</p> <p>MainClaim: An application for providing access to media files on a digital device, the application comprising a computer readable storage medium having computer-readable program instructions embodied in the medium, the computer-readable program instructions comprising: first instructions for generating a media view that provides access to at least one digital media file and associates the at least one digital media files with a period of time; and second instructions for generating a timeline view that is presented in combination with the media view and provides access to the at least one digital media file according to periods of time defined in the timeline.</p>									
7,694,231	Keyboards for portable electronic devices	Apple Inc.	Kocienda; Kenneth Herz; Scott Williamson; Richard Novick; Gregory King; Virgil Scott Blumenberg; Chris Van Os; Marcel Ording; Bas Forstall; Scott Chaudhri; Imran Christie; Greg Lemay; Stephen O.	715	G06F	20060724	0	100%	<input type="checkbox"/>
<p>Abstract: A plurality of icons are displayed on a touch-sensitive display. A respective icon in at least a subset of the plurality of icons corresponds to two or more symbols. A contact by a user with the touch-sensitive display that corresponds to the respective icon is detected. A respective symbol in the two or more symbols to which the contact further corresponds is determined. The displayed respective icon is modified to indicate that the contact corresponds to the respective symbol.</p> <p>MainClaim: A method, comprising: at an electronic device with a touch-sensitive display: displaying a plurality of icons on the touch-sensitive display, wherein a respective icon in at least a subset of the plurality of icons corresponds to two or more symbols; detecting a finger contact by a user with the touch-sensitive display that corresponds to the respective icon; determining a respective first symbol in the two or more symbols to which the position of the finger contact further corresponds; modifying the displayed respective icon to indicate that the finger contact corresponds to the respective first symbol, wherein the modifying includes: asymmetrically distorting a shape of the respective icon towards the respective first symbol, and enlarging the respective first symbol; detecting a change of the finger contact to a different position within the respective icon, the different position corresponding to a second symbol of the two or more symbols of the respective icon, if the finger making the contact is being rolled by the user to the different position; and selecting the respective symbol corresponding to the respective current position of the finger contact.</p>									
2009/0079702	Method, Apparatus and Computer Program Product for Providing an Adaptive Keypad on Touch Display Devices	Nokia Corporation	Colley; Ashley	345	G06F	20070925	1	95%	<input type="checkbox"/>
<p>Abstract: An apparatus for providing an adaptive keypad on touch display devices may include a processing element. The processing element may be configured to receive an indication of a detection of a touch event invoking an operation related to a text character entry, determine candidate text characters based on the operation, and provide for a display of an adaptive keypad having a size that is variable based on the candidate text characters.</p> <p>MainClaim: A method comprising:receiving an indication of a detection of a touch event invoking an operation related to a text character entry;determining candidate text characters based on the operation; andproviding for a display of an adaptive keypad having a size that is variable based on the candidate text characters.</p>									
2009/0256808	DEVICE AND METHOD FOR STROKE BASED GRAPHIC INPUT	NOKIA CORPORATION	Kun; Yu Ming; Zou Yan Qiao; Wang Kong	345	G06F	20080410	2	95%	<input type="checkbox"/>
<p>Abstract: A user interface includes a touch screen configured to receive stroke input(s). The user interface is arranged to display a graphical trace of the received stroke input on the touch screen and to determine whether a criterion is fulfilled and if so remove at least a portion of the graphical trace, wherein the criterion is based on the received stroke input.</p> <p>MainClaim: A user interface comprising a touch screen adapted to receive stroke input, wherein said user interface is configured to display a graphical trace of said received stroke input on said touch screen and to determine whether a criterion is fulfilled and if so remove at least a portion of said graphical trace, wherein said criterion is based on said received stroke input.</p>									
2008/0182599	METHOD AND APPARATUS FOR USER INPUT	NOKIA CORPORATION	Rainisto; Roope Elsilä; Janne Schuele; Martin Melaanvuori; Henri	455	H04Q	20070131	2	94%	<input type="checkbox"/>
<p>Abstract: A method including activating an application, determining if data or at least a portion of a message is present and displaying candidate selections related to the data or at least a portion of the message that are available to the user for selection where the candidate selections supplement a user input related to the data or portion of the message.</p> <p>MainClaim: A method comprising:activating an application;determining if data or at least a portion of a message is present; anddisplaying candidate selections related to the data or at least a portion of the message that are available to the user for selection where the candidate selections supplement a user input related to the data or portion of the message.</p>									

7,546,544	Method and apparatus for creating multimedia presentations	Apple Inc.	Weber; Ralf Mitchell; Jeff Wasko; Tim	715	G06F	20030106	0	100%	<input type="checkbox"/>
<p>Abstract: Some embodiments of the invention provide a computerized method for creating and editing a multimedia item. The method provides a menu theme for a multimedia item. The menu theme includes a display section for displaying a multimedia item, an adjustable text section for displaying several selectable text options, and a special effect built into the menu theme for applying to the multimedia item. The method presents the multimedia item on display after applying the special effect to the multimedia item.</p> <p>MainClaim: A computerized method for creating and editing a multimedia item comprising: providing a plurality of menu themes to a user, said plurality of menu themes comprising at least two menu themes, each of said two menu themes comprising a display section for displaying at least one image and a special effect for applying to said at least one image, wherein the special effect of one menu theme is different from the special effect of the other menu theme, and wherein the display section comprises an area for dragging and dropping said at least one image; receiving a selection of a menu theme for the multimedia item, said selection being one of said two menu themes; allowing a user to select the at least one image to display in the display section of the selected menu theme by dropping said at least one image in said area for dragging and dropping said at least one image; and displaying the at least one image in the selected menu theme's display section with said special effect applied to the at least one image.</p>									
2010/0131846	METHODS, RENDERING APPLICATION, PORTABLE APPARATUS, AND COMPUTER PROGRAM FOR CREATING A PLAYLIST	NOKIA CORPORATION	Ostergaard; Christian	715	G06F	20070625	9	94%	<input type="checkbox"/>
<p>Abstract: A mobile communication apparatus includes a display and means for navigating among items displayed on the display, arranged to enable selection of a first item, in the display view, from a multitude of lists of items. Upon selection of the first item, the selected first item is associated with a playlist including at least the selected item, wherein the item or items in the playlist are arranged in sequential order. A corresponding application, apparatus, user interface, and computer program is also disclosed.</p> <p>MainClaim: (canceled)</p>									
7,702,279	Portable media player as a low power remote control and method thereof	Apple Inc.	Ko; Steve Lemay; Stephen O.	455	H04H	20051220	0	100%	<input type="checkbox"/>
<p>Abstract: A portable multimedia player is used to wirelessly access and control a media server that is streaming digital media by way of a wireless interface to a media unit such as a stereo/speakers in the case of streaming digital audio. In one embodiment, the portable multimedia player is wirelessly synchronized to a selected one(s) of a number of digital media files stored on the media server in such a way that digital media file metadata (song title, author, etc.) associated with the selected digital media file(s) only is transferred from the media server to be stored in the portable media player.</p> <p>MainClaim: A method of using a portable multimedia player arranged to store digital media files to wirelessly access and/or control a media server configured to stream digital media data to a media unit, comprising: configuring the portable multimedia player to operate the portable multimedia player in a first mode or a second mode, wherein when in the first mode, the portable multimedia player performs the operations of: displaying a list of digital media files on a display of the portable multimedia player, the digital media files being stored on the portable multimedia player; receiving a selection signal to play a digital media file; and playing the selected digital media file on the portable multimedia player; wherein when in the second mode, the portable multimedia player performs the operations of: binding the portable multimedia player and the media server; and wirelessly transmitting a media file request from the multimedia player to the media server, and wherein in response to the media file request, the media server performs the operations of: wirelessly forwarding the appropriate media file from the media server to a media unit based on the media file request; determining if a control command is to be forwarded to the media unit to control a function of the media unit; and wirelessly forwarding the control command from the media server to the media unit if it is determined that the control command is to be forwarded to the media unit, whereby the media unit is able to playback the appropriate media file in accordance with the at least one control command.</p>									
2008/0141160	SYSTEMS, METHODS, DEVICES, AND COMPUTER PROGRAM PRODUCTS FOR ADDING CHAPTERS TO CONTINUOUS MEDIA WHILE RECORDING	Nokia Corporation	Vahtola; Miika	715	G06F	20061207	1	93%	<input type="checkbox"/>
<p>Abstract: Systems, methods, devices, and computer program products are provided for creating chapters in recorded continuous media data at the time that the continuous media data is being recorded. More particularly, while recording continuous media data, a user may instruct the processor of a recording device to create a chapter at a particular location in the continuous media data by actuating a user input device during the recording of the continuous media data.</p> <p>MainClaim: A recording device comprising: a memory device configured to store media data therein; a data communication interface for receiving continuous media data; a user input device configured to allow a user to enter user input; and a processor operatively coupled to the user input device, the data communication interface, and the memory device; wherein the processor is configured to record the continuous media data in the memory device; wherein the processor is further configured to receive the user input from the user input device while recording the continuous media data and record chapter information in the memory device based on the user input; and wherein the chapter information comprises location information about a location of a chapter in the continuous media data.</p>									
2009/0049491	Resolution Video File Retrieval	NOKIA CORPORATION	Karonen; Olli Johannes Lahtinen; Pekka Ilmari	725	H04N	20070816	1	92%	<input type="checkbox"/>
<p>Abstract: Peer-to-peer and IPTV based technologies have facilitated tremendous growth in terms of the sharing of video files in computer networks and on the Internet. This growth has imposed an immense challenge on service providers in terms of being able to handle continuously increasing loads while still ensuring (a minimum) quality of service. This invention responds to the noted challenge by providing a novel apparatus, method and system for providing video to an end user at various resolutions. Additional benefits include the preservation of computing resources in terms of processing resources, power, and bandwidth.</p>									

while still providing users with content-rich services.

MainClaim: An apparatus comprising:a camera;a processor; anda memory having stored therein computer readable instructions that, when executed by the processor, cause the apparatus to perform:shooting a video footage;distributing the video footage live at a first resolution;saving the video footage at a second resolution; anddistributing the saved video footage.

7,480,870	Indication of progress towards satisfaction of a user input condition	Apple Inc.	Anzures; Freddy Allen Ording; Bas Chaudhri; Imran Van Os; Marcel Lemay; Stephen O. Christie; Greg Forstall; Scott	715	G06F	20051223	0	100%	<input type="checkbox"/>
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Abstract: In some embodiments of the invention, a graphical user interface in an electronic device includes one or more user-interface objects associated with a second user-interface state. While the device is in a first user-interface state, the one or more objects transition in optical intensity to indicate progress towards satisfaction of a user input condition needed to transition to the second user-interface state.

MainClaim: A computer-implemented method, comprising: while an electronic device is in a first user-interface state, detecting progress towards satisfaction of a user input condition needed to transition to a second user-interface state; wherein the first user-interface state is in a first application and the second user-interface state is in a second application that is different from the first application; while the device is in the first user-interface state, indicating progress towards satisfaction of the condition by transitioning an optical intensity of one or more user interface objects associated with the second user-interface state, wherein transitioning the optical intensity includes the one or more user interface objects appearing and increasing in optical intensity; and transitioning the device to the second user-interface state if the condition is satisfied.

2009/0006991	UNLOCKING A TOUCH SCREEN DEVICE	NOKIA CORPORATION	Lindberg; Phillip John Niemela; Sami Johannes	715	G06F	20070629	5	93%	<input type="checkbox"/>
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Abstract: A method for unlocking a touch screen device includes providing a touch screen device in an idle mode. An area or region displayed on a screen of the device in the idle mode is contacted or activated to reveal at least one application icon associated with an active/unlocked state of the device. The region is moved, expanded or dragged to an edge of the device to change a state of the device to an active/unlocked mode and activate the revealed application.

MainClaim: A method comprising:providing a touch screen device in an idle mode;contacting an icon displayed on a screen of the device in the idle mode and moving the icon on the screen to reveal at least one application icon associated with an active/unlocked state of the device; andmoving the icon to an unlock region of the device to change a state of the device to an active/unlocked mode and activate an application associated with the revealed application icon.

2009/0219252	APPARATUS, METHOD AND COMPUTER PROGRAM PRODUCT FOR MOVING CONTROLS ON A TOUCHSCREEN	Nokia Corporation	Jarventie; Heli Margit Jurvanen; Laura Katariina Hiltunen; Kirsi-Maria Nurmi; Mikko Antero	345	G06F	20080228	4	93%	<input type="checkbox"/>
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Abstract: An apparatus, method and computer program product are provided for facilitating blind usage of an electronic device having a touchscreen. The electronic device may sense the location of a user's finger on the touchscreen and generate, at that location, an output associated with an object capable of being selected. Generating the output may include displaying an icon and/or generating a sensation associated with the object. Alternatively, generating an output may include generating a sensation or tactile feedback that guides the user to the location of an icon associated with the object. In addition, or alternatively, each of a plurality of objects may have a different sensation associated therewith. The electronic device may output the sensation of the various objects upon receipt of a tactile input at different locations on the touchscreen, so that the user can move his or her finger around the touchscreen until he can feel the desired object.

MainClaim: An apparatus comprising:a processor configured to:detect a tactile input on a touch sensitive input device;determine a location of the tactile input; andcause an output to be generated proximate the determined location, wherein at least one of an orientation of the output or the output itself is determined based at least in part on an anticipated action by a user.

7,657,849	Unlocking a device by performing gestures on an unlock image	Apple Inc.	Chaudhri; Imran Ording; Bas Anzures; Freddy Allen Van Os; Marcel Lemay; Stephen O. Forstall; Scott Christie; Greg	715	G06F	20051223	0	100%	<input type="checkbox"/>
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Abstract: A device with a touch-sensitive display may be unlocked via gestures performed on the touch-sensitive display. The device is unlocked if contact with the display corresponds to a predefined gesture for unlocking the device. The device displays one or more unlock images with respect to which the predefined gesture is to be performed in order to unlock the device. The performance of the predefined gesture with respect to the unlock image may include moving the unlock image to a predefined location and/or moving the unlock image along a predefined path. The device may also display visual cues of the predefined gesture on the touch screen to remind a user of the gesture.

MainClaim: A method of controlling an electronic device with a touch-sensitive display, comprising: detecting contact with the touch-sensitive display while the device is in a user-interface lock state; moving an unlock image along a predefined displayed path on the touch-sensitive display in accordance with the contact, wherein the unlock image is a graphical, interactive user-interface object with which a user interacts in order to unlock the device; transitioning the device to a user-interface unlock state if the detected contact corresponds to a predefined gesture; and maintaining the device in the user-interface lock state if the detected contact does not correspond to the predefined gesture.

2009/0006991	UNLOCKING A TOUCH SCREEN DEVICE	NOKIA CORPORATION	Lindberg; Phillip John Niemela; Sami Johannes	715	G06F	20070629	5	93%	<input type="checkbox"/>
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Abstract: A method for unlocking a touch screen device includes providing a touch screen device in an idle mode. An area or region displayed on a screen of the device in the idle mode is contacted or activated to reveal at least one application icon associated with an active/unlocked state of the device. The region is moved, expanded or dragged to an edge of the device to

change a state of the device to an active/unlocked mode and activate the revealed application.

MainClaim: A method comprising:providing a touch screen device in an idle mode;contacting an icon displayed on a screen of the device in the idle mode and moving the icon on the screen to reveal at least one application icon associated with an active/unlocked state of the device; andmoving the icon to an unlock region of the device to change a state of the device to an active/unlocked mode and activate an application associated with the revealed application icon.

2009/0219252	APPARATUS, METHOD AND COMPUTER PROGRAM PRODUCT FOR MOVING CONTROLS ON A TOUCHSCREEN	Nokia Corporation	Jarventie; Heli Margit Jurvanen; Laura Katariina Hiltunen; Kirsi-Maria Nurmi; Mikko Antero	345	G06F	20080228	4	93%	<input type="checkbox"/>
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Abstract: An apparatus, method and computer program product are provided for facilitating blind usage of an electronic device having a touchscreen. The electronic device may sense the location of a user's finger on the touchscreen and generate, at that location, an output associated with an object capable of being selected. Generating the output may include displaying an icon and/or generating a sensation associated with the object. Alternatively, generating an output may include generating a sensation or tactile feedback that guides the user to the location of an icon associated with the object. In addition, or alternatively, each of a plurality of objects may have a different sensation associated therewith. The electronic device may output the sensation of the various objects upon receipt of a tactile input at different locations on the touchscreen, so that the user can move his or her finger around the touchscreen until he can feel the desired object.

MainClaim: An apparatus comprising:a processor configured to:detect a tactile input on a touch sensitive input device;determine a location of the tactile input; andcause an output to be generated proximate the determined location, wherein at least one of an orientation of the output or the output itself is determined based at least in part on an anticipated action by a user.

7,559,026	Video conferencing system having focus control	Apple Inc.	Girish; Muthy K. Lindahl; Aram Grignon; Andrew	715	G06F	20030829	0	100%	<input type="checkbox"/>
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Abstract: Systems and methods for directing pickup of media content by way of user input are disclosed. These systems and methods enable desired media content to be more effectively acquired. The user input can be locally provided or remotely provided. The systems and methods for directing pickup of media content are particularly suitable for video conferencing systems. The media content being directed is, for example, video or audio.

MainClaim: An electronic device, comprising: a processor for executing an operating system program and a media content presentation program; a media content pickup device that includes at least a camera and a microphone operatively connected to said processor, said media content pickup device arranged to capture media content input that includes video content by the camera and audio content by the microphone, said media content pickup device arranged to automatically focus on a user-specified region of video interest of the media content input without moving the camera in the media content pickup device and said media content pickup device arranged to automatically focus on a user specified region of audio interest of the media content input independent of the user specified region of video interest; an auto-focus mechanism of said media content pickup device arranged to automatically focus on said user-specified region of interest in response to a focus command using position coordinates that identify said user-specified region of interest; and a media output path to receive and to carry the focused media content input.

2008/0145032	AUDIO ROUTING FOR AUDIO-VIDEO RECORDING	Nokia Corporation	Lindroos; Sanna Koskinen; Sanna M. Jarventie; Heli Huotari; Vesa Heikkila; Paivi	386	H04N	20061218	4	92%	<input type="checkbox"/>
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Abstract: Systems and methods for routing audio for audio-video recordings allow a user to record desired audio with captured video at the time the video is being captured. Audio from one or more sources may be routed to the video capture application and recorded with the video. In one or more examples, audio may be routed from another application, e.g., an audio playback application, running on the same device as the video capture application. In another example, audio may be received from a remote device through a wireless connection. Multiple streams of audio content may be mixed together prior to storing with video. The audio, upon reception, may then be routed to the video capture application for recordation. An audio progression bar may also be provided to indicate duration and elapsed time information associated with the audio being recorded.

MainClaim: A method comprising:receiving, by a first application, audio from a second application, wherein the first application comprises a video recording application;capturing, with the first application, video input;capturing, by the first application, the audio from the second application while capturing the video input; andstoring the audio along with the video input in a multimedia format.

7,574,177	Remote controller and FM reception arrangement	Apple Inc.	Tupman; Dave Dorogusker; Jesse Fadell; Tony	455	H04B	20060104	0	100%	<input type="checkbox"/>
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Abstract: A modular communication system that includes a battery operated portable multimedia player is used to remotely control a accessory unit arranged to provide an output audio stream to an audio output device. At a user's discretion, the multimedia player can also be used to provide the original audio source material that is, in turn, processed by the accessory unit for output to the audio output device or an accessory unit can be used to provide the audio source material from, for example, a radio tuner incorporated therein.

MainClaim: A modular communication system operable in a number of operating modes, comprising: a media player arranged to process a selected one of a plurality of digital media files stored therein; and an accessory unit connected to the media player by a bi-directional cable or by a wireless connection wherein when the media player is active and connected to the accessory by way of the bi-directional cable, the media player provides power to the accessory unit by way of the bi-directional cable and wherein the accessory unit provides power to the media player, when needed, the accessory unit comprising: an RF unit arranged to receive and process an over the air (OTA) RF signal, an audio output device, and an amplifier unit connected to the RF unit and the audio output device arranged to amplify the processed RF signal, wherein in one operating mode the RF unit bypasses the amplifier unit and provides the processed RF signal directly to the media player for further processing, if any, by the media player.

2009/0318082	Apparatus and Method for Transmission of Audio Signals	NOKIA CORPORATION	Sinton; Lee Corey Briffett; Neil	455	G06F	20080623	1	92%	<input type="checkbox"/>
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Abstract: In accordance with an example embodiment of the present invention, a method is presented which comprises

searching for at least a device that is capable of a point-to-point transmission of media data. If such a device is not selected for the point-to-point transmission, a transmission of the media data is started on a second communication interface using a broadcast transmission.

MainClaim: A method comprising: searching on a first communication interface for at least one device capable of a point-to-point transmission of media data; and if a device is not selected for the point-to-point transmission, starting transmission of the media data on a second communication interface using a broadcast transmission.

2008/0145032	AUDIO ROUTING FOR AUDIO-VIDEO RECORDING	Nokia Corporation	Lindroos; Sanna Koskinen; Sanna M. Jarventie; Heli Huotari; Vesa Heikkila; Paivi	386	H04N	20061218	4	92%	<input type="checkbox"/>
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Abstract: Systems and methods for routing audio for audio-video recordings allow a user to record desired audio with captured video at the time the video is being captured. Audio from one or more sources may be routed to the video capture application and recorded with the video. In one or more examples, audio may be routed from another application, e.g., an audio playback application, running on the same device as the video capture application. In another example, audio may be received from a remote device through a wireless connection. Multiple streams of audio content may be mixed together prior to storing with video. The audio, upon reception, may then be routed to the video capture application for recordation. An audio progression bar may also be provided to indicate duration and elapsed time information associated with the audio being recorded.

MainClaim: A method comprising: receiving, by a first application, audio from a second application, wherein the first application comprises a video recording application; capturing, with the first application, video input; capturing, by the first application, the audio from the second application while capturing the video input; and storing the audio along with the video input in a multimedia format.

7,653,883	Proximity detector in handheld device	Apple Inc.	Hotelling; Steve P. Kerr; Duncan Robert Ording; Bas Ive; Jonathan P. Kennedy; Peter J. Fadell; Anthony M. Robbin; Jeffrey L.	715	G06F	20050930	0	100%	<input type="checkbox"/>
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Abstract: Proximity based systems and methods that are implemented on an electronic device are disclosed. The method includes sensing an object spaced away and in close proximity to the electronic device. The method also includes performing an action in the electronic device when an object is sensed.

MainClaim: An I/O platform, comprising: an I/O surface having one or more integrated I/O devices selected from input devices and output devices; a proximity detection system configured to: detect when a finger is in close proximity to but not contacting the I/O surface; detect a position of the finger above the I/O surface when the finger is detected in close proximity to but not contacting the I/O surface; select, based on an application appearing on the I/O surface when the finger is detected in close proximity to the I/O surface but independent of x and y components of the position of the finger over the application, a first graphical user interface element from a plurality of available graphical user interface elements operable to allow input to be provided at least by movement of the finger when the finger is detected in close proximity to but not contacting the I/O surface; display the first graphical user interface element on the I/O surface and below the finger; and detect a proximity gesture performed by the movement of the finger above the first displayed graphical user interface element.

2009/0167702	Pointing device detection	Nokia Corporation	Nurmi; Mikko	345	G06F	20080102	3	95%	<input type="checkbox"/>
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Abstract: A method of controlling a user interface of an apparatus including sensing a first angular position of a pointing device relative to the user interface of the apparatus; and performing an operation based, at least partially, upon the sensed first angular position of the pointing device. An apparatus including a first section including a user interface comprising a touch sensor; and a sensor system for determining an angular position of a pointing device relative to a portion of the first section.

MainClaim: A method of controlling a user interface of an apparatus comprising: sensing a first angular position of a pointing device relative to the user interface of the apparatus; and performing an operation based, at least partially, upon the sensed first angular position of the pointing device.

2008/0186287	User input device	Nokia Corporation	Saila; Sami	345	G06F	20070205	2	93%	<input type="checkbox"/>
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Abstract: A user input device for an electronic apparatus including a roller and a sensor system. The roller is adapted to be axially rotated by a user. The roller comprises an elongate longitudinal length. The sensor system is adapted to sense a position of the finger of the user relative to the longitudinal length of the roller.

MainClaim: A user input device for an electronic apparatus, the user input device comprising: a roller adapted to be axially rotated by a user, wherein the roller comprises an elongate longitudinal length; and a sensor system adapted to sense a position of the finger of the user relative to the longitudinal length of the roller.

2007/0263015	Multi-function key with scrolling	Nokia Corporation	Ketola; Pekka Syrjanen; Antti-Pekka	345	G09G	20070424	2	92%	<input type="checkbox"/>
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Abstract: The specification and drawings present a new method, apparatus and software product for combining scrolling with a multi-function key performance. A scrolling multi-function key module can comprise a multi-function key unit and a scroll touch sensor unit having an edge-like sensitive area substantially around the multi-function key unit for providing a scrolling movement of information, corresponding to the predetermined task and to the sliding movement of the object according to a predetermined criterion, on a display of an electronic device. A sensor module of the scroll touch sensor can comprise a plurality of electrodes (e.g., 4 capacitive electrodes) arranged in rows and columns to form a matrix and configured to provide Cartesian coordinates.

MainClaim: A method, comprising: providing a key input by a user input action for a multi-function key unit of a scrolling multi-function key module of or connected to an electronic device, said key input selecting a predetermined task; providing a scroll actuating input by a further user input action using a sliding movement of an object on a sensitive area of a scroll touch sensor unit of said scrolling multi-function key module, wherein said scroll touch sensor unit is configured to have a sensitive area substantially around said multi-function key unit; and providing, in response to said key input and to said scroll actuating input, a scrolling movement of information corresponding to said predetermined task on a display of said electronic device, wherein said scrolling movement of said information on the display further corresponds to said sliding movement of the object according to a predetermined criterion for combining scrolling with a multi-function key performance in said electronic device.

			Zadesky; Stephen						
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7,333,092	Touch pad for handheld device	Apple Computer, Inc.	Paul Tan; Tang Yew	345	G09G	20070605	0	100%	<input checked="" type="checkbox"/>
<p>Abstract: A media device for storing and playing media such as audio, video or images, includes a memory device configured to store a plurality of media items in a digital format. The media device also includes a display configured to present a group of media items from the plurality of stored media items and to present a visual indicator that is capable of scrolling through the displayed group of media items in order to designate a specific media item from the group of media items. The media device further includes a touch pad configured to receive input from a sliding motion or a tapping motion of a finger. The sliding motion of the finger controls the movement of the visual indicator through the group of media items. The tapping motion of the finger selects the specific media item that is designated by the visual indicator.</p> <p>MainClaim: A battery powered handheld electronic device that stores and plays media such as audio, video or images, the handheld electronic device comprising: a memory device configured to store a plurality of media items in a digital format; a display configured to present a group of media items from the plurality of stored media items and to present a visual indicator that is capable of scrolling through the displayed group of media items in order to designate a specific media item from the group of media items; and an input arrangement including a curvilinear inner input region and one or more curvilinear outer input regions that provide control functions for operating the battery powered handheld electronic device, the outer input regions being disposed outside the inner input region, the inner input region including at least a touch pad configured to receive input from a sliding motion or a tapping motion of a finger, the sliding motion of the finger controlling the movement of the visual indicator through the group of media items, the tapping motion of the finger selecting the specific media item that is designated by the visual indicator.</p>									
2009/0167702	Pointing device detection	Nokia Corporation	Nurmi; Mikko	345	G06F	20080102	3	92%	<input type="checkbox"/>
<p>Abstract: A method of controlling a user interface of an apparatus including sensing a first angular position of a pointing device relative to the user interface of the apparatus; and performing an operation based, at least partially, upon the sensed first angular position of the pointing device. An apparatus including a first section including a user interface comprising a touch sensor; and a sensor system for determining an angular position of a pointing device relative to a portion of the first section.</p> <p>MainClaim: A method of controlling a user interface of an apparatus comprising: sensing a first angular position of a pointing device relative to the user interface of the apparatus; and performing an operation based, at least partially, upon the sensed first angular position of the pointing device.</p>									
7,730,223	Wireless home and office appliance management and integration	Apple Inc.	Bavor; Clay Levinson; Jesse	710	G06F	20050801	0	100%	<input checked="" type="checkbox"/>
<p>Abstract: The present invention provides systems and methods for managing and controlling networked devices. A system comprises a host application executing on, for example, a personal computer, and one or more networked devices executing a client application. A networked device includes a consumer appliance equipped with network capability, a digital device such as MP3 players and DVRs, an electronically-controlled device such as a light circuit or other type of circuit, and the like. The host application automatically establishes communication with the networked device. The networked device configures a user interface for user control of the networked device. The host application provides a graphical layout of the networked device.</p> <p>MainClaim: A computer-implemented method for managing and controlling network appliances, comprising: receiving, from a networked device, a connection request; automatically establishing network communication with the networked device responsive to the connection request; displaying a graphical representation of an environment containing the networked device and a plurality of other networked devices, wherein a networked device is represented by an icon indicating the location of the networked device around the environment; receiving, from the networked device, user interface information that specifies user interface components related to a service provided by the networked device, the user interface components providing interactive control of the networked device; and generating a user interface responsive to the user interface information, and allowing interacting with a plurality of the user interface components and the icon.</p>									
2007/0209001	SYSTEM AND METHOD FOR FUNCTIONAL ELEMENTS	NOKIA CORPORATION	Kautto-Koivula; Kaisa Huhtaniemi; Marita Lahdesmaki; Petri	715	G06F	20070514	1	92%	<input type="checkbox"/>
<p>Abstract: Systems and methods whereby, for example, one or more functional elements can be established and/or employed. Such functional elements might serve a number of purposes. For instance, such functional elements might be employable in interoperating with devices, software, and/or the like, in working with entities, and/or the like. Such functional elements may, for example, be arrangeable in an associative and/or hierarchical manner.</p> <p>MainClaim: A method for data handling, comprising: monitoring circumstances regarding use of one or more associatively-linked elements; employing the monitored circumstances in establishing a group comprising one or more of said elements; and establishing one or more hierarchical links between a hierarchical element and the elements of said group.</p>									
7,649,526	Soft key interaction indicator	Apple Inc.	Ording; Bas Chaudhri; Imran Van Os; Marcel Lemay; Stephen O. Anzures; Freddy Allen Christie; Greg Forstall; Scott	345	G06F	20051223	0	100%	<input checked="" type="checkbox"/>
<p>Abstract: An indication of interaction with a touch-sensitive display is provided. A soft key is displayed on the touch-sensitive display. Contact with the touch-sensitive display corresponding to interaction with the soft key is detected. The periphery of the soft key smoothly changes in optical intensity in response to detecting the contact.</p> <p>MainClaim: A method of indicating interaction on a device comprising a touch-sensitive display, comprising: displaying a soft key on the touch-sensitive display; detecting contact with the touch-sensitive display corresponding to interaction with the soft key; in response to detecting the contact, controlling a change in optical intensity of a periphery of the soft key in accordance with a predefined mathematical function, wherein the predefined mathematical function is a periodic function; in response to detecting a release of the contact, determining whether the optical intensity of the periphery is at a minimum optical intensity; and when the optical intensity of the periphery is not at the minimum optical intensity, returning the optical intensity of the periphery to the minimum optical intensity according to the predefined mathematical function.</p>									
2009/0006991	UNLOCKING A TOUCH SCREEN DEVICE	NOKIA CORPORATION	Lindberg; Phillip John Niemela; Sami Johannes	715	G06F	20070629	5	92%	<input type="checkbox"/>

Abstract: A method for unlocking a touch screen device includes providing a touch screen device in an idle mode. An area or region displayed on a screen of the device in the idle mode is contacted or activated to reveal at least one application icon associated with an active/unlocked state of the device. The region is moved, expanded or dragged to an edge of the device to change a state of the device to an active/unlocked mode and activate the revealed application.

MainClaim: A method comprising:providing a touch screen device in an idle mode;contacting an icon displayed on a screen of the device in the idle mode and moving the icon on the screen to reveal at least one application icon associated with an active/unlocked state of the device; andmoving the icon to an unlock region of the device to change a state of the device to an active/unlocked mode and activate an application associated with the revealed application icon.

7,664,558	Efficient techniques for modifying audio playback rates	Apple Inc.	Lindahl; Aram Williams; Joseph Mark	700	G06F	20050401	0	100%	<input type="checkbox"/>
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Abstract: Improved techniques for modifying a playback rate of an audio item (e.g., an audio stream) are disclosed. As a result, the audio item can be played back faster or slower than normal. The improved techniques are resource efficient and well suited for audio items containing speech. The resource efficiency of the improved techniques make them well suited for use with portable media devices, such as portable media players.

MainClaim: An audio playback system, comprising: a user interface that enables a user of the audio playback system to specify a selected playback rate SR for an input audio stream that is faster or slower than a normal playback rate NR; a memory for storage of at least one rate adjustment parameter, the at least one rate adjustment parameter comprising an overlap frequency OF, wherein the overlap frequency OF is related to the selected playback rate SR; a processing device having limited computational resources operatively connected to the user interface and the memory, the processing device being operable to: receive the input audio stream associated with the normal playback rate NR, wherein the input audio stream is comprised of a plurality of audio blocks, determine the overlap frequency OF based on the selected playback rate SR; generate a modified audio stream for any value of the selected playback rate SR by modifying every Nth audio block of the plurality of audio blocks, wherein N is an integer value corresponding to an integer portion of the overlap frequency OF; and an audio output device for outputting the modified audio stream, wherein if the selected playback rate SR is greater than 1.0 and less than 2.0, indicating faster than normal playback, then the overlap frequency OF is equal to $1/(SR-1)$, and if the selected playback rate SR is less than 1.0, indicating slower than normal playback, then the overlap frequency OF is equal to $0.5/((1/SR)-1)$.

2008/0145032	AUDIO ROUTING FOR AUDIO-VIDEO RECORDING	Nokia Corporation	Lindroos; Sanna Koskinen; Sanna M. Jarventie; Heli Huotari; Vesa Heikkila; Paivi	386	H04N	20061218	4	92%	<input type="checkbox"/>
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Abstract: Systems and methods for routing audio for audio-video recordings allow a user to record desired audio with captured video at the time the video is being captured. Audio from one or more sources may be routed to the video capture application and recorded with the video. In one or more examples, audio may be routed from another application, e.g., an audio playback application, running on the same device as the video capture application. In another example, audio may be received from a remote device through a wireless connection. Multiple streams of audio content may be mixed together prior to storing with video. The audio, upon reception, may then be routed to the video capture application for recordation. An audio progression bar may also be provided to indicate duration and elapsed time information associated with the audio being recorded.

MainClaim: A method comprising:receiving, by a first application, audio from a second application, wherein the first application comprises a video recording application;capturing, with the first application, video input;capturing, by the first application, the audio from the second application while capturing the video input; andstoring the audio along with the video input in a multimedia format.

7,667,148	Method, device, and graphical user interface for dialing with a click wheel	Apple Inc.	Mansfield; Philip Andrew Levy; Michael Robert	200	G06F	20061013	0	100%	<input type="checkbox"/>
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Abstract: One aspect of the invention involves a computer-implemented method in which a portable communications device with a click wheel and a display detects a plurality of finger contacts with the click wheel. Each finger contact includes an angular displacement of the finger contact on the click wheel between an initial location and a final location of the finger contact. The device displays an image that includes digits arranged in a circle. The image rotates, in response to each finger contact, by an amount determined in accordance with the angular displacement of the finger contact. For each finger contact, the device determines a digit. The determined digit is independent of the initial location of the finger contact on the click wheel. The device performs a task using the determined digits. Exemplary tasks include dialing a telephone number and sending numeric input to a remote computer.

MainClaim: A computer-implemented method, comprising: at a portable communications device with a click wheel and a display, detecting a plurality of sequential finger contacts with the click wheel, wherein each finger contact includes: an initial location of the finger contact on the click wheel, a final location of the finger contact on the click wheel, and an angular displacement of the finger contact on the click wheel between the initial location and the final location of the finger contact on the click wheel; displaying an image that includes digits arranged in a circle, wherein the image rotates by an amount determined in accordance with the angular displacement of the finger contact such that a digit of the image is highlighted in a fixed predetermined position of the circle; for each finger contact, determining the highlighted digit, wherein the determined highlighted digit is independent of the initial location of the finger contact on the click wheel; displaying the determined digits in a second predetermined area of the display; detecting an input that corresponds to a request to perform an action with the determined digits; and performing the requested action.

2010/0107067	INPUT ON TOUCH BASED USER INTERFACES	NOKIA CORPORATION	Vaisanen; Matti	715	G06F	20081027	2	95%	<input type="checkbox"/>
2009/0219252	APPARATUS, METHOD AND COMPUTER PROGRAM PRODUCT FOR MOVING CONTROLS ON A TOUCHSCREEN	Nokia Corporation	Jarventie; Heli Margit Jurvanen; Laura Katariina Hiltunen; Kirsii-Maria Nurmi; Mikko Antero	345	G06F	20080228	4	93%	<input type="checkbox"/>

Abstract: An apparatus, method and computer program product are provided for facilitating blind usage of an electronic device having a touchscreen. The electronic device may sense the location of a user's finger on the touchscreen and generate, at that location, an output associated with an object capable of being selected. Generating the output may include displaying an icon and/or generating a sensation associated with the object. Alternatively, generating an output may include generating a

sensation or tactile feedback that guides the user to the location of an icon associated with the object. In addition, or alternatively, each of a plurality of objects may have a different sensation associated therewith. The electronic device may output the sensation of the various objects upon receipt of a tactile input at different locations on the touchscreen, so that the user can move his or her finger around the touchscreen until he can feel the desired object.

MainClaim: An apparatus comprising: a processor configured to: detect a tactile input on a touch sensitive input device; determine a location of the tactile input; and cause an output to be generated proximate the determined location, wherein at least one of an orientation of the output or the output itself is determined based at least in part on an anticipated action by a user.

2009/0006991	UNLOCKING A TOUCH SCREEN DEVICE	NOKIA CORPORATION	Lindberg; Phillip John Niemela; Sami Johannes	715	G06F	20070629	5	93%	<input type="checkbox"/>
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Abstract: A method for unlocking a touch screen device includes providing a touch screen device in an idle mode. An area or region displayed on a screen of the device in the idle mode is contacted or activated to reveal at least one application icon associated with an active/unlocked state of the device. The region is moved, expanded or dragged to an edge of the device to change a state of the device to an active/unlocked mode and activate the revealed application.

MainClaim: A method comprising: providing a touch screen device in an idle mode; contacting an icon displayed on a screen of the device in the idle mode and moving the icon on the screen to reveal at least one application icon associated with an active/unlocked state of the device; and moving the icon to an unlock region of the device to change a state of the device to an active/unlocked mode and activate an application associated with the revealed application icon.

7,656,393	Electronic device having display and surrounding touch sensitive bezel for user interface and control	Apple Inc.	King; Nick Kerr; Duncan Herbst; Paul Hotelling; Steven P	345	G06F	20060623	0	100%	<input type="checkbox"/>
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Abstract: An electronic device has a display and has a touch sensitive bezel surrounding the display. Areas on the bezel are designated for controls used to operate the electronic device. Visual guides corresponding to the controls are displayed on the display adjacent the areas of the bezel designated for the controls. Touch data is generated by the bezel when a user touches an area of the bezel. The device determines which of the controls has been selected based on which designated area is associated with the touch data from the bezel. The device then initiates the determined control. The device can have a sensor for determining the orientation of the device. Based on the orientation, the device can alter the areas designated on the bezel for the controls and can alter the location of the visual guides for the display so that they match the altered areas on the bezel.

MainClaim: An electronic device, comprising: a display positioned on the electronic device and having a perimeter; at least one touch sensitive surface positioned outside a display surface on the electronic device adjacent at least a portion of the perimeter of the display; and processing circuitry operatively connected to the display and to the at least one touch sensitive surface, the processing circuitry configured to: designate at least one area of variable size and position of the at least one touch sensitive surface for at least one control, the position and size of the at least one designated area is dependent on the context or content of what is on the display; generate at least one visual guide for the at least one control; and present the at least one visual guide for display at a location on the display adjacent the at least one area designated for the at least one control.

2007/0263015	Multi-function key with scrolling	Nokia Corporation	Ketola; Pekka Syrjanen; Antti- Pekka	345	G09G	20070424	2	94%	<input type="checkbox"/>
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Abstract: The specification and drawings present a new method, apparatus and software product for combining scrolling with a multi-function key performance. A scrolling multi-function key module can comprise a multi-function key unit and a scroll touch sensor unit having an edge-like sensitive area substantially around the multi-function key unit for providing a scrolling movement of information, corresponding to the predetermined task and to the sliding movement of the object according to a predetermined criterion, on a display of an electronic device. A sensor module of the scroll touch sensor can comprise a plurality of electrodes (e.g., 4 capacitive electrodes) arranged in rows and columns to form a matrix and configured to provide Cartesian coordinates.

MainClaim: A method, comprising: providing a key input by a user input action for a multi-function key unit of a scrolling multi-function key module of or connected to an electronic device, said key input selecting a predetermined task; providing a scroll actuating input by a further user input action using a sliding movement of an object on a sensitive area of a scroll touch sensor unit of said scrolling multi-function key module, wherein said scroll touch sensor unit is configured to have a sensitive area substantially around said multi-function key unit; and providing, in response to said key input and to said scroll actuating input, a scrolling movement of information corresponding to said predetermined task on a display of said electronic device, wherein said scrolling movement of said information on the display further corresponds to said sliding movement of the object according to a predetermined criterion for combining scrolling with a multi-function key performance in said electronic device.

2009/0167702	Pointing device detection	Nokia Corporation	Nurmi; Mikko	345	G06F	20080102	3	94%	<input type="checkbox"/>
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Abstract: A method of controlling a user interface of an apparatus including sensing a first angular position of a pointing device relative to the user interface of the apparatus; and performing an operation based, at least partially, upon the sensed first angular position of the pointing device. An apparatus including a first section including a user interface comprising a touch sensor; and a sensor system for determining an angular position of a pointing device relative to a portion of the first section.

MainClaim: A method of controlling a user interface of an apparatus comprising: sensing a first angular position of a pointing device relative to the user interface of the apparatus; and performing an operation based, at least partially, upon the sensed first angular position of the pointing device.

2008/0186287	User input device	Nokia Corporation	Saila; Sami	345	G06F	20070205	2	93%	<input type="checkbox"/>
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Abstract: A user input device for an electronic apparatus including a roller and a sensor system. The roller is adapted to be axially rotated by a user. The roller comprises an elongate longitudinal length. The sensor system is adapted to sense a position of the finger of the user relative to the longitudinal length of the roller.

MainClaim: A user input device for an electronic apparatus, the user input device comprising: a roller adapted to be axially rotated by a user, wherein the roller comprises an elongate longitudinal length; and a sensor system adapted to sense a position of the finger of the user relative to the longitudinal length of the roller.

7,686,215	Techniques and systems for supporting podcasting	Apple Inc.	Jones; Anne Dowdy; Thomas Robbin; Jeffrey Wiese; Mike Davis; Stephen	235	G06K	20050625	0	100%	<input type="checkbox"/>
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Abstract: Improved podcasts and techniques that facilitate their use are disclosed. The improved techniques can pertain to creating, publishing, hosting, accessing, subscribing, managing, transferring, and/or playing podcasts. According to one aspect, a client application can subscribe to podcasts and then automatically monitor the podcasts for updates to be downloaded. In the event that user interest in a podcast becomes inadequate, downloading of further updates can be restricted. According to another aspect, a podcast can be subscribed to through use of a portable subscription file. According to still another aspect, podcast feeds can be enhanced to include segment elements and other metadata.

MainClaim: A method for subscribing to a podcast said method comprising: at a client device in communication with a host device arranged to store the podcast, receiving a portable subscription file that is used to facilitate subscribing to the podcast; accessing the portable subscription file to obtain podcast information; and subscribing to the podcast using the podcast information, wherein the portable subscription file includes an application identifier, and a network address for a podcast feed, wherein the portable subscription file is used to pass subscription information through a data network from the client device to at least another client device without interaction with the host device thereby allowing the another client device to subscribe to the podcast associated with the podcast feed.

2007/0294249	Electronic program guide	NOKIA SIEMENS NETWORKS GMBH & CO. KG	Feyaerts; Johan	707	G06F	20070608	2	93%	<input type="checkbox"/>
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Abstract: In order to provide end users with an individualized electronic program guide, a plurality of client devices is connected to a back end system. Each client device is operable by an end user. User information, which is related to content of at least one end user is collected. Individual preferences content preferences of one or several end users is determined. Taking into account the determined content preferences of the end user, the individualized program guide is generated. The individualized program guide is then made available to the client device of the respective end user.

MainClaim: A method for providing end users with an individualized electronic program guide, comprising: connecting a plurality of client devices to a back end system, whereas each client device is operable by an end user; collecting user information related to content preferences of at least one end user and determining its individual content preferences; generating the individualized program guide taking into account the determined content preferences of the end user; and making available the individualized program guide to the client device of the respective end user.

2009/0328113	CONTEXTUAL MEDIA CONTENT PLACEMENT	NOKIA CORPORATION	van de Klashorst; Floris	725	H04N	20080630	2	92%	<input type="checkbox"/>
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Abstract: Advertisements and other media content may be placed with or in content items according to contextual information relating to particular portions of the content. For example, advertisements may be matched to products shown in a movie, lyrics used in a song or places named in a work of literature. The contextual information may be defined in a contextual data track of the content item similar to video tracks for video and audio tracks for audio. Accordingly, a content provider or a viewing device may, prior to or during play of a content item, automatically request advertisements or other media content based at least in part on the contextual information stored in the contextual data track of the content item. In one or more arrangements, contextual data may be automatically generated using various image, audio and text processing techniques.

MainClaim: A method comprising: automatically determining whether a portion of a content item corresponds to a media content slot; in response to determining that the portion of the content item corresponds to the media content slot, automatically determining contextual information relating to the portion of the content item; and retrieving media content based at least in part on the determined contextual information.

2009/0327346	SPECIFYING MEDIA CONTENT PLACEMENT CRITERIA	NOKIA CORPORATION	Teinila; Jaakko Juhani Porio; Jyrki Tauno Johannes Wang; Ye-Kui	707	G06F	20080630	2	92%	<input type="checkbox"/>
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Abstract: To control advertisement or other media content placement in content, content owners or other interested parties may include ad or media content placement metadata in the content item. Media content placement metadata may provide specifications such as a maximum media content (e.g., ad) duration, media content rating, media content size, payment information, placement location on a screen (i.e., for videos or images) and the like. The media content metadata may be extracted and used to retrieve matching media content such as advertisements for inclusion during play of a corresponding content item.

MainClaim: A method comprising: determining media content placement metadata associated with a content item; and retrieving media content matching one or more media content placement criteria in the media content placement metadata, wherein the one or more media content placement criteria includes information identifying a media content slot in the content item and at least one media content selection criterion.

7,689,920	Parental control graphical user interface	Apple Inc.	Robbin; Jeffrey L. Heller; David Miller; Jeff	715	G06F	20050906	0	100%	<input type="checkbox"/>
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Abstract: Improved graphical user interfaces suitable for restricting the availability of media items and/or podcasts are also disclosed. The graphical user interfaces are particularly useful for a system that provides purchase and distribution of media in a client-server environment.

MainClaim: A client computing device adapted to execute an application program that presents a graphical user interface on a display device of the client computing device, the application program having capability to subscribe to, receive and playback media content from a plurality of media sources, said graphical user interface comprising: an application program window generated by the application program, said application program window presents user-selectable parental controls, said application program window concurrently including at least: a list of selectable program utility items including at least a selectable parental utility item, a list of selectable parental control items available to configure disablement of media sources, and a selectable locking item for disabling unauthorized access to the list of selectable parental control items, wherein the list of selectable parental control items includes a plurality of selectable media source items for selectively disabling any of a plurality of media sources, and wherein the plurality of selectable media source items includes at least a disable podcast selectable item for selectively disabling reception of podcasts, and a disable music store selectable item for disabling access to or viewing of an online music store.

2007/0294249	Electronic program guide	NOKIA SIEMENS NETWORKS GMBH & CO. KG	Feyaerts; Johan	707	G06F	20070608	2	93%	<input type="checkbox"/>
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Abstract: In order to provide end users with an individualized electronic program guide, a plurality of client devices is connected to a back end system. Each client device is operable by an end user. User information, which is related to content of at least one end user is collected. Individual preferences content preferences of one or several end users is determined. Taking

into account the determined content preferences of the end user, the individualized program guide is generated. The individualized program guide is then made available to the client device of the respective end user.

MainClaim: A method for providing end users with an individualized electronic program guide, comprising: connecting a plurality of client devices to a back end system, whereas each client device is operable by an end user; collecting user information related to content preferences of at least one end user and determining its individual content preferences; generating the individualized program guide taking into account the determined content preferences of the end user; and making available the individualized program guide to the client device of the respective end user.

2009/0327346	SPECIFYING MEDIA CONTENT PLACEMENT CRITERIA	NOKIA CORPORATION	Teinila; Jaakko Juhani Porio; Jyrki Tauno Johannes Wang; Ye-Kui	707	G06F	20080630	2	92%	<input type="checkbox"/>
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Abstract: To control advertisement or other media content placement in content, content owners or other interested parties may include ad or media content placement metadata in the content item. Media content placement metadata may provide specifications such as a maximum media content (e.g., ad) duration, media content rating, media content size, payment information, placement location on a screen (i.e., for videos or images) and the like. The media content metadata may be extracted and used to retrieve matching media content such as advertisements for inclusion during play of a corresponding content item.

MainClaim: A method comprising:determining media content placement metadata associated with a content item; andretrieving media content matching one or more media content placement criteria in the media content placement metadata, wherein the one or more media content placement criteria includes information identifying a media content slot in the content item and at least one media content selection criterion.

2009/0328113	CONTEXTUAL MEDIA CONTENT PLACEMENT	NOKIA CORPORATION	van de Klashorst; Floris	725	H04N	20080630	2	92%	<input type="checkbox"/>
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Abstract: Advertisements and other media content may be placed with or in content items according to contextual information relating to particular portions of the content. For example, advertisements may be matched to products shown in a movie, lyrics used in a song or places named in a work of literature. The contextual information may be defined in a contextual data track of the content item similar to video tracks for video and audio tracks for audio. Accordingly, a content provider or a viewing device may, prior to or during play of a content item, automatically request advertisements or other media content based at least in part on the contextual information stored in the contextual data track of the content item. In one or more arrangements, contextual data may be automatically generated using various image, audio and text processing techniques.

MainClaim: A method comprising:automatically determining whether a portion of a content item corresponds to an media content slot;in response to determining that the portion of the content item corresponds to the media content slot, automatically determining contextual information relating to the portion of the content item; andretrieving media content based at least in part on the determined contextual information.

7,565,059	Dynamic variation of output media signal in response to input media signal	Apple Inc.	Neuman; Michael	386	H04N	20040528	0	100%	<input type="checkbox"/>
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Abstract: A first input signal, which has a first playback sequence, is resequenced based upon a characteristic of a second input signal. The resequencing occurs analyzing the characteristic in the second input signal, and modifying the first playback sequence of the first input signal based upon the analysis of the characteristic to generate a second playback sequence. Finally, a third signal is output using the second playback sequence.

MainClaim: A method for resequencing a specific first input signal, which has a first playback sequence, based upon at least one characteristic of a second input signal, the method comprising: analyzing the at least one characteristic of the second input signal; modifying the first playback sequence of said first input signal based upon the analysis of the at least one characteristic to generate a second playback sequence; and outputting a third signal comprising the second playback sequence.

2008/0145032	AUDIO ROUTING FOR AUDIO-VIDEO RECORDING	Nokia Corporation	Lindroos; Sanna Koskinen; Sanna M. Jarventie; Heli Huotari; Vesa Heikkila; Paivi	386	H04N	20061218	4	93%	<input type="checkbox"/>
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Abstract: Systems and methods for routing audio for audio-video recordings allow a user to record desired audio with captured video at the time the video is being captured. Audio from one or more sources may be routed to the video capture application and recorded with the video. In one or more examples, audio may be routed from another application, e.g., an audio playback application, running on the same device as the video capture application. In another example, audio may be received from a remote device through a wireless connection. Multiple streams of audio content may be mixed together prior to storing with video. The audio, upon reception, may then be routed to the video capture application for recordation. An audio progression bar may also be provided to indicate duration and elapsed time information associated with the audio being recorded.

MainClaim: A method comprising:receiving, by a first application, audio from a second application, wherein the first application comprises a video recording application;capturing, with the first application, video input;capturing, by the first application, the audio from the second application while capturing the video input; andstoring the audio along with the video input in a multimedia format.

7,442,870	Method and apparatus for enabling advanced manipulation of audio	Apple Inc.	Lengeling; Gerhard Helms; Jan-Hinnerk Mensch; Gunter Homburg; Clemens	84	G10H	20040102	0	100%	<input type="checkbox"/>
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Abstract: A method and apparatus are provided for representing, storing, and rendering audio data. An audio file enables users to store and exchange sampled audio waveform data along with additional data used to generate or synthesize an audio output closely approximating the original waveform data. The audio file used to generate a piece of music may include note events, synthesis parameters, instruments and track information, and other information for shaping music notes, as well as playback characteristics for emulating a desired ambiance. A rendering apparatus may implement a process for selecting the representation of audio data most likely to provide the best fidelity for the given playback circumstances. The combined audio format also provides a greater degree of compatibility for audio players with different playback capabilities.

MainClaim: A method enabling advanced audio manipulation comprising: obtaining a set of waveform data; storing the set of waveform data as a component of a first file that has a particular file format; obtaining a set of Musical Instrument Digital

Interface data; storing the set of Musical Instrument Digital Interface data as a component of a second file that has said particular file format; obtaining a set of synthesis parameter data; storing the set of synthesis parameter data as a component of a third file that has said particular file format; obtaining a set of playback parameter data; and storing the set of playback parameter data as a component of a fourth file that has said particular file format; wherein said particular file format enables playback parameter data to remain separate from waveform data during exchange of audio data.

2006/0060069	Method and device for enhancing ring tones in mobile terminals	Nokia Corporation	Sinisalo; Ari	84	G10H	20040923	1	92%	<input type="checkbox"/>
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Abstract: A method and device for producing ring tones in high polyphony in real-time in a network component such as a mobile terminal or a server of a service provider. The network component has one or more ring tones in MIDI files of high polyphony, and a MIDI player of lower polyphony for producing sounds from the scaled down version of the MIDI files in real-time. In order to produce sounds indicative of the high-polyphony ring tones in real-time, the high-polyphony MIDI files are converted to compressed files in a non real-time manner. The converted files are stored in a storage so as to allow a compressed file player (such as Truetone, MP3, wav, AAC, RealAudio, Vorbis) to produce sounds from the converted files. A file lock is provided to the converted files so that they cannot be forwarded, thereby protecting the copyrights of the ring tone composer.

MainClaim: A method for improving sound quality of synthesized tones produced on an audio producing component in an electronic device, the electronic device comprising: a first player; a first file storage for storing one or more data files so as to allow the first player to produce one or more tones for playing on the audio producing component, wherein the first player is capable of producing said tones based on said one or more data files in a real-time manner up to M-polyphony and wherein the tones so produced contain characteristics of a sound synthesizer, where M is a positive integer; a different second player; and a second file storage for storing one or more recording files so as to allow the second player to produce sounds on the audio producing component in a real-time manner, wherein the sounds produced by the second player based on one or more recording files contain characteristics of a recorded sound, said method comprising: converting at least one of said one or more data files for producing in a non real-time manner at least one converted file having a second player compatible format; and providing the converted file to the second player so as to produce sounds on the audio producing component in a real-time manner, wherein the sounds produced by the second player based on the converted file contain some characteristics of a sound synthesizer of N-polyphony, wherein N is a positive integer greater than M.

7,356,373	Method and device for enhancing ring tones in mobile terminals	Nokia Corporation	Sinisalo; Ari	700	H04M	20040923	1	92%	<input type="checkbox"/>
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Abstract: A method and device for producing ring tones in high polyphony in real-time in a network component such as a mobile terminal or a server of a service provider. The network component has one or more ring tones in MIDI files of high polyphony, and a MIDI player of lower polyphony for producing sounds from the scaled down version of the MIDI files in real-time. In order to produce sounds indicative of the high-polyphony ring tones in real-time, the high-polyphony MIDI files are converted to compressed files in a non real-time manner. The converted files are stored in a storage so as to allow a compressed file player (such as Truetone, MP3, wav, AAC, RealAudio, Vorbis) to produce sounds from the converted files. A file lock is provided to the converted files so that they cannot be forwarded, thereby protecting the copyrights of the ring tone composer.

MainClaim: A method for improving sound quality of synthesized tones produced on an audio producing component in an electronic device, the electronic device comprising: a first player; a first file storage for storing one or more data files so as to allow the first player to produce one or more tones for playing on the audio producing component, wherein the first player is capable of producing said tones based on said one or more data files in a real-time manner up to M-polyphony and wherein the tones so produced contain characteristics of a sound synthesizer, where M is a positive integer; a different second player; and a second file storage for storing one or more recording files so as to allow the second player to produce sounds on the audio producing component in a real-time manner, wherein the sounds produced by the second player based on one or more recording files contain characteristics of a recorded sound, said method comprising: converting at least one of said one or more data files for producing in a non real-time manner at least one converted file having a second player compatible format; and providing the converted file to the second player so as to produce sounds on the audio producing component in a real-time manner, wherein the sounds produced by the second player based on the converted file contain some characteristics of a sound synthesizer of N-polyphony, wherein N is a positive integer greater than M.

7,594,043	Reducing dismount time for mass storage class devices	Apple Inc.	Cornwell; Michael J. Dudte; Christopher P.	710	G06F	20060127	0	100%	<input type="checkbox"/>
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Abstract: Techniques for reducing dismount time for a peripheral device connected to an external host device are presented. Instead of waiting for a dismount procedure to complete, a reply message indicating that dismount operations have been completed is sent to the external host device. This triggers a message from the external host device that the peripheral device is ready to be safely removed. The peripheral device completes the dismount operations including cache and memory cleanup after the reply message indicating that dismount operations have been completed is sent to the external host device. The dismount operations may be completed under battery power if necessary. This enables quicker unplugging of the peripheral device from the external host device and can allow the peripheral device to transition from a first mode into a second mode faster.

MainClaim: A method for managing data storage, the method comprising: receiving, at a peripheral device, a dismount message associated with a connection between the peripheral device and a host device; responding, at the peripheral device, to the dismount message with a reply message to the host device indicating a completed dismount before completing dismount operations; and completing, at the peripheral device, the dismount operations after responding with the reply message indicating a completed dismount.

2008/0147375	SYSTEM, METHOD, DEVICE, AND COMPUTER PROGRAM PRODUCT FOR PROVIDING A PORTABLE DEVICE HAVING DRIVE EMULATION CAPABILITIES	Nokia Corporation	Siren; Janne Gratseff; Reijo	703	G06F	20061219	1	92%	<input type="checkbox"/>
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Abstract: Systems, methods, devices, and computer program products provide a portable electronic device configured to be communicatively coupled to a host device and configured to emulate one or more data storage medium drives, such as disk drives, of the host device. More particularly, a user interface of the portable electronic device may allow a user to instruct the portable electronic device to emulate a particular type of drive, such as a floppy drive, a CD drive, and a DVD drive, and to

present data storage medium image files to the host device in the emulated drive. The systems, methods, devices, and computer products may also be configured to automatically present a second data storage medium image file to the host device in response to an eject request from the host device.

MainClaim: A portable electronic device comprising: a memory for storing a data storage medium image file, the data storage medium image file comprising a copy of content and structure of a data storage medium; a user interface for allowing a user to enter user input; a data communication interface for communicatively coupling the portable electronic device to a host device; and a processor operatively coupled to the memory, the user interface, and the data communication interface, wherein the processor is configured to provide the host device with a virtual data storage medium drive that allows the host device to access the data storage medium image file; wherein the processor is configured to provide the virtual data storage medium drive when the user input instructs the processor to do so.

7,407,315	Method and apparatus for backlighting a device	Apple Inc.	Hotelling; Steven Porter	362	F21V	20050629	0	100%	<input checked="" type="checkbox"/>
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Abstract: A light guide panel is disclosed. The panel comprises a plate for dispersing light and at least one light-emitting diode (LED) coupled to the plate for providing the dispersed light. When the panel is coupled to a keyboard, the at least one LED is under a portion of the keyboard such that when the at least one LED is illuminated, the light from the LED does not distract a user. Accordingly, by strategically placing LEDs within the panel and providing the LEDs under appropriate portions of the keyboard, the device utilizing the keyboard can be smaller than when a conventional light guide panel is utilized. In addition, a further improvement in illumination is provided when a mechanism is provided which reflects light escaping from the edges of the panel back into the panel.

MainClaim: A light guide panel for backlighting a device, the light guide panel comprising: a plate including a plurality of optical fibers for dispersing light through the plate to illuminate the plate and provide a backlight for the device, the plurality of optical fibers being completely within the plate; and a light-emitting diode (LED) coupled to the plate for providing the light dispersed by the plurality of optical fibers, the light-emitting diode being located in a central portion of the plate such that the light-emitting diode (LED) does not touch an edge of the plate, wherein an opaque portion of the device covers the light-emitting diode (LED) in the central portion of the plate such that when the light-emitting diode (LED) is illuminated, the light from the light-emitting diode (LED) is more evenly distributed throughout the plate, the opaque portion of the device being a user input button of the device.

2007/0246336	Illuminating of an electrical device	Nokia Corporation	Heath; Jonathan Millar; Caroline Hutchison; Hutch		H01H	20060424	1	92%	<input type="checkbox"/>
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Abstract: Present invention enables to illuminate an artwork or alphanumerics of related key(s) of an electrical device from above with illumination module situated in the vicinity of the artwork or alphanumerics. Present invention also enables the use of opaque material in the keys or in the keypad.

MainClaim: An arrangement for illuminating artwork or alphanumerics of an electrical device comprising at least one illumination module for providing illumination through air on an outer surface of said electrical device through at least one light emitting surface.

6,929,391	Light guide panel and method of use	Apple Computer, Inc.	Hotelling; Steven Porter	362	F21V	20030717	0	100%	<input checked="" type="checkbox"/>
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Abstract: A light guide panel is disclosed. The panel comprises a plate for dispersing light and at least one light-emitting diode (LED) coupled to the plate for providing the dispersed light. When the panel is coupled to a keyboard, the at least one LED is under a portion of the keyboard such that when the at least one LED is illuminated, the light from the LED does not distract a user. Accordingly, by strategically placing LEDs within the panel and providing the LEDs under appropriate portions of the keyboard, the device utilizing the keyboard can be smaller than when a conventional light guide panel is utilized. In addition, a further improvement in illumination is provided when a mechanism is provided which reflects light escaping from the edges of the panel back into the panel.

MainClaim: A light guide panel comprising:

a plate for dispersing light, wherein the plate includes a plurality of optical fibers for dispersing light, the plurality of optical fibers being completely within the plate; and

at least one light-emitting diode (LED) coupled to the plate for providing the dispersed light, wherein when the plate is coupled to a keyboard, the at least one LED is located under a portion of the keyboard such that when the at least one LED is illuminated, the light from the at least one LED does not distract a user.

2007/0252921	Display and a Method of Providing a Display	NOKIA CORPORATION	Knudsen; Peter Back	349	G02B	20031205	1	93%	<input type="checkbox"/>
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Abstract: A display, such as for use in a mobile telephone, comprising a light transmissive display, such as a Liquid Crystal Display (LCD), having there under a light transmitting plate adapted to guide light therein and then through the light transmissive display. Between the light emitters and the plate, a number of tapered light guides are provided so that the space between the tapers may be used for e.g. electronic components. The use of the light guides provides more space for electronic components and furthermore provides a more freely selectable positioning of the light emitters.

MainClaim: A display comprising: a light transmissive display, one or more light emitters, a light guiding plate being at least substantially parallel with the light transmissive display and at least partly overlapping the light transmissive display, the plate being adapted to receive light from the one or more light emitters, guide the received light therein at least substantially in parallel to the light transmissive display, and to direct the light through the light transmissive display, the display further comprising one or more tapered light guides each extending between the plate and one or more of the light emitters, each light guide being adapted to direct light from at least one light emitter into the plate.