

Price List for Silicon Photonics Access Switches for Data Center Interconnection



AI Overview

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.
- 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 module
- 400G transceivers: \$1,000–\$2,500 per module
- 800G 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% co...

Article Content

Silicon Photonics Technology For Next-Gen Data Center Interconnects

Silicon photonics technology advances data center interconnects with co-packaged optics, offering improved signal integrity, speed, bandwidth density, and lower power consumption.

Development trends in silicon photonics for data centers

An explosive increase in volume of global network and data center traffic requires an interconnection scheme with low cost, high energy efficiency, and high bandwidth capacity. The

Photonic switch fabrics in data center/high-performance computing ...

Silicon photonic switch: Compatible with mature CMOS manufacturing technologies, silicon photonics offers a promising platform for integrated optical switches. At present, the main research direction is

Photonic Integrated Circuits: Research Advances and Challenges in ...

Silicon photonics, serving as a cornerstone technology in modern information technology, demonstrates significant application potential in critical scenarios such as high-speed data center

Market Research Reports & Consulting | Grand View Research, Inc.

Full Time Engagement Services Research Partnership Companies often require day-to-day research assistance for ongoing strategic initiatives; this may include basic market data needs or complex

800G Silicon Photonics Guide: Costs, Power & AI Applications | 2026 ...

In recent years, the explosive growth of artificial intelligence and cloud computing has driven a surge in demand for high-speed interconnects in data centers. 800G optical modules have entered the stage

Large-scale silicon photonics switch based on 45-nm CMOS technology

In the OCS, high-speed and large-port-count optical switches are essential. We have been working on optical switches based on CMOS-compatible silicon photonics that offer fast switching,

Silicon Photonics Market Size, Share and Trends

Silicon photonics is gaining significant momentum in North America as technology companies and data-center operators increasingly adopt high-speed, low-power optical connectivity.

Silicon Photonics Switch Market Research Report 2034

The leverage of standard semiconductor manufacturing processes reduces silicon photonics component costs from \$3,000-5,000 per switch in 2025 to estimated \$500-1,000 per switch

Photonic switching in high performance datacenters

Abstract: Photonic switches are increasingly considered for insertion in high performance datacenter architectures to meet the growing performance demands of interconnection networks. We provide an

Silicon photonics for terabit/s communication in data centers and ...

Abstract Silicon Photonics Technology using sub micrometer SOI platform, which commercially emerged at the beginning of the century, has now gained market shares in the field of

A Review of Silicon-Based Integrated Optical Switches

Silicon-based integrated optical switches, which are an essential part of optical integrated circuits that can leverage the low cost and mass production features of complementary metal-oxide

Silicon Photonics For Data Centers Market Research Report 2033

Leading data center operators are piloting silicon photonics-based switches to optimize network efficiency and reduce operational costs, while ongoing R& D efforts are focused on enhancing port

Silicon Photonics Companies

The increasing need for high-speed data transport, as well as the need for energy-efficient solutions in data centers and AI, are the primary drivers of silicon photonics.

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

Scaling silicon photonic switch fabrics for data center interconnection ...

In this paper we analyze the feasibility of building silicon photonic microring based switch fabrics for data center scale optical interconnection networks.

Intel® Silicon Photonics

Next-generation process technology for disruptive cost structure, size, and integration. Maturity – Our field-proven Intel® Silicon Photonics platform has already shipped more than 8 million PICs with over

iPronics Unveils World's First Silicon Photonics Optical Circuit Switch ...

Tailored for AI workloads and energy-efficient cloud infrastructure, the ONE-32 delivers ultra-low latency, massive scalability, and groundbreaking cost efficiency, transforming data center

Nvidia Unveils Silicon Photonics Cpo Technology For Ai Data Centers ...

Discover NVIDIA's groundbreaking silicon photonics CPO technology, transforming AI data center networks. Learn about the Spectrum-X and Quantum-X switches that enhance

Roadmapping the next generation of silicon photonics

The current generation has led to a proliferation of integrated photonic devices from thousands to millions-mainly in the form of communication transceivers for data centers.

Optical Switching Data Center Networks: Understanding Techniques

Optical data center networks are mainly classified into two categories based on the switching techniques used, the electrical/optical hybrid scheme, where electrical along with the optical switches constitute

Intel® Silicon Photonics

Based on our field-proven Intel® Silicon Photonics platform, which has already shipped more than 8 million PICs with over 32 million on-chip lasers embedded in pluggable optical transceivers for data

Silicon Photonics Networking for Agentic AI | NVIDIA

Take a look inside NVIDIA silicon photonics-based networking switches that simplify manageability and design, enabling more power for compute infrastructure and

Silicon photonic interconnection networks for data centers

Abstract To improve data center performance we seek to increase bandwidth and reduce power consumption. Integrated silicon photonics can help achieve both.

Optical Circuit Switching for Data Centers Market Research Report 2034

Hyperscale data center operators are increasingly evaluating optical circuit switching as a core fabric technology capable of replacing or complementing conventional electrical switching in

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://umele-pestovani.eu>

Email: info@umele-pestovani.eu

Phone: +49 152 287 6349

Address: Neue Mainzer Straße 66-68, 60311 Frankfurt am Main, Germany

This document is for informational purposes only. Specifications subject to change without notice.

