

RIVO MULTITRADE OPTICAL SYSTEMS

Manufacturer s Access Switch LPO



Overview

Revolutionizing Data Centers with a Linear Pluggable Dell has launched support for pure LPO connectivity between the switch and the server, Linear Pluggabl.

Key Takeaways

Linear Pluggable Optics (LPO) are DSP-free optical modules designed for high-performance, low-latency, and energy-efficient connectivity in access and data center switches.What is LPO?

Linear Pluggable Optics (LPO) are optical transceivers that eliminate the Digital Signal Processor (DSP) from the module, relying on linear-drive technology to transmit signals. This design reduces power consumption, latency, and cost while maintaining high-speed connectivity, starting at 100 Gb/s per lane and scaling to 400G and beyond . LPO modules are designed to be pluggable, allowing flexibility in network deployment and interoperability across multiple vendors .

Benefits in Access Switches

- **Lower Power Consumption:** Removing the DSP reduces energy usage, which is critical in large-scale deployments .
- **Reduced Latency:** Linear-drive optics provide faster signal transmission, improving performance for AI, cloud, and high-performance computing workloads .
- **Cost Efficiency:** Simplified module design lowers manufacturing and operational costs .

- **Interoperability:** LPO modules are standardized under the LPO MSA, ensuring compatibility between switches, NICs, and other network equipment .

Manufacturer Implementations

- **Dell Technologies:** Offers LPO solutions in its PowerSwitch line, interoperating with Broadcom Thor 2 NICs. Dell supports both single-mode and multi-mode fiber LPOs, including 800G-O112-2DR4-LPO and 400G-Q112-DR4-LPO optics .

- **MACOM Technology:** Demonstrated 100G/lane switch-to-server links using PURE DRIVE linear modules with Broadcom Tomahawk 5 switches and BCM57608 NICs, highlighting LPO's suitability for AI and cloud data centers .

- **NewPhotonics & SoftBank:** Collaborating on advanced LPO solutions integrated with photonic integrated circuits (PICs) for all-optical switch fabrics, targeting low-latency, high-density AI and mobile fronthaul networks .

Use Cases

- **Server-to-Switch Links:** LPO modules connect servers to access switches with high throughput and low latency, supporting AI/ML workloads .

- **Switch-to-Switch Interconnects:** Linear-drive LPOs enable efficient optical links between switches in data centers, reducing power and improving thermal performance .

- **AI and High-Performance Computing:** LPO technology supports GPU/CPU clusters with high-speed optical communication and low-latency switching .

Summary

LPO modules in access switches provide a next-generation optical solution that balances performance, power efficiency, and cost. Major manufacturers like Dell, MACOM, and NewPhotonics are actively deploying LPO technology in data centers and AI infrastructure, ensuring interoperability and scalability for modern high-speed networks .

Article Content

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To thoroughly assess whether the core switch has the capability to fully support LPO optical modules on all ports, this paper

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