

RIVO MULTITRADE OPTICAL SYSTEMS

The optical modules on HBA cards and 10 Gigabit optical cards



Overview

Guide to Fiber Network Cards: 10G/25G/100G NIC Fiber network cards are no longer niche, they're central to modern servers, storage, and AI 10G Optical Modu.

Key Takeaways

HBA cards and 10 Gigabit optical cards use SFP/SFP+ transceivers to convert electrical signals to optical signals, enabling high-speed connectivity over fiber networks. HBA Cards and Optical Modules

HBA (Host Bus Adapter) cards are installed in servers to connect them to Fibre Channel (FC) storage networks. They act as a bridge between the server's internal bus and the FC protocol, supporting features like link aggregation, jumbo frames, and hardware offloading . HBA cards typically have one or more FC ports that accept SFP (Small Form-factor Pluggable) optical modules. These modules convert electrical signals from the HBA into optical signals for transmission over fiber cables . Supported HBA optical modules vary by speed and type:

- 4 Gbps FC SFP modules for older HBA models
- 8 Gbps FC SFP modules for mid-range HBAs
- 16 Gbps FC SFP+ modules for high-performance HBAs

- 10 GbE FCoE SFP+ modules for converged network adapters supporting both Ethernet and FC HBA optical ports use LC connectors for fiber connections, and the modules are field-replaceable in most models. LEDs on the HBA indicate link status and activity, helping with troubleshooting .

10 Gigabit Optical Cards and SFP+ Modules

10 Gigabit optical cards (10GbE NICs) are network interface cards designed for high-speed Ethernet connectivity. They use SFP+ transceivers, which are enhanced versions of SFP modules, supporting 10 Gbps speeds over fiber . SFP+ modules are smaller, lower power, and allow higher port density compared to older XFP modules. They connect to the host via interfaces like SFI, XAUI, or XFI, depending on the module type . Key points about 10GbE optical modules:

- Media types: Single-mode fiber (SMF) for long distances, multimode fiber (MMF) for shorter distances
- Form factor: SFP+ modules are pluggable, allowing easy upgrades or replacements
- Function: Convert electrical signals from the NIC to optical signals for transmission over fiber
- Compatibility: Only supported transceivers should be used; unsupported modules can cause unpredictable performance

Installation and Best Practices

- Keep dust plugs and fiber caps on until ready to connect to prevent contamination
- Ensure the module type matches the HBA or NIC specifications (e.g., 16G FC SFP+ for 16G HBA)
- Verify fiber type and distance requirements before installation
- Observe LED indicators to confirm link status and activity

Summary

HBA cards and 10 Gigabit optical cards rely on SFP and SFP+ optical modules to enable high-speed fiber connectivity. HBAs primarily support Fibre Channel protocols for storage networks, while 10GbE cards support Ethernet and converged networks. Proper module selection, installation, and adherence to supported specifications are critical for reliable performance and network stability .

Article Content

10G Optical Module Overview

This article mainly describes the main application scenarios of 10G optical modules and the main advantages of 10G

10 Gbit/s SFP+ Optical Modules

10 Gbit/s SFP+ optical modules apply to 10 GE optical ports. The wavelength can be 850 nm, 1310 nm, or 1550 nm, and the

Introduction of 10G SFP+ Optical Modules

10G SFP+ Optical Module is a type of SFP+ transceiver that supports 10 Gigabit per second (10Gbps) data rates and

Details of the differences between fiber-optic network cards and HBA ...

“ Fiber-optic network card ” generally refers to the FC HBA card, plug in the server, external storage with the fiber

Installing and Removing SFP+ Optical Transceiver Modules

This section describes how to install and remove SFP+ optical transceiver modules to and from the SFP+ cages on the universal

10 Gigabit Ethernet

10 Gigabit Ethernet (10GE, 10GbE, or 10 GigE) is a group of computer networking technologies for transmitting Ethernet frames at a

HPE Compute Transceiver and Cable Hardware Matrix

Learn about available HPE server networking adapters, transceiver, and cable options for choosing the right network hardware in this

Marvell QLogic 2500 Series Fibre Channel Adapters

The Marvell Qlogic 2500 Series 8Gb Fibre Channel adapters provide low power consumption and virtualization optimization solutions

Cisco 100 Gigabit Modules

Explore Cisco 100 Gigabit Ethernet Modules, designed to deliver ultra-high-speed connectivity, scalability, and performance for

Emulex 16 Gb Gen 6 Fibre Channel Host Bus Adapters Product Guide

The Emulex 16 Gb Generation 6 Fibre Channel (FC) host bus adapters (HBAs) are an ideal solution when requiring

ADB and HBA Port and Cable Specifications

The ADB and HBA interfaces provide Fibre Channel (FC) connections using an LC physical connector for optical fibre connections

Fibre Channel Adapters and Controllers

The QLogic® Fibre Channel (FC) portfolio offers best-in-class performance and functionality for storage area networks. Designed for

Marvell QLogic 2770 Series Fibre Channel Adapters

Marvell QLogic Enhanced 32G Fibre Channel (32GFC) HBAs are constructed for superior security and provide encryption capability

Small Form-factor Pluggable

A 10 Gigabit Ethernet XFP transceiver, top, and a SFP+ transceiver, bottom The SFP+ (enhanced small form-factor pluggable) is an

100 Gigabit Ethernet

Optical modules are not standardized by any official standards body but are in multi-source agreements (MSAs). One agreement that

2X10GL (2-Port 10GE Optical Ports Interface Card)

This document describes hardware components of the AR, including the cabinet, chassis, power supply facilities, fan modules, cards,

How Much Do You Understand HBAs?

We use the term "fiber-optic network card" to refer to a FC HBA card, which is plugged into a server and connected via

What Is 10GBASE-SR? Complete Guide to 10G SFP+ SR Optics

This optical architecture allows 10GBASE-SR modules to deliver stable, low-error transmission over OM3 and OM4 multimode fiber,

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

