

What is CPC in an optical module

LoRawan outdoor base station



Summary of Content

CPC (Co-Packaged Copper) optical modules integrate high-speed copper and optical interconnects near the silicon to maximize bandwidth, reduce power loss, and improve signal integrity in data centers.

Overview of CPC Technology

CPC modules are part of the co-packaged interconnect (CPX) family, which includes both co-packaged optics (CPO) and co-packaged copper (CPC) implementations. These modules place optical and copper components in close proximity to the ASIC or SerDes, minimizing PCB trace lengths, reducing insertion loss, and enhancing signal fidelity for ultra-high-speed data transfer. CPC modules are particularly useful in AI training clusters, hyperscale data centers, and next-generation networking systems where rack-level bandwidth scaling is critical.

Key Components and Architecture

- **Optical Transceivers:** High-bandwidth optical modules, such as Amphenol's XPO-LPO, provide up to 224 Gb/s per lane across 64 lanes, enabling total module bandwidths of 12.8 Tbps.
- **Copper Interconnects:** CPC modules use advanced copper connectors like XtremePass™, which maintain signal integrity and density for chip-to-chip or chip-to-system connections.
- **Connector Platforms:** CPC connectors efficiently route electrical signals from the transceiver to the chip or backplane, supporting flexible layouts in dense server and accelerator designs.

Benefits of CPC Modules

Article Content

Evolution of Co-Packaged Interconnects

CPX is a term for co-packaged interconnects, encompassing both CPO (co-packaged optical) and CPC (co

What are Co-Packaged Optics?

We explain co-packaged optics (CPO), why they're important for data centers and networking, and the photonics

Co-Packaged Optics (CPOs)

Fiber patch cords deliver the continuous-wave light from these laser modules into the co-packaged optical engines.

Co-Packaged Optics — a deep dive | APNIC Blog

This essentially provides an optical motherboard for chiplets. Because the photonic interposer can be large (3 to 4x

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

Co-Packaged Optics (CPO) is a technology and design approach where optical components, such as lasers and photodetectors, are

What is co-packaged optics? A solution for surging capacity in AI data ...

One part of the solution is co-packaged optics (CPO), which involves incorporating optical technology more deeply into

Lpo Vs Cpo: Which Optical Module Packaging Will Dominate Data

This article answers the core search intent behind Lpo Vs Cpc by explaining what each approach actually is, comparing technical

What is Co-packaged Optics?

Co-packaged optics is an approach that aims to address growing challenges around bandwidth density,

NPO vs CPO: Decoding the Future of Optical Networking

CPO, or Co-Packaged Optics, is the more radical and long-term evolution. In a CPO design, the optical engine is no

What Is Co-Packaged Optics?

Co-packaged optics is an innovative technology that enables the integration of optical components directly into a switch ASIC

Contact Us

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