



ConnectX-6 Lx 25G/50G Ethernet NIC

Accelerated networking for modern enterprise data centers.



NVIDIA® ConnectX®-6 Lx Ethernet network interface cards (NIC) deliver high-performance network connectivity at 25GbE speeds coupled with advanced security and the best total cost of ownership for enterprise data centers. The NICs support up to two ports of 25GbE or a single port of 50GbE networking, along with PCI Express (PCIe) Gen3 and Gen4 x8 host connectivity to meet the demands of modern workloads in the cloud, in the data center and at the edge.

SDN Acceleration

NVIDIA Accelerated Switch and Packet Processing (ASAP2)™ technology offloads the software-defined networking (SDN) data plane to the NIC, accelerating performance and offloading the CPU in virtualized or containerized cloud data centers. Customers can accelerate their data centers with a single-root input/output (IO) virtualization (SR-IOV) or VirtIO interface while continuing to enjoy their SDN solution of choice. The ConnectX-6 Lx ASAP2 rich feature set accelerates public and on-premises enterprise clouds and boosts the transition of cloud service providers (CSPs) to network function virtualization (NFV). ASAP2 supports these CSPs by enabling packet encapsulations, such as multiprotocol label switching (MPLS) and GPRS Tunneling Protocol (GTP), alongside cloud encapsulations, such as Virtual Extensible LAN (VXLAN), Generic Network Virtualization Encapsulation (GENEVE), and others.

Industry-Leading RoCE

Following in the ConnectX tradition of providing industry-leading remote direct-memory access (RDMA) over converged Ethernet (RoCE) capabilities, ConnectX-6 Lx enables more scalable, resilient, and easy-to-deploy RoCE solutions. With zero-touch RoCE (ZTR), the ConnectX-6 Lx allows RoCE payloads to run seamlessly on existing networks without special configuration, either to priority flow control (PFC) or explicit congestion notification (ECN), for simplified RoCE deployments. ConnectX-6 Lx ensures RoCE resilience and efficiency at scale.

Secure Your Infrastructure

In the face of a growing cyber threat landscape, ConnectX-6 Lx adapters offer advanced, built-in capabilities that bring security down to every node in the data center. ConnectX-6 Lx offers Internet Protocol Security (IPsec) inline encryption and decryption acceleration. ASAP2 connection-tracking hardware offload accelerates Layer 4 firewall performance.

Product Specifications

Total bandwidth	50Gb/s
Supported Ethernet speeds	10/25/50GbE
Number of network ports	1 or 2
Network interface technologies	NRZ
Host interface	PCIe Gen3 and Gen4 x8
Platform security	Hardware root of trust and secure firmware update
Form factors	PCIe HHHL, OCP3.0 SFF
Network interfaces	SFP28, QSFP28

ConnectX-6 Lx also delivers supply chain protection with hardware root of trust (RoT) for secure boot and firmware updates using RSA cryptography and cloning protection via a device-unique key, guaranteeing firmware authenticity.

Features*

Network Interface

- > Two ports of 10/25GbE or one port of 50GbE
- > Up to 50gigabits per second (Gb/s) of total bandwidth

Host Interface

- > PCIe Gen 4.0 compatible, eight lanes
- > Message Signaled Interrupts (MSI)/MSI-X mechanisms

Enhanced Networking

- > Zero-touch RoCE
- > ASAP² for SDN and virtual network functions (VNF) acceleration
- > SR-IOV
- > VirtIO acceleration
- > Overlay network acceleration: VXLAN, GENEVE, Network Virtualization using Generic Routing Encapsulation (NVGRE)
- > Programmable flexible parser
- > Connection tracking (L4 firewall)
- > Flow mirroring, sampling, and statistics
- > Header rewrite
- > Hierarchical quality of service (QoS)
- > Stateless Transmission Control Protocol (TCP) offloads

Management and Control

- > Network controller sideboard interface (NC-SI), Management Component Transport Protocol (MCTP) over System Management Bus (SMBus) and MCTP over PCIe—baseboard management controller (BMC) interface, NC-SI over reduced media independent interface (RMII)-Based Transport (RBT) in Open Compute Project (OCP) cards
- > Platform Level Data Model (PLDM) for Monitor and Control DSP0248
- > PLDM for Firmware Update DSP0267

Cybersecurity

- > Inline hardware IPsec encryption and decryption
 - > IPsec over RoCE
- > Platform security
 - > Hardware root of trust
 - > Secure firmware update

Remote Boot

- > Remote boot over Ethernet
- > Remote boot over Internet Small Computer Systems Interface (iSCSI)
- > Unified extensible firmware interface (UEFI) support for x86 and Arm® servers
- > Preboot Execution Environment (PXE) boot

Portfolio and Ordering Information

For NVIDIA ordering information, please contact your NVIDIA sales representative or visit the online ConnectX-6 Lx user manuals:

PCIe HHHL form factor and **OCP 3.0 form factor**.

Ready to Get Started?

To learn more about NVIDIA NICs, visit:

[nvidia.com/ethernet-adapters](https://www.nvidia.com/ethernet-adapters)

*This section describes hardware features and capabilities. Please refer to the driver and firmware release notes for feature availability.