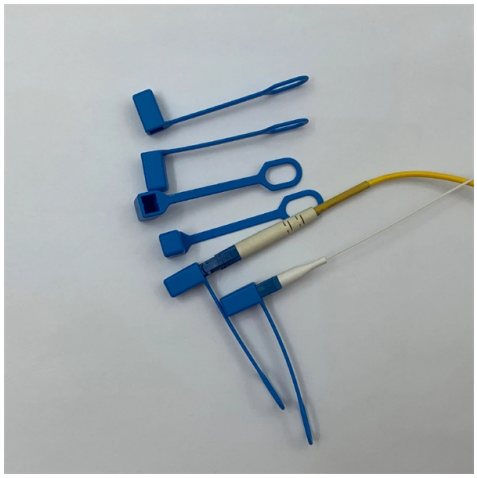
# GB200 requires an optical module



## AI Overview

The NVIDIA GB200 uses 800G and 1.6T OSFP optical modules for high-speed inter-cabinet connections, complementing internal copper NVLink interconnects.Overview of Optical Module UsageIn the GB200 NVL72 rack-scale system, internal communication within a cabinet relies primarily on copper interconnects such as 800G/1600G DAC and ACC cables, which provide low-latency, high-bandwidth connections for up to 72 Blackwell GPUs and 36 Grace CPUs . For inter-cabinet or cluster-level connections, the system employs 800G and 1.6T OSFP optical modules, enabling scalable high-speed networking across multiple racks .800G Optical ModulesApplication: Used extensively in large GB200 clusters, such as a 576-GPU deployment, requiring tens of thousands of 800G DR8 optical modules .Function: Facilitate high-bandwidth interconnects for AI workloads, supporting NVLink and InfiniBand networks.Manufacturers: Eoptolink and InnoLight dominate the supply, with Eoptolink supplying over 60% of 800G modules for NVIDIA GB200 servers .1.6T Optical ModulesApplication: Deployed in dual-layer and three-layer InfiniBand networks for GB200 NVL72 systems, with a GPU-to-transceiver ratio of 1:2 or 1:3 depending on network topology .Function: Provide ultra-high-speed interconnects for inter-rack communication, supporting generative AI and large language model workloads.Technology: Utilize 200G PAM4 signaling across 8 parallel channels, achieving 1.6Tbps total transmission per module .Integration with GB200 ArchitectureInternal NVLink Network: Within a single GB200 cabinet, NVLink 5.0 provides up to 1.8TB/s bidirectional bandwidth per GPU, connected via copper DAC/ACC cables .External Cluster Connectivity: Optical modules extend the network beyond a single cabinet, enabling clusters of up to 576 GPUs with high-speed, low-latency interconnects .Rack-Scale Design: Each NVL72 rack includes compute trays, NVLink switch trays, and TOR switches, with optical modules interfacing at the top-...

## Article Content

Pluggables, Power, and Geopolitics: Mapping the 800G

It is estimated that a single GB200 cluster comprising 576 GPUs necessitates approximately 18,432 single-ended 800G optical modules.2 This

GB200 NVL72 | NVIDIA

Powering the era of accelerated computing. The NVIDIA GB200 NVL72 connects 36 Grace CPUs and 72 Blackwell GPUs in a rack-scale, liquid-cooled design.

Introducing the NVIDIA GB200 GPU

NVIDIA says it is a game-changer for AI and high-performance computing, and the benchmarks support that claim. One of the key areas where

NVIDIA DGX GB Rack Scale Systems User Guide

This document contains detailed information about the hardware and software stack of DGX Grace Blackwell rack scale systems (such as GB200 and GB300). Each rack is an NVL72 rack (72-GPU

Unveiling NVIDIA GB200 Interconnect Architecture

A single GB200 subsystem contains 2 * 18 = 36 NVLink5 Ports. The external interconnection of the entire system does not adopt OSFP optical

GB200 Hardware Architecture

With CX-7 on the GB200 NVL72, each GPU has 400G of bandwidth and is connected to one OSFP cage with the multimode 400G Single-Port SR4

NVIDIA GB200: Interconnect Architecture and Evolution

Each GB200 subsystem has 2 * 18 = 36 NVLink5 Ports. The external interconnect of the system does not use OSFP optical modules, but rather a

1.6T Optical Interconnect Solution for NVIDIA GB200

FS delivers dedicated 1.6T transceivers and cables for NVIDIA GB200, boosting computational efficiency in AI clusters while reducing TCO. Backward-compatible with existing 800G infrastructure,

Deep Dive: Optical Module Market

Optical modules are typically defined by their bandwidth capacity, with the highest currently available being 800G modules. Next-generation 1.6T modules are expected to begin

NVIDIA GB200 Interconnect Architecture Analysis:

Explore the intricate interconnect architecture of the NVIDIA GB200, including NVLink bandwidth calculation, NVLINK 5.0 and 4.0 interconnect

1.6T Optical Interconnect Solution for NVIDIA GB200

FS has launched a 1.6T transceiver and cable solution specifically designed for the NVIDIA GB200, which can significantly improve the computing efficiency of AI clusters and reduce TCO, providing

800G Optical Transceivers Clear the Path for NVIDIA

The fabric requirements for GB200 deployments push optical transceivers on latency, density, thermal performance, and signal integrity simultaneously.

GB200 Hardware Architecture – Component Supply Chain & BOM ...

With CX-7 on the GB200 NVL72, each GPU has 400G of bandwidth and is connected to one OSFP cage with the multimode 400G Single-Port SR4 transceiver with four optical lanes each

NVIDIA GB200 Interconnect Architecture Analysis-NVLink, InfiniBand,

Expansion interfaces employ OSFP optical modules. As depicted in the following diagram, an OSFP optical module can support 16 pairs of differential signal lines, thus enabling each OSFP to

Complete Guide to NVIDIA B200 vs GB200 Deployment

Blog Complete Guide to NVIDIA B200 vs GB200 Deployment: Power, Cooling, and ROI Analysis B200 offers 2.5x H100 performance at 700W while

Optical Module Market Analysis and Forecast in 2026

A single GB200 server requires 162 1.6T optical modules, further amplifying demand. Technologically, silicon photonics has become mainstream,

Introduction to NVIDIA GB200 Superchip and Liquid

Introduction The NVIDIA GB200 is a highly integrated supercomputing module based on NVIDIA''s Blackwell architecture. This module

Why 1.6T Optical Transceivers Overtake 800G in 2026 AI Clusters?

1.6T optical transceivers are overtaking 800G in 2026 AI clusters because NVIDIA Blackwell GB200 systems require doubled bandwidth per port, Silicon Photonics technology reduces power

How NVIDIA GB200 Utilizes 800G/1.6T DAC/ACC

A: The launch of GB200 is positive for the optical module industry, as it meets the demand for cross-cabinet connections, which exist for most

How NVIDIA GB200 Utilizes 800G/1.6T DAC/ACC

Scalability for Large Clusters: While copper excels within cabinets, 800G/1600G optical modules support inter-cabinet connections, enabling

Co Packaged Optics (CPO) – Scaling with Light for the Next Wave of ...

Co-Packaged Optics (CPO) has long promised to transform datacenter connectivity, but it has taken a long time for the

GB200 Hardware Architecture

The SemiAnalysis GB200 Component & Supply Chain BoM Model details the components within a GB200 NVL72/NVL36 system as well as the

Function of GB200 optical module

Supports Large Model Training: The GB200 is specifically designed for training and inference of large-scale language models (LLMs), capable of handling models with hundreds of billions of parameters.

GB200 NVL72 | NVIDIA

Discover the powerful GB200 NVL72 GPU, engineered for AI workloads and next-gen data centers.

Charting the Path Toward 1.6T and 3.2T Optical Module

Pluggable transceiver design As the bandwidth of optical transceiver modules increases, technical challenges are emerging for members of the engineering

NVIDIA DGX GB Rack Scale Systems User Guide

NVIDIA DGX GB Rack Scale Systems User Guide # The NVIDIA DGX GB Rack Scale Systems User Guide is also available as a PDF. This document contains detailed information about

Introducing the NVIDIA GB200 GPU

Scientific simulations: From climate modeling to drug discovery, the GB200 can accelerate complex simulations that require immense computational

Nvidia Vera Rubin: Data Center Impact Explained | ModulEdge

Nvidia Vera Rubin: 190-230 kW VR200 racks in H2 2026, 600 kW Kyber in 2027, 800 VDC power, all-liquid cooling, and stranded-facility risk.

1.6T Modules: What Is Pushing Modules'' Bandwidth

Explore the technological advancements driving the push for module bandwidth to reach 1.6T. Learn how GB200 NVL72 and 200G PAM4 technology

## Contact Us

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