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Marvell Extends Connectivity Leadership for Accelerated Infrastructure with 200G/Lane Partner Demonstrations at DesignCon

Amphenol, Keysight Technologies, Molex and TE Connectivity showcase 200G/lane copper links with Marvell DSPs for increasing data center bandwidth

SANTA CLARA, Calif., Jan. 31, 2024 /PRNewswire/ -- Marvell Technology, Inc. (NASDAQ: MRVL), a leader in data infrastructure semiconductor solutions, and leading cabling and system partners Amphenol, Keysight Technologies, Molex and TE Connectivity (TE) this week are demonstrating copper interconnects powered by Marvell® 224G long-reach (LR) DSP SerDes operating at 200 Gbps per lane or faster, a critical milestone in the race to scale accelerated infrastructure for AI and cloud workloads.

The demonstrations are taking place during DesignCon at the Santa Clara Convention Center January 30 through February 1, 2024 in Santa Clara, California.

Cloud service providers are undertaking wide-ranging infrastructure upgrades to accommodate the insatiable demand for generative AI and other services. Networking bandwidth in the cloud is growing at over 40% per year while bandwidth dedicated to AI is growing at over 100%.[1] Without faster, higher capacity networks, workloads will require more time, energy, and money to complete, potentially upending the economic potential of AI and cloud services.

Electrical copper cables are used for short reach (0-5m) server to top-of-rack switch connectivity and for certain cloud-optimized intra-rack interconnects in data centers. Boosting baseline I/O lane speed to 200G/lane represents a 2x increase in bandwidth over current leading-edge 100G/lane systems. Marvell 200G/lane LR DSP SerDes are expected to be incorporated into a wide range of networking platforms that will extend the reach of copper links with cabled-backplane, cabled-host connections and other cabling solutions. Marvell 200G/lane LR DSP SerDes will also extend copper connectivity bandwidth and enable 1.6T Active Electrical Cables (AECs).

"Driven by the market's need for increased speed, Molex is collaborating with Marvell to deliver an industry-leading, comprehensive 224G connector, cable, and backplane portfolio that ensures optimal channel performance for AI, machine learning (ML) and 1.6T high-speed applications," said Vivek Shah, director, New Product Development, Molex.

"Keysight is working with its partners and standard bodies to enable the next generation high-performance computing infrastructure to cope with the rapidly expanding computing and networking needs to support the upcoming AI applications," said Dr. Joachim Peerlings,

vice president and general manager of Keysight's Network and Data Center Solutions Group.

"Active electrical technology extends the life of copper in data centers," said Alan Weckel, co-founder of 650 Group. "It will quickly become one of the standard building blocks for data centers. AEC silicon revenue is expected to grow at 64% per year and achieve sales of $1 billion by 2028 with chip units for powering AEC devices reaching nearly 40 million per year."

Marvell is a leader in AEC and DSP technology. In March 2022, Marvell released the Alaska® A PAM4 DSP, the first 100G DSP for 400/800 Gbps AEC cables. In April 2023, Marvell unveiled a portfolio of connectivity technologies, including long-reach SerDes, produced on 3nm processes, an industry first.

"Virtually every class of connection in the cloud—from connections between distant data centers to connections between components within a chip package—will be transformed over the next several years. Active electrical cable (AEC) connectivity will be a critical component for short reach interconnects at 200G," said Venu Balasubramonian, vice president of product marketing for the High Speed Connectivity Group at Marvell. "We are actively collaborating with our ecosystem partners and our hyperscale customers to deploy 200G/lane copper interconnect technologies to enable the scaling of bandwidth needed to keep up with the pace of AI innovation."

Demos at DesignCon

Amphenol (booth 833)
Amphenol, in collaboration with Marvell, will be showcasing a live demonstration of a cabled-fabric across multiple applications within a data center rack. The demonstration will feature Amphenol Paladin®HD2 right-angle female (RAF) board mount connector, a Paladin®HD2 pass-thru cable assembly, and UltraPass™. UltraPass™ is Amphenol's newest OverPass™ solution for providing high-density, 224 Gb/s performance for near-ASIC interfaces.

Keysight Technologies (booth 1039)
In order to process the large datasets associated with AI and large language models, bandwidth improvements are needed in both the compute-oriented interfaces as well as those used to enable higher speed data networks. Keysight and Marvell will demonstrate the testing and validation of next-gen SerDes designs running at 212 Gbps per lane which are used to enable high-performance computing. This demo will be based on the latest development of the OIF-CEI 224G and IEEE 802.3dj standard bodies.

Molex (booth 739)
Through the collaboration with Marvell, Molex is demonstrating an OSFP SMT and DAC channel, OSFP BiPass/Flyover internal cable solution, and iHD backplane capabilities, all driven by Marvell 200G LR SerDes. In addition, Molex plans to adopt Marvell 200G DSP technology for the next evolution of Active Electrical Cables (AECs).

TE Connectivity (booth 913)
TE is showcasing a cabled backplane architecture plus over-the-board (OTB) near-chip connectivity, utilizing 224G AdrenaLINE Catapult near-chip connector and AdrenaLINE Slingshot cabled backplane connector (cable-to-cable and cable-to-board). The demo is being driven by Marvell 224 Gbps DSP SerDes silicon.

[1.] 650 Group, DC Semiconductors Report Nov 29, 2023.

About Marvell
To deliver the data infrastructure technology that connects the world, we're building solutions on the most powerful foundation: our partnerships with our customers. Trusted by the world's leading technology companies for over 25 years, we move, store, process and secure the world's data with semiconductor solutions designed for our customers' current needs and future ambitions. Through a process of deep collaboration and transparency, we're ultimately changing the way tomorrow's enterprise, cloud, automotive, and carrier architectures transform—for the better.

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