FutureHorizons

The Global Semiconductor Industry Analysts

Future Horizons Newsletter

March 2019

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Industry News By Company

Arm Announces Next Generation Armv8.1-M Architecture

Arm Helium technology is a new M-Profile Vector Extension bringing enhanced compute capabilities to the Armv8.1-M architecture

Delivering up to 15x performance uplift for machine learning and up to 5x uplift to signal processing tasks on the smallest of edge devices

For next-generation Cortex-M processors, aimed at small, embedded devices, where local decision-making is required

The drive towards a world of a trillion connected devices is accelerating and will continue to do so, but only if we can find ways to efficiently expand the compute capabilities on a greater number of constrained devices at the far edge of the network. Increasing the compute capabilities in these devices will immediately open the door for developers to write machine learning (ML) applications directly for the device for decision-making at the source, thus enhancing data security while cutting down on network energy consumption, latency and bandwidth usage..

UK Says Huawei Is Manageable Risk To 5G

The British government has concluded that it can mitigate the risk from using Huawei equipment in 5G networks, in a serious blow to US efforts to persuade allies to ban the Chinese supplier from high-speed telecommunications systems.

The UK National Cyber Security Centre has determined that there are ways to limit the risks from using Huawei in future 5G ultra-fast networks, two people familiar with the conclusion, which has not been made public, told the Financial Times.

The finding comes despite stepped up US efforts to persuade countries to bar Huawei from their networks on the basis that it could help China conduct espionage or cyber sabotage. The US National Security Agency has been sharing more information with allies and partners to underscore the risks, but several European countries, including the UK and Germany, have not been convinced that a ban is warranted.

Nvidia Offers Promise Of Recovery Later This Year

Nvidia's shares bounced more than 7 per cent in extended trading on Thursday after the US chipmaker gave its first guidance about the direction of its business since a slump that dented revenues and earnings late last year.

Jen-hsun Huang, chief executive, gave investors an upbeat prediction of a rebound in the second half of this year for Nvidia, which sells to the gaming industry and datacentres, even though he was cautious on the company's prospects in the short term.

For the current quarter, which runs to the end of April, Nvidia said it expected revenues of $2.2bn. Analysts had been forecasting revenues of $2.41bn, implying that investors were expecting the chipmaker to see a return of consecutive quarter growth after a sharp downturn. In the event, Nvidia said the inventory overhang weighing on its business would continue until the end of the quarter, delaying any recovery.

Qualcomm Sells Off Halo Wireless EV Charging Technology

SAN FRANCISCO — Qualcomm has sold off its Halo wireless electric vehicle charging technology to MIT spinoff WiTriCity in exchange for an unspecified minority stake in TriCity.

Halo technology — which Qualcomm has been developing since before 2012 — is an entire system for charging an EV, enabling drivers to recharge simply parking over wireless charging ground pads. The technology involved includes power conversion, tuning, wireless power transfer, magnetics, control, communications and safety systems.

WiTricity (Watertown, Mass.) said the acquisition would simplify the ratification of a standard to help ensure wireless charging interoperability across automakers. EV drivers will be able to use any standards-compatible pad to charge their vehicles, WiTricity said.

Renesas Rises To OTA Challenges

TOKYO — The automotive industry often describes a connected vehicle as a "smartphone on wheels." Nothing, however, is further from the truth.

Senichi Yoshioka knows this as well as anyone.

Today, Yoshioka is senior vice president and chief technology officer of Renesas' automotive business. But he's a mobile business veteran. He used to work at Renesas Mobile, a smartphone apps processor company that existed several years ago.

During our interview at Renesas' headquarters, Yoshika casually took his smartphone out of his pocket and cradled it on his palm. He said, "Architecturally speaking, this thing is so much simpler than a connected car."

Basically, a smartphone has one big apps processor — all that's needed to run apps. In contrast, vehicles come with a hundred or more ECUs. They are connected to a variety of vehicle communication networks. Each network uses different communication protocols to send data.

Can SiFive Revive The Semiconductor Industry?

SAN JOSE, Calif. — If Naveed Sherwani gets his way, 2019 will be a year to remember for his startup, SiFive, the RISC-V architecture, and maybe even the whole semiconductor industry.

By the end of the year, SiFive could have cores that span the range of its entrenched rival Arm, said Sherwani, who in late 2017 was named CEO of the startup founded by RISC-V creators at Berkeley. This year, all RISC-V companies together could win more new sockets than Arm, he predicted.

The startup and the broader movement it is a part of are injecting new energy into a maturing chip sector. They are enabling more established companies to follow Apple's lead in designing their own chips. And they are making it easier and cheaper for small startup teams to get into chip design.

Taiwan's Chroma To Pay $74 Million for 20% Of Semiconductor Company Camtek

Taiwanese electronic test and measurement equipment and systems supplier Chroma ATE Inc. has agreed to acquire a 20.5% stake in Israel-headquartered, Nasdaq-listed semiconductor and printed circuit board company Camtek Ltd. Camtek announced the acquisition in a filing to the Tel Aviv Stock Exchange Monday. Camtek will also license technology to Chroma following the deal.

Chroma will pay Camtek's controlling shareholder, Priortech Ltd., $58.1 million for some of its stake, and pay additional $16.2 million for new stock issued by Camtek—a total payment of $74.3 million. Following the transaction, which is expected to close by the second quarter of 2019 subject to customary closing conditions, Priortech will hold 24% of Camtek's outstanding shares.

Industry News & Trends

Manufacturing Output Down For The First Time In 3 Years

The average daily output generated by the Dutch manufacturing industry was 4.2 percent down in December 2018 compared to the same month one year previously. Output has contracted for the first time since October 2015. Output in the electric and electronics industry showed the strongest year-on-year contraction.

Strongest output contraction in electric and electronics industry

Output generated by the electric and electronics industry declined by almost 14 percent in December relative to the same month in 2017. In addition, production levels in the transport equipment, machinery, pharmaceutical and chemical industries saw a greater decline than the average seen across the entire manufacturing sector.

RISC-V On The Verge Of Broad Adoption

There are major hurdles to overcome when bringing a new processor architecture to market. Today's fast-paced development practices demand that processor offerings be stable with the promise of a long market lifetime. Further, they must come to market with substantial support in the form of development tools, software libraries, operating systems, emulators, debuggers, and more. The emerging RISC-V instruction set architecture has faced and is overcoming those hurdles and is poised to rapidly gain broad acceptance across the design industry.

There are several reasons the RISC-V ISA has been garnering a lot of interest. For one, the ISA is open source, meaning that anyone can design a processor to implement the ISA without paying a licensing fee. This opens the ISA to a huge, worldwide design community that can review, correct, and enhance the architecture over time. Yet because only the ISA is open source, developers are free to safeguard their hardware design's intellectual property and keep it proprietary for commercialization.

Arm Rolls Server, Comms Cores

SAN JOSE, Calif. — The first two cores of Arm's Neoverse line for servers and communications systems narrow but don't close its performance gap with the x86. The N1 and E1 cores exceed Arm's target of 30% annual gains, but one analyst said that SoCs still could be as much as 30% to 40% behind the performance of Intel Xeon processors.

The two cores target the 7-nm node and add significant changes for servers and comms gear. Arm claims that it has plenty of headroom to continue adding at least 30% annual gains with its 7-nm-plus Zeus and 5-nm Poseidon cores in the works for 2020 and 2021, respectively.

To date, Arm SoCs have made significant inroads into comms gear, where Intel also has a strong presence. With the exception of storage servers, Arm has yet to gain a foothold in the mainstream server sector that the x86 dominates.

Samsung, Toshiba Detail AI Chips

SAN FRANCISCO — Samsung described a new neural-network accelerator for smartphones that matches blocks from rivals such as Huawei. Toshiba detailed one for self-driving cars that pulls ahead of competitors such as Intel's Mobileye at the International Solid-State Circuits Conference here.

A 5.5-mm2 block in the latest 8-nm Exynos chip delivers 1.9 tera-operations/second (TOPS) using 8-bot precision running at up to 933 MHz, said Jinook Song, a Samsung AI engineer. That's about the rating for the latest Kirin processor in Huawei phones and the latest commercial IP blocks.

However, the block hits performance of 6.937 TOPS when a neural net allows pruning of up to three-quarters of its weight. The chip delivers a range of 4.5 to 11.5 TOPS/W when consuming from 39 mW at 0.5 V to 1.553 W at 0.8 V.

Intel Says FinFET-Based Embedded MRAM Is Production-Ready

SAN FRANCISCO — Intel gave further details on its technique for embedding spin-transfer torque (STT)-MRAM into devices using its 22-nm FinFET process, pronouncing the technology ready for high-volume manufacturing. Embedded MRAM is considered a promising technology for applications such as internet of things (IoT) devices.

In a paper presented at the International Solid-State Circuits Conference here Tuesday, Intel said that it has used a "write-verify-write" scheme and a two-stage current sensing technique to create 7-Mb perpendicular STT-MRAM arrays in its 22FFL FinFET process. The company had provided early details of its success in developing the first FinFET-based MRAM devices last year at the International Electron Devices Meeting.

Have Arm Closed The Gap On Intel's X86?

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East European News & Trends

Russian Start-Ups To Meet Mentors In New York

A Russo-American accelerator called Starta Accelerator, which is part of the Starta Ventures group, has picked 20 Russian and international technology start-ups out of more than a thousand for participation in an acceleration program in New York, Firrma.ru reported.

Starta's seventh round of enrolment has brought together marketplaces, e-commerce players, real estate technology start-ups, fintech developers, retail companies and CBD product makers that use a broad range of technologies, including augmented reality (AR), blockchain, artificial intelligence (AI), and others.

Russians Develop New Methods To Fight Cancer

Researchers at the Lobachevsky University (UNN) in Nizhny Novgorod, in the mid-Volga area, and their Australian colleagues have developed and put together multipart anti-tumor molecular complexes.

The complexes contain yttrium-90, a radioactive isotope, and protein molecules. The latter consist of two parts, one being the guide able to selectively bond with cancerous cells, and the other bringing to the cells bacterial toxins.

The nanocomplexes are based on biocompatible photoluminescent nanodimensional particles (nanophosphors), an approach that enables their visualization by optic methods. The infrared spectrum is used for nanophosphor photoluminescence excitation; therefore the nanoparticles reach deep into the living tissue, leaving it intact.

Russia puts together domestic alternative to LinkedIn

Word came earlier this year that the Russian Government was putting together plans to launch a full-blown national resource to help look for skilled staff, a domestic alternative to LinkedIn which is banned in Russia.

According to recent updates, the new portal, to be called Work in Russia, is to be created on the basis of trudvsem.ru, an already operational website launched by the government. The project authors want to upgrade the website's functionality dramatically through, among other things, using machine learning technologies to step up search for jobs. The portal may require an estimated $5.5m from government coffers.

Russian Start-Up Develops Drone Tech For Warehouses

UVL Robotics, a domestic start-up company, is developing autonomous drones for warehousing.

The UVL Robotics team is said to have developed and already completed successful tests for two of its drone systems, and is also testing the systems further in partnership with seven companies.

“Our plans include commercial services in inventory management. Customers include large-scale 3PL operators, FMCG sector players and retail chains. In the long term, we want to establish presence in the international target markets through active interaction with western logistic companies,” UVL Robotics CEO Evgeniy Grankin said.

World Economic Round Up

Most of the major world economies may have lost considerable momentum over the past year, but the US economy has continued to power ahead. Gross Domestic Profit (GDP) growth in the US is estimated at close to 3 percent in 2018, up from 2.2 percent in 2017 and 1.6 percent in 2016. By contrast, the UK economy grew by 1.4 percent last year, its weakest rate of expansion since 2012. Growth in the euro zone slowed to 1.8 percent, the lowest rate since 2014

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 – 25th March 2019
- Industry Forecast Briefing, London – 17th September 2019

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 25th March 2019
AND
INDUSTRY FORECAST BRIEFING
TUESDAY 17th September 2019

BOTH BEING HELD AT

HOLIDAY INN KENSINGTON FORUM, LONDON

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