Marvell Expands Leadership In 800G PAM4 DSPs With 5nm Electro-Optics Platform For Cloud Data Centers

Spica Gen2 Delivers 25% Power Savings and Advances Transition to Next-Generation 800GbE Optical Modules

SANTA CLARA, Calif., Dec. 8, 2022 /PRNewswire/ -- Marvell Technology, Inc. (NASDAQ: MRVL), a leader in data infrastructure semiconductor solutions, today announced that it is sampling its Spica™ Gen2 800Gbps PAM4 electro-optics platform, designed to boost bandwidth and performance in cloud data centers. The highly integrated Spica Gen2 platform is built on advanced 5nm process technology with companion transimpedance amplifiers (TIAs) and driver to deliver power savings and advance the transition to 800Gbps networking inside the data center.

The new Marvell solution extends the company's leadership in 800G PAM4 DSPs, building on its Spica DSP announced in 2020 in 7nm as part of the industry's first 800Gbps PAM4 electro-optics platform. Since that time, the Spica platform has been ramping in artificial intelligence (AI) applications as the demand for higher bandwidth networking infrastructure continues to increase. Powered by 5nm CMOS technology and Marvell's proven PAM4 DSP IP, the Spica Gen2 800G platform offers more than 25% system-level power efficiency savings compared to the previous generation while reducing latency and system implementation complexity.

PAM4 DSPs inside the pluggable transceiver modules play a critical role in linking optical networks by fine-tuning signals to maintain data integrity over communications links up to 10km distance. Spica Gen2 expands the company's Spica product family, the industry's first field-proven 100G/lane optical PAM4 DSP in high-volume production. Spica Gen2 allows the data center operators to future-proof their optical networking infrastructure to meet next-generation industry standards as the cloud data center moves to 800G, while maintaining backward compatibility with already deployed systems. The new PAM4 DSP platform enables less than 12-Watt 800G QSFP-DD800/OSFP optical transceiver modules. These exceptional power savings provide cloud operators the ability to reduce cost, complexity, and carbon footprint while increasing bandwidth and performance.

"There is an ever-increasing need for higher bandwidth, lower latencies, and reduced complexities in managing data center infrastructure," said Xi Wang, vice president of product marketing, Optical Connectivity at Marvell. "With the introduction of the Spica Gen2 5nm optical PAM4 DSP, Marvell is continuing to innovate and enhance the power efficiency with the 800G electro-optics platform while increasing bandwidth in the data center, which is crucial to achieving green and efficient data center architectures. Spica Gen2 enables lower latencies, higher levels of integration, and simplifies switch port management for next-gen cloud data center optical interconnects."

"Demand for optical technology is expected to grow 14% per year through 2027, primarily driven by the projected sales of 800G and 1.6T transceivers as cloud providers and carriers enhance their infrastructures to meet customer expectations," said Vlad Kozlov, founder and CEO of Light Counting Market Research. "Spica Gen2 is part of Marvell's effort to raise the bar in terms of performance, power and TCO to allow clouds to scale."

Key features of Spica Gen2 include:

- Support for 1x800G, 2x400G, 8x100G Ethernet traffic with breakout
- 25% power savings enabling <12-Watt 800G
- CMIS compliant with advanced diagnostic features
- Integration of enhanced optical modulator driver

Spica Gen2 Linear TIAs:

The IN5660TA is a 56GBaud octal channel, linear TIA for PAM4 optical modules. The IN5665TA and IN5669TA are each 56GBaud quad channel, linear TIA offerings. Features of the Spica Gen2 linear TIAs include:

- Wide dynamic range to meet the different link requirements for optical applications
- Best-in-class linearity, low noise for optimized platform performance
- Low-power and in bare die form

Spica Gen2 Linear Driver:

The IN5614DV is a 56GBaud quad-channel, linear VCSEL driver for PAM4 optical modules. Features include:

- VCSEL multimode fiber for AOC and transceiver

- Excellent linearity, high bandwidth, adjustable gain to optimize the PAM4 system performance
- Low-power driver in bare die form

Availability

The Spica Gen2 PAM4 DSP, TIAs and driver are available now and sampling to leading optical module manufacturers.

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.

This press release contains forward-looking statements within the meaning of the federal securities laws that involve risks and uncertainties. Forward-looking statements include, without limitation, any statement that may predict, forecast, indicate or imply future events or achievements. Actual events or results may differ materially from those contemplated in this press release. Forward-looking statements speak only as of the date they are made. Readers are cautioned not to put undue reliance on forward-looking statements, and no person assumes any obligation to update or revise any such forward-looking statements, whether as a result of new information, future events or otherwise.

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