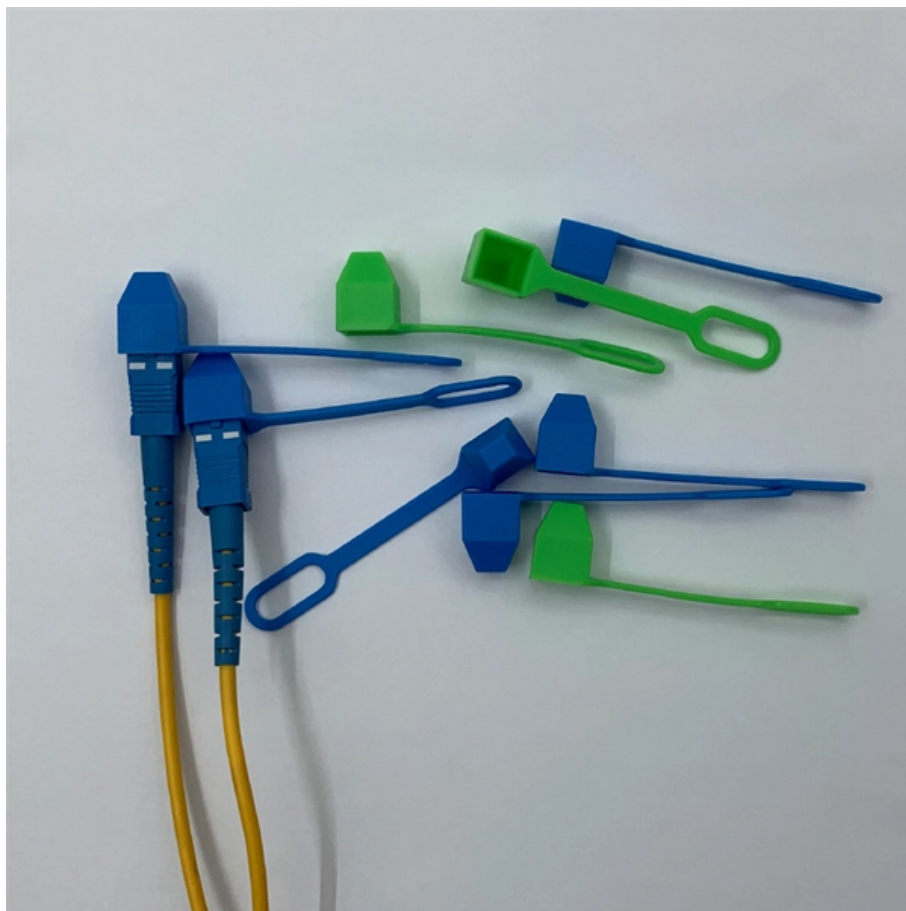


# Optical Module CPO Switch





## Overview

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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. NVIDIA's co-packaged optics (CPO) switches with integrated silicon photonics are the world's most advanced networking solution for the era of agentic AI. From Jensen Huang showcasing CPO switches at GTC 2025 to a wide range of vendors demonstrating optical engines integrated inside ASIC. This article provides a comprehensive overview of CPO optical modules, exploring their technology, benefits, challenges, and the pivotal role they play in future data centers.



## Optical Module CPO Switch

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

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Enter Co-Packaged Optics (CPO), a transformative architecture where the optical engine moves inside the switch ASIC package. This article provides a

## Optical Transceiver: 400G, 800G, 1.6T and the Leap to

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Learn how 400G, 800G, 1.6T, and 3.2T optical transceivers--powered by silicon photonics and CPO--are updating AI, cloud,



## **Co-packaged Optics: Powering the Next Wave of AI**

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Co-packaged optics (CPO) will play a fundamental role in improving the performance, efficiency, and capabilities of networks, especially the scale-up

## **Nvidia invests \$4B in co-packaged optics suppliers Lumentum**

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Last March, Nvidia debuted two data center switch families that use an emerging packet transmission technology called co-packaged optics, or CPO.

## **Silicon photonics and co-packaged optics at the heart of**

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



## **Silicon Photonics Networking for Agentic AI , NVIDIA**

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

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

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Near package optics (NPO) brings the optics module on the same substrate or very close to the switch package, but not inside it: It's close enough

## **Optical-First Data Centers: CPO vs NPO vs XPO in 2026 · KAD**

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CPO, NPO, and XPO redefine data center connectivity in 2026, shifting from copper to optical-first architectures for AI-scale infrastructure.

## **Coherent's \$23B Opportunity Lifted by NVIDIA's Optical Ambitions**

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Brendan Burke, Research Director at Futurum, analyzes Coherent's expanded \$21 billion CPO TAM disclosed at OFC 2026 and how NVIDIA's Spectrum-6 and Kyber architectures create

## **Optical Interconnect Technology Analysis: LPO, NPO, CPO**

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



## Co-Packaged Optic Assembly Guidance Document

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The CPO assembly consists of a high-density organic substrate, switch IC and optical modules arrayed around the perimeter. An example of a CPO assembly is shown in Figure 3 for reference; it is not

## What is Co-Packaged Optics (CPO) Technology? , Corning

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Today, data centers use a separate approach for optics and electronics, in which optical modules are connected to switches and routers through high-speed

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

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Traditional pluggable optical modules are increasingly constrained by signal loss, power consumption, and latency because they require long electrical traces

## **Samsung Foundry Reportedly Wins Optical Module Order,**

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As a result, optical transmission technologies are becoming increasingly important. TrendForce forecasts that co-packaged optics (CPO) will steadily increase their share of optical

## **Co-Packaged Optics (CPOs)**

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



## CPO

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CPO switches aim to overcome these challenges. By packaging both the optical engine and the switching chip, CPO enables optical signals to be converted directly within the chip, eliminating the

## GlobalFoundries accelerates adoption of co-packaged optics for

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MALTA, N.Y., May 4, 2026 - GlobalFoundries (Nasdaq: GFS) (GF) today announced the introduction of its SCALE(TM) optical module solution for co-packaged optics (CPO). GF's SCALE solution, or Silicon

## When Light Replaces Copper: Lumentum (LITE) -- The Optical Heart

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CPO integrates the optical engines directly into the switch package, fundamentally shortening the electrical-to-optical conversion path and sharply reducing power and latency. At GTC

## **Silicon Photonics Networking for Agentic AI , NVIDIA**

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NVIDIA's co-packaged optics (CPO) switches with integrated silicon photonics are the world's most advanced networking solution for the era of agentic AI.

## **Co-Packaged Optics -- a deep dive , APNIC Blog**

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A failure in an optical engine might require replacing an entire CPO switch line card or server board rather than just swapping a pluggable module.



## **Samsung Foundry Reportedly Wins Optical Module Order,**

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Notably, according to Samsung's roadmap cited by The Elec, the company aims to roll out turnkey CPO services by 2029. Meanwhile, the report highlights that TSMC has outlined a roadmap

## **Comprehensive Overview of CPO (Co-Packaged Optics)**

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It integrates the CPO optical module with the ASIC (Application-Specific Integrated Circuit) chip in the switch, thereby shortening interconnect

## **The Evolution of Optical Modules: Powering the Future**

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We'll examine Linear Pluggable Optics (LPO) and Linear Receive Optics (LRO) as cost-



effective, low-power alternatives, discuss advanced cooling

## **The Third Time Will Be The Charm For Broadcom**

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Importantly, an 800 Gb/sec port on the CPO consumed about 6.4 watts, compared to somewhere around 16 watts to 18 watts for regular pluggable

## **CPO Switch: Next-Generation Integrated Optical**

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

## **Samsung Electronics Launches Silicon Photonics**



## Foundry Business

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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.

### Contact Us

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<https://entrenamientointeligente.es>