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for the short range connectivity environment

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BLUETOOTH 3.0 – BIG IN JAPAN?

THIS ISSUE

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is 3.0 the big news?

The big story this month is, notionally, that the Bluetooth 3.0 + High Speed spec has been ratified.

For the Bluetooth Special Interest Group, this was the big announcement for 2009, and it was delivered with due pomp and ceremony at the SIG's annual member event, which took place in Tokyo, Japan during the latter half of April.

And there is no question that Bluetooth 3.0 is significant. However, there are undercurrents at the moment that would lead us to believe that Bluetooth 3.0 may not be quite as exciting as it could be. Some say that the Bluetooth/Wi-Fi combo delivers barely enough speed for today's applications, let alone those to come. The answer to that one would be that this is meant to be in interim stage, and that further down the line, Ultra-wideband (UWB) will step in and help create Bluetooth 3.0 + Really Honestly Very High Speed. But will that happen?

Those companies that are still developing UWB with this idea in mind need to be made of tough stuff and to be very determined. Wi-Fi is becoming entrenched, and the UWB companies are faced with a task that can be compared to removing your teenage kid's bubble gum from your new wool carpet (that simile is probably more palatable than the waste material on a bedcover analogy).

Plus .... The lack of public fanfare for Bluetooth High Speed is countered by a new interest in low energy wireless technology. This is the buzz at the moment, with developers and market researchers alike predicting that low energy is, in fact, the next big thing. Bluetooth plays in this ballpark, and so do a lot of others. Time was allocated to Bluetooth low energy at the AHM, and perhaps this was the real 'big story'? Read more in Nick Hunn's AHM report in this issue.

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INCISORTV FOCUS THIS MONTH:

Incisor examines Bluetooth low energy wireless technology

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news

Say konnichiha to Bluetooth 3.0

As the world knows by now, the Bluetooth SIG announced that it had formally adopted the Bluetooth Core Specification Version 3.0 + High Speed (HS) , or Bluetooth 3.0 at its All Hands meeting (AHM) in Tokyo during April. Incisor's AHM report, and analysis of the 3.0 announcement is provided by Wifore's Nick Hunn, and can be found on page 8.

Bluetooth 3.0 gets its speed from the 802.11 radio protocol. The inclusion of the 802.11 Protocol Adaptation Layer (PAL) provides increased throughput of data transfers at the approximate rate of 24 Mbps. In addition, mobile devices including Bluetooth 3.0 will realize increased power savings due to enhanced power control built in.

"Utilizing the 802.11 radio was a natural choice as it provides efficiencies for both our members and consumers – members get more function out of the two radios they are already including in devices, and consumers with Bluetooth 3.0 + HS products will get faster exchange of information without changing how they connect. We are excited to expand the possibilities of the PAN," said Mike Foley, of the Bluetooth SIG.

This newest version of Bluetooth technology builds on the 2.1 + EDR version, including Simple Secure Pairing and built-in, automatic security. And as with all versions of the Bluetooth specification, Bluetooth 3.0 + HS is backwards compatible with earlier versions.

The new specification release includes several major enhancements:

- Generic Alternate MAC/PHY (AMP)
- 802.11 Protocol Adaptation Layer (PAL)
- Generic Test Methodology
- Enhanced Power Control
- Unicast Connectionless Data

Prior to the AHM, various wireless chip manufacturers had obviously been moving heaven and earth to be in a position to announce 3.0 silicon solutions, and Atheros, Broadcom and CSR all stepped up to the mark, with qualified solitions. Quite who got past the line first is up debate (see 'Broadcom claims first 3.0' story).

End products for consumers based on Bluetooth 3.0 silicon are expected to be in the market in 9 to 12 months.

I'm not bitter!

Not every industry observer was 100% impressed with the Bluetooth 3.0 announcement. Alereon CEO Eric Broockman commented: *"We all know the old expression "and the third time is the charm". It was true for Windows – Windows 3.1 revolutionized desktop computing. For Wi-Fi, 802.11G was the third version for this wireless standard after the original 1Mbps and 11Mbps versions. With raw data rates of 54Mbps and throughput of 20Mbps, "G" became a big success. The third time was the charm for LANs as well. The first gen was 2Mbps, followed by 10Mbps but the market exploded when we reached 10/100 Ethernet – once again the third time was the charm. With the recent introduction of BT 3.0 however, the Bluetooth SIG seems to have missed the boat and broken the adage…*

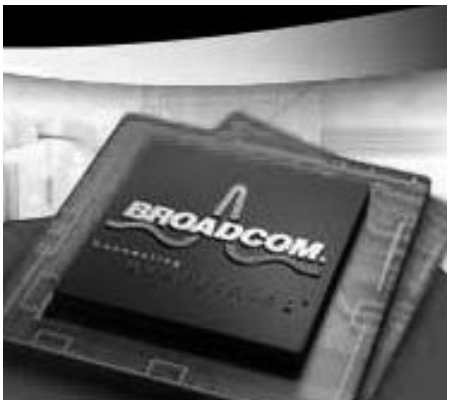
Let's look at the particulars. Basic Bluetooth 1.1, at about 1Mbps, has been very successful in transforming the cellphone experience with the hands free convenience of a Bluetooth wireless ear bud or headset. Bluetooth 2.0, at a mere 3Mbps, frankly hasn't brought much more to the party other than adding stereo. With High Speed rumours swirling, expectations for Bluetooth 3.0 have been justifiably pretty high. And what did we get? It seems we got an ease of use extension for Wi-Fi marketed by the Bluetooth SIG under their moniker.

Essentially, what BT 3.0 does is provide the users a 12Mbps data pipe [NOTE: the BT-SIG claims 22 to 26Mbps, however that is only if the BT radio is not in use, if you are using your headset that drops to around 12Mbps. In addition, if there are other 802.11 networks in operation on the same channel nearby, throughput could be even less] that can be more easily set up if both sides of the connection have (1) a Bluetooth radio (2) a Wi-Fi radio and (3) new BT 3.0 gear shifting control software. At a high level, the way it works is that two BT 3.0 products connect over standard BT 1.1. If each side advertises that it has a Wi-Fi radio AND is capable of BT 3.0 gear shifting, then should the two products choose to transfer files which aren't suitable for 3Mbps, they can "up-shift" to 3rd gear to 12Mbps over Wi-Fi. And when do we get this grand new increase in speed? Probably 9 to 18 months from now! Yawn."

Now, bear in mind that Broockman is CEO of an Ultra-wideband (UWB) company, and that UWB is the technology that has most missed out by not being part of the Bluetooth 3.0 announcement. UWB should have been the primary high speed data pipe for Bluetooth 3.0, but circumstances have dictated that this was not to be, and Wi-Fi has been able to leap-frog and displace UWB. Knowing this, Broockman's tone is a little easier to understand.

Can Alereon and the other UWB companies recover the lost ground and win back support, especially in the Bluetooth camp? The next few months will tell.

news



CSR's Synergy one of the world's first Bluetooth v3.0-ratified products

Alongside the Bluetooth SIG's formal ratification of the Bluetooth 3.0 spec, CSR announced that its Synergy wireless systems software is one of the world's first products qualified to the v3.0 standard. Synergy is part of CSR's Connectivity Centre products, including the CSR9000, which features Bluetooth and Wi-Fi alongside several other technologies.

Bluetooth v3.0 features 802.11 a/b/g AMP (Alternative MAC and PHY). AMP is featured in CSR's Synergy and CSR9000, and allows Bluetooth to conduct high-speed, power-efficient file transfer in co-operation with IEEE 802.11. When a Bluetooth device needs to transfer a large file, CSR's Synergy AMP has the ability to wake up the IEEE 802.11 radio to transfer files.

Bluetooth v3.0 also features support for Enhanced Power Control, which optimises the transmit power used in a connection even when a phone and a headset are suddenly moved apart from each other, or the phone is placed into a pocket. This not only lengthens battery life, but ensures that calls aren't lost.

As long term Incisor readers will have noticed, CSR has always managed to have qualified product ready at the point when the Bluetooth SIG makes its announcements. This was recognised by the SIG's Mike Foley, who commented: "CSR has always worked very closely with us in establishing the future of Bluetooth standards. CSR continues to stay abreast of the latest developments in Bluetooth, and has constantly demonstrated an ability to develop this versatile and useful technology in interesting new directions. Synergy is a highly innovative piece of systems software and we're delighted to be able to qualify it as one of the first Bluetooth v3.0 products."

"Bluetooth v3.0 marks the next stage in the evolution of Bluetooth," explained Matthew Phillips, Senior Vice President for CSR's Handset Business Unit. "By combining the low power standby and familiar user experience of Bluetooth with the fast data-rates of IEEE 802.11, users can enjoy the ability to easily share files in a tenth of the time it currently takes. With music, picture and video files all increasing in size, there is strong demand for a high speed wireless solution for peer-to-peer and sideloading use-cases. We've been demonstrating our Bluetooth high speed technology behind closed doors to our tier one customers for nearly a year and the response has been good. There is definitely an appetite for this type of solution."

Phillips' colleague, Raj Gawera, Vice President of Marketing for CSR's Handset Business Unit, added, "Optimising Bluetooth protocol layers to operate at vastly increased speeds requires strong host software; something CSR has wrapped up with its innovative Synergy architecture. Another challenge is to ensure that Bluetooth and Wi-Fi do not interfere with each other. CSR is already recognised by its customers as the leader in advanced Bluetooth + Wi-Fi coexistence schemes. We know these areas are where our competitors struggle. CSR expects to have the highest performance implementation of Bluetooth high speed."

CSR's Synergy features in several of CSR's recently launched products, including CSR9000, which offers Bluetooth, Wi-Fi, Bluetooth low energy, GPS and FM Rx/Tx.

Broadcom claims first 3.0 – not true, say others!

As reported in our main story, Broadcom also announced at the AHM that its Bluetooth combo chip technology and associated BTE software have been qualified as compliant with the ratified Bluetooth v3.0 + HS (high speed) specification. Broadcom claimed that its InConcert BCM4325 Bluetooth + Wi-Fi + FM combo chip solution and Bluetooth software was the first product in the industry to achieve qualification, but we understand that the company may be being a little economical with the truth, or at least very crafty with the wording of its announcement.

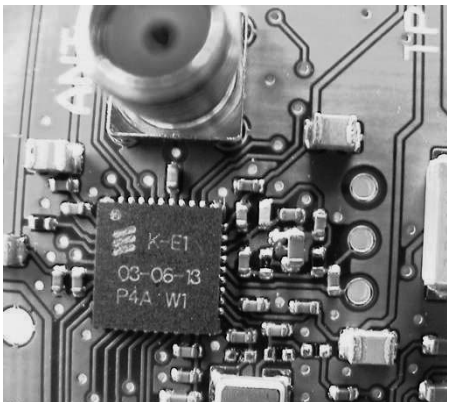
There is always a bun-fight over who did achieve first qualified product, and often, we have heard, the time difference has been measured in hours, not weeks or months. We understand that the official stats are that Atheros qualified the first Controller Subsystem, Broadcom qualified the first AMP Component and CSR qualified the first controller and L2CAP Component. Does it matter? Well, for the sake of that all-important press release, apparently it does.

Meanwhile, Broadcom also took its turn to poke the competition, saying that while competing implementations require multiple discrete components that raise cost and power requirements, Broadcom is able to provide a single-chip solution that includes both a qualified Bluetooth v3.0 BR/EDR (basic rate) controller and Wi-Fi Certified media access controller (MAC)/physical layer (PHY) device.

Broadcom's Bluetooth BR/EDR controller solutions also provide support for the Enhanced Power Control feature introduced in the Bluetooth v3.0 + HS specification. This feature provides improved control over transmit power levels on Bluetooth BR/EDR links, improving the robustness of communications and providing better optimized power consumption.

Whatever the reality of who did what first, and how many components they used to do it, the reality is that when we last looked there were three semiconductor companies offering Bluetooth 3.0 silicon solutions. Which must be good.

news



Initial results from ST-Ericsson JV not stellar

The 50/50 wireless-semiconductor joint venture between Ericsson and STMicroelectronics, which started operations on February 2nd 2009, has announced results for its first two months of operation.
The headlines? Net sales of $391 million, an operating loss of $98 million and a target of $230 million of annualized savings expected from a new program of resources and operations re-alignment to reflect the outcome of the integration as well as current unfavorable business environment.

President and CEO Alain Dutheil commented: "Our sales development in the quarter reflects the broad-based economic downturn that has led to weaker consumer demand for handsets and put pressure on the overall wireless semiconductor industry. Even in such a challenging climate, during the first quarter of 2009 we confirmed our number two position in the market, we renewed our focus on innovation and we strengthened our partnership with key customers. We were the first to consolidate in our industry, creating a new global leader in wireless platforms and semiconductors, and we are currently executing on an alignment of our operations that will allow us to shape the long term success of the company, while creating a sustainable cost structure for the short and medium term."

Dutheil added that the operating loss of $98 million was a consequence both of the level of sales and of price pressure on margins, partially offset by already planned reductions in operating expenses related to the cost synergies program previously announced by ST-NXP Wireless in November 2008.

The JV is about to implement a restructuring plan that is due to be completed by the second quarter of 2010. This plan is incremental to the $250 million cost synergies program announced by ST-NXP Wireless in November 2008. Annualized savings of the new restructuring plan are expected to be approximately $230 million upon completion. Restructuring costs are estimated in the range of $70 - 90 million, of which the majority is expected to be recorded during the second quarter of 2009.

.... no pain relief for Sony Ericsson, either

At the same time that the semiconductor companies are suffering, there is still no respite for the handset manufacturers. The latest set of grim results comes from Sony Ericsson, which has just released its number for Q1 2009. Units shipped in the quarter were 14.5 million, a decrease of 35% compared to the same period of last year. Sales for the quarter were Euro 1,736 million, a decrease of 36% from a year ago. Sony Ericsson puts the sales decrease primarily down to 'continued weak consumer confidence and de-stocking in the retail and distribution channels'. Gross margin declined both year-on-year and sequentially, and this was put down to a change in the product mix, material write-offs, and exchange rate volatility. Income before taxes for the quarter excluding restructuring charges was a loss of Euro 358 million.

Dick Komiyama, President, Sony Ericsson, did his best to put on a brave face. "As expected, the first quarter of this year has been extremely challenging for Sony Ericsson due to continued weak global demand. We are aligning our business to the new market reality with the aim of bringing the company back to profitability as quickly as possible."

The company's initial cost saving program targeting annual operating expense reductions of Euro 300 million by the end of the first half of 2009, including a workforce reduction of 2,000 headcount, has apparently now been completed. A total of Euro 187 million restructuring charges have been recorded compared to the initial estimated costs of Euro 300 million. That obviously wasn't enough though, and in January 2009 an additional cost saving program was initiated to target annual operating expense reductions of Euro 180 million by the end of 2009. The cost of this program will be covered by the initial Euro 300 million restructuring costs announced in July 2008.

There is more bad news for the Sony Ericsson workforce. Komiyama also revealed that the additional cost saving program will include a further reduction in the global workforce of approximately 2,000 people. It is estimated that new restructuring charges of Euro 200 million will be needed to complete this program.

Things can't get any worse, can they?

news

Mobile handset market stays afloat

Despite tough corporate and unemployment news making the headlines, the mobile handset-buying public didn't head to the hills during the first quarter of 2009. Handset vendors had shipped 258 million handsets by the end of the quarter. Although that represents an 11% year-over-year decline, the result significantly exceeded the previous forecast of 253.5 million. "Green shoots are sprouting," is how ABI Research vice president Jake Saunders describes the latest figures.

Distributors reduced their inventories in Q4 2008 and Q1 2009 as they prepared for economic Armageddon but the market did not take another "leg down" in Q1 2009. ABI Research has introduced a note of mild optimism in its handset forecasts for YE 2009, revising them from -8.4% to -8%. Saunders commented, "This will not be a V-shaped recovery. Q2 2008 was a fairly strong quarter for handset sales so handset shipments for Q2 2009 are going to report a -10% decline YoY, but QoQ, they should show improvement."

Kevin Burden, another ABI bod added, "As always there are winners and losers. Samsung and LG demonstrated healthy gains to take their market shares to 17.8% and 8.8% respectively. Another star performer was RIM which raised its share to 3.0% due largely to the success of its Blackberry Bold. It is a little curious that Apple's market share is just 1.5% given the success of its AppStore. As popular as the iPhone3G has been, increased competition in the touchscreen segment and a lack of product differentiation may be dampening demand." ABI Research expects that by 2H 2009 the iPhone3G will have one or more siblings. That will allow Apple to accelerate growth.

Nokia was beaten out by SonyEricsson for the dubious distinction of showing the largest contractions (their shares now stand at 36.2% and 5.6%).

Despite the positive signs, says ABI Research, the industry should be cautious. The IMF has issued another sharp downgrade to its global outlook. Unemployment figures are also likely to continue creeping up. Buyers in the developed world are still concerned about debt and job security. Developing economies are expected to take a hit on the credit side which could have knock-on consequences on credit lines for purchases and stock levels.

Low energy wireless boosts home automation shipments

Largely undeterred by current negative economic conditions, vendors of home automation systems are expected to ship nearly 2.8 million of them in 2011, according to a new study from ABI Research.

Only one of the four segments of this market – that for luxury systems – will be significantly impacted by the recession, according to senior analyst Sam Lucero. "The luxury home automation market for systems costing more than $50,000 is relatively mature, so it will feel the greatest impact from the recession. Two other segments – standards-based mainstream home automation systems and home automation as a service - are so new and have so much room for growth that they should expand rapidly starting in 2010 no matter the progress of the wider economic recovery. Likewise, the final segment – DIY home automation – is tied to a certain extent to these other newer segments and should also see healthy growth."

Rather, says Lucero, the challenges to achieving that growth are related to creation of new market mechanisms: the development of distribution channels, and the education of consumers as to the benefits and availability of home automation technology.

ABI believes that new standards-based wireless technologies such as ZigBee and Z-Wave mean that many mainstream home automation installations are now in the $10-15,000 range with prices falling fast. This segment is further driven by the growing availability of peripheral components that are available not only from the vendors themselves but through retail outlets.

Healthy growth for wireless patient monitoring

The impact of the economic downturn and the ever-growing cost burdens the healthcare industry have taken on, has had somewhat of a positive effect on driving opportunities for the use of wireless technologies within the healthcare industry forward, according to IMS Research. By investing in telehealth opportunities, a new positive pro-active approach, offers potential cost and time saving benefits when monitoring patients who are suffering from chronic diseases and/or ageing independently.

A number of medical device and mobile handset manufacturers are beginning to invest in telehealth and associated services, which could provide the support that is needed to drive these cost saving initiatives. Even Apple's iPhone is jumping on the healthcare bandwagon, by introducing a new application which enables the user to monitor their blood pressure and glucose levels.

However, alternative technologies being considered by the Continua Health Alliance are beginning to make headway within this market; Home health hub manufacturer AT&T has invested in ZigBee's healthcare device application profile, and ANT technologies are being used in a number of supporting heart rate monitors and mobile phone applications. With this in mind, Bluetooth technology may not have an easy ride.

new products

Sanyo ships (costly) Wi-Fi projectors

Sanyo, one of the world's largest manufacturers of LCD and DLP projectors, is shipping two new ultra portable LCD projectors, the PLC-XU355 and PLC-XU350 that integrate Wi-Fi technology.

The PLC-XU355 and PLC-XU305 feature what Sanyo calls "Simple Wireless Setting" using USB memory. By inserting the supplied USB memory drive into any PC or MAC, only a single click (in most cases, apparently) is required to create a wireless connection to the projector. The computer's screen can be projected up to 98-feet away. The distance, Sanyo admits, varies depending on environmental conditions.

Either projector can be connected wirelessly to multiple computers or up to five projectors can be connected to a single computer. No special programs or drivers need to be installed on the computer because the projector's USB terminal allows the use of computers that do not have CD-ROM or DVD-ROM drives, such as Netbooks. These slim (12.8 x 3.27 x 9.1-inch) projectors are also lightweight, weighing less than 7 pounds.

All four ultra portable projectors will be available in mid-May 2009. We can see only one drawback and that is the MSRP. The two wireless projectors, the PLC-XU355 and PLC-XU305 are priced at $2,595.00 and $2,395.00 respectively. Whereas their non-wireless counterparts, the PLC-XU350 and the PLC-XU300 are priced at $1,495.00 and $1,295.00. OK, there are other minor spec differences, but nothing to write home about. Which means that you are paying more than a thousand bucks to gain wireless connectivity.

You've really got to want to go wireless to justify that premium.

Drone on

Callpod (remember them from an Incisor issue way back?) has launched a Class 1 Bluetooth dongle for PCs and Macs. Not a new idea, of course, but Callpod has gone to the trouble of integrating a Class 1 Bluetooth chip, which means you can carry on listening to your music or taking a VoIP call while hundreds of feet away from your PC.

You just plug the Drone, which supports the A2DP (Stereo) Bluetooth profile, into the USB port of your computer. It will immediately connect with your Bluetooth headset or headphones to provide streaming music and voice over the 100 meter (328ft) Class 1 range. There is no software to install because the Drone has on-board software which communicates with the headset. The computer sees the Drone as a USB speaker and routes the audio automatically. When a Skype call comes in, Drone switches over to the call automatically. e.

Unlike many of the plastic-fantastic USB dongles out there, the Drone is also made from die-cast zinc and high impact polycarbonate for strength and durability, so it stands a good chance of surviving when you drop it and run your chair over it.

Go tiny, MoTo!

Motorola has gone small with its new QA30 Hint phone. This is an extremely compact device that still manages to slide open to reveal a full QWERTY keyboard. This tiny phone measures only 3.23 inches in length and 2.43 inches in width before being opened, and weighs just 120g. Despite the compact dimensions, Motorola has still been able to cram in a full-colour 2.5" widescreen display.

Within this mini-Titan, there is also a full HTML browser, email, GPS, an integrated MP3 player that supports MIDI, MP3, AAC, AAC+, AAC+ Enhanced and WMA v9, a 3.5mm headset jack, an 8GB optional microSD card storage, high-speed USB 2.0 connectivity, stereo Bluetooth capability and a 2.0 megapixel fixed-focus, digital zoom camera that works in still and video modes, with Capture, Playback, Streaming, and supports H.263, MPEG4 and WMV v9. Motorola claims up to 4.5 hours talk time / up to 15 days standby.

That is a heck of a lot of technology in a very small package, and it is good to see Motorola doing something different and pushing the design boundaries.

Now, where did we put it again?

Bluetooth All Hands meeting report

Bluetooth low energy chip companies open their kimonos in Tokyo

By Nick Hunn, Wifore Consulting

At the end of April, the Bluetooth SIG held its All Hands Meeting in Tokyo, marking a first foray to the Far East for the event, which has hitherto only graced Europe and the US. It's the occasion when the Bluetooth community comes together once a year to announce progress on the standards, share the experience of the different working groups and discuss the direction of future development. This year the event was augmented with a Developer's Preview Day covering the emerging Bluetooth low energy standard, plus a day of technical training for Bluetooth members.

The big news this year was the adoption of the new Version 3.0 of the standard, which adds a high speed capability to Bluetooth. The design is flexible and allows for a variety of high speed "pipes" which can be controlled by a standard Bluetooth link. This gives implementers and users the advantage of being able to use existing Bluetooth interfaces for initiating links, then automatically using other, higher speed wireless technologies to transfer the content between devices. The first of these pipes is 802.11, providing data transfer rates ten times those available with Bluetooth EDR. At the conference Atheros demonstrated the effect this has on reducing file transfer times to the assembled community. It was joined by Cambridge Silicon Radio, and Broadcom in announcing the availability of chipsets that integrate Version 3.0 Bluetooth with an 802.11 radio and MAC. All three companies pulled out the stops to get their new chipsets formally qualified on the day of the announcement. All we need to do now is wait for products to appear.

Although the press and marketing at the All Hands Meeting concentrated on the launch of High Speed, there was a feeling amongst the audience that this was a job done, with most of the excitement being focused on the arrival and applications of Bluetooth low energy (see IncisorTV movie – Bluetooth low energy), which is currently slated for adoption by the end of the year. This new standard will enable a wide range of connected devices to communicate with and through mobile phones.

Bluetooth low energy, previously known as Wibree, differs from other wireless standards in that it is a new technology and yet at the same time it is not. If that sounds like a contradiction, it is, but it is a contradiction that explains why it stands to be so successful. Bluetooth low energy is new in the fact that it is designed from the ground up to support extremely low power wireless devices. Although a number of other standards may make that claim, most suffer from limitations, either because of the way they cope with an increasingly noisy radio environment, or the power they need to operate, which makes them incompatible with coin cell batteries. Bluetooth low energy has been able to benefit from the advantage of hindsight to address these issues, becoming the first interoperable wireless standard that solves these problems. Where it is not new is in the fact that it has been designed to utilise large portions of standard Bluetooth chips. What that means is that the next generation of Bluetooth chips for mobile phones and PCs will incorporate low energy alongside traditional Bluetooth at no extra cost, so that there will be a rapid deployment of dual-mode Bluetooth handsets.

Up until this point, Bluetooth low energy has been very much below the radar. There have been low key announcements of chipsets by Broadcom, CSR, EM Microelectronics and TI, with a few private demonstrations, but as far as the industry was concerned Bluetooth low energy remained a stealth development. That all changed on the Monday preceding the AHM when, at a packed conference hall in Tokyo, the Bluetooth SIG hosted the first public demonstrations of the technology to an audience of press and consumer electronics companies. After a morning of technical and marketing information, three semiconductor companies – Cambridge Silicon Radio, Nordic Semiconductor and Texas Instruments opened their kimonos to reveal their roadmaps.

CSR had previously announced that its forthcoming BC07 would be a dual-mode chip supporting Bluetooth low energy. It surprised the audience (and its competitors in the audience) by announcing that it will also be offering a single mode chip for use in slave products. That will help to increase the diversity of single mode designs, which is exactly what the new low energy ecosystem needs.

TI renewed its earlier commitment to providing both single-mode and dual-mode Low Energy devices with detailed information on its single-mode chip design. TI showed a video demonstration of working silicon running on a CR2032 coin cell. Whilst sceptics might call foul over the use of a video as opposed to a live demonstration, TI justified it by pointing out it would be illegal under Japanese radio law to operate an uncertified device. Its single-

→

mode IC, the CC2540, is a flash memory-based device that includes both the Bluetooth low energy radio, a general-purpose 8-bit MCU to run both the Bluetooth low energy protocol stack and profiles as well as the product's application. It also includes analogue and digital peripherals to enable the creation of Bluetooth low energy sensor devices consisting only of the CC2540 and the appropriate sensor. That will be music to the ears of sensor manufacturers.

TI's offering goes beyond the raw silicon to a royalty-free Bluetooth low energy protocol stack, profiles and tools. On that front, TI announced that it will be offering a $99 Bluetooth low energy development kit consisting of a coin-cell powered sensor board and a USB dongle. TI will be sampling selected customers very soon, with the low-cost development kit available later this year. A neat aspect of TI's offering is that the chip has the same footprint as its new ZigBee single chip solution, so product designers can spin a single pcb to evaluate the two wireless technologies, or even to offer both options within a product range. It will also be a boon to companies producing development kits and modules.

Nordic Semiconductor announced a comprehensive family of chips and chipsets designed to satisfy almost any application for low power devices, whether that be sensors, or controller devices such as watches and displays. Its µBlue range will kick off this year with two chips – the nRF8001, which is a single chip low energy device for slave applications and the nRF8200 low energy application microcontroller. These provide average operating currents below 10µA in a compact 5x5 QFN package. Nordic sees initial applications in watches, which can be used in conjunction with mobile phones to provide call control, caller ID, out of range alarms and music control. This first family of chips will be available in 2009, with a second generation of chipsets providing a single mode master solution following on their heels in 2010.

Anritsu has been working closely with the various chip companies over the last six months, providing development testers to help characterise their chips. Anritsu took this opportunity to publicly display capturing data from a Bluetooth low energy transmission (albeit on a conducted link to appease the Japanese wireless police). As well as providing test information, the MT8852B-27 has a neat windows interface, giving graphic representations of the power and modulation characteristics of the radio packets. Its availability will help speed up the introduction of Bluetooth low energy devices into the market, as it gives equipment manufacturers the means to deploy production line test equipment as soon as the specification is launched. That's in contrast to the early days of Bluetooth, when manufacturers had to design production test stations from scratch, adding months to the time it took to get products onto the market. It's an important cog in the process of getting Bluetooth low energy to critical mass.

And critical mass is firmly on the horizon. According to Fiona Thomson of IMS Research, Bluetooth low energy has the potential to be the fastest shipping wireless technology ever. Thomson told the delegates about the findings from IMS' latest research. The feedback IMS had from a market survey was so positive that it is no longer asking when it will happen, but how long it will take to ship the first billion chips! That figure could easily be reached and surpassed in the first four years of shipments.

IMS Research believes that by 2013, 70% of all mobile phones being sold with Bluetooth functionality will support low energy Bluetooth. That provides an immense number of phones that can act as gateways to connect devices back to the internet. They may be health and fitness devices, toys, domestic goods, alarms, or a host of new, connected products. Bluetooth low energy lets manufacturers extend their brand from physical hardware to web applications as well as providing a new service model for operators, breaking the current one where their brand stops at the handset. With Bluetooth low energy the service offering can extend past the handset to fitness, health and connected fashion devices.

Anyone who doubted the momentum of Bluetooth low energy needs to look again. Much of the development up until this point has been going on behind closed doors for commercial and Intellectual Property reasons. After this All Hands Meeting and these first public demonstrations it's clear just how far that work has advanced. It's time for every product designer to take a long hard look at how Bluetooth low energy can influence their design roadmap and market space.

Nick Hunn
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Effective High Speed Bluetooth v3.0 requires the right software and silicon

The recent launch of Bluetooth v3.0 has reinforced just why Bluetooth is the most successful short-range wireless technology in use today. Its ability to evolve means that it is constantly adapting to the growing demands of what consumers and manufacturers want from their devices. When the first Bluetooth standard was ratified back in 1999, the concept of a handset or other portable device being capable of taking photos of several MB and or playing even larger music and video files was unheard of. The evolution to v2.1+Enhanced Data Rate (EDR) further illustrated Bluetooth's ability to listen to the needs of consumers and manufacturers. The release of v3.0 is the next step in this constant evolution and the result of close cooperation between the Bluetooth SIG and wireless technology leader CSR. CSR was the first company to qualify a Bluetooth v3.0 component with its innovative CSR9000 Connectivity Centre product and Synergy host software.

The key addition in v3.0 is the inclusion of support for Bluetooth over IEEE 802.11 a/b/g – with the Wi-Fi radio acting as AMP (Alternative MAC and PHY). This Wi-Fi AMP is fully supported in CSR's Synergy and CSR9000 Wi-Fi, Bluetooth, GPS and FM chipset, and allows Bluetooth to conduct high-speed, power-efficient file transfer in co-operation with the higher speed IEEE 802.11 radio.

The inclusion of 802.11 a/b/g AMP will allow consumers to transfer files in just a tenth of the time it takes using classic Bluetooth. With file sizes and the capabilities of portable devices increasing, the need for this is clear. When a Bluetooth device needs to transfer a large file, CSR's Synergy has the ability to wake up the Wi-Fi radio to transfer files quickly and easily. Not only does this provide faster transfer times, but can also allow Bluetooth to transmit large files between devices using the most efficient radio technology available. CSR's Synergy then switches off the Wi-Fi radio, returning control to the much lower power Bluetooth radio.

A key part of this High Speed Bluetooth is optimising the protocol layers to operate at vastly increased speeds. This requires intelligent host software, which is something that CSR has wrapped up with its innovative Synergy architecture. CSR's Synergy software enables customers to derive the industry's best Bluetooth v3.0 performance. Without a strong software base the advantages of the high-speed radio are compromised and the overall system performance suffers.

Synergy is designed to work with all of CSR's recently launched Connectivity Centre products including CSR9000. CSR9000 uniquely integrates Bluetooth, Wi-Fi, GPS, FM Rx/Tx and Bluetooth low energy around a Bluetooth hub - in the industry's smallest package with industry's best radio performance. As the software behind such a comprehensive product, Synergy not only complies with the Bluetooth v3.0 spec and supports all Wi-Fi variants, but also offers support for additional technologies such as Bluetooth low energy, FM and GPS.

The other major challenge presented by the v3.0 High Speed specification is to ensure that the Bluetooth and Wi-Fi radios do not interfere with each other, causing a reduction in performance. CSR is already recognised by its customers as the leader in advanced Bluetooth + Wi-Fi coexistence schemes, an area where competitive offerings continue to fail to deliver.

Demand for increasing amounts of wireless technologies in ever-smaller packages is something that both consumers and manufacturers want - but only on the condition that it is done well. CSR's Connectivity Centre strategy is based on CSR's 'Smart Integration,' – CSR won't combine multiple technologies for the sake of it, but only when it makes sense for the customer and when cost, space and performance are not compromised. CSR launched CSR9000 at Mobile World Congress 2009 illustrating once again that the company remains well ahead of its competitors in terms of delivering superior functionality and performance in a package that is 40% smaller than the closest competing alternative. With its qualification to Bluetooth v3.0, CSR9000 presents customers with the industry's strongest offering for integrating high-speed Bluetooth, Wi-Fi, GPS and FM.

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INCISOR W-PANel

Incisor expert panel speaks on short-range wireless technologies in the cellular handset

Introduced by Vince Holton

Welcome to this feature in which the Incisor WPANel speaks on a topic of interest to short-range wireless industry observers.

The members of the Incisor WPANel are the senior executives from the organisations that manage the administration and development of Bluetooth, DECT/CAT-iq, EnOcean, NFC, Wi-Fi and ZigBee technologies. As we explained last month, the WPANel changes now as a result of the WiMedia Alliance's merger into the Bluetooth SIG. WiMedia Alliance president Stephen Wood's place is now taken by Mr Koichi Tagawa of Sony Corporation. Mr Tagawa is the General Manager of Sony's Global Standards and Industry Relations Department that is in charge of technology standards and technology industry relations of the FeliCa Business. He actively contributed to the establishment of the NFC Forum, holding the position of Vice-Chairman from the start of the Forum in 2004 until becoming Chairman in September 2008. With NFC's growing profile in the short-range wireless sector, we are very pleased to welcome Mr Tagawa to the Incisor WPANel.

The ongoing WPANel members are Mike Foley, exec director of the Bluetooth SIG, Erich Kamperschroer, chairman of the DECT Forum, Graham Martin, chairman of the EnOcean Alliance, Edgar Figueroa, executive director of the Wi-Fi Alliance and Bob Heile, chairman of the ZigBee Alliance. Each of these is an expert in short-range wireless technology.

Last month the WPANel group gave us their views on marketing wireless technology. These can be read in last month's issue.

This month I asked the WPANel members to look at the subject of short-range wireless technology in the cellular handset. The selection of radios in the average handset keeps on growing. By now we are all familiar with the idea of having Bluetooth in our mobiles, and we are getting used to the idea of having Wi-Fi too. Bluetooth 3.0 has now gone public and so we enter the world where the cellphone may have classic Bluetooth, Wi-Fi and UWB on board not too far down the line. But wait a minute – isn't NFC an important technology for handsets? Wibree is represented by Bluetooth low energy, of course, but we're also hearing noises about other low power technologies encroaching on handset territory – a ZigBee-enabled handset providing remote control facilities, perhaps? And with cordless handsets used in office and home environments now looking and acting more and more like a cellular phone, can we expect DECT/CAT-iq phones to start adding additional radios to allow for the transport of content accessed via an Internet connection?

The handset companies are all having a hard time at the moment, and cannot afford to keep adding new radio technologies as they fight to reverse the sales slump. Or can they afford not to? What core short-range wireless technologies does the handset just have to have? And what can it live without?

If you have views, or suggestions as to how we can develop the WPANel concept,or topics you would like to see covered, email me at vholton@incisor.tv.

Vince Holton
Publisher, Incisor & IncisorTV

➔

The Incisor W-PANel responds

How many SRW technologies can the handset take?

Mike Foley
Executive director,
Bluetooth Special Interest Group

This topic is an interesting one and hits at the very crux of the value Bluetooth technology brings to handset manufacturers. It's a fact – handset makers are dealing with packing more function into ever smaller form factors. Bluetooth radios – leveraging 802.11 for high speed and soon, Bluetooth low energy for medical and fitness use cases means Bluetooth is the common radio platform for the widest range of use cases.

Talk of ZigBee in the handset is essentially a non-starter – not only is market penetration an uphill battle as compared to the billions of Bluetooth devices already on the market - devices with which Bluetooth handsets can and do already connect, but adding another radio, especially one that is difficult to integrate into a handset because of interference issues just does not make sense.

With Bluetooth technology, the usefulness of the handset is easily extended to other areas of people's lives – i.e. handset as remote in the home for a feature-rich TV experience, for control of home sensor networks and personal health monitoring. Bluetooth is at the perfect spot between form and function – exactly where the handset makers need to be.

Erich Kamperschroer,
Chairman,
the DECT Forum

CAT-iq provides brilliant voice and sound quality and also customized Internet content to cordless handsets in home and office environments. It is also ideally suited to providing voice communication in dual-mode cellular handsets along with UMTS/GSM.

The industry is currently developing devices, that are able to switch between mobile networks (using GSM/UMTS) and fixed line networks (using CAT-iq) and which provide brilliant voice communication quality while connected in home and office environments.

This is another application area where CAT-iq is decidedly the best radio technology. Today DECT/CAT-iq devices already provide Bluetooth for short range wireless connectivity.

Edgar Figueroa,
Wi-Fi Alliance
Executive Director

There is no question that handset makers have overwhelmingly opted to feature Wi-Fi in their flagship products – and carriers continue to embrace the spectrum management and coverage benefits that Wi-Fi brings.

The wide variety of exciting Wi-Fi enabled smartphones on the market today is testament to how pivotal Wi-Fi is in transforming the handset to a true multimedia device. We are certainly seeing it in our certification trends: we've certified more than 300 handsets to date, and 2009 is on-track to be our second consecutive annual record in number of handsets certified.

Consumer research makes it clear: users love Wi-Fi on the handset, and once they've tried it, they won't do without it. Recently, a survey conducted by ABI Research found that 77 percent of users of Wi-Fi-enabled mobile phones are completely or very satisfied with their device – a higher rate of satisfaction than that reported by users of mobile phones without Wi-Fi. Seventy-four percent of people who have Wi-Fi on their mobile phone use it, and 77 percent say they will seek Wi-Fi in their next phone as well.

ABI also predicts that the number of Wi-Fi enabled mobile phone shipments per year will reach 141 million in 2009 and 520 million by 2014. In commenting on the research, ABI's Michel Morgan said "Given the very high satisfaction rates reported by users of Wi-Fi-enabled handsets, it is clear that Wi-Fi offers a competitive advantage for both manufacturers and carriers." I agree, and am particularly excited to watch the market unfold on the road to half a billion handsets a year, with Wi-Fi deployed in an ever broadening array of devices, and users benefitting from how Wi-Fi technology will enable yet-to-be-imagined applications.

Bob Heile
Chairman,
ZigBee Aliance

Why choose? Perhaps the time is right for the emergence of multi-model parts. Radio chips with the intelligence to be and do more than one thing at a time. Ultimately, that will be the territory of software defined radios, the ultimate be-anything radio, but we are not quite there yet. In the meantime, maybe there is an opportunity for something in-between. For example, a ZigBee radio and an 802.11b radio both have QPSK RF Physical Layers. A ZigBee stack is tiny in comparison to an 802.11 implementation.

It would be relatively easy to tuck a ZigBee solution into an 802.11 part. With a little cleaver spoofing and cycle stealing one could maintain the 802.11 session and conduct a low duty cycle ZigBee session. Two radios, one part. In the meantime, market forces will dictate which radios are essential. Which ones will make the wireless carriers the most money and which ones will help the handset manufacturers defend their share positions. Should be a fun time

Graham Martin,
Chairman,
EnOcean Alliance

The mobile phone has become an essential commodity item with manufacturers fighting to cut costs whilst increasing functions and services. Bluetooth has established itself as the viable technology for headsets and hands-free functions and Wi-Fi enables us to communicate via the internet wirelessly. Both of these make good sense and are therefore in demand but the majority of us could certainly live without other short range wireless technologies such as NFC, ZigBee, Z-Wave or EnOcean in mobile phones to open doors, switch on TVs, pay parking fees and so on. These ideas will therefore remain part of a niche market.

An example of such a niche market is in wireless home and building monitoring and control, including energy and environmental management systems. These systems are being installed by EnOcean partners effectively today without the need to add additional expensive hardware, complicated software and user interfaces to current mobile phones.

The data from the wireless sensors and switches positioned throughout the home or building is collected in a central PC connected to the internet. Using a Blackberry, for example, the user can check the status of the building at any time, from anywhere, and can control various functions such as heating and switching off appliances in stand-by mode to save costs and energy usage. The user may also view live video via their mobile phone using linked security monitoring cameras.

These systems are easy to install and use, requiring nothing more than what is already available in the majority of handsets. A further advantage is the hundreds of EnOcean interoperable products from multiple manufacturers available today helping to make these systems lower cost, flexible and easily extendable. Most importantly, the sensors and switches are maintenance free meaning they require no batteries and no wires.

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Koichi Tagawa,
Chairman,
NFC Forum

The handset companies are all having a hard time at the moment, and cannot afford to keep adding new radio technologies as they fight to reverse the sales slump. Or can they afford not to? What core short-range wireless technologies does the handset just have to have? And what can it live without?

To answer those questions, handset manufacturers must first answer three other questions: "What technologies will make my device more valuable and useful to the consumer?"; "What technologies will make tasks in the user's life simpler and more convenient?", and "What technologies are enabling new applications that let people and businesses do things they couldn't do before?"

If they do their research and answer all of those questions, they will conclude that NFC is essential. In trial projects around the world, NFC has scored consistently high in user acceptance -- about 80% or above -- because it is effortless and intuitive, and simplifies many daily tasks. But the third question is the key one -- enabling entirely new applications. People talk about transport fares and other payments based on card emulation -- and they are key applications -- but for many users, the most compelling reason to buy a new handset is if it will do more for you as a consumer or as a business person -- including things you could never do before.

We just held our third NFC Forum Global Competition to find the most innovative and creative new NFC applications from the commercial and research worlds. Every year we receive many brilliant and original entries from areas as diverse as hospitality, healthcare, social networking, travel, financial services and disabled assistance. Some of these applications are already gaining acceptance in the marketplace. For example, in the Netherlands, there are now 35,000 home-care nurses using NFC technology to better manage patient care and scheduling. There are 100,000 NFC-enabled guest room door locks deployed at hotels worldwide. They enable guests to bypass check-in, go straight to their rooms, and unlock their doors with their NFC-enabled phones.

NFC technology can also be used in Read/Write mode for Tag and Card reading and writing, which is useful for things like providing point-of-purchase information. Peer-to-Peer applications, such as sharing contact information by touching phones, comprise another major category with great promise.

NFC enables simple and easy set-up of connections. For example, to connect a Bluetooth headset to a mobile phone, you just hold the devices close to each other and the connection automatically starts. In addition, we're seeing commercial applications involving consumer electronics devices, such as sharing and printing images from digital cameras, as well as PC applications, and we expect more to follow.

The success of the NFC trials and early commercial deployments has been very encouraging. We at the NFC Forum have been working to support them in a number of ways. First, to ensure global interoperability, we have completed 11 NFC Forum specifications. Two more will be announced shortly. This will be followed in early 2010 by the launch of our compliance program, which will give prospective users the assurance that an NFC-enabled product will work as promised anywhere in the world.

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– VERIZON WIRELESS

Chief Technology Office
– CONCRETE LOGIC

Distinguished Member of the Technical Staff
– MOTOROLA

RF System Architect
– ARTIMI

Senior Engineer
– SAMSUNG ELECTRO-MECHANICS

Technical Director
– EUREX COMMUNICATIONS

Short Range W/less Lead Eng.
– FRACTUS

Senior Analyst
– STRATEGY ANALYTICS

Chief Application Engineer
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– GN NETCOM

Senior system architect & standardisation manager
– NXP SEMICONDUCTORS

R&D engineer
– FRANCE TELECOM

Managing the interoperability of Bluetooth medical devices

Why ISO 9001 compliance is NOT enough

By Peter Hauser, CEO, The Quality Factory

If you have ever worked on medical devices, you know that the FDA requirements, much like the FAA requirements in the airline industry, are there to protect the public. These requirements impose standards such as ISO 9001 compliance on all who develop medical products.

With such stringent standards, why are some Bluetooth wireless medical devices subject to the same types of interoperability issues as commercial devices? To understand this we need to first understand what ISO 9001 compliance means…

According to the International Standards Organization (ISO): The ISO 9000 family of standards represents an international consensus on good quality management practices

ISO further states on the abstract located on its ISO9000:2008 page (see across).

Abstract

ISO 9001:2008 specifies requirements for a quality management system where an organization

- needs to demonstrate its ability to consistently provide product that meets customer and applicable statutory and regulatory requirements, and
- aims to enhance customer satisfaction through the effective application of the system, including processes for continual improvement of the system and the assurance of conformity to customer and applicable statutory and regulatory requirements.

All requirements of ISO 9001:2008 are generic and are intended to be applicable to all organizations, regardless of type, size and product provided.

Source: http://www.iso.org/iso/catalogue_detail?csnumber=46486

What does this mean in practice?

It means that people who wish to comply with ISO 9001 must meet certain quality management standards as determined by ISO.

Typically this implies a level of documentation that, when audited by a designated ISO auditor, results in a sufficiently high level of compliance for ISO 9001 certification.

While ISO 9001 dictates what requirements a given quality system must meet, it does not outline how these requirements should be met. In other words, companies can meet the ISO 9001 requirements using a variety of methods.

Some companies may choose to manage their requirements, risks, test cases, etc. using entirely paper-based methods, while others may choose to use complex software programs that automatically relate their requirements with risks and tests cases.

This is a good thing for customers, right?

The problem lies not in the intent, but in the execution. Unless a company executes the intent of ISO 9001 (Bluetooth Qualification, or WiFi Certification, WHQL Certification, or any other quality standard) its products will always be exposed to an increased risk of field issues.

This is particularly important when it comes to a complex and interoperable standard such as Bluetooth wireless technology. Much like ISO 9001, Bluetooth SIG's Qualification Program is designed to ensure that devices comply with the Bluetooth wireless specifications and to reduce the probability of issues between Bluetooth wireless products.

The Bluetooth Qualification Program only extends to the Bluetooth SIG's core, protocol, and profile specifications. It does not cover implementation issues such as timeouts, customer-specific protocols, and application-specific variances.

Prior to the advent of the Bluetooth SIG's MCAP (Multi-Channel Adaptation Protocol) and HDP (Health Device Profile), medical devices connected using unspecified protocols built atop of the Serial Port Profile (SPP). As a result there are numerous devices already in the field that use unique implementations of the Serial Port Profile (SPP) and more will be developed before HDP is widely adopted.

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Furthermore, many medical device designs are being forced to change because the Bluetooth technology has advanced and the Bluetooth chips are no longer available. This “end of life” phenomenon poses a further challenge for medical device manufacturers who are faced with Bluetooth re-qualification and ISO 9001 re-certification each time they make design changes to their hardware.

Some companies take the approach of not touching their devices. Instead, they make bulk “end of life” chip purchases. Thus antiquated hardware stays in circulation for many years longer than intended and burdens compatible device companies who must maintain and test against these devices until their end of life.

Other companies quietly integrate the new chipsets into their products without undergoing the mandatory (and sometimes costly) Bluetooth Qualification and ISO 9001 re-certification process or notifying compatible device companies.

It only takes the action or inaction of one company to create nightmares for all. Manufacturers of “interoperable” products suddenly start receiving customer complaints.

These manufacturers must then react (per ISO 9001) to the newly identified customer issue. This sets in motion a sequence of events that leads to the inevitable realization that a device that was previously interoperable, is not anymore!

Had the offending company executed on its ISO 9001 obligations correctly this scenario would have played-out differently…

The company would have received notice from its chip manufacturer of the impending chipset phase-out and thus would have had three choices:

- End of life the product (do nothing)
- Purchase a large volume of chips (end of life buy)
- Phase-in the new chips (new design)

Because the company was customer-focused, it would have investigated the impacts of the Bluetooth chipset phase-out, such as:

- Aging chipset long-term compatibility impacts
- New chipset compatibility and customer impacts
- Issues introduced by a new Bluetooth design
- Whether the product still makes sense
- Product lifespan if maintained “as-is”

The resulting action plan would:

- Prioritize quality
- Extensively test interoperability
- Explicitly validate changes
- Communicate product changes to vendors

These companies would fully investigate, correct, and communicate interoperability impacts prior to releasing the product to market or inform compatible hardware providers of the impending end-of-life of the product.

What can we do to improve interoperability problems right now?

Unlike the mobile phone space, few Bluetooth medical device companies maintain extensive interoperability labs. It is therefore imperative that companies involve compatible hardware providers whenever investigating interoperability issues.

Companies should also consult with interoperability experts to investigate any impacts caused by design changes to their own products.

Correctly executing to ISO 9001 implies communicating with compatible hardware providers, testing for interoperability issues BEFORE committing to a lifetime buy or design change, assessing risks, and managing the risks accordingly.

Peter Hauser is Chief Executive Officer of The Quality Factory LLC
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Snippets

Eco-conscious consumers demand high end 'Green' phones

Strategy Analytics Wireless Device Lab report, “Environmentally Friendly Phones Must Not Compromise on Features or Design,” found that while environmental sustainability is not top priority for most consumers, there is a significant number of consumers who would be willing to pay more for a mobile phone which has been manufactured in a sustainable, ethical and eco-friendly manner, and which has a low impact on the environment during use.

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When it comes to assessing what is really going on in the market, there is no substitute for seeing products in action and hearing 100% accurate information from the people at the sharp end. Incisor TV provides that insight.

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

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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

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A guide to Bluetooth Version 2.1 + EDR

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Incisor TV overview: the Bluetooth SIG / Wibree Forum merge

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Wireless USB Special - Regulatory, approvals and interoperability

Wireless USB special - The future for Wireless USB and UWB

Wireless USB special - Wireless USB at CES 2007

Vince Holton introduces the High Speed Bluetooth Special Issue

Anders Edlund of the Bluetooth SIG - Bluetooth and UWB combined

Robin Heydon, CSR - Bluetooth & UWB - The semiconductor company perspective

Motorola's Steve Deutscher examines High Speed Bluetooth mobile concepts

Motorola video - Jordan's morning

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Our preference, of course, would be that you buy some space with Incisor or IncisorTV

But if that's not in the cards, buy a cellphone. Or a TV. A springer spaniel. A meal at a nice restaurant. A power drill.

Because if we all wait for the recession to be officially declared over to start spending again, the problem will simply keep feeding itself.

INCISOR.TV

Telecare: Saving Edna

by Dean Anthony Gratton

Dear sweet Edna.

She's 84 years young, of course; independently-minded, of amazing sound and crystal mind, determined, and crikey, she bakes the most delicious cakes – forget your Fitzbillies (Cambridge, UK), Edna's carrot cake always assures her of a daily visitor or two gracing her doorstep. It's all too easy to forego the stereotypical images you inevitably conjure up of a retired English teacher, living on her own. Some have described Edna, as a confident woman who enjoys living her life on her own terms and having the freedom to potter around her idyllic one-bedroom cottage in the centre of Cambridge. Edna's steady visitors at her home on Newnham Road, always assure her of her independence and reaffirm her undying belief that old age hasn't robbed her of her dignity.

When approaching her front door, she welcomes you with the warmest of smiles, as she gestures with an extended arm for you to greet her with a peck on the cheek, "take a seat; I won't be a moment", she says, as she confidently disappears into her kitchen. Moments later she appears holding a large tray of crockery, cakes and coffee – you inevitably panic and immediately rush to her aid, but she insists – "I have this, sit down and stop worrying" seems to be her popular mantra.

Independence with Assistive Technology

Edna exudes engaging confidence, as she lives with Assistive Technology (or AT), along with an imagination that hasn't escaped her later years. Assistive Technology is a broad definition, which bestows its adopters the unique ability to live within a sphere of supportive technology-focused products that enable the user to remain autonomous for as long as possible. Telecare lies uniquely within this all-encompassing sphere, comprising numerous technologies and domains that have been crafted to support the infirm, disabled and elderly. Telecare is the provision of technology that distinctively supports home-alone living, offering remote care for the elderly and vulnerable people (Wikipedia.org). However, when Incisor caught up with Alison Rogan, Group Marketing Director at Tunstall (tunstall.co.uk) she elaborated further, stating that Telecare is "the continuous, automatic and remote monitoring of real-time emergencies and lifestyle changes over time to manage the risks associated with independent living."

The etymon of Telecare is partly derived from the word 'Tele,' a Greek word, which is used to characterise 'over distance' whilst the care facet is evidently managed remotely. We have already seen this prefix used in numerous other definitions and technologies, such as, Telecommunications, Telephone, Telehealth, Telemedicine and so on. We will come back to Telehealth and Telemedicine later on in this article. In the meantime, Edna relies on Telecare, as it allows her to stay in her own home knowing that, if there's an emergency, all she need do is push a button.

Living with the Enemy

After all, Edna lives with an enemy. Within her idyllic cottage she shrouds a dark secret; a secret she must keep from the rest of her world. If people discover this secret she fears she will be treated differently and her independence will ultimately be stolen. Perhaps, she refuses to believe that her frailty has out-paced her mind, which she feels occasionally lets her down. But, as we take a closer look, and are also guilty of becoming distracted by her charming childhood stories, we have missed Edna's numerous bruises on her arms and legs. Why didn't we see this before?

Again, on closer inspection, it becomes obvious with the numerous stains on her carpet that she hasn't successfully ventured from the kitchen to place the tray with the gorgeous carrot cake onto her table. Edna so desperately avoids the sanctity of her visitors having to look after her and it seems what we didn't witness when Edna brought us those delicious cakes and coffee in her best crockery was the agonising pain masked by her pride. Edna's searing back pain keeps her awake at night and, even with her prescribed pain killers, it just doesn't abate. The pills make her drowsy and forgetful for the rest of the following day. But, despite this, she has been fighting for her independence, simply refusing to be that stereotypical incapable old woman, and rightly so.

Telecare: Edna's Saving Grace

But her agonising pain and her frequent falls didn't go unnoticed, as it was Edna that made the first step towards ensuring her independence – Edna wasn't in denial; she knew she needed help. It's like babies steps at first, but she knew she could run again (well, almost), with the support from her only daughter, who contacted the numerous companies that retro-fit a selection of intelligent technologies, in essence, forming an integral remote health care system that she could always depend upon in an emergency and not be at the mercy of others. You see, even if Edna was not in a position to push a button, the technology within her home would always sense her difficulty and assure Edna of immediate assistance. More specifically, we are referring to fall detectors, which are capable of automatically detecting serious falls and raising an alarm to the remote Telecare centre (tunstall.co.uk).

The wealth of products and applications are enormous – it is difficult to know where to start. Anyhow, with a bed occupancy sensor (tunstall.co.uk), for example, Edna would be able to confidently leave her bedroom to visit the bathroom knowing that her bedside light will automatically illuminate as she leaves her bed and, likewise, extinguish

→

upon her return. But most importantly, if Edna doesn't return to her bed after a short while, again an alarm is automatically triggered at a dedicated remote care centre.

Delivering Telecare

In other examples of Telecare, applications such, as smoke, movement, fall, window and door sensors all participate in supporting the well-being of the infirm and elderly. Most of these technologies utilise some kind of short-range RF or fixed technology, whether it's Bluetooth wireless or the European Social Alarm Frequency standard operating between 869.20 to 869.25MHz, which Mike Hodges, Research and Development Directory at Tunstall (tunstall.co.uk) confirms "is a well-recognised standard across Europe". Using this standardised frequency ensures that other radio frequencies will not interfere with life-critical equipment. In addition to offering support to the elderly the same technology offers support to lone workers who might venture into a dangerous environment to undertake a task. If the lone worker doesn't return to their vehicle or initiate a call for help, then immediate assistance can be provided.

Moreover, Telecare and its associated technology doesn't seem to be overcomplicated. Naturally, technology has to be simple and it needs to be, as to avoid complexity, confusion and misunderstanding – Edna doesn't want to be overwhelmed by a system that she needs to fully understand. Put simply, she needs to be assured that she can confidently rely on a technology that provides her with 24-hour support. In fact, this support can be extended to integral communication systems, which permit communication to the remote control station. A remote care assistant or nurse can make a call, to say, the home of Edna through an integrated speaker and microphone system to ensure Edna's well-being and safety in a two-way conversation. If Edna doesn't respond for whatever reason, then immediate assistance is provided.

Telehealth and Telemedicine

We touched upon earlier, Telehealth and Telemedicine, which are other forms of assistive technologies that are provided remotely. Primarily, the technology within this medical domain differs to Telecare, but can extend the Telecare package, if you like. Telehealth and Telemedicine both offer remote assistance to individuals who don't necessarily want to be hospitalised. In essence, remote treatment can be provided to patients where vital signs can be monitored and the delivery of medicine afforded by a remote control station – likewise, medical treatment or urgent assistance can be urgently provided if needed. Alison Rogan confirms Telehealth as "the delivery of medical care at a distance using electronic means of communication". Telecare and Telehealth, whilst providing separate forms of assistive technology, together form a system that reduces the need to offer full-time social care. With the current lack of resources in hospital care; the technologies reduce the overheads associated with 'the system' and most importantly perhaps maintain the dignity of those who utilize their capabilities.

What's more, Telecare, Telehealth and Telemedicine together afford the elderly and infirm greater longevity within their own homes, but their methods may seem a little impersonal – where's the human contact? Perhaps, instead of seeing the technologies as isolating, we should take the view that for people like Edna, the opportunity to stay in their own homes, guardedly independent and yet with contact from existing family and social networks the unobtrusiveness of the technology is priceless. We should leave you with one final resting thought: okay, so the control station always has the ability to remote call Edna's home; let's hope that in her desperate need of support and assistance she doesn't think she's talking to God!

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

Snippets

Global handset shipments fall at fastest rate in history

According to the latest research from Strategy Analytics, global mobile handset shipments fell a huge 13 percent year-over-year, to reach 245 million units in Q1 2009. De-stocking by cautious retailers and a worldwide economic downturn caused handset shipments to fall at their fastest rate in the industry's 27-year history.

APTX targets Korean consumer audio design

APTX, a developer of licensable intellectual property for consumer audio compression, has appointed Apache Korea Corp to provide sales, vertical marketing and technical support for apt-X audio codec technology in the Republic of Korea. Apache Korea is an established distributor of digital wireless audio solutions – including Bluetooth, UWB, Wi-Fi, and ZigBee components.

Bluetooth

IVT ships 3.0 stack for Moblin/Android

IVT has released what it claims is the world's first Bluetooth V3.0+HS commercial stack for Intel's Moblin and Google's Android platforms. On top of its own latest Bluetooth V3.0+HS stack, IVT is now developing BlueSoleil 7.0 multi-wireless connection manager, which can support multiple radios and can run on Window 2000, XP, Vista and Window 7, Moblin and Android.

Bluetooth low energy L2CAP Specification

The Bluetooth SIG's Ultra Low Power working group (ULP WG) has submitted the Bluetooth low energy L2CAP Change Request (CR) for review. This CR specifies the changes to the L2CAP Part of the Bluetooth Core specification that are required to be implemented in Bluetooth low energy devices. The publication of this draft CR the working group considers final will begin the 45-day Technical Review Period.

Bangkok UnPlug-Fest goes ahead despite unrest

It is fair to say that life in Bangkok, Thailand has been unsettled in recent times. Guess what? Bangkok is the venue for the next Bluetooth SIG UnPlug-Fest (UPF), which takes place during June. The Bluetooth SIG says that it has been closely monitoring the civil unrest, and has been considering moving the event to another location. However, after reviewing news and other travel advisory sources, the SIG has decided to move forward with the event as originally planned. Any changes to this plan will be published via the UPF website.

802.11n Wi-Fi "the spoiler at the Wireless HD Video Party"

Next step in campaign for global dominance?

It seems the pro- Wi-Fi steamroller continues to rumble along. The latest flag-waver is market research company In-Stat, which is predicting that 802.11n Wi-Fi technology will dominate the wireless HD video market, at least for the next several years. Three other technologies are competing in this space—Wireless Home Digital Interface (WHDI), WirelessHD, and Ultra Wideband (UWB). However, In-Stat believes that the ubiquity of Wi-Fi technology is proving unstoppable. And, as we comment below, this could be the next phase in a measured campaign to achieve Wi-Fi dominance in the short-range wireless space.

"802.11n is the next generation of the immensely popular Wi-Fi family. It promises data rates above 100Mbps and is backwards compatible," says Brian O'Rourke, In-Stat analyst. "The installed base of Wi-Fi is immense, and effectively includes all mobile PCs, many mobile phones and a wide variety of CE devices. The primary drawback to 802.11n is expense, since it requires codec technology on both ends to transmit HD video. Neither of its primary competitors, WHDI and WirelessHD, requires codecs."

Recent research by In-Stat found the following:

- UWB will not be a major factor in the consumer electronics market. Many chip companies are leaving the market in late 2008 and 2009.
- Nearly 24 million digital TVs will ship with some type of Wireless HD video technology in 2013.
- WHDI and WirelessHD are being promoted by start-ups, but they are new, expensive, and power-hungry, which is generally not a recipe for quick market success.
- WHDI and WirelessHD will see a slow start, with fewer than eight million devices with those technologies shipped in 2013.

With these predictions, In-Stat seems to be jumping on the pro- Wi-Fi bandwagon. There is no question that a definite push is being made by the Wi-Fi companies, which are acknowledged as aggressive and ambitious, to grab the short-range wireless centre ground.

'O'Rourke doesn't mention, of course that it is based around a standard – 802.11n - which is not yet ratified and is not likely to be ratified until sometime early in 2010.

Meanwhile, as reported elsewhere in this issue (see next page), Wi-Fi companies are seriously considering developing Wi-Fi-based WPAN applications for use in devices such as headsets. Ozmo Devices, which develops low-power Wi-Fi Personal Area Network (Wi-Fi PAN) solutions, and Wolfson Microelectronics are collaborating to deliver an audio reference design to manufacturers of audio peripherals. Ozmo's Wi-Fi PAN solution apparently enables connectivity between peripherals such as mice and headsets and Wi-Fi–enabled platforms.

At one time, the powerful position that Wi-Fi is aiming for seemed to be territory securely held by Bluetooth. With Bluetooth 3.0, the Bluetooth SIG is aiming to manage the Bluetooth/Wi-Fi relationship, but will it work out that way?

Rumours are already circulating that Bluetooth's position is threatened, and there is no doubt that the FUD factor is coming into play. Bluetooth SIG exec Mike Foley has already found it necessary to respond. In a recent blog, Foley commented: "Although I worked with the Wi-Fi Alliance when I was employed at Microsoft, the Bluetooth SIG is not a member of the Wi-Fi Alliance. As such, I am not privy to the work going on in that organization and so cannot personally comment on anything the Wi-Fi Alliance may be doing beyond information that is publicly available. What I can share is that the traditional role of the Wi-Fi organization has been to create a test and logo program for technology developed by the IEEE. Over the years, the line of responsibilities between the Alliance and the IEEE blurred when stalling of the IEEE resulted in some specification development being addressed in the Wi-Fi Alliance. A move by the Alliance to take on a new, broad specification development task such as expanding 802.11 for true PAN operation in a Wi-Fi environment would severely stretch this capability base. While of course not impossible, this type of effort would raise the question of the Alliance spreading itself too thin and opening the door for others to encroach on the current strength of Wi-Fi: certifying IEEE 802.11 LAN products. I welcome commentary from the Wi-Fi Alliance in response to this post and look forward to clearing up the confusion about the relationship between Bluetooth and 802.11 (not Wi-Fi) in Bluetooth v3.0 + HS". Read the full version of Mike's blog here.

This is going to be a tricky situation to manage. The old truism is that this is a big market, with room for many players. But it is true to say that the biggest and most aggressive dogs generally lead the pack, and Wi-Fi seems to be aiming to be Top Dog. To round off this commentary with one more cliché, the Bluetooth companies would do well to remember that while there may be some truth in the old maxim 'keep your friends close, and your enemies closer still', close proximity can also provide opportunities for back stabbing.

Is this debate the next major topic that will dominate proceedings for months or years to come? Only time will tell.

wi-fi / wlan news

Wi-Fi invades headset territory

If you thought that Bluetooth's tenure of the handset/headset relationship was unshakeable, think again. Incisor learns that Ozmo Devices, a low-power Wi-Fi Personal Area Network (Wi-Fi PAN) solutions provider, and Wolfson Microelectronics are collaborating to deliver an audio reference design to manufacturers of audio peripherals. The goal is to enable connectivity between peripherals such as mice and headsets and Wi-Fi–enabled platforms – this is real Bluetooth HID territory.

It seems things are still at the PowerPoint stage at the moment, as the two companies say that they are planning to show and demo a reference design at the Intel Developer Forum in San Francisco, during August.

The OZMO1000 Audio Reference Design works on a 1.8V power supply, yet is claimed to provide the same audio volume as larger devices using a 3.3V power supply. Its dual band radio design is compatible with Ozmo-enabled IEEE802.11g and IEEE802.11a wireless LAN hosts. That bit sounds interesting – 'Ozmo-enabled WLAN hosts' – does this mean some proprietary stuff going on that the rest of the Wi-Fi world would have to buy into in order for the Wi-Fi WPAN to become a reality?

It seems not everyone is convinced by the Wi-Fi PAN proposition. Incisor spoke to leading Bluetooth semicon company CSR. Alan Woolhouse, vice president of marketing communications commented: "The critical issue for consumer electronic devices is cost. Bluetooth has the lowest cost silicon for stereo and mono headsets that connect to the devices that most people have - like cell phones. CSR's Bluetooth silicon already integrates exceptionally high quality stereo codecs enabling a true single chip stereo headphone solution at the lowest possible cost."

A straw poll of others in the industry drew a similar reaction. The feeling on the street can be summed up in one short sentence – the Wi-Fi PAN ain't going to happen. That probably won't stop Ozmo and Wolfson pursuing what they see as the opportunity.

It is called technology bleed. Or innovation. Or competition.

AT&T sees surge in Wi-Fi connections

AT&T, which claims nearly 20,000 US domestic Wi-Fi hotspots, is reporting "dramatic" growth in the number of Wi-Fi users and connections. AT&T says that Wi-Fi connections totalled 10.5 million in the first quarter of 2009 – more than triple the 3.4 million connections in the first quarter of 2008, and more than half AT&T's 20 million total Wi-Fi connections for all of 2008. The NetOp believes that the usage surge was driven by various factors, including growth in its wired and wireless broadband customer base, the proliferation of Wi-Fi enabled devices and the transition of Starbucks locations to AT&T's Wi-Fi footprint.

AT&T provides Wi-Fi access at no extra charge with to subscribers to its qualifying AT&T high speed Internet plans, 3G LaptopConnect plans and select smartphone plans.

It seems AT&T is putting its weight behind Wi-Fi as a route to new revenue opportunities, and is encouraging partners along to the party. In January, Sony introduced a Wi-Fi enabled digital camera with a built-in web browser and complimentary access to AT&T's Wi-Fi network. AT&T is also offering wirelessly embedded mini laptops – the Acer Aspire One, Dell Inspiron Mini 9 and Mini 12, and LG Xenia – in select AT&T store trial promotions in Atlanta and Philadelphia. More than 4 million connections at AT&T's U.S. Hot Spots in the first quarter were apparently made with smartphones, including the iPhone 3G.

Video-over-wireless infrastructure for 802.11n networks

Meru Networks has introduced a wireless LAN solution that has been optimised for delivering high-quality video over IEEE 802.11n networks.

Meru's product, called the Video Services Module (ViSM) is designed to address video-delivery issues specific to 802.11n networks, which Meru describes as susceptible to unpredictable loss rates that can negatively impact video quality. The module applies application-aware optimisation techniques to web streaming and real-time multicast video, the underlying technologies that enable a broad array of video applications, from wireless projection, IPTV and event simulcast to videoconferencing, telepresence and video surveillance.

Vaduvur Bharghavan, Meru's chief technology officer explained Meru's strategy: "The power of the Video Services Module lies in Meru's unique virtualized WLAN architecture, which gives every client device its own dedicated wireless 'port'. With Meru's Virtual Port, each client gets its own copy of the multicast application traffic, delivered at the highest possible data rate and unaffected by the transmission or power-save behaviour of other clients. In other vendors' legacy micro-cell solutions, which force all clients to share the same wireless resource, some clients will always suffer in terms of the timely delivery of multicast frames when other clients require buffering of traffic, thus causing multicast video delays for every client."

Meru will make the Video Services Module available in June as an add-on module to its System Director software. As a guideline, for a network with 100 wireless access points, the module is priced at $7,995.

uwb / wireless USB news

Wireless USB adapter for PC to monitor/HDTV display

There is life in the UWB/Wireless USB market yet! Atlona Technologies, which makes connectivity solution-based AV products, and Wisair, one of the remaining UWB/Wireless USB chip companies, have announced the availability of a Wireless USB display adapter set that wirelessly transfers PC content to TVs, monitors and projectors. Users can view video, Internet content and pictures from their computer on monitors and HDTV displays without the hassle of extra cables.

The Wireless USB Adapter Set features VGA and HDMI outputs with the ability of both outputs being active simultaneously. It supports up to 1400x1050 screen resolution, provides a wireless range of up to 30 feet (in the same room), and is a fully-standard USB-IF certified solution.

Christopher Bundy, Atlona's director of marketing, noted "We've been seeing strong customer demand to be able to view PC content on displays and projectors without any video cables, so we are very excited about the potential of this new offering. We have examined several technological solutions, and Wisairs' undoubtedly provided the best range and performance at the most attractive price point."

The set is expected to be available in US retail stores in May at an MSRP of US$129. The two companies described that price as 'affordable'. Err ..... to some, maybe, but still not pocket money. Still, it's good that this kit is getting out there, and as volumes build, then prices should come down.

Hope so – this kit would get a lot of use in this house.

low energy wireless news

Listed building benefits from wireless solution

The historically important Mond laboratory building at Cambridge University has become the first educational establishment in the UK to feature EnOcean-based technology, using MK Electric's Echo range of wireless and battery-less light switches.

The rotunda-based building, which is covered by a Grade II listing, was designed in the early 1930s by architect HC Hughes as a laboratory for the Russian Nobel Prize winner Leonidovich Kapitza
The constraints of working with listed buildings – such as the Mond – made wireless switching an ideal solution as it obviates the need for chasing or any wiring in walls. Echo's EnOcean-enabled self-powered switches are entirely wireless and battery free. The benefits include almost instant switch installation, total location flexibility of light switches within buildings, easy relocation and re-installation, plus considerable cost-savings when 'churning' spaces.

The Echo lighting system essentially comprises two components: the self-powered switch, and an RF receiver. The receiver is installed at the lighting fixture and wired into the lighting circuit at the time of ceiling installation. The switch is then mounted, using either adhesive pads, for super-fast fixing or onto awkward surfaces like marble or glass, or with screws if additional security is necessary. The switch is simply 'aligned' to the receiver by setting it into learn mode and pressing the rocker. The

switch is then wirelessly paired to the fixture in question. One receiver can be programmed so it can be operated by up to 30 switches; while, conversely, any number of receivers can be activated by a single switch. Where signals may be obstructed by impervious materials such as granite or steel, repeater units are available which will divert and/ or extend transmissions around a building.

$8 Million in new financing for Ember

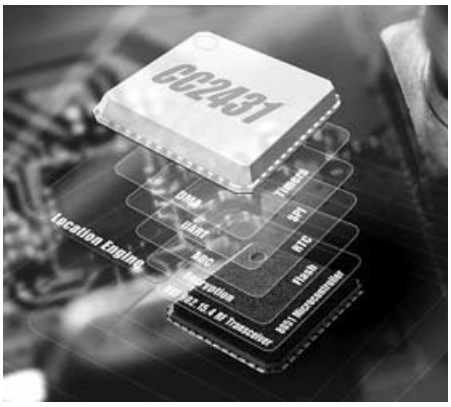
ZigBee specialist Ember Corporation has succeeded in closing an additional $8 million in funding from its primary venture capital investors and strategic partners. Ember believes that this success is based on investor confidence resulting from a significant surge in the deployment of smart meters.

Polaris Venture Partners, GrandBanks Capital, RRE Ventures, Vulcan Capital, DFJ ePlanet Ventures, New Atlantic Ventures, WestLB Mellon Asset Management (formerly West AM) and strategic partners such as Chevron Technology Ventures and Stata Venture Partners participated in the round. This new round combined with existing investments from STMicroelectronics, Hitachi Corporation and MIT bring the total capital Ember has raised to $89 million.

"ZigBee standards extend the developing 'smart grid' out to the billions of devices, appliances and equipment where most energy efficiency goals will be achieved," said Ember chairman and Polaris Partner Bob Metcalfe. "Smart meters now being equipped with ZigBee-standard Ember radio chips and protocol software are serving as energy management gateways between utilities and consumers. Ember revenues accelerated in 2008 and, with the increasing international emphasis on energy management, we are preparing Ember for continued rapid growth in 2009."

The market for 802.15.4/ZigBee devices is expected to reach as high as 292 million units in 2012, up from about 7 million units in 2007, according to research firm, In-Stat. As part of the recently enacted stimulus package signed by US President Barack Obama, over $49 billion was allocated to transform the nation's energy system, and over $17 billion of that will be aimed at electric grid infrastructure upgrades.

low energy wireless news



TI supports ZigBee Alliance plan to integrate IP standards

Texas Instruments is getting behind the ZigBee Alliance's recent announcement to integrate Internet Protocol (IP) and open standards. The plan to incorporate global IT standards from the Internet Engineering Task Force (IETF) will allow continued growth of smart grid applications beyond the smart meter with the proven ZigBee Smart Energy public application profile. "The ZigBee Alliance decision to expand its leading wireless networking standard to incorporate IP standards will solidify and accelerate developments and innovation of rapidly growing smart grid applications," said Laurent Giai-Miniet, general manager of TI's Low-Power RF business. "TI is a leading supplier in this market segment and will continue to invest in solutions for smart energy. TI is also the only supplier that can deliver solutions for ZigBee in all market segments with ZigBee PRO, RF4CE, Smart Energy profile and IP."

"Our Energy Sector members have been looking for a coupling of ZigBee's established, respected and mature wireless standards with native IP capabilities and IETF support," said Bob Heile, chairman of the ZigBee Alliance. "This move addresses that need and will further position ZigBee as a leading solution for a variety of smart grid efforts underway around the world."

Heile added that the incorporation of global IT standards from the IETF with the wide range of existing ZigBee public application profiles will empower the ZigBee user community to develop innovative solutions for wireless sensor networking devices and link them through a scalable utility IT network.

TI says that it will help in the definition and development of the new specification, will continue to collaborate within the technical working groups and announce new products for smart grid applications.

802.15.4 set for strong growth

The market for IEEE 802.15.4 semiconductors, in both consumer electronics and commercial markets, is set for significant growth over the next five years as the standard becomes the foundation for a host of applications and systems, says ABI Research.

That growth will see 802.15.4 chipset shipments grow from nearly 15 million in 2008 to nearly 499 million in 2014 — a CAGR (Compound Annual Growth Rate) of 79.6% over the period.

"Vendors across a range of industry verticals and applications are taking advantage of the availability of standardized 802.15.4 semiconductors to build their own proprietary and increasingly standardized equipment and systems," commented ABI Research principal analyst Jonathan Collins. The firm has just released a new study examining the potential for 802.15.4 semiconductors.

To date, the 802.15.4 market has grown steadily, based on proprietary point-to-point solutions and some ZigBee-based AMI infrastructure trials. Now 802.15.4 is also set to underpin a new generation of consumer electronics remote control solutions, developed by the RF4CE Consortium and recently rolled into the ZigBee Alliance. In addition, AMI trials and a growing interest in smart energy and utility management heralds a move towards full-scale smart energy solution rollouts.

While 802.15.4 will help drive broader standardization, the low-level nature of the physical and MAC layer specification will continue to provide a lower cost building block for many proprietary applications that can be hosted on 802.15.4 silicon. In fact while industry standard adoption will foster significant growth, proprietary markets will continue to account for the bulk of the market through 2014 although their dominance will recede greatly over the period.

Ember and ARM target high performance ZigBee networks

Ember's soon to be introduced, next-generation ZigBee semiconductors will utilize the ARM Cortex-M3 processor, the aim being to boost performance and low power consumption. Ember licensed the Cortex-M3 processor to deliver solutions for applications such as Smart Energy, home area networks, home health care and security systems.

The 32-bit ARM Cortex-M3 processor brings together multiple technologies to reduce memory and processor size and provides a platform to accelerate the migration of applications to 32-bit microcontrollers.

"The Cortex-M3 processor, along with the industry's leading tools ecosystem, delivers the higher performance required for more sophisticated applications while retaining low-power leadership," said Eric Schorn, vice president marketing, processor division, ARM.

Ember CEO, Bob LeFort added: "ZigBee applications are becoming increasingly demanding and a critical component in solving some of the most vexing problems of our time, such as managing energy more effectively, and we intend to be at the forefront of that revolution. ARM is the acknowledged leader in processor technology, as Ember is in wireless mesh networking technology, so ours is a natural alliance to lead the blossoming ZigBee market into the future."

low energy wireless news

NFC Forum Global Competition 2009 Announces Winners

The NFC Forum has announced the winners of the NFC Forum Global Competition 2009 previously reported in Incisor. The winning entries were named at an awards ceremony held on the 23rd of May at WIMA in Monaco. Sadly, our invite must have gone missing in the post!

In the competition, developers in a Commercial Track vied for the honour of having their solutions named “The Best NFC Service of the Year 2009,“ while a Research Track recognized “The Most Innovative NFC Research Project of the Year 2009.“ First-, second-, and third-place winners in each track were chosen by a jury composed of professionals and experts from academia and sponsoring companies.

The winners were selected from 20 finalists, who were selected earlier from 52 entries from 21 countries and four continents. The competition finalists demonstrated their entries at the Global NFC Business & Technical Developers Summit taking place this week at WIMA. Winners in each track were awarded cash prizes. First-place winners received 5000 euros, second-place 1500 euros, and third-place 1000 euros.

The first-place winner in the Commercial Track was Interactive Research & Development of Pakistan, for "Interactive Alerts for Childhood Pneumonia," which is a real-time patient tracking and referral system for use in low-resource settings. The system is currently being used for a pneumonia surveillance study in young children in Karachi, Pakistan. The second-place winner was Servtag of Germany, for "Friendticker.com," an NFC-based mobile social ticker that allows users to share their actual locations with friends by touching Friendticker NFC stickers in restaurants and bars. Third place went to Nordea of Finland for its NFC-based strong end-user authentication solution for online banking, which enables secure access to an online banking site via an NFC-enabled handset and a dual-interface bank card.

The first-place winner in the Research Track was VTT Technical Research Centre of Finland, for "Hot in the City," a mobile social media service that uses NFC-enabled mobile phones as a friend connection platform. The University of Ljubljana (Slovenia), Faculty of Electrical Engineering was awarded second place for "Touch to Communicate," which allows a consumer who has difficulty communicating to manage phone calls with a simple touch between a mobile device and passive electronic tags. The third-place prize went to ETH Zurich of Switzerland for the "APriori" NFC-based mobile application, which supports consumer purchasing decisions by interacting with tagged products to deliver point-of-sale product ratings.

NFC technology takes its next step with the Nokia 6216 classic

At the opening keynote of the 3rd annual WIMA conference, held at the Grimaldi Forum in Monaco, Nokia announced its third fully integrated Near Field Communication (NFC) device, the Nokia 6216 classic. The new arrival is Nokia's first SIM-based NFC device. This enables operators to build NFC services on to the SIM card. Nokia suggested that with NFC, consumers will benefit from greater ease of use, more convenient sharing of content - such as images, weblinks, audio files or contact data - as well as secure payment and ticketing transactions, all with just one tap of the device.

Nokia’s head of near field communications Jeremy Belostock commented: "The Nokia 6216 classic will be amongst the first commercial devices in the market complying with operator requirements using the SIM card in connection to secure transactions with Near Field Communications. With the Nokia 6216 classic in your pocket and the ticketing applications on the SIM you can replace the multitude of cards in your wallet. Having the applications on the SIM consumers can bring their secure applications to their next Nokia NFC enabled phone."

Owner's credit card information can be stored securely on the SIM card and waving the device in front of a contactless terminal enables quick payment and simple ticketing services.

In addition to the NFC technology, the Nokia 6216 classic has regular phone features such as a digital camera, stereo FM radio and music player, 3G connectivity and a microSD slot which is expandable up to 8GB.

The Nokia 6216 classic is expected to start shipping in the third quarter of 2009 in select markets with an estimated retail price of EUR 150 before taxes and subsidies.

Sirit and Stollmann cooperate on NFC

Stollmann, which supplies protocol software for communication, has joined forces with RFID technology provide Sirit Inc. to work together to bring a combined solution for Near Field Communication (NFC) products to the global market.

This single source solution makes available the combination of the NFCStack+ and JSR257 from Stollmann, and custom firmware designs, applications and NFC drivers and libraries from Sirit. In addition, both companies will provide engineering services for application development and software integration surrounding their solution.

Sirit and Stollmann, both members of the NFC Forum, told Incisor that they have solutions ready to use for mobile handsets and PC-based applications, plus NFC modules with integrated stack software. While offering a complete software suite, the two companies aim to provide close support for customers in the USA and Germany.

events

DATE	EVENT	LOCATION	NOTES	LINK
May 11 - 13 2009	Near Field Communicatoin World Europe 2009	Royal Garden Hotel, London, U.K.	-	http://www.terrapinn.com/2009/nfcw/
June 8 - 11 2009	ZigBeeexpo	Santa Clara, California, USA	-	http://www.zigbeeexpo.com/2009/
June 8 - 12 2009	Bluetooth SIG UnPlugFest 33	Bangkok, Thailand	-	https://www.bluetooth.org/Events/sig_events.htm#DevelopersConf
June 15 2009	IEEE International Conference on Communications	Dresden, Germany	-	http://www.ieee-icc.org/
June 30 - July 1	European ZigBee Developers Conference	Munich, Germany	-	http://www.elektroniknet.de/home/termine/foren/3rd-european-zigbee-developers-conference/
Sept 1 - 3 2009	4G Wireless Evolution Conference	Los Angeles, California, USA	-	http://www.wi-fi.org/events_overview.php?id=227
Oct 5 - 9 2009	Bluetooth SIG UnPlugFest 34	Stuttgart, Germany	-	https://www.bluetooth.org/Events/sig_events.htm#DevelopersConf
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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