



High-Speed Pluggable Optics with Silicon Photonics

Increase network speeds with Cisco® Silicon Photonics

Cisco designs and manufactures high-speed pluggable optical transceivers based on industry-leading silicon photonics technology platforms. Cisco pluggable optics based on silicon photonics enable customers to build the advanced networks required in hyper-scale data centers, enterprises, and mobile infrastructure deployments. Silicon photonics designs are incorporated into QSFP pluggable form factors for network architectures based on 100G and 400G optical links.

The insatiable demand for data in modern computing applications has driven network architects to seek out optical interconnect solutions that meet requirements for massive bandwidth while also satisfying the need for long-reach, high-performance, and high-reliability optics. As network speeds increase with rising network traffic demands, the technical complexity of optical transceivers grows.

Complimentary Metal-Oxide-Semiconductor (CMOS) silicon photonics enables a fundamental technology transition to integrate these complex technologies while producing massively manufacturable pluggable modules. These optical transceiver solutions enable network architects to build the networks they need at scale.



Benefits

- Increase network uptime with a fully vertically integrated, single-chipset silicon photonics solution that reduces complexity
- Improve module-level reliability by using standard silicon CMOS technology that increases testability and process repeatability
- Benefit from production efficiencies resulting from highly automated, wafer-scale manufacturing of optics with reduced component counts
- Reduce power consumption with silicon photonics technology that integrates complete optical and electrical transceiver functionality in a single chipset
- Simplify optical interconnect deployment and management with industry-standard form factors and interfaces

Call to action

Get the speed and reach you need with silicon photonics-based Cisco pluggable optics. For additional information, visit www.cisco.com/go/optics.

Benefit from mature silicon photonics technology

Silicon photonics unlocks the ability to produce photonic devices on a silicon substrate using mainstream silicon manufacturing technologies that have matured over many years. This leads to several benefits over traditional optics that typically use discrete, unintegrated components and less-mature technology platforms.

- **Integration** of photonics and electronics elements into fewer components compared to traditional optics that use discrete components for each function. Lower component counts lead to improved manufacturability.
- **Wafer-scale manufacturing** for silicon photonics leverages the mature silicon CMOS manufacturing technologies, and enables highly automated packaging, assembly, and testing. This improves manufacturing yield, product reliability, and production capacity.
- **Fabless manufacturing** for photonic wafer fabrication, leveraging advanced semiconductor technology and high-volume capability at leading commercial fabs.