New Zealand Optical Core Router QSFP-DD



Overview

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

Key Takeaways

QSFP-DD modules enable ultra-high-speed 400G to 800G optical connections for routers and switches, offering compact, high-density, and energy-efficient solutions suitable for New Zealand's data centers and service provider networks. Overview of QSFP-DD TechnologyQSFP-DD (Quad Small Form-factor Pluggable Double Density) is an advanced optical transceiver form factor that doubles the bandwidth density of traditional QSFP28 modules by using eight electrical lanes instead of four, supporting aggregate data rates up to 400 Gb/s with PAM4 modulation, and scalable to 800 Gb/s and beyond. The module features 76 electrical contact pins in a double-row configuration, enabling high-speed differential pairs for both transmit and receive paths while maintaining a compact footprint.

QSFP-DD modules are backward compatible with QSFP28 ports, allowing flexible deployment in existing infrastructure.

Key Features

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High Bandwidth and Density: Supports 400G, 800G, and future 1600G speeds, ideal for AI/ML workloads, cloud computing, and high-performance data centers. Optical Reach: Depending on the module type, QSFP-DD can support short-reach multimode fiber, long-haul single-mode fiber, and coherent DWDM links up to 40 km or more, with some Cisco QSFP-DD ZR+ modules extending reach further with amplification. Monitoring and Diagnostics: Modules like the MikroTik DDQ+85MP01D include digital diagnostics for optical power, voltage, temperature, and laser bias current, enabling proactive network management.

Connector Compatibility: Typically uses MTP/MPO connectors with Type-B polarity for multi-channel fiber connections. Energy Efficiency: Advanced silicon photonics and DSP ASICs reduce power consumption while maintaining high performance. Use Cases in New ZealandQSFP-DD modules are suitable for: Data Center Interconnects (DCI): High-speed links between data centers or within large-scale cloud environments.

Service Provider Networks: Metro, regional, and long-haul optical networks, supporting OpenZR+, OpenROADM, and OIF interoperability standards.

Enterprise High-

Performance Networks: Routers and switches requiring ultra-low latency and high throughput for AI, ML, and 5G backhaul. Available ProductsMikroTik DDQ+85MP01D: 400G QSFP-DD module with eight full-duplex channels, up to 50 Gbps per channel, suitable for distances up to 100 meters, with built-in diagnostics. Cisco QSFP-DD OLS: Pluggable optical amplifier module for coherent DWDM, compatible with Cisco routers, supporting Routed Optical Networking for simplified router-to-router architectures.

Acacia QSFP-DD Family: High-performance modules with silicon photonic integrated circuits, supporting metro, regional, and long-haul networks with low power consumption.

Considerations for Deployment

Ensure router or switch compatibility with QSFP-DD modules. Select the appropriate optical reach and connector type based on network topology. Monitor temperature, power, and optical performance to maintain reliability.

Plan for future scalability, as QSFP-DD supports higher speeds and evolving network demands. QSFP-DD technology provides New Zealand network operators and enterprises with a scalable, high-density, and energy-efficient solution for modern high-speed optical networking, supporting both current 400G deployments and future 800G/1600G upgrades.

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Article Content

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. Supports an expansive list of interoperability

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 the Cisco Transceiver Modules Compatibility Matrix.

Understanding the QSFP-DD Standard: The Foundation of 400G

QSFP-DD (Quad Small Form Factor Pluggable Double Density) is an evolution of the QSFP family, extending its lane capacity from 4 to 8 high-speed electrical lanes. Each lane supports

Specification – QSFP-DD

July 11, 2019 – QSFP-DD Hardware Specification for QSFP DOUBLE DENSITY 8X PLUGGABLE TRANSCEIVER – Rev 5.0 May 8, 2019 – Common Management Interface

QSFP-DD Optical Transceivers – MapYourTech

QSFP-DD is an advanced hot-pluggable optical transceiver form factor that doubles the bandwidth density of traditional QSFP28 modules by

The Ultimate Reference Table for SFP & QSFP Optical Transceiver ...

The definitive guide to SFP, QSFP, and QSFP-DD standards for 2025. Compare 400G/800G optics, understand PAM4 complexity, and master QSFP-DD vs OSFP deployment

QSFP-DD Optical Transceivers Unlocking Faster

The QSFP-DD (Quad Small Form-Factor Pluggable Double Density) optical transceiver is a revolutionary advancement in high-speed data

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

This article will introduce the next generation optical module in detail, QSFP-DD, also known as quad small factor pluggable, and this article will also

Cisco Network Convergence System 1004 High-Density QSFP-DD

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The Cisco NCS 1004 High-Density QSFP-DD Transponder takes advantage of DCO optics innovation without router dependency and compliment high-performance transponder cards

Fiber Optic Patch Cables: The Complete 2026 Buyer''s

Confused by LC, SC, MPO, UPC, and APC? This complete fiber optic patch cable guide covers connector types, single-mode vs multimode,

7020R4 Series Data Center Switch Router

The R4 Series routing solutions include large scale layer 2, layer 3 and EVPN based telco and cloud data center designs, low latency MEC overlay fabrics, data center interconnect (DCI) with long haul

The Ultimate Guide to SFP, SFP+, SFP28, QSFP+, and QSFP28:

QSFP+ enabled early high-density aggregation, but QSFP28 now defines the standard for 100G backbone, cloud, AI, and telecom core networks. The most cost-effective and future-proof

Cisco Transceiver Modules

Cisco Transceiver Modules - Learn product details such as features and benefits, as well as hardware and software specifications.

Cisco 400G Digital Coherent Optics QSFP-DD Optical Modules Data

Cisco now offers a range of all new 400G Digital Coherent QSFP-DD transceivers. Cisco already offers a range of Digital Coherent CFP2 transceivers capable of supporting up to a 200-Gbps

The Ultimate Guide to SFP, SFP+, SFP28, QSFP+, and QSFP28:

What are the Differences Between SFP, SFP+, SFP28, QSFP+ and QSFP28? Unlock higher bandwidth and seamless network scalability with the right optical transceiver technology SFP

Cisco 100GBASE QSFP-DD 100G ZR Module Data Sheet

The Cisco 100G Quad Small Form-Factor Pluggable Double-Density (QSFP-DD) 100G ZR provides customers with a 100 Gigabit Ethernet ZR connectivity option for data centers, high

QSFP-DD ZR Coherent Optics: 400G Metro & Long-Haul Guide

Discover QSFP-DD ZR coherent optics for metro and long-haul networks. Compare 400ZR, ZR+, and OpenZR+ standards, reach, and ROADM compatibility.

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

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These digital coherent optics modules enable 800G traffic over amplified DWDM links up to 120 km for 800ZR and over 1000 km for 800G ZR+. They expand Cisco routed optical networking

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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EU project coordination: Parque das Nações, Lisbon, Portugal

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

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