

INCISOR™

for the short
range connectivity
environment

Video enabled  Issue 125

August 2008



LOW ENERGY - STILL FLAVOUR OF THE MONTH

THIS ISSUE | BRINGING LOW ENERGY TO REALITY - CSR
ZENSYS - VENI, VIDI, VICI
WIRELESS SYSTEMS IN MEDICINE

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less power to the people

We have a definite low power flavour to this issue. Although our industry's low power fixation is more to do with battery life than it is with the green issues that the rest of the world has its panties in a bunch over, it somehow still feels 'proper' to be trying to save energy.

Incisor first reported on the low energy version of Bluetooth 12 months ago, at the time that the Bluetooth SIG and Nokia announced that they were merging Wibree into the Bluetooth specification (see [Incisor - July 2007](#)). In this month's issue we are able to report that both CSR and the Bluetooth SIG are showing working versions of Bluetooth low energy. Time marches on.

Yet this is not the only low energy solution. The ZigBee Alliance and key member companies have been promoting low-energy wireless solutions for some years, and – despite the views of some industry pundits - there is some evidence that it is finally gaining traction. Meanwhile, there are other technologies out there, such as Z-Wave from Zensys and energy harvesting solutions from the EnOcean Alliance and its members. Dean Gratton takes a look at Zensys this month, and compares and contrasts Z-Wave with the Bluetooth and ZigBee-based alternatives.

Now, if somebody could just turn my gas-guzzling cars in to low energy devices, I would be really happy.

Vince Holton
Publisher & editor-in-chief, Incisor / IncisorTV

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Bluetooth SIG goes public with low energy

The Bluetooth Special Interest Group (SIG) gave Bluetooth low energy wireless technology its first public showcase at Wireless Japan 2008. This show is a specialized exposition focusing on the leading wireless and mobile businesses in the region.

"We are happy to give Japan, one of our most important markets in APAC, the first peek at the upcoming Bluetooth low energy specification in action. Japan has huge potential to equip products with the latest Bluetooth technology and implement future specifications for a variety of new applications. Japanese members have been very active in working groups for the Bluetooth low energy specification, and the SIG expects increased contributions by Japanese manufactures in the coming year," said Mike Foley, PhD, executive director, Bluetooth SIG.

The Bluetooth low energy demonstration at Wireless Japan showed digital scales and a temperature sensor that communicate weight and temperature data wirelessly over a Bluetooth low energy link to a modified Nokia mobile phone. CSR's BlueCore7 device, which incorporates the Bluetooth low energy prototype, was at both ends of the link.

"2008 is the 10th anniversary of Bluetooth technology which has now shipped in over two billion devices worldwide. Japan has been a major contributor to that success. Japanese members rank first in participation on SIG working groups to help define and advance Bluetooth technology. They are also the top user of the Bluetooth SIG's Profile Tuning Suite, a tool used to test profile specifications as part of product qualification," commented Derek Soh, marketing director for APAC & Japan, Bluetooth SIG.

CSR demos Bluetooth low energy for Medical Working Group

A few days before the Wireless Japan event (see across), CSR had demonstrated Bluetooth low energy technology at the San Francisco meeting of the Bluetooth SIG Medical Working Group.

The demonstration showed the two Bluetooth low energy devices transferring data to the handset using a Bluetooth low energy advertising packet without any prior configuration or pairing. When a button is pressed on the weighing scales the embedded Bluetooth low energy radio wakes up and sends a short burst of data to the handset. The temperature sensor transmits data continuously. The name and value of both sensors are then simultaneously displayed on the phone. The application automatically updates the display with the new value each time a new advertising packet is received.

The mobile phone handset was modified for the purpose of the demonstration to incorporate CSR's BlueCore7 dual mode silicon (Bluetooth low energy and Bluetooth v2.1), and a Java API and MIDlet application to provide a simple user interface for displaying the information received.

CSR described the demo as a major step towards establishing a standard low power wireless technology and believed that it reinforces its commitment to driving the development of Bluetooth low energy products, particularly for applications in the medical sector. The Bluetooth SIG expects final adoption of Bluetooth low energy technology in Q1, 2009.

"This is a key demonstration for the roll out of Bluetooth low energy," said Robin Heydon, CSR's Standards Architect.

"CSR's connectivity centre incorporates multiple technologies along with standard Bluetooth and we believe this is set to be the future of mobile handset architecture. We have now demonstrated Bluetooth low energy working in a handset in a real life application. Bluetooth low energy opens up many new markets and will bring wireless connectivity to countless devices that previously discounted it due to power concerns."

CSR had previously demonstrated that its Bluetooth low energy technology silicon consumes 10 times less power and transmits data packets 50 times quicker than standard Bluetooth. This enables very low power and low latency applications such as remote controls. CSR's BlueCore7 silicon is the world's first product to integrate Bluetooth low energy technology which it has integrated as part of its connectivity centre and will be in volume production from Q4 2008.



Heathrow Express launches mobile ticketing

Atos Origin, an IT services company, has announced that it has completed roll-out of a mobile ticketing service for the Heathrow Express train network between London Heathrow's airport terminals and Paddington Station in Central London. Passengers on the Heathrow Express can now have their tickets sent directly to a mobile phone or PDA, so they do not have to queue to collect tickets at the station before they travel.

The system allows individual and corporate customers to book online through the Heathrow Express website. When making a booking, customers can opt to receive either a bar-coded e-ticket that is registered to their mobile phone, or a self print version of the ticket. Both types of ticket are then scanned and validated on-board the Heathrow Express train.

The terminal used by train staff is built on the Casio IT-3000. It is a rugged industrial data terminal with an integrated thermal printer. Its communications options include standard Bluetooth and IrDA, and a PCMCIA slot allowing GPRS and WLAN communications.

George Fripp, Heathrow Express international corporate account manager comments that, "Most of our customers are incredibly busy professionals that use our service because it's the most convenient way to get to and from Heathrow Airport in just 15 minutes. E-ticketing builds on that by taking the hassle out of booking journeys and making their travel even more seamless. All you need to do is book, board the train and go. It's as simple as that."



CSR offers Bluetooth v.2.1 IC for automotive production

CSR has enhanced its BlueCore4-ROM Plug-n-Go automotive Bluetooth silicon with Bluetooth v.2.1 functionality. CSR told Incisor that BlueCore4-ROM Plug-n-Go is the world's first Bluetooth chip that adheres to both the AEC-Q100 automotive stress test qualification and Bluetooth v.2.1, and that BlueCore4-ROM is the world's most successful Bluetooth chip, present in more products than any other Bluetooth silicon. CSR has subjected the design to full automotive standard stress testing and updated BlueCore4-ROM to the latest Bluetooth standard.

"We're very pleased to be able to bring Bluetooth v.2.1 to the automotive arena" said Rafik Jallad, Vice President of the Automotive Business Unit at CSR. "We're following our tradition to be the first to provide automotive customers with the latest Bluetooth features. The launch of RoadTunes earlier this year combined with the launch of BlueCore4-ROM Plug-n-Go is another proof of CSR's commitment to serve the automotive market with the latest and most advanced technologies."

CSR's BlueCore4-ROM Plug-n-Go Bluetooth v.2.1 is in production today.



CTIA develops Bluetooth certification program

Fremont, California -based Cetecom is one of four CTIA Authorized Test Labs (CATL) that will support a new Bluetooth certification program specifically for mobile phones, headsets and car kits. Called the "CTIA Bluetooth Compatibility Certification Program", this is currently under development by the CTIA.

The program involves submitting a device to a CATL for testing against a pool of CTIA approved devices with complimentary Bluetooth profiles and roles to ensure a high level of interoperability and user experience. This testing is to be completed in addition to Bluetooth SIG Qualification.

And why do we need this in addition to the already vigorous Bluetooth certification? Well, Cetecom told Incisor that CTIA certification will most likely be a requirement for PTCRB approval.

The program is set to officially launch in January 2009. Cetecom advised manufacturers of Bluetooth mobile devices looking to launch their products in the near future to consult with a CATL.

news

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[Motorola's Steve Deutscher examines High Speed Bluetooth mobile concepts](#)

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WPAN jumps past the Early Adopters, apparently

Market researcher WTRS has been looking at emerging "Wireless Connectivity" technologies including applications of Bluetooth, millimetre wave wireless, UWB, and IEEE 802.11n, and suggests in its latest report that the market is achieving a degree of maturity.

Kirsten West, Principal Analyst of WTRS commented: "All too often standards groups formed around newly-developed wireless protocols adopt the task of identifying new applications and markets in addition to codifying a standard. This approach invariably leads to standards groups competing for newly-identified large potential target applications. Wireless connectivity standards today are shifting from being in competition with one another to coexistence that signals the start of real and significant market adoption for products utilizing wireless connectivity technology."

WTRS has been looking at Bluetooth, UWB (including DS-UWB from GiT and others, CW-UWB from PulseLink, and MB-OFDM UWB from the WiMedia Alliance), millimetre wave wireless from SiBeam, the IEEE 802.11 family, and IEEE 802.11n.

We can't share any more of the reports findings with you as instead of providing a synopsis with tasty tidbits of information, WTRS only told us that Wireless Connectivity Technology Trends Report asked questions such as:

- (1) How does the addition and integration of Wi-Fi to Bluetooth enable Wi-Fi to penetrate the mobile phone market more strongly?
- (2) What is the analysis of Wireless Connectivity use cases by technology?
- (3) Who are the Certified Wireless USB radio chipset companies capable of addressing the regulatory requirements of the global market?



- (4) How do the Certified Wireless USB I/F, WiMedia Alliance, Bluetooth SIG, Wi-Fi Alliance, and WirelessHD compare?
- (5) Why is the Wireless Connectivity standards shifting from antagonistic to coexistence strategies?

So, if you want to know the answers, and just why WTRS has decided the WPAN market has passed the Early Adopter phase, you're just going to have to buy the report.

Perhaps that's what they wanted

Pocket-sized printer packs a Bluetooth enabled punch

The Printstik, a pocket-sized printer with Bluetooth connectivity currently available in North America and soon available in Europe, incorporates a collection of British technology - namely Cambridge Consultants' Bluetooth stack on a single CSR BlueCore chip.

At 48mm x 25mm x 280mm, it is claimed to be the smallest full page handheld with self contained paper solution. Connecting to laptops, PDAs or smart-phones, the 680g, ruggedised device can print up to three pages a minute wherever and whenever needed.

Connectivity is enabled by Cambridge Consultants' BlueStack software, which uses a wide range of Bluetooth 'profiles' from the Interface Express suite to enable application level communication with other enabled devices such as phones, PDAs and laptops.

"Cambridge Consultants further optimised both the economy and performance of the PRINTSTIK by fully embedding the BlueStack software onto the BlueCore chip," explains Tim Fowler, Commercial Director of Cambridge Consultants' Wireless Division. "This allows the applications to run natively within the chip rather than on a separate host processor, an economy that is only possible because of our strong development relationship with CSR, and the fact that their BlueCore chip contains our own XAP2 processor core."

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A FINGER ON THE PULSE OF WPAN



From chip to demo to handset to shoes? Bringing Bluetooth low energy to reality

By John Halksworth, Head of Product Management, MHC Products, CSR

Back in April 2008, CSR gave the world's first public demonstration showing that Bluetooth low energy has gone beyond being just a good idea. CSR was demonstrating for the first time, that Bluetooth low energy actually works in a chip. Since then, a lot has happened and the industry is now getting very excited about the potential for an ultra low power variant of Bluetooth. For that reason, it's worth taking a step back and seeing where this is all going.

One thing that it's worth highlighting up front is that, since April, the technology has been renamed. Having started life at Nokia being called Wibree, it changed name to Ultra Low Power Bluetooth and now goes under the name of Bluetooth low energy.

The potential application for Bluetooth low energy technology in sports and particularly medical applications is huge. From weighing scales to sports shoes, from watches to heart rate monitors, or even remote controls for your TV or hi-fi – all of these applications could benefit from using an industry-standard wireless technology that can be found in the majority of mobile phones. Before the markets for these applications take off, it is important to think about the structure of a Bluetooth low energy network.

CSR's recently launched its first Connectivity Centre IC: BlueCore7 is fundamentally Bluetooth v2.1 + EDR silicon but also integrates Bluetooth low energy (along with CSR's eGPS and FM transmit and receive technologies). Before Bluetooth low energy devices find their way into your shoe, CSR will be selling its BlueCore7 into handsets and other devices which can deliver the dual-mode (Bluetooth v2.1+EDR plus Bluetooth low energy) 'control' side of the network. The other end of the connection (sports shoes and watches) will have stripped down, single mode Bluetooth low energy devices – and these will offer a battery life that can be measured in years not hours or days.

The reason that the Bluetooth low energy element of CSR's BlueCore7 is so appropriate



for these types of applications is that the technology has very low overheads, which makes it much faster to connect devices; this means much less power is consumed. To connect devices in standard Bluetooth, the master device synchronizes to a slave device by paging a specific device using up to 32 frequencies, then it polls the slave, before negotiating connections at both the Link Manager and L2CAP layers – all of this essential connection process takes place before actually sending data. Although this overhead is essential for long lasting standard Bluetooth carrying more complex data protocols, it does slow down the connection.

Bluetooth low energy, on the other hand, simply 'advertises' itself to the master device using just three frequencies (the controller could be a mobile phone or a watch) that simply connects, sends very short bursts of data and switches off again. This allows CSR's BlueCore7 Bluetooth low energy devices to achieve data transfer 50-times faster than standard Bluetooth; less time spent transferring data means the Bluetooth low energy radio spends less time active.

So, that all sounds great, but you may be asking 'are handsets going to adopt this technology and isn't it going to take a long time to achieve'? Well, demonstrations have taken place in the past month at Bluetooth SIG events in both the USA (San Francisco) and in Japan (at Wireless Japan) – CSR's BlueCore7 was used in a modified mobile phone to show how it can work with weighing scales and temperature monitoring (BlueCore7 was also used in these devices). Combined with the growing percentage of mobile phones which incorporate Bluetooth (expected to reach 60% this year) these successful demonstrations have shown the industry that as soon as the Bluetooth low energy specification is complete (Bluetooth SIG expects this to be early next year), the technology could find its way into handsets very quickly and easily.

The medical device, sports and personal healthcare markets are already investigating the huge potential of having a wireless connection from their devices to mobile phones or even to PCs. We're very excited about its potential.

sponsored contribution

Wireless systems becoming pervasive in medicine

By Joe Mullich

PROVIDING EFFICIENT AND EFFECTIVE HEALTHCARE HINGES ON HAVING EFFICIENT AND EFFECTIVE COMMUNICATION. WHETHER THEY ARE VIEWING LAB RESULTS, CHECKING NEW HOSPITAL POLICIES OR ENGAGING IN CONSULTATIONS WITH SPECIALISTS, HEALTHCARE PROVIDERS MUST CONSTANTLY ACCESS AND SHARE PERTINENT INFORMATION TO PROVIDE PATIENTS THE HIGHEST LEVEL OF CARE.

The question hospitals face is how to allow a diverse range of doctors, nurses and other healthcare providers—each of whom has unique information needs—access to this plethora of information. Increasingly, the answer is a new generation of wireless communication and data solutions—a blend of phones, laptops, tablets and custom devices that, combined with infrastructure advances, are fulfilling the long-held promise of mobile medicine.

"Today, caregivers require many communication devices to get instant access to the people and information they require to care for their patients. We need to eliminate the resulting 'Batman belt' and consolidate the many devices into a single mobile communication and collaboration device," says Alan Cohen, Cisco's

vice president of marketing. "And that device will be different for doctors, for nurses and for other healthcare providers."

The mantra for mobile medicine might be: "The right solution for the right purpose for the right person."

Moving to true mobile solutions

Doctors and nurses are a study in motion. Research indicates that physicians spend half of their time outside the hospital. Nurses are on the move 70 percent of the time. And currently, they log many miles returning to the nursing station to use a stationary computer or the phone, often resulting in frustrating rounds of phone tag.



Legacy wireless technologies could not deliver on the reliability, security and throughputs needed by healthcare organizations. The choice of devices was limited, because of their proprietary nature, and they tended to be too bulky to be taken to patient's bedsides.

Now, hospitals have moved to the standards-based Wi-Fi technology, which offers a large choice of devices and supports high-bandwidth and delay-sensitive applications such as voice over IP (VoIP) and video transport. The combination of standards-based technology and high bandwidth allows a full range of mobile applications to be run into a single handheld device, such as mobile tablet PCs or Wi-Fi or dual-mode phones. →

The combination also represents a profound shift from mere wireless connectivity to true mobile medical solutions. As a result, a physician at a patient's bedside can call up electronic medical records wirelessly using a mobile device designed for this purpose and decide on the optimal treatment more quickly as well as start the treatment in a click. A specialist who needs to consult with the primary physician can reach that doctor as he travels between hospital and private practice by calling a single number and reaching him on the same device.

Responding to diverse requirements

Many technology advances are coming forth to meet the diverse needs of healthcare providers. For example, World Wide Technology Inc. (WWT), a St. Louis-based value-added reseller and system integrator, has developed a solution integrating voice and data communications and RFID-based equipment tracking onto a mobile tablet PC for healthcare professionals. "Basically, this turns a notebook computer into a mobile phone, an asset tracking tool and more," says Bob Olwig, vice president of corporate business development at WWT.

The solution is designed for the special needs of a healthcare environment. Doctors can make and receive calls from nurses and patients using a Bluetooth headset that minimizes the chance of private conversations being overheard. If the medical staff needs to find a doctor so he or she can handle an emergency, they can use the RFID tracking to immediately locate the device within a busy medical centre, all of this leveraging the same wireless LAN that is used for multiple purposes.

And thanks to the mobile table PC's size and design, doctors can access important medical applications while they maintain eye contact with patients. "People take simple things like that for granted," Olwig says. But that level of sensitivity is crucial to ensure that technology advances can improve the quality of collaboration, communication and care without being intrusive to either patients or healthcare professionals via a reliable and secure network.

Although this is only one example of the many solutions becoming available, Olwig says, "The key is to make sure each healthcare giver has the right device for the right purpose. A cardiologist or radiologist, for example, would need a device with a large form-factor to view medical images such as X-rays."

Marc Holland, an analyst with Health Industry Insights, the healthcare market research and consulting subsidiary of International Data Corp. (IDC) of Framingham, Mass., notes that the benefits of advanced information technology, such as the new generation of mobile point-of-care devices, are now clear to most healthcare practitioners. In fact, they are

even becoming a key factor in the recruitment of younger doctors and nurses. The next steps are to build out the wireless LANs needed to support those devices and optimize process workflows to take full advantage of the new technology.

More efficiency, less disruption

As hospitals look to move to the next stage of mobile medicine, addressing workflow in the hectic healthcare setting is a key task. Hospitals must address numerous questions when deciding how best to use mobile information, including:

- What communications devices "go to the waist" (i.e., are carried by the nurses and doctors)?
- What applications should be mobilized? Medication administration? Electronic patient records?
- How should information be routed between physicians, nurses, patients and other involved parties?
- How can the mobile assets in a hospital be found faster when they are needed?

"You can't assume everything is a nail and you need to hit every nail with a hammer," Cisco's Cohen says.

To take advantage of new applications, Clarian Health Partners - long regarded as one of the most technologically innovative healthcare organizations in the USA - is upgrading its proprietary wireless network to an open and standard Wi-Fi network. The overriding goal is to protect "the sacred nurse and patient interaction," says Cindy DeBord, a registered nurse and clinical resource manager for the Indianapolis-based chain of hospitals.

Surveys conducted by Clarian indicate that telephone calls to nurses interrupted patient care nearly twice as much as any other task. This contributed to on-the-job frustrations, because nurses felt their attention was constantly being diverted.

Rather than exacerbate the issue by having all phone calls go directly to the nurses' Wi-Fi phones over the WLAN, the nursing unit secretary evaluates incoming calls and prioritizes them. Fewer phone calls need to be handled instantly. More often, the secretary relays a text message to the nurse with two different tones, indicating whether the message is urgent and must be addressed within 10 minutes or is non-urgent and can wait up to 30 minutes.

The texting system provides more efficiency without disrupting patients. "We found if the nurses looked at a text for a few moments, the patients didn't mind and the nurses could return more quickly to the task they were working on," DeBord says. "If the nurses spoke on the phone instead, it would take them longer to refocus on the patient."

Snippets

Sony Ericsson Q2 results show sales/margin slip

Sony Ericsson achieved sales of Euro 2,820 million in Q2, a decrease of 9% compared to the second quarter of 2007, said to be due to unfavourable exchange rate fluctuation, continued slowing market growth in mid- to high-end phones and increased competition. Gross margin also decreased compared with a year ago, due apparently to a less favourable product mix, with particular impact in Europe, and increased price competition in general. Income before taxes for the quarter decreased compared to the second quarter of 2007 for the same reasons, as well as due to higher R&D investments. Average selling price (ASP) for Sony Ericsson decreased both sequentially and year-on-year due to the impact of a greater proportion of lower priced phones in the product portfolio, as well as increased price competition in the market for mid- to high-end phones. Market share for the second quarter is estimated to be around 8%.

Phone and PC companies hook up

Remember convergence? Seems it is finally hitting the high streets. Brightstar Europe has signed an agreement with UK mobile phone retailer Phones 4u to provide the mobile phone retailer with leading brand-name laptop PCs and accessories for resale in its 440 plus stores nationwide. In addition, Phones 4u will use the agreement to extend the number of special product bundles for customers who want to take advantage of the latest mobile broadband and Wi-Fi technologies.

So phone sales guys will now be handling PC tech support. Gulp. You have been warned.

DECT Forum promotes design competition

Leading companies of the home communication industry are sponsoring the international CAT-iq Design Competition for the next generation of communication devices and services. The DECT Forum is organising the competition in collaboration with Jakajima. Additionally the DECT Forum has initiated a CAT-iq Blog in order to start a public discussion with comments and short articles about opportunities for the CAT-iq technology. The new CAT-iq Blog is aiming at becoming the interactive tool towards the designer and developer world: hardware, software, network operators and designers.

uwb / w-usb news



WiMedia Alliance and Ecma join arms

The WiMedia Alliance and Ecma International have agreed upon a relationship wherein the development of specific standards will be conducted jointly between WiMedia engineers and Ecma member companies. When the work on a standard is completed, it will then be sent through WiMedia's approval process resulting in WiMedia members' intellectual property being bound to the work. Ecma will submit completed standards through their approval process which likewise binds Ecma members' intellectual property.

The two parties see the structure of this relationship - an internationally recognized standards development organization and an industry special interest group - as unique in that it allows standards development work to be done with significantly increased speed and efficiency. The WiMedia Alliance will continue to focus on its core activities: preceding-standardization such as research, and post-standardization such as promotion and certification. Complementary to those activities, experts from WiMedia and Ecma will cooperatively develop standards under Ecma's due standardization process.

According to Stephen Wood, President of the WiMedia Alliance, "We chose to work with Ecma to develop this new structure, because they had a firm understanding of the issues which cause standards to be delayed unnecessarily and had already addressed the overwhelming majority of these issues. Ecma's willingness to consider non-traditional strategies to standards development gave us the necessary flexibility to do something new."

"WiMedia adds significant value both prior to and following actual standardisation, e.g., in research and certification



respectively, thus complementing Ecma International's tried and true standardization process," noted Mr. Elzinga, deputy Secretary General of Ecma.

New Wireless USB PIN Association method from WiQuest

WiQuest Communications has released a new Wireless USB PIN Association method specifically designed for Wireless USB-enabled devices that do not have a display, may not have a wired USB 2.0 connection, or might ship without a USB cable. In addition to the Cable and Numeric Association standards as specified by the USB-IF, this new PIN association method offers a third Wireless USB Association method.

The new PIN Association method provides enterprise-level security with the assignment of a unique character key or PIN, up to 28-characters long, to every device - providing 128-bits of entropy. Once the Association process is initiated, a software screen on the host PC requests that the unique PIN printed on the Wireless USB device be entered and the secure pairing is completed - wirelessly.

"WiQuest continues to enhance our Wireless USB product offering based on feedback we receive from our customers and partners," said Todd Brown, WiQuest VP of sales. "Adding this third association method addresses their requirement to provide a simple, low cost solution that maintains enterprise-level security."

WiQuest says it has shared its PIN Association specification with multiple Wireless USB interoperability partners for use in products shipping in 2008. Demonstrations between multiple manufacturers using this Association method are apparently already available.



..... WiQuest named #1 Ultra Wideband vendor by ABI

WiQuest Communications also tells us it has captured the number one position among Ultra Wideband vendors based on a July 2008 Vendor Matrix by ABI Research. This analyzed 15 WiMedia-based and proprietary UWB companies comparing each company on innovation and implementation. WiQuest came out on top.

"Each company was evaluated based on advancements in 12 key areas including market share, key customer announcements, certification, complete solution, data rates, and other areas," said Doug McEuen, senior analyst at ABI Research. "Upon evaluation of these specific areas, vendors were assigned scores, which determined the rankings of each vendor in the areas of innovation and implementation."

"WiQuest is honoured to be acknowledged as the global leader in Ultra Wideband; offering customers a complete product solution," commented Wayne Daniel, director of strategic marketing at WiQuest. "With this momentum in product implementation and the continual introduction of innovative new products and technology, WiQuest is extremely well-positioned for sustained success," he added. "Our customers have recognized this value delivered by WiQuest and continue to commit their next generation products to us."

WiQuest participated in last month's [video-enabled Incisor WiMedia special issue](#). Click on the link to download this issue and watch the video presentations.

low energy wireless news



Masco harvests EnOcean green tech

Home improvement and new home construction company Masco Corporation has joined forces with the EnOcean Alliance, the consortium of companies with a mission to standardise wireless control systems for sustainable buildings. The partnership aligns EnOcean's energy harvesting wireless control technology with patented technologies developed by Masco to support intelligent green buildings.

Masco recently launched the first of these products under the Verve Living Systems brand. Verve will initially include a new lighting control system that combines energy-harvesting and radio frequency technologies to offer wireless, battery-less lighting control that can offset builder costs and provide homeowners a range of lifestyle and energy savings benefits.

Dianne Pisarek, vice president responsible for Verve Living Systems, seemed full of enthusiasm for the partnership: "EnOcean has developed a truly groundbreaking self-powered wireless technology that will change the face of residential, commercial and industrial building construction for years to come. This has created a greater opportunity for companies worldwide by enabling a broad range of interoperable wireless monitoring and control products, and we're proud to be one of the founding promoters of the Alliance."

For those who don't remember what EnOcean is all about, it's self-powered maintenance-free wireless control systems are powered through energy drawn from movement, light or changes in temperature rather than electricity or batteries. Whether you are building offices or putting a light in the shed in your garden, it's not hard to see how the new technology adds flexibility with lower investment and operational costs, all of these being beneficial in respect of sustainable buildings.

The Verve Living Systems inaugural offering of self-powered wireless solutions will include whole-house dimming and pathway lighting to creating lighted "scenes" throughout the house. As the Verve wireless and battery-less switches are also completely moveable, homeowners can change switch locations to accommodate changes in their lives and homes. The dimming functionality reduces energy consumption and extends bulb life.

Masco told Incisor that the Verve Living Systems energy-harvesting, radio frequency technology is currently being used to develop additional applications in HVAC monitoring and control, whole house environmental monitoring and home security.

Free ZigBee stacks from TI

TI has released the latest version of its ZigBee-certified Z-Stack software for free download. Z-Stack 2.1.0 software provides full support for both ZigBee and ZigBee PRO feature sets, as well as the latest smart energy profile for advanced metering infrastructure (AMI).

Z-Stack 2.1.0 software works in combination with TI's SmartRF05 platform, which includes the MSP430 ultra-low power microcontroller (MCU), the CC2520 RF transceiver and the CC2591 range extender, which allows communications over several kilometres. The software provides a library of supported application examples, including smart energy, home automation and over the air download (OAD).

"ZigBee is revolutionizing the way we interact with our environment, most notably in the field of advanced metering infrastructure where the application of smart energy technology will reduce energy consumption and maximize efficiency," said Brian Blum, ZigBee product marketing manager at Texas Instruments. "Z-Stack software, in conjunction with TI's portfolio

targeted specifically for AMR markets, including low-power RF, microcontrollers and 32-bit digital signal controllers, brings together all the elements customers need to quickly develop and deliver a smart energy product to market."

Z-Stack software has been awarded the ZigBee Alliance golden unit status for both ZigBee and ZigBee PRO by the ZigBee test house National Technical Services. Z-Stack software also provides support for the CC2430 system-on-chip and CC2431, which adds a hardware-based location detection engine to enable ZigBee applications that can change behaviour based on the nodes' current location.

.... TI 2.4-GHz RF front end extends range by up to 15x

Incisor has also learned that TI has brought to market a 2.4-GHz radio frequency (RF) front end for low-power and low-voltage wireless applications that seems to set out to be a bit different. It integrates a power amplifier for increased output power of +22 dBm and a low-noise amplifier for improved receiver sensitivity of +6 dB.

The CC2591 is aimed at all 2.4-GHz wireless systems, such as ZigBee networks, sensors and industrial, consumer and audio equipment. The device, which interfaces with all of TI's existing and future 2.4-GHz RF transceivers, transmitters and system-on-chip products, integrates a power amplifier, low-noise amplifier, balun, switches, inductors and RF-matching network.

Mark Thompson, development director for TI customer Paxton Access Ltd commented, "TI's CC2591 provides such an improvement in range and coverage that we can, for the first time, offer our customers an alternative to hardwiring their building access control systems. This will significantly reduce system installation costs and allow units to be installed in difficult locations."

The CC2591 is available now in a 4 mm x 4 mm QFN-16 package.



Zensys: Veni, Vidi, Vici

by Dean Anthony Gratton

Many people associate Denmark with Vikings. A Viking Age stereotypically infused with images of barbarians who pillaged and savaged most of Northern Europe. With the exaggeration of cinema these Norsemen became overshadowed and firmly associated with such barbarism – nothing but monsters! But, nowadays these men have been absolved of fanaticism and horror; moreover they have been likened to seafaring traders who architected and constructed towns and ships – if you like, an early group of pioneers, salesmen and innovators. Alas, the fantastical story depicting Beowulf (Ray Winstone) slaying Grendel (Crispin Glover) and then selling his soul to Grendel's mother (Angelina Jolie) sadly remains nothing more than pure fiction. Denmark is indeed enriched with an incredible history and, of course, it's rated as one of the happiest countries to live in the World, so reported by ABC News, Great Danes: The Geography of Happiness, 2007.

During the Viking era many great men emerged and were remembered for their courage and ingenuity. Norsemen would acknowledge such triumphs with runic inscriptions foretelling great adventures and portraying images of significant leaders on to Jelling Stones or runestones. As such, Sweden and Denmark have the largest population of runestones depicting several stories, leaders and beliefs; actually, one such leader, the second king of Denmark, namely King Harald Bluetooth emerged to afford the said technology its name (bluetooth.com). Despite the technology emerging from Ericsson (Lund, Sweden) from their MC-Link venture the technology derived its name from the second king of Denmark (as recounted in an hilarious fashion by Jim Kardach of Intel/the first chairman of the Bluetooth Special Interest Group (SIG) in a three-part Incisor feature Naming of Bluetooth, first published in 2001 and then re-run in 2005 – see issues 89, 90 and 92). If you haven't heard the story, Harald Bluetooth son of King Gorm the Old and of Queen Thyra was responsible for uniting the kingdoms of Scandinavia, along with the countries

further conversion to Christianity (VikingWorld.dk). It seems as though the Viking spirit isn't entirely lost; time hasn't dampened the existential spirit of the Scandinavians. Hitherto, a group of modest and adventurous engineers have pioneered another low energy wireless technology, namely Z-Wave. Actually, is that Zed-Wave or Zee-Wave, or is it a case of potato, pot-ar-to, tomato, tom-ar-to – let's call the whole thing off (Gershwin & Gershwin, 1937). Anyway, Z-Wave is a technology that challenges the newly founded Bluetooth low energy wireless technology (formerly Wibree) – a low energy derivative from the hardcore King Harald Bluetooth himself. Zensys (zen-sys.com) has its roots firmly embedded in the history of Denmark. A foundation from which has emerged a technology and a formidable Alliance (z-wavealliance.org) exuding an A-List cast of companies that would simply render ZigBee aghast – for example, the A-List comprises Leviton, Cooper, Danfoss, Horstmann, Philips (to name just a few) for both lighting and remote controls. The longevity of Zensys' history may not be as comparable with the Vikings themselves, but surely we can't argue with their inherent spirit, determination and sense of adventure?

Zensys, a leader in wireless home control founded in 1999 still retains its development centre in Denmark, but has its headquarters in California and has numerous sales offices spreading across Europe and Asia. It remains well-funded and continues to be recognised for its innovation receiving many industry awards. But what exactly is Z-Wave?

Before we look closer at Z-Wave, let's first take a look at the concept: SmartHome. It seems to be a term that simply evokes a varied explanation, which widely differs across all industries – to a large extent a SmartHome has increasingly become a misnomer and traditionally confused with talking refrigerators. Primarily, this has been sustained by a lack of technology entering the majority of low- to mid-end housing and only a minority of high-end houses. Traditionally, SmartHome technology has been known to reach only

the elite or the high-end housing market – high-end properties where owners could easily indulge in an eclectic number of gadgets unified under the umbrella 'SmartHome'. Nevertheless, the notion of a SmartHome has been bouncing around for several decades, but has eluded the home construction industry – surely, a front door with a lock would constitute smart home technology? Domotics is derived from the etymon 'domus' (Latin for home) and combined with information technology to provide a new name for the SmartHome, but it's one that sadly doesn't roll off the tongue! However, Zensys seemingly refrains from any association to SmartHome technology, but moreover the company emphasises Home Control – a classification, which instantly instils a sense of empowerment for the home user. Naturally, Zensys is determined to populate low-, mid- and the high-end housing market but alas, it seems they are not entirely alone in their ambition.

On that note, we have already touched upon two low energy wireless technology solutions, namely Bluetooth low energy and ZigBee. The former technology is a relative newcomer (see [Incisor Bluetooth low energy special issue July 2007](#)), but it aims to conquer what it sees as a lucrative market and, of course, Bluetooth will merely extend its current wireless acumen. However, ZigBee has been available for a number of years now. The technology has its own Alliance offering support and guidance for its many adopters, but seemingly it has simply failed to step into the limelight. ZigBee has also suffered some early compatibility problems with its protocol stack. Since its initial launch, ZigBee has submitted three revisions of the stack which amazingly are neither backward compatible nor interoperable with each other. Nevertheless, we have already posed the question regarding ZigBee's X-Factor in [Incisor's October 2007 issue](#).

EnOcean, on the other hand, may make Zensys a little nervous, as it could potentially knock Z-Wave off the Dane throne. EnOcean, a spin-off company established by Siemens (Germany), has been critically acclaimed and has also



received numerous industry awards for its ingenuity. Like Z-Wave, EnOcean has its own Alliance, which was only recently established (April 2008 and reported in [Incisor's May issue](#)). EnOcean uses an energy harvesting technique which does away with the need for the technology to use batteries. However, ZigBee, Bluetooth low energy and EnOcean will need to take the lead from the Danes before attempting to dilute a market that Z-Wave has already captured. Moreover, although it's clear that Z-Wave has somewhat dominated the US-market, it has yet to populate the European shores despite its innovators residing in northern Europe. Presumably, EnOcean and Bluetooth low energy may favour better in Europe, as they have already established themselves here, although with the Danes leading the technology forefront in wireless home control solutions it may be as simple as *veni, vidi, vici*. Europe is perceived by Zensys however, as its biggest growth area along with its phenomenal product portfolio – this would suggest that the Danes' conquering is already in progress, as the Danish Energy Savings Trust (DEST) has selected Z-Wave as a technology that will ultimately provide the Danish government with a more eco-friendly and power saving environment.



Figure 1: Zensys' Z-Wave System-on-Chip Solution.

Z-Wave is currently offering its fourth-generation silicon, namely ZW0401 (see Figure 1). Zensys' fifth generation technology is also imminent, as it expects to release the next generation sometime next year (ZW0501) – a system-on-chip (SoC) solution for unified wireless home control, in addition to a number of silicon solutions providing a scaled application range. Z-Wave utilises the Industrial Scientific and Medical (ISM) band, namely 2.4GHz (predominately for the Asian market) in its latest generation silicon, along with support for 868MHz and 908MHz frequencies, which will continue to support the US and European markets.

In the early days Zensys was formerly a member of the ZigBee Alliance and very much saw it as a viable home control

technology solution, but the two companies never really saw eye-to-eye. As such, Zensys withdrew its support and branched out to create its own proprietary wireless home control solution. A brave move indeed, but don't forget we are talking about the Danes! Z-Wave was once a proprietary technology; however it has now emerged as a certified and interoperable solution that comfortably competes with other like-minded technologies. Furthermore, the topology used within the genre of low energy solutions is comparable; we provide an example in Figure 2. The mesh network comprises a number of nodes, where each node behaves like a repeater; in other words, a number of nodes are wirelessly-linked (by virtue of proximity) causing a data payload (for example) to run a relay race through the network until it reaches the intended destination. In the illustration, you can see that NodeA wishes to communicate with NodeB and, as such, it utilises nodes N1 and N2, as repeaters to get the message across. Incidentally, the IEEE is also working on their own mesh networking solution with 802.11s naturally extending the capabilities of Wi-Fi networks - and perhaps fundamentally changing the demographic of Wi-Fi repeaters?

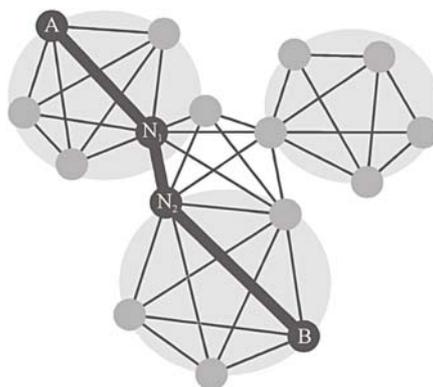


Figure 2: A mesh network comprises a number of nodes. In this illustration we can see how NodeA communicates with NodeB by utilising the nodes (N1 and N2) as repeaters within the network.

The premise of wireless home control should remain an innocuous introduction, allowing the home owner to transparently interact with the technology. A Z-Wave ecosystem will enable affordable technology solutions within the home bestowing the home owner ease-of-use accompanied with an ever-green and eco-friendly environment. Evidently Zensys, like the Danes, wants to be remembered for its innovation and for pioneering technology within the home. And, of course, we can recall that the inscription of a King on a Jelling stone dating back to the 10th century emerged to bequeath a name for Bluetooth wireless technology. Perhaps, Zensys is awaiting the discovery of a rune that foretells the Norseman who ultimately symbolises the new generation

of Z-Wave technology. A runic inscription, an historic acknowledgment, if you like that incites the prowess and success of Z-Wave technology. In a similar manner to the early stereotypical image of the Vikings, Z-Wave technology will actually pillage many homes with its wireless home control technology, in turn, bestowing a gift of mobility, security and comfort. It's a faith, a belief that is tantamount to a history which clearly is repeating itself. Obviously, there will be some casualties along the way, but such pioneers and adventurers will surely be remembered for offering affordable wireless home control solutions to the masses.

About the Author

Dr Dean Anthony Gratton is an author/writer and telecommunications consultant. 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 fourteen years and provides consultancy to a number of high profile companies.

You can contact Dean at dean@deanratton.com and read more about his work at www.deanratton.com.

Analyst view:

Commenting on Zensys, Fiona Thomson, Connectivity Research Director for IMS Research observed: "Zensys, is adamant that personalised security and connected home



Fiona Thomson,
IMS Research

control is becoming mainstream. Their unique Z-Wave technology, optimised for applications such as lighting and appliance control, meter reading and digital home health care, is already being integrated by a number of manufacturers. Their success to date, particularly in the US, has attracted big name investors such as Cisco, Intel Capital and Panasonic. Z-Wave has yet to make a real impact in Europe, however, so too has any competing technology. ZigBee has had varying success in both industrial and home automation, and these markets are a Tier 3 focus for the Bluetooth SIG and its Bluetooth low energy wireless technology. Bluetooth has a strong position, particularly in Europe, which means it may be difficult for a newer technology such as Z-Wave to make an impact here."

wi-fi / wlan news



Wi-Fi hotspots stay hot

Wi-Fi hotspots are continuing their torrid growth in 2008. According to ABI Research's Wi-Fi Hotspots Forecasts, by the end of this year global hotspots will grow by 40% over 2007. The greatest growth and the largest number of hotspots continue to be found in Europe. While the UK has long led in European Wi-Fi hotspots, there is also marked growth in France, Germany, and Russia.

Most remarkable about the hotspot market, says vice president and research director Stan Schatt, are the dynamics of a fast-changing business model. "Starbucks' decision to go to a virtually free Wi-Fi hotspot model is having a profound impact. Hotspot owners are beginning to see Wi-Fi as a cost of doing business and an operational expense, rather than as a profit center." Schatt expects major retailers to move towards a free service model in phases. "The first phase is likely to be a free or almost free service for good customers, those who have signed up for loyalty cards."

One reason hotspot owners are willing to move towards such a business model, according to Schatt, is the realization that, "Charging for service is counter-productive in the long run because the real money will be in value-add content downloads." In the near future hotspots are likely to encourage users to pay to download the latest music and TV shows. Airport clubs are likely to offer hotspot users the chance to download movies for their upcoming trips. Starbucks has already begun selling music CDs in its stores. The next logical step will be to move to selling music downloads.

The proliferation of devices that support Wi-Fi also makes charging for such services more complex for hotspot owners. If a person is on a 3G connection on a dual-band phone and then moves into a Wi-Fi hotspot, how does the Wi-Fi billing take place? How many separate accounts must a customer who has both a dual-

band phone and a Wi-Fi enabled laptop have in order to use a Wi-Fi network? Garnering money for downloads is a much more straightforward matter.

ABI's report provides historical market data for Wi-Fi hotspots, and forecasts yearly market data. This includes the number of Wi-Fi hotspots by region and by venue type, the number of hotspot access points shipped for, as well as subscribers and revenue data.

CSR and Skyhook Wireless partner on Wi-Fi positioning

CSR and Skyhook Wireless, maker of the Wi-Fi and hybrid positioning systems, have announced a partnership that will add location capabilities to CSR's Wi-Fi silicon. Skyhook Wireless' core technology, the Wi-Fi Positioning System (WPS), is software that produces accurate location information by detecting Wi-Fi access points and comparing them against a known database of geo-located points.

The technology provided by CSR and Skyhook will capitalise on the emergence of Wi-Fi enabled mobile devices and provide enhanced positioning availability and accuracy for the growing location-based services market. This technology will enable device makers and application developers to provide consumer-ready location technology that works indoors or outside. The system will benefit consumers by enabling them to perform tasks such as planning a trip, finding friends nearby or locating the closest restaurant.

"In addition to CSR's eGPS developments, CSR is excited by the potential of Wi-Fi to provide an additional dimension to location information. Skyhook's Wi-Fi location technology is a perfect complement to CSR's leading Wi-Fi and fits well with our GPS developments" said Raj Gawera, Head

of Marketing for CSR's Mobile Handset Connectivity Business Unit. "By combining Wi-Fi location information provided by Skyhook's technologies to other location sensors, such as GPS, the system has a lot of potential for boosting location technologies."

New Intel-based laptops embrace .11n

With still no clear word on when the the 802.11n Wi-Fi standard will be ratified, it is interesting the Intel has chosen to embed the technology in its new raft of processors. The firm has unveiled its Intel Centrino 2 Processor Technology products for laptops, powered by five new Intel Core2 Duo processors. Intel says that close to 250 consumer and business notebook PC designs are on the way, including those equipped with faster draft 802.11n Wi-Fi (with WiMAX arriving later this year).

Intel also unveiled its Mobile Intel45 Express Chipset and wireless Intel Wi-Fi Link 5000 series that is shipping to customers now, with laptops arriving later in July and August. The Intel Wi-Fi Link 5000 series provides 802.11 draft-N support that delivers the fastest data rates possible today -- up to 450 Mbps.

"When we first introduced Intel Centrino back in 2003, there were very few Wi-Fi hotspots, YouTube videos and social media didn't really exist, 'thin and light' only referred to weight goals and desktop PCs outsold notebooks by a very wide margin," said Mooly Eden, Intel corporate vice president and general manager of the company's Mobile Platforms Group. "Today, notebooks outsell desktops in the U.S. and we're paving the way to HD entertainment, rich online gaming, faster broadband wireless speeds and an easier and more secure way for businesses to manage, update and repair their notebook fleets."

wi-fi / wlan news

Snippets



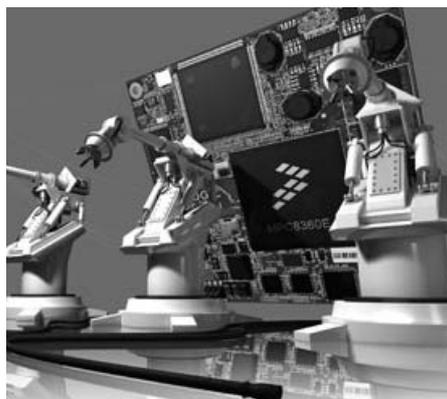
Billion launch range of Wireless-N Draft 2.0 routers

Billion, a network communications equipment manufacturer, has announced a range of Wireless-N ADSL2+ and 3G routers using the latest Draft 2.0 specification.

Billion's BiPAC 5200N has an integrated draft 802.11n Wireless Access Point delivering claimed wireless speeds of up to 300Mbps. The 3 built-in antennas search for wireless signals and automatically adjust to establish an optimal connection after obstacles have been detected.

The BiPAC 7300N, which can be configured both as a broadband router and also to be used with a cable modem, is an all-in-one 802.11n ADSL2+/Broadband Router that provides broadband access with ADSL2+ or through a configured Ethernet WAN. One of the Ethernet LAN ports can be configured as a WAN interface for connecting to an external broadband modem. The Billion 7300N BiPAC therefore enables an ADSL/Cable modem user to upgrade their device to an 802.11n broadband router. Billion's SOHO Firewall is integrated to provide protection against hacker attacks while the Quality of Service prioritizes queues and traffic for applications such as music downloads, online gaming, video streaming and file sharing. The 7300N router is also compatible with 802.11b/g equipment and supports Wireless Protected Access (WPA-PSK/WPA2-PSK) and Wireless Encryption Protocol (WEP).

Billions also claims that its BiPAC 7402NX is the first wireless-N multi-gigabit VPN router with 3G autofailover designed specifically for the SMB market. It is designed for use over high speed gigabit networks and includes a 4 gigabit switch for future proofing.



Freescall and Arada Systems collaborate over 802.11n access points

Freescall and Arada Systems, a software stack vendor that offers wireless solutions, have collaborated to create a production-ready reference design for 802.11n access point devices. The solution supports 802.11n features such as security, QoS and multiple SSID for both video and VoIP applications.

The reference design uses Freescall's MPC8377E-RDB platform to deliver a claimed 330 Mbps+ of TCP/IP throughput in the combined 2.4 GHz and 5.0 GHz bands, while providing enough processing power to address other enterprise-class applications.

"Partnering with Arada allows us to offer our customers a proven, production-ready solution that provides industry leading performance for 802.11n enterprise WLAN access points," said Altaf Hussain, marketing manager with Freescall Semiconductor's Networking Systems Division. "This solution gives manufacturers the components they need to rapidly create compelling new products that succeed in the marketplace."

Running on the Freescall silicon is Arada's AWS software, which is a scalable architecture for a range of Wi-Fi products including wireless bridges, wireless routers and triple-play gateway applications. AWS features Atheros Draft 802.11n XSPAN technology. The modular architecture of the AWS software is said to allow customers to focus on high value tasks while relying on the robust architecture and implementation of the MAC layer functionalities.

Global Mobile M2M Market to Reach \$57 Billion by 2014

A new Strategy Analytics Wireless Enterprise Strategies report, "A Brave New World in Mobile Machine to Machine (M2M) Communications," predicts that regulatory compliance will help to drive the mobile M2M market to from under \$16 billion in 2008 to over \$57 billion by 2014.

Despite the bullish prediction, Strategy Analytics identifies 5 key barriers to scaling the global M2M market, including:

- Lack of a low cost local access media that can be implemented on a global basis;
- The fragmented nature of both the technology vendors and the solutions they provide;
- Lack of any single killer application that can consolidate the market and drive demand forward;
- The complex nature of M2M solutions increases associated development and integration costs;
- Management's inability to express the benefits of M2M in anything other than cost savings, rather than exploiting and encouraging the service enablement capacity of mobile M2M.

Old mobile phones not being recycled

Only 3% of people recycle their mobile phones despite the fact that most have old devices lying around at home that they no longer want, according to a global consumer survey released by Nokia. Three out of every four people added that they don't even think about recycling their devices and nearly half were unaware that it is even possible to do so.

connectBlue adds development tools

Based on a cooperation agreement with Frontline Test Equipment, connectBlue is expanding its offering with Packet Sniffers & Protocol Analyzers. These tools provide communication verification and troubleshooting for Bluetooth, Wireless LAN and IEEE 802.15.4 wireless solutions. The Packet Sniffers & Protocol Analyzers offer protocol decoding at the bit level, and enable the development of custom decoders for proprietary protocols and extensions to existing protocol decoders.

UWB / W-USB

WiQuest India 1 year old

WiQuest Communications is celebrating the 1-year anniversary of the formation of its India Center of Excellence (CoE) – WiQuest Semiconductors India Private Limited – now complementing the team based in Allen, Texas for software development and interoperability for the company's WiMedia-based Ultra Wideband (UWB) and Wireless USB solutions. In addition to software development and interoperability, the WiQuest India CoE has expanded to include hardware development, manufacturing operations, product development engineering, and system test functions.

nfc / rfid news



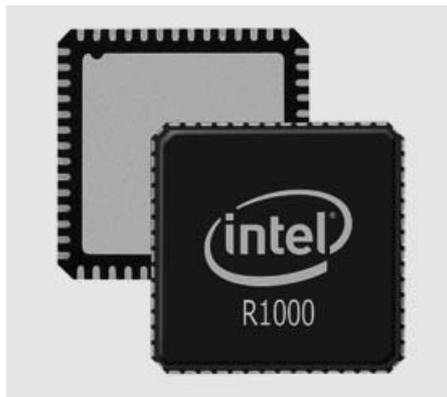
RFID coming to US Customs and Border points

Have you sat in a queue waiting to drive through a US border crossing recently? Well, if your wait was long, there could be a little light on the horizon. Odin technologies, which builds RFID and automation software solutions, has been chosen as a lead RFID deployment partner for the \$62 million Department of Homeland Security (DHS) Western Hemisphere Travel Initiative (WHTI) contract awarded to Unisys in January. The Customs and Border Protection (CBP) contract features RFID combined with License Plate Recognition technology to boost security and streamline the US border crossing process. This program is based around RFID-enabled identification cards.

"WHTI represents one of the highest and best uses of RFID I can imagine – making our country safer, our borders more secure, and providing border protection agents with tools to make their job more efficient," commented Patrick J. Sweeney II from Odin technologies. "Once again we are pleased to team up with our longstanding partner Unisys to bring a highly scalable, repeatable and physics-based approach to an RFID roll-out."

WHTI specifies that RFID will be deployed at more than 300 border crossing lanes which inspect and process travellers into the United States from Canada and Mexico. Thousands of cars cross these borders every day, and the new system is intended to not only save time but also reduce costs for the Customs and Border Protection operations.

"Odin's methods and software leverage physics and best practices to achieve accuracy and scalability through automation," said G. Michael Rodgers, Program Manager from Unisys. "We have worked on this together in the past and know that Odin provides the kind of accuracy and scalability we require in an RFID partner."



Intel sells off UHF RFID Reader chip operation

Impinj, which has a portfolio of products and solutions including UHF Gen 2 RFID tag chips, readers, reader chips, software, antennas, and systems integration, has acquired Intel's RFID operation. This business was created by Intel's New Business Initiatives (NBI) incubator and developed the award-winning R1000 RFID reader chip. Financial terms of the acquisition are not being disclosed.

The acquisition of Intel assets adds a proven, high-performance, highly integrated reader radio chip to the Impinj family of UHF Gen 2 RFID products. For developers of UHF RFID readers and reader-modules, the R1000 integrates onto a single chip 90 percent of the components required for a reader radio. The R1000 chip enables all reader form factors - fixed, mobile, embedded and others - in applications across numerous vertical markets, including supply chain management, asset tracking, authentication and access control.

"Adding the R1000 reader chip to Impinj's market-leading portfolio of tag chips and fixed-reader products allows us to deliver exceptional price-performance and enable a new category of customers who are developing their own game-changing products based upon Impinj technology," said William T. Collieran, Ph.D., president and CEO of Impinj.

Commenting for Intel's NBI Incubator, general manager Rich Wykoff said, "The UHF RFID market is a strong opportunity, and we believe this business and its assets are an optimal fit for Impinj. Intel's NBI incubator program is practiced at establishing new businesses in emerging markets, and Impinj's acquisition of the RFID Operation demonstrates the incubator's ability to create valued businesses in new technology areas."



RFID survives the laundry cycle

Datamars, which develops RFID-based solutions for textile and companion animal identification, has launched a 'PersonalChip', which it claims is one of the smallest and thinnest high frequency RFID laundry tags on the market.

The chip is aimed at industrial laundries, Datamars suggesting that it will be possible to enhance their productivity and clothing identification processes with its chip. This has been designed specifically for identifying personal garments in a range of applications where manual sorting is required.

Typical application areas include nursing homes, hotels, schools and private hospitals. The PersonalChip is part of Datamars ID solution for these sectors and is ideal for tagging personal clothing including shirts, skirts, sportswear, shorts and underwear.

Ken Boyle, Chief Marketing Officer at Datamars told Incisor: "Combined with the highest quality RFID readers, antennas and software of the Datamars range, the new tag brings a robust and efficient solution for the identification and tracking of personal clothing in the nursing home laundry cycle."

The Datamars 'PersonalChip' is 11mm in diameter, 2mm thick and can be read at a distance of up to 20 cm. Other features of the laundry tag include light colouring, which Datamars suggests makes it almost imperceptible especially in white garments, and it is fully capable of standing up to the rigours of laundry processes, including sterilization. It operates on the principle of multi-read high-frequency radio waves, which can be read through non-conductive material. The passive transponder transmits the code which identifies the item without the risk of error. It can withstand temperatures between -40°C and +120°C, as well as all common chemicals in the laundry and dry cleaning process.

The tag is also fully ISO 15963 compatible.

wi-fi / 802.11 news



NFC phones to generate \$75bn within 5 Years

A new analysis of the NFC mobile payments opportunity forecasts that the gross transaction value of payments made via NFC contactless technology, for relatively low value purchases (such as refreshments, tickets and food), will exceed \$75bn globally by 2013.

In the second report in its Mobile Payment Markets series, Juniper Research found that there is a significant opportunity for NFC mobile payment services, chips, phones and supporting services as the market reaches its tipping point over the 2011 to 2013 period. Juniper has looked at how NFC will transform the mobile phone into a mobile wallet payment tool that will be used by more and more people, more and more often in future.

Report author Howard Wilcox said: "NFC will achieve traction initially in developed countries and regions, with Japan already leading the way with FeliCa-enabled phones. North America, Western Europe and countries such as Korea, Singapore and Australia are likely to see service take-up."

Highlights from the report include:

- Global annual gross transaction value will grow over 5 times between 2011 and 2013
- 2009 will see limited numbers of NFC devices shipped (except in the Far East & China region) but the market will begin to ramp up from 2010 onwards and by 2013 20%, or 1 in 5 phones shipped, will possess NFC capability.
- The top 3 regions (Far East & China, North America and W. Europe) will represent nearly 90% of the \$75bn p.a. market (by gross transaction value) by 2013.

However, Wilcox cautioned: "Whilst trial results so far have been encouraging, the industry as a whole will need to convince both consumers and merchants of the merits of yet another payment mechanism on top of cash, cheques, credit and debit cards, and to allay understandable (even if unfounded) fears and scepticism about the security of The Mobile Wallet."

The report provides six year regional forecasts of NFC mobile payments for physical goods, providing data on device shipments, subscriber take-up,



transaction sizes and volumes as well as detailed case studies from companies pioneering in this market.

NFC wristbands trialed at O2 Wireless Festival

Innovision Research and Technology plc, MIG and O2 collaborated over the use of NFC wristband technology at the O2 Wireless Festival that took place in London during July.

The tagged wristbands, enabled by Topaz NFC tags from Innovision, were given away to hundreds of selected festival-goers over the four days of the event as part of a 'random acts of kindness' promotion.

Topaz tags are the NFC Forum standard-mandated Tag Type 1 and the tag's 96 byte memory is suitable for NFC applications such as access control. The tagged wristband form-factor proved rugged enough for the interactive environment of a four-day festival.

"This is yet another great example of an NFC application outside the electronic payment sphere," said Ken Robertson, Tag Business Development Manager at Innovision, "It further demonstrates the versatility of the Topaz tag in its many form-factors."

Recipients of the wristband used them to get exclusive access to the O2 bus, where wristbands were scanned using a handheld PDA – enabling users to access a static viewing platform offering better views of headline acts on the main stage. They could also receive a free cocktail at The Stage Bar by scanning their wristband at a fixed-point NFC terminal and gain entry to VIP toilets and cloakroom, again, gaining entry by scanning their tagged wristband using a handheld PDA.

"The tags proved to be versatile and robust – we used them on wristbands and on the limited-edition silver jewellery for O2's 'Very VIPs'," said a delighted Chris Smith of MIG, Project Manager for the NFC Wristbands. "As well as withstanding a range of conditions – including downpours on Sunday – the tags worked well with various RFID readers we were using (handheld PDA and kiosks)."

Snippets

Wi-Fi / WLAN

AT&T plays with iPhone user's minds over free Wi-Fi

US iPhone users could be forgiven for wishing very unpleasant things on managers at AT&T, which can't make its mind up over whether it is providing its iPhone customers with free access to its 17,000 Wi-Fi hotspots, or not. One minute it is, the next minute it isn't.

During the third week of July, AT&T's web site told iPhone users they did have free access to the hotspots. Only for the AT&T media relations people to immediately rescind this, saying it was a 'false alarm'. And not long ago (in May), AT&T told its iPhone customers that they would have free access to the public Wi-Fi hotspots. The notice had actually stated that this access was part of the iPhone subscriber plan. A matter of only a few hours later, the company removed all references to the service from its web site.

So is it, or isn't it? These iPhone people tend to be very passionate, and will be tugging at their black turtle necks as we speak.

Wi-LAN adds defendants to litigation line-up

Technology licensing company Wi-LAN has amended its Complaint in action No. 2:08-cv-237 in the U.S. District Court for the Eastern District of Texas, Marshall Division to add LG Electronics, Inc. and LG Electronics Mobilecomm U.S.A., Inc. as Defendants. The parties already named as Defendants in this action are Motorola, Inc., Research In Motion Corporation, Research In Motion, Ltd. and UTStarCom, Inc. Wi-LAN claims that all Defendants have infringed and continue to infringe Wi LAN's U.S. patents RE37,802 and 5,282,222 by making and/or selling products including mobile handheld devices and other equipment.

RFID / NFC

The money is on RFID

RFID Revolution, an RFID education and market strategy consulting firm, has introduced RFID Roulette, an Internet-based game designed to help people learn about the diverse uses of radio frequency identification (RFID) technology. Featured on RFID Revolution's website, www.rfidrevolution.com, RFID Roulette challenges the player to distinguish a fake RFID application--one that does not presently exist--from a real one. There is no charge to play.

events



DATE	EVENT	LOCATION	NOTES	LINK
Sept 10 - 12 2008	IEEE International Conference on Ultra Wideband	Hanover, Germany	-	http://www.wimedia.org/en/events/events.asp?id=events
Oct 6 - 10 2008	Bluetooth UnPlugFest 31	Budapest, Hungary	-	https://www.bluetooth.org/Events/sig_events.htm
Nov 4 - 6 2008	Bluetooth Developers Conference	COEX Convention & Exhibition Centre, Seoul, Korea	-	https://www.bluetooth.org/Events/sig_events.htm
2009				
Jan 8 - 11 2009	International Consumer Electronics Show	Las Vegas, Nevada, USA	-	www.cesweb.org
Feb 16 - 19 2009	Mobile World Congress	Fira de Barcelona, Spain	-	www.mobileworldcongress.com
April 1 - 3 2009	CTIA Wireless 2009	Las Vegas Convention Centre, Las Vegas, Nevada, USA	-	www.ctiawireless.com
Oct 7 - 9 2009	CTIA Wireless I.T. & Entertainment 2009	San Diego Convention Centre, San Diego, California, USA	-	www.ctiawireless.com

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