

## Article Overview

200G SFP optical modules, primarily in QSFP56 and QSFP-DD form factors, support high-speed 200 Gigabit Ethernet connections for data centers and enterprise networks.

## Overview

200G optical modules are designed to provide high-bandwidth connectivity for modern data centers, AI/ML applications, and high-performance computing networks. They typically come in QSFP56 (Quad Small Form-Factor Pluggable 56) and QSFP-DD (Double Density) form factors, supporting four electrical lanes at 50-56 Gbps each, achieving an aggregate bandwidth of 200 Gbps . These modules are compatible with a wide range of networking equipment from manufacturers like Cisco, Huawei, Mellanox, Intel, Arista, Juniper, Dell, and Edge-Core .

## Types and Reach

200G modules are available for different fiber types and distances:

- o 200GBASE-SR4: Short-range multimode fiber, up to 100 meters, using MPO-12 connectors .
- o 200GBASE-FR4: Single-mode fiber, up to 2 km, using dual LC connectors .
- o 200GBASE-LR4: Long-range single-mode fiber, up to 10 km .
- o 200GBASE-ER4: Extended reach, up to 40 km for long-haul connectivity .
- o 200GBASE-SR8: High-density short-range multimode fiber, often used in breakout scenarios .

## Modulation and Standards

QSFP56 modules use PAM4 (Pulse Amplitude Modulation 4-level) signaling, which doubles the data rate compared to NRZ modulation used in QSFP28 modules . They comply with IEEE 802.3bs 200GBASE standards, CMIS 4.0 management interface, and SFF-8679 hardware specifications . Forward Error Correction (FEC) is often supported to ensure reliable transmission over longer distances.

## Breakout and Connectivity

200G modules can be used in breakout configurations, such as:

- o 4x50G SFP56 links from a single 200G QSFP56 port.
- o 2x100GBASE-SR2 connections for aggregation or interconnects . These breakout capabilities are common in data centers where multiple 200G interfaces from servers need to be aggregated by switches.

## Manufacturers and Availability

- o Cisco: Offers QSFP56 modules and passive copper cables (QSFP-200-CuxM, QSFP-4S50-CUxM) for short links and breakout applications .
- o ATGBICS: Provides QSFP-200G-SR-MSA-AT modules with 850nm wavelength and MPO-12 connectors .
- o SULITON: OEM/ODM provider of 200G QSFP56 modules compatible with most switch brands, offering extensive testing and traceability .
- o EDGE Optical Solutions: Supplies 200G QSFP56 modules for both single-mode and multi-mode fiber, supporting distances from a few meters up to 2 km .
- o Svelol: Offers QSFP56 and QSFP-DD modules with SR4, FR4, LR4, ER4, and SR8 options for diverse connectivity needs .

## Key Considerations

When selecting a 200G optical module, consider:

- o Fiber type and distance requirements (MMF vs SMF, SR vs LR/ER).
- o Compatibility with existing switches and NICs.
- o Breakout needs for connecting multiple lower-speed ports.
- o Power consumption and thermal management.
- o Vendor support and testing standards for reliability. 200G SFP optical modules are essential for scaling network capacity, enabling high-density, low-latency, and energy-efficient connections in modern data centers and enterprise networks.

This section provides an overview for sfp modules as well as their applications and principles. Also, please take a look at the list of 13

Unitekfiber, a global optical transceiver wholesaler, provides a comprehensive portfolio of MSA-compliant transceivers--including

Description: 200G optical modules usually come in two packaging types: QSFP56 and QSFP-DD.

SFP28 modules provide high-performance network connectivity in a compact form factor. With data transmission speeds of up to 25

Overview Arista's Optical Modules and Cable portfolio offer a wide variety of high-density and low-power 800G (dual 400G), 400G,

200km SFP transceiver module for long-distance fiber optic transmission. Supports 1.25G/10G, LC connector,



# Manufacturer s SFP optical module 200G

DDM, single mode

Shop high-performance 200G optical transceivers including QSFP56 and QSFP-DD form factors. Fully compliant with 200GBASE

The JFOPT QSFP56 200G 850nm 100m SR4 MPO 8/12 Transceiver is a high-performance, pluggable fiber-optic module designed

Description: Explore Svelol's 200G optical modules in QSFP56 and QSFP-DD form factors. Ideal for 200GbE data centers, offering

The Cisco 200G QSFP-200-CuxM module (Figure 1) primarily enables high-bandwidth 200G links and supports 200G

SFP - small form factor - pluggable modules for various optical data communications such as Fast

2 00G-Q56-SR4-MM850 Module The 200G-Q56-SR4-MM850 is aligned to IEEE 200GBASE-SR4 optical specifications and supports

200G QSFP56 transceivers with PAM4 modulation for high-speed data center connectivity. SR4 and FR4

QSFP-200G-SR4 Arista Compatible 200G QSFP56 Transceiver, 100M over MMF. Explore our portfolio of Arista compatibles -

Our 2 x 100G modules use Duplex CS connectors, boasting a 40 percent size reduction from Duplex LC.

The Cisco's family of QSFP modules provide solutions for AI/ML data center applications, Network Interface Cards

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