

Article Overview

Single-fiber bidirectional QSFP-DD transceivers provide 100Gbps full-duplex connectivity over a single optical fiber, enabling efficient high-speed network deployment in India.

Overview of Single-Fiber Bidirectional QSFP-DD

Single-fiber bidirectional (BiDi) QSFP-DD modules, such as Cisco QSFP-100G-B20U4-I/B20D4-I and NEC 100G QSFP28 BiDi, allow 100Gbps full-duplex transmission over a single SMF (Single Mode Fiber), reducing fiber usage and cabling complexity. These modules operate using multiple wavelengths in opposite directions, enabling simultaneous transmit and receive signals on the same fiber. Cisco modules use four transmitters and receivers muxed via a diplexer filter, supporting distances up to 20 km, while NEC BiDi modules can reach up to 80 km using LWDM technology.

Technical Features

- o Form Factor: QSFP-DD or QSFP28, compatible with high-density 100G ports.
- o Wavelengths: Typically four wavelengths spaced in the O-band or LWDM band for bidirectional operation.
- o Modulation: NRZ for Cisco modules; PAM4 may be used in some QSFP28 variants.
- o Fiber Type: Single-mode fiber (SMF) for long-distance links; multimode fiber (MMF) for short-reach BiDi modules like 40G QSFP-BD.
- o Power Efficiency: Low-power design suitable for data center and enterprise core networks.

Use Cases

- o Data Center Interconnects: High-speed links between racks or aggregation switches.
- o Enterprise Core Networks: Efficient 100G connectivity without additional fiber deployment.
- o Telecom and Service Providers: Long-distance 100G links with reduced fiber infrastructure.
- o Network Upgrades: Replacing 10G/40G links while minimizing fiber consumption.

Procurement Options in India

- o Cisco QSFP-DD Modules: Available through authorized Cisco distributors and partners in India, supporting 20 km SMF links.
- o NEC 100G QSFP28 BiDi: Can be sourced via NEC India or authorized resellers, suitable for up to 80 km SMF deployment.
- o FS QSFP28 Modules: FS offers certified 100G QSFP28 transceivers compatible with Cisco, Arista, Juniper, and Brocade, available for Indian procurement.



India Procurement of Single-Fiber Bidirectional QSFP-DD

o Local Suppliers: Companies like Commando Networks in Navi Mumbai provide optical transceivers, including QSFP+ and BiDi modules, for enterprise and data center applications .

Considerations for Procurement

- o Compatibility: Ensure modules are compatible with existing switches and routers.
- o Distance Requirements: Choose modules based on link length (20 km vs 80 km).
- o Fiber Availability: Single-fiber BiDi reduces fiber usage, ideal for limited fiber infrastructure.
- o Vendor Support: Prefer authorized distributors for warranty, support, and compliance with Indian import regulations. By selecting single-fiber bidirectional QSFP-DD modules, Indian enterprises and service providers can achieve high-speed 100G connectivity with reduced fiber deployment, improved network resiliency, and cost efficiency.

Discover how the QSFP-DD MSA is revolutionizing 400G networks with advanced modules and cables, enhancing

40G QSFP+ modules are hot-swappable, quad-lane transceivers that deliver 40 Gbps by combining four 10.3125 Gbps

Confused by QSFP types? Decode the differences between QSFP+, QSFP28 (100G), and QSFP-DD.

It provides a QSFP-DD-to-QSFP-DD copper direct-attach solution. QDD-400-CuxM cables

The Cisco QSFP-40G-SR-BD is a BiDirectional QSFP+ transceiver that enables 40 Gigabit Ethernet connectivity over existing

What Is BiDi Transceiver? BiDi transceivers have become synonymous with reliable and high-performance

BiDi SFP (Bidirectional Small Form-Factor Pluggable) transceivers have emerged as a powerful solution, enabling full

What is a QSFP & QSFP+ Transceiver? QSFP stands for Quad Small Form-factor Pluggable. By integrating four-lane

The 100G BiDi transceiver refers to the QSFP28 single-mode fiber bidirectional optical module applied to 100G Ethernet. Each

What is a QSFP Cable? QSFP cables are high-speed transceiver and cabling solutions that

India Procurement of Single-Fiber Bidirectional QSFP-DD

How Does BiDi SFP Work? As the above-mentioned introduction about BiDi SFP, we have learned the modules

Confused by QSFP form factors? Read our technical breakdown of QSFP+, QSFP28, QSFP56, QSFP-DD, and

QSFP56: Data Rates: Supports up to 200Gbps Cable Length: Supports distances up to 10km with single-mode fiber

This RFP outlines the technical specifications, submission requirements, and evaluation criteria for the procurement of hardware

The eProcurement system facilitates online submission of bids and downloading of tender schedules for various

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