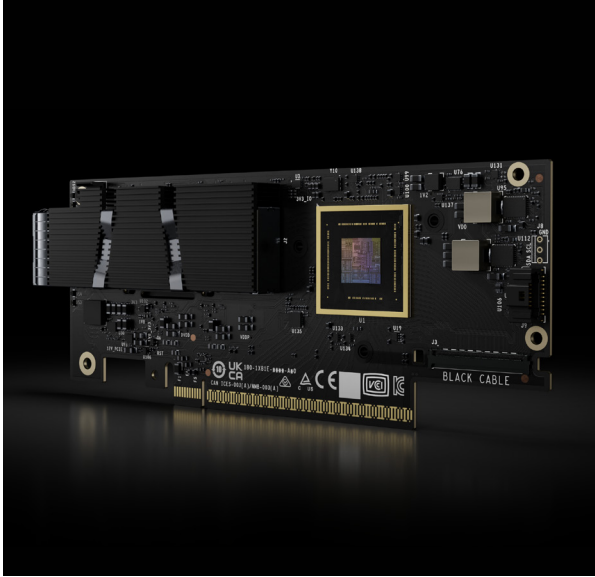




# ConnectX-8 SuperNIC

Highest-performance 800G networking designed for massive-scale AI.



The NVIDIA® ConnectX®-8 SuperNIC™ is optimized to supercharge hyperscale AI computing workloads. With support for both InfiniBand and Ethernet networking at up to 800 gigabits per second (Gb/s), ConnectX-8 SuperNIC delivers extremely fast, efficient network connectivity, significantly enhancing system performance for AI factories and cloud data center environments.

## Powerful Networking for the Future of AI

Central to NVIDIA’s AI networking portfolio, ConnectX-8 SuperNICs fuel the next wave of innovation in forming accelerated, massive-scale AI fabrics. They seamlessly integrate with next-gen NVIDIA networking platforms, providing up to end-to-end 800Gb/s connectivity. These platforms offer the robustness, feature sets, and scalability required for trillion-parameter GPU computing, AI data platforms, and agentic AI applications. With enhanced power efficiency, ConnectX-8 SuperNICs support the creation of increasingly sustainable AI data centers operating hundreds of thousands of GPUs, ensuring a future-ready infrastructure for AI advancements.

ConnectX-8 SuperNICs enable advanced routing and telemetry-based congestion control capabilities, achieving the highest network performance and peak AI workload efficiency. Additionally, ConnectX-8 InfiniBand SuperNICs extend the capabilities of NVIDIA® Scalable Hierarchical Aggregation and Reduction Protocol (SHARP)™ to boost in-network computing in high-performance computing environments, further enhancing overall efficiency and performance for both training and inferencing at scale

### Specifications

|                             |                             |
|-----------------------------|-----------------------------|
| Supported network protocols | ➤ InfiniBand                |
|                             | ➤ Ethernet                  |
| Maximum total bandwidth     | 800Gb/s                     |
| InfiniBand speeds           | 800/400/200/100Gb/s         |
| Ethernet speeds             | 400/200/100/50/25Gb/s       |
| Host interface              | PCIe Gen6: up to 48 lanes   |
| Portfolio                   | ➤ PCIe HHHL 1P x OSFP       |
|                             | ➤ PCIe HHHL 2P x QSFP112    |
|                             | ➤ Dual ConnectX-8 Mezzanine |

## Key features

| Network Interface           | InfiniBand                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Ethernet                                                                                                                                                                                                                                                                                                          |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                             | <ul style="list-style-type: none"><li>&gt; Supports 200/100/50G PAM4</li><li>&gt; Speeds:<ul style="list-style-type: none"><li>• 1 port x 800/400/200/100Gb/s</li><li>• 2 ports x 400/200/100Gb/s</li></ul></li><li>&gt; Max. bandwidth: 800Gb/s</li><li>&gt; IBTA v1.7-compliant</li><li>&gt; 16 million I/O channels</li><li>&gt; 256- to 4,096-byte MTU, 2GB messages</li></ul>                                                                                                                                                      | <ul style="list-style-type: none"><li>&gt; Supports 100/50G PAM4 and 25/10G NRZ</li><li>&gt; Speeds:<ul style="list-style-type: none"><li>• 1 port x 400/200/100Gb/s</li><li>• 2 ports x 400/200/100/50/25Gb/s</li></ul></li><li>&gt; Supports up to 8 split ports</li><li>&gt; Max. bandwidth: 800Gb/s</li></ul> |
| Host Interface              | <ul style="list-style-type: none"><li>&gt; PCIe Gen6 (up to 48 lanes)</li><li>&gt; NVIDIA Multi-Host™ (up to 4 hosts)</li><li>&gt; PCIe switch downstream port containment (DPC)</li><li>&gt; MSI/MSI-X</li></ul>                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                   |
| Optimized Cloud Networking  | <ul style="list-style-type: none"><li>&gt; Stateless TCP offloads: IP/TCP/UDP checksum</li><li>&gt; LSO, LRO, GRO, TSS, RSS</li><li>&gt; SR-IOV</li><li>&gt; Ethernet Accelerated Switching and Packet Processing™ (ASAP²) for SDN and VNF:<ul style="list-style-type: none"><li>• OVS acceleration</li><li>• Overlay network accelerations: VXLAN, GENEVE, NVGRE</li><li>• Connection tracking (L4 firewall) and NAT</li><li>• Hierarchical QoS, header rewrite, flow mirroring, flow-based statistics, flow aging</li></ul></li></ul> |                                                                                                                                                                                                                                                                                                                   |
| Advanced AI/ HPC Networking | <ul style="list-style-type: none"><li>&gt; RDMA and RoCEv2 accelerations</li><li>&gt; Advanced, programmable congestion control</li><li>&gt; NVIDIA® GPUDirect® RDMA</li><li>&gt; PUDirect Storage</li><li>&gt; In-network computing</li><li>&gt; High-speed packet reordering</li><li>&gt; MPI accelerations<ul style="list-style-type: none"><li>• Burst-buffer offloads</li><li>• Collective operations</li><li>• Enhanced atomic operations</li><li>• Rendezvous protocol offloads</li></ul></li></ul>                              |                                                                                                                                                                                                                                                                                                                   |

## Key features

|                        |                                                                                                                                                                                                                                                 |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AI/HPC Software        | > NCCL                                                                                                                                                                                                                                          |
|                        | > HPC-X                                                                                                                                                                                                                                         |
|                        | > DOCA UCC/UCX                                                                                                                                                                                                                                  |
|                        | > OpenMPI                                                                                                                                                                                                                                       |
|                        | > MVAPICH-2                                                                                                                                                                                                                                     |
| Cybersecurity          | > Platform security <ul style="list-style-type: none"><li>• Secure boot with hardware root of trust</li><li>• Secure firmware update</li><li>• Flash encryption</li><li>• Device attestation (SPDM 1.1)</li></ul>                               |
|                        | > Inline crypto accelerations: IPsec, MACsec, PSP                                                                                                                                                                                               |
| Management and Control | > Network Control Sideband Interface (NC-SI)                                                                                                                                                                                                    |
|                        | > MCTP over SMBus and PCIe PLDM for: <ul style="list-style-type: none"><li>• Monitor and Control DSP0248</li><li>• Firmware Update DSP0267</li><li>• Redfish Device Enablement DSP0218</li><li>• Field-Replaceable Unit (FRU) DSP0257</li></ul> |
|                        | > Security Protocols and Data Models (SPDM) DSP0274                                                                                                                                                                                             |
|                        | > Serial Peripheral Interface (SPI) to flash                                                                                                                                                                                                    |
|                        | > Joint Test Action Group (JTAG) IEEE 1149.1 and IEEE 1149.6                                                                                                                                                                                    |
|                        |                                                                                                                                                                                                                                                 |
| Network Boot           | > InfiniBand or Ethernet                                                                                                                                                                                                                        |
|                        | > PXE boot                                                                                                                                                                                                                                      |
|                        | > iSCSI boot                                                                                                                                                                                                                                    |
|                        | > Unified Extensible Firmware Interface (UEFI)                                                                                                                                                                                                  |

## Ready to Get Started?

To learn more, contact an NVIDIA sales representative:  
[nvidia.com/en-us/contact/sales](https://nvidia.com/en-us/contact/sales)