

# FutureHorizons



The Global Semiconductor Industry Analysts

## **Future Horizons Newsletter**

### **January 2021**

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## **Industry News By Company**

### **[Graphcore Raises 222Million In Series E Funding](#)**

We're delighted to announce that Graphcore has raised \$222m of investment to help support the company's continued global expansion and further accelerate future IPU silicon, systems and software development.

The Series E funding round is led by Ontario Teachers' Pensions Plan Board and adds funds managed by Fidelity International and Schroders as new investors. Also participating in this round are existing Graphcore investors, including Baillie Gifford and Draper Esprit.

This investment brings the total funds raised by Graphcore to more than \$710 million, with the company expecting to have over \$440 million of cash on hand post-closing to support future growth. Graphcore is now valued at \$2.77 billion, post-money.

### **[Israeli Startup Aims To Rearchitect The Foundation Of Cloud Infrastructure](#)**

Secretive Israeli startup Xsight Labs finally announced what it is doing – it's trying to elbow its way into the crowded data center switch market – with a part that reaches 25.6 terabits per second with a 100G SerDes. The company believes it draws less power than rival switches, enough less that it will be much cheaper in the long run, when taking operational costs into account.

There's more that's new with this thing, but there's only so much that will fit into one paragraph.

The data center market already had an insatiable need for greater speed at less power and less cost, but with millions and millions more people working, learning, and playing at home than ever expected before the pandemic lockdown, those needs have only become more acute.

### **[Qualcomm and Google Announce Collaboration to Extend Android OS Support and Simplify Upgrades](#)**

Qualcomm Technologies, Inc. and Google announced their collaboration to enhance and extend Project Treble with the goal of enabling more devices with Qualcomm® Snapdragon™ mobile platforms to run the latest Android OS. The enhancements are intended to enable Original Equipment Manufacturers (OEMs) to upgrade their Snapdragon based devices to the latest Android OS without modifying Qualcomm Technologies' chipset-specific software and to use a common Android software branch to upgrade devices based on a wide range of Snapdragon mobile platforms across Qualcomm Technologies' portfolio. These enhancements are designed to reduce the time and resources required to upgrade Snapdragon based devices to the latest Android OS version.

As part of this collaboration with Google, Qualcomm Technologies will now support four Android OS versions and four years of security updates for all Snapdragon platforms

utilizing the Project Treble enhancements, starting with the new Snapdragon 888 Mobile Platform.

### **ST Joins UWB Alliance As Industry Looks To Grow Adoption**

STMicroelectronics has joined the UWB Alliance and also taken a seat on the board of directors of the industry organization as a “promoter class” member.

ST’s participation emphasizes the extent to which ultra-wideband (UWB) technology continues to gain traction. UWB is being increasingly adopted in mobile phones and social distancing applications, and the large semiconductor firms are collaborating to develop standards and support regulatory development and deployment.

There are two key industry organizations supporting UWB technology: the UWB Alliance and the FiRa Consortium. Earlier this year, the two announced a joint liaison agreement which outlined clear roles for each, both with the common goal of creating a UWB-enabled ecosystem and supporting the use of UWB technology. We’ll come to their roles later.

### **Teledyne Acquires Flir in \$8 Billion Cash and Stock Deal**

In a move to bolster its imaging sensor portfolio, Teledyne Technologies Monday announced that it will acquire Flir Systems, a thermal imaging sensor company, in a cash and stock deal estimated at about \$8 billion.

Armed with a spectrum of sensor technologies, Teledyne’s capabilities in X-rays, ultra violet, microwave and radio cover numerous specialty applications.

In a statement, Robert Mehrabian, executive chairman of Teledyne, said, “At the core of both our companies is proprietary sensor technologies. Our business models are also similar: we each provide sensors, cameras and sensor systems to our customers. However, our technologies and products are uniquely complementary with minimal overlap, having imaging sensors based on different semiconductor technologies for different wavelengths.”Acquires Flir in \$8 Billion Cash and Stock Deal

## **Industry News & Trends**

### **Scientists Develop High-Performance Hybrid Supercapacitors with Novel Electrode Material**

Scientists have developed a low-cost supercapacitor device with excellent capacitive retention with a novel electrode material they have synthesized, which can pave the way for the next generation high power-high energy storage devices.

Supercapacitors have gained considerable attention due to their high power density, long cycle life, and excellent capacity retention compared to their battery counterparts. Supercapacitors with high capacitance and excellent capacitive retention developed from low-cost fabrication techniques are the need of the hour, considering their potential utility in the commercial market.

Scientists at the International Advanced Research Center for Powder Metallurgy and New Materials (ARCI), an autonomous body of the Department of Science and Technology, Government of India in collaboration with IIT Hyderabad have developed a facile, scalable, and cost-effective electrochemical route to synthesize electrodes made of Nickel cobaltite (NiCo<sub>2</sub>O<sub>4</sub>) containing nanosheet structures with incorporated oxygen vacancies as an active material, for hybrid supercapacitors. These electrodes have been found to have excellent electrochemical performance.

### **Xsight Labs is Sampling a 25.6T Switch for Data Centers**

Secretive Israeli startup Xsight Labs finally announced what it is doing – it's trying to elbow its way into the crowded data center switch market – with a part that reaches 25.6 terabits per second with a 100G SerDes. The company believes it draws less power than rival switches, enough less that it will be much cheaper in the long run, when taking operational costs into account.

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### **5G Network Consumption Could Wipe Out the Gain**

Some good news emerged earlier this month regarding 5G networks. Nokia and Telefonica have been monitoring various different load traffic scenarios, measuring the energy consumed per Mbps in the radio access network (RAN). They now report that it is "up to" 90% more efficient than with legacy 4G networks.

That's important because, by one estimation 5G ecosystems could be responsible for a 160% increase in power requirements by 2030 when compared with existing cellular networks.

Nokia and Telefonica attribute the “significant” improvements that they achieved to a number of software and hardware features at both the base stations and in the networks themselves. They reference small cell deployments, new 5G architectures and protocols, and significant advances in the use of artificial intelligence as amongst features that must be deployed and combined to really improve the energy efficiency of wireless networks.

### **Driverless AV Announcements Roar Back in December**

December 2020 has been an eventful month for the auto industry, especially for the autonomous vehicle segment. There were several announcements on driverless AVs and two AV acquisitions.

Amazon AWS is rapidly penetrating the auto industry on a variety of fronts. The Zoox robotaxi announcement got a lot of attention in December.

AWS is also making great progress in serving the auto industry with its traditional internet and web services and more is likely to come. AWS made at least two significant cooperation agreements in December with BMW and BlackBerry-QNX.

## **East European News & Trends**

### **Russia ranks 2nd among “Top Emerging Market Picks” in 2021**

Russia ranks second in Bloomberg’s new ranking of 17 “emerging market standouts that could beat expectations next year.” Thailand tops the list, owing to its solid reserves and high potential for portfolio inflows.

The ranking is based on 11 economic and financial performance indicators including the extent of COVID-19 lockdowns; the size of external reserves relative to liabilities; the state of the current account; and the debt-to-GDP ratio.

The USBBC quoted Bloomberg as saying Russia’s high position in the ranking was mostly due to its large foreign reserves, “a strong fiscal profile,” and an undervalued ruble.

### **New Technology Enables Visual Analysis Of Biotissue**

New technology for silicon nanoparticles synthesis developed earlier this year by scientists at Moscow Lomonosov State University (MSU) enables the use of the nanoparticles in biomedical diagnostics, visualizing inhomogeneity in tissue structure.

Nanostructured silicon (Si) has long been in broader use than the original application in microchips and solar cells. One of the new and promising applications is diagnostics of tissue and body cells. A competitive technique that brings about such nanostructured Si is pulse laser ablation of silicon in liquids and gases.

A team at MSU’s Department of Physics, Femtosecond Nanophotonics Lab, experimented with ablation techniques and has shown that porous silicon films serve perfectly as ablation target.

### **New Semiconductor Tech Helps Give Materials Useful Properties**

Chemists at the Tomsk State University (TSU) in Siberia have come up with a new technology of developing nanodispersed metal oxide semiconductor materials. With a proprietary combination of ingredients under their belt the researchers are said to be able to add to the materials some useful pre-computed properties, such as the ability to absorb or reflect the infrared spectrum. The technology may find its way into a wide variety of areas—from boosting solar panels efficiency to making innovative screens for smartphones, tablets and other gadgets, to protecting spacecraft against overheating.

The novel materials come from TSU’s Siberian Institute of Physics and Technology (SIPT) and provide a set of complex indium-tin-based oxide systems. “During synthesis we add to them some elements that help increase the concentration of free charge carriers, thus making it possible to give materials properties we want them to possess,” a developer in the TSU team was quoted as saying.

For example, it’s possible to vary levels of electromagnetic absorption and reflection in a given wavelength range. Selective coatings based on nanodispersed semiconductor materials could be used in aircraft- and shipbuilding as well as in spacecraft and solar

engineering projects to maintain desired thermal conditions and protect instruments from overheating.

### **3D-Printed Aircraft Engine May Hit Market This Year**

A Russian 3D-printed gas-turbine aircraft engine designated MGTD-20 readies commercialization later this year or in 2022 after it was successfully tested in flight last summer in the mid-Volga region of Tatarstan.

In Russia's first-ever such effort, this 22 kilogram\*force propulsion unit is a collaborative product of the federal Advanced Research Fund (of which the closest analog in the U.S., for example, is DARPA), the Moscow-based All-Russian Scientific Research Institute of Aviation Materials (VIAM in Russian), and the Simonov Aircraft Design Bureau headquartered in Kazan, in Tatarstan.



## **World Economic Round Up**

After a year of turmoil, global economies could grow at a record speed in 2021 – but only if the deployment of the COVID-19 vaccine is speedy and successful. Despite that cause for optimism, the report notes the recovery will be uneven across countries, sectors and income levels. While China's economy is bigger than its pre-pandemic size, other service-based economies – such as the UK, Spain and France – or those that export a large amount of capital goods – such as Germany and Japan – are not expected to reach their pre-crisis levels this 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 2021

### Future Horizons Events

- [Silicon Chip Industry Training Seminar](#) – London – March 2021
- [Industry Forecast Briefing](#), London – 14th September 2021

*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 March 2021**

**AND**

**INDUSTRY FORECAST BRIEFING**

**TUESDAY 14<sup>th</sup> September 2021**

**BOTH BEING HELD AT**

**HOLIDAY INN KENSINGTON FORUM, LONDON**

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Future Horizons Ltd, • Blakes Green Cottage, Stone Street Seal TN15 0LQ • England 10

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)