FutureHorizons

The Global Semiconductor Industry Analysts

Future Horizons Newsletter

September 2015

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Growing Graphene Nanoribbons Now Possible, And Here's Why It's A Big Deal

Graphene nanoribbons can now easily be grown in laboratories, which could herald a new generation of faster electronic devices. The ribbons are grown on a base of germanium, and the fine fibers automatically align with each other, forming into a configuration known as an armchair shape.

Germanium is a metaloid chemical element, number 32 on the periodic table. Chemically, the substance acts much like silicon and tin.

5G Could Usher In Wi-Fi Demise

The next iteration of mobile connectivity could spawn a whole new level of experience for users. Intel recently clarified its vision of 5G at a keynote during the Intel Developer Forum 2015. "Seamless" is the goal and it comes at a price.

The top-line is that Intel hopes to apply all its expertise in computing, networking and wireless communications to make a seamless 5G solution that incorporates distributed intelligence at all levels--from the smartphone to the router to the base station aggregator to cloudlets, clouds and our fastest supercomputers.

Atmel, Intel Team Up To Boost Security In IoT Apps

Atmel Corp. has revealed that it is collaborating with Intel to bring more secure Internet of Things (IoT) applications to market. As such, Atmel will support Intel Enhanced Privacy ID (Intel EPID) technology on all Atmel SmartConnect wireless solutions to boost secure cloud provisioning, the mutual authentication of the IoT node with the cloud.

With tens of billions of devices anticipated by 2020, security is one of the critical components to enabling a seamless connection between the edge node to the cloud. Atmel also claims to offer a complete portfolio of IoT solutions that combine Atmel | SMART MCUs along with its SmartConnect wireless technologies ranging from WiFi, 802.15.4 and Bluetooth, and Atmel secure products. This effort enables developers using Atmel wireless solutions the option to use the trusted Intel EPID identification standard in their solutions.

Huawei Chips Away At Samsung

HONG KONG—For the past three years, Samsung Electronics Co. has been the world’s top seller of smartphones, but its global lead is now under attack from fast-growing Chinese rival Huawei Technologies Co.

Long known as a telecommunications-equipment supplier to global carriers, Huawei has already toppled Samsung in China, the world’s biggest market, where 425 million smartphones are expected to be shipped this year. Globally, the Shenzhen-based company became the third-largest smartphone maker in the second quarter, according to data from IDC. This is due, in part, to its ability to gain market share in the Middle East and Africa, where smartphone growth exceeds that of any other region.

With handset revenue up 87% in the first half of this year, Huawei expects profit from its smartphone business to more than double this year. If its pace of growth continues, Huawei hopes to challenge top competitors Samsung and Apple Inc. in the smartphone market.

IBM Extends IoT Platform With ARM

IBM has announced that it has added ARM's mbed in order to expand its Internet of Things platform. "IBM is mbed with ARM" means that ARM's IoT cloud interface for microcontrollers, called mbed, now dovetails with IBM's IoT Foundation.

It's all made possible by virtue of IBM already purchasing and installing ARM servers to run among its Power servers in IBM's Bluemix cloud Platform-as-a-Service (PaS). Together ARM and Power servers will provide device management, run analytics in real-time so archives are not just raw data, and guarantee security with sophisticated deep risk management for any number of IoT devices.

Infineon Introduces First GaN-On-Sic RF Power Transistors

Infineon Technologies has introduced its first devices in a family of GaN-on-SiC RF power transistors at this year's European Microwave Week, running from September 6-11 in Paris. Infineon says these new devices will allow manufacturers of mobile base stations to build smaller, more powerful and more flexible transmitters.

With higher efficiency, improved power density and more bandwidth than currently used RF power transistors, the new devices are said to improve the economics of building infrastructure to support today's cellular networks. Additionally, they will pave the way for the transition to 5G technology with higher data volumes and thus, enhanced user-experience.

Intel To Invest $50m In Quantum Research Collaboration

Intel, Delft University of Technology and TNO, the Dutch Organisation for Applied Research, have embarked on a 10 year project to accelerate advancements in quantum computing. As part of the collaboration, Intel will invest $50million, as well as engineering resources and technical support.

"A fully functioning quantum computer is at least a dozen years away," said Mike Mayberry, pictured, managing director of Intel Labs, "but the practical and theoretical research efforts we're announcing today mark an important milestone in the journey

New Infineon Power MOSFETs Make Electrical Appliances More Compact and Durable

Munich, Germany – August 26, 2015 – DIY tools such as cordless drills and saws have to be handy and durable. Therefore, the electronic components used in the applications need to be space-saving and rugged. Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) has extended its StrongIRFET™ Power MOSFET family and thereby provides a solution that fulfills both requirements. The Logic Level StrongIRFETs™ can be driven directly from a microcontroller, saving space and cutting costs. Additionally, the MOSFETs are highly rugged and thus help lengthen the service life of the electronic devices.

The tried and tested StrongIRFET family enables highest energy efficiency in electric appliances. With the logic level extension, Infineon meets the market's demand for StrongIRFETs that do not require a stand-alone driver.In the logic level variant the necessary gate-source voltage is reduced to 4.5 V. This makes it possible to directly connect the MOSFET with the microcontroller in many applications.

LG Electronics Unveil The Industry's First Solid Rollable Wireless Portable Keyboard At IFA 2015

In an effort to capture a larger share of the fast-growing mobile accessories market, LG Electronics (LG) will unveil the industry's first solid rollable wireless portable keyboard at IFA 2015 in Berlin, Germany. Unlike other portable keyboards on the market, LG's Rolly Keyboard (model KBB-700) folds up along the four rows to create an easy-to-carry "stick" that fits into one's pocket as easily as any purse or briefcase.

Featuring high-contrast keys and a fold-out mobile device stand, typing on Rolly Keyboard is extremely comfortable because its 17mm key pitch is nearly as generous as the 18mm key pitch found on most desktop keyboards. Made of impact-resistant and durable polycarbonate and ABS plastic, typing on the keyboard offers satisfying tactile feedback not found on flexible silicone keyboards. Two sturdy arms fold out to support smartphones as well as tablets 1 in an upright position. Simply unfolding the Rolly Keyboard enables the auto pairing function to connect easily to two different devices at the same time via Bluetooth 3.0 with the ability to toggle between the two with a simple key press. A single AAA battery powers the keyboard for up to three months of average use.

Micromax, Mediatek Join Forces To Drive 4G

MediaTek, a fabless semiconductor company based in Taiwan, teamed up with Micromax Informatics to speed up 4G accessibility in the country and fuel faster smartphone adoption in India's rapidly growing market.

As part of the company's India roadmap, MediaTek announced the availability of the Helio family of smartphone chipsets, as well as the intention for Micromax to be the first Indian brand to launch a device on the new Helio premium platform using the Helio X10.

In addition, the companies also released the latest mid-range 4G LTE phone—Micromax Canvas Fire 4G—running on MediaTek's MT6735. The Canvas Fire 4G is an extension of Micromax's Fire series, which has been custom built for music lovers.

Newport-Based Electronics Manufacturer Reaches $1billion Milestone

A NEWPORT-based technologies manufacturer has announced that it has exported more than $1billion worth of simiconductor equipment in the space of six years.

SPTS Technologies, an Orbotech company and supplier of advanced wafer processing solutions for the global semiconductor and related industries, has reached the milestone after support from the Welsh Government's Research, Development and Innovation ("RD&I") funding scheme.

SPTS has been pioneering advanced wafer processing technologies for semiconductor and microelectromechanical systems (MEMS) devices from its headquarters in Newport since 2009.

Commenting on the achievement, Kevin Crofton, president of SPTS Technologies and Corporate VP at Orbotech, said: “SPTS has a long history of innovation in the new wafer processing technologies for the global semiconductor and micro-electronics manufacturing industries, with advanced packaging remaining a strategic and high growth segment of our business.

STMicroelectronics Pushes MEMS Innovation In Smart Things, Smart Environments, And Smart Driving

STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications, a top MEMS (Micro-Electro-Mechanical Systems) manufacturer and the world’s leading supplier of MEMS for consumer and mobile applications1, and a top-three supplier of automotive ICs2, today announced that two of its executives will deliver keynote speeches at the SEMICON Taiwan 2015 MEMS Forum.

Benedetto Vigna, Executive Vice President and General Manager of ST’s Analog, MEMS and Sensors Group will talk about the enabling role of MEMS and Sensors in bringing to life Smart Things (Internet of Things, Wearables), Smart Environments (Smart Cities, Smart Industry, and Smart Home), and Smart Driving (Green and Connected Car). Edoardo Merli, Director of Marketing and Application for ST’s Automotive Product Group in Greater China & South Asia Region will delve deeper into the subject of Smart Driving and discuss the key concepts and technology building blocks that are enabling the Internet of Cars.

Hot Chips Cooks Next-Gen Processors, Wireless, Design Tech

The recently concluded Hot Chips event painted a promising picture in the fields of 5G cellular, neural networking, molecular diagnostics and FPGAs, among others. In addition an AMD executive talked revealed the company's work on chip stacks for graphics, and a number of Intel engineers spoke about the latest x86 mobile and server processors.

A consensus is forming around a unified air interface for 5G cellular based on OFDM modulation, said Matt Grob, CTO for Qualcomm. The air interface will support a range of implementations from fast, short reach mm-wave links in cities to 900MHz for wide-area connections for the Internet of Things, Grob said.

Samsung Phones To Pack Exynos 7, Not Qualcomm

Samsung has recently announced a couple of smartphones with bigger displays in a smaller form factor. The Samsung S6 Edge+ and Note 5 will be available in the U.S. and Canada on Aug. 21.

"There is a paradox of size, consumers want a big, brilliant display but not a bulky phone," said Justin Denison, VP of product strategy and marketing for Samsung Electronics. "Consumers were forced to choose between screen size and portability; we didn't think that was a choice you should have to make."

Agriculture Technology Boasts Robots, Drones

Agriculture is no stranger to scientific innovation as shown by the emergence of 24-hour farming, autonomous tractors and driverless combines among others.

The stereotype of a farmer planting his seeds, praying for good weather and waiting for the crop to grow, in fact, has never accurately reflected farm technology—either today or a hundred years ago.

Farmers are the ultimate "innovative tinkerers," said Heidi Johnson, crops and soil agent for Dane County, Wisconsin.

Spectrum Management Tech Targets Enterprise 5G Wi-Fi Aps

Broadcom Corp. has introduced what it touts as the industry's fastest and most accurate spectrum management technology for enterprise 5G Wi-Fi access points. According to the company, AIR-IQ enables OEMs to design enterprise access points, particularly for high-density environments, with advanced WLAN air management capabilities to guarantee a reliable Wi-Fi experience.

As Wi-Fi becomes the primary connectivity source in businesses, there is a growing demand for uptime and service level agreement guarantees for a range of enterprise demanding applications across every major industry. Broadcom's AIR-IQ technology combines the best of silicon and software to provide carriers with the ability to detect and mitigate interference to deliver an exceptional and reliable connectivity experience, stated the company.

Car Industry Becomes 3rd Largest End Market For Powers Ics

IHS has recently reported that in 2014, the automotive industry significantly overtook the entire market average for semiconductors. The automotive market surpassed data processing to become the third largest end market for power semiconductor applications, added the market research firm.

Based on the report, demand for semiconductors by the automotive industry was particularly strong in advanced driver assistance systems (ADAS) and infotainment systems. In the power management semiconductor market, power ICs grew much faster than traditional power discrete solutions. The automotive power IC category in 2015 is forecast to grow eight per cent, YoY, while discrete revenue is projected to remain flat during the same time period.

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Smartphone App Yields Fast 3D Scans

Microsoft Research has developed an app that can turn a smartphone into a 3D scanner, without requiring any extra hardware or Internet connection. The MobileFusion app allows instant 3D scans to be created using any smartphone, and may soon be as quick and easy as texting or making a phone call.

The scans are high-quality enough to be used for things such as 3D printing and augmented reality video games, according to a report from Tech Times.

"What this system effectively allows us to do is to take something similar to a picture, but it's a full 3D object," said Peter Ondruska, a PhD candidate at Oxford University who worked on the project while he was an intern at Microsoft Research.

Ultra-Thin Glass From SCHOTT For Use In The Semiconductor And Electronics Industries

SCHOTT enables innovation in applications such as chip packaging, carrier wafers and touch sensors

The Germany-based technology group SCHOTT is one of the few specialized glass experts worldwide that is capable of reliably producing ultra-thin glass that is thinner than 100 microns – and that from several types of glasses with different material properties. The semiconductor industry is increasingly designing products with thin glass substrates for chip packaging and interposer applications. SCHOTT is also the only

company in the world to offer ultra-thin glass in chemically cured form, for example for use in sensor applications in electronic devices.

In Samara, Scientists Develop 3D Printer To 'Bake' Aircraft Parts

Scientists in Samara, in the Volga area, are fine-tuning their technology of making aircraft components using a special 3D printer. At the Samara State Aerospace University (SSAU), the components are simply "baked" from metal powder, the Russian news agency TASS reported.

"We have used a 3D laser sintering system to produce our first parts for a small-sized gas-turbine aircraft engine. A combustion chamber and turbine, 'grown' in our printer, are being tested now," SSAU announced.

Wave Your Hand To Camera—And Get Info You Need!

Scientists at the Altay State University (AltSU) in Siberia have come up with an interactive IT-enabled information board to replace age-old wooden or plastic boards to pin paper on. The new board will be controlled by gestures, the Russian news agency TASS reported, citing Vasiliy Belozerskikh of AltSU's Radiotekhnika student's design bureau.

"The system offers a very simple and intuitive interface, for which a unique computer algorithm has been developed to recognize sign language, such as hand movements up or down, left or right," he explained.

Skolkovo To Back New St. Petersburg 3D Visualization Display Effort

The Skolkovo Foundation has approved grant funding for Goldi S, a one-year-old spin-off of the St. Petersburg Peter the Great Polytechnic University (SPbPU) developing a new circular image visualization display, the SPbPU website announced. The actual developer of the technology is SPbPU's Institute of Applied Mathematics and Mechanics; Prof. Bolshakov who heads the Institute's telematics chair is the project leader.

The project team is said to have developed a brand new technique for 3D object imaging and presentation, which is believed to require much fewer preparatory processes and less preliminary computing. The end product for the project is a display called "GolDi D," which the team claims offers a 360 degree view of 3D objects without use of special glasses or other devices. The solution ensures "high-quality 3D imaging with a vibrant color spectrum."

Smart Watches Move Into The Russian Payments Market

Russian banks now offer customers a new way to pay for purchases. In mid-July, Alfa Bank started selling Austrian Watch2pay watches, and it was soon followed by Center-Invest, based in Rostov-on-Don. Gazprombank and AK Bars in Kazan, however, introduced the gadget even earlier, in April 2013.

The watch has a built-in bank card with MasterCard PayPass support for contactless payment. Currently, the watches can only be used at 1,564 shops in Moscow, 610 in Kazan, a little over 100 in St. Petersburg, and only a few dozen in other major cities.

These are primarily supermarkets and fast food restaurants, such as McDonald's and Subway. You can also pay the fare on some bus routes in Moscow and St. Petersburg.

The Screen Of The Future – A Peculiar 3D Aquarium?

Igor Kompanets is head of the opto-electronics division at the Lebedev Physical Institute of the Russian Academy of Sciences, and an honorary director of the Russian branch of the International Society for Information Display (SID). He is a leading specialist in the field of opto-electronics, and has contributed a great deal to the development and creation of new opto-electronic devices for the display and processing of information. He is the author of nearly 250 scientific articles and reports, three monographs, and over 70 invention certificates and patents. You may contact Igor by e-mail: kompan@sci.lebedev.ru

Today, in addition to 3D, the film industry is able to make 4D and 5D video. Thanks to a combination of stereoscopic 3D-movies and physical effects synchronized with various film sections, viewers can experience the sensation of movement, vibration, spraying water and smells. We are interested in something completely different, however. We are creating technology that makes it possible to see 3D images without 3D glasses. This will allow viewers to avoid eye or nerve fatigue, and they will have immediate access to the image. They will even be able to look deep into the screen itself.

World Economic Round Up

The price of oil in the U.S. slipped below US$40 a barrel for the first time since 2009 amid a growing consensus that cheap crude is here to stay. Oil investors and forecasters, who predicted early in the year that prices would recover in the second half of 2015, now say a rebound is unlikely before the second half of next year or 2017. U.S. government forecasters cut their oil-price estimates and see oil holding below US$60 a barrel, on average, through 2016.

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 – 16th November 2015
- Industry Forecast Briefing, London – 24th September 2015

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

Telephone: +44 1732 740440
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Industry Events

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INDUSTRY FORECAST BRIEFING
THURSDAY 24th SEPTEMBER 2015

SILICON CHIP INDUSTRY WORKSHOP
MONDAY 16th NOVEMBER 2015

BOTH BEING HELD AT

HOLIDAY INN KENSINGTON FORUM, LONDON

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