

Semiconductors

Key takeaways for OFC 2026

The Optical Fiber Communication Conference and Exposition (OFC) 2026 reinforced a broader structural shift: AI-driven scaling is forcing a re-architecture of data center interconnects across both optical and electrical domains. The conference highlighted continued debate around CPO vs. pluggable optics, emergence of intermediate architectures like LPO/NPO, new form factors like XPO, and increasing attention on optical circuit switch (OCS) as a complementary layer. Rather than converging on a single solution, the industry is clearly expanding the interconnect toolkit to address different constraints across scale-up, scale-out, and system-level efficiency. Against this backdrop, we continue to see pluggable optics as the core volume architecture, supported by 400G/lane evolution, improving supply visibility, and ongoing advances in module design and thermal scaling. **Maintain BUY on Innolight.**

- **Pluggable modules remain core, with supply constraints becoming more visible.** 800G continues to anchor current volume deployment, while 1.6T is in early ramp and 3.2T is being defined via 400G/lane. On the supply side, Lumentum (LITE US, NR) highlighted >50% EML capacity expansion by end-CY26 vs. CY25, following an earlier ~40% InP expansion plan (already partially delivered), and guided ~85% CAGR in AI data center InP lane demand through CY30. Coherent (COHR US, NR)'s mgmt. similarly outlined a “double-then-double” InP capacity expansion across CY26–27. We see this as a critical validation that InP/EML remains the bottleneck layer, reinforcing a constructive view on high-speed EML-based modules.
- **XPO signals architectural evolution, not disruption.** Arista (ANET US, NR) introduced XPO, a 12.8T liquid-cooled optical module targeting up to 204.8T front-panel density per rack unit, while preserving key pluggable advantages such as manufacturability, configurability, and serviceability. In our view, XPO represents an intermediate scaling architecture that alleviates thermal and density constraints without requiring full system redesign, thereby extending the lifecycle of pluggables in high-density AI racks.
- **400G/lane shifts the bottleneck from optics to electrical.** Lumentum positioned 400G differential EML as the likely path toward 3.2T, while Coherent demonstrated both EML and SiPho approaches, indicating that the photonic side is becoming technically viable. Broadcom (AVGO US, NR) further advanced module-side readiness with a 400G optical DSP alongside its EML/PD stack. Importantly, Nvidia's (NVDA US, NR) NVLink roadmap already targets 400G SerDes per lane, confirming demand formation ([link](#)). Taken together, we believe the key constraint is increasingly electrical rather than optics, implying value may shift toward DSP and upstream electrical integration over time.
- **OCS is transitioning from concept to commercialization.** Coherent now estimates a ~US\$4bn SAM for OCS, reflecting its evolution into a core AI data center optimization layer rather than a niche switch alternative. The value of OCS is most evident in scale-out and scale-across architectures, where dynamic bandwidth allocation and cluster re-partitioning can materially improve GPU utilization, rather than in tightly coupled scale-up domains. In parallel, Lumentum is guiding OCS toward a >US\$1bn run rate by 2027, supported by a multi-year, multi-billion-dollar agreement and >US\$400mn of backlog for 2H26 delivery.

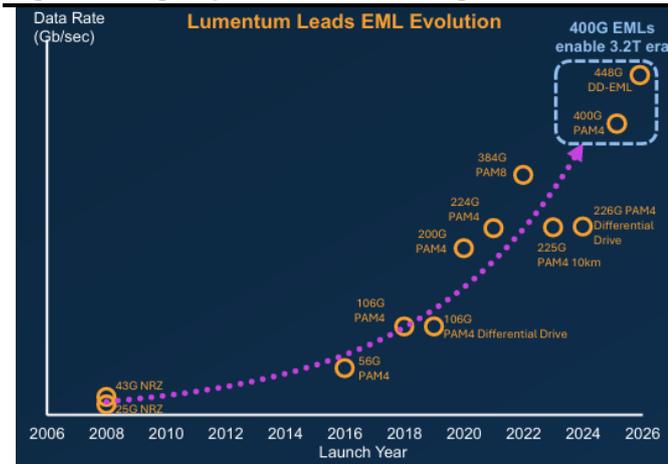
OUTPERFORM
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Figure 1: High-speed lasers: Scaling I/O bandwidth



Source: Lumentum

Figure 2: EMLs: Growing volume at 1.6T; setting the standard at 3.2T

Data Rate	EML-Based Transceivers	SiPho-Based Transceivers
1.6T (8x200G)	One chip per transmitter; proven transceiver yields; improved BW per fiber	InP + SiPho per transmitter; all channels must be yielded simultaneously; more complex supply chain
3.2T (8x400G)	Extension of 1.6T platform and its benefits by 400G differential EML	SiPho does not have sufficient bandwidth for 400G/lane; Replacement materials unproven in mass production

Expect EMLs to become de facto standard at 400G per lane (3.2T era)

LUMENTUM

Source: Lumentum

Figure 3: Expanding OCS use cases to scale AI networking

Use Case	Port-to-xPU Ratio	Driver
Scale-Up (today)	1.5:1	Topology enablement & cluster resiliency
Scale-Up (future)	2:1 to 10:1	Increased bandwidth; multiple customers and use cases
Spine and Super-Spine for Scale-Out or Scale-Across	0.2:1 to 1:1	Inter-cluster routing

LUMENTUM

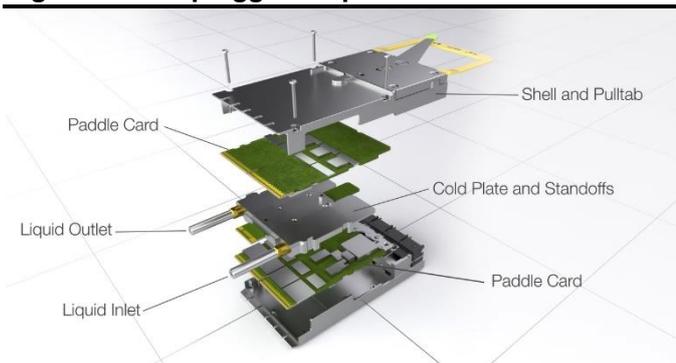
Source: Lumentum

Figure 4: Lumentum's MEMS-based 300x300 OCS

Insertion Loss	Superior: ~1.5 dB
Return Loss	Excellent: < -50 dB
Signal Integrity	Transparent to wavelength & data rate
Propagation Latency	Low and fixed: 10s of nanoseconds
Power Consumption	Low: <10% of packet switches
Reliability	Proven through 20+ years field data
Manufacturability	Proven in high-volume manufacturing
Roadmap Extendibility	Well suited for various-radix applications

Source: Lumentum

Figure 5: XPO pluggable optics structure



Source: Arista

Figure 6: XPO vs. OSFP



Source: Arista

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