

Silicon-based Optical Data Center Interconnect



Overview

AI-driven data centers evolve from single-chip to heterogeneous multi-GPU architectures. High-speed optical interconnects enable scalability, while silicon photonics and co-packaged optics boost bandwidth and energy efficiency amid modular, ecosystem-based competition. SCALE CPO solution is the industry's first OCI MSA capable platform and built with GF's proven silicon photonics technology MALTA, N., May 4, 2026 – GlobalFoundries (Nasdaq: GFS) (GF) today announced the introduction of its SCALE™ optical module solution for co-packaged optics (CPO). GF's SCALE. At OFC 2026, one signal became clear: interconnect is no longer a supporting component—it is becoming core infrastructure for AI systems. 6T comparison, next-gen interconnects are reshaping AI cluster design. The rapid growth of AI workloads—driven by large language models and large-scale GPU clusters—is pushing data center interconnects to their limits. Network bandwidth is moving quickly from 400G to. Industry focus at the Optical Fiber Communications Conference has shifted from telecommunications to data center artificial intelligence, according to observations from Semiengineering.

Article Content

OFC 2026 Outlook: AI Data Center Optical Interconnect

Over the coming days, we will be publishing a series of Optical Connection updates to help readers quickly understand the most important

\$INTC \$TSM \$GFS \$AMKR SCOPE AND SCREEN The publicly

The asset set is strategically important to optical transport, datacenter interconnect, coherent optics, and co-packaged optics roadmaps. (Semiconductor Industry Association)

2026 Plenary Session | OFC

AI is driving a new wave of innovation in optical interconnects, accelerating new technology development and deployment within the data center and the broader communications

The path to future AI data centers is paved with optical interconnect ...

On the chipmaking front, Intel and NVIDIA are investing in next-generation chip-to-chip optical I/O solutions. Intel's experimental

CPO vs LPO vs Silicon Photonics: How to Choose Optical

Among them, Co-Packaged Optics (CPO), Linear Pluggable Optics (LPO), and Silicon Photonics (SiPh) have emerged as the most important technology paths for AI data centers.

CPO & Silicon Photonics: AI's Interconnect Bottleneck and Who Profits

1. Why AI Data Centers Pushed Optics Front and Center In April 2026, the S& P 500 and Nasdaq both closed at all-time highs (7,022.95 and 24,016.02 on April 15). The AI infrastructure

Optical Interconnect Market Size, Share, Trends

Optical interconnect solutions are increasingly replacing traditional copper-based systems due to their superior bandwidth capacity, low latency, and energy

GlobalFoundries accelerates adoption of co-packaged optics for

MALTA, N.Y., May 4, 2026 – GlobalFoundries (Nasdaq: GFS) (GF) today announced the introduction of its SCALE™ optical module solution for co-packaged optics (CPO). GF's SCALE solution, or Silicon

CPO vs LPO vs Silicon Photonics: Optical Interconnects for AI Data ...

Compare CPO, LPO, and silicon photonics for AI data centers. Learn how power, cost, and compatibility impact optical interconnect selection.

2025 Global AI Data Center Interconnect Trends

AI-driven data centers evolve from single-chip to heterogeneous multi-GPU architectures. High-speed optical interconnects enable scalability, while

Aehr Wins Major New Silicon Photonics Customer with High

Aehr Wins Major New Silicon Photonics Customer with High-Power FOX-XP Wafer-Level Burn-In System for Hyperscale Data Center Optical Interconnect Market

Optical interconnect startup Celestial AI raises \$250m

Founded in 2020, the Santa Clara, California-based Celestial AI is developing an optical interconnect technology platform for data center and AI

Optical Communication Industry Trends 2026: AI, 800G/1.6T Optical ...

Explore optical communication industry trends in 2026, driven by AI infrastructure, 800G and 1.6T optical modules, silicon photonics, and next-generation data center connectivity solutions.

NVIDIA's \$4 Billion Bet on Optical Interconnects Explained

NVIDIA invests \$4B in Lumentum and Coherent to solve AI data center bandwidth bottlenecks with silicon photonics. Here's what it means for the industry.

Industry insight: photonics to scale AI data centers

The rapid evolution of artificial intelligence (AI) and its high-performance demands on computational systems have significantly impacted modern data center infrastructure. Conventional

\$SIVE \$SIVEF THE 2025 ANNUAL REPORT IS NOTABLE FOR

The company's claim of being the only EU-based supplier of silicon-based mmWave beamformer ICs for SATCOM is strategically important if accurate, particularly under European

Optical computing interconnect technology landscape 2026

Optical computing interconnect patents and research 2026: silicon photonics, co-packaged optics, FSO, and fiber switching — mapped across hyperscalers, chipmakers, and academia.

Silicon Photonic Market Size, Share & Forecast 2030

In addition, global data center operators have begun integrating silicon photonics technology into optical interconnect architectures to support growing workloads generated by artificial intelligence and

Marvell Technology, Inc. Announces Acquisition of Polariton ...

Adds Plasmonics-based Modulation Technology and a Team with Deep Silicon Photonics Expertise to Advance Marvell's Optical Roadmap SANTA CLARA, Calif.--(BUSINESS WIRE)-

How Industry Collaboration Fosters NVIDIA Co

NVIDIA is developing a co-packaged optics (CPO) platform that integrates optical and electrical components to improve data-center connectivity,

OFC 2026: AI Drives Optical Interconnect & CPO Shift in Data Centers ...

A report from OFC 2026 details the seismic shift to optical interconnects and co-packaged optics driven by AI inference demand, forecasting an all-optical data center future and changing

Global AI Optical Transceiver Market to Reach US\$26 Billion in 2026 ...

Traffic at hyperscale data centers in North America has sustained over 30% annual growth, prompting cloud giants such as Google, Microsoft, and Meta to expand GPU and AI server

AI Data Center Interconnect 2026: CPO, Optical Interconnect and ...

Explore AI data center interconnect trends in 2026, including CPO, optical interconnect, OCS, and the real challenges slowing large-scale deployment.

Aehr Wins Major New Silicon Photonics Customer with High-Power

As data center architectures scale to support AI, cloud computing, and high-performance networking, fiber optic interconnects offer significant advantages over copper wiring, including higher

The Optical Circuit Switching Market

Campus Datacenter Interconnect Telecom Applications OCS Technologies MEMS-Based Switches Liquid Crystal-Based Switches Robotic

Silicon Photonics Networking for Agentic AI | NVIDIA

A New Era in Data Center Networking With NVIDIA Silicon Photonics-Based Network Switching Explore why co-packaged silicon photonics can accelerate large-scale

Where co-packaged optics (CPO) technology stands in

Co-packaged optics (CPO) technology, a key enabler for next-generation data center architectures, promises unprecedented bandwidth density

All AI Data Center Interconnects Will Be Optical Within 5 Years

All AI Data Center Interconnects Will Be Optical Within 5 Years InP and SiPho join CMOS as critical technologies. Lasers, CPO and OCS will be everywhere (indium phosphide, silicon

Marvell Announces Acquisition of Polariton Technologies, Advancing ...

"Marvell continues to invest in advanced optical technologies to support the rapid evolution of AI and cloud data center infrastructure," said Sandeep Bharathi, President, Data Center

Contact Us

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