FutureHorizons

The Global Semiconductor Industry Analysts

Future Horizons Newsletter

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Contents Page

Industry News By Company

Arm unveils Neoverse V2, role in Nvidia Grace SuperChip

Arm announced the latest version of its Neoverse V-Series processor core and revealed Nvidia as a customer for the new product, saying that Nvidia already is using the Neoverse V2 in its previously-announced Grace CPU SuperChip architecture for the data center market.

The announcement almost serves as an appetizer to Nvidia's GTC Fall event next week, where Nvidia is likely to provide an update on Grace, amid its usual overstuffed buffet of product unveilings and updates.

The Neoverse Demeter V2 will serve as the processor cores in the Grace CPU SuperChip, which will use 144 such processor cores. Further details can be found in this blog post.

The unveiling of the latest Neoverse version and its involvement in Nvidia's Grace does not come as a surprise. Nvidia was using Arm before and for a long time was planning to acquire the company until that deal collapsed.

Bosch Set To Acquire RF Specialist Itom

Bosch is set to acquire high frequency IC design company Semiconductor Ideas to the Market (ItoM) BV (Eindhoven, The Netherlands) for an undisclosed sum.

Former Philips engineers, including the current CEO Harm van Rumpt, founded ItoM in 1998. The company is specialized in high-frequency processing components and has 30 employees.

Bosch is making the acquisition to strengthen its expertise in high-frequency processing automotive SoCs. ItoM has development sites in Eindhoven and Enschede and both are to be expanded.

KLA To Build New R&D And Manufacturing Facility For SPTS In Newport, Wales

Process control and inspection systems provider KLA Corp of Milpitas, CA, USA plans to build a new R&D and manufacturing center for its SPTS division in Newport, Wales, UK (which manufactures etch, PVD and CVD wafer processing solutions for the MEMS, advanced packaging, LED, high-speed RF, and power management device markets).

Designed to meet the Building Research Establishment Environmental Assessment Method (BREEAM) standard of sustainability rating of excellence, the new development is expected to include a capital investment of more than $100m and create a 200,000ft2 facility. The new innovation center and manufacturing facility will include offices, cleanrooms, storage and support facilities and accommodate up to 750 employees.

"SPTS has experienced significant growth in its business over the past several years and is a highly successful division of KLA," says Oreste Donzella, executive VP of KLA's Electronics, Packaging and Components (EPC) Group. "We are investing in the new site to support SPTS's growth and to establish additional facilities for the wider KLA European organization. Expanding in South Wales allows us to tap into the region's

attractive talent pool and benefits from an appealing quality of life with access to many international sporting events, historic parks and outdoor activities. This area is also home to some of UK's leading universities and research institutes with strong semiconductor competencies and industry ties for collaborative research," he adds.

Nvidia announces Drive Thor SoC to centralize car compute

Nvidia announced Drive Thor, an ambitious centralized car computer cluster to unify functions for automated driving and in-car infotainment to first appear in Zeekr intelligent EVs starting production in 2025.

Thor is a System on Chip (SoC) that replaces Drive Atlan on the same timeline and will be the next generation for Drive Orin, now in production, Nvidia said Tuesday at its GTC event.

"Drive Thor is the superhero of centralized compute," Nvidia CEO Jensen Huang declared. Both its superhero name and projected functionality show Nvidia's ambitions for the evolving smart car market where it already claims superiority. In his keynote, Huang said Thor might find use in industrial and robotics applications beyond vehicles.

Renesas Buys Steradian, Adding to ADAS Portfolio

Sensor fusion is one of the many automotive technologies that chip companies see as an important part of their portfolios. In its mission to offer an all-round solution for advanced driver assistance systems (ADAS), Renesas Electronics recently added 4D mm wave band imaging radar technology to its portfolio with the acquisition of India-based Steradian Semiconductors.

"We are investing in radar through the acquisition of Steradian," Vivek Bhan, senior VP for automotive at Renesas Electronics, told EE Times. "The radar market is growing rapidly, and Renesas intends to expand our presence with radar in both automotive and industrial markets. We will leverage Steradian's assets to develop our own automotive radar products. This is a strategic acquisition that complements what we are already doing in automotive and allows us to operate in the radar market."

Samsung Foundry Tapes Out 3nm Chips With Synopsys Tool

Samsung Foundry has produced multiple successful test chip tapeouts on its SF3 3nm technology using digital and custom design tools and flows from Synopsys.

The SF3 process reduces power consumption by 50%, boosts performance by 30% and has 30% smaller area than Samsungs SF5E 5nm process.

Samsung uses Synopsys DSO.ai technology in its flow, tapping machine learning capabilities to massively scale the exploration of choices in chip design workflows and speed up the design flow.

In June Samsung announced internal first silicon for its 3nm nanosheet gate all around (GAA) Multi-Bridge-Channel FET (MBCFET) process. The second generation of this process has the same improvements as the SF3 process.

STMicroelectronics To Build Integrated Silicon Carbide Substrate Manufacturing Facility In Italy

STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications, will build an integrated Silicon Carbide (SiC) substrate manufacturing facility in Italy to support the increasing demand from ST's customers for SiC devices across automotive and industrial applications as they transition to electrification and seek higher efficiency. Production is expected to start in 2023, enabling a balanced supply of SiC substrate between internal and merchant supply.

The SiC substrate manufacturing facility, built at ST's Catania site in Italy alongside the existing SiC device manufacturing facility, will be a first of a kind in Europe for the production in volume of 150mm SiC epitaxial substrates, integrating all steps in the production flow. ST is committed to develop 200mm wafers in the next future.

This project is a key step in advancing ST's vertical integration strategy for its SiC business. The investment of €730 million over five years will be supported financially by the State of Italy in the framework of the National Recovery and Resilience Plan and it will create around 700 direct additional jobs at full build-out.

Industry News & Trends

Globalfoundries' East Fishkill Employees To Transition To Onsemi When Sale Becomes Effective

Over 1,000 employees of Global Foundries U.S. 2 LLC at the former IBM East Fishkill facility have been notified of layoffs as the business is sold to ON Semiconductor Corporation, according to the State Labor Department's Office of Dislocated Workers Program.

The layoffs, affecting 1,056 employees, are expected to occur on December 31, 2022.

The good news is that ON has made offers of employment effective January 1, 2023, to all of the affected workers.

The acquisition of Global Foundries by Phoenix-based ON Semiconductor was announced in April 2019.

ON Semiconductor Corporation manufactures semiconductors and related devices.

Oxford Instruments And ITRI Develop Recessed-Gate Gan MISHEMT

Oxford Instruments Plasma Technology (OIPT) of Yatton, near Bristol, UK and its research partner Industrial Technology Research Institute (ITRI) of HsinChu, Taiwan have announced technology developments that, they reckon, can significantly benefit key hyper-growth electric vehicle (EV), data-center and 5G markets.

The developments allow critical transistor components to operate at higher voltages (increasing performance and reliability) while also achieving a safer and more energy efficient operation (normally off E-mode) compared with existing devices. The new gallium nitride (GaN) HEMT device architecture is defined by a recessed and insulated gate junction into the aluminium gallium nitride (AlGaN) layer, i.e. a GaN MISHEMT.

In September 2021, OIPT and ITRI announced a cooperative research program for next-generation compound semiconductors. The latest breakthrough is an example of that collaboration delivering on its goal of accelerating technology to benefit the partners, their regions and wider global markets. Oxford Instruments has since also unveiled an exclusive supply deal with in-situ metrology system maker LayTec AG of Berlin, Germany, whose end-point technology is used to control the GaN MISHEMT recess gate depth. Recess depth accuracy and repeatability is critical to tune the device performance characteristics, and LayTec's technology is designed specifically for this application, achieving target depth accuracy of ±0.5nm.

Spain Plans Compound Semiconductor Photonics Foundry

The city of Vigo in Spain is to host a new foundry for building photonic devices with compound semiconductors.

SPARC, the III-V Semiconductor Foundry and Advanced Photonics Research Centre, will consist of a 1.600 m2 clean room for wafer production and a research centre that will in the development of fully-certified photonic products.

The foundry will be operational around late 2023. Funding details are sketchy, but would be a key part of the proposed European photonics supply chain project. The foundry is pitched with a focus on materials such as GaAs, InP and GaN, implying the use of a number of reactors and basic lithography.

An equivalent compound semiconductor photonics foundry in the UK, called QFoundry, is being set up at the Compound Semiconductor Centre in Wales with £5.7m (€6.3m), but this has a specific focus on VCSEL lasers for photonic quantum computers

Instead SPARC in Spain says it will be able to address a large customer base across a wide range of different markets, including optical communications, displays, lighting, aerospace, automotive, biomedical, sensing, and quantum technologies, as well as high-speed- and/or high-power electronics.

£220m For UK's First Active Fusion Reactor

The UK government has selected the site for a new fusion energy plant and provided £220m (€250m) to create a concept design by 2024.

The Spherical Tokamak for Energy Production (STEP) (above) will be built at the West Burton power station site in Nottinghamshire by 2040. This will be connected to the National Grid and producing net energy, although it is not expected to be a commercially operating plant at this stage.

Four other sites were on the shortlist, including Ardeer, Goole, Moorside and Severn Edge (Oldbury & Berkeley).

The programme will also commit immediately to the development of apprenticeship schemes in the region, building on the success of the UK Atomic Energy Authority's (UKAEA) Oxfordshire Advanced Skills centre in Culham, where the research tokomak is based.

East European News & Trends

Artificial intelligence for more accurate medical diagnostics

Researchers at Tomsk-based SibMed University (Siberian State Medical University) have developed new hybrid artificial intelligence (AI) technology to control multiple cyber-physical systems across medical disciplines.

At the core of the development are AI-driven systems to support physicians' decision-making process which are based on data and on knowledge.

As modern computing and communication devices are getting increasingly compact and affordable, the creation of an array of sensor- and actuator-enabled cyber-physical systems is no longer a future plan. Sensors and other slave gadgets help collect tons of data on processes that take place in physical and biological objects.

What the SibMed team focused on was the development of decision-making support systems for doctors which could operate where datasets available are very limited and where both data and empirical and theoretical knowledge are required to do the job.

Smart Wearable Eases Rescue Operations In Vast Territories

Young innovators from the Perm Polytechnic University in the West Urals have come up with a prototype wearable that is expected to help find stray wanderers in deep forests.

The developers believe the gadget will step up the efficiency of search and rescue operations compared to conventional methods in which foot rescuers comb through barely penetrable woodlands with little hope of spotting a trace, or airborne teams can hardly see anything through a ceiling of tree tops.

Russia's Pacific Innovation: Novel Materials To Support Robotics And Electric Vehicles

Scientists at the Far East Federal University (FEFU) in Vladivostok are working on the development of new rare-earth based materials to be used in high-quality permanent magnets, a core component of a wide variety of devices.

The team seeks to better control magnetic properties of the products, thus improving their durability and energy efficiency.

Permanent magnets are at the heart of most high-tech electric motors and electric generators that are integral parts of all means of modern transportation, robotic solutions, green energy, etc. High energy consumption technologies are used to manufacture these, and ultra-pure magnetic powders are required to control their composition characteristics and microstructure.

Infineon Opens Power Module Fab in Hungary

Three years after the foundation stone was laid, Infineon has officialized the opening of a new manufacturing facility in Cegléd, Hungary, to meet the demand for power semiconductor modules that help the electrification of vehicles and enable green energy for wind turbines, solar modules, and energy-efficient industrial drives.

“We have today officially opened a new fab, complementing the existing fab [in Cegléd],” Infineon spokesman Gregor Rodehüser told EE Times Europe.

The production ramp-up began in February 2022, and Rodehüser confirmed that “the first products have been delivered over the last months.” It will produce power semiconductor modules for Infineon’s Automotive (ATV) division to foster electromobility and provide additional capacity for Infineon’s Industrial Power Control (IPC) division, Rodehüser said.

This new facility represents a €100 million investment and is expected to create 275 jobs, bringing the total workforce to about 1,600.

“As is usually the case with new fabs, staffing and production volumes are continuously increased over time, depending on several factors, such as availability of further equipment and workforce, market development,” Rodehüser said. “The decisive factor is that the new fab enables us to react to an increase in customer demand, which we have seen and are expecting to further increase.”

World Economic Round Up

Among political and business leaders in America, China and the EU, the consensus is that globalisation is in danger of going into reverse, and that a big driver is China's rise. However, those same blocs—the three largest economies on Earth—disagree profoundly about whether this is China's fault. America's secretary of state, Antony Blinken, says China has arguably benefited more than any other country from an open international order, but is now bent on reshaping it. The Biden administration charges China with pursuing "asymmetric decoupling", as it seeks to dominate key technologies from electric-car batteries to quantum computing. Mr Blinken sees a selfish plan to make "China less dependent on the world and the world more dependent on China".

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 2022

Future Horizons Events

- Silicon Chip Industry Training Seminar – London – March 2023
- Industry Forecast Briefing, London – January 2023

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

Telephone: +44 1732 740440
Email: mail@futurehorizons.com

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Industry Events

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MARK YOUR CALENDER FOR THE NEXT

SILICON CHIP INDUSTRY WORKSHOP
MONDAY March 2023
AND
INDUSTRY FORECAST BRIEFING
TUESDAY January 2023

BOTH BEING HELD AT

HOLIDAY INN KENSINGTON FORUM, LONDON

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