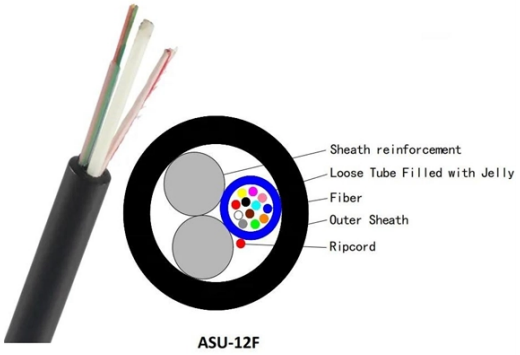
Active Optical Module QSFP-DD Sample



Overview

Cisco QSFP-DD and OSFP 800G ZR/ZR+ Coherent Cisco QSFP-DD and OSFP 800G ZR/ZR+ digital coherent optics QSFP-DD Optical Transceivers for High-Speed Connecti.

Key Takeaways

QSFP-DD Active Optical Modules (AOMs) are high-density, hot-pluggable transceivers that deliver multi-hundred-gigabit Ethernet connectivity over optical fiber for data center, HPC, and service provider networks. OverviewQSFP-DD (Quad Small Form-factor Pluggable Double Density) AOMs are designed to provide 400G and higher Ethernet connectivity while maintaining backward compatibility with lower-speed QSFP modules ( ). They integrate high-speed electrical interfaces and optical transceivers to transmit data over multimode or single-mode fiber, supporting both short-reach and long-reach applications.

Key Features

High Bandwidth Density: Supports 400G Ethernet using 8 lanes of 50Gbps per fiber or 4 lanes of 100Gbps in breakout mode ( ).

Hot-

Pluggable: Can be inserted or removed without powering down the host system ( ). Optical Interfaces: Supports MPO/MTP connectors for multimode fiber (OM3/OM4/OM5) and duplex LC connectors for single-mode fiber ( ). Electrical Standards: Compliant with 400GAUI-8, 200GAUI-2, or 100GAUI-1 interfaces, with FEC handled on the host platform ( ).

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Link Reach: Multimode fiber links up to 100m (OM4) and single-mode fiber links up to 2km depending on module type ( ). Breakout Capability: Modules can split into multiple lower-speed links, e.g., 8x50G or 4x100G, for flexible network design ( ).

Applications

Data Center Interconnect (DCI): High-speed links between racks or data centers ( ).

High-

Performance Computing (HPC): Low-latency, high-bandwidth connections for AI/ML workloads ( ). Enterprise Core and Distribution Layers: Aggregation and backbone connectivity ( ). Service Provider Networks: Metro, regional, and long-haul optical interconnects ( ).

Advanced Variants

Some QSFP-DD modules incorporate coherent optics for extended reach (up to 120 km for 800ZR and beyond 1000 km for 800G ZR+) and support probabilistic constellation shaping (PCS) for high-performance interoperability ( ). Linear Pluggable Optics (LPO) variants enable PCIe Gen 5. 0 over optical links, ideal for rack-scale disaggregation and AI/ML workloads ( ).

InteroperabilityQSFP-DD AOMs are designed to comply with IEEE 802. 3bs, 400GBASE-SR4/FR4, and 400GAUI standards, and support industry agreements like OIF, OpenZR+, and OpenROADM MSA, ensuring compatibility across multiple vendors and network architectures ( ). SummaryQSFP-DD Active Optical Modules provide scalable, high-speed optical connectivity with flexible breakout options, long reach, and low latency, making them ideal for modern data centers, HPC clusters, and service provider networks.

Their combination of high bandwidth, interoperability, and hot-pluggable design enables efficient network scaling and future-proofing.

Article Content

QSFP-DD Optical Transceivers for High-Speed Connections

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

800G/400G Coherent OSFP/QSFP-DD Transceiver Modules | Optical

FS 800G/400G Coherent OSFP/QSFP-DD optical transceiver module solutions offer a range of OSFP/QSFP-DD modules 120km/500km reach, and used for Edge DCI, LH, Regional, Metro and

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QSFP-DD Linear Pluggable Optics (LPO)

Watch Amphenol''s expert demonstrate the QSFP-DD Linear Pluggable Optics in action at the OFC 2025! Lightning-fast PCIe Gen 5

400G QSFP-DD Cable and Transceiver Modules Data Sheet

400G QSFPDD active optical cables (Figure 10) are designed for use in 400 Gigabit Ethernet links over OM4 multimode fibers, and contain eight multi-mode fibers (MMF) optic transceivers per end, each

200G QSFP DD Active Optical Cable (AOC)

These AOC assemblies are QSFP DD MSA compliant, also backwards port compatible with existing QSFP modules and provide flexibility for

400G QSFP-DD Active Optical Cable (AOC) | Lumentum

Built on reliable 850 nm VCSEL technology and with an integrated DSP, the module ensures superior signal integrity with a low power consumption of 8 W per end. Supporting cable lengths up to 100

Management Interface

Abstract: This specification defines: the electrical and optical connectors, electrical signals and power supplies, mechanical and thermal requirements, and the management interface of

QSFP-DD Product Family » Acacia

Powered by Greylock and Delphi DSP ASICs, and silicon photonic integrated circuits (PICs) for an optimized co-packaged design with 3D Siliconization.

400G QSFP-DD Active Optical Cable

P-DD MSA Hardware Specification. High speed electrical specifications are compliant with QSFP-DD MSA Hardware Specification and IEEE802.3bs Annex 120E over operating case temperature 0

200G QSFP DD Active Optical Cable (AOC)

Amphenol QSFP DD to QSFP DD 200G Active Optical Cable assemblies increase the number of lanes from 4 to 8 and double the port density as compared to 100G QSFP28 AOC. These

QSFP-DD Optical Module Overview: What is the differ?

The QSFP-DD is the smallest 400G form factor optical module on the market today. It is also the optical module that offers the highest transmission

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800Gb/s QSFP-DD Transceivers

COMPLIANT WITH QSFP-DD MSA, IEEE802.3, OIF-CMIS Amphenol''s 800G QSFP-DD optical modules include 2xFR4(plus), 2xLR4, AOC, and AOC break-out series, which adopt LC or MPO

400G OSFP/QSFP-DD/QSFP112 Module Introduction and Selection

FS 400G QSFP-DD module can be paired with optical fiber cables to enable various links, achieving different network upgrades. Take QDD-SR8-400G as an example, the module

QSFP-DD Hardware

This specification defines: the electrical and optical connectors, electrical signals and power supplies, 19 mechanical and thermal requirements of the pluggable QSFP Double Density (QSFP-DD/QSFP

QSFP DD 400G Active Optical Cable

Amphenol''s QSFP DD to QSFP DD 400G Active Optical Cable (AOC) assemblies doubles both the number of lanes from 4 to 8 and the bits sent per unit interval as compared to 100G QSFP28 AOC.

SFP, QSFP, QSFP-DD, OSFP ACTIVE OPTICAL CABLE ASSEMBLIES

TE Connectivity''s (TE) active optical cable assembly portfolio provides improved cable flexibility and longer reach, as compared to both traditional passive copper solutions and emerging active copper

Cisco QSFP-DD800 Transceiver Modules Data Sheet

Product overview The Cisco QSFP-DD800 modules introduce 8x100G and 2x400GGBASE Quad Small Form-Factor Pluggable Double-Density (QSFP-DD) modules, offering customers super-high-density

Comprehensive Guide to QSFP – MapYourTech

QSFP-DD introduces enhanced thermal management capabilities through riding heat sinks that can be optimized independently of the optical module design. Riding Heat Sinks: External

Related Video Reference

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

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