

# FutureHorizons



The Global Semiconductor Industry Analysts

## **Future Horizons Newsletter**

**June 2019**

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## **Industry News By Company**

### **Chipmakers Keep Acquiring Connectivity Chip Suppliers**

Infineon Technologies has inked a deal to acquire Cypress Semiconductor for \$10 billion, the latest in a series of acquisitions of connectivity chip suppliers in the last few months.

Last week, NXP announced it was acquiring Marvell's WiFi and Bluetooth connectivity assets for \$1.76 billion. And in March, Nvidia said it was acquiring networking IC vendor Mellanox Technologies for \$6.9 billion.

The common thread appears to be connectivity. Hassane El-Khoury, Cypress CEO, said in an interview recently that its WiFi and Bluetooth connectivity chips for automotive and IoT could be attractive for potential acquirers, especially in the light of ON Semiconductor's acquisition of WiFi chip vendor Quantenna Communications for just over \$1 billion in cash. Based on this, it seems that Cypress was certainly actively looking for suitors.

El-Khoury seemed to reinforce the point in today's statement, saying that Cypress was excited to join forces with Infineon "to capitalize on the multi-billion dollar opportunities from the massive rise in connectivity and computing requirements of the next technology waves." The companies are clearly targeting connectivity, saying the combination of Infineon's security expertise and Cypress's connectivity know-how will accelerate entry into new IoT applications in industrial and consumer segments

### **Air Liquide And STMicroelectronics To Collaborate On Digital Transformation**

Air Liquide and STMicroelectronics intend to engage in a collaborative initiative to accelerate the development of digital solutions for industrial applications. Through this initiative, ST anticipates supporting Air Liquide in its digital transformation, providing guidance and solutions while Air Liquide anticipates working with ST in developing technologies and solutions for industrial applications. This cooperation will extend the long-standing business relationship established over the past decades between both companies.

The parties anticipate collaborating to identify cases where ST's technologies would best fit industrial and logistics needs, and then prototype the selected digital solutions and test them in Air Liquide's operating environments. By creating a fertile ground of exchange among experts and adopting a collaborative approach, Air Liquide and ST intend to accelerate digital innovation of industrial use-cases. The parties have already identified a selection of projects and ideas in domains such as asset tracking and management, predictive maintenance and the cybersecurity of industrial assets.

This cooperation will extend the trusted and long-standing business relationship established over the past decades between Air Liquide and ST. Air Liquide supplies gas, materials and equipment to ST's manufacturing sites located in France, Italy, Malta, Morocco, the Philippines and Singapore.

## **UK Chip Manufacturer ARM 'Suspend Business With Huawei'**

UK based micro chip designer ARM have told employees that they are not to work with Chinese firm Huawei.

Documents seen by the BBC reportedly tell staff to suspend “all active contracts, support entitlements, and any pending engagements.”

The Cambridge based technology company licenses processor designs that most smartphones around the world have.

ARM is concerned that they could be affected by President Trumps White House executive order over dealings with Huawei as the micro chip firm designs use “US origin technology.”

A spokeswoman for ARM said, “ARM is complying with all of the latest regulations set forth by the US government

## **5G Potential Draws Ray-Tracing IP to Market**

Imagination Technologies has announced it is opening up its PowerVR ray tracing intellectual property (IP) technology for licensing to the market beyond its own devices. The company believes there are disruptive opportunities for high quality graphics rendering in 5G applications.

In an exclusive interview with EE Times, Imagination told us ray tracing will enable state-of-the-art realistic image rendering using light-modelling techniques to be integrated into graphics processing units (GPUs) across mobile, automotive, server and other markets. In describing its thinking and reasoning behind opening up its IP to external licensing, I got the sense that it wants to do for 5G what Arm did for previous generations of mobile applications: be the go-to IP for high performance graphics rendering. The company believes we are at an inflexion point similar to the one Arm experienced back in the 2000s.

## **Reducing CO<sub>2</sub> In Traffic: Continental First Player To Implement Innovative Technology From Infineon And Schweizer For 48 V systems**

Munich/Schramberg, Germany – 6 May 2019 – Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) and Schweizer Electronic AG have developed a new technology for the mild-hybridization of cars: chip embedding for Power MOSFETs. It will significantly improve the performance of 48 V systems while reducing their complexity. Continental Powertrain will be the first player to adopt the technology.

“Embedding Power MOSFETs will open a new chapter of possibilities for the electrification of mild hybrid cars,” said Dr. Rolf Merte, CEO at Schweizer Electronic. “The fact that one of the world’s leading automotive suppliers has chosen our technology confirms its potential.”

With chip embedding, the Power MOSFETs are no longer soldered onto a circuit board but integrated within. “The resulting thermal benefits allow a higher power density and board integration enables further improvements in system reliability” said Dr. Frank

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Findeis, who is heading Infineon's automotive MOSFET business. "These advantages result in higher power or more cost effective 48 V systems."

### **Infineon To Acquire Cypress, Strengthening And Accelerating Its Path Of Profitable Growth**

Munich, Germany, and San Jose, California – 3 and 2 June 2019 – Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) and Cypress Semiconductor Corporation (NASDAQ: CY) today announced that the companies have signed a definitive agreement under which Infineon will acquire Cypress for US\$23.85 per share in cash, corresponding to an enterprise value of €9.0 billion.

Reinhard Ploss, CEO of Infineon, said: "The planned acquisition of Cypress is a landmark step in Infineon's strategic development. We will strengthen and accelerate our profitable growth and put our business on a broader basis. With this transaction, we will be able to offer our customers the most comprehensive portfolio for linking the real with the digital world. This will open up additional growth potential in the automotive, industrial and Internet of Things sectors. This transaction also makes our business model even more resilient. We look forward to welcoming our new colleagues from Cypress to Infineon. Together, we will continue our shared commitments to innovation and focused R&D investments to accelerate technology advancements."

Hassane El-Khoury, President and CEO of Cypress, said: "The Cypress team is excited to join forces with Infineon to capitalize on the multi-billion dollar opportunities from the massive rise in connectivity and computing requirements of the next technology waves. This announcement is not only a testament to the strength of our team in delivering industry-leading solutions worldwide, but also to what can be realized from uniting our two great companies. Jointly, we will enable more secure, seamless connections, and provide more complete hardware and software sets to strengthen our customers' products and technologies in their end markets. In addition, the strong fit of our two companies will bring enhanced opportunities for our customers and employees."

### **Intel Reveals Flaw In Chips That Makes Them Vulnerable To Hackers**

Intel has revealed a vulnerability in its chips that could lead them to leak data to attackers, underlining the risks from a new flaw in modern chip designs that first surfaced last year.

Security researchers warned that the flaw could pose a particular risk to information being processed in cloud data centres, which many large businesses and governments rely on to handle part of their computing needs.

Known as ZombieLoad, the problem exists in all Intel chips made since 2011, though the chipmaker said its latest microprocessors had been fixed at the hardware level to prevent the problem. Older chips will need an update to their microcode, along with updates to the operating systems running on them.

## **Marvell To Acquire GlobalFoundries' ASIC Business**

GlobalFoundries agreed to sell its ASIC business to Marvell Semiconductor for up to \$740 million in the final step in a three-phase restructuring that repositions GlobalFoundries from a leading-edge chip foundry to a provider of specialty processes.

While the deal completes a restructuring plan initiated by Globalfoundries CEO Tom Caufield in August, it also bolsters Marvell's reach in 5G base stations and its position as a chip supplier for both wired and wireless infrastructure. The ASIC business — known as Avera — comes with what Marvell called "strategic design wins" with leading infrastructure OEMs.

Matt Murphy, Marvell's CEO, said in a conference call with analysts following the deal's announcement, that the acquisition would bolster Marvell's standard and semi-custom product portfolio with Avera's full custom ASIC development capabilities.

## **Industry News & Trends**

### **Mini 3D-printed heart offers hope for transplants**

The concept of 3D-printed organs has long been touted as a possible solution to the long waiting lists for transplantation. Now scientists in Israel have pumped fresh blood into the idea by printing a miniature “living” heart using a patient’s own tissue as the “ink”.

The Lilliputian organ — about the size of a cherry, while an adult heart is the size of a fist — is living in the sense that it is “vascularised”, meaning it contains blood vessels. It demonstrates that bioprinting can potentially recreate not just the structure of an organ but also the pipework needed for it to function.

“This is the first time anyone anywhere has successfully engineered and printed an entire heart replete with cells, blood vessels, ventricles and chambers,” said Tal Dvir, the Tel Aviv University professor leading the research. The revelation was published last month in the *Advanced Science* journal. Sceptics point out that this tiny heart cannot pump, and fully functioning bioprinted organs remain a distant hope.

### **Cellular Dash Cam Ups The Ante On Tesla’s Sentry**

Owl Cameras Inc., a startup developer of security cameras for cars, has devised a LTE-connected dash-cam touted to be equally effective as the instantly popular Sentry Mode introduced by Tesla in February for its Model 3 vehicles.

Phil Magney, founder & principal advisor to VSI Labs, told *EE Times*, “Normally I don’t pay too much attention to the aftermarket but every now and then something comes along that is pretty compelling. This device is one of those. It is simple and straightforward, something you don’t normally find in the OEM world.”

The Owlcam detects events in and around a vehicle, automatically records video, and instantly sends it to the driver’s phone. It not only monitors thefts and break-ins, but also provides what it calls “Owlcam 911 Assist,” a service in which a live operator calls a driver who’s been in a crash and sends emergency service if needed.

### **Redpine Looks to Do-It-All With New IoT Chip**

All major chip vendors – namely, Qualcomm, Cypress or Texas Instruments – pursuing the elusive IoT market today are discovering that the smart-home segment is a roadrunner and they are Wile E. Coyote.

The challenges of a fragmented smart home IoT frontier are manifold.

First, the smart-home segment covers a vast diversity of connected devices, ranging from door bells, door locks and smoke detectors to smart speakers and smart refrigerators. Second, they offer too many connectivity options (WiFi, Bluetooth, BLE, ZigBee, Z-Wave and Thread). Third, smart-home devices often provide little interoperability on application layers (i.e. Apple HomeKit and Samsung SmartThings). Fourth, the security gap in IoT chips is a deep quandary. Above all, power drain continues to hobble smart-home devices. When its batteries die, the device is neither connected nor smart.

## **Startup Delivers Neural Networks Across Several Architectures**

Ali Farhadi is a canary in the coal mine of enterprise AI. His startup, Xnor, is among the pioneers looking for sustainable revenues in neural-networking software for embedded systems.

Today, Xnor launches AI2GO, an offering that consists of hundreds of pre-trained models tailored to run deep learning on a variety of Arm, FPGA, GPU, MIPS, and x86 processors. The 50-person startup, formed in 2017, is already running cash-flow-positive on a small set of early products, but the big challenges are still ahead.

The chief concern is that AI may pan out like IoT — a vast but slow-moving market in which every company needs to carefully think through a business plan that typically requires a custom design. “It’s challenging to get big enterprises moving — they are moving, but slowly,” said Farhadi.

## **Edge AI Going Beyond Voice And Vision**

Widespread public awareness of systems such as the Amazon Alexa and camera-enabled autonomous cars have made voice and vision almost automatically come to mind when discussing the role of AI in edge-device design. But AI technology is applicable well beyond voice and vision interpretation, supporting the implementation of complex system behaviors that can be intractable using conventional algorithmic development. The trick is to move the AI as close as possible to the edge.

The two signature AI applications of voice and vision happen to also illustrate the two architectural alternatives for designing AI into an embedded system. In the case of voice, both of AI's major tasks – learning and inferencing -- are handled in the cloud, where substantial processing power is available. This allows the edge device to get along with much less processing capability. It spends most of its limited capacity capturing and forwarding data to the cloud and implementing any commands coming back. This approach has the advantage of allowing a relatively inexpensive edge device design but suffers from the high bandwidth demands and latency effects of substantial WAN communications activity.

Vision systems, on the other hand, provide considerable local processing power to make real-time inferences and response decisions from live data. The machine learning that informed the inferencing engine's development took place on large computer systems prior to the edge device's implementation. The approach involves little to no WAN traffic and minimizes latency but can require significant local processing power with an associated inflated cost.



## **East European News & Trends**

### **Russian Technology: Can The Kremlin Control The Net?**

Thousands of protesters had gathered outside government headquarters in Magas, the capital of the heavily Muslim republic of Ingushetia in Russia's north Caucasus. They were there to oppose concessions in a years'-long bitter border dispute with neighbouring Chechnya, but when they tried to share information about the protest on WhatsApp they found the internet was down on all three major Russian mobile providers across Ingushetia.

The October outage began late at night before the protest was scheduled to start, and lasted until it died down more than two weeks later. When protests sparked up again, the internet suddenly went out of action once more.

It amounted to a virtual blackout: locals' fondness for voice messages has made WhatsApp the main form of communication in the north Caucasus.

### **Russian State Fund To Launch Start-Up Accelerators In Bahrain**

RVC, the Russian state fund-of-funds dedicated to innovation, has announced a partnership with Alkeri Partners, a venture capital and private equity firm from the Kingdom of Bahrain, to create a series of GenerationS corporate accelerators for Russian and international start-ups in Bahrain, EWDN reported.

Run by RVC, GenerationS is a Russian state-backed acceleration platform that connects start-ups with corporations. Founded in 2013, the platform's infrastructure currently serves over 15,000 start-ups from 30 countries, as well as 400 corporate and ecosystem partners.

Under plans, the new Bahrain accelerators will initially focus on such areas as telecom, fintech, and extraction of commercial mineral.

### **MTS Ready To Invest \$15+M In Start-Ups**

MTS, one of Russia's main mobile operators, earlier this spring launched a corporate venture fund targeting start-ups across Russia and neighboring countries.

In a recent update, telemedicine, Internet of Things, cybersports and other areas were singled out as key funding priorities for the new fund. The fund expects to invest around \$15.5m in early-stage start-ups over the next two years.

Last year the corporation launched an in-house accelerator, MTS StartUp Hub, but start-ups may receive funding from the new corporate fund irrespective of whether they participate in that accelerator or not.

### **Chinese Tech Titan Huawei Buys Russian Facial Recognition Technology**

Chinese telecom giant Huawei has purchased the intellectual property rights to facial recognition systems designed by a Russian developer and manufacturer of high-tech security technology.

Some employees of Moscow-based Vokord will also be transferred to Huawei as part of the \$50-million agreement, according to sources close to the deal, as quoted by Vedomosti.

Huawei's Russian subsidiary, along with Hong Kong-based Huawei Digital Technologies, will reportedly become the owners of the intellectual property rights for Vokord's patents on face ID technology and equipment. The newly formed firm will reportedly be called Igl Softlab. The Russian unit of the enterprise is expected to own 99.99999 percent of the newly formed company.

Founded in 1999, Vokord designs software and programming solutions based on computer vision and intelligent video processing algorithms. The company focuses on facial recognition, Automatic License Plate Recognition (ALPR), video analytics and pattern recognition, video processing, and video enhancement. As of 2017, the company's revenue totaled 113.2 million rubles (US\$1.75 million).

### **[Russia Demands Tinder Give User Data To Secret Services](#)**

Russia is requiring dating app Tinder to hand over data on its users — including messages — to the national intelligence agencies, part of the country's widening crackdown on internet freedoms. The communications regulator said Monday that Tinder was included on a list of online services operating in Russia that are required to provide user data on demand to Russian authorities, including the FSB security agency.

Tinder, an app where people looking for dates swipe left or right on the profiles of other users to reject or accept them, will have to cooperate with Russian authorities or face being completely blocked in the country. The rule would apply to any user's data that goes through Russian servers, including messages to other people on the app.

### **[India-Russia Must Focus On High-Tech Sector To Push Trade Volume To \\$ 30 Bn By 2025: Study](#)**

India and Russia must focus on cooperation in high-tech sector to push the trade turnover to \$30 billion, and mutual investments to \$15 billion by 2025, says report of Finnish-Russian artificial intelligence (AI) and Industrial Internet of Things (IIoT) solutions firm ZYFRA.

“Innovations should become a point of growth of Indo-Russian relations. We see significant potential for introduction AI-based solutions in such industries as metals and mining, oil and gas, chemicals” said Igor Bog ..

## **World Economic Round Up**

The World Trade Organization's quarterly outlook indicator showed that global goods trade growth was likely to remain weak, with a reading of 96.3, unchanged from February, the lowest since 2010. The outlook for trade could worsen further if heightened trade tensions are not resolved or if macroeconomic policy fails to adjust to changing circumstances, adding that the latest indicator did not reflect major trade moves in the last few days.

*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 2019**

### **Future Horizons Events**

- Silicon Chip Industry Training Seminar – London – 11<sup>th</sup> November 2019
- Industry Forecast Briefing, London – 17<sup>th</sup> September 2019

*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 11<sup>th</sup> November 2019**

**AND**

**INDUSTRY FORECAST BRIEFING**

**TUESDAY 17<sup>th</sup> September 2019**

**BOTH BEING HELD AT**

**HOLIDAY INN KENSINGTON FORUM, LONDON**

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