NVIDIA ConnectX-7 Adapter Cards User Manual

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About This Manual

This User Manual describes NVIDIA® ConnectX®-7 InfiniBand and Ethernet adapter cards. It provides details as to the interfaces of the board, specifications, required software and firmware for operating the board, and relevant documentation.

Intended Audience

This manual is intended for the installer and user of these cards. The manual assumes basic familiarity with InfiniBand and Ethernet network and architecture specifications.

Ordering Part Numbers

The table below lists the ordering part numbers (OPNs) for the available ConnectX-7 stand-up cards. For the Open Compute Project (OCP 3.0) cards, please refer to NVIDIA ConnectX-7 Adapter Cards for OCP 3.0 User Manual.

ConnectX-7 PCIe x16 Stand-up Adapter Cards

NVIDIA SKU	Legacy OPN	Form Factor	Data Transmission Rate	No. of Ports and Type	PCIe Support	Secure Boot	Crypto	Bracket Type	Lifecycle
900-9X766-003N-SQ0[1]	MCX75310AAS-NEAT	PCIe Half Height, Half Length 2.71 in. x 6.6 in. (68.90mm x 167.65 mm)	InfiniBand: NDR 400Gb/s (Default speed) Ethernet: 400GbE	Single-port OSFP	PCIe x16 Gen 4.0/5.0 @ SERDES 16GT/s/32GT/s	✓	-	Tall Bracket	Mass Production
900-9X766-003N-SR0	MCX75310AAC-NEAT	PCIe Half Height, Half Length 2.71 in. x 6.6 in. (68.90mm x 167.65 mm)	InfiniBand: NDR 400Gb/s (Default speed) Ethernet: 400GbE	Single-port OSFP	PCIe x16 Gen 4.0/5.0 @ SERDES 16GT/s/32GT/s	✓	✓	Tall Bracket	Mass Production
900-9X766-003N-ST0[2]	MCX75310AAS-HEAT	PCIe Half Height, Half Length 2.71 in. x 6.6 in. (68.90mm x 167.65 mm)	InfiniBand: NDR200 200Gb/s (Default speed) Ethernet: 200GbE	Single-port OSFP	PCIe x16 Gen 4.0/5.0 @ SERDES 16GT/s/32GT/s	✓	-	Tall Bracket	Mass Production
900-9X7AH-0086-SQ0	MCX713106AC-CEAT	PCIe Half Height, Half Length 2.71 in. x 6.6	Ethernet: 100GbE	Dual-port QSFP112	PCIe x16 Gen 4.0/5.0 @ SERDES 16GT/s/32GT/s	✓	✓	Tall Bracket	Mass Production

NVIDIA SKU	Legacy OPN	Form Factor	Data Transmission Rate	No. of Ports and Type	PCIe Support	Secure Boot	Crypto	Bracket Type	Lifecycle
		in. (68.90mm x 167.65 mm)							
900-9X7AH-0076-ST0	MCX713106AS-CEAT	PCIe Half Height, Half Length 2.71 in. x 6.6 in. (68.90mm x 167.65 mm)	Ethernet: 100GbE	Dual-port QSFP112	PCIe x16 Gen 4.0/5.0 @ SERDES 16GT/s/32GT/s	✓	-	Tall Bracket	Mass Production
900-9X7AO-00C3-STZ	MCX713104AC-ADAT	PCIe Half Height, Half Length 2.71 in. x 6.6 in. (68.90mm x 167.65 mm)	Ethernet: 50/25GbE	Quad-port SFP56	PCIe x16 Gen 4.0 @ SERDES 16GT/s	✓	✓	Tall Bracket	Mass Production
900-9X7AO-0003-ST0	MCX713104AS-ADAT	PCIe Half Height, Half Length 2.71 in. x 6.6 in. (68.90mm x 167.65 mm)	Ethernet: 50/25GbE	Quad-port SFP56	PCIe x16 Gen 4.0 @ SERDES 16GT/s	✓	-	Tall Bracket	Mass Production

Notes:

[1]The MCX75310AAS-NEAT card supports InfiniBand and Ethernet protocols from hardware version AA and higher.
[2]The MCX75310AAS-HEAT card supports InfiniBand and Ethernet protocols from hardware version A7 and higher.

ConnectX-7 for Telecommunication Applications

NVIDIA SKU	Legacy OPN	Form Factor	Data Transmission Rate	No. of Ports and Type	PCIe Support	Secure Boot	Crypto	Timing Capabilities	Bracket Type	Lifecycle
900-9X7AH-004N-CT0	MCX713114TC-GEAT	PCIe Full Height, Half Length 4.53 in. x 6.6 in. (115.15 mm x 167.65 mm)	Ethernet: 50/25GbE	Quad-port SFP56	PCIe x16 Gen 4.0 @ SERDES 16GT/s	✓	✓	PPS In /Out, SMAs, SycnE	Tall Bracket	Engineering Samples

ConnectX-7 Socket Direct Ready Cards for Dual-Slot Servers

NVIDIA SKU	Legacy OPN	Form Factor	Data Transmission Rate	No. of Ports and Type	PCIe Support	Socket Direct Ready - PCIe Extension Option	Secure Boot	Crypto	Bracket Type	Lifecycle
900-9X7AH-0039-STZ	MCX715105AS-WEAT	PCIe Half Height, Half Length 2.71 in. x 6.6 in. (68.90mm x 167.65 mm)	InfiniBand: NDR 400Gb/s Ethernet: 400GbE (Default Speed)	Single-port QSFP112	PCIe x16 Gen 4.0/5.0 @ SERDES 16GT/s/32GT/s	Optional: PCIe x16 Gen 4.0 @ SERDES 16GT/s	✓	-	Tall Bracket	Engineering Samples
900-9X721-	MCX75510AAS-NEAT	PCIe Half Height,	InfiniBand: NDR 400Gl							

NVIDIA SKU	Legacy OPN	Form Factor	Data Transmission Rate	No. of Ports and Type	PCIe Support	Socket Direct Ready - PCIe Extension Option	Secure Boot	Crypto	Bracket Type	Lifecycle
003N-DT1		Half Length 2.71 in. x 6.6 in. (68.90mm x 167.65 mm)		OSFP	SERDES 16GT/s/32GT/s	Gen 4.0 @ SERDES 16GT/s				
900-9X721-003N-DT1	MCX75510AAS-HEAT	PCIe Half Height, Half Length 2.71 in. x 6.6 in. (68.90mm x 167.65 mm)	InfiniBand: NDR200 200Gb/s	Single-port OSFP	PCIe x16 Gen 4.0/5.0 @ SERDES 16GT/s/32GT/s	Optional: PCIe x16 Gen 4.0 @ SERDES 16GT/s	✓	-	Tall Bracket	Mass Production
900-9X7AH-0078-DTZ	MCX755106AS-HEAT	PCIe Half Height, Half Length 2.71 in. x 6.6 in. (68.90mm x 167.65 mm)	InfiniBand: NDR200 200Gb/s Ethernet: 200GbE (Default Speed)	Dual-port QSFP112	PCIe x16 Gen 4.0/5.0 @ SERDES 16GT/s/32GT/s	Optional: PCIe x16 Gen 4.0 @ SERDES 16GT/s	✓	-	Tall Bracket	Mass Production
900-9X7AH-0079-DTZ	MCX755106AC-HEAT	PCIe Half Height, Half Length 2.71 in. x 6.6 in. (68.90mm x 167.65 mm)	InfiniBand: NDR200 200Gb/s Ethernet: 200GbE (Default Speed)	Dual-port QSFP112	PCIe x16 Gen 4.0/5.0 @ SERDES 16GT/s/32GT/s	Optional: PCIe x16 Gen 4.0 @ SERDES 16GT/s	✓	✓	Tall Bracket	Mass Production

Legacy (EOL) Ordering Part Numbers

NVIDIA ConnectX-7 Ethernet adapter card, 400 GbE, Single-port QSFP112, PCIe 5.0 x16, Secure Boot, No Crypto, Tall Bracket

NVIDIA SKU	Legacy OPN	Form Factor	Data Transmission Rate	No. of Ports and Type	PCIe Support	Secure Boot	Crypto	Timing Capabilities	Bracket Type	Lifecycle
900-9X7AH-0088-ST0	MCX713106AC-VEAT	PCIe Half Height, Half Length 2.71 in. x 6.6 in. (68.90mm x 167.65 mm)	Ethernet: 200GbE	Dual-port QSFP112	PCIe x16 Gen 4.0/5.0 @ SERDES 16GT/s/32GT/s	✓	✓	-	Tall Bracket	End of Life
900-9X7AH-0078-ST0	MCX713106AS-VEAT	PCIe Half Height, Half Length 2.71 in. x 6.6 in. (68.90mm	Ethernet: 200GbE	Dual-port QSFP112	PCIe x16 Gen 4.0/5.0 @ SERDES 16GT/s/32GT/s	✓	-	-	Tall Bracket	End of Life

NVIDIA SKU	Legacy OPN	Form Factor	Data Transmission Rate	No. of Ports and Type	PCIe Support	Secure Boot	Crypto	Timing Capabilities	Bracket Type	Lifecycle
		x 167.65 mm)								
900-9X7AH-0039-ST1	MCX713105AS-WEAT	PCIe Half Height, Half Length 2.71 in. x 6.6 in. (68.90mm x 167.65 mm)	Ethernet: 400GbE	Single-port QSFP112	PCIe x16 Gen 4.0/5.0 @ SERDES 16GT/s/32GT/s	✓	-	-	Tall Bracket	End of Life
900-9X7AH-004N-GT0	MCX713114GC-GEAT	PCIe Full Height, Half Length 4.53 in. x 6.6 in. (115.15 mm x 167.65 mm)	Ethernet: 50/25GbE	Quad-port SFP56	PCIe x16 Gen 4.0 @ SERDES 16GT/s	✓	✓	Enhanced-SyncE & PTP Grand Master support and GNSS/PPS Out	Tall Bracket	End of Life

For more information, please refer to PCIe Auxiliary Card Kit.

Technical Support

Customers who purchased NVIDIA products directly from NVIDIA are invited to contact us through the following methods:

- URL: https://www.nvidia.com > Support
- E-mail: enterprisesupport@nvidia.com

Customers who purchased NVIDIA Global Support Services, please see your contract for details regarding Technical Support.
Customers who purchased NVIDIA products through an NVIDIA-approved reseller should first seek assistance through their reseller.

Related Documentation

MLNX_OFED for Linux User Manual and Release Notes	User Manual describing OFED features, performance, band diagnostic, tools content and configuration. See MLNX_OFED for Linux Documentation.
WinOF-2 for Windows User Manual and Release Notes	User Manual describing WinOF-2 features, performance, Ethernet diagnostic, tools content and configuration. See WinOF-2 for Windows Documentation.
NVIDIA VMware for Ethernet User Manual	User Manual and release notes describing the various components of the NVIDIA ConnectX® NATIVE ESXi stack. See VMware® ESXi Drivers Documentation.
NVIDIA Firmware Utility (mlxup) User Manual and Release Notes	NVIDIA firmware update and query utility used to update the firmware. Refer to Firmware Utility (mlxup) Documentation.
NVIDIA Firmware Tools (MFT) User Manual	User Manual describing the set of MFT firmware management tools for a single node. See MFT User Manual.
InfiniBand Architecture Specification Release 1.2.1, Vol 2 - Release 1.4, and Vol 2 - Release 1.5	InfiniBand Specifications
IEEE Std 802.3 Specification	IEEE Ethernet Specifications
PCI Express 5.0 *Specifications*	Industry Standard PCI Express Base and Card Electromechanical Specifications. Refer to PCI-SIG Specifications.
LinkX Interconnect Solutions	LinkX cables and transceivers are designed to maximize the performance of High-Performance Computing networks, requiring high-bandwidth, low-latency connections between compute nodes and switch nodes. NVIDIA offers one of the industry's most complete line of 10, 25, 40, 50, 100, 200, and 400GbE Ethernet and EDR, HDR, and NDR including Direct Attach cables (DACs), copper spli

	10km. In addition to meeting Ethernet and IBTA standards, NVIDIA tests every product in an end-to-end environment ensuring a Bit Error Rate of less than 1E-15. Read more at LinkX Cables and Transceivers.
NVIDIA ConnectX-7 Electrical and Thermal Specifications	You can access the "NVIDIA ConnectX-7 Electrical and Thermal Specifications" document either by logging into NVOnline or by contacting your NVIDIA representative.

When discussing memory sizes, MB and MBytes are used in this document to mean size in MegaBytes. The use of Mb or Mbits (small b) indicates size in MegaBits. IB is used in this document to mean InfiniBand. In this document, PCIe is used to mean PCI Express.

Revision History

A list of the changes made to this document is provided in Document Revision History.