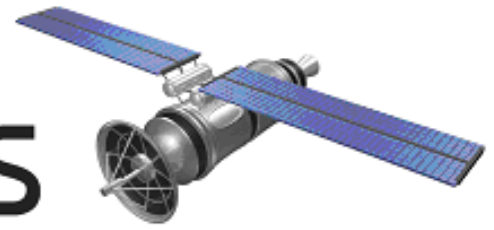


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The Global Semiconductor Industry Analysts

FH MONDAY

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Lattice Expands Into Mid-Range FPGAs

Lattice Semiconductor, previously known for its small, low-power FPGAs, is entering the mid-range FPGA market in a move that will double the company's addressable market to approximately \$6 billion.

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Apple, AMD Back TSMC's Triple Investment

Taiwan Semiconductor Manufacturing Co. (TSMC) has more than tripled its overall investment in Arizona to about \$40 billion for two chip facilities with the support of customers like Apple and AMD, stoking a U.S. effort to revive domestic chip production.

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Zinc-Ion Batteries Support Transition to Clean Energy

Lithium-ion batteries play an essential role in the fight against climate change. In fact, Li-ion-based technology is widely used both in electric vehicles (EVs), in which lightweight and high-performance batteries capable of supporting a high number of charge/discharge cycles are required.....

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Diamonds are a girl's best friend – and they even can advance quantum computing. Two startup companies are taking a promising approach there.

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Japan's Rapidus signs up IMEC to support 2nm push

Executives from newly-founded Japanese chip company Rapidus and Belgian research institute IMEC have agreed to enter a long-term collaboration on semiconductor R&D.

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Lattice Expands Into Mid-Range FPGAs

Lattice Semiconductor, previously known for its small, low-power FPGAs, is entering the mid-range FPGA market in a move that will double the company's addressable market to approximately \$6 billion.

Lattice has announced a new technology platform for its mid-range FPGA products, Avant, and the first series of mid-range FPGAs to be built on this platform, the Avant-E series, with up to 500 thousand logic cells.

"When we were concepting Avant, we went out and talked to over 100 customers worldwide, in all geographies, in all of our major verticals, to understand what it is they were looking for," Jay Aggarwal, director of silicon product marketing at Lattice, told EE Times. "What we heard from them was resounding—they're looking for innovation in the mid-range space, because the mid-range FPGA space has been overlooked by our competition, who've focused on their high-end devices.

Apple, AMD Back TSMC's Tripled Investment, Tech Upgrade in Arizona

Taiwan Semiconductor Manufacturing Co. (TSMC) has more than tripled its overall investment in Arizona to about \$40 billion for two chip facilities with the support of customers like Apple and AMD, stoking a U.S. effort to revive domestic chip production.

The world's largest chip foundry said its second fab at a site near Phoenix is slated to start production at the 3-nm node in 2026. When it starts, the project will make the most advanced chips in the U.S.

The CEOs of TSMC's largest customers, including Apple, AMD and Nvidia, joined a Dec. 6 event in Arizona to mark the occasion. Apple CEO Tim Cook and AMD CEO Lisa Su said their companies plan to source chips from TSMC in Arizona.

Zinc-Ion Batteries Support Transition to Clean Energy

Lithium-ion batteries play an essential role in the fight against climate change. In fact, Li-ion-based technology is widely used both in electric vehicles (EVs), in which lightweight and high-performance batteries capable of supporting a high number of charge/discharge cycles are required, and for the storage of renewable energies, by their nature produced discontinuously.

Nonetheless, the raw materials required for the manufacture of Li-ion batteries will probably not be sufficient to cover the increasing market demand and possible supply issues that could jeopardize the complete transition to electric mobility. Hence, there is a need to develop alternative technologies to solve the emerging shortage of raw materials.

Startups develop diamond-based quantum computers

Diamonds are a girl's best friend – and they even can advance quantum computing. Two startup companies are taking a promising approach there.

One promising technology approach for quantum computing is the realization of qubits based on so-called nitrogen vacancy (NV) centers in the crystal lattice of diamonds. This approach is being pursued independently by the technology companies SaxonQ and XeedQ (both Leipzig, Germany). Now they received a major assignment from the German Aerospace Research Centre DLR.

Perfect diamonds consist of a flawless lattice of interconnected carbon atoms. A nitrogen defect is a disorder in this crystal lattice. It can also occur naturally. Diamonds with a particularly large number of nitrogen atoms are yellowish in color.

Japan's Rapidus signs up IMEC to support 2nm push

Executives from newly-founded Japanese chip company Rapidus and Belgian research institute IMEC have agreed to enter a long-term collaboration on semiconductor R&D.

The memorandum of cooperation was signed by Atsuyoshi Koike, CEO of Rapidus, and Luc Van den hove, CEO of IMEC and endorsed by Yasutoshi Nishimura, Minister of Economy, Trade and Industry of Japan and Jan Jambon, Minister-President of The Government of Flanders.

Rapidus plans to manufacture chips in Japan on a 2nm manufacturing process in the second-half of this decade