NVIDIA ConnectX-7 Adapter Cards Firmware Release Notes v28.35.3502 LTS

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This is a long-term support (LTS) release. LTS is the practice of maintaining a software product for an extended period of time (up to three years) to help increase product stability. LTS releases include bug fixes and security patches.

1 Release Notes Update History

Revision	Date	Description
28.35.3502	December 31, 2023	Initial release of this Release Notes version, This version introduces 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.

The ConnectX-7 smart host channel adapter (HCA), featuring the NVIDIA Quantum-2 InfiniBand architecture, provides the highest networking performance available to take on the world's most challenging workloads. ConnectX-7 provides ultra-low latency, 400Gb/s throughput, and innovative NVIDIA In-Network Computing acceleration engines to provide additional acceleration to deliver the scalability and feature-rich technology needed for supercomputers, artificial intelligence, and hyperscale cloud data centers.

2.1 Firmware Download

Please visit Firmware Downloads.

2.2 Document Revision History

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

3 Firmware Compatible Products

These are the release notes for the NVIDIA® ConnectX®-7 adapters firmware. This firmware supports the following protocols:

- InfiniBand - EDR, HDR100, HDR, NDR200[2], NDR[2]
- Ethernet - 1GbE, 10GbE, 25GbE, 40GbE, 50GbE[1], 100GbE[1], 200GbE[2] 200GbE[2]
- PCI Express 5.0, supporting backwards compatibility for v4.0, 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.

3.1 Supported Devices

NVIDIA SKU	Legacy OPN	PSID	Device Description
900-9X721-003N-DT0	MCX75510AAS-NEAT	MT_0000000800	NVIDIA ConnectX-7 adapter card; 400Gb/s NDR IB; Single-port OSFP; PCIe 5.0 x16 with x16 Extension option (Socket Direct ready); Secure boot; No Crypto
900-9X7AH-0078-DTZ	MCX755106AS-HEAT	MT_0000000834	NVIDIA ConnectX-7 VPI adapter card; 200Gb/s ; Dual-port QSFP; One port IB and second port VPI (IB or Ethernet); PCIe 5.0 x16 with x16 PCIe Extension option (Socket Direct ready); Secure boot; No Crypto
900-9X766-003N-SQ0	MCX75310AAS-NEAT	MT_0000000838	NVIDIA ConnectX-7 adapter card; 400Gb/s NDR IB; Single-port OSFP; PCIe 5.0 x16; Secure boot; No Crypto
900-9X721-003N-DT1	MCX75510AAS-HEAT	MT_0000000839	NVIDIA ConnectX-7 adapter card; 200Gb/s NDR200 IB; Single-port OSFP; PCIe 5.0 x16 Extension option (Socket Direct ready); Secure boot; No Crypto
900-9X7AH-0078-ST0	MCX713106AS-VEAT	MT_0000000840	NVIDIA ConnectX-7 Ethernet adapter card; 200 GbE; Dual-port QSFP; PCIe 5.0 x16; Secure Boot; No Crypto
900-9X7AH-0088-ST0	MCX713106AC-VEAT	MT_0000000841	NVIDIA ConnectX-7 Ethernet adapter card; 200 GbE; Dual-port QSFP; PCIe 5.0 x16; Crypto and Secure Boot
900-9X7AH-0086-SQ0	MCX713106AC-CEAT	MT_0000000842	NVIDIA ConnectX-7 Ethernet adapter card; 100GbE; Dual-port QSFP; PCIe 5.0 x16; Crypto and Secure Boot
900-9X7AH-0076-ST0	MCX713106AS-CEAT	MT_0000000843	NVIDIA ConnectX-7 Ethernet adapter card; 100GbE; Dual-port QSFP; PCIe 5.0 x16; Secure Boot; No Crypto
900-9X766-003N-ST0	MCX75310AAS-HEAT	MT_0000000844	NVIDIA ConnectX-7 adapter card; 200Gb/s NDR200 IB; Single-port OSFP; PCIe 5.0 x16; Secure boot; No Crypto
900-9X767-003N-DT1	MCX75210AAS-HEAT	MT_0000000850	NVIDIA ConnectX-7 adapter card; 200Gb/s NDR200 IB; Single-port OSFP; Socket Direct PCIe 5.0 2x8 in a row; Secure boot; No Crypto
900-9X767-003N-DT0	MCX75210AAS-NEAT	MT_0000000851	NVIDIA ConnectX-7 adapter card; 400Gb/s NDR IB; Single-port OSFP; Socket Direct PCIe 5.0 2x8 in a row; Secure boot; No Crypto
900-9X7AH-0058-DT1	MCX753106AS-HEAT-N	NVD0000000023	NVIDIA ConnectX-7 VPI adapter card; 200Gb/s; dual-port QSFP; single port InfiniBand and second port VPI (InfiniBand or Ethernet); PCIe 5.0 x16; secure boot; no crypto; for Nvidia DGX storage

NVIDIA SKU	Legacy OPN	PSID	Device Description
900-9X766-001N-ST0	MCX75310AAS-HEAT-N	NVD0000000024	NVIDIA ConnectX-7 InfiniBand adapter card; 200Gb/s NDR200; single-port OSFP; PCIe 5.0 x 16; secure boot; no crypto; for Nvidia DGX
900-9X745-0039-MB0	MCX71343DMS-WEAB	MT_0000000788	NVIDIA ConnectX-7 Ethernet adapter card; 400 GbE OCP3.0; With Host management; Single-port QSFP-DD; Multi Host; PCIe 5.0 x16; Secure Boot; No Crypto
900-9X745-0049-MB0	MCX71343DMC-WEAB	MT_0000000789	NVIDIA ConnectX-7 Ethernet adapter card; 400 GbE OCP3.0; With Host management; Single-port QSFP-DD; Multi Host; PCIe 5.0 x16; Crypto and Secure Boot
930-9O000-0000-060	MCX755206AS-NEAT-N	MT_0000000892	NVIDIA ConnectX-7 VPI adapter card; 400Gb/s IB and 200GbE; dual-port QSFP; PCIe 5.0 x16 with x16 PCIe extension option; dual slot; secure boot; no crypto; tall bracket for Nvidia DGX storage
900-9X7AX-0039-SB0	MCX75343AAS-NEAC	MT_0000000784	NVIDIA ConnectX-7 adapter card, 400Gb/s NDR IB OCP3.0 TSFF, Single-port OSFP, PCIe 5.0 x16, Secure boot, No Crypto, Thumbscrew (Pull Tab) TSFF Bracket
900-9X760-0018-MB2	MCX753436MC-HEAB	MT_0000001030	NVIDIA ConnectX-7 OCP3.0 SFF Adapter Card, 200GbE (default mode) / NDR200 IB, Dual-port QSFP112, Multi-Host and Socket Direct capable, PCIe 5.0 x16, Crypto Enabled, Secure Boot Enabled, Thumbscrew (Pull Tab) Bracket

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-7 Firmware	28.35.3502 / 28.35.3006 / 28.35.2000
MLNX_OFED	5.8-3.0.7.0 / 5.8-2.0.3.0 **Note:** For the list of the supported Operating Systems, please refer to the driver's Release Notes.
MLNX_EN (MLNX_OFED based code)	5.8-3.0.7.0 / 5.8-2.0.3.0 **Note:** For the list of the supported Operating Systems, please refer to the driver's Release Notes.
WinOF-2	3.10.52010 / 3.10.51000 / 3.10.50000 **Note:** For the list of the supported Operating Systems, please refer to the driver's Release Notes.
MFT	4.22.1-406 / 4.22.1-307 / 4.22.1 **Note:** For the list of the supported Operating Systems, please refer to the driver's Release Notes.
FlexBoot	3.6.902 **Note:** Please be aware that not all firmware binaries contain FlexBoot or UEFI, support may vary between cards.
UEFI	14.29.15 **Note:** Please be aware that not all firmware binaries contain FlexBoot or UEFI, support may vary between cards.

	Supported Version
MLNX-OS	3.10.5002 onwards
Cumulus	5.4 onwards
NVIDIA Quantum-2 Firmware	31.2010.5108 onwards

4 Changes and New Features

4.1 Changes and New Feature in this Firmware Version

Feature/Change	Description
28.35.3502	
Bug Fixes	See *Bug Fixes in this Firmware Version* section.

5 Bug Fixes in this Firmware Version

Internal Ref.	Issue
3673153	**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
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3502
3673382	**Description:** Fixed a statics issue that caused the i2c access to module to lock and stuck the switch.
	Keywords: i2c, switch
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3502
3673453	**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
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3502
3570172	**Description:** Added support for NCSI channel on both ports.
	Keywords: NC-SI channel
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3502
3673372	**Description:** Fixed an issue that caused the firmware to miscalculate the value of the maximum current temperature measured from all the diodes (found in the Internal_sensor_curr_temp field).
	Keywords: Sensor, temperature
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3502
3674613 / 3673402	**Description:** Improved SPDM v1.0 compatibility.
	Keywords: SPDM
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3502
3673418	**Description:** Fixed SPDM measurements signature.
	Keywords: SPDM
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3502
3673438	**Description:** Fixed the SPDM operations order according to the spec. v1.1.0.
	Keywords: SPDM operations
	Discovered in Version: 28.35.2000

Internal Ref.	Issue
	Fixed in Release: 28.35.3502
3673304	**Description:** Fixed an issue that prevent MSI Interrupts from being advertised correctly, resulting in the wrong MSI being sent.
	Keywords: MSI
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3502
3673323	**Description:** Changed the bar configuration algorithm so that the last update to the bar address will be the one that takes affect when the host configures the same bar address for two different PFs.
	Keywords: Network Interface
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3502
3673334	**Description:** Changed the protection mechanism for BAR configuration.
	Keywords: BAR configuration
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3502
3673176	**Description:** Fixed a rare deadlock case between 2 DC packets in the RX side.
	Keywords: Firmware deadlock
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3502
3673180	**Description:** Update SX root to work with driverless mode in vport0 GVMI teardown.
	Keywords: Driverless mode
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3502

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
• 127 VF per PF (254 functions) • 512 PF+VF+SF per PF (1024 functions)	• 127 VF (127 functions) • 512 PF+VF+SF per PF (512 functions)

ConnectX-7 has the same feature set and limitations as ConnectX-6 adapter card. For the list of ConnectX-6 Known Issues, please go to https://docs.nvidia.com/networking/category/connectx6fw.

The below are limitations related to ConnectX-7 only.

Internal Ref.	Issue
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: 28.35.3006
3261861	**Description:** Connecting an HDR device to an NDR device with Optical cables longer than 30m causes degradation in the bandwidth.
	Workaround: N/A
	Keywords: HDR-to-NDR, cables
	Discovered in Version: 28.35.1012
3178339	**Description:** PCIe PML1 is disabled.
	Workaround: N/A
	Keywords: PCIe PML1
	Discovered in Version: 28.35.1012
3138665	**Description:** PLDM firmware update process fails in case 1304 bytes chunk size is chosen.
	Workaround: N/A

Internal Ref.	Issue
	Keywords: PLDM firmware update
	Discovered in Version: 28.34.4000
3110297	**Description:** When ConnectX-7 adapter card is configured to use the Auto-Negotiation mode, 400G_8x linkup cannot be raised.
	Workaround: Configure the adapter card to use Force mode.
	Keywords: 400G_8x, linkup
	Discovered in Version: 28.34.4000
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: 28.34.4000
3140645	**Description:** 3rd party servers may hang after warm reboot due to the PCIe switch.
	Workaround: N/A
	Keywords: PCIe, 3rd party servers
	Discovered in Version: 28.34.4000
3147207	**Description:** The SPDM challenge command returns the hash of all the measurements without their headers.
	Workaround: N/A
	Keywords: SPDM
	Discovered in Version: 28.34.4000
3147219	**Description:** SPDM Get Measurements might return an invalid signature while executed without the included measurements (request param2 = 0).
	Workaround: N/A
	Keywords: SPDM
	Discovered in Version: 28.34.4000
-	**Description:** Changing dynamic PCIe link width is not supported.
	Workaround: N/A
	Keywords: PCIe
	Discovered in Version: 28.34.1002
2169950	**Description:** When decapsulation on a packet occurs, the FCS indication is not calculated correctly.
	Workaround: N/A
	Keywords: FCS
	Discovered in Version: 28.34.1002

Internal Ref.	Issue
3174038	**Description:** SPDM requests received while CPLD burn flow is in progress may be answered with incorrect responses.
	Workaround: Avoid activation of the two flows in tandem.
	Keywords: SPDM
	Discovered in Version: 28.34.1002
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: 28.34.1002
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: 28.34.1002
3077026	**Description:** When connecting a ConnectX-7 adapter card to ConnectX-7 adapter card and one side is configured to RM Loopback, and the port is toggled, link flap maybe experienced.
	Workaround: N/A
	Keywords: Link flap
	Discovered in Version: 28.34.1002
3077026	**Description:** When connecting with MMS4X00-NL400 transceiver at 200Gb/s, instability may be experienced upon link up.
	Workaround: Wait approximately 30 seconds for stabilization.
	Keywords: Transceiver, Link Up
	Discovered in Version: 28.34.1002
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: 28.34.1002
3081264	**Description:** 10G/40G speeds are not supported on MFS1S00-XXXX modules (200G optics) in ConnectX-7 adapter cards.
	Workaround: N/A
	Keywords: Optical cables
	Discovered in Version: 28.33.4030

Internal Ref.	Issue
3070590	**Description:** PLL modules are not supported in ConnectX-7 ethernet adapter cards.
	Workaround: N/A
	Keywords: PLL
	Discovered in Version: 28.33.4030
3073517	**Description:** When connecting a ConnectX-7 adapter card to a ConnectX-5 or an NVIDIA Spectrum switch and trying to raise 10G/40G over 100G optics cable is not supported.
	Workaround: N/A
	Keywords: Optical cables, ConnectX-5, NVIDIA Spectrum
	Discovered in Version: 28.33.4030
3073517	**Description:** When connecting a ConnectX-7 adapter card to a ConnectX-5 or an NVIDIA Spectrum switch, configuring first 10G/40G and then configuring back 100G we result in linkup failure.
	Workaround: Toggle both ConnectX-7 and ConnectX-5 or the NVIDIA Spectrum switch
	Keywords: ConnectX-5, NVIDIA Spectrum, linkup
	Discovered in Version: 28.33.4030
3070409	**Description:** When connecting a ConnectX-7 adapter card to a ConnectX-6 Dx or an NVIDIA Spectrum-3 switch, NRZ speeds are not raised when using 200GbE optical cable.
	Workaround: Configure PHY_FEC_OVERRIDE on the ConnectX-7 side for the requested speed.
	Keywords: Optical cables, NRZ, ConnectX-6 Dx, NVIDIA Spectrum-3, 200GbE optical cable
	Discovered in Version: 28.33.4030
2993531	**Description:** PML1 is disabled by default. Enabling it might result in server hanging.
	Workaround: N/A
	Keywords: PML1
	Discovered in Version: 28.33.2028
-	**Description:** Upgrading to firmware 28.33.2028 from any previous Engineering Sample (earlier than version 28.98.2406) must be done before installing WinOF-2 v2.90 driver and requires going through the following steps: 1. Upgrade to 28.98.2406 version while the driver is disabled. 2. Upgrade to firmware version 28.33.2028 (the driver can be enable at this stage).
	Workaround: N/A
	Keywords: Firmware upgrade
	Discovered in Version: 28.33.2028
-	**Description:** Downgrading from firmware 28.33.2028 to any previous Engineering Sample firmware is not supported.

Internal Ref.	Issue
	Workaround: N/A
	Keywords: Firmware downgrade
	Discovered in Version: 28.33.2028

7 Validated and Supported Cables, Modules and Switches

7.1 Validated and Supported Cables and Modules

7.1.1 Validated and Supported NDR Cables

Speed	OPN	Description
NDR	MCP7Y00-N001	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xOSFP,1m
NDR	MCP7Y00-N002	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xOSFP, 2m
NDR	MCP7Y00-N01A	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xOSFP,1.5m
NDR	MCP7Y00-N02A	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xOSFP, 2.5m
NDR	MCP7Y50-N001	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xOSFP, 1m
NDR	MCP7Y50-N002	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xOSFP, 2m
NDR	MCP7Y50-N01A	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xOSFP, 1.5m
NDR	MMS4X00-NL400	NVIDIA single port transceiver, 400Gbps,NDR, OSFP, MPO12 APC, 1310nm SMF, up to 30m, flat top
NDR	MMA4Z00-NS400	NVIDIA single port transceiver, 400Gbps,NDR, OSFP, MPO12 APC, 850nm MMF, up to 50m, flat top
NDR	MMS4X00-NL400	NVIDIA single port transceiver, 400Gbps,NDR, OSFP, MPO12 APC, 1310nm SMF, up to 30m, flat top
NDR	MMS4X00-NS400	NVIDIA single port transceiver, 400Gbps,NDR, OSFP, MPO12 APC, 1310nm SMF, up to 100m, flat top

7.1.2 Validated and Supported HDR Cables

Speed	OPN	Description
HDR	MCP7Y60-H001	NVIDIA passive copper splitter cable, IB twin port HDR 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 1m
HDR	MCP7Y60-H002	NVIDIA passive copper splitter cable, IB twin port HDR 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 2m
HDR	MCP7Y60-H01A	NVIDIA passive copper splitter cable, IB twin port HDR 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 1.5m
HDR	MCP7Y70-H001	NVIDIA passive copper splitter cable, IB twin port HDR 400Gb/s to 4x100Gb/s, OSFP to 4xQSFP56, 1m

Speed	OPN	Description
HDR	MCP7Y70-H002	NVIDIA passive copper splitter cable, IB twin port HDR 400Gb/s to 4x100Gb/s, OSFP to 4xQSFP56, 2m
HDR	MCP7Y70-H01A	NVIDIA passive copper splitter cable, IB twin port HDR 400Gb/s to 4x100Gb/s, OSFP to 4xQSFP56, 1.5m
HDR	MFA7U10-H003	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 3m
HDR	MFA7U10-H005	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 5m
HDR	MFA7U10-H010	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 10m
HDR	MFA7U10-H015	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 15m
HDR	MFA7U10-H020	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 20m
HDR	MFA7U10-H030	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 30m
HDR	MFA7U10-H050	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 50m
HDR	MCP1650-H001E30	NVIDIA Passive Copper cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, 1m, black pulltab, 30AWG
HDR	MCP1650-H002E26	NVIDIA Passive Copper cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, 2m, black pulltab, 26AWG
HDR	MCP1650-H00AE30	NVIDIA Passive Copper cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, 0.5m, black pulltab, 30AWG
HDR	MCP1650-H01AE30	NVIDIA Passive Copper cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, 1.5m, black pulltab, 30AWG
HDR	MCP1650-H02AE26	NVIDIA Passive Copper cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, 2.5m, black pulltab, 26AWG

7.1.3 Validated and Supported EDR Cables

Speed	OPN	Description
EDR	MCP1600-E001	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1m 30AWG
EDR	MCP1600-E002	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2m 28AWG
EDR	MCP1600-E003	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 3m 26AWG
EDR	MCP1600-E01A	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1.5m 30AWG
EDR	MCP1600-E02A	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2.5m 26AWG

7.1.4 Validated and Supported 400GbE Cables

Speed	OPN	Description
400GE	MCP1660-W001E30	NVIDIA Direct Attach Copper cable, 400GbE, 400Gb/s, QSFP-DD, 1m, 30AWG
400GE	MCP1660-W002E26	NVIDIA Direct Attach Copper cable, 400GbE, 400Gb/s, QSFP-DD, 2m, 26AWG
400GE	MCP1660-W00AE30	NVIDIA Direct Attach Copper cable, 400GbE, 400Gb/s, QSFP-DD, 0.5m, 30AWG
400GE	MCP1660-W01AE30	NVIDIA Direct Attach Copper cable, 400GbE, 400Gb/s, QSFP-DD, 1.5m, 30AWG
400GE	MCP1660-W02AE26	NVIDIA Direct Attach Copper cable, 400GbE, 400Gb/s, QSFP-DD, 2.5m, 26AWG
400GE	MCP7F60-W001R30	NVIDIA DAC splitter cable, 400GbE, 400Gb/s to 4x100Gb/s, QSFP-DD to 4xQSFP56, 1m, 30AWG
400GE	MCP7F60-W002R26	NVIDIA DAC splitter cable, 400GbE, 400Gb/s to 4x100Gb/s, QSFP-DD to 4xQSFP56, 2m, 26AWG
400GE	MCP7F60-W02AR26	NVIDIA DAC splitter cable, 400GbE, 400Gb/s to 4x100Gb/s, QSFP-DD to 4xQSFP56, 2.5m, 26AWG
400GE	MCP7H60-W001R30	NVIDIA DAC splitter cable, 400GbE, 400Gb/s to 2x200Gb/s, QSFP-DD to 2xQSFP56, 1m, 30AWG
400GE	MCP7H60-W002R26	NVIDIA DAC splitter cable, 400GbE, 400Gb/s to 2x200Gb/s, QSFP-DD to 2xQSFP56, 2m, 26AWG
400GE	MCP7H60-W01AR30	NVIDIA DAC splitter cable, 400GbE, 400Gb/s to 2x200Gb/s, QSFP-DD to 2xQSFP56, 1.5m, 30AWG
400GE	MCP7H60-W02AR26	NVIDIA DAC splitter cable, 400GbE, 400Gb/s to 2x200Gb/s, QSFP-DD to 2xQSFP56, 2.5m, 26AWG

7.1.5 Validated and Supported 200GbE Cables

Speed	OPN	Description
200GE	MMA1T00-VS	NVIDIA transceiver, 200GbE, up to 200Gb/s, QSFP56, MPO, 850nm, SR4, up to 100m
200GE	MFS1S00-V003E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 3m
200GE	MFS1S00-V005E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 5m
200GE	MFS1S00-V010E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 10m
200GE	MFS1S00-V015E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 15m
200GE	MFS1S00-V020E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 20m

Speed	OPN	Description
200GE	MFS1S00-V030E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 30m
200GE	MFS1S00-V050E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 50m
200GE	MFS1S00-V100E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 100m
200GE	MFS1S50-V003E	NVIDIA active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 3m
200GE	MFS1S50-V005E	NVIDIA active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 5m
200GE	MFS1S50-V010E	NVIDIA active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 10m
200GE	MFS1S50-V015E	NVIDIA active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 15m
200GE	MFS1S50-V020E	NVIDIA active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 20m
200GE	MFS1S50-V030E	NVIDIA active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 30m
200GE	MCP1650-V001E30	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 1m, black pulltab, 30AWG
200GE	MCP1650-V002E26	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 2m, black pulltab, 26AWG
200GE	MCP1650-V00AE30	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 0.5m, black pulltab, 30AWG
200GE	MCP1650-V01AE30	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 1.5m, black pulltab, 30AWG
200GE	MCP1650-V02AE26	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 2.5m, black pulltab, 26AWG
200GE	MCP7H50-V001R30	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, colored, 1m, 30AWG
200GE	MCP7H50-V002R26	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, colored, 2m, 26AWG
200GE	MCP7H50-V01AR30	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, colored, 1.5m, 30AWG
200GE	MCP7H50-V02AR26	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, colored, 2.5m, 26AWG
200GE	MCP7H70-V001R30	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 4x50Gb/s, QSFP56 to 4xSFP56, colored, 1m, 30AWG
200GE	MCP7H70-V002R26	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 4x50Gb/s, QSFP56 to 4xSFP56, colored, 2m, 26AWG

Speed	OPN	Description
200GE	MCP7H70-V01AR30	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 4x50Gb/s, QSFP56 to 4xSFP56, colored, 1.5m, 30AWG
200GE	MCP7H70-V02AR26	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to4x50Gb/s, QSFP56 to 4xSFP56, colored, 2.5m, 26AWG
200GE	MCP1650-V002E26_FF	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 2m, black pulltab, 26AWG

7.1.6 Validated and Supported 100GbE Cables

Speed	OPN	Description
100GbE	MMA1L10-CR	NVIDIA optical transceiver, 100GbE, 100Gb/s, QSFP28, LC-LC, 1310nm, LR4 up to 10km
100GbE	MMA1L30-CM	NVIDIA optical module, 100GbE, 100Gb/s, QSFP28, LC-LC, 1310nm, CWDM4, up to 2km
100GbE	MMS1C10-CM	NVIDIA active optical module, 100Gb/s, QSFP, MPO, 1310nm, PSM4, up to 500m
100GbE	FTLC9152RGPL	100Gb/s Transceiver, QSFP28, LC-LC, 850nm SWDM4 up to 100m Over Multi-Mode Fiber
100GbE	MCP1600-C001	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 1m 30AWG
100GbE	MCP1600-C002	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 2m 30AWG
100GbE	MCP1600-C003	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 3m 28AWG
100GbE	MCP1600-C00A	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 0.5m 30AWG
100GbE	MCP1600-C01A	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 1.5m 30AWG
100GbE	MCP1600-C02A	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 2.5m 30AWG
100GbE	MCP1600-C03A	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 3.5m 26AWG
100GbE	MCP7H00-G001	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 1m, 30AWG
100GbE	MFA1A00-C003	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 3m
100GbE	MFA1A00-C005	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 5m
100GbE	MFA1A00-C010	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 10m
100GbE	MFA1A00-C015	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 15m

Speed	OPN	Description
100GbE	MFA1A00-C020	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 20m
100GbE	MFA1A00-C030	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 30m
100GbE	MFA1A00-C050	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 50m
100GbE	MFA1A00-C100	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 100m
100GbE	MFA7A20-C003	NVIDIA active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 3m
100GbE	MFA7A20-C005	NVIDIA active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 5m
100GbE	MFA7A20-C010	NVIDIA active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 10m
100GbE	MFA7A20-C020	NVIDIA active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 20m
100GbE	MCP7H00-G001R	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 1m, 30AWG
100GbE	MCP7H00-G002R	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 2m, 30AWG
100GbE	MCP7H00-G003R	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 3m, 28AWG
100GbE	MCP7H00-G01AR	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 1.5m, 30AWG
100GbE	MCP7H00-G02AR	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 2.5m, 30AWG
100GbE	MMA1B00-C100D	NVIDIA transceiver, 100GbE, QSFP28, MPO, 850nm, SR4, up to 100m, DDMI
100GbE	MFA1A00-C001-TG	NVIDIA customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 1m
100GbE	MFA1A00-C002-TG	NVIDIA customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP28, LSZH, 2m
100GbE	MFA1A00-C003-TG	NVIDIA customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 3m
100GbE	MFA1A00-C005-TG	NVIDIA customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 5m
100GbE	MFA1A00-C007-TG	NVIDIA customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP28, LSZH, 7m
100GbE	MFA1A00-C010-TG	NVIDIA customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 10m

Speed	OPN	Description
100GbE	MFA1A00-C015-TG	NVIDIA customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 15m
100GbE	MFA1A00-C020-TG	NVIDIA customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 20m
100GbE	MFA1A00-C030-TG	NVIDIA customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 30m
100GbE	MFA1A00-C050-TG	NVIDIA customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 50m
100GbE	MMA1B00-C100-TG	NVIDIA customized transceiver, 100GbE, QSFP28, MPO, 850nm, SR4, up to 100m, DDMI
100GbE	MCP1600-C001E30N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 1m, Black, 30AWG, CA-N
100GbE	MCP1600-C002E30N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 2m, Black, 30AWG, CA-N
100GbE	MCP1600-C003E26N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 3m, Black, 26AWG, CA-N
100GbE	MCP1600-C003E30L	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 3m, Black, 30AWG, CA-L
100GbE	MCP1600-C005E26L	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 5m, Black, 26AWG, CA-L
100GbE	MCP1600-C00AE30N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 0.5m, Black, 30AWG, CA-N
100GbE	MCP1600-C00BE30N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 0.75m, Black, 30AWG, CA-N
100GbE	MCP1600-C01AE30N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 1.5m, Black, 30AWG, CA-N
100GbE	MCP1600-C02AE26N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 2.5m, Black, 26AWG, CA-N
100GbE	MCP1600-C02AE30L	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28,2.5m, Black, 30AWG, CA-L
100GbE	MCP7H00-G001R30N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 1m, Colored, 30AWG, CA-N
100GbE	MCP7H00-G002R30N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 2m, Colored, 30AWG, CA-N
100GbE	MCP7H00-G003R26N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 3m, Colored, 26AWG, CA-N
100GbE	MCP7H00-G003R30L	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 3m, Colored, 30AWG, CA-L
100GbE	MCP7H00-G004R26L	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 4m, Colored, 26AWG, CA-L

Speed	OPN	Description
100GbE	MCP7H00-G01AR30N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 1.5m, Colored, 30AWG, CA-N
100GbE	MCP7H00-G02AR26N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 2.5m, Colored, 26AWG, CA-N
100GbE	MCP7H00-G02AR30L	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 2.5m, Colored, 30AWG, CA-L
100GbE	MMA1B00-C100D_FF	NVIDIA transceiver, 100GbE, QSFP28, MPO, 850nm, SR4, up to 100m, DDMI
100GbE	MFA7A50-C003	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3m
100GbE	MFA7A50-C005	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 5m
100GbE	MFA7A50-C010	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 10m
100GbE	MFA7A50-C015	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 15m
100GbE	MFA7A50-C020	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 20m
100GbE	MFA7A50-C030	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 30m
100GbE	MCP7F00-A001R	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, colored pulltabs, 1m, 30AWG
100GbE	MCP7F00-A002R	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, colored pulltabs, 2m, 30AWG
100GbE	MCP7F00-A01AR	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, colored pulltabs,1.5m, 30AWG
100GbE	MCP7F00-A02ARLZ	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2.5m, LSZH, Colored, 28AWG
100GbE	MCP7F00-A001R30N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 1m, Colored, 30AWG, CA-N
100GbE	MCP7F00-A002R30N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2m, Colored, 30AWG, CA-N
100GbE	MCP7F00-A003R26N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3m, Colored, 26AWG, CA-N
100GbE	MCP7F00-A003R30L	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3m, Colored, 30AWG, CA-L

Speed	OPN	Description
100GbE	MCP7F00-A005R26L	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 5m, Colored, 26AWG, CA-L
100GbE	MCP7F00-A01AR30N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 1.5m, Colored, 30AWG, CA-N
100GbE	MCP7F00-A02AR26N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2.5m, Colored, 26AWG, CA-N
100GbE	MCP7F00-A02AR30L	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2.5m, Colored, 30AWG, CA-L
100GbE	MCP7F00-A03AR26L	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3.5m, Colored, 26AWG, CA-L

7.1.7 Validated and Supported 50GbE Cables

Speed	OPN	Description
50GbE	MAM1Q00A-QSA56	NVIDIA cable module, ETH 50GbE, 200Gb/s to 50Gb/s, QSFP56 to SFP56
50GbE	MCP2M50-G001E30	NVIDIA Passive Copper cable, 50GbE, 50Gb/s, SFP56, LSZH, 1m, black pulltab, 30AWG
50GbE	MCP2M50-G002E26	NVIDIA Passive Copper cable, 50GbE, 50Gb/s, SFP56, LSZH, 2m, black pulltab, 26AWG
50GbE	MCP2M50-G003E26	NVIDIA Passive Copper cable, 50GbE, 50Gb/s, SFP56, LSZH, 3m, black pulltab, 26AWG
50GbE	MCP2M50-G00AE30	NVIDIA Passive Copper cable, 50GbE, 50Gb/s, SFP56, LSZH, 0.5m, black pulltab, 30AWG
50GbE	MCP2M50-G01AE30	NVIDIA Passive Copper cable, 50GbE, 50Gb/s, SFP56, LSZH, 1.5m, black pulltab, 30AWG
50GbE	MCP2M50-G02AE26	NVIDIA Passive Copper cable, 50GbE, 50Gb/s, SFP56, LSZH, 2.5m, black pulltab, 26AWG

7.1.8 Validated and Supported 40GbE Cables

Speed	OPN	Description
40GbE	MC2210126-004	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 4m
40GbE	MC2210126-005	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 5m

Speed	OPN	Description
40GbE	MC2210128-003	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 3m
40GbE	MC2210130-001	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 1m
40GbE	MC2210130-002	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 2m
40GbE	MC2210310-003	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 3m
40GbE	MC2210310-005	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 5m
40GbE	MC2210310-010	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 10m
40GbE	MC2210310-015	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 15m
40GbE	MC2210310-020	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 20m
40GbE	MC2210310-030	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 30m
40GbE	MC2210310-050	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 50m
40GbE	MC2210310-100	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 100m
40GbE	MC2609125-005	NVIDIA passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 5m
40GbE	MC2609130-001	NVIDIA passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 1m
40GbE	MC2609130-003	NVIDIA passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 3m
40GbE	MC6709309-005	NVIDIA passive fiber hybrid cable, MPO to 8xLC, 5m
40GbE	MC6709309-010	NVIDIA passive fiber hybrid cable, MPO to 8xLC, 10m
40GbE	MC6709309-020	NVIDIA passive fiber hybrid cable, MPO to 8xLC, 20m
40GbE	MC6709309-030	NVIDIA passive fiber hybrid cable, MPO to 8xLC, 30m
40GbE	MCP1700-B001E	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 1m, Black Pulltab
40GbE	MCP1700-B002E	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 2m, Black Pulltab
40GbE	MCP1700-B003E	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 3m, Black Pulltab
40GbE	MCP1700-B01AE	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 1.5m, Black Pulltab
40GbE	MCP1700-B02AE	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 2.5m, Black Pulltab
40GbE	MCP7900-X01AA	NVIDIA passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 1.5m, Blue Pulltab, customized label

Speed	OPN	Description
40GbE	MCP7904-X002A	NVIDIA passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 2m, Black Pulltab, customized label
40GbE	MCP7904-X003A	NVIDIA passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 3m, Black Pulltab, customized label
40GbE	MCP7904-X01AA	NVIDIA passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 1.5m, Black Pulltab, customized label
40GbE	MCP7904-X02AA	NVIDIA passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 2.5m, Black Pulltab, customized label
40GbE	MMA1B00-B150D	NVIDIA transceiver, 40GbE, QSFP+, MPO, 850nm, SR4, up to 150m, DDMI
40GbE	MC2210411-SR4E	NVIDIA optical module, 40Gb/s, QSFP, MPO, 850nm, up to 300m

7.1.9 Validated and Supported 25GbE Cables

Speed	OPN	Description
25GbE	MMA2L20-AR	NVIDIA optical transceiver, 25GbE, 25Gb/s, SFP28, LC-LC, 1310nm, LR up to 10km
25GbE	MMA2P00-AS	NVIDIA transceiver, 25GbE, SFP28, LC-LC, 850nm, SR, up to 150m
25GbE	MCP2M00-A001	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 1m, 30AWG
25GbE	MCP2M00-A002	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2m, 30AWG
25GbE	MCP2M00-A00A	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 0.5m, 30AWG
25GbE	MFA2P10-A003	NVIDIA active optical cable 25GbE, SFP28, 3m
25GbE	MFA2P10-A005	NVIDIA active optical cable 25GbE, SFP28, 5m
25GbE	MFA2P10-A007	NVIDIA active optical cable 25GbE, SFP28, 7m
25GbE	MFA2P10-A010	NVIDIA active optical cable 25GbE, SFP28, 10m
25GbE	MFA2P10-A015	NVIDIA active optical cable 25GbE, SFP28, 15m
25GbE	MFA2P10-A020	NVIDIA active optical cable 25GbE, SFP28, 20m
25GbE	MFA2P10-A030	NVIDIA active optical cable 25GbE, SFP28, 30m
25GbE	MFA2P10-A050	NVIDIA active optical cable 25GbE, SFP28, 50m
25GbE	MMA2P00-AS-SP	NVIDIA transceiver, 25GbE, SFP28, LC-LC, 850nm, SR, up to 100m, single package
25GbE	MMA2P00-AS_FF	NVIDIA transceiver, 25GbE, SFP28, LC-LC, 850nm, SR, up to 100m

Speed	OPN	Description
25GbE	MAM1Q00A-QSA28	NVIDIA cable module, ETH 25GbE, 100Gb/s to 25Gb/s, QSFP28 to SFP28
25GbE	MCP2M00-A001E30N	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 1m, Black, 30AWG, CA-N
25GbE	MCP2M00-A002E30N	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2m, Black, 30AWG, CA-N
25GbE	MCP2M00-A003E26N	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 3m, Black, 26AWG, CA-N
25GbE	MCP2M00-A003E30L	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 3m, Black, 30AWG, CA-L
25GbE	MCP2M00-A004E26L	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 4m, Black, 26AWG, CA-L
25GbE	MCP2M00-A005E26L	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 5m, Black, 26AWG, CA-L
25GbE	MCP2M00-A00AE30N	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 0.5m, Black, 30AWG, CA-N
25GbE	MCP2M00-A01AE30N	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 1.5m, Black, 30AWG, CA-N
25GbE	MCP2M00-A02AE26N	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2.5m, Black, 26AWG, CA-N
25GbE	MCP2M00-A02AE30L	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2.5m, Black, 30AWG, CA-L
25GbE	SFP25G-AOC03M-TG	NVIDIA customized active optical cable 25GbE, SFP28, 3m, Aqua
25GbE	SFP25G-AOC05M-TG	NVIDIA customized active optical cable 25GbE, SFP28, 5m, Aqua
25GbE	SFP25G-AOC07M-TG	NVIDIA customized active optical cable 25GbE, SFP28, 7m, Aqua
25GbE	SFP25G-AOC10M-TG	NVIDIA customized active optical cable 25GbE, SFP28, 10m, Aqua
25GbE	SFP25G-AOC20M-TG	NVIDIA customized active optical cable 25GbE, SFP28, 20m, Aqua
25GbE	SFP25G-AOC30M-TG	NVIDIA customized active optical cable 25GbE, SFP28, 30m, Aqua

7.1.10 Validated and Supported 10GbE Cables

Speed	OPN	Description
10GbE	MAM1Q00A-QSA	NVIDIA cable module, ETH 10GbE, 40Gb/s to 10Gb/s, QSFP to SFP+
10GbE	MC2309124-005	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 5m

Speed	OPN	Description
10GbE	MC2309124-007	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 7m
10GbE	MC2309130-001	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 1m
10GbE	MC2309130-002	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 2m
10GbE	MC2309130-003	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 3m
10GbE	MC2309130-00A	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 0.5m
10GbE	MC3309124-004	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 4m
10GbE	MC3309124-005	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 5m
10GbE	MC3309124-006	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 6m
10GbE	MC3309124-007	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 7m
10GbE	MC3309130-001	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m
10GbE	MC3309130-002	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m
10GbE	MC3309130-003	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 3m
10GbE	MC3309130-00A	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 0.5m
10GbE	MC3309130-0A1	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1.5m
10GbE	MC3309130-0A2	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2.5m
10GbE	MCP2100-X001B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m, Blue Pulltab, Connector Label
10GbE	MCP2100-X002B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m, Blue Pulltab, Connector Label
10GbE	MCP2100-X003B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 3m, Blue Pulltab, Connector Label
10GbE	MCP2101-X001B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m, Green Pulltab, Connector Label
10GbE	MCP2104-X001B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m, Black Pulltab, Connector Label
10GbE	MCP2104-X002B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m, Black Pulltab, Connector Label
10GbE	MCP2104-X003B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 3m, Black Pulltab, Connector Label

Speed	OPN	Description
10GbE	MCP2104-X01AB	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1.5m, Black Pulltab, Connector Label
10GbE	MCP2104-X02AB	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2.5m, Black Pulltab, Connector Label

7.1.11 Validated and Supported 1GbE Cables

Speed	OPN	Description
1GbE	MC3208011-SX	Nvidia Optical module, ETH 1GbE, 1Gb/s, SFP, LC-LC, SX 850nm, up to 500m
1GbE	MC3208411-T	NVIDIA module, ETH 1GbE, 1Gb/s, SFP, Base-T, up to 100m

7.2 Tested Switches

7.2.1 Tested NDR Switches

Speed	Switch Silicon	OPN # / Name	Description	Vendor
NDR	NVIDIA Quantum-2	MQM9790	NVIDIA Quantum-2 based NDR InfiniBand EVB Switch, 64 NDR ports, 32 OSFP ports, non-blocking switching capacity of 51.2Tbps, 2 Power Supplies (AC), Standard depth, Unmanaged, P2C airflow, Rail Kit, RoHS6	NVIDIA
NDR	NVIDIA Quantum-2	MQM9700	NVIDIA Quantum 2 based NDR InfiniBand Switch, 64 NDR ports, 32 OSFP ports, 2 Power Supplies (AC), Standard depth, Managed, P2C airflow, Rail Kit	NVIDIA

7.2.2 Tested HDR Switches

Speed	Switch Silicon	OPN # / Name	Description	Vendor
HDR	Quantum	MQM8700-xxx	40-port Managed Non-blocking HDR 200Gb/s InfiniBand Smart Switch	NVIDIA
HDR	Quantum	MQM8790-xxx	40-port Unmanaged, Non-blocking HDR 200Gb/s InfiniBand Smart Switch	NVIDIA

8 PreBoot Drivers (FlexBoot/UEFI)

8.1 FlexBoot Changes and New Features

For further information, please refer to the FlexBoot Release Notes.

8.2 UEFI Changes and Major New Features

For further information, please refer to the UEFI Release Notes.

9 Release Notes History

9.1 Changes and New Feature History

Feature/Change	Description
28.35.3006	
Bug Fixes	See *Bug Fixes in this Firmware Version* section.

Feature/Change	Description
28.35.2000	
PCC Algorithm	Enables the users to collect more information from NP to RP for PCC algorithm. To achieve this, the NP ingress bytes information was added to the RTT response packet sent from the NP side.
HPCC: Support per-IP and per-QP methods	Enables the user to configure the PCC algorithm shaper coalescing mode using nvconfig to select CC algorithm shaper coalescing for IB and ROCE. The new parameters are `IB_CC_SHAPER_COALESCE` and `ROCE_CC_SHAPER_COALESCE`.
SPDM Attestation	Enabled `GET_MEASUREMENTS` to be called before `CHALLENGE` is called in SPDM Attestation flow according to the SPDM protocol.
Bug Fixes	See *Bug Fixes in this Firmware Version* section.

Feature/Change	Description
28.35.1012	
UDP	Added support for copy modify header steering action to/from the UDP field.
Range based Lookup	Added support for range based lookup. This new capability is available using the following new PRM command: GENERATE WQE which receives GTA WQE, the command supports "match on range" and num_hash_definer=[1,2] and num_match_ste=[1,2]. For further information, refer to section "RTC Object Format" in the PRM.
RoCE based VM Migration	Added support for RoCE based VM migration.
Resource Dump	Added the following resource dump segments: • SEG_HW_STE_FULL that includes dump to STE and all its dependencies • SEG_FW_STE_FULL that include dump to FW_STE and to HW_STE_FULL in range
Striding WQE - Headroom and Tail-room	As the software requires additional space before and after a packet is scattered for its processing for stridden RQ, the hardware will allocate the required room while scattering packets to spare a copy.
Connections per Second (CPS)	Improved security offload's Connections per Second (CPS) rate using the general object DEK (PSP TLS etc).
VF Migration Flow	Added support for pre-copy commands in VF migration flow in order to reduce the migration downtime.
VF Migration Flow	Optimized performance to support full VF migration flow.

VirtIO vDPA Performance Virtualization	Increased the VirtIO hardware offload message rate to 20/20 MPPS for 256 virtual devices by optimizing the datapath application code.
PTP: Accuracy Scheduling	Added support for all PTP/accuracy scheduling.
RoCE: Adaptive Timer	Enabled ADP timer to allow the user to configure RC or DC qp_timeout values lower than 16.
QoS Priority Trust Default State	QoS priority trust default state can now be changed using the new nvconfig below: • QOS_TRUST_STATE_P1 • QOS_TRUST_STATE_P2 The values that can be used to set the default state are: • TRUST_PORT • TRUST_PCP • TRUST_DSCP • TRUST_DSCP_PCP
Bug Fixes	See Bug Fixes section.
28.34.4000	
Bug Fixes	See Bug Fixes section.
28.34.1002	
MACsec Full Offload	Enabled MACsec full offload for NIC tables (aware mode). UnTil now full offload was available only for FDB tables.
LLDP Properties Implementation on RDE	Added LLDPEnable, LLDPTransmit and LLDPReceive properties to the RDE Port schema implementation.
Programmable CC, PPCC, MAD, IBCC	Added support for PPCC register with bulk operations, MAD for algorithm configuration and tunable parameters.
Programmable Congestion Control (PCC)	Optimized both of the DPA's infrastructure and algorithm to be Programmable CC based.
Programmable Counters	Added support for programmable counters for PCC via PPCC register and MAD.
Bug Fixes	See Bug Fixes section.
28.33.4030	
Firmware Based Attestation Flow	Attestation is a cryptographic reporting of the security configuration of a device, used by a platform to establish trust in the device. The device's security configuration includes (but is not limited to) its identity, the code it is running and the states of security related mechanisms and assets. This new capability enables BMC to attest the device over SPDM protocol. The feature works for secure NICs with production certificates installed. SPDM protocol is defined in DMTF DSP0274 v1.1.0. Currently the following SPDM commands are supported: • GET_VERSION • GET_CAPABILITIES • NEGOTIATE_ALGORITHMS • GET_DIGESTS • GET_CERTIFICATE Since CHALLENGE and GET_MEASUREMENTS are not functional yet, when they are called, the NIC will respond with RESPONSE_NOT_READY.
Cables	Added support for 100G & 200G optical cables (InfiniBand & Ethernet). Please note this support comes with a limitation when connecting ConnectX-7 to a ConnectX-6 Dx or an NVIDIA Spectrum-3 as described in Known Issues 3070409.

Bug Fixes	See Bug Fixes section.
28.33.2028	
General	This is the initial firmware release of NVIDIA® ConnectX®-7 adapter cards. ConnectX-7 has the same feature set as ConnectX-6 adapter card. For the list of the ConnectX-6 firmware features, please see ConnectX-6 Firmware Release Notes. The features described here are new features in addition to the ConnectX-6 set.
200Gb/s Throughput on Crypto Capable Devices	Enabled 200Gb/s out-of-the-box throughput on crypto capable devices. **Note:** If any crypto offloads is in use, 200Gb/s throughput can be achieved only after the next firmware reset
VF Migration	Added support for VF migration. The hypervisor can now suspend its VF, meaning from that point the VF cannot perform action such as send/receive traffic or run any command. In this firmware version only the suspend resume mode is supported (on the same VM).
MADs	Added a new MAD of class SMP that has the attributes `hierarchy_Info` as defined in the IB Specification and is used to query the hierarchy information stored on the node and the physical port.
VF Migration	Added support for VF migration.
DCS Offload	**[Beta]** A single DCI can be connected to only one target at the time and cannot start new connection until the previous work request is completed. To avoid delays that occur when the initiator process needs to transfer data to multiple targets at the same time, a new offload process (DCS) is introduced to handle and spread the work request on many DCIs according to destinations. The DCS offload reduces the load from the CPU and improves performance. **Note:** In this firmware version, the following actions are not supported: • Signature Handover Operations • Requestor retransmission on signature mkeys • rts2rts – In rare cases can move the QP to an undefined state
Strided KLM	Added support for large strided KLM (KLM is an MKEY asses mode which allows MKEYs usage with different window size).
NV Configurations via the Relevant Reset Flow	Added `pci_rescan_needed` field to the MFRL access register to indicate whether a PCI rescan is needed based on the NV configurations issued by the software. **Note:** If the Keep Link Up NV configuration is changed, phyless reset will be blocked.
ICM Pages	Added a new register (`vhca_icm_ctrl access_reg`) to enable querying and limiting the ICM pages in use.
Livefish Mode	Enables the user to burn firmware via MTUSB when in livefish mode.
Media Access Control Security Offload	Media Access Control Security Offload allows the NIC to accelerate Macsec operation. Macsec offload handles packets inline - as they go through the NIC. For inbound packets, the host receives plaintext packets (for instance MAC|ETH|IP|TCP) while on the network these packets are encrypted + authenticated and encapsulated within an SecTag header and vice versa for outbound packets.
NetworkPort Schema Replacement	Replaced the deprecated NetworkPort schema with Port schema in NIC RDE implementation.
Steering Definer	Added support for creating a steering definer with a dword selector using `create_match_definer_object` and the `"SELECT"` format.
XRQ QP Errors Enhancements	Enhanced the XRQ QP error information provided to the user in case QP goes into an error state. In such case, QUERY_QP will provide information on the syndrome type and which side caused the error.

HW Steering: WQE Insertion Rules	**[Beta]** Added HW Steering support for the following: • set, add and copy inline STC action • set and copy actions for several fields using modify_pattern object and inline stc modify action • FDB mode in HW steering using FDB_RX and FDB_TX flow table types • ASO flow meter action via STC • flow counter query using ASO WQE • allocation of large bulks for the objects: STE, ASO flow meter and modify argument • jumbo match RTC • count action in STC
ibstat	Updated the ibstat status reported when the phy link is down. Now `QUERY_VPORT_STATE.max_tx_speed` of UPLINK will not be reported as 0 anymore.
Congestion Control	Enabled APU based programmable congestion control capability with multiple algorithm.
ZTRCC	Added support for advanced ZTR_RTTCC algorithm based on the Programmable CC platform to achieve better congestion control without dependency on the switch ECN marking.
SMPs	Disabled the option to send SMPs from unauthorized hosts.
SW Steering Cache	Modified the TX or RX cache invalidation behavior. TX or RX cache invalidation now does not occur automatically but only when the software performs the sync operation using the using sync_steering command.
Mega Allocations in Bulk Allocator Mechanism	Modified the maximum bulk size per single allocation from `"log_table_size - log_num_unisizes",` to allocate any range size, to remove limitations that HWS objects such as counters and modify arguments might encounter.
SNAPI: Comm-Channel	Added support for SNAPI (comm-channel) connection while running on raw ETH link.
Changing all the Crypto Features to Wrapped or Cleartext	Crypto features can be in either wrapped or unwrapped mode. Meaning, the key can be wrapped or in plaintext when running the CREATE_DEK PRM command. To comply with the requirements specified in FIPS publication, all the created DEKs must be wrapped. This feature adds new `NV_CONFIG` per device to control this mode, and enables the user to change all the crypto features to wrapped or cleartext.
ICM Direct Access by the Software to write/ modify the DEK Objects	**[Beta]** This new capability enables the software to directly access ICM and write/ modify the DEK objects. Such change improves the DEK object update rate by re-using DEK object instead of creating a new one. In addition, added the following: • New for DEK object: `bulk allocation, modify_dek cmd`, and new mode `-sw_wrapped`. • New general object `INT_KEK`
Page Tracking During VM Migration	To allow page tracking during VM migration, this new capability enables the user to mark all the modified pages and report them to the software, in order to copy the memory without stopping the VM, and only copy a small amount of pages (the ones that were modified in the last iteration) after stopping the VM.

9.2 Bug Fixes History

Internal Ref.	Issue
3333959	**Description:** Enabled ACS for single port cards.
	Keywords: ACS
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3006
3426519	**Description:** Added a new condition to check the port split number to resolve an issue that caused the port LEDs to be OFF.
	Keywords: Port split
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3006
3426493	**Description:** Fixed the NEGOTIATE_ALGORITHMS response according to the SPDM specification.
	Keywords: SPDM
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3006
3492613	**Description:** Fixed an issue that caused the system not to detect the PCIe device during slot DC power cycle tests.
	Keywords: PCIe device, DC power cycle tests
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3006
3491989	**Description:** Fixed an issue that caused the virtio-blk traffic to get stuck when working on vDPA over VFE mode.
	Keywords: virtio-blk, virtio full emulation, vDPA
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3006
3426533	**Description:** Fixed an issues that occurred during secure firmware update when decrypting and authenticating each chunk of data using its authentication tag. The issue appeared when the main code chunk was split between the user chunks and any GCM operation (e.g., flash read with decryption). This GCM operation broke the GCM context for main chunk authentication and therefore failed.
	Keywords: Secure firmware update, GCM, code chunk
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3006
3467228	**Description:** Fixed an issue that resulted in the interface type being shown as "unsupported" in CMIS modules.
	Keywords: CMIS
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3006

Internal Ref.	Issue
3337212	**Description:** Fixed an issue that prevent the ConnectX-7 OCP 3.0 card from detecting that the PCIe link was down during slot AC power cycle.
	Keywords: PCIe link AC power cycle
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3006
3337214	**Description:** Fixed an issue that resulted in device link down, and the device not being able to get traffic when moving between two states DETECT and POLLING CONFIG in RTL.
	Keywords: RTL, link down, traffic
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3006
3467221	**Description:** Added the option to clear the DPC registers after warm reboot.
	Keywords: DPC
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3006
3467220	**Description:** Fixed wrong credits configuration when MAX_ACC_OUT_READ was configured.
	Keywords: Configuration
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3006
3426465	**Description:** Fixed a rare issue that prevented the hardware from handling an error flow that occurred when accessing the DPA cluster L2 cache from the firmware processor. In this case the firmware processor hardware requested a VA=>PA translation from the internal mmio, and the address translation was broken by the mmio on the 4K page boundary.
	Keywords: Error handling, mmio, firmware processor
	Discovered in Version: 28.35.2000
	Fixed in Release: 28.35.3006

Internal Ref.	Issue
3217896	**Description:** Fixed RDE PATCH operation status code reported in case the property is "read-only".
	Keywords: RDE
	Discovered in Version: 28.35.1012
	Fixed in Release: 28.35.2000
3241357	**Description:** Fixed an issue in MCTP-over-PCIe, where the VDM message with the type Route-to-Root Complex, the target ID was not set as 0x0.
	Keywords: MCTP-over-PCIe, VDM message
	Discovered in Version: 28.35.1012
	Fixed in Release: 28.35.2000

Internal Ref.	Issue
3227764	**Description:** Updated the GET_CERTIFICATE response fields according to the SPDM v1.1.0 specification. Added the following certificate chain header fields: length, reserved, root hash.
	Keywords: SPDM
	Discovered in Version: 28.35.1012
	Fixed in Release: 28.35.2000
3124378	**Description:** Updated counters and their path to allow NeoHost to run properly on ConnectX7 adapter cards with secure firmware.
	Keywords: NeoHost, counters
	Discovered in Version: 28.35.1012
	Fixed in Release: 28.35.2000
3215393	**Description:** Fixed an issue that caused the virtual QoS mechanism to stop traffic from reaching the full line rate of 200GbE on each direction when LAG was enabled.
	Keywords: Virtual QoS mechanism, 200GbE, LAG
	Discovered in Version: 28.35.1012
	Fixed in Release: 28.35.2000

Internal Ref.	Issue
3110205	**Description:** Fixed inconsistent TCP performance when sending multiple streams.
	Keywords: Performance
	Discovered in Version: 28.34.1002
	Fixed in Release: 28.34.4000
3138401	**Description:** Fixed an issue that caused host's PCI device to disappear after running 12V cycles in a loop while there was traffic between the hosts in a Multi-Host platform.
	Keywords: PCI device, Multi-Host platform, 12V cycles
	Discovered in Version: 28.34.1002
	Fixed in Release: 28.34.4000
3148833	**Description:** Fixed an issue that resulted in lack of communication with the BMC from the host (IPv4/IPv6) when using BMC version v2022.22.1.
	Keywords: BMC
	Discovered in Version: 28.34.1002
	Fixed in Release: 28.34.4000
3143956	**Description:** When connecting a ConnectX-7 adapter card to ConnectX-7 adapter card, once in few fwresets the link may raise in 1G speed instead of the highest speed enabled.
	Keywords: Speed rate
	Discovered in Version: 28.34.1002
	Fixed in Release: 28.34.4000

Internal Ref.	Issue
2931516	**Description:** Added support for SPDM Get_measurements command. **Note:** Executing the command with a signature request without measurements, can cause an invalid L1 hash calculation.
	Keywords: SPDM
	Discovered in Version: 28.33.4030
	Fixed in Release: 28.34.1002
3091233	**Description:** Added support for SPDM Challenge command.
	Keywords: SPDM
	Discovered in Version: 28.33.4030
	Fixed in Release: 28.34.1002
2907008	**Description:** Fixed PCIe link down failures during PCIe speed change tests.
	Keywords: PCIe, link down
	Discovered in Version: 28.33.4030
	Fixed in Release: 28.34.1002
3134894	**Description:** Fixed an issue where `set_flow_table_entry` failed when `aso_flow_meter` action was used.
	Keywords: ASO Flow Meter, FW Steering
	Discovered in Version: 28.33.2028
	Fixed in Release: 28.34.1002
3039007	**Description:** Enabled Multi-Host RX Rate-limiter configuration via the QEEC mlxreg and the max_shaper_rate field.
	Keywords: RX Rate-Limiter, Multi-host
	Discovered in Version: 28.33.4030
	Fixed in Release: 28.34.1002
3059379	**Description:** Added "Command Unsupported" response code in cases when running the MCTP control command "Get Vendor Defined Messages Supported", and there were no supported VDMs.
	Keywords: MCTP control command
	Discovered in Version: 28.33.4030
	Fixed in Release: 28.34.1002
3133476	**Description:** Added the following new checks to commands' interface: • CREATE/MODIFY QP/DCT - blocking QP/DCT with adaptive routing (multi_path field) if gvmi has MKEY with Signature • CREATE_MKEY- blocking the signature option if gvmi has open QPs/DCTs with the adaptive_routing feature enabled
	Keywords: Command checks
	Discovered in Version: 28.33.4030
	Fixed in Release: 28.34.1002
3047521	**Description:** Implemented a firmware flow to power up/down the PLL from downstream links upon PERST assertion/de-assertion.

Internal Ref.	Issue
	Keywords: PLL, PERST
	Discovered in Version: 28.33.4030
	Fixed in Release: 28.34.1002
3132594	**Description:** MAC allocation in adapter cards that support Port-Per-Host feature ("host isolation") is reordered to fit the required range. **Note:** After burning a new firmware, the user **must** power cycle the server, and run the DHCP flow to recover the MAC changes.
	Keywords: MAC allocation, PortPerHost
	Discovered in Version: 28.33.4030
	Fixed in Release: 28.34.1002
3085879	**Description:** On rare occasions, when connecting a ConnectX-7 adapter card to an NVIDIA Spectrum-3 switch system using the optical cable OPN MFA1A00-C003, the link up time is ~7sec.
	Keywords: Optical cables, link up time
	Discovered in Version: 28.33.4030
	Fixed in Release: 28.34.1002
2994292	**Description:** Fixed a race condition occured between the duplicate read and QP commands (2RST, 2ERR and Destroy) in the signature that caused the command to hang.
	Keywords: Race condition
	Discovered in Version: 28.33.2028
	Fixed in Release: 28.34.1002
3023847	**Description:** Enabled sending and receiving traffic with a different LID than the host LID in MetroX applications.
	Keywords: MetroX, LID based
	Discovered in Version: 28.33.2028
	Fixed in Release: 28.33.4030
3023847	**Description:** Enabled sending and receiving traffic with a different LID than the host LID in MetroX applications.
	Keywords: MetroX, LID based
	Discovered in Version: 28.33.2028
	Fixed in Release: 28.33.4030
2920813	**Description:** The `an_disable` flow is not supported in ConnectX-7 adapter cards for 25GbE and 50G_2x link speeds when using one of the following cables: • MT1841VS00827 (rev A4) • MT1830VS00895 (rev A3) The flow is supported only when configuring FEC using the PPLM register.
	Keywords: AN, cables, 25GbE, FEC
	Discovered in Version: 28.33.2028
	Fixed in Release: 28.33.4030
3039348	**Description:** Host Chaining is currently not supported in ConnectX-7 adapter cards.
	Keywords: Host Chaining

Internal Ref.	Issue
	Discovered in Version: 28.33.2028
	Fixed in Release: 28.33.4030
3023751	**Description:** Link flapping may occur when using ConnectX-7 adapter cards with HDR optic cables.
	Keywords: Link flapping, HDR optic cables
	Discovered in Version: 28.33.2028
	Fixed in Release: 28.33.4030
3046168	**Description:** Congestion Control is not enabled when one link type of different ports is different.
	Keywords: Congestion Control, Link Type, PCC
	Discovered in Version: 28.33.2028
	Fixed in Release: 28.33.4030
3009525	**Description:** A Bit Error Rate (BER) of 1e-9 might occur when using optical cables.
	Keywords: BER
	Discovered in Version: 28.33.4030
	Fixed in Release: 28.34.1002
3036791	**Description:** Configuring 400G_8x in force mode is currently not supported.
	Keywords: 400G_8x in force mode
	Discovered in Version: 28.33.4030
	Fixed in Release: 28.34.1002
3004352	**Description:** LRO is currently not supported.
	Keywords: LRO
	Discovered in Version: 28.33.4030
	Fixed in Release: 28.34.1002

Internal Ref.	Issue
2969829	**Description:** On rare occasions, the HDR speed link up time when using the optical module MFA7U10-H010 might take up to 70sec.
	Keywords: HDR, link up time, optical cable
	Discovered in Version: 28.33.2028
	Fixed in Release: 28.33.4030
3024199	**Description:** When connecting a ConnectX-7 adapter card to an NVIDIA Quantum switch using the copper cable (MCP1600-E01AE30), the link is Down when in EDR speed.
	Keywords: EDR, copper cable, NVIDIA Quantum
	Discovered in Version: 28.33.2028
	Fixed in Release: 28.33.4030

Internal Ref.	Issue
2947588	**Description:** Trying to query/burn the firmware using the flint utility when the image is pending (after firmware burn and before firmware reset), results in the action's failure.
	Keywords: flint, query/burn firmware
	Discovered in Version: 28.33.2028
	Fixed in Release: 28.33.4030
3047723	**Description:** When changing the protocols from ETH to IB on two ConnectX-7 adapter cards connected to each other, the ports on both sides must be toggled to get the link up.
	Keywords: Linkup, port toggling, protocol change
	Discovered in Version: 28.33.2028
	Fixed in Release: 28.33.4030
3033874	**Description:** Connecting a ConnectX-7 adapter card to either a ConnectX-5 adapter card or to an NVIDIA Spectrum switch system is supported only when using a 100GbE optic cables and when configuring ConnectX-5 or the NVIDIA Spectrum switch system to Force Mode.
	Keywords: Linkup connectivity
	Discovered in Version: 28.33.2028
	Fixed in Release: 28.33.4030

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