

Replaces traditional pluggable optical modules



Overview

CPO packages silicon photonics devices with ASICs, and is about to replace traditional pluggable optical modules, improving energy efficiency by 3.5 times and deployment speed by 1. While the industry-standard OSFP (Octal Small Form-Factor Pluggable) module has successfully enabled 400Gbps, 800Gbps, and 1.6Tbps switches, Quantum-X and Spectrum-X switches reduce dependence on traditional optical. Co-Packaged Optics (CPO) is an advanced optical interconnect architecture that integrates optical components—such as photonic integrated circuits (PICs) and lasers—directly alongside switching ASICs or processors within the same package. This approach significantly reduces electrical I/O distance. Are pluggable optics dead or alive for the AI era?

Are pluggables relevant in the AI era?

Majority of the switch ports in AI back-end Networks to be 800 Gbps in 2025 and 1600 Gbps in 2027, showing a very fast migration to the highest speeds available in the market. In this transformation, the network is no longer just a data transport layer—it has become a critical factor in determining overall training efficiency.



Article Content

XPO: Redefining Pluggable Optics for AI Networking

The XPO pluggable module preserves the advantages of field pluggability, enabling quick replacement or upgrades of optical modules without servicing the entire switch and minimizing downtime.

Optical Transceiver Market Price Trends 2026: TCO & Risks

Optical Transceiver Market Price Trends 2026: The 800G Shift Procurement forecasts frequently project aggressive price drops for 800G optics by 2026, ignoring the non-linear power

AI boom to spark USD 154 billion optical networking opportunity ...

It eliminates traditional pluggable modules. The report also said dollar content in networking systems is expected to increase sharply as AI infrastructure becomes more advanced.

AI optical transceiver market up 57% YoY | Electronics Weekly

Meanwhile, technology roadmaps are accelerating toward low-power linear pluggable optics (LPO) and silicon photonics integration, aiming to replace traditional high-power DSP-based

CPO Optical Transmission inevitable is changing data transmission ...

If you're an investor who follows US stocks, you've likely noticed the recent rocket-like surge in CPO optical transmission stocks. Investors need to start getting to know this field because

Where co-packaged optics (CPO) technology stands in

At the same time, however, optical transceiver technology will continue to steadily shift toward placing the optics closer to the ASIC. That's

Charting the Path Toward 1.6T and 3.2T Optical Module

Pluggable transceiver design As the bandwidth of optical transceiver modules increases, technical challenges are emerging for members of the engineering

From Pluggables to Co-Packaged Optics (CPO): The

To address these constraints, the industry has begun migrating the optical engine closer to the switch ASIC in an effort to shorten the copper trace

AI optical transceiver market to grow 57% to US\$26bn in 2026

Meanwhile, technology roadmaps are accelerating toward low-power linear pluggable optics (LPO) and silicon photonics integration, aiming to replace traditional high-power DSP-based

Nvidia turns to silicon photonics to supercharge next

Earlier this year, the company confirmed that its next-generation rack-scale AI platforms will abandon pluggable optical modules in favor of co

AI optical transceiver market growing 57% YoY in 2026

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Optical Component Startup Tracker

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

Co-Packaged Optics (CPO) Market Trends 2026: AI Data Center

Compared to traditional pluggable optical modules, CPO shifts optical connectivity from a module-level solution to a chip-level architecture, representing a major evolution in optical

Nvidia : Integrating Photonic in HPC and Network Systems

NVIDIA addresses both through its Spectrum-X platform, which adopts a Co-Packaged Optics (CPO) architecture that offers two major advantages over traditional pluggable modules.

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

Discover the evolution from 400G to 800G and 1.6T optical modules. Learn key technologies, CPO vs pluggable, and upgrade strategies for future-ready data centers.

OFC 2026 Special: Arista Leads XPO Launch as Three

Arista has disclosed that the new 12.8 Tbps liquid-cooled optical module can achieve a front-panel bandwidth density of 204.8 Tbps per OCP rack

400G, 800G, and Terabit Pluggable Optics:

Equipment and electrical serdes can evolve through 3 generations (25 Gb/s, 50 Gb/s or 100 Gb/s) without changing the optical interface that interconnects your equipment.

AI boom to spark USD 154 billion optical networking opportunity ...

Co-Packaged Optics (CPO) is an advanced hardware architecture that integrates optical transceivers and electronic processing chips (like switch ASICs or AI accelerators) on the same

Optics Primer, Part 3: Co-Packaged Optics (CPO)

In pluggable optics, a failed laser means swapping the transceiver module which is easy to access. But if the laser is near the switch that's a lot

Optical Modules Market Research Report 2034

The market is witnessing increasing convergence as coherent pluggable modules in QSFP-DD form factors are deployed in data center interconnect (DCI)

What Is an XPO Transceiver? How Does It Differ from CPO?

XPO is a next-generation pluggable optical transceiver designed for high-density and high-power environments. Its core objective is to significantly improve bandwidth density and thermal

CPO will soon replace pluggable optical modules, and Rubin will

CPO packages silicon photonics devices with ASICs, and is about to replace traditional pluggable optical modules, improving energy efficiency by 3.5 times and deployment speed by 1.3 times compared to

Co-Packaged Optics — a deep dive | APNIC Blog

At OFC 2025, he continued to advocate for Linear Pluggable Optics (LPOs) as the better alternative. LPOs, which remove onboard digital signal

What is a pluggable? The future of optical networking.

A pluggable, or small form-factor pluggable (SFP) optical transceiver is a compact, removable module standardized to convert high-speed electrical

Where co-packaged optics (CPO) technology stands in

Co-packaged optics (CPO) technology, a key enabler for next-generation data center architectures, promises unprecedented bandwidth density

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In particular, scale-out CPO is modeled as replacing traditional transceiver modules, shifting bill of materials (BOM) and economics onto the switch and optical engines rather than

Understanding Co-Packaged Optics: Revolutionizing Data Center ...

Co-Packaged Optics (CPO) technology differs significantly from traditional pluggable optical modules across several key dimensions, including power consumption, bandwidth, form factor,...

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