

# INCISOR™

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July 2010



## WHAT'S NEXT FOR BLUETOOTH?

### THIS ISSUE

WHERE DOES THE MOST WIDELY ADOPTED SRW TECHNOLOGY GO NEXT?

WILL NFC OVERCOME ITS GROWING PAINS?

WHAT HAPPENS WHEN A COMPANY LOSES ITS FOUNDING CTO?

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# biggest... best-est... bluetooth-est...

At the outset, way back in 1998, Bluetooth was at the heart of Incisor's editorial. At that stage, the inventors of the technology probably never realised how much impact their ideas would have.

Bluetooth has gone on to become by far the highest volume short-range wireless technology. The way the specification was created, rolled out and managed has become an object lesson for other technologies seeking to gain traction in our increasingly wireless world.

That doesn't mean to say that there haven't been glitches along the way. In the early days, the tech was over-hyped, which led to over-expectation and impatience. It took a while for the Bluetooth community to pull that one back. More recently, the Bluetooth high speed proposition has lacked clarity and has suffered from a degree of politicking. It will get there, but it hasn't been plain sailing, as we might have hoped.

Now, though, with competing technologies endlessly looking to chip away at Bluetooth's enviable global position, you have to ask – what's next? Luke D'Arcy of Cambridge Consultants ponders this important question, and has some theories that should stimulate more creative thinking.

NFC is a technology that sits alongside Bluetooth (and Wi-Fi for that matter – the specs for both identify this technology as a viable proposition for simple pairing). It has been a long time coming, but with Nokia showing new commitment, and Broadcom snapping up NFC specialist Innovision, Dean Gratton asks – is 2010 the year for NFC?

**Vince Holton**

**Publisher & editor-in-chief, Incisor / IncisorTV**

## INCISORTV FOCUS THIS MONTH:



A short commercial produced by Incisor.TV for Jabra, looking at cool products such as the STONE and EXTREME Bluetooth headsets, and the CRUISER speakerphone.

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Cambridge Consultants' Luke D'Arcy asks the question we're all considering

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Dean Gratton started out unconvinced. Read whether his latest research has changed his opinion.

### CSR LOSES TECH HEAD

James Collier has been the technical hinge-pin for CSR since the British company was founded. How will his leaving affect the Bluetooth trail-blazer?

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## Cambridge Consultants brings mobile health one step closer

Cambridge Consultants has announced a new platform for enabling wireless connectivity from a medical device to online health services, compliant to the Continua standard.

The new, low-cost platform is a combination of Qualcomm Incorporated's Wearable Mobile Device cellular module and Cambridge Consultants' Vena software stack. The platform enables the collection of data from Continua certified devices over the Continua Personal Area Network (PAN) interface, and transmits this data over the Continua Wide Area Network (WAN) interface to on-line health services. The Wearable Mobile Device module has dimensions of 21 x 22 x 4.5mm, enabling a Continua Application Hosting Device (AHD) to be built that provides a PAN-to-WAN bridge within a small highly portable footprint.

"Remote health data collection is an important part of future health services," commented Nick Vassilakis, business development consultant, Cambridge Consultants. "Our Vena software stack has been built to use emerging industry standards and enable the rapid development of compact and low-cost wireless health devices. By combining the Vena stack with Qualcomm's cellular modules, we can demonstrate how next generation health care services have the potential to evolve by using cellular networks."

Cambridge Consultants' Vena wireless healthcare software stack, which implements the standards selected by the Continua Health Alliance, empowers patients to manage health and wellness anytime, anywhere. It embeds the Bluetooth Health Device Profile (HDP) optimized for the secure transport of medical data and the IEEE 11073 standards for compatible exchange of information between health devices.

The Qualcomm Wearable Mobile Device 1X, 1X EV-DO and UMTS modules are industry-leading products that support a variety of 3G networks and provide integrated GPS, an accelerometer and Bluetooth technologies. With data and voice support,

a standardized USB 2.0 interface and defined APIs and development kit, the modules provide unprecedented functionality and streamlined 3G connectivity for M2M and CE devices.

"The Continua Health Alliance guidelines ensure interoperability with a wide range of health and fitness devices," said Chuck Parker, Executive Director of the Continua Health Alliance. "Cambridge Consultant's demonstration of this new wireless device platform shows the powerful potential that technology provides for tackling a growing range of health problems."

## Broadcom's Bluetooth Software allows gadgets to 'play nice' together

Broadcom tells Incisor that it has upgraded its BTW (Bluetooth for Windows) software to help drive more advanced Bluetooth functionality into a broader array of consumer connectivity applications.

The new Broadcom BTW 6.4 release enables more advanced interaction between Bluetooth devices (based on the Windows operating system), offering what Broadcom says is a more seamless user experience and easier to use peer-to-peer capabilities for ad hoc gaming, as well as interaction with health and fitness monitoring devices.

The new BTW 6.4 software enables two new profiles that extend the ability for Bluetooth to interact with other devices, including the:

- Health Device Profile (HDP), which connects health and fitness monitoring devices to PCs such as weight scales, blood pressure monitors and heart rate monitors.
- Message Access Profile (MAP), which simplifies the process of accessing and exchanging messages between Bluetooth-enabled devices.

Craig Ochikubo, Vice President & General Manager, Broadcom's Wireless Personal Area Networking line of business commented: "As Bluetooth continues to expand into products and applications beyond wireless headsets, software innovation becomes

increasingly important to enable new functionality and ensure that Bluetooth works well with other technologies like Wi-Fi. Our BTW software is the most mature and widely deployed Windows software in the industry and our ability to add new features and simplify ease of use keeps us at the forefront of the evolving Bluetooth ecosystem."

The BTW 6.4 software is available and bundled with the Broadcom BCM2070 single-chip Bluetooth solution, as well as other Broadcom devices.

## Bluetooth takes 55% of increasing SRW IC shipments

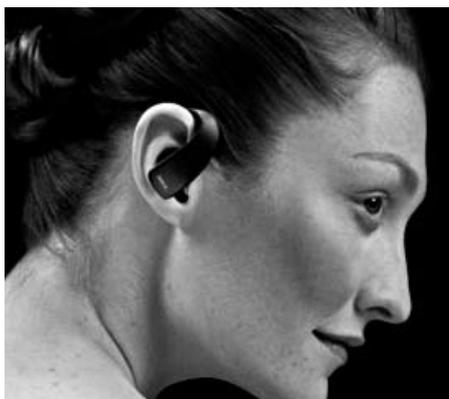
Short range wireless ICs, including Bluetooth, NFC, UWB, 802.15.4 and Wi-Fi have been widely adopted in computing, communication, and consumer products in recent years, says ABI Research. "The market for short range wireless ICs is booming in 2010, says ABI analyst Celia Bo. "Total shipments will increase approximately 18% compared to 2009."

Bluetooth ICs, which lead the short range wireless IC market, are expected to exceed 55% of total Short Range Wireless IC shipments in 2010, according to ABI. The cellular handsets segment is seen to be maintaining the highest unit shipment of Bluetooth-enabled products, followed distantly by the notebook and UMD segment.

Bluetooth-enabled home entertainment products form an emerging market that is forcing an increase in the Bluetooth IC shipments, and the networked and handheld game consoles and will also see wide adoption.

Bo concludes, "Bluetooth Low Energy wireless technology opens an absolutely new and very significant market opportunity for products and devices which need low cost and low power wireless connectivity."

ABI Research's market data product "Short Range Wireless ICs: Bluetooth, NFC, UWB, 802.15.4, and Wi-Fi Market Forecasts" addresses marketing and technical analysis of Bluetooth, NFC, UWB, 802.15.4, Wi-Fi and Combo Wireless Connectivity ICs.



## Jabra announces mobile applications initiative

GN Netcom, with its headset and speakerphone solutions marketed under the Jabra brand, has announced a global initiative to support mobile hands-free, voice-enabled applications. Aimed at enhancing the end user experience, the initiative will enable a wide range of applications including speech-to-text mobile, music and entertainment applications to work with Jabra headsets. The applications will be hosted on the new [Jabra Mobile Experience portal](#). The global initiative launched in North America earlier this year and will be rolling out in the EU and other territories around the world later this year.

Aimed at attracting leading developers to create applications, the program provides developers with Jabra technology and resources to create applications. The four primary areas of focus are games and entertainment, productivity, voice dialing and translation, and GPS services. The program will rollout globally within 2010.

"Applications have become second nature as a result of the worldwide popularity of the iPhone and other smartphones. Hands-free mobile applications are a natural next step to extending the hands-free lifestyle experience our Bluetooth devices offer," said Mogens Elsberg, CEO, GN Netcom. "Jabra is at the forefront of utilising these compelling applications with our headsets and speakerphones to further engage and enhance the consumer experience."

The Jabra Mobile Experience portal directs users to voice-enabled speech-to-text mobile, music and entertainment applications for their headsets. The portal provides users with a wide variety to choose from when it comes to finding ideal applications for work and play.

## Wireless/multimedia easing supplier pain during automotive recovery

As automotive players pull away from a painful 2009, multimedia offers new market opportunities driven by a growing consumer demand to be both entertained and connected while in the vehicle. The Strategy Analytics report, "Global Automotive OE Audio/Visual (A/V) Systems Forecast 2009-2017" predicts \$1.3 billion of multimedia new growth in 2010. The market for automotive audio and visual systems will rise from the 2009 low of \$8.1 billion to over \$14.1 billion by 2017.

Strategy Analytics told Incisor that it expects strong automotive demand for embedded multimedia features including systems with Bluetooth, 3.5mm aux-in, iPod/iPhone and proprietary connectors, USB, navigation, HDD, and premium and branded audio. Systems without a CD player ("mech-less") are also set to emerge. Blu-Ray and digital TV also offer new regional opportunities in the display-based entertainment market.

"Strategy Analytics expects to see solid opportunities for automotive suppliers, despite all the industry conjecture that smartphones and vehicle-device connected solutions are set to make the audio system redundant", stated Jo Blight, Director, Global Automotive Practice.

"Consumers increasingly want to be entertained, informed, and connected while in the vehicle, but this is bringing major complexity and new competitive forces to the market. Segmentation, good understanding of consumer trends, and strong product planning will be the key to addressing the emerging opportunities," added Mark Fitzgerald, Associate Director, Global Automotive Practice.

## Parrot adds Audi to automotive OEM list

Parrot has announced that it is supplying its hands-free technology in automotive connectivity to the Audi vehicle range. This implementation is the result of a continued collaboration between Parrot, Delphi and Audi.

Parrot's systems will be implemented across several cars in the Audi range, such as the A1 city car, the A7 saloon and the Q1 compact SUV. These vehicles will be marketed on a worldwide scale with vehicle releases taking place between mid-2010 and early 2011.

The solution developed by Parrot includes hands-free telephony features with phonebook synchronization and digital signal processing technologies such as noise reduction and echo cancellation. It also offers audio streaming of music files from the customer's mobile phone into the car audio system via the A2DP protocol. This lets the customer make the most of a phone's multimedia capabilities, so making it a major element of the car's entertainment system.

"Parrot Automotive Connectivity Solutions imply best-in-class integration and easy-to-use features. They are increasingly adopted by premium automotive manufacturers," said Eric Riyahi, OEM Executive Director at Parrot.



## Bluetooth Innovation World Cup opens again

The Bluetooth Special Interest Group (SIG) has announced the start of the second Bluetooth Innovation World Cup (IWC). After a first year of the competition in 2009, the trade organization is once again calling on developers, entrepreneurs and students to submit concepts for applications making use of the new Bluetooth low energy wireless technology. The 2010 Bluetooth Innovation World Cup will focus on applications for the sports & fitness, healthcare, and home information and control markets.

"Bluetooth Version 4.0, which introduces low energy technology, offers an enormous potential for the development of innovative wireless solutions within a very wide application range," said Mike Foley, executive director of the Bluetooth SIG. "The specification offers a global standard for obtaining and measuring real-time performance data that can be transmitted directly to the Internet via the mobile phone, which is without a doubt the most important mobile information hub of the future. Through the Bluetooth Innovation World Cup, the Bluetooth SIG is fostering the imagination and creativity of developers seeking to create innovative new devices and to enhance existing Bluetooth technology applications."

Innovators from all over the world can submit their concepts through the online IWC database. Submissions are being accepted from June 1 through September 15, 2010. The concepts of the three finalists for each of the three categories will be presented at the electronica Trade Fair in November 2010. The official award ceremony will then take place at ISPO 11 in February 2011.

More information on the competition is [available at the Innovation World Cup web site](#).

## Laird Tech licences apt-X

Laird Technologies has licensed apt-X audio codec technology for use in a new family of high-volume Bluetooth stereo audio multi-chip



modules intended for OEM integration into automotive, commercial, and consumer applications.

Laird Technologies told Incisor that it selected apt-X technology to optimize the objective sound quality of stereo audio channeled over the 2.4GHz ISM band from all four members of its latest family of Bluetooth modules. Each of the Laird BTM modules – the "Class 2" (~10m range) 521 and antenna-less 520, and the more powerful "Class 1" (~100m range) 511 and antenna-less 510 – incorporates the CSR BlueCore5 semiconductor. Every BTM module comes pre-configured with apt-X audio codec software, and Laird's OEMs are not required to program in extra firmware.

Carl Baker, the UK-based Director of Sales for Laird Technologies, said: "Laird Technologies wanted the best possible stereo audio quality for BTM, its new Bluetooth stereo wireless audio module designs based on the CSR BlueCore5. Once we listened objectively to speakers playing uncompressed music and MP3 audio material streaming over Bluetooth A2DP wireless we immediately knew we needed apt-X coding technology. With apt-X switched in there's a marked improvement in the sonic purity of Bluetooth stereo audio."

Stephen Wray, VP Licensing for APTX added: "This strategic license agreement with Laird opens previously untapped Hi-Fi markets to apt-X stereo Bluetooth. The availability of Laird's best-in-class Bluetooth modules pre-installed with apt-X allows high-end audio designers to specify off-the-shelf, standards-based wireless audio technology for new product development; apt-X audio coding circumvents the channel bandwidth constraints inherent in the stereo Bluetooth profile and enables full-frequency bandwidth wireless audio streaming for the richest stereo sound possible."

The BTM 510, 511, 520 and 521 Bluetooth stereo wireless audio modules are available now.



## CSR and Intel to collaborate

CSR and Intel will jointly develop a Bluetooth and Wi-Fi combination solution for the PC market. The aim is to improve the performance of the next generation of laptops, netbooks and other mobile devices. The Bluetooth and Wi-Fi combination solution is being designed to enable users to synchronise content such as music, photos and contact information with their PCs more quickly than is possible today.

"Intel is the leader in overall PC platforms, and we look forward to working with them on the development of these new high-speed Wi-Fi and Bluetooth products," said Anthony Murray, Senior Vice President of the Audio and Consumer Business Unit at CSR. "We believe this product collaboration can bring significant benefits of the latest Bluetooth technology to mainstream consumers using PC platforms worldwide."

Aicha Evans, General Manager of Intel's Mobile Wireless Group added: "As handheld, mobile and peripheral devices with Bluetooth are increasingly inter-connected to notebooks, our customers want the familiar interoperable connectivity experience. We are working closely with CSR to integrate its best-in-class Bluetooth technology into our award winning wireless roadmap and look forward to bringing the benefits of this collaboration to our customers and consumers."

There has been talk in the industry for some years about some sort of tie-up between Intel and CSR – OK, there have been rumours that Intel would buy CSR. Whether anything should be read into this collaboration announcement is a matter for speculation, but if Intel does have an interest in the Cambridge Bluetooth specialist, the departure of CSR's technical guru James Collier can't be helping the discussion (see 'CSR loses #1 tech-head' in this issue).



## Sony Ericsson re-focuses accessory business

It's all change at Sony Ericsson. The company has decided to do a certain amount of re-branding and re-positioning for its accessory lines. Sony Ericsson has been one of the most active companies when it comes to creating Bluetooth-enabled accessories, for example, with perhaps the broadest range of products of any one company. Now, though, it has decided to do things a bit differently.

The new Sony Ericsson Extras portfolio has been divided into four categories - Talk, Play, Listen and Go, which Sony Ericsson believes will make it easier for consumers to understand how to add a new experience to enjoy their handset.

"As part of our Communication Entertainment strategy we have listened closely to consumers and their needs when developing our handsets and this ethos is no different in our accessories division." Said Jacob Sten, Head of the accessories division at Sony Ericsson. "We want consumers to experience their mobile phone to its highest potential and Sony Ericsson Extras will enable them to find the perfect accessory for their needs."

The four new Sony Ericsson Extras categories are:

**Talk:** chat away with products that include Bluetooth and wired headsets

**Play:** these accessories turn handsets into products that offer new experiences for those who love to play around with gadgets

**Listen:** listen to favourite tunes or video clips anywhere with Bluetooth speakers, headphones and snap on speakers.

**Go:** transfer, charge or carry with these 'essential accessories'

For those who know they want to Talk, Sony Ericsson is also announcing two new headsets to join the Bluetooth Noise Shield Handsfree VH700 in the GreenHeart family - the Bluetooth Headset VH410 and the Bluetooth Headset VH110.

"The VH110 is ultra-affordable while the VH410 guarantees crystal-clear conversations and super simple call handling," Jacob continued. "Furthermore, we are continually working on more open platforms and Bluetooth is just one good example of how the Sony Ericsson Extras can be used with any Bluetooth device - not just Sony Ericsson handsets. Through Sony Ericsson Extras we want to make talking more enjoyable with more choice and more affordable options."

The Bluetooth Headset VH410 and Bluetooth Headset VH110 will be available in stores from August, 2010.

Sony Ericsson Extras is also getting all Social Media on us, and wants to ask its fans all over the world to audition for a part in one of three online movies that will be filmed this summer. There is an [instruction movie on You Tube](#):

### ... appoints new Corporate VP/Chief Technology Officer

In addition to a marketing re-shuffle, there have been some seat changes too. Jan Uddenfeldt, currently Senior Vice President and Senior Technology Advisor to the CEO at Ericsson, has been appointed Corporate Vice President and Chief Technology Officer at Sony Ericsson.

At the same time Uddenfeldt will assume the newly created role of Head of Sony Ericsson Silicon Valley, and will be based at the company's Redwood Shores, California, offices.

Commenting on the announcement, Bert Nordberg, President, Sony Ericsson, said: "I am very pleased today to announce the appointment of Jan Uddenfeldt to our management team as our new CTO and Head of Sony Ericsson Silicon Valley. Jan is deeply rooted in the telecommunications industry, and he will bring a wealth of experience and insight to Sony Ericsson. Over the years he has gained a deep understanding of our industry's leading technologies, as well as our key operator customers around the world."

Commenting on the appointment, Uddenfeldt said: "I am happy to be joining Sony Ericsson during these very exciting and dynamic times in

the telecommunications industry. I believe the transition of the mobile phone to the mobile internet is truly beneficial to Sony Ericsson, whose strong focus has been in designing and creating high-end smartphones. The decision to strengthen Sony Ericsson in Silicon Valley is a natural one as the area is the epicentre for the development of mobile operating systems and application software."

## Sierra Wireless selects SiRFstarIV

CSR has announced that Sierra Wireless has selected CSR's SiRFstarIV GSD4t GPS receiver for its new AirPrime XM0110 GPS module. The AirPrime XM0110 GPS module is compatible with most of the Sierra Wireless AirPrime family of wireless embedded modules.

"Partnering with CSR on AirPrime XM0110 GPS has enabled us to create a solution with which customers can quickly and cost-effectively integrate GPS and GSM into tracking applications," commented Didier Dutronc, Senior Vice President of Marketing for Sierra Wireless.

CSR's SiRFstarIV architecture combines a GPS location engine, smart location sensor interface and an adaptive micro-power manager. The GSD4t receiver offers near-continuous availability of a fast location fix at signal levels as low as -160dBm, independent of the wireless network used, or without any network at all.

Ahmet Alpdemir, Senior Vice President of CSR's Automotive and PND Business Unit said: "SiRFstarIV's strength is its ability to continually maintain "better than hot start" conditions in the GPS receiver for fast and accurate location fixes in a variety of environments without having to be kept fully turned on all the time. Sierra Wireless's application of SiRFstarIV in its AirPrime XM0110 GPS solution is a great example of how to simply and cost effectively facilitate superior location functionality in devices."

Sierra Wireless AirPrime XM0110 GPS modules are being tested by global customers, with commercial availability scheduled for Q3 2010.



## Mobile payment transactions to double in value by 2012

A new study by Juniper Research forecasts that the value of digital and physical goods that people buy with their mobiles will reach \$200bn globally by 2012, compared to just less than \$100bn this year. Digital goods include entertainment and tickets, whilst physical goods include groceries, gifts and books.

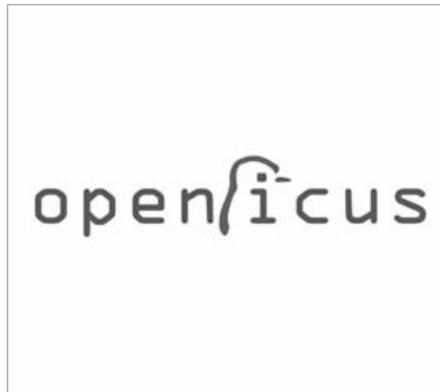
The new study on Mobile Payments for Digital and Physical Goods found that the availability of secure, easy-to-use, payment applications and the growing realisation of users that they can make ecommerce purchases by mobile will drive the market. Near Field Communication wireless tech will be the enabler for much of this. See Dean Gratton's article on NFC elsewhere in this issue.

Report author Howard Wilcox gave Incisor more details: "Our research showed that the purchase experience has been enhanced by improved mobile commerce transaction processes due to faster mobile networks, more powerful devices and much more user friendly Smartphone apps. Amazon Payments for example has recently introduced payment-processing tools for mobile devices, enabling Smartphone users to buy with one click."

However, the Juniper report also underlined that retailers and merchants need to communicate the cost of transactions clearly so that people are not discouraged from buying by mobile.

Further key findings from the mobile payments report include:

- The frequency of physical goods purchased will be higher than average in developed regions such as North America and Western Europe;
- Brands, retailers and merchants have a significant opportunity to increase their revenues through highly targeted marketing



campaigns, using apps and mobile web payments as a convenience play for users.

The report forecasts provide five year regional data for mobile payments for digital & physical goods, showing key parameters including subscriber take-up, transaction sizes and volumes. The study also reveals the strategies that are being used to enable users to pay by mobile through case studies from companies such as 1-800Flowers.com and Zong.

## openPICUS project officially takes off

In January this year a group of engineers was talking about wireless and embedded electronics, while tasting some good wine at Campo de' Fiori in Rome. The main discussion point was a lack of an easy to program module which would not only run the wireless stack, but the application as well. The group decided to do something about this, and also decided that the brand new device should be smart and low cost, allowing ideas to cross over the lab walls and to enter the real market. It would also be socially-oriented, adopting an open hardware philosophy from the draft phase. That's how openPICUS wireless platform was born.

In Roman mythology, Picus was one of the first kings of Latium (the region of Italy in which the city of Rome was founded). Italian people believed Picus was the son of the god of war Mars. After being turned into a woodpecker by a witch, Italian tribes attributed divine qualities to the bird, connected with Picus' original skills at augury.

The openPICUS founders believe that an open hardware platform, as a matter of principle, should be shared. On the blog <http://openpicus.blogspot.com>, contributors are talking freely about the project details – from product naming to socket boards. openPICUS as a hardware platform is also aimed at students (the founders are looking for University groups as well), and there is an opportunity to



experience in their thesis – for example, the interaction with iPhone and Android.

There is a developer kit that includes all hardware and software needed (including wireless connectivity – Bluetooth/Wi-Fi), and the first 50 pcs of the starter kit will be shipped for FREE to those who contribute with the best ideas to the project.

## Next-gen multifunction GPS system processor from CSR

CSR has announced the SiRFatlasV multifunction GPS system processor, a next-generation system-on-chip device and the latest GPS product to come from the CSR/SiRF marriage.

The SiRFatlasV processor combines on a single chip a 500- or 664-MHz ARM11 processor core with vector floating point unit; autonomous GPS/Galileo baseband DSP core with available SiRFAlwaysFix technology, DDR2, Mobile DDR, SD/MMC/MMC+ and NAND flash memory controllers; audio DAC, LCD touch panel controller, video post processing accelerator, USB 2.0 and other connectivity interfaces and a complete power management unit.

Using CSR Synergy, the SiRFatlasV processor can be integrated with CSR's audio and connectivity platforms incorporating a broad range of technologies – Bluetooth, Bluetooth low energy, Wi-Fi, echo cancellation, noise suppression and FM receive and transmit. CSR claims that Synergy ensures that all of these systems work together as a unified platform, enabling technologies such as Bluetooth and Wi-Fi to coexist in the same system environment without interfering with one another or degrading performance. This simplifies design engineering and helps achieve an overall improvement in the end-user experience.

SiRFatlasV is available now in production quantities.



# Bluetooth and the value of convenience



By Luke D'Arcy  
Cambridge Consultants

FOR MOST CONSUMERS BLUETOOTH EXISTS TO PROVIDE HANDS-FREE CALLING WHEN DRIVING A CAR. OF COURSE, IT CAN DO MANY OTHER THINGS, FROM INTERNET ACCESS TO WIRELESS PRINTING, BUT FOR MANY IT IS JUST A CONVENIENT WAY TO SAY IN TOUCH WHILE DRIVING, WITHOUT BREAKING THE LAW. IT DOES THIS BETTER THAN ANY ALTERNATIVE TECHNOLOGY, WIRELESS OR WIRED.



THIS SIMPLE FACT HAS SPAWNED AN ENTIRE INDUSTRY OF CHIPS, SOFTWARE AND PRODUCTS, DEMONSTRATING HOW SOLVING A PROBLEM IN A WAY THAT MAKES CONSUMERS' LIVES EASIER CAN GENERATE BILLIONS OF DOLLARS OF VALUE.



With one of the largest independent wireless development teams in the world, Cambridge Consultants has been a key developer of Bluetooth technology from its inception, providing our clients with valuable business insight and technology design services. In this edition of Incisor, we discuss some of the issues facing Bluetooth technology as it tries to find the next killer app.

Growth in Bluetooth has slowed recently simply because there is a natural limit to the hands-free calling market. To return to rapid growth, the Bluetooth industry needs to find a new consumer problem that Bluetooth is uniquely positioned to solve.

This is no easy task. The original inventors of Bluetooth had a very wide scope in mind but, in reality, finding even a single successful application is a triumph. Many wireless technologies languish because vendors fail to convince consumers that their technology solves a problem that they care about better than anything else. UWB is arguably a recent example of this.

This is not for want of trying. Vendors can always point to numerous use cases to demonstrate how useful their new technology can be, often presented in glossy PowerPoint slides. The problem is that consumers frequently don't agree, and vote with their feet by staying away in droves. Trying to predict applications that will be attractive to consumers is one of the hardest marketing tasks facing hi-tech companies today.

Of course, there's no completely reliable way to predict which applications will capture the public's imagination. However, a disproportionate number of successful wireless systems involve mobile devices. Conversely, wireless technology has not been successful in static consumer products, with a few rare exceptions.

When a device needs to be moved around frequently, wires are a real inconvenience. For better or worse, consumers have a long track record of paying a premium for a more convenient product – pre-chopped carrot batons anyone? Only four times the normal price!

In the same way, miserly consumers will pay a premium for wireless as long as it makes their life easier. This usually happens when "cutting the cord" provides useful additional mobility.

Bluetooth headsets are a clear example of this - who wants their head tethered to their phone all the time? Bluetooth neatly eliminates the tether, enabling a considerably more convenient product. Wi-Fi is another example – freeing laptop

users from logical contradiction of a portable computer that needs to be plugged in to access the internet.

Static wireless applications do not have such a good track record. Wi-Fi is far less common in desktop computers; it may offer some benefits, but an Ethernet cable is more reliable, faster and cheaper, and, for products that don't often need to be moved, nearly as convenient. Similarly, wireless speakers for home cinema systems eliminate some ugly wires in the living room, but most consumers don't seem to be prepared to pay extra for this. They will pay for the convenience of mobility.

Consider the relative fortunes of fixed wireless and cellular operators. In the early 1990s a fixed wireless network operator called Ionica was set up in the UK to compete with BT, the incumbent telephone provider. Their wireless technology enabled them to roll out an alternative network very quickly (compared to digging up the roads, as the cable companies were doing at the same time), allowing them to launch a land-line telephony service at a lower price than BT.

They soon picked up a large number of customers and were able to hold a successful IPO, raising more than \$500m, at the time one of the largest ever high tech IPOs. Sadly Ionica went bankrupt shortly after their record IPO.

Why did such an apparently successful company fail? They were not selling the number one advantage of any wireless system – mobility. As far as customers were concerned Ionica's product was just a wired telephone - exactly the same as their old BT landline. Naturally they demanded the same 99.99% reliability. Providing this with a wireless system was inherently difficult and expensive, pushing Ionica over budget on maintenance and installation cost, which is arguably what drove an otherwise technically proficient company out of business.

Cellular operators at the time offered a much more expensive and less reliable service than Ionica, but customers didn't complain. They were willing to accept patchy coverage, unattractive handsets and ruinously high fees in order to obtain the benefit of a truly mobile phone. The operators consequently ended up thriving to become the enormous businesses that they are today.

Wireless technology, including Bluetooth, is typically more expensive, less reliable and slower than the wired alternatives. But this doesn't have to be a problem, as long as it enables a more convenient product.

[www.cambridgeconsultants.com](http://www.cambridgeconsultants.com)

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**CES 2010 Daily Show report – Day 1**

**CES 2010 Daily Show report – Day 1**

**CES 2010 Daily Show report – Day 1**

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**BiteBack USA**

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**DECT Forum and CAT-iq in 2009**

**Bluetooth SIG – Best of CES 2009**

**WiMedia Alliance – UWB in 2009**

**Incisor showreel**

**WiMedia special - UWB - a high performance solution / part 1**

**WiMedia special - UWB - a high performance solution / part 2**

**WiMedia special - WiMedia and Bluetooth**

**WiMedia special - Updating the WiMedia roadmap**

**WiMedia - The future for UWB**

**Bluetooth low energy wireless technology**

**IncisorTV commercial for CSR – BlueCore7**

**IncisorTV commercial for CSR RoadTunes**

**IncisorTV commercial for CSR BlueCore Player**

**A guide to Bluetooth Version 2.1 + EDR**

**10 years of Bluetooth / Best Bluetooth of CES 2008**

**CES 2008 – Profile of Parrot**

**Introducing Incisor**

**2007 Wireless Symposium**

**Bluetooth / Wibree launch event (full version)**

**Incisor TV overview: the Bluetooth SIG / Wibree Forum merge**

**Best Bluetooth of CES 2007**

**Incisor profile: Icron Technologies and Extreme USB**

**Wireless USB special - Introducing Wireless USB**

**Wireless USB special - Wireless USB in use**

# CSR loses #1 tech-head

**Long term Incisor readers will know that we have had a lengthy and close relationship with CSR, or Cambridge Silicon Radio as it was known at the outset.**

From the very early days of Bluetooth, CSR set standards on every level that other semiconductor companies aspired to. CSR became THE number one supplier of Bluetooth silicon, and this was achieved through not only having superlative technology, but also through the company's understanding of the need to apply at least as much effort to marketing itself as it did to technical development. CSR committed at all levels, and the results spoke for themselves.

Yet, for all of the across-the-board excellence, CSR would not have succeeded if the product had been poor. Through its history, the company's technical direction has been steered principally by one man who has been seen to be one of the foremost experts in short-range connectivity. That man was James Collier, one of the company's founders, and who - up until recently - has been CSR's Chief Technical Officer.



However, at the beginning of June, CSR's Board announced that Collier had given notice of his intention to step down as an Executive Director of the Company with effect from 1 September, 2010. The stated reason being that Collier wished 'to explore start-up opportunities, exploiting alternative technologies'. The statement went on to say that both CSR and Collier believe that these opportunities could provide areas for future joint collaboration.

Collier hands-over his day-to-day responsibilities at the end of June but will continue as an executive director, providing support in the handover to his successor. As of 1 September 2010, he will be appointed a non-executive director of CSR.

There were, of course, official statements from both sides. Joep van Beurden, CSR's CEO, said: "James' contribution to CSR and to our becoming a world leader in connectivity and location has been formative. We appreciate this and thank him very much for all he has done. We fully understand, however, James' desire to



explore new ventures and we wish him every success, knowing also that we will continue to benefit from his expertise on our Board and potentially as partner in what he next chooses to create."

While Collier himself said: "It is immensely satisfying to have helped CSR grow from just an idea to a global leader, and I have enjoyed every minute of it. Looking ahead, I want to explore new ideas and, given the well-established strengths and potential of CSR, I feel able to do so. At the same time, I don't want to lose touch with the business I've helped create. I'm delighted, therefore, to be able to continue to contribute to CSR as a non-executive director - and to seeing if the new venture I develop is one that CSR might participate in."

These statements are all very cheerful and positive - well, you would expect them to be because they were included in a statement issued only to the financial press. The departure of a key figure such

as Collier can of course have a major impact on shareholder confidence. CSR's share price has been somewhat in the doldrums. Today the company is valued at £783million. Not bad for a 10 year old company, but at its peak, that valuation was somewhere in the region of £1.4 billion.

What is the real reason for Collier's departure? That is a lot more difficult to know. The company has changed a lot, and many of the original founders are gone. Collier was part of the original start-up team, with Glenn Collinson and Phil O' Donovan, both of whom have long since departed. We understand that the acquisition of SiRF for its GPS technology created a lot of upheaval inside CSR, with many more long-term, senior staff either being 'freed up for new opportunities' at this point, or choosing to go their own way. We hear that the integration of the two companies has not been seamless, and that a bond has yet to develop between



staff from CSR and former SiRF-ers. Morale inside the company has been described as 'very low'.

Whatever, it is certain that there has been a power shift inside CSR, and this could well have influenced Collier's decision. In February, the CSR board appointed ex-Freescale veteran Klaus Buehring to the newly created position of Senior Vice President of Product Development. The announcement at the time said that Buehring would be responsible for the engineering development of all core CSR products, including commercial silicon and core software products. Now, that sounds like the sort of responsibility that a CTO would normally expect to have, doesn't it? Indeed, other rumours doing the rounds

suggest that Collier has had a number of run-ins with Buehring. Put this together with the other changes inside CSR (including a sequence of different CEO's), and it would not be hard to imagine that Collier could now feel somewhat isolated. And, let's face it, he has made enough money at CSR to not need to stay in a job that doesn't suit him.

The announcement of Collier's departure from CSR has surprised many in the industry, and shocked some. A number of people whose opinion can be trusted believe – rather strongly – that this is not good news for the company.

CSR as a company is bolstered by a continuing good business in the Bluetooth

market. How will the company's fortunes be affected in the mid- and longer-term by the departure of the man who for so long has steered the company's technical road-map? That remains to be seen. All companies change as they age and evolve. Those changes don't necessarily suit those who were there from the outset. Some companies manage to smooth a path through key personnel changes, others are less successful.

On which side of this fence will CSR fall? For the sake of a British company that has lead the world in its field, and which has been the standard bearer for Bluetooth - the most successful short-range wireless technology to date - we wish the company well.

## There's life in the UWB market!

Wisair, the single-chip based UWB and Wireless USB solutions company, unveiled its new WSR602 CMOS single chip at Computex, the computer exhibition in Asia during June.

The new chip offers PCI Express/WHCI interface and additional frequency bands, including WiMedia BG1 and BG3, BG4 & BG6 upper bands (3.1GHz to 9.5GHz). WSR602 based embedded modules targeting laptop computers and consumer electronics devices will be available for mass production in Q4 this year.

"This is a significant milestone for Wisair and its single chip CMOS capability. Our ability to integrate the entire solution into a single standard CMOS die and lower the overall cost significantly, is the enabler for increased volumes and the drive for embedding Wireless USB in laptops and consumer electronic products," said David Yaish, President and CEO, Wisair. "With the WSR602 PCI Express and WHCI interface option for embedded solutions, in addition to the USB interface of the WSR601, our customers have the flexibility to select the best fit for their needs and we can offer a broader range of Wireless USB solutions".

Wisair was demonstrating the WSR602 during Computex. WSR601 based shipping products and new solutions were also demonstrated, including the CPT (CHUNGHWA PICTURE TUBES) wireless detachable/2nd laptop monitor, the Great

Wall wireless keyboard PC ("Cross PC") to HDTV, plus wireless laptop docking for notebook PCs/MacBooks and a Full HD (1080) wireless laptop to HDTV demo with embedded Half Mini Card inside the laptop.

Wireless USB products (Laptop to HDTV, Laptop Docking and USB Adapter Set) based on the 1st generation WS601 chip are already offered by Lenexpo (Atlona), Source R&D (Warpia), InFocus and Cables Unlimited in the USA, Fujitsu, XEL (Q-Waves), Hama, Olidata, Digicom, Display Solutions, More Monitors and Pearl in Europe, Witech in Korea and Quixun (EZAIR) in Japan. Additional product launches in different regions worldwide are expected soon.

So who said UWB/Wireless USB was dead? Come on, speak up!

## Wi-Fi IC shipments forecast to surpass 770M in 2010

Global shipments of Wi-Fi ICs have experienced an extraordinary growth in recent years, according to ABI Research, due to the increasing demands for wireless-enabled devices and enterprise level applications.

ABI is forecasting that Wi-Fi IC shipments will surpass 770 million units in 2010, up almost 33% compared to 2009. Shipment of 802.11n ICs will surge ahead of

802.11g and dominate the market this year, accounting for approximately 60% of total Wi-Fi IC shipments.

"The 802.11n standard which was ratified last year is a powerful growth engine to drive the Wi-Fi IC market increases," commented ABI wireless and semiconductor industry analyst Celia Bo.

The cellular handsets segment is seen to be maintaining the highest unit shipment of Wi-Fi-enabled products in next five years, achieving an estimated CAGR of 25% between 2009 and 2015; the penetration rate will reach approximately 40% of total handsets shipped in 2015.

Laptops, netbooks, and MID's are other segments which will see higher shipments across all Wi-Fi-enabled products, and the trend will carry on throughout the following years.

"The penetration rate of Wi-Fi ICs in consumer electronic products will continue to grow robustly," Bo continued. "Total shipments of consumer electronic products with Wi-Fi functionality are expected to exceed 530 million in 2015, with a 26% CAGR between 2009 and 2015. Shipments of Wi-Fi-enabled digital still cameras, TVs and DVD players will increase more than tenfold in 2015 as compared to 2009. The demand for Wi-Fi-enabled home entertainment products such as networked game consoles and handheld game consoles is increasing as well: between 2009 and 2015, the CAGR will reach 8% and 6% respectively."

# high speed

# This is it: will Near Field Communication overcome its growing pains?

by Dean Anthony Gratton

I fear that this may sound all too familiar to some of you. I have told this story numerous times and in various forms over the last few years and, again, it came back onto the radar last month following a discussion I had with Vince. We were debating the whole Near Field Communications (NFC) saga and I reminded him that I had covered several stories surrounding NFC and felt that just too many promises had been made and broken. Now the hyperbole has returned, as we are all informed once again that NFC is the next big thing (apparently). To be honest, I'm not convinced; I mean why will it be any different this time around? However, it seems I may be in the minority, as Nokia's Anssi Vanjoki (via NFC World) announced this month that all Nokia Smartphones in 2011 will be integrated with NFC. In fact, Nokia has already integrated NFC in its 6131, 6212 and 6216 phones and there have been rumours that Apple will also integrate NFC into its phones, although I didn't see any news relating to such a feature for the new iPhone 4! So is this it? **The time for NFC to strut its stuff? To be honest, I'm still trying to work out what's so new.**

## Too many broken promises

I'm really frustrated with all the hype. But what's really rattling my cage is that, all too often, I hear so many broken promises from the 'wireless industry' surrounding the 'next big thing' – does anyone have the ability to commit and deliver? The number of user scenarios bounced around for NFC have been realistic – no delusions of grandeur there I'll grant you and the numerous user scenarios that have been touted are, indeed, nothing more than added value. But come on! We've been hearing this 'next big thing' story since 2004 and now here we are in 2010 and the words Déjà vu spookily come to mind. I seem to be writing and/or dreaming about the same potential without it actually being delivered. Perhaps the most frustrating thing of all is that I really do believe that NFC can deliver. The question is, 'when

will the industry get its act together and finally commit?' Anyhow, before I ramble on too much I'm going to turn to iTunes and kick off some music – I'm going to need something mellow to tackle this emotional and very frustrating subject!

(302 artists; 35.8 days; 81.78 GB of music later ...)

Okay, so it took me some time, but I have found just the album. I'm now listening to the very sultry sound of Lady Linn, Here We Go Again, accompanied with a cold glass of Leffe Blonde – I just can't do red wine today, as it's too warm outside and I need to remain cool headed to cover this subject. Is NFC still suffering growing pains or should I grab another glass of beer?

## Will NFC really beat Bluetooth silicon sales?

Nokia (nokia.com) and Broadcom (broadcom.com) seem to have the NFC market pretty much covered and with

Broadcom's recent offer to the British near field communication leader, Innovision (innovision.com) I dare say Broadcom and Nokia have their ducks in a neat little row.

I should also mention that many manufacturers are increasingly becoming somewhat over excited about the 'all new' prospect of NFC silicon and its potential sales. I'm sure you already know, that Bluetooth has sold over two billion chipsets but now new gossip mongering has emerged to suggest that NFC sales will outstrip both Bluetooth and Wi-Fi! Humph. I mean that's a tall order, since Bluetooth and Wi-Fi silicon have had a huge head start, so unless NFC aims to be prolific overnight, I deem this statement to be more than a little farfetched, although I am prepared to eat my words!

It may indeed take Nokia to step up and take the lead. Once it does, I'm sure the likes of Apple and Samsung, along with a host of other mobile phone manufacturers, will follow. It's ultimately the user



scenarios that set the technology apart and so, with this in mind, I'll return to the subject of NFC applications.

### Something about realistic user scenarios

My impression of NFC is that it isn't trying to be another Bluetooth or Wi-Fi and that, as long as it stays within its comfort zone, it has the potential to do just fine. Both Bluetooth and Wi-Fi encompass near field communication user scenarios in their existing specifications. More specifically, NFC is seen as a technology enabler. In other words, it overcomes some awkward pairing schemes for Bluetooth and provides simplified connectivity with a Wi-Fi-enabled access point. Being a technology enabler is ultimately where NFC can successfully dominate. And maybe I will be eating my words after all, as the potential market there is huge!

Anyway, the Bluetooth simplified pairing scenario describes a user bringing his/her mobile phone and a Bluetooth-enabled headset, for example, into proximity (say no more than 5cm) where, with the help of NFC, the two devices will pair, simplifying the whole pairing process. Likewise, using a smartcard to connect your desktop or notebook to an access point should overcome complex connection schemes when using Wi-Fi. The Wi-Fi Protected Set-up aims to simplify a whole new generation of Wi-Fi products, something Incisor touched upon in May 2008, 'A Touch of Genius, Wi-Fi Protected Set-up'. Another nice to have feature is the ability to collect information from posters in shop windows for example, where consumers interested in learning more about specific products can, using their Smartphone, simply bring it into proximity with the poster to retrieve further information, such as pricing or website details.

### The killer application

But the perceived killer NFC application is the prospect of mobile electronic payments. Not an entirely new concept,

but to use mobile phones as a kind of electronic (cash) wallet, similar to the smartcard technologies, such as Chipknip in the Netherlands (a Smartcard-based electronic cash payment system) and Proton the Belgian equivalent is a canny one. Other schemes include the Octopus card used widely in Hong Kong and FeliCa, another contactless payment system widely used in Japan and Singapore. There are numerous schemes, in fact, where smart card technology is used typically based on RFID, but the real prospect of electronic cash payment has largely been focused around the mobile phone, which is where NFC steps in.

Incidentally, in January 2008, O2 announced its O2 Wallet and NFC trial – to be honest, I haven't seen any follow up story, but the collaboration with Barclaycard seems to be (for me) the only successful outcome of the trial. In December's 2008 Incisor issue ('Making Sense of Wireless Technology'), you may recall the discussion surrounding a half-naked man travelling down a water-filled tube that links several skyscrapers. The chap is seen making an electronic payment with his Barclaycard whilst picking up some fruit (I suppose you had to be there!). I'm sure the usual concerns have been raised surrounding the security aspects of making wireless payments. Perhaps this has been the stumbling block for true NFC penetration! What if you lose your mobile phone? I suppose it's a lot worse if you lose your wallet, where cash, ID, driving license and credit cards can all be abused. A mobile phone can, of course, be deactivated and normally your insurance should cover its loss. With Barclaycard's wireless payment system, electronic cash purchases are limited to no more than £10. The scenarios touted by manufacturers are indeed limited to small transactions, such as the London tube or ticket payments at events.

### Build it Nokia, they will follow

There are indeed many supporters of NFC, but who will have the nerve to take charge and lead? I hope that Nokia delivers on its promise next year, as there've been too

many broken promises. As I previously mentioned, I believe that, with a serious commitment from Nokia, others will surely follow and, I have no doubt that a string of IP-infringement lawsuits will also follow, as seems to be the custom between mobile phone manufacturers nowadays. So, ultimately, will NFC materialise into a mature, successful technology and be deployed in billions of products? Well, I suppose that depends on Nokia taking its first step. "Build it Nokia and they will come!"

### Until next month ...

I am aware that I stated in last month's feature that I wanted to cover DASH7. Admittedly, some of you may have been expecting the DASH7 coverage this month but alas, I'm afraid I didn't receive compelling enough information to warrant a full-on discussion with Vince. I need to be suitably armed with all the facts to ensure that I make a convincing argument for the piece. I still have some burning questions for the DASH7 Alliance, which I will tackle head on very soon. In the meantime, I'm looking through my wireless subject matter for next month, but for now, I don't have any clear objectives! Okay, so this is where Dr G signs off; let's hope we catch each other next month in the throes of a wonderful warm summer.

### About the Author

Dr Dean Anthony Gratton is a bestselling author and columnist. He has authored several patents, contentious articles and a number of bestselling books on wireless technology. He has worked within the telecommunications industry for over sixteen years and provides consultancy to a number of high profile companies.



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## Snippets

### Ultra-Mobile Devices to Reach \$12.5 Billion by 2015

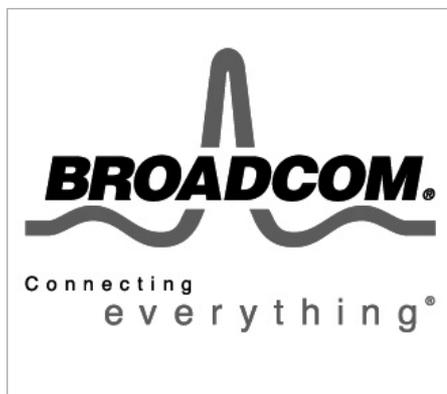
While the iPad, a device belonging to the ultra-mobile device (UMD) category, is all the rage among consumers, enterprise suppliers are already preparing it for business use. Cisco, for example, is marketing its Cisco WebEx Meeting Centre

application for the iPad. ABI Research forecasts worldwide UMD adoption averaging 55% per year as businesses find many uses for ultra-mobile devices, a category which includes netbooks, smartbooks and mobile Internet devices (MIDs).

Enterprise practice director Dan Shey comments: "Differing from smartphones

and laptops, ultra-mobile devices offer a few highly desired feature and application capabilities in tablet and clamshell form factors. Businesses will be attracted to these devices for the same reasons as consumers – their larger screens, LAN and WWAN connectivity, and most importantly, low cost."

# low energy wireless news



## Broadcom buys Innovision for NFC expertise

Just last month, Incisor attended a briefing with UK near field communication (NFC) specialist Innovision. At that point there was no mention of any big impending changes, but now, just a few weeks later, Broadcom tells Incisor that its subsidiary, Broadcom International Ltd, has agreed to terms with the board of Innovision Research & Technology PLC, to make an all-cash offer to acquire all of the issued and to be issued shares of Innovision!

Under the terms of the offer, Innovision shareholders will receive Pounds Sterling 0.35 (approximately \$0.52) per share in cash for each Innovision share held, representing a total equity value of approximately \$47.5 million based on current exchange rates. This offer represents an 84.2% premium above the closing price of Innovision common stock on June 17, 2010. Broadcom expects to close the acquisition of Innovision in the third quarter of 2010.

Now, Dean Gratton's article on NFC in this issue was written with input from Innovision. Nothing was mentioned to Dean, either! Nothing changes in terms of the information in Dean's article, but the technology is now owned by somebody else, and the Innovision IP has traded for about £32million.

It's a fast-moving world out there.

### ...Innovision licences next-gen GEM NFC IP

In the same month that its acquisition by Broadcom was announced, Innovision told the world that it has made version 2 of its GEM NFC (Near Field Communication) semiconductor technology available for

licensing – suggesting that this opens up the market for any semiconductor company to integrate NFC into chipsets for mobile phones and consumer electronics devices.

Innovision claims that the GEM 2 architecture is the only 1.8V NFC solution available, and can now be implemented on 65nm and 40nm CMOS processes. SoCs integrating the GEM 2 IP will include wireless “combo” chips, typically combining Bluetooth, FM radio, GPS and Wi-Fi, as well as NFC, cellular baseband devices and other microprocessors, DSPs and wireless chips.

Innovision's VP Marketing, Stephen Graham, told Incisor: “Innovision is the only company to have developed a 1.8V NFC solution, and this is now accelerating the creation of high-performance SoCs that fully integrate NFC with other complementary wireless technologies. We have several major global semiconductor companies who are already integrating GEM 2 into their SoCs. This is a very strong indication of the pace at which the market for NFC is developing, so with this launch our aim is to open up the market to any semiconductor company, regardless of size and scale, that wants to develop low-voltage, low-cost stand-alone NFC controllers, or integrate NFC into SoCs for mobile phones, PCs and consumer electronic devices.”

Graham explained that GEM 2 enables NFC devices and global NFC interoperability with existing and emerging standards for contactless payment, mass transit ticketing, access control and smart objects, including ISO/IEC 18092, 21481, 14443A&B, and 15693. GEM 2 optionally supports a battery-off mode in which the NFC solution may be powered from the RF field even when the battery in the mobile phone is fully depleted; and it supports standard secure element interfaces

including the Single Wire Protocol (SWP) defined by ETSI for interfacing to the SIM card in a mobile phone.

### ...and shows new NFC tag for non-payment applications

Innovision has also launched Topaz-512, the latest addition to its family of NFC tags. This one is aimed at non-payment applications of NFC.

With 512 bytes of memory – which is apparently more than five times greater than the existing 96-byte Topaz tag – Innovision says that the Topaz-512 will help bridge the gap between low-memory tags and high-cost products that typically target high-security payment applications, such as contactless credit cards.

The new tag is designed to make NFC an attractive option for additional mass-market opportunities, such as business cards, automatic SMS messaging and digital content delivery through smart posters. So-called ‘tag in a box’ applications, where NFC tags are included as part of a mobile phone package with an NFC-enabled handset, are also a key market opportunity for the new tags. Innovision is already working with mobilkom austria, the first mobile operator in the world to commercially distribute an NFC phone with a set of pre-programmed Topaz NFC service tags. In this application, Topaz-512 supports the delivery of additional data to simplify service discovery and usage.

“Clearly, payment and ticketing will be an important part of NFC evolution,” Stephen Graham commented, “but non-payment applications are emerging as a key driver for early NFC adoption.”

# low energy wireless news



## NFC Forum 2010 competition winners

The NFC Forum has announced the winners of the NFC Forum Global Competition 2010. The winning entries were named at an awards ceremony held at the NFC Forum all-member meeting in Karlshamn, Sweden.

The NFC Forum competition Commercial Track is for business ideas that address a specific market, business, or consumer need or want. The Research Track is open to the academic community, including university student teams and institutions. Winners in each track received cash prizes: first-place received 5000 euros, second-place 1500 euros, and third-place 1000 euros.

From the 20 finalists selected earlier from applicants representing a variety of countries in Asia, Europe and North America, first, second, and third-place winners in each track were chosen by a jury composed of professionals and experts from academia, members, and sponsoring companies. Entries were judged on their innovation, commercial potential, and usability, as well as on quality of design and implementation.

The first-place winner in the Commercial Track, "The Best NFC Service of the Year 2010," was NEXPERTS (Austria) for Touch & Pay, which makes self-service shopping as easy as possible. The customer's NFC-enabled phone provides access to the store, a virtual shopping basket, and the payment terminal. The principle of Touch & Pay can be extended to rural areas or countries without a POS payment infrastructure.

The first-place winner in the Research Track, "The Most Innovative NFC Research Project of the Year 2010," was PharmaFabula (Spain) for NFC Mobile Technology and RFID for Identification of Medicines for the Blind. Using an NFC-enabled mobile device, PharmaFabula provides object identification for the blind. It reports medical information from prescriptions, leaflets, and other useful data in audio format. It can also provide personal information, like dosage and treatment



duration. ONCE, the Spanish organization of blind people, tested PharmaFabula and were very satisfied with the results.

"In winning this year's competition, NEXPERTS and PharmaFabula remind us once again that there is no limit to the imagination. Each of these award-winning entries is a testament to NFC technology's unique ability to enable solutions that improve, enrich, and simplify people's lives," said Koichi Tagawa, chairman of the NFC Forum.

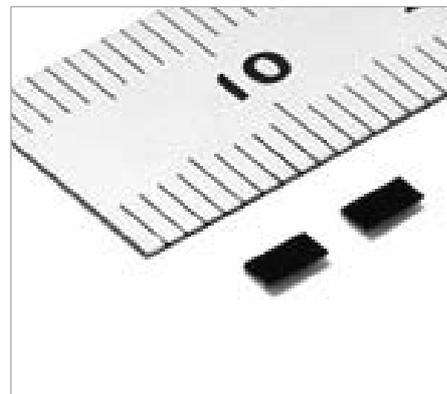
## Nordic expands with single chip solution for ANT USB dongles

Nordic Semiconductor has released the third product in its nRF24AP2 ANT family – the nRF24AP2-USB – a single chip ANT solution with USB interface enabling compact, low cost ANT USB dongles for use in product applications such as wireless sport, fitness and health monitoring.

The nRF24AP2-USB provides the same feature set as Nordic's existing 8-channel nRF24AP2-8CH ultra low power (ULP) wireless solution, but exchanges the latter's UART interface for a Full-Speed USB 2.0 compliant host interface. This makes the nRF24AP2-USB ideal for both compact ANT USB dongles and embedded systems where a USB host interface is preferred.

"We are very pleased to announce the availability nRF24AP2-USB," says Thomas Embla Bonnerud, Product Manager for Ultra Low Power Wireless at Nordic Semiconductor. "Connectivity to both PC- and Mac-based products, and thereby also the Internet, is fast becoming a key feature in many of the latest ANT-enabled wireless products. The nRF24AP2-USB's compact single-chip form factor and low cost presents an ideal and convenient solution for developers of applications that employ such products."

The nRF24AP2 family reduces peak current by more than 20% compared to the previous



generation nRF24AP1, says Nordic, yielding an extra power margin when working with small coin cell batteries. Average operating currents are expected to be reduced by up to 75% enabling a similar extension in typical battery operating lifetimes.

All nRF24AP2 chips will support the ANT+ managed network alliance platform that makes ANT+ products from the list of subscribing vendors fully interoperable.

## Murata joins AIM in the UK and Netherlands

Murata has become a manufacturer-member of the UK and Netherlands chapters of AIM, the Association for Automatic Identification and Mobility. If you don't know AIM, it represents automatic identification and mobility technology solution providers worldwide, and has led the way in industry standards, education and outreach since 1972. Murata became a manufacturer-member of AIM Germany in January 2010.

"Murata's innovative approach to RFID technology is already opening up new applications for RFID," states Alexander Schmoltdt, responsible for European RFID Business Development for Murata. "Extending our membership of AIM into the UK and Netherlands chapters is a clear indicator of our intention to support the spread of RFID applications all over Europe."

Murata's first step in building an innovative RFID offering is centred on an UHF RFID IC-module called Magicstrap. The inductive coupling technology incorporated into its ceramic multilayer base allows what Murata describes as 'highly reliable' antenna connection while avoiding the need for conductive glue. As a full SMT component, Magicstrap allows a PCB, the core of any electronic device, to become an EPC Global standard compliant RFID tag.

Murata also recently announced a small RFID reader/writer module (23 x 13 x 2.8mm) that can be incorporated into the next generation of mobile devices and portable RFID readers.

# low energy wireless news



## EnOcean and Texas Instruments expand Energy Harvesting cooperation

EnOcean and Texas Instruments (TI) are to expand their cooperation to provide wireless solutions for building automation. Through this agreement, the companies will jointly create solutions enabling self-powered wireless sensor networks. EnOcean will integrate TI components in its energy-efficient wireless modules. EnOcean's battery-less wireless technology harvests energy from its surroundings – motion, light or differences in temperature.

"In Texas Instruments we have a strong partner, optimally supporting our innovative and self-powered wireless solutions with its ultra-low-power components," said EnOcean's CEO Markus Brehler. "Together we can effectively develop market-driven Energy Harvesting wireless module solutions, which are an ideal basis for automation systems in sustainable buildings."

Texas Instruments and EnOcean have collaborated since 2005 and TI components have been implemented in a

variety of EnOcean modules. TI has also been a member of the EnOcean Alliance since 2008, working with other members of the Alliance on energy-efficient solutions for green buildings.

"Energy harvesting wireless technology reduces the installation cost of lighting, heating/air conditioning control and monitoring by up to 70 percent. This technology enables long term energy conservation and sustainability for our customers," said Laurent Giai-Miniet, general manager of TI's Low-Power RF business unit. "Cooperation with EnOcean is an important step towards gaining a firm foothold in a fast growing market. The deciding factor in the expansion of our relationship with EnOcean was their proven expertise of energy harvesting technology, with wide market experience and a broad customer base."

## EnOcean reaps recognition

The Energy Harvesting Award 2010 has been presented to EnOcean for its development in the field of thermoelectric energy use by IDTechEx, an independent market research and consulting enterprise.

The award was given to the company with the best energy harvesting product developed in the last 24 months. The jury awarded the prize to EnOcean for the technical advantages and market potential of its product compared to other entrants.

EnOcean impressed the jury with its advances in energy conversion by means of a thermoelectric converter (ECT 300), which enables direct production of electricity from temperature differences – on warm parts of machinery for instance, heating radiators or even the human body. For this purpose a circuit was developed that converts a small voltage – from 20 mV upwards – into useful voltage of 3 V for example, which is enough to power a wireless sensor.

"We're naturally very proud of receiving this international award", said Armin Anders, VP product marketing and co-founder of EnOcean. "It's not only recognition of our product innovation but it is also evidence that our energy harvesting wireless technology has gained an international footing".

The prize was presented during the Energy Harvesting & Storage Europe 2010 international conference and exhibition in Munich.

## Snippets

### Fujitsu renames semiconductor subsidiaries

Fujitsu Semiconductor Limited will rename nine of its group companies, of which Fujitsu Microelectronics Europe is one, effective July 1, 2010. Originally established as Fujitsu Microelectronics Ltd

in 2008, following the reorganisation of Fujitsu's semiconductor activities, the name was changed to Fujitsu Semiconductor Ltd on April 1st this year. In association with this corporate name change, nine of Fujitsu Semiconductor's group companies will also change their names.

Headquartered in Langen, near Frankfurt, Germany, Fujitsu Semiconductor Europe employs more than 300 people throughout the EMEA region, with sales & marketing offices and design & development centres based in Germany, UK, Austria, France, Italy and Hungary.

# low energy wireless news



## Alliances collaborate on renewable energy management

The ZigBee Alliance and the SunSpec Alliance have announced an agreement to collaborate on defining standards for renewable energy and microgrid management using the ZigBee Smart Energy version 2.0 standard. The ZigBee Alliance will be known to Incisor's readers, while the SunSpec Alliance was formed to accelerate the growth of the renewable energy industry through standardization of monitoring and management interfaces for energy system components.

More residences and businesses are installing solar power generating systems, so a need has arisen for those microgrid systems to integrate with the Smart Grid. The collaboration between the two Alliances will address the existing gap between the growing use of distributed generation via renewable energy resources and the Smart Grid.

"As more consumers and businesses install renewable energy systems, they need a way to control not only their energy use, but also how it ties in to their local utility. They will be able to do all of this using ZigBee Smart Energy" said Bob Heile, chairman of the ZigBee Alliance.

ZigBee Smart Energy is the wireless HAN standard, and the ZigBee Alliance claims that more than 40 million smart meters are being installed around the world. Tom Tansy, chairman of the SunSpec Alliance, had this to say: "ZigBee Smart Energy is a key standard to removing barriers and firmly establishing product interoperability that expedites Smart Grid integration of renewable power generating sources. The SunSpec Alliance shares the ZigBee Alliance's vision of helping consumers and businesses realize a new era of energy management and efficiency, and this collaboration adds a focus on the control of renewable energy production."

## Freescale streamlines health screenings with ZigBee

Freescale Semiconductor, partnering with Pounce Consulting, has developed a portable, telemonitoring reference design, which allows patients and physicians to run routine health screenings at home or remotely.

Dubbed the Intelligent Hospital kiosk, patients can use the kiosk as a monitor at home to send their personal vital signs and medical tests remotely to a healthcare provider in order to proactively monitor and prevent acute complications of chronic degenerative diseases. In addition, the kiosk can be made available in a public location for individuals to perform various medical tests and transmit data to a hospital.

The recently announced Flexis MM family drives nine different medical devices on the reference design, reducing analog costs and noise interference. The devices include: a weight scale, an ultrasonic height sensor, a thermometer, a blood pressure monitor, a heart rate monitor, a one-lead electrocardiography EKG, a pulse oximeter, a blood glucose meter and a spirometer to measure lung volumes and air flow. The kiosk features a touch-sensing interface to toggle between different modes of operation which creates a simple user experience while leaving the contact surfaces smooth for easy cleaning and disinfecting. A magnetic card reader identifies patient data which is transmitted via USB or ZigBee to a PC or a server where an electronic medical record (EMR) can be stored.

In a recent test using the Intelligent Hospital kiosk, a physician ran the full screening in an average time of seven minutes per patient for a total of 67 patients, while diagnosing five health conditions that were not detected in an initial screening.

## Ember joins NIST's Smart Grid governing board

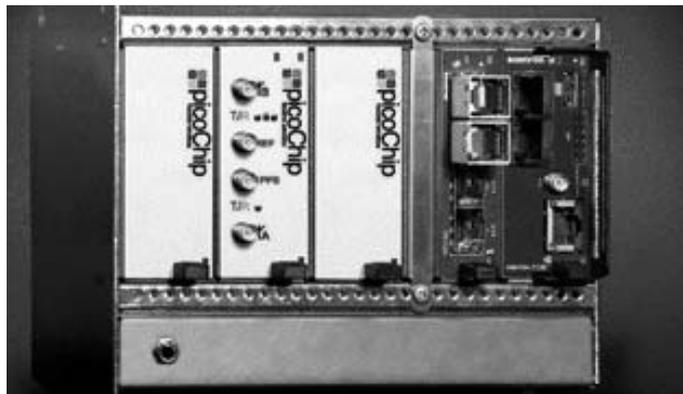
Ember's Senior Vice President, Skip Ashton, will play a role in shaping US' smart grid standards with his recent appointment to the National Institute of Standards and Technology (NIST) Smart Grid Architecture Committee (SGAC). Ashton joins other industry experts in creating a network reference model for the smart grid, including standards and application profiles.

The appointment follows Ashton's other leadership role within the ZigBee Alliance as chairman of the ZigBee Architecture Review Committee, which helps define the network, security and interoperability specifications of the ZigBee wireless standard.

Ashton was also selected to keynote the 7th annual IEEE Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON 2010) at the Hyatt Regency in Boston this during June. He addressed the forum on the growth and expansion of "Smart Grids and Sensor Networks" as well as the roadblocks and successes confronting wireless ad-hoc networks.

His presentation focused on how hype of the long-promised "Internet of Things" is affecting the smart grid market. Beyond the hype, millions of devices will be installed in 2010 with embedded mesh networking. In this talk Ashton draws explored the growth and expansion of this market, from proprietary to standard protocols, the roadblocks and successes of the technology and where we can expect these markets to grow in the future. He also discussed the roles of researchers, developers and regulators in the growth of mesh networks.

# 4g / LTE / WiMAX news



## picoChip says smartphones are too chatty - use femtocells

picoChip has enhanced its picoXcell platform to address the need to support large numbers of smartphones on a femtocell. New smartSignaling features within the company's PC3x3 devices now enable up to 400 'always on' users on a femtocell with additional benefits such as longer handset battery life.

"Everyone knows that mobile networks are filling up with data traffic generated by devices like BlackBerrys, iPhones or the iPad," said Rupert Baines, VP of Marketing at picoChip. "But what most people don't realize is that smartphones create problems even when they are not receiving or transmitting data. Their 'always on' signalling systems hurt the network more than just the extra data traffic, and can by themselves be enough to push a network to the point of collapse."

This phenomenon was documented in a recent report by Signals Research Group (SRG), "The Trouble with Twitters," which found that signalling traffic is actually outgrowing data traffic by up to 50%, largely due to the chattiness of typical smartphone applications such as push email, social networking, location-based services and the use of so-called 'keep alive' messages for other apps.

While femtocells do a very good job of creating more capacity, until now they have not addressed the signalling challenge. picoChip's smartSignaling feature adds specific functionality that eliminates this burden, enabling a femtocell to support many smartphones. By supporting special signalling states and adding shared channels, smartSignaling significantly improves network efficiency by relieving the burden of push email and applications on 'always connected' devices, especially important for femtocells in the enterprise or public areas.

smartSignaling is particularly beneficial in very crowded cells, because signalling conflicts between smartphones can only be resolved by re-transmitting the signalling information. Crowded cells are therefore characterized by increasing numbers of failed 'wake up' attempts, which consume already scarce signalling resources, as well as eating into handset battery life for no user benefit. Femtocells are increasingly being used beyond residential applications, and are being deployed in enterprises, to add capacity in denser urban areas (metro Femto) or for coverage in rural locations. In all of these, the ability to support more users more efficiently is crucial.

### ... passes million femto chip milestone

picoChip has also passed the milestone of one million chips sold. On something of a roll, the company has secured \$20m of additional equity

funding apparently to support further expansion plans and strengthen the company's balance sheet.

"As we execute against our plan we have raised additional equity funding that will set the company on an even steeper growth curve," said Nigel Toon, CEO of picoChip. "A major shift is happening in the cellular market, creating big opportunities for picoChip. With our field-proven technology, volume shipments and fast revenue growth, this investment allows us to move aggressively to grasp those opportunities."

As part of its growth plans, picoChip is adding engineers at its development centers in Bath and Beijing, and will move to a new headquarters in Bath, UK. The plans also include accelerated product development in key areas such as LTE, HSPA+ and self-organizing networks.

"The rapid take-up of smartphones and other always-connected devices, the huge growth in data traffic on 3G HSPA networks and the transition to LTE and 4G are disruptive changes for the cellular market," added Nigel Toon. "Technology advances like 'flat architecture' and 'small cell' will mean a radical shake-up in the established landscape."

Twelve cellular network operators, including Vodafone, Softbank and AT&T, have launched femtocell offerings.

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# 4g / LTE / WiMAX news



## WiMAX femto standard published – does it help?

The WiMAX Forum has announced that it has published a standard for 802.16e femtocells. There is a certification drive planned for early 2011, something which hasn't seen on WCDMA or CDMA femtocells.

While a standard is always good for the general adoption of a technology, WiMAX femtocells haven't really taken off, Aditya Kaul, a researcher at ABI Research told Incisor. There are very few vendors who are actually spending resources building WiMAX femtocells. For example, LG Nortel, which showcased at last year's Femto World Summit in London and has seen some trials in Korea and in the USA. Samsung did develop a WiMAX femtocell initially but it has since been focusing on the CDMA/LTE femto market ever since. On the operator end, Comcast has been known to be testing WiMAX femtocells but nothing has come out of it. Comcast has a data-only network and so might use WiMAX femtocells for enterprise users. Sprint is the other operator who might be looking at WiMAX femtocells but might use it for voice and residential. The Sprint 4G EVO phone has seen a surprising uptake in the US. Like any other phone or technology EVO users will soon start to notice that their phone doesn't work as well indoors, which might drive the need for femtocells.

Kaul has been talking with mainstream femto chipset suppliers, and feels that none of them are really going after the WiMAX femto market. The ones that are include traditional WiMAX OEMs who design and manufacture their own chipsets.

With the WiMAX future in question, especially after the recent India BWA

auction where LTE seems to be the preferred long-term technology, it is unlikely that the WiMAX femto standard will really help changing fortunes for WiMAX.

## Lime Microsystems' RF transceiver IC selected for UAP femtocell

Lime Microsystems' single-chip multi-band multi-standard RF transceiver has been selected by Global Wireless Technologies for the latest version of its Universal Access Point (UAP) femtocell, the UAP106/232. The UAP106/232 is a configurable platform for femtocells supporting WCDMA and CDMA2000 standards and is software upgradeable to support 4G LTE. The UAP106/232 uses the LMS6002DFN transceiver in the full range of frequencies between 700MHz and 3.8GHz with multiple bandwidths of up to 20MHz. Global Wireless Technologies has validated Lime's LMS6002DFN transceiver by performing data and voice calls in WCDMA band 1, 2 and 5.

"The philosophy behind GWT's UAP industry-first design is to deliver a fully software re-programmable, multi standard platform (upgradeable to 4G) capable of delivering the most advanced services to users as network requirements evolve," commented David Gross of GWT. "The re-programmability of Lime's single-chip transceiver is compatible with this philosophy in that it supports multiple bands and can therefore, be adapted for emerging bands and standards."

"Our configurable transceiver is an ideal match for GWT's configurable access point platform," commented Dr. Ebrahim Bushehri, CEO of Lime Microsystems. "Universal platforms like the UAP are valuable in enabling the widespread

adoption of femtocell technology, offering operators worldwide maximum flexibility when extending network coverage for existing and future cellular standards."

## Fujitsu WiMAX platform underpins WiMAX Wi-Fi terminal

Fujitsu Microelectronics Europe (FME) tells Incisor that Sirius Mobility has selected its WiMAX Wi-Fi reference platform to enable a 4G WiMAX CPE designated CW6200i.

The CPE consists of a stationary cradle featuring a power supply for charging, additional MiMo antennae for increased link budget as well as Ethernet connectivity for wire line LAN applications. Up to 27dBm RF power output provides sufficient connectivity for indoor applications and cell edges.

The portable WiMAX – Wi-Fi unit, with dimensions of 11 x 6 x 1.6cm, can be removed from the stationary cradle enabling full mobile broadband access for Wi-Fi clients at any given location in a WiMAX covered area.

Fujitsu claims that the system applies advanced Wi-Fi – WiMAX Mac layer multiplexing schemes to avoid interference issues between Wi-Fi and WiMAX bands achieving best possible uplink and downlink performance. The system can support 2.3GHz, 2.5GHz and 3.5GHz leveraging Fujitsu's triple-band, low-power technology.

The CW6200i will be available in August 2010. The first samples are available now.

# events



DATE	EVENT	LOCATION	NOTES	LINK
July 29 2010	Real Time/ Embedded Computing Conference	Portland, Oregon, USA	-	<a href="http://rtecc.com/conferences/view/32">http://rtecc.com/conferences/view/32</a>
Aug 5 - 9 2010	Taipei Computer Applications Show	Taipei, Taiwan	-	<a href="http://www.biztradeshows.com/trade-events/taipei-computer-applications.html">http://www.biztradeshows.com/trade-events/taipei-computer-applications.html</a>
Sept 13 - 15 2010	Intel Developer Forum	San Francisco, CA, USA	-	<a href="http://www.intel.com/idf/">http://www.intel.com/idf/</a>
Oct 4 - 8 2010	Bluetooth SIG UnPlugFest 37	Barcelona, Spain	-	<a href="http://www.bluetooth.org">www.bluetooth.org</a>
Oct 19 - 20 2010	CAT-iq Market & Developer Conference	High-Tech-Campus, Eindhoven (The Netherlands)	-	<a href="http://www.catiqconference.com">www.catiqconference.com</a>
Nov 10 - 12 2010	China Electronics Fair	Shanghai New International Expo Centre, China	-	<a href="http://www.icef.com.cn/fall_eng/index.shtm">http://www.icef.com.cn/fall_eng/index.shtm</a>

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