

LPO Optical Amplifier Available Now



Overview

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Key Takeaways

Linear Pluggable Optics (LPO) modules, including 400G and 800G low-power optical transceivers, are currently available from EU-tested suppliers and ready for immediate deployment. Overview of LPO Technology

Linear Pluggable Optics (LPO) are optical transceivers that replace the DSP inside the module with high-linearity analog components, such as transimpedance amplifiers (TIAs) and driver chips, shifting signal processing to the host ASIC. This design reduces power consumption by up to 30%, lowers latency, and simplifies thermal management, making LPO ideal for high-density data center fabrics, AI/ML clusters, and telecom networks. LPO modules are optimized for short-reach, high-speed connections where efficiency and low latency are critical.

Current Availability

- Swedish Telecom Opto offers EU-tested 400G and 800G LPO modules, validated in European labs and ready to ship within the EU. These modules comply with CEI-112G-LINEAR-PAM4 standards and are suitable for AI/HPC workloads, hyperscale data centers, and telecom applications.
- Semtech has launched a 224 Gbps per lane TIA and driver family supporting LPO, enabling 800G, 1.6T, and 3.2T transceivers for AI/ML clusters and next-generation cloud infrastructure.

- Marvell provides 200G TIAs for LPO modules, widely recognized for performance in 1.6T optical deployments, suitable for pluggable applications and co-packaged optics integration .

Advantages of LPO Optical Amplifiers

- Lower power consumption compared to DSP-based optics, reducing operational costs and energy usage .
- Reduced latency, improving synchronization in AI/ML training and inference cycles .
- Simplified thermal management, allowing higher port density in racks and leaf-spine networks .
- Hot-swappable pluggable form factor, enabling easy servicing and interoperability .
- Compatibility with host ASICs, though modules must be qualified for specific platforms to ensure performance .

Considerations

- LPO modules are best suited for short-reach, predictable links; for longer or less predictable connections, DSP-based optics may still be preferred .
- Compatibility depends on the host hardware implementation, so verification with the switch or NIC is recommended . In summary, LPO optical amplifiers are commercially available now, with multiple suppliers offering EU-tested, ready-to-ship modules for 400G and 800G deployments. They provide a low-power, low-latency solution for modern data centers, AI clusters, and telecom networks, with proven interoperability and performance validation .

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