



# **NVIDIA ConnectX-7 Adapter Cards Firmware Release Notes v28.40.1000**

# Table of Contents

<b>1</b>	<b>Release Notes Update History.....</b>	<b>4</b>
<b>2</b>	<b>Overview .....</b>	<b>5</b>
2.1	Firmware Download .....	5
2.2	Document Revision History .....	5
<b>3</b>	<b>Firmware Compatible Products .....</b>	<b>6</b>
3.1	Supported Devices .....	6
3.2	Driver Software, Tools and Switch Firmware .....	8
<b>4</b>	<b>Changes and New Features.....</b>	<b>9</b>
4.1	Changes and New Feature in this Firmware Version.....	9
<b>5</b>	<b>Bug Fixes in this Firmware Version.....</b>	<b>10</b>
<b>6</b>	<b>Known Issues.....</b>	<b>13</b>
<b>7</b>	<b>PreBoot Drivers (FlexBoot/UEFI) .....</b>	<b>18</b>
7.1	FlexBoot Changes and New Features .....	18
7.2	UEFI Changes and Major New Features.....	18
<b>8</b>	<b>Validated and Supported Cables and Switches .....</b>	<b>19</b>
8.1	Validated and Supported Cables and Modules .....	19
8.1.1	Cables Lifecycle Legend .....	19
8.1.2	NDR / 400GbE Cables.....	19
8.1.3	HDR / 200GbE Cables.....	28
8.1.4	EDR / 100GbE Cables.....	36
8.1.5	FDR / 56GbE Cables .....	45
8.1.6	50GbE Cables .....	47
8.1.7	25GbE Cables .....	47
8.1.8	10GbE Cables .....	49
8.1.9	1GbE Cables .....	51
8.1.10	Supported 3rd Party Cables and Modules .....	52
8.2	Tested Switches .....	53
8.2.1	NDR / 400GbE Switches .....	53
8.2.2	HDR / 200GbE Switches.....	53
8.2.3	100GbE Switches .....	54
<b>9</b>	<b>Release Notes History .....</b>	<b>55</b>
9.1	Changes and New Feature History .....	55

9.2 Bug Fixes History ..... 58

10 Legal Notices and 3rd Party Licenses ..... 67

---

# 1 Release Notes Update History

Version	Date	Description
28.40.1000	February 08, 2024	Initial release of this Release Notes version, This version introduces <a href="#">Changes and New Features</a> and <a href="#">Bug Fixes</a> .

---

## 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) 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.

### 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<sup>2</sup>, HDR<sup>2</sup>, NDR200<sup>2</sup>, NDR<sup>2</sup>
- Ethernet - 1GbE, 10GbE, 25GbE, 40GbE, 50GbE<sup>1</sup>, 100GbE<sup>1</sup>, 200GbE<sup>2</sup>, 400GbE<sup>2</sup>
- PCI Express 5.0, supporting backwards compatibility for v4.0, v3.0, v2.0 and v1.1

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

<sup>2</sup>. Speed that supports PAM4 mode only.

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

### 3.1 Supported Devices

NVIDIA SKU	Legacy OPN	PSID	Device Description
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; PCIe 5.0 x16; Crypto Disabled; Secure Boot Enabled
900-9X7AX-0039-SB0	MCX75343AAS-NEAC	MT_0000000784	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_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
900-9X767-003N-DT1	MCX75210AAS-HEAT	MT_0000000850	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_0000000852	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_0000000844	NVIDIA ConnectX-7 HHHL Adapter Card; 200GbE / NDR200 IB (default mode); Single-port OSFP; PCIe 5.0 x16; Crypto Disabled; Secure Boot Enabled;

NVIDIA SKU	Legacy OPN	PSID	Device Description
900-9X7AH-0079-DTZ	MCX755106AC-HEAT	MT_0000001045	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;
930-90000-0000-060	MCX755206AS-NEAT-N	MT_0000000892	NVIDIA ConnectX-7 VPI adapter card; 400Gb/s IB and 200GbE; dual-port QSFP; PCIe 5.0 x16; dual slot; secure boot; no crypto; tall bracket for Nvidia DGX storage
900-9X7AH-0039-STZ	MCX715105AS-WEAT	MT_0000000856	NVIDIA ConnectX-7 HHHL Adapter Card; 400GbE (default mode) / NDR IB; Single-port QSFP112; PCIe 5.0 x16 with x16 PCIe extension option; Crypto Disabled; Secure Boot Enabled

## 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	28.40.1000 / 28.39.2048 / 28.39.1002
MLNX_OFED	24.01-0.3.3.1 / 23.10-1.1.9.0 / 23.10-0.5.5.0 <b>Note:</b> For the list of the supported Operating Systems, please refer to the driver's Release Notes.
MLNX_EN (MLNX_OFED based code)	24.01-0.3.3.1 / 23.10-1.1.9.0 / 23.10-0.5.5.0 <b>Note:</b> For the list of the supported Operating Systems, please refer to the driver's Release Notes.
WinOF-2	24.1.50000 / 23.10.50000 / 23.7.50000 <b>Note:</b> For the list of the supported Operating Systems, please refer to the driver's Release Notes.
MFT	4.27.0 / 4.26.1 / 4.26.0 <b>Note:</b> For the list of the supported Operating Systems, please refer to the driver's Release Notes.
mstflint	4.27.0 / 4.26.1 / 4.26.0 <b>Note:</b> For the list of the supported Operating Systems, please refer to the driver's Release Notes.
FlexBoot	3.7.300
UEFI	14.33.10
MLNX-OS	3.10.5002 onwards
Cumulus	5.4 onwards
NVIDIA Quantum-2 Firmware	31.2012.1024 onwards



## 4 Changes and New Features

### 4.1 Changes and New Feature in this Firmware Version

Feature/Change	Description
<b>28.40.1000</b>	
<b>Socket Direct Single netdev Mapped to Two PCIe Devices</b>	<p>Enabled Single Netdev mapping to two PCIe devices (Socket Direct). Now multiple devices (PFs) of the same port can be combined under a single netdev instance. Traffic is passed through different devices belonging to different NUMA sockets, thus saving cross-NUMA traffic and allowing apps running on the same netdev from different NUMAs to still feel a sense of proximity to the device and achieve improved performance.</p> <p>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.</p> <p>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.</p>
<b>Port Rate Limiting</b>	Added a new access register (PBWS) to set the port maximum bandwidth to a value between 95% to 100%.
<b>ACL</b>	Added support for egress ACL to the uplink by adding a new bit to the Set Flow Table Entry: <code>allow_fdb_uplink_hairpin</code> .
<b>Live Migration</b>	<p>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.</p> <p>If <code>HCA_CAP.migratable</code> bit is set,</p> <p><code>HCA_CAP.cross_vhca_object_to_object_supported</code> and <code>HCA_CAP.allowed_object_for_other_vhca_access</code> refer to affiliated VHCAs only.</p>
<b>Alternative Bill of Materials (BOM)</b>	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.
<b>Bug Fixes</b>	See <i>Bug Fixes in this Firmware Version</i> section.

## 5 Bug Fixes in this Firmware Version

Internal Ref.	Issue
3712016	<b>Description:</b> Fixed an issue that prevented Congestion Control from behaving properly when GRH is used in traffic of an IB cluster.
	<b>Keywords:</b> IB Congestion Control, CNP, SL
	<b>Discovered in Version:</b> 28.39.1002
	<b>Fixed in Release:</b> 28.40.1000
3174038	<b>Description:</b> SPDM requests received while CPLD burn flow is in progress may be answered with incorrect responses.
	<b>Keywords:</b> SPDM
	<b>Discovered in Version:</b> 28.34.1002
	<b>Fixed in Release:</b> 28.40.1000
3110297	<b>Description:</b> When ConnectX-7 adapter card is configured to use the Auto-Negotiation mode, 400G_8x linkup cannot be raised.
	<b>Keywords:</b> 400G_8x, linkup
	<b>Discovered in Version:</b> 28.34.4000
	<b>Fixed in Release:</b> 28.40.1000
3339818	<b>Description:</b> 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.
	<b>Keywords:</b> Toggling, MMA1Z00-NS400
	<b>Discovered in Version:</b> 28.36.1010
	<b>Fixed in Release:</b> 28.40.1000
3339919	<b>Description:</b> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>
	<b>Keywords:</b> Link up speed
	<b>Discovered in Version:</b> 28.36.1010
	<b>Fixed in Release:</b> 28.40.1000
3312483	<b>Description:</b> WoL packets may not working properly if sent to Unicast destination MAC.
	<b>Keywords:</b> WoL packets, Unicast destination MAC
	<b>Discovered in Version:</b> 28.36.1010
	<b>Fixed in Release:</b> 28.40.1000
3275394	<b>Description:</b> 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.
	<b>Keywords:</b> PCIe

Internal Ref.	Issue
	<p><b>Discovered in Version:</b> 28.37.1014</p> <p><b>Fixed in Release:</b> 28.40.1000</p>
3457472	<p><b>Description:</b> Disabling the Relaxed Ordered (RO) capability (relaxed_ordering_read_pci_enabled=0) using the vhca_resource_manager is currently not functional.</p> <p><b>Keywords:</b> Relaxed Ordered</p> <p><b>Discovered in Version:</b> 28.37.1014</p> <p><b>Fixed in Release:</b> 28.40.1000</p>
3606136	<p><b>Description:</b> In rare cases, linkup time of NDR and NDR200 with MMA4Z00-NS400 may take longer than 60 seconds.</p> <p><b>Keywords:</b> Cables, NDR, NDR200, linkup time</p> <p><b>Discovered in Version:</b> 28.39.1002</p> <p><b>Fixed in Release:</b> 28.40.1000</p>
3683068	<p><b>Description:</b> Added back the Digital Feedforward Equalizer (DFFE) hardware component to improve the signal integrity link.</p> <p><b>Keywords:</b> Digital Feedforward Equalizer (DFFE)</p> <p><b>Discovered in Version:</b> 28.38.1002</p> <p><b>Fixed in Release:</b> 28.40.1000</p>
3708035	<p><b>Description:</b> Fixed an issue with Selective-Repeat configuration which occasionally caused retransmission to wait for timeout instead of out-of-sequence NACK.</p> <p><b>Keywords:</b> RoCE, SR</p> <p><b>Discovered in Version:</b> 28.38.1002</p> <p><b>Fixed in Release:</b> 28.40.1000</p>
3695219	<p><b>Description:</b> Enabled the lowest minimum rate for SW DCQCN to enable congestion control to hold a larger amount of QPs without pauses or drops.</p> <p><b>Keywords:</b> Congestion control, PCC, DCQCN</p> <p><b>Discovered in Version:</b> 28.38.1002</p> <p><b>Fixed in Release:</b> 28.40.1000</p>
3637429	<p><b>Description:</b> Fixed an issue that caused the secondary ASIC run module init to fail due to missing condition.</p> <p><b>Keywords:</b> Secondary device, EEPROM</p> <p><b>Discovered in Version:</b> 28.38.1002</p> <p><b>Fixed in Release:</b> 28.40.1000</p>
3693945	<p><b>Description:</b> 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.</p> <p><b>Keywords:</b> Quad ports, link up, breakout cables / QSFP-split-4</p> <p><b>Discovered in Version:</b> 28.38.1002</p> <p><b>Fixed in Release:</b> 28.40.1000</p>

Internal Ref.	Issue
3607329	<b>Description:</b> Modified PCIe switch downstream port EQLZ.PH1 timing to 3ms.
	<b>Keywords:</b> PCIe switch downstream port
	<b>Discovered in Version:</b> 28.38.1002
	<b>Fixed in Release:</b> 28.40.1000
3617606	<b>Description:</b> Fixed a rare race condition in NODNIC teardown that caused commands to hang on regular PF.
	<b>Keywords:</b> NODNIC teardown
	<b>Discovered in Version:</b> 28.36.1010
	<b>Fixed in Release:</b> 28.40.1000

## 6 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
<ul style="list-style-type: none"> <li>• 127 VF per PF (254 functions)</li> <li>• 512 PF+VF+SF per PF (1024 functions)</li> </ul>	<ul style="list-style-type: none"> <li>• 127 VF (127 functions)</li> <li>• 512 PF+VF+SF per PF (512 functions)</li> </ul>

Internal Ref.	Issue
-	<p><b>Description:</b> Downgrading the following adapter cards (MCX713104AS-ADAT &amp; MCX713104AC-ADAT) to a lower version than 20.39.2048 is not supported.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> Downgrade</p> <p><b>Discovered in Version:</b> 28.40.1000</p>
3728450	<p><b>Description:</b> SW_RESET with a pending image is currently not supported.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> SW_RESET</p> <p><b>Discovered in Version:</b> 28.40.1000</p>
3735988	<p><b>Description:</b> In IB system, RTT_response_sl feature does not work with Sniffer tools (e.g., Wireshark/Tcpdump/).</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> Health buffer, sniffer, RTT</p> <p><b>Discovered in Version:</b> 28.40.1000</p>
3614362	<p><b>Description:</b> 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.</p> <p><b>Workaround:</b> To raise the link, re-toggle the port.</p> <p><b>Keywords:</b> Spectrum-1, NRZ, BER, port toggling</p> <p><b>Discovered in Version:</b> 28.39.1002</p>

Internal Ref.	Issue
3629216	<p><b>Description:</b> mlxfwreset level 3 command is not supported for MCX750500B-0D00 / MCX750500B-0D0K / MCX755206AS-NEAT-N P/N.</p> <p><b>Workaround:</b></p> <ol style="list-style-type: none"> <li>1. Enable mlxfwreset level 4.  <pre>mlxfwreset -d &lt;dev&gt; r -l 4 -y</pre> </li> <li>2. Reboot the server.</li> </ol> <p><b>Keywords:</b> mlxfwreset level 3</p> <p><b>Discovered in Version:</b> 28.39.1002</p>
-	<p><b>Description:</b> The I<sup>2</sup>C clock fall time is lower than the 12ns minimum defined in the I2C-bus specification. For further information, refer to the I<sup>2</sup>C-bus Specification, Version 7.0, October 2021, <a href="https://www.i2c-bus.org/">https://www.i2c-bus.org/</a>.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> I<sup>2</sup>C clock</p> <p><b>Discovered in Version:</b> 28.39.1002</p>
3179534	<p><b>Description:</b> 25G/lane speeds are not supported on 200GbE optic cables.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> Cables, 200GbE</p> <p><b>Discovered in Version:</b> 28.39.1002</p>
3435259	<p><b>Description:</b> 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.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> VF, dual-port, quad-port</p> <p><b>Discovered in Version:</b> 28.39.1002</p>
3525865	<p><b>Description:</b> Unexpected system behavior might be observed if the driver is loaded while reset is in progress.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> Sync 1 reset, firmware reset</p> <p><b>Discovered in Version:</b> 28.39.1002</p>
3363753	<p><b>Description:</b> The link is down when connected to the MMS1V00-WM (DR4) optical module.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> 400G, link down</p> <p><b>Discovered in Version:</b> 28.38.1002</p>
3439438	<p><b>Description:</b> When connecting to a High Speed Traffic Generator in 400G speed, the linkup time may takes up to 3 minutes.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> 400G, linkup time</p> <p><b>Discovered in Version:</b> 28.38.1002</p>

Internal Ref.	Issue
-	<p><b>Description:</b> 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.</p> <p><b>Workaround:</b> To change it back to InfiniBand, please follow the instructions in the <a href="#">ConnectX-7 hardware User Manual</a>.</p> <p><b>Keywords:</b> Firmware upgrade, port type, MCX755106AS-HEAT/ MCX755106AC-HEAT</p> <p><b>Discovered in Version:</b> 28.37.1014</p>
3376224	<p><b>Description:</b> FEC override is not supported when working with NRZ speeds on PAM4 Optical modules.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> FEC override, NRZ, PAM4</p> <p><b>Discovered in Version:</b> 28.37.1014</p>
3262845	<p><b>Description:</b> 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 ERR MSG forwarding. The "Non-Fatal Error Reporting Enable" bit does not affect the ERR MSG forwarding.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> Fatal Error Reporting Enable" bit, PCIe, MCX750500B-0D0K</p> <p><b>Discovered in Version:</b> 28.36.1010</p>
3329109	<p><b>Description:</b> MFS1S50-H003E cable supports only HDR rate when used as a split cable.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> HDR, split cable, MFS1S50-H003E</p> <p><b>Discovered in Version:</b> 28.36.1010</p>
2844036	<p><b>Description:</b> 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.</p> <p><b>Workaround:</b> Limit the QP buffer size when using "Dual Write" up to 128 WQEs.</p> <p><b>Keywords:</b> Dual-write, QP</p> <p><b>Discovered in Version:</b> 28.36.1010</p>
3178339	<p><b>Description:</b> PCIe PML1 is disabled.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> PCIe PML1</p> <p><b>Discovered in Version:</b> 28.35.1012</p>
3033910	<p><b>Description:</b> BAR misses caused by a memory write/read actions are not reported in the AER and the device status.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> BAR miss, AER</p> <p><b>Discovered in Version:</b> 28.34.4000</p>

Internal Ref.	Issue
3140645	<p><b>Description:</b> 3<sup>rd</sup> party servers may hang after warm reboot due to the PCIe switch.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> PCIe, 3rd party servers</p> <p><b>Discovered in Version:</b> 28.34.4000</p>
-	<p><b>Description:</b> Changing dynamic PCIe link width is not supported.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> PCIe</p> <p><b>Discovered in Version:</b> 28.34.1002</p>
3141072	<p><b>Description:</b> The "max_shaper_rate" configuration query via QEEC mlxreg returns a value translated to hardware granularity.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> RX Rate-Limiter, Multi-host</p> <p><b>Discovered in Version:</b> 28.34.1002</p>
2870970	<p><b>Description:</b> 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.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> GTP encapsulation</p> <p><b>Discovered in Version:</b> 28.34.1002</p>
3081264	<p><b>Description:</b> 10G/40G speeds are not supported on MFS1S00-XXXX modules (200G optics) in ConnectX-7 adapter cards.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> Optical cables</p> <p><b>Discovered in Version:</b> 28.33.4030</p>
3070590	<p><b>Description:</b> PLL modules are not supported in ConnectX-7 ethernet adapter cards.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> PLL</p> <p><b>Discovered in Version:</b> 28.33.4030</p>
3070409	<p><b>Description:</b> 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.</p> <p><b>Workaround:</b> Configure PHY_FEC_OVERRIDE on the ConnectX-7 side for the requested speed.</p> <p><b>Keywords:</b> Optical cables, NRZ, ConnectX-6 Dx, NVIDIA Spectrum-3, 200GbE optical cable</p> <p><b>Discovered in Version:</b> 28.33.4030</p>
2993531	<p><b>Description:</b> PML1 is disabled by default. Enabling it might result in server hanging.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> PML1</p> <p><b>Discovered in Version:</b> 28.33.2028</p>



Internal Ref.	Issue
-	<p><b>Description:</b> 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:</p> <ol style="list-style-type: none"> <li>1. Upgrade to 28.98.2406 version while the driver is disabled.</li> <li>2. Upgrade to firmware version 28.33.2028 (the driver can be enable at this stage).</li> </ol> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> Firmware upgrade</p> <p><b>Discovered in Version:</b> 28.33.2028</p>
-	<p><b>Description:</b> Downgrading from firmware 28.33.2028 to any previous Engineering Sample firmware is not supported.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> Firmware downgrade</p> <p><b>Discovered in Version:</b> 28.33.2028</p>

cond

---

## 7 PreBoot Drivers (FlexBoot/UEFI)

### 7.1 FlexBoot Changes and New Features

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

### 7.2 UEFI Changes and Major New Features

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

## 8 Validated and Supported Cables and Switches

### 8.1 Validated and Supported Cables and Modules

#### 8.1.1 Cables Lifecycle Legend

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

#### 8.1.2 NDR / 400GbE Cables

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	400GE	980-9I08L-00W003	C-DQ8FNM003-NML	NVIDIA Select 400GbE QSFP-DD AOC 3m	Preliminary
N/A	400GE	980-9I08N-00W005	C-DQ8FNM005-NML	NVIDIA Select 400GbE QSFP-DD AOC 5m	Preliminary
N/A	400GE	980-9I08P-00W010	C-DQ8FNM010-NML	NVIDIA Select 400GbE QSFP-DD AOC 10m	Preliminary
N/A	400GE	980-9I08R-00W020	C-DQ8FNM020-NML	NVIDIA Select 400GbE QSFP-DD AOC 20m	Preliminary
N/A	400GE	980-9I08T-00W050	C-DQ8FNM050-NML	NVIDIA Select 400GbE QSFP-DD AOC 50m	Preliminary
NDR	N/A	980-9I600-00N003	MCA4J80-N003-FLT	Active copper cable, IB twin port NDR, up to 800Gb/s, OSFP, 3m, flat top	MP
NDR	N/A	980-9I601-00N003	MCA4J80-N003-FTF	NVIDIA Active copper cable, IB twin port NDR, up to 800Gb/s, OSFP, 3m, flat to finned	MP
NDR	N/A	980-9I948-00N004	MCA7J60-N004	NVIDIA active copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xOSFP, 4m	P-Rel

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
NDR	N/A	980-91949-00N005	MCA7J60-N005	NVIDIA active copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xOSFP, 5m	P-Rel
NDR	N/A	980-9181B-00N004	MCA7J65-N004	NVIDIA Active copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xQSFP112, 4m	Prototype
NDR	N/A	980-9181C-00N005	MCA7J65-N005	NVIDIA Active copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xQSFP112, 5m	Prototype
NDR	N/A	980-9150D-00N004	MCA7J70-N004	NVIDIA active copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xOSFP, 4m	P-Rel
NDR	N/A	980-9150E-00N005	MCA7J70-N005	NVIDIA active copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xOSFP, 5m	P-Rel
NDR	N/A	980-9176G-00N004	MCA7J75-N004	NVIDIA Active copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xQSFP112, 4m	Prototype
NDR	N/A	980-9176H-00N005	MCA7J75-N005	NVIDIA Active copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xQSFP112, 5m	Prototype
N/A	400GE	980-9135O-00W001	MCP1660-W001E30	NVIDIA Direct Attach Copper cable, 400GbE, 400Gb/s, QSFP-DD, 1m, 30AWG	EOL [P-Rel]
N/A	400GE	980-9135P-00W002	MCP1660-W002E26	NVIDIA Direct Attach Copper cable, 400GbE, 400Gb/s, QSFP-DD, 2m, 26AWG	EOL [P-Rel]
N/A	400GE	980-9135Q-00W003	MCP1660-W003E26	NVIDIA Direct Attach Copper cable, 400GbE, 400Gb/s, QSFP-DD, 3m, 26AWG	EOL [P-Rel]
N/A	400GE	980-9135R-00W00A	MCP1660-W00AE30	NVIDIA Direct Attach Copper cable, 400GbE, 400Gb/s, QSFP-DD, 0.5m, 30AWG	EOL [P-Rel]
N/A	400GE	980-9135S-00W01A	MCP1660-W01AE30	NVIDIA Direct Attach Copper cable, 400GbE, 400Gb/s, QSFP-DD, 1.5m, 30AWG	EOL [P-Rel]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	400GE	980-9I35T-00W02A	MCP1660-W02AE26	NVIDIA Direct Attach Copper cable, 400GbE, 400Gb/s, QSFP-DD, 2.5m, 26AWG	EOL [P-Rel]
NDR	N/A	980-9IA0F-00N001	MCP4Y10-N001	NVIDIA passive Copper cable, IB twin port NDR, up to 800Gb/s, OSFP, 1m	MP
NDR	N/A	980-9IA0G-00N001	MCP4Y10-N001-FLT	NVIDIA Passive Copper cable, IB twin port NDR, up to 800Gb/s, OSFP, 1m, flat top	MP
NDR	N/A	980-9IA0J-00N002	MCP4Y10-N002-FLT	NVIDIA passive Copper cable, IB twin port NDR, up to 800Gb/s, OSFP, 2m, flat top	MP
NDR	N/A	980-9IA0K-00N00A	MCP4Y10-N00A	NVIDIA passive Copper cable, IB twin port NDR, up to 800Gb/s, OSFP, 0.5m	MP
NDR	N/A	980-9IA0R-00N01A	MCP4Y10-N01A-FLT	NVIDIA passive Copper cable, IB twin port NDR, up to 800Gb/s, OSFP, 1.5m, flat top	MP
N/A	400GE	980-9I48Y-00W001	MCP7F60-W001R30	NVIDIA DAC splitter cable, 400GbE, 400Gb/s to 4x100Gb/s, QSFP-DD to 4xQSFP56, 1m, 30AWG	EOL [P-Rel]
N/A	400GE	980-9I48Z-00W002	MCP7F60-W002R26	NVIDIA DAC splitter cable, 400GbE, 400Gb/s to 4x100Gb/s, QSFP-DD to 4xQSFP56, 2m, 26AWG	EOL [P-Rel]
N/A	400GE	980-9I822-00W02A	MCP7F60-W02AR26	NVIDIA DAC splitter cable, 400GbE, 400Gb/s to 4x100Gb/s, QSFP-DD to 4xQSFP56, 2.5m, 26AWG	EOL [P-Rel]
N/A	400GE	980-9IA3S-00W001	MCP7H60-W001R30	NVIDIA DAC splitter cable, 400GbE, 400Gb/s to 2x200Gb/s, QSFP-DD to 2xQSFP56, 1m, 30AWG	EOL [P-Rel]
N/A	400GE	980-9IA3T-00W002	MCP7H60-W002R26	NVIDIA DAC splitter cable, 400GbE, 400Gb/s to 2x200Gb/s, QSFP-DD to 2xQSFP56, 2m, 26AWG	EOL [P-Rel]
N/A	400GE	980-9IA3U-00W003	MCP7H60-W003R26	NVIDIA DAC splitter cable, 400GbE, 400Gb/s to 2x200Gb/s, QSFP-DD to 2xQSFP56, 3m, 26AWG	EOL [P-Rel]
N/A	400GE	980-9IA3V-00W01A	MCP7H60-W01AR30	NVIDIA DAC splitter cable, 400GbE, 400Gb/s to 2x200Gb/s, QSFP-DD to 2xQSFP56, 1.5m, 30AWG	EOL [P-Rel]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	400GE	980-9IA3W-00W02A	MCP7H60-W02AR26	NVIDIA DAC splitter cable, 400GbE, 400Gb/s to 2x200Gb/s, QSFP-DD to 2xQSFP56, 2.5m, 26AWG	EOL [P-Rel]
NDR	N/A	980-9I432-00N001	MCP7Y00-N001	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xOSFP,1m	P-Rel
NDR	N/A	980-9I433-00N001	MCP7Y00-N001-FLT	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xOSFP,1m, flat top	P-Rel
NDR	N/A	980-9I924-00N002	MCP7Y00-N002	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xOSFP, 2m	P-Rel
NDR	N/A	980-9I925-00N002	MCP7Y00-N002-FLT	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xOSFP, 2m, flat top	P-Rel
NDR	N/A	980-9I92N-00N003	MCP7Y00-N003	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xOSFP, 3m	P-Rel
NDR	N/A	980-9I926-00N01A	MCP7Y00-N01A	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xOSFP,1.5m	P-Rel
NDR	N/A	980-9I927-00N01A	MCP7Y00-N01A-FLT	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xOSFP,1.5m, flat top	P-Rel
NDR	N/A	980-9I92O-00N02A	MCP7Y00-N02A	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xOSFP, 2.5m	P-Rel
NDR	N/A	980-9I928-00N001	MCP7Y10-N001	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xQSFP112,1m	P-Rel
NDR	N/A	980-9I929-00N002	MCP7Y10-N002	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xQSFP112,2m	P-Rel
NDR	N/A	980-9I80P-00N003	MCP7Y10-N003	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xQSFP112,3m	P-Rel

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
NDR	N/A	980-9I80A-00N01A	MCP7Y10-N01A	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xQSFP112, 1.5m	P-Rel
NDR	N/A	980-9I80Q-00N02A	MCP7Y10-N02A	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xQSFP112, 2.5m	P-Rel
NDR	N/A	980-9I80B-00N001	MCP7Y40-N001	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xQSFP112, 1m	P-Rel
NDR	N/A	980-9I80C-00N002	MCP7Y40-N002	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xQSFP112, 2m	P-Rel
NDR	N/A	980-9I75R-00N003	MCP7Y40-N003	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xQSFP112, 3m	P-Rel
NDR	N/A	980-9I75D-00N01A	MCP7Y40-N01A	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xQSFP112, 1.5m	P-Rel
NDR	N/A	980-9I75S-00N02A	MCP7Y40-N02A	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xQSFP112, 2.5m	P-Rel
NDR	N/A	980-9I75E-00N001	MCP7Y50-N001	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xOSFP, 1m	P-Rel
NDR	N/A	980-9I75F-00N001	MCP7Y50-N001-FLT	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xOSFP, 1m, flat top	P-Rel
NDR	N/A	980-9I46G-00N002	MCP7Y50-N002	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xOSFP, 2m	P-Rel
NDR	N/A	980-9I46H-00N002	MCP7Y50-N002-FLT	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xOSFP, 2m, flat top	P-Rel

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
NDR	N/A	980-9I46T-00N003	MCP7Y50-N003	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xOSFP, 3m	P-Rel
NDR	N/A	980-9I46I-00N01A	MCP7Y50-N01A	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xOSFP, 1.5m	P-Rel
NDR	N/A	980-9I46J-00N01A	MCP7Y50-N01A-FLT	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xOSFP, 1.5m, flat top	P-Rel
NDR	N/A	980-9I46U-00N02A	MCP7Y50-N02A	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xOSFP, 2.5m	P-Rel
NDR	N/A	980-9I73U-000003	MFP7E10-N003	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 3m	MP
NDR	N/A	980-9I73V-000005	MFP7E10-N005	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 5m	MP
NDR	N/A	980-9I57W-000007	MFP7E10-N007	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 7m	MP
NDR	N/A	980-9I57X-00N010	MFP7E10-N010	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 10m	MP
NDR	N/A	980-9I57Y-000015	MFP7E10-N015	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 15m	MP
NDR	N/A	980-9I57Z-000020	MFP7E10-N020	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 20m	MP
NDR	N/A	980-9I573-00N025	MFP7E10-N025	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 25m	MP
NDR	N/A	980-9I570-00N030	MFP7E10-N030	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 30m	MP
NDR	N/A	980-9I570-00N035	MFP7E10-N035	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 35m	MP
NDR	N/A	980-9I570-00N040	MFP7E10-N040	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 40m	MP



IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
NDR	N/A	980-9I57Y-00N050	MFP7E10-N050	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 50m	MP
NDR	N/A	980-9I571-00N003	MFP7E20-N003	NVIDIA passive fiber cable, MMF, MPO12 APC to 2xMPO12 APC, 3m	MP
NDR	N/A	980-9I572-00N005	MFP7E20-N005	NVIDIA passive fiber cable, MMF, MPO12 APC to 2xMPO12 APC, 5m	MP
NDR	N/A	980-9I573-00N007	MFP7E20-N007	NVIDIA passive fiber cable, MMF, MPO12 APC to 2xMPO12 APC, 7m	MP
NDR	N/A	980-9I554-00N010	MFP7E20-N010	NVIDIA passive fiber cable, MMF, MPO12 APC to 2xMPO12 APC, 10m	MP
NDR	N/A	980-9I555-00N015	MFP7E20-N015	NVIDIA passive fiber cable, MMF, MPO12 APC to 2xMPO12 APC, 15m	MP
NDR	N/A	980-9I556-00N020	MFP7E20-N020	NVIDIA passive fiber cable, MMF, MPO12 APC to 2xMPO12 APC, 20m	MP
NDR	N/A	980-9I557-00N030	MFP7E20-N030	NVIDIA passive fiber cable, MMF, MPO12 APC to 2xMPO12 APC, 30m	MP
NDR	N/A	980-9I55Z-00N050	MFP7E20-N050	NVIDIA passive fiber cable, MMF, MPO12 APC to 2xMPO12 APC, 50m	MP
NDR	N/A	980-9I558-00N001	MFP7E30-N001	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 1m	MP
NDR	N/A	980-9I559-00N002	MFP7E30-N002	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 2m	MP
NDR	N/A	980-9I55A-00N003	MFP7E30-N003	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 3m	MP
NDR	N/A	980-9I55B-00N005	MFP7E30-N005	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 5m	MP
NDR	N/A	980-9I58C-00N007	MFP7E30-N007	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 7m	MP
NDR	N/A	980-9I58D-00N010	MFP7E30-N010	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 10m	MP
NDR	N/A	980-9I58E-00N015	MFP7E30-N015	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 15m	MP

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
NDR	N/A	980-9I58F-00N020	MFP7E30-N020	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 20m	MP
NDR	N/A	980-9I58G-00N030	MFP7E30-N030	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 30m	MP
NDR	N/A	980-9I58H-00N030	MFP7E30-N040	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 40m	MP
NDR	N/A	980-9I58I-00N050	MFP7E30-N050	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 50m	MP
NDR	N/A	980-9I58J-00N050	MFP7E30-N060	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 60m	MP
NDR	N/A	980-9I58K-00N050	MFP7E30-N070	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 70m	MP
NDR	N/A	980-9I58L-00N100	MFP7E30-N100	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 100m	MP
NDR	N/A	980-9I58M-00N150	MFP7E30-N150	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 150m	MP
NDR	N/A	980-9I58N-00N003	MFP7E40-N003	NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 3m	MP
NDR	N/A	980-9I58O-00N005	MFP7E40-N005	NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 5m	MP
NDR	N/A	980-9I58P-00N007	MFP7E40-N007	NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 7m	MP
NDR	N/A	980-9I58Q-00N010	MFP7E40-N010	NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 10m	MP
NDR	N/A	980-9I58R-00N015	MFP7E40-N015	NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 15m	MP
NDR	N/A	980-9I58S-00N020	MFP7E40-N020	NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 20m	MP
NDR	N/A	980-9I58T-00N030	MFP7E40-N030	NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 30m	MP
NDR	N/A	980-9I58U-00N050	MFP7E40-N050	NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 50m	MP

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
NDR	N/A	980-9I693-00NS00	MMA1Z00-NS400	NVIDIA single port transceiver, 400Gbps,NDR, QSFP112, MPO12 APC, 850nm MMF, up to 50m, flat top	P-Rel
NDR	N/A	980-9I510-00NS00	MMA4Z00-NS	NVIDIA twin port transceiver, 800Gbps,2xNDR, OSFP, 2xMPO12 APC, 850nm MMF, up to 50m, finned	MP
NDR	N/A	980-9I51A-00NS00	MMA4Z00-NS-FLT	NVIDIA twin port transceiver, 800Gbps,2xNDR, OSFP, 2xMPO12 APC, 850nm MMF, up to 50m, flat top	MP
NDR	N/A	980-9I51S-00NS00	MMA4Z00-NS400	NVIDIA single port transceiver, 400Gbps,NDR, OSFP, MPO12 APC, 850nm MMF, up to 50m, flat top	MP
NDR	N/A	980-9I51B-00NS00	MMA4Z00-NV4	NVIDIA twin port transceiver, 800Gbps,4xNVlink4, OSFP, 2xMPO12 APC, 850nm, finned	Prototype
NDR	N/A	980-9I51C-00NS00	MMA4Z00-NV4-FLT	NVIDIA twin port transceiver, 800Gbps,4xNVlink4, OSFP, 2xMPO12 APC, 850nm, flat top	Prototype
N/A	400GE	980-9I16Y-00W000	MMS1V00-WM	NVIDIA transceiver, 400GbE, QSFP-DD, MPO, 1310nm, DR4	MP
NDR	N/A	980-9I039-00NS00	MMS4X00-NL	NVIDIA twin port transceiver, 800Gbps,2xNDR, OSFP, 2xMPO12 APC, 1310nm SMF, up to 30m, finned	EOL [EVT]
NDR	N/A	980-9I30F-00NS00	MMS4X00-NL400	NVIDIA single port transceiver, 400Gbps,NDR, OSFP, MPO12 APC, 1310nm SMF, up to 30m, flat top	EOL [Prototype]
NDR	N/A	980-9I30G-00NM00	MMS4X00-NM	NVIDIA twin port transceiver, 800Gbps,2xNDR, OSFP, 2xMPO, 1310nm SMF, up to 500m, finned	MP
NDR	N/A	980-9I30I-00NM00	MMS4X00-NM-FLT	NVIDIA twin port transceiver, 800Gbps,2xNDR, OSFP, 2xMPO12 APC, 1310nm SMF, up to 500m, flat top	Prototype

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
NDR	N/A	980-9I30H-00NM00	MMS4X00-NS	NVIDIA twin port transceiver, 800Gbps, 2xNDR, OSFP, 2xMPO12 APC, 1310nm SMF, up to 100m, finned	MP
NDR	N/A	980-9I30I-00NM00	MMS4X00-NS-FLT	NVIDIA twin port transceiver, 800Gbps, 2xNDR, OSFP, 2xMPO12 APC, 1310nm SMF, up to 100m, flat top	MP
NDR	N/A	980-9I31N-00NM00	MMS4X00-NS400	NVIDIA single port transceiver, 400Gbps, NDR, OSFP, MPO12 APC, 1310nm SMF, up to 100m, flat top	MP

### 8.1.3 HDR / 200GbE Cables

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
HDR	200GE	980-9I548-00H001	MCP1650-H001E30	Nvidia Passive Copper cable, up to 200Gbps, QSFP56 to QSFP56, 1m	HVM
HDR	200GE	980-9I549-00H002	MCP1650-H002E26	Nvidia Passive Copper cable, up to 200Gbps, QSFP56 to QSFP56, 2m	HVM
HDR	200GE	980-9I54A-00H00A	MCP1650-H00AE30	Nvidia Passive Copper cable, up to 200Gbps, QSFP56 to QSFP56, 0.5m	HVM
HDR	200GE	980-9I54B-00H01A	MCP1650-H01AE30	Nvidia Passive Copper cable, up to 200Gbps, QSFP56 to QSFP56, 1.5 m	HVM
N/A	200GE	980-9I54C-00V001	MCP1650-V001E30	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 1m, black pulltab, 30AWG	LTB [HVM]
N/A	200GE	980-9I54D-00V002	MCP1650-V002E26	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 2m, black pulltab, 26AWG	LTB [HVM]
N/A	200GE	980-9I54E-00V002	MCP1650-V002E26_FF	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 2m, black pulltab, 26AWG	EOL [HVM]
N/A	200GE	980-9I54G-00V003	MCP1650-V003E26	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 3m, black pulltab, 26AWG	EOL [HVM]

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

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	200GE	980-9I980-00V002	MCP7H60-C002	NVIDIA DAC splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP-DD to 2xQSFP28, colored pulltabs, 2m	EOL [P-Rel]
N/A	200GE	980-9IA3P-00V003	MCP7H60-C003	NVIDIA DAC splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP-DD to 2xQSFP28, colored pulltabs, 3m	EOL [P-Rel]
N/A	200GE	980-9IA3P-00V003-M	MCP7H60-C003-M	NVIDIA DAC splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP-DD to 2xQSFP28, colored pulltabs, 3m	EOL [P-Rel]
N/A	200GE	980-9IA3X-00V001	MCP7H70-V001R30	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 4x50Gb/s, QSFP56 to 4xSFP56, colored, 1m, 30AWG	EOL [P-Rel]
N/A	200GE	980-9IA3Y-00V002	MCP7H70-V002R26	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 4x50Gb/s, QSFP56 to 4xSFP56, colored, 2m, 26AWG	EOL [P-Rel]
N/A	200GE	980-9I43Z-00V003	MCP7H70-V003R26	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 4x50Gb/s, QSFP56 to 4x4SFP56, colored, 3m, 26AWG	EOL [P-Rel]
N/A	200GE	980-9I430-00V01A	MCP7H70-V01AR30	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 4x50Gb/s, QSFP56 to 4xSFP56, colored, 1.5m, 30AWG	EOL [P-Rel]
N/A	200GE	980-9I431-00V02A	MCP7H70-V02AR26	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 4x50Gb/s, QSFP56 to 4xSFP56, colored, 2.5m, 26AWG	EOL [P-Rel]
HDR	200GE	980-9I46K-00H001	MCP7Y60-H001	NVIDIA passive copper splitter cable, 400(2x200)Gbps to 2x200Gbps, OSFP to 2xQSFP56, 1m, fin to flat	MP
HDR	200GE	980-9I46L-00H002	MCP7Y60-H002	NVIDIA passive copper splitter cable, 400(2x200)Gbps to 2x200Gbps, OSFP to 2xQSFP56, 2m, fin to flat	MP

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
HDR	200GE	980-9I93M-00H01A	MCP7Y60-H01A	NVIDIA passive copper splitter cable, 400(2x200)Gbps to 2x200Gbps, OSFP to 2xQSFP56, 1.5m, fin to flat	MP
HDR	200GE	980-9I93N-00H001	MCP7Y70-H001	NVIDIA passive copper splitter cable, 400(2x200)Gbps to 4x100Gbps, OSFP to 4xQSFP56, 1m, fin to flat	MP
HDR	200GE	980-9I93O-00H002	MCP7Y70-H002	NVIDIA passive copper splitter cable, 400(2x200)Gbps to 4x100Gbps, OSFP to 4xQSFP56, 2m, fin to flat	MP
HDR	200GE	980-9I47P-00H01A	MCP7Y70-H01A	NVIDIA passive copper splitter cable, 400(2x200)Gbps to 4x100Gbps, OSFP to 4xQSFP56, 1.5m, fin to flat	MP
HDR	N/A	980-9I41X-00H003	MFA7U10-H003	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 3m	P-Rel
HDR	N/A	980-9I11Z-00H005	MFA7U10-H005	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 5m	P-Rel
HDR	N/A	980-9I111-00H010	MFA7U10-H010	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 10m	P-Rel
HDR	N/A	980-9I113-00H015	MFA7U10-H015	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 15m	P-Rel
HDR	N/A	980-9I115-00H020	MFA7U10-H020	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 20m	P-Rel
HDR	N/A	980-9I117-00H030	MFA7U10-H030	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 30m	P-Rel
HDR	N/A	980-9I124-00H003	MFS1S00-H003E	NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 3m	EOL [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
HDR	200GE	980-9I457-00H003	MFS1S00-H003V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 3m	MP
HDR	N/A	980-9I45A-00H005	MFS1S00-H005E	NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 5m	EOL [HVM]
HDR	200GE	980-9I45D-00H005	MFS1S00-H005V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 5m	MP
HDR	N/A	980-9I45G-00H010	MFS1S00-H010E	NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 10m	EOL [HVM]
HDR	200GE	980-9I45J-00H010	MFS1S00-H010V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 10m	MP
HDR	N/A	980-9I45M-00H015	MFS1S00-H015E	NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 15m	EOL [HVM]
HDR	200GE	980-9I45O-00H015	MFS1S00-H015V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 15m	MP
HDR	N/A	980-9I45R-00H020	MFS1S00-H020E	NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 20m	EOL [HVM]
HDR	200GE	980-9I45T-00H020	MFS1S00-H020V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 20m	MP
HDR	N/A	980-9I45Y-00H030	MFS1S00-H030E	NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 30m	EOL [HVM]
HDR	200GE	980-9I440-00H030	MFS1S00-H030V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 30m	MP
HDR	N/A	980-9I455-00H050	MFS1S00-H050E	NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 50m	EOL [HVM]
HDR	200GE	980-9I447-00H050	MFS1S00-H050V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 50m	MP
HDR	N/A	980-9I44G-00H100	MFS1S00-H100E	NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 100m	EOL [HVM]



IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
HDR	200GE	980-9I44H-00H100	MFS1S00-H100V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 100m	MP
HDR	200GE	980-9I44K-00H130	MFS1S00-H130V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 130m	MP
HDR	200GE	980-9I44N-00H150	MFS1S00-H150V	Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 150m	MP
N/A	200GE	980-9I44P-00V003	MFS1S00-V003E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 3m	LTB [HVM]
N/A	200GE	980-9I45Q-00V005	MFS1S00-V005E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 5m	LTB [HVM]
N/A	200GE	980-9I45R-00V010	MFS1S00-V010E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 10m	LTB [HVM]
N/A	200GE	980-9I44S-00V015	MFS1S00-V015E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 15m	LTB [HVM]
N/A	200GE	980-9I44T-00V020	MFS1S00-V020E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 20m	LTB [HVM]
N/A	200GE	980-9I44U-00V030	MFS1S00-V030E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 30m	LTB [HVM]
N/A	200GE	980-9I44V-00V050	MFS1S00-V050E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 50m	LTB [HVM]
N/A	200GE	980-9I44W-00V100	MFS1S00-V100E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 100m	EOL [HVM] [HIBERN/ATE]
HDR	N/A	980-9I452-00H003	MFS1S50-H003E	NVIDIA active fiber splitter cable, IB HDR, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56 , LSZH, 3m	EOL [HVM]
HDR	200GE	980-9I445-00H003	MFS1S50-H003V	Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 3m	HVM
HDR	N/A	980-9I956-00H005	MFS1S50-H005E	NVIDIA active fiber splitter cable, IB HDR, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56 , LSZH, 5m	EOL [HVM]
HDR	200GE	980-9I969-00H005	MFS1S50-H005V	Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 5m	HVM

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
HDR	N/A	980-9I95A-00H010	MFS1S50-H010E	NVIDIA active fiber splitter cable, IB HDR, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56 , LSZH, 10m	EOL [HVM]
HDR	200GE	980-9I96D-00H010	MFS1S50-H010V	Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 10m	HVM
HDR	N/A	980-9I95E-00H015	MFS1S50-H015E	NVIDIA active fiber splitter cable, IB HDR, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56 , LSZH, 15m	EOL [HVM]
HDR	200GE	980-9I96H-00H015	MFS1S50-H015V	Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 15m	HVM
HDR	N/A	980-9I95I-00H020	MFS1S50-H020E	NVIDIA active fiber splitter cable, IB HDR, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56 , LSZH, 20m	EOL [HVM]
HDR	200GE	980-9I96L-00H020	MFS1S50-H020V	Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 20m	HVM
HDR	N/A	980-9I95M-00H030	MFS1S50-H030E	NVIDIA active fiber splitter cable, IB HDR, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56 , LSZH, 30m	EOL [HVM]
HDR	200GE	980-9I96P-00H030	MFS1S50-H030V	Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 30m	HVM
HDR	200GE	980-9I95S-00H040	MFS1S50-H040V	Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 40m	Prototype
HDR	200GE	980-9I95T-00H050	MFS1S50-H050V	Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 50m	Prototype
N/A	200GE	980-9I95Q-00V003	MFS1S50-V003E	NVIDIA active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 3m	EOL [HVM]
N/A	200GE	980-9I96R-00V005	MFS1S50-V005E	NVIDIA active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 5m	EOL [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	200GE	980-9I96S-00V010	MFS1S50-V010E	NVIDIA active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 10m	EOL [HVM]
N/A	200GE	980-9I96T-00V015	MFS1S50-V015E	NVIDIA active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 15m	EOL [HVM]
N/A	200GE	980-9I95U-00V020	MFS1S50-V020E	NVIDIA active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 20m	EOL [HVM]
N/A	200GE	980-9I95V-00V030	MFS1S50-V030E	NVIDIA active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 30m	EOL [HVM]
HDR	N/A	980-9I17S-00HS00	MMA1T00-HS	NVIDIA transceiver, HDR, QSFP56, MPO, 850nm, SR4, up to 100m	HVM
N/A	200GE	980-9I20T-00V000	MMA1T00-VS	NVIDIA transceiver, 200GbE, up to 200Gb/s, QSFP56, MPO, 850nm, SR4, up to 100m	HVM
HDR	N/A	980-9I05S-00H000	MMS1W50-HM	NVIDIA transceiver, IB HDR, up to 200Gb/s, QSFP56, LC-LC, 1310nm, FR4	MP
HDR	N/A	980-9I41X-00H003	MFA7U10-H003	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 3m	P-Rel
HDR	N/A	980-9I11Z-00H005	MFA7U10-H005	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 5m	P-Rel
HDR	N/A	980-9I111-00H010	MFA7U10-H010	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 10m	P-Rel
HDR	N/A	980-9I113-00H015	MFA7U10-H015	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 15m	P-Rel
HDR	N/A	980-9I115-00H020	MFA7U10-H020	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 20m	P-Rel

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
HDR	N/A	980-9I117-00H030	MFA7U10-H030	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 30m	P-Rel
HDR	N/A	980-9I11V-00H050	MFA7U10-H050	NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 50m	Prototype

### 8.1.4 EDR / 100GbE Cables

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	100GE	980-9I90Z-00C000	FTLC9152RGPL	100Gb/s Transceiver, QSFP28, LC-LC, 850nm SWDM4 up to 100m Over Multi-Mode Fiber	EOL [MP]
N/A	100GE	980-9I62O-00C001	MCP1600-C001	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 1m 30AWG	EOL [HVM]
N/A	100GE	980-9I62O-00C001	MCP1600-C001E30N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 1m, Black, 30AWG, CA-N	HVM
N/A	100GE	980-9I62S-00C001	MCP1600-C001LZ	NVIDIA Passive Copper Cable, ETH 100GbE, 100Gb/s, QSFP, 1m, LSZH, 30AWG	EOL [MP]
N/A	100GE	980-9I621-00C002	MCP1600-C002	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 2m 30AWG	EOL [HVM]
N/A	100GE	980-9I622-00C002	MCP1600-C002E26N	NVIDIA® Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 2m, Black, 26AWG, CA-N	Preliminary
N/A	100GE	980-9I62V-00C002	MCP1600-C002E30N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 2m, Black, 30AWG, CA-N	HVM
N/A	100GE	980-9I62X-00C003	MCP1600-C003	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 3m 28AWG	EOL [HVM]
N/A	100GE	980-9I62Z-00C003	MCP1600-C003E26N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 3m, Black, 26AWG, CA-N	EOL [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	100GE	980-91620-00C003	MCP1600-C003E30L	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 3m, Black, 30AWG, CA-L	HVM
N/A	100GE	980-91622-00C003	MCP1600-C003LZ	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, 3m, LSZH, 26AWG	EOL [MP]
N/A	100GE	980-91625-00C005	MCP1600-C005E26L	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 5m, Black, 26AWG, CA-L	HVM
N/A	100GE	980-91626-00C00A	MCP1600-C00A	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 0.5m 30AWG	EOL [HVM]
N/A	100GE	980-91627-00C00A	MCP1600-C00AE30N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 0.5m, Black, 30AWG, CA-N	EOL [HVM]
N/A	100GE	980-91629-00C00B	MCP1600-C00BE30N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 0.75m, Black, 30AWG, CA-N	EOL [HVM]
N/A	100GE	980-9162B-00C01A	MCP1600-C01A	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 1.5m 30AWG	EOL [HVM]
N/A	100GE	980-9162C-00C01A	MCP1600-C01AE30N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 1.5m, Black, 30AWG, CA-N	HVM
N/A	100GE	980-9162G-00C02A	MCP1600-C02A	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 2.5m 30AWG	EOL [HVM]
N/A	100GE	980-9162H-00C02A	MCP1600-C02AE26N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 2.5m, Black, 26AWG, CA-N	EOL [HVM]
N/A	100GE	980-9162I-00C02A	MCP1600-C02AE30L	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 2.5m, Black, 30AWG, CA-L	HVM
N/A	100GE	980-9162M-00C03A	MCP1600-C03A	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 3.5m 26AWG	EOL [P-Rel]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
EDR	100GE	980-9I62P-00C001	MCP1600-E001	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1m 30AWG	EOL [HVM]
EDR	N/A	980-9I62Q-00E001	MCP1600-E001E30	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 1m, Black, 30AWG	HVM
EDR	100GE	980-9I62S-00C002	MCP1600-E002	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2m 28AWG	EOL [HVM]
EDR	N/A	980-9I62T-00E002	MCP1600-E002E26	NVIDIA® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 2m, Black, 26AWG	Preliminary
EDR	N/A	980-9I62U-00E002	MCP1600-E002E30	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 2m, Black, 30AWG	HVM
EDR	100GE	980-9I62V-00C003	MCP1600-E003	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 3m 26AWG	EOL [HVM]
EDR	N/A	980-9I62W-00E003	MCP1600-E003E26	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 3m, Black, 26AWG	HVM
EDR	N/A	980-9I62Y-00E004	MCP1600-E004E26	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 4m, Black, 26AWG	EOL [HVM]
EDR	N/A	980-9I62Z-00E005	MCP1600-E005E26	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 5m, Black, 26AWG	HVM
EDR	N/A	980-9I620-00E00A	MCP1600-E00A	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 0.5m 30AWG	EOL [HVM]
EDR	N/A	980-9I621-00E00A	MCP1600-E00AE30	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 0.5m, Black, 30AWG	EOL [HVM]
EDR	N/A	980-9I622-00E00B	MCP1600-E00BE30	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 0.75m, Black, 30AWG	EOL [HVM] [HIBERN/ATE]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
EDR	100GE	980-91623-00C01A	MCP1600-E01A	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1.5m 30AWG	EOL [HVM]
EDR	N/A	980-91624-00E01A	MCP1600-E01AE30	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 1.5m, Black, 30AWG	HVM
EDR	N/A	980-91625-00E01C	MCP1600-E01BE30	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 1.25m, Black, 30AWG	EOL [HVM] [HIBERN/ATE]
EDR	100GE	980-91626-00C02A	MCP1600-E02A	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2.5m 26AWG	EOL [HVM]
EDR	N/A	980-91627-00E02A	MCP1600-E02AE26	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 2.5m, Black, 26AWG	HVM
N/A	100GE	980-91645-00C001	MCP7F00-A001R	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, colored pulltabs, 1m, 30AWG	EOL [HVM]
N/A	100GE	980-91486-00C001	MCP7F00-A001R30N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 1m, Colored, 30AWG, CA-N	LTB [HVM]
N/A	100GE	980-9148A-00C002	MCP7F00-A002R	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, colored pulltabs, 2m, 30AWG	EOL [HVM]
N/A	100GE	980-9148B-00C002	MCP7F00-A002R30N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2m, Colored, 30AWG, CA-N	LTB [HVM]
N/A	100GE	980-9148G-00C003	MCP7F00-A003R26N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3m, Colored, 26AWG, CA-N	EOL [HVM]
N/A	100GE	980-9148H-00C003	MCP7F00-A003R30L	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3m, Colored, 30AWG, CA-L	LTB [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	100GE	980-9I48J-00C005	MCP7F00-A005R26L	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 5m, Colored, 26AWG, CA-L	LTB [HVM]
N/A	100GE	980-9I48M-00C01A	MCP7F00-A01AR	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, colored pulltabs, 1.5m, 30AWG	EOL [HVM]
N/A	100GE	980-9I48N-00C01A	MCP7F00-A01AR30N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 1.5m, Colored, 30AWG, CA-N	LTB [HVM]
N/A	100GE	980-9I48S-00C02A	MCP7F00-A02AR26N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2.5m, Colored, 26AWG, CA-N	EOL [HVM]
N/A	100GE	980-9I48T-00C02A	MCP7F00-A02AR30L	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2.5m, Colored, 30AWG, CA-L	LTB [HVM]
N/A	100GE	980-9I48U-00C02A	MCP7F00-A02ARLZ	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2.5m, LSZH, Colored, 28AWG	EOL [P-Rel]
N/A	100GE	980-9I48X-00C03A	MCP7F00-A03AR26L	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3.5m, Colored, 26AWG, CA-L	EOL [HVM]
N/A	100GE	980-9I61C-00C005	MCP7H00-G00000	NVIDIA® passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 5m, Colored, 26AWG, CA-L	Preliminary
N/A	100GE	980-9I61D-00C001	MCP7H00-G001	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 1m, 30AWG	EOL [HVM]
N/A	100GE	980-9I99F-00C001	MCP7H00-G001R	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 1m, 30AWG	EOL [HVM]



IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	100GE	980-9199G-00C001	MCP7H00-G001R30N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 1m, Colored, 30AWG, CA-N	LTB [HVM]
N/A	100GE	980-9199J-00C002	MCP7H00-G002R	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 2m, 30AWG	EOL [HVM]
N/A	100GE	980-9199K-00C002	MCP7H00-G002R26N	NVIDIA® passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 2m, Colored, 26AWG, CA-N	Preliminary
N/A	100GE	980-9199L-00C002	MCP7H00-G002R30N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 2m, Colored, 30AWG, CA-N	LTB [HVM]
N/A	100GE	980-9199O-00C003	MCP7H00-G003R	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 3m, 28AWG	EOL [HVM]
N/A	100GE	980-9199Q-00C003	MCP7H00-G003R26N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 3m, Colored, 26AWG, CA-N	EOL [HVM]
N/A	100GE	980-9139R-00C003	MCP7H00-G003R30L	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 3m, Colored, 30AWG, CA-L	LTB [HVM]
N/A	100GE	980-9199S-00C004	MCP7H00-G004R26L	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 4m, Colored, 26AWG, CA-L	EOL [HVM]
N/A	100GE	980-9199W-00C01A	MCP7H00-G01AR	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 1.5m, 30AWG	EOL [HVM]
N/A	100GE	980-9199X-00C01A	MCP7H00-G01AR30N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 1.5m, Colored, 30AWG, CA-N	LTB [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	100GE	980-91992-00C02A	MCP7H00-G02AR	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 2.5m, 30AWG	EOL [HVM]
N/A	100GE	980-91994-00C02A	MCP7H00-G02AR26N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 2.5m, Colored, 26AWG, CA-N	EOL [HVM]
N/A	100GE	980-91395-00C02A	MCP7H00-G02AR30L	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 2.5m, Colored, 30AWG, CA-L	LTB [HVM]
N/A	100GE	980-9113S-00C003	MFA1A00-C003	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 3m	HVM
N/A	100GE	980-9113X-00C005	MFA1A00-C005	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 5m	HVM
N/A	100GE	980-91134-00C010	MFA1A00-C010	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 10m	HVM
N/A	100GE	980-9113A-00C015	MFA1A00-C015	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 15m	HVM
N/A	100GE	980-9113F-00C020	MFA1A00-C020	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 20m	HVM
N/A	100GE	980-9113N-00C030	MFA1A00-C030	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 30m	HVM
N/A	100GE	980-91130-00C050	MFA1A00-C050	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 50m	HVM
N/A	100GE	980-9113B-00C100	MFA1A00-C100	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 100m	LTB [HVM]
EDR	N/A	980-9113D-00E001	MFA1A00-E001	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1m	HVM
EDR	N/A	980-9113F-00E003	MFA1A00-E003	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 3m	HVM
EDR	N/A	980-9113J-00E005	MFA1A00-E005	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 5m	HVM

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
EDR	N/A	980-9I13M-00E007	MFA1A00-E007	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 7m	LTB [HVM]
EDR	N/A	980-9I13O-00E010	MFA1A00-E010	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 10m	HVM
EDR	N/A	980-9I13R-00E010	MFA1A00-E010_FF	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 10m	EOL [HVM] [HIBERN/ATE]
EDR	N/A	980-9I13S-00E015	MFA1A00-E015	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 15m	HVM
EDR	N/A	980-9I13V-00E020	MFA1A00-E020	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 20m	HVM
EDR	N/A	980-9I13Y-00E030	MFA1A00-E030	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 30m	HVM
EDR	N/A	980-9I133-00E050	MFA1A00-E050	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 50m	HVM
EDR	N/A	980-9I135-00E100	MFA1A00-E100	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 100m	LTB [HVM]
N/A	100GE	980-9I37H-00C003	MFA7A20-C003	NVIDIA active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 3m	EOL [HVM]
N/A	100GE	980-9I37I-00C005	MFA7A20-C005	NVIDIA active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 5m	EOL [HVM]
N/A	100GE	980-9I40J-00C010	MFA7A20-C010	NVIDIA active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 10m	EOL [HVM]
N/A	100GE	980-9I40K-00C020	MFA7A20-C020	NVIDIA active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 20m	EOL [HVM]
N/A	100GE	980-9I40L-00C002	MFA7A20-C02A	NVIDIA® active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 2.5m	Preliminary
N/A	100GE	980-9I40M-00C003	MFA7A20-C03A	NVIDIA® active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 3.5m	Preliminary

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	100GE	980-9140N-00C003	MFA7A50-C003	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3m	EOL [HVM]
N/A	100GE	980-9140O-00C005	MFA7A50-C005	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 5m	EOL [HVM]
N/A	100GE	980-9149P-00C010	MFA7A50-C010	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 10m	EOL [HVM]
N/A	100GE	980-9149Q-00C015	MFA7A50-C015	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 15m	EOL [HVM]
N/A	100GE	980-9149R-00C020	MFA7A50-C020	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 20m	EOL [HVM]
N/A	100GE	980-9149S-00C030	MFA7A50-C030	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 30m	EOL [HVM]
N/A	100GE	980-91149-00C500	MMA1B00-C100D	NVIDIA transceiver, 100GbE, QSFP28, MPO, 850nm, SR4, up to 100m, DDMI	HVM
N/A	100GE	980-9117B-00C500	MMA1B00-C100D_FF	NVIDIA transceiver, 100GbE, QSFP28, MPO, 850nm, SR4, up to 100m, DDMI	EOL [HVM] [HIBERN/ATE]
N/A	100GE	980-9117D-00C500	MMA1B00-C100T	NVIDIA® transceiver, 100GbE, QSFP28, MPO, 850nm, up to 100m, OTU4	Preliminary
EDR	N/A	980-9117L-00E000	MMA1B00-E100	NVIDIA transceiver, IB EDR, up to 100Gb/s, QSFP28, MPO, 850nm, SR4, up to 100m	HVM
N/A	100GE	980-9117P-00CR00	MMA1L10-CR	NVIDIA optical transceiver, 100GbE, 100Gb/s, QSFP28, LC-LC, 1310nm, LR4 up to 10km	HVM
N/A	100GE	980-9117Q-00CM00	MMA1L30-CM	NVIDIA optical module, 100GbE, 100Gb/s, QSFP28, LC-LC, 1310nm, CWDM4, up to 2km	MP

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	100GE	980-9I16X-00C000	MMS1C10-CM	NVIDIA active optical module, 100Gb/s, QSFP, MPO, 1310nm, PSM4, up to 500m	EOL [MP]
N/A	100GE	980-9I042-00C000	MMS1V70-CM	NVIDIA transceiver, 100GbE, QSFP28, LC-LC, 1310nm, DR1	P-Rel
N/A	100GE	980-9I53X-00C000	SPQ-CE-ER-CDFL-M	40km 100G QSFP28 ER Optical Transceiver	P-Rel
N/A	100GE	980-9I63F-00C000	X65406	NVIDIA® optical module, 100GbE, 100Gb/s, QSFP28, LC-LC, 1310nm, CWDM4, up to 2km	Preliminary



EDR links raise with RS-FEC.

## 8.1.5 FDR / 56GbE Cables

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
FDR	56GE	980-9I679-00L004	MC2207126-004	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 4m	EOL [HVM]
FDR	56GE	980-9I67A-00L003	MC2207128-003	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 3m	EOL [HVM]
FDR	56GE	980-9I67C-00L02A	MC2207128-0A2	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 2.5m	EOL [MP]
FDR	56GE	980-9I67D-00L001	MC2207130-001	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 1m	EOL [HVM]
FDR	56GE	980-9I67E-00L002	MC2207130-002	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 2m	EOL [HVM]
FDR	56GE	980-9I67F-00L00A	MC2207130-00A	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 0.5m	EOL [HVM]
FDR	56GE	980-9I67G-00L01A	MC2207130-0A1	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 1.5m	EOL [HVM]
FDR	56GE	980-9I15U-00L003	MC220731V-003	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 3m	EOL [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
FDR	56GE	980-9I15V-00L005	MC220731V-005	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 5m	EOL [HVM]
FDR	56GE	980-9I15W-00L010	MC220731V-010	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 10m	EOL [HVM]
FDR	56GE	980-9I15X-00L015	MC220731V-015	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 15m	EOL [HVM]
FDR	56GE	980-9I15Y-00L020	MC220731V-020	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 20m	EOL [HVM]
FDR	56GE	980-9I15Z-00L025	MC220731V-025	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 25m	EOL [HVM]
FDR	56GE	980-9I150-00L030	MC220731V-030	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 30m	EOL [HVM]
FDR	56GE	980-9I151-00L040	MC220731V-040	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 40m	EOL [HVM] [HIBERN/ATE]
FDR	56GE	980-9I152-00L050	MC220731V-050	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 50m	EOL [HVM]
FDR	56GE	980-9I153-00L075	MC220731V-075	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 75m	EOL [HVM]
FDR	56GE	980-9I154-00L100	MC220731V-100	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 100m	EOL [HVM]
FDR	56GE	980-9I675-00L001	MCP170L-F001	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 1m	EOL [P-Rel]
FDR	56GE	980-9I676-00L002	MCP170L-F002	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 2m	EOL [P-Rel]
FDR	56GE	980-9I677-00L003	MCP170L-F003	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 3m	EOL [P-Rel] [HIBERN/ATE]
FDR	56GE	980-9I678-00L00A	MCP170L-F00A	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 0.5m	EOL [P-Rel]
FDR	56GE	980-9I679-00L01A	MCP170L-F01A	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 1.5m	EOL [P-Rel] [HIBERN/ATE]

## 8.1.6 50GbE Cables

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	50GE	980-91790-00G000	MAM1Q00A-QSA56	NVIDIA cable module, ETH 50GbE, 200Gb/s to 50Gb/s, QSFP56 to SFP56	EOL [POR]
N/A	50GE	980-91873-00G001	MCP2M50-G001E30	NVIDIA Passive Copper cable, 50GbE, 50Gb/s, SFP56, LSZH, 1m, black pulltab, 30AWG	EOL [P-Rel]
N/A	50GE	980-91874-00G002	MCP2M50-G002E26	NVIDIA Passive Copper cable, 50GbE, 50Gb/s, SFP56, LSZH, 2m, black pulltab, 26AWG	EOL [P-Rel]
N/A	50GE	980-91875-00G003	MCP2M50-G003E26	NVIDIA Passive Copper cable, 50GbE, 50Gb/s, SFP56, LSZH, 3m, black pulltab, 26AWG	EOL [P-Rel]
N/A	50GE	980-91876-00G00A	MCP2M50-G00AE30	NVIDIA Passive Copper cable, 50GbE, 50Gb/s, SFP56, LSZH, 0.5m, black pulltab, 30AWG	EOL [P-Rel]
N/A	50GE	980-91877-00G01A	MCP2M50-G01AE30	NVIDIA Passive Copper cable, 50GbE, 50Gb/s, SFP56, LSZH, 1.5m, black pulltab, 30AWG	EOL [P-Rel]
N/A	50GE	980-91878-00G02A	MCP2M50-G02AE26	NVIDIA Passive Copper cable, 50GbE, 50Gb/s, SFP56, LSZH, 2.5m, black pulltab, 26AWG	EOL [P-Rel]

## 8.1.7 25GbE Cables

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	25GE	980-91781-00A000	MAM1Q00A-QSA28	NVIDIA cable module, ETH 25GbE, 100Gb/s to 25Gb/s, QSFP28 to SFP28	HVM
N/A	25GE	980-9163J-00A001	MCP2M00-A001	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 1m, 30AWG	EOL [HVM]
N/A	25GE	980-9163L-00A001	MCP2M00-A001E30N	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 1m, Black, 30AWG, CA-N	LTB [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	25GE	980-9I63M-00A002	MCP2M00-A002	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2m, 30AWG	EOL [HVM]
N/A	25GE	980-9I63N-00A002	MCP2M00-A002E26N	NVIDIA® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2m, Black, 26AWG, CA-N	Preliminary
N/A	25GE	980-9I63O-00A002	MCP2M00-A002E30N	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2m, Black, 30AWG, CA-N	LTB [HVM]
N/A	25GE	980-9I63R-00A003	MCP2M00-A003E26N	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 3m, Black, 26AWG, CA-N	EOL [HVM]
N/A	25GE	980-9I63S-00A003	MCP2M00-A003E30L	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 3m, Black, 30AWG, CA-L	LTB [HVM]
N/A	25GE	980-9I63T-00A004	MCP2M00-A004E26L	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 4m, Black, 26AWG, CA-L	EOL [HVM]
N/A	25GE	980-9I63V-00A005	MCP2M00-A005E26L	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 5m, Black, 26AWG, CA-L	LTB [HVM]
N/A	25GE	980-9I63W-00A00A	MCP2M00-A00A	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 0.5m, 30AWG	EOL [HVM]
N/A	25GE	980-9I63X-00A00A	MCP2M00-A00AE30N	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 0.5m, Black, 30AWG, CA-N	EOL [HVM]
N/A	25GE	980-9I63Z-00A01A	MCP2M00-A01AE30N	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 1.5m, Black, 30AWG, CA-N	LTB [HVM]
N/A	25GE	980-9I631-00A02A	MCP2M00-A02AE26N	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2.5m, Black, 26AWG, CA-N	EOL [HVM]
N/A	25GE	980-9I632-00A02A	MCP2M00-A02AE30L	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2.5m, Black, 30AWG, CA-L	LTB [HVM]
N/A	25GE	980-9IA1T-00A003	MFA2P10-A003	NVIDIA active optical cable 25GbE, SFP28, 3m	EOL [HVM]
N/A	25GE	980-9I53W-00A005	MFA2P10-A005	NVIDIA active optical cable 25GbE, SFP28, 5m	EOL [HVM]



IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	25GE	980-9I53Z-00A007	MFA2P10-A007	NVIDIA active optical cable 25GbE, SFP28, 7m	EOL [HVM]
N/A	25GE	980-9I532-00A010	MFA2P10-A010	NVIDIA active optical cable 25GbE, SFP28, 10m	EOL [HVM]
N/A	25GE	980-9I535-00A015	MFA2P10-A015	NVIDIA active optical cable 25GbE, SFP28, 15m	EOL [HVM]
N/A	25GE	980-9I536-00A020	MFA2P10-A020	NVIDIA active optical cable 25GbE, SFP28, 20m	EOL [HVM]
N/A	25GE	980-9I539-00A030	MFA2P10-A030	NVIDIA active optical cable 25GbE, SFP28, 30m	EOL [HVM]
N/A	25GE	980-9I53A-00A050	MFA2P10-A050	NVIDIA active optical cable 25GbE, SFP28, 50m	EOL [HVM]
N/A	25GE	980-9I094-00AR00	MMA2L20-AR	NVIDIA optical transceiver, 25GbE, 25Gb/s, SFP28, LC-LC, 1310nm, LR up to 10km	MP
N/A	25GE	980-9I595-00AM00	MMA2P00-AS	NVIDIA transceiver, 25GbE, SFP28, LC-LC, 850nm, SR	HVM
N/A	25GE	980-9I34B-00AS00	MMA2P00-AS-SP	NVIDIA transceiver, 25GbE, SFP28, LC-LC, 850nm, SR, up to 100m, single package	EOL [HVM]
N/A	25GE	980-9I34D-00AS00	MMA2P00-AS_FF	NVIDIA transceiver, 25GbE, SFP28, LC-LC, 850nm, SR, up to 100m	EOL [HVM]

### 8.1.8 10GbE Cables

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	10GE	980-9I71G-00J000	MAM1Q00A-QSA	NVIDIA cable module, ETH 10GbE, 40Gb/s to 10Gb/s, QSFP to SFP+	HVM
N/A	10GE	980-9I65P-00J005	MC2309124-0005	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 5m	EOL [P-Rel]
N/A	10GE	980-9I65Q-00J007	MC2309124-0007	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 7m	EOL [P-Rel]
N/A	10GE	980-9I65R-00J001	MC2309130-0001	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 1m	EOL [HVM]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	10GE	980-9I65S-00J002	MC2309130-002	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 2m	EOL [HVM]
N/A	10GE	980-9I65T-00J003	MC2309130-003	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 3m	EOL [HVM]
N/A	10GE	980-9I65U-00J00A	MC2309130-00A	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 0.5m	EOL [HVM] [HIBERN/ATE]
N/A	10GE	980-9I682-00J004	MC3309124-004	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 4m	EOL [HVM]
N/A	10GE	980-9I683-00J005	MC3309124-005	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 5m	EOL [HVM]
N/A	10GE	980-9I684-00J006	MC3309124-006	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 6m	EOL [HVM]
N/A	10GE	980-9I685-00J007	MC3309124-007	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 7m	EOL [HVM]
N/A	10GE	980-9I686-00J001	MC3309130-001	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m	EOL [HVM]
N/A	10GE	980-9I688-00J002	MC3309130-002	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m	EOL [HVM]
N/A	10GE	980-9I68B-00J003	MC3309130-003	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 3m	EOL [HVM]
N/A	10GE	980-9I68F-00J00A	MC3309130-00A	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 0.5m	EOL [HVM]
N/A	10GE	980-9I68G-00J01A	MC3309130-0A1	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1.5m	EOL [HVM]
N/A	10GE	980-9I68H-00J02A	MC3309130-0A2	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2.5m	EOL [HVM]
N/A	10GE	980-9I68A-00J001	MCP2100-X001B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m, Blue Pulltab, Connector Label	EOL [HVM] [HIBERN/ATE]
N/A	10GE	980-9I68B-00J002	MCP2100-X002B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m, Blue Pulltab, Connector Label	EOL [HVM] [HIBERN/ATE]

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	10GE	980-9I68C-00J003	MCP2100-X003B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 3m, Blue Pulltab, Connector Label	EOL [HVM]
N/A	10GE	980-9I68E-00J001	MCP2104-X001B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m, Black Pulltab, Connector Label	EOL [HVM] [HIBERN/ATE]
N/A	10GE	980-9I68F-00J002	MCP2104-X002B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m, Black Pulltab, Connector Label	EOL [HVM]
N/A	10GE	980-9I68G-00J003	MCP2104-X003B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 3m, Black Pulltab, Connector Label	EOL [HVM]
N/A	10GE	980-9I68H-00J01A	MCP2104-X01AB	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1.5m, Black Pulltab, Connector Label	EOL [HVM]
N/A	10GE	980-9I68I-00J02A	MCP2104-X02AB	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2.5m, Black Pulltab, Connector Label	EOL [HVM]
N/A	10GE	MFM1T02A-LR-F	MFM1T02A-LR-F	NVIDIA optical module, ETH 10GbE, 10Gb/s, SFP+, LC-LC, 1310nm, LR up to 10km	HVM
N/A	10GE	MFM1T02A-SR-F	MFM1T02A-SR-F	NVIDIA optical module, ETH 10GbE, 10Gb/s, SFP+, LC-LC, 850nm, SR up to 300m	HVM
N/A	10GE	MFM1T02A-SR-P	MFM1T02A-SR-P	NVIDIA optical module, ETH 10GbE, 10Gb/s, SFP+, LC-LC, 850nm, SR up to 300m	HVM

### 8.1.9 1GbE Cables

IB Data Rate	Eth Data Rate	NVIDIA P/N	Legacy OPN	Description	LifeCycle Phase
N/A	1GE	980-9I270-00IM00	MC3208011-SX	NVIDIA Optical module, ETH 1GbE, 1Gb/s, SFP, LC-LC, SX 850nm, up to 500m	EOL [P-Rel]
N/A	1GE	980-9I251-00IS00	MC3208411-T	NVIDIA module, ETH 1GbE, 1Gb/s, SFP, Base-T, up to 100m	HVM

## 8.1.10 Supported 3rd Party Cables and Modules

Speed	Cable OPN	Description
400GbE	DME8811-EC07	400G-2x200G split 7M AOC cables (400G QSFP-DD breaking out to 2x 200G QSFP56) (Rev 12)
400GbE	RTXM500-910	400G-2x200G split 10M AOC cables (400G QSFP-DD breaking out to 2x 200G QSFP56) (Rev 10)
400GbE	FCBN950QE1C20	Fiber Optic Cable Assemblies 8X 50 Gbps, 20M, Ethernet, Quadwire cable, QSFP-DD breakout to 2x QSFP56, MMF, Round Cable, Plenum Rated, 10W/5.5W, 0/70C operation, ROHS
400GbE	AAQD2QP2400C003	400G-2x200G ATI AOC breakout cable
200GbE	RTXM500-905	400G-2x200G split 5M AOC cables (400G QSFP-DD breaking out to 2x 200G QSFP56) (Rev C0)
100GbE	1AT-3Q4M01XX-12A	O-NET QSFP28 100G Active cable/module
100GbE	AQPMANQ4EDMA0784	QSFP28 100G SMF 500m Transceiver
100GbE	CAB-Q-Q-100G-3M	Passive 3 meter, QSFP+ to QSFP+ QSFP100 TWINAX 103.125Gbps-CR4
100GbE	CAB-Q-Q-100GbE-3M	Passive 3 meter , QSFP+ to QSFP+ QSFP100 TWINAX 103.125Gbps-CR4
100GbE	FCBN425QE1C30-C1	100GbE Quadwire® QSFP28 Active Optical Cable 30M
100GbE	FTLC1151RDPL	TRANSCIEVER 100GBE QSFP LR4
100GbE	FTLC9152RGPL	100G 100M QSFP28 SWDM4 OPT TRANS
100GbE	FTLC9555REPM3-E6	100m Parallel MMF 100QSFP28Optical Transceiver
100GbE	NDAAFJ-C102	SF-NDAAFJ100G-005M
100GbE	QSFP-100G-AOC30M	30m (98ft) Cisco QSFP-100G-AOC30M Compatible 100G QSFP28 Active Optical Cable
100GbE	QSFP28-LR4-AJ	CISCO-PRE 100GbE LR4 QSFP28 Transceiver Module
100GbE	SFBR-89BDDZ-CS2	CISCO-PRE 100G AOM BiDi
100GbE	SQF1002L4LNC101P	Cisco-SUMITOMO 100GbE AOM
40GbE	2231254-2	Cisco 3m 40GbE copper
40GbE	AFBR-7QER15Z-CS1	Cisco 40GbE 15m AOC
40GbE	BN-QS-SP-CBL-5M	PASSIVE COPPER SPLITTER CABLE ETH 40GBE TO 4X10GBE 5M
40GbE	NDCCGJ-C402	15m (49ft) Avago AFBR-7QER15Z Compatible 40G QSFP+ Active Optical Cable
40GbE	QSFP-40G-SR-BD	Cisco 40GBASE-SR-BiDi, duplex MMF

## 8.2 Tested Switches

### 8.2.1 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
400GbE	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
400GbE	920-9N301-00xB-xxx	SN4700	NVIDIA Spectrum-3 based 400GbE, 1U Open Ethernet switch, 32xQSFP-DD ports, x86 CPU, standard depth
400GbE	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
400GbE	N/A	Wedge 400	Meta: Wedge 400-48X 400GbE Data Center Switch
400GbE	N/A	Cisco Nexus 3432D-S	Cisco Nexus 3432D-S, 32 fixed 400-Gigabit Ethernet QSFP-DD ports with backward compatibility for QSFP56, QSFP28, and QSFP+

### 8.2.2 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
200GbE	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

Speed	NVIDIA SKU	Legacy OPN	Description
200GbE	920-9N210-C1x7-xxx	MSN3700	NVIDIA Spectrum-2 based 200GbE Open Ethernet switch, 32 QSFP56 ports, x86 CPU, standard depth

### 8.2.3 100GbE Switches

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

# 9 Release Notes History

## 9.1 Changes and New Feature History

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

Feature/Change	Description
<b>28.39.2048</b>	
<b>FEC Configuration</b>	Changed the default FEC configuration for the "Protocol Aware" and "Active DME Modules" (ETH cables). For the list of cable identifiers, see tables below.
<b>Bug Fixes</b>	See <i>Bug Fixes in this Firmware Version</i> section.


*Table 1: Protocol Aware ETH Cables*

Byte 192 of Page 0 for sff cables	Name	Auto Detect FEC	Current Default FEC	Previous Default FEC	P/N - Example of one module
0x1A	100GBase DWDM2	No	<b>NO FEC</b>	RS FEC	
0x21	100G BIDI PAM4	No	<b>NO FEC</b>	RS FEC	SFBR-89BDDZ-CS4
0x25	100GBASE-DR	No	<b>NO FEC</b>	RS FEC	MMS1V70-CM
0x26	100GBASE-FR	No	<b>NO FEC</b>	RS FEC	QSFP28-FR-C
0x27	100GBASE-LR	No	<b>NO FEC</b>	RS FEC	SPTSBP4LLCDF


*Table 2: Active DME Modules ETH Cables*

Byte 192 of Page 0 for sff cables	Name	Auto Detect FEC	Current Default FEC	Previous Default FEC	P/N - Example of one module
0x1	100G AOC / 25GAUI C2M AOC	Yes	RS FEC	RS FEC	
0x2	100GBASE-SR4 / 25GBASE-SR	Yes	RS FEC	RS FEC	MMA2P00-AS
0x3	100GBASE-LR4	Yes	<b>NO FEC</b>	RS FEC	MMA1L10-CR
0x3	25GBASE-LR	Yes	<b>RS FEC</b>	FC FEC	MMA2L20-AR
0x4	100GBASE-ER4	Yes	<b>NO FEC</b>	RS FEC	SPQCEERCDFLM Source Photonics
0x5	100GBASE-SR10	Yes	<b>NO FEC</b>	RS FEC	
0x6	100G CWDM4 MSA with FEC	Yes	RS FEC	RS FEC	MMA1L30-CM

Byte 192 of Page 0 for sff cables	Name	Auto Detect FEC	Current Default FEC	Previous Default FEC	P/N - Example of one module
0x7	100G PSM4 Parallel SMF	Yes	RS FEC	RS FEC	MMS1C10-CM
0x8	100G ACC / 25GAUI C2M ACC	Yes	RS FEC	RS FEC	
0x9	100G CWDM4 MSA without FEC	Yes	<b>NO FEC</b>	RS FEC	LQ210CR-CPA2
0x17	100G CLR4	Yes	RS FEC	RS FEC	
0x18	100G AOC	Yes	<b>NO FEC</b>	RS FEC	MFA1A00-C010
0x19	100G ACC	Yes	<b>NO FEC</b>	RS FEC	
0x20	100G SWDM4	Yes	RS FEC	RS FEC	FTLC9152RGPL
0x22 / 0x23 / 0x24	4WDM-10 MSA / 4WDM-20 MSA / 4WDM-40 MSA	Yes	RS FEC	RS FEC	

 To configure FEC or Speed that is different than the default, you must configure both sides. The following are examples of when FEC detection capability is available:

- when a 25G SFP module is connected to card, it will support FEC detection in 25G
- when a 100G QSFP module is connected to a card, it will support FEC detection in 100G, but not in 50G or 25G

 Firmware version 28.38.1900 (together with MLNX\_OFED v23.07-0.5.1.2) should be used by InfiniBand customers.

Feature/Change	Description
<b>28.38.1900</b>	
<b>QKEY Mitigation in the Kernel</b>	<p>QKEY creation with the MSB set is available now for non-privileged users as well.</p> <p>To allow non-privileged users to create QKEY with MSB set, the below new module parameter was added to <code>ib_uverbs</code> module:</p> <ul style="list-style-type: none"> <li>• <b>Module Parameter:</b> <code>enforce_qkey_check</code></li> <li>• <b>Description:</b> Force QKEY MSB check for non-privileged user on UD QP creation</li> <li>• <b>Default:</b> 0 (disabled)</li> </ul> <p><b>Note:</b> In this release, this module parameter is disabled by default to ensure backward compatibility and give customers the opportunity to update their applications accordingly. In the upcoming release, it will be enabled by default, and later on deprecated.</p>




Feature/Change	Description
<b>28.38.1002</b>	
<b>Header Modification</b>	Added support to the metadata <code>reg_c 8-11</code> (packet fields) for matching and modifying the header, and Advanced Steering Operation (ASO) actions.
<b>INT Packets</b>	Added support for forwarding INT packets to the user application for monitoring purposes by matching the BTH acknowledge request bit ( <code>bth_a</code> ).
<b>Get Electrical Sensor, NC-SI</b>	Implemented NVIDIA NC-SI OEM Commands: <ul style="list-style-type: none"> <li>• Get Electrical Sensor Count (command 0x13, parameter 0x6)</li> <li>• Gel Electrical Sensor (command 0x13, parameter 0x7)</li> <li>• Get Electrical Sensors (command 0x13, parameter 0x8)</li> </ul>
<b>IPsec CPS Bulk Allocation</b>	Improved the IPsec CPS by using bulk allocation. For cases in which <code>log_obj_range == 0</code> , single IPSEC object will be allocated and initialized as before keeping backward compatibility. For better performance, it is recommended to work with IPsec bulk allocation and to initialize IPsec ASO context not via the firmware but via the hardware using ASO WQE.
<b>DPA PROCESS ERROR</b>	Added support for a new value for <code>coredump_type</code> field in <code>DPA_PROCESS_COREDUMP</code> , [ <code>FIRST_ERROR_THREAD_DUMP (1)</code> ].
<b>Device Attestation</b>	Attestation is a mechanism in which a host/platform automatically verifies the authenticity and integrity of the hardware and software state of a device. The mechanism is based on a HW RoT and utilizes SPD messages that handle the attestation, measurement collection, and trust between device and platform BMC or platform RoT (usually host BMC). This provides the added value of increased security and assurance that the host/platform of device is not being tampered with and has the proper software running on it. A CoRIM is comprised of one or more CoMIDs, with each CoMID providing the reference claims about hardware and firmware for a device. The CoRIM and CoMIDs are encoded in CBOR format. Signed CoRIMs use COSE signatures. For further information, see " <a href="#">NVIDIA Device Attestation and CoRIM-based Reference Measurement Sharing</a> ".
<b>QKEY Mitigation in the Kernel</b>	Non-privileged users are now blocked by default from setting controlled/privileged QKEYs (QKEY with MSB set).
<b>Bug Fixes</b>	See <i>Bug Fixes in this Firmware Version</i> section.

Feature/Change	Description
<b>28.37.1014</b>	
<b>Mergeable Buffer</b>	Added mergeable buffer support ( <code>VIRTIO_NET_F_MRG_RXBUF</code> in virtio spec) for VDMA kernel mode to improve performance in case of large MTU such as 9K. The feature is disabled by default and must be manually enabled while creating or modifying the virtio device. <b>Note:</b> For best performance, it is <b>NOT</b> recommended to enable the feature if the VDMA MTU is set to the default value (1500).
<b>Monitoring Cloud Guest RoCE Statistics on Cloud Provider</b>	This new capability enables the VM to track and limit its Vport's activity. This is done using the new <code>q_counters</code> counter which enables aggregation of other Vport's from PF GVMI.

Feature/Change	Description
<b>28.37.1014</b>	
<b>Linux Bridge Offload</b>	Added a flow rule that enables offloading of multicast traffic by broadcasting it to multi-Flow-Table in FDB.
<b>Selective Repeat</b>	Selective repeat improves network utilization in case of a lossy fabric. This feature is enabled by default.
<b>Dynamic VF MSIX Allocation</b>	Added support for dynamic MSIX modification on a VF NVME device emulation. If a PF NVME device emulation is created with <code>dynamic_vf_msix_control = 1</code> , then the <code>dynamic_vf_msix_reset</code> can set the PF device emulation's VF MSIX number to 0. The <code>num_msix</code> is used in the modified VF device emulation to modify the MSIX number of the VF device emulation.
<b>InfiniBand Congestion Control (IB CC)</b>	Enabled IB CC per Service Level (SL) for RC/UC on the HCA side. Now different SLs can be configured to be CC on/off according to the bitmask decided by the software.
<b>ATS/ATC</b>	Optimizes the ATC configuration dynamically based on the returned pages of the ATS translation requests that have been made.
<b>PCC Algorithms</b>	Enables a smooth and statically switch between PCC algorithms. In addition, the user can now switch between PCC algorithms while running traffic.
<b>Hardware Steering: Bulk Allocation</b>	Added support for 32 actions in the header modify pattern using bulk allocation.
<b>InfiniBand Congestion Control - RTT Response Service Level</b>	The software can explicitly set the SL of an RTT response packet, instead of it being taken from the RTT request packet's SL. The RTT response packet SL may be set/queried via the <code>CONGESTION_CONTROL_HCA_NP_PARAMETER MAD</code> .
<b>Bug Fixes</b>	See <i>Bug Fixes in this Firmware Version</i> section.

## 9.2 Bug Fixes History

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

Internal Ref.	Issue
3652874	<b>Description:</b> Fixed firmware measurements calculation.
	<b>Keywords:</b> Firmware measurements calculation
	<b>Discovered in Version:</b> 28.38.1002
	<b>Fixed in Release:</b> 28.39.2048
3664415	<b>Description:</b> Fixed an issue that caused Live Migration to hang during the "save" stage.
	<b>Keywords:</b> Live migration
	<b>Discovered in Version:</b> 28.38.1002

Internal Ref.	Issue
	<b>Fixed in Release:</b> 28.39.2048
3629353	<b>Description:</b> Fixed the cr_space in port configuration to prevent wrong timestamp of cques.
	<b>Keywords:</b> Hardware timestamp
	<b>Discovered in Version:</b> 28.38.1002
	<b>Fixed in Release:</b> 28.39.2048
3582559	<b>Description:</b> Added support for LED scheme #2 to MCX750500B-0D0K / MCX750500B-0D00 adapter cards.
	<b>Keywords:</b> LED
	<b>Discovered in Version:</b> 28.38.1002
	<b>Fixed in Release:</b> 28.39.2048
3669258	<b>Description:</b> Fixed a rare issue that prevented changes in mlxconfig from taking effect upon warm reboot.
	<b>Keywords:</b> mlxconfig
	<b>Discovered in Version:</b> 28.38.1002
	<b>Fixed in Release:</b> 28.39.2048
3670719 / 3676590	<b>Description:</b> Added a small delay after the power up process to fix an issue that occasionally caused the module to be unstable after the power up.
	<b>Keywords:</b> Link up
	<b>Discovered in Version:</b> 28.38.1002
	<b>Fixed in Release:</b> 28.39.2048
3629562	<b>Description:</b> Fixed a code mismatch in the process of handling the cause to the link being down when the remote faults were received.
	<b>Keywords:</b> Link down
	<b>Discovered in Version:</b> 28.38.1002
	<b>Fixed in Release:</b> 28.39.2048
3532508	<b>Description:</b> Fixed a wrong parameter in the cable info MAD that resulted in unnecessary messages in the log.
	<b>Keywords:</b> Cable info MAD
	<b>Discovered in Version:</b> 28.38.1002
	<b>Fixed in Release:</b> 28.39.2048
3634350	<b>Description:</b> Disabled PCI power event messages on OCP 3.0 adapter cards according to the spec requirements.
	<b>Keywords:</b> PCI, OCP 3.0
	<b>Discovered in Version:</b> 28.38.1002
	<b>Fixed in Release:</b> 28.39.2048
3636714	<b>Description:</b> Fixed an issue that caused the buffer for PLDM firmware update that were pending NIC requests to not being properly locked in case of PLDM-over-NC-SI, and consequently being corrupted by other flows.
	<b>Keywords:</b> PLDM, buffer

Internal Ref.	Issue
	<p><b>Discovered in Version:</b> 28.38.1002</p> <p><b>Fixed in Release:</b> 28.39.2048</p>
3592276	<p><b>Description:</b> Fixed an issue that prevent MSI Interrupts from being advertised correctly, resulting in the wrong MSI being sent.</p> <p><b>Keywords:</b> MSI</p> <p><b>Discovered in Version:</b> 28.38.1002</p> <p><b>Fixed in Release:</b> 28.39.2048</p>
3605363	<p><b>Description:</b> "Get Temperature" OEM command now always returns a unified temperature.</p> <p><b>Keywords:</b> Temperature</p> <p><b>Discovered in Version:</b> 28.38.1002</p> <p><b>Fixed in Release:</b> 28.39.2048</p>
3531972	<p><b>Description:</b> 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.</p> <p><b>Keywords:</b> Network Interface</p> <p><b>Discovered in Version:</b> 28.38.1002</p> <p><b>Fixed in Release:</b> 28.39.2048</p>
3626872	<p><b>Description:</b> 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).</p> <p><b>Keywords:</b> Sensor, temperature</p> <p><b>Discovered in Version:</b> 28.38.1002</p> <p><b>Fixed in Release:</b> 28.39.2048</p>
3544340 / 3537706 / 3639178	<p><b>Description:</b> Improved SPDM v1.0 compatibility. SPDM measurements signature additional fixes.</p> <p><b>Keywords:</b> SPDM</p> <p><b>Discovered in Version:</b> 28.38.1002</p> <p><b>Fixed in Release:</b> 28.39.2048</p>
3587821	<p><b>Description:</b> Fixed a HW bug that resulted in transaction loss that when cache replacement transaction occurs in parallel to code transcoding.</p> <p><b>Keywords:</b> HW bug, transaction loss</p> <p><b>Discovered in Version:</b> 28.38.1002</p> <p><b>Fixed in Release:</b> 28.39.2048</p>
3610861	<p><b>Description:</b> The eeprom module gets stuck in polling in 20% of the times after reset. To resolve the issue, a delay after config module to high power was added.</p> <p><b>Keywords:</b> Polling, module, reset</p> <p><b>Discovered in Version:</b> 28.38.1002</p> <p><b>Fixed in Release:</b> 28.39.2048</p>

Internal Ref.	Issue
3507928	<p><b>Description:</b> Fixed a linkup failure issue that occurred when connecting to a 25GbE transceiver by clearing the PSI Aging before trying to open Tx power.</p> <p><b>Keywords:</b> Cables, PSI Aging, 25GbE transceiver</p> <p><b>Discovered in Version:</b> 28.38.1002</p> <p><b>Fixed in Release:</b> 28.39.2048</p>
3602379	<p><b>Description:</b> The "Bad Signal Integrity" message seen after power cycle can be safely ignored. The user should monitor BER number.</p> <p><b>Keywords:</b> Bad Signal Integrity, BER</p> <p><b>Discovered in Version:</b> 28.38.1002</p> <p><b>Fixed in Release:</b> 28.39.2048</p>
3605686	<p><b>Description:</b> Fixed a statics issue that caused the i2c access to module to lock and stuck the switch.</p> <p><b>Keywords:</b> i2c, switch</p> <p><b>Discovered in Version:</b> 28.38.1900</p> <p><b>Fixed in Release:</b> 28.39.2048</p>
3482251	<p><b>Description:</b> Added support for hairpin drop counter in QUERY_VNIC_ENV command.</p> <p><b>Keywords:</b> Hairpin</p> <p><b>Discovered in Version:</b> 28.38.1002</p> <p><b>Fixed in Release:</b> 28.39.2048</p>
3539437	<p><b>Description:</b> Fixed an issue that prevented the <code>get_func_num_from_pci_func_num</code> function from returning the value "-1" for undefined function type.</p> <p><b>Keywords:</b> <code>get_func_num_from_pci_func_num</code></p> <p><b>Discovered in Version:</b> 28.38.1002</p> <p><b>Fixed in Release:</b> 28.39.2048</p>
3570478	<p><b>Description:</b> Fixed Signal-to-Noise Ratio (SNR) value calculation for correct readings from the MMA4Z00 optical cable module.</p> <p><b>Keywords:</b> SNR</p> <p><b>Discovered in Version:</b> 28.38.1002</p> <p><b>Fixed in Release:</b> 28.39.2048</p>
3602169	<p><b>Description:</b> Added a locking mechanism to protect the firmware from a race condition between insertion and deletion of the same rule in parallel. Such behavior occasionally resulted in firmware accessing a memory that has already been released, thus causing IOMMU / translation error.</p> <p><b>Note:</b> This fix will not impact insertion rate for tables owned by SW steering.</p> <p><b>Keywords:</b> Firmware steering</p> <p><b>Discovered in Version:</b> 28.38.1002</p> <p><b>Fixed in Release:</b> 28.39.2048</p>

Internal Ref.	Issue
3588515 / 3409806	<b>Description:</b> Fixed a race condition that led to a firmware assert upon driver removal, or when changing the ETH flow control scheme in case of a stress of larger than MTU ingress packets.
	<b>Keywords:</b> Race condition, firmware assert
	<b>Discovered in Version:</b> 28.38.1002
	<b>Fixed in Release:</b> 28.39.2048
3610169	<b>Description:</b> Fixed QoS Shaper handling behavior for non-transmitting applications.
	<b>Keywords:</b> QoS Shaper
	<b>Discovered in Version:</b> 28.38.1002
	<b>Fixed in Release:</b> 28.39.2048

Internal Ref.	Issue
3537571	<b>Description:</b> Fixed SPDM measurements signature.
	<b>Keywords:</b> SPDM
	<b>Discovered in Version:</b> 28.37.1014
	<b>Fixed in Release:</b> 28.38.1002
3439757	<b>Description:</b> Fixed an issue that prevented the system from detecting the PCIe device during slot DC power cycle tests.
	<b>Keywords:</b> PCIe device, DC power cycle tests
	<b>Discovered in Version:</b> 28.37.1014
	<b>Fixed in Release:</b> 28.38.1002
3534473	<b>Description:</b> Added a new field/slot ID to PRS <code>pcie_cfg_data.pci_cfg_space.pciex.pcie_switch_ini_defined_base_slot_id = 3</code> to define a specific slot number for GPU bridge DSP.
	<b>Keywords:</b> Slot ID
	<b>Discovered in Version:</b> 28.37.1014
	<b>Fixed in Release:</b> 28.38.1002
3331179	<b>Description:</b> Improved token calculation.
	<b>Keywords:</b> Token calculation
	<b>Discovered in Version:</b> 28.37.1014
	<b>Fixed in Release:</b> 28.38.1002
3299420	<b>Description:</b> Upgrading from firmware v28.38.1014 and below to v28.38.1002 no longer requires an upgrade to an intermediate version.
	<b>Keywords:</b> Firmware upgrade
	<b>Discovered in Version:</b> 28.37.1014
	<b>Fixed in Release:</b> 28.38.1002

Internal Ref.	Issue
3394841	<p><b>Description:</b> Updated the plug in/out events' reporting method to report only when the last recorded event is the opposite of the current event.</p> <p><b>Keywords:</b> Port events</p> <p><b>Discovered in Version:</b> 28.37.1014</p> <p><b>Fixed in Release:</b> 28.38.1002</p>
3469311	<p><b>Description:</b> Fixed the SPDM operations order according to the spec. v1.1.0.</p> <p><b>Keywords:</b> SPDM operations</p> <p><b>Discovered in Version:</b> 28.37.1014</p> <p><b>Fixed in Release:</b> 28.38.1002</p>
3527987	<p><b>Description:</b> Added support for NC-SI channel on both ports.</p> <p><b>Keywords:</b> NC-SI channel</p> <p><b>Discovered in Version:</b> 28.37.1014</p> <p><b>Fixed in Release:</b> 28.38.1002</p>
3459317	<p><b>Description:</b> Changed the protection mechanism for BAR configuration.</p> <p><b>Keywords:</b> BAR configuration</p> <p><b>Discovered in Version:</b> 28.37.1014</p> <p><b>Fixed in Release:</b> 28.38.1002</p>
3345150	<p><b>Description:</b> Fixed an issue that caused a packet with invalid/bad padcount to be silently dropped instead of sending a bad nack error.</p> <p><b>Keywords:</b> Packet drop</p> <p><b>Discovered in Version:</b> 28.37.1014</p> <p><b>Fixed in Release:</b> 28.38.1002</p>
3418627	<p><b>Description:</b> Fixed wrong credits configuration that occurred when MAX_ACC_OUT_READ was configured.</p> <p><b>Keywords:</b> Performance</p> <p><b>Discovered in Version:</b> 28.37.1014</p> <p><b>Fixed in Release:</b> 28.38.1002</p>
3466088	<p><b>Description:</b> Update the SX root to work with driverless mode in vport0 gvmi teardown.</p> <p><b>Keywords:</b> Driverless mode</p> <p><b>Discovered in Version:</b> 28.37.1014</p> <p><b>Fixed in Release:</b> 28.38.1002</p>
3487313	<p><b>Description:</b> Fixed a rare deadlock case between 2 DC packets in the RX side.</p> <p><b>Keywords:</b> Firmware deadlock</p> <p><b>Discovered in Version:</b> 28.37.1014</p> <p><b>Fixed in Release:</b> 28.38.1002</p>
3495889	<p><b>Description:</b> Fixed a QoS host port rate limit shaper inaccuracy that occurred when the shaper was configured via the QSHR access register.</p>

Internal Ref.	Issue
	<b>Keywords:</b> Port rate limit shaper
	<b>Discovered in Version:</b> 28.37.1014
	<b>Fixed in Release:</b> 28.38.1002
3449451	<b>Description:</b> When using ConnectX-7 adapter card as InfiniBand, the port must be configured to use the Auto-Negotiation mode.
	<b>Keywords:</b> Auto-Negotiation, InfiniBand
	<b>Discovered in Version:</b> 28.37.1014
	<b>Fixed in Release:</b> 28.38.1002

Internal Ref.	Issue
3272599	<b>Description:</b> Removed the option to clear "Tx disable cap" for all non-baseT SFP modules.
	<b>Keywords:</b> Tx disable cap
	<b>Discovered in Version:</b> 28.36.1010
	<b>Fixed in Release:</b> 28.37.1014
3339087	<b>Description:</b> Added a split mask verification process to check whether or not a module is split in HCA.
	<b>Keywords:</b> Cables, split module
	<b>Discovered in Version:</b> 28.36.1010
	<b>Fixed in Release:</b> 28.37.1014
3411270	<b>Description:</b> Fixed an issue that resulted in firmware crash when setting large payload length values (more than ~1500) in NC-SI command's header.
	<b>Keywords:</b> NC-SI
	<b>Discovered in Version:</b> 28.36.1010
	<b>Fixed in Release:</b> 28.37.1014
3405790	<b>Description:</b> Fixed an issue that resulted in the interface type being shown as "unsupported" in CMIS modules.
	<b>Keywords:</b> CMIS
	<b>Discovered in Version:</b> 28.36.1010
	<b>Fixed in Release:</b> 28.37.1014
3418889	<b>Description:</b> Updated the NEGOTIATE_ALGORITHMS response according to the SPDM specification.
	<b>Keywords:</b> SPDM
	<b>Discovered in Version:</b> 28.36.1010
	<b>Fixed in Release:</b> 28.37.1014
3409686	<b>Description:</b> Added the option to clear the DPC registers after warm reboot.
	<b>Keywords:</b> DPC
	<b>Discovered in Version:</b> 28.36.1010



Internal Ref.	Issue
	<b>Fixed in Release:</b> 28.37.1014
3411116	<p><b>Description:</b> Fixed the configuration of the TS1s sent by the DownStream port (DSP) when moving to EQLZ.ph2.</p> <p><b>Keywords:</b> DSP</p> <p><b>Discovered in Version:</b> 28.36.1010</p> <p><b>Fixed in Release:</b> 28.37.1014</p>
3138665	<p><b>Description:</b> Changed the initial Tx preset configuration for the DownStream port (DSP).</p> <p><b>Keywords:</b> Tx, DSP</p> <p><b>Discovered in Version:</b> 28.36.1010</p> <p><b>Fixed in Release:</b> 28.37.1014</p>
3138665	<p><b>Description:</b> PLDM firmware update process fails in case 1304 bytes chunk size is chosen.</p> <p><b>Keywords:</b> PLDM firmware update</p> <p><b>Discovered in Version:</b> 28.34.4000</p> <p><b>Fixed in Release:</b> 28.37.1014</p>
3336619	<p><b>Description:</b> 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.</p> <p><b>Keywords:</b> Secure firmware update, GCM, code chunk</p> <p><b>Discovered in Version:</b> 28.36.1010</p> <p><b>Fixed in Release:</b> 28.37.1014</p>
3327847	<p><b>Description:</b> CNP received, handled, and ignored counters in the hardware counters cannot work after moving to Programmable Congestion Control mode.</p> <p><b>Keywords:</b> CNP, Programmable Congestion Control</p> <p><b>Discovered in Version:</b> 28.36.1010</p> <p><b>Fixed in Release:</b> 28.37.1014</p>
3336610	<p><b>Description:</b> 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=&gt;PA translation from the internal mmio, and the address translation was broken by the mmio on the 4K page boundary.</p> <p><b>Keywords:</b> Error handling, mmio, firmware processor</p> <p><b>Discovered in Version:</b> 28.36.1010</p> <p><b>Fixed in Release:</b> 28.37.1014</p>
3073517	<p><b>Description:</b> 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.</p> <p><b>Keywords:</b> Optical cables, ConnectX-5, NVIDIA Spectrum</p> <p><b>Discovered in Version:</b> 28.33.4030</p> <p><b>Fixed in Release:</b> 28.37.1014</p>

Internal Ref.	Issue
3358994	<p><b>Description:</b> Fixed an issue that prevented the hardware from consuming Port-VL and credits, which consequently blocked traffic from being transmitted due to a race condition between the firmware and the hardware when accessing the chip memory (CR space).</p> <p><b>Keywords:</b> Firmware race, CR space, Port-VL</p> <p><b>Discovered in Version:</b> 28.36.1010</p> <p><b>Fixed in Release:</b> 28.37.1014</p>

---

## 10 Legal Notices and 3rd Party Licenses

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

Product	Version	Legal Notices and 3rd Party Licenses
Firmware	xx.40.10xx	<ul style="list-style-type: none"><li>• <a href="#">HCA Firmware EULA</a></li><li>• <a href="#">3rd Party Notice</a></li></ul>
MLNX_OFED	24.01-0.3.3.1	<ul style="list-style-type: none"><li>• <a href="#">License</a></li><li>• <a href="#">3rd Part Notice</a></li></ul>
MFT FreeBSD	4.27.0	<ul style="list-style-type: none"><li>• <a href="#">3rd Party Notice</a></li><li>• <a href="#">License</a></li></ul>
MFT Linux		<ul style="list-style-type: none"><li>• <a href="#">3rd Party Notice</a></li><li>• <a href="#">License</a></li></ul>
MFT VMware		<ul style="list-style-type: none"><li>• <a href="#">3rd Party Notice</a></li><li>• <a href="#">License</a></li></ul>
MFT Windows		<ul style="list-style-type: none"><li>• <a href="#">3rd Party Notice</a></li><li>• <a href="#">License</a></li></ul>

## Notice

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

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

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

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

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

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

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

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

## Trademarks

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



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

Copyright

© 2024 NVIDIA Corporation & affiliates. All Rights Reserved.

