

Proxy AI Server QSFP-DD



Overview

Amphenol's QSFP-DD Linear Pluggable Optical (LPO) Transceiver delivers low-latency, high-bandwidth PCIe[®] Gen 5.0 over optical link, enabling scalable server disaggregation and efficient rack-to-rack interconnects ideal for AI/ML and rack-scale data center expansion. In one real-world case, a large AI research organization discovered that its GPU cluster was operating at no more than 60% utilization. This raised a critical question: should they invest in better analytics frameworks, or were they effectively wasting millions of dollars in compute resources due. The InfiniBand solution for her team's new AI cluster would cost \$680,000. The RoCEv2 Ethernet option using QSFP-DD 800G came in at \$410,000. The performance specs showed only a 5% difference in all-reduce benchmarks. "That's \$270,000 for 5%," she thought. Her CFO would ask hard questions about. QSFP-DD is a new module and cage/connector system similar to current QSFP, but with an additional row of contacts providing for an eight lane electrical interface. It is being developed by the QSFP-DD MSA as a key part of the industry's effort to enable high-speed solutions.

Understanding QSFP-DD and QSFP112 in AI Networking □□ What is QSFP-DD?

QSFP-DD (Quad. Supporting the continuing growth in the bandwidth demand and datacenter traffic driven by networking and AI/ML requirements, the QSFP-DD (Double Density) Interconnect System delivers 8 lanes with up to 28 Gbps NRZ or 56 Gbps-PAM4 (up to 400 Gbps aggregate) in a compact footprint that is backward. However, with multiple form factors—QSFP-DD, QSFP112, and OSFP—each tailored to specific deployment and upgrade needs, choosing the right 400G NIC is no simple task.

Article Content

Feb 06, 2026

AI Data Center Networking: QSFP-DD Guide for GPU Clusters

Deploy QSFP-DD for AI clusters with confidence. Learn bandwidth requirements, QSFP-DD vs OSFP for AI, and GPU cluster sizing.

Oct 28, 2025

QSFP-DD vs OSFP: What Are the Differences?

The width, length and thickness of QSFP-DD are 18.35mm, 89.4mm and 8.5mm, while those of OSFP are 22.58mm, 107.8mm and 13.0mm. It is obvious that the

Nov 22, 2025

QSFP-DD Linear Pluggable Optics (LPO)

Amphenol's QSFP-DD Linear Pluggable Optical (LPO) Transceiver delivers low-latency, high-bandwidth PCIe[®] Gen 5.0 over optical link, enabling

May 01, 2026

The Ultimate Guide to QSFP Cable: Everything You

They include: QSFP+: This is the most common type that supports up to 40Gbps in data centers. QSFP28: It has a higher bandwidth than QSFP+,

Feb 28, 2026

Optimizing AI Networks: Connecting 400G Ports with Backward

This article explores how to connect 400G ports with backward-compatible QSFP-DD modules while leveraging QSFP112 transceivers for AI servers, ensuring scalable, low-latency, and high-bandwidth

Jan 02, 2026

Choosing 400G NICs by Network Interface: OSFP,

Explore FS 400G NICs and their network interfaces—OSFP, QSFP-DD, and QSFP112. Learn how to choose the right 400G adapter for AI, HPC, and

Aug 06, 2025

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 modules to choose the most suitable 400G solution for your data centers.

Apr 30, 2026

QSFP DD Cable Assemblies | High Speed Input Output

QSFP DD Cable Assemblies Amphenol's QSFP DD (Double Density) copper cable assemblies double the number of channels from 4 to 8 lanes when

Feb 15, 2026

QSFP-DD for AI Data Centers: 400G/800G GPU Interconnect Guide

Learn how QSFP-DD optical transceivers enable AI data centers with 400G/800G bandwidth. Compare modules, architectures, and deployment strategies for GPU clusters.

Apr 17, 2026

QSFP-DD Optical Transceivers for High-Speed Connections

Systems designed with QSFP-DD ports are backwards compatible to support existing QSFP+, QSFP28, and QSFP56 modules. This provides flexibility for network designs and migrations to next-generation

Jan 10, 2026

Choosing 400G NICs by Network Interface: OSFP,

Learn how to choose the right 400G adapter for AI, HPC, and cloud data centers based on performance, throughput, and deployment needs.

Aug 15, 2025

Understanding the SFF-8636 Standard: The Universal Management

SFF-8636 defines a common management interface for 4-lane pluggable transceiver modules and direct-attach cables, covering products such as QSFP, QSFP28, and QSFP-DD. It

Aug 01, 2025

What Is 800G QSFP-DD and Why AI Data Centers Need It

800G QSFP-DD optical modules explained: architecture, types, applications, and why 800G is essential for AI and hyperscale data centers.

Nov 06, 2025

Connectivity in the Era of Big Data: Adapting with

This article discusses the transition of server connection speeds in data centers from 10GE and 25GE to 100GE and beyond. It introduces QSFP28,

May 24, 2026

Understanding QSFP-DD Cable: A Comprehensive

Explore the QSFP-DD cable in our comprehensive guide, covering 400G connectivity, double density technology, and passive copper cable

Jun 16, 2026

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

SFP and SFP+ remain relevant for legacy and low-speed environments, while SFP28 has become the optimal choice for modern 25G server access due to its efficiency and ASIC alignment.

Sep 16, 2025

QSFP-DD Optical Transceivers for High-Speed Connections

Quad Small Form-Factor Pluggable Double-Density (QSFP-DD) offers twice as many high-speed electrical interfaces as QSFP28 while maintaining the same port density. When combined with higher

Apr 25, 2026

FS 400G QSFP-DD: Complete Guide and Solutions

Explore FS 400G QSFP-DD transceivers and cables for cost-effective, low-power, and scalable 400G data center connectivity, supporting

Aug 03, 2025

QSFP-DD vs. OSFP: From 400G to 800G and Beyond

Today, 25G server ports are becoming more common, especially in Hadoop/HBase or other BI, datamining, and reporting applications. The advantage

Sep 04, 2025

A Comprehensive Comparison of 400G QSFP112 SR4,

Introduction The rapid rise of AI computing clusters and hyperscale data centers has led to exponential growth in network bandwidth requirements.

May 08, 2026

QSFP-DD Connector System

QSFP-DD Interconnect System's 8-lane electrical interface transmits 28G NRZ, 56G PAM-4 and 112G PAM-4, up to 200, 400 or 800 Gbps aggregate. Backwards

Jan 24, 2026

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

This article outlines key OSFP and QSFP-DD differences and offers four practical interconnection solutions to support scalable 400G/800G data center networks.

Jun 30, 2025

QSFP Cables Explained 2025: Types, DAC vs AOC,

Learn about QSFP cables: QSFP+, QSFP28, QSFP56, QSFP-DD. Compare DAC vs AOC, speeds, lengths, and use cases in data centers. Includes

May 09, 2026

What Is QSFP-DD? Specs, Architecture, and 400G Use

QSFP-DD (Quad Small Form-factor Pluggable Double Density) is an eight-lane pluggable optical module form factor designed to enable 400G and

Jul 18, 2025

The Ultimate Guide to QSFP Cables

Explore the ultimate guide to QSFP cables. Learn QSFP types, differences from SFP, installation methods, and benefits for high-speed data

Nov 25, 2025

800G QSFP-DD DR8+: Practical Performance for AI

As next-generation workloads in AI, machine learning, and hyperscale cloud computing drive exponential data growth, the network infrastructure must

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