

Switches with integrated optical modules



Overview

Co-Packaged Optics (CPO) is an optoelectronic co-packaging technology that integrates an optical module (responsible for optical signal transmission and reception) and a switch ASIC (responsible for electrical signal processing) into the same physical package. Thorlabs' offers a selection of optical switches. We offer optical switches with integrated MEMS technology, optical switch kits, and PRO8 modules for fiber-optic circuit integration or construction. Replacing pluggable transceivers with silicon photonics on the same package as the ASIC, NVIDIA CPO innovations provide 5x better power. From Jensen Huang showcasing CPO switches at GTC 2025 to a wide range of vendors demonstrating optical engines integrated inside ASIC packages at OFC 2025, CPOs are everywhere. Target applications include. Enable new AI architectures with the Optical Circuit Switch (OCS) The OCS optimizes data center networks by minimizing electrical switches and optical-electrical-optical (OEO) conversions, resulting in significant cost savings, reduced power consumption, and improved latency for GPU connections.



Article Content

Aug 16, 2025

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

Aug 13, 2025

What Is an SFP Module? — Complete Guide to SFP, SFP+ & SFP28

An SFP (Small Form-factor Pluggable) is a compact, hot-pluggable transceiver module that allows networking equipment — including switches, routers, servers, and media converters — to

Mar 19, 2026

CPO Switches integrate optical engines to enable high-speed network ...

CPO Switches are products that integrate optical engines to enable direct high-speed I/Os to high-radix, high bandwidth network switch ASICs.

May 27, 2026

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

Jul 19, 2025

Co-Packaged Optics — a deep dive | APNIC Blog

Instead of purchasing interchangeable pluggable modules from multiple vendors, customers have to source integrated CPO switches or servers

Oct 30, 2025

NVIDIA Corporation

1.6 Terabits Per Second Per Port Switches to Deliver 3.5x Energy Savings and 10x Resilience in AI Factories Joint Inventions and Collaborations

Dec 19, 2025

A New Era in Data Center Networking with NVIDIA

Conclusion NVIDIA's silicon photonics-based network switching marks a groundbreaking shift in data center networking. By integrating optical

Nov 24, 2025

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

Mar 04, 2026

Optical Modules and PCBs: Driving High-Speed Data Transmission in

In the fast-paced world of data communication, the demand for efficient, high-bandwidth solutions has never been greater. As AI-driven applications and massive data processing push the

Oct 23, 2025

Co-Packaged Optics Market Report 2026-2036: NVIDIA vs. Broadcom ...

By integrating optical transceivers with switch ASICs, CPO significantly reduces power consumption from 15 to 5 picojoules per bit, with ambitions to go below 1.

Mar 16, 2026

Silicon Photonics Networking for Agentic AI | NVIDIA

Co-packaged optics-based networking switches with unmatched power efficiency and resiliency. NVIDIA's co-packaged optics (CPO) switches with integrated

Jul 09, 2025

Co-Packaged Optics—the Next Evolutionary Step in

One cloud data center operator recently announced that they would deploy 25.6 T switches with co-packaged optics. In traditional data center

Jan 15, 2026

Ultrafast optical circuit switching for data centers using integrated ...

Here, the authors report Si₃N₄ microcomb based ultrafast photonic switching to provide enhanced performance for data center applications.

Mar 02, 2026

Optical Switches

Thorlabs" offers a selection of optical switches. We offer optical switches with integrated MEMS technology, optical switch kits, and PRO8 modules for fiber

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Co-Packaged Optics (CPO)Co-Packaged Optics (CPO)

Co-packaged optics overcomes these limitations by placing the optical engine much closer to the switching silicon. Its success depends on advanced semiconductor

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Co-Packaged Optics in Modern Data Centres

In a co-packaged design, the laser diodes, modulators and detectors are integrated on or beside the switch chip (often on a silicon photonics engine)

Jul 07, 2025

Celestial AI Introduces Photonic Fabric™ Module

August 29, 2025 -- Celestial AI, the creator of the Photonic Fabric™ scale-up networks for accelerated computing, has introduced the Photonic Fabric Module,

Mar 17, 2026

Samsung Electronics Launches Silicon Photonics Foundry Business ...

CPO integrates optical modules directly into switch chip packages, eliminating the need for separate modules and reducing power consumption while improving signal quality and latency.

Mar 07, 2026

Products

Optical Products Fiber Optic Modules and Components An extensive portfolio of high-density, high-speed optical interconnects designed for wired networking applications and specialized lasers,

Mar 02, 2026

OSFP1600_and_OSFP-XD

3D views of the OSFP-XD solutions To accommodate both high-power optical and dense copper solutions, the specification will define separate but compatible heatsink specifications for both optical

Feb 09, 2026

CPO Switch: Next-Generation Integrated Optical

CPO switches shorten the electrical signal path, reduce power consumption, and decrease the number of pluggable modules by co-packaging

Nov 04, 2025

Silicon photonics and co-packaged optics at the heart of

In addition to the silicon photonics market report, Co-Packaged Optics for Data Centers 2025 examines how packaging innovation is transforming next

Jun 12, 2026

The Rise of Co-Packaged Optics: A Deep Dive into CPO

Unlike a conventional pluggable optical transceiver that slots into a front panel, a CPO optical module (often called an optical engine) is integrated directly

Jul 27, 2025

Optical Circuit Switch

The OCS optimizes data center networks by minimizing electrical switches and optical-electrical-optical (OEO) conversions, resulting in significant cost savings,

Nov 27, 2025

Samsung Foundry Reportedly Wins Optical Module Order,

The Elec reports that Samsung will initially target photonic integrated circuits (PICs), used in applications ranging from data center optical modules to optical engines for co-packaged optics

Jan 09, 2026

Optical Communication Industry Trends 2026: AI, 800G/1.6T Optical ...

Explore optical communication industry trends in 2026, driven by AI infrastructure, 800G and 1.6T optical modules, silicon photonics, and next-generation data center connectivity solutions.

May 19, 2026

A Review of Silicon-Based Integrated Optical Switches

Recent studies on silicon-integrated optical switches incorporating PCMs are also reviewed. Furthermore, the pros and cons of different types of

Feb 06, 2026

THE PHOTONICS ROTATION Almost nobody is watching photonics.

1. \$LITE owns the laser + optical switching side of the trade and is one of the cleanest pure plays on AI optical demand. 2. \$COHR wins from lasers, modules, and networking hardware

Jun 10, 2026

Optical Modules Market Research Report 2034

Transceivers, which integrate both transmitter and receiver functions in a single pluggable module, are the workhorse of optical networking, deployed across data

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