

## Intelligent Low-Voltage Engineering Optical Modules



### Overview

Emerging ultra-low-power solutions integrate high-sensitivity photodetectors, low-power Digital Signal Processor (DSP), and efficient modulation to support 28Gbps+ channels. To address the power consumption challenges in optical modules, industry has developed DSP or. SANTA CLARA, Calif., March 31, 2025 — Marvell Technology, Inc. (NASDAQ: MRVL), a leader in data infrastructure semiconductor solutions, will demonstrate at OFC 2025 its 1. 6T silicon photonics light engine integrated into a linear-drive pluggable optics (LPO) module. 6Tbps optical pluggable modules, it is limited to 32 modules per Rack Unit (RU), typically requiring 2 RUs to achieve 102. 8Tbps of switching. CIPOS™ Intelligent Power Modules for high performance and high intergration We provide a comprehensive portfolio of Intelligent Power Modules (IPMs) covering a wide range of semiconductor technologies, package types, and voltage/current ratings. The series includes CIPOS™ Nano, CIPOS™ Micro, CIPOS™ . Linear Receive Optics (LRO) and Linear Pluggable Optics (LPO) are 2 key solutions that engineers building AI infrastructure are exploring to reduce the power from network equipment. This transceiver features. Technology Breakthrough: Mellanox Technologies, now part of NVIDIA, has launched its

latest generation of optical transceivers, setting new industry standards for power efficiency and reliability in high-speed data centers.

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Traditional optical modules face high power consumption, escalating costs, thermal challenges, and environmental impacts. Emerging ultra-low-power solutions integrate high-sensitivity ...



Based on semiconductor indium phosphide, efficient at absorbing and emitting light and allows integration of electronic and optical components; supports both EAM and MZM



With low power and a highly integrated implementation, the engine can be used in LPO modules or integrated directly in-system to help overcome the reach limitations of passive copper ...



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Complementary metal-oxide-semiconductor-integrated silicon photonics offers a scalable path to high-bandwidth, low-energy optical interconnects for data centres and artificial intelligence...



Coherent will show a live demonstration of its silicon photonics-based 1.6T-DR8 transceiver module using a Marvell® Ara 3nm optical digital signal processor (DSP) at OFC 2025.



By operating from a single 2.7V to 5.5V input power rail and integrating the controller, gate driver, power inductor, and MOSFETs, these mini modules are optimized for space-constrained applications like ...



XPO represents a new class of optical pluggable module designed specifically for next-generation AI data center fabrics. Each XPO module delivers 12.8Tbps of bandwidth using 64 electrical lanes and ...



Traditional optical modules require separate components for signal generation, modulation, and detection, all of which consume power. Silicon photonics allows these components to be miniaturized ...



By delivering unprecedented power efficiency without compromising reliability or performance, these 200G optics enable organizations to build truly low power network infrastructures ...

## Contact Us

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