FutureHorizons
The Global Semiconductor Industry Analysts

Future Horizons Newsletter

December 2019

Wishing You All A Very Merry Christmas And A Happy And Prosperous New Year

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Industry News By Company

Cree and ST Double Value of SiC Agreement to $500M

Cree and STMicroelectronics have expanded and extended an existing multi-year, long-term silicon carbide (SiC) wafer supply agreement to more than $500 million. The extended agreement is a doubling in value of the original agreement announced earlier this year for the supply of Cree's advanced 150mm silicon carbide bare and epitaxial wafers to STMicroelectronics over the next several years. Recommended

SiC MOSFETs Bring Disruptive Breakthroughs to Power Systems

ST is gradually building up both internal expertise and capacity throughout the whole supply chain as well as working with third parties, such as Cree. Last month it said it intended to acquire the remaining 45% stake in SiC wafer supplier Norstel to bolster internal capacity. The increased wafer supply will help address growing demand for SiC power devices globally particularly for automotive and industrial applications, according to ST.

"Expanding our long-term wafer supply agreement with Cree will increase the flexibility of our global silicon carbide substrate supply. It will further contribute to securing the required volume of substrate we need to manufacture our SiC-based products as we ramp up production over the next years for the increasing number of programs won at automotive and industrial customers," said Jean-Marc Chery, president and CEO of STMicroelectronics.

Graphcore's AI Chips Used in Microsoft's Azure Cloud

LONDON — Graphcore's AI accelerator chip, the Colossus intelligence processing unit (IPU) is now available for customers to use as part of Microsoft's Azure cloud platform.

This is the first time any major cloud service provider has publicly offered customers the opportunity to run their data on an accelerator from any of the dozens of AI chip startups and as such, it represents a big win for Graphcore. Microsoft has said access will initially be prioritised for customers who are "pushing the boundaries of machine learning".

Microsoft Azure customers now have access to Graphcore's IPU AI accelerator (Image: Graphcore)

Microsoft and Graphcore have been working together for two years to develop cloud systems and build enhanced vision and natural language processing models for the Graphcore IPU. In particular, the natural language processing (NLP) model, Google's BERT (bidirectional encoder representations from transformers), which is currently very popular with search engines, including Google themselves

Inphi And Synopsys Divvy Up eSilicon

Inphi Corp., is buying most of eSilicon; while Synopsys will acquire the fabless vendor's embedded memory and interface intellectual property (IP) business. Inphi is to pay $216

million for eSilicon in both cash and assumption of debt, while the price that Synopsys paid for the memory assets was not disclosed.

eSilicon was established in 2000 and provides complex FinFET ASICs, market-specific IP platforms and advanced 2.5D packaging solutions. Targeting high-bandwidth networking, high-performance computing, artificial intelligence (AI) and 5G infrastructure markets, its IP includes configurable 7nm 56G/112G SerDes plus networking-optimized 16/14/7nm FinFET IP platforms featuring HBM2 PHY, ternary content-addressable memory (TCAM), specialized memory compilers and I/O libraries. Its neuASIC platform provides AI-specific IP and a modular design methodology to create ASICs.

Ready-To Use And Versatile: Infineon's Secora™ ID accelerates eID Project Execution

Munich, Germany – 14 November 2019 – Electronic identification documents (eID) are high in demand worldwide. To address the evolving needs of the market in a fast and flexible manner, Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) has developed the SECORA™ ID security solution. The latest addition to Infineon's SECORA™ family is certified and ready to be integrated into highly secured eID documents. Furthermore, SECORA ID allows to run Java Card™-based applications on smart cards and other small footprint devices hence facilitating design, testing and deployment of eID solutions.

"Infineon's expertise is based on more than 160 government ID projects that cover more than 70 percent of the world's population", said Maurizio Skerlj, Senior Director ID solutions at Infineon. "With the SECORA ID enablement platform, Infineon enables security printers and card manufacturers to progress further on their path towards digitalization of governmental applications."The plug-and-play SECORA ID solution combines Infineon's industry leading security chip with software to ease the integration into highly secured eID documents. At the same time, SECORA ID can be customized easily and efficiently according to the specific requirements of national eID schemes as well as further applications. These can range from electronic health cards and eDriver licenses up to multi-application solutions combining identification, payment and public transport ticketing.

Nuvia Takes On Intel In The Data Center

A company called Nuvia just introduced itself and announced it will be taking on Intel in the data center market, where Intel has utterly dominated with market share in excess of 90 percent for years, despite having been perpetually assailed by the likes of AMD and Arm.

Nuvia plans to create a CPU server core and associated SoC that will provide a "step-function" in performance improvement over every other product in the category — all while working within current data center power constraints, according to the company's vice president of marketing, Jon Carvill.

“This is a product built for performance leadership — full stop,” Carvill said. He declined to provide anGraphcore's AI Chips Used in Microsoft's Azure Cloudy other details, including what core the company might have chosen.

Renesas Electronics Introduces Industry’s First ASi-5 ASSP For Industrial Automation

TOKYO--(BUSINESS WIRE)--Renesas Electronics Corporation (TSE:6723), a premier supplier of advanced semiconductor solutions, today introduced the ASI4U-V5 ASSP – the industry’s first silicon solution to fully implement the ASi-5 (Actuator Sensor Interface version specification version 5) standard for industrial network equipment. ASi-5 offers superior performance and usability over ASi-3, delivering 1.27 ms cycle time, 200m cable length and 96 slaves per segment. The field-proven ASSP delivers an easy-to-use fieldbus integration option for developers working with sensors, actuators, and other industrial equipment requiring easy and cost-efficient fieldbus connectivity.

Multiplexing (OFDM), enhanced diagnostics, and state-of-the-art robustness associated with the ASi-5 standard. The ASSP also supports all bus topologies, including line, star, and tree. Users can also take advantage of easy and cost-efficient integration with other industrial protocols such as IO-Link and HART.

Industry News & Trends

SiC Hits the Performance Goals For xEV Systems

The market for plug-in hybrid electric vehicles (PHEVs) and fully electric vehicles (EVs) continues to grow. Vehicles in these categories, sometimes collectively referred to as xEVs, incorporate numerous power electronic devices, most of which are based on silicon technology today. The most advanced xEV designs, however, require power electronics solutions that can achieve higher efficiency and higher power density than conventional silicon structures can provide.

Silicon carbide (SiC) can overcome the structural limits of silicon, providing previously unattainable levels of performance. SiC's advantages include low switching losses, low drain-source on-resistance (RDS(on)), high operating temperature, and high switching frequency. These features make SiC power devices suitable for meeting even the most stringent automotive requirements.

Gyrfalcon Unveils Fourth AI Accelerator Chip

Gyrfalcon has announced a new AI accelerator for consumer devices, the Lightspeeur 5801. This device is the company's fourth production chip, and it has already been designed into LG's Q70, a mid-range smartphone, where it handles inference for camera effects such as Bokeh.

According to Gyrfalcon, the Lightspeeur 5801 offers 2.8 TOPS at 224mW (equivalent to 12.6 TOPS/W) with 4ms latency. Clock speed is variable between 50- and 200MHz to allow the tradeoff of performance and power consumption. The chip can handle 448 by 448 pixel images, four times larger than its previous edge inference chip, the Lightspeeur 2801. It comes in a 6 by 6mm package.

"Our technology is built to address the most challenging aspects of AI, which is not just performance, but performance with energy efficiency, and can also address cost factors," said Marc Naddell, VP marketing at Gyrfalcon. "Starting with the edge AI opportunity, our founders created this architecture that could then scale up across the spectrum of device opportunities and even address data centre and cloud AI implementations and all points in between.

Russia and Huawei team up as tech cold war deepens

Huawei Technologies has drawn closer to Russia after being blacklisted by the US and several European countries, a move that has huge implications for both sides, analysts said.

"Huawei is China's largest technological company. China is friends with Russia, so it is only logical that Huawei now plays a leading role in this friendship," said Vladimir Rubanov, executive manager of Russian IT company Rosplatforma.

Over the past year, Huawei has made major inroads in Russia. The Chinese tech company has emerged as a leader in areas ranging from fifth-generation mobile network development to smartphone sales. Huawei is also in the process of significantly expanding its Russian-based research and development operations and forming partnerships with local universities.

Amazon, Mediatek Look To Lead In Smart Homes

MediaTek and its customer Amazon are aiming to create a unified smart home vision that's so far only materialized in bits and pieces.

MediaTek chips power Amazon products such as Alexa, a voice-actuated, cloud-based personal assistant that can control several smart devices. Alexa and other Amazon products such as Echo and Fire TV, also running on MediaTek chips, are among the earliest entrants to the smart home business.

Those things hint at what home automation could be, but still fall far short of home automation's potential. The two companies spoke about a future in which home TVs will be the hubs of systems unifying an array of electronics devices, including perhaps even errant robot sweepers.

EU Project Targets Low-Cost Manufacturing Packaging

What if the growing demand for more complex systems and more advanced packaging, including optics and photonics, could maintain — or rejuvenate — the manufacturing and packaging value chain in Europe? With the Advanced packaging for photonics, optics and electronics for low cost manufacturing in Europe (Applause) project, the European Union has made its ambitions clear.

The Internet of things generates demand for faster connectivity and expanded sensor capability. To meet the required performances, multiple chips are integrated into one package, together with optics (sensors) and photonics (interconnects). The increasing heterogeneity of components results in higher complexity, and eventually the package itself becomes an integral part of the system: its mechanical, electromagnetic and thermal behaviors have an impact on the overall system's performance, reliability and cost.

East European News & Trends

Russia Creates New Finance-Technology Partnership For A

Sberbank, Yandex, Gazprom Neft, the Russian Direct Investment Fund, Mail.ru Group and MTS are putting together a new alliance for artificial intelligence development; the federal Ministry for Economic Development will lead the effort, the Russian news agency TASS reported, citing Sberbank President German Gref.

According to Mr. Gref, the project is being designed as a private-public partnership.

The Sberbank president pointed out that the new consortium is open for any other companies, big or small.

Russian Capital Buys Into Russian Microchips

X-Holding, a Russian IT security company, used its asset, Yadro, to acquire 51% of Syntacore, a domestic developer of next gen microprocessors and microcontrollers based on RISC-V open-source architecture, Firrma.ru reported.

Syntacore is developing chips that have the potential to challenge the solutions currently used widely in computers and mobile devices, the developer believes. The team thinks that RISC-V could come as a competitive alternative to such global standards as Intel's x86, used in chips for laptops and some servers, and ARM, Ltd.'s ARM that powers smartphones and lots of other consumer electronic gadgets

Edtech Emerges As Priority For Investors

A Russian company called Maximum Education is using sophisticated technology to help high school kids prepare for important exams both offline and online.

Set up in 2013, Maximum Education has been focused on ways of enhancing schoolchildren's education. In addition to the unified state exam each school kid has to take before he leaves high school, the company trains children in the English language and computer skills. An unnamed spokesperson for Maximum Education said the company had around $8m in revenue last year and "posted profit" (unspecified though).

This past summer Skolkovo Digital, a Skolkovo Foundation investment arm, invested $6m in the edtech company. Skolkovo Digital is run by Skolkovo Ventures and iTech Capital and using some funds from the Russian Venture Capital (RVC).

Skoltech Team Fine-Tunes Optoelectrical Properties Of Nanotubes

An international group of scientists led by researchers at Skoltech (Institute of Science and Technology on the premises of the Skolkovo innovation hub just outside Moscow) have developed a method that enables the fine-tuning of single-walled carbon nanotube (SWCNT) films' optoelectrical properties by doping those with special alloying solutions.

The team tried to improve some of the key characteristics, including conductivity, a Fermi level and some others. According to Alexei Tsapenko, a Skoltech postgraduate, the current methods that exist for the doping of SWCNT films pose certain problems to researchers as spatial uniformity and easy scalability are hard to achieve.

Earlier this year the Skoltech-led group came up with a new method that is said to enable even and precise application of dopants to an unlimited number of nanotubes.

Fintech Service Raises Investment

Osome, a Singapore-based fintech start-up founded by Viktor Lysenko who once set up Rocketbank in Russia, raised $3m from a consortium of predominantly Russian VC funds, Vc.ru reported.

This funding round was led by Target Global Fintech Opportunities, a fund set up by Target Global and Sergei Solonin, the Russian co-founder of the payment system Qiwi. Phystech Ventures, a VC fund founded by MIPT University alumni in Moscow, and Ad.ru (AdFirst) also took part in the round.

These very investors provided their initial $2m support for Osome in December 2018 in a round joined by Lev Leviev, another Russian VC, and his LVL1 Group, according to Crunchbase.

Russian VCs invest In 3D Visualization

Leta Capital, a Russian VC fund, invested $500,000 in its portfolio company called Unigine. The young company is developing a high-capacity 3D visualization platform that can operate in real time, Firrma.ru reported.

Unigine is said to have plans to use the investment in its international expansion strategy.

Unigine's technology has already been quite welcomed across Asia, as well as in some European countries, in Australia, and in Russia.

Russian IT security company develops anti-drone system

Kaspersky Lab, a Russian IT company, has unveiled a system that can protect a corporate or household owner's territory against drone intrusion.

The new system is said to be able to spot an approaching drone using cameras, radar, lidar or microphones, identify the type/model of the drone, and send towards it radio noise that disrupts its connection with the operator and causes it to land.

The solution can monitor a range of objects simultaneously; however, one neutralization station can only disrupt the operation of one drone that flies singly, or several of those if they fly in a pack—it's because the system's antennas create a narrowly channeled signal.

World Economic Round Up

The Organisation for Economic Cooperation and Development - the OECD has said new prospects have steadily deteriorated. It forecasts continued growth of around 3 percent but warns that the risks have increased. The report says a lack of direction on climate policy is holding back business investment. Although the OECD is not forecasting a recession, it is a decidedly downbeat report. There are calls for action from governments to address challenges, some of which have both long term and more immediate consequences.

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 – 16th March 2020
- Industry Forecast Briefing, London – 15th January 2019 2020

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 16th March 2020
AND
INDUSTRY FORECAST BRIEFING
TUESDAY 15th January 2020

BOTH BEING HELD AT

HOLIDAY INN KENSINGTON FORUM, LONDON

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