



ConnectX-6 Lx

25/50G Ethernet SmartNIC

Smart, Accelerated Networking for Modern Enterprise Data Centers.

NVIDIA® ConnectX®-6 Lx Ethernet smart network interface cards (SmartNIC) deliver scalability, high performance, advanced security capabilities, and accelerated networking with the best total cost of ownership for 25GbE deployments in cloud and enterprise data centers. The SmartNICs support up to two ports of 25GbE, or a single-port of 50GbE connectivity, along with PCI Express Gen3 and Gen4 x8 host connectivity to deliver cutting-edge performance and security for uncompromising data centers.

SDN Acceleration

NVIDIA ASAP² - Accelerated Switch and Packet Processing™ technology offloads the software-defined networking (SDN) data plane to the SmartNIC, accelerating performance and offloading the CPU in virtualized or containerized cloud data centers. Customers can accelerate their data centers with an 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 communication service providers (CSP) transition to network function virtualization (NFV). ASAP² supports these communication service providers by enabling packet encapsulations, such as MPLS and GTP, alongside cloud encapsulations, such as VXLAN, GENEVE, and others.

Industry-leading RoCE

Following in the ConnectX tradition of providing industry-leading 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 an era where data privacy is key, ConnectX-6 Lx adapters offer advanced, built-in capabilities that bring security down to the endpoints with unprecedented performance and scalability. ConnectX-6 Lx offers IPsec inline encryption and decryption acceleration. ASAP² connection-tracking hardware offload accelerates Layer 4 firewall performance.

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, to guarantee firmware authenticity.



SmartNIC Portfolio

- > 10/25/50 Gb/s Ethernet
- > Various form factors:
 - > PCIe low-profile
 - > OCP 3.0 small form factor (SFF)
- > Connectivity options:
 - > SFP28, QSFP28
- > PCIe Gen3 and Gen4 x8
- > Crypto and non-crypto versions

Key Features

- > Line speed message rate of 75Mpps
- > Advanced RoCE
- > SDN acceleration
- > IPsec inline crypto acceleration
- > Overlay tunneling accelerations
- > Stateful rule checking for connection tracking
- > Hardware root-of-trust and secure firmware update

Features*

Network Interface

- > 2 ports of 10/25GbE or 1 port of 50GbE
- > Up to 50Gb/s total bandwidth

Host Interface

- > PCIe Gen 4.0 compatible, 8 lanes
- > MSI/MSI-X mechanisms

Enhanced Networking

- > Zero-Touch RoCE
- > ASAP² Accelerated Switch and Packet Processing for SDN and VNF acceleration
- > Single Root I/O Virtualization (SR-IOV)
- > VirtIO acceleration
- > Overlay network acceleration: VXLAN, GENEVE, NVGRE
- > Programmable flexible parser
- > Connection tracking (L4 firewall)
- > Flow mirroring, sampling and statistics
- > Header rewrite
- > Hierarchical QoS
- > Stateless TCP offloads

Cybersecurity

- > Inline hardware IPsec encryption and decryption
 - > AES-XTS 256/512-bit key
 - > IPsec over RoCE
- > Platform security
 - > Hardware root-of-trust
 - > Secure firmware update

Management and Control

- > NC-SI, MCTP over SMBus and MCTP over PCIe - Baseboard Management Controller interface, NCSI over RBT in OCP cards
- > PLDM for Monitor and Control DSP0248
- > PLDM for Firmware Update DSP0267

Remote Boot

- > Remote boot over Ethernet
- > Remote boot over iSCSI
- > Unified extensible firmware interface (UEFI) support for x86 and Arm servers
- > Pre-execution environment (PXE) boot



ConnectX-6 Lx OCP 3.0 form factor

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 SmartNICs, visit:
nvidia.com/networking/ethernet-adapters

* This section describes hardware features and capabilities.
Please refer to the driver and firmware release notes for feature availability.
Images are for illustration only; actual products may vary.

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