

# FutureHorizons



The Global Semiconductor Industry Analysts

## **Future Horizons Newsletter**

**March 2020**

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## **Industry News By Company**

### **[As 5G NR Phase II Looms, Ceva Pitches New DSP Core](#)**

PARIS — For telecom equipment vendors, designing the right 5G network gear is a moving target that keeps going higher. As 5G advances from the current New Radio (NR) Phase I to Phase II, the new 5G Radio Access Network demands more transport flexibility and different base station functional splits.

With that in mind, Ceva, a licensor of DSP cores, unveiled Wednesday its newest DSP architecture, called the Gen4 CEVA-XC.

The Gen4 CEVA-XC is “much more than a DSP core,” according to Nir Shapira, business development director, mobile broadband business unit at Ceva. Describing it as “more of a complete compute platform,” he said the new DSP core natively features multithread and multicore architecture. It contains a built-in scheme designed for dynamic-vector computing resource allocation.

### **[Comtrend Launches New Wi-Fi 6 Networking Solutions Powered by ON Semiconductor](#)**

Comtrend, a leader in advanced networking equipment, has announced the introduction of a new Wi-Fi 6 product line in collaboration with ON Semiconductor (Nasdaq: ON). The product family comprises the GRG-4281; a GPON (Gigabit Passive Optical Network) dual-band gateway, and the WAP-5945; a wireless access point/extender. Both products are enabled by ON Semiconductor’s unique 5x5 MIMO (Multi-Input and Multi-Output) QSR5G-AX Plus chipsets, which offer the latest Wi-Fi 6 features to deliver superior speed, range, efficiency, security and reliability to the connected home.

The adoption of Wi-Fi 6 is underway and is expected to propagate rapidly. Modern bandwidth-intensive applications continue to drive the demand for high performance in-home Wi-Fi coverage. Service providers require Wi-Fi 6-ready customer premise equipment in anticipation of the next generation of client devices.

### **[Safety in cars: Infineon’s AURIX™ is the first embedded safety controller worldwide to be ASIL-D certified according to ISO 26262:2018](#)**

Munich, Germany – 25 February, 2020 – Electro-mobility, advanced driver assistance systems, connected driving – the demand for functionally safe electrical and electronic systems in cars is increasing. Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) has now reached a significant milestone: Its second generation AURIX™ (TC3xx) microcontrollers are the first embedded safety controllers worldwide to be certified for the highest automotive safety integrity level (ASIL D) according to the latest version of the ISO 26262 standard. This standard describes a globally binding procedure for the development and production of safety-critical systems in cars. In December 2018, the current version of the standard replaced the original version from 2011. The certificate was issued by SGS TUEV Saar.

“This certification underpins our leadership in automotive safety,” said Peter Schaefer, Vice President and General Manager Automotive Microcontrollers at Infineon. “We defined the safety architecture of our second generation AURIX microcontrollers before the new version of ISO 26262 was even available, and yet it fulfills all requirements for an ASIL D safety controller. We have achieved this through a holistic approach to safety that resulted in a sophisticated and robust architecture. Second generation AURIX microcontrollers thus provide the safety and trust necessary to make automated driving happen.

### **[Best-in-class In Price And Performance: 600 V CoolMOS™ S7 Superjunction MOSFET For Low-Frequency Applications](#)**

Munich, Germany - March 2, 2020 - Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) develops solutions for highest efficiency and quality requirements. The newly launched 600 V CoolMOS™ S7 product family leads the way for power density and energy efficiency for applications where MOSFETs are switched at a low frequency. The key features of the CoolMOS S7 product family include optimization for conduction performance, improved thermal resistance, and high-pulse current capability, all of these at the highest quality standards. Applications for the devices are i.e. active bridge rectification, inverter stages, PLCs, power solid-state relay and solid-state circuit breakers. Furthermore, the 10 mΩ CoolMOS S7 MOSFET is the industry’s smallest R<sub>DS(on)</sub> device.

The product family has been developed to minimize conduction losses and ensure the fastest response time together with increased efficiency for low-frequency switching applications. CoolMOS S7 devices deliver even lower R<sub>DS(on)</sub> x A compared to CoolMOS 7 products to successfully trade off switching losses for lower on-resistance and lower cost. The CoolMOS S7 products come with the lowest on-resistance (R<sub>DS(on)</sub>) in the market for a high-voltage switch. Additionally it has been achieved to fit the 10 mΩ chip into an innovative top side cooled QDPAK, and the 22 mΩ chip into a state-of-the-art small TO-leadless (TOLL) SMD package. These MOSFETs enable cost-effective, simple, compact and modular high-efficiency designs. Systems can easily meet regulations and energy efficiency certification standards (i.e., Titanium ® for SMPS) as well as fulfill power budgets and reduce part count, heat sinks and total cost of ownership (TCO).”

### **[Maxim Integrated Accelerates Innovation in Europe with \\$25M Investment for New Design Center in Dublin, Ireland](#)**

SAN JOSE, Calif. and Dublin, Ireland—Feb. 19, 2020—Maxim Integrated Products, Inc. (NASDAQ: MXIM) today announced the opening of a new design center in Dublin, Ireland. The design center will focus on product development and conducting research and development in the areas of analog semiconductor design to deliver Maxim’s innovative solutions across many end markets.

To make this vision a reality, the company will recruit a strong team of mixed-signal and analog design engineers at this facility. The \$25M investment will be primarily geared towards recruiting talent, equipment and building costs, as well as research and development. Located on the south side of Dublin, this is Maxim's seventh design center located in Europe.

### **Synopsys Acquires Semiconductor Startup Terrain EDA**

Nasdaq-listed electronic design automation company Synopsys Inc. has acquired semiconductor startup Terrain EDA, incorporated as Terrain Technologies Ltd., the latter announced Thursday. Financial details of the acquisition were not disclosed.

Founded in 2016 and based in Yokneam Illit, a town in Israel's north, Terrain EDA develops chip designs for the semiconductor industry. The company has been backed by investors including Israeli tech entrepreneur Avigdor Willenz, who was one of the founders of Galileo Technologies Ltd., sold in 2001 to Marvell Technology Group Ltd. for \$2.7 billion. The company employs a team of 8 people, according to Tel Aviv-based research firm IVC Research Center Ltd. Terrain EDA's chairman is Eli Fruchter who founded Israel-based chip company EZchip Technologies Ltd., which was acquired by Mellanox Technologies in 2016 for more than \$780 million.

## **Industry News & Trends**

### **[Organic Semiconductor Leads To Efficient Energy Storage](#)**

An organic semiconductor photocatalyst that significantly enhances the generation of hydrogen gas could lead to more efficient energy storage technologies.

A team led by Iain McCulloch from the King Abdullah University of Science and technology in Saudi Arabia have incorporated hydrogen photocatalysts into organic nanoparticles that can be tuned to absorb more of the visible light spectrum.

Jan Kosco first author of the study said: “Traditionally, inorganic semiconductors have been used for photocatalytic applications. However, these materials absorb primarily UV light, which comprises less than five percent of the solar spectrum. Therefore, their efficiency is limited.”

A standard method for storing solar energy is in the chemical bonds of molecular hydrogen using hydrogen evolution photocatalysts (HEPs). Currently, most HEPs are made from single-component inorganic semiconductors. These can only absorb light at ultraviolet wavelengths, which limits their ability to produce hydrogen.

### **[U.S. Considers Blocking Infineon’s Purchase of Cypress](#)**

Reports that the Committee on Foreign Investment in the United States (CFIUS) may yet recommend the Infineon Technologies acquisition of Cypress Semiconductor be blocked on the grounds of national security risks have triggered falls in the shares of both companies. But is this just market rumor?

Last month during the company’s analyst call, Infineon CEO Reinhard Ploss intimated that negotiations over the €9 billion (about \$10.1 billion) deal were in the final stages. Ploss said Infineon had made progress with antitrust clearances, and that it was in constructive dialog with CFIUS. He had also said, “We have a very good understanding about the requirements of U.S. government, what they expect. And we are working together with them in order to resolve that.”

But a report yesterday seems to have suggested that while U.S. officials had flagged the acquisition could pose a national security risk, Infineon was unable to reach an agreement with the government to allow the takeover to go ahead. We contacted Infineon for a comment to which a spokesperson responded, “We do not comment on ongoing processes.”

### **[AMD Wins CPU And GPU Slots In HPE/Cray’s El Capitan](#)**

AMD scored its biggest coup yet in high-performance computing (HPC), getting both its CPUs and GPUs adopted in El Capitan, the supercomputer likely to be the world’s fastest — by far — once it’s up and running in 2023.

The U.S. Department of Energy’s National Nuclear Security Administration (NNSA) announced El Capitan in August of last year. The DoE awarded the \$600 million supercomputer project to Cray Inc., at the time still in the process of being purchased by Hewlett Packard Enterprise. With that acquisition completed, HPE takes over the contract.

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When the El Capitan project was announced, neither the DoE nor HPE/Cray had specified whose processors would be used. El Capitan was originally projected to operate at 1.5 exaflops, but AMD convinced HPE/Cray and the DoE that that with future versions of its Epyc CPUs and Radeon GPUs, working in combination with its Slingshot interconnect, AMD could help HPE/Cray deliver a system capable of 2 exaflops.

### **[Next-Gen Space-Borne Systems Call for WBG Semiconductors](#)**

Wide-bandgap (WBG) semiconductors, such as gallium nitride (GaN) and silicon carbide (SiC), are proving to be the most promising materials in the field of power electronics since silicon was introduced. These materials have several advantages compared to traditional silicon-based technology, such as the ability to manage high power levels, insensitivity to radiation, high-temperature operation, high switching frequencies, low noise, low power losses, and high efficiency.

WBG semiconductors are, therefore, of strategic importance to the development of next-generation space-borne systems. Gallium nitride, in its enhanced-mode version (eGaN), is widely used in the development of FETs and HEMTs for space applications.

### **[Connected Lighting Platform from ON Semiconductor Supports Rapid Development of Smart LED Lighting Solutions](#)**

PHOENIX--(BUSINESS WIRE)--ON Semiconductor (Nasdaq: ON), driving energy efficient innovations, has introduced the Connected Lighting Platform, leveraging the company's expertise in Power over Ethernet (PoE) and ultra-low-power Bluetooth® Low Energy connectivity, along with AC/DC and DC/DC power conversion design.

The prototyping platform enables engineering teams to explore and innovate in the connected lighting sector, where light fittings become part of the Internet of Things (IoT). The Connected Lighting Platform features multiple forms of connectivity for LED control, including secured Bluetooth Low Energy, provided by the RSL10 SIP, and Power over Ethernet. It offers up to 90 Watts output power and provides two independent channels, each able to supply and control up to 16 LEDs. The high-efficiency modular platform also enables the development of battery-less LED lighting applications when used together with the Energy Harvesting Bluetooth Low Energy Switch.

## **East European News & Trends**

### **[Russian Start-Ups Bring Real Money, Leta Capital Believes](#)**

“Many investors rightly reckon that Russian start-ups are undervalued; that means they can bring good money,” Alexander Chachava, Managing Partner at Leta Capital, was quoted by Firrma.ru as saying.

For the past years, this Russian VC fund was working its way up through the bleak economic conditions in Russia, and through the difficulties caused by the international sanctions. But in the face of all that, Leta’s inaugural venture fund, Leta Capital Limited set up in 2012, appeared to outshine quite a number of funds in the U.S. According to Cambridge Associates analysts, for America’s largest VC funds DPI (Distributions to Paid-in Capital, a ratio of the investment put into a fund and the money received as dividends and/or following portfolio company sales) these years was 0.66, while for Leta it was 1.25.

U.S. start-ups have been by and large overvalued lately; this forces American funds to make a pre-exit cycle longer as they seek higher venture yield. “In this respect, working with undervalued start-ups bears more fruit; it’s no accident that we have seen many American funds enter the European market with its more adequate valuations,” Mr. Chachava said.

### **[MTS Plans For 5G Tech Development Confirmed](#)**

By the end of this year MTS, one of Russia’s leading mobile operators, has plans to invest an estimated \$1.6m in start-ups that develop 5G tech based solutions. A business incubator has been announced in Moscow to pursue the goal.

The mobile operator is interested in a range of cloud based services in remote gaming, new video streaming formats, Internet of Things solutions, data storage, and some others.

### **[Russia creates finance-technology partnership for AI](#)**

Sberbank, Yandex, Gazprom Neft, the Russian Direct Investment Fund, Mail.ru Group and MTS have put together a new alliance for artificial intelligence development; the federal Ministry for Economic Development leads the effort.

According to Sberbank President German Gref, the project has been designed as a private-public partnership.

### **[New RFID Tech For Luggage Loss Prevention At Airports And Airlines](#)**

A Russian developer called RST-Invent 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. The system has been tested since last year in Russia. The developer’s longer-term plans include international expansion.



## How it works

RFID tags are 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 has a unique identification code enabling the monitoring of one's luggage from check-in to a luggage conveyor belt at the destination airport.

## **World Economic Round Up**

The world economy has fallen into recession, suffering from a “wicked cocktail” of coronavirus and the dramatic action to limit its spread, according to four former IMF chief economists. As the virus has spread from China to the rest of the world, economists no longer feel they have to wait for data to confirm the world is in recession, even though official forecasts remain more optimistic. The former top officials agreed that addressing the public health needs was the first priority, but said that with a sharp downturn likely, governments should be preparing to spend significant sums to protect businesses and households.

*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 2020

### Future Horizons Events

- [Silicon Chip Industry Training Seminar](#) – London – 15<sup>th</sup> 2020
- [Industry Forecast Briefing](#), London – 15th September 2020

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

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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 15<sup>th</sup> June 2020**

**AND**

**INDUSTRY FORECAST BRIEFING**

**TUESDAY 15<sup>th</sup> September 2020**

**BOTH BEING HELD AT**

**HOLIDAY INN KENSINGTON FORUM, LONDON**

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