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The Global Semiconductor Industry Analysts

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CHIPS Act Targets Post-Globalized Industry

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TORONTO — A new combination of materials may enable 3D vertical non-volatile memory (NVM) architecture for customers to design chips for high density, high performance computing applications at affordable costs and even shape the second iteration of 3D Xpoint technology.

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TALK TO US

Will Blaize Trailblaze Edge AI Market?

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FPGAs aid embedded hardware acceleration

Efinix Trion Titanium FPGAs are fabricated on a 16-nm process node and incorporate the company's Quantum fabric for compute acceleration, machine learning, and deep learning.

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Manufacturing advanced and secure circuits domestically is no longer just a talking point. Momentum is building, observers note.

The Creating Helpful Incentives for Producing Semiconductors in America Act (CHIPS Act) is wending its way through the congressional budget process. Politicians, bureaucrats and semiconductor companies – including Intel – increasingly back efforts to beef up chip production on US soil.

New NVM Architecture Could Open Up Xpoint Market

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Intermolecular Inc., a wholly-owned subsidiary of Merck KGaA, Darmstadt, Germany, recently announced it has developed what it believes is the first quaternary atomic layer deposition (ALD) GeAsSeTe OTS device for 3D vertical memory arrays. This device overcomes the inability to stack tens of layers in a 3D structure, which limits memory density and results in higher costs, said Intermolecular device engineer Mario Laudato. The company's new material combination can help to realize these architectures, which would support emerging use cases such as artificial intelligence (AI) and neuromorphic computing, and other semiconductor designs necessary for faster and more affordable digital applications.

Nvidia, Google Both Claim MLPerf Training Crown

The third round of MLPerf training benchmark scores for eight different AI models are out, with rivals Nvidia and Google both staking a claim to the crown.

While both companies claimed victory, the results bear further scrutiny. Scores are based on systems, not individual accelerator chips. While Nvidia swept the board for commercially available systems with its Ampere A100-based supercomputer, Google's massive TPU v3 system and smaller TPU v4 systems, which it entered under the research category, makes the search giant a strong contender.

Will Blaize Trailblaze Edge AI Market?

AI processing is changing the world order among CPU, GPU, and FPGA companies, with a host of AI processor startups joining the fray. The fight was once mostly in data centers, but they've all had to decamp to a new battlefield at the network edge. Driven by that premise, Blaize, an AI processor startup in El Dorado Hills, Calif., is heading straight to the edge with its just-announced AI hardware and software.

The market forces sending AI inference to the edge are well understood. Privacy concerns, bandwidth issues (going back and forth between edge to cloud), latency and cost worries drive AI processing more and more edgeward.

FPGA's Aid Embedded Hardware Acceleration

Efinix Trion Titanium FPGAs are fabricated on a 16-nm process node and incorporate the company's Quantum fabric for compute acceleration, machine learning, and deep learning. Combined with Efinix RISC-V SoCs, Titanium FPGAs form the compute core and adaptive hardware acceleration for complete embedded system-in-package (SiP) designs.

Leveraging the Quantum fabric's enhanced exchangeable logic and routing (XLR) cell and 2X efficiency improvement, along with highly configurable embedded memory blocks and dedicated high-speed DSP blocks, Titanium FPGAs pack plenty of processing power into a die size that is just a quarter of the area of previous-generation Trion devices. The low power consumption of the 16-nm node enables Titanium devices to consume a third of the power of Trion FPGAs and overcome all of the thermal issues associated with highly-integrated applications.