FutureHorizons

The Global Semiconductor Industry Analysts

Future Horizons Newsletter

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Industry News By Company

AMD's Xilinx Platform Enables Open Radios For Meta Project

Xilinx in late 2020 joined a new project led by Facebook and involving several network operators and vendors focused on developing a flexible new supply chain for more adaptive, open and "metaverse-ready" radio access networks (RANs) for OpenRAN-based 4G and 5G networks.

More than a year and a half later, Xilinx is now owned by AMD, and Facebook is part of newly-named parent organization Meta Platforms, and the project, called Evenstar, is now led by Meta Connectivity. The names have changed, but the project continues to advance, with an announcement from AMD this week that its Xilinx Zynq UltraScale+ RF system-on-a-chip platform has enabled the development of multiple Evenstar radio units (RUs) to expand 4G/5G network infrastructure options with new RAN reference design options.

ASML to Add Capacity Amid Unprecedented Demand

ASML is the only manufacturer of critical EUV lithography machines, and demand has skyrocketed with the global chip shortage. Ensuring that capacity matches demand is now its priority.

For the first quarter of 2022, the Veldhoven, Netherlands-based company reported net sales of €3.5 billion, at the high end of its guidance. The gross margin also came in at the guidance of 49.0%.

Currently, the demand for its systems exceeds its production capacity. To overcome this bottleneck, ASML said it aims to expand capacity together with its supply chain partners in the years to come.

"We continue to see unprecedented customer demand across all market segments, from both advanced and mature nodes, driving demand across our entire product portfolio," commented ASML president and CEO Peter Wennink during an investor call on April 20, 2022. "We are running at maximum capacity and expect demand to exceed supply well into next year.

Bosch Invests In Capacity To Tackle Semiconductor Shortage

The wafers made at Reutlingen are thin slices of semiconductor, such as a crystalline silicon (c-Si), used for the fabrication of integrated circuits. The automotive industry is currently suffering a severe shortage of semiconductor chips as a consequence of cancelled orders

Bosch is now investing more than €250m ($268.6m) to expand global facilities up to 2025, which it said includes more production and clean-room facility space. That includes at Reutlingen and Dresden in Germany, and in Penang, Malaysia.

Around €50m of that overall expenditure will be invested at Reutlingen and by the end of 2025 Bosch will have expanded clean-room space in Reutlingen from around 35,000 sq.m at present to over 44,000 sq.m

Infineon's New Battery Management Ics Offer Excellent Measurement Performance And Enable Optimized Battery Lifetime

Munich, Germany – 26 April, 2022 – Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) introduces a new family of battery management ICs, including TLE9012DQU and TLE9015DQU. The ICs enable an optimized solution for battery cell monitoring and balancing. Combining excellent measurement performance with the highest application robustness, the new battery management ICs are a competitive system-level solution for battery modules, cell-to-pack and cell-to-car battery topologies. The devices are suitable for a wide range of industrial, consumer and automotive applications such as mild hybrid electric vehicles (MHEV), hybrid electric vehicles (HEV), plug-in hybrid electric vehicles (PHEV) and battery-powered electric vehicles (BEV). Additional applications include energy storage systems and battery management systems for electric two- and three-wheelers.

“With the TLE9012DQU and TLE9015DQU, Infineon achieves an important milestone and completes its battery management system offering”, says Finn Felsberg, Senior Vice President and General Manager Automotive Power Integration and Supply at Infineon. “Customers benefit from the interoperability of Infineon's components as well as from the broad software offering. As a result, development efforts can be minimized and time to market can be reduced.”

TSMC To Begin Japanese Fab Construction

The world’s largest foundry is conducting an interesting experiment with the Japanese fab, located in Kumamoto Prefecture, by teaming up with various Japanese companies to secure capacity.

Already TSMC has signed up Sony Semiconductors and Denso Corp. to have a stake in the new subsidiary called Japan Advanced Semiconductor Manufacturing Inc. (JASM). Sony has invested $500 million in JASM for a 20% equity stake while it was announced earlier this year that Denso would invest $350 million for a 10% stake in JASM.

In total, the fab will have an investment of $8.6 billion including subsidies from the Japanese government. The government will use its stake in the fab to bolster supply chain for semiconductors to improve the economic security.

The Kumamoto fab will be built in the town of Kikuyo and hire about 1,700 employees including some 320 people on loan from TSMC. The goal is to help ease the global semiconductor shortage that has been impacting the supply chain since late 2020 due to the outbreak of COVID-19.

Vector Signal Generator For Wireless Technology's Next Frontier

Applications testing for new 5G mobile communications, 6G research, satellite communications and radar requires signal generation equipment for a wide range of frequencies. That includes the extremely high frequency (EHF) band known as the millimeter wave (mmWave) spectrum. Testing equipment must also account for applications adopting multi-antenna techniques to ensure high-throughput and robust communications, such as spatial diversity, spatial multiplexing and beamforming.

Enter the M9484C VXG vector signal generator from Keysight Technologies Inc., which expands the company's VXG series portfolio with real-time capabilities. The four-channel vector signal generator offers frequency up to 54 GHz and up to 5 GHz of radio frequency (RF) bandwidth and low phase noise in a single instrument. When used with a V3080A vector signal generator frequency extender, its frequency range can be expanded up to 110 GHz to address the needs for the latest and evolving standards.

Industry News & Trends

At Wolfspeed's Semiconductor Fab, New Technology Will Help Electric Cars Charge Faster

Electric vehicles. Home appliances. Wind turbines and solar panels. Smartphones.

Semiconductors are found in dozens of electronic systems we all use everyday. Any computerized system uses them; a U.S. International Trade Commission analysis found as many as 3,500 semiconductors are used in modern vehicles.

Wolfspeed's $1 billion facility, located just north of Utica in Upstate New York, opened April 25 and will produce components for silicon-carbide semiconductors to meet the growing need.

Members of the media, including the Observer-Dispatch, were allowed a look inside the world's first 200 mm silicon carbide fab during its grand opening to see what makes it tick.

Japan Considers Programs To Develop Talent In Semiconductor And Battery Tech

Japan is considering establishing talent development programs involving industry, academia and government sectors across the country to boost domestic development in semiconductors and batteries, government sources said Sunday.

The programs, which will be based on a framework established in the Kyushu region in March, aim to secure human resources for industries becoming increasingly important in an era of digitalization and decarbonization, as demand for such professionals around the world grows, according to an official of the Ministry of Economy, Trade and Industry.

A joint chipmaking venture established by Taiwan Semiconductor Manufacturing Co. (TSMC) and Sony Group Corp., as well as Kyushu University and nine local governments from all seven prefectures in Kyushu, are among those involved in the program on the southwestern main island.

More Than Moore

The semiconductor sector is seeing a new wave of expansion. While there has never been a greater demand for chip innovation, Moore's Law 2D scaling is stalling. With each successive iteration, chip shrinking takes longer and costs more. As chipmakers and systems strive to continue driving advancements in power, performance, area, cost, and speed to market, new design and production paradigms are required.

The next revolution in advanced packaging provides a major improvement over conventional multi–chip packaging techniques, with the substrate's wiring used to complete the electrical interconnections between chips. Each successive technology offers higher I/O density, as well as lower power consumption per bit of data transfer. Nirmalya Maity, corporate vice president of Advanced Packaging at Applied Materials, writes in this special project how to accelerate the trend through advanced packaging techniques.

Okmetic to Build €400m Wafer Fab, Create 500 Jobs in Finland

Okmetic, a Finnish manufacturer of silicon wafers for MEMS, sensor, RF and power devices, unveiled its plans to more than double its current production capacity by building a new silicon wafer fab at its headquarters in Vantaa, Finland. Production is expected to start in 2025.

Okmetic's existing facility in Vantaa focuses on crystal growing and production of 150-200 mm silicon wafers, such as silicon-on-insulator (SOI) wafers with and without cavities, high-resistivity RFSi wafers as well as patterned wafers, SSP and DSP wafers, TSV wafers and wafers for power devices.

Over the years, Okmetic has expanded its facilities several times. For example, an increase in SOI wafer capacity was announced in 2011 and an investment on patterning line took place in 2017. Over the period 2017-2021, the company invested more than €100 million in increasing its production capacity.

NASA Begins Several Air Taxi Projects

NASA is researching advanced air mobility (AAM) vehicles and vertiports as potential use cases for future airspace travel and exploration.

NASA's AAM division is researching where vertiports or vertiplexes — multiple vertiports near each other — will work into existing infrastructure such as airports and heliports. NASA is also investigating new landing areas that can be created from repurposed areas, purpose built sites or integrated into existing buildings such as train or bus stations.

Many of these AAM aircraft will be electric vertical takeoff and landing (eVTOL), aircraft that can take off and land vertically like helicopters or helipads. Early use of eVTOLS will occur using existing airports but in the future vehicles will be able to land on top of buildings or other spaces in crowded urban areas, NASA said.

Many of NASA's projects will work on automation of these vehicles, reducing noise, developing vertiports and vehicle design as well as safety.

Apple Begins Development Of OLED Panel Without Polarizer

Apple has begun the development of an OLED panel that doesn't use a polarizer, TheElec has learned.

The removable of the polarizer on the panel will allow them to be made thinner, which makes them more optimal for foldable panels, sources said.

Polarizers are used to allow only lights in certain directions to pass through, thereby improving the visibility of the display.

However, its use lessens the brightness, thereby affecting the luminance efficiency of the panel as well. Companies usually increase the power consumption of the panels to offset this but this also leads to less lifespan for the panel

East European News & Trends

Russia To Develop Its Own Semiconductors

Russia plans to develop domestic semiconductors initially targeting 90 nm processes later this year with a long-term goal to eventually produce 28 nm processes by 2030.

According to a report from Cnews, the plan is being put in place because of the sanctions placed on the country due to the war in Ukraine and tech companies no longer shipping parts to the region.

The country plans to spend up to $38.4 billion to develop its semiconductor business.

Numerous tech companies have pulled out of shipping parts to Russia after the invasion of Ukraine including semiconductor vendors, automakers, search engines, computer firms and networking equipment operators. Many of these companies have decided to also cut ties completely with the country and will no longer do business there.

Taiwan Semiconductor Manufacturing Co. (TSMC) and Samsung, which acted as foundries for Russian chips, will also no longer supply the region following the sanctions from the U.S. and other countries.

Tech Companies Continue To Pull Out Of Russian Market

As the war in the Ukraine continues, tech companies are distancing themselves further from Russia.

Nokia said it will exit the Russian market entirely after already suspending deliveries and stopping new business. The limited activities the company had in Russia will also be discontinued.

Nokia said for humanitarian reasons — ensuring the continued flow of information and access to the internet outside of Russia — it would provide necessary support to maintain the networks and are applying for relevant licensing to enable this support in compliance with current sanctions.

Nokia said since Russia accounted for less than 2% of its net sales in 2021, this decision is not expected to impact its 2022 outlook financially.

Scientists Develop Promising Material For Industrial 3D Printing

Material science researchers at Rosatom, Russia's umbrella for nuclear energy companies, have used local raw material to develop composite paste for the 3D printing of silicon carbide based ceramics to be used in the next generation of nuclear reactors, Scientific Russia reported.

Automakers Impacted By Russian War On Ukraine

Automotive brands in Russia are facing dual pressures of international public opinion and corporate losses due to the ongoing war in Ukraine, affecting Renault-Nissan, Hyundai and Volkswagen, according to new data from TrendForce.

The Russian war on Ukraine has led to automotive factories in Russia closing and the import of vehicles has stopped due to sanctions on Russia. TrendForce said that if foreign-funded companies choose to permanently suspend business or withdraw from the market, the Russian government is likely to nationalize its business assets.

Renault-Nissan acquired the Russian brand Lada and currently has a market share of 32%, the largest automotive brand in the country followed by Hyundai with 23% and Volkswagen at 12%.

Renault-Nissan is the largest shareholder of domestic automaker Avtovaz. If Russia nationalized or sales are lost, the impact to Renault cannot be underestimated, TrendForce said. Even if production is resumed at some point, the depreciation of the ruble will greatly increase the cost of importing components.

World Economic Round Up

Is the global economy flying into a perfect storm, with Europe, China, and the US all entering downturns at the same time later this year? The risks of a global recession trifecta are rising by the day. A recession in Europe is almost inevitable if the war in Ukraine escalates, and Germany, which has been fiercely resisting calls to pull the plug on Russian oil and gas, finally relents. China is finding it increasingly difficult to sustain positive growth in the face of draconian Covid-19 lockdowns, which have already brought Shanghai to a screeching halt and now threaten Beijing. In fact, the Chinese economy may already be in recession and with US consumer prices currently increasing at their fastest rate in 40 years, prospects for a soft landing for prices without a big hit to growth look increasingly remote.

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 – November 2022
- Industry Forecast Briefing, London – September 2022

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 November 2022
AND
INDUSTRY FORECAST BRIEFING
TUESDAY 13th September 2022

BOTH BEING HELD AT

HOLIDAY INN KENSINGTON FORUM, LONDON

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