



# Future Horizons Newsletter

January 2017

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## Industry News By Company

### [Uk To Invest £1 Million In Egypt Startups](#)

The British Embassy have announced a £1-million investment fund to benefit startups of Cairo in Egypt.

The Embassy said the promise of funding was a show of confidence in Egyptian startups and will run for a period of 3 years between 2017 – 2020.

The fund is specifically for entrepreneurs who can demonstrate that their ideas are not only commercially viable, but also of wider benefit to society.

Egyptian entrepreneurs are invited to apply for backing, with successful startups to receive funding, technical advice and access to an international network of entrepreneurs.

### [Phone Shipments In Myanmar Grow 26% Year-On-Year](#)

A total of 2.5 million smartphones has been shipped to Myanmar in the third quarter of 2016, reflecting a 26% year-on-year (YoY) growth, according to International Data Corporation. This has been the strongest YoY growth seen in Myanmar's budding smartphone market since 2015Q3. Sequentially, shipments declined 10% from 2.7 million in 2016Q2 as soft retail sales and the typhoon season negatively impacted smartphone buying in the country.

Samsung continued to keep its lead, owing it largely to the good reception of its budget-friendly J-series. Huawei came in at second place and while finishing with a flat quarter, its sales and distribution were still going strong across Myanmar. Vivo spiked last quarter, coming in at third place as it further penetrated tier 2 and tier 3 cities. Xiaomi dropped to the fourth spot although its volume remained high and consumer response stayed positive as it continued to offer smartphones perceived as good value for money. OPPO held the fifth place, maintaining its stronghold in the urban sites of Yangon and Mandalay although its overall shipments dropped quarter-on quarter (QoQ) due to inventory build-up.

### [Infineon Enables Compact And Cost-Effective LED Front Light Applications With LITIX™ LED Driver Family](#)

Munich, Germany – January 10, 2017 – LEDs in automotive front lighting enable energy savings, new light designs and applications such as matrix beam and laser high-beam. Supporting the progress in automotive lighting Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) launched high-power LED drivers specifically designed for automotive front lights. The drivers are available within the new LITIX Power Flex series and the LITIX Power series. They address flexible DC/DC driver solutions supporting LED systems of up to 50 W and even above. Application setups can vary: many medium-power LEDs with string voltages of up to 55 V or few LEDs with high currents of up to 3 A and more.

Both LED drivers, the LITIX Power Flex TLD5541-1QV and the LITIX Power TLD5190QV, are well-suited for high-power and high-current LED applications. These

include for example front lighting, laser and LED headlamps. They also suit high-efficiency supplies for LED applications working on battery voltage. Furthermore, they allow cost-optimized full-LED front light applications for cars and even motorcycles with their space limitations in the handlebar's headlamp.

#### **NFMI-Based MiGLO Streams Audio At Less Than 4mW**

NXP Semiconductors' MiGLO platform targets small, wireless earbuds that will offer long battery life, high audio quality and reliable operation.

In 2016, NXP showed use of Near Field Magnetic Induction (NFMI) technology in a completely wireless earbud, supporting wireless audio streaming from ear to ear, using its NxH2280 NFMI-based radio transceiver. There is an obvious attraction of eliminating wires from in-ear transducers for both medical (hearing-aid) and entertainment products. As NXP pointed out, "truly wireless earbuds would provide substantially increased user comfort for sport activities, but in general in all situations where wires are undesired and annoying to users." In September, NXP and Chinese company Cannice announced a production-ready reference design for wireless earbuds.

#### **Oracle's Ellison, Apple, Qualcomm Invest In Softbank Fund**

Oracle founder Larry Ellison will join Apple, Qualcomm and Foxconn in backing SoftBank's record-setting technology fund, allowing the Japanese telecoms group to hit its \$100bn goal weeks ahead of schedule.

Abu Dhabi's sovereign wealth fund is also in talks to invest in SoftBank's Vision Fund, according to people briefed about the negotiations. These people added that the fund will remain open to additional investment until the end of January as demand from both large companies and sovereign funds remained strong.

The ease with which SoftBank has been able to attract investors, highlights the huge appetite global companies have for tech assets despite fears that the sky-high valuations of tech start-ups such as Uber and Snapchat are driving a new bubble.

#### **SK Hynix To Build Wafer Fab In South Korea**

LONDON—South Korean memory chip company SK Hynix Inc. has announced that it plans to spend 2.2 trillion won (about \$1.8 billion) to build NAND flash wafer fab in Cheongju, Chungcheongbuk-do.

The wafer fab is expected to be completed in June 2019 and the spending is part of a 46 trillion won (about \$38 billion) budget for mid- to long-term investment set by SK Hynix. As part of the spending plan SK Hynix is also expected to set up wafer fabs in Icheon and Cheongju.

Construction of the shell and the cleanroom is expected to start in August 2017 to be completed in June 2019 with total investment of 2.2 trillion won. The company already has the M14 wafer fab at Cheongju and in 2017 will start to use the top floor for the manufacture of 3D NAND flash.

## Telink Semiconductor's RF System On Chip (SoC) Passes ZigBee 3.0 Certification Test

Shanghai, China, 5 January 2017 – Telink Semiconductor, developer of highly integrated low power chips for Internet of Things (IoT) applications, has announced that its ZigBee RF SoC has passed the ZigBee compliant platform tests based on the latest ZigBee stack specification using DSR Corporation's ZBOSS 3.0 ZigBee 3.0 wireless stack, and thus can start to provide a ZigBee 3.0 SDK (software development kit) to its customers.

The ZigBee 3.0 compliant platform certification ensures that the ZigBee solutions (TL8269, and next generation product TL8255 which is coming soon) offered by Telink Semiconductor conform to the latest ZigBee Alliance requirements, providing seamless interoperability among the widest range of smart devices and gives consumers and businesses access to innovative products and services that will work together seamlessly to enhance everyday life. This includes applications such as home automation, lighting, energy management, smart appliance, security, sensors, and health care monitoring products.

Telink Semiconductor worked with its strategic partner, DSR Corporation (DSR), to pass the latest ZigBee compliant platform certification based on DSR's ZigBee 3.0 wireless stack – ZBOSS 3.0. The latter is a portable, high-performance ZigBee 3.0 software protocol stack allowing all device roles and featuring extensive support for various cluster libraries, predictable memory budgeting and optimized power consumption.

## Industry News & Trends

### **Robo-Cars: How Safe Is Safe Enough?**

Honesty, in corporate presentations at the Consumer Electronics Show, may not be treated as the best policy, but leave it to Gil Pratt, a former MIT professor who heads the year-old Toyota Research Institute, to buck that trend and level with his audience about the real future of autonomously driven robo-cars.

Citing the scientific and technical challenges, even with huge recent advances in artificial intelligence (AI), Pratt said, bluntly, "We are not even close."

Pratt hung this prediction on the issue of passengers' safety in self-driven cars. He noted that human beings, tolerant of human error, have come to accept the 35,000 traffic deaths every year in the United States. But, he went on to ask if people could accept even half that number of deaths caused by robotic automobiles.

### **Uncertainty Grows For 5nm, 3nm**

As several chipmakers ramp up their 10nm finFET processes, with 7nm just around the corner, R&D has begun for 5nm and beyond. In fact, some are already moving full speed ahead in the arena.

TSMC recently announced plans to build a new fab in Taiwan at a cost of \$15.7 billion. The proposed fab is targeted to manufacture TSMC's 5nm and 3nm processes, which are due out in 2020 and 2022, respectively. Other chipmakers, including GlobalFoundries, Intel and Samsung, also are looking at technologies for 5nm and beyond.

Both 5nm and 3nm present a multitude of unknowns and challenges. For one thing, the specs of these technologies are murky, if not confusing. And not all of the technologies are alike.

### **Global HPC Server Market Revenue Grows By 3.9% In Q3**

Worldwide factory revenue for the high performance computing (HPC) technical server market has shown growth of 3.9% to 18,665.42 crore (\$2.8 billion) in the third quarter of 2016, compared with 17,998.80 crore (\$2.7 billion) in the prior-year third quarter, according to International Data Corporation. The revenue for the first three quarters of 2016 totaled 53,996.40 crore (\$8.1 billion), up 3.4% from the 51,996.53 crore (\$7.8 billion) total reported in the same period last year.

In 3Q16, strong revenue growth in higher-end HPC server systems was partially offset by revenue declines in lower-priced systems.

"In the third quarter of 2016, HPC was a bright spot in the overall worldwide server market, which IDC previously reported declined 7.0% year over year to 83,327.78 crore (\$12.5 billion) in the quarter," said Earl Joseph, IDC program vice president for Technical Computing. "Higher-priced systems led the way with year-over-year growth exceeding 22%, while lower-priced system revenue declined."

### **Silk-Based Material Gets Bio-Inspired Functions**

Silk's crystalline structure makes it one of nature's toughest materials, while fibroin can protect other materials while being fully biodegradable.

Using a water-based fabrication method based on protein self-assembly, engineers from Tufts University have created a new material out of silk protein that they say can be pre-programmed with biological, chemical or optical functions, such as mechanical components that change colour with strain, deliver drugs or respond to light.

In a paper published in Proceedings of the National Academy of Sciences (PNAS), the researchers described how they were able to create three-dimensional bulk materials out of silk fibroin—the protein that gives silk its durability—which they manipulated with water-soluble molecules to create multiple solid forms, from the nano- to the micro-scale, that have embedded, pre-designed functions.

For example, the researchers created a surgical pin that changes colour as it nears its mechanical limits and is about to fail, functional screws that can be heated on demand in response to infrared light and a biocompatible component that enables the sustained release of bioactive agents, such as enzymes.

### **Thinnest Nanowire Self-assembles**

LAKE WALES, Fla. — The Stanford Linear Accelerator Center (Menlo Park, Calif.) — known now as SLAC — has demonstrated what it claims are the thinnest possible nanowires — just three-atoms thin. SLAC's process uses the smallest possible fragment of a diamond — called a diamondoid — as an insulating shell into which the copper/sulfur atoms self-assemble. The world's smallest diamondoid — an adamantane with just a 10-atom circumference — allows a three atom conductive core to self-assemble to any length.

With carbon nanotubes poised to become the smallest possible transistors channel, it makes sense for SLAC to be working on the interconnection technology for the tiny transistors of the future. Like nanotubes, they have a long way to go before the self-assembly process is reliable and accurate enough to start fabricating trillion-transistor chips, but the potential is there.

### **Process Makes Smaller, Cheaper Chips**

SAN JOSE, Calif. — Berkeley researchers described a technique that they say cuts the cost and time of making leading-edge chips while creating features smaller than today's most advanced processes. The so-called tilted ion implantation (TII) process created features as small as 9 nm.

The lab work shows promise for reducing the rapidly increasing cost and complexity of making chips, which has slowed progress in Moore's law. However, it's unclear whether chip makers will adopt the technique.

“We are using argon ions to selectively damage certain parts of the silicon dioxide layer,” said Peng Zheng, lead author of a paper published in the latest issue of the IEEE Transactions on Electron Devices. “It's self-aligned, tilting down with pre-existing mask

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features, so it doesn't have the issues of [the existing] LELE [method], where misalignment is a killer.”



## East European News & Trends

### [Yaroslavl Developers Offer New “Smart House” Concept](#)

Throne Systems, a young company from Yaroslavl in Central Russia, earlier this year unveiled its innovative approach to controlling “smart house” gadgets and Internet of Things (IoT) devices.

The Throne solution appears to be a brand new concept in putting together “smart house” control systems. At the core of the Throne interface is a schematic 3D model of objects to be controlled. A user can scale the model, move from spot to spot, and change the angle of view for each of its locations.

Graphic control system levels and individual devices are integrated in the 3D model, with the devices shown in the specific locations they operate in. Thus smart system control is “built” into the user’s real-life perception of the surrounding world and becomes as natural and effortless for him as possible.

### [Young Siberian Scientist Develops “Hydrogen Pills” For Cars](#)

A student at Tomsk Polytechnic (TPU) in Siberia is developing what he claims is a safe system to store hydrogen fuel for use in vehicles and drones; he hopes to produce an operational prototype next year, the TPU website announced.

Evgeny Boretsky, the developer, suggested that carbon be used to create a safe “package” for hydrogen. In a compound with nickel stearate and sodium stearate, carbon black is pressed into some sort of pills; the pills are then subject to calcination and hardening.

Several such pills form a fuel system, with hydrogen, driven into it under high pressure, penetrating each pill’s porous structure to bond with carbon. A student team at TPU is said to have also developed a special machine to make the fuel pills.

### [Russian Android Robot Fedor Can Screw In Light Bulbs And Do Splits](#)

The Russian android robot called Fedor (Fyodor) can do the splits and screw in a light bulb, CEO of Android Technics Research and Production Association Alexander Permyakov told TASS on Dec. 9.

Android Technics is the developer of the robot Fedor.

The chief executive confirmed that the robot could do the splits to demonstrate its technical capabilities. Moreover, it can stand on one leg, having vertically lifted the other. Our chassis allows doing this. However, as part of the tests, this technical possibility did our robot a service when it had to overcome an obstacle," the Android Technics CEO said.

## World Economic Round Up

According to the World Bank the pace of global growth will increase this year, fuelled by a rebound in commodity-exporting emerging economies and further recovery in advanced economies such as the US. However, the bank's latest forecasts included a warning that the arrival of the Trump administration and elections this year in Europe raised questions about the direction of economic policy and a potential new wave of protectionism. Global growth is expected to accelerate to 2.7 percent this year after growing 2.3 percent in 2016, its worst performance since the 2008 crisis. Advanced economies as a group are expected to grow at a slightly faster rate of 1.8 percent this year, up from 1.6 percent in 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 2017

### Future Horizons Events

- Silicon Chip Industry Training Seminar – London – 6<sup>th</sup> March 2017
- Industry Forecast Briefing, London – 17<sup>th</sup> January 2017

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

**Telephone: +44 1732 740440**

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

### Industry Events

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MARK YOUR CALENDER FOR THE NEXT

SILICON CHIP INDUSTRY WORKSHOP

MONDAY 6<sup>th</sup> March 2017

AND

INDUSTRY FORECAST BRIEFING

TUESDAY 17<sup>th</sup> January 2017

BOTH BEING HELD AT

HOLIDAY INN KENSINGTON FORUM, LONDON

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