

# What is an intelligent connected optical module



## Overview

The intelligent optical module has high-precision sensing capabilities. It can extract receive optical power data at an interval of milliseconds, cache the collected data, and report the data to the NMS. With supercomputing and intelligent computing clusters rapidly moving towards the "supernode" era, interconnect technology is becoming a key factor in boosting system performance. As the number of GPUs multiplies, bandwidth demands exceed TB/s, and rack power density climbs to over 40kW. An intelligent optical module can collect the receive optical power data and work with the fault diagnosis function of the NMS to accurately determine the type of a fault on the client side. This helps data move faster and saves power. They make the signal path much shorter, from centimeters to millimeters. Co-packaged optics (CPO) (Figure 1) increases bandwidth by exchanging FPPs for small, high-density connectors.

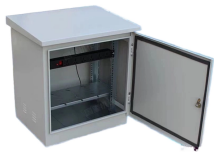
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Integrating multiple engines in a single MCM, each with many optical input/output (I/O) ports on a 127- $\mu$ m pitch, enables hundreds or even thousands of optical fibers to be attached around the shoreline ...



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But there is an opportunity that has not been leveraged before: to build the next-generation GPU clusters for DNN training, we can build optical interconnects with high reconfiguration latency ...



Its core concept is to place the optical engine and xPU chip (such as a GPU, NPU, or switching chip) side-by-side on the same high-performance PCB or organic substrate, directly ...



As a core component connecting servers, switches, and storage systems, optical modules play a pivotal role in unlocking the performance of intelligent computing centers.



Module Co-Design & Modeling A co-packaged optic module design was developed to support electronic and optics compatibility, industry standards where applicable and scaling for design, process, ...



The solution simplifies transport between data centers by replacing stand-alone optical transponders with the Cisco ® portfolio of standardized coherent pluggable modules, which can be ...



smart optical module is a module that can be directly reached for control purposes via the operator's data communications network (DCN).



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In a technical paper, IBM introduces a new CPO prototype module that can enable high-speed optical connectivity. This technology could significantly increase the bandwidth of data center ...



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 and AI ...

## Contact Us

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