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Marvell Launches Industry's First 800G ZR/ZR+ Modules for Data Center Interconnects

- *COLORZ[®] 800 is the industry's first family of 800 Gbps ZR/ZR+ coherent pluggable optical modules for connecting data centers up to 1,200km apart.*
- *Doubling connectivity speed from 400 Gbps to 800 Gbps, COLORZ 800 expands ZR/ZR+ use cases while lowering capex and opex.*
- *COLORZ 800 incorporates Marvell's new 5nm Orion[™] 800G coherent DSP and innovative, field-proven silicon photonics platform.*

SANTA CLARA, Calif., Aug. 23, 2023 /PRNewswire/ -- [Marvell Technology, Inc.](#) (NASDAQ: MRVL), a leader in data infrastructure semiconductor solutions, today introduced [COLORZ 800](#), the industry's first family of 800 Gbps ZR/ZR+ pluggable modules for scaling data center interconnects (DCIs) rapidly, economically, and efficiently in the AI era.



COLORZ 800 incorporates Marvell's new [Orion 800 Gbps coherent DSP](#) and innovative, field-proven silicon photonics platform, which integrates multiple discrete components into a single die, providing up to 800 Gbps of bandwidth for DCI links up to 500km. COLORZ 800 can also be enabled for connections up to 1,200km operating at 400/600 Gbps to replace traditional transport equipment across a greater range of cloud infrastructure.

COLORZ 800 lowers the capital cost of DCI by up to 75% compared to traditional rack-based DCI boxes with embedded DSPs¹ while cutting operating expenses such as power, rack space and real estate. Additionally, COLORZ 800 doubles the speed while lowering cost per bit and power per bit by up to 30% compared to existing solutions².

Marvell will demonstrate COLORZ 800 and Orion at the [European Conference on Optical Communications](#) taking place October 2-4, 2023, in Glasgow, Scotland.

Expanding Opportunities for ZR/ZR+ Deployment

ZR/ZR+ pluggable modules are high-performance, high-capacity optical interfaces for connecting data centers and other infrastructures over optical networks and have been instrumental in providing the bandwidth and performance to enable organizations to shift more of their workloads to the cloud. With AI, the role of DCI will grow in importance to accommodate the expected surge in traffic that will occur between centralized data centers dedicated to AI training and regional data centers focused on AI inference to support new services and users.

Based on open standards managed by the Optical Internetworking Forum (OIF) and [OpenZR+](#), ZR/ZR+ modules also enable cloud service providers to add capacity quickly because the compact devices can be directly plugged into existing switches and routers without additional dedicated equipment. In 2023, unit shipments of coherent pluggable modules are expected to surpass traditional DCI boxes for the first time³.

"With data center bandwidth doubling every few years, pluggable modules represent the technology of choice for cloud and service providers to scale quickly and effectively," said Scott Wilkinson, Lead Analyst for Optical Components at Signal AI. "Our conservative forecast calls for nearly 300,000 shipments of 800 Gbps-capable pluggable modules a year by 2027."

A pioneer in DCI pluggable modules, Marvell introduced the industry's first DCI pluggable COLORZ 100 QSFP module in 2017 followed by the industry's first 400G ZR/ZR+ QSFP-DD, COLORZ 400. Both generations are in volume production and widely deployed to connect cloud data centers more efficiently than traditional systems. COLORZ 800 doubles the bandwidth while increasing performance and reach yet again. Marvell will offer both QSFP-DD and OSFP form factors to maximize compatibility with switch and routers in cloud and infrastructure applications.

Advancing Networks for the AI Era

COLORZ 800 and Orion are the latest additions to Marvell's comprehensive portfolio of silicon solutions developed for advancing data infrastructure. Over the next several years, a number of cloud service operators and other service providers are expected to upgrade their core switches and routers from 12.8T to 51.2T and accompany that upgrade with 800 Gbps coherent DCI links, 1.6T PAM4 optical modules for connections inside data centers (3m to ~2km) and DSP-based active electrical cables (AEC) for communications between equipment in the same rack (3m and below).

In March, Marvell announced [Teralynx® 10, a 51.2T switch chip](#) for powering cloud switch systems, as well as [Nova™, an industry-first 1.6T PAM4 DSP](#) capable of transmitting 200G per wavelength of light to double the capacity of PAM4 modules. In 2022, Marvell also released the 400 Gbps and 800 Gbps [Alaska® A DSPs](#) for AEC. Additionally, Marvell produces drivers and amplifiers included in optical modules.

"The new level of performance delivered by COLORZ 800 greatly expands the use cases and opportunities for coherent pluggable modules," said Josef Berger, Associate Vice President of Marketing, Optical Group at Marvell. "The new modules further extend our strategy of helping cloud providers develop infrastructure that can keep up with the pace of AI and other workloads."

Availability

COLORZ 800 is expected to sample in Q4 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.

1. Signal AI
2. Marvell estimates
3. LightCounting Market Forecast Report, April 2023

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