

INCISOR

for the short
range connectivity
environment

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WIRELESS USB COMES OF AGE

THIS ISSUE

BLUETOOTH: THE COMMON DENOMINATOR
WIRELESS MUSIC CATALYZES NEW MARKETS
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the market decides, not technology

Wireless USB has been a long time coming. It was at CES in January 2006 that Incisor first saw companies showing UWB-based wireless USB demo kit. Now, seventeen months later, in August 2007, we hear that the first finished products to incorporate wireless USB have passed compliance and certification testing for Certified Wireless USB. We still can't buy them yet, but Dell, D-Link, IOGear and Lenovo tell us that we will be able to soon, in their notebooks and USB adapters and hubs.

Along the way a standards battle was fought. Freescale, supported by a small number of other companies that had signed up to the UWB Forum, set out to provide the technology needed to implement wireless USB, based on Direct Spectrum Ultra Wideband (DS-UWB). In the other camp, the WiMedia Alliance and its Multiband OFDM technology partnered with a much larger and rather more influential group of companies.

There were technical advantages for both versions of wireless USB. Had it been down to a straight fight as to which could do the job best, the battle could still be rumbling on. However, this war was won by commercialism. There always was a likelihood that the sheer number of big name companies supporting the WiMedia solution would ensure that this was the chosen option. Then, the Bluetooth SIG announced that it was opting to partner with the WiMedia Alliance for the High Speed version of Bluetooth.

Job done. Nail in coffin. Use whichever cliché you wish. From this point onwards there was only going to be one winner.

Vince Holton

Publisher & editor-in-chief, Incisor

INDUSTRY EXEC JOINS INCISOR TEAM

Incisor is pleased to announce that with immediate effect Steven Clarke has joined us as our Director of Business Development.

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CSR reports record results for H1 2007

... market displays normal, unfathomable reaction

During the last week of July CSR announced its unaudited financial results for the quarter and half year ended 29 June 2007. Revenues for the half year amounted to \$376 million, an increase of 19% on H1 06. Gross profits were also up by 14% on H1 06 to \$170.4 million. CSR's net cash inflow from operating activities grew to \$137.0 million up from \$34.1 million in H1 06. Stellar results, as we have come to expect from CSR.

CSR's announcement went on to say that it anticipates an average annual revenue growth of 15% - 20% p.a. over the next five years implying annual revenues of \$2 billion by 2012. The company continues to see a growth in the diversification of consumer applications using Bluetooth and in the medium term forecasts a substantial proportion of Bluetooth volume will be directed at non-cellular markets. In particular, CSR has identified MP3 and MP4 players, digital TV, gaming consoles, PCs, cars and cameras with additional applications continuously being identified. What's more, CSR expects its first single-chip UWB product to launch in 2008.

So, CSR's numbers are good, and it is successfully moving away from the pan-WPAN Bluetooth semiconductor industry's dependence on the cellular sector.

This all looks very healthy, yet, how does the stock market react? It takes the CSR share price from its – earlier in the same month – year high price of GBp 924.50 to today's GBp 754. An 18.5% drop. Eh?

Regular Incisor readers will remember that CSR's share price took a similar kicking in September 2006 when the company made a small adjustment to its forecasts. Within the space of a few hours the CSR share

price plunged, wiping hundreds of millions of pounds off the companies value, despite the fact that CSR was still forecasting sales and profits that would be the envy of most in the industry,

At the time of the H1 2007 results announcement, CSR's CEO, John Scarisbrick commented, "We have achieved a record first half for revenues and operating cash flow. These results demonstrate that CSR continues to consolidate its position as the clear Bluetooth market leader and we have the capacity to grow the company quickly whilst maintaining profitability. We continue to see numerous future growth opportunities for Bluetooth as well as for the broader range of short range wireless technologies that are part of our portfolio. The combination of these opportunities gives us confidence that we will achieve average revenue growth of 15% - 20% p.a. over the next five years which implies CSR will reach \$2 billion revenues by 2012."

The stock market's volatile and illogical reaction to CSR's ongoing corporate success story must be hard for the company's execs to comprehend, and to stomach. Incisor is not a financial publication and so does not pretend to be able to analyse – less understand – the way that the markets work. We can only believe that CSR's management is comfortable in the knowledge that it is doing all of the right things, getting the fundamentals in place and continuing to dominate the Bluetooth semiconductor industry in a way that no other company seems able to emulate.

Freescale Q2 2007 results not stellar

Freescale has released its results for the second quarter, and these show that both sales and revenues are down.

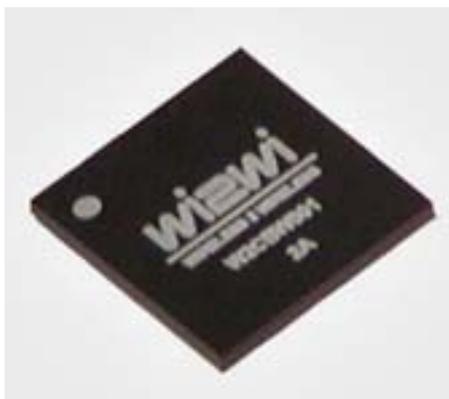
Net sales for the second quarter of 2007 were \$1.38 billion, compared to \$1.60

billion in the second quarter of 2006. "The continued weakness in unit sales and demand from our largest wireless customer impacted our results," said Michel Mayer, chairman and CEO.

Freescale's announcement introduced a (new to Incisor) method of complicating the declaration of its revenue statement. Namely, we were told that operating earnings, net earnings and Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) now include non-cash purchase accounting expenses related to the company's acquisition by a private equity consortium in December 2006. In addition, during the second quarter of 2007 the company incurred a charge of \$38 million, primarily for severance costs associated with a workforce reduction. Cutting staff doesn't come cheap ...

Freescale says that providing operating earnings and EBITDA exclusive of these expenses is a 'more meaningful representation of the company's ongoing financial performance'. Including the aforementioned expenses, the operating and net losses for the second quarter of 2007 were \$268 million and \$288 million, respectively. EBITDA for the second quarter of 2007 was \$273 million.

Excluding the aforementioned expenses, operating earnings were \$159 million and EBITDA was \$311 million. This compares to operating earnings of \$251 million and EBITDA of \$413 million in the second quarter of 2006. So, whichever way you paint the picture, profits were down.



System-on-a-Chip market to exceed \$58 billion by 2010

Driven by demand for high-speed, low power consuming chips, the market for System-on-a-Chip (SoC) is set to experience robust growth, according to research company Global Industry Analysts (GIA), which predicts that the global SoC market is expected to increase by more than 150% between the years 2006 and 2010.

SoC are of two major product types - SoCs Based on Standard Cell, and SoCs Based on Embedded IP. They are primarily used in computers, communication equipment, consumer electronic devices, and automotive applications. New end-use applications, which include mobile phones, and automotives, are driving market growth. 3-D SoC and 90-nanometer technologies are emerging as the leading SoC technologies owing to growth in respective end-use industries.

The United States represents the world's largest SoC market, worth an estimated US\$10.4 billion in 2007, as stated in a recent report published by GIA. Asia (excluding Japan) and Europe are the second and third largest markets respectively. The three regions collectively account for about 80 percent of the global system-on-a-chip market. The global and regional markets are expected to grow at CAGRs ranging between 20% and 35% through 2010. Market for SoCs Based on Embedded IP is expected to grow at a CAGR of 29% for the period 2006-2010, while the Standard Cell based SoCs market is projected to expand at 21%. On the end-use front, consumer electronic devices offer the highest growth opportunity with a CAGR of 31% between 2006 - 2010, followed by automotive applications at 30%.



AT4 wireless extends Bluetooth and Wi-Fi test capability

AT4 Wireless extends Bluetooth and Wi-Fi capability Spanish test company AT4 wireless says it has done everything necessary to be officially accredited for the new draft of Bluetooth 2.1 + EDR specifications once the test specifications are formally released. AT4 wireless will offer related test services.

"These testing services will allow all customers of AT4 wireless to start debugging their products and provide a high confidence level to be ready to pass the official testing as soon as the test specifications are released.", said Jose de la Plaza, Wireless Laboratory Manager.

AT4 wireless, which is an Authorized Test Laboratory (ATL) of the Wi-Fi Alliance has also become the only laboratory in Europe to be qualified for testing the new Wi-Fi CERTIFIED 802.11n draft 2.0 program. This qualification process allows a reduced group of laboratories selected by the Wi-Fi Alliance to offer certification services for Wi-Fi CERTIFIED 802.11n draft 2.0 starting from 25th of June.

Metalink's 802.11n-compliant WLANPlus chipset, which was tested in the AT4 wireless Wi-Fi certification laboratory, is the first Wi-Fi CERTIFIED 802.11n draft 2.0 product in Europe. "We are proud to be the first company whose product is Wi-Fi certified in Europe," said Barry Volinsky, Vice President of Marketing at Metalink. "AT4 wireless conducted the testing according to the demanding requirements specified by the Wi-Fi Alliance, and our WLANPlus achieved excellent results, in compliance with these requirements."



Broadcom completes acquisition of Global Locate

Broadcom Corporation completed the acquisition of Global Locate during July. Global Locate was a privately-held, fabless provider of global positioning system (GPS) and assisted GPS (A-GPS) semiconductor products and software.

Broadcom says it will combine Global Locate's GPS technology with its Bluetooth, Wi-Fi, cellular and other mobile technologies so that it can provide handset makers with wireless connectivity solutions that add significant value to feature and smart phone products.

Broadcom paid approximately \$143 million in cash in exchange for all outstanding shares of capital stock and other rights of Global Locate. A portion of the consideration payable to the stockholders of Global Locate was placed into escrow pursuant to the terms of the acquisition agreement. Additional consideration of up to \$80 million in cash will be reserved for future payment to the former holders of Global Locate capital stock and other rights upon satisfaction of certain future performance goals. In connection with the transaction, certain former stockholders of Global Locate are purchasing \$3 million of restricted shares of Broadcom's Class A common stock.

Broadcom said it may record a one-time charge for purchased in-process research and development expenses related to the acquisition in its current fiscal quarter, ending September 30. The amount of that charge, if any, has not yet been determined.



CSR combats “cell yell”

It seems that in addition to our governments, various authorities and every style magazine, it is now time for our Bluetooth devices to tell us what to do. CSR has announced that Q Talk has joined its eXtension Partner Programme, to integrate its HushAlert! into CSR's latest BlueCore5-Multimedia platform. Q Talk's HushAlert! has been designed to address the user problem of speaking too loudly on mobile phones when in close proximity to other people. Users will be given the ability to control the level of their speech, enabling them to make calls in situations that they may not have felt comfortable in before, as well as keeping annoyance associated with this issue at a minimum.

Q Talk's HushAlert! monitors continuously the speech level of the mobile user through predefined optimal threshold levels. If the users' speech exceeds these levels, the system gives the user visual, audio or tactile feedback to advise if they are speaking too loudly. The threshold levels of the application are fully customisable, enabling it to be tailored to individual needs of the user.

This is all made possible by the high performance 24-bit 64 MIPS on-chip DSP that is part of CSR's BlueCore5-Multimedia platform. HushAlert! is iapparently deal for battery powered mobile devices through its exceptionally low memory and processing power requirements, and can be delivered on standard Bluetooth audio devices running BlueCore5-Multimedia.

Anthony Murray, Senior Vice President of CSR's Wireless Audio Business Unit commented, “CSR is committed to providing its customers with the latest and most advanced technologies on the market. The eXtension Partner Programme is set to strengthen CSR's portfolio and offer customers with cutting-edge

technology that can be easily integrated into existing products. Q Talk's innovative technology will allow users to communicate in environments that they may not have felt comfortable before, be it the environment they are in or privacy of the conversation.”

“The explosive growth in the adoption and use of mobile devices worldwide in every possible scenario is also creating social problems i.e. annoyance with phone usage in offices, trains, and public places etc,” comments Anand Katragadda, President at Q Talk. He continued, “By incorporating HushAlert! in CSR's BlueCore, manufacturers can now give end users the tool to assist them in carrying on courteous and private conversations on their mobile devices, thus dramatically enhancing the consumer experience.”

Bluetooth SIG enhances interoperability program

The Bluetooth SIG has discovered that most interoperability complaints in the marketplace today are caused by implementation issues and design decisions that could be addressed throughout the development process. So, a device can be in strict compliance with the Bluetooth specification and still provide a user experience poor enough that the consumer perceives a failure in interoperability.

The SIG says that perceived interoperability issues cause costly delays in Bluetooth qualification. Meanwhile, problems discovered after product launch result in lost sales, product returns and customer support calls.

In response, the Bluetooth SIG has enhanced its interoperability program to reduce the cost of Bluetooth development by catching Bluetooth interoperability

issues early in product development. The program provides product designers with direction and tools to mitigate both interoperability and product definition issues. These tools are available through the Product Development pages on the Bluetooth SIG's membership site.

Digital Photo Frames Flash into 2007

According to research revealed by GfK, digital photo frames look set to be the ‘hot buy’ of 2007. Digital photo frame sales have seen an increase from 3,000 in May 2006 to 50,000 in May 2007. This has been accompanied by a significant decrease in average price from £124 in November 2006 to £76 in May 2007, leading to 95% sales growth in May compared to April. Many of these photo frames use Bluetooth to transfer photos from camera phones, or from the smaller number of Bluetooth-enabled cameras.

Digital photo frames are now widely available as more and more manufacturers have moved into the market, leading to a proliferation of models and sizes. Cost is a major driver with the most popular model (22% volume share) being a 7inch frame costing just £34.

GfK says that simplicity of design and ease mean consumers are happy to purchase the product online. Internet sales account for 36% of total sales so far in 2007, compared to 17% of digital camera sales and 12% of small photo printer sales.

Sandra Bayly, Account Manager GfK said “With the digital image industry booming, summer holidays and wedding season approaching, sales of digital photo frames are expected to grow even further. GfK predicts sales will reach between 30-50k per month during the summer, before a massive boom in October with the start of Christmas shopping.



CSR and Freescale collaborate

It is interesting to observe how, as a company cements its position in a given sector, other companies, who could have previously been considered competition, feel that it is a good idea to partner with them. CSR continues to be the standard setter in Bluetooth, and now Freescale has elected to integrate CSR technology in a number of its mobile and home consumer reference designs and development kits.

Incisor has learned that CSR's BlueCore4-ROM chip will provide Bluetooth connectivity for Freescale's i.MXS development kit, for example. The i.MXS development kit has been developed around Freescale's i.MX multimedia applications processors portfolio. i.MX applications processors have already been used in various applications in the consumer space including MP3 players and portable navigation devices.

In addition, Freescale plans to use two CSR technologies for the i.MX31 applications development system: BlueCore4 for Bluetooth and UniFi for Wi-Fi connectivity. The rationale is that both BlueCore for Bluetooth and UniFi for Wi-Fi require very few components, making the combination ideal for mobile applications such as portable media players (PMPs). CSR's proprietary interference avoidance techniques ensure two wireless technologies are 'aware' of each other, permitting Bluetooth and Wi-Fi to be used simultaneously without compromising the quality of either. This means files can be downloaded from the Internet at the same time the user is listening to streaming stereo music over Bluetooth on headphones.

Tracy Hopkins, Vice President of CSR's Consumer Business Unit commented. "Our collaboration with Freescale is the latest of our longstanding partnerships. It is clear that the market for both Bluetooth and Wi-Fi-enabled devices is growing rapidly with

more and more classes of devices now available with wireless capability. As well as bringing highly integrated, low-power silicon to the table, peaceful coexistence between Wi-Fi and Bluetooth is absolutely imperative." Hopkins continued, "We see the mobile consumer market as a particularly important area for CSR in the short to mid-term"

Paul Marino, general manager of Freescale's multimedia applications division, added, "We see CSR's wireless technology working in tandem with our own as a key driver to enabling OEMs to bring the best in mobile consumer solutions to their customers quickly."

So, CSR, that just leaves Broadcom, Texas Instruments, NXP, etc, etc...

Wipro-NewLogic releases next gen Bluetooth IP

Wipro-NewLogic has released its Bluetooth 2.0 + EDR baseband RTL and software stack. This Bluetooth 2.0 + EDR architecture is upgradeable by software to Bluetooth 2.1 + EDR.

"Wipro-NewLogic is a global leader in the Sale of Bluetooth IPs and has a long history in Bluetooth development, being the first company in 2000 to qualify its Bluetooth Core", said Franz Dugand, Product Marketing Manager at Wipro-NewLogic. "We have licensed our Bluetooth 1.2 solution to a large number of customers worldwide and already a few of our customers have taped out their chip, integrating our Bluetooth 2.0 + EDR baseband IP."

Wipro-NewLogic says that its Bluetooth baseband (BOOST Core) and software (BOOST Software) offer design engineers the flexibility to be used with any 16-bit or 32-bit processor, using little endian or big endian convention. It is silicon proven with

ARM, ARC and LEON processors, amongst other CPUs. The BOOST Software contains the layers below-HCI (LC, LM, HCI) as well as above HCI, including profiles such as headset, hands free, HID etc. It supports multiple partitioning options: the hosted configuration allows an easy and standardized partitioning of a Bluetooth system within a two CPU or two chips architecture, while the same software can also be configured in a fully embedded mode, without the need of any HCI.

See also "Bluetooth: the common denominator for all wireless connectivity combo products" on page 10.

Wave good-bye to the TV remote control

Ultra Low Power Bluetooth, ZigBee and other proprietary short range wireless solutions have been vying to replace infra red (IR) in consumer remote controls. Now, Incisor hears that hand signals could be used to replace remote controls for TVs, DVDs and other consumer electronics goods. This is according to research published in the Institution of Engineering and Technology's (IET) Computer Vision Research Journal.

Two academics, Dr. Prashan Premaratne and Quang Nguyen, have devised seven hand gestures to control a TV and VCR and carried out a number of trials under different lighting conditions and at different distances from the equipment.

The system comprises a web camera, gesture processing unit, hardware interface for the control unit and a universal remote control which is built into the control unit. The webcam captures the hand gestures and the software converts this into a signal which operates the remote controller. The series of commands devised by the researchers included switching the equipment on, turning the volume up and down, changing channel, play and stop.

news

CSR partner programme embraces new players

During July Incisor learned that three more companies are integrating CSR's technology via the Bluetooth silicon market leader's ever-expanding partner programme.

...CSR Bluetooth added to Action's MP3 design

An MP3 design from Actions Semiconductor is benefiting from CSR's BlueCore technology to bring Bluetooth stereo streaming music, handsfree calls from a mobile phone and wireless music file transfer from PCs or other Bluetooth-enabled devices. The end product is a low cost and highly differentiated reference design aimed at MP3 manufacturers.

Actions Semiconductor has designed the MP3 evaluation board around its MIPS 4KEc MP3 player chipset on a hardware development board and software development environment along with the CSR BlueCore4-ROM silicon.

As the functionality of MP3 players continues to evolve, CSR is forecasting that wireless connectivity is set to be the biggest differentiator in products hitting the market this Christmas and into next year. The call handling function of this design means that when a call comes in, the mobile phone pages the MP3 player, which will route the call to the Bluetooth headset and pause the music at the same time. Once the call is finished, the Actions-based MP3 player resumes MP3 playback.

The Actions MP3 reference design is available now.

...brings Bluetooth to austriamicrosystems' PMP designs

Also looking at the MP3 player and portable media players (PMP) markets, austriamicrosystems' new mobile entertainment design uses CSR's BlueCore technology to stream music to two or more Bluetooth headsets simultaneously, enabling users to share music wirelessly. The austriamicrosystems design also benefits from CSR's native MP3 support.

The design uses austriamicrosystems' AS3525/27 MP3 player chips for enhanced MP3 players and PMP devices that use Bluetooth to simplify the sharing of music. Power is obviously a prime concern to any mobile product manufacturer and austriamicrosystems claims that its ARM9-

based SoCs AS3525 and AS3527 deliver on this requirement, allowing the implementation of an MP3 player with only 50mW total power consumption while providing over 200MIPS of processing power. The device delivers video playback to LCD and OLED screens at up to 30 frames per second (fps) and up to QCIF+ resolution, while streaming crystal-clear audio via its independent headphone and line outputs.

CSR's BlueCore technology is used in the reference design to enable users to stream MP3 files directly to MP3 compatible Bluetooth stereo headphones. As BlueCore supports native MP3 coding, the MP3 stream is sent directly to another device without needing to transcode the files from MP3 to SBC (the default coding in Bluetooth), reducing power consumption and improving music quality. The CSR and austriamicrosystems PMP reference design is now available worldwide.

...and announces partnership with Telechips

The latest multimedia software development kit from Telechips' features wireless connectivity using CSR's BlueCore4-ROM for Bluetooth and UniFi-1 Portable for Wi-Fi.

Telechips' multimedia software development kit is available now for new design solutions incorporating both Bluetooth and Wi-Fi; such as MP3 players, PMP, mobile TV, PND, car and home audio, etc.

The Telechips design runs on the most common operating systems for multimedia players, Windows CE, MicroC/OS-II and Nucleus. By using CSR's technologies for both Bluetooth and Wi-Fi, Telechips says that it is benefiting from industry leading coexistence capabilities and that it is leveraging CSR's proprietary interference avoidance techniques which ensure that the two wireless technologies are 'aware' of each other, reassuring users that Bluetooth and Wi-Fi can be used simultaneously without any effect on the quality of either. Telechips claims that this is the only available combination of Wi-Fi and Bluetooth devices that enables files to be downloaded from the internet at the same time that the user listens to music, streaming via Bluetooth, on stereo headphones without audio or download speed issues.

CSR commented that it is benefiting from working with Telechips, a widely recognised multimedia solution partner whose previous customers include names such as Samsung, Philips, Sony, JVC, BestBuy, Disney and Sandisk.

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new products



Honey, we need to talk

Nokia has launched its first speakerphone, the Nokia Speakerphone HF-300. This detachable Bluetooth speakerphone hosts a speaker and microphone. Audio quality is enhanced with Digital Signal Processing (DSP), cancelling out excess noises and echoes.

The HF-300 can be used in and out of the car. It is operated with battery power, so you're not confined to using it with a power outlet and the speakerphone has illuminated keys for easy use, without all the fuss of blinking lights. There is no need to concern yourself with the power button - this device knows when to turn off (auto power off) after you stop talking. The speakerphone will automatically turn off after five minutes after the connection to the mobile device has been severed.

The speakerphone comes with a sunvisor clip, so you can easily position it for use in the car. For those extended conversations, you can take the lightweight (80g) speakerphone outside, into your home or office, and mount it to a surface with its rubber feet. Nokia claims up to 20 hours of talk time. When the battery runs low, the LED battery indicator will light up to alert you.

"We are committed to providing convenient communications in the car - and out of it too. The beauty of the Nokia Speakerphone HF-300 is in its mobility, it goes where you go, when you want to talk," said Wolfgang Gärtner, senior category manager, Nokia Automotive.

Available globally, the HF-300 is expected to be hit the streets in the third quarter of 2007 and will cost an estimated €90, excluding taxes.

Newton Peripherals launches the X54 MoGo Mouse

Newton Peripherals, the manufacturer of the MoGo Mouse (see Incisor TV '[Best Bluetooth of CES](#)' video presentation) has announced



two enhanced versions of the mouse, specifically designed to work with ExpressCard/54-equipped laptop computers.

The MoGo Mouse X54 and X54 PRO are Bluetooth-enabled wireless mice designed for laptops equipped with an ExpressCard/54 slot. The mouse's frame folds flat, stores and recharges in the ExpressCard/54 slot. Newton Peripherals says that this feature is a major advantage over other wireless mice, which require frequent change of batteries and that it also means that transporting your mouse around is no longer the hassle it once was. The mouse has a kickstand that enables it to be transformed from a flat metallic card to a portable mouse.

The X54 is designed for consumer's using their laptops to listen to music, watch movies and surf the internet. The mouse supports multi mode operation and by altering the settings the user can switch between mouse mode and multi media mode. The multi media mode enables the user to change the volume and switch between tracks or movie scenes.

The X54 PRO is said to be more suited to the professional market, and supports both a mouse mode and a presenting mode. This allows you to move up and down between slides and there is a laser pointer feature so you can illustrate key points on the slide.

Priced at approximately UK£54.99 the MoGo Mouse X54 and X54 PRO will be available at retail outlets from August 2007.

Baracoda launches two new Bluetooth barcode readers

Baracoda, which makes Bluetooth wireless barcode readers RFID solutions, has launched two new barcode readers products - ScanWear and ToughRunners, which are aimed at the logistics and industrial environments.



These products are the fruits of Baracoda collaboration with TXcom, a French specialist in automatic identification and wireless networks. TXcom develops handheld and embedded terminals for logistics, retail, transport and industrial applications and specialises in robust devices dedicated to intensive scanning operations. Since 2003, the company has been working in close partnership with Baracoda, piggy-backing its Bluetooth know-how.

ScanWear is an ultra light Bluetooth barcode reader (reader weight: 46 g, wristband weight: 18 g) that is worn like a bracelet, leaving the user's hands free for other operations. It has a "multi-scan" system for reading multiple barcodes at a burst and supports remote reading. This reader can withstand being dropped several times onto concrete. It also has a very high battery autonomy (over 50,000 scans). ScanWear is aimed at logistics applications such as order picking and dispatching, and can be adapted for voice applications.

ToughRunners is a torch-shaped Bluetooth barcode reader that is said to provide accurate and quick reading of barcodes. Its rugged design means it can resist multiple drops onto concrete (should you want to do so).

The ToughRunners is also available in an "extreme" version, suitable for cold environments (working temperature down to -30°) or conditions of high humidity or dust (IP65). It remains a lightweight scanner (170 g and is also compatible with Baracoda's Plug & Scan and BaracodaManager connectivity solutions.

ScanWear and ToughRunners became available during July. Depending on the version, the manufacturer's suggested retail prices range from UK£629 - 744.

Wireless music catalyzes new markets

by Karen Parnell, CSR



Wireless connectivity is set to be the next big differentiator in PMP and MP3 player product segments. CSR's Bluetooth and Wi-Fi silicon is allowing application processor manufacturers to create reference designs that open up many new 'use cases' for such products.

CSR has used this column before to outline the potential that wireless technology brings to the music player business. Well, this opportunity is now really gaining momentum, as several design-ins with influential application processor manufacturers for portable media player (PMP) and MP3 products demonstrate.

Four of the world's leading player technology suppliers — Actions Semiconductor, austriamicrosystems, Freescale and Telechips — are adopting CSR Bluetooth and Wi-Fi wireless connectivity for applications ranging from easier listening, to brand new usage scenarios for portable players.

In the relatively new PMP product segment, sales are growing dramatically. Portable audio players are also still growing very strongly, but increasing competition is forcing vendors to differentiate their products. Wireless connectivity is set to be the biggest differentiator in these product areas for the Christmas markets and into 2008.

MP3 and PMP manufacturers typically use reference designs from application processor manufacturers as the basis for their products, to speed time to market and minimise R&D costs. In turn, these technology providers

take great care to ensure their designs are extremely cost effective and flexible.

Adding compatibility with standard Bluetooth wireless stereo headphones is one key addition, giving consumers much greater freedom of use; easier listening while exercising is just one example. Bluetooth capability also opens up other usage scenarios including seamlessly switching from listening to music to taking a call from a mobile phone, and 'sharing music' output from a player by streaming it to two headsets.

In all four applications, CSR's single-chip BlueCore4-ROM Bluetooth platform, compatible with the enhanced data rate (EDR) specification, is providing a very compact and low cost wireless subsystem. Key to the design-ins is CSR's ability to provide the complete solution, with the upper Bluetooth stack and relevant Profile software for the player's host processor. CSR's portable and field proven BCHS (BlueCore Host Software) provided a fast and easy-to-integrate solution for all four providers.

Wi-Fi takes 'use cases' farther

In addition to Bluetooth, two of the application processor manufacturers are also

implementing Wi-Fi. This wireless functionality will allow products to connect to access points for downloading music or video files without a PC. The capability taps into the fast growing number of hotspots, as well as new mechanisms by which consumers can get music online — such as accessing MP3s located in a personal online locker, or via websites that provide music without digital rights management (to help new and unsigned bands or for promotional purposes). Users will also be able to swap files wirelessly with other Wi-Fi-enabled players. Player manufacturers can quickly build on functional possibilities like these to add value and differentiate their products.

For this design-in, the power consumption of the Wi-Fi silicon, and the ease with which it could be interfaced to the embedded processor, are critical criteria for the application processor manufacturers. Both of the manufacturers concerned opted for CSR's UniFi-1 Portable device, which employs multiple power domains to slash power consumption in embedded applications. This IC also includes SDIO/SPI interfaces as standard, simplifying connection to the host processor — avoiding the additional cost and real-estate problems of creating interfaces based on techniques such as programmable logic and memory.

By selecting CSR silicon for both Bluetooth and Wi-Fi, the application processor suppliers also tapped into another major feature: robust radio coexistence. Proprietary interference avoidance techniques make the two wireless technologies 'aware' of each other, allowing users to employ Bluetooth and Wi-Fi simultaneously without detrimental effect on the quality of either channel. This mechanism allows CSR to offer the only available combination of Wi-Fi and Bluetooth devices that allows files to be downloaded from the internet at the same time that the user listens to music streamed via Bluetooth to stereo headphones — without audio or download speed issues.



sponsored contribution



Bluetooth: the common denominator for all wireless connectivity combo products

By Franz Dugand, Wipro-NewLogic

THIS ARTICLE ASSESSES THE CURRENT STATUS AND FUTURE PROSPECT OF DIFFERENT WIRELESS COMBO CHIPSET SOLUTIONS INCLUDING THE USE CASE AND APPLICATIONS, KEY CHALLENGE IN FORM OF CO-EXISTENCE AND HOW INTELLECTUAL PROPERTY PLAYERS CAN SUPPORT THE SEMICONDUCTOR PLAYERS TO ACHIEVE THIS CONVERGENCE.



According to a recent study, by 2011, 32% of all Bluetooth®, Wi-Fi, NFC, WiMedia (UWB), GPS and FM Radio IC shipments will be integrated products that will - (a) either incorporate a wireless connectivity package combining two or more solutions, or (b) will be integrated with a host processor or baseband processor. The main benefits of integration are not only cost reduction (everything being integrated on the same chip leads to reduced bill of material), but also power saving and feature rich solutions.

Bluetooth is available in all of today's combo solutions

The first set of such combo ICs appeared in the form of Bluetooth + FM, pioneered by companies like Broadcom (BCM2048) and CSR (BlueCore5-FM). They are mainly targeted towards mobile phones (where FM is projected to be in more than 330 millions units by 2009) and portable multimedia players. Bluetooth + FM integration in a single chip gives significant area savings and can reduce IC cost by 40%. Then Broadcom, CSR and TI announced ICs integrating Wi-Fi,

Bluetooth and FM into the combo ICs. These combos represent a step further toward integration, mainly for handheld products.

Future combos integrating Bluetooth

The race towards the Combo ICs has but just started. Semiconductor companies will unveil new and very promising combos integrating Bluetooth:

- **Bluetooth + GPS:** while GPS shipping into mobile phones is anticipated to reach →

200 million chips in 2011, GPS IC suppliers will soon going to announce Bluetooth + GPS integrated combo solutions. The acquisition of NordNav and CPS by CSR is just an evidence of this trend. Such combos can be used by GPS sensors for sending GPS information over Bluetooth, can be integrated in any other handheld device where GPS and Bluetooth capabilities can be correlated or not. For example, while driving to a new location, guided by your car navigation system, you can go through the "Points Of Interest" of the area, select the nearest restaurant and call it using the Bluetooth Hands Free Profile. This is also a dream come true for bicyclists or motorcyclists who today need a wired earpiece to be able to make any use of their GPS.

- **Bluetooth + GPS + WiMAX + WiFi:** Mobile computing is a big driver for connectivity integration into single chip. For example, Intel has already announced the WiMAX Connection 2300 chip which is a WiMAX + WiFi + HSPDA combo solution. Bluetooth for calendar synchronization with a mobile is a commonly used application on the laptop. Also efficient connectivity on Mobile Internet via WiMAX combined with GPS navigation can provide a very good navigational experience for the users. So it should be no surprise if a future version of such a chip integrates Bluetooth and GPS.
- **Bluetooth + NFC/RFID:** Tracient just announced its Bluetooth enabled RFID solution, suitable for easy integration in systems for identification and tracking. Thanks to the huge penetration of the Bluetooth technology in cellphones, it is predicted that the Bluetooth + NFC external modules should dramatically increase the mobile transaction market, even before the NFC technology is adopted by cellphone makers. NFC is also a complementary technology which can be used for easy and secured Bluetooth device pairing.
- **Bluetooth + UWB:** The strength of Bluetooth is the rich set of applications which are already popular in handheld devices. Today's mobile and handheld devices are becoming huge storage devices also. For example, to transfer a 15Mbytes file over Bluetooth, it would take around 2 minutes. A WiMedia compliant UWB technology supporting PHY rate of 480 Mbps could be used to reduce this time to less than 10 seconds. A combination of Bluetooth and UWB can help achieve the low power consumption in throughput-centric applications such as file transfer, synchronization and video streaming due to the lower power per bit of UWB. The first versions of integrated products may appear as a Certified Wireless USB™ + Bluetooth Combo. These combo chipsets can be enhanced to support High Speed Bluetooth or Bluetooth 3.0 with a simple software upgrade, when the specs get ratified.
- **Bluetooth + UWB + WiFi:** Portable multimedia players will get great benefit of

such combos. Bluetooth will be mainly used for audio streaming toward stereo headset or speakers. Wi-Fi will be used for synchronization / download or audio/video streaming from a PC or the web. The addition of UWB will allow video streaming toward set top boxes.

Coexistence - The Key Challenge

The integration of the multiple connectivity technologies on a combo IC could be challenging. For instance, a more optimal implementation of the Bluetooth-Wi-Fi coexistence mechanism can be achieved if design details of both Wi-Fi and Bluetooth implementations are known. A tighter integration of Bluetooth and Wireless LAN on the same chip may also need intelligent sharing of resources and integrated view of the power save mechanisms.

IP providers are great catalysts for combo solutions

Due to the high complexity of each of these wireless connectivity technologies, many, if not most players in this space, cannot afford to develop multiple wireless technologies from scratch by themselves. It is therefore all but natural for the silicon players to rely on the Semiconductor Intellectual Property providers for some or all of these wireless technologies. This can substantially reduce the development and production cost, help to achieve better time to market and provide higher bandwidth to focus on the companies USP for the target application.

By virtue of its broad wireless IP portfolio including UWB, Wireless LAN and Bluetooth technology (comprising software, digital and RF), Wipro-NewLogic is in the unique position of being the one-stop-shop provider for wireless connectivity combo solutions. Through close collaboration with its customers, the company has acquired significant expertise in combo SoC design, including integrated RF SoCs. Wipro-NewLogic can address all requirements for wireless solutions including IP cores, component Integration, SoC development, silicon manufacturing and testing as part of its turnkey services.



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sponsored contribution

Snippets

Frost & Sullivan predicts mobile broadband growth

Next generation mobile broadband technologies including 3G Long Term Evolution (LTE), xMax and Mobile WiMAX hold the promise of transforming the mobile broadband landscape, according to market researchers Frost & Sullivan. Carriers are increasingly investigating the potential of these emerging technologies as a means to sustain their profitability and boost average revenue per user (ARPU). More than 62 per cent of the current world population of nearly 6.6 billion are not connected to a cellular network. This situation is paving the way for various emerging wireless technologies such as xMax by xG Technology and Mobile WiMAX to make major inroads into the market.

Broadcom and Verizon Wireless sign licensing agreement

Verizon Wireless is ceasing its efforts to overturn the ITC ban on Qualcomm products. It has signed a new agreement with permits the continued importation and sale by Verizon Wireless of mobile devices that are the subject of the current litigation between Broadcom and Qualcomm before the U.S. International Trade Commission.

FCC to release draft rules for spectrum auction

The FCC will soon release the draft rules for its upcoming spectrum auction, according to an insider who has seen the draft. Under conditions contained within the draft rules, two blocks of 11 megahertz each will have open-access requirements attached. The draft rules also reportedly say that 10 megahertz of national spectrum will sit alongside spectrum used for public safety.

Motorola reorganizes

Motorola has announced a reorganization of its business units, and it is to be expected that the aim is to help cut costs. The company will combine its network equipment and television set-top box businesses, and it will form a new unit for its enterprise business, which will also take on Motorola's mobile e-mail business. Motorola reports its mobile-devices unit will remain relatively unchanged.

uwb/w-usb news



First six Wireless USB products certified

They have been a long time coming – wireless USB demos were first publicly shown at CES at the beginning of 2006 – but the USB Implementers Forum (USB-IF) has told Incisor that the first six consumer products have now passed compliance and certification testing for Certified Wireless USB. The products, from Dell, D-Link, IOGEAR and Lenovo are set to introduce Certified Wireless USB technology to consumers – in the form of notebooks, Wireless USB host adapters and hubs. Early adopters can look forward to the benefits of high data rate wireless connectivity in these new and existing PCs and devices.

“This is the beginning of a very exciting time for Certified Wireless USB, as the vision of a world without wires is realized. It is a great endorsement to have consumer recognized PC and CE companies be the first to incorporate Certified Wireless USB into new products. This makes a huge statement that Certified Wireless USB is here,” said Jeff Ravencraft, USB-IF president. “With a variety of Certified Wireless USB silicon and end-user products available, we expect to see other OEMs and ODMs follow suit in the coming months as Wireless USB continues its march to broad adoption.”

Similar to the Hi-Speed USB logo, consumers can now look for the Certified Wireless USB logo (see above) on product packaging and/or hardware for all products that have passed certification. This logo is a sign to consumers that these products have been tested for interoperability and will work with other Certified Wireless USB devices.

The new products, which are expected to hit stores for the back-to-school and the holiday gift seasons, include certified silicon from vendors Alereon, Intel Corporation, NEC Electronics Corporation, Realtek Semiconductor Corp. and WiQuest.

The list of certified products supplied to Incisor included the following:

- Dell Inspiron 1720 notebook
- D-Link–Wireless USB Adapter

(DUB-1210) & 4-Port Wireless USB Hub (DUB-2240)

- IOGEAR’s Wireless USB Hub & Adapter Kit
- Lenovo ThinkPad T61/T61p 15.4-inch Widescreen Notebook.

If Certified Wireless USB is to get out of the blocks, and up and running with any degree of vigor, it needs the support of the major manufacturers. Liam Quinn, director of communications technology at Dell’s Office of the CTO added his support: “Consumers have long valued the ability to transfer personal content via USB. Being one of the first to achieve Certified Wireless USB compliance on a consumer notebook platform is only the first step in driving this technology across our consumer notebook portfolio, and underscores our focus on delivering a solution that parallels the ease-of-use associated with Hi-Speed USB, only wirelessly.”

Good words, for sure. The USB-IF now needs to make sure that the rate of certification announcements ramps up, with more of the big guns getting behind the technology. There is a huge market ought there, and unless there is a major fumble somewhere along the line, Certified Wireless USB looks set to become a widely adopted and – in this office at least – valued technology.

Some of the UWB/W-USB chipset companies made their own announcements around this news item, and so there have been a raft of UWB stories this month. These follow below.

Staccato’s single-chip CMOS UWB certified

Staccato Communications’ Ripcord UWB product family has earned official FCC certification and Japan TELEC regulatory approval. By delivering FCC and TELEC standards-compliant devices, Staccato says it will be able to advance the state of reference design kits with customer engagements and enable customers to get products to market faster in both the US and Japan.

Staccato offers the Ripcord family of products based on Certified Wireless USB and the WiMedia Alliance’s UWB Common Radio Platform. The Ripcord 3500 series is implemented using 110nm digital CMOS process technology and is offered as a complete System-in-Package (SiP) and Wafer Chip-Scale Package (WCSP).

“Being certified in Japan is a significant step as the Japanese emission mask is very stringent compared to the FCC regulations,” said Roberto Aiello, co-founder and Chief Technical Officer at Staccato Communications. “Staccato remains heavily involved in worldwide regulatory development. After earning both FCC and TELEC approval, we are now focused on our engagement with the certification approval processes for the WiMedia Platform and Certified Wireless USB, both of which are in the process of approval.”

“Staccato’s leadership in single-chip, all-CMOS, complete solutions based on the WiMedia Common Radio Platform for Certified Wireless USB, remains strong, as evidence by these recent domestic and international regulatory approvals. The company is committed to providing our customers the best solutions at the most competitive price in the industry,” said Marty Colombatto, chairman and CEO for Staccato Communications. “As we look ahead, we recognize the continued need to provide customers next-generation solutions with the same benefits in price, power consumption and form-factor afforded by single-chip CMOS. By offering these critical advantages in smaller design process technologies such as 65nm, Staccato will not only speed up the product life cycle, but allow customers to seamlessly meet the crucial demands of the ever-changing and rapidly growing markets of Certified Wireless USB and Bluetooth 3.0.”

Ripcord is apparently now approaching the production cycle and Staccato is preparing to undergo additional certification processes. Staccato believes that the deployment of the Ripcord solution will empower the personal computer, consumer electronic and mobile device industries with high-speed wireless personal area network (WPAN) solutions optimized for cost, power consumption and form-factor.

uwb/w-usb news



Wisair unveils single CMOS Wireless USB chip

Fabless semiconductor company Wisair has announced the immediate availability of its new WSR601, a single-die CMOS chip for both host and device Wireless USB applications. The production-ready chip, based on WiMedia and Certified Wireless USB standards, integrates an UWB PHY (including RF), MAC and Wireless USB subsystems. Wisair is aiming the WSR601 at a wide range of Wireless USB applications, including battery-powered, portable devices.

Implemented in digital CMOS process, the WSR601 supports HWA, DWA and Native device protocols, and features SDIO and USB interfaces, isochronous data transfer and cable and numeric association models. The single chip delivers full-room coverage with connectivity ranges of 8 meters at 480Mbps and over 20 meters at 200 Mbps. For mobile devices where battery life is key, the WSR601 provides power-save modes and an average power consumption of 385 mW at 100 Mbps throughput.

A two-wire coexistence scheme allows the WSR601 to coexist in close proximity to other radios such as Bluetooth and 802.11. The chip's low out-of-band emission, below -70dBm/MHz, provides the flexibility to support Japanese regulatory requirements without the need for a dedicated external filter. Additionally, integrated Detect & Avoid technology enables the WSR601 to coexist with other wireless technologies sharing the same spectrum, such as WiMAX.

"With the WSR601, we are responding to the market's demand to lower the cost of both host and device Wireless USB

solutions, yet without compromising performance," said David Yaish, CEO at Wisair. "We are very enthusiastic about the results of our new chip as its performance is even better than our previous-generation, industry-leading chipsets. The WSR601 will allow ODMs to dramatically reduce module costs through a lower bill of materials (BOM), as well as reduced PCB and assembly costs."

Incisor was told that the WSR601 is available now and has been shipped to several customers in sample quantities. Production volumes will apparently be available in Q4 2007.

WiQuest chips in certified W-USB products

WiQuest Communications tells Incisor that its WQST110/101 Certified Wireless USB silicon is being used by Dell and Lenovo in their latest notebook PC products. Dell's Inspiron 1720 notebook and Lenovo's ThinkPad T61/T61p 15.4-inch widescreen notebook are part of the very first wave of Wireless USB platform certifications awarded by the USB Implementers Forum (USB-IF).

"Consumers have eagerly awaited the arrival of Certified Wireless USB products. WiQuest's certified silicon has enabled leading PC companies to meet consumer demand and achieve certification for two noteworthy end-user products," said Jeff Ravencraft, USB-IF president. "These companies will lead the industry and establish the market for Certified Wireless USB connectivity."

"WiQuest's strategy to provide complete Wireless USB host and device solutions is

why we are able to reach this key industry milestone first with such impressive partners," said Matthew Shoemake, WiQuest founder, CEO and president. "WiQuest continues to work with these and other tier 1 companies to build the complete ecosystem for both aftermarket and embedded products, across multiple vertical markets, so that consumers are assured that the investment they make today is future-proof."

These two product placements meant that WiQuest can stake a claim as the industry leader in the number of products based on Certified Wireless USB from leading PC and aftermarket OEMs. WiQuest's Certified Wireless USB WQST110/101 chipset has been certified for both host and device adapter applications.

Further Wireless USB embedded PCs, adapters and hubs, based on WiQuest certified silicon, are expected to be certified in the coming weeks. Earlier this year, Incisor TV saw Toshiba's Wireless USB-based docking platform at CES 2007, which also used WiQuest's silicon. See WiQuest and Toshiba talking about this by viewing Wireless USB special - [Wireless USB at CES 2007](#).

Reference designs based on the WQST110/101 chipset include WiQuest's wireless USB adapter, 4-port hub, full mini-card and half mini-card. All are apparently available now.

Misano Circuit goes wireless



The Misano World Circuit has chosen to deploy networking, wireless, security and unified communications technologies throughout its four square kilometer site. The one million Euro development is aimed at bringing the Moto GP World Championships back to Misano, which is one of the first circuits in Europe to offer wireless network access anywhere on the circuit. The management team believes that opening up new opportunities to enhance the experience for racing fans and helping increase revenues through new multimedia services.

Misano World Circuit team, working with Cisco and system integration partners IBM, designed the network to deliver advanced communications and services, incorporating video, voice and data, throughout the circuit encompassing the spectator areas for up to 70,000 fans, media center for 320 press, paddock areas, VIP areas and emergency, medical and support centers.

"Each year, over 600,000 visitors come to Misano circuit and this places a lot of

demands on the infrastructure," explained Renzo Rossi, ICT Infrastructure Manager of Colacem S.p.A., owners of the Misano World Circuit. "Turning Misano into a high-tech circuit is vital to supporting our business, but our challenge was to keep to a limited budget. We decided to build a single shared infrastructure for all services and to keep management and control of the infrastructure. We knew Cisco to be a reliable partner as we deployed our first Cisco router in 1989, but we chose Cisco because it was the only company that answered all our requirements with one high performance solution for data, voice, video, security and mobility."

The network needed to meet all the communications needs of a premier international race event. All visitors have access to video streaming at full video quality over the wired network. At the same time, the wireless infrastructure supports the real-time ticket verification system supplied by Ticket One. IP phones connected to the same network provide voice and video communications for press and staff. Senior personnel can maintain closer contacts using video telephony and

wireless IP phone handsets to help manage security and reach emergency staff anywhere on site. Guest wired and Wi-Fi Internet access is available throughout the circuit for press, racing teams and for use at corporate events.

Stefano Venturi of Cisco Italy, said: "The executive team at Misano shares Cisco's vision of the network as a platform that will not only change the way we work, but also the way we live, play and learn. The network will help Misano deliver a variety of new services for spectators and staff. For example, video streaming can be extended to the wireless network so that fans can receive real-time race information, such as lap times and statistics, via hand-held devices or smartphones. Sponsors can deliver targeted advertising directly to spectators and a variety of interactive services can be made available to VIP and corporate hospitality customers. The addition of wireless location services will make it possible for the race director to see the location of emergency vehicles and support staff. E-payment systems can also be easily implemented for the convenience and security of visitors".



Is there a justification for this picture?
Not really, but ...

wi-fi / wlan news



CTi gains gain

Specialist antenna manufacturer CTi Ltd has launched a new series of omni-directional Wi-Fi antenna which provide a range of gain levels up to 9dBi. CTi says that these will enable a significant improvement over most standard antenna fitted to indoor wireless access points, routers and bridges.

The CTI-RA series Wi-Fi antenna enable users to increase the signal strengths of SOHO (small office/home office) wireless equipment by replacing the supplied antenna. CTi suggests that the equipment's operating range will be appreciably extended. There is a choice of 3 dBi, 5 dBi, 7 dBi or 9dBi gain levels to facilitate optimum application matching, three types of connector, and all are suitable for use with any 802.11 standard 2.4 GHz wireless systems.

CTi has also recently introduced a series of 5 GHz Wi-Fi antenna, together with a number of new GPS and GSM antenna and has launched a new web site that makes it much easier and quicker for designers, OEMs and system integrators to match for their antenna requirements. The site currently details nearly 100 different Wi-Fi and Bluetooth antenna - as well as a wide range of models for GPS, GSM, DAB and Tetra applications.

In addition to providing technical information about all of CTi's standard antenna, the new web site features on-line enquiry and quotation forms, offers a sneak preview of products in development, and lists full contact information for all of the company's distributors, worldwide.

Cetecom Inc. offers certified testing for 802.11n

The Wi-Fi Alliance has qualified Cetecom Inc. as an Authorized Test Laboratory to conduct testing for the Wi-Fi Certified 802.11n draft 2.0 program. News of becoming a qualified lab arrived shortly after the Wi-Fi Alliance launched the program. "We are pleased to have Cetecom Inc. among the first labs to become qualified to conduct product testing for the Wi-Fi Certified 802.11n draft 2.0 test program," said Wi-Fi Alliance Managing Director, Frank Hanzlik. "Cetecom's demonstrated commitment to on-time readiness has helped us achieve this important industry milestone on time, with enough testing capacity to support all of our member companies worldwide."

Products based on the IEEE 802.11n draft 2.0 standard have the ability to deliver five times the speed and twice the range of previous Wi-Fi devices.

Cetecom Inc. already offers a wide range of services for 802.11 a, b, g products including: WPA/WPA2 (Wi-Fi Protected Access), Extended EAP (Extensible Authentication Protocol), WMM (Wi-Fi Multimedia), WMM Power Save, 802.11 h + d, Wi-Fi Protected Setup, CWG (Converged Wireless Group) RF Performance, and regulatory approval services. Offering Wi-Fi CERTIFIED testing for the 802.11n draft 2.0 program, said Cetecom, further strengthens its ability to provide a one-stop shop experience for its customers.

Belkin expands wireless range...

Belkin has launched the N1 Express Card wireless adapter in response, it says, to changing technologies and the ever increasing popularity of 'draft n' Wi-Fi technology (or as Belkin calls it 'N draft').

In case you are unfamiliar with the ExpressCard form factor, it is designed to deliver high-performance, modular expansion to notebook computers at a lower cost and in a smaller form factor than traditional PC Card technology. Users are able to add memory, wired and wireless communications, multimedia, security features and more by using ExpressCard modules.

The Belkin wireless N Draft Express Card comes in a 34mm format and will connect a notebook or laptop computer to a wireless network, and completes the wireless N1 Range. Users can now choose between PCMCIA, Express Card, PCI or USB connections to add PC's or laptop computers into their existing wireless network and a Router or Modem Router combination as the backbone of their draft n network.

The Belkin N draft range is available now, and the N1 Express Card has an RRP of UK£69.99 inc VAT

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Chief Technology Office
– CONCRETE LOGIC

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– MOTOROLA

RF System Architect
– ARTIMI

Senior Engineer
– SAMSUNG ELECTRO-MECHANICS

Technical Director
– EUREX COMMUNICATIONS

Short Range W/less Lead Eng.
– FRACTUS

Senior Analyst
– STRATEGY ANALYTICS

Chief Application Engineer
– PHILIPS SEMICONDUCTOR

VP of Marketing & Business
Development
– ZIGBEE ALLIANCE

Design Engineer
– CSR

Business Dev. Manager
– TEXAS INSTRUMENTS

R & D Engineer
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– GN MOBILE, GN NETCOM

Connectivity Manager
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Principle Analyst
– AUTOMOTIVE – ISUPPLI

Principle Engineer
– MEDTRONIC

Digital Cellular RF Product
Line Manager
– ANALOG DEVICES

Senior Applications Engineer
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– TELEFONICA

RF Product Manager
– MURATA

Sen. Procurement Mgr.
– PLANTRONICS

CEO
– PLENUM WIRELESS

Confidential Agent
– PHILIPPINE BUR. OF IMMIGRATN.

Software Engineer
– SENNHEISER COMMUNICATIONS

Design Engineer
– TRIMBLE NAVIGATION

Executive Director
– OPEN SPECTRUM FOUNDATION

Software Engineer
– SONY ERICSSON

Development Engineer
– PARROT

Security Engineer
– U.S. DEPARTMENT OF STATE

Director
– WIQUEST

President & CEO
– USA SIGNAL TECH.

Technical Manager,
Bluetooth Qualification Board
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OSC
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– LENOVO

ASIC Development manager
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Audio/infotainment architectures
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& standardisation manager
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wi-fi / wlan news

Analysis

Has the time for wireless networking finally arrived?

By Manek Dubash



Wireless - it's been the - er - sexy end of networking for quite a while now. The idea of connecting up without having to plug in those pesky wires has a lot of end user appeal.

From an IT manager's point of view, of course, it's not always quite so appealing. Not only do they have to install and manage two networks - the software for managing wireless kit is quite often separate from the stuff they use for the original wired system -- but it's by no means a cost-free business.

Yes, you don't have to install cabling but you have to punch holes in the false ceiling, run

both power and Ethernet cables -- though in some cases you can do without the power cable -- and lock down the expensive access points so that only certified authorised users can attach to them.

Security? Long the wireless network's Achilles' heel, security issues have faded into the background as the technology seems to be now robust enough for most organisations' needs. As to whether it's always properly deployed and configured -- well, that's another story.

With me so far? The finance director often has final say, given that he or she has to answer the question why, if there's a network already installed, do you need another one. Making productivity gains the sole basis of the argument can be tough.

But this week, Nortel, the large network infrastructure company which went through an evolutionary bottleneck after some ill-judged acquisitions during the dotcom boom, is planning to bring to market wholly wireless offices using Nortel-designed products. Quite an investment, given that it previously used an

outside supplier for such kit, Trapeze Networks.

Nortel obviously judges that the time is right to sell wireless networks as standalone systems. That says a lot about the willingness of today's enterprises to do away with cabling altogether. Not that cable doesn't still have a lot going for it -- but it does suggest that corporates are more comfortable now with wireless-only infrastructures than ever.

Which is nice, if you're a wireless vendor. Instead of selling miles of dirt-cheap cable, you sell expensive access points and dedicated management software.

Enterprises? Must have money to burn...

Also appeared in Network Weekly, edited by Incisor contributor Manek Dubash. Network Weekly is a weekly round-up of networking, telecoms and storage news. To subscribe (free of charge), or for more information, contact: Email: editorial@networkweekly.com Tel.: +44 (0)7788 923 557

NFC Forum begins work on HCI spec

The NFC Forum has begun work to develop a specification for a Host Controller Interface (HCI) between NFC contactless controllers and electronic devices' application processors. The HCI specification is planned for release in 2008.

For anyone not familiar with Near Field Communication (NFC), it is a standards-based, short-range wireless connectivity technology that provides global interoperability of contactless identification and interconnection technologies. NFC operates in the 13.56 MHz frequency range, over a typical distance of a few centimetres. The underlying layers of NFC technology are based on ISO, ECMA, and ETSI standards. As an example of the broader applications for NFC, the Bluetooth SIG has embraced NFC within the 2.1 +EDR version of its spec for simple pairing of Bluetooth devices

When completed, the NFC Forum's Host Controller Interface will be a logical interface, allowing an NFC front end to

communicate directly with an application processor and multiple secure elements in various electronic devices such as cell phones, PDAs and PC peripherals, enabling faster integration of NFC functionality. The Forum's HCI will cover all NFC operational modes, including reader/writer, peer-to-peer and card emulation. The HCI may be implemented over relevant physical interfaces, including Serial Peripheral Interface Bus (SPI), Inter-Integrated Circuit (I2C), Universal Asynchronous Receiver/Transmitter (UART), Universal Serial Bus (USB) and others. The interface between the NFC controller and the Universal Integrated Circuit Card (UICC) or SIM card is being specified by the European Telecommunications Standards Institute (ETSI) and is outside the scope of the Forum's HCI specification work.

NFC underpins mobile payments growth

Juniper Research predicts that P2P fund transfers and mobile payments in the developing world, together with the commercialisation in 2009 of NFC based

mPayments will generate transactions worth approximately \$22bn.

Juniper believes that there is much to be positive about with mPayments, saying that the ecosystem is evolving into one where cooperation between the major stakeholders is creating an atmosphere that is incubating intelligent ways in which we can use the mobile phone for payment.

Before we get over-excited, Juniper says there is still much to do, resolving the business model and the revenue share issues are a priority; but much of the technology is available and there is a genuine willingness from the major stakeholders to resolve their differences and cooperate.

Greater availability of NFC devices, for physical mobile payments, coupled with secure and easy-to-use applications, backed by the large credit card organisations and financial institutions, will create the foundation for a healthy alternative to cash and other mainstream payment applications.

nfc news

Smart metering set to rise dramatically in next five years



Smart metering benefits the full value chain of energy stakeholders, utilities, consumers and governments alike, according to independent market analyst Datamonitor, which says that implementation is a central theme in many government's energy conservation policies. Consequently, utilities are now faced with overhauling existing systems and migrating to smart metering. A new report by Datamonitor predicts the penetration of smart metering will grow to an estimated 41% in Europe and 89% in North America by 2012. For technology vendors, the mass roll-out of smart metering will be an opportunity to show how their offerings can facilitate and deliver the benefits smart metering provides.

Datamonitor's report investigates the technological implications of smart metering, including how developments in software, communication and networking are shaping the future of smart metering.

The incidence of smart meters is set to rise as the benefits accrue to multiple stakeholders. Smart metering is about having more information. Smart meters transmit real or near-real time readings to the utility via a two-way communication channel. This provides better monitoring of energy usage and allows utilities to more effectively manage their power loads. For the consumer that real-time consumption data enables them to manage their energy use more efficiently and react to tariff changes more easily. As for the governments, they benefit from the lower energy consumption by the reduced carbon

emissions and a reduction in the need to build more power stations.

The fact that the benefits of smart metering accrue across the entire value chain, has meant legislation mandating it has been introduced in a number of countries, while the likes of the EU's Energy Services Directive in 2006 has also encouraged it at a pan-European level.

6% of households in Europe and North America currently have a smart meter. Datamonitor forecasts that this will rise to 41% in Europe and 89% in North America by 2012. Slower penetration in Europe is the result of concerns over the more competitive market effectively 'stranding' assets when customers want to switch provider - in turn making utilities less inclined to install them in the first place. In North America, by contrast, customer churn is less of an issue and many utilities have already started a program of replacing existing meters with smart meters.

One of the crucial benefits of smart metering is the element of demand response. Utilities considering the migration to smart metering will typically weigh up the cost of implementing the smart metering infrastructure with the benefits that it will derive for the utility - typically by way of cost savings. Operational benefits, such as a reduced manpower for taking meter readings in the field and reduction in call centre costs via more accurate bills are immediately apparent and easily quantifiable. However, there are also important non-operational benefits that need to be taken into consideration.

"One of the key benefits of smart metering is the ability to offer demand response programs," said Datamonitor's Alex Kwiatkowski. "In times of high demand, such as on a hot summer day when many air conditioning units are running, utilities do not have sufficient supply to meet demand, so additional power has to be imported at great cost to the utility. To reduce the need for this imported power and, in turn, to cut these additional costs, smart meters can communicate to customers a higher tariff and provide an incentive for them to reduce their consumption during this peak period. Such programs are being widely implemented in California where periodic blackouts are the most common alternative."

Smart metering is driving and being driven by technology innovations

While simple quarterly or monthly meter readings are collected from traditional meters, smart meters produce a wealth of data including information on time of use, tariffs, tampering, outage detection etc. Consequently, software innovations, such as the development of Meter Data Management (MDM) suites, have taken place to address this issue; they process the vast volumes of data received and deliver this data to the relevant department that will use it.

However technology innovations, such as the continued development of broadband/IP communication, Wi-Fi and WiMAX, are also helping to drive the uptake of smart metering. As Kwiatkowski explained: "The volume of meter data needing to be transmitted from smart meters to the utility is placing an increasingly heavy burden on traditional 2G mobile networks. Consequently, larger bandwidth options are needed. Broadband has been a key facilitator of smart metering given that a lot of the infrastructure already exists, however the likes of Wi-Fi can also have a key role to play in densely populated areas such as towns and cities."

Kwiatkowski concluded: "Due to the benefits it has across the value chain, smart metering is here to stay and is going to grow rapidly. Consequently, utilities need to understand how to approach the daunting task of overhauling existing systems. There will certainly be a key role for technology vendors to demonstrate how they can facilitate smart metering and deliver the benefits it provides."

events



DATE	EVENT	LOCATION	NOTES	LINK
Sept 3 - 4 2007	Wireless Developer Forum	Beijing, China	-	www.wirelessdeveloperforum.org
Sept 5 - 6 2007	7th Annual Wireless China Industry Summit	Landmark Towers & Hotel, Beijing, PRC	-	http://www.beaconevents.com/en/latestnews.html
Sept 7 2007	MCPC Mobile Solution Fair 2007	Tokyo, Japan	-	http://www.mcpc-jp.org/fair2007/
Sept 10 - 11 2007	GSM 3G Middle East & Gulf	Dubai International Convention Centre, Dubai, UAE	-	http://www.gsm-3gworldseries.com/meg/
Sept 25 2007	Bluetooth SIG EMEA holiday gift event	London, UK	A gathering in London to highlight Bluetooth products to the press	http://www.bluetooth.com/Bluetooth/Press/Events/
Oct 8 - 12 2007	Bluetooth SIG UnPlugFest 28	Brussels, Belgium	-	www.bluetooth.org
Oct 31 - Nov 1 2007	Bluetooth Evolution – Conference & expo	London, UK	Jointly hosted by IMS Research and the Bluetooth SIG	http://www.imsconferences.com/bluetooth/
Nov 6 2007	Bluetooth Developers Conference 2007	Yokohama Royal Park Hotel, Yokohama, Japan	-	www.bluetooth.org
Jan 2008	2008 Wireless Symposium	Las Vegas, USA	Email: Vince Holton - vholton@incisor.tv or Steven Clarke - sclarke@incisor.tv	
Jan 7 - 10 2008	2008 International CES	Las Vegas, USA	-	http://www.cesweb.org/
March 31 2008	Phoenix, Arizona, USA	Bluetooth SIG All Hands meeting	-	www.bluetooth.org

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