FutureHorizons

The Global Semiconductor Industry Analysts

# Future Horizons Newsletter

## March 2016

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## Industry News By Company

### Germany's Carmakers Gear Up For Tech Challenge

Top German carmakers have expressed fears that the deck is stacked in favour of technology companies as the automobile industry faces the biggest revolution since the Model T Ford more than a century ago.

Carmakers are striving to create emissions-free vehicles that drive on their own just as consumers move from owning cars to sharing them, and motor manufacturers are competing with technology companies in some of these areas.

"There's this threat that third parties would step between yourself and the customer and you would become the Foxconn of the auto industry," said Dieter Zetsche, chief executive of Daimler, referring to the Taiwanese supplier to Apple.

### Analogix Introduces SlimPort ANX7688 – First 4K 60fps Single-Chip Transmitter to Support DisplayPort over USB-C for Smartphones and Tablets

SANTA CLARA, Calif.--(BUSINESS WIRE)--Analogix Semiconductor, Inc. today announced the availability of its SlimPort® ANX7688, the first single-chip mobile transmitter to support 4K 60 frames per second (4096x2160p60) or FHD 120 frames per second (1920x1080p120) video resolution from a smartphone or tablet with full function USB-C™, ideal for applications such as augmented reality (AR) and virtual reality (VR) which require superior video processing and performance.

Made to pair seamlessly with Qualcomm-based USB-C smartphones and tablets, the ANX7688 is a single-chip bridge integrated circuit (IC) that converts the HDMI and USB interfaces of the application processor (AP) to DisplayPort™, integrating a converter bridge, a high speed mux, USB-PD support for fast charging, with the latest HDCP 2.2 content protection, and therefore enabling a full function USB-C connector on the mobile device.

### ARM Working On Machine Learning, Neural Networks

ARM Holdings plc revealed that it holds some research interest in machine learning and neural networks but is not yet ready to say whether it can be turned into commercial business. The company had about a 46 per cent share of the global market with 8,053 crore ($1.2 billion) worth in business in 2014, according to Gartner, a market research firm.

ARM's 25 years of existence have seen it expand from the supply of 32bit CPU cores with the addition of GPUs, video processors and crypto-acceleration processors. Expanding ARM's processor domain is something the company is always looking at, said James McNiven, GM of ARM's CPU group.

## Knowles Ships More Than 8 Billion MEMS Microphones Globally; Sets New Industry Record

Today, Knowles Corporation (KN) celebrates a new industry milestone with the successful shipment of more than eight billion SiSonic™ microphones, globally. Knowles is a pioneer in the MEMS microphone industry, and is leading the industry to intelligent audio solutions that merge high-performance microphones with best-in-class audio software and signal processing.

Knowles' newest innovations will be on display at Mobile World Congress in Barcelona, Spain for customers, partners, analysts and the media in Hall 2, booth 2B23MR.

## LG Electronics Redefines The Future Of Smart Television

Looking at the slow lurch of technological progress in the latter half of the 20th century, it is apparent that the pace of change has been dwarfed by the improvements made in the past 15 years alone. The catalyst for these changes began once manufacturers were no longer shackled by the limitations of cathode ray tubes. No longer reliant on bulky tubes, the capabilities of TVs began to grow exponentially. Picture quality drastically improved, screens grew in size and production became more cost-efficient. For the first time, TVs were able to offer with more colours, smaller bezels and thinner casings.

Leading electronics manufacturers are now intensely investing in research and development in order to come up with modern TVs that address various consumer needs. One of such companies is LG Electronics, with its large array of game-changing TVs.

## NXP and Qualcomm Expand Collaboration to Enable Mobile Transit in Snapdragon-Based Phones

BARCELONA, Spain--(BUSINESS WIRE)--(Mobile World Congress 2016) – NXP Semiconductors N.V. (NASDAQ:NXPI) and Qualcomm Incorporated (NASDAQ:QCOM) through its subsidiary, Qualcomm Technologies, Inc., today announced the integration of industry-leading near field communication (NFC) and embedded secure element (eSE) solutions across Qualcomm® Snapdragon™ 800, 600, 400 and 200 processor platforms. The end-to-end solution now includes pre-validation of mobile transaction services including transit and payment.

"Combining NXP's advanced NFC and security expertise with our industry leading Qualcomm Snapdragon processors, we are offering comprehensive, cost-effective, and validated contactless payments and transit solutions at scale to mobile OEMs and service providers in China"

To support this increased demand for mobile transactions mobile device suppliers face a challenge to scale up their solutions fast enough to meet market needs. The NXP and Qualcomm Technologies collaboration enables mobile device makers to accelerate their time to market, and benefit from the strong growth in the mobile transactions industry.

## Plessey Announces New LED Beam Control Modules

Plessey will be releasing a new LED beam control module at the Light and Building event from 13-18 March 2016 at the Fair and Exhibition Centre in Frankfurt, Germany. Called Stellar, the new GaN-on-silicon LED solution combines Plessey's MaGIC surface-emitting LEDs with modular optics.

"As part of our chip scale optics development we have developed a variety ofsolutions for beam control off the LED chip. This is an exciting development for LED modules and lighting designers. Getting light to where you need it is critical in industrial, retail, hospitality and outdoor lighting," said Keith Strickland, Plessey's CTO.

He added: “Stellar provides lighting designers with the design freedom needed for lightweight, low profile, less bulky designs. As this is our first year exhibiting our LED and lighting solutions at Light and Building, we are very excited about releasing some of our newest developments using our GaN-on-silicon technology. We will be sharing with the leading lighting companies some lighting ideas that take advantage of our technology, including those related to on-chip beam forming."

## Qualcomm Wins Back Samsung Semiconductor Business

After a year on the sidelines, Qualcomm Inc. has won back the key semiconductor slot in Samsung Electronics Co.'s latest flagship smartphones.

The San Diego company said that its Snapdragon 820 processor will power Samsung's new Galaxy S7 and S7 Edge smartphones sold in select markets, such as the United States.

Samsung will use its own Exynos processor in Galaxy S7 models sold in South Korea and some other countries.

The announcement at the Mobile World Congress trade show in Barcelona, Spain, was expected but still welcome news for Qualcomm. Samsung is the world's largest maker of Android handsets, shipping nearly 325 million devices last year, according to industry research firm International Data Corp. It is a longtime Qualcomm customer.

## Samsung Launches ARTIK Platform To Make Home Electronics Ready For Iot

Samsung Electronics Co. has released a module that supports the Internet of Things (IoT) technology, allowing small and medium enterprises to speed up the development of IoT products.

With the small pocket sized module, even individuals can develop smart devices to control home electronics.

Samsung Electronics said Thursday a commercial version of ARTIK, an open platform, is available and launched an official partner program.

ARTIK allows Samsung Electronics to take a step closer in creating a new IoT ecosystem for the industry. ARTIK is composed of various parts including an application processor, a memory chip, sensors and a communications device. It supports various high-end technologies including security solutions and cloud computing services. The company said it is the epitome of its industry-leading semiconductor technology.

## STMicroelectronics' ARM Cortex MCU Sees Volume Production

STMicroelectronics' ARM Cortex-M0+ STM32L0 microcontrollers, with a development ecosystem, including cost-efficient boards and free software tools sees high volume production as it benefits developers and allows them control over applications' power consumption.

Ideal for energy-sensitive applications including wearables, medical monitors, industrial sensors, and smart-living devices, the STM32L0 microcontroller (MCU) series achieves energy efficiency of 135 ULPMark -C certified and 158.7 ULPMark -C with a DC/DC converter. Moreover, ST's proprietary process technology is temperature-stable, ensuring the STM32L0 series has the power consumption at 125°C.

## Europe And Asia In Race To Set 5G Mobile Standard

An intense rivalry is developing between Europe and Asia to be the first to develop the next generation of mobile technology, known as 5G. Being first would allow a region to set the standard and reap the economic benefits, chiefly the fees from patent licensing.

The next generation network is expected to build on, rather than replace, existing 4G services. It is likely to be able to deliver data speeds up to 10 gigabits per second (gbps) and near instant reaction times capable of supporting connected cars and virtual reality applications.

The European Commission has stepped in to help companies such as Nokia and Ericsson stay in the forefront. Last month the regulator summoned telecoms groups to a meeting to help speed up and implement a strategy to deploy next generation mobile services.

## Digitally Weary Users Switch To 'Dumb' Phones

In January, British actor Eddie Redmayne made headlines around the world as he became the latest in a growing band of smartphone refuseniks.

"It was a reaction against being glued permanently to my iPhone during waking hours," he explained, turning instead to an old-fashioned "dumb phone" handset that could only make and take calls.

He is not alone. There is a small but busy market for phones that are simple and cheap at a time when smartphones are becoming ever more complex and expensive.

Feature phones — handsets with some basic functions such as playing music and accessing the internet — are gradually being replaced by low cost smartphones, according to Francisco Jeronimo, research director for European mobile devices at IDC, the research group. But there is still a significant demand for older-style phones.

## Google Driverless Car In Road Accident

One of Google's driverless cars has been involved in an accident for the first time in a situation where human drivers rely on the normal social etiquette of the road to avoid scrapes, according to an accident report filed in California.

The incident highlights the challenges of programming machines to deal with the sort of social situations that humans encounter every day on the roads, but which are beyond robots to resolve, experts said.

It also threatens to cast an unflattering light on the technology at a time when Google is fighting a proposed California rule requiring autonomous vehicles to have human drivers on hand to override their controls in emergencies.

However, the company suggested that the accident would have occurred even if a human had been at the wheel, while adding that it had already adjusted its algorithms to take account of the lessons from the scrape

## Fujitsu Cracks Multi-Source Data Encryption Conundrum

Fujitsu Laboratories Ltd and Fujitsu Laboratories of America Inc. have announced the development of encryption technology that can match IDs or attribute values in information sources, such as classified or private data from multiple organisations, that are encrypted with different keys, without the need for decrypting the information.

As the use of the cloud and big data analysis has progressed, the demand for shared use of personal data and confidential information among multiple organisations has increased. In the healthcare sector for instance, there is a need to use clinical, health and genome information and tie it into the clinical studies or the drug-discovery business among multiple research organisations.

## New Type Of 2D Semiconductor To Make Computers Faster, Consume Less Power

Engineers at the University of Utah have discovered a new kind of 2D semiconducting material for electronics. This could lead to much faster computers and smartphones while consuming less power.

The semiconductor, made of tin and oxygen elements, is a layer of 2D material that is only one atom thick. It allows electrical charges to move through it much faster than conventional 3D materials such as silicon.

## A Brand New 2d Semiconductor Could Put Silicon In The Shade

A new kind of semiconductor is the first material with a 2D geometry to provide the electrical properties of silicon — but its shape could mean that it's actually able to outperform the reliable old material.

Like graphene, the new semiconductor is a 2D layer that's just a single atom thick. Made up of tin and oxygen — or tin monoxide, if you'd rather — the 2D sheets conduct electrical charge much faster than conventional 3D semiconductors like silicon.

The new breed of 2D materials — graphene, stanene and borophene — have been touted as having incredible electrical properties. And they do: Some of them conduct electrons better than many other materials could ever dream of. But in order to replace the gold standard that is silicon in electronic devices, that's not enough.

A semiconductor — which is the kind of material used in the transistors that, when added together, can create computer chips — doesn't rely on moving just negatively charged electrons, but positively charged 'holes' too. (The best way to think of a hole is as a lack of an electron at a position where one could exist.)

## Neil Woodford Backs 3D Printing Revolution At Metalysis

Metalysis, a UK company that aims to produce metal powders for use in 3D printing at lower costs, has secured £20m in new investment from British investor Neil Woodford and Australia's Iluka Resources.

The South Yorkshire-based company is primarily focused on producing titanium powder, a form of the lightweight metal that has been tested in the printing of aerospace and automotive components.

It has also worked with TWI, another UK company, on using its tantalum powder for 3D printing orthopaedic hip implants. 3D-printed hip replacements allow patients to have tailor-made joints formed after scanning their other hip, rather than standard sizes.

Titanium is currently used for aircraft parts such as landing gears, but its high cost has limited more widespread adoption. 3D printing could lower the cost by reducing the amount of machining and wasted metal.

## Wireless Sensor Network Ups The Ante Of Sports Broadcasts

The number of applications that wireless sensors support nowadays is remarkable. In particular, low-power, three-axis accelerometers and high-performance gyroscopes are found in drones and mobile camera modules, smartphones, mobile communication and gaming device, augmented reality systems, virtual reality, image stabilisation and industrial measurement applications.

Sensors can perform tiny, discrete sensing and measurement functions or they can be networked together to create an intelligent, big data approach to things such as dynamic motion analysis.

## Breakthrough Solar Cell Lighter, Thinner Than Soap Bubbles

A team of researchers from the Massachusetts Institute of Technology (MIT) has created what they say are the thinnest, lightest solar cells that could be placed on almost any surface such as a shirt, smartphone, or even on a sheet of paper or a helium balloon. Though it may take years to develop into a commercial product, the laboratory proof-of-concept shows a novel approach to making solar cells that could help power the next generation of portable electronic devices.

The process is described in a paper by MIT professor Vladimir Bulovic, research scientist Annie Wang, and doctoral student Joel Jean, in the journal Organic Electronics.

## Tatarstan Teams Up With Enterprise Ireland To Launch Russian Start-Ups Globally

Pulsar Venture Capital, an early-stage investment fund from Tatarstan, in the mid-Volga area, has launched a start-up accelerator in partnership with government agency Enterprise Ireland and Dublin-based early stage investor NDRC, reported East-West Digital News, the first international information company dedicated to Russian digital industries.

The accelerator reportedly promises to help start-ups "enter the global market and find an investor or strategic partner in 100 days." Three locations are involved: Kazan (the capital of Tatarstan), Dublin and Silicon Valley, with each selected start-up going through boot camps in the three countries, as Ivan Dobryshev of Pulsar's press service explained.

Following online application, fifty start-ups will be selected in April for further program stages in the fields of information technologies, industrial technologies, hardware, oil and gas innovations, biotechnology, medicine of the future and new materials.

## New Sensor And IC Building Technique Developed In Russia

A Russian research team has come up with a new method enabling fast and inexpensive design of very small sensors and ICs by using a mechanism of laser application of structures to glass with a resolution of less than 100 nanometers, announced the Moscow Institute of Physics and Technology (MIPT), one of the project participants.

The scientists used a femtosecond laser to apply structures to the surface of a transparent material, in this case glass. A beam of light was used to create a sort of trap in liquid where glass microspheres were placed. The device can be moved around to focus the laser on certain parts of the glass. When impacted by a laser beam and heated, pits are produced in the laser-affected zones which are then subject to etching.

## Russia's Largest Tech Corporation Says Bye To Windows And Embraces Russian Linux Solution

Rostec, the national umbrella for Russia's state-owned tech developers, announced a major shift from Windows to a Russian-developed Linux-based operating system, which is expected to emerge as a "quality analog of foreign solutions." A pilot project will be carried out at Helicopters of Russia, a sizable Rostec asset.

The Helicopters of Russia holding company has unveiled a three-year plan for the development of an alternative to its current IT architecture. In their step-by-step approach, the holding wants to replace Microsoft Windows for Linux, including Astra Linux Special Edition, a Russian-made protected operating system.

## British Passengers Will Ride With A Russian-Made Multipass

Smart ticketing is a system that instead of a paper ticket a traveler stores one's travel privileges electronically on a microchip embedded in a smartcard. The British startup

TediPay is developing the next generation for smart ticketing, which will be a contactless payment service (MultiPass) to make travel purchases for different modes of transport. To develop this new service, TediPay needed technology created by Russia's CardsMobile, and so the companies signed an agreement last year.

According to the terms of the partnership, TediPay will provide a hardware platform for the development of a variety of mobile devices. These will be key rings, bracelets and watches connected to a smartphone via Bluetooth. The devices will contain images of different cards such as transport, banking and discount cards, as well as personal data.

"CardsMobile ensures secure transmission of data from transport operators, banks, government agencies and security systems to the user's mobile device, allowing to manage the life cycle of this data on the device," said Kirill Gorynya, CEO of CardsMobile.

## Russian Entrepreneurs Set Sights Closer to Home

ULYANOVSK, Russia—A growing number of Russian entrepreneurs are eschewing Silicon Valley and even Moscow, drawing instead on often-remote towns, including Russia's network of Soviet-era hubs of scientific research.

Ruslan Fazlyev launched his first startup to impress his future wife—when he was nearly broke and living in Ulyanovsk, a town more than 500 miles east of Moscow, known for producing cars and as the birthplace of Vladimir Lenin. More than a decade later, the 35-year-old's second startup, Ecwid, has a second office in San Diego and boasts clients in 150 countries.

"Today Ulyanovsk is a little town with a lot of [information technology] talent," said Mr. Fazlyev.

## World Economic Round Up

Growth fears have roiled global stock markets, while oversupply has pushed down the price of oil. But one gauge of the world's economic health, underlying consumer prices, is proving surprisingly resilient. Core inflation, which strips out food and energy prices, has held steady or risen in the U.S., the U.K., Europe and other advanced economies in recent months. At a time when headline inflation in these countries has hovered near zero for more than a year, firming core prices suggest the gloom about the state of the economy may be overdone.

***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 – 6th June 2016
- Industry Forecast Briefing, London – 20th September 2016

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

***Telephone: +44 1732 740440***
***Email: mail@futurehorizons.com***

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**Industry Events**

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MARK YOUR CALENDER FOR THE NEXT

SILICON CHIP INDUSTRY WORKSHOP
MONDAY 6th JUNE 2016
AND
INDUSTRY FORECAST BRIEFING
TUESDAY 20th SEPTEMBER 2016

BOTH BEING HELD AT

HOLIDAY INN KENSINGTON FORUM, LONDON

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