NVIDIA ConnectX-7 Adapter Cards Firmware Release Notes v28.45.1020

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Release Notes Update History

Version	Date	Description
28.45.1020	May 2025	Initial release of this Release Notes version,

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) provides up to four ports of connectivity and 400Gb/s of throughput, hardware-accelerated networking, storage, security, and manageability services at data center scale for cloud, telecommunications, AI, and enterprise workloads. ConnectX-7 empowers agile and high-performance networking solutions with features such as Accelerated Switching and Packet Processing (ASAP2), advanced RoCE, GPUDirect Storage, and in-line hardware acceleration for Transport Layer Security (TLS), IP Security (IPsec), and MAC Security (MACsec) encryption and decryption. ConnectX-7 enables organizations to meet their current and future networking needs in both high-bandwidth and high-density environments.

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.

Firmware Download

Please visit Firmware Downloads.

Document Revision History

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

Firmware Compatible Products

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

- InfiniBand - EDR, HDR100[2], HDR[2], NDR200[2], NDR[2]

- Ethernet - 1GbE, 10GbE, 25GbE, 40GbE, 50GbE[1], 100GbE[1], 200GbE [2], 400GbE[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.

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

Supported Devices

NVIDIA SKU	Legacy OPN	PSID	Device Description
900-24768-0002-000	N/A	NVD0000000054	Nvidia Dual ConnectX-7 Mezzanine Board for GB200 NVL systems, Crypto Enabled, Secure Boot Enabled, Partner Cool
900-9X7AH-004N-CT0	MCX713114TC-GEAT	MT_0000001048	NVIDIA ConnectX-7 Ethernet adapter card; FHHL; 25GbE/50GbE; quad-port SFP with

NVIDIA SKU	Legacy OPN	PSID	Device Description
			enhanced-SyncE & PTP; PPS In/Out; PCIe 5.0 x16; Crypto and Secure Boot
900-9X760-0078-MB1	MCX753436MS-HEBB	MT_0000001221	NVIDIA ConnectX-7 OCP3.0 SFF Adapter Card;200GbE (default mode) / NDR200 IB; Dual-port QSFP112; Multi-Host and Port Split capable; PCIe 5.0 x16; Crypto Disabled; Secure Boot Enabled; Thumbscrew (Pull Tab) Bracket
900-9X7AH-0078-DTZ	MCX755106AS-HEAT	MT_0000000834	NVIDIA ConnectX-7 HHHL Adapter Card; 200GbE (default mode) / NDR200 IB; Dual-port QSFP112; PCIe 5.0 x16 with x16 PCIe extension option; Crypto Disabled; Secure Boot Enabled
900-9X7AH-0078-ST0	MCX713106AS-VEAT	MT_0000000840	NVIDIA ConnectX-7 HHHL Adapter Card; 200GbE; Dual-port QSFP112; PCIe 5.0 x16; Crypto Disabled; Secure Boot Enabled
900-9X767-003N-DT0	MCX75210AAS-NEAT	MT_0000000851	NVIDIA ConnectX-7 HHHL Adapter Card; NDR IB; Single-port OSFP; PCIe 5.0 2x8 in a row (Socket Direct); Crypto Disabled; Secure Boot Enabled
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
900-9X720-00E0-S0B / 900-9X720-007N-SN1 / 900-9X720-00E0-S00 / 900-9X720-007N-SN0	MCX750500B-0D0K / MCX750500C-0D0K / MCX750500B-0D00 / MCX750500C-0D00	MT_0000000891	Nvidia adapter card with four ConnectX-7; each up to 400Gb/s IB (default mode) or 400GbE; PCIe 5.0 x32; PCIe switch; crypto disabled; secure boot enabled
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
900-9X7AX-004NMC0	MCX75343AMC-NEAC	MT_0000001059	NVIDIA ConnectX-7 OCP3.0 TSFF Adapter Card; 400GbE / NDR IB (default mode); Single-port OSFP; Multi-Host and Socket Direct capable; PCIe 5.0 x16; Crypto Enabled; Secure Boot Enabled

NVIDIA SKU	Legacy OPN	PSID	Device Description
900-9X7AH-0076-ST0	MCX713106AS-CEAT	MT_0000000843	NVIDIA ConnectX-7 HHHL Adapter Card; 100GbE; Dual-port QSFP112; PCIe 5.0 x16; Crypto Disabled; Secure Boot Enabled
900-9X7AO-0003-ST0	MCX713104AS-ADAT	MT_0000000849	NVIDIA ConnectX-7 HHHL Adapter Card; 25/50GbE; Quad-Port SFP56; PCIe 4.0 x16; Crypto Disabled; Secure Boot Enabled
900-9X766-003N-SR0	MCX75310AAC-NEAT	MT_0000001046	NVIDIA ConnectX-7 HHHL Adapter card; 400GbE / NDR IB (default mode); Single-port OSFP; PCIe 5.0 x16; Crypto Enabled; Secure Boot Enabled;
900-9X760-0078-MB0	MCX753436MS-HEAB	MT_0000000833	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 Disabled; Secure Boot Enabled
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
900-9X766-003N-SQ0	MCX75310AAS-NEAT	MT_0000000838	NVIDIA ConnectX-7 HHHL Adapter card; 400GbE / NDR IB (default mode); Single-port OSFP; PCIe 5.0 x16; Crypto Disabled; Secure Boot Enabled;
900-9X7AH-0088-ST0	MCX713106AC-VEAT	MT_0000000841	NVIDIA ConnectX-7 HHHL Adapter Card; 200GbE; Dual-port QSFP112; PCIe 5.0 x16; Crypto Enabled; Secure Boot Enabled
900-9X7AH-0086-SQ0	MCX713106AC-CEAT	MT_0000000842	NVIDIA ConnectX-7 HHHL Adapter Card; 100GbE; Dual-port QSFP112; PCIe 5.0 x16; Crypto Enabled; Secure Boot Enabled
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;
900-9X7AX-003NMC0	MCX75343AMS-NEAC	MT_0000001058	NVIDIA ConnectX-7 OCP3.0 TSFF Adapter Card; 400GbE / NDR IB (default mode); Single-port OSFP; Multi-Host and Socket Direct capable;

NVIDIA SKU	Legacy OPN	PSID	Device Description
			PCIe 5.0 x16; Crypto Disabled; Secure Boot Enabled
900-9X7AX-0039-SB0	MCX75343AAS-NEAC	MT_00 00000 784	NVIDIA ConnectX-7 VPI adapter card; NDR IB/400GbE OCP3.0 TSFF; Single-port OSFP; PCIe 5.0 x16; Secure boot; No Crypto
900-9X721-003N-DT1	MCX75510AAS-HEAT	MT_00 00000 839	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
900-9X767-003N-DT1	MCX75210AAS-HEAT	MT_00 00000 850	NVIDIA ConnectX-7 HHHL Adapter Card; NDR200 IB; Single-port OSFP; PCIe 5.0 2x8 in a row (Socket Direct); Crypto Disabled; Secure Boot Enabled;
900-9X7AO-00C3-STZ	MCX713104AC-ADAT	MT_00 00000 852	NVIDIA ConnectX-7 HHHL Adapter Card; 25/50GbE; Quad-Port SFP56; PCIe 4.0 x16; Crypto Enabled; Secure Boot Enabled
900-9X766-003N-ST0	MCX75310AAS-HEAT	MT_00 00000 844	NVIDIA ConnectX-7 HHHL Adapter Card; 200GbE / NDR200 IB (default mode); Single-port OSFP; PCIe 5.0 x16; Crypto Disabled; Secure Boot Enabled;
900-9X7AH-0079-DTZ	MCX755106AC-HEAT	MT_00 00001 045	NVIDIA ConnectX-7 HHHL adapter Card; 200GbE (default mode) / NDR200 IB; Dual-port QSFP112; PCIe 5.0 x16 with x16 PCIe extension option; Crypto Enabled; Secure Boot Enabled;
930-9O000-0000-060	MCX755206AS-NEAT-N	MT_00 00000 892	NVIDIA ConnectX-7 VPI adapter card; 400Gb/s IB and 200GbE; dual-port QSFP; PCIe 5.0 x16; dual slot; secure boot; no crypto; tall bracket for Nvidia DGX storage
900-9X7AH-0039-STZ	MCX715105AS-WEAT	MT_00 00001 244	NVIDIA ConnectX-7 HHHL Adapter Card; 400GbE (default mode) / NDR IB; Single-port QSFP112; Port Split Capable; PCIe 5.0 x16 with x16 PCIe extension option; Crypto Disabled; Secure Boot Enabled
900-9X760-0078-MB1	MCX753436MS-HEBB	MT_00 00001 221	NVIDIA ConnectX-7 OCP3.0 SFF Adapter Card;200GbE (default mode) / NDR200 IB; Dual-port QSFP112; Multi-Host and Port Split capable; PCIe 5.0 x16; Crypto Disabled; Secure Boot Enabled; Thumbscrew (Pull Tab) Bracket

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	28.45.1020 / 28.44.1206 / 28.44.1036
DOCA-HOST	3.0.0. / 2.10.0 **Note:** For the list of the supported Operating Systems, please refer to the driver's Release Notes.
WinOF-2	25.4.50020 / 25.1.51010 / 24.10.50010 **Note:** For the list of the supported Operating Systems, please refer to the driver's Release Notes.
MFT	4.32.0-120 / 4.31.0-149 / 4.30.1-8 **Note:** For the list of the supported Operating Systems, please refer to the driver's Release Notes.
FlexBoot	3.7.500
UEFI	14.38.16
MLNX-OS	3.12.2002 onwards
Cumulus	5.11.0.0026 onwards
NVIDIA Quantum-2 Firmware	31.2014.2084 onwards

Changes and New Features

> ⓘ **Note**
>
> **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.

> ⓘ **Info**
>
> To generate PLDM packages for firmware updates, users must install and use the MFT version that corresponds with the respective firmware release.

Feature/Change	Description
28.45.1020	
SPDM	Introduced a 1ms delay for SPDM responses.
Bug Fixes	See *Bug Fixes in this Firmware Version* section.

Customer Affecting Changes

Changes in This Release

This section provides a list of changes that took place in the current version and break compatibility/interface, discontinue support for features and/or OS versions, etc.

Introduced in Version	Description
N/A	N/A

Changes Planned for Future Releases

This section provides a list of changes that will take place in a future version of the product and will break compatibility/interface, discontinue support for features and/or OS versions, etc.

Planned for Version	Description
N/A	N/A

Changes in Earlier Releases

This section provides a list of changes that took place throughout the past two major releases that broke compatibility/interface, discontinued support for features and/or OS versions, etc.

For an archive of all changes, please refer to the Release Notes History section.

Introduced in Version	Description	Customer Impact and Recommendation
28.43.2026	**DPA Outbox Blocking-Mode** Due to a silicon issue, as of firmware version 28.43.2026, the DPA outbox is configured to operate in non-blocking mode, causing DPA outbox requests to complete immediately without waiting for actual completion. As a result, the DPA stack must poll a "busy" bit before initiating another DPA outbox operation. **DPA Thread Context** Due to internal-stack API changes, as of firmware v28.43.2026, DPA thread context is changed in the DPA. This affects the overlying DPA stack. As of firmware version 28.43.2026, internal-stack API changes have altered the DPA thread context, impacting the overlying DPA stack.	Update the firmware version to 28.43.2026 or higher or update the BF-Bundle (containing this firmware) and DOCA-Host to 2.9.x or higher. This is mandatory for customers programming the DPA (e.g., DPA with DOCA PCC, or using NVIDIA turn-key apps which utilize the DPA (virtio-net/blk/fs, NVMe).

Discontinued Features

List of features which are supported in previous generations of hardware devices.

N/A

Declared Unsupported Features

This section provides a list of features that are not supported by the software.

N/A

Bug Fixes in this Firmware Version

Internal Ref.	Issue
4241238	**Description:** Fixed TX timeout issue related to the esw_scheduling QoS feature.
	Keywords: esw_scheduling QoS
	Discovered in Version: 28.44.1036
	Fixed in Release: 28.45.1020
4352025	**Description:** Fixed an out-of-space issue related to writing Type-Length-Value (TLV) entries to reclaim space by removing outdated or irrelevant configuration entries.
	Keywords: TLV
	Discovered in Version: 28.44.1036
	Fixed in Release: 28.45.1020
4318537	**Description:** Fixed an issue where the AI and HAI parameters of the ZTR_RTTCC algorithm, when configured by users, were automatically overwritten upon link speed changes. With this fix, if AI/HAI values were tuned for link speeds other than 100Gb/s, users should now divide those values by (link_speed / 100) to maintain consistent congestion control algorithm behavior.
	Keywords: Congestion control, ZTR_RTTCC
	Discovered in Version: 28.44.1036
	Fixed in Release: 28.45.1020
4368450	**Description:** Fixed an issue where `PCC_CNP_COUNT` could not be reset using the `pcc_counter.sh` script in the DOCA tools.
	Keywords: PCC
	Discovered in Version: 28.44.1036

Internal Ref.	Issue
	Fixed in Release: 28.45.1020
4360664	**Description:** Fixed an issue in DOCA Telemetry recovery following a non-graceful abort or driver restart. The problem was related to configuring certain counters during the post-abort flow.
	Keywords: DOCA Telemetry recovery
	Discovered in Version: 28.44.1036
	Fixed in Release: 28.45.1020
4311009	**Description:** Fixed an issue with doorbell recovery that occurred when DCS was active in the system that resulted in the FLR/DESTROY_QP command getting stuck.
	Keywords: DCS, doorbell recovery
	Discovered in Version: 28.44.1036
	Fixed in Release: 28.45.1020
4161925	**Description:** Fixed an issue where the CDB command timeout needed to be increased due to background traffic.
	Keywords: CDB
	Discovered in Version: 28.44.1036
	Fixed in Release: 28.45.1020
4295491	**Description:** Fixed a rare race condition that could incorrectly detect a lack of communication between the ASICs, resulting in module failure and incorrect reporting as unplugged.
	Keywords: Race condition
	Discovered in Version: 28.44.1036
	Fixed in Release: 28.45.1020
4342585	**Description:** Fixed an issue where TLV with OEM priority was incorrectly processed if blocked by MLNX TLV (over_en=0).
	Keywords: TLV
	Discovered in Version: 28.44.1036
	Fixed in Release: 28.45.1020

Internal Ref.	Issue
4209790	**Description:** Enhanced execution time and reduced memory consumption for ETH transport resources (TIR, Transport Domain).
	Keywords: ETH transport resources
	Discovered in Version: 28.44.1036
	Fixed in Release: 28.45.1020
4257863	**Description:** Fixed an issue that could cause the DESTROY_MKEY command to take an excessively long time to execute, with the host driver displaying a "No done completion" message for this command.
	Keywords: MKey
	Discovered in Version: 28.44.1036
	Fixed in Release: 28.45.1020
4208995	**Description:** Fixed a timing race between Rx tuning and CDR locking following exit from electrical idle.
	Keywords: Timing race, Rx, CDR
	Discovered in Version: 28.44.1036
	Fixed in Release: 28.45.1020
4239221	**Description:** Fixed an issue where performing a software reset could cause the device to become inaccessible, requiring a reboot to restore visibility.
	Keywords: sw reset
	Discovered in Version: 28.43.1014
	Fixed in Release: 28.45.1020
4274327	**Description:** Fixed an issue in the VQoS algorithm related to learning when an element is active and when it begins sending traffic.
	Keywords: VQoS algorithm
	Discovered in Version: 28.44.1036
	Fixed in Release: 28.45.1020
4222773	**Description:** Reduced the bandwidth fluctuation induced by VQoS rate limiting in systems with bellow 350 QPs. **Note:** In this release, the relevant change is enabled by default, while in future versions it will be disabled by default and an additional NV configuration will be required to enable it.

Internal Ref.	Issue
	Keywords: VQoS
	Discovered in Version: 28.44.1036
	Fixed in Release: 28.45.1020
4274669	**Description:** Fixed a race condition that could prevent the application from transmitting when VQoS is enabled.
	Keywords: VQoS
	Discovered in Version: 28.44.1036
	Fixed in Release: 28.45.1020
4319008	**Description:** Fixed an issue that caused bandwidth to drop when unbinding multiple VFs with VQoS enabled.
	Keywords: VQoS
	Discovered in Version: 28.44.1036
	Fixed in Release: 28.45.1020
4199274	**Description:** Fixed an issue where RTT packets with any destination MAC address were incorrectly treated as having a valid destination MAC. The new firmware now discards RTT packets if their destination MAC does not match the port's MAC.
	Keywords: RTT, destination MAC
	Discovered in Version: 28.44.1036
	Fixed in Release: 28.45.1020

Known Issues

VF Network Function Limitations in SR-IOV 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)

Internal Ref.	Issue
4436922	**Description:** DC InfiniBand is not functional in this firmware version.
	Workaround: N/A
	Keywords: DC
	Detected in version: 28.45.1020
4394475	**Description:** The existing congestion control configuration applies globally, rather than on a per-priority basis.
	Workaround: Ensure that the configuration values for all priorities are aligned in either `mlxconfig ROCE_CC_PRIO_MASK_P$port` or `sysfs ecn/roce_rp/enable/$port`.
	Keywords: Congestion control, ROCE_CC_PRIO

Internal Ref.	Issue
	Detected in version: 28.45.1020
4366117	**Description:** Configuring a small MTU leads to fragmentation of packets critical for the PXE boot process. As a result, the PXE boot filters mistakenly discard these packets, causing the PXE boot to fail.
	Workaround: If this capability is not disabled by default on your adapter cards (`pxe_boot_filter_en=1/TRUE` in the bios HII), take the following actions: 1. Reduce the TFTP block size to a value that prevents packet fragmentation. 2. Manually disable the PXE filter.
	Keywords: PXE boot filters
	Detected in version: 28.45.1020
4063662	**Description:** The 1pps Timing Error (TE) in Noise Generation (Class B) shows a constant offset when RS-FEC is disabled in the mlxlink option.
	Workaround: N/A
	Keywords: PTP, 1PPS
	Detected in version: 28.45.1020
4303583	**Description:** The query_header_modify_pattern command may produce inaccurate results when specific fields are used.
	Workaround: N/A
	Keywords: query_header_modify_pattern command
	Detected in version: 28.45.1020
3875417	**Description:** For systems that support a large number of VFs (200 or more) and can open over a million QPs, the FLR may take about 1 second per function resulting in a driver timeout.
	Workaround: N/A
	Keywords: VFs, QPs, FLR
	Detected in version: 28.44.1204
4193036	**Description:** The initial allocation of DPA_THREAD on group affinity allocates memory for all EUs, including stack, core dump, and other resources.
	Workaround: N/A

Internal Ref.	Issue
	Keywords: DPA
	Detected in version: 28.44.1204
4030457	**Description:** This release does not support InfiniBand (IB) over Windows OS when using ConnectX-7 MCX75310AAS-NEAT and MCX75310AAC-NEAT OPNs.
	Workaround: N/A
	Keywords: InfiniBand, Windows
	Detected in version: 28.42.1000
2169950	**Description:** When decapsulation on a packet occurs, the FCS indication is not calculated correctly.
	Workaround: N/A
	Keywords: FCS
	Discovered in Version: 28.42.1000
-	**Description:** Downgrading the following adapter cards (MCX713104AS-ADAT & MCX713104AC-ADAT) to a lower version than 20.39.2048 is not supported.
	Workaround: N/A
	Keywords: Downgrade
	Discovered in Version: 28.40.1000
3728450	**Description:** SW_RESET with a pending image is currently not supported.
	Workaround: N/A
	Keywords: SW_RESET
	Discovered in Version: 28.40.1000
3735988	**Description:** In IB system, RTT_response_sl feature does not work with Sniffer tools (e.g., Wireshark/Tcpdump/).
	Workaround: N/A
	Keywords: Health buffer, sniffer, RTT
	Discovered in Version: 28.40.1000
3614362	**Description:** When connected to a Spectrum-1 switch system using NRZ 25G optic module supporting DME in NO FEC, an EFF BER of -13 may be seen once in 200 toggles.

Internal Ref.	Issue
	Workaround: To raise the link, re-toggle the port.
	Keywords: Spectrum-1, NRZ, BER, port toggling
	Discovered in Version: 28.39.1002
3629216	**Description:** mlxfwreset level 3 command is not supported for MCX750500B-0D00 / MCX750500B-0D0K / MCX755206AS-NEAT-N P/N.
	Workaround: 1. Enable mlxfwreset level 4. `mlxfwreset -d <dev> r -l 4 -y` 2. Reboot the server.
	Keywords: mlxfwreset level 3
	Discovered in Version: 28.39.1002
-	**Description:** The I^{2}C clock fall time is lower than the 12ns minimum defined in the I2C-bus specification. For further information, refer to the I²C-bus Specification, Version 7.0, October 2021, https://www.i2c-bus.org/.
	Workaround: N/A
	Keywords: I^{2}C clock
	Discovered in Version: 28.39.1002
3179534	**Description:** 25G/lane speeds are not supported on 200GbE optic cables.
	Workaround: N/A
	Keywords: Cables, 200GbE
	Discovered in Version: 28.39.1002
3435259	**Description:** The host enables the device to populate only 1 bus. When opening extra 2 Physical ports, moving from dual-port to quad-port, the user can open 2 less Virtual Functions.
	Workaround: N/A
	Keywords: VF, dual-port, quad-port
	Discovered in Version: 28.39.1002

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: 28.39.1002
3363753	**Description:** The link is down when connected to the MMS1V00-WM (DR4) optical module.
	Workaround: N/A
	Keywords: 400G, link down
	Discovered in Version: 28.38.1002
3439438	**Description:** When connecting to a High Speed Traffic Generator in 400G speed, the linkup time may takes up to 3 minutes.
	Workaround: N/A
	Keywords: 400G, linkup time
	Discovered in Version: 28.38.1002
-	**Description:** When upgrading from firmware v28.35.2000 to a newer one, the default port speeds of adapter cards MCX755106AS-HEAT/ MCX755106AC-HEAT will change from InfiniBand to Ethernet.
	Workaround: To change it back to InfiniBand, please follow the instructions in the ConnectX-7 hardware User Manual.
	Keywords: Firmware upgrade, port type, MCX755106AS-HEAT/ MCX755106AC-HEAT
	Discovered in Version: 28.37.1014
3376224	**Description:** FEC override is not supported when working with NRZ speeds on PAM4 Optical modules.
	Workaround: N/A
	Keywords: FEC override, NRZ, PAM4
	Discovered in Version: 28.37.1014
3262845	**Description:** In the ConnectX-7 adapter card with P/N MCX750500B-0D0K, the "Fatal Error Reporting Enable" bit controls both the fatal and the non-fatal

Internal Ref.	Issue
	ERR MSG forwarding. The "Non-Fatal Error Reporting Enable" bit does not affect the ERR MSG forwarding.
	Workaround: N/A
	Keywords: Fatal Error Reporting Enable" bit, PCIe, MCX750500B-0D0K
	Discovered in Version: 28.36.1010
3329109	**Description:** MFS1S50-H003E cable supports only HDR rate when used as a split cable.
	Workaround: N/A
	Keywords: HDR, split cable, MFS1S50-H003E
	Discovered in Version: 28.36.1010
2844036	**Description:** When using the "Dual Write" feature with QP buffer bigger than the maximum outstanding WQEs (128), the data being sent on the standby QP can be corrupted.
	Workaround: Limit the QP buffer size when using "Dual Write" up to 128 WQEs.
	Keywords: Dual-write, QP
	Discovered in Version: 28.36.1010
3178339	**Description:** PCIe PML1 is disabled.
	Workaround: N/A
	Keywords: PCIe PML1
	Discovered in Version: 28.35.1012
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

Internal Ref.	Issue
	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
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
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
3070590	**Description:** PLL modules are not supported in ConnectX-7 ethernet adapter cards.
	Workaround: N/A
	Keywords: PLL
	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.

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

PreBoot Drivers (FlexBoot/UEFI)

FlexBoot Changes and New Features

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

UEFI Changes and Major New Features

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

Validated and Supported Cables and Switches

Validated and Supported Cables and Modules

Cables Lifecycle Legend

InfiniBand/Ethernet Support

> (i) **Note**
>
> Upon firmware upgrade, after reset, the default port configuration could be changed.

To set the right configuration, run:

```
mlxconfig -d <mst device> s LINK_TYPE_P1=1/2 LINK_TYPE_P2=1/2
```

where:

- LINK_TYPE_P1 - sets the configuring protocol for port 1
- LINK_TYPE_P2 - sets the configuring protocol for port 2
- (1/2) - values used for the different protocols:

    - 1 – for InfiniBand

- 2 - for Ethernet

NDR / 400GbE Cables

> ℹ️ **Note**
>
> ***** MMA4Z00-NS-FLT transceiver is used with the following ConnectX-7 adapter cards **ONLY**: MCX750500B-0D0K / MCX750500C-0D0K / MCX750500B-0D00 / MCX750500C-0D00.

HDR / 200GbE Cables

HDR100 Cables

EDR / 100GbE Cables

> ℹ️ **Note**
>
> EDR links raise with RS-FEC.

FDR / 56GbE Cables

50GbE Cables

40GbE Cables

25GbE Cables

10GbE Cables

1GbE Cables

Supported 3rd Party Cables and Modules

Tested Switches

NDR / 400GbE Switches

Speed	NVIDIA SKU	Legacy OPN	Description
NDR	920-9B210-00FN-xxx	QM9790	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
NDR	920-9B210-00FN-xxx	QM9700	NVIDIA Quantum 2 based NDR InfiniBand Switch, 64 NDR ports, 32 OSFP ports, 2 Power Supplies (AC), Standard depth, Managed, P2C airflow, Rail Kit
400 GbE	920-9N42F-00RI-xxx	SN5600	NVIDIA Spectrum-4 based 800GbE 2U Open Ethernet switch with ONIE and NOS Authentication, 64 OSFP ports and 1 SFP28 port, 2 power supplies (AC), x86 CPU, Secure-boot, standard depth, C2P airflow, Tool-less Rail Kit
400 GbE	920-9N301-00xB-xxx	SN4700	NVIDIA Spectrum-3 based 400GbE, 1U Open Ethernet switch, 32xQSFP-DD ports, x86 CPU, standard depth

Speed	NVIDIA SKU	Legacy OPN	Description
400 GbE	920-9N312-00xB-xxx	SN4410	NVIDIA Spectrum-3 based 400GbE 1U Open Ethernet switch, 24 QSFPDD28 and 8 QSFP-DD ports, 2 Power Supplies (AC), x86 CPU, standard depth
400 GbE	N/A	Wedge 400	Meta: Wedge 400-48X 400GbE Data Center Switch
400 GbE	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+

HDR / 200GbE Switches

Speed	NVIDIA SKU	Legacy OPN	Description
HDR	920-9B110-00FH-xxx	MQM8700	NVIDIA Quantum HDR InfiniBand Switch, 40 QSFP56 ports, 2 Power Supplies (AC), x86 dual core, standard depth, P2C airflow, Rail Kit
HDR	920-9B110-00FH-xxx	MQM8790	NVIDIA Quantum HDR InfiniBand Switch, 40 QSFP56 ports, 2 Power Supplies (AC), unmanaged, standard depth, P2C airflow, Rail Kit
200 GbE	920-9N302-00xA-xxx	MSN4600V	NVIDIA Spectrum-3 based 200GbE 2U Open Ethernet switch, 64 QSFP56 ports, 2 Power Supplies (AC), x86 CPU, standard depth
200 GbE	920-9N210-C1x7-xxx	MSN3700	NVIDIA Spectrum-2 based 200GbE Open Ethernet switch, 32 QSFP56 ports, x86 CPU, standard depth

100GbE Switches

Speed	NVIDIA SKU	Legacy OPN	Description
100GbE	920-9N302-00xA-xxx / 920-9N302-00x7-xxx	SN4600-XXXX	64-port Non-blocking 100GbE Open Ethernet Switch System
100GbE	920-9N201-00x7-xxx	SN3700C-XXXX	32-port Non-blocking 100GbE Open Ethernet Switch System
100GbE	920-9N213-00x7-xxx	SN3420-XXXX	48 SFP + 12 QSFP ports Non-blocking 100GbE Open Ethernet Switch System
100GbE	920-9N101-00x7-xxx	SN2700-XXXX	32-port Non-blocking 100GbE Open Ethernet Switch System
100GbE	N/A	QFX5200-32C-32	32-port 100GbE Ethernet Switch System
100GbE	N/A	7060CX-32S	32-port 100GbE Ethernet Switch System
100GbE	N/A	3232C	32-port 100GbE Ethernet Switch System
100GbE	N/A	N9K-C9236C	36-port 100GbE Ethernet Switch System
100GbE	N/A	93180YC-EX	48-port 25GbE + 6-port 100GbE Ethernet Switch System
100GbE	N/A	S6820-56HF	H3C S6850-56HF L3 Ethernet Switch with 48 SFP28 Ports and 8 QSFP28 Ports
100GbE	N/A	BMS T7032-IX7	32 QSFP28 ports support for 10/25/40/50/100GbE

Release Notes History

Changes and New Feature History

> ⓘ **Note**
>
> 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
28.44.1206	
Bug Fixes	See *Bug Fixes in this Firmware Version* section.

Feature/Change	Description
28.44.1036	
Multi-host LAG	When using a multi-host deployment, each host is assigned unique ports and PFs and manages its own LAG.
PCIe Switch fwreset	Added support for a new synchronized flow, including a tool and driver, to perform a fwreset on setups with a PCIe switch configuration.
PTP	Unified PTP is now supported across different VFs on the same PF.
MADs	Added support for new MADs: `PortRecoveryPolicyConfig` and `PortRecoveryPolicyCounters`. During the PHY recovery process, the firmware core will indicate the `port_logical_state` as Active.

Feature/Change	Description
Block SMP Traffic	Added a new NV config (SM_DISABLE, default 0) which, when enabled, blocks SMP traffic that does not originate from the SM.
Dynamic Long Cables	Added the ability to set cable length as a parameter in the PFCC access register. The cable length is used in the calculation of RX lossless buffer parameters, including size, Xoff, and Xon thresholds.
Bug Fixes	See *Bug Fixes in this Firmware Version* section.

Feature/Change	Description
	28.43.1014
PCIe Telemetry	Added support for PCIe Telemetry (NSM Type 2).
Programmable Congestion Control (PCC)	Migrated PCC NP solution from ACE hardware platform to DPA hardware platform. The new capability is applicable to the following 2 modes: • PCC_INT_EN=True and PCC_INT_NP_RTT_DATA_MODE=INGRESS_BYTE • PCC_INT_EN=True and PCC_INT_NP_RTT_DATA_MODE=NO_DATA The first mode is used to support ZTRCC RX bytes in RTT response.
RDMA Telemetry	Added the option to indicate an error CQE event on every selected function per eSwitch manager. This indication is defined as a new WQE including the relevant information about the error (such as: syndrome, function_id, timestamp, QPs num etc.). The feature is configured using a new general object: RDMA-Telemetry object, and depends on the following new caps: `HCA_CAP.rdma_telemetry_notification_types` and `HCA_CAP.rdma_telemetry`.
UID Permissions	Extended kernel lockdown permission set. The following sub-operations can now be called by tools (permission TOOLS_RESORCES) using new HCA capability bitmask field: tool_partial_cap. The 5 sub-operations are:

Feature/Change	Description
	• QUERY_HCA_CAP with other function • QUERY_VUID with direct data • QUERY_ROCE_ADDRESS with other vport • SET_HCA_CAP with other function • POSTPONE_CONNECTED_QP_TIMEOUT with other vport The new added caps are: • tool_partial_cap.postpone_conn_qp_timeout_other_vport, • tool_partial_cap.set_hca_cap_other_func • tool_partial_cap.query_roce_addr_other_vport • tool_partial_cap.query_vuid_direct_data • tool_partial_cap.query_hca_cap_other_func
Cross E-Switch Scheduling	Added support for QoS scheduling across multiple E-Switches grouped in a LAG. VPort members of a Physical Function can be added to a rate group from another Physical Function and rate limits of the group will apply to those VPort members as well.
Jump from NIC_TX to FDB_TX	Added `'table_type_valid'` and `'table_type'` fields to the steering action (STC) "Jump To Flow" table parameters to enable the user to jump from NIC_TX to FDB_TX and bypass the ACL table.
Jump to TIR or queue from FDB on Tx	Enabled hop reduction by bypassing NIC domain in various use cases. Such action r educes the number of hops (improves PPS) to deal with mass number of flows and devices. To enable this new capability, a new STC action type "JUMP_TO_FDB_RX" was added to allow jumping into the RX side of a table.
Flex Parser: ARC-IN and ARC-OUT	Increased the maximum number of supported "ARC-IN" from 1 to 8 and "ARC-OUT" from 3 to 8 for the dynamic flex parser.
PSP Crypto Offload	**[Alpha]** Added support for PSP Crypto offload transport mode.
ZTR_RTTCC Histogram	Added histogram support for rate and Round-Trip Time (RTT) in PCC ZTR_RTTCC.
Bug Fixes	See *Bug Fixes in this Firmware Version* section.

Feature/Change	Description
28.42.1000	
Memory Slow Release	Added a new command interface "Memory slow release" to enable/disable holding memory pages for a defined period of time. Once the timer expires, the firmware will return the pages to the driver.
PXE Filters	Added support for configuring PXE boot filters' setting from the HII menu to filter only PXE packets (DHCP, TFTP.ARP,ICMP) during boot on UEFI environment.
Precision Timing (PTM)	Added support for Precision Timing (PTM). This new capability ensures seamless operations, synchronized data access, faster response times, and optimal AI performance, enhancing cloud offerings' reliability and scalability.
PTP	Improved the PTP accuracy for ports with link speed of 25G or above.
Kernel Lockdown	Added support for MVTS register via a miscellaneous driver using the access_register PRM command.
AN/LT Visibility	Added an LT logger that provides visibility of the LT status, process and parameters sent and received during the flow.
Steering SF Traffic to a Specific PF MSI-X	MSI-X on SF can be received now through the PF's MSI-X vector.
Bug Fixes	See *Bug Fixes in this Firmware Version* section.

Feature/Change	Description
28.41.1000	
ODP Event	Added support for the following prefetch fields on ODP event: pre_demand_fault_pages, post_demand_fault_pages.
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.
400GbE, Single-Port, OSFP to OSPF-RHS cable	Added support for 400GbE speed (8X50G) in Single-Port OSFP adapter cards including link training and auto-negotiation when connecting OSFP to OSPF-RHS cables.
PSP	Added support for PSP in Hardware Steering.

Feature/Change	Description
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.
Packet's Flow Label Fields	Added support for setting, adding or copying the flow_label fields from the packet.
BAR Pages	Added support for 64KB pages. **Note:** Configuring BAR_PAGE_ALIGNMENT to ALIGN_64KB(2) while one of the following is configured will cause the device to ignore the BAR_PAGE_ALIGNMENT configuration: • PF_NUM_PF_MSIX>256 on any of the Physical Functions • VIRTIO_EMULATION_HOTPLUG_TRANS/VIRTIO_NET_EMULATION_PF_PCI_LAYOUT/ VIRTIO_NET_EMULATION_VF_PCI_LAYOUT/ VIRTIO_BLK_EMULATION_PF_PCI_LAYOUT/ VIRTIO_BLK_EMULATION_PF_PCI_LAYOUT=VIRTIO_TRANSITIONAL(1)
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.
Flex Parser	Added support for father/son headers parsing.
LRO	Added support for tunnel_offload in LRO.
Bug Fixes	See *Bug Fixes in this Firmware Version* section.

Feature/Change	Description
28.40.1000	
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

Feature/Change	Description
	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.
Port Rate Limiting	Added a new access register (PBWS) to set the port maximum bandwidth to a value between 95% to 100%.
ACL	Added support for egress ACL to the uplink by adding a new bit to the Set Flow Table Entry: allow_fdb_uplink_hairpin.
Live Migration	Added support for live migration with MPV and IPSEC. This capability enables creating cross-vhca objects, however, they can only be created between affiliated GVMIs. If `HCA_CAP.migratable` bit is set, `HCA_CAP.cross_vhca_object_to_object_supported` and `HCA_CAP.allowed_object_for_other_vhca_access` refer to affiliated VHCAs only.
Alternative Bill of Materials (BOM)	NVIDIA is adding an alternative Bill of Materials (BOM) for the specified affected items (MCX713104AS-ADAT & MCX713104AC-ADAT) to enhance production yields. The new alternate BOM requires updating to a minimum firmware version of 28.39.2048.
Bug Fixes	See *Bug Fixes in this Firmware Version* section.

Bug Fixes History

> ℹ️ **Note**

This section includes history of 3 major releases back. For _older releases history_, please refer to the relevant firmware versions.

Internal Ref.	Issue
4088444 / 4208995	**Description:** Fixed a timing race between Rx tuning and CDR locking following exit from electrical idle.
	Keywords: Timing race, Rx, CDR
	Discovered in Version: 28.44.1036
	Fixed in Release: 28.44.1206

Internal Ref.	Issue
4319359	**Description:** Resolved an issue that caused the SLRG register to be unreadable when using the SMP AccessRegister MAD.
	Keywords: MADs
	Discovered in Version: 28.43.2026
	Fixed in Release: 28.44.1036
4087432	**Description:** Increased the RX lossless buffer size to delay the transmission of Pause/PFC frames during NIC congestion.
	Keywords: RX lossless buffer size
	Discovered in Version: 28.43.2026
	Fixed in Release: 28.44.1036
4176327	**Description:** Fixed cable info semaphore deadlock.
	Keywords: Cables
	Discovered in Version: 28.43.1014
	Fixed in Release: 28.44.1036
4179944	**Description:** Fixed the error handling for the TLV full list, which caused the TLV mechanism to hang.
	Keywords: TLV

Internal Ref.	Issue
	Discovered in Version: 28.43.1014
	Fixed in Release: 28.44.1036
4199196	**Description:** Fixed the SPDM GET_CERTIFICATE operation to support all certificate chain offsets and chunk sizes.
	Keywords: SPDM
	Discovered in Version: 28.43.2026
	Fixed in Release: 28.44.1036
4183928	**Description:** Fixed an issue in VDPA where destroying a virtq would cause a health buffer syndrome with ext_synd=0x8f33 if the virtq was created without an mkey or with unmanned and mapped mkeys during live migration.
	Keywords: VDPA, live migration
	Discovered in Version: 28.43.2026
	Fixed in Release: 28.44.1036
4184904 / 4183908	**Description:** Fixed an issue where the VDPA feature bits GUEST_TSO4 and GUEST_TSO6 were unexpectedly set by default, leading to traffic interruptions.
	Keywords: VDPA, feature cap, GUEST_TSO4, GUEST_TSO6
	Discovered in Version: 28.43.2026
	Fixed in Release: 28.44.1036
4184904	**Description:** Fixed an issue where the VDPA feature bits GUEST_TSO4 and GUEST_TSO6 were unexpectedly set by default, leading to traffic interruptions.
	Keywords: VDPA, feature cap, GUEST_TSO4, GUEST_TSO6
	Discovered in Version: 28.43.2026
	Fixed in Release: 28.44.1036
4184910	**Description:** Fixed an issue where enabling PCC NP and setting the link type to one port as IB and the other as Ethernet could cause an assert to appear in dmesg with ext_synd 0x8309.
	Keywords: PCC NP, port type
	Discovered in Version: 28.43.2026

Internal Ref.	Issue
	Fixed in Release: 28.44.1036
4133372	**Description:** Added support for SyncE at 1G link speed.
	Keywords: SyncE
	Discovered in Version: 28.43.2026
	Fixed in Release: 28.44.1036
3661179	**Description:** Added a new mechanism for allocations and deallocations flows to enhance parallelism.
	Keywords: Allocations, deallocations flows
	Discovered in Version: 28.39.1002
	Fixed in Release: 28.44.1036

Internal Ref.	Issue
4040226	**Description:** Added a recovery step in case of CQ doorbell getting lost during VF migration.
	Keywords: VF migration
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
3988375	**Description:** PLDM includes port temperature sensor PDR only if an active cable is connected.
	Keywords: Temperature sensor PDR
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
3837332	**Description:** Changed PCIe Geen4/5 new static configuration for VGA gain and CTLE.
	Keywords: PCIe, VGA, CTLE
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
4120411	**Description:** Fixed an issue that occasionally caused PTP accuracy degradation for port speed configured to 1G or 10G.

Internal Ref.	Issue
	Keywords: PTP
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
4134558	**Description:** Fixed an issue that resulted in MSIx reduction flow triggered with a wrong limitation (the total number of MSIx is reduced from 8k to 4k by mistake) when the dynamic MSIx feature is enabled and virtio emulation is disabled.
	Keywords: Dynamic MSIx
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
4007123	**Description:** Fixed lossless packet drops at 400GB 4 lanes when using an optic fiber cable.
	Keywords: 400GB, 4 lanes, optic fiber cable
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
4014351	**Description:** Fixed the query for FACTORY default NV configuration values. The firmware always returned the "next" value to be applied.
	Keywords: Access register MNVDA, QUERY / SET configurations
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
4048886	**Description:** Fixed an issue related to override TP4 settings.
	Keywords: TP4 settings
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
4001690	**Description:** Changed the CTLE and VGA gain for Gen4/5 starting point.
	Keywords: CTLE, VGA gain
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014

Internal Ref.	Issue
4066248	**Description:** Increased SPDM's RDT value.
	Keywords: SPDM
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
4092754	**Description:** Fixed a rare certificate signature verification error.
	Keywords: Certificate signature verification
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
4003534	**Description:** Fixed an issue that caused issues during the cables' linkup process after reinserting a module in multi ASIC platforms.
	Keywords: Cables
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
4041723	**Description:** Fixed the user_cc_en default value (mlxreg).
	Keywords: mlxreg
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014

Internal Ref.	Issue
4040226	**Description:** Added a recovery step in case of CQ doorbell getting lost during VF migration.
	Keywords: VF migration
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
3988375	**Description:** PLDM includes port temperature sensor PDR only if an active cable is connected.
	Keywords: Temperature sensor PDR
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014

Internal Ref.	Issue
3837332	**Description:** Changed PCIe Geen4/5 new static configuration for VGA gain and CTLE.
	Keywords: PCIe, VGA, CTLE
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
4120411	**Description:** Fixed an issue that occasionally caused PTP accuracy degradation for port speed configured to 1G or 10G.
	Keywords: PTP
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
4134558	**Description:** Fixed an issue that resulted in MSIx reduction flow triggered with a wrong limitation (the total number of MSIx is reduced from 8k to 4k by mistake) when the dynamic MSIx feature is enabled and virtio emulation is disabled.
	Keywords: Dynamic MSIx
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
4007123	**Description:** Fixed lossless packet drops at 400GB 4 lanes when using an optic fiber cable.
	Keywords: 400GB, 4 lanes, optic fiber cable
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
4014351	**Description:** Fixed the query for FACTORY default NV configuration values. The firmware always returned the "next" value to be applied.
	Keywords: Access register MNVDA, QUERY / SET configurations
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
4048886	**Description:** Fixed an issue related to override TP4 settings.
	Keywords: TP4 settings
	Discovered in Version: 28.42.1000

Internal Ref.	Issue
	Fixed in Release: 28.43.1014
4001690	**Description:** Changed the CTLE and VGA gain for Gen4/5 starting point.
	Keywords: CTLE, VGA gain
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
4066248	**Description:** Increased SPDM's RDT value.
	Keywords: SPDM
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
4092754	**Description:** Fixed a rare certificate signature verification error.
	Keywords: Certificate signature verification
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
4003534	**Description:** Fixed an issue that caused issues during the cables' linkup process after reinserting a module in multi ASIC platforms.
	Keywords: Cables
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014
4041723	**Description:** Fixed the user_cc_en default value (mlxreg).
	Keywords: mlxreg
	Discovered in Version: 28.42.1000
	Fixed in Release: 28.43.1014

Internal Ref.	Issue
3868155	**Description:** Enabled the usage of different TX presets for Link Training (LT), LT timer, and inhibit timer non-SPEC values.
	Keywords: Link Training (LT)

Internal Ref.	Issue
	Discovered in Version: 28.41.1000
	Fixed in Release: 28.42.1000
3949320	**Description:** Fixed the partition default value in firmware when MFT builds the bin file. Additionally, in "root certificate" partition, modified the discovery flow in case both of the "root certificate" partition are invalid by erasing them before they are used.
	Keywords: Partition
	Discovered in Version: 28.41.1000
	Fixed in Release: 28.42.1000
3985535	**Description:** Fixed an issue that caused RDE PortMetrics property Transceivers.SupplyVoltage to be reflected in incorrect units of 100uV instead of V.
	Keywords: RDE
	Discovered in Version: 28.41.1000
	Fixed in Release: 28.42.1000
3938744	**Description:** Prevented HCA_CAP from allowing rogue drivers to create more EQs than the number allowed in the HCA_CAP.max_num_eqs.
	Keywords: HCA_CAP
	Discovered in Version: 28.41.1000
	Fixed in Release: 28.42.1000
3859451	**Description:** PLDM connector PDR is now not reported if a cable is not connected to prevent incomplete data display.
	Keywords: PLDM connector PDR
	Discovered in Version: 28.41.1000
	Fixed in Release: 28.42.1000
3754309	**Description:** Added the PPHCR register (responsible of showing histograms) to the GMP mads flow used to query registers via the mlxlink tool.
	Keywords: FEC histograms
	Discovered in Version: 28.41.1000
	Fixed in Release: 28.42.1000

Internal Ref.	Issue
3882607	**Description:** Fixed a downgrade issue that resulted in failure when downgrading to v28.37.1014.
	Keywords: Firmware downgrade
	Discovered in Version: 28.41.1000
	Fixed in Release: 28.42.1000
3855011	**Description:** Blocked access to invalid CR-SPACE registers when the adapter cards are secured.
	Keywords: CR-SPACE registers
	Discovered in Version: 28.41.1000
	Fixed in Release: 28.42.1000
3908476	**Description:** Fixed an issue that resulted in device assert when using DCBX CEE.
	Keywords: DCBX CEE
	Discovered in Version: 28.41.1000
	Fixed in Release: 28.42.1000
3652616	**Description:** Fixed an issue that prevented CNP or RTT counters from wrapping around properly.
	Keywords: CNP, RTT, counter
	Discovered in Version: 28.41.1000
	Fixed in Release: 28.42.1000
3730919	**Description:** Fixed an issue where the CR_SPACE was open to any read operation, even though some reads could lock the gateway. Bad reads from CR_SPACE will now result in a bad_access error being returned.
	Keywords: CR_SPACE, Gateway
	Discovered in Version: 28.41.1000
	Fixed in Release: 28.42.1000
3976276	**Description:** Fixed an issue that prevented the SFF module from accessing the EEPROM data when removing the CMIS module and inserting the SFF module instead of it.
	Keywords: EEPROM, SFF, CMIS

Internal Ref.	Issue
	Discovered in Version: 28.41.1000
	Fixed in Release: 28.42.1000

Internal Ref.	Issue
3675068	**Description:** Added the TX_SCHEDULER_FWS_REACTIVITY nvconfig flag to solved an mlnx_qos ETS settings issue.
	Keywords: nvconfig, ETS
	Discovered in Version: 28.39.1002
	Fixed in Release: 28.41.1000
3787123	**Description:** Improved ZTR_RTTCC algorithm fairness when running with 4K MTU.
	Keywords: PCC
	Discovered in Version: 28.39.1002
	Fixed in Release: 28.41.1000
3729783	**Description:** Fixed an issue where Congestion Control could malfunction due to an invalid database.
	Keywords: Congestion Control
	Discovered in Version: 28.39.1002
	Fixed in Release: 28.41.1000
3814806	**Description:** Fixed an issue that prevented PLDM command `Get Schema URI` from functioning properly when there were no base RDE resource IDs.
	Keywords: PLDM
	Discovered in Version: 28.39.1002
	Fixed in Release: 28.41.1000
3814821	**Description:** Fixed an issue that prevented RDE Port resource from showing 400Gb speed in CapableLinkSpeedGbps and in MaxSpeedGbps in some InfiniBand cards.
	Keywords: 400Gb, InfiniBand, RDE

Internal Ref.	Issue
	Discovered in Version: 28.39.1002
	Fixed in Release: 28.41.1000
3807206	**Description:** Changed BER monitor default values to alarm on symbol and effective BER.
	Keywords: BER
	Discovered in Version: 28.39.1002
	Fixed in Release: 28.41.1000
3682915	**Description:** Fixed a performance issue by enabling CC to allow queues to receive fair bandwidth.
	Keywords: Performance, CC, bandwidth
	Discovered in Version: 28.39.1002
	Fixed in Release: 28.41.1000
3706132 / 3768905	**Description:** Fixed an issue that resulted in VF FLR being stuck when his PF triggered the FLR as well.
	Keywords: VF FLR, PF
	Discovered in Version: 28.39.1002
	Fixed in Release: 28.41.1000

Internal Ref.	Issue
3712016	**Description:** Fixed an issue that prevented Congestion Control from behaving properly when GRH is used in traffic of an IB cluster.
	Keywords: IB Congestion Control, CNP, SL
	Discovered in Version: 28.39.1002
	Fixed in Release: 28.40.1000
3174038	**Description:** SPDM requests received while CPLD burn flow is in progress may be answered with incorrect responses.
	Keywords: SPDM
	Discovered in Version: 28.34.1002
	Fixed in Release: 28.40.1000

Internal Ref.	Issue
3110297	**Description:** When ConnectX-7 adapter card is configured to use the Auto-Negotiation mode, 400G_8x linkup cannot be raised.
	Keywords: 400G_8x, linkup
	Discovered in Version: 28.34.4000
	Fixed in Release: 28.40.1000
3339818	**Description:** When performing a stress toggling on a ConnectX-7 adapter card that is connected to the MMA1Z00-NS400 cable and the speed is set to 100G_1x with interleaved FEC, a long linkup time of up to 5 min may occur.
	Keywords: Toggling, MMA1Z00-NS400
	Discovered in Version: 28.36.1010
	Fixed in Release: 28.40.1000
3339919	**Description:** • When raising a link using 200G optical cables while connecting a ConnectX-7 to a ConnectX-7, raising a link with width less than the maximum provided by the cable with speed 25G lane is not supported. • When raising a link using 400G optical cables while connecting a ConnectX-7 to a ConnectX-7, raising a link with width less than the maximum provided by the cable with speed 50G or 25G lane is not supported.
	Keywords: Link up speed
	Discovered in Version: 28.36.1010
	Fixed in Release: 28.40.1000
3312483	**Description:** WoL packets may not working properly if sent to Unicast destination MAC.
	Keywords: WoL packets, Unicast destination MAC
	Discovered in Version: 28.36.1010
	Fixed in Release: 28.40.1000
3275394	**Description:** When performing PCIe link secondary-bus-reset, disable/enable or mlxfwreset on AMD based Genoa systems, the device takes longer then expected to link up, due to a PCIe receiver termination misconfiguration.
	Keywords: PCIe

Internal Ref.	Issue
	Discovered in Version: 28.37.1014
	Fixed in Release: 28.40.1000
3457472	**Description:** Disabling the Relaxed Ordered (RO) capability (relaxed_ordering_read_pci_enabled=0) using the vhca_resource_manager is currently not functional.
	Keywords: Relaxed Ordered
	Discovered in Version: 28.37.1014
	Fixed in Release: 28.40.1000
3606136	**Description:** In rare cases, linkup time of NDR and NDR200 with MMA4Z00-NS400 may take longer than 60 seconds.
	Keywords: Cables, NDR, NDR200, linkup time
	Discovered in Version: 28.39.1002
	Fixed in Release: 28.40.1000
3683068	**Description:** Added back the Digital Feedforward Equalizer (DFFE) hardware component to improve the signal integrity link.
	Keywords: Digital Feedforward Equalizer (DFFE)
	Discovered in Version: 28.38.1002
	Fixed in Release: 28.40.1000
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: 28.38.1002
	Fixed in Release: 28.40.1000
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: 28.38.1002
	Fixed in Release: 28.40.1000

Internal Ref.	Issue
363742 9	**Description:** Fixed an issue that caused the secondary ASIC run module init to fail due to missing condition.
	Keywords: Secondary device, EEPROM
	Discovered in Version: 28.38.1002
	Fixed in Release: 28.40.1000
369394 5	**Description:** Fixed an issue that kept the adapter cards' quad ports UP when using breakout cables / QSFP-split-4. Now when a 4 alignment loss is noticed, the link in 25G/lane Ethernet is dropped.
	Keywords: Quad ports, link up, breakout cables / QSFP-split-4
	Discovered in Version: 28.38.1002
	Fixed in Release: 28.40.1000
360732 9	**Description:** Modified PCIe switch downstream port EQLZ.PH1 timing to 3ms.
	Keywords: PCIe switch downstream port
	Discovered in Version: 28.38.1002
	Fixed in Release: 28.40.1000
361760 6	**Description:** Fixed a rare race condition in NODNIC teardown that caused commands to hang on regular PF.
	Keywords: NODNIC teardown
	Discovered in Version: 28.36.1010
	Fixed in Release: 28.40.1000

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