

QSFP-DD Optical Transceivers for High-Speed Connections



Product overview

The ongoing explosion of data traffic is driving the need for faster processing, greater bandwidth, and higher density connections within and between data centers. Network operators are looking for cost-optimized optical solutions that provide increased density and reduced power consumption—across high-speed as well as legacy ports—without sacrificing network performance or reliability.

Benefits

- Connect with existing, lower speed QSFP modules with QSFP-DD backwards compatibility
- Optimize thermal management with flexible heatsink designs on host platforms
- Maximize port density with high-density interfaces to 100G and 400G modules

Quad Small Form-Factor Pluggable Double-Density (QSFP-DD) offers twice as many high-speed electrical interfaces as QSFP28 while maintaining the same port density. When combined with higher transmission rates per electrical interface (28 Gbps to 56 Gbps to 112 Gbps), QSFP-DD optical transceivers can increase 100G data rates to 400G and 800G.

Cisco helped define the QSFP-DD form factor Multisource Agreement (MSA) to meet the requirements of next-generation switching and routing applications. Cisco offers a comprehensive portfolio of QSFP-DD modules across copper, multimode fiber, and single-mode fiber, optimized for a broad range of applications and distances, leveraging NRZ, PAM4, and coherent modulation.

What it does

Optimize thermal management

QSFP-DD ports are optimized for the thermal dissipation of the host system. Thermal management is not limited by the design of the optical module but is a function of the overall system design and can be optimized for specific applications and system designs. QSFP-DD ports incorporate a riding heatsink that can be sized independently of the optical module, added on top of the module, or placed between modules.

This flexibility enables switch and routing designs that optimize airflow, network performance, and power and cooling efficiency. As a result, QSFP-DD ports can enable 400G and 800G modules to operate within the thermal conditions required to deliver reliable performance. And they can enable system designs capable of supporting next-generation pluggable coherent modules that may require higher power dissipation.

Backwards compatibility

Systems designed with QSFP-DD ports are backwards compatible to support existing QSFP+, QSFP28, and QSFP56 modules. This provides flexibility for network designs and migrations to next-generation platforms. Network operators can connect to lower speed portions of their network with existing pluggable transceivers and migrate to higher speeds when ready. In addition, they can take advantage of high-density interfaces for existing 100G and 400G modules.

Cisco QSFP-DD Portfolio

Cisco QSFP-DD400 Modules

- The Cisco® QSFP-DD400 portfolio offers a wide variety of super-high-density 400GBASE transceiver modules across copper, single-mode and multimode fiber.

- 4x100G provides high-density interfaces for lower speeds with efficient aggregation of 100G traffic.
- Ideal for data centers, high-performance computing, and service provider applications, leveraging direct modulation over short links or coherent optics to support distances beyond 10 km.

Cisco QSFP-DD800 Modules

- The Cisco QSFP-DD800 portfolio includes 8x100G and 2x400G transceiver modules.
- Double existing 400GE port bandwidth with 2x400G-FR4 and 8x100G-FR modules across single-mode fiber links up to 2 km.
- QSFP-DD800 modules enable higher radix for next-generation network designs and provide super-high-density connections over copper, single-mode, and multimode fiber.
- Ideal for web-scale data centers, high-performance computing, and service provider applications.

Learn more

To learn more about Cisco Optical Transceiver Modules, visit [Cisco Optics](#).