

# FutureHorizons



The Global Semiconductor Industry Analysts

## **Future Horizons Newsletter**

### **February 2016**

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## **Industry News By Company**

### **[Ireland Holds The Aces – And Chips – To Win Big In Industrial Internet Of Things](#)**

As a nation of grumblers and occasional gamblers, we tend not to see the obvious in ourselves. One of our own unrecognised virtues is transition. We handle transition very well, even if we can't see it through the storm clouds of the time. Those blessings in disguise aren't obvious while trauma is being meted out.

Due to both our long-past and recent history, Ireland is one of the most globalised nations on earth, with the highest proportion of people living overseas and yet, ironically, with the concentration of the highest proportion of tech and life sciences industries outside of the US. It is ironic that while so many young Irish people live overseas because of the recession, Dublin and Cork are emerging as magnets for young people from all over Europe and Asia who want to live and work in STEM industries in vibrant cities.

But, ultimately, for a country that missed the industrial revolutions of the 19th century and the post-war boom of the 20th century, Ireland quickly caught up because of brave education policies. It was quick to catch the mobile investment trends that saw companies like Apple sweep into the country in the early 1980s and the same with Intel in the 1990s. Now, Apple is creating 1,000 new jobs in Cork, and Intel has selected Ireland for the latest \$5bn investment in manufacturing technologies to produce its next generation of chips.

### **[Apple iPhone Sales Grow At Slowest Rate Ever](#)**

Apple Inc. said iPhone sales grew at the slowest pace since its introduction in 2007 and forecast that revenue in the current quarter will decline for the first time in 13 years, signaling an end to its recent period of hypergrowth.

iPhone sales boomed last year after the introduction of larger-screen models in late 2014, but Apple's newest iPhones incorporate fewer noticeable changes and haven't ignited as much enthusiasm among consumers.

Apple also said its results suffered from the effects of the strong dollar and slowing global economic growth. It warned that China, its biggest overseas market, began to exhibit "signs of economic softness" this month.

### **[ARM-Based Server Processor From AMD Lacks Intel Soc Clout](#)**

Advanced Micro Devices is in the process of developing its first ARM-based server SoC. At the time of this writing, only three relatively small companies have publicly agreed to use the A1100, aka Seattle, mainly in storage and communications appliances. In fact, and one analyst said the chip will not compete directly with the Xeon server processors from Intel.

The 64bit chip was among the early examples of a running ARM-based server processor from a major chip maker. AMD hopes the A1100 powers platforms for building out the software ecosystem for ARM servers.

The 32W chip runs at 2GHz and uses eight ARM A57 cores, 4Mbytes L2 cache and supports DDR4 memory at up to 1,866MHz as well as support for two Gbit Ethernet controllers. Since it was first announced more than a year ago rivals including Applied Micro, Broadcom, Cavium, Huawei and Qualcomm have raised their sights, announcing plans for ARM-based server processors in FinFET processes using dozens of cores.

### **Cypress Rolls Out ARM M0-Based Programmable Soc**

Cypress Semiconductor has announced the PSoC 4 L-series, the latest in a family of programmable SoC, which boasts a number of capabilities. Based on the ARM M0 architecture, the latest device claims to bring outstanding configurability.

Fixed resources on the L-series PSoC-4 chip, for example, include 98 general purpose IOs, a USB device controller, DMA, LCD drive and a CAN interface. There is also a dual-mutual capacitive touch controller with 94 channel capacity. But it's the 33 programmable blocks that allow customisation to fit a range of needs. Both digital and analogue resources can be counted in this mix.

The 20 digital blocks come in three varieties: counter/timer/PWMs, serial communications and what Cypress calls universal digital blocks (UDBs). The counter/timer/PWMs, as you might expect, can be configured as whichever of the three you need, with 16bit resolution in each block. The serial communications blocks can be set up as I2C, SPI or UART interfaces as well as an EZI2C interface that emulates an EEPROM interface.

### **Foxconn To Expand Facilities, Products In India**

Electronics contract manufacturer Foxconn plans to expand its presence to new states in India in the coming months, the Economic Times reported.

Josh Foulger, Foxconn India country head and managing director, revealed the plan to PTI on the sidelines of China-India Mobile Phone and Component Manufacturing Summit in New Delhi.

At present, the contract manufacturer has facilities in Tamil Nadu and Andhra Pradesh. It has also started building a new plant in Maharashtra with a \$5-million investment.

Prior to the announcement, Foxconn Chair Terry Gou had committed to Prime Minister Narendra Modi to "strengthen Make in India," according to Foulger, adding that the companies Indian facilities have been in place and have employed some 6,000 people within six months of that commitment.

### **Imagination Technologies Chief Sir Hossein Yassaie Steps Down**

The long-serving chief executive of Imagination Technologies, Sir Hossein Yassaie, has stepped down with immediate effect after the UK chip designer warned that its performance had worsened again.

Shares in the group, a former British technology darling that has struggled to adapt quickly enough to changes in the global smartphone market, opened down 18 per cent after the surprise update on Monday morning. They later regained some ground to trade at 126p, down 4.4 per cent.

In addition to the departure of Sir Hossein, who led the company for 18 years, the company will be restructured including the sale of its Pure digital radio division. It will also aim to cut costs.

Sir Hossein, who was knighted for services to technology and innovation in 2013, joined the company in 1992 and became chief executive in 1998.

His tenure at the group saw it grow into a world-leading developer of graphics processing technology with a market value that peaked at £2bn in 2012.

### **[IQE To Spearhead £50mln Semiconductor 'Catapult'](#)**

AIM quoted semiconductor firm IQE (LON:IQE) is to benefit from a new £50mln government backed scheme.

Cardiff based IQE, alongside Cardiff University, will help spearhead a UK 'National Catapult' centre where work will focus on developing the next generation Compound Semiconductors (CS).

The scheme was unveiled following a meeting with George Osborne, Chancellor of Exchequer, who in a statement said: "The UK national centre in South Wales will develop compound semiconductors that are at the heart of modern technology.

### **[Plessey To Build Leds In Cubic Gan On Anvil Semiconductors' 3C-SiC/Si Substrates To Overcome Green Gap](#)**

Plessey, Anvil Semiconductors and the University of Cambridge today announced that they are working together to fabricate high efficiency LEDs in cubic GaN grown on Anvil's 3C-SiC / Si substrates. Cubic GaN has the potential to overcome the problems cause in conventional LEDs by the strong internal electric fields which impair carrier recombination and contribute to efficiency droop. This is particularly true for green LEDs where the internal electric fields are stronger and are believed to cause a rapid reduction in efficiency at green wavelengths known as "the green gap". The availability of cubic GaN from a readily commercialisable process on large diameter silicon wafers is as a key enabler for increasing the efficiency of green LEDs and reducing the cost of LED lighting.

The collaboration, which is partly funded by Innovate UK under the £14m Energy Catalyst Programme, follows on from work by Anvil Semiconductors and the Cambridge Centre for GaN at the University of Cambridge where they successfully grew cubic GaN on 3C-SiC on silicon wafers by MOCVD. The underlying 3C-SiC layers were produced by Anvil using its patented stress relief IP that enables growth of device quality silicon carbide on 100mm diameter silicon wafers.

### **[Photocouplers From Toshiba Operate From 4.5V To 30V](#)**

Toshiba America Electronic Components Inc. has recently unveiled a couple of IC photocouplers. The TLP2745 and TLP2748 target applications such as intelligent power module (IPM) drives, communication interfaces (such as RS232, RS422 and RS485), industrial applications and in data transmission between circuits with different voltages.

The TLP2745 and TLP2748 feature a 120ns (max) propagation delay time for higher operational efficiency and 40ns (max) pulse width distortion and 70ns (max) propagation delay skew. This results in reduced inverter dead time and improved power efficiency. In addition, by having a low threshold input current of 1.6mA (max), the photocouplers make a bufferless direct drive from microcomputers possible, reducing power consumption and possibly reducing costs of equipment systems housing photocouplers.

## **Industry News & Trends**

### **[Google And IBM Overshadow Japanese Tech Groups In Global AI Race](#)**

In a forest in western Tokyo, Hitachi's research laboratory is linked to the outside world by a path dubbed the "bridge for geeks".

It is at this lab that Kazuo Yano, the company's chief scientist, claims to have developed an artificial intelligence technology to analyse behaviour and make people happier and more productive at work.

Hitachi's unveiling last summer of its latest advances in AI sparked a quick response from Japanese rivals NEC and Fujitsu. Both trumpeted their own breakthroughs in data analysis and machine learning to spot cyber attacks and other potential criminal activity.

The bragging contest came after Shinzo Abe, Japan's prime minister, called for greater use of AI and robotics as part of his economic growth strategy, urging companies to invest more into researching new technologies. hadow Japanese tech groups in global AI race

### **[Renesas Packs Added Features To Synergy Platform](#)**

Renesas Electronics Corp. has unveiled enhancements to the Renesas Synergy Platform, which include the commercial release of the Renesas Synergy Software Package (SSP) version 1.0.0, mass production availability of the S7G2 Renesas Synergy MCUs, and availability of the first Verified Software Add-on (VSA) software from VSA programme partners.

The Renesas Synergy Platform is described by the company as a complete and qualified platform for the development of embedded and IoT applications. It was designed to provide engineers with a platform that has basic system elements implemented, configured and tested, so engineers can eliminate the time normally needed to implement and integrate base-line functionality and move almost immediately to product design, potentially reducing time to market by months. This allows system manufacturers to truly differentiate and increase the value of the end product they create.

### **[Qualcomm, TDK Ink JV To Deliver RF Front-End Sol'ns](#)**

Qualcomm Inc. TDK Corp. announced an agreement to form a joint venture to enable delivery of RF front-end (RFFE) modules and RF filters into fully integrated systems for mobile devices and fast-growing business segments, such as Internet of Things (IoT), drones, robotics, automotive applications and more, under the name RF360 Holdings Singapore PTE. Ltd. The joint venture will draw upon TDK's capabilities in micro-acoustic RF filtering, packaging and module integration technologies and Qualcomm's expertise in advanced wireless technologies to serve customers with leading-edge RF solutions into fully integrated systems.

In addition to creating RF360 Holdings, Qualcomm and TDK will expand their collaboration around key technology fields, including sensors and wireless charging.

### **[Growth In Wearables Sparks 'Battle Of The Wrists'](#)**

For the global watch industry, the latest James Bond film Spectre has a poignant moment. At the end of his usual gadgetry update, Q, the fictional head of British Secret Service research, hands the spy a new watch — an Omega product placement. When Bond asks if it “does anything”, Q replies, tartly: “It tells the time.”

The question of what exactly consumers expect — or want — from a wrist device is increasingly concerning the world’s largest jewellery and timepiece manufacturers. The sector is being buffeted by economic trends, especially the slowdown in China, the strong Swiss franc and volatility in the world’s main trading currencies.

At the start of 2016, it is also facing changing trends in watch fashions. Fashion-oriented wearable technology was a top theme at this month’s Consumer Electronics Show in Las Vegas, where Fitbit launched a fitness-focused smartwatch.

Initially, the Apple Watch and its various imitators were seen as posing little threat to the top end of the market. That remains largely the case. This month’s Salon International de la Haute Horlogerie exhibition in Geneva will celebrate innovation in precision-built, mechanical devices with timeless luxury qualities.

### **[Printed Electronics A Growth Sector For Industrial Print, Says Smithers Pira Report](#)**

The Future of Functional and Industrial Print to 2020 forecasts rapid growth in the coming years: transforming from an already burgeoning \$67 billion (€62 billion) in 2015, to more than \$105 billion by 2020.

Printing technology is widely used to decorate items from architectural and automotive glass to ceramics, electronics and textiles with new functions including biomedical, display and photovoltaics (PV) becoming significant.

### **[A Phone Battery That Lasts A WEEK Is On Its Way: Smartphone Maker Signs Deal To Add Tiny Hydrogen Fuel Cells To Handsets](#)**

The days of charging your phone every night, or carrying bulky power packs, are numbered.

Intelligent Energy, the makers of a tiny hydrogen fuel cell that can make batteries last up to a week, has signed a deal with a smartphone manufacturer to bring the technology to handsets.

The firm has not revealed the name of the manufacturer, simply describing it as an 'emerging operator,' but the move signals the technology is about to become much more mainstream.

### **[Chip Equipment Makers Eye An Era Of Waning Apple iPhone Demand](#)**

As if a global market correction weren’t enough, a broad swathe of chipmakers have also recently been slammed by prospects for slowing iPhone demand in 2016. That dent has rippled beyond Apple’s (AAPL) semiconductor suppliers, and could impose what analysts call a “derivative effect” on chip equipment makers.



“You can’t manufacture these chips without the equipment,” Stifel analyst Patrick Ho told IBD. “If (Apple iPhone) demand slows down that’s going to have some negative implications for the chipmaking industry.”

But it’s not all doom and gloom. Ho says one big countereffect is that the majority of new equipment purchases are for the production of “leading edge” chips, like the next-generation Apple processor. These new device structures are increasing the complexity and cost of manufacturing. Chip equipment makers — which design, build and sell equipment that’s up to the task — stand to benefit.

## **East European News & Trends**

### **[Russian Aircraft Engine Manufacturer Backs Young Tech Start-Ups](#)**

NPO Saturn, the largest aircraft engine manufacturer in Russia, is ready to tap on a permanent basis into new tech solutions developed by young technology companies that participated in the GenerationS-2015 start-up accelerator program, announced RVC, Russia's fund of funds for innovation and organizer of GenerationS.

Last year Saturn began to use new open innovation tools which RVC had made available in its pilot corporate acceleration program. The program encouraged Russian corporations to look for and then train promising start-up teams; and now Saturn is working to fine-tune the solutions it liked, and get those ready for serial production.

“We're now in talks over commercialization and test purchases with three former participants of GenerationS-2015. What we can offer them is, number one, give them a facility to complete their R&D and incorporate our designers' experience; number two, start direct purchases provided that their products receive our approval; and number three, support the development of these solutions at further stages to help the start-ups come up with prototypes and lower most essential technological risk barriers,” Dmitry Ivanov, director for innovation at NPO Saturn, was quoted as saying.

### **[In Russia, New Approach To Wireless Energy Transmission Developed](#)**

Researchers working on metamaterials at the St. Petersburg University of IT, Mechanics and Optics (ITMO) in partnership with colleagues at Girikond, a local research institute, have shown that using ceramic dielectrics can lead to developing efficient wireless energy transmission systems, portal Science & Technologies RF reported.

In a lab experiment, the developers are said to have been able to light up a LED bulb at a 20-30cm distance without any wires.

“It's but pioneering work; but the system does already work for a 20cm distance and 1W capacity,” ITMO research fellow Polina Kapitanova was quoted as saying.

According to the scientist, her colleagues at Girikond have come up with new samples of ceramics with an augmented dielectric permittivity and reduced losses, which is expected to help increase distances for energy transmission and also shift to megahertz range operating frequencies that are not harmful to man.

### **[Russia Backs Technology For More Environment-Friendly Gas Production](#)**

The RVC Infracfund, an investment arm of RVC, Russia's fund of funds for innovation, has invested in EKAT, a Perm-based engineering company in the West Urals which is developing and commercializing solutions to reduce harmful emissions in the oil and gas sector, RVC announced.

The company is also said to have been supported by the Perm Regional Venture Fund.

EKAT wants to funnel the new investment in supporting the commercialization of its proprietary solution for air cleaning and gas emissions neutralization. What they claim is

an energy efficient modular system is believed to be able to handle all types of oil and gas contaminants, which is expected to considerably improve the environmental condition in the areas of oil and gas companies' operation.

The developer hopes to help reduce nitrogen oxide concentrations in emissions from gas transportation systems as well by using special catalytic purification solutions and automatic gas analyzers. In addition, the new Perm product is said to be able to improve energy efficiency in areas of installation as it enables neighborhoods to reuse thermal energy.

### **Russian Microprocessors To Debut On Global Markets**

The Russian company Baikal Electronics (BE) plans to start production of the first commercial batch of its Baikal-T1 dual-core microprocessors. About 100,000 chips will come off the production line in early 2016. According to BE, more than 100 companies are among the first customers, and about 20 are outside of Russia. These include Lanner, the Taiwanese manufacturer of embedded computers. By 2020, BE plans to sell at least 5 million chips at home and abroad.

The Baikal T-1 is the first Russian-made chip for commercial use, and will cost about \$60. Until recently, Russian companies made microprocessors mainly for the country's defense industry.

According to BE representative, Andrey Malafeev, \$60 per chip corresponds to market prices for a complete system with an interface that performs all the functions of a computer.

## **World Economic Round Up**

India has consolidated its lead as the world's fastest-growing large economy, with real Gross Domestic Product (GDP) officially rising 7.3percent in the final quarter of 2015 compared with the same period of 2014, according to official data. The Central Statistics Office also offered an upbeat forecast for the financial year to end-March, predicting annual Indian growth of 7.6 percent for the full year, the highest for five years. The data confirm India has overtaken the much larger Chinese economy in terms of growth. Chinese GDP grew 6.9 percent in 2015, a 25-year-low, and concerns are growing about the effects of the Chinese slowdown on the global economy. Exporters of oil and other commodities have been hard hit and the economies of both Russia and Brazil shrank last year.

*The latest economic news by country to include USA, Europe, UK, Japan, China, Asia Pacific and India can be found each month in our [Semiconductor Monthly Report](#).*

## Industry Events 2015

### Future Horizons Events

- [Silicon Chip Industry Training Seminar](#) – London – 7<sup>th</sup> March 2016
- [Industry Forecast Briefing](#), London – 20<sup>th</sup> September 2016

*To book your place on any of our events please contact us on:*

*Telephone: +44 1732 740440*

*Email: [mail@futurehorizons.com](mailto:mail@futurehorizons.com)*

[Download Future Horizons Full Events Calendar Here](#)

### Industry Events

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**MARK YOUR CALENDER FOR THE NEXT**

**SILICON CHIP INDUSTRY WORKSHOP**

**MONDAY 7<sup>th</sup> MARCH 2016**

**AND**

**INDUSTRY FORECAST BRIEFING**

**TUESDAY 20<sup>th</sup> SEPTEMBER 2016**

**BOTH BEING HELD AT**

**HOLIDAY INN KENSINGTON FORUM, LONDON**

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