INCISOR ™

IN INCISOR THIS MONTH

Welcome to the March 2004 issue of Incisor.

As you will see from the story across, it seems that the steady state that Bluetooth has maintained since version 1.2 of the specification was released could be about to be disturbed.

While the BSIG has held a firm and steadying hand on the reins of Bluetooth development, some developers, industry observers and Bluetooth users have cried out for enhancements to the spec – most particularly higher data speeds. Whether this was to meet real application needs, or simply because that's what people do – always try to push the boundaries – is difficult to ascertain.

Now, though, two of the highest profile silicon companies have taken the unusual step of jointly announcing successful testing of what is effectively the next generation of Bluetooth. Is this the developer tail wagging the standard maker dog? It remains to be seen, but it is certainly interesting.

Our normal feature sections are included, and are listed below:

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CSR and Silicon Wave collaborate on testing 3Mbps Bluetooth technology

In an interesting development, two of the Bluetooth industries major silicon companies have joined hands to prove next generation Bluetooth technology. CSR and Silicon Wave have announced that they have successfully performed interoperability testing for medium-rate Bluetooth devices using both the 2 Mbps and 3 Mbps modes. On February 3rd in San Francisco, CSR and Silicon Wave concluded a series of collaborative test events, which are believed to be the first of their kind.

These interoperability tests are a major step to making a commercial reality out of medium-rate Bluetooth – an evolution of the Bluetooth standard which increases Bluetooth data rates by up to 3 times to 3 Mbps. The data rate of the current Bluetooth v1.2 specification is up to 1 Mbps. Silicon Wave and CSR have both been major contributors to the development of the medium-rate specification and these tests highlight the important role both companies are playing in its development.

The tests CSR and Silicon Wave performed covered all aspects of the physical layer through the baseband and link manager functionality and included successful testing of all three data modes (3Mbps, 2Mbps and 1Mbps). Based on this extensive interoperability testing, the companies believe that the medium rate specifications are complete.

This announcement is not only interesting for the fact that two companies widely regarded as competitors are collaborating, but also because they are issuing public statements about future developments to the Bluetooth standard, a practice generally frowned upon by the Bluetooth SIG.

Curious to know whether this announcement did mark a milestone in the technology's roadmap, and if this was the precursor to an official statement, Incisor contacted the BSIG. Marketing director Anders Edlund would not be drawn to comment, saying simply "The two companies have issued a press release on information that is not yet in the public domain. At this time, no decisions have been made regarding developments or enhancements to the Bluetooth standard."

Whether this means that the CSR/Silicon Wave announcement is premature or not is up for discussion. However, for those seeking faster versions of Bluetooth to suit specific applications, the fact that work has reached this stage and the successful results of the two companies testing must be welcome news.

Ericsson augments portfolio with Bluetooth 1.2 software stack

Ericsson Technology Licensing has announced its new core Bluetooth software stack, which has been named B-C3. Ericsson says that the new stack is the first on the market supporting Bluetooth 1.2 features and profiles. The company announced cores for Bluetooth 1.2 baseband and radio last year, which means the software stack completes their offering.

The stack supports standard 1.2 features such as Adaptive Frequency Hopping (AFH) and extended Synchronous Connection-oriented link (eSCO). Both are features that improve voice quality. The stack also supports parallel applications; using the Bluetooth connection for more than one activity at the same time.

The Ericsson B-C3 core Bluetooth software stack will be qualified and generally available mid-March 2004, and is now being shipped to selected customers. It will also be available for evaluation in a Microsoft Windows environment.

Technology highlights of the new stack include:

- Support for new HCI Transport Layer for 3-wire UART
- Support for eSCO added functions
- Support for RSSI: enables specific inquiry searches, for example within a certain range.
- Support for timing over HCI: applications can access timing and clock information from the lower layers.

The core of the stack has already been proven in various applications, such as mobile phones, cameras and access points.

ORA targets Bluetooth as deployment grows

ORA, a UK supplier, distributor and developer of a wide range of mobile communication accessories and value added services to the European telecoms industry has identified Bluetooth as a major area of focus for its expansion. ORA has established itself as a leading supplier of mobile phone accessories to key players including Orange, O2 and The Carphone Warehouse.

ORA's current portfolio includes; handsfree car kits and headsets, Bluetooth devices, mobile cameras, batteries, chargers, cases and smartphone accessories.

Increasing legislation against in-car use of cellphones, and the corresponding ramp-up in development of Bluetooth hands-free devices has created a fast-growing market that ORA will now elevate to high priority status in its product development programme.

David Lock, business development director at ORA explained that through ORA's close relationships with the leading networks and manufacturers, the group is at the forefront of new product development and has exclusive distribution rights to a number of products.

'We are making a concerted effort to engage at an early stage with companies developing Bluetooth products so that we can use our knowledge of the specialised requirements of the cellular products distribution market to influence not only product specification and design, but also simple but vital matters such as correct packaging and presentation" said Lock. ORA is increasingly focusing on supplying a range of value added services to its clients and currently operates dedicated accessory sales lines for Orange, O2 and Vodafone from its in-house call centre.

ORA has a strong partnership with manufacturing facilities in the Far East, enabling close monitoring of product development, tooling, specification, component sourcing and quality control at each stage of manufacture. Lock explained that this factor was a major asset, allowing ORA to engage at a much higher level with developers and the distribution channel alike.

Headsets and in-car Bluetooth devices are not the only area of interest for ORA, and the company will also investigate and develop other innovative Bluetooth products.

New publication assists wireless marketeers

A new book by writing team Sarah-Jayne Gratton and Dean Gratton - Marketing Wireless Products - provides an insight into the world of wireless technology marketing by addressing the many issues faced in effectively presenting this new technology to the end user/consumer.

The book is based upon the rationale that technology marketing, and in particular wireless technology marketing, has proved somewhat paradoxical to those working within the industry. By drawing upon the knowledge of industry leaders within the wireless world, the writers intend that the reader will benefit from the personal experiences of those who are primarily responsible for communicating a product's message to the consumer.

Aimed at those entering the world of technology marketing for the first time, Marketing Wireless Products provides a tutorial, claiming to open up the reader to the thoughts and experiences of industry figureheads, whilst encouraging the birth of fresh perspectives. To existing technology marketers, the book provides a reference, allowing the reader to consider his/her particular approach to marketing alongside the successes and failures of peers. The book is accompanied by a regularly updated web site to keep up with advances in the field.

Marketing Wireless Products is published by Elsevier Books and will be available from March 2004.

O2 chooses CSR Bluetooth for XDA II Smartphone

CSR has announced that its BlueCore silicon has been chosen to Bluetooth-enable wireless operator O2's latest Smartphone, the XDA II. O2's Smartphone uses Microsoft Pocket PC interface to enables users to connect wirelessly to any other Bluetooth enabled PC, mobile headset or PDA. With no keypad, the XDA II resembles a PDA but also includes a GSM mobile handset, camera and games.

CSR points out that with Bluetooth technology a user may take advantage of the XDA II being a combined PDA and mobile phone, as well as making fuller use of features available on the handset. For instance, by using XDA II with a Bluetooth enabled headset, a user can discuss meeting dates and view their personal organiser for dates. When doubling up as a PDA, the O2 XDA II can synchronise with other Bluetooth enabled mobile phones, PCs and PDAs, to download and upload PDA data.

Lars C. Weisswang`e, Head of Integrated Devices, mmO2 plc, commented, "It makes sense to add Bluetooth technology into the XDA II, as its numerous features are all designed for maximum mobility. A handset as compact as the XDA II requires the most compact components to enable so many features to fit in one device. At 6x6mm, CSR's BlueCore single-chip solution has allowed O2 to maximise the available space and give its customers a sleek design with a whole hoard of features.'

John Halksworth, Product Manager for CSR, added, "The growing popularity of Smartphones has meant that Bluetooth solutions like CSR's BlueCore have not only been an addition to mobile handsets which I believe is increasingly seen as a pre-requisite. Enabling a whole host of wireless applications from hands-free communications to PC synchronisation, Bluetooth makes sense in the increasingly mobile working environment."

O2's sleek new XDA II adds Bluetooth to feature list

Nokia to acquire Psion plc's shares in Symbian

Answering long-term speculation over its role in the ownership and management of Symbian, Nokia has announced that it has started the process of enabling the transfer of Psion's shares in Symbian to Nokia. This despite claims as recently as December 2003 by the Symbian management that this was not a possibility.

Nokia states the decision to acquire Psion's shares in Symbian is based on its confidence in the Symbian OS as a core platform technology for advanced mobile devices.

The value of the transaction will derive from two parts. A fixed portion of £93.5 million (137.1 MEUR), and a variable payment of £0.84 (1.23 EUR) from Nokia to Psion for each Symbian OS device sold during 2004 and 2005. Upon completion of the transaction, Nokia estimates that its share in Symbian will increase from the current 32.2% up to approximately 63.3%.

Symbian will apparently continue to 'pursue its fair and non-discriminatory licensing business of the standards-based Symbian operating system (OS)', though those that have insisted that Symbian has for some considerable time been a Nokia-driven business will now find few to argue with their case. .

"The Symbian OS has proven its flexibility as an OS platform capable of supporting the demanding needs of the industry. Good examples include the UIQ software platform, the Series 60 Platform, the FOMA UI (user interface) and a number of vendor specific implementations - all running on top of the Symbian platform. This flexibility has resulted in a rich variety of advanced mobile devices enabling both handset manufacturers and operators to differentiate their offerings". said Pertti Korhonen, Chief Technology Officer, Nokia.

The intended transaction is subject to clearance by the competition authorities and approval by Psion plc's shareholders. Nokia and Psion have started these processes. The completion of the transaction is expected to take place within the coming months.

In conjunction with Nokia's announcement, Psion has announced its decision to sell its stake in Symbian to Nokia , saying that it will now focus on developing Psion Teklogix, its core business.

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Nokia launches new Bluetooth/Wi-Fi equipped Communicator aimed at enterprise market

At 3GSM in Cannes, Nokia has announced the latest product in its Communicator series, describing this latest iteration as the first in a series of new enterprise-grade mobile devices designed for corporate customers.

Nokia says the the new 9500 Communicator is one of the first cellular devices on the market designed to meet the demands of corporate IT departments for customisation, manageability and security. The tri-band 9500 supports E-GPRS (EDGE), Wi-Fi 802.11b and Bluetooth.

"Nokia understands mobility better than anyone," said Mary McDowell, Nokia Enterprise Solutions' recently appointed senior vice president and general manager. "The Nokia 9500 Communicator combines our knowledge of enterprise customer needs and critical usability issues with our expertise in mobile connectivity and security, resulting in the first mobile device that enables fast and universal access to corporate services, and is backed by proven application and software support from leading IT vendors."

Like its predecessors from the first Communicator family, the Nokia 9500 Communicator takes the most popular office solutions mobile by bringing e-mail, personal information management, with PC synchronization, browsing, vertical enterprise applications and document, spreadsheet and presentation creation into the pockets of mobile professionals, allowing them to effectively utilize their time while on the road. Other features of the 222-gram (7.83 oz.) device include:

- Tri-band GSM capability (two variants: 900/1800/1900 MHz and 850/1800/1900 MHz)
- GPRS/EGPRS (EDGE)
- Wireless LAN IEEE 802.11b
- Symbian Operating System 7.0S Platform with J2ME Personal Profile environment
- In-built VGA camera & Multimedia messaging
- Bluetooth audio and data support

- USB connectivity
- 80 MB of free user memory
- Two color (up to 65k colors) displays
- E-mail support: POP3, IMAP,
- Email: IMAP4, POP3, SMTP, SyncML
- Security: SSL/TLS, Ipsec VPN
- Browsing: HTML/XHTML, HTML 4.01, JavaScript 1.3
- Office tool support: documents, spreadsheet, presentations

Also unveiled were the Connectivity desk stand for convenient charging and synchronization with a compatible PC, the Mobile Holder, which firmly holds the Nokia 9500 communicator in place in the car, and the Antenna Coupler, which provides a connection to an external antenna.

For personalization, optional colour covers are expected to be available.

Nokia claims that leading corporate information and communications technology vendors such as Cap Gemini Ernst &Young, Cisco Systems, Computer Associates, IBM, Oracle, SAP AG and Symantec are already endorsing and/or supporting the new Communicator series with applications and software built especially for the new platform.

Initially targeted at sales and field force automation in the pharmaceutical, insurance and government industries, early implementers will include Pfizer, Ricoh and Daimler Chrysler. This will allow, for example, field personnel and sales representatives to access work orders and sales manuals from their company servers via

Nokia communicators, provide faster and more efficient service, and reduce their cost of sales and services.

"Nokia sees excellent growth opportunities in three main areas; multimedia, enterprise and new subscribers. Furthermore, 2004 will be the year when we see the commercialization of 3G WCDMA," says Jorma Ollila. "We have reached a subscriber base of around 1.3 billion, with the potential to nearly double this over the next few years. Mobile data services will make up an increasingly large share of the mobile market. Accordingly, data is expected to account for close to 30% of the mobile services market in 2007, compared with just over 10% in 2003, clearly showing the trend of mobility being integrated to all aspects of everyday life."

The Communicator 9500 is expected to be available in volume during the fourth quarter of 2004. The price (unsubsidised) is expected to be around €800 in Europe.

IBM embraces Communicator

Forging a tighter bond between the worlds of IT and communications, IBM and Nokia have announced that they will jointly deliver mobile solutions that enable greater workforce mobility.

The pair will combine Nokia's Communicator platform and IBM's mobile software to deliver increased functionality, such as instant messaging, increased personal productivity, ubiquitous connectivity and better user experience of enterprise applications into the hands of mobile workers worldwide.

Initially targeted at sales and field force automation in the pharmaceutical, insurance and government industries, early implementers will include Pfizer, Ricoh and Daimler Chrysler. This will allow, for example, field personnel and sales representatives to access work orders and sales manuals from their company servers via Nokia communicators.

The solutions are powered by a mix of IBM software products optimized for the Nokia Communicator platform running on the Symbian Operating System. These include WebSphere Everyplace Access Client, WebSphere Everyplace Connection Manager Client, WebSphere Micro Environment, IBM Tivoli and Lotus Sametime Instant Messaging Client for the Nokia Communicator. These provide access to a wide range of enterprise backend systems, enabling users to maintain a connection to critical information, and enable enterprises and service providers to securely extend a new class of high value applications and services to mobile users. IBM Global Services will provide system integration services for these solutions.

Troy and Agfa Monotype add fonts in latest Bluetooth printer adapter

Troy Group and Agfa Monotype Corp., a provider of fonts and imaging technologies, have agreed to use Agfa Monotype's fonts for driverless printing in Troy's latest wireless Bluetooth printer adapter.

Troy recently announced its WindConnect II printer adapter using Bluetooth wireless technology that incorporates the latest Basic Printing Profile (BPP) and Basic Imaging Profiles (BIP). One of the major features of BPP is the ability to print without printer-specific drivers by rendering directly into a printer's supported printing language. Troy has now integrated Agfa Monotype's fonts directly into the Bluetooth BPP implementation to support driverless printing applications using Bluetooth wireless communications links.

"With the emergence of Bluetooth wireless technology in phones, PDAs, cameras and notebooks, we believe that driverless printing is a key application," said Harold Yin, executive vice president and general manager of Troy's Wireless and Connectivity Solutions. "Agfa Monotype fonts are well established industry standards for print fonts, and with them Troy can ensure the font quality level that our customers expect."

"The significance of embedded fonts and font technology as an enabler to wireless printing cannot be overstated. Font compatibility and text quality will continue to be a top priority when rendering resources aren't available such as downloadable fonts, as is the case in print-on-the-go scenarios," said Dave McCarthy, vice president and general manager of Agfa Monotype's Printer Imaging group. "Our agreement with Troy, given its wide range of products and impressive depth of expertise in Bluetooth technologies, allows both companies to increase opportunities for consumers who want and need high-quality wireless printing capabilities."

Bluetooth printing simplified

I want my MP3s

Luke D'Arcy & John Halksworth, CSR

Mobile phone manufacturers were early to recognise the potential of integrated music playing capability, and there are now many devices on the market with MP3 and FM radio capability. But it's only recently that 2.5 or 3G bandwidths have started to become widely available, allowing this capability to reach the logical extension of net music. Adding Bluetooth brings a new capability to this area that could well make it the next 'must-have' feature for mobile phones.

Like the last must-have feature, cameras, music has something to offer all the stakeholders in the mobile chain. It makes sense for phone manufacturers because music will drive a new upgrade cycle. It makes sense for operators because customers will pay for music downloads (they already spend more on ringtones than on CD singles!). Crucially, it makes sense for content providers too, because a watertight billing system is already in place. That's why it's the topic for this month's column.

WIRELESS STEREO: EASY, SO EASY

The application is wireless stereo headphones - sending compressed files over the Bluetooth link and decompressing at the headset. What's possibly the most interesting facet of this emerging market is the ease with which it can be implemented.

At the handset end, if - as is now increasingly the case - a Bluetooth design already exists, all that's required is to add an AV Profile. This is a simple upgrade, with modest impact on the overall operation of the handset - allowing the feature to be added for a small development investment. The scenarios in which a mobile phone might be used for playing quality music mean the AV Profile does not require additional hardware. It could exploit a phone platform's DSP resources for encoding files in offline situations, as some polyphonic ringtones do for example.

Mobile phone makers then have options for the other end of the link: they can design their own headphones, or simply leave the after-market to

CSR now offers a customisable reference design for wireless stereo headphones: all that's required at the handset end of the link is the Bluetooth AV Profile

the accessory OEMs who have already latched onto headset products in a big way.

At the headset end of the application, a new design is required. We have already discussed the DSP-equipped variant of CSR's BlueCore silicon (Incisor, October 2003) which provides an optimal bill-of-materials, single-chip solution for stereo headphones. A fully-characterised reference design for headphones based on this chip is now available, along with a software development kit called BlueLab Professional. As with many previous CSR development kits, full source code is provided, allowing users to customise products with their own look and feel - especially in areas such as the user interface.

DON'T STOP AT MUSIC!

Although extended music functionality would probably be the headline attraction of an upgraded phone, evolving Bluetooth technology holds out many more possibilities. Several of these extend the mobile's role as a 'lifestyle' companion - a significant design goal for many OEMs.

By and large, the first wave of Bluetooth implementations on mobile phones focused on basic functionality such as headsets. This was typically a risk and cost saving measure, as in the early days there wasn't universal belief in Bluetooth's attraction.

From conversations with handset makers today, however, it seems that any such Bluetooth upgrade is likely to be undertaken in conjunction with other Profiles, with the aim of delivering a step-function expansion in consumer-friendly functionality. Consider just a few Profile options:

HID: for no-fuss connection of qwerty keypads

to smart phones, and friendlier SMS messaging keypads for conventional phones. With MMS and mobile email becoming standard on mid-range phones, longer messages are now possible. The ergonomic problem remains though, limiting the usefulness of this capability for subscribers and depriving operators of revenues from a new text boom. Bluetooth can help by providing an efficient user interface for SMS messaging, allowing new applications like email and instant messaging to become popular and profitable.

SIM Access (in conjunction with PAN or LAN): for e-payment of items such as tickets or vending machine goods, and easy connection to embedded phones in automobiles.

BIP: for printing and sharing photos over Bluetooth. With so many Bluetooth camera phones now available it should be easy to share pictures with another phone or printer over an RF link. Up until now the lack of a standard way to do this means that the results can be unpredictable. BIP defines an extremely simple way to transfer pictures using the common JPEG standard.

When you consider that of these Profiles, AV is the most demanding in terms of computing power, it's clear that Bluetooth offers a powerful software-based upgrade mechanism for phone OEMs.

MONEY, MONEY, MONEY

As we mentioned, one of the factors holding back the progress of Bluetooth-related features has been the sheer cost of host stacks and development software, plus the potential integration issues arising from obtaining hardware and software from different vendors. Both these issues are addressed by CSR's own host software environment, BCHS.

BCHS reduces the risk by creating a single source solution, with proven and integrated software and hardware. And by focusing on supplying a stack optimized for mobile/PDA applications, CSR has been able to greatly reduce source code costs compared with commercial software environments. This trims NRE expenses to such a level that they become affordable by even the smallest developer. There's also an option that allows users to reduce up-front costs even further by opting for a down-payment and royalty arrangement.

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Strategy analytics: nearly 50 percent of cellular users demand location-based services

Practical Applications Preferred Over Entertainment Services

While application developers and the service provider community are focusing their resources on the deployment and marketing of infotainment services, "What Mobile Consumers Want," a new report from Strategy Analytics, indicates that the voice of the consumer--and consumer demand for more practi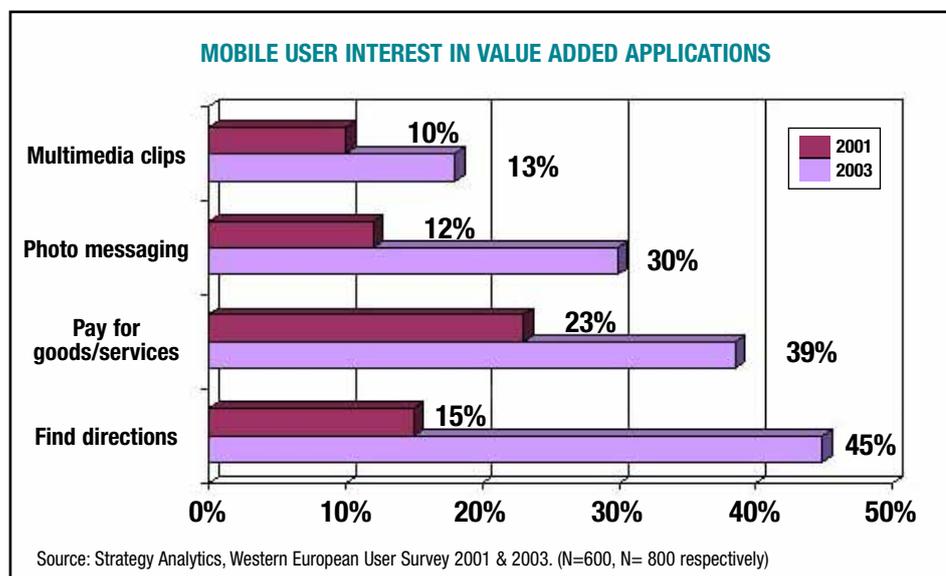cal services such as step-by- **step directions--is being overlooked. This information emanates from the Wireless Internet Applications (WIA) Service of the Strategy Analytics Global Wireless Practice, and is based on its latest end-user survey analysis.**

Senior Analyst Nitesh Patel noted, "Operators continue to miss out on the real revenue potential for location offerings, like step-by-step directions, as they myopically pursue the killer entertainment application." Mr. Patel points out that interest in location-based services has increased from 37 percent to 45 percent since 2001, while 38 percent expressed demand for making purchases via mobile phone.

Implementations of these services by operators have been hindered by both technical and marketing difficulties, such as poor levels of accuracy for location-based services, as well as the lack of a widely accepted payment solution for m-payment merchants. "Additionally," Patel continues, "Operators need to take a leap of faith and work with point-of-sale developers to create a payment mechanism."

David Kerr, Vice President of the Strategy Analytics Global Wireless Practice, added, "The encouraging news for European operators is that levels of interest in comparable applications improved on the bleak results obtained in our 2001 end-user survey; and demand for entertainment-centric applications, such as multimedia clips and photo messaging, also increased significantly."

MOBILE USER INTEREST IN VALUE ADDED APPLICATIONS

Application	2001	2003
Multimedia clips	10%	13%
Photo messaging	12%	30%
Pay for goods/services	23%	39%
Find directions	15%	45%

Source: Strategy Analytics, Western European User Survey 2001 & 2003. (N=600, N= 800 respectively)

Texas Instruments details 'revolutionary' digital RF architecture

Texas Instruments (TI) has announced details of a radical new approach to wireless chip design that applies digital technology to greatly simplify RF processing and which is claimed to dramatically cut the cost and power consumption of transmitting and receiving information wirelessly. The Digital RF Processor (DRP) architecture has been successfully integrated on two Bluetooth products, as well as a GSM /GPRS digital transceiver in TI's lab.

The company suggests that as mobile wireless products gain colour displays, cameras, GPS location technology, local area networking capability and application processors to support digital audio and video, games, and PDA applications, board space and battery life can be greatly extended by the DRP design.

The Digital RF Processor technology combines TI's signal processing architecture with advanced semiconductor manufacturing capability to perform analog functions with low power, digital CMOS logic. Since large blocks of CMOS logic can now operate at multi-GHz frequencies, sampled-data processing techniques, switched-capacitor filters, oversampling converters, and digital signal processors can take over the role of analog amplifiers, filters, and mixers. Rather than an inefficient implementation of analog blocks in a digital process technology, with the DRP the analog signal is oversampled and processed in the digital domain. Since radio signals at the antenna are always analog, a small amount of analog processing is included in the DRP between the input and the first sampling function. Once in the sampled-data domain, digital signal processing takes over.

Researchers from TI presented details of how DRP can reduce power consumption, die area and system board space by up to 50% over traditional analog RF designs at the recent International Solid State Circuits Conference (ISSCC).

"The processing of radio signals with digital logic can significantly shift the paradigm for embedding wireless communications by making it easier to implement and to scale," said Dr. Hans Stork, TI's chief technology officer. "With DRP, TI is leading the industry toward a future where wireless modules can be integrated into any kind of product, and provide the user with seamless access to a variety of network connections."

TI had previously announced it will sample to customers this year a highly integrated, single chip GSM / GPRS product integrating the DRP design using TI's 90nm process technology. The GSM / GPRS version of the DRP architecture has already proven fully functional on engineering development silicon now in TI's lab. TI has one single chip Bluetooth product in production today with the DRP design, the BRF6100, and another sampling, the BRF6150.

"TI's DRP architecture brings together the company's signal processing expertise and in-house process technology in a fresh approach to RF processing," said Allen Nogee, principal analyst, wireless component technology, In-Stat/MDR. "By incorporating RF functions digitally, TI provides the potential for modular radio configurations that address new applications and begin leading the industry toward software defined radio designs."

"Bulky Bluetooth" solutions disappearing?

Swiss fabless semiconductor company Xemics says that its new two-chip Bluetooth solution, using the recent Skyworks 1.2 compatible radio, sees overall PCB surface required shrink to less than 49mm². Xemics claims that this means that the low cost two-chip solution is even smaller than the single chip solutions that are available.

The XE1401 is the first member of Xemics' EasyBlue family and is tailored for battery powered applications requiring both SCO and ACL connection types. Simple to use EasyBlue tools and a starter kit exist for first time Bluetooth developers.

The ROM based XE1401 provides what Xemics describes as the lowest power consumption on the market. This can be achieved using any supply ranging from 1.8V up to 3.6V, which enables applications to take advantage of the wide choice of low cost batteries available. To optimise the system's power budget, an on chip level shifter can be used to evenly mix different supply voltages inside one system.

The XE1401 device is a stand-alone Bluetooth baseband protocol-on-chip solution providing full Bluetooth functionality from the radio interface up to the Host Controller Interface (HCI). This ''add-on'' Bluetooth baseband device targets all battery powered applications with an already existing 8, 16 or 32bit host controller.

Flextronics claims breakthrough in the wireless printing world

The Short Range Wireless group at Flextronics Semiconductor, which provides Bluetooth application processor and modules has announced its next generation Bluetooth USB printer adapter reference design, incorporating the Flextronics BIC2102 Bluetooth application processor. The new reference design and printer server application – also developed by Flextronics, enables direct wireless printing from any printer- driver-less Bluetooth equipped device, including image and business card printing from mobiles phones, PDAs, etc to popular printers

Flextronics is aiming the new reference design at the very large market potential of more than 150 million USB printers installed worldwide, and enables consumers to convert their existing printer into a wireless Bluetooth-enabled printer.

The company claims that the latest developments in the mobile phone industry, with the increasing demand for camera phones, mean that the need for image printing from a mobile phone is stronger than ever. The lack of printer drivers in such devices raises a significant challenge which Flextronics solves by providing a sophisticated printer server application that runs on top of the OPP, BIP and BPP profiles and enables high quality image printing from these special devices.

Yaron Moradi, VP marketing & sales for Flextronics Short Range Wireless commented "This new generation of the Bluetooth USB printer adapter shows the continuous commitment of SRW to the growing wireless printing market. With this sophisticated solution we expect to collaborate with mobile phone and printer providers to expand the MMS traffic and ink-jet consumption".

The BIC2102 includes an integrated USB-Host Controller, CPU, 144 KB RAM and the ability to run multiple embedded profiles.

ARM licenses new core to CSR for next gen wireless devices

RISC processor solutions provider ARM has announced that CSR has licensed the ARM968E-S core, to be used in a range of wireless connectivity solutions.

The ARM968E-S core will give CSR the benefits of the core's small silicon footprint (0.59sq mm @ 0.13um), Interleaved Memory Architecture (IMA) for efficient dataflow processing, industry standard programmers' model and a wide range of SoC infrastructure support. The ARM968E-S core is applicable to many embedded applications such as automotive, hard disk drives, Bluetooth, DECT, cellular modems and WLAN.

"Licensing the ARM968E-S core will enable CSR to continue to lead the market in developing single-chip radio devices. We intend to use the ARM968E-S core in a new generation of high data rate chips where we need the 100MIPS plus performance offered by the ARM® 32-bit architecture," said James Collier, technical director of CSR. "An added benefit is that CSR's OEM customers will be able to use familiar ARM tools and programmers model."

"CSR has a successful track record in wireless technology, and an established reputation for innovation," said Mike Inglis, EVP Marketing, ARM. "The ARM968E-S core offers CSR significant processing performance with the benefit of minimal silicon area, low cost and reduced energy consumption. This combination enables CSR to develop a wide range of connectivity chips that deliver improved performance, improved battery life and lower silicon cost."

Ultra low-power Bluetooth solution from Xemics

Xemics' EasyBlue ACL Drop-In board, which bridges directly from a 4 wire UART to the air interface, has achieved Bluetooth qualification and production has commenced.

The Xemics product is a class 2 reference design, to be used as a drop-in solution for all kinds of power sensitive Bluetooth data links. It bridges the Host Controller Interface (HCI) to the air interface and provides the full Bluetooth data communication feature set; ranging from high speed communication over 7 slaves to scatter net support. According to Xemics, the maximum power consumption of typically 21mA @ 1.8V makes it the ideal solution for any portable application requiring high speed data communication, full networking capabilities and ultra low-power consumption at the same time. Due to the Bluetooth product listing and qualification of complete radio, antenna and all embedded Bluetooth layers, the design can be used as is.

"Our EasyBlue ACL Drop-In board design, which is using a ROM version of the lower Bluetooth protocol stack, is another key milestone for Xemics' clients. It can be used as a true "Bluetooth drop-in solution", said Remy Pache, Xemics' Vice President Marketing. "This product does remove design risks and costs by offering a proven system solution, especially for first time Bluetooth developers or mid volume projects."

Anti-hacking consultancy warns of new Bluetooth cellphone hack attack problem

A company describing itself as a 'leader in the field of IT security' is the latest to claim that Bluetooth is an insecure technology. Adam Laurie, a director AL Digital, has issued a statement that warns against the possibility of 'Bluesnarfing', a technique exploiting 'serious flaws in the authentication and/or data transfer mechanisms on some top selling Bluetooth-enabled mobile phones.'

Laurie goes on to claim that his discovery has disturbing implications for both personal and commercial security: "financially-motivated cyberthieves could clone phones, steal identities, gain access to bank accounts. Hard-won sales leads, business contacts and other highly confidential information could be downloaded from certain mobile phones without the owner even being aware that they are the victim of a crime. Of even greater concern is the vulnerability of lone children and women who could fall prey to all kinds of unsavoury characters if their mobile number or whereabouts got into the wrong hands."

AL Digital cites two specific security breaches: "Firstly, the SNARF attack. Confidential data including phonebook, calendar, associated attachments, and business card can be obtained, anonymously, and without the owner's knowledge or consent, from some Bluetooth-enabled mobile phones. Normally this is only possible if the device is in "discoverable" or "visible" mode, AL Digital has proved that this safety net can be bypassed."

"Secondly, the Backdoor attack. AL Digital has discovered that the complete memory contents of some mobile phones can be accessed by a previously trusted ("paired") device that has since been removed from the trusted list. This means that not only can data be retrieved from the phone, but other services such as modems or Internet, WAP and GPRS gateways may be accessed without the owner's knowledge or consent. Indications are that once the Backdoor

Nokia and Sony Ericsson phones fingered by AL Digital

is installed, the SNARF attack will function, without restriction, on devices that previously denied access."

Laurie explained his and his company's position "Our goal in highlighting this problem is to alert users to the dangers that exist and to tell them what precautions they can take. We also want to put pressure on the manufacturers to rectify the situation."

Laurie completes his piece by saying that "the

only defence to users against a SNARF attack is to switch off Bluetooth. To permanently remove a pairing and protect against future Backdoor attacks, it is necessary for the mobile phone to be reset by the factory, but this will, of course, erase all personal data."

Interestingly, Laurie adds, "The above methods work to the best of our knowledge, but, as the devices affected are running closed-source proprietary software, it not possible to verify that

without the collaboration of the manufacturers. We therefore make no claims as to the level of protection they provide, and owners must continue to use Bluetooth at their own risk."

What a surprise – this security company expert is prepared to highlight technical flaws, but can't guarantee his fixes.

Now, all of this sounds so like scare mongering as to be amusing, and the tone in places can only be described as sensationalist. Most people that know anything about Bluetooth acknowledge that it is an extremely secure technology, yet sadly this hasn't stopped AL Digital's proclamations generating plenty of column inches. Nothing new there, then.

TDK System's managing director Nick Hunn recently commented on Bluetooth hacking and security in the BSIG's email newsletter "The reality is that Bluetooth wireless technology is very secure. It supports frequency hopping and a good standard of encryption as well as authentication, which makes it comparable to military radios. However, nothing is absolutely secure - everything can be hacked given enough time and effort. What corporations need to concentrate on is not shooting the messenger - Bluetooth wireless technology is simply a wireless link and if you're worried about security, you should be using a Virtual Private Network to safeguard all of your external connections. It's actually a lot easier to hack into a wired LAN or modem connection at a hotel than it is to detect a Bluetooth wireless technology connection."

Of course, the views of the Bluetooth Special Interest Group (BSIG) needed to have been sought on this matter. AL Digital claims to have alerted the BSIG of this potential during 2003 and had so far not had any response. "The (BSIG) organisation doesn't seem to take security seriously. They seem to have designed the initial protocol to address security, but then sat on their hands assuming that the job had been done --and certainly Bluetooth has been around now for some years before anyone has identified a security weakness," said Laurie.

Incisor spoke to the BSIG via marketing director Anders Edlund, and we were provided with the following official statement:

STATEMENT FROM BLUETOOTH SPECIAL INTEREST GROUP ON 'BLUESNARFING' SECURITY BREACH OF SOME MOBILE PHONES WITH BLUETOOTH WIRELESS TECHNOLOGY

The following is a statement issued by the Bluetooth Special Interest Group (SIG):

Recently, there have been reports of 'bluesnarfing', defined by security experts as the ability to breach the security of a mobile phone and obtain information from phone books and calendars located on the phone through its Bluetooth wireless connection. On behalf of our 3000+ members that produce products every day with Bluetooth wireless technology, we would like the industry to understand that this issue is a result of implementation decisions by specific product manufacturers in a limited number of products and is not inherent to Bluetooth wireless technology itself.

Upon assessing the risk of 'bluesnarfing' mobile phones known to have this implementation issue, the Bluetooth SIG determines that it is extremely small. This risk assessment is based upon the requirement of advanced equipment, knowledge of the behaviour of Bluetooth wireless technology and considering the relatively short range of Bluetooth wireless technology.

The Bluetooth wireless technology applications that users enjoy can continue to be used safely by simply disabling the 'discoverability' feature. In this setting, applications are still available to the user while the product is unseen by other devices and thus safe from 'bluesnarfing'.

The facts presented above further emphasizes that Bluetooth wireless technology, as such, has advanced security features built in to the technology and can be considered one of the most secure wireless technologies available on the market today.

Obviously, companies such as AL Digital have to make a living, and the publicity generated by its 'bluesnarfing' shock-horror pronouncement has undoubtedly raised the company's profile. Spreading FUD (fear, uncertainty and doubt) is a well-practiced technique.

It is to be hoped that common sense will prevail, and that this storm in a tea cup will be forgotten as quickly as it appeared.

Red-M targets Bluetooth abusers

In light of growing concerns about "bluesnarfing" and "bluejacking" incidents, wireless security and control products company Red-M has drawn attention to its enterprise solution for Bluetooth-related vulnerabilities. Red-Detect, Red-M's IDS for enterprise wireless LANs, includes real-time mechanisms to detect and alert security administrators of "bluesnarfing" and other Bluetooth attacks.

Red-Detect is a multi-probe enterprise solution that can detect when rogue Bluetooth devices enter its airspace and automatically send a real-time alert regarding potentially damaging activities. Armed with this critical information, IT administrators within the enterprise can work with security managers to take appropriate action to mitigate threats such as those posed by Bluetooth.

"Most enterprises have been slow to understand that wireless networks are much more vulnerable to attack than wired networks," said Red-M President and CEO, Karl W. Feilder. "Traditional security measures such as firewalls don't work in the wireless world, so the dangers of hackers, worms and viruses are much more threatening to the enterprise. Our products are designed to protect against all wireless threats, whether from 802.11 or Bluetooth."

Fujitsu Siemens Computers and Vodafone UK unveil pay-per-month wireless laptop package

Fujitsu Siemens Computers and Vodafone UK have launched CONNECT2AIR packages, which are described as 'first-of-their-kind' wireless computing packages that offer small businesses a radically new way to purchase IT. Fujitsu Siemens claims that for the first time, businesses will be able to purchase wireless laptops or tablet laptop PCs in a similar way to how they purchase mobile phones. This makes it easier and more affordable for businesses to take advantage of the productivity and flexible working benefits of wireless computing without negative impacts on cashflow.

In addition to the standard features of a contemporary notebook deal, the CONNECT2AIR packages include:

- A fully wireless-enabled Fujitsu Siemens Computers LIFEBOOK laptop or tablet PC for £99 (normal list price of between £1,139 and £1,478)
- A monthly contract for a minimum period of 24 months, starting from £89 per month:
- A range of all-inclusive GPRS access options
- Wireless Hotspot (WiFi) access

Fujitsu Siemens says that its research reveals that four in five (77 percent) owners of Britain's smallest businesses rate maintaining positive cashflow as the most pressing issue for their business. Owing to its low purchase price and monthly contract structure, CONNECT2AIR packages provide small businesses with a cost-effective and simple way to work wirelessly, without crippling the balance sheet.

Dave Cullinane, managing director, Fujitsu Siemens Computers UK & Ireland, said: "By learning from the way people buy and use technology from the mobile phone industry, CONNECT2AIR packages allow small businesses to look after their cashflow without being left behind by technology advances."

CONNECT2AIR packages offer connectivity via the Vodafone GPRS network. With integrated wireless LAN capabilities, customers will also benefit from the ability to access public wireless hotspots, which can be found in ever increasing numbers in many areas such as hotels, airports and cafes. This means that users can continue sending emails, accessing company networks and the internet either from a WiFi Hotspot or by switching to GPRS while away from the office, home or hotspot.

The Vodafone GPRS Mobile Connect Card is part of each CONNECT2AIR package and offers

Fujitsu Siemens makes laptop Wi-Fi ownership painless

a mobile remote working solution. The card simply slots into the side of the LIFEBOOK laptop and the unique onscreen dashboard is displayed. This provides information on network performance and enables additional services such as SMS, VPN and Internet access to be used from all over the world.

80% of U.S. enterprises to have WLANs by 2008

According to a new study from InfoTech, 80 percent of U.S. enterprises will have a WLAN network system by 2008. This growth will represent a $5.9 billion market. Seventy-five percent of U.S. businesses have some kind of WLAN deployment, with most only affecting around 10 percent of their workforces. The study predicts that WLAN penetration will remain narrow until newer applications, like Voice over WLAN (VoWLAN), prompt businesses to deploy WiFi across all their units. The study also predicts that in-building mobile business users using multiple wireless technologies (i.e., cellular, WiFi, Ultrawideband, Bluetooth) will rise from 14.8 million in 2003 to 30.8 million in 2008. Forty percent of the mobile workforce will use multiple wireless standards as a part of their work routine by 2008.

D-Link claims first extended range 802.11g WLAN solution

Home and the small to medium business connectivity provider D-Link has announced it has worked closely with Atheros to be the first to introduce finished goods in extending the wireless range. This is achieved with firmware that can be downloaded free of charge as an enhancement to it's 802.11g Xtreme G wireless networking family.

The firmware is said to extend the wireless network range by 100% while remaining completely compatible with 802.11g and 802.11b wireless networks. According to D-Link's amazingly wordy and bullish press release, the new Atheros powered extended range Xtreme G improves radio sensitivity to extend the signal for users in large homes and buildings as well as in places previously difficult-to-reach such as areas with concrete walls and steel girders.

The new architecture provides enhanced radio receive sensitivity -- up to 105dBm, over 20 db better than the 802.11 specification. D-Link goes on to claim that with increased sensitivity, wireless clients at a longer range are better able to identify and process signal packets. At shorter distances, increased sensitivity translates to enhanced throughput performance.

"Now Xtreme G extends a very strong signal throughout the house, eliminating dead spots in the furthest reaches of the home," said Steven Joe, President and CEO of D-Link. "Independent tests have proven that Xtreme G delivers fast performance with a high bandwidth saturation, so extending the distance should really help the typical user with end-to-end processing with minimal effect to the network."

The D-Link Xtreme G solution features 'robust' security to protect the wireless network from intruders, complying with the latest wireless networking security protocols, including WEP encryption and Wi-Fi Protected Access (WPA) support for both 802.1x and WPA-PSK. The products are also capable of supporting the government-grade AES encryption and upcoming 802.11i standards.

The D-Link Xtreme G firmware update for existing Atheros-based D-Link AirPlus Xtreme G wireless products, beginning with the current C hardware version of the DI-624 Xtreme G Router, became available as a free download at the D-Link web site from mid-February.

Atmel Announces seamless handover protocol for WLAN

Atmel has announced a new roaming and handover protocol named 'Tap-Dance', which extends WLAN roaming capabilities by offering uninterrupted service even to time critical applications due to its seamless handover.

Tap-Dance will be offered and supported only by wireless router/Access Points based on Atmel's AT76C511, VNET-2 access point component. This component provides networking capabilities for the entire infrastructure needed to support the Tap-Dance protocol. With Tap-Dance, on-going services experience very little to no performance or quality changes, making it especially suitable for Voice-over-Internet-Protocol (VoIP) or streaming applications. Tap-Dance offers seamless handovers between different subnets, preservation of open IP sessions, lower latency, and zero reconfiguration requirements from the stations.

Atmel claims that one of the most important issues in the area of wireless and mobile communications technology is the ability to maintain an IP-connection while roaming, yet feels that roaming has not yet gained much attention in the current IEEE 802.11 standards. The result is insufficient support of important functionality such as preservation of the wireless station's (STAs) IP connectivity upon a Layer 3 (L3) handover (an L3 handover occurs when an STA has moved out of its home IP subnet and gets connected to an AP of a foreign IP Network). Today, the IEEE 802.1f Inter Access Point Protocol (IAPP) addresses L2 handovers (roaming between Access Points (APs) inside STAs Home Network), but not L3 handovers. Mobile IP, on the other hand, addresses roaming but not without considerable reconnection time (latency). For applications such as voice and video, this may be prohibitive.

'Tap-Dance, the result of our research in the area of IP roaming in WLAN provides surpassing characteristics when compared to any other available protocols. We consider IP roaming, continuous connectivity and preservation of open traffic sessions, as the factors that add real mobility to WLAN. In the end, what's the need for wireless if you are confined to a given area. Tap-Dance is Atmel's answer to this.' said Dr. Theodore Karoubalis, system concepts group manager of Atmel's Multimedia Communications Product Group.

Atheros demonstrates Super G and Wake-on-Wireless technologies

The Wi-Fi Planet Conference took place at the Bluetooth Americas venue - the San Jose McEnery Convention Centre – during the week preceding Bluetooth Americas. Atheros Communications and select partners took the opportunity to demonstrate wireless LAN products and some of Atheros' advanced Wi-Fi technologies such as Super G and Wake-on-Wireless .

The key features comprising Atheros' Super G technology are packet bursting, data compression, the ability to support larger frames and a dynamic multi-channel mode. Super G technology delivers 108Mbps data links with actual end user TCP/IP throughput of up to 90Mbps in 802.11a/b/g, 802.11b/g and 802.11a wireless networks.

Atheros says that its 'Wake-on-Wireless'

capability extends network management to the Wi-Fi environment and is compatible with existing network infrastructure equipment, management software, and industry standards for remote wakeup functionality.

According to Reuters, Atheros has filed during November with the U.S. Securities and Exchange Commission for initial public offering worth up to $100 million.

USB wireless print server from Troy

Customers looking for a wireless 802.11b print server with enterprise level security features are provided for by Troy Group, which has introduced the Troy PocketPro USB Wireless.

The wireless print server is based on Troy's embedded architecture and is designed to share USB printers among multiple users on 802.11b wireless or 10/100 Ethernet networks. Wireless print servers take advantage of existing wireless infrastructure and are ideal for any application where running network cables is impractical or too expensive or where the printer is frequently moved, or for users connecting their printer to

an Ethernet network and planning on moving to wireless in the future.

For increased security, the PocketPro offers 802.1x Extensible Authentication Protocol (EAP) with Tunneled Transport Layer Security (TTLS) as well as Open System or Shared Key support with Wired Equivalent Privacy (WEP) encoding. With 802.1x EAP, TTLS, WEP, read and write configuration passwords as well as TCP/IP access control lists, users can be sure their data is safe. 802.1x is the leading choice for enterprise and hotspot wireless security and is deployed in thousands of networks worldwide.

"Security is the number one concern that

network administrators have when deploying a wireless network," stated Harold Yin, Executive Vice President and General Manager of Troy's Wireless and Connectivity product line. "Our 802.1x security implementation addresses the need for a highly robust wireless security solution that easily integrates into corporation's pre-existing security infrastructure. Plus with an added 10/100 Ethernet interface, we provide a simpler method for configuration and flexibility for businesses operating hybrid Ethernet/wireless networks."

Vodafone starts 3G services in Europe with wireless datacard

With a first product presumably aimed at the wealthy enterprise data client, Vodafone has announced the commercial launch of its 3G services in Europe. The first service from Vodafone will be the Vodafone Mobile Connect 3G/GPRS datacard, which Vodafone describes as Europe's first high speed laptop datacard.

With data rates of up to 384kbps, the datacard will enable Vodafone customers to access all their usual office applications like e-mail, calendar and internet at up to ten times the speed of GPRS. The aim is to allow customers with a lap top to work anywhere just as if they are in the office.

Vodafone moves laptop connectivity on to the next level

Vodafone will first ship the datacard in Germany, Italy, the Netherlands, Portugal, Spain, Sweden and the UK over the next four weeks. The commercial launch of the 3G datacard apparently follows successful customer trials conducted across Europe with business customers.

In response to questions over 3G availability, Vodafone says that coverage is currently offered in most Vodafone markets in major cities and an increasing number of transport routes. When outside of 3G network coverage, the Vodafone Mobile Connect 3G/GPRS datacard automatically switches to Vodafone's GPRS network, which offers what is described as 'full' coverage, meaning Vodafone customers will have continuous access to their normal office applications. Vodafone will continually expand 3G coverage over the next few years.

New wireless media device from D-Link

Broadband, wireless, and networking hardware company D-Link, has announced the D-Link Wireless Media Player that distributes digital music, video and photos stored on PCs to play and view on a television and/or stereo system. The standard-based D-Link Wireless Network Media Player aims to create a seamless connection between computers and consumer electronics.

"The new wireless media player gives consumers access to more content than ever before in the area where they congregate the most, the family room" said Steven Joe, President and CEO of D-Link. "Now a family can view a catalogued library of digital photos on their TV or listen to pre-set configured MP3s in surround sound stereo, all of which represent the next step in the evolution and convergence of the CE and PC for the digital home."

The D-Link Wireless Media Player is a stand-alone unit that resides within a home entertainment centre and connects to the television and/or stereo using standard A/V or S-video cables. Using the included remote control and step-by-step TV interface, it is then easily connected to a home network via 802.11g wireless, or if preferred, through standard Ethernet cabling.

In addition to streaming digital music, photos and video from networked PCs within the home, D-Link also incorporates AOL Services, allowing users to experience a free trial opportunity of up to 6 months for Radio@AOL, the #1 Internet streaming radio service.

The D-Link DSM-320 Wireless Media Player will be available in late February through authorized retail, reseller and distribution partners at an MSRP of $149 and an Estimated Street Price ESP of $129.

D-Link enables the digitally connected home

BT puts Wi-Fi in BA lounges

Continuing its apparent determined plan to establish itself as a Wi-Fi hotspot trailblazer, UK operator BT has announced that it has struck an exclusive global deal with British Airways, to install BT Openzone access points in 80 of its main customer lounges around the world.

The contract will mean travellers can experience wireless broadband in British Airways executive lounges across the UK, Europe, United States, Africa, South Africa and India. The first ones will be operational by the end of April.

BT says that airports have proved to be among the most popular locations for customers to enjoy the benefits of wire-free, high-speed working away from the office. Steve Andrews, managing director, BT Mobility, described the British Airways contract as a major success. He added: 'BT has again led the way in the public Wi-Fi arena by signing this global deal with British Airways. This will be another huge benefit to our customers and shows that we are delivering on our promise to establish a widespread network of premium sites for BT Openzone.'

The deal is the latest in a string of recent contract signings for BT, including a roll-out in McDonalds restaurants across the UK. The first lounges to be covered will be at London Heathrow and London Gatwick. Other BA lounges across the UK are also due to be included, including Manchester, Birmingham and Newcastle in England, Edinburgh, Glasgow and Aberdeen in Scotland and Belfast in Northern Ireland.

The footprint of the coverage will also take in major European cities, such as Amsterdam, Rome, Berlin, Copenhagen and Athens, as well as all the major destinations in the United States and locations in Africa, South Africa and India. A full list of sites is available at **www.btopenzone.com.**

New radio for 5.8GHz

Wavelength Solutions has announced increased bandwidth capability in its Gemini wireless Ethernet bridge, to serve the new 5.8GHz (Band C) spectrum released in December 2003 by Ofcom - the regulator for the UK communications industries. Ofcom's aim was is to deliver low-cost wireless broadband connection to the most remote communities in the UK.

Wavelength claims that Gemini offers high speed, dual band connectivity at a fraction of the cost of conventional wired systems. Current users include health, education, transportation, government and business.

5.8Ghz Band C services will be a more powerful variant of the existing Wi-Fi services and are intended primarily for Fixed Wireless Access (FWA) point-to-point and point-to-multi-point applications. The technology attracts a nominal licensing cost of £1 per terminal installed per year. Each household or business connecting to the Internet will require a 5.8GHz Band C terminal.

With the capability for 5.8GHz in place, Gemini is positioned to support customers using the new spectrum from its date of public release on 02/02/04. The radio can be rapidly deployed with minimal disruption and no loss of service to existing networks. Gemini is a secure, encrypted communications link covering distances with line of sight of up to 16km and is said to be cost effective for all sizes of application.

The Gemini 5.8GHz radio system is the first to achieve full European certification, as US versions are not permitted for use in the UK/Europe.

China to wall-in Wi-Fi security codes

Companies that want to adopt the new China-only wireless encryption standard will have to acquire that technology from just 11 designated Chinese companies. These 11 companies include PC manufacturer Legend Holdings and telecommunications equipment manufacturer Huawei Technologies.

China recently announced a new policy that requires all companies that import and sell Wi-Fi equipment to use an encryption standard called Wired Authentication and Privacy Infrastructure (WAPI), which was developed by China and is not used anywhere else. The policy came into effect Dec. 1 2003.

Requiring foreign Wi-Fi equipment manufacturers to work with Chinese partners to acquire the necessary encryption standard has raised a host of fears among foreign companies. These fears range from the loss of intellectual property to price gouging, reported the Asian Wall Street Journal.

Foreign companies are worried that they will have to reveal considerable technical information to Chinese partners that claim to need it to incorporate the encryption technology. These companies will then get access to key intellectual property that could, potentially, be stolen.

Alternatively, Chinese companies could drag their feet about sharing the technology in order to give their own products a head start in the market.

Finally, with just 11 companies in possession of the new Chinese encryption standard, these companies could ask for very high fees in exchange for the technology.

U.S. embassy officials have raised these issues to the Chinese government and to U.S. equipment manufacturers as well as officials from other governments involved.

The Dec. 1 deadline was set by the Standardization Administration of China, which manages standards in various industries in the country. Support for WAPI is not included in current or upcoming security specifications, such as Wi-Fi Protected Access or 802.11i, developed and enforced by industry groups the Institute of Electrical and Electronics Engineers (IEEE) and the Wi-Fi Alliance.

WAPI is to be used with Wi-Fi standards in the 2.4GHz radio band, according to a notice from the Standardization Administration of China.

WAPI adds yet another security specification that companies will have to consider as they begin installing Wi-Fi networks, adding further confusion to the market, according to security experts. By prohibiting gear that does not use WAPI, the Chinese government is throwing an obstacle in the way of manufacturers looking to enter the Chinese market, they say.

In the third quarter, the Asia-Pacific region had the second-largest market share for sales of Wi-Fi gear worldwide, at 18 percent. North America was No. 1, with more than 60 percent. China was one of the top three countries in the Asia-Pacific region, according to research firm Synergy Research Group.

China is pushing domestically developed technical standards on a wide range of technology from DVDs to third-generation mobile phones, in part to avoid foreign royalties and increasingly to compete with international standards.

Philips and IBM join forces in RFID and Smart Card market

Philips and IBM have announced an initiative to jointly develop customer systems for radio frequency identification (RFID) and smart card applications. Working together, Philips and IBM will address the growing need for advanced high-security smart cards and RFID technology in day-to-day business processes, operations and consumer lifestyles.

IBM's RFID consulting and implementation practices are part of IBM Global Services, which claims to be the world's largest information technology services provider, with customers in 160 countries. IBM Global Services annual revenue was more than $42 billion in 2003, or nearly 48 percent of IBM's total annual revenue.

The key end-application areas that the companies plan to address are RFID solutions for supply chain management, retail and asset management, as well as smart card solutions for finance, e-government, transportation and event ticketing. Within the scope of the joint cooperation, IBM Global Services will also build an RFID system for Philips Semiconductors division manufacturing and distribution facilities in Taiwan and Hong Kong.

"Our relationship with IBM will mean stronger time-to-market, improved customer confidence levels and the opportunity to leverage each others' brands and expertise," said Scott McGregor, president and chief executive officer, Philips Semiconductors. "It is Philips' mission to continue bringing greater benefits to both companies and today's 'Connected Consumers' – enabling them better access to information, entertainment and services. To this end, the RFID system in East Asia being built by IBM is a good illustration of Philips adopting the very technology it is driving into the marketplace."

"Philips is the worldwide leader in high security smart card controller ICs and RFID chip solutions. IBM is committed to this market place and we are confident that the deployment of our joint solutions will reduce operational costs, increasing profitability and providing a competitive advantage for our customers," said Terry Hopkins, vice president, wireless e-business, IBM Global Services. "We are committed in helping companies boost levels of advanced product tracking and inventory control, as well as developing an end-to-end assessment of the specific costs and benefits in adopting RFID and smart card technology within their business processes." The first joint project between the two companies is the development and implementation of an RFID solution within Philips' Semiconductors division to improve the business processes within the manufacturing and distribution supply chain, inventory management and control as well as to enhance customer satisfaction. In a first step, wafer cases and carton packages will be tagged at Philips Semiconductors Kao Hsiung manufacturing site in Taiwan and the division's distribution centre in Hong Kong. The project started in November and will be fully live during the course of 2004.

Microsoft Business Solutions unveils RFID pilot project

There are continuing signs that Microsoft intends to make its presence felt in the wireless world. As part of its supply chain management (SCM) strategy, Microsoft Business Solutions has unveiled a pilot project it developed in alliance with KiMs, a midsize Danish manufacturer that employs 270 people and ships approximately 100,000 pallets of snacks per year.

This pilot project extends KiMs' existing Microsoft-based business solution in the areas of demand planning, event management, trading partner collaboration and hands-free warehouse management using Radio Frequency Identification (RFID) technology. The project, which went live at KiMs in late December 2003, was conceptualised, developed and deployed in three months.

KiMs wanted to monitor pallets of finished goods as they moved out of production and into a third-party warehouse and greater knowledge of the exact location of products at various points in the supply chain, to increase product availability.

"Our strong position and growth in the Danish market has been achieved through our ability to anticipate and meet our customers' demands in a wide variety of areas. Putting technologies of the future to the test is important to KiMs, and we are very pleased to have been involved in this pilot project with Microsoft Business Solutions," said Jørn Tolstrup Rohde, chief executive officer of KiMs. "The prospect that RFID can help us dramatically increase our ability to read and anticipate our inventory flow is compelling, and we are thrilled to be at the forefront of supply chain management innovation with the help of Microsoft Business Solutions."

KiMs produces crispy snacks that are bagged, cartoned and loaded on pallets, which are then moved to a staging area to be picked up by trucks for delivery to a distribution centre. A unique identifier is written to the RFID tag on each pallet, thereby associating the pallet with comprehensive production data.

The tags are monitored at storage, loading and shipment, and the data is fed back into Microsoft Axapta. "We expect this solution will offer users near-real-time visibility into the location of products in the supply chain," Nadella said. The RFID tags are used for tracking the movement of pallets during shipment, providing KiMs with greater visibility into its supply chain. Another anticipated benefit of the RFID tags is the trimming of inventory levels at the distribution centre, due to increased data accuracy.

SkyeTek and Socket do RFID

SkyeTek has granted an exclusive license worldwide for Radio Frequency Identification (RFID) technology to Socket Communications, which will develop a broad range of products for mobile computing and handheld devices. The arrangement allows for multiple RFID frequency implementations and multi-function capabilities. This includes SkyeTek's recently announced multi-protocol RFID reader/writer, SkyeRead M1-mini, measuring just 1 inch square.

"SkyeTek is extremely pleased to partner with Socket for solutions in the mobile and handheld device markets," said Jonathan Bein, Ph.D., SkyeTek's president. "Socket is a leading provider of products and solutions for the AutoID markets with worldwide distribution supported by VARs and system integrators. This partnership is positioned to meet a growing demand for RFID and mobile computing."

"RFID products will be an extension to Socket's existing bar code scanning business for the AutoID markets," said Mike Gifford, Socket's founder and executive vice president. "The new products will broaden our customer base as RFID technology is implemented and gains momentum. We selected SkyeTek's technology because of its small form-factor, low power consumption, and firmware adaptability." Early technology demonstration and developer products from Socket are expected to be available in the middle of 2004.

UWB - competition or collaboration?

A commentary by Mads Oelholm

You may have noticed that two separate conferences took place in San Jose during early December.

The first was on the familiar Bluetooth theme while the second covered the ugly competition from UWB (Ultra Wide Band). The Bluetooth event was by far the largest, but the UWB day should not be easily dismissed. There may be only a handful of UWB products available in the market today, but this technology is rapidly evolving. Much of the talk about competition between the two standards comes from the Bluetooth side, whereas very little is heard from the folks on the UWB side of the fence.

Much has been said lately about UWB wanting to take the place of Bluetooth. I have long been a follower of both technologies and feel it is about time to get some of the facts straight.

Bluetooth is both a radio technology as well as a protocol stack on top of the radio. This ensures a complete solution with a raw bit-rate of about 1 Mbps, which is quite enough for a wide range of applications, but doesn't cover every aspect of the Personal Area Network. There is a need for a higher rate PAN - based on Bluetooth, but also including other technologies. PANs are very useful for more uses than we see today.

While many have been experimenting with high fidelity sound over Bluetooth, video will definitely not be available due to bandwidth constraints. Yet the consumer electronics industry wants a wireless technology.

This is where UWB comes in to play. UWB allows data rates potentially at 500 Mbps, but, unlike Bluetooth, UWB is just a radio technology. The UWB working groups have not envisioned a separate protocol stack for the upper layers of UWB. Instead, the idea is to build a common layer on top of the PHY/MAC to allow several wireless standards to be layered on top.

These standards will include USB, FireWire and of course Bluetooth - if the Bluetooth SIG so chooses. On the diagram the various layers are illustrated. Bluetooth is not explicitly included, but should be considered one of the 'other' technologies.

UWB is currently only approved for use in the US and Singapore with a few experimental licenses handed out in Japan. The spectrum is wide range from 3.1 to 10.6 GHz transmitting below the ambient noise level. This means that other wireless technologies sharing the spectrum with UWB will not be disturbed.

In order to increase the data rate from 100 Mbps - the current maximum - several companies (including Intel) have suggested carving up the entire UWB spectrum in smaller slices - know as sub bands. By transmitting simultaneously across multiple sub bands at the same time, data rates of up to 500 Mbps could be achieved. Furthermore, sub bands could selectively be turned off, increasing the likelihood of compliance with radio regulations in other parts of the world.

All in all, the IEEE will hopefully soon approve sub-banding and then it is up to the Bluetooth SIG to take advantage of this new technology.

Those people who have invested money in developing radio chips for Bluetooth will have to take a very hard look at UWB, and possibly treat it as a competing standard. For those into the baseband game, UWB will allow even broader use of their IP. They may not be able to produce stand-alone chips as they used to, but will have to integrate their IP into newly developed cores that also contain IP from competing standards.

From a user perspective we should welcome UWB. We should also be grateful for the fact that the UWB folk are not trying to develop yet another protocol stack, but will let us use technology with which we are familiar, such as USB, FireWire and Bluetooth.

Finally - a word for the UWB people - get your act together! We want UWB. But we don't want two UWB standards as it looks right now. We don't need one standard for Europe without sub banding and one for the rest of the world with sub banding. As it stands right now the IEEE is still undecided, but is leaning towards allowing sub banding, but their European counterpart is set against sub banding. If this is allowed to go on, we risk ending with the same set of confusing standards that were just about to happen in the wireless LAN space until HyperLAN II died peacefully in its sleep.
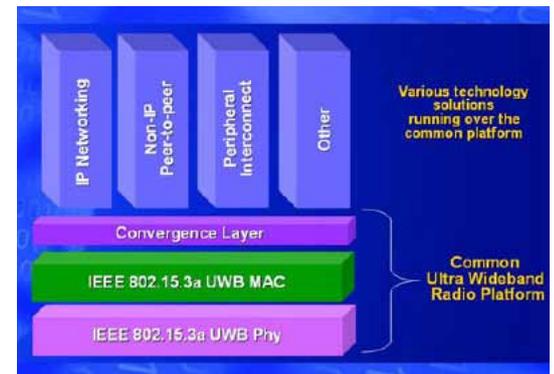
TI Announces Support for UWB MBOA special interest group plans

In the latest round of the UWB technology debate, Texas Instruments has announced its support for the MultiBand OFDM Alliance's (MBOA) plans to formalize into a Special Interest Group (SIG) supporting growth of the emerging ultra wideband (UWB) market. The formalization, announced by the MBOA at a press conference in Tokyo, comes on the heels of the latest IEEE 802.15.3a (UWB) meetings which saw increasing support for the MBOA's UWB proposal for high speed wireless personal area networks (WPANs).

Formal creation of the SIG is expected by the end of first quarter 2004. The group plans to publish a UWB 1.0 standard in May 2004. The group also plans to submit a proposal to the IEEE 802.15.3a working group.

"The market for UWB technology is quickly developing. In order to ensure rapid adoption and interoperability, it is crucial to have support for the technology throughout the value chain," said Yoram Solomon, general manager of TI's consumer networking business unit. "With more than 50 leading companies supporting the MBOA approach, it is clear that the OFDM-based approach to UWB is positioned to become the standard for UWB worldwide."

The MBOA now has more than 50 members, including many influential companies in the consumer electronics, personal computing, home entertainment, mobile phone, digital imaging and semiconductor spaces. This group of vendors is committed to creating a new class of compelling products incorporating high-speed wireless connectivity, allowing consumers to seamlessly transfer their digital content between a broad range of end products.

Incisor Directory of Bluetooth industry companies

As time goes on, more and more companies join the Bluetooth Special Interest Group (SIG), becoming part of the global network of companies that are working to take Bluetooth technology to market.

On an ongoing basis, Incisor includes a listing of companies providing products and services within the Bluetooth sector.

Beyond the simple listing, wherever there is an open book icon (📖) alongside the company name, you will be able to obtain more information and contact details for that company by clicking on the icon. This provides a link to an expanded profile of that company.

Incisor continues to be the only continuously published magazine dedicated to Bluetooth technology, and is received at more than 1200 companies across the world, and enjoyed by an estimated readership of 25,000 individuals. To add your company or a profile for your company to this directory listing, email: directorylisting@click.co.uk

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Anycom, Inc.
Brain Boxes Ltd 📖
Ensure Technologies
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TDK Systems
Troy Group
Xircom

Digital pen and paper technology
Anoto

Hardware and software design/IP
Adamya Technologies
ARC Wireless Solutions Inc.
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Catalyst Enterprises
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Tektronix, Inc.
Tescom Co Ltd

Test houses
7 layers 📖
CETECOM Inc. 📖
ETL Semko
ETS DR.GENZ GmbH
Radio Frequency Investigation (RFI) 📖

DATE	EVENT	LOCATION	NOTES	LINK
Mar 18 - 24 2004	CeBIT	Hannover, Germany	-	-
Mar 22 - 24 2004	CTIA Wireless 2004	Georgia World Congress Centre, Atlanta, USA	-	-
April 6 - 7 2004	The Wireless LAN Event	Olympia, London, UK	The Wireless LAN Event is supported by Intel, HP, BT, Nortel Networks and more	www.wlanevent.com
April 26 - 28 2004	Wireless M2M Communications Forum	London, UK	-	www.telecoms-events.com
June 8 - 10 2004	Wireless Connectivity World	Amsterdam RAI, Netherlands	-	www.wiconworld.com
Sep 27 - Oct 1 2004	3GSM World Congress Asia	Suntec International Convention & Exhibition Center, Singapore	-	http://www.gsmconferences.com/3gsmasia/

Further Bluetooth events will be added to the calendar as soon as they are announced. See notes below regarding editorial submissions.