LPO optical modules used in supercomputing centers are heat-resistant

Overview

LPO (Linear Pluggable Optics) preserves the pluggable transceiver form factor but removes the in-module DSP/CDR and uses a “linear” electrical interface — delivering lower power while keeping hot-swap modularity. By shortening the electro-optical conversion path and improving bandwidth density and energy efficiency, they are redefining the system. Traditional high-speed optical modules (like 400G and 800G) rely heavily on complex DSP Chips (Digital Signal Processing) within the module. The DSP performs essential but power-hungry functions: Retiming: Correcting signal timing distortions. Figure 1: Traditional Solution with DSP vs. This innovative LPO solution empowers enterprises to optimize the critical balance between. Enter LPO (Linear Pluggable Optics) — a low-power alternative that offers dramatic energy savings and cooling benefits while keeping up with the relentless speed of today's AI clusters. LPO modules cut per-port power by up to 50% compared to DSP-based optics, enabling denser fabrics and lower. This article will introduce CPO and LPO two next-generation data center interconnections, these two silicon photonics modules have good performance in terms of energy consumption and speed, and their low-cost advantage makes them become the mainstream of the data center to upgrade the next.

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By removing the DSP from the optical module, LPO creates a pure analog transmission path, significantly reducing power consumption and latency, making it an important direction for next

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LPO modules cut per-port power by up to 50% compared to DSP-based optics, enabling denser fabrics and lower rack-level OPEX. Ideal for hyperscale, cloud, and enterprise AI

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