

Price list for silicon photonics 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

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.

Silicon Photonics Market by Product (Transceivers, Variable Optical ...

One of the major drivers in the silicon photonics market is increasing demand for fast data transmission and power-efficient solutions in data centers, cloud computing, and 5G networks, where silicon

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

400G DCO Transceiver Market: Growth, Drivers & Regional Share

The Data Center Interconnection (DCI) segment stands as the unequivocal dominant application within the 400G DCO Transceiver Market, commanding a substantial revenue share and exhibiting robust

A New Era in Data Center Networking with NVIDIA Silicon Photonics

NVIDIA is integrating silicon photonics directly with its NVIDIA Quantum and NVIDIA Spectrum switch ICs to improve data center networking, resulting in 3.5x lower power consumption.

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

With growing demands in terms of aggregated bandwidth, scalability, transceiver form factor, and cost, Silicon Photonics is expected to play a growing role, especially with the foreseeable

Silicon Photonics 2021 | PDF

The 2021 report on silicon photonics examines the technology's evolution and its applications in various sectors like optical communication, healthcare, and

Silicon Photonics in Pluggable Optics White Paper

Massive deployment of optics has become especially common at cloud and hyperscale data centers. At this point, high-volume manufacturing

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

iPronics, a leader in software-defined photonics, today launched its Optical Networking Engine, ONE-32, the world's first Optical Circuit Switch (OCS) product based on silicon photonics.

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 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.

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

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.

Silicon photonic interconnection networks for data centers

Ideally, development of a photonic transistor allowing faster switching based on silicon photonics and present CMOS fabrication techniques would allow cheaper to market solutions than

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

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

Silicon Photonics for Data Center Design | Synopsys Blog

Learn how we're enhancing silicon photonics and data center infrastructure design through our work with OpenLight to accelerate optical system design.

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.

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

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 industry driven by AI, major events and

The Spectrum-X and Quantum-X switches validate silicon photonics for networking, while chip-to-chip CPO solutions from Lightmatter and Ayar Labs

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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,

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

Silicon Photonics Market Size & Share Analysis

Silicon Photonics Market Size & Share Analysis - Growth Trends and Forecast (2026 - 2031) The Silicon Photonics Market Report is Segmented by Product (Optical Switches, and More),

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

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

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