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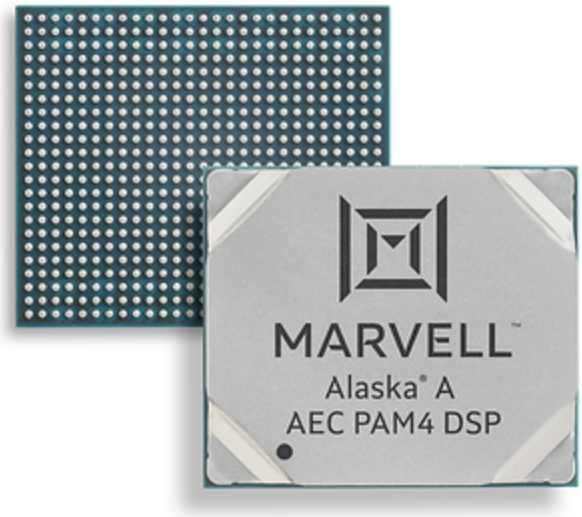
Marvell Expands Interconnect Portfolio with Industry's 1st Cloud-Optimized 400G/800G PAM4 DSPs for Active Electrical Cables

Enters New Category of Data Center Interconnects to Address Growing AI Accelerator and Networking Bandwidth Requirements

SANTA CLARA, Calif., March 2, 2022 /PRNewswire/ -- Marvell (NASDAQ: MRVL) today introduced its Alaska® A PAM4 DSP family for Active Electrical Cables (AECs), the industry's highest performance 400G/800G AEC DSPs to address emerging 100G/lane adoption in cloud data center interconnect architectures. Artificial intelligence (AI), machine learning (ML) and networking applications are driving greater bandwidth requirements, resulting in the need for cloud-optimized interconnect solutions that deliver the required reach at lowest power and latency. The new Alaska A family, fabricated in 6nm process, leverages Marvell's industry-leading PAM4 DSP technology, and the speed and power advantages of a cutting edge process node. These unique differentiators bring a new level of performance to cable manufacturers developing solutions for short reach copper interconnects. The Alaska A PAM4 DSP family enables cable manufacturers to optimize their interconnect portfolios with AEC offerings to meet the diverse needs of different data center customers.



The new Alaska A DSPs add to Marvell's comprehensive portfolio of high speed transceivers, including line card retimers, gearboxes and MACsec PHYs supporting rates up to 800G, and active optical cable (AOC) interconnect solutions. Each cloud is unique and Marvell provides a range of interconnect offerings to meet the distinctive requirements of each one — addressing varying architectures, speeds and distances. As next-generation data center architecture moves to 100G/lane-based products to address the need for greater bandwidth, AECs become essential to enable short interconnects previously supported through passive direct attach cables (DACs). Bringing its PAM4 SerDes technology leadership combined with its Ethernet IP, Marvell has created a state-of-the-art AEC interconnect platform that is enabling leading cable makers to deliver optimized solutions for the world's largest cloud data center customers.

The Alaska A DSPs for AECs can compensate for >40db of loss, which enables longer reach and thinner cables, both of which are key requirements for high density data center deployments. The Marvell AEC platform includes a complete cable reference design for 400G and 800G AECs and software stack with CMIS5.0 support as well as proven interoperability with leading switch and NIC platforms. Marvell's Alaska A platform brings Marvell's PAM4 DSP leadership coupled with the state-of-the-art cable manufacturing and assembly expertise of leading cable manufacturers. This combination delivers best-in-class AECs as well as the scalability and supply assurance to meet the critical requirements of cloud customers.

"100G/lane-enabled products are the next inflection point for data centers, as artificial intelligence, machine learning and other data-intensive workloads grow," said Achyut Shah, senior vice president and general manager of Marvell's PHY business unit. "Achieving the reach needed for AI accelerators and server to top-of-rack links and switch-to-switch interconnects requires an active electrical cable (AEC) solution because of the reach limitations and cable thickness challenges of passive direct attach offerings at 100G/lane. We are working with all major cable vendors and cloud operators on end-to-end AEC

solutions based on our Alaska A DSPs to enable 100G serial-based next-generation data center deployments."

"AEC is a must-have technology for 100G/lane connectivity, and it is being driven by cloud data centers looking for optimal switch-to-switch and switch-to-ToR interconnects," said Alan Weckel, founding analyst for 650 Group. "Although the AEC market is relatively new, we forecast the market growing at a CAGR of over 100% for the next five years as higher speeds continue permeating the server to top of rack links. Marvell entering this market will help accelerate the deployment of 800G/400G AEC solutions."

Broad Industry Support

"Our vast array of cloud data center interconnect solutions are designed to meet critical performance and reliability requirements for high-speed communications," said Brian Kirk, CTO at Amphenol. "With Marvell's Alaska A DSPs, we can offer an advanced AEC interconnect solution for 100G/lane connectivity that will provide our customers with the performance needed for next-generation infrastructure architectures."

"Marvell's innovative DSP portfolio is an important step forward as the industry continues to face increasing bandwidth requirements. We are thrilled that Marvell is leveraging their DSP technology to tackle the emerging 100G serial I/O intra-switch and server to top-of-rack switch copper interconnect challenge," said Gavin Cato, head of Hardware Platform Solutions Business, Celestica. "Marvell's AEC PAM4 DSP portfolio will help deliver the cloud-optimized solutions that address the growing demands and requirements of leading data center customers."

"Cloud data centers are looking for interconnectivity solutions that can help them achieve higher density and higher speed as well as greater compactness while meeting the requirements of 100G/lane connectivity," said Henning Hansen, VP Sales & Advanced Development, Luxshare-tech. "Marvell's Alaska A DSPs paired with Luxshare's Optamax™ bulk cable technology allows us to further extend the length, provide thinner cables, and bring higher performance solutions to our data infrastructure customers, solving their bandwidth and thermal challenges. Working with Marvell, we are able to quickly develop a new class of AEC product offerings that will address a variety of deployment use cases."

"As speeds continue to rise and cable functionality becomes increasingly important in data transmission, our 112G AECs, which enable next-generation system architecture, will need to continue to enhance performance," said Brian Hauge, vice president and general manager, Copper Solutions, Molex. "Marvell's state-of-the-art Alaska A AEC DSPs enable us to recondition critical high-speed signals, ultimately enabling our cables to extend link reach at higher data rates to bring reliability and efficiency to our customers' cloud infrastructure. Through our collaboration with Marvell, we are providing customers with compelling options for their high-performance interconnect architectures."

"100G/Lane Ethernet will be the new interconnect of choice for next generation data centers requiring advanced cabling solutions that satisfy reach, flexibility, and power requirements," said Mike Tryson, CTO and VP of Engineering at TE Connectivity. "The combination of Marvell's Alaska A DSP with TE's advanced 100G cabling solution enables AEC technology for mission-critical data center applications."

"Volex high-speed copper interconnect solutions are critical to supporting leading-edge data center infrastructure with faster processing, greater bandwidth and increased density," said

Alan Huang, Volex senior product manager, Data Center Products. "Marvell is a strategic enabler for us, bringing PAM4 DSP technology leadership to the AEC market, enabling industry-leading performance. Our collaboration with Marvell will benefit our data center customers with new AEC product offerings to address the industry move to serial 100G I/Os."

Availability

The Marvell Alaska A 400G (MV-CHA140C0C) and 800G (MV-CHA180C0C) PAM4 DSPs including reference platform and software are available now and sampling to leading cable suppliers. More information on the new DSPs can be found on the product page. Additional resources can be found on the media kit page.

Marvell is showcasing its new Alaska A AEC family alongside its comprehensive portfolio of cloud-optimized electro-optics PAM DSP, Coherent DSP, DCI modules, switch and PHY solutions at OFC in San Diego, Calif. (booth #2301) March 8-10, 2022.

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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