FutureHorizons

The Global Semiconductor Industry Analysts

Future Horizons Newsletter

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Contents Page

Industry News By Company

AMD and Viettel Collaborate on 5G Mobile Network Expansion

AMD (NASDAQ: AMD) and Viettel High Tech (Member of Viettel Group) today announced the successful completion of a 5G mobile network field trial deployment conducted by Viettel and powered by AMD Xilinx Zynq™ UltraScale+™ MPSoC devices. As the largest telecom operator in Vietnam serving more than 130 million mobile customers, Viettel High Tech has a rich history of using AMD radio technology with prior 4G deployments and is now accelerating new networks via new 5G remote radio heads (RRH). Designed to meet the growing capacity and performance requirements of mobile users globally, the Viettel 5G mobile network is expected to be completed by the end of 2022.

AMD is the exclusive radio unit (RU) silicon supplier for Viettel's indigenous 5G radio development. After the successful completion of the first field trial, Zynq MPSoCs are now set to be extended to an additional 300 Macro 8T8R base stations and 900 5G 8T8R Macro radios. The Zynq UltraScale+ MPSoC was also chosen by Viettel for its first-generation 64T64R Massive MIMO radio which is currently being optimized for field trials. Viettel is developing the next generation of radios to also include Zynq UltraScale+ RFSoC devices, to provide industry-leading integration and higher performance.

"Viettel is committed to advancing mobile technology leadership by working closely with AMD to incorporate its adaptable SoC technology into our new generation of 5G networks," said Nguyen Vu Ha, general director of Viettel High Tech. "Going from VHT's history of making 4G BTS, this decision to scale for the growing demands of 5G was based on evaluating various factors including flexibility, simplification, design stability and the experience of engineers."

Fraunhofer IAF Launches BEACON Project As Part Of ESA's ARTES Program

Due to limited bandwidth, it is becoming increasingly difficult to meet the growing need for higher data rates in satellite systems with very high data throughput. Using higher frequencies can help to meet this increasing demand.

The W-band (75–110GHz) is well suited for satellite communication applications: Not only does it offer high data throughput when used at high altitudes and in space but it is also likely to significantly increase system capacity, reduce the number of gateway earth stations, and thus reduce overall system costs. However, there has been a lack of suitable technology and hardware for applications in the W-band frequency range to date.

Infineon To Invest €5B In Dresden 300-Mm Fab

Infineon Technologies plans to expand its 300-mm manufacturing capacity to support accelerating demand for analog, mixed-signal and power semiconductors. The chipmaker said it will invest about €5 billion, the largest single investment in the company's history, in a new fab at its manufacturing site in Dresden, Germany.

"We want to use the additional capacities to serve our customers' increasing demand in the second half of the decade and to strengthen our position as a global leader in power systems," said Jochen Hanebeck, CEO of Infineon, in the 2022 fiscal year earnings call.

Construction of the new fab is expected to begin in the fall of 2023, with production starting in the fall of 2026 and ramping up gradually depending on market developments. When operating at full capacity, Infineon expects it will be able to generate "annual revenue equal to the level of the investment."

Up to 1,000 jobs will be created over time, Infineon said.

Qualcomm And Siemens Collaborate On 5G Smart Building Networks

Qualcomm Technologies, Inc. and Siemens Smart Infrastructure are working together to reimagine building automation by applying 5G private network (PN), based on the Snapdragon® X55 5G Modem-RF System in the Americas. The joint effort is underway at the Siemens Chicagoland office in Buffalo Grove, testing 5G PN use cases for efficient connection of heating, ventilation and air conditioning (HVAC) assets that will help meet the growing customer needs around energy efficiency, reduced costs of ownership, increased security, and proactive maintenance. This collective effort aims to further advance digitalization in building automation by developing new, more intelligent smart devices in the future.

Siemens is developing use cases to explore how building automation can capitalize on the power of 5G high speed data transmission, low latency, and greater capacity versus 4G. Proof-of-concept (PoC) network architecture is built at the Siemens facilities in Buffalo Grove, Illinois, with the support of the Qualcomm Technologies' Engineering Services Group. The team takes a holistic approach on application of 5G technologies and works on proving every step of complete 5G customer adoption. It focuses on everything from system design and obtaining experimental Citizens Broadband Radio Service (CBRS) license to full integration of devices into cloud-based solutions. Qualcomm Technologies is driving the digital transformation of business through system-level solutions, utilizing a unique combination of best-in-class wireless connectivity and ultra-intelligent platforms.

Samsung To Buy Car Tech Firm Harman For $8bn

Samsung Electronics announced a $8bn deal yesterday to buy Harman International Industries, marking a major push into the auto electronics market and the biggest overseas acquisition ever by a South Korean firm.

The electronics giant previously shunned big acquisitions, and the latest deal underscores a strategic shift as the company tries to break into the high-barrier automotive industry where it has little track record.

"An M&A deal this big is a first for us.

But it shows that under Jay Y Lee, the company is changing and open to new ways to grow," a source familiar with the deal told Reuters, referring to Samsung Electronics' vice chairman.

The purchase of the Stamford, Connecticut-based maker of connected car and audio systems is part of Samsung's efforts to find new areas of growth as its mainstay smartphone business – scarred by the disastrous withdrawal of the fire-prone Galaxy Note 7 – slows.

Industry News & Trends

Perovskite Solar Cells Offer Alternative to Silicon

Perovskite solar cells have emerged as an alternative material to silicon in traditional, inorganic solar cells because of their ability to enable higher power conversion efficiencies.

Though other materials are currently used for different types of solar cells (e.g., organic materials for flexible and transparent solar cells), there have not been many contenders that could displace silicon and the silicon derivatives used in commercial solar cells today.

There is potential for perovskite solar cells to replace traditional silicon, but there are still some challenges ahead before they commercially compete with silicon solar cells.

The potential of perovskite solar cells

Perovskites are a wide class of materials that have only been integrated into solar cells on a widespread basis within the last 10 years or so. Because perovskites are a material with the general structure of A2+B4+X32- (with A and B being cations with 2+ and 4+ charges, and X being an anion), there are several materials to work with. As a result, there is great potential to utilize different perovskites for varying solar cell applications.

Indigenous 3D Bio-Printer To Print Human Tissues

An indigenous state-of-the-art 3D Bio-Printer 'Mito Plus' launched by Indian Tech Startup Avay Biosciences has been found to be helpful in printing human tissues.

Bio-printing is a method of tissue replication that temporarily or permanently supports and nurtures living cells. This technique is a potential alternative to organ transplantation, which could be useful in manufacturing functional human tissues such as skin by using specifically engineered biomaterials or bio-inks to print artificial living tissues.

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Cisco: Cisco To Launch New Design Center In Spain For Next Generation Semiconductor Devices

Cisco today announced plans to launch a center for the design of next generation semiconductor devices in Spain. The announcement was made by Chuck Robbins, Chair and Chief Executive Officer of Cisco, in a meeting with H.E. Pedro Sánchez, Prime Minister of Spain.

There is no digital without chips. Last year, the European Union presented an ambitious plan to bolster Europe’s competitiveness and resilience in semiconductor technologies and applications to help achieve the dual transitions of digital and green. Part of that mission, the EU Chips Act lays the foundation for a new innovation ecosystem in the EU,

connecting world-class research, design and testing capacities, creating knowledge jobs and fostering economic growth.

As part of its global strategy to enable a reliable, scalable and sustainable global semiconductor supply chain, Cisco plans to set up an engineering design center to design and prototype next generation semiconductor devices, under the framework of the Spanish strategic project for the Recovery and Economic Transformation of Microelectronics and Semiconductors (PERTE Microchip). The center aims to contribute Cisco's knowledge and experience to help grow the European chips ecosystem. Co-located with the Cisco Innovation Center in Barcelona, the center is the first of its kind for Cisco in the European Union.

Self-Charging Cars To Become The Evs Of The Future

Current electric vehicles (EVs) are not living up to their potential. We need a radical technology revolution, and self-charging cars that operate entirely on renewable energy could be the key.

EVs have great potential to help solve the climate crisis, but EV technology still faces some significant challenges including short driving range; charging issues including long waits at a limited number of EV charging stations and long charge time; reliance on an insufficient electric grid that draws energy from nonrenewable sources; a high price tag; and performance questions.

Self-charging cars, however, may be the answer to a consumer's EV charging nightmares.

What is a self-charging car?

Onboard a traditional EV, one can expect to find a battery along with some supporting conversion and charging circuitry. In this scheme, the vehicle must plug into an external charging source, receiving power from the grid in some capacity.

New Method to Harness Energy from Household LED Lamps

Researchers at the Indian Institute of Technology (IIT) Mandi have developed a new photovoltaic material that can generate power when irradiated with light produced in household light sources like LED or CFL. Light-induced power generators are viable alternatives to batteries for powering Internet of Things (IoT) devices, increasingly used in mobile phones, smart homes, and other applications that require various real-time data.

IoT devices are required to run independently without depending on electrical grids for power supply; primary and secondary batteries are currently used to power such devices. All batteries have a limited lifespan, a high cost, and are environmentally unfriendly. Since many of IoT devices are used indoors, solar light is not an option. An alternative to this could be finding ways to harness light from indoor lighting sources to run indoor devices such as sensors, gadgets, Wi-Fi routers, and RFID readers, to name a few.

East European News & Trends

Advanced Computer Vision Aids Retail Chains

A Russian start-up called Intelligence Retail employs computer vision in merchandising.

Intelligence Retail uses computer vision to help companies step up the efficiency of shelf utilization in stores. Its software scans assortments, prices and other relevant information in real time. It reportedly takes the service 10 seconds to generate an e-report on one retail section audit with an image recognition accuracy of as high as 99%.

The software recognizes a few million photos a month; its image library contains hundreds of thousands of items of various FMCG assortments. The technology is said to save 80% of staff's physical labor in a store section. Intelligence Retail claims its solution helps boost sales significantly.

AI Helps Identify Cancer Cases

TeleMD, a Russian start-up, is offering a software platform that uses artificial intelligence (AI) for cancer diagnostics and prognostication.

The platform's functionality enables image recognition for cancer diagnostics, and also scalability for medical specialists from across disciplines who are now able to analyze heterogeneous medical data.

The TeleMD platform is designed to make it possible for physicians to diagnose and predict oncological developments in complicated cases by analyzing medical images and other patient-specific data. With the solution, doctors may expect to be able to reach out to broader medical communities and get remote advice.

Taiwan Invests EUR10 Million In Lithuania And Provides Semiconductor Scholarships To Central And Eastern Europe Students

Taiwan is fulfilling its promise to invest in Lithuania and other Central and Eastern European countries to further enhance collaborations in the semiconductor, electric vehicle (EV), and laser industries by providing investments and scholarships.

A Reuters report quoted the head of the Taiwanese representative office in Vilnius as saying that Taiwan will invest EUR10 million (US$9.98 million) towards semiconductor production in Lithuania.

Ming-hsin Kung, minister of the National Development Council (NDC) - the Taiwanese government agency in charge of the sovereignty investments - confirmed to the United Daily News that the EUR 10 million investment is actually to be made to three companies through the EUR200 million Central and Eastern Europe Investment Fund that it set up earlier in 2022.

Latvia Moves To Boost Semiconductor Manufacturing

Twelve partners in Latvia have signed a Memorandum of Understanding (MoU) to develop semiconductor manufacturing and training in the country.

There are three key strands to the memorandum: developing the microchip ecosystem, developing educational and research capabilities, and fostering development and manufacturing capabilities throughout the entire semiconductor supply chain.

Several startups in the country are producing chips, particular for photonics, including Mikrotik, HansaMatrix, Lightspace Technologies and SAF Tehnika. It also is home to various scientific institutes already providing R&D for the chip development.

The deal aims to tap into funding from the EU Chips Act to boost areas such as 5G and semiconductor education.

Technology Enables Sunlight-Aided Hydrogen Production

The Institute of Catalysis in Novosibirsk is working on new technology enabling sunlight-assisted hydrogen production. Hydrogen is considered one of the most promising and eco-friendly energy sources.

The photocatalyst the Siberian chemists are developing is a mixture of cadmium sulfide and manganese. This is the key trigger in the reaction, the team said. All the catalyst requires to start acting is sunlight. A series of chemical transformations then follows to produce hydrogen.

World Economic Round Up

The European Union have agreed to cap Russian seaborne oil prices at US$60 a barrel, after several days of intense negotiations over an appropriate level. The announcement comes after the G-7 group of advanced economies agreed in September to impose a limit on Russian seaborne crude and therefore constrain revenues the Kremlin makes from the commodity. However, details on how the cap would work in practice have been debated and hashed out since that point. Russia, amid its onslaught in Ukraine, has warned that an oil price cap could wreak havoc on the energy markets and push commodity prices even higher.

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 – 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

Download Future Horizons Full Events Calendar Here

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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