INCISOR™

IN INCISOR THIS MONTH

Welcome to the July 2005 issue of Incisor magazine.

As the dust settles after the WiCon show, you could be forgiven for thinkning that we are moving into the quiet, hazy days of Summer, when nothing happens.

Nothing could be further from the truth. In the Bluetooth world, CSR celebrates its 1,000th design win (a statistic that is already out of date, we are sure). In UWB, both Focus and Artimi are claiming first single chip solutions, and in ZigBee, one of the feisty smaller players at the forefront of developments – Ember – teams up with industry giant Texas Insstruments.

Within our own sphere, we prepare to set sail for the Americas with our second annual revue of wireless activity in the USA (see page 11 for details). Yes, its time to visit leading American companies again, but this time we are not limiting ourselves to just Californian companies. We are entering into talks with wireless innovators all across the USA, will visit them during August and will feature them in our Wireless in America special issue, published on the 30th of September.

We would love to visit your company. Why not contact me now?

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CSR hits landmark with 1,000ᵗʰ design-in for BlueCore

CSR's continuing strength in the Bluetooth semiconductor market has been confirmed with the news that over 1,000 end products now use its BlueCore Bluetooth technology. CSR's BlueCore features in 69% of end-products qualified during 2004, as publicly listed on the Bluetooth website http://qualweb.bluetooth.org. CSR has achieved almost ten times as many design wins as its closest competitor.

CLICK HERE TO VIEW VIDEO REALISATION

BenQ M315 means 1,000 design-ins and counting for CSR

CSR's 1,000th design win is the BenQ M315 - a new tri-band multimedia handset from BenQ that offers an innovative hotkey to establish a fast and simple connection to a Bluetooth headset. CSR's BlueCore also featured in BenQ's P30 Symbian handset launched in 2003. On 7th June, it was announced that the Taiwan-based BenQ Group is to acquire Siemens' entire mobile phone business to help the company meet its goal to become one of the world's leading mobile phone makers.

Mobile phones remain by far the largest single market for Bluetooth silicon, so it is appropriate that the 1,000th design for CSR is inside BenQ's M315 GSM phone. In 2004 CSR supplied its BlueCore silicon for 55% of all Bluetooth-enabled handset designs. Figures for the first quarter of 2005 indicate that the company continues to clearly lead this market with tier one cellphone companies continuing to choose CSR's silicon: Nokia, Samsung, Motorola, BenQ, Panasonic, LG, Sharp, Pantech, RIM, NEC, HTC.

Its not just the sheer number of design wins it has won since the birth of Bluetooth that allows CSR to celebrate its leadership. There is also the higher-speed (3Mbps) Bluetooth EDR market. One year after the launch of the Bluetooth v2.0+EDR specification, CSR's BlueCore4 remains the only EDR silicon inside any qualified end-products. Dell, MSI, Toshiba, NEC, Cellink, Hewlett Packard and Apple all use CSR's EDR silicon. The market for EDR is expected to grow rapidly as product manufacturers migrate more of their products to benefit from the higher data rates and lower power consumption figures of EDR.

John Hodgson, CEO of CSR commented, "CSR's success is testament to the superiority of BlueCore technology, which now has grown to account for over 50% of volume Bluetooth silicon shipments. We look forward to our next 1,000 design wins."

BLIP Systems inks partnership agreement with XMS Penvision

Swedish company Anoto has probably done more to promote the use of wireless digital pens and paper than any other company, but it is not alone in Scandinavia as an evangelist for the technology. Another Swedish company - XMS Penvision - has signed an agreement with Danish company BLIP Systems to offer the possibility of using digital pen & paper solutions (where a wireless pen transfers written data from the paper to your back-office system) with Bluetooth access points.

Normally the digital pens deliver the handwritten pen documents via mobile phones or PCs, but now the users can additionally send the pen documents via 'BlipNodes', which are small, low cost Bluetooth access points that can be mounted inside buildings to create complete wireless networks. BLIP Systems' products suit closed environments when the user is semi-mobile. In some cases the user wants to be independent from a PC or mobile phone and in those cases, the BlipNodes are an optimal solution.

'XMS Penvision and BLIP Systems has already proven to customers that we can deliver

BLIP Systems promotes Bluetooth-based connectivity from its base in Aalborg, Denmark

solutions based on digital pen & paper with Bluetooth access points. Two of our partners are already in early phases in projects, where this new combination will be used,' said Daniel Segui, business developer and founder of XMS Penvision. 'We combine PenPusher PC, and the XMS DPP with BlipNodes and it brings a new dimension into digital pen & paper. In addition to the products, BLIP Systems has a vast knowledge in building and configuring Bluetooth networks, which is valuable to our partners.'

'For years we have now successfully been developing and selling the worlds most versatile Bluetooth Network, BlipNet, through partners all

over the world. Providing the partners with the most cost effective way of getting their solutions to the market, within diverse user scenarios such as Location Based Services, synchronisation, workforce management, industrial sensor communication and others. Within these areas BlipNet has already proved its worth. We and our partners have now found that BlipNet adds value to the digital pen & paper application so well, that this will be one of our main business focus areas in the time to come' said Kim Ø. Hermansen, sales manager and co-founder of BLIP Systems.

See also 'Corvelus and BLIP Systems' story below.

Covelus and BLIP Systems provide Bluetooth access point router

Covelus has announced a development co-operative with BLIP Systems that will see the release of Covelus Router for BlipNet Bluetooth access points.

Covelus develops Anoto PGC routing technology, and says that this project will allow service providers to implement complete wireless Bluetooth networks within closed environments such as hospitals or offices where connection to a mobile phone or PC isn't a viable option. Covelus Router will work as an off-the-shelf routing solution with the BlipNet technology, providing the core Anoto Components on which to deploy applications. Long-term Incisor readers will

Anoto believes that one day we will all be using a digital, connected pen
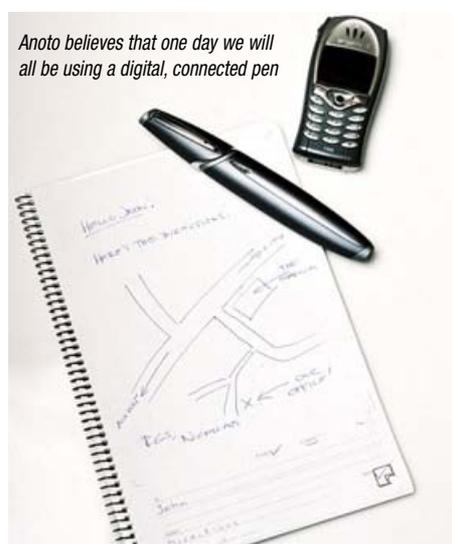
know that Anoto is the Swedish company that has blazed a trail with digital pen and paper technology.

'This development initiative is a natural extension to our Routing technology,' said Covelus CTO, Christian Johnsson. 'We are continuously adding new platforms and devices to support Covelus Router, and the BlipNet is integral to ensuring Anoto service providers have the choice of as many devices as possible on which to deploy applications. We expect to see some very interesting solutions emerge with the joining of our core technologies.'

Kim Ø. Hermansen, sales manager and co-

founder of BLIP Systems added: 'For years we have now successfully been developing and selling the worlds most versatile Bluetooth Network, BlipNet, through partners all over the world. Providing the partners with the most cost effective way of getting their solutions to the market, within diverse usage cases such as Location Based Services, synchronisation, workforce management, industrial sensor communication and others. Within these areas BlipNet has already proved its worth. We and our partners have now found that BlipNet adds value to the digital pen & paper use cases so well, that this will be one of our main business focus areas in the time to come.'

Bluetooth products

Samsung unveils Bluetooth Voice Recognition Phone

Occasionally, we journalists find ourselves in a quandary, trying to interpret a press release, knowing there is something in there that is interesting, but struggling to understand what it is. A recent announcement from Samsung, picked up from the company's web site, is a good example.

For the launch of its new SGH-E620 cellphone, Samsung is majoring on the fact that it combines Bluetooth with voice recognition technology. This phone has recently been released in Europe.

Now, voice recognition for phones and headsets – Bluetooth-enabled or otherwise - isn't new. So what are we to make of the following statements?

'This product exhibits a state-of-the-art technology of placing a call to the person whose name has been called out into the Bluetooth headset, by automatically searching the phone book of the mobile phone that is placed at a distance away from the user. Bluetooth headset has been used in the past to allow wireless call reception, however, when it comes to making a wireless call via a Bluetooth headset Bluetooth Voice Recognition Phone is the first of its kind.'

And …

'Samsung Electronics' Bluetooth Voice Recognition Phone is, as compared to the existing gadget which needs to be placed close to one's mouth, much easier to use, and its voice recognition capacity has also been greatly enhanced. Furthermore, since the calls can be made with the mobile phones left untouched inside one's bag or pocket, it has become much more convenient. In the past, even when using the voice recognition functionality, the mobile phone had to be switched over to stand-by mode first before a call was placed. However,

We don't understand …

with the Bluetooth voice recognition technology, there is no need to lay hands on the mobile phone. As such, calls can be placed safely even when one is driving a car. For this reason, this technology is expected to be much welcomed by the users.'

Puzzling, eh? And be assured that we aren't mocking Samsung's translation skills. We would genuinely like to know what the USP of this phone is.

We were able to understand that 'speaker independent voice recognition' technology has been adopted for the SGH-E620, so that voice recognition won't be limited to the voice type. E620 supports 5 languages, namely English, French, Spanish, German and Italian.

The announcement also stated 'Samsung Electronics is planning to expand the range of languages supported by the Bluetooth voice recognition technology, that is, to cover Chinese and Russian, and certainly Korean for release into the Korean market."

In addition to the Bluetooth functionality, the SGH-E620 comes equipped with a 1 megapixel camera, video wallpaper, speaker phone and 64 poly phonic ringtones amongst other features. Amusingly, video wallpaper functionality displays moving pictures for 10-30 seconds every time the mobile phone is switched over to standby mode.

Samsung Electronics believes it is behind a current Bluetooth craze in its own domestic market, resulting from its release of the world's first Bluetooth phone with a stereo headset - the 'Bluetooth Blue Black Phone (SPH-V6900)', in April this year, and subsequently releasing the 'Bluetooth Super Slim Phone (Model: SCH-V740)'.

So, no – we don't really understand quite what Samsung is claiming for its SGH-E620 Voice Recognition Phone. If anyone at Samsung wants to explain, we would love to find out.

Sony Ericsson expands portfolio

In the race to deliver the most stylish and feature packed phones, Nokia upped the ante recently with a raft of new, super-clever and stylish Bluetooth-enabled phones (see Nokia N Series overview in Incisor issue 82), and now Sony Ericsson has responded, with new phones, and accessories too.

There is a huge amount of information available for each of these new products, so understand if we provide a basic heads-up and invite those wanting more into to visit the Sony Ericsson web site. All of the products shown here are Bluetooth enabled.

CELLPHONES:

Sony Ericsson Z520

The Z520 is described as a global phone aimed at the fashion conscious who want the functionality of an up-to-the-minute device in an appealing, stylish design.

"The new Z520 is specifically designed for the stylish younger generation, particularly young women, who want to carry an attractive accessory just as much as a mobile communications device," said Jan Wäreby of Sony Ericsson. "The attractive design is small and neat, and it showcases a great new caller ID feature using a rim of blue lights and can be easily personalised.' The Z520 comes in a wide choice of colour schemes - Pale Blue, Sandy Grey, Ceramic White, Espresso Brown, Peach, Mint, Pale Yellow and Pale Pink - based on white and silver frames, and additional Style-Up covers in a multitude of patterns. The VGA camera can take pictures or video clips with the phone open or closed. The camera lens is on the

same side as the external screen, which acts as a reference viewfinder.

An ingenious light effect, which uses blue lights built into the phone's perimeter, lets you know who's calling by flashing one of the eight light patterns, which are paired with melodies. All of these effects are linked to the phonebook contacts.

The Z520 will be available from 3rd quarter 2005 onwards in the Americas, Asia Pacific region, China, Europe, the Middle East and Africa.

Sony Ericsson K608

The launch of the K608 3G UMTS mobile phone widens Sony Ericsson's portfolio of 3G handsets, supporting all the major operators' 3G services, including video conferencing and fast downloads of music, games, videos and other multimedia content.

The K608 weighs the same as existing 2G phones, putting an end to the age of bulky 3G handsets, and uses Sony Ericsson's latest dual front 1.3 MegaPixel camera/phone design that makes the handset vertical when it's a phone, and horizontal when it's a camera. Handling video calls is done in just a few clicks with the use of the direct video telephony button.

The K608 includes a suite of business applications that handle personal information management and PC-synchronisation via USB or Bluetooth, while high quality audio coupled with an FM radio and the ability to import full track music downloads direct to the phone make the K600 a quality music player.

The K608 will be commercially available in Q3 2005

Sony Ericsson S600

According to Sony Ericsson, the S600 will appeal to the unashamedly expressive youth audience.

"The Sony Ericsson S600 offers a maxed-out feature set to satisfy the daring fun-seekers," Wäreby commented. "We have gone all out to provide excellent communication including Internet browsing, great music with stereo speakers, sensational widescreen gaming, quality still imaging and video capturing and loads of personalization options. The phone will appeal to young adults with busy social lives and a desire to express themselves in multiple ways."

The S600 offers multiple ways of communication. Voice calls can be made with the phone closed or open to use the keypad. The 1.3 MegaPixel camera records video clips - with 4 x zoom for close-ups - that can be sent via MMS or Bluetooth. The phone also supports instant messaging and POP3/IMAP4 email, enabling users to keep in touch across the world using whatever method is most convenient.

Gigs, movie schedules, search engines and webmail can easily be checked with the internet browser that features a choice of viewing modes, and Sony Ericsson predicts that gamers will be stunned by the S600's widescreen mode. Games can also be played in a more conventional portrait mode or an L-shaped mode using the keyboard and the S600 supports multi-player peer-2-peer gaming via Bluetooth.

Stereo sound can be enjoyed through the headset packaged with the phone or with friends through the phone's powerful stereo speakers with MegaBass and Stereo Widening to enhance the sound. The S600 is supplied with music copying PC Software and a USB cable for fast transfer of music and images from the PC.

The S600 has 64 MB of memory, which means it can download and store hundreds of games, movie clips, music videos and ringtones.

The S600 will be available at the beginning of the 4th quarter 2005.

ACCESSORIES:

HBH-610 Bluetooth Headset

Joining ranks with other Bluetooth headset makers that have adopted Digital Signal Processing (DSP) technology, Sony Ericsson says that making calls in noisier environments is now painless thanks to the audio quality delivered by the HBH-610. It combines the latest version Bluetooth 2.0 with automatic volume adjustment, digital echo cancellation and noise reduction to ensure a stable connection and outstanding sound quality. The HBH-610, which delivers up to 6.5 hours' talk time and up to 13 days' standby, can be personalized with a selection of Style-Up covers and will be available during Q3 2005.

Bluetooth Car Handsfree HCB-700

The latest Sony Ericsson Car Handsfree adds new Voice Digit Dialling to conventional voice dialling and calls the number automatically when the user says the digits out loud. The info display is mounted at dashboard level, so the driver can see who's calling with the minimum of eye movement, and the control unit is positioned close to hand if the address book or call list needs to be referred to. The phone connects automatically to the HCB-700 when the ignition key is turned. The display can be configured to match the dashboard lighting. The HBH-700 will be available during Q3 2005.

Jabra adds BT205 Bluetooth Headset

Jabra has announced the launch of its latest addition to the Jabra BT200 Bluetooth headset family. The Jabra BT205 has kept the Behind-the-Ear (BTE) design of the Jabra BT200, which Jabra says is the world's best selling headset. Jabra describes the newcomer as incorporating improvements in usage and style with a new black and silver finish and extended talk-time of up to 4 hours and 120 hours (5 days) standby time. In addition, the Jabra BT205 will be offered at a mass market price of £39.99/EUR 59.00 so that everyone can enjoy the benefits of hands-free wireless mobile communication.

The headset weighs 23 grams, has a uni-directional microphone to emphasise voice and reduce background noise, and the Jabra MiniGels are claimed to provide superior sound quality and reception.

The Jabra BT205 is now shipping and will soon be widely available across Europe, the Middle East and Africa.

Snippets

Snippets

POST 9/11 – TEASING SIGNALS FROM RUBBLE

Researchers at the National Institute of Standards and Technology (NIST) are placing wireless transmitters in condemned buildings to study the effects of building collapses on radio transmission. In the wake of critical radio and telephone failures during the World Trade Center attack and collapse, NIST teams have "radio mapped" large structures slated for demolition, like housing complexes and sports stadiums, thereby obtaining a baseline of radio wave propagation at the low emergency radio frequencies and high-frequency cell phone bands. The researchers then study how signals are blocked once the structures are brought down, seeking ways to detect attenuated signals and to design a generation of hand-held radios and cell phones with Morse code capability for maximizing signal recognition.

Bluetooth AND Wi-Fi in Nokia Internet Tablet

Nokia has introduced its first device in the new Internet Tablet category, the Nokia 770, at the LinuxWorld Summit in New York. The 770 Tablet is optimized for Internet browsing and email communications in a pocket-size format and features a high-resolution (800x480) widescreen display with zoom and on-screen keyboard. The device can connect to the Internet utilizing Wi-Fi or Bluetooth via a compatible mobile phone.

"We are very excited to introduce our first Nokia Internet Tablet device to the market. With the Nokia 770 Internet Tablet consumers can access broadband Internet services away from their desktop, for example in the backyard or at a café within a Wi-Fi hotspot", says Janne Jormalainen, VP of convergence products, multimedia, Nokia.

The device runs on Nokia's Linux based Internet Tablet 2005 software edition which includes desktop Linux and Open Source technologies. The maemo development platform (www.maemo.org) will provide Open Source developers and innovation houses with the tools and opportunities to collaborate with Nokia on future devices and OS

Internet on the move, with a variety of connectivity options

releases in the Internet Tablet category.

"Linux is a logical choice for the Nokia 770 Internet Tablet as Linux and the Open Source development platform provide us with fast and efficient solutions to build products for this new, Nokia product category. This is the first step in creating an Open Source product for broadband and Internet services. We will be launching regularly updates of the software. The next software release

planned for the first half of next year will support more presence based functionalities such as VoIP and Instant Messaging", continued Jormalainen.

Additional highlighted applications include an Internet Radio, RSS News reader, Image viewer and Media players for selected types of media. The Nokia 770 is planned to start shipping in the third quarter of 2005 in selected countries in the Americas and Europe.

Xemics Bluetooth powers new generation of Bluetooth headsets from Formosa

Formosa Teletek, a provider of Bluetooth wireless connectivity products for the PC, cellular phone, and automotive accessories, and LTCC components, has announced its new Bluetooth Headset – the Sporty – which is built around silicon from Swiss company Xemics.

In addition to normal headset functions, the Sporty also features voice activation for true hands-free applications. Formosa claims an extended talk time up to 10 hours functioning on a single 120 mAh Li-ion cell courtesy of Xemics' ultra low power Bluetooth silicon. It is fully compliant with the Bluetooth specifications and supports the headset and/or hands-free profile.

All hands-free profile features are supported and accessible via the Man-Machine-Interface (MMI). A three button design is used to allow easy access to the volume control and phone answer/end buttons. An incoming call will ring through to the headset and

a simple push will transfer it to the headset. Alternatively, if the cell phone supports voice dialling, the user will be able to use that feature through the headset, without touching the phone at all.

The flexible chip architecture from Xemics enables the MMI to be upgraded easily.

'With the handset market remaining by far the largest Bluetooth market, the numbers of cellular phone headsets rise accordingly, with a forecast 30 million units to be shipped this year. Formosa has positioned itself to grab a significant portion of this market' said Keven Yang, Executive Vice President of Formosa Teletek.

Samsung selects CSR BlueCore for latest mobile handset

CSR's BlueCore silicon has been chosen by Samsung to Bluetooth-enable its latest GSM mobile handset, the SGH-E720. The SGH-E720 is the latest handset from Samsung to incorporate Bluetooth and follows the SGH-D500 model, which also uses BlueCore.

The handset incorporates a 1.1 Mega Pixel camera and MPEG4 video recording facility. With almost 90MB in-built memory, the SGH-E720 is capable of storing images, Java games, video, MP3 and AAC music files, and even voice recordings. A three button external controller allows users to navigate through their MP3 collection without opening the handset. The user experience is further enhanced by allowing music, photos and ringtones to be exchanged with friends' handsets or transferred to other Bluetooth-enabled devices, including an option

Samsung's SGH-720 has CSR inside

of printing photos directly via a Bluetooth-enabled printer.

The SGH-E720 also includes BlueCore Host Software (BCHS), which implements all the lower power modes in Bluetooth such as deep sleep mode, thus helping to reduce overall device power consumption. This means that users can take full advantage of all handset features without rapidly draining battery life. Samsung has achieved dimensions of only 91x45x23mm for the SGH-E720, and claims a battery life of up to 200 hours (in standby mode).

Mathew Phillips, VP Asia, CSR added, "The fully featured SGH-E720 clearly demonstrates Samsung's commitment to the expanding Bluetooth market." Phillips continued, "Bluetooth is now being integrated into an increasing number of mobile handsets, boosted by the increasing popularity of Bluetooth accessories and application of wireless connectivity."

The SGH-E720 is now available worldwide.

Nokia uses Bluetooth for Sensor application

Those fun-loving Finns are at it again. Nokia Sensor is a phone software application that offers a new way for people to create information and share it with other phone users nearby. Users can create personal pages on their phone, including text and graphics, and can also check out the pages of other Sensor users in their vicinity, exchange messages and share files with them. The Nokia Sensor application works over Bluetooth, providing connectivity within a range of up to 10 meters from the mobile device. Nokia Sensor is free of charge.

Nokia's press release centres on the social aspects of the Sensor application, saying that it creates a totally new way of communicating with people in the same location, for example in cafés, get-togethers, busses and trains. Apparently, we will be able to use our creativity and imagination to learn more about other people and their interests. Slightly more seriously, we would agree with Nokia that it

boosts the opportunities for Bluetooth on the mobile device.

"The Nokia Sensor application allows users to express themselves and discover new things about others nearby in a novel and simple way. This means that the value of using mobile phones and devices is expanded to connecting with those who share the same space at the same time, acquainted or unacquainted," says Hannu O. Nieminen, VP of the user experience unit at Nokia.

The fun, though, will be limited to Nokia phone owners, specifically those with a Nokia 3230, 6260, 6600, 6620, 6630, 6670, 6680, 6681, 6682, or 7610. Nokia Sensor can also be downloaded to a PC or directly to the phone from http://www.nokia.com/sensor.

Nokia Sensor is available now.

BT launches BT Fusion - combined and fixed mobile phone

UK telephone company BT has finally launched BT Fusion, which it describes as the worlds first combined fixed and mobile phone service. Already, though, the system has been widely criticised (see 'Analysis – BT Fusion').

BT Fusion, which was known as Bluephone during its lengthy development period, works like a mobile phone when you are out and about, but switches automatically and seamlessly onto a BT Broadband line when you get home. Theoretically you get all the convenience and all the features of a mobile phone but with fixed lines prices and quality.

The basics of Bluephone have been well known for some time, but the launch filled in details of pricing, and the future roadmap.

BT says that Fusion can offer customers savings by allowing calls to UK landline numbers to be charged at BT landline rates of 5.5p for up to an hour for all off-peak calls and 3p a minute at peak times. For example, a BT Fusion 10-minute off-peak rate mobile call from home will cost up to 95 per cent less than the same call using a typical mobile competitor package.

A recent survey of BT Broadband customer revealed that as many as 19 per cent had experienced problems with mobile coverage in the home. BT uses this as another selling point for Fusion, saying that calls over broadband in the home means customers can make a mobile call but with the quality of a fixed-line and worry less about the signal being lost or dropping out.

It is all made possible by an access point installed in the home – called the BT Hub – which uses Bluetooth wireless technology to switch the BT Fusion handset seamlessly to the broadband line – even in mid-call.

The BT hub also works as a wireless (Wi-Fi) router– allowing the user to connect up PCs, laptops, games consoles and printers wirelessly around the home.

Ian Livingston, CEO for BT Retail, said: "We promised to launch the world's first seamless combined fixed and mobile service and now we're doing it. The service will transform the communications landscape and bring excellent value to customers. For the first time customers will be able to get the best of both worlds in one service – combining the convenience and features of a mobile with fixed line prices and quality. BT is taking a world lead in pushing forward fixed-mobile convergence and BT Fusion will form a significant part of our growth plans."

One major catch with BT Fusion is that it is only available to BT Broadband subscribers, but to get the full low-down, read Manek Dubash's analysis.
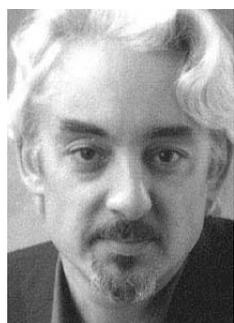
ANALYSIS –
BT sows confusion by Manek Dubash

The sighs of relief could probably be heard all the way across the industry. Or could they?

BT has launched its combined Bluetooth, Wi-Fi, VoIP and GSM phone -- officially called Fusion, industry wags immediately started calling it ConFusion. That's hardly surprising since, despite Wi-Fi being the near-standard method of transporting bits around a small or home office -- the device's target market -- it actually doesn't support Wi-Fi. Sorry about that. There will be a Wi-Fi-enabled version out by the end of the year though.

So let's deal with the realities first. Fusion is designed to allow you to make calls over a GSM link when outside the office but switch automatically to a Bluetooth area network when you get within range of the office. A Bluetooth hub, part of the system, becomes the conduit for the call and is connected to your VoIP-enabled ADSL landline.

As long-time industry watcher Guy Kewney put it, "Today's launch is a simple test market. Four hundred customers have ordered the new package, and will be getting a brand-new WiFi/Bluetooth combined router, which they can plug into BT Broadband ADSL at home. They will also get a phone from Motorola - a V560 GSM phone - with a little extra software."

Also with the phone comes a special SIM that puts the user onto a special rate. A very special rate. It turns out that, if you walk into the office while making call, and it then switches over to Bluetooth operation, the call continues at the mobile rate. Eh?

Furthermore, you can't connect more than three phones, and you can't use a Bluetooth headset because the phone cannot connect to both headset and hub simultaneously. Worse, the charges are high, especially to mobiles and even to 0800 numbers, and the deal stretches only to 100 minutes a month. Go over that and you're suckered for 30p a minute -- which must be the highest mobile charge anywhere in the UK.

Still, the V560 is not a bad-looking phone and

isn't the brick that many expected Fusion to be when details leaked earlier this year. The next version will be a Motorola RAZR though, which is a nice bit of kit.

However, what BT has not done is reconcile two opposing world views. It's been clear for years that this kind of product has long been technically possible. What stood in the way was the incompatibility of the connection and packet-oriented business and technology models.

Diametrically opposed, the former implies control by the user over routing and network usage, while the network is simply a bit-carrier. Voice traffic companies like BT hate this because it's hard to add value. Connection-oriented voice calls are of course a different matter. Service providers charge by the minute and the user has and is encouraged to have no idea what happens between the two bits of call-terminating equipment.

The real problem for BT here is also that its billing systems are utterly incompatible. As one industry watcher put it this week, it took years for BT to migrate to charging by the second and that was tough. This means that presenting a single bill for services such as Fusion is very hard for BT to make happen. Which almost certainly is why the switch from GSM to Bluetooth is inelegantly handled.

So, given the lack of aggressiveness of BT Fusion's charging structure, you'd have to agree with those who argue that this is only a test. Fire up Skype and you can do pretty much the same thing as Fusion does, but for free. Pay for SkypeOut for landline calls and it's still only a penny a minute. That's one-thirtieth of what you might pay to BT for Fusion calls.

OK, it's a tad less convenient. But avoidance of a 30x mark-up encourages you to make a bit of an effort, don't you think?

Nice try, BT, thanks for the effort. Expect a more agile, less infrastructure-bound provider to make the next one -- and get it right.

Also appeared in Network Weekly, edited by Incisor contributor Manek Dubash
Network Weekly is a weekly round-up of networking, telecoms and storage news.

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Snippets

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WIRELESS BOOST AS SONY RESTRUCTURES R&D MANAGEMENT

Sony has been a proponent of wireless technology for a long time. Plans to narrow the focus of its research and development (R&D) to more promising areas, such as next generation video equipment, wireless phones and flat panel televisions look set to boost activity in areas such as Bluetooth, UWB, Wi-Fi etc. Sony's new management admits that they have been looking at several areas within their R&D from which they can potentially withdraw. Their current R&D spending has an expected total of $4.8 billion this business year. The new management team plans to unveil a new strategy in late September to reallocate resources by possibly narrowing its product line-up or withdrawing from struggling businesses.

SAMSUNG SUPPORTS WORK ANYWHERE ETHIC

Samsung Business Communications has launched a suite of new products designed for the 'Virtual Enterprise' environment, including OfficeServ SoftPhone - a software application for the PC, laptop or PDA that enables the mobile worker to have all the functionality of their office phone, enabling 'workanywhere' flexibility from a hotel room to an airport hotspot, or in fact any location with internet connectivity.

TI BRINGS LIVE DIGITAL TV TO YOUR CELL PHONE

Addicted to reality TV programming? It won't be long before you can watch your favourite real-life TV broadcasts on the go, thanks to a chip Texas Instruments (TI) is developing for cell phones. TI has announced development of a digital TV on a single chip for cell phones, which will capture broadcast signals and allow cell phone users to watch live broadcasts ranging from reality TV shows to major sporting events and breaking news. Code-named "Hollywood," the chip will receive live digital TV broadcasts using new television infrastructure that is being developed for cell phones, doing for cell phones what HDTV did for home TVs, and builds on TI's current capabilities in the converging wireless and consumer electronics markets.

FMC spells design opportunity

by Gemma Paris and Simon Finch, CSR

In this business we are used to acronyms coming and going, but FMC is one that looks set to stay. With over 40% of cellular calls now made indoors, FMC or Fixed-Mobile Convergence is emerging as a key element of the future structure of telecom networks.

In recent years a number of telcos have devised interesting fixed-mobile services, but two current projects in Korea and the UK are pioneering advanced solutions that leverage a mobile phone's Bluetooth capability to access fixed networks when at home.

SPACE, POWER AND COEXISTENCE

This emergent market poses some interesting issues for developers, particularly for the handset end of the system.

Today's 'simple' Bluetooth-based FMC system poses no issues - devices such as BlueCore3-ROM already provide elegant solutions that coexist well with cellular radios, and offer both the small external component count and compact IC packaging that suits the space-restricted environment.

However, problems begin to emerge as FMC schemes migrate to Wi-Fi - the likely next step for this technology - which will leverage the vast number of Wi-Fi hot-spots and home access points. Bluetooth will still be required in the phone, for purposes such as headset support. So, a handset designer will now need to pack three radios tightly together: cellular, Bluetooth and Wi-Fi. The design problem raises issues in areas of real-estate, power consumption, and coexistence.

As CSR has its roots in the Bluetooth business, it's not surprising that such a design scenario was already embedded in the architecture of our recent 802.11a/b/g silicon, UniFi. Careful frequency planning and filtering techniques were designed-in from the start of the project, to ensure coexistence of cellular, Bluetooth and Wi-Fi protocols.

The device architecture employs many novel features - many of them pioneered by CSR's Bluetooth work - to reduce the number of external components usually required. The single-chip UniFi Portable solution has an external bill of materials that costs under a $1, and yields a footprint of 9x9mm (excluding the antenna) for example. Power management is similarly optimised for battery-powered applications, with novel techniques delivering a transmit/receive consumption of just 8.25mA at 3.3V and from 119 to 194mA at 1.5V.

However, these attributes are now joined by a further advance designed to support multi-protocol products such as FMC handsets and basestations: antenna sharing. CSR now has proprietary time-domain based technology that allows its BlueCore and UniFi devices to share a 2.4GHz antenna (or antennas), saving both a considerable amount of real-estate, and the cost of a relatively expensive component.

A related strength is UniFi's built-in support for antenna diversity processing. CSR has incorporated a dual receiver chain using a spatial diversity processing system. This dramatically improves throughput over distance, and is particularly relevant for the FMC application as it provides a powerful weapon to maintain good coverage when faced with multipath propagation prevalent in enclosed environments.

FMC is a three letter acronym that will lead to three radios integrated in one phone: CSR's UniFi 802.11 silicon provides a solution designed for coexistence with both cellular and Bluetooth radios, and highly optimised for the embedded environment.
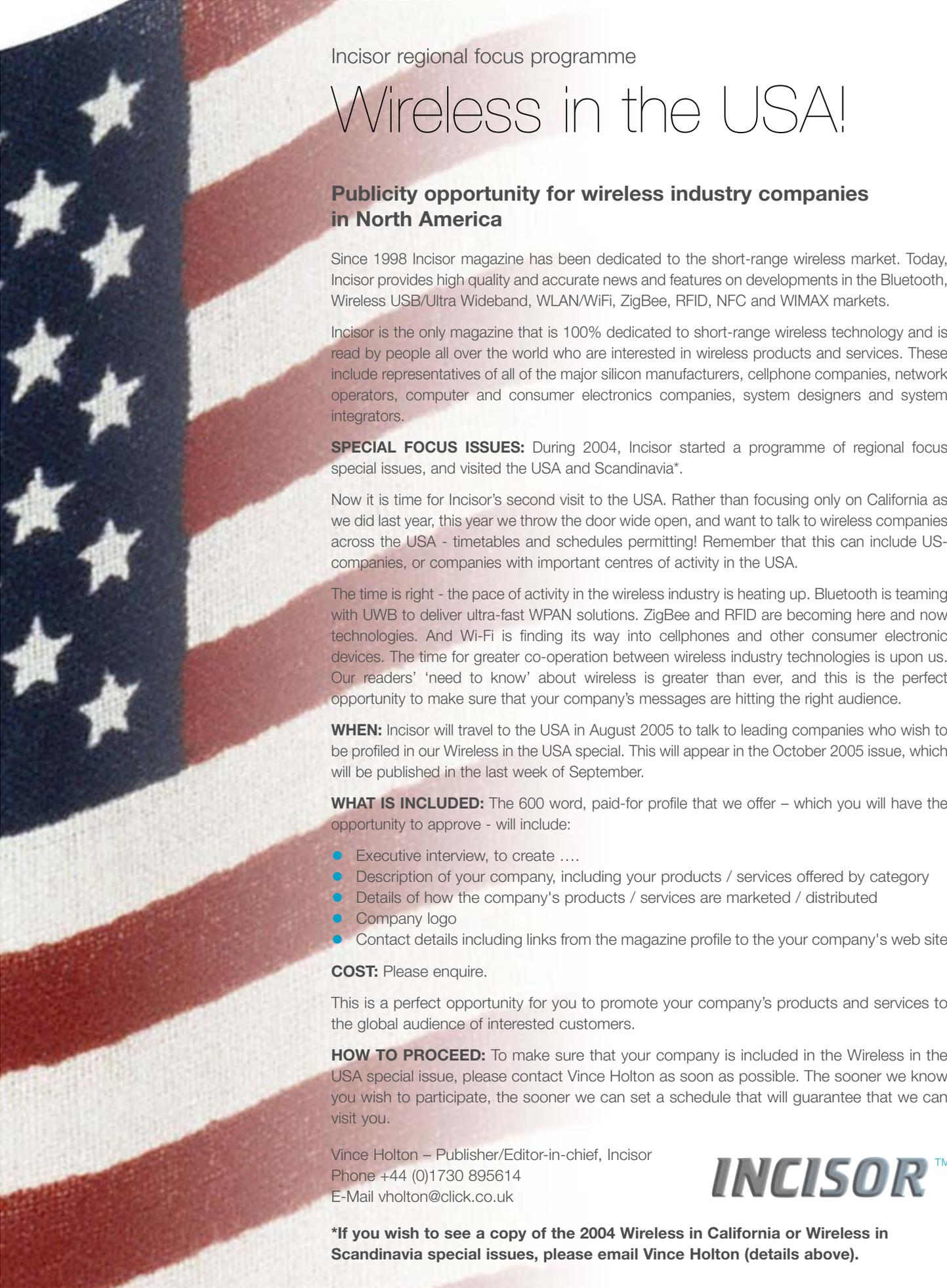
Incisor regional focus programme

Wireless in the USA!

Publicity opportunity for wireless industry companies in North America

Since 1998 Incisor magazine has been dedicated to the short-range wireless market. Today, Incisor provides high quality and accurate news and features on developments in the Bluetooth, Wireless USB/Ultra Wideband, WLAN/WiFi, ZigBee, RFID, NFC and WIMAX markets.

Incisor is the only magazine that is 100% dedicated to short-range wireless technology and is read by people all over the world who are interested in wireless products and services. These include representatives of all of the major silicon manufacturers, cellphone companies, network operators, computer and consumer electronics companies, system designers and system integrators.

SPECIAL FOCUS ISSUES: During 2004, Incisor started a programme of regional focus special issues, and visited the USA and Scandinavia*.

Now it is time for Incisor's second visit to the USA. Rather than focusing only on California as we did last year, this year we throw the door wide open, and want to talk to wireless companies across the USA - timetables and schedules permitting! Remember that this can include US-companies, or companies with important centres of activity in the USA.

The time is right - the pace of activity in the wireless industry is heating up. Bluetooth is teaming with UWB to deliver ultra-fast WPAN solutions. ZigBee and RFID are becoming here and now technologies. And Wi-Fi is finding its way into cellphones and other consumer electronic devices. The time for greater co-operation between wireless industry technologies is upon us. Our readers' 'need to know' about wireless is greater than ever, and this is the perfect opportunity to make sure that your company's messages are hitting the right audience.

WHEN: Incisor will travel to the USA in August 2005 to talk to leading companies who wish to be profiled in our Wireless in the USA special. This will appear in the October 2005 issue, which will be published in the last week of September.

WHAT IS INCLUDED: The 600 word, paid-for profile that we offer – which you will have the opportunity to approve - will include:

- Executive interview, to create ….
- Description of your company, including your products / services offered by category
- Details of how the company's products / services are marketed / distributed
- Company logo
- Contact details including links from the magazine profile to the your company's web site

COST: Please enquire.

This is a perfect opportunity for you to promote your company's products and services to the global audience of interested customers.

HOW TO PROCEED: To make sure that your company is included in the Wireless in the USA special issue, please contact Vince Holton as soon as possible. The sooner we know you wish to participate, the sooner we can set a schedule that will guarantee that we can visit you.

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INCISOR™

*If you wish to see a copy of the 2004 Wireless in California or Wireless in Scandinavia special issues, please email Vince Holton (details above).

# FOCUS claims first 880 Megabit per second UWB chip

FOCUS Enhancements, which Incisor readers will know is coming to the Ultra Wideband (UWB) market from a video production and conversion background, has announced the taping-out of a high performance, 880 megabit per second (Mbps) wireless UWB chip. Focus claims this is a world first.

The initial tape-out of Focus' analog/rf chip is the first of its two-part chipset solution. Tape-out of the second chip (digital baseband plus Media Access Controller - MAC) in the chipset is currently expected in September 2005.

Focus' target is wireless high definition (HD) and standard definition (SD) video transmission at net data rates up to 880 Mbps at distances of up to 8 meters or 220 Mbps up to 20 meters.

Although the Focus' UWB chipset will contain a fully compliant and interoperable WiMedia-MBOA UWB radio, Focus is continuing to go its own way, and also includes its own extended mode that will produce much higher data rates, which are aimed at wireless video distribution and very fast data transfers.

The Focus analog chip will operate between
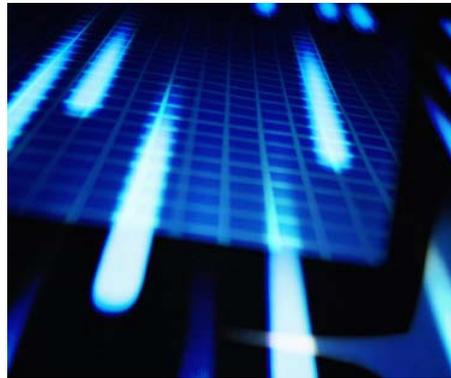
3.2 gigahertz (GHz) and 7.2 GHz and is expected to provide transmission rates up to 880 Mbps at ranges up to 8 meters and 37 Mbps at a range of 40 meters - both of which Focus claims exceed existing published competitive capabilities. The extended-mode Focus solution utilizes a Direct Sequence-OFDM modulation scheme (DS-OFDMTM). Other selectable rate settings include: 110 Mbps at 30 meters and 440 Mbps at 14 meters. The analog chip will use 0.18 micron silicon/germanium (SiGe) process technology to achieve the higher signal-to-noise ratios required to supply reliable, consumer-

friendly video distribution.

"Taping out the first of our two UWB chips is an important milestone in our strategy to bring wireless video to the home," said Brett Moyer, Focus' president and CEO. "We have consistently demonstrated the best UWB performance in the industry and are maintaining a unique leadership position in the race to deliver UWB. Through joint efforts with our design partner Cadence Design, Focus is quickly progressing toward silicon that will ultimately provide a new generation of wireless-enabled, video-based consumer electronics."

Here at Incisor and in the boardrooms of most of the companies involved, we all know that the state of the UWB market is still 'fluid'. As the major players work to establish one consistently supported modulation standard, it is open to question whether or not companies like Focus will help the situation by adding proprietary elements to an UWB solution.

We aren't saying that Focus' solution won't work, but will it contribute to the overall effort of making the market understand, and want – UWB? We're not sure.

… and so does Artimi - another single chip UWB solution

Fabless semiconductor company Artimi has taken delivery of RTMI-100 from its foundry, and, like Focus in our story above, claims this the world's first complete working single chip UWB solution.

The RTMI-100 is a complete UWB solution in a single chip implemented in 0.18 micron SiGe BiCMOS. The digital portion of the device is implemented in CMOS and the high frequency section implemented in SiGe. RTMI-100 can process up to 4GHz of coherent bandwidth and includes integrated LNA and PA, adaptive channel digital radio, IEEE 802.15.3 MAC, standard PCI 2.3 interface with master/slave, flexible expansion port with dedicated RISC IO processor and is designed to be compliant with

FCC Part 15 Subpart F. Additional features include Artimi's QoS technology that supports streaming media without any other processing in the solution.

'The RTMI-100 represents a significant milestone in UWB development,' according to Colin Macnab, CEO of Artimi. 'The RTMI-100 has proven Artimi's design methodology and provides a complete working UWB solution for our early customers. Our single-chip UWB device demonstrates Artimi's commitment to providing the lowest cost complete UWB solutions. Our active participation in standards and industry groups, such as the IEEE and WiMedia Alliance, will ensure future compatibility and interoperability of our UWB

devices. In addition, our flexible architecture will enable us to deliver a single chip MBOA compliant solution when the standard is finalized.'

With an underlying 800Mbps transport capability, plus integrated error correction and encryption, the RTMI-100 is aimed at high bandwidth wire replacement, such as high performance bulk file transfers or where quality of service is important, like streaming audio and video between a DVD player and an LCD home theatre system. Artimi is apparently working with manufacturers in the consumer electronics, PC and mobile markets to develop end user products based on its UWB technology.

Macnab added, 'Artimi welcomes the

Bluetooth SIG's announcement advancing the next generation Bluetooth to a UWB based solution. Artimi's development team has significant experience in the Bluetooth arena and our PHY-neutral system architecture was designed from the ground up to facilitate operation with Bluetooth application profiles.'

Artimi showcased the RTMI-100 single chip UWB solution and demonstrated UWB video applications at the recent Computex event in Taipei, Taiwan. Samples will be made available to development partners for early design-ins.

And who is the first? Hard to say. Let's just accept that Artimi and Focus announced around the same time.

Consumer TV with UWB from Haier and Freescale

First UWB product to launch in China first, not USA

Haier Corporation and Freescale Semiconductor claim to have achieved a critical milestone for wireless home entertainment systems by showcasing the first Ultra-Wideband (UWB)-enabled LCD, high definition television (HDTV) and digital media server at the recent Freescale Technology Forum. As we shall see below, this product will hit the consumer market soon, but not where we would have expected.

Using UWB as the wireless conduit, Freescale chairman and CEO Michel Mayer and Haier EVP Shariff Kan broadcasted HD video and audio streams wirelessly from a digital media server to Haier's HDTV located across the stage.

The Haier television is a 37-inch, liquid crystal display (LCD) HDTV with 1080i resolution. It supports both standard definition and high definition video and uses a component/DVI interface. The Freescale UWB antenna is embedded inside the television and is not visible to the user. No additional equipment is required and consumers need only a power source for the actual television.

The digital media server is the size of a standard digital video device (DVD) player but includes personal video player (PVR) functionality, a DVD playback capability and a tuner, as well as the Freescale UWB solution to wirelessly stream media to the HDTV. The digital media server can be placed as far away as 20 meters from the actual HDTV, which is pretty handy when you are configuring your home theater.

'UWB gives consumers the freedom to place the television anywhere they would like in the room, without requiring a physical connection to a set-top box, digital video recorder or media server. We have worked closely with Freescale over the past two years on integrating UWB and look forward to continuing this collaboration with a variety of consumer products' said Yu Zi Da, vice president of Haier.

And here is where it gets interesting. Haier, which is one of the largest Chinese consumer electronics manufacturers, will package the digital media server and HDTV in a complete wireless solution and make it available to Chinese consumers in retail outlets throughout China in Q4 2005, and then to U.S. consumers during 2006. Now, Incisor knows that the US is the only country that has so far granted regulatory approval to UWB, so the fact that China will get Haier's solution first came as something of a surprise.

Reading down the press release, we are told that 'although approved for use in the United States, Haier is initially targeting this product for the Chinese market, leveraging a regulatory license granted by the Chinese government. Haier is currently developing UWB-enabled products for distribution in other regions, including the US, in 2006.'

What does this mean? Is Haier flaunting regulatory controls? Is the Chinese government providing a loophole to allow early sales, and a Chinese company to gain an early lead on international competitors? Incisor asked Freescale to comment, but the company didn't respond.

Snippets

Snippets

BLUETOOTH

Wireless wizards scoop UK's biggest innovation prize

CSR has won this year's Royal Academy of Engineering MacRobert Award for its single chip BlueCore family, which have fuelled the inexorable rise of Bluetooth wireless products, from mobile phones to medical devices. The five-strong team of engineers, CEO John Hodgson, Commercial Director and Co-founder Dr Phil O'Donovan, Technical Director and Co-founder James Collier, Sales Director and Co-founder Glenn Collinson and VP of Operations Chris Ladas, received a tax-free prize of GBP50,000 between them plus a gold medal for the company from HRH Prince Philip, Duke of Edinburgh, at Buckingham Palace on Monday 6 June 2005. Prince Philip is the Academy's Senior Fellow and has presented the MacRobert Award every year since its inception in 1969.

TI and Ember team to offer ZigBee chipset solution

Texas Instruments (TI) will collaborate with Ember Corporation to unveil what is being described as the world's lowest power consuming ZigBee networking and microcontroller (MCU) platform.

Ember has paired its EM2420 802.15.4/ ZigBee-compliant semiconductor platform with TI's MSP430F161x series of ultra-low power MCU for developers building ZigBee applications that require the lowest possible power requirements. TI's MSP430 platform of MCUs will also support Ember's next-generation EM260 network processor, which debuted at the recent ZigBee Open House in Oslo, Norway. The new dual-chip network module provides an integrated MSP430 MCU, a radio and the ZigBee software platform for OEMs wishing to tap into the booming market for ZigBee/802.15.4 wireless sensing and control applications.

To reduce the device's footprint and bill of materials (BOM), the MSP430F161x MCU series integrates all peripherals including analog and up to 55KB of flash memory, which reduces the need for EEPROM. The device also features on-chip control peripherals such as a 12-bit 200k samples per second (ksps) analog to digital converter (ADC) and a 12-bit digital to analog converter (DAC) with a settling time of 1 microsecond.

"The MSP430F161x MCU series is a great partner with Ember's platforms because it sports highly integrated peripherals, such as its dynamic memory access (DMA) and digital to analog (DAC) and analog to digital converters (ADC), that are high performance yet consume very little power," said Venkat Bahl, vice president of marketing, Ember. "Our combined solution set gives OEMs everything they need to get into the ZigBee game, including the need for ultra low-power, low-cost, simple programming and debugging, and fast time-to-market."

The EmberNet Developer Kit is available now.

What isn't answered is where this new relationship with TI leaves Ember's relationship with Chipcon, which had previously been Ember's radio chip supplier. We did ask Ember, but as often happens when the press asks an awkward question, you don't get an answer! Incisor will continue to monitor this topic.

Millennial Net and Freescale deliver industrial-strength wireless sensor networks

Freescale Semiconductor and Millennial Net announced a partnership at Sensors Expo in Chicago that the two companies say will help OEMs rapidly develop and deploy wireless mesh network solutions for large, complex commercial applications in industrial automation, healthcare and military/homeland defense markets. Millennial Net will sell, integrate and support MeshScape wireless sensor networking system on Freescale's MC1319x platform.

Millenium Net claims that MeshScape scales to hundreds of nodes and that it has deployed numerous large-scale industrial-class wireless networks.

"Millennial Net's MeshScape system allows us to broaden our wireless networking portfolio and complements our ZigBee offering," said Brett Black, commercial wireless manager of Freescale's Wireless and Mobile Systems Group. "ZigBee is an ideal choice for customers looking for an interoperable, standards-based platform, while MeshScape can meet proprietary wireless sensor needs. Working with Millennial Net enables us to reach customers looking for a specialized sensor network using Freescale's proven radio technology platform."

Coupled with Freescale's MC1319X platform, MeshScape's solution draws a minimal amount of power and in some cases can be powered by solar energy. This delivers a complete low power, scalable wireless solution. MeshScape will be offered as a network system software license allowing complete integration of the mesh networking software onto sensor nodes.

Millennial Net will offer MeshScape and Freescale's MC1319x platform as a complete solution for select customer applications in early Q3 2005 and make them generally available in Q4 2005.

Jennic announces eval kit for single chip ZigBee device

At the recent ZigBee Alliance Open House in Oslo, Norway, Jennic announced availability of development kits using network protocol stacks from two of its partners, and demonstrated solutions for industrial, building and home automation applications based on its single chip IEEE802.15.4 device.

The fact that Jennic's evaluation kit provides real ZigBee solutions based on a choice of stack providers means that system developers can choose the most appropriate stack for their specific end-user requirements.

Korwin, a Korean network stack and module provider, is the latest partner to join Jennic's partner program. At the open house, Korwin demonstrated a ZigBee-enabled mobile phone handset running Korwin's network stack and its 'star, tree, mesh' network system for a home network, based on Jennic's single chip device and running the KZ-OS (Korwin ZigBee -OS) operating system.

Luxoft Labs, a major Eastern European design outsourcing company and recently announced as stack partner by Jennic, demonstrated its 'meshnetics' system for building and industrial monitoring using Jennic's chip running the ZigBee network stack and TinyOS operating system. Luxoft Labs develops the hardware and software for complete sensing and control solutions in machine-to-machine and industrial automation applications.

Jennic's evaluation kit includes a suite of library functions that provide all the elements required to build network products based on the IEEE802.15.4 standard, including device drivers, typical sensor and control drivers; these are backed up with example applications to support a star network with central co-ordinator node featuring a large LCD display and endpoints. It also incorporates LEDs, push button switches, temperature, humidity and light sensors. The kit provides a complete, unlimited development environment containing GNU C-compiler, assembler, debugger, device programmer and download tools.

Wireless industry intelligence - Wi-Fi/WLan

Sony Ericsson's GC99 PC Card combines 3G broadband with Wi-Fi

Sony Ericsson says it is now possible to achieve fast access to the Internet and e-mail in more places in the world than ever before. The Sony Ericsson GC99 PC card combines Wi-Fi with 3G/UMTS and global quad band GSM/EDGE/GPRS connectivity, providing a variety of network choices in a single PC card.

"Sony Ericsson has long led the market in the EDGE PC Cards space and is one of the first companies to announce a combined card for the UMTS, EDGE and Wi-Fi networks," says Anders Franzén, corporate vice president and head of Sony Ericsson M2M Communications. "Today there are more than 1 billion GSM customers worldwide and more than 115 UMTS networks are expected to be in commercial deployment by the end of the year. We believe the convenience of the GC99 card and these fast networks will give business users ultimate flexibility and the fastest possible

New combo card from Sony Ericsson enables fast, wireless connectivity

connection in any situation and at any place."

The GC99 PC Card offers connectivity on UMTS networks at up to 384 kbps and works anywhere you can use a mobile phone. Alternatively, people can take advantage of the 54 Mbps data rate of Wi-Fi (WLAN) networks in offices or at public hot-spots.

An external antenna is also available as an accessory. This is useful when there is low GSM network signal strength.

The GC99 card is said to be simple to install, works with both Windows and Mac operating systems and is compatible with a wide range of common business applications including: MS Exchange, MS Outlook, Lotus Notes, Netscape, CRM, SAP, Siebel and Messenger. Installation support includes customisation options that allow corporate IT managers to implement pre-loaded settings that provide one click VPN connection. Data security is provided by UMTS/EDGE/GPRS encryption technology and the SIM card authenticates with the network preventing unauthorised access. GC99 is compatible with all leading VPNs, enabling secure passage through corporate firewalls.

The GC99 will be available in Q4 2005 for the Asia Pacific region, China, Europe, the Middle East and Africa.

Motorola Launches "FOMA M1000" WLAN-enabled 3g phone

Motorola has launched the FOMA M1000, which it claims is the world's first-ever WLAN-integrated W-CDMA and GSM/GPRS dual-mode smartphone.

Developed jointly by Motorola and NTT DoCoMo, the new handset is modelled on Motorola's 3G A1000. The M1000 will be available in Japan from July 1, 2005 through NTT DoCoMo channels.

"This is a breakthrough for the Japanese market

because this goes beyond what was available to consumers here in the past. The fact they can now have 3G, business applications and multi-media functions makes this truly a seamless mobile experience and something Japanese consumers have been waiting for" said Michael Tatelman, VP and general manager of Motorola Mobile Devices Business in North Asia.

Clearly distinct from conventional 3G mobile

handsets, the FOMA M1000 provides features such as international roaming, full Internet browsing and high-quality voice and video communications, as well as the capability to send/receive e-mails to multiple addresses with attached files and view major business documents such as Microsoft Word

and Excel documents. The handset is also Bluetooth-enabled and contains Personal Information Manager (PIM) software and a large-capacity memory providing the flexibility to add applications.

"We are positioning FOMA M1000 as a strategic

offering to promote "must-have" products in Japan's sophisticated and highly developed market" commented Tatelman. "Partnering with NTT DoCoMo has been a vital step in Motorola's re-entry into the Japan mobile device market" he said.

Intel develops CMOS radio supporting all flavours of 802.11

Intel has developed a prototype of an all-CMOS direct conversion dual-band radio transceiver capable of supporting every current Wi-Fi standard (802.11a, b and g), as well as the projected requirements of 802.11n. A future extension to the Wi-Fi standard, 802.11n will more than double the wireless transfer speed compared to today's implementation.

The announcement, presented as part of a technical paper delivered at the Symposium on VLSI Technology in Kyoto, Japan, outlines the building blocks Intel created to implement the multimode radio in a standard CMOS process.

"This system-in-a-package design uses more low-voltage circuitry than we've ever used in the past, which means we can integrate it and make it lower cost while operating at lower voltages and providing longer battery life," noted Krishnamurthy

Soumyanath, director of Intel's Communications Circuits Research Lab. "The variable bandwidth of this solution extends capabilities beyond today's 20 MHz to 100 MHz, and is expected to support data rates higher than 100 megabits per second that should allow people to enjoy multiple high-quality video streams concurrently."

Today each device uses a customized radio to connect to a particular network -- for example, a wireless local area network or WLAN based on Wi-Fi technology. A different device might use a radio developed for a wireless wide area network or WWAN. In the next few years, Intel expects mobile devices will contain several different radios so they can utilize many different wireless communication networks. Intel's research points toward a time in the future when one device will use "smart" antenna systems and a reconfigurable CMOS radio on a

single device making the radio more power efficient, smaller and lower cost. The goal being pursued is the ability to connect to any network, anytime, anywhere on any device.

Intel believes that one of the key achievements of this research is keeping the underlying manufacturing technology tied to CMOS -- the technology Intel uses to make all its microprocessors and other computer chips. By doing so, it keeps manufacturing costs low and the potential to produce this capability in high volume. The device in the research paper features a 1.4-volt design (very low power consumption compared to what is available in the marketplace today).

"By creating this capability in CMOS, Intel will have the option of integrating wireless capabilities into a wide variety of our future chips," Soumyanath said.

802.11 Standards for Wireless Technology

802.11 refers to a family of specifications developed by the IEEE for wireless LAN technology. 802.11 specifies an over-the-air interface between a wireless client and a base station or between two wireless clients.

802.11a - an extension to the 802.11 standard that applies to wireless LANs and

provides up to 54 Mbps in the 5GHz band.

802.11b - an extension to the 802.11 standard that applies to wireless LANs and provides 11 Mbps transmission (with a fallback to 5.5, 2 and 1 Mbps) in the 2.4 GHz band.

802.11g - an extension to the 802.11 standard that applies to wireless LANs and provides 54

Mbps in the 2.4 GHz band.

802.11n - an extension to the 802.11 standard that in the future will increase the speed to more than 100 Mbit/s. As projected, 802.11n will also offer a better operating distance than current networks.

WLAN market continues to increase during 1Q05

Research company IDC's EMEA WLAN Tracker shows that the EMEA WLAN market increased by 6.1% to $444.9 million customer revenue during the first quarter of 2005, compared to $419.3 million customer

revenue in the fourth quarter of 2004.

EMEA WLAN infrastructure experienced revenue growth of 14.7%, while WLAN client revenue declined by 10.6%. The main reason for declining revenue in the WLAN client segment is

the growing number of preinstalled connections on notebooks and desktops. During the first quarter, only 1.4 million add-on clients were shipped - a decline of 13% compared to the fourth quarter - while more than 4.7 million

WLAN connections were preinstalled on notebooks or desktops.

"Wireless gateways/routers continued to take the largest share of the WLAN infrastructure segment and increased by 19.6%, while revenue for in-building access points only increased by 6.7%," said Evelien Wiggers, senior research analyst with IDC's European Telecommunications and Networking group.

"Throughout the quarter, shipments of wireless routers/gateways to EMEA increased by 24% compared to the previous quarter. At the same time, shipments of in-building access points decreased by 2%."

ZyXEL experienced a very good quarter. By signing agreements with service providers for the provision of wireless routers, its shipments nearly doubled in the first quarter compared to the fourth quarter. Although ZyXEL holds a strong position in the residential space because of its shipments of wireless routers/gateways, D-Link, Netgear, and Linksys, a division of Cisco, are strong players in the add-on client segment and hold the number 1, 2, and 3 positions respectively. In the enterprise segment, Cisco holds a strong number 1 position, followed at a distance by Netgear and 3Com.

Wireless industry intelligence - RFID

RFID offers strong prospects for mobile operators in Europe

Although by no means a new technology, Radio Frequency Identification (RFID) is generating increasing interest in Europe due to its many advantages over the currently used trace-and-track technologies. RFID projects are proliferating in a variety of markets such as retail, transportation, pharmaceuticals and livestock, propelling companies and suppliers to adopt the technology in a bid to cut down costs in the supply chain while enhancing productivity.

Global growth consulting company Frost & Sullivan (www.frost.it.com) estimates that spending on RFID-related hardware, software and services in Europe will exceed $5 billion in 2007. While the retail and government vertical markets are likely to lead this spending, transport and logistics as well as manufacturing are also likely to contribute significant shares.

F&S believes that currently, the high prices of transponders or tags are a major obstacle to the mass adoption of RFID, and that manufacturers need to price these components more realistically for RFID to enter the mainstream and realise its true potential in the supply chain. Although this could take time, tag costs are already dropping. Further price decreases are likely to positively impact manufacturers' unit shipments and encourage them to attempt more large-scale projects.

As far as the opportunities for mobile operators are concerned, F&S believes that RFID holds great potential for operators seeking to increase average revenue per user (ARPU), especially revenue from the low-margin data services.

"European operators have a key role to play in the transport of RFID data from field locations to the back office for at least either one of these two reasons," notes F&S ICT Consultant Andrew Tanner-Smith. "First, it is the best technology to allow remote access on a large scale, and second, through the process of fixed-mobile substitution, it replaces fixed telecommunications lines where these have been the preferred data transport method in the past."

While F&S does not expect significant opportunities in RFID projects to materialise until 2007, it recommends that mobile operators start developing and putting strategies in place to take advantage of these opportunities. It believes that the market will start gaining traction around 2007 due to the ongoing fixed-mobile substitution

Currently, the extent of the operator's role in a RFID implementation seems to be confined to acting as a conduit for mobile and data traffic. However, many larger European operators are beginning to realise that their contribution to the market could be significantly higher.

"For example, by developing mobile applications, operators are beginning to add value to the mobile enterprise," remarks Tanner-Smith. "In the future, Frost & Sullivan expects operators to increase the range of applications they offer to include those that may make use of RFID data, with some companies perhaps beginning to offer enterprise mobility services in this area."

As the market develops, mobile network operators and wireless local area network (WLAN) providers are likely to gain over fixed telecom networks in terms of carrying increased RFID data. F&S expects the volume of data generated to increase tremendously - to the point where mobile operators could well be transporting volumes of RFID generated data that could be measured in terabytes through their networks in 2009.

"This is not an insignificant amount of data, and operators need to ally themselves with key participants in the RFID industry to turn this projected scenario into a reality," says Tanner-Smith. "They need to identify the right vertical markets for their organisations to target and be realistic about the pricing of their data transport services."

Frost & Sullivan further believes that there is a huge base of potential end users seeking the most economical way of transporting data from the field to the back office. Mobile operators can successfully convert these end users into RFID clients by offering attractive pricing structures and bundling voice and data services into one cost-effective option.

Paxar demos RFID Gen 2 solution

Paxar, which provides merchandising systems, bar code, RFID and identification technologies for apparel customers and the retail supply chain, demonstrated its use of EPCglobal's UHF Electronic Product Code (EPC) Class 1 Generation 2 (Gen2) RFID protocol at GS1's UConnect Conference. The RFID Gen2 display showcased Paxar's latest solution for fully EPC compliant smart label printing and encoding, including associated tickets, tags and labels. Paxar's solution included an RFID printer/encoder, smart labels, and RFID software application.

Rick Bauer, senior director, RFID technical research, said, "We are at the forefront of converting the new Gen2 smart labels, from any of a variety of inlay manufacturers, and adding the variable data with outstanding in-plant RFID printer/encoders. We've been working for months with the suppliers of Gen2 chips. Our demonstration at the UConnect Conference sent a clear signal that Paxar will be ready to move its customers to the Gen2 standard as soon as production volumes of the new chips become available later this year. Paxar is accepting Gen2 smart label orders right now for volume delivery in the third quarter."

The installed base hasn't been forgotten. Existing Paxar RFID customers covered by the company's Technology Investment Protection Program, will receive Gen2 upgrades to their printer/encoders free of charge.

…and Philips and TI support EPC Gen 2 too

Two of the leading RFID semiconductor manufacturers, Royal Philips Electronics and Texas Instruments, have announced an agreement to cooperate on conformance testing for the technical interpretation of the EPCglobal Electronic Product Code (EPC) Generation 2 RFID standard. This joint effort is aimed at ensuring interoperability and accelerating market deployment of Gen 2 products, such as labels, hardware and system solutions, to offer multiple sourcing for implementations of RFID throughout the world.

The EPC Gen 2 standard, currently in the process of standardization by the ISO/IEC for global adoption, is the newest and most advanced of the RFID specifications for the UHF band centred around 900 MHz. EPC Gen 2 has several advantages over the first-generation EPC Class 0 and Class 1 standards, including optimized performance in different global regulatory environments, read/write field programmability, faster tag read/write rates, operation in dense reader environments and migration to future EPC classes.

According to Philips Semiconductors, ensuring interoperability between the major IC players will help to bring the EPC Gen 2 standard into the marketplace as early as possible, allowing the global business community to benefit from deploying RFID across multinational infrastructures. The companies are also extending their collaboration efforts through the ISO process for accelerated ratification of the ISO/IEC 18000-6 Type C standard based on the EPC Gen 2 specification.

Tagsys joins AIM Global

Tagsys which provides item-level RFID infrastructure, announced today that it has joined AIM Global, the association for Automatic Identification and Mobility. AIM Global works to increase the understanding and adoption of Auto ID, RFID and enterprise mobile computing through education, standards, and cooperation with other leading industry associations. Started more than 30 years ago, AIM Global is the voice of Automatic Identification and Mobility technologies such as bar code, RFID, and enterprise mobile computing.

For the uninitiated, item-level RFID infrastructure provides select market sectors with RFID systems for end-to-end item-level tracking that automates labour-intensive processes, authenticates and safeguards goods, and enables real-time inventory and asset visibility. Tagsys claims to be one of the few companies to offer end-to-end item-level solutions (providing chips, tags, antennas, readers, software, integration, etc.) and virtually 100% readability.

"Standardization is one of the key milestones towards maturity of RFID," said Elie Simon, president and CEO of Tagsys. "Item-level tagging using RFID technology will continue evolving in the market and Tagsys looks forward to working with the eco-system of companies in the Automatic Identification and Mobility industry and AIM Global to enhance standards around the technology."

"We applaud Tagsys' commitment to partnering with us in the development of standards and educational materials for Automatic Identification and Mobility technologies. Its participation in AIM Global is a strong indication of its support of our technologies to ultimately help companies in multiple industries become more competitive while saving time and money," said Dan Mullen, AIM Global president.

The critical role of the network in the success of RFID

If you are wondering what IT's next Big Thing is going to be then tune into the latest on radio frequency identification (RFID). Recent months have seen a surge of interest in radio tags and their possible applications.

A new study carried out by the research company IDC on behalf of Cisco Systems suggests that companies embarking on radio tagging projects may need to first ask themselves whether their networks are up to the task of handling the data deluge that can result from RFID.

Radio tagging is a cheap and effective way of collecting data on goods in transit, whether they are luxury cars being transported by a freight company or groceries being snapped off the shelves by shoppers.

However, says IDC, it is this cost-effectiveness, and the subsequent likelihood of RFID tag proliferation, that can lead to the potential for a major overload of data on the average corporate network.

This may at best lead to problems in processing and interpreting the RFID data coming in, and at worst compromise the network's ability to handle other critical tasks. According to IDC, there are three factors that have an effect on RFID's impact on network traffic:

- The number of tags in circulation. Clearly, in a warehouse where computers are stacked six at a time on pallets, having a radio tag on every computer will create six times the amount of data as having a tag on every pallet.
- The amount of data generated each time a tag is read. It is possible for tags to call up remote product information IP addresses listing a wide range of details, such as the product's manufacturer, customer, delivery, price, expiry date and more.
- The number of times a tag is scanned. Each scan generates an automated event, such as a notification or alert. This can be useful, for example, in tracking goods through a supply chain, but which can also lead to masses of data.

In addition, the introduction of RFID-based systems has an impact on network design. The network needs to be resilient, in order to deliver online information whenever it is requested by a

Large-scale RFID installations will put a strain on business networks

tag. It needs to be secure, given that RFID will ultimately entail the exchange of information between different organizations. Storage needs to be flexible and scalable. And device management is also an issue, since the network may need to support thousands of radio tag readers.

These issues may not be overly evident in many current, small-scale RFID pilots, but are likely to be problematic as the use of the technology is extended.

The white paper's authors observe: "RFID system expansion is inevitable as proliferation throughout the supply chain is a core premise for the realization of system benefits" and add that "traffic is more likely to increase as RFID is rolled out throughout the supply chain. As more and more partners in the supply chain are linked into the system, and more things are tagged, more data is generated and passed through the network. The impact of RFID on network traffic requires the network to be capable of handling the demands of RFID in terms of data volume, increased dependence on availability and security requirements."

IDC recommends that organizations plan to make their networks as scalable as possible before adopting RFID technologies, and then check for bottlenecks as the technology is rolled out. In addition, the network should incorporate intelligence and storage capabilities at its edge, where the impact of RFID traffic is likely to be greatest, and have integrated management and

security at all levels up to the business process layer of the infrastructure.

Cisco has long been working to incorporate such features into its network technologies and earlier this year announced that it was joining the European RFID Centre to collaborate with European businesses in developing radio tag strategies. As reported by Incisor at the time, The Centre, in Bracknell, UK, is also backed by companies such as Microsoft, Intel and Cable & Wireless. It opened in January 2005 to provide a showcase of RFID applications for European business, with live demonstrations, educational services, networking events and advice.

Cisco has also been working on developing standards with the Electronic Product Code (EPC) industry body EPCglobal Inc and is active in various public policy forums aimed at reconciling privacy requirements with the capabilities of the technology. One of the results of all this activity is the Cisco RFID-Ready Network, a wired and wireless infrastructure that can classify EPC traffic to prioritize it anywhere in the network.

Kaan Terzioglu, Managing Director, Technology Marketing Organization, Cisco Systems Europe, Middle East and Africa, commented: "Cisco's resilient, end to end, robust networks support the way information is used and directed across an organization. By making such information available throughout the organization, Cisco helps facilitate the complete supply chain that is proving so valuable to retailers, government and industry."

Nokia and Intel Collaborate on WiMAX

Nokia and Intel will cooperate to accelerate the development, adoption and deployment of WiMAX, helping to bring new capabilities and data services to mobile users over high-speed broadband networks. Both are members of the WiMAX Forum.

The companies will collaborate on several areas in support of mobile WiMAX technology (IEEE 802.16e) including mobile clients, network infrastructure and market development. For mobile devices and notebook platforms, Intel and Nokia will identify and deliver the unique power and performance requirements of the technology, and will work on base station strategies to help deploy a WiMAX network infrastructure that will provide adequate and reliable coverage.

In addition, the two companies say that they will engage in market development efforts to demonstrate to service providers and the industry how WiMAX can enhance data service capabilities of the network while complementing existing 3G networks. Lastly, Nokia and Intel will work together to ensure successful finalization of the 802.16e standard in IEEE and related specification work in the WiMAX Forum.

"Nokia's end-to-end multiradio strategy covers many wireless technologies optimized for uses from local connectivity and fast data transport, to broadcasting technologies and full mobility of voice and data," said Tero Ojanperä, Senior Vice President and Chief Strategy Officer, Nokia. " WiMAX will be an important technology complementing 3GPP and 3GPP2 technologies.

It will also create new opportunities for the consumer and enterprise markets."

"Broadband technologies - of all types - represent an enormous opportunity for businesses and individuals around the world," said Sean Maloney, executive vice president and general manager of Intel's Mobility Group. "Even though we and the industry as a whole are at the early stages of discovery and development, the industry momentum is remarkable. To have innovators like Nokia working to bring WiMAX and other broadband wireless technologies to the masses is very encouraging."

WiMAX IEEE 802.16e version is expected to be standardized later this year.

Snippets

Snippets

RFID

Large scale RFID roll out

Hypercom announced that CVS Pharmacy, the 5,400-store retail pharmacy chain, has purchased 12,000 Hypercom Optimum L4100 RFID-enabled card payment terminals. The Optimum L4100 is a signature capture card device specifically designed to speed checkout lines in multi-lane retail environ-ments and supports the contactless payment cards from Visa, MasterCard and American Express.

The Hypercom terminals, configured to CVS Pharmacy specifications, accept magnetic stripe cards, smart cards, and contactless cards or key fobs that eliminate swiping and signature requirements through the use of embedded radio frequency identification (RFID) tags. The payment terminal is equipped with a contactless RFID reader, capable of supporting the American Express ExpressPay, MasterCard PayPass and Visa Contactless payment programs as well as the contactless payment system being used by CVS to help speed transaction times.

Samsys first to join Intermec's RFID Rapid Start Licensing program

Samsys Technologies of Richmond Hill, Ontario, Canada, has joined Intermec Technologies' Rapid Start RFID intellectual property licensing program on June 1st, the opening day of the 90-day program. Samsys is the first company to join the program, acquiring full access to one of four RFID IP portfolios, the Fixed RFID Reader and Fixed RFID Printer Portfolio.

Samsys is a provider of RFID hardware systems, designing and manufacturing a wide range of RFID readers that support a broad array of tag protocols and frequencies. According to Samsys, it is imperative for the RFID industry to recognize the existence of intellectual property developed over many years, evolving to its current state-of-the-art status and improving to a point where it meets the necessary functionality standard for widespread adoption.

Intermec, a Unova company, holds more than 145 RFID patents covering broad areas of UHF supply chain RFID practice and applications. Its patents cover all standards and classes related to the international practice of RFID, including Class 0, Class 0+, Class 1, UHF Generation 2, ISO and others. The Rapid Start Licensing Program, available through August 31st, is designed to open access to Intermec's current and future RFID technology innovations and to clearly indicate which manufacturers and vendors are licensed to use Intermec's patented RFID technologies.

Incisor directory of wireless industry companies

As time goes on, more and more companies join the wireless industry, becoming part of the global network of companies that are working to take wireless technology to market.

On an ongoing basis, Incisor includes a listing of companies providing products and services within the short range RF 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 and short range RF technology, and is received at more than 1300 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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Cellular handsets
Mitsubishi Electric Telecom Europe
Motorola
Nokia
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Philips
Sony Ericsson

Communications Consulting
Alpine Communications
PA Consulting Group

Connectivity/Hardware products
3Com
Anycom, Inc.
Brain Boxes Ltd 📖
Ensure Technologies
Logitech
MediaSolv.com
Roving Networks
Socket Communications
Tactel AB
TDK Systems

Troy Group
Xircom

Digital pen and paper technology
Anoto

Hardware and software design/IP
Adamya Technologies
ARC Wireless Solutions Inc.
Atinav Inc.
CEVA Inc.
Colligo Networks Inc.
Cosmic Co Ltd
DsIT Technologies Ltd
Impulsesoft
IVT Corporation
LinTech GmbH
Mecel AB
MindTree Consulting
NewLogic Technologies
Penell A/S
RTX Telecom
Stollmann E+V GmbH
Tality Corporation
Teleca
TTPCom Ltd.
WaveLab Engineering AG
Wipro Technologies

Headsets
GN Netcom
Plantronics
SouthWing

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Baracoda
BlueGiga Technologies
ConnectBlue AB

Market research & analysis
ARC Group
Baskerville 📖
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OEM solutions
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Silicon/Semiconductors
Alcatel Microelectronics
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Brightcom Technologies, Inc.
Conexant Systems, Inc.
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Intel Corporation
KC Technology Inc
National Semiconductor GmbH
Philips Semiconductors 📖
RF Micro Devices
SiGe Semiconductor
Silicon & Software Solutions
Spirea
Staccato Communications
STMicroelectronics

Texas Instruments, Inc.
XEMICS SA
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Software solutions & applications
Atinav Inc.
Bandspeed
Mezoe 📖
Microsage Wireless
Norwood Systems
Open Interface
RegiSoft
Rococo Software
SofBlue Inc.
WIDCOMM 📖
Zi Corporation

Test Equipment
Anritsu
Berkeley Varitronics Systems
Catalyst Enterprises
CETECOM Spain 📖
Frontline
IAR Systems
Tektronix, Inc.
Tescom Co Ltd

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

Wireless industry calendar of events

DATE	EVENT	LOCATION	NOTES	LINK
July 11 - 13 2005	m-Business 2005	Sydney, Australia	The Fourth International Conference on Mobile Business (IEEE sponsored)	http://www.mbusiness2005.org
Oct 20-21 2005	RFID Europe	Frankfurt Sheraton Hotel, Germany	Manufacturing & Supply Chain Solutions Conference	www.scievents.com/rfideu05
Nov 15 - 16 2005	Wireless Connectivity Americas	Santa Clara Convention Centre, Santa Clara, USA	-	www.wiconamericas.com

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

Incisor publishing schedule

Each month we will publish the main themes of the next four issues of Incisor magazine to assist companies in the wireless industry when planning PR and marketing activity.

Issue 85 - August
Fabless semiconductor companies - can you build a successful business without a fab?
Copy Deadline: 22nd July   Date of Publication: 29th July

Issue 86 - September
Positioning wireless - annual review of the status of all wireless standards
Copy Deadline: 24th August   Date of Publication: 31st August

Issue 87 - Wireless in the Americas - 2nd annual review
Copy Deadline: 23rd Sept.   Date of Publication: 30th Sept

Issue 88 - November
Plus WLAN / Wi-Fi focus issue - developments in the 802.11 world
Copy Deadline: 24th Oct.   Date of Publication: 31st October

For further information regarding any issue of Incisor, contact Vince Holton (see below).

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