

Optical Modules and DSPs



Overview

Optical DSPs are at the heart of the pluggable optical modules that enable data transmission over fiberoptic cables. They convert electrical signals to light, correct distortion in real time, and ensure reliable, low-latency transmission from tens of meters to thousands of. As bandwidth needs surge beyond 800G and move toward 1.6T, Marvell® is at the forefront of this change, delivering PAM4, coherent and coherent-lite DSPs that power AI fabrics, data center. Credo's high-performance, energy-efficient PAM4 optical DSPs are designed for the demands of hyperscale data centers and AI compute fabrics. They deliver reliable, ultra-low-latency performance and strong network resiliency, while Credo's low-power SerDes architecture provides industry-leading. Last year, module vendors demonstrated the first 1.6T optical modules, and this year DSP vendors looked ahead to second-generation 1.6T modules connect a 16x100G host interface to 8x200G optics (16:8), next-generation designs will work with forthcoming. MaxLinear provides a full range of DSPs and TIAs for applications ranging from 100G to 1.6T, supporting 100G and 200G per lane electrical and optical I/O on both the host and line side interfaces for AI infrastructure connectivity.



Article Content

Hot

Tracking the Coherent DSP Supply Chain

In the past, when coherent optics were reserved for long haul routes and high-capacity metros, the vertically integrated vendors who controlled their own DSPs (e.g., Ciena, Huawei,

Dec 27, 2025 Hot

Interoperability of 800G ZR/ZR+ optical modules over

Pluggable coherent modules and DSPs have increased bandwidth by 8X while reducing power consumption per bit by 30% with each new generation.

Dec 23, 2025 Hot

Marvell Announces Breakthrough Co-Packaged Optics

XPUs with integrated Co-Packaged Optics (CPO) enhance AI server performance by increasing XPU density from tens within a rack to hundreds

Nov 16, 2025 Hot

Top 5G Optical Module Market Companies

Explore top 5G Optical Module market companies with rankings, financials, SWOT analysis, regional dynamics, and future outlook to 2032.

Jan 28, 2026 Hot

OFC 2026 - Scaling Up Optical Network Density

All the pluggable optics (QSFP and OSFP) and embedded line cards needed to house the new DSPs in different shapes and forms. Double-sided pluggable transponder. The idea is simple:

Oct 12, 2025 Hot

Global 800G Optical Module Market Growth 2026-2032

Typically housed in industry-standard pluggable form factors such as QSFP-DD800 and OSFP, the module integrates multiple core components including optical transmitters and receivers,

Sep 14, 2025 Hot

PAM4 DSPs

PAM4 DSPs MaxLinear's highly integrated PAM4 DSPs offer superior link-margin performance and low power to enable 100G, 400G, 800G, and 1.6T optical interconnects inside the data center.

Sep 15, 2025 Hot

OFC 2026 Heralds Optical Shift for AI Factories

Marvell and Lumentum. The two companies have jointly developed a rack-level system that integrates Marvell's optical digital signal processors (DSPs) and datacenter interconnect module

Apr 17, 2026 Hot

Next-gen Ethernet standards set to move forward in 2025

The LPO promises to remove heat-inducing and power-hungry digital signal processors (DSPs) used in traditional optical modules and provide a more

Jun 13, 2026 Hot

AI Data Center Optical Transceiver Module Market 2025–2030

AI Data Center Optical Transceiver Module Market 2025–2030 Posted on Apr-03-2026
The AI data center optical transceiver market has entered a historic growth phase, driven by the exponential

Apr 27, 2026 Hot

Optical DSP

Credo's extensive optical portfolio includes DSPs for 50G, 100G, 200G, 400G, 800G and 1.6T PAM4 optical transceivers and active optical cables. Our products meet

Mar 28, 2026 Hot

PAM4 Optical DSPs | Enabling high-bandwidth optical

The Marvell® PAM4 optical DSP portfolio addresses the critical the need for high-bandwidth optical interconnects to power AI infrastructure. Marvell leads the

Mar 06, 2026 Hot

Optical Component Startup Tracker

The number of venture-backed optical component startups has exploded - the Optical Component Start-Up Tracker identifies these companies

Mar 06, 2026 Hot

LightCounting :: PAM4 DSPs Battle LPO for OFC

LightCounting updates its PAM4 and Coherent DSPs report post-OFC Last year, module vendors demonstrated the first 1.6T optical modules, and this year DSP

Sep 04, 2025 Hot

Marvell Announces Breakthrough Co-Packaged Optics Architecture for ...

New Marvell AI accelerator (XPU) architecture enables higher bandwidth and longer reach scale-up fabric connections for custom AI servers. XPUs with integrated Co-Packaged Optics (CPO)

Feb 11, 2026 Hot

Marvell Optical DSPs | Powering the Future of AI Infrastructure

Optical DSPs are at the heart of the pluggable optical modules that enable data transmission over fiberoptic cables. They convert electrical signals to light, correct distortion in real time, and ensure

May 23, 2026 Hot

MaxLinear to Showcase Next-Generation 1.6T Rushmore DSP Live at

In addition to Rushmore demos, MaxLinear will also showcase customer optical modules featuring its Keystone 400G and 800G DSPs, as well as Rushmore DSPs, for fully retimed optical

Jun 03, 2026 Hot

MaxLinear's DSPs & TIAs Enable Next Generation

MaxLinear provides a full range of PAM4 DSPs and TIAs for applications ranging from 100G to 800G, supporting 56G/lane and 112G/lane

Nov 05, 2025 Hot

Maxlinear

MaxLinear provides a full range of DSPs and TIAs for applications ranging from 100G to 1.6T, supporting 100G and 200G per lane electrical and optical I/O on both the

Jul 26, 2025 Hot

Broadcom Sian3 and Sian2M: 200G/lane optical

Analyzing Broadcom's Sian3 and Sian2M 200G/lane DSP technologies. Sian3 (3nm/SMF) and Sian2M (5nm/MMF) support 800G and 1.6T

May 18, 2026 Hot

Fit for Platform DSPs

One way to reduce transceiver power consumption requires designing DSPs that take advantage of the material platform of their optical engine. In this

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Marvell and Lumentum to Demonstrate Optical Circuit

The demonstration will feature Marvell optical connectivity solutions, including Aquila 1.6T coherent-lite DSPs, Ara 1.6T PAM4 optical DSPs, and the

Oct 04, 2025 Hot

What is the LRO Transceiver? The Simple Guide to Linear Receive Optics

What Is an LRO Transceiver LRO (Linear Receive Optics) is essentially a half-retimed optical module architecture. Traditional high-speed optical modules typically deploy DSPs on both

Sep 19, 2025 Hot

Marvell Releases Nova 2 PAM4 Optical DSP

Nova 2 based optical modules support backward compatibility for up to three generations. Nova 2 is designed for next-generation AI networking fabric infrastructure where switches, network

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Our portfolio of Ultra Series Oscillators is designed to meet the rigorous RMS phase jitter specifications required by the latest generation 112G PAM-4 SerDes and coherent optical DSPs, supporting wide

Jul 29, 2025

Contact Us

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