

# Marvell Extends PAM4 DSP Cloud Data Center Leadership With Industry's First Integrated Solution

## **Atlas PAM4 DSP Lowers Power by 25% and Reduces Component Count by 33% with Integrated TIAs and Laser Drivers**

SANTA CLARA, Calif., June 7, 2021 /[PRNewswire](#)/ -- Marvell (NASDAQ: MRVL) today announced its Atlas™ 50Gbps PAM4 DSP chipset solution for high-performance cloud data center, computing and emerging AI applications. Introduced from its recent [acquisition](#) of Inphi, the new PAM DSPs extend Marvell's industry leading networking portfolio, expands its addressable market, strengthens its customer base and accelerates Marvell's leadership in hyperscale cloud data centers and 5G wireless infrastructure.

The new Atlas chipset, based on Marvell's market-leading Polaris™ 50G PAM4 DSP family, is the industry's first PAM4 DSP solution to now integrate transimpedance amplifiers (TIAs) and laser drivers in mainstream CMOS technology, reducing supply chain complexity and power consumption by up to 25%. Atlas is also the industry's first PAM4 DSP available to wire bond directly with lasers and photodiodes, further simplifying the assembly process for optical module integrators, effectively reducing both product lead times and time to market.

Over the past several years, the rise of hyperscale cloud data centers and the emergence of machine learning have led to dramatic increases in optical module demand in intra data center networks. Coinciding with the drive for high-speed optics, these networks have evolved from NRZ to PAM4 signaling. The convergence of these forces in the network have resulted in a massive ramp of PAM4 based systems and modules, with demand for multi-millions of ports per year. To address these high volumes, the market requires continuous reductions in cost per bit, higher levels of silicon integration and exceptional reliability. The Atlas PAM4 DSP architecture is fully optimized to deliver the massive volumes of bandwidth, demanded by today's cloud infrastructure market.

"Disaggregated data centers define today's new cloud computing paradigm, and this trend is driving hyper-connectivity within the data center, putting PAM4 data center interconnects at the heart of the network," said Xi Wang, VP of Marketing, Optical Connectivity at Marvell. "The new Atlas PAM4 DSP targets this burgeoning, high-volume data center market as well as cost-sensitive applications at the network edge."

"Marvell understands the requirements of today's hyperscale data center operators and has delivered a highly integrated, high-performance PAM4 DSP solution to meet those needs," said Vlad Kozlov, Founder and CEO, LightCounting. "The new Atlas PAM4 DSP leverages the most trusted 50Gbps DSP platform for hyperscale cloud data center applications in the industry and delivers the robust technology the market needs in a cost-effective, highly integrated, and easy-to-assemble approach that's optimized to help drive massive data center growth in the coming years."

The foundation of the Atlas PAM4 DSP platform is a highly configurable DSP engine, which is field proven and qualified in multiple hyperscale cloud data centers around the world. The DSP is designed to achieve performance levels for multi-mode and single-mode optical interconnects covering distances from <100 meters up to 40km, while keeping an extremely low power profile for optical module applications.

### **Atlas PAM4 DSP Key Features:**

- Leverages Polaris-class quad-channel DSP core, providing world-class performance and signal integrity while driving faster time to market and product yields.
- Uses existing Polaris DSP software, minimizing software development expense for module developers.
- Comprehensive suite of performance monitoring tools to reduce bring-up time and support mission-mode telemetry critical for hyperscale deployments.
- Integrated laser drivers support both single- and multi-mode interconnect applications.
- Suitable to support a wide range of module form factors including QSFP, QSFP56, QSFP-DD and AOCs.
- Broad range of IEEE standard support including 100G-xR2, 200G-xR4 and 400G-xR8.
- Manufactured in mainstream CMOS process technology optimized for high volume production to deliver a high-performance, low-power PAM4 DSP solution.

### **Availability**

The new Marvell Atlas PAM4 DSP chipsets are sampling now to select customers. More information can be found on the [Atlas PAM4 DSP product page](#). Additional resources can be found on the [media kit page](#).

### **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 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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