

# FutureHorizons



The Global Semiconductor Industry Analysts

## **Future Horizons Newsletter**

### **September 2018**

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## **Industry News By Company**

### **[Altair Semiconductor and Ethertronics Announce High-Performance Small Antenna Technology, Paving Way for Tiny IoT and Wearable Devices](#)**

Altair Semiconductor (altair-semi.com ), a leading provider of cellular IoT chipsets, and Ethertronics (a subsidiary of AVX®) a leader in high performance antenna system solutions, today announced a new small antenna technology, which will be demonstrated within a new cellular IoT wearable concept at Mobile World Congress Americas.

The technology is a significant breakthrough that combines Ethertronics' ultra-small antenna with Altair's ALT1250 dual-mode Cat-M1/NB-IoT chipset algorithms to reduce the size of cellular wearable devices without sacrificing performance.

"Ethertronics is a recognized leader in antenna design and tunable components, making it an excellent partner for developing this concept," said Dima Feldman, Head of Product Management for Altair. "Combining Altair's modem algorithmic capabilities with a world class antenna designer has resulted in the smallest antenna design for cellular wearable devices and other tiny IoT devices, setting a new standard for antenna performance that improves coverage, power efficiency and overall user experience."

### **[GlobalFoundries Forfeit 7nm Manufacturing](#)**

SAN JOSE, Calif. – The race to drive semiconductor technology to the bleeding edge has narrowed to three companies.

Globalfoundries suspended work on a 7nm node. It will lay off less than 5% of its workforce and make its ASIC group a wholly-owned subsidiary so it can partner with one of the remaining 7nm foundries.

It would have cost GF \$2-4 billion to ramp up the 40-50,000 wafers/month capacity needed to have a chance of making a return on the node. "The financial investment didn't make as much sense as doing something else," said Tom Caulfield, the former general manager of Fab 8 named chief executive of GF in March.

In an interview in May, Caulfield said GF's owners the Mubadala Investment Company in the United Arab Emirates, wanted improved financial performance. In June, the company announced a 5% layoff without cutting any products, affecting about 900 of its 18,000 employees.

### **[IDT Teams With Startup On Radar Imaging Chips](#)**

LONDON — Integrated Device Technology (IDT) has announced a strategic partnership with Bangalore, India-based startup Steradian Semiconductor to deliver its first ultra-high-resolution 4D mmWave imaging radar chip for industrial, security, medical, and autonomous vehicle markets.

The chip is developed by a team of ex-Qualcomm and Texas Instruments alumni based in India who have over 50 patents between them ranging from GPS to LTE-Advanced.

The five of them co-founded fabless semiconductor company Steradian Semiconductor two years ago and have just received \$1 million in funding from Indian early-stage venture capital firm Endiya Partners, a VC firm that has backed a number of other

emerging Indian tech companies, including one developing an AI processor co-founded by Vinod Dham and another using AI and CMOS image sensors for intelligent medical screening.

### **Intel Reveals New Microchip Security Flaw**

A flaw in Intel chips could enable hackers to extract confidential data from the memory, the company said on Tuesday, revealing the third major vulnerability in the chipmaker's products this year. Researchers discovered the vulnerability in Intel's SGX technology, introduced in 2015 to create a more secure enclave of chip memory, prompting a warning from Intel that companies should make sure they are up to date with security patches. The flaw, known as L1TF and nicknamed Foreshadow, was independently discovered by two teams, one from the KU Leuven university in Belgium and another that included experts from the University of Michigan and the University of Adelaide.

### **Nantero Details DRAM Alternative**

CUPERTINO, Calif. — Nantero made its case at Hot Chips here that its design based on carbon nanotubes (CNTs) is poised to become a replacement for DRAM. As a first step, partner Fujitsu aims to ship next year a DRAM alternative using the technology.

DRAM represents the largest sector of the semiconductor market, expected to surpass \$100 billion in sales this year in part thanks to spiking prices. The technology behind it is expected to hit a wall around the 64-Gbit device, driving suppliers such as Micron to explore alternatives such as phase-change memories.

Nantero's non-volatile NRAMs use electrostatic charge to activate stochastic arrays of CNT cells it claims are relatively easy to spin coat on to any CMOS process. It claims it will outstrip the DRAM roadmap starting with a 100mm<sup>2</sup> die made in a 28nm process stacking 4-Gbit CNT layers into 8- and 16-Gbit devices.

### **Globalfoundries' Exit A Boon For Chipmaker TSMC**

TSMC is poised to extend its dominance of the global contract chipmaking market after a key US-based rival quit developing leading-edge technology, leaving South Korea's Samsung Electronics as the Taiwanese company's main competitor. Taiwan Semiconductor Manufacturing Co, which supplies Apple with core processor chips and is the world's largest contract chipmaker, or foundry, was buoyed after GlobalFoundries said it was putting its leading-edge chip production programme "on hold indefinitely". Shares in TSMC shares rose 3.8 percent on Wednesday to their highest point since March. The move by GlobalFoundries, the world's second-biggest foundry by sales, means production of the most advanced processors will be left to TSMC and Samsung, as the rising cost of developing ever smaller and more powerful chips prices out the competition.

## **Industry News & Trends**

### **Top Chip Companies Outpacing Market Growth**

SAN FRANCISCO — Eleven of the top 15 chip suppliers in terms of sales in the first half of this year posted double digit year-over-year growth, with seven of them growing by more than 20%, according to market research firm IC Insights.

Of the seven top 15 companies that grew by more than 20%, five of them were memory suppliers — Samsung Electronics, SK Hynix, Micron Technology, Toshiba and Western Digital (SanDisk) — IC Insights said. Non-memory firms Nvidia and STMicroelectronics also grew by more than 20%, the firm noted.

Overall, sales for the top 15 suppliers in the first half of the year were up 24% in the first half of the year compared with the first half of 2017, IC Insights said. By contrast, the overall semiconductor market was up 20% year-over-year in the first half of 2018, the firm said.

### **Memory Attracts More Investment**

SAN FRANCISCO — Capital spending for memory chips is expected to account for 53% of total industry capex of \$102 billion this year, nearly twice the percentage that memory accounted for just five years ago, according to market research firm IC Insights.

With all NAND flash vendors ramping up 3D NAND capacity, NAND-related capital expenditures are forecast to total more than \$31 billion, 31% of the semiconductor industry total, according to the latest edition of IC Insights' McClean Report. The total for NAND capex would represent an increase of 13% over 2017, when NAND flash capex grew by 91%.

Meanwhile, the report forecasts that capital spending for DRAM and SRAM will increase more than any other industry segment, growing 41% in 2018 after an 82% increase last year. DRAM/SRAM capex is expected to total \$22.9 billion, 22% of the industry-wide total, according to the report.

### **Larson Electronics Releases Portable Explosion Proof Wheelbarrow Cart Mounted LED Tank Light**

KEMP, Texas, Aug. 29, 2018 (GLOBE NEWSWIRE) -- Larson Electronics, industrial grade lighting leader, released an explosion proof portable LED tank light, rated for Class 1, Division 1 and 2, Class II, Division 1 and 2, Class III, Divisions 1 and 2, that produces 17,500 lumens of light at just 150 watts. This LED fixture is mounted to a wheelbarrow cart and part of the QC Series which offers multiple quick disconnect mounting systems and solutions.

The EPL-QC-16C-1X150LED-RT-100 explosion proof portable tank light from Larson Electronics produces 17,500 lumens of light while drawing only 150 watts. This wheelbarrow cart mounted explosion proof LED light provides 10,000 square feet of work area coverage. Varying beam angles are offered - individually ideal for specific environments. A 60° beam is perfect for narrow, confined spaces, while the 125° beam

offers a diffused light source less intense in brightness, ideal for general area work. The 140° beam is more ideal for proximity work where illumination of a wider area and even light distribution is a concern.

This explosion proof LED tank light is comprised of an adjustable LED light head mounted atop a wheelbarrow style cart fabricated from non-sparking powder coated aluminum and includes solid wheels allowing the operator to tilt the unit up and simply roll the entire assembly to a new location. This explosion proof LED light cart features a removable 16-inch LED light head mounted atop a solid rubber wheeled cart fabricated from non-sparking aluminum.

### **[The Good, The Bad And The Ugly Of 3D Printing Technology](#)**

When the first 3D printed gun was fired in 2013, the blueprints were posted online for anyone to access. They were immediately taken down by order of the US government, but not before they had been downloaded nearly 100,000 times. On August 1, plans for printable guns were allowed to be posted online once again. But attorneys-general in eight states, plus the District of Columbia, filed suits in an attempt to ban them. The court battle continues. Additive manufacturing, or 3D printing, is the production of an object using a digital blueprint. The latest 3D printers can fit on a desk and cost less than \$1,000. So long as you can find the right design and materials, you can make previously off-limit objects in your own home. On the other side of the world, Nepal is experiencing a degree of industrialisation. The introduction of several dozen 3D printers has allowed micro-businesses to take off. They are manufacturing goods such as pipe fittings that previously had to be imported at high cost.

### **[2D semiconductor on dome-shaped nanostructure produces low cost, efficient semiconductor](#)**

KAIST researchers have suspended a 2D semiconductor on a dome-shaped nanostructure, which they claim has produced a highly efficient semiconductor at a low cost.

Due to their flexibility, high transparency, and carrier transport properties, 2D semiconducting materials have emerged as alternatives for silicon-based semiconductors.

Their thin nature however, means they are oversensitive to their environment. Therefore, any irregularities in the supporting surface can affect the properties of 2D semiconductors and make it more difficult to produce reliable and well performing devices. In particular, it can result in serious degradation of charge-carrier mobility or light-emission yield.

### **[E Ink And Fujitsu Semiconductor Join Forces To Provide An Ideal Solution For UHF Logistics Tags For Japanese Convenience Store Chains](#)**

BILLERICA, Mass.--(BUSINESS WIRE)--E Ink Holdings, "E Ink" (8069.TW), the leading innovator of electronic ink technology, and Fujitsu Semiconductor Limited today announced the joint development of a reference design board (Product number: MB97R8110) for battery-less ePaper tags. The solution adopts E Ink's low voltage ePaper module and Fujitsu Semiconductor Limited's UHF FRAM RFID LSI, creating an ideal combination to enable battery-less ePaper tag applications.

Future Horizons Ltd, • 44 Bethel Road • Sevenoaks • Kent TN13 3UE • England 6  
Tel: +44 1732 740440 • Fax: +44 1732 740442  
Affiliates in Europe, India, Israel, Japan, Russian, San Jose California, USA  
e-mail: mail@futurehorizons.com • www.futurehorizons.com

EInk and Fujitsu Semiconductor join forces to provide an ideal solution for UHF logistics tags. This novel application was a collaborative effort between the ecosystem partners, including E Ink, Fujitsu Semiconductor, and Toppan Printing. The reference design board enables data transfer distances of up to 20 cm, enabling the tag to be updated at any time without data storage restrictions.

E Ink is continuously working to improve and develop new power saving ePaper solutions,” said Johnson Lee, President of E Ink Holdings Inc. “Combining two major trends in the electronics industry, battery-less and energy harvesting, this unique logistics ePaper tag will be a game changer in the logistics management industry. Japanese convenience store chains have already noticed the environmentally friendly value the ePaper tag brings, and are expected to deploy ePaper logistics tag solutions to replace paper tags in Japan.

### **Global 5G Regulators Pit Light Touch Against Heavy Hand**

Mobile phone networks are, however, a world apart from the old power lines and water pipes that keep consumers connected to those essential services. The equipment installed on telecoms masts has to be upgraded regularly to meet our smartphone and data habits, with each generation — the ‘G’ in 4G or 5G — incrementally improved over the course of a technology cycle.

The move from 2G to the early stages of 5G has taken less than 20 years, which has created a problem for regulators and governments concerned that their country could be “losing the race” to the latest technology and the economic fruits any upgrades could bring.

## **East European News & Trends**

### **RFID Technology Expected To Prevent Luggage Loss At Airports And Airlines**

A Russian developer has come up with its own technology for RFID marking luggage at airports. The approach is expected to help take almost no time and incur minimal expenses retrieving items lost, and also decrease the instances of luggage loss dramatically. In Q1 2019, the developer has plans to start testing the system at a large Russian airport.

According to Ilya Melnik, in charge of sales at RST-Invent, the developer, by 2019 the company wants to supply and equip some domestic and international airports and commercial airlines with at least 100 million RFID tags. Which airports and airlines will have the equipment has yet to be specified; word came earlier this summer that RST-Invent was in talks with “Russia’s two largest airports.” The developer’s longer-term plans include international expansion.

How it works

RFID tags will be integrated directly into luggage tags, containing data on the owner, a description of the luggage, and data on the passenger’s itinerary. Each such tag will have a unique identification code enabling the monitoring of one’s luggage from check-in to a luggage conveyor belt at the destination airport.

### **U.S. Start-Ups May Get Support If Interested In Russian Market**

American start-ups may expect ample support if they seek opportunities in the Russian market. Earlier this year FortRoss Ventures, an international VC fund of Russian origin, pledged \$200m to back such start-up teams.

A new fund the VCs closed this year focuses on fintech start-ups and also ones that develop solutions in the field of artificial intelligence, cyber security and e-commerce.

The venture capitalists will not only invest in start-ups but also offer consulting services to help international companies better adapt to Russian business and general culture and to the intricacies of Russia’s political and financial reality.

### **Vcs Back Artificial Intelligence For Clothes Recognition**

Sarafan Technology, a Russian start-up, has closed a new \$1.3m funding round, Firma.ru reported. The team’s flagship product is artificial intelligence enabled technology for the recognition of fashionable and beauty items on photos and videos.

In this round, a Russian fund called Admitad Invest led the effort; The Untitled and the Sergei Dashkov Fund which had earlier invested \$400,000 in the start-up, also took part this time

### **Russian metal giant to back technology start-ups**

Severstal, one of Russia's largest mining and metalworking companies, has launched its own venture investing arm, Severstal Ventures, to support and develop young technology projects.

“It is expected that to nurture technology projects with high potential we will be both investing in sector-specific VC funds and working with the projects directly,” the Russian business daily Vedomosti quoted a spokesperson for Severstal as saying.

### **Russian Developer Looks To Unseat Microsoft From Dominant Position In Russia**

New Cloud Technologies is developing a software platform, called My Office, to enable the user to both work on documents and store files in a cloud.

To enhance the product, the company is also developing a set of office services, including text editors, electronic tables, presentation tools, and an email client.

New Cloud Technologies is shooting for ongoing participation in the Russian government's IT import substitution program.

### **Russian Start-Up Develops Drone Tech For Warehouses**

UVL Robotics, a domestic start-up company, is developing autonomous drones for warehousing.

The UVL Robotics team is said to have developed and already completed successful tests for two of its drone systems, and is also testing the systems further in partnership with seven companies.

## **World Economic Round Up**

Russia's rouble weakened to more than Rbs70 per dollar for the first time in almost two-and-a-half years, as investors extended a sell-off in the currency fuelled by concerns over the independence of its central bank. The Russian currency traded as low as Rbs70.115 against the dollar, around 0.2 percent lower on the day and its weakest since March 2016. Emerging-markets assets have been under pressure for months, as a stronger buck has put pressure on dollar denominated debt in countries such as Argentina and Turkey. Turkey's central bank signalled it might be unable to maintain its much-criticised policy of keeping interest rates on hold after new data showed inflation rising to 17.9 percent.

*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 2018

### Future Horizons Events

- Silicon Chip Industry Training Seminar – London – 12<sup>th</sup> November 2018
- Industry Forecast Briefing, London – 16<sup>th</sup> September 2018

*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 12<sup>th</sup> November 2018**

**AND**

**INDUSTRY FORECAST BRIEFING**

**TUESDAY 18<sup>th</sup> September 2018**

**BOTH BEING HELD AT**

**HOLIDAY INN KENSINGTON FORUM, LONDON**

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Future Horizons Ltd, • 44 Bethel Road • Sevenoaks • Kent TN13 3UE • England

Tel: +44 1732 740440 • Fax: +44 1732 740442

Affiliates in Europe, India, Israel, Japan, Russian, San Jose California, USA

e-mail: [mail@futurehorizons.com](mailto:mail@futurehorizons.com) • [www.futurehorizons.com](http://www.futurehorizons.com)