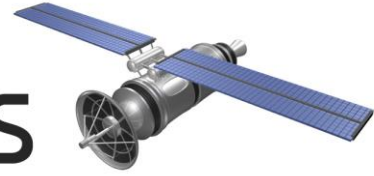


FutureHorizons



The Global Semiconductor Industry Analysts

Future Horizons Newsletter

April 2023

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Industry News By Company

[UK Facing A Losing Battle In Semiconductor Growth Unless The Government Acts Now](#)

The UK government's long awaited Semiconductor Strategy provides an opportunity to lay out a blueprint to grow this critically important sector that underpins virtually every modern industry.

However, unless it includes a robust plan that includes incentives for capital expenditure, meaningful investment in UK semiconductor companies and drives home-grown revenue opportunities through the targeted use of public procurement, the UK doesn't stand a chance.

When the government laid out its ambition to become a science and technology superpower by 2030, it was music to the ears of high-growth UK STEM companies. Such a pledge indicated that a wave of government investment and policy initiatives would be forthcoming, and that we would finally start to make the most of the huge potential for innovation and growth that the UK's science and technology sector firms possess.

The semiconductor industry has huge potential value to the UK, but for that value to be realised, it needs specific and targeted support. A range of unprecedented global challenges have disrupted the sector, causing issues throughout the supply chains that deliver chips to industries such as automotives and electronic appliances, which rely heavily on semiconductors for their products to work.

[Japan Joins US, Netherlands, In Chip Export Restrictions To China](#)

The last key country that can deliver semiconductor manufacturing equipment, has confirmed it will also restrict the export of the equipment going forward.

According to Reuters, Japan on Friday announced it will restrict exports of 23 types of semiconductor manufacturing equipment – as it joins the US push to hamper Beijing's ability to ramp up its domestic chip industry, which is being used to enhance the military capabilities of China.

The US had announced its sweeping export controls for semiconductor manufacturing equipment in October 2022, and the Netherlands had announced in early March that it too would restrict the export of the chip making kit to China.

The US, the Netherlands and Japan are the only three countries that are home to manufacturers of advanced machines to print microchips.

The Netherlands of course is home to ASML Holding, which dominates the market for lithography systems used to create chips' minute circuitry.

Japan meanwhile is home to major chip equipment makers such as Nikon and Tokyo Electron.

Renesas to Acquire Panthronics

Renesas Electronics Corp.'s wholly owned subsidiary has entered into a definitive agreement with the shareholders of Panthronics AG, a fabless semiconductor company specializing in high-performance wireless products, under which Renesas will acquire Panthronics in an all-cash transaction.

The acquisition will enrich Renesas' portfolio of connectivity technology, extending its reach into high-demand near-field communication (NFC) applications in fintech, IoT, asset tracking, wireless charging, and automotive applications.

NFC has emerged as a de facto standard in the digital economy and touches many aspects of daily life. Fintech, such as mobile point-of-sale (mPoS) terminals and contactless payment, IoT, asset tracking, and wireless charging are highlights of NFC's increasing presence. Headquartered in Graz, Austria, Panthronics has been offering advanced NFC chipsets and software that are easy to apply, innovative, small-in-size, and highly efficient for payment, IoT, and NFC wireless charging. Renesas and Panthronics have been addressing the rising demand of NFC as partners since 2018. Acquiring Panthronics' competitive NFC technology will provide Renesas with in-house capability to instantly capture growing and emerging market opportunities for NFC.

University Spinout To Deliver New Memory Technology

Lancaster University is creating a spinout company to commercialise the universal computer memory technology ULTRARAM.

Invented by Physics Professor Manus Hayne, ULTRARAM is a novel type of memory that combines the non-volatility of a data storage memory, like flash, with the speed, energy-efficiency and endurance of a working memory, like DRAM.

To do this it exploits quantum resonant tunnelling in compound semiconductors, materials commonly used in photonic devices such as LEDS, laser diodes and infrared detectors, but not in digital electronics, which is the preserve of silicon.

A research paper published in Advanced Electronic Material reports that "ULTRARAM breaks this paradigm via the exploitation of InAs quantum wells (QWs) and AlSb barriers to create a triple-barrier resonant-tunnelling (TBRT) structure."

Sondrel Extends EDA Deal With Siemens

UK chip designer Sondrel has extended its deal for electronic design automation (EDA) tools with Siemens for three years for leading edge AI and automotive projects.

The company develops semi-custom chips using a framework of design modules and interconnect in areas such as high-performance computing, automotive, artificial intelligence, VR/AR, video analytics, image processing, mobile networking and data centres.

“Having access to state-of-the-art EDA software is vital for our business as we pioneer solutions using cutting edge design technology at the latest nodes,” said Graham Curren, founder and CEO of Sondrel. “There are very few other companies able to successfully design ultra-complex, billion transistor chips and then take them through all the stages of verification, manufacture, test and packaging. Being able to design such chips that others cannot is the foundation of every turnkey project that we do. This license extension secures continuity of access to vital tools that are strategic to the success of the company.”

Surecore Pushes The SRAM Voltage Envelope To Below 0.5v For The First Time

In the drive to reduce a device’s power consumption, one of the principal techniques deployed is to run it at a low voltage. Cutting the supply voltage to logic can deliver dramatic power savings, however one of the major challenges developers face is that the embedded SRAM cannot be operated at this reduced voltage. Edge-AI applications must provide significant inferencing power whilst still delivering acceptable battery life. SureCore has exploited its low power design capability to create a new range of ultra-low voltage SRAM solutions, called PowerMiser™ Plus, that can operate down to 0.45V, enabling customers to create market leading, low power products. Because both the logic and memory can interface at the same voltages, they can be adjusted in tandem to increase and decrease performance and therefore power consumption simultaneously as required by the application.

PowerMiser Plus has already been licensed to two customers in the edge-AI space amid a wave of increasing interest in sureCore’s low power memory solutions. For one customer, sureCore ported the PowerMiser Plus architecture to a leading 12nm process interfacing to logic operating at 0.45V whilst delivering 400MHz performance at the worst-case corner. The SoC had an on-chip LDO generating both the logic supply as well as a 0.65V supply for the SRAM storage arrays. This ensured that as system level shifts in operating voltage were made so as to meet the required performance targets, then the two supplies tracked each other within a predefined margin. This meant that the use of power-hungry level shifters within the SRAM were avoided, thereby further optimising power consumption.

Industry News & Trends

AI Smart Watches Could Predict Higher Risk Of Heart Failure

Wearable devices such as smart watches with local machine learning could be used to detect a higher risk of developing heart failure and irregular heart rhythms in later life according to a study in the UK.

Lack of data on the effectiveness of the sensors and detection algorithms in wearable devices has limited the use. A study, published in The European Heart Journal – Digital Health, looked at data from 83,000 people who had undergone a 15-second electrocardiogram (ECG) comparable to the kind carried out using smart watches and phone devices.

The researchers at UCL in London identified ECG recordings containing extra heart beats which are usually benign but, if they occur frequently, are linked to conditions such as heart failure and irregular heartbeats, or arrhythmia.

They found that people with an extra beat in this short recording (one in 25 of the total) had a twofold risk of developing heart failure or an irregular heart rhythm (atrial fibrillation) over the next 10 years.

[Openai Backs Norwegian Bipedal Robot Startup In \\$23m Round](#)

1X Technologies in Norway (formerly Halodi Robotics) has raised \$23m to commercialise its AI-enabled bipedal robot led by the company behind ChatGPT.

“Over the past eight years, we have developed unique actuator systems and AI, commercializing an android that now serves the US enterprise markets,” said 1X. “We believe that our new name, 1X, better reflects who we are as a company and our vision to augment labour using androids.”

The Series A2 funding round led by OpenAI raised \$23.5 million with participation from Tiger Global and a consortium of Norway-based investors, including Sandwater, Alliance Ventures, and Skagerak Capital.

The cash will be used to build the upcoming NEO bipedal android as well as scale manufacturing of its first commercially available wheeled android EVE in Norway and North America. The company was founded in 2014 and has 560 staff globally having previously raised \$13m.

“1X is at the forefront of augmenting labor through the use of safe, advanced technologies in robotics,” said Brad Lightcap, OpenAI’s COO and manager of the OpenAI Startup Fund. “The OpenAI Startup Fund believes in the approach and impact that 1X can have on the future of work.”

Faraday In Shock Restructuring Of Its UK Battery Projects

The UK's flagship battery technology research programme, the Faraday Institution, is committing £29 million for six key projects in a shock 'refocus' over the next two years.

Four more major projects are being restructured at the end of this year, giving the entire programme a complete overhaul to provide more commercial results.

The six projects being 'reshaped to focus on the areas with the greatest potential for success' with more investigators are looking at extending battery life, battery modelling, recycling and reuse, safety, solid-state batteries and lithium-sulfur batteries.

"The Faraday Institution is committed to identifying and investing in the most promising and impactful battery research initiatives. This project refocusing is an important part of that process, and allows us to direct even more effort towards those areas of research that offer the maximum potential of delivering societal, environmental, and commercial impact," said Professor Pam Thomas, CEO, Faraday Institution.

Ceva's UWB Radar Detects Child Presence in Cars

Ceva has expanded the use cases of its RivieraWaves ultra-wideband (UWB) radar to support in-vehicle child presence detection (CPD) and enable respiratory rate detection. CPD prevents children from being left unattended in cars and is a critical element of the in-cabin safety ecosystem as required by Euro-NCAP and similar programs around the world. The same radar hardware can support gesture recognition and secure car access with a software extension provided by Ceva.

Based in Israel and the United States, Ceva provides wireless platforms, AI processors, and licensed DSP cores. The company purchased French silicon IP provider RivieraWaves in 2014 and acquired U.S. chip design firm Intrinsix in 2021 to provide services for integrating the RivieraWaves UWB solutions into customers' existing technologies.

The Ceva RivieraWaves UWB radar technology is based on advanced coherent receivers. "Most of the effort went into building these receivers," Navot Goren, UWB product director at Ceva, told EE Times Europe. "Just like any other radar sensor, the UWB radar works by transmitting a UWB signal and, with the antennas attached to it, receiving the reflected signals."

Fab equipment maker Wonik wants to acquire display driver IC company TLI, TheElec has learned.

Wonik, which also makes display equipment and chips, has expressed its interest in acquiring the fabless chip company since last year, sources said. The pair have recently met to discuss the issue, they added. Wonik chairman Lee Yong-han is known for his close ties with Samsung, the company's key customer.

If the acquisition succeeds, Wonik will become a large Samsung-backed fabless rivaling LX Semicon, which spun off from LG, still its key customer.

Wonik acquired fabless startup D2I at the request of Samsung Display to supply OLED display driver ICs. Wonik is planning to merge TLI, which has a long history of designing display driver ICs, with Wonik D2I,

East European News & Trends

Russia's Semiconductor Imports Drastically Increased Last Year

The Nikkei reported on April 12 that Russia's semiconductor imports totalled more than US\$1.07 billion after the outbreak of the war in Ukraine, approximately 290 percent of its pre-war semiconductor imports. Imports from the United States accounted for about 70 percent of the imports and the imports from the United States increased about 2.8-fold.

The United States banned semiconductor exports to Russia immediately after the outbreak in February last year. Russia circumvented the ban by importing via China and Hong Kong. "Approximately 75 percent of the imports from the United States were made via Hong Kong," the newspaper reported, adding, "Most of the involved companies are small, including some founded after the outbreak, and almost all are not on the U.S. sanctions list." Imports via China accounted for 21 percent with an increase of more than 10 times.

The imports include 3,292 cases with a scale of US\$100,000 or more each. These cases include 2,358 transactions of U.S. products. The products include Intel and AMD microprocessors, Xilinx FPGAs and those of Texas Instruments, Analog Devices and Onsemi. These companies claim that they never violated the restrictions.

Russian Electronics Retailer M.Video-Eldorado's Sales Drop In 2022

Sales at M.Video-Eldorado (MVID.MM), Russia's top consumer electronics chain, dropped 14% in 2022 as the industry was hit by the impact of Western sanctions, a company presentation for an upcoming bond placement showed on Wednesday.

The West moved to curb technology exports to Russia after Moscow sent tens of thousands of troops into Ukraine last year, while several leading manufacturers pulled out of the Russian market.

When their competitors feared the worst, Plaza Premium Group turned to EY teams to unlock the benefits of growth

M.Video-Eldorado said Gross Merchandise Value (GMV) - a measure of all goods and services sold by the company, including on its online marketplace - fell to 489 billion roubles (\$5.96 billion) in 2022. In 2021, GMV was 571 billion roubles.

The company cited high volatility in sales of household appliances and electronics. Prices for technology products rose significantly in Russia last year after Moscow launched its military campaign in Ukraine, while a cost of living squeeze and general economic uncertainty also made consumers hold back from some big-ticket purchase.

[Putin's Miscalculation: How Sanctions are Sabotaging Russia's Electronics Industry](#)

The war in Ukraine continues without any sign of slowing down, and while Putin may have thought that he had the upper hand following the Crimea annexation, the countless sanctions against Russia are having a significant effect on its ability to manufacture electronic products, including a microchip shortage that affects tank warfare. What

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challenges is Russia facing, why has Putin introduced a new fund, and what will be the consequences for Russia in the long term?

What challenges is Russia facing?

Since the founding of the Soviets, Russia has always been somewhat of an outsider to the rest of the world. Of course, Russia has provided immense contributions to the scientific and engineering community, especially in the fields of physics and mathematics. At the same time, Russia was a critical component in the Allied victory against Germany during WW2, a war that saw untold amounts of devastation. But the many years of isolation during the communist era, the bizarre political situation with the continual rule of Putin, and the numerous Russian oligarchs have made Russia an uncomfortable country to deal with.

World Economic Round Up

Crude prices surged after Saudi Arabia and other members of the Opec+ group announced surprise oil production cuts of more than 1mn barrels a day, putting Riyadh on a collision course with the US. Oil prices leapt by 8 percent when trading opened in Asia following news of the cut, with international benchmark Brent trading at over US\$86 a barrel and West Texas Intermediate, the US marker, rising to almost US\$81.

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 2023

Future Horizons Events

- [Silicon Chip Industry Training Seminar](#) – London – September 2023
- [Industry Forecast Briefing](#), London – May 2023 & September 2023

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 SEPTEMBER 2023

AND

INDUSTRY FORECAST BRIEFING

TUESDAY MAY & SEPTEMBER 2023

BOTH BEING HELD AT

HOLIDAY INN KENSINGTON FORUM, LONDON

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