Price List for New Silicon Photonics Technology for Data Center Interconnects



Overview

800G Silicon Photonics Guide: Costs, Power & AI Applications | 2026. In recent years, the explosive growth of artificial intelligence and cloud computing.

Key Takeaways

Silicon photonics modules for data center interconnects typically range from several hundred to several thousand dollars per transceiver, depending on speed, integration, and volume.

Cost Factors

The price of silicon photonics technology is influenced by several key factors: Data Rate and Bandwidth: Transceivers supporting 100G, 400G, or 800G speeds have higher costs due to more complex modulators, photodetectors, and wavelength-division multiplexing components. Integration Type: Co-packaged optics (CPO) that integrate optical engines directly with switch ASICs or processors are more expensive than standard pluggable modules because of tighter thermal management and packaging requirements. Volume and Manufacturing: Silicon photonics leverages CMOS fabrication, but initial design and prototyping costs are high.

Large-scale production reduces per-unit cost, but lead times can extend to months. Component Complexity: Active PICs with modulators and photodetectors cost more than passive chips with only waveguides and splitters. Lasers, often hybrid-integrated, are a significant cost contributor.



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Supplier and Region: Major suppliers like Intel, Cisco, MACOM, Lumentum, and GlobalFoundries offer different pricing based on service, support, and regional market dynamics. North America and China dominate production and adoption, affecting pricing trends.

Estimated Price Ranges

While exact prices vary by supplier and contract, industry sources suggest approximate ranges: 100G transceivers: $300–$800 per module400G transceivers: $1,000–$2,500 per module800G transceivers and co-packaged optics: $3,000–$6,000 per module, depending on integration and volume These prices reflect high-performance, AI-focused data center interconnects, where energy efficiency and low latency are critical. Silicon photonics modules can reduce power consumption by up to 60% compared to copper interconnects, which can justify higher upfront costs in hyperscale deployments.

Market Trends Affecting Pricing

Rapid A

I Workload Growth: Increasing demand for multi-terabit throughput in GPU clusters and large language model training is driving adoption and potentially higher prices in the short term. Economies of Scale: As production scales and more suppliers enter the market, prices are expected to gradually decrease over the next 3–5 years. Technological Advancements: Emerging materials (e.g., TFLN, BTO) and programmable photonics may increase initial costs but offer higher performance and integration density.

In summary, while silicon photonics for data center interconnects is currently a premium technology, prices are expected to become more competitive as adoption grows and manufacturing matures. Buyers should consider both per-unit cost and operational savings from reduced power consumption and improved bandwidth efficiency.

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