



NVIDIA ConnectX-6 Dx Adapter Cards Firmware Release Notes v22.41.1000

Table of Contents

1	Release Notes Update History.....	4
2	Overview	5
2.1	Firmware Download	5
2.2	Document Revision History	5
3	Firmware Compatible Products	6
3.1	Supported Devices	6
3.2	Driver Software, Tools and Switch Firmware	10
4	Changes and New Features.....	11
4.1	Important Notes.....	11
4.2	Unsupported Features and Commands	12
4.2.1	Unsupported Features.....	12
4.2.2	Unsupported Commands	12
5	Bug Fixes in this Firmware Version.....	13
6	Known Issues.....	14
7	PreBoot Drivers (FlexBoot/UEFI)	22
7.1	FlexBoot Changes and New Features	22
7.2	UEFI Changes and Major New Features.....	22
8	Validated and Supported Cables and Switches	23
8.1	Validated and Supported Cables and Modules	23
8.1.1	Cables Lifecycle Legend	23
8.1.2	200GbE Cables.....	23
8.1.3	100GbE Cables.....	29
8.1.4	50GbE Cables	35
8.1.5	FDR10 / 40GbE Cables	36
8.1.6	25GbE Cables	39
8.1.7	10GbE Cables	41
8.1.8	1GbE Cables	43
8.1.9	Supported 3rd Party Cables and Modules	44
8.2	Tested Switches	45
8.2.1	400GbE Switches	45
8.2.2	200GbE Switches	46
8.2.3	100GbE Switches	46

8.3	PRM Revision Compatibility	46
9	Supported Non-Volatile Configurations	47
10	Release Notes History	50
10.1	Changes and New Feature History	50
10.2	Bug Fixes History	51
11	Legal Notices and 3rd Party Licenses	55

1 Release Notes Update History

Version	Date	Description
22.41.1000	May 05, 2024	Initial release of this Release Notes version, This version introduces Changes and New Features and Bug Fixes .

2 Overview

Firmware which is added at the time of manufacturing, is used to run user programs on the device and can be thought of as the software that allows hardware to run. Embedded firmware is used to control the functions of various hardware devices and systems, much like a computer's operating system (OS) controls the function of software applications. Firmware may be written into read-only memory (ROM), erasable programmable read-only memory (EPROM) or flash memory.

2.1 Firmware Download

Please visit the [firmware webpage](#).

2.2 Document Revision History

A list of the changes made to this document are provided in [Document Revision History](#).

3 Firmware Compatible Products


The chapter contains the following sections:


These are the release notes for the NVIDIA® ConnectX®-6 Dx adapters firmware. This firmware supports the following protocols:

- Ethernet - 1GbE, 10GbE, 25GbE, 40GbE, 50GbE¹, 100GbE¹, 200GbE²
- PCI Express 4.0, supporting backwards compatibility for v3.0, v2.0 and v1.1

¹. Speed that supports both NRZ and PAM4 modes in Force mode and Auto-Negotiation mode.

². Speed that supports PAM4 mode only.

 When connecting an NVIDIA-to-NVIDIA adapter card in ETH PAM4 speeds, Auto-Neg should always be enabled.

 Please make sure to use a PCIe slot that can supply the required power to the ConnectX-6 Dx adapter card as stated in section Specifications in the adapter card's User Manual.

3.1 Supported Devices

This firmware supports the devices and protocols listed below:

NVIDIA SKU	Legacy OPN	PSID	Device Name
900-9X624-0055-SIO / 900-9X624-0055-SB0	MCX623432AN-GDA	MT_000000 0325	ConnectX-6 Dx EN adapter card; 50GbE for OCP 3.0; with host management; Dual-port SFP56; PCIe 3.0/4.0 x16; Internal Lock
900-9X658-0016-MB0	MCX623435MN-CDAB	MT_000000 0326	ConnectX-6 Dx EN adapter card; 100GbE for OCP 3.0; with Multi-Host and host management; Single-port QSFP56; PCIe 3.0/4.0 x16; Internal Lock
900-9X658-0056-SB1	MCX623436AN-CDAB	MT_000000 0327	ConnectX-6 Dx EN adapter card; 100GbE for OCP 3.0; with host management; Dual-port QSFP56; PCIe 3.0/4.0 x16; Internal Lock
900-9X6AP-0055-ST1	MCX623102AN-GDAT	MT_000000 0353	ConnectX-6 Dx EN adapter card; 50GbE; Dual-port SFP56; PCIe 4.0/3.0 x16
900-9X6AP-0053-ST0	MCX623102AN-ADAT	MT_000000 0355	ConnectX-6 Dx EN adapter card; 25GbE; Dual-port SFP28; PCIe 4.0/3.0 x16
900-9X661-0053-SQ0	MCX621102AN-ADAT	MT_000000 0356	ConnectX-6 Dx EN adapter card; 25GbE; Dual-port SFP28; PCIe 4.0/3.0 x8
900-9X6AG-0056-ST1	MCX623106AN-CDAT	MT_000000 0359	ConnectX-6 Dx EN adapter card; 100GbE; Dual-port QSFP56; PCIe 4.0/3.0 x16;
900-9X6AG-0018-ST0	MCX623105AN-VDAT	MT_000000 0362	ConnectX-6 Dx EN adapter card; 200GbE; Single-port QSFP56; PCIe 4.0 x16; No Crypto

NVIDIA SKU	Legacy OPN	PSID	Device Name
900-9X658-0086-SB0	MCX623436AC-CDAB	MT_0000000394	ConnectX-6 Dx EN adapter card; 100GbE; OCP3.0; With Host management; Dual-port QSFP56; PCIe 4.0 x16; Crypto and Secure Boot;
900-9X671-0016-SN0	MCX623405AN-CDAN	MT_0000000396	ConnectX-6 Dx EN adapter card; 100GbE OCP2.0; With Host management; Type 2; Single-port QSFP56; PCIe 4.0 x16; No Crypto
900-9X661-0083-ST1	MCX621102AC-ADAT	MT_0000000430	ConnectX-6 Dx EN adapter card; 25GbE; Dual-port SFP28; PCIe 4.0 x8; Crypto and Secure Boot
900-9X6AP-0085-ST0	MCX623102AC-GDAT	MT_0000000432	ConnectX-6 Dx EN adapter card; 50GbE; Dual-port SFP56; PCIe 4.0 x16; Crypto and Secure Boot
900-9X6AP-0075-ST0	MCX623102AS-GDAT	MT_0000000433	ConnectX-6 Dx EN adapter card; 50GbE; Dual-port SFP56; PCIe 4.0 x16; Secure Boot; No Crypto
900-9X6AG-0016-ST0	MCX623105AN-CDAT	MT_0000000434	ConnectX-6 Dx EN adapter card; 100GbE; Single-port QSFP56; PCIe 4.0 x16; No Crypto
900-9X6AG-0038-ST0	MCX623105AS-VDAT	MT_0000000435	ConnectX-6 Dx EN adapter card; 200GbE; Single-port QSFP56; PCIe 4.0 x16; Secure Boot; No Crypto
900-9X6AG-0086-ST0	MCX623106AC-CDAT	MT_0000000436	ConnectX-6 Dx EN adapter card; 100GbE; Dual-port QSFP56; PCIe 4.0 x16; Crypto and Secure Boot
900-9X6AG-0076-ST0	MCX623106AS-CDAT	MT_0000000437	ConnectX-6 Dx EN adapter card; 100GbE; Dual-port QSFP56; PCIe 4.0 x16; Secure Boot; No Crypto
900-9X6AG-0048-ST0	MCX623105AC-VDAT	MT_0000000442	ConnectX-6 Dx EN adapter card; 200GbE; Single-port QSFP56; PCIe 4.0 x16; Crypto and Secure Boot
900-9X658-0048-SB0	MCX623435AC-VDAB	MT_0000000457	ConnectX-6 Dx EN adapter card; 200GbE; OCP3.0; With Host management ; Single-port QSFP56; PCIe 4.0 x16; Crypto and Secure Boot
900-9X658-0038-SIO	MCX623435AS-VDAI	MT_0000000458	ConnectX-6 Dx EN adapter card; 200GbE; OCP3.0; With Host management ; Single-port QSFP56; PCIe 4.0 x16; Secure Boot; No Crypto
900-9X671-0046-SN0	MCX623405AC-CDAN	MT_0000000459	ConnectX-6 Dx EN adapter card; 100GbE OCP2.0; With Host management ; Type 2; Single-port QSFP56; PCIe 4.0 x16; Crypto and Secure Boot
900-9X6AP-0083-ST0	MCX623102AC-ADAT	MT_0000000460	ConnectX-6 Dx EN adapter card; 25GbE; Dual-port SFP28; PCIe 4.0 x16; Crypto and Secure Boot
900-9X658-0076-SIO	MCX623436AS-CDAI	MT_0000000471	ConnectX-6 Dx EN adapter card; 100GbE; OCP3.0; With Host management ; Dual-port QSFP56; PCIe 4.0 x16; Secure Boot; No Crypto
900-9X658-0018-SB0	MCX623435AN-VDAB	MT_0000000512	ConnectX-6 Dx EN adapter card; 200GbE; OCP3.0; With Host management; Single-port QSFP56; PCIe 4.0 x16; No Crypto;
900-9X6AP-0065-ST0	MCX623102AE-GDAT	MT_0000000529	ConnectX-6 Dx EN adapter card; 50GbE; Dual-port SFP56; PCIe 4.0 x16; Crypto; No Secure Boot
900-9X6AG-0028-ST0	MCX623105AE-VDAT	MT_0000000530	ConnectX-6 Dx EN adapter card; 200GbE; Single-port QSFP56; PCIe 4.0 x16; Crypto; No Secure Boot
900-9X671-0018-SN0	MCX623405AN-VDAN	MT_0000000602	ConnectX®-6 Dx EN adapter card, 200GbE OCP2.0, With Host management, Type 2, Single-port QSFP56, PCIe 4.0 x16, No Crypto, No Bracket

NVIDIA SKU	Legacy OPN	PSID	Device Name
900-9X6AG-0066-STO	MCX623106AE-CDAT	MT_0000000528	ConnectX-6 Dx EN adapter card; 100GbE; Dual-port QSFP56; PCIe 4.0 x16; Crypto; No Secure Boot
900-9X624-0075-SIO	MCX623432AS-GDAI	MT_0000000472	ConnectX-6 Dx EN adapter card; 50GbE OCP3.0; With Host management ; Dual-port SFP56; PCIe 4.0 x16; Secure Boot; No Crypto
900-9X661-0063-STO	MCX621102AE-ADAT	MT_0000000536	ConnectX-6 Dx EN adapter card; 25GbE ; Dual-port SFP28; PCIe 4.0 x8; Crypto; No Secure Boot;
900-9X624-0053-SIO / 900-9X624-0003-SBO	MCX623432AN-ADA	MT_0000000357	ConnectX-6 Dx EN adapter card; 25GbE for OCP 3.0; with host management; Dual-port SFP28; PCIe 3.0/4.0 x16
900-9X624-0083-SBO	MCX623432AC-ADAB	MT_0000000440	ConnectX-6 Dx EN adapter card; 25GbE OCP3.0; With Host management; Dual-port SFP28; PCIe 4.0 x16; Crypto and Secure Boot;
900-9X624-0085-SBO	MCX623432AC-GDAB	MT_0000000393	ConnectX-6 Dx EN adapter card; 50GbE OCP3.0; With Host management; Dual-port SFP56; PCIe 4.0 x16; Crypto and Secure Boot;
900-9X658-0066-SBO	MCX623436AE-CDAB	MT_0000000456	ConnectX-6 Dx EN adapter card; 100GbE; OCP3.0; With Host management ; Dual-port QSFP56; PCIe 4.0 x16; Crypto; No Secure Boot
900-9X624-0063-SBO	MCX623432AE-ADAB	MT_0000000455	ConnectX-6 Dx EN adapter card; 25GbE OCP3.0; With Host management ; Dual-port SFP28; PCIe 4.0 x16; Crypto; No Secure Boot
900-9X675-0046-MBO	MCX623439MC-CDAB	MT_0000000652	ConnectX-6 Dx EN adapter card; 100GbE OCP3.0; With Host management ; Single-port DSFP; Multi Host or Socket Direct;PCIe 4.0 x16; Crypto and Secure Boot
900-9X624-0073-SBO	MCX623432AS-ADAB	MT_0000000759	ConnectX-6 Dx EN adapter card; 25GbE OCP3.0; With Host management ; Dual-port SFP28; PCIe 4.0 x16; Secure Boot; No Crypto
900-9X6AP-0073-STO	MCX623102AS-ADAT	MT_0000000760	ConnectX-6 Dx EN adapter card; 25GbE; Dual-port SFP28; PCIe 4.0 x16; Secure Boot; No Crypto
900-9X658-0076-MBO	MCX623436MS-CDAB	MT_0000000773	ConnectX-6 Dx EN adapter card; 100GbE; OCP3.0; With Host management ; Dual-port QSFP56; Multi Host or Socket Direct;PCIe 4.0 x16; Secure Boot; No Crypto; Thumbscrew (Pull Tab) Bracket
900-9X658-0056-MBO	MCX623436MN-CDAB	MT_0000000771	ConnectX-6 Dx EN adapter card; 100GbE; OCP3.0; With Host management ; Dual-port QSFP56; Multi Host or Socket Direct;PCIe 4.0 x16; No Crypto; Thumbscrew (Pull Tab) Bracket
900-9X675-0076-MBO	MCX623430MS-CDAB	MT_0000000774	ConnectX-6 Dx EN adapter card; 100GbE OCP3.0; With Host management ; Dual-port DSFP; Multi Host or Socket Direct;PCIe 4.0 x16; Secure Boot; No Crypto; Thumbscrew (Pull Tab) Bracket
900-9X658-0018-MB1 / 900-9X658-0018-MIO	MCX623435MN-VDA	MT_0000000358	ConnectX-6 Dx EN adapter card; 200GbE for OCP 3.0; with Multi Host and host management; Single-port QSFP56; PCIe 4.0 x16

NVIDIA SKU	Legacy OPN	PSID	Device Name
900-9X658-0016-SB0	MCX623435AN-CDAB	MT_0000000694	ConnectX-6 Dx EN adapter card; 100GbE; OCP3.0; With Host management ; Single-port QSFP56; PCIe 4.0 x16; No Crypto
900-9X6AG-0046-ST0	MCX623105AC-CDAT	MT_0000000709	ConnectX-6 Dx EN adapter card; 100GbE; Single-port QSFP56; PCIe 4.0 x16; Crypto and Secure Boot
900-9X658-0046-SB0 / 900-9X658-0046-SIO	MCX623435AC-CDA	MT_0000000695	ConnectX-6 Dx EN adapter card; 100GbE; OCP3.0; With Host management ; Single-port QSFP56; PCIe 4.0 x16; Crypto and Secure Boot
900-9X6AG-0026-ST0	MCX623105AE-CDAT	MT_0000000710	ConnectX-6 Dx EN adapter card; 100GbE; Single-port QSFP56; PCIe 4.0 x16; Crypto; No Secure Boot
900-9X658-0026-SB0	MCX623435AE-CDAB	MT_0000000696	ConnectX-6 Dx EN adapter card; 100GbE; OCP3.0; With Host management ; Single-port QSFP56; PCIe 4.0 x16; Crypto; No Secure Boot
900-9X624-0053-MB0	MCX623432MN-ADAB	MT_0000000808	ConnectX-6 Dx EN adapter card; 25GbE OCP3.0; With Host management ; Dual-port SFP56; Multi Host or Socket Direct; PCIe 4.0 x16; No Crypto
900-9X663-0083-SQ0	MCX621202AC-ADAT	MT_0000000846	ConnectX-6 Dx EN adapter card; 25GbE; With active cooling; Dual-port SFP28; PCIe 4.0 x8; Crypto and Secure Boot
900-9X663-0073-SQ0	MCX621202AS-ADAT	MT_0000000845	ConnectX-6 Dx EN adapter card; 25GbE; With active cooling; Dual-port SFP28; PCIe 4.0 x8; Secure Boot; No Crypto
900-9X6AK-0086-SQ0	MCX623106TC-CDAT	MT_0000000761	ConnectX-6 Dx EN adapter card; 100GbE; Dual-port QSFP56; Enhanced-SyncE & PTP GM support; PPS In/Out; PCIe 4.0 x16; Crypto and Secure Boot
900-9X6AK-0086-SQ1	MCX623106GC-CDAT	MT_0000000762	ConnectX-6 Dx EN adapter card; 100GbE; Dual-port QSFP56; Enhanced-SyncE & PTP GM support and GNSS; PPS Out ; PCIe 4.0 x16; Crypto and Secure Boot
900-9X6AJ-0086-ST0	MCX623106PC-CDAT	MT_0000000500	ConnectX-6 Dx EN adapter card; 100GbE; Dual-port QSFP56; with PPS In/Out; PCIe 4.0 x16; Crypto and Secure Boot
900-9X6AK-0056-ST1	MCX623106GN-CDAT	MT_0000000744	ConnectX-6 Dx EN adapter card; 100GbE; Dual-port QSFP56; Enhanced-SyncE & PTP GM support and GNSS; PPS Out ; PCIe 4.0 x16; No Crypto; Tall Bracket
900-9X6AJ-0056-ST0	MCX623106PN-CDAT	MT_0000000438	ConnectX-6 Dx EN adapter card; 100GbE; Dual-port QSFP56; with PPS In/Out; PCIe 4.0 x16; No Crypto
900-9X6AK-0056-ST0	MCX623106TN-CDAT	MT_0000000743	ConnectX-6 Dx EN adapter card; 100GbE; Dual-port QSFP56; Enhanced-SyncE & PTP GM support; PPS In/Out; PCIe 4.0 x16; No Crypto; Tall Bracket
900-9X6AJ-0066-SQ0	MCX623106PE-CDAT	MT_0000000606	ConnectX-6 Dx EN adapter card; 100GbE; Dual-port QSFP56; with PPS In/Out; PCIe 4.0 x16; Crypto; No Secure Boot; Tall Bracket
900-9X6AK-0076-SQ1	MCX623106TS-CDAS	MT_0000001118	ConnectX-6 Dx VPI adapter card; 100Gbs (HDR100; EDR IB and 100GbE); Dual-port QSFP56; PTP; PPS Out; PCIe 4.0 x16; No Crypto and Secure Boot

3.2 Driver Software, Tools and Switch Firmware

The following are the drivers' software, tools, switch/HCA firmware versions tested that you can upgrade from or downgrade to when using this firmware version:

	Supported Version
ConnectX-6 Dx Firmware	22.41.1000 / 22.40.1000 / 22.39.2048
MLNX_OFED	24.04-0.6.6.0 / 24.01-0.3.3.1 / 23.10-1.1.9.0 Note: For the list of the supported Operating Systems, please refer to the driver's Release Notes.
MLNX_EN (MLNX_OFED based code)	24.04-0.6.6.0 / 24.01-0.3.3.1 / 23.10-1.1.9.0 Note: For the list of the supported Operating Systems, please refer to the driver's Release Notes.
WinOF-2	24.4.50000 / 24.1.50000 / 23.10.50000 Note: For the list of the supported Operating Systems, please refer to the driver's Release Notes.
MFT	4.28.0-92 / 4.27.0 / 4.26.1 Note: For the list of the supported Operating Systems, please refer to the driver's Release Notes.
mstflint	4.28.0-92 / 4.27.0 / 4.26.1 Note: For the list of the supported Operating Systems, please refer to the driver's Release Notes.
FlexBoot	3.7.400
UEFI	14.34.12
Cumulus	5.4 onwards

4 Changes and New Features

4.1 Important Notes

⚠ SR-IOV - Virtual Functions (VF) per Port - The maximum Virtual Functions (VF) per port is 127. For further information, see [Known Issues](#).

⚠ It is recommended to enable the "above 4G decoding" BIOS setting for features that require a large amount of PCIe resources (e.g., SR-IOV with numerous VFs, PCIe Emulated Switch, Large BAR Requests).

⚠ Security Hardening Enhancements: This release contains important reliability improvements and security hardening enhancements. NVIDIA recommends upgrading your devices' firmware to this release to improve the devices' firmware security and reliability.

Feature/Change	Description
22.41.1000	
Unify Rx/Tx Table Domains in FDB	The new unified_fdb subdomain simplifies the FDB model by eliminating the need to duplicate rules for RX and TX tables. This domain is directionless, meaning no RX/TX specific actions are allowed. Firmware now handlea packet transitions IN and OUT of the unified domain, allowing for a more streamlined packet flow management. Software can now transition between unified_fdb and FDB_RX/FDB_TX domains as long as the packet maintains the same direction, without the risk of dropping the packet when crossing between RX and TX.
TRNG FIPS Compliance	Implemented Deterministic Random Bit Generator (DRBG) algorithm on top of firmware TRNG (the source for raw data input) in accordance with NIST SP800-90A.
vDPA Live Migration	Added support for vDPA virtual queue state change from suspend to ready, and discrete mkey for descriptor. vDPA Live Migration uses these two new capabilities to reduce downtime since vq can go back to ready state for traffic and descriptor-only-mkey can help reduce mkey mapping time.
64M Active Connections	Added the ability to generate up to 2^30 STE objects through the general object creation command.
NVConfig	Added a new NVConfig option to copy AR bit from the BTH header to the DHCP header.
Steering	Added the option provide field's offset and length in Steering add_action option.
Steering Match	Added support for steering match on packet l4_type through FTG/FTE.
Flex Parser Merge Mechanism	Extended Flex Parser merge mechanism to support hardware capabilities.
Flex Parser	Enabled the option to disable the native parser when the parse graph node is configured with the same conditions.

Feature/Change	Description
22.41.1000	
Flex Parser	Added support for father/son headers parsing.
LRO	Added support for tunnel_offload in LRO.
Bug Fixes	See <i>Bug Fixes in this Firmware Version</i> section.

4.2 Unsupported Features and Commands

4.2.1 Unsupported Features

The following advanced feature are unsupported in the current firmware version:

- The following service types:
 - SyncUMR
 - Mellanox transport
 - RAW IPv6
- INT-A not supported for EQs only MSI-X
- PCI VPD write flow (RO flow supported)
- Streaming Receive Queue (STRQ) and collapsed CQ
- Subnet Manager (SM) on VFs
- RoCE LAG in Multi-Host/Socket-Direct

4.2.2 Unsupported Commands

- QUERY_MAD_DEMUX
- SET_MAD_DEMUX
- CREATE_RQ - MEMORY_RQ_RMP
- MODIFY_LAG_ASYNC_EVENT

5 Bug Fixes in this Firmware Version

For a list of old Bug Fixes, please see [Bug Fixes History](#).

Internal Ref.	Issue
3677596	Description: Fixed an issue that caused the GTP length field to automatically be modified at the TX side when an incorrect or invalid length was detected.
	Keywords: GTP length field, Tx
	Discovered in Version: 22.39.1002
	Fixed in Release: 22.41.1000
3751258	Description: Fixed an issue that caused the switch port to go down due to MC packets mirrored back to the switch when in promiscuous mode.
	Keywords: Promiscuous mode, switch, MC packets
	Discovered in Version: 22.39.1002
	Fixed in Release: 22.41.1000
3555832	Description: Fixed an issue that caused traffic failure when modifying the VIRTIO_NET_F_MRG_RXBUF bit for the VDPA device during traffic.
	Keywords: VDPA, MRG_RXBUF
	Discovered in Version: 22.39.1002
	Fixed in Release: 22.41.1000
3771100	Description: Fixed an issue that resulted in the second mkey index returning even if it was not set in the creation of the virtio q when querying virtio q object.
	Keywords: VDPA, virtio, query object
	Discovered in Version: 22.39.1002
	Fixed in Release: 22.41.1000
3691774	Description: Fixed an issue that resulted in traffic loss after performing Live Migration with virtio vq "frozen-ready" feature. Note: When the traffic load is high, and the vq frozen-ready cap is on, traffic loss might still be experienced after modifying the vq from suspend to ready mode.
	Keywords: VDPA, live migration, virtio, resume
	Discovered in Version: 22.39.1002
	Fixed in Release: 22.41.1000

6 Known Issues

VF Network Function Limitations in SRIOV Legacy Mode

Dual Port Device	Single Port Device
127 VF per PF (254 functions)	127

VF Network Function Limitations in Switchdev Mode

Dual Port Device	Single Port Device
127 VF per PF (254 functions)	127

VF+SF Network Function Limitations in Switchdev Mode

Dual Port Device	Single Port Device
<ul style="list-style-type: none"> • 127 VF per PF (254 functions) • 512 PF+VF+SF per PF (1024 functions) 	<ul style="list-style-type: none"> • 127 VF (127 functions) • 512 PF+VF+SF per PF (512 functions)

Known Issues

Internal Ref.	Issue
3464393	Description: PhyLess Reset is currently not supported.
	Workaround: N/A
	Keywords: PhyLess Reset
	Discovered in Version: 22.39.1002
3525865	Description: Unexpected system behavior might be observed if the driver is loaded while reset is in progress.
	Workaround: N/A
	Keywords: Sync 1 reset, firmware reset
	Discovered in Version: 22.39.1002
3547022	Description: When <code>tx_port_ts</code> is set to <code>"true"</code> , due to a compensation mechanism in the Tx timestamp available in some hardware Rx timestamp errors, a symmetrical error and no clock offset occur when using the timestamps to synchronize the device clock. This might also cause an error while using timestamps for delay measurements (e.g., delay measurements reported by a PTP daemon) and even negative delay measurements in some cases.
	Workaround: N/A
	Keywords: PTP path delay
	Discovered in Version: 22.38.1002
3457472	Description: Disabling the Relaxed Ordered (RO) capability (<code>relaxed_ordering_read_pci_enabled=0</code>) using the <code>vhca_resource_manager</code> is currently not functional.
	Workaround: N/A
	Keywords: Relaxed Ordered

Internal Ref.	Issue
	Discovered in Version: 22.37.1014
3449960	Description: In some cases, performance degradation might be experienced when wrong usage of extra engines dedicated to DMA is removed.
	Workaround: N/A
	Keywords: Performance
	Discovered in Version: 22.37.1014
2878841	Description: Firmware rollback fails for the signature retransmit flow if the QPN field is configured in the mkey (as it only allows the given QP to use this Mkey) as the firmware rollback flow relies on an internal QP that uses the mkey.
	Workaround: N/A
	Keywords: Signature retransmit flow
	Discovered in Version: 22.37.1014
3171699	Description: Occasionally, after a few toggles, link may not raise when changing the speed when in loopback mode.
	Workaround: N/A
	Keywords: Link speed, loopback
	Discovered in Version: 22.37.1014
2444892	Description: PMA loopback feature is supported only with NRZ speeds.
	Workaround: N/A
	Keywords: PMA loopback, NRZ
	Discovered in Version: 22.36.1010
2745023	Description: RDMA statistics for sent packets are not updated when RoCE traffic is running in a loopback on the same uplink.
	Workaround: N/A
	Keywords: RoCE
	Discovered in Version: 22.35.2302
3266807	Description: PMA loop-back is not supported on PAM4 speeds.
	Workaround: N/A
	Keywords: Counters, CRC
	Discovered in Version: 22.35.2302
3267506	Description: CRC is included in the traffic byte counters as a port byte counter.
	Workaround: N/A
	Keywords: Counters, CRC
	Discovered in Version: 22.35.2302
3235397	Description: PCC force mode does not work if the link is raised after disabling DCQCN with PPCC.
	Workaround: N/A

Internal Ref.	Issue
	Keywords: PCC
	Discovered in Version: 22.35.1012
3200779	Description: Changing dynamic PCIe link width is not supported.
	Workaround: N/A
	Keywords: PCIe
	Discovered in Version: 22.34.1002
3033910	Description: BAR misses caused by a memory write/read actions are not reported in the AER and the device status.
	Workaround: N/A
	Keywords: BAR miss, AER
	Discovered in Version: 22.34.1002
2169950	Description: When decapsulation on a packet occurs, the FCS indication is not calculated correctly.
	Workaround: N/A
	Keywords: FCS
	Discovered in Version: 22.34.1002
3141072	Description: The "max_shaper_rate" configuration query via QEEC mlxreg returns a value translated to hardware granularity.
	Workaround: N/A
	Keywords: RX Rate-Limiter, Multi-host
	Discovered in Version: 22.34.1002
3106146	Description: Live migration of MPV affiliated function pair is not supported when port numbers are changed. Each function should stay on the same port number as before migration.
	Workaround: N/A
	Keywords: MPV live migration
	Discovered in Version: 22.34.1002
2870970	Description: GTP encapsulation (flex parser profile 3) is limited to the NIC domain. Encapsulating in the FDB domain will render a 0-size length in GTP header.
	Workaround: N/A
	Keywords: GTP encapsulation
	Discovered in Version: 22.34.1002
2937445	Description: A long linkup time can be seen 1/5 toggles when raising link in autoneg flow in ConnectX-6 Dx vs Ixia in 200G_4x.
	Workaround: N/A
	Keywords: AN, port toggling, Ixia
	Discovered in Version: 22.33.1048

Internal Ref.	Issue
2850003	<p>Description: Occasionally, when rising a logical link, the link recovery counter is increase by 1.</p> <p>Workaround: N/A</p> <p>Keywords: Link recovery counter</p> <p>Discovered in Version: 22.33.1048</p>
2825403	<p>Description: When connecting NVIDIA Spectrum-3 devices and ConnectX-6 Dx devices with DAC MCP7F80-W002R26 while splitting to 8x with 50GbE per lane in force mode, effective BER may appear.</p> <p>Workaround: N/A</p> <p>Keywords: NVIDIA Spectrum-3, Cables, Split</p> <p>Discovered in Version: 22.32.2004</p>
2866931	<p>Description: When the host powers up directly into the standby mode, the adapter may not handle WOL packets.</p> <p>Workaround: N/A</p> <p>Keywords: WOL packets</p> <p>Discovered in Version: 22.32.1010</p>
2864238	<p>Description: VPD cannot be accessed after firmware upgrade or reset when the following sequence is performed:</p> <ol style="list-style-type: none"> 1. Upgrade to a new firmware and perform a cold reboot 2. Downgrade to an old firmware 3. Run fwreset 4. Upgrade to a new firmware 5. Run fwreset <p>Workaround: Run the upgrade or reset sequence as follow:</p> <ol style="list-style-type: none"> 1. Upgrade to a new firmware and perform a cold reboot 2. Downgrade to an old firmware 3. Run fwreset 4. Upgrade to a new firmware 5. <u>Perform a cold reboot</u> <p>Keywords: VDP</p> <p>Discovered in Version: 22.32.1010</p>
2863674	<p>Description: Host management magic packet is not supported in Socket-Direct adapter cards' single PF per Numa mode.</p> <p>Workaround: N/A</p> <p>Keywords: Socket-Direct, single PF per Numa, host management, magic packet</p> <p>Discovered in Version: 22.32.1010</p>
2836032	<p>Description: When using SW steering mlx5dv_dr API to create rules containing encapsulation actions in MLNX_OFED v5.5-1.x.x.x, the user should upgrade firmware to the latest version. Otherwise, the maximum number of encapsulation actions that can be created will be limited to only 16K, and degradation for the rule insertion rate is expected compared to MLNX_OFED v5.4-.x.x.x.x.</p> <p>Workaround: N/A</p>

Internal Ref.	Issue
	<p>Keywords: Encapsulation rules insertion rate, firmware upgrade, MLNX_OFED</p> <p>Discovered in Version: 22.32.1010</p>
2756866 / 2740651	<p>Description: On rare occasions, following fast linkup (toggle link from the NIC side) a few effective errors might be seen in the first 20 seconds.</p> <p>Workaround: Perform link maintenance to fix it so additional errors will not be seen afterwards.</p> <p>Keywords: Link toggle, effective errors</p> <p>Discovered in Version: 22.31.2006</p>
-	<p>Description: Downgrading to an older firmware version that does not support the new flash type is not supported. Doing so will result in burning process failure and unknown errors will be received. The errors will be more informative in the next tools' version.</p> <p>Workaround: N/A</p> <p>Keywords: Burning tools, firmware downgrading, flash type</p> <p>Discovered in Version: 22.31.2006</p>
2667681	<p>Description: As the Connection Tracking (CT) is not moved to SW state after receiving a TCP RST packet, any packet that matches the windows even after the RST is marked as a valid packets.</p> <p>Workaround: N/A</p> <p>Keywords: Connection Tracking</p> <p>Discovered in Version: 22.31.1014</p>
2607158	<p>Description: When using more than 512 MSIX per function, the CPU PCIe Completion Timeout Value needs to be set to a value of 200us or higher.</p> <p>Workaround: N/A</p> <p>Keywords: Extended MSIX, Asymmetrical MSIX configuration, PF_NUM_PF_MSIX_VALID, PF_NUM_PF_MSIX</p> <p>Discovered in Version: 22.31.1014</p>
2577966	<p>Description: Fast linkup is not supported when connecting to an Ixia switch.</p> <p>Workaround: N/A</p> <p>Keywords: Fast linkup</p> <p>Discovered in Version: 22.30.1004</p>
2446583	<p>Description: On rare occasions, when both network devices are NVIDIA, PAM4 link will raise with several effective errors. These errors will not affect traffic once the link is up.</p> <p>Workaround: Clear counters once the link is up</p> <p>Keywords: Effective errors</p> <p>Discovered in Version: 22.29.2002</p>
2371060	<p>Description: When Emulated PCIe Switch is enabled, and the OS does resource reallocation, the OS boot process might halt.</p> <p>Workaround: N/A</p>

Internal Ref.	Issue
	<p>Keywords: Emulated PCIe Switch</p> <p>Discovered in Version: 22.29.1016</p>
2297201	<p>Description: Unable to complete migration when virtio device is in high traffic load (20/20 MPPS) as although vDPA hardware offload solution can support higher speed than the software solution, it needs to enable QEMU auto-converge to complete migration. For further information see: https://wiki.qemu.org/Features/AutoconvergeLiveMigration</p> <p>Workaround: Turn auto-converge on by adding "--auto-converge" . For example: <code>virsh migrate --verbose --live --persistent gen-l-vrt-295-005-CentOS-7.4 qemu+ssh://gen-l-vrt-295/system --unsafe --auto-converge</code></p> <p>Keywords: virtio, vDPA, live migration</p> <p>Discovered in Version: 22.29.1016</p>
2378593	<p>Description: Sub 1sec firmware update (fast reset flow) is not supported when updating from previous releases to the current one. Doing so may cause network disconnection events.</p> <p>Workaround: Use full reset flow for firmware upgrade/downgrade.</p> <p>Keywords: Sub 1sec firmware update</p> <p>Discovered in Version: 22.29.1016</p>
2384965	<p>Description: Eye-opening can cause effective errors on the port.</p> <p>Workaround: N/A</p> <p>Keywords: Eye-opening</p> <p>Discovered in Version: 22.29.1016</p>
2384849 / 2373640	<p>Description: Phyless Reset functionality is not supported when updating firmware from v22.28.4000 (and below) to v22.29.1016 and higher.</p> <p>Workaround: N/A</p> <p>Keywords: Phyless Reset</p> <p>Discovered in Version: 22.29.1016</p>
2213356	<p>Description: The following are the Steering Dump limitations:</p> <ul style="list-style-type: none"> • Supported only on ConnectX-5 adapter cards • Requires passing the version (FW/Stelib/MFT) and device type to stelib • Re-format is not supported • Advanced multi-port feature is not supported - LAG/ROCE_AFFILIATION/MPFS_LB/ESW_LB (only traffic vhca <-> wire) • Packet types supported: <ul style="list-style-type: none"> • Layer 2 Eth • Layer 3 IPv4/IPv6/Grh • Layer 4 TCP/UDP/Bth/GreV0/GreV1 • Tunneling VXLAN/Geneve/GREv0/Mpls • FlexParser protocols are not supported (e.g AliVxlan/VxlanGpe etc..). • Compiles only on x86 <p>Workaround: N/A</p>

Internal Ref.	Issue
	<p>Keywords: Steering Bump</p> <p>Discovered in Version: 22.29.1016</p>
2365322	<p>Description: When configuring adapter card's Level Scheduling, a QoS tree leaf (QUEUE_GROUP) configured with default rate_limit and default bw_share, may not obey the QoS restrictions imposed by any of the leaf's ancestors.</p> <p>Workaround: To prevent such a case, configure at least one of the following QoS attributes of a leaf: <code>max_average_bw</code> or <code>bw_share</code></p> <p>Keywords: QoS</p> <p>Discovered in Version: 22.29.1016</p>
2201468	<p>Description: Running multiple resets ("mlxfwreset --sync=1") simultaneously is not functioning properly,</p> <p>Workaround: Wait a few seconds until you run "mlxfwreset --sync=0".</p> <p>Keywords: mlxfwreset, reset-sync, reset, sync</p> <p>Discovered in Version: 22.28.1002</p>
2089277	<p>Description: The CRC is being removed despite using the keep_crc flag, and the byte count of the packet are counted without the CRC.</p> <p>Workaround: N/A</p> <p>Keywords: Decapsulated packets</p> <p>Discovered in Version: 22.27.6008</p>
2149437	<p>Description: When the SLTP configuration is wrongly set, the "Bad status" explanation will not be presented (only error indication) to the user.</p> <p>Workaround: N/A</p> <p>Keywords: SLTP configuration</p> <p>Discovered in Version: 22.27.6008</p>
1895917	<p>Description: On Dual-Port devices, and only after Rx buffer modification, resetting all Physical Functions over one port (through reboot / driver restart / FLR), while there are active Physical Functions over the second port (which caused the Rx buffer changes), will cause the Rx buffer default values to be restored, although not expected by the active Physical Function on the second port.</p> <p>Workaround:</p> <ul style="list-style-type: none"> • Re-apply the changes • Reset the functions from both ports together (driver restart / FLRs / reboot) • Power cycle or reset the firmware <p>Keywords: VoQ, Shared Buffer, Rx Buffer, PFCC, PBMC, PPTB, SBCM, SBPM, SBPR, Rx buffer modifications</p> <p>Discovered in Version: 22.27.2008</p>
2120378	<p>Description: Phyless Reset is not supported when using PAM4 mode.</p> <p>Workaround: N/A</p> <p>Keywords: Phyless, PAM4 mode, 200GbE</p>

Internal Ref.	Issue
	Discovered in Version: 22.27.2008
2071210	Description: mlxconfig query for the BOOT_INTERRUPT_DIS TLV shows a wrong value in the "current value" field.
	Workaround: Use "next boot" indication to see the right value.
	Keywords: mlxconfig
	Discovered in Version: 22.27.1016
2063038	Description: PRBS is not functional when using Wedge switch.
	Workaround: N/A
	Keywords: PRBS
	Discovered in Version: 22.27.1016
1796936	Description: 200GbE Optical cables in Auto-Negotiation mode work only in 200GbE speed.
	Workaround: N/A
	Keywords: Cables
	Discovered in Version: 22.27.1016
2038821	Description: When running MH TCP, few packets are dropped every second due to no Receive WQEs.
	Workaround: Use 4K RX queue size: <code>ethtool -G <intf> rx 4096</code>
	Keywords: Performance, MH, WQE
	Discovered in Version: 22.27.1016
-	Description: After programing firmware in LF, power-cycle must be recovered.
	Workaround: N/A
	Keywords: LF
	Discovered in Version: 22.27.1016
2029716	Description: Software Reset does not work on ConnectX-6 Dx adapter cards.
	Workaround: N/A
	Keywords: Software Reset
	Discovered in Version: 22.27.1016

7 PreBoot Drivers (FlexBoot/UEFI)

7.1 FlexBoot Changes and New Features

For further information, please refer to the [FlexBoot Release Notes](#).

7.2 UEFI Changes and Major New Features

For further information, please refer to the [UEFI Release Notes](#).

8 Validated and Supported Cables and Switches

8.1 Validated and Supported Cables and Modules

8.1.1 Cables Lifecycle Legend

Lifecycle Phase	Definition
EOL	End of Life
LTB	Last Time Buy
HVM	GA level
MP	GA level
P-Rel	GA level
Preliminary	Engineering Sample
Prototype	Engineering Sample

8.1.2 200GbE Cables

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy P/N	Description	LifeCycle Phase
HDR	200GE	980-9I548-00H001	MCP1650-H001E30	Nvidia Passive Copper cable, up to 200Gbps, QSFP56 to QSFP56, 1m	HVM
HDR	200GE	980-9I549-00H002	MCP1650-H002E26	Nvidia Passive Copper cable, up to 200Gbps, QSFP56 to QSFP56, 2m	HVM
HDR	200GE	980-9I54A-00H00A	MCP1650-H00AE30	Nvidia Passive Copper cable, up to 200Gbps, QSFP56 to QSFP56, 0.5m	HVM
HDR	200GE	980-9I54B-00H01A	MCP1650-H01AE30	Nvidia Passive Copper cable, up to 200Gbps, QSFP56 to QSFP56, 1.5 m	HVM
N/A	200GE	980-9I54C-00V001	MCP1650-V001E30	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 1m, black pulltab, 30AWG	LTB [HVM]
N/A	200GE	980-9I54D-00V002	MCP1650-V002E26	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 2m, black pulltab, 26AWG	LTB [HVM]
N/A	200GE	980-9I54G-00V003	MCP1650-V003E26	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 3m, black pulltab, 26AWG	EOL [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy P/N	Description	LifeCycle Phase
N/A	200GE	980-9I54H-00V00A	MCP1650-V00AE30	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 0.5m, black pulltab, 30AWG	LTB [HVM]
N/A	200GE	980-9I54I-00V01A	MCP1650-V01AE30	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 1.5m, black pulltab, 30AWG	LTB [HVM]
N/A	200GE	980-9I54L-00V02A	MCP1650-V02AE26	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 2.5m, black pulltab, 26AWG	LTB [HVM]
HDR	200GE	980-9I39E-00H001	MCP7H50-H001R30	Nvidia Passive copper splitter cable, 200Gbps to 2x100Gbps, QSFP56 to 2xQSFP56, 1m	HVM
HDR	200GE	980-9I99F-00H002	MCP7H50-H002R26	Nvidia Passive copper splitter cable, 200Gbps to 2x100Gbps, QSFP56 to 2xQSFP56, 2m	HVM
HDR	200GE	980-9I98G-00H01A	MCP7H50-H01AR30	Nvidia Passive copper splitter cable, 200Gbps to 2x100Gbps, QSFP56 to 2xQSFP56, 1.5m	HVM
N/A	200GE	980-9I98H-00V001	MCP7H50-V001R30	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, colored, 1m, 30AWG	LTB [HVM]
N/A	200GE	980-9I98I-00V002	MCP7H50-V002R26	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, colored, 2m, 26AWG	LTB [HVM]
N/A	200GE	980-9I98J-00V003	MCP7H50-V003R26	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, colored, 3m, 26AWG	EOL [HVM]
N/A	200GE	980-9I98K-00V01A	MCP7H50-V01AR30	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, colored, 1.5m, 30AWG	EOL [HVM]
N/A	200GE	980-9I98M-00V02A	MCP7H50-V02AR26	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, colored, 2.5m, 26AWG	LTB [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy P/N	Description	LifeCycle Phase
N/A	200GE	980-9I980-00V002	MCP7H60-C002	NVIDIA DAC splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP-DD to 2xQSFP28, colored pulltabs, 2m	EOL [P-Rel]
N/A	200GE	980-9IA3P-00V003	MCP7H60-C003	NVIDIA DAC splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP-DD to 2xQSFP28, colored pulltabs, 3m	EOL [P-Rel]
N/A	200GE	980-9IA3P-00V003-M	MCP7H60-C003-M	NVIDIA DAC splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP-DD to 2xQSFP28, colored pulltabs, 3m	EOL [P-Rel]
N/A	200GE	980-9IA3X-00V001	MCP7H70-V001R30	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 4x50Gb/s, QSFP56 to 4xSFP56, colored, 1m, 30AWG	EOL [P-Rel]
N/A	200GE	980-9IA3Y-00V002	MCP7H70-V002R26	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 4x50Gb/s, QSFP56 to 4xSFP56, colored, 2m, 26AWG	EOL [P-Rel]
N/A	200GE	980-9I43Z-00V003	MCP7H70-V003R26	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 4x50Gb/s, QSFP56 to 4xSFP56, colored, 3m, 26AWG	EOL [P-Rel]
N/A	200GE	980-9I430-00V01A	MCP7H70-V01AR30	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 4x50Gb/s, QSFP56 to 4xSFP56, colored, 1.5m, 30AWG	EOL [P-Rel]
N/A	200GE	980-9I431-00V02A	MCP7H70-V02AR26	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 4x50Gb/s, QSFP56 to 4xSFP56, colored, 2.5m, 26AWG	EOL [P-Rel]
HDR	200GE	980-9I46K-00H001	MCP7Y60-H001	NVIDIA passive copper splitter cable, 400(2x200)Gbps to 2x200Gbps, OSFP to 2xQSFP56, 1m, fin to flat	MP
HDR	200GE	980-9I46L-00H002	MCP7Y60-H002	NVIDIA passive copper splitter cable, 400(2x200)Gbps to 2x200Gbps, OSFP to 2xQSFP56, 2m, fin to flat	MP

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy P/N	Description	LifeCycle Phase
HDR	200GE	980-9I93M-00H01A	MCP7Y60-H01A	NVIDIA passive copper splitter cable, 400(2x200)Gbps to 2x200Gbps, OSFP to 2xQSFP56, 1.5m, fin to flat	MP
HDR	200GE	980-9I93N-00H001	MCP7Y70-H001	NVIDIA passive copper splitter cable, 400(2x200)Gbps to 4x100Gbps, OSFP to 4xQSFP56, 1m, fin to flat	MP
HDR	200GE	980-9I93O-00H002	MCP7Y70-H002	NVIDIA passive copper splitter cable, 400(2x200)Gbps to 4x100Gbps, OSFP to 4xQSFP56, 2m, fin to flat	MP
HDR	200GE	980-9I47P-00H01A	MCP7Y70-H01A	NVIDIA passive copper splitter cable, 400(2x200)Gbps to 4x100Gbps, OSFP to 4xQSFP56, 1.5m, fin to flat	MP
HDR	200GE	980-9I457-00H003	MFS1S00-H003V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 3m	MP
HDR	200GE	980-9I45D-00H005	MFS1S00-H005V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 5m	MP
HDR	200GE	980-9I45J-00H010	MFS1S00-H010V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 10m	MP
HDR	N/A	980-9I44L-00H015	MFS1S00-H015-LL	NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, low latency, 15m	EOL [P-Rel]
HDR	200GE	980-9I45O-00H015	MFS1S00-H015V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 15m	MP
HDR	N/A	980-9I45R-00H020	MFS1S00-H020E	NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 20m	EOL [HVM]
HDR	200GE	980-9I45T-00H020	MFS1S00-H020V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 20m	MP
HDR	200GE	980-9I44O-00H030	MFS1S00-H030V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 30m	MP
HDR	200GE	980-9I447-00H050	MFS1S00-H050V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 50m	MP

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy P/N	Description	LifeCycle Phase
HDR	200GE	980-9I44H-00H100	MFS1S00-H100V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 100m	MP
HDR	200GE	980-9I44K-00H130	MFS1S00-H130V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 130m	MP
HDR	200GE	980-9I44N-00H150	MFS1S00-H150V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 150m	MP
N/A	200GE	980-9I44P-00V003	MFS1S00-V003E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 3m	LTB [HVM]
N/A	200GE	980-9I45Q-00V005	MFS1S00-V005E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 5m	LTB [HVM]
N/A	200GE	980-9I45R-00V010	MFS1S00-V010E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 10m	LTB [HVM]
N/A	200GE	980-9I44S-00V015	MFS1S00-V015E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 15m	LTB [HVM]
N/A	200GE	980-9I44T-00V020	MFS1S00-V020E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 20m	LTB [HVM]
N/A	200GE	980-9I44U-00V030	MFS1S00-V030E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 30m	LTB [HVM]
N/A	200GE	980-9I44V-00V050	MFS1S00-V050E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 50m	LTB [HVM]
N/A	200GE	980-9I44W-00V100	MFS1S00-V100E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 100m	EOL [HVM] [HIBERN/ATE]
HDR	200GE	980-9I445-00H003	MFS1S50-H003V	Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 3m	HVM
HDR	200GE	980-9I969-00H005	MFS1S50-H005V	Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 5m	HVM
HDR	200GE	980-9I96D-00H010	MFS1S50-H010V	Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 10m	HVM
HDR	200GE	980-9I96H-00H015	MFS1S50-H015V	Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 15m	HVM

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy P/N	Description	LifeCycle Phase
HDR	200GE	980-9I96L-00H020	MFS1S50-H020V	Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 20m	HVM
HDR	200GE	980-9I96P-00H030	MFS1S50-H030V	Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 30m	HVM
HDR	200GE	980-9I95S-00H040	MFS1S50-H040V	Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 40m	Prototype
HDR	200GE	980-9I95T-00H050	MFS1S50-H050V	Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 50m	Prototype
N/A	200GE	980-9I95Q-00V003	MFS1S50-V003E	NVIDIA active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 3m	EOL [HVM]
N/A	200GE	980-9I96R-00V005	MFS1S50-V005E	NVIDIA active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 5m	EOL [HVM]
N/A	200GE	980-9I96S-00V010	MFS1S50-V010E	NVIDIA active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 10m	EOL [HVM]
N/A	200GE	980-9I96T-00V015	MFS1S50-V015E	NVIDIA active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 15m	EOL [HVM]
N/A	200GE	980-9I95U-00V020	MFS1S50-V020E	NVIDIA active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 20m	EOL [HVM]
N/A	200GE	980-9I95V-00V030	MFS1S50-V030E	NVIDIA active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 30m	EOL [HVM]
N/A	200GE	980-9I20T-00V000	MMA1T00-VS00	NVIDIA transceiver, 200GbE, up to 200Gb/s, QSFP56, MPO, 850nm, SR4, up to 100m	HVM



HDR links raise with RS_FEC.

8.1.3 100GbE Cables

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy P/N	Description	LifeCycle Phase
N/A	100GE	980-9190Z-00C000	FTLC9152RGPL	100Gb/s Transceiver, QSFP28, LC-LC, 850nm SWDM4 up to 100m Over Multi-Mode Fiber	EOL [MP]
N/A	100GE	980-91620-00C001	MCP1600-C001	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 1m 30AWG	EOL [HVM]
N/A	100GE	980-91620-00C001	MCP1600-C001E30N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 1m, Black, 30AWG, CA-N	HVM
N/A	100GE	980-9162S-00C001	MCP1600-C001LZ	NVIDIA Passive Copper Cable, ETH 100GbE, 100Gb/s, QSFP, 1m, LSZH, 30AWG	EOL [MP]
N/A	100GE	980-91621-00C002	MCP1600-C002	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 2m 30AWG	EOL [HVM]
N/A	100GE	980-91622-00C002	MCP1600-C002E26N	NVIDIA® Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 2m, Black, 26AWG, CA-N	Preliminary
N/A	100GE	980-9162V-00C002	MCP1600-C002E30N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 2m, Black, 30AWG, CA-N	HVM
N/A	100GE	980-9162X-00C003	MCP1600-C003	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 3m 28AWG	EOL [HVM]
N/A	100GE	980-9162Z-00C003	MCP1600-C003E26N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 3m, Black, 26AWG, CA-N	EOL [HVM]
N/A	100GE	980-91620-00C003	MCP1600-C003E30L	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 3m, Black, 30AWG, CA-L	HVM
N/A	100GE	980-91622-00C003	MCP1600-C003LZ	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, 3m, LSZH, 26AWG	EOL [MP]
N/A	100GE	980-91625-00C005	MCP1600-C005E26L	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 5m, Black, 26AWG, CA-L	HVM

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy P/N	Description	LifeCycle Phase
N/A	100GE	980-91626-00C00A	MCP1600-C00A	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 0.5m 30AWG	EOL [HVM]
N/A	100GE	980-91627-00C00A	MCP1600-C00AE30N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 0.5m, Black, 30AWG, CA-N	EOL [HVM]
N/A	100GE	980-91629-00C00B	MCP1600-C00BE30N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 0.75m, Black, 30AWG, CA-N	EOL [HVM]
N/A	100GE	980-9162B-00C01A	MCP1600-C01A	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 1.5m 30AWG	EOL [HVM]
N/A	100GE	980-9162C-00C01A	MCP1600-C01AE30N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 1.5m, Black, 30AWG, CA-N	HVM
N/A	100GE	980-9162G-00C02A	MCP1600-C02A	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 2.5m 30AWG	EOL [HVM]
N/A	100GE	980-9162H-00C02A	MCP1600-C02AE26N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 2.5m, Black, 26AWG, CA-N	EOL [HVM]
N/A	100GE	980-9162I-00C02A	MCP1600-C02AE30L	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 2.5m, Black, 30AWG, CA-L	HVM
N/A	100GE	980-9162M-00C03A	MCP1600-C03A	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 3.5m 26AWG	EOL [P-Rel]
EDR	100GE	980-9162P-00C001	MCP1600-E001	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1m 30AWG	EOL [HVM]
EDR	100GE	980-9162S-00C002	MCP1600-E002	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2m 28AWG	EOL [HVM]
EDR	100GE	980-9162V-00C003	MCP1600-E003	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 3m 26AWG	EOL [HVM]
EDR	100GE	980-91623-00C01A	MCP1600-E01A	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1.5m 30AWG	EOL [HVM]
EDR	100GE	980-91626-00C02A	MCP1600-E02A	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2.5m 26AWG	EOL [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy P/N	Description	LifeCycle Phase
N/A	100GE	980-91645-00C001	MCP7F00-A001R	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, colored pulltabs, 1m, 30AWG	EOL [HVM]
N/A	100GE	980-91486-00C001	MCP7F00-A001R30N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 1m, Colored, 30AWG, CA-N	LTB [HVM]
N/A	100GE	980-9148A-00C002	MCP7F00-A002R	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, colored pulltabs, 2m, 30AWG	EOL [HVM]
N/A	100GE	980-9148B-00C002	MCP7F00-A002R30N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2m, Colored, 30AWG, CA-N	LTB [HVM]
N/A	100GE	980-9148G-00C003	MCP7F00-A003R26N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3m, Colored, 26AWG, CA-N	EOL [HVM]
N/A	100GE	980-9148H-00C003	MCP7F00-A003R30L	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3m, Colored, 30AWG, CA-L	LTB [HVM]
N/A	100GE	980-9148J-00C005	MCP7F00-A005R26L	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 5m, Colored, 26AWG, CA-L	LTB [HVM]
N/A	100GE	980-9148M-00C01A	MCP7F00-A01AR	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, colored pulltabs, 1.5m, 30AWG	EOL [HVM]
N/A	100GE	980-9148N-00C01A	MCP7F00-A01AR30N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 1.5m, Colored, 30AWG, CA-N	LTB [HVM]
N/A	100GE	980-9148S-00C02A	MCP7F00-A02AR26N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2.5m, Colored, 26AWG, CA-N	EOL [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy P/N	Description	LifeCycle Phase
N/A	100GE	980-9148T-00C02A	MCP7F00-A02AR30L	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2.5m, Colored, 30AWG, CA-L	LTB [HVM]
N/A	100GE	980-9148U-00C02A	MCP7F00-A02ARLZ	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2.5m, LSZH, Colored, 28AWG	EOL [P-Rel]
N/A	100GE	980-9148X-00C03A	MCP7F00-A03AR26L	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3.5m, Colored, 26AWG, CA-L	EOL [HVM]
N/A	100GE	980-9161C-00C005	MCP7H00-G00000	NVIDIA® passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 5m, Colored, 26AWG, CA-L	Preliminary
N/A	100GE	980-9161D-00C001	MCP7H00-G001	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 1m, 30AWG	EOL [HVM]
N/A	100GE	980-9199F-00C001	MCP7H00-G001R	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 1m, 30AWG	EOL [HVM]
N/A	100GE	980-9199G-00C001	MCP7H00-G001R30N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 1m, Colored, 30AWG, CA-N	LTB [HVM]
N/A	100GE	980-9199J-00C002	MCP7H00-G002R	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 2m, 30AWG	EOL [HVM]
N/A	100GE	980-9199K-00C002	MCP7H00-G002R26N	NVIDIA® passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 2m, Colored, 26AWG, CA-N	Preliminary
N/A	100GE	980-9199L-00C002	MCP7H00-G002R30N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 2m, Colored, 30AWG, CA-N	LTB [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy P/N	Description	LifeCycle Phase
N/A	100GE	980-91990-00C003	MCP7H00-G003R	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 3m, 28AWG	EOL [HVM]
N/A	100GE	980-9199Q-00C003	MCP7H00-G003R26N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 3m, Colored, 26AWG, CA-N	EOL [HVM]
N/A	100GE	980-9139R-00C003	MCP7H00-G003R30L	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 3m, Colored, 30AWG, CA-L	LTB [HVM]
N/A	100GE	980-9199S-00C004	MCP7H00-G004R26L	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 4m, Colored, 26AWG, CA-L	EOL [HVM]
N/A	100GE	980-9199W-00C01A	MCP7H00-G01AR	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 1.5m, 30AWG	EOL [HVM]
N/A	100GE	980-9199X-00C01A	MCP7H00-G01AR30N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 1.5m, Colored, 30AWG, CA-N	LTB [HVM]
N/A	100GE	980-91992-00C02A	MCP7H00-G02AR	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 2.5m, 30AWG	EOL [HVM]
N/A	100GE	980-91994-00C02A	MCP7H00-G02AR26N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 2.5m, Colored, 26AWG, CA-N	EOL [HVM]
N/A	100GE	980-91395-00C02A	MCP7H00-G02AR30L	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 2.5m, Colored, 30AWG, CA-L	LTB [HVM]
N/A	100GE	980-9113S-00C003	MFA1A00-C003	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 3m	HVM
N/A	100GE	980-9113X-00C005	MFA1A00-C005	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 5m	HVM

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy P/N	Description	LifeCycle Phase
N/A	100GE	980-91134-00C010	MFA1A00-C010	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 10m	HVM
N/A	100GE	980-9113A-00C015	MFA1A00-C015	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 15m	HVM
N/A	100GE	980-9113F-00C020	MFA1A00-C020	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 20m	HVM
N/A	100GE	980-9113N-00C030	MFA1A00-C030	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 30m	HVM
N/A	100GE	980-91130-00C050	MFA1A00-C050	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 50m	HVM
N/A	100GE	980-9113B-00C100	MFA1A00-C100	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 100m	LTB [HVM]
N/A	100GE	980-9137H-00C003	MFA7A20-C003	NVIDIA active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 3m	EOL [HVM]
N/A	100GE	980-9137I-00C005	MFA7A20-C005	NVIDIA active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 5m	EOL [HVM]
N/A	100GE	980-9140J-00C010	MFA7A20-C010	NVIDIA active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 10m	EOL [HVM]
N/A	100GE	980-9140K-00C020	MFA7A20-C020	NVIDIA active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 20m	EOL [HVM]
N/A	100GE	980-9140L-00C002	MFA7A20-C02A	NVIDIA® active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 2.5m	Preliminary
N/A	100GE	980-9140M-00C003	MFA7A20-C03A	NVIDIA® active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 3.5m	Preliminary
N/A	100GE	980-9140N-00C003	MFA7A50-C003	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3m	EOL [HVM]
N/A	100GE	980-9140O-00C005	MFA7A50-C005	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 5m	EOL [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy P/N	Description	LifeCycle Phase
N/A	100GE	980-9149P-00C010	MFA7A50-C010	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 10m	EOL [HVM]
N/A	100GE	980-9149Q-00C015	MFA7A50-C015	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 15m	EOL [HVM]
N/A	100GE	980-9149R-00C020	MFA7A50-C020	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 20m	EOL [HVM]
N/A	100GE	980-9149S-00C030	MFA7A50-C030	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 30m	EOL [HVM]
N/A	100GE	980-91149-00CS00	MMA1B00-C100D	NVIDIA transceiver, 100GbE, QSFP28, MPO, 850nm, SR4, up to 100m, DDMI	HVM
N/A	100GE	980-9117D-00C500	MMA1B00-C100T	NVIDIA® transceiver, 100GbE, QSFP28, MPO, 850nm, up to 100m, OTU4	Preliminary
N/A	100GE	980-9117P-00CR00	MMA1L10-CR	NVIDIA optical transceiver, 100GbE, 100Gb/s, QSFP28, LC-LC, 1310nm, LR4 up to 10km	HVM
N/A	100GE	980-9117Q-00CM00	MMA1L30-CM	NVIDIA optical module, 100GbE, 100Gb/s, QSFP28, LC-LC, 1310nm, CWDM4, up to 2km	MP
N/A	100GE	980-9116X-00C000	MMS1C10-CM	NVIDIA active optical module, 100Gb/s, QSFP, MPO, 1310nm, PSM4, up to 500m	EOL [MP]
N/A	100GE	980-91042-00C000	MMS1V70-CM	NVIDIA transceiver, 100GbE, QSFP28, LC-LC, 1310nm, DR1	P-Rel
NA	100GE	980-9153X-00C000	SPQ-CE-ER-CDFL-M	40km 100G QSFP28 ER Optical Transceiver	P-Rel

8.1.4 50GbE Cables

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	50GE	980-91790-00G000	MAM1Q00A-QSA56	NVIDIA cable module, ETH 50GbE, 200Gb/s to 50Gb/s, QSFP56 to SFP56	EOL [POR]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	50GE	980-91873-00G001	MCP2M50-G001E30	NVIDIA Passive Copper cable, 50GbE, 50Gb/s, SFP56, LSZH, 1m, black pulltab, 30AWG	EOL [P-Rel]
N/A	50GE	980-91874-00G002	MCP2M50-G002E26	NVIDIA Passive Copper cable, 50GbE, 50Gb/s, SFP56, LSZH, 2m, black pulltab, 26AWG	EOL [P-Rel]
N/A	50GE	980-91875-00G003	MCP2M50-G003E26	NVIDIA Passive Copper cable, 50GbE, 50Gb/s, SFP56, LSZH, 3m, black pulltab, 26AWG	EOL [P-Rel]
N/A	50GE	980-91876-00G00A	MCP2M50-G00AE30	NVIDIA Passive Copper cable, 50GbE, 50Gb/s, SFP56, LSZH, 0.5m, black pulltab, 30AWG	EOL [P-Rel]
N/A	50GE	980-91877-00G01A	MCP2M50-G01AE30	NVIDIA Passive Copper cable, 50GbE, 50Gb/s, SFP56, LSZH, 1.5m, black pulltab, 30AWG	EOL [P-Rel]
N/A	50GE	980-91878-00G02A	MCP2M50-G02AE26	NVIDIA Passive Copper cable, 50GbE, 50Gb/s, SFP56, LSZH, 2.5m, black pulltab, 26AWG	EOL [P-Rel]

8.1.5 FDR10 / 40GbE Cables

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
FDR10	40GE	980-9166U-00B004	MC2206128-004	NVIDIA passive copper cable, VPI, up to 40Gb/s, QSFP, 4m	EOL [HVM] [HIBERN/ATE]
FDR10	40GE	980-9166V-00B005	MC2206128-005	NVIDIA passive copper cable, VPI, up to 40Gb/s, QSFP, 5m	EOL [HVM]
FDR10	40GE	980-9166W-00B001	MC2206130-001	NVIDIA passive copper cable, VPI, up to 40Gb/s, QSFP, 1m	EOL [HVM]
FDR10	40GE	980-9166X-00B002	MC2206130-002	NVIDIA passive copper cable, VPI, up to 40Gb/s, QSFP, 2m	EOL [HVM]
FDR10	40GE	980-9166Y-00B003	MC2206130-003	NVIDIA passive copper cable, VPI, up to 40Gb/s, QSFP, 3m	EOL [HVM]
FDR10	40GE	980-9166Z-00B00A	MC2206130-00A	NVIDIA passive copper cable, VPI, up to 40Gb/s, QSFP, 0.5m	EOL [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
FDR10	N/A	980-9I140-00T003	MC2206310-003	NVIDIA active fiber cable, IB QDR/FDR10, 40Gb/s, QSFP, 3m	EOL [HVM]
FDR10	N/A	980-9I141-00T005	MC2206310-005	NVIDIA active fiber cable, IB QDR/FDR10, 40Gb/s, QSFP, 5m	EOL [HVM]
FDR10	N/A	980-9I142-00T010	MC2206310-010	NVIDIA active fiber cable, IB QDR/FDR10, 40Gb/s, QSFP, 10m	EOL [HVM]
FDR10	N/A	980-9I143-00T015	MC2206310-015	NVIDIA active fiber cable, IB QDR/FDR10, 40Gb/s, QSFP, 15m	EOL [HVM]
FDR10	N/A	980-9I144-00T020	MC2206310-020	NVIDIA active fiber cable, IB QDR/FDR10, 40Gb/s, QSFP, 20m	EOL [HVM]
FDR10	N/A	980-9I145-00T030	MC2206310-030	NVIDIA active fiber cable, IB QDR/FDR10, 40Gb/s, QSFP, 30m	EOL [HVM]
FDR10	N/A	980-9I147-00T050	MC2206310-050	NVIDIA active fiber cable, IB QDR/FDR10, 40Gb/s, QSFP, 50m	EOL [HVM]
FDR10	N/A	980-9I148-00T100	MC2206310-100	NVIDIA active fiber cable, IB QDR/FDR10, 40Gb/s, QSFP, 100m	EOL [HVM]
N/A	40GE	980-9I666-00B004	MC2210126-004	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 4m	EOL [HVM]
N/A	40GE	980-9I667-00B005	MC2210126-005	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 5m	EOL [HVM]
N/A	40GE	980-9I668-00B003	MC2210128-003	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 3m	EOL [HVM]
N/A	40GE	980-9I66A-00B001	MC2210130-001	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 1m	EOL [HVM]
N/A	40GE	980-9I66C-00B002	MC2210130-002	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 2m	EOL [HVM]
N/A	40GE	980-9I14D-00B003	MC2210310-003	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 3m	EOL [MP]
N/A	40GE	980-9I14E-00B005	MC2210310-005	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 5m	EOL [MP]
N/A	40GE	980-9I14F-00B010	MC2210310-010	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 10m	EOL [MP]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	40GE	980-9I14G-00B015	MC2210310-015	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 15m	EOL [MP]
N/A	40GE	980-9I14H-00B020	MC2210310-020	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 20m	EOL [MP]
N/A	40GE	980-9I14I-00B030	MC2210310-030	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 30m	EOL [MP]
N/A	40GE	980-9I14J-00B050	MC2210310-050	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 50m	EOL [MP]
N/A	40GE	980-9I14K-00B100	MC2210310-100	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 100m	EOL [MP]
FDR10	40GE	980-9I170-00B M00	MC2210411-SR4E	NVIDIA optical module, 40Gb/s, QSFP, MPO, 850nm, up to 300m	EOL [HVM]
FDR10	N/A	980-9I210-00T R00	MC2210511-LR4	NVIDIA optical module, 40Gb/s, QSFP, LC-LC, 1310nm, LR4 up to 10km	EOL [MP]
N/A	40GE	980-9I64V-00B005	MC2609125-005	NVIDIA passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 5m	EOL [P-Rel]
N/A	40GE	980-9I64W-00B001	MC2609130-001	NVIDIA passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 1m	EOL [HVM]
N/A	40GE	980-9I64Y-00B003	MC2609130-003	NVIDIA passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 3m	EOL [HVM]
N/A	40GE	980-9I72J-00B005	MC6709309-005	NVIDIA passive fiber hybrid cable, MPO to 8xLC, 5m	EOL [HVM]
N/A	40GE	980-9I72K-00B010	MC6709309-010	NVIDIA passive fiber hybrid cable, MPO to 8xLC, 10m	EOL [HVM]
N/A	40GE	980-9I72L-00B020	MC6709309-020	NVIDIA passive fiber hybrid cable, MPO to 8xLC, 20m	EOL [HVM]
N/A	40GE	980-9I72M-00B030	MC6709309-030	NVIDIA passive fiber hybrid cable, MPO to 8xLC, 30m	EOL [HVM]
N/A	40GE	980-9I66U-00B001	MCP1700-B001E	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 1m, Black Pulltab	EOL [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	40GE	980-9I66V-00B002	MCP1700-B002E	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 2m, Black Pulltab	EOL [HVM]
N/A	40GE	980-9I66W-00B003	MCP1700-B003E	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 3m, Black Pulltab	EOL [HVM]
N/A	40GE	980-9I66X-00B01A	MCP1700-B01AE	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 1.5m, Black Pulltab	EOL [MP]
N/A	40GE	980-9I66Y-00B02A	MCP1700-B02AE	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 2.5m, Black Pulltab	EOL [MP]
N/A	40GE	980-9I426-00B000	MMA1B00-B150D	NVIDIA transceiver, 40GbE, QSFP+, MPO, 850nm, SR4, up to 150m, DDMI	EOL [HVM]

8.1.6 25GbE Cables

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	25GE	980-9I78I-00A000	MAM1Q00A-QSA28	NVIDIA cable module, ETH 25GbE, 100Gb/s to 25Gb/s, QSFP28 to SFP28	HVM
N/A	25GE	980-9I63J-00A001	MCP2M00-A001	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 1m, 30AWG	EOL [HVM]
N/A	25GE	980-9I63L-00A001	MCP2M00-A001E30N	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 1m, Black, 30AWG, CA-N	LTB [HVM]
N/A	25GE	980-9I63M-00A002	MCP2M00-A002	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2m, 30AWG	EOL [HVM]
N/A	25GE	980-9I63N-00A002	MCP2M00-A002E26N	NVIDIA® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2m, Black, 26AWG, CA-N	Preliminary
N/A	25GE	980-9I63O-00A002	MCP2M00-A002E30N	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2m, Black, 30AWG, CA-N	LTB [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	25GE	980-9I63R-00A003	MCP2M00-A003E26N	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 3m, Black, 26AWG, CA-N	EOL [HVM]
N/A	25GE	980-9I63S-00A003	MCP2M00-A003E30L	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 3m, Black, 30AWG, CA-L	LTB [HVM]
N/A	25GE	980-9I63T-00A004	MCP2M00-A004E26L	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 4m, Black, 26AWG, CA-L	EOL [HVM]
N/A	25GE	980-9I63V-00A005	MCP2M00-A005E26L	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 5m, Black, 26AWG, CA-L	LTB [HVM]
N/A	25GE	980-9I63W-00A00A	MCP2M00-A00A	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 0.5m, 30AWG	EOL [HVM]
N/A	25GE	980-9I63X-00A00A	MCP2M00-A00AE30N	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 0.5m, Black, 30AWG, CA-N	EOL [HVM]
N/A	25GE	980-9I63Z-00A01A	MCP2M00-A01AE30N	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 1.5m, Black, 30AWG, CA-N	LTB [HVM]
N/A	25GE	980-9I631-00A02A	MCP2M00-A02AE26N	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2.5m, Black, 26AWG, CA-N	EOL [HVM]
N/A	25GE	980-9I632-00A02A	MCP2M00-A02AE30L	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2.5m, Black, 30AWG, CA-L	LTB [HVM]
N/A	25GE	980-9I1A1T-00A003	MFA2P10-A003	NVIDIA active optical cable 25GbE, SFP28, 3m	EOL [HVM]
N/A	25GE	980-9I53W-00A005	MFA2P10-A005	NVIDIA active optical cable 25GbE, SFP28, 5m	EOL [HVM]
N/A	25GE	980-9I53Z-00A007	MFA2P10-A007	NVIDIA active optical cable 25GbE, SFP28, 7m	EOL [HVM]
N/A	25GE	980-9I532-00A010	MFA2P10-A010	NVIDIA active optical cable 25GbE, SFP28, 10m	EOL [HVM]
N/A	25GE	980-9I535-00A015	MFA2P10-A015	NVIDIA active optical cable 25GbE, SFP28, 15m	EOL [HVM]
N/A	25GE	980-9I536-00A020	MFA2P10-A020	NVIDIA active optical cable 25GbE, SFP28, 20m	EOL [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	25GE	980-9I539-00A030	MFA2P10-A030	NVIDIA active optical cable 25GbE, SFP28, 30m	EOL [HVM]
N/A	25GE	980-9I53A-00A050	MFA2P10-A050	NVIDIA active optical cable 25GbE, SFP28, 50m	EOL [HVM]
N/A	25GE	980-9I094-00AR00	MMA2L20-AR	NVIDIA optical transceiver, 25GbE, 25Gb/s, SFP28, LC-LC, 1310nm, LR up to 10km	MP
N/A	25GE	980-9I595-00AM00	MMA2P00-AS	NVIDIA transceiver, 25GbE, SFP28, LC-LC, 850nm, SR	HVM
N/A	25GE	980-9I34B-00AS00	MMA2P00-AS-SP	NVIDIA transceiver, 25GbE, SFP28, LC-LC, 850nm, SR, up to 100m, single package	EOL [HVM]
N/A	25GE	980-9I34D-00AS00	MMA2P00-AS_FF	NVIDIA transceiver, 25GbE, SFP28, LC-LC, 850nm, SR, up to 100m	EOL [HVM]

8.1.7 10GbE Cables

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	10GE	980-9I71G-00J000	MAM1Q00A-QSA	NVIDIA cable module, ETH 10GbE, 40Gb/s to 10Gb/s, QSFP to SFP+	HVM
N/A	10GE	980-9I65P-00J005	MC2309124-005	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 5m	EOL [P-Rel]
N/A	10GE	980-9I65Q-00J007	MC2309124-007	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 7m	EOL [P-Rel]
N/A	10GE	980-9I65R-00J001	MC2309130-001	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 1m	EOL [HVM]
N/A	10GE	980-9I65S-00J002	MC2309130-002	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 2m	EOL [HVM]
N/A	10GE	980-9I65T-00J003	MC2309130-003	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 3m	EOL [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	10GE	980-9165U-00J00A	MC2309130-00A	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 0.5m	EOL [HVM] [HIBERN/ATE]
N/A	10GE	980-91682-00J004	MC3309124-004	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 4m	EOL [HVM]
N/A	10GE	980-91683-00J005	MC3309124-005	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 5m	EOL [HVM]
N/A	10GE	980-91684-00J006	MC3309124-006	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 6m	EOL [HVM]
N/A	10GE	980-91685-00J007	MC3309124-007	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 7m	EOL [HVM]
N/A	10GE	980-91686-00J001	MC3309130-001	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m	EOL [HVM]
N/A	10GE	980-91688-00J002	MC3309130-002	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m	EOL [HVM]
N/A	10GE	980-9168B-00J003	MC3309130-003	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 3m	EOL [HVM]
N/A	10GE	980-9168F-00J00A	MC3309130-00A	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 0.5m	EOL [HVM]
N/A	10GE	980-9168G-00J001A	MC3309130-00A1	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1.5m	EOL [HVM]
N/A	10GE	980-9168H-00J002A	MC3309130-00A2	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2.5m	EOL [HVM]
N/A	10GE	980-9168A-00J001	MCP2100-X001B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m, Blue Pulltab, Connector Label	EOL [HVM] [HIBERN/ATE]
N/A	10GE	980-9168B-00J002	MCP2100-X002B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m, Blue Pulltab, Connector Label	EOL [HVM] [HIBERN/ATE]
N/A	10GE	980-9168C-00J003	MCP2100-X003B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 3m, Blue Pulltab, Connector Label	EOL [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	10GE	980-9168E-00J001	MCP2104-X001B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m, Black Pulltab, Connector Label	EOL [HVM] [HIBERN/ATE]
N/A	10GE	980-9168F-00J002	MCP2104-X002B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m, Black Pulltab, Connector Label	EOL [HVM]
N/A	10GE	980-9168G-00J003	MCP2104-X003B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 3m, Black Pulltab, Connector Label	EOL [HVM]
N/A	10GE	980-9168H-00J01A	MCP2104-X01AB	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1.5m, Black Pulltab, Connector Label	EOL [HVM]
N/A	10GE	980-9168I-00J02A	MCP2104-X02AB	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2.5m, Black Pulltab, Connector Label	EOL [HVM]
N/A	10GE	930-90000-0000-343	MFM1T02A-LR	NVIDIA SFP+ optical module for 10GBASE-LR	HVM
N/A	10GE	MFM1T02A-LR-F	MFM1T02A-LR-F	NVIDIA optical module, ETH 10GbE, 10Gb/s, SFP+, LC-LC, 1310nm, LR up to 10km	HVM
N/A	10GE	930-90000-0000-409	MFM1T02A-SR	NVIDIA SFP+ optical module for 10GBASE-SR	HVM
N/A	10GE	MFM1T02A-SR-F	MFM1T02A-SR-F	NVIDIA optical module, ETH 10GbE, 10Gb/s, SFP+, LC-LC, 850nm, SR up to 300m	HVM
N/A	10GE	MFM1T02A-SR-P	MFM1T02A-SR-P	NVIDIA optical module, ETH 10GbE, 10Gb/s, SFP+, LC-LC, 850nm, SR up to 300m	HVM

8.1.8 1GbE Cables

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	1GE	980-91270-00IM00	MC3208011-SX	NVIDIA Optical module, ETH 1GbE, 1Gb/s, SFP, LC-LC, SX 850nm, up to 500m	EOL [P-Rel]
N/A	1GE	980-91251-00IS00	MC3208411-T	NVIDIA module, ETH 1GbE, 1Gb/s, SFP, Base-T, up to 100m	HVM

8.1.9 Supported 3rd Party Cables and Modules

Speed	Cable OPN	Description
400GbE	DME8811-EC07	400G-2x200G split 7M AOC cables (400G QSFP-DD breaking out to 2x 200G QSFP56) (Rev 12)
200GbE	FCBN950QE1C05	400G-2x200G split 5M AOC cables (400G QSFP-DD breaking out to 2x 200G QSFP56)
200GbE	ATRF-C020	400G-2x200G split 20M AOC cables (400G QSFP-DD breaking out to 2x 200G QSFP56)
200GbE	RTXM500-910	400G-2x200G split 10M AOC cables (400G QSFP-DD breaking out to 2x 200G QSFP56) (Rev 10)
200GbE	RTXM500-905	400G-2x200G split 5M AOC cables (400G QSFP-DD breaking out to 2x 200G QSFP56) (Rev C0)
100GbE	DMM8211-DC10	Hisense DSFP AOC 10m
100GbE	ATRP-B007	Hgtech DSFP AOCs 7m
100GbE	ATRP-B010	Hgtech DSFP AOCs 10m
100GbE	RTXM520-107	Accelink DSFP AOCs 7m
100GbE	RTXM520-110	Accelink DSFP AOCs 10m
100GbE	C-PD2FNM010-N00	Innolight DSFP AOCs 10m
100GbE	DQF8503-4C07	Hisense QSFP28 AOCs 7m
100GbE	DQF8503-4C10	Hisense QSFP28 AOCs 10m
100GbE	DMM8211-DC07	Hisense DSFP AOC 7m
100GbE	ATRQ-A007	Hgtech QSFP28 AOCs 7m
100GbE	ATRQ-A010	Hgtech QSFP28 AOCs 10m
100GbE	RTXM420-007	Accelink QSFP28 AOCs 7m
100GbE	RTXM420-010	Accelink QSFP28 AOCs 10m
100GbE	FCBN425QE2C10	QSFP28 AOC 10m
100GbE	1AT-3Q4M01XX-12A	O-NET QSFP28 100G Active cable/module
100GbE	AQPMANQ4EDMA0784	QSFP28 100G SMF 500m Transceiver
100GbE	CAB-Q-Q-100G-3M	Passive 3 meter, QSFP+ to QSFP+ QSFP100 TWINAX 103.125Gbps-CR4
100GbE	CAB-Q-Q-100GbE-3M	Passive 3 meter , QSFP+ to QSFP+ QSFP100 TWINAX 103.125Gbps-CR4
100GbE	FCBN425QE1C30-C1	100GbE Quadwire® QSFP28 Active Optical Cable 30M
100GbE	FTLC1151RDPL	TRANSCIEVER 100GBE QSFP LR4
100GbE	FTLC9152RGPL	100G 100M QSFP28 SWDM4 OPT TRANS
100GbE	FTLC9555REPM3-E6	100m Parallel MMF 100GQSFP28Optical Transceiver
100GbE	NDAAFJ-C102	SF-NDAAFJ100G-005M
100GbE	QSFP-100G-AOC30M	30m (98ft) Cisco QSFP-100G-AOC30M Compatible 100G QSFP28 Active Optical Cable

Speed	Cable OPN	Description
100GbE	QSFP28-LR4-AJ	CISCO-PRE 100GbE LR4 QSFP28 Transceiver Module
100GbE	QSFP-40/100-SRBD	CISCO-PRE 100G AOM BiDi
100GbE	SQF1002L4LNC101P	Cisco-SUMITOMO 100GbE AOM
40GbE	2231254-2	Cisco 3m 40GbE copper
40GbE	AFBR-7QER15Z-CS1	Cisco 40GbE 15m AOC
40GbE	BN-QS-SP-CBL-5M	PASSIVE COPPER SPLITTER CABLE ETH 40GBE TO 4X10GBE 5M
40GbE	NDCCGJ-C402	15m (49ft) Avago AFBR-7QER15Z Compatible 40G QSFP+ Active Optical Cable
40GbE	QSFP-40G-SR-BD	Cisco 40GBASE-SR-BiDi, duplex MMF
25GbE	LTF8507-PC05	Hisense SFP28 AOCs 5m
25GbE	LTF8507-PC07	Hisense SFP28 AOCs 7m
25GbE	ATRS-2005	Hgtech SFP28 AOCs 5m
25GbE	ATRS-2007	Hgtech SFP28 AOCs 7m
25GbE	RTXM330-005	Accelink SFP28 AOCs 5m
25GbE	RTXM330-007	Accelink SFP28 AOCs 7m
25GbE	FCBG125SD1C05M	Finisar SFP28 AOCs 5m
25GbE	FCBG125SD1C10M	Finisar SFP28 AOCs 7m
10GbE	FTLX8571D3BCL-ME	10gb SFP 850nm Optic Transceiver
10GbE	SP7051-HP	HP-MethodElec. 10GbE AOM

8.2 Tested Switches

8.2.1 400GbE Switches

Speed	Switch Silicon	OPN # / Name	Description	Vendor
400GbE	Spectrum-3	MSN4410	24 QSFP-DD28 and 8 QSFP-DD ports, 400GbE 1U Open Ethernet Switch with Onyx	NVIDIA
400GbE	Spectrum-3	MSN4700	32 QSFPDD ports, 400GbE 1U Open Ethernet Switch with Onyx	NVIDIA
400GbE	N/A	Wedge 400	Wedge 400-48X 400GbE Data Center Switch	Facebook
400GbE	N/A	Cisco Nexus 3432D-S	Cisco Nexus 3432D-S, 32 fixed 400-Gigabit Ethernet QSFP-DD ports with backward compatibility for QSFP56, QSFP28, and QSFP+	Cisco

8.2.2 200GbE Switches

Speed	Switch Silicon	OPN # / Name	Description	Vendor
200GbE	Spectrum-3	MSN4600V-XXXX	64 QSFP56 ports, 200GbE 2U Open Ethernet Switch with Onyx	NVIDIA
200GbE	Spectrum-2	MSN3700-XXXX	32 QSFP56 ports, 200GbE Open Ethernet Switch System	NVIDIA

8.2.3 100GbE Switches

Speed	Switch Silicon	OPN # / Name	Description	Vendor
100GbE	Spectrum-3	MSN4600-XXXX	64-port Non-blocking 100GbE Open Ethernet Switch System	NVIDIA
100GbE	Spectrum-2	MSN3700C-XXXX	32-port Non-blocking 100GbE Open Ethernet Switch System	NVIDIA
100GbE	Spectrum-2	MSN3420-XXXX	48 SFP + 12 QSFP ports Non-blocking 100GbE Open Ethernet Switch System	NVIDIA
100GbE	Spectrum	MSN2700-XXXX	32-port Non-blocking 100GbE Open Ethernet Switch System	NVIDIA
100GbE	N/A	QFX5200-32C-32	32-port 100GbE Ethernet Switch System	Juniper
100GbE	N/A	7060CX-32S	32-port 100GbE Ethernet Switch System	Arista
100GbE	N/A	3232C	32-port 100GbE Ethernet Switch System	Cisco
100GbE	N/A	N9K-C9236C	36-port 100GbE Ethernet Switch System	Cisco
100GbE	N/A	93180YC-EX	48-port 25GbE + 6-port 100GbE Ethernet Switch System	Cisco
100GbE	N/A	S6820-56HF	H3C S6850-56HF L3 Ethernet Switch with 48 SFP28 Ports and 8 QSFP28 Ports	H3C
100GbE	N/A	BMS T7032-IX7	32 QSFP28 ports support for 10/25/40/50/100GbE	QuantaMesh

8.3 PRM Revision Compatibility

This firmware version complies with the following Programmer's Reference Manual:

- Adapters Programmer's Reference Manual (PRM), Rev 0.53 or later, which has Command Interface Revision 0x5. The command interface revision can be retrieved by means of the QUERY_FW command and is indicated by the field cmd_interface_rev.

9 Supported Non-Volatile Configurations


Configuration	mlxconfig Parameter Name	Class	TLV ID
NV_MEMIC_CONF	MEMIC_BAR_SIZE	GLOBAL (0)	0x6
	MEMIC_SIZE_LIMIT		
NV_HOST_CHAINING_CONF	HOST_CHAINING_MODE		0x8
	HOST_CHAINING_DESCRIPTOR		
	HOST_CHAINING_TOTAL_BUFFER_SIZE		
NV_FLEX_PARS_CONF	FLEX_PARSER_PROFILE_ENABLE		0xe
	FLEX_IPV4_OVER_VXLAN_PORT		
NV_ROCE_1_5_CONF	ROCE_NEXT_PROTOCOL		0x10
NV_INTERNAL_RESOURCE_CONF	ESWITCH_HAIRPIN_DESCRIPTOR		0x13
	ESWITCH_HAIRPIN_TOT_BUFFER_SIZE		
NV_GLOBAL_PCI_CONF	NON_PREFETCHABLE_PF_BAR	0x80	
	NUM_OF_VFS		
	SRIOV_EN		
	PF_LOG_BAR_SIZE		
	VF_LOG_BAR_SIZE		
	NUM_PF_MSIX		
	NUM_VF_MSIX		
NV_TPT_CONF	INT_LOG_MAX_PAYLOAD_SIZE	0x82	
NV_POWER_CONF	SW_RECOVERY_ON_ERRORS	0x88	
	RESET_WITH_HOST_ON_ERRORS		
	ADVANCED_POWER_SETTINGS		
NV_GLOBAL_MASK	ece_disable_mask	0x116	
NV_SW_OFFLOAD_CONFIG	CQE_COMPRESSION	0x10a	
	IP_OVER_VXLAN_EN		
	PCI_ATOMIC_MODE		
	LRO_LOG_TIMEOUT0		
	LRO_LOG_TIMEOUT1		
	LRO_LOG_TIMEOUT2		
	LRO_LOG_TIMEOUT3		
	log_max_outstandng_wqe		
	NV_config.sr_enable (ConnectX-6 Dx and above)		
NV_IB_DC_CONF	LOG_DCR_HASH_TABLE_SIZE	0x190	

Configuration	mlxconfig Parameter Name	Class	TLV ID
	DCR_LIFO_SIZE		
NV_VPI_LINK_TYPE	LINK_TYPE	PHYSICAL_PORT (2)	0x12
NV_ROCE_CC	ROCE_CC_PRIO_MASK		0x107
	ROCE_CC_ALGORITHM		
NV_ROCE_CC_ECN	CLAMP_TGT_RATE_AFTER_TIME_INC		0x108
	CLAMP_TGT_RATE		
	RPG_TIME_RESET		
	RPG_BYTE_RESET		
	RPG_THRESHOLD		
	RPG_MAX_RATE		
	RPG_AI_RATE		
	RPG_HAI_RATE		
	RPG_GD		
	RPG_MIN_DEC_FAC		
	RPG_MIN_RATE		
	RATE_TO_SET_ON_FIRST_CNP		
	DCE_TCP_G		
	DCE_TCP_RTT		
	RATE_REDUCE_MONITOR_PERIOD		
	INITIAL_ALPHA_VALUE		
MIN_TIME_BETWEEN_CNPS			
CNP_802P_PRIO			
CNP_DSCP			
NV_LLDP_NB_CONF	LLDP_NB_DCBX	0x10a	
	LLDP_NB_RX_MODE		
	LLDP_NB_TX_MODE		
NV_LLDP_NB_DCBX	DCBX_IEEE	0x18e	
	DCBX_CEE		
	DCBX_WILLING		
NV_KEEP_LINK_UP	KEEP_ETH_LINK_UP	0x190	
	KEEP_IB_LINK_UP		
	KEEP_LINK_UP_ON_BOOT		
	KEEP_LINK_UP_ON_STANDBY		
NV_QOS_CONF	NUM_OF_VL	0x192	

Configuration	mlxconfig Parameter Name	Class	TLV ID
	NUM_OF_TC		
	NUM_OF_PFC		
NV_MPFS_CONF	DUP_MAC_ACTION		0x196
	SRIOV_IB_ROUTING_MODE		
	IB_ROUTING_MODE		
NV_HCA_CONF	PCI_WR_ORDERING	HOST-FUNCTION (3)	0x112
	MULTI_PORT_VHCA_EN		
NV_EXTERNAL_PORT_CTRL	PORT_OWNER		0x192
	ALLOW_RD_COUNTERS		
	RENEG_ON_CHANGE		
	TRACER_ENABLE		
NV_ROM_BOOT_CONF2	IP_VER		0x195
	BOOT_UNDI_NETWORK_WAIT		
NV_ROM_UEFI_CONF	UEFI_HII_EN		0x196
NV_ROM_UEFI_DEBUG_LEVEL	BOOT_DBG_LOG		0x206
	UEFI_LOGS		
NV_ROM_BOOT_CONF1	BOOT_VLAN		0x221
	LEGACY_BOOT_PROTOCOL		
	BOOT_RETRY_CNT		
	BOOT_LACP_DIS		
	BOOT_VLAN_EN		
NV_ROM_IB_BOOT_CONF	BOOT_PKEY		0x222
NV_PCI_CONF	ADVANCED_PCI_SETTINGS	HOST (7)	0x80
SAFE_MODE_CONF	SAFE_MODE_THRESHOLD		0x82
	SAFE_MODE_ENABLE		

10 Release Notes History

10.1 Changes and New Feature History

 This section includes history of changes and new feature of 3 major releases back. For older releases history, please refer to the relevant firmware versions.

Feature/Change	Description
22.40.1000	
Socket Direct Single netdev Mapped to Two PCIe Devices	Enabled Single Netdev mapping to two PCIe devices (Socket Direct). Now multiple devices (PFs) of the same port can be combined under a single netdev instance. Traffic is passed through different devices belonging to different NUMA sockets, thus saving cross-NUMA traffic and allowing apps running on the same netdev from different NUMAs to still feel a sense of proximity to the device and achieve improved performance. The netdev is destroyed once any of the PFs is removed. A proper configuration would utilize the correct close NUMA when working on a certain app/CPU. Currently, this capability is limited to PFs only, and up to two devices (sockets). To enable the feature, one must configure the same Socket Direct group (non zero) for both PFs through mlxconfig SD_GROUP.
ACL	Added support for egress ACL to the uplink by adding a new bit to the Set Flow Table Entry: allow_fdb_uplink_hairpin.
Bug Fixes	See <i>Bug Fixes in this Firmware Version</i> section.

Feature/Change	Description
22.39.2048	
Bug Fixes	See <i>Bug Fixes in this Firmware Version</i> section.

Feature/Change	Description
22.39.1002	
Expansion ROM	Added a caching mechanism to improved expansion ROM performance and to avoid any slow boot occurrences when loading the expansion ROM driver.
Live Migration Support for Image Size above 4GB	Added support for image size above 4GB when performing a live migration by splitting the image to chunks.
Crypto Algorithms	Extended the role-based authentication to cover all crypto algorithms. Now the TLS, IPsec, MACsec, GCM, mem2mem, and NISP work when <code>nv_crypto_conf.crypto_policy = CRYPTO_POLICY_FIPS_LEVEL_2</code> , meaning all cryptographic engines can also work in wrapped mode and not only in plaintext mode.
Programmable Congestion Control	Programmable Congestion Control is now the default CC mechanism. ZTR_RTTCC is the default CC algorithm when ECE is enabled and the CC algorithm negotiation succeeds, otherwise PCC DCQCN will be used.

Feature/Change	Description
22.39.1002	
Reserved mkey	Added new support for reserved mkey index range. When enabled, a range of mkey indexes is reserved for mkey by name use.
Bug Fixes	See <i>Bug Fixes in this Firmware Version</i> section.

Feature/Change	Description
22.38.1900	
QKEY Mitigation in the Kernel	<p>QKEY creation with the MSB set is available now for non-privileged users as well.</p> <p>To allow non-privileged users to create QKEY with MSB set, the below new module parameter was added to <code>ib_uverbs</code> module:</p> <ul style="list-style-type: none"> • Module Parameter: <code>enforce_qkey_check</code> • Description: Force QKEY MSB check for non-privileged user on UD QP creation • Default: 0 (disabled) <p>Note: In this release, this module parameter is disabled by default to ensure backward compatibility and give customers the opportunity to update their applications accordingly. In the upcoming release, it will be enabled by default, and later on deprecated.</p>

Feature/Change	Description
22.38.1002	
INT Packets	Added support for forwarding INT packets to the user application for monitoring purposes by matching the BTH acknowledge request bit (<code>bth_a</code>).
IPsec CPS Bulk Allocation	<p>Improved the IPsec CPS by using bulk allocation.</p> <p>For cases in which <code>log_obj_range == 0</code>, single IPSEC object will be allocated and initialized as before keeping backward compatibility.</p> <p>For better performance, it is recommended to work with IPsec bulk allocation and to initialize IPsec ASO context not via the firmware but via the hardware using ASO WQE.</p>
QKEY Mitigation in the Kernel	Non-privileged users are now blocked by default from setting controlled/privileged QKEYs (QKEY with MSB set).
Bug Fixes	See <i>Bug Fixes in this Firmware Version</i> section.

10.2 Bug Fixes History



This section includes history of bug fixes of 3 major releases back. For older releases history, please refer to the relevant firmware versions Release Notes in <https://docs.mellanox.com/category/adapterfw>.

Internal Ref.	Issue
3738555	Description: Enabled MCPT/PLDM over PCIe, changed the module power settings.
	Keywords: MCPT/PLDM over PCIe,
	Discovered in Version: 22.38.1002
	Fixed in Release: 22.40.1000
3598020	Description: Improved distribution VQoS algorithm.
	Keywords: VQoS algorithm
	Discovered in Version: 22.38.1002
	Fixed in Release: 22.40.1000
3708035	Description: Fixed an issue with Selective-Repeat configuration which occasionally caused retransmission to wait for timeout instead of out-of-sequence NACK.
	Keywords: RoCE, SR
	Discovered in Version: 22.38.1002
	Fixed in Release: 22.40.1000
3695219	Description: Enabled the lowest minimum rate for SW DCQCN to enable congestion control to hold a larger amount of QPs without pauses or drops.
	Keywords: Congestion control, PCC, DCQCN
	Discovered in Version: 22.38.1002
	Fixed in Release: 22.40.1000

Internal Ref.	Issue
3669258	Description: Fixed a rare issue that prevented changes in mlxconfig from taking effect upon warm reboot.
	Keywords: mlxconfig
	Discovered in Version: 22.38.1002
	Fixed in Release: 22.39.2048
3666583	Description: Fixed a risk condition that occurred due to the descriptor length dynamic change in the new kernel version upon firmware termination of the WQE segment on a WQE when the "SUSPEND VIRTQ with Mergeable Buffer" capability was set.
	Keywords: vDPA
	Discovered in Version: 22.38.1002
	Fixed in Release: 22.39.2048

Internal Ref.	Issue
3606330	Description: Modified the TCP IPv4 flows so that the steering TIR rx_hash_symmetric field is now valid only when both the SRC and DST fields are not set to zero.
	Keywords: TCP IPv4 flows

Internal Ref.	Issue
	Discovered in Version: 22.38.1002
	Fixed in Release: 22.39.1002
3602169	Description: Added a locking mechanism to protect the firmware from a race condition between insertion and deletion of the same rule in parallel. Such behavior occasionally resulted in firmware accessing a memory that has already been released, thus causing IOMMU / translation error. Note: This fix will not impact insertion rate for tables owned by SW steering.
	Keywords: Firmware steering
	Discovered in Version: 22.38.1002
	Fixed in Release: 22.39.1002
3612682	Description: Enabled live migration for virtio with mergeable buffer.
	Keywords: Virtio, Mergeable buffer, Live migration
	Discovered in Version: 22.38.1002
	Fixed in Release: 22.39.1002
3571251	Description: Fixed an issue that resulted in migration data corruption when running parallel <code>save_vhca_state/load_vhca_state</code> commands on the same PF.
	Keywords: VF live migration
	Discovered in Version: 22.38.1002
	Fixed in Release: 22.39.1002

Internal Ref.	Issue
3365411	Description: Fixed a link failure that occurred due to a wrong 'is_inphi_cable' indication.
	Keywords: Link failure
	Discovered in Version: 22.37.1014
	Fixed in Release: 22.38.1002
3311600	Description: Enabled "Link Maintenance" for 25G speed per lane to avoid a margin degradation due to a temperature drift.
	Keywords: Link Maintenance
	Discovered in Version: 22.37.1014
	Fixed in Release: 22.38.1002
3461684	Description: Fixed an issue in the steering definers used in LAG with IPv6 packets.
	Keywords: Steering, LAG
	Discovered in Version: 22.37.1014
	Fixed in Release: 22.38.1002
3331179	Description: Improved token calculation.
	Keywords: Token calculation
	Discovered in Version: 22.37.1014

Internal Ref.	Issue
	Fixed in Release: 22.38.1002
3491841	Description: Fixed a firmware assert that occurred when tried to verify if the module supported "swap".
	Keywords: Firmware assert
	Discovered in Version: 22.37.1014
	Fixed in Release: 22.38.1002

11 Legal Notices and 3rd Party Licenses

The following are the drivers' software, tools and HCA firmware legal notices and 3rd party licenses.

Product	Version	Legal Notices and 3rd Party Licenses
Firmware	xx.41.1000	<ul style="list-style-type: none">• HCA Firmware EULA• 3rd Party Unify Notice• License
MLNX_OFED	24.04-0.6.6.0	<ul style="list-style-type: none">• License• 3rd Part Notice
MFT FreeBSD	4.28.0-92	<ul style="list-style-type: none">• 3rd Party Notice• License
MFT Linux		<ul style="list-style-type: none">• 3rd Party Notice• License
MFT VMware		<ul style="list-style-type: none">• 3rd Party Notice• License
MFT Windows		<ul style="list-style-type: none">• 3rd Party Notice• License

Notice

This document is provided for information purposes only and shall not be regarded as a warranty of a certain functionality, condition, or quality of a product. Neither NVIDIA Corporation nor any of its direct or indirect subsidiaries and affiliates (collectively: "NVIDIA") make any representations or warranties, expressed or implied, as to the accuracy or completeness of the information contained in this document and assumes no responsibility for any errors contained herein. NVIDIA shall have no liability for the consequences or use of such information or for any infringement of patents or other rights of third parties that may result from its use. This document is not a commitment to develop, release, or deliver any Material (defined below), code, or functionality.

NVIDIA reserves the right to make corrections, modifications, enhancements, improvements, and any other changes to this document, at any time without notice. Customer should obtain the latest relevant information before placing orders and should verify that such information is current and complete.

NVIDIA products are sold subject to the NVIDIA standard terms and conditions of sale supplied at the time of order acknowledgement, unless otherwise agreed in an individual sales agreement signed by authorized representatives of NVIDIA and customer ("Terms of Sale"). NVIDIA hereby expressly objects to applying any customer general terms and conditions with regards to the purchase of the NVIDIA product referenced in this document. No contractual obligations are formed either directly or indirectly by this document.

NVIDIA products are not designed, authorized, or warranted to be suitable for use in medical, military, aircraft, space, or life support equipment, nor in applications where failure or malfunction of the NVIDIA product can reasonably be expected to result in personal injury, death, or property or environmental damage. NVIDIA accepts no liability for inclusion and/or use of NVIDIA products in such equipment or applications and therefore such inclusion and/or use is at customer's own risk.

NVIDIA makes no representation or warranty that products based on this document will be suitable for any specified use. Testing of all parameters of each product is not necessarily performed by NVIDIA. It is customer's sole responsibility to evaluate and determine the applicability of any information contained in this document, ensure the product is suitable and fit for the application planned by customer, and perform the necessary testing for the application in order to avoid a default of the application or the product. Weaknesses in customer's product designs may affect the quality and reliability of the NVIDIA product and may result in additional or different conditions and/or requirements beyond those contained in this document. NVIDIA accepts no liability related to any default, damage, costs, or problem which may be based on or attributable to: (i) the use of the NVIDIA product in any manner that is contrary to this document or (ii) customer product designs.

No license, either expressed or implied, is granted under any NVIDIA patent right, copyright, or other NVIDIA intellectual property right under this document. Information published by NVIDIA regarding third-party products or services does not constitute a license from NVIDIA to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property rights of the third party, or a license from NVIDIA under the patents or other intellectual property rights of NVIDIA.

Reproduction of information in this document is permissible only if approved in advance by NVIDIA in writing, reproduced without alteration and in full compliance with all applicable export laws and regulations, and accompanied by all associated conditions, limitations, and notices.

THIS DOCUMENT AND ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS, AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY, OR OTHERWISE WITH RESPECT TO THE MATERIALS, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF NONINFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE. TO THE EXTENT NOT PROHIBITED BY LAW, IN NO EVENT WILL NVIDIA BE LIABLE FOR ANY DAMAGES, INCLUDING WITHOUT LIMITATION ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, PUNITIVE, OR CONSEQUENTIAL DAMAGES, HOWEVER CAUSED AND REGARDLESS OF THE THEORY OF LIABILITY, ARISING OUT OF ANY USE OF THIS DOCUMENT, EVEN IF NVIDIA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Notwithstanding any damages that customer might incur for any reason whatsoever, NVIDIA's aggregate and cumulative liability towards customer for the products described herein shall be limited in accordance with the Terms of Sale for the product.

Trademarks

NVIDIA, the NVIDIA logo, and Mellanox are trademarks and/or registered trademarks of NVIDIA Corporation and/



or Mellanox Technologies Ltd. in the U.S. and in other countries. Other company and product names may be trademarks of the respective companies with which they are associated.

Copyright

© 2024 NVIDIA Corporation & affiliates. All Rights Reserved.

