FutureHorizons

The Global Semiconductor Industry Analysts

Future Horizons Newsletter

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Industry News By Company

Cambridge Staff 'Fobbed Off' At Meeting Over Arm Sale To Nvidia, Says Union

Opposition to the $40bn (£31bn) sale of the UK's largest tech firm, Arm Holdings, is mounting, as the trade union Unite said staff concerned about their future had been "fobbed off" and the company's local MP urged the government to act.

The US software company Nvidia said on Monday it had agreed to buy Arm, a global leader in designing chips for smartphones, computers and tablets, from the Japanese tech investment business SoftBank.

The government has so far declined to say whether it will consider deploying powers to block the deal or attach conditions, despite pressure from Labour, trade unions and Arm's outspoken co-founder Hermann Hauser.

Unite said members who worked for Arm at its Cambridge headquarters had been kept in the dark and fobbed off in an internal meeting, with senior figures telling them any transaction was at least 18 months away.

Unite called on the government to prevent the sale, saying ministers should be "protecting tech firms from being hollowed out by detrimental takeovers and providing the investment needed for the sector as a whole to flourish"

Nvidia's Arm Deal Will Shake Up The Semiconductor Sector

The semiconductor sector will likely not be the same following the news that Nvidia is to buy UK chipmaker Arm for $40-billion, according to Snigdha Parida, thematic research analyst at GlobalData, a leading data and analytics company.

"The combination of Nvidia's artificial intelligence (AI) and autonomous driving chips and Arm's mobile-friendly CPU ecosystem will shake up the semiconductor sector," says Parida. "Nvidia will control the world's most popular CPU architecture and become a leading provider of chips for AI, mobile, and the Internet of Things (IoT), three of the most significant tech themes. It will increase the pressure on market leaders such as Intel, which currently sits at the top of GlobalData's Semiconductor Thematic Ranking."

Parida states that Intel's lead is based on the breadth of its product range, including memory chips, which account for over 20% of the overall semiconductor market, and its financial strength. Intel currently scores better than Nvidia in the data centre, 5G, IoT, Industrial Internet, and high-performance computing themes. Nvidia's acquisition of Arm offers it the opportunity to sharpen its attack in data centers and reduce Intel's gap at the top of GlobalData's Semiconductor Thematic Ranking.

Qualcomm Snapdragon XR2 Platform Commercially Debuts in Oculus Quest 2

Qualcomm Technologies, Inc., a subsidiary of Qualcomm Incorporated, is powering better-than-ever virtual reality (VR) gameplay and experiences with the launch of Oculus Quest 2, the first-to-launch VR device powered by the QualcommÒ Snapdragon™ XR2 Platform. Oculus Quest 2 is a culmination of years of collaboration between Qualcomm Technologies and Facebook to create the most advanced and immersive gaming VR experiences for consumers to-date.

Purpose-built for extended reality (XR), the Snapdragon XR2 Platform unlocks staggering improvements including twice the CPU and GPU performance compared to its predecessor[1] which powers the original Oculus Quest headset. The Snapdragon XR2 Platform delivers significant performance enhancements in Oculus Quest 2 including:

Silanna Semiconductor Delivers on Groundbreaking Active Clamp Flyback Controller with Full Production Release

Silanna Semiconductor, The Power Density Leader, today announced the full production release of the industry-leading expanded portfolio of Active Clamp Flyback Controllers (ACF). Silanna Semiconductor focuses on the ultimate power management challenges with best-in-class power density and efficiency that delight customers with unprecedented BoM savings. First announced in April 2020, Silanna Semiconductor has achieved full production release of the SZ1130 ACF PWM controllers, delivering on the customer expectations and market penetration of Active Clamp Flyback Controllers.

SZ1130 devices are ACF controllers that integrate an adaptive digital PWM controller and the following Ultra High-Voltage (UHV) components: an Active Clamp FET, Active Clamp Gate Driver, and a Startup Regulator. This unprecedented integration level facilitates designing efficient, high-power-density adapters with low BoM cost to satisfy power-hungry mobile phones, tablets, notebooks, and video game consoles.

Xilinx Takes on 5G O-RAN With Telco Accelerator Card

In 5G, the move to open RAN allows network architects to take parts of a RAN that used to be integrated — notably baseband units, or BBUs — and redistribute their functions in a variety of combinations. That’s where Xilinx comes in with its new T1 Telco Accelerator Card for 5G O-RAN distributed units and virtual baseband units.

A radio access network is basically the wireless part of a cellular network, which ultimately links to the network core, which is largely wireline. One of the elements of a RAN is the baseband unit (BBU), which is essentially the unit that smartphones and the like connect to. In 4G networks, the BBU is a single, integrated system. Originally, 5G BBUs were all integrated too, but then came a proposal for open standards for RAN (or open RAN, or O-RAN). With O-RAN, a BBU can be split in two; into a centralized unit, or CU, and a distributed unit, or DU. These often also get an O-for-open prefix, like so: O-CU and O-DU. A BBU thus divided can then also be referred to as a virtual BBU, or vBBU. And now we return you to your regularly scheduled article:

The move to open RAN has created an opportunity to rethink a lot of how a RAN is constructed, including the relationship between the BBU's central processor and other BBU circuitry. A traditional BBU will have a board equipped with a CPU (typically an Intel Xeon or perhaps an Arm-based equivalent) working in conjunction with a co-processor for fronthaul (it might be one of Xilinx's Zynq UltraScale FPGAs), and another device to handle Layer 1 baseband (also possibly an FPGA-based product such as a Xilinx Zynq RFSoC, but alternatively an ASIC).

Industry News & Trends

Low-to-Mid-Range Smartphones Dominate Worldwide Smartphone Forecast

Economic uncertainties have increased the downward pressure on smartphone prices globally with 73% of shipments in 2020 expected to be priced below $400, according to a new price band forecast from the International Data Corporation (IDC) Worldwide Quarterly Mobile Phone Tracker. Worldwide smartphone value is expected to decline 7.9% in 2020 to $422.4 billion, down from $458.5 billion in 2019. The downward trend is intensified by consumers turning to devices priced in the low-to-mid range as they prioritize spending on essentials.

Overall, the low-to-mid end segment ($100 to less than $400) dominated global smartphone shipments with 60% market share in the second quarter of 2020 (2Q20) and is expected to grow in the short term to 63% by next year. The mid-to-high end segment ($400 to less than $600) grew its share of the market by almost 4 points to 11.6% in 2Q20. Devices from Samsung, Huawei, and other Chinese vendors like Xiaomi, OPPO, and vivo are the main vendors driving these segments. Apple also recently entered the mid segment with its new iPhone SE device, which has performed well, further validating the trend toward more budget-friendly devices.

Telechips As Preferred Power Management Partner For Next Generation Automotive Platforms (News With Additional Features)

Telechips a leading Automotive System on Chip (SoC) supplier for In-Vehicle Infotainment (IVI) and cockpit solutions, today announced that Dialog will become Telechips' preferred power management partner for their new Dolphin+QD (TCC8059), Dolphin 3E (TCC8053) / Dolphin 3M (TCC8050) and Dolphin 3H (TCC8060) platforms. This expanded partnership builds on their cooperation on the Telechips Dolphin+ automotive platform and targets next generation functionally safe intelligent Infotainment, Cluster, Head Up Display, and Integrated Cockpit Electronic Control Units (ECUs).

Dialog's "Exact Fit" power solution is comprised of the DA9062-A system PMIC, and the recently announced DA9130-A and DA9131-A sub PMICs. These AEC-Q100 Grade 2 qualified, highly integrated devices deliver a combined 21.5 amps of current, enabling the new Telechips platforms to deliver maximum performance. In addition, the Dolphin 3 platforms use Dynamic Voltage Scaling (DVS) to reduce SoC power dissipation and thermal footprint. This feature, as well as other power savings features including programmable sleep modes, are easily supported by the Dialog Power solution.

Hemlock Semiconductor To Vertically Integrate Polysilicon Production

Hemlock Semiconductor Operations announced its acquisition of a DuPont business that makes trichlorosilane (TCS), the primary raw material used in producing the ultra-pure polysilicon HSC supplies to the semiconductor and solar industries.

By acquiring the TCS operations in Midland, HSC will be better able to control supply and substantially reduce costs. The Midland plant is about 20 miles north of HSC's sprawling campus just west of Saginaw.

HSC's new lower cost position, coupled with its ability to produce polysilicon sustainably, will enable the company to boost its competitiveness as solar energy purchasers increasingly look for ways to decarbonize their supply chains.

"This acquisition will strengthen our already strong semiconductor position," said HSC Chairman and CEO Mark Bassett. "It will help accelerate our growth in the solar sector since we'll be able to offer ultra-pure polysilicon of exceptional quality that reduces the carbon footprint of producing solar panels at a substantially lower cost."

Top 5G Chips For Mobile Devices

The biggest benefits of 5G are much higher data rates to download content much quicker, much lower latency for less lag time, and higher bandwidth. To achieve these goals and further accelerate 5G adoption, it's going to take a new generation of 5G chips and platforms for consumer devices, premise equipment, and network infrastructure equipment.

The demand for higher internet speed by consumers together with an increase in demand for mobile data services is expected to boost the 5G chipset market growth, according to Allied Market Research. The research firm forecasts that the global 5G chipset market will reach $2.1 billion in 2020 and is projected to reach $22.9 billion by 2026, growing at a compound annual growth rate of 48.7% from 2020 to 2026.

As major carriers continue to build out their 5G networks, smartphone makers are coming out with premium 5G phones packed with new features. The result is a big push by chipmakers to develop 5G chips for mobile devices, primarily designed around delivering better gaming experiences and graphics-intensive features. This means faster processing and connectivity, along with improved power efficiency and system performance. Then throw in on-device artificial intelligence support, and you've got some powerful chips, beefed up for a better user experience on smartphones. Here are some of their latest products targeting 5G mobile devices.

British SME Breaks Memory Bottleneck to Accelerate AI Recommendation Models

A British SME, Myrtle.ai, is helping hyperscale data centers accelerate the type of AI models commonly used in recommendation engines with a hardware-software solution that has the potential to save hyperscalers millions of dollars per year. Myrtle's product, Seal, is a hardware-software solution which accelerates certain memory-bound operations that are key to AI recommendation model inference.

AI recommendation models power large parts of the internet as we know it, serving adverts and selecting personalized content for social network news feeds. These models, computed in the cloud, make up a significant portion of hyperscale data center workloads today.

Myrtle is a hardware-software engineering house based in Cambridge, UK. Seal was born out of the company's involvement with the MLPerf AI benchmarking organization – in helping design the benchmarks, the Myrtle team realized how much revenue recommendation models generate for hyperscalers, and set about designing an accelerator that would deliver large gains in latency-bounded throughput in existing infrastructure.

First 4D Imaging Radar Sensors For ADAS To Ship In Vehicles In 2021

Continental announced it is using Xilinx FPGAs to deploy the automotive industry's first production-ready 4D imaging radar, expected to ship in passenger vehicles in 2021. Continental's new advanced radar sensor (ARS) 540 will use the Zynq UltraScale+ MPSoC platform, enabling vehicles equipped with the sensor to realize SAE J3016 Level 2 functionalities, paving the way toward eventual Level 5 autonomous driving systems.

4D imaging radar determines an object's location in range, azimuth, elevation, and relative speed to provide detailed information about the driving environment. Earlier automotive radar systems capture only speed and azimuth.

Continental's ARS540 is a long-range 4D imaging radar with high resolution and 300-meter range. Its ±60° field-of-view enables multi-hypothesis tracking for prediction while driving,

East European News & Trends

New Silicon-Based Technology Helps Medicine

Scientists at Moscow Lomonosov State University (MSU) have come up with a new silicon nanoparticles synthesis method and proven the possibility of using the nanoparticles in biomedical diagnostics, visualizing inhomogeneity in tissue structure.

Nanostructured silicon (Si) has long been in broader use than the original application in microchips and solar cells. One of the new and promising applications is diagnostics of tissue and body cells. A competitive technique that brings about such nanostructured Si is pulse laser ablation of silicon in liquids and gases.

A team at MSU's Department of Physics, Femtosecond Nanophotonics Lab, experimented with ablation techniques and has shown that porous silicon films serve perfectly as ablation targets.

These materials are easy to make by simple and cost-effective electrochemical etching. Their low heat conductance and high enough mechanical strength enable an exponential increase in Si nanoparticle yield, compared to other methods.

Russian Steel Giant Benefits From Artificial Intelligence

Engineers at Severstal Digital, a high-tech subsidiary of Severstal, one of Russia's leading metallurgical and mining businesses, earlier this year introduced advanced artificial intelligence at one of its flagship steel-making assets, Cherepovets Steel Mill about 375km north of Moscow (part of Severstal Russian Steel Division).

A digital model that controls the speed of a local continuous pickling line (NTA-3) was enhanced with a sophisticated smart agent called Ruban, based on reinforcement learning (RL) algorithms.

The new intelligent agent differs from classical machine learning models in its ability to learn all on its own instead of feeding on historical data. The system explores a digital twin of NTA-3 and learns from a combination of different parameters specifically created for it by a generative adversarial network (two neural networks that generate new data).

3D-Printed Aircraft Engine May Hit Market Next Year

A Russian 3D-printed gas-turbine aircraft engine designated MGTD-20 readies commercialization next year or in 2022 after it was successfully tested in flight this past summer in the mid-Volga region of Tatarstan.

In Russia's first-ever such effort, this 22 kilogram*force propulsion unit is a collaborative product of the federal Advanced Research Fund (of which the closest analog in the U.S., for example, is DARPA), the Moscow-based All-Russian Scientific Research Institute of Aviation Materials (VIAM in Russian), and the Simonov Aircraft Design Bureau headquartered in Kazan, in Tatarstan.

With a wingspan of three meters, the aircraft's take-off weight is 40kg and its payload is up to 10kg. During its test flight, the drone completed its flight plan in the autopilot mode, reaching all the areas it had been programmed to reach at an altitude of 170m and a

maximum cruise speed of 154km/h, and landed problem free. The new engine operated at a maximum rotational speed of 101,600RPM.

World Economic Round Up

The OECD said that Covid-19 pandemic has ended a decade's growth in the flow of migrants around the world, while leaving foreign-born workers at much greater risk of infection, unemployment and educational disadvantage. The OECD also warned that the pandemic put at risk recent progress in helping immigrants to integrate in their host countries, since language classes had been disrupted and a lack of IT equipment made it harder for children to manage distance learning.Turkey's central bank has lifted its benchmark interest rate by 2 percentage points in an unexpected move that reversed President Recep Tayyip Erdogan's push for lower rates and boosted the lira. The bank announced on Thursday that it would raise its one-week repo rate from 8.25 per cent to 10.25 per cent. The lira rose more than 1 per cent against the US dollar to TL7.6020, though it later reversed some of those gains.

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 2020/21

Future Horizons Events

- Silicon Chip Industry Training Seminar – London – 9 November 2020
- Industry Forecast Briefing, London – 12 January 2021

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 9th November 2020
AND
INDUSTRY FORECAST BRIEFING
TUESDAY 12th January 2021

BOTH BEING HELD AT

HOLIDAY INN KENSINGTON FORUM, LONDON

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