Nova™ 1.6T PAM4 DSP for Optical Transceiver Applications

Part No.

MV-CD432

Product Type 200G

PAM4 DSP

Market Segments

Inside Data Centers

Applications

- 1.6T OSFP-XD
- Single-Mode Fiber Transceivers

Features

- 16x100Gbps <-> 8x200Gbps PAM4 DSP
- Integration of enhanced optical modulator drivers
- Support for 2x800G, 4x400G, 8x200G Ethernet traffic
- All lanes independent to support breakout applications
- Full data & clock cross-bars on Egress and Ingress for network flexibility
- 5nm process enabling <28-watt 1.6T using 8-optical channels/lambdas
- 400G/800G solution available

Description

The Marvell Nova PAM4 DSP is a next generation solution for AI/ML, cloud data center and high-performance computing optical transceivers. Nova is a Gearbox DSP using a sixteen by 100G/channel PAM4 host electrical interface, retimed and mapped to an octal 200G/channel PAM4 output through integrated EML, silicon photonics, and standard drivers.

Nova is manufactured with advanced 5nm process technology that delivers time to market with power efficiency time to market with power efficiency. Nova simplifies manufacturing simplifying manufacturing of 1.6T optical transceivers by eliminating half of the optical components required with prior DSP generations.

The direct drive capabilities of the DSP further simplify manufacturing complexity while saving additional power and cost making Nova ideal for 1.6T DR8/DR4.2/2xFR4/LR8 modules.

The DSP also integrates advanced diagnostic features including performance monitoring of SNR, histogram, and FFE-taps. The DSP also adds PRBS generators and supports shallow loopback for both the line and host interfaces.

Nova supports multiple industry standard protocols up to 100Gbs on the electrical host and incorporates Concatenated Forward Error Correction (FEC) to provide additional pre-FEC bit error rate (BER) margin for high-volume deployment within the data center. An optional LR FEC is included to increase pre-FEC BER margin while enabling applications up to 10km in reach.