

Highest bandwidth optical module



Overview

The XPO module is approximately 2.7× wider than the OSFP form factor and delivers x8 higher bandwidth per module, enabling up to 204.8Tbps of switching capacity within the vertical space of a single Open Rack Unit (10U)—a 4× increase in front-panel density compared to OSFP. In parallel, the optical interconnects that link these network devices must also scale. The Marvell® PAM4 optical DSP portfolio, including Spica™ and Nova™ DSPs, addresses the critical need for high-bandwidth optical interconnects to power AI infrastructure. Marvell leads the pluggable module ecosystem with low-power, high-performance silicon for AI, cloud, enterprise and 5G. To overcome these limitations, a new generation of optical interconnect technologies has emerged. LPO (Linear-drive Pluggable Optics), NPO (Near Package Optics), and CPO (Co-Packaged Optics) architectures are becoming core areas of industry focus. By shortening the electro-optical conversion path, XPO represents a new class of optical pluggable module designed specifically for next-generation AI data center fabrics. 8Tbps of bandwidth using 64 electrical lanes and incorporates an integrated liquid-cooled cold plate capable of supporting 400W+ module power. Optical transceivers are critical components in modern communication infrastructure, enabling the high-speed transmission of data across optical fiber networks. These devices convert electrical signals into optical signals and vice versa, supporting seamless connectivity in data centers. Kyocera Corporation (President: Hideo Tanimoto) today announced it has developed an On-Board Optics Module that achieves world-record bandwidth of 512 Gbps. Additionally, by converting electrical signals into.

Article Content

XPO: Redefining Pluggable Optics for AI Networking

XPO represents a new class of optical pluggable module designed specifically for next-generation AI data center fabrics. Each XPO module delivers 12.8Tbps of bandwidth using 64 electrical lanes and

Google's High-Speed Interconnect Architecture to Push 800G+ Optical ...

Google's next-generation TPU, Ironwood, integrates a 3D Torus network topology with the Apollo optical circuit switch (OCS) all-optical network, marking a major step forward in AI data

The Evolution of Optical Modules: 400G → 800G → 1.6T - A Strategic ...

400G vs 800G vs 1.6T: Quick Comparison 400G, 800G, and 1.6T optical modules differ primarily in bandwidth, power efficiency, and deployment scenarios. 800G optical modules provide

QSFP Optical Module Planning for the Future: Key Trends 2026-2034

QSFP optical modules are integral to high-speed networking, offering compact and powerful solutions for data transmission. These modules are crucial for enabling the bandwidth demands of

10G SFP+ Dual Fiber Optical Module Market: \$15.5B by 2025, 13.5

The 10G SFP+ Dual Fiber Optical Module Market is poised for substantial expansion, with a projected valuation of \$15.5 billion in 2025. The market is anticipated to exhibit a robust

OFC 2026 Heralds Optical Shift for AI Factories

Included are a series of coherent optical pluggable transceivers supporting packet traffic for long-distance and datacenter interconnect applications, along with shorter-reach, high-bandwidth

High-Speed Transceivers: 400G, 800G, and the Leap to 1.6T

The 1.6T optical module represents the latest optical advancements, significantly enhancing data transmission speeds and capacity. It currently supports two form factors, OSFP and OSFP-XD, to

Optical module

An optical module is a typically hot-pluggable optical transceiver used in high-bandwidth data communications applications. Optical modules typically have an electrical interface on the side that

Single Mode Optical Modules Market 2026

Global Single Mode Optical Modules Market is witnessing significant growth driven by increasing demand for high-bandwidth applications. With data centers requiring 100G and 400G solutions,

Optics Transceiver Module Market 2025

Key product categories include single-mode optical modules for long-distance communication and multi-mode optical modules for shorter-range applications. Market growth is driven by surging demand for

Kyocera's New "On-Board Optics Module" Achieves World-Record

Kyocera Corporation (President: Hideo Tanimoto) today announced it has developed an On-Board Optics Module that achieves world-record bandwidth of 512 Gbps. The module is expected

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 pluggable module ecosystem with low

Optical module design resources | TI

Integrated circuits and reference designs help you create a smaller and faster optical module design used in high-bandwidth data communication applications. Whether you are creating a 100-Gbps or

GlobalFoundries accelerates adoption of co-packaged optics for

SCALE CPO solution is the industry's first OCI MSA capable platform and built with GF's proven silicon photonics technology MALTA, N.Y., May 04, 2026 (GLOBE NEWSWIRE) --

Active Optical Module Market 2025

The demand for high-speed optical modules, particularly in hyperscale data centers and cloud computing, is surging. Innovations in fiber-optic communication standards and increasing bandwidth

Optical Interconnect Technology Analysis: LPO, NPO, CPO

Exploring optical interconnects for AI data centers: LPO for low-power, short-distance links, NPO for high-density, near-package connections, and CPO for ultra-high-bandwidth co

Co-Packaged Optics — a deep dive | APNIC Blog

Optical modules are known to experience both hard and soft failures. Even with high-quality optics, hard failure rates are around 100 FIT, and soft

Top 10 Optical Transceiver Manufacturers Driving High-Speed

Discover the top 10 optical transceiver manufacturers advancing 400G and 800G modules powering hyperscale data centers and next-generation networking infrastructure.

25G Optical Transceivers for Hyperscale Data Centers

Discover how LINK-PP 25G SFP28 optical modules enhance hyperscale data centers with high bandwidth, low latency, and energy efficiency. Learn key benefits and use cases.

Charting the Path Toward 1.6T and 3.2T Optical Module Solutions

This OCI chiplet — enabling co-packaged optical I/O for emerging AI infrastructure in data centers and high-performance computing applications — represents a significant advancement in high-bandwidth

Contact Us

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