

# FutureHorizons



The Global Semiconductor Industry Analysts

## **Future Horizons Newsletter**

**March 2022**

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## **Industry News By Company**

### **[Altair Acquires Powersim To Expand Electronic System Design Technology Into Power Electronics](#)**

Altair, a global leader in computational science and artificial intelligence (AI), acquired Powersim, a provider of simulation and design tools for power electronics, including power supplies, motor drives, control systems, and microgrids. This acquisition expands Altair's electronic system design technology into the domain of power electronics.

Powersim has established a powerful solution that has proven to reduce development costs and time-to-market for thousands of customers around the globe including major companies in the automotive, aerospace, consumer electronics, and industrial applications sectors. The addition of Powersim's technologies and experienced technical team, who has deep domain knowledge in power electronics, rounds out Altair's offerings for electric motor design and many other applications.

This acquisition includes PSIM, Powersim's flagship product for design and simulation of power electronics and motor drives. PSIM delivers simulation speed while producing accurate system-level results, empowers easy implementation including embedded code generation and seamless adoption in any environment, and provides robust system-level design and simulation for various industrial applications.

### **[AMD Completes \\$50 Billion Xilinx Acquisition](#)**

AMD has announced that it has completed the acquisition of Xilinx, in a record chip industry deal worth around US\$50 billion.

AMD had announced the purchase back in 2020 and had been seeking approval from regulators since then.

The company said it plans to lead the computing, graphic and adaptive SoC sectors through the acquisition.

AMD CEO Lisa Sui will lead the new combined company as CEO.

Xilinx's CEO Victor Peng as president of the newly formed Adaptive and Embedded Computing Group.

### **[Infineon Presents New Automotive 750 V EDT2 Igbts In A TO247PLUS Package For Discrete Traction Inverters](#)**

Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) is launching the new EDT2 IGBTs in a TO247PLUS package. The devices are optimized for automotive discrete traction inverters and expand Infineon's portfolio of discrete high-voltage devices for automotive applications. Due to their high quality, the IGBTs meet and exceed the industry standard AECQ101 for automotive components. As a result, the devices can significantly increase the performance and reliability of inverter systems.

With the automotive micro-pattern trench-field-stop cell design, the IGBTs are based on a technology that has already been successfully utilized in several inverter modules such as the EasyPACK™ 2B EDT2 or the HybridPACK™.

As required for the target applications, the product family is short-circuit-robust. In addition, the TO247PLUS package offers a greater creepage distance for easy design-in. EDT2 technology is optimized for traction inverter and has a breakdown voltage of 750 V, supporting battery voltages up to 470 V DC, and significantly lower switching and conduction losses.

### **[Inova Semiconductors Named One Of Germany's Most Innovative Companies In Various Studies By Capital And CHIP](#)**

Two independent studies once again rank Inova Semiconductors as one of the most innovative companies in Germany. For example, the survey of around 3,600 innovation experts conducted by the business magazine Capital and Statista in 20 industries and sectors rated Inova Semiconductors as one of the "Most Innovative Companies in Germany 2022". In the study conducted by the PC magazine CHIP and Globis Management Consulting, a company's patents served as an indicator of its innovative strength. They honoured the Munich-based semiconductor manufacturer in the field of "Electrical & Electronics" as "Digital Innovator 2022".

"The two awards from Capital and CHIP are a great honour for us. Despite a very difficult market environment due to the pandemic, Inova Semiconductors has shown that it remains an innovative company even in exceptional times," explains Robert Kraus, CEO of Inova Semiconductors. "Since 2018, we have now been recognised

### **[LG Energy Solution Acquires US ESS SI Firm NEC Energy Solutions](#)**

LG Energy Solution said on Thursday that it has acquired US energy storage system (ESS) system integration (SI) firm NEC Energy Solution from their parent Japanese company NEC Corporation.

The South Korean battery maker will wholly own its new subsidiary and rename it LG Energy Solution Vertech, the company said.

The new company will oversee ESS business planning, design, installation as well as maintenance and repair.

NEC Energy Solutions was formed in 2014 when NEC acquired A123 System.

The company is based in the US and has research centers in Australia, London and Brazil.

LG Energy Solution said the company took part in over 140 ESS projects globally and recorded 240 billion won in revenue last year.

### **[LTC To Acquire Mujin's Fab Equipment Business](#)**

Electronic material supplier LTC will acquire Mujin Electronics' fab equipment business unit, TheElec has learned.

A person familiar with the matter said the deal won't be worth over 100 billion won.

LTC will form a co-fund with an outside investor to pay the acquisition fee, they said.

The company beat compatriot fab equipment maker SFA, which has also been attempting to buy Mujin's business unit, for the deal, they added.

Mujin Electronics is a long-time supplier to South Korean chip giant SK Hynix.

The company specializes in cleaners and has supplied them to SK Hynix for a long time. Samsung procures its cleaners from its own subsidiary Semes.

### **Qualcomm To Give All Its 3nm AP Foundry Work To TSMC Instead Of Samsung**

Qualcomm has given the foundry order for its 3-nanometer (nm) application processor launching next year exclusively to TSMC, TheElec has learned.

The US chip giant has also given some of the foundry work for its 4nm application processor, the Snapdragon 8 Gen 1, to the Taiwanese chip giant, which it previously gave solely to Samsung Electronics, sources said.

TSMC, after receiving the order last year, has already put in the wafers for the chips that will be delivered to customers during the second quarter, they said.

Qualcomm made the decision to rely on TSMC more than Samsung as the latter is facing yield problems for its advanced process nodes, the sources said.

### **STMicroelectronics Powers E-Mobility With New Microcontrollers For Software-Defined Electric Vehicles**

STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications, has unveiled new automotive microcontrollers (MCUs) optimized for electric vehicles and centralized (domain and zonal) electronic architectures. They enable EVs to become more affordable, drive further, and charge faster.

In current EVs, high-efficiency SiC-based (silicon carbide) power modules enable the greatest driving range and faster charging. Until now, they have required dedicated high-speed signal processors to control the advanced SiC power semiconductors. ST's Stellar E MCUs, designed for the next generation of software-defined EVs, integrate high-speed control-loop processing on-chip. Now one MCU can control the entire module. This simplifies the module design, saves costs, and eases compliance with automotive safety and security standards.

## **Industry News & Trends**

### **[Comparing DDR5 Memory From Micron, Samsung, SK Hynix](#)**

We are entering the era of DDR5 memory. Major DRAM players Micron, Samsung and SK Hynix are releasing their first DDR5 memory products as demand for DDR5 is significantly exceeding supply.

DDR5, the new standard in DRAM, addresses demand for computing and high bandwidth for

Compared to DDR4 data rates, which generally operate in a range from 1,600 to 3,200 MHz, DDR5 provides both data and clock rates that double the performance up to at least 7,200 MB/s. Additionally, DDR5 lowers the operating voltage to 1.1V.

During development, engineers enhanced the capabilities of DDR5, adding and modifying several advanced features including increased prefetch from 8 to 16, more banks and bank groups to increase bus efficiency. They also added new write pattern and refresh modes, the addition of the decision feedback equalizer, and per-DRAM addressability. On-die ECC was also included to strengthen the on-chip RAS while reducing controller burdens.

### **[A Decade on, Will the Chips Act Finally Deliver for Europe?](#)**

Europe's latest attempt to shore up its semiconductor manufacturing and design capabilities has not only attracted the great and the good in the Continent, but also senior executives from other regions.

For instance, Pat Gelsinger, CEO of Intel, writing on the Politico website, heartily welcomed the European Chips Act, outlined this week.

Gelsinger suggested the "bold and ambitious plan" is a "historic chance [for Europe] to regain lost ground". His comments are perhaps not surprising since the company he leads has for months been lobbying several European countries to host and help with finance to build a large fab, to augment the manufacturing capacity for chips Intel has had in Ireland for decades.

He also noted that Europe already has proven that it can drive continent-wide innovation programs when it matters, referencing that "almost two decades ago, the Galileo program created a European satellite system for global navigation. Today, more than 2 billion smartphones worldwide are Galileo-enabled, and through this program, Europe avoided being dependent on a system it doesn't control."

### **[Intel Will Rely On TSMC For Its Rebound](#)**

Intel is increasing its reliance on erstwhile rival Taiwan Semiconductor Manufacturing Co. (TSMC) in its attempt to boost sales and eventually regain dominance as the world leader in manufacturing scale and chip process technology.

California-based Intel will join Apple to order the world's first 3-nm chips from TSMC as the Taiwan chip foundry ramps up its newest process this year, according to three

analysts surveyed. Intel and Apple are likely to be the only two TSMC customers at that most-advanced node during the ramp-up, according to the analysts.

At Intel's investor meeting yesterday, CEO Pat Gelsinger reiterated a promise to "regain leadership" in the chip business. Gelsinger, who has been at the helm at Intel for a year, said the company will advance "five nodes in four years", after which chip nomenclature will shift to angstroms from nanometers.

### **LG Electronics Considering Releasing Transparent OLED TV**

LG Display has made a proposal to LG Electronics to launch a transparent OLED TV, TheElec has learned.

The display maker has proposed the launch of a TV that uses a 55-inch transparent OLED panel to LG Electronics' Home Entertainment Company, its TV business unit, sources said.

The panel will be fixed on the TV like conventional TVs \_\_ not like LG's rollable OLED TV or smart bed where a panel could be pulled in and out, they said.

The Home Entertainment Company is planning to review the proposal going forward, they said.

If the business unit approves, the development will likely start during the second half of 2022 with a commercial launch in 2023.

LG Display will likely supply the transparent OLED panel with a strengthened glass covering.

### **Tech Giants Intel, Meta, Arm, Google Cloud, AMD, Qualcomm, TSMC And ASE Form Chiplet Consortium**

Several giant tech companies have joined hands to promote an open standard for chip components called chiplets and how they are crammed together in system-on-chip (SoC) designs deemed critical to a variety of future handheld and high-performance computers that power AI applications and much more.

The open standard, called Universal Chiplet Interconnect Express (UCIe), has been developed by Intel and clearly benefits Intel's integrated device manufacturer (IDM) strategy as it builds new chip fabs in Arizona and Ohio and elsewhere outside the U.S. Intel has been a prominent voice in the push to expand chip manufacturing outside of Taiwan and the rest of Asia where it is heavily focused today.

"This is an important step forward, and not just for Intel," said Jack Gold, an analyst at J. Gold Associates. "Some might say that Intel invented this tech and by making it available to everyone, it is self-serving. Does it help Intel? Sure. It is also a major benefit to the whole industry. Many technologies that Intel made have helped them such as USB, and the PCI bus, but they are also industry standards now that everyone has benefited from."

Intel has donated its UCle standard to founding members in a new consortium that includes Intel along with Advanced Semiconductor Engineering, Taiwan Semiconductor Manufacturing Co., AMD, Arm, Google Cloud, Meta, Microsoft, Samsung and Qualcomm. The founding group is significant because it includes major competitors to Intel such as AMD but not, so far, Nvidia. Gold said he suspects Nvidia will eventually join at some point.

### **Korea Circuit And DAP's Smartphone Board Supply To Samsung To Stay Level This Year**

South Korean printed circuit board (PCB) makers Korea Circuit and DAP are expected to supply a similar amount of smartphone boards to Samsung this year as they did in 2021.

The pair are each expected to supply late-20% of the total boards that Samsung plans to procure for its smartphones this year, people with direct knowledge of the matter said.

Korea Circuit and DAP combined will be supplying mid-50% of the boards used by the South Korean tech giant this year. The remaining 40% will be supplied by Japanese firms Ibiden and Meiko.

Samsung uses high-density interconnect (HDI) boards on its smartphones.



## **East European News & Trends**

### **[New Antenna Brings Uninterrupted Internet To Crowds Of Fans And Passengers](#)**

Scientists at the NETI State Technical University in Novosibirsk, in Southern Siberia, have developed a new directional Wi-Fi antenna that is reported to send out a stable Internet signal in highly crowded places like stadiums or subway stations.

According to Prof. Maksim Stepanov who leads the development team, the key competitive advantage the new beam antenna brings is a combination of winning technical characteristics and its very compact dimensions.

The product features eight antenna arrays, four in each frequency range, and is powered by an advanced technology called MIMO 4×4 (Multiple Input Multiple Output, a method of spatial signal coding which considerably increases channel bandwidth).

### **[Russian Fund In U.S. To Support Ex-Soviet Start-Ups](#)**

Sergey Negodyaev and Alexander Kuraksin, Russian investors and two ex-top executives of the government-owned Internet Initiatives Development Fund (FRII), have launched in New York a new venture fund called Prospective Technologies Ventures (PTV), the Russian business daily Vedomosti reported.

The fund, to be worth up to \$100m as the story unfolds, will reportedly deal out anything between \$100,000 and \$3m to Russian and Eastern European B2B start-ups at their early stages of development which seek to go global. Sizable (yet unnamed) real estate developers and international investors are among the key supporters of the fund.

The new fund is expected to focus on software development, IT infrastructure, digital marketing services, and the industrial Internet of Things (IIoT).

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### **[Contactless Airborne Drone Recharging System Developed](#)**

Researchers at the Nizhny Novgorod based Lobachevsky University (UNN) in the mid-Volga region have patented a new system that enables automatic contactless recharging of drones, Scientific Russia reported.

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Unlike the international competition, the Russian approach is said to have shown high accuracy of mutual drone-recharger alignment, and there's no need for actual contact between the two.

“In our contactless drone charging technology, a special aerial transformer is used, where a magnetic field serves as a medium to transmit energy from the recharger to a drone

## **World Economic Round Up**

The Russian assault on Kyiv and other Ukrainian cities has intensified uncertainty in the world economy. To condemn Putin's war, western leaders announced some restrictive economic measures to target Russian financial institution and individuals. The sanctions include: removing some Russian banks from the Swift messaging system for international payments; freezing the assets of Russian companies and oligarchs in western countries; and restricting the Russian central bank from using its US\$630 billion (£473 billion) of foreign reserves to undermine the sanctions. In response to these moves, several ratings agencies have either cut Russia's credit rating to junk status or signalled that they may do so soon. In other words, they think the prospect of Russia defaulting on its debts is higher than before. According to a group of global banks, a default is "extremely likely".

*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 – September 2022
- [Industry Forecast Briefing](#), London – September 2022

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

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[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 2022**

**AND**

**INDUSTRY FORECAST BRIEFING**

**TUESDAY September 2022**

**BOTH BEING HELD AT**

**HOLIDAY INN KENSINGTON FORUM, LONDON**

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