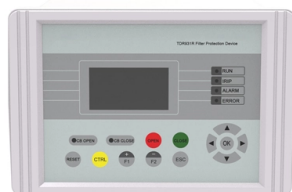


OSFP optical module QSFP-DD



Overview

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Key Takeaways

QSFP-DD and OSFP modules are high-speed optical transceivers for 400G/800G networks, with OSFP agents enabling monitoring and management of these modules. Overview of QSFP-DD and OSFP Modules

QSFP-DD (Quad Small Form-Factor Pluggable Double Density) and OSFP (Octal Small Form-Factor Pluggable) are next-generation optical transceiver form factors designed for high-speed data center and service provider networks. QSFP-DD is backward-compatible with QSFP28 and supports 400G and 800G speeds by doubling the electrical lanes, while OSFP is a clean-sheet design optimized for higher thermal loads and power-intensive applications, supporting up to 1.6T coherent optics in future deployments. Both form factors are used in Data Center Interconnects (DCI), metro, regional, and edge networks.

Key Specifications

- Data Rates: QSFP-DD and OSFP modules support 400G and 800G coherent optics, with some modules capable of 800ZR (up to 120 km) and 800G ZR+ (over 1000 km) over DWDM links.
- Connector Type: Duplex LC for coherent optics.

- **Thermal Management:** OSFP modules provide higher thermal headroom, dissipating up to 25W safely, making them suitable for power-heavy AI and high-speed coherent optics .
- **Interoperability:** QSFP-DD modules are mechanically compatible with QSFP-DD MSA standards, while OSFP modules follow OSFP MSA standards. OSFP is mechanically distinct and cannot fit into QSFP slots .

OSFP Agent Functionality

An OSFP agent is typically a software or firmware component integrated into network devices (switches, routers, or optical transport systems) to manage OSFP modules. Its functions include:

- **Monitoring:** Tracks module health, temperature, voltage, and optical power levels.
- **Diagnostics:** Provides real-time alerts for link degradation or failures.
- **Configuration:** Allows firmware updates, lane mapping, and modulation settings for coherent optics.
- **Interoperability Management:** Ensures proper operation with QSFP-DD or other modules in multi-vendor environments, especially for 800G ZR+ links . OSFP agents are essential for Routed Optical Networking applications, enabling operators to manage high-speed links efficiently and maintain service reliability.

Use Cases

- **Data Center Interconnects (DCI):** 800ZR modules for single-span links up to 120 km.
- **Metro and Regional Networks:** 800G ZR+ modules for extended reach over existing DWDM infrastructure.
- **High-Density AI and HPC Backplanes:** OSFP modules handle higher power and thermal loads for 1.6T coherent optics .

Summary

QSFP-DD and OSFP modules are critical for modern high-speed networks, offering 400G/800G capabilities with coherent optics. The OSFP agent provides essential monitoring, management, and interoperability functions, ensuring reliable operation in complex data center and service provider environments. Proper selection between QSFP-DD and OSFP depends on thermal requirements, power consumption, and network architecture .

Article Content

Cisco QSFP-DD and OSFP 800G ZR/ZR+ Coherent Optics Modules

Cisco QSFP-DD and OSFP 800G coherent optical modules are supported on Cisco switches and routers. For more details, refer to

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OSFP vs QSFP-DD Comparison | 800G Optical Module Form Factors

Detailed analysis of OSFP and QSFP-DD form factors for 800G optical modules. Compare specifications, thermal

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

The explosive growth of global data volume has placed higher demands on the bandwidth and performance of data

SFP+, SFP28, QSFP+, QSFP28, QSFP56, QSFP-DD, QSFP112 vs OSFP

The QSFP-DD transceiver is a new optical module comparable to the current QSFP but adds an extra row of contacts

How to Achieve Interconnection Between OSFP and QSFP-DD Ports?

By deploying a 400G QSFP-DD SR4 module on the 400G switch and a 400G OSFP flat top SR4 module on the 400G

NVIDIA Optical Modules: QSFP-DD vs OSFP Technical Comparison

Comprehensive technical analysis of NVIDIA 800G optical modules comparing QSFP-DD and OSFP form factors.

How to choose between 800G optical-mode QSFP-DD and OSFP

Optical module is the optoelectronic device that realizes photoelectric and photoelectric conversion in optical

Application Introduction for 800G OSFP and 800G QSFP-DD Optical Modules

A comprehensive selection of 800G optical modules is available, including AOC, DAC, and AEC, all provided in OSFP

CFP2-DCO vs QSFP-DD DCO vs OSFP-DCO What's the

Explore the secrets of coherent optical modules—compare CFP2-DCO, QSFP-DD DCO, and OSFP-DCO. Learn

800G OSFP/QSFP-DD Cable and Transceiver Modules Data

Product overview The FS® 800GBASE Quad Small Form-Factor Pluggable (OSFP/QSFP-DD) portfolio offers

OSFP vs QSFP-DD vs QSFP112 - Choosing the Best Optical Module

Introduction: OSFP vs QSFP-DD vs QSFP112 in Modern Optical Networks In today's rapidly evolving data center and

NVIDIA Optical Modules Buying Guide: QSFP-DD vs OSFP 800G

Comprehensive guide to NVIDIA optical modules covering QSFP-DD and OSFP 800G solutions. Learn about

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

This article will provide a detailed comparison of the current mainstream 400G optical modules, including QSFP-DD,

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

This article explores the technical characteristics, product lineup, and use cases of 400G OSFP/QSFP-DD/QSFP112

400G Optical Module Selection Guide: QSFP-DD vs. QSFP28 vs. OSFP

Compare QSFP-DD, QSFP28, and OSFP form factors. Learn about compatibility, power constraints, migration TCO,

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