FutureHorizons

The Global Semiconductor Industry Analysts

# Future Horizons Newsletter

# August 2018

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## Industry News By Company

### Startup AI Chip Passes Road Test

SAN JOSE, Calif. — A startup will sample before June a 13-W machine-learning accelerator for cars, robots, and drones said to handily beat Nvidia GPUs in recognizing images. Visteon is considering using the chip in future automotive systems based on test results on an FPGA version of the device.

AlphaICs designed an instruction set architecture (ISA) optimized for deep-learning, reinforcement-learning, and other machine-learning tasks. The startup aims to produce a family of chips with 16 to 256 cores, roughly spanning 2 W to 200 W.

The market is already getting crowded with AI accelerators from startups and established companies, but money is still flowing into the space because AI represents a historic shift in computing. Rather than try to build large arrays of multiple-accumulate units as many early AI startups did, AlphaICs is part of an emerging group of startups that aims to take a broader look at a wider class of machine-learning algorithms and ways to speed them up.

### Arm Confirms Treasure Data Buy, IoT Platform Offering

LONDON — Arm Holdings confirmed the acquisition of Treasure Data, saying it would become part of a new connectivity and data management software-as-a-service (SaaS) platform that it will offer within the next six to nine months.

While Arm would not confirm published reports that the deal was worth $600 million, Joyce Kim, Arm's chief marketing officer, said, "I can confirm it's the largest cash deal we have ever done."

The IoT has become many things to many people, but one thing is clear: It's a fragmented market for devices, platforms, connectivity, and data analytics. While many readers might be focused on device development (Arm's heritage), at a business level, there's really no point of having a connected device unless you can do something with the data and act upon it. The value in all of the talk that we hear about smart cities, smart energy, and smart manufacturing (and Industrie 4.0) is not just about integrating chips and sensors at end points but more about doing something useful with the measurements and data that result.

### Broadcom To Help Design Wave's 7-nm AI Chip

PARIS — Wave Computing has set its sights on becoming the first AI startup to develop and deploy a 7-nm AI processor in its AI systems.

EE Times has learned that Wave has snagged Broadcom Inc. as an ASIC designer for the new 7-nm project. The two companies will collaborate on development of Wave's next-generation Dataflow Processing Unit (DPU) by using Taiwan Semiconductor Manufacturing Co.'s 7-nm process node.

The new 7-nm DPU — scheduled for delivery by Broadcom at an undisclosed date — will be "designed into our own AI system," confirmed Wave's CEO, Derek Meyer. He added that the same chip may become available to others "if there is a market demand."

## U.K.-based Software Firm Lands $14M Series B

LONDON — With embedded software becoming ever-more complex, especially with the push toward more and more processing on chip for machine learning and IoT applications, the task of both ensuring code quality and debugging continues to take up a significant amount of product development time. But two ex-Acorn Computer engineers who founded a company that claims to have developed a record and replay technology for software debugging this week announced a $14 million Series B funding round to further develop the product and expand in the U.S.

Cambridge, U.K.-based Undo has developed a program execution capture and replay technology, allowing vendors of complex Linux applications to quickly diagnose severe software failures in test or in production and fix critical bugs that are impossible to reproduce (and, therefore, fix) by any other means. Undo's solution supports C/C++ applications today and it plans to use part of the funding to expand its language support to include Java, Python, and others.

## Electronics Firm Acquired By Industry Giant

A Plymouth-based electronics company has been acquired by global electronics manufacturer Motortronics.

Fairford Electronics, which has its design and production facilities in the Lee Mill Industrial Estate, Ivybridge, provides low voltage soft starter motors which complement Motortronics' own range of medium voltage solid state motors.

The corporate finance team at Thomas Westcott acted for Motortronics.

Alison Watts, who heads the corporate finance team, said: "Fairford, which has been trading since the late '70s, has an outstanding reputation both here in the UK and worldwide and are an excellent fit for Motortronics, itself a global leader in the sector.

"“This announcement not only demonstrates that international companies are keen to do business with their UK counterparts, but also that here in the South West we have the professional skills and expertise to facilitate such deals and get them over the finishing line to the satisfaction of all parties.

## New High Performance Resonant Controller IC With PFC For Power Supply And Lighting Drivers

Munich, Germany – 10 July 2018 – Efficient and cost-effective controller IC solutions enable optimized LED lighting solutions. Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) introduces the second generation ICL5102 resonant controller IC designed specifically for power supply and lighting drivers. Main target applications are LED drivers for professional and industrial lighting, and street lighting. The controller IC can also be used for offline AC-DC power supplies and LCD TVs.

The ICL5102 integrates Power Factor Correction (PFC) and half-bridge (HB) controllers in a single DSO-16 package. It supports universal input voltages ranging from 70 V AC to 325 V AC, and has a comparable wide output range. A low number of external components are required to configure and support this controller IC. All parameters are

set by resistors. The ICL5012 supports fast startup under 500 ms at less than 100 µA. The industry-leading PFC is greater than 99 percent and Total Harmonic Distortion (THD) is less than 3.5 percent. The controller has up to 94 percent efficiency by resonant topology. The active burst mode for low standby consumes less than 300 mW. An enable/disable function supports dimming.

## Samsung Upbeat Despite First Profit Drop In 7 Quarters

Samsung Electronics struck an upbeat outlook for the months ahead, citing strength in its chip business, even as the technology giant reported its first profit decline in seven quarters amid lacklustre sales of its flagship smartphones.

Semiconductors remained the main driver of Samsung's earnings, generating more than 80 per cent of its operating profit. Operating profit at the semiconductor division rose to Won11.6tn ($10.4bn) in the second quarter from Won8tn a year earlier on the back of two years of strong global memory-chip demand.

Samsung said the semiconductor outlook remained strong thanks to robust server demand and mobile phone launches. The $121bn global memory chip industry has boomed since the second half of 2016 amid surging demand and tight supply.

## TSMC Sales Hurt By Virus Outbreak

SAN FRANCISCO — Foundry giant Taiwan Semiconductor Manufacturing Co. (TSMC) said a computer virus outbreak that hit the company on Aug. 3 will reduce its third quarter revenue by about 3%.

The virus, which TSMC said was accidentally spread by misoperation during the software installation process for a new tool, affected a number of the company's computer systems and fab tools in Taiwan. The company said Sunday that about 80% of the impacted tools had been recovered and that a full recovery is expected Monday.

## Industry News & Trends

### New solar technology with 2D semiconductor nanomaterials

It is crucial that we prevent the Earth from warming by more than two degrees Celsius compared with the pre-industrial era. This is a key aim of the 2015 Paris Climate Agreement. To achieve this goal, greenhouse gas emissions have to be drastically reduced. And for this to happen, we need a global energy revolution, with fossil fuels such as oil, gas and coal being largely replaced by renewable energy sources.

So far, so obvious. However, it is well known that difficulties are being experienced in reaching these climate goals, and Dr Michael Zürch is certain that this is not just due a lack of political will.

“It would definitely be possible to accelerate the energy transition if, for example, we had better solar technology,” says Zürch, a physicist who obtained his PhD at Friedrich Schiller University in Jena and has been doing research at the renowned University of California at Berkeley since 2015. He points out that the silicon-based solar modules currently in use have an efficiency of at most 20 per cent.

### Synopsys Settles With Mentor, Agrees To Collaboration

SAN FRANCISCO — EDA heavyweights Synopsys and Mentor Graphics agreed to settle a long-running emulation patent litigation as part of a collaboration deal between Synopsys and Mentor's parent company, Siemens PLM Software.

The settlement agreement includes a seven-year patent cross-licensing agreement between Synopsys and Mentor. It presumably brings to an end a long-running battle over emulation technology that began between Mentor and EVE SA, a French emulation firm that Synopsys acquired in 2012. As recently as last year, an appeals court upheld a $36 million jury verdict in favor of Mentor in the case.

More broadly, the deal between Synopsys and Siemens includes collaboration on a range of EDA product interoperability projects for the benefit of mutual customers, spanning applications from design to verification

### ASML To Ship 20 EUV Systems In 2018

LONDON — Dutch semiconductor equipment vendor ASML said Wednesday it is on track to ship 20 extreme ultraviolet (EUV) systems in 2018 and expects to ship at least 30 more in 2019.

The company's estimates came as part of ASML's second quarter financial report, which included better-than-expected sales of EUV tools and overall sales of about $3.2 billion. "Gross margin was slightly above our guidance, reflecting the strength of our DUV and applications business and progress in EUV profitability," said ASML CEO Peter Wennink.

ASML shipped four EUV systems in the second quarter, one more than forecast, as logic customers prepare to ramp next-generation devices starting later this year, Wennink said

## WiFi Going 6GHz

SAN JOSE, Calif. — Engineers agreed to start work in May on a next-generation Wi-Fi standard that could provide up to a four-fold boost in throughput. The Extreme High Throughput (EHT) spec may be the first designed from the start to include support for the 6 GHz band and to put Wi-Fi standards on an accelerated release cadence.

Developers hope the 6 GHz band is cleared by 2020 for unlicensed use that would include both Wi-Fi and cellular. Wi-Fi proponents aim to retrofit 802.11ax for 6 GHz by that time and have an enhanced 6 GHz implementation available with EHT by 2023.

The EHT initiative comes on the heels of disappointment over the longer than expected time it took to finish the latest Wi-Fi upgrade. The .11ax spec, just now coming to market in pre-standard versions, took more than four years to finish, one of the longest 802.11 projects to date.

Complexities of the .11ax spec created longer discussions at the beginning of the work than expected. Toward the end, engineers tried to insert many new features in the spec, generating many technical comments that took time to resolve, said Laurent Cariou, a Wi-Fi standards specialist at Intel.

## OLED Displays Fold in Smartphones – Literally

SAN JOSE, Calif. — A smartphone that unfolds into a tablet could emerge next year in an effort to reinvigorate the maturing mobile market. A bendable screen passed U.S. safety tests, Samsung Display announced late last week, in the latest sign that the long-rumored concept may be about to become a reality.

Engineers have worked for years on versions of flexible, even roll-able, displays. They aim to enable mobile devices in new form factors, opening new markets.

A smartphone with a bendable OLED display could open to a 7- to 8-inch screen size, delivering perhaps UHD resolution at 120 Hz. It would need to withstand at least 100,000 open/close cycles and could cost as much as $2,000, said Y.J. Kim, chief executive of MagnaChip, an independent maker of display driver chips for OLEDs.

If offered an $1,800 handset that could double as a tablet, “I’d buy it,” said Kim, adding that he has no knowledge of any commercial products in the works.

## East European News & Trends

### New Tech Aims At Faster Eyesight Recuperation

A collaborative team of researchers in the Lower Volga area, comprising scientists from the Samara University and medical practitioners from the local Research Institute for Eye Diseases, has developed a new method of preventing postsurgical complications in ophthalmology patients.

The scientists have come up with a new curative composition and novel method of applying an anti-inflammatory drug to the eye after surgery. The breakthrough is expected to help lower the number of postsurgical complications and step up convalescence in eye surgery patients.

Invasive surgery is one of the most widespread ways of treating eyesight problems. An estimated 650,000 eye surgeries take place in the world each year, including more than 30,000 in Russia alone. During the period of recovery the eye that has been operated on has to be treated with certain drugs.

### Smart Wristband To Gauge Your Body

A Russian start-up called AURA Devices is developing smart wristbands to gauge the wearer's weight and other parameters.

At the heart of the AURA Band technology is bio-impedance analysis that enables the gathering of data on any change in the composition of the wearer's body.

The AURA Band bracelet-like gadget is said to be able to measure body composition, water level and heartbeat as the user walks, and also to identify the wearer's physiological rhythms (run or sleep, for example). All this can be sent out via the start-up's proprietary mobile app.

### Full-Sized Color Holograms On Any Material

Researchers at the ITMO University in St. Petersburg have developed special nanoparticles that make it possible to print full-sized color holograms basically on any material, using a standard inkjet printer.

The chemists are said to have come up with a simple and convenient way of making holograms after they discovered that certain types of nanoparticles tend to come together in what the scientists referred to as photonic crystals as the drops of water or other liquids, in which the particles were contained, dry up.

### Advanced Robotics Gets Government Support

Sberbank, Russia's largest government-controlled savings bank, and the state-owned Internet Initiatives Development Fund (FRII) are backing a new acceleration program for intelligent robotics projects.

The program is focused on start-ups that develop personal robotic assistants, robots for logistics, collaborative industrial robotic arms (cobots), transportation drones for both aerial and ground uses, and industrial exoskeletons.

Start-up teams from across Russia are given three months to debug and fine-tune their prototype solutions in a special Sberbank laboratory. During this time, the developers are expected to put together a commercialization strategy, come up with promotional and marketing solutions to bring customers on board, identify the most lucrative market segments, and produce their minimum viable product (MVP).

## Russian Start-Ups To Probe Irish Markets

Pulsar Venture Capital, a Russian VC fund, has pooled efforts with Ireland's Guinness Enterprise Center and Enterprise Ireland to launch in Ireland a new business program for Russian IT start-ups and investors, including angel investors, Firrma.ru reported, citing a spokesperson for Pulsar Venture Capital.

Pulsar Dublin BootCamp is designed to help technology start-ups that are shooting for a share in the global market, primarily in the segments of edtech, HR-tech, robotics, blockchain, and ICO.

## Fintech Start-Ups Get New Support

A special competition for promising fintech start-ups will be held this coming October as part of Finopolis 2018, the Russian-wide forum on innovative financial technologies, Firrma.ru reported.

Fintech Lab, a Russian company, is the key driver behind the effort; the Central Bank of Russia and a number of this country's largest financial companies are also supporting the event.

Eligible for participation in the competition are projects focused on blockchain, artificial intelligence, big data, customer service personalization, improved scoring, and other areas.

The winners may expect $15,900, $31,700 and $47,600 grants as the third, second and first prizes, respectively. Ten finalists will also be given a chance to present their solutions at the Finopolis 2018 forum in front of Russia's top financial market players.

## World Economic Round Up

The rupee touched an all-time low of 69.62 per dollar in early trade, tracking broader weakness in other emerging market currencies due to concerns of a spill-over from a crisis-hit Turkey. According to forex dealers, the Reserve Bank of India was seen intervening to stem a sharp fall in the rupee. The rupee reversed marginally from its record lows to trade at 69.53 to the dollar. It had ended at 68.84 to the dollar on Friday. The 10-year benchmark bond yield rose to 7.80 percent from its previous close of 7.75 percent, tracking the weakness in rupee.

***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 – 12th November 2018
- Industry Forecast Briefing, London – 16th September 2018

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

***Telephone: +44 1732 740440***
***Email: 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 12th NOVEMBER 2018**
**AND**
**INDUSTRY FORECAST BRIEFING**
**TUESDAY 18th September 2018**

**BOTH BEING HELD AT**

**HOLIDAY INN KENSINGTON FORUM, LONDON**

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