# NVIDIA BlueField-3 DPU NIC Firmware Release Notes v32.42.1000

# Table of contents

# Release Notes Update History

| Revision | Date | Description |
|---|---|---|
| 32.42.1000 | August 14, 2024 | Initial release of this Release Notes version,<br>This version introduces Changes and New Features and Bug Fixes. |

# 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.

NVIDIA BlueField-3 DPU provides innovative acceleration, security, and efficiency in every host. BlueField-3 data center infrastructure combines the power of the NVIDIA ConnectX®-6 Dx with programmable Arm® cores and hardware offloads for software-defined storage, networking, security, and management workloads.

NVIDIA BlueField-3 also delivers superior performance, security, and reduced TCO for cloud computing platforms, enabling organizations to efficiently build and operate virtualized, containerized, and bare-metal infrastructures at massive scale.

# Firmware Download

Please visit Firmware Downloads.

# Firmware Compatible Products

These are the release notes for the NVIDIA® BlueField-3 SmartNICs firmware. This firmware supports the following protocols:

- InfiniBand - EDR, HDR100, HDR, NDR200[2], NDR[2]
- Ethernet - 1GbE, 10GbE, 25GbE, 50GbE[1], 100GbE[1], 200GbE[2], 400GbE[2]
- PCI Express 4.0, supporting backwards compatibility for v3.0, v2.0 and v1.1

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

[2]. Speed that supports PAM4 mode only.

## Supported Devices

| SKU | **PSID** | **Description** |
|---|---|---|
| 900-9D3B6-00CN-AB0 | MT_0000000883 | NVIDIA BlueField-3 B3240 P-Series Dual-slot FHHL DPU; 400GbE / NDR IB (default mode); Dual-port QSFP112; PCIe Gen5.0 x16 with x16 PCIe extension option; 16 Arm cores; 32GB on-board DDR; integrated BMC; Crypto Enabled |
| 900-9D3B6-00CV-AA0 | MT_0000000884 | NVIDIA BlueField-3 B3220 P-Series FHHL DPU; 200GbE (default mode) / NDR200 IB; Dual-port QSFP112; PCIe Gen5.0 x16 with x16 PCIe extension option; 16 Arm cores; 32GB on-board DDR; integrated BMC; Crypto Enabled |
| 900-9D3B6-00SN-AB0 | MT_0000000964 | NVIDIA BlueField-3 B3240 P-Series Dual-slot FHHL DPU; 400GbE / NDR IB (default mode); Dual-port QSFP112; PCIe Gen5.0 x16 with x16 PCIe extension option; 16 Arm cores; 32GB on-board DDR; integrated BMC; Crypto Disabled |

| SKU | **PSID** | **Description** |
|---|---|---|
| 900-9D3B6-00SV-AA0 | MT_0000000965 | NVIDIA BlueField-3 B3220 P-Series FHHL DPU; 200GbE (default mode) / NDR200 IB; Dual-port QSFP112; PCIe Gen5.0 x16 with x16 PCIe extension option; 16 Arm cores; 32GB on-board DDR; integrated BMC; Crypto Disabled |
| 900-9D3B4-00CC-EA0 | MT_0000000966 | NVIDIA BlueField-3 B3210L E-series FHHL SuperNIC; 100GbE (default mode) / HDR100 IB; Dual port QSFP112; PCIe Gen5.0 x16; 8 Arm cores; 16GB on-board DDR; integrated BMC; Crypto Enabled |
| 900-9D3B4-00SC-EA0 | MT_0000000967 | NVIDIA BlueField-3 B3210L E-series FHHL SuperNIC; 100GbE (default mode) / HDR100 IB; Dual port QSFP112; PCIe Gen5.0 x16; 8 Arm cores; 16GB on-board DDR; integrated BMC; Crypto Disabled |
| 900-9D3B4-00EN-EA0 | MT_0000001010 | NVIDIA BlueField-3 B3140L E-Series FHHL SuperNIC; 400GbE / NDR IB (default mode); Single-port QSFP112; PCIe Gen5.0 x16; 8 Arm cores; 16GB on-board DDR; integrated BMC; Crypto Enabled |
| 900-9D3B4-00PN-EA0 | MT_0000001011 | NVIDIA BlueField-3 B3140L E-Series FHHL SuperNIC; 400GbE / NDR IB (default mode); Single-port QSFP112; PCIe Gen5.0 x16; 8 Arm cores; 16GB on-board DDR; integrated BMC; Crypto Disabled |
| 900-9D3B6-00CC-AA0 | MT_0000001024 | NVIDIA BlueField-3 B3210 P-Series FHHL DPU; 100GbE (default mode) / HDR100 IB; Dual-port QSFP112; PCIe Gen5.0 x16 with x16 PCIe extension option; 16 Arm cores; 32GB on-board DDR; integrated BMC;Crypto Enabled |
| 900-9D3B6-00SC-AA0 | MT_0000001025 | NVIDIA BlueField-3 B3210 P-Series FHHL DPU; 100GbE (default mode) / HDR100 IB; Dual-port QSFP112; PCIe Gen5.0 x16 with x16 PCIe extension option; 16 Arm cores; 32GB on-board DDR; integrated BMC; Crypto Disabled |
| 900-9D3D4-00EN-HA0 | MT_0000001069 | Nvidia BlueField-3 B3140H E-series HHHL SuperNIC; 400GbE (default mode) / NDR IB; Single-port QSFP112; PCIe Gen5.0 x16; 8 Arm cores; 16GB on board DDR; integrated BMC; Crypto Enabled |
| 900-9D3D4 | MT_0000 | Nvidia BlueField-3 B3140H E-series HHHL SuperNIC; 400GbE (default mode) /NDR IB; Single-port QSFP112; PCIe Gen5.0 x16; 8 Arm cores; 16GB on board DDR; integrated BMC; Crypto Disabled |

| SKU | PSID | Description |
|---|---|---|
| -00NN-HA0 | 01070 | |
| 900-9D3C6-00CV-DA0 | MT_0000001075 | NVIDIA BlueField-3 B3220SH E-Series FHHL Storage Controller; 200GbE (default mode) / NDR200 IB; Dual-port QSFP112; PCIe Gen5.0 x16 with x16 PCIe extension option; 16 Arm cores; 48GB on-board DDR; integrated BMC; Crypto Enabled; Secure Boot |
| 900-9D3C6-00CV-GA0 | MT_0000001083 | NVIDIA BlueField-3 B3220SH E-Series No heatsink FHHL Storage Controller; 200GbE (default mode) / NDR200 IB; Dual-port QSFP112; PCIe Gen5.0 x16 with x16 PCIe extension option; 16 Arm cores; 48GB on-board DDR; integrated BMC; Crypto Enabled |
| 900-9D3B4-00CV-EA0 | MT_0000001093 | NVIDIA BlueField-3 B3220L E-Series FHHL SuperNIC; 200GbE (default mode) / NDR200 IB; Dual-port QSFP112; PCIe Gen5.0 x16; 8 Arm cores; 16GB on-board DDR; integrated BMC; Crypto Enabled |
| 900-9D3B4-00SV-EA0 | MT_0000001094 | NVIDIA BlueField-3 B3220L E-Series FHHL SuperNIC; 200GbE (default mode) / NDR200 IB; Dual-port QSFP112; PCIe Gen5.0 x16; 8 Arm cores; 16GB on-board DDR; integrated BMC; Crypto Disabled |
| 900-9D3C6-00SV-GA0 | MT_0000001101 | NVIDIA BlueField-3 B3220SH E-Series No Heatsink FHHL Storage Controller; 200GbE (default mode) / NDR200 IB; Dual-port QSFP112; PCIe Gen5.0 x16 with x16 PCIe extension option; 16 Arm cores; 48GB on-board DDR; integrated BMC; Crypto Disabled |
| 900-9D3C6-00SV-DA0 | MT_0000001102 | NVIDIA BlueField-3 B3220SH E-Series FHHL Storage Controller; 200GbE (default mode) / NDR200 IB; Dual-port QSFP112; PCIe Gen5.0 x16 with x16 PCIe extension option; 16 Arm cores; 48GB on-board DDR; integrated BMC; Crypto Disabled; |
| 900-9D3B6-00CC-EA0 | MT_0000001115 | NVIDIA BlueField-3 B3210E E-Series FHHL DPU; 100GbE (default mode) / HDR100 IB; Dual-port QSFP112; PCIe Gen5.0 x16 with x16 PCIe extension option; 16 Arm cores; 32GB on-board DDR; integrated BMC; Crypto Enabled |
| 900-9D3B6-00SC-EA0 | MT_0000001117 | NVIDIA BlueField-3 B3210E E-Series FHHL DPU; 100GbE (default mode) / HDR100 IB; Dual-port QSFP112; PCIe Gen5.0 x16 with x16 PCIe extension option; 16 Arm cores; 32GB on-board DDR; integrated BMC; Crypto Disabled |

| SKU | PSID | Description |
|---|---|---|
| 900-9D3B6-00CN-PA0 | MT_0000000118 | NVIDIA BlueField-3 B3240 P-Series FHHL DPU for Cold Aisle; 400GbE / NDR IB (default mode); Dual-port QSFP112; PCIe Gen5.0 x16 with x16 PCIe extension option; 16 Arm cores; 32GB on-board DDR; integrated BMC; Crypto Enabled |
| 900-9D3B6-00CV-PA0 | MT_0000000119 6 | NVIDIA BlueField-3 B3220 P-Series FHHL DPU for Cold Aisle; 200GbE (default mode) / NDR200 IB; Dual-port QSFP112; PCIe Gen5.0 x16 with x16 PCIe extension option; 16 Arm cores; 32GB on-board DDR; integrated BMC; Crypto Enabled; Tall Bracket |

# Driver Software, Tools and Switch Firmware

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

| | Supported Version |
|---|---|
| NVIDIA BlueField-3 Firmware | 32.42.1000 / 32.41.1000 / 32.40.1000 |
| BlueField DPU OS Software | 4.8.0 |
| MLNX_OFED / DOCA-HOST | 24.07-0.6.1.0 / 24.04-0.6.6.0 / 24.01-0.3.3.1<br>**Note:** For the list of the supported Operating Systems, please refer to the driver's Release Notes. |
| MLNX_EN (MLNX_OFED based code) | 24.07-0.6.1.0 / 24.04-0.6.6.0 / 24.01-0.3.3.1<br>**Note:** For the list of the supported Operating Systems, please refer to the driver's Release Notes. |
| WinOF-2 | 24.7.50000 / 24.4.50000 / 24.1.50000<br>**Note:** For the list of the supported Operating Systems, please refer to the driver's Release Notes. |
| MFT | 4.29.0-131 / 4.28.0-92 / 4.27.0<br>**Note:** For the list of the supported Operating Systems, please refer to the driver's Release Notes. |
| mstflint | 4.29.0-131 / 4.28.0-92 / 4.27.0<br>**Note:** For the list of the supported Operating Systems, please refer to the driver's Release Notes. |

| | Supported Version |
|---|---|
| FlexBoot | 3.7.500 |
| UEFI | 14.35.15 |
| MLNX-OS | 3.10.5002 onwards |
| Cumulus | 5.4 onwards |
| NVIDIA Quantum-2 Firmware | 31.2012.1024 onwards |
| NVIDIA Quantum Firmware | 27.2012.1010 onwards |
| Congestion Control (default algorithm) | ZTR-RTTCC |

# Changes and New Features

| Feature/Change | Description |
|---|---|
| 32.42.1000 | |
| **Memory Slow Release** | Added a new command interface "Memory slow release" to enable/disable holding memory pages for a defined period of time. Once the timer expires, the firmware will return the pages to the driver. |
| **Server's Resource Size** | Increased the server's resource size for 10k data QP (connections from NVME initiator) attached to the XRQ upon 32MB, 64MB, 128MB, 256MB staging buffer. |
| **Hotplug Power Off for Virtio FS** | Added support for Hotplug Power Off for Virtio FS (hotplug_power_off). |
| **Kernel Lockdown** | Added support for MVTS register via a miscellaneous driver using the access_register PRM command. |
| **Dynamic Queue Modification** | Added support for Virtio devices' dynamic queue modification. A Virtio PF manages the available number of queues (doorbells) that can be allocated to its Virtio VFs. |
| **Managed Hot-Plug** | Added support for remove/plugged-in Memory Device units while the system is active. To insert/remove the device while the system is active, use the Attention Button Control or User OS Commands, press Attention Butten if exists or write SW Command if not exists.<br>**Note:** This capability is not enabled by default, to enable managed hot plug, configure the following setting using mlxconfig and then power-cycle:<br>• setting name: OFF_BOARD_SERIALIZER<br>◦ *cmd: mlxconfig -d <device> set OFF_BOARD_SERIALIZER=1 |

| Feature/Change | Description |
|---|---|
| | ○ *Description: when set, the BlueField-3 enables the serializer that is connected to the SMC bridge board and enables the bitstream. |
| **ResourceDump QP_INFO** | Added QP_INFO segment to resource dump access_register command. |
| **Maximum Number of EQs** | Added a new hca_cap call max_num_eqs_24b to report the number of EQs for VFs, PFs of ECPFs, and SFs.<br>**Note:** It is only writable for SFs. |
| **MSIX** | Firmware allocates the MSIX/VQ resources according to the function number, thus, every VF function will get the same number of MSIX/VQ.<br>For example: In case of a total of 8K MSIX locked ICMC resource, each VF will get 8K MSIX/ (384 vblk VF + 128 vnet VF) = 16 MSIX by symmetric distribution.<br>As of firmware v32.42.100x, X_EMULATION_NUM_VF_MSIX are added to set the Emulation VF device MSIX number in NVCONFIG, such as VIRTIO_VBLK_EMULATION_NUM_VF_MSIX (=8 MSIx for this user case) and VIRTIO_NET_EMULATION_NUM_VF_MSIX (=32 MSIx for this user case). |
| **MSIX Allocation** | The user can now know the exact number of allocated MSIX by the firmware using the new added call actual_msix_number. |
| **Dynamic MSIX Allocation** | Each VF can allocate all VFs' MSIX of the PF as a free pool of the PF. The new modification, increased the maximum VNET/VBLK VF MSIX number from 64 to 256. To see the new value, query the cmd_hca_cap.max_dynamic_vf_msix_table_size.<br>Now each VF will get the number of MSI by the asymmetric distribution according to the new VF MSIX configuration (X_EMULATION_NUM_VF_MSIX).<br>If there are not enough MSIX to be allocated, the actual number of MSIXs will be deduced from the total free number and not from the NVCONFIG value. The actual_msix_number value is shown as LSPCI value. To get the actual_msix_number in the PCI device, query the "Current" column of the mlxconfig, which is the same as the ‘lspci’ shown. |

| Feature/Change | Description |
|---|---|
| **MMO: Cache-Invalidate WQE** | Enabled Cache-Invalidate WQE (OPCODE=”MMO”) with OPC_MOD=”DPU_CACHE_INVALIDATE" by default for DPU GVMI. Additionally, added related capabilities to show if this capability is supported and what is the maximum supported data size to be invalidated (2MB by default.). |
| **Steering SF Traffic to a Specific PF MSI-X** | MSI-X on SF can be received now through the PF's MSI-X vector. |
| **Bug Fixes** | See *Bug Fixes in this Firmware Version* section. |

# Unsupported Functionalities

As of firmware v32.38.1002, DPU NIC mode has been updated. To upgrade to firmware v32.38.1002:

1. Set mlxconfig to move to DPU mode (if not already there).

```
sudo mst start
sudo mlxconfig -d /dev/mst/<device> s INTERNAL_CPU_MODEL=1
INTERNAL_CPU_OFFLOAD_ENGINE=0
```

2. Power-cycle the host.

3. Flash the latest BFB file (v2.2.0).

4. Set mlxconfig.

```
sudo mst start
sudo mlxconfig -d /dev/mst/<device> s INTERNAL_CPU_MODEL=1
INTERNAL_CPU_OFFLOAD_ENGINE=1
```

5. Set EXP_ROM_UEFI_ARM_ENABLE = True (1).

If EXP_ROM_UEFI_ARM_ENABLE = False (0), perform the following on the Arm/SoC side:

```
sudo mst start
sudo mlxconfig -d /dev/mst/<device> s EXP_ROM_UEFI_ARM_ENABLE =1
```

6. Power-cycle the host.

> **Note**
>
> Firmware v32.38.1002 is not backward compatible with older BlueField software releases.

# Bug Fixes in This Version

| Internal Ref. | Issue |
|---|---|
| 3949320 | **Description:** Fixed the partition default value in firmware when MFT builds the bin file. Additionally, in "root certificate" partition, modified the discovery flow in case both of the "root certificate" partition are invalid by erasing them before they are used. |
| | **Keywords:** Partition |
| | **Discovered in Version:** 32.41.1000 |
| | **Fixed in Release:** 32.42.1000 |
| 3985535 | **Description:** Fixed an issue that caused RDE PortMetrics property Transceivers.SupplyVoltage to be reflected in incorrect units of 100uV instead of V. |
| | **Keywords:** RDE |
| | **Discovered in Version:** 32.41.1000 |
| | **Fixed in Release:** 32.42.1000 |
| 3938744 | **Description:** Prevented HCA_CAP from allowing rogue drivers to create more EQs than the number allowed in the HCA_CAP.max_num_eqs. |
| | **Keywords:** HCA_CAP |
| | **Discovered in Version:** 32.41.1000 |
| | **Fixed in Release:** 32.42.1000 |
| 3898979 | **Description:** Fixed the CMIS deactivation process for 2 lanes modules. |
| | **Keywords:** CMIS |
| | **Discovered in Version:** 32.41.1000 |
| | **Fixed in Release:** 32.42.1000 |
| 3885845 | **Description:** Added support for unique boot configuration for Micron SSDs via ALT5 INI. |

| Internal Ref. | Issue |
|---|---|
| | **Keywords:** Micron SSDs, ALT5 INI |
| | **Discovered in Version:** 32.41.1000 |
| | **Fixed in Release:** 32.42.1000 |
| 3937932 | **Description:** Fixed an issue that prevented RTT response from being send thus resulting in a firmware assert with ext_synd=0x8175 in dmesg when starting the DoCA PCC NP application and the queue size is higher than 16. |
| | **Keywords:** PCC NP, pcc_np_config_obj, queue size |
| | **Discovered in Version:** 32.41.1000 |
| | **Fixed in Release:** 32.42.1000 |
| 3949792 | **Description:** Fixed the esw scheduling rate limiter behavior to present more accurate information for virtio_net VFs and irtio_blk VFs. |
| | **Keywords:** Rate limiter |
| | **Discovered in Version:** 32.41.1000 |
| | **Fixed in Release:** 32.42.1000 |
| 3652616 | **Description:** Fixed an issue that prevented CNP or RTT counters from wrapping around properly. |
| | **Keywords:** CNP, RTT, counter |
| | **Discovered in Version:** 32.41.1000 |
| | **Fixed in Release:** 32.42.1000 |
| 3878086 | **Description:** Congestion Control counters such as ECN and CNP will now be the sum of both ports when in LAG mode. |
| | **Keywords:** Congestion Control counters |
| | **Discovered in Version:** 32.41.1000 |
| | **Fixed in Release:** 32.42.1000 |
| 3932734 | **Description:** Fixed an issue that prevented virtio blocked devices from being re-enabled after rebooting the server with a Virtio Block device enabled, because of a firmware internal error 7 which appears in the Host Dmesg. |

| Internal Ref. | Issue |
|---|---|
| | The following error will appear in the SNAP logs "Failed to start pci device: open BLK device for vhca_id 0×2 failed". |
| | **Keywords:** Virtio, Internal error, server reboot |
| | **Discovered in Version:** 32.41.1000 |
| | **Fixed in Release:** 32.42.1000 |
| 3546668 | **Description:** Fixed an issue in systems with 64k page size, where applications opening a substantial amount of RDMA resources such as UARs, QPs, and CQs might encounter errors during the creation of these resources due to limitations in PCI BAR size. |
| | **Keywords:** RDMA |
| | **Discovered in Version:** 32.41.1000 |
| | **Fixed in Release:** 32.42.1000 |
| 3976276 | **Description:** Fixed an issue that prevented the SFF module from accessing the EEPROM data when removing the CMIS module and inserting the SFF module instead of it. |
| | **Keywords:** EEPROM, SFF, CMIS |
| | **Discovered in Version:** 32.41.1000 |
| | **Fixed in Release:** 32.42.1000 |

# Known Issues

| Internal Ref. | Issue |
|---|---|
| 4007228 | **Description:** NC-SI pass-through requires the user to allocate a MAC address to the platform BMC. |
| | **Workaround:** N/A |
| | **Keywords:** NC-SI pass-through |
| | **Discovered in Version:** 32.41.1000 |
| 3787618 | **Description:** NVIA register is not allowed for external host if any field of EXTERNAL_HOST_PRIV or EXTERNAL_HOST_PRIV_FAST TLVs is not set as the default. |
| | **Workaround:** N/A |
| | **Keywords:** Host privilege |
| | **Discovered in Version:** 32.41.1000 |
| 3636631 | **Description:** When configuring BlueField-3 Arm cores as PCIe root-complex, all non-mlx5 devices must always set the BlueField-3's IOMMU to disabled or passthrough mode. Turning IOMMU "ON" requires special handling of interrupts in the driver or the use of polling. For further assistance, contact NVIDIA support . |
| | **Workaround:** N/A |
| | **Keywords:** IOMMU |
| | **Discovered in Version:** 32.39.2048 |
| 3614529 | **Description:** The supported DDR5 link speed in SKU B3220, is 5200 MT/s. |
| | **Workaround:** N/A |
| | **Keywords:** DDR5 link speed |
| | **Discovered in Version:** 32.39.2048 |

| Internal Ref. | Issue |
|---|---|
| 3728450 | **Description:** SW_RESET with a pending image is currently not supported. |
| | **Workaround:** N/A |
| | **Keywords:** SW_RESET |
| | **Discovered in Version:** 32.39.2048 |
| 3614288 | **Description:** Occasionally, the device may hang when there a hot plug is performed from a unknown direction. |
| | **Workaround:** N/A |
| | **Keywords:** Hot-plug operation |
| | **Discovered in Version:** 32.39.2048 |
| 3605828 / 3629606 | **Description:** Some pre-OS environments may fail when sensing a hot-plug operation during their boot stage. |
| | **Workaround:** N/A |
| | **Keywords:** Hot-plug operation |
| | **Discovered in Version:** 32.39.2048 |
| - | **Description:** The $I^2C$ clock fall time is lower than the 12ns minimum defined in the I2C-bus specification.<br>For further information, refer to the $I^2C$-bus Specification, Version 7.0, October 2021, https://www.i2c-bus.org/. |
| | **Workaround:** N/A |
| | **Keywords:** $I^2C$ clock |
| | **Discovered in Version:** 32.39.2048 |
| 3439438 | **Description:** When connecting to a High Speed Traffic Generator in 400G speed, the linkup time may takes up to 3 minutes. |
| | **Workaround:** N/A |
| | **Keywords:** 400G linkup time |
| | **Discovered in Version:** 32.38.1002 |

| Internal Ref. | Issue |
|---|---|
| 3534128 | **Description:** External flash access such as flash read using the MFT tools will fail if there is a pending image on the flash. |
| | **Workaround:** N/A |
| | **Keywords:** Flash access |
| | **Discovered in Version:** 32.38.1002 |
| 3534219 | **Description:** On BlueField-3 devices, from DOCA 2.2.0 to 32.37.1306 (or lower), the host crashes when executing partial Arm reset (e.g., Arm reboot; BFB push; mlxfwreset). |
| | **Workaround:** Before downgrading the firmware, perform:<br>• echo 0 > /sys/bus/platform/drivers/mlxbf-bootctl/large_icm<br>• Arm reboot |
| | **Keywords:** BlueField-3; downgrade |
| | **Discovered in Version:** 32.38.1002 |
| 3547022 | **Description:** When unloading the network drivers on an external host, sync1 reset may be still reported as 'supported' although it is not. Thus, initiating the reset flow may result in reset failure after a few minutes. |
| | **Workaround:** N/A |
| | **Keywords:** Sync1 reset |
| | **Discovered in Version:** 32.38.1002 |
| 3439438 | **Description:** When connecting to a Spirent switch in 400G speed, the linkup time may takes up to 3 minutes. |
| | **Workaround:** N/A |
| | **Keywords:** Spirent, 400G, linkup time |
| | **Discovered in Version:** 32.38.1002 |
| 3178339 | **Description:** PCIe PML1 is disabled. |
| | **Workaround:** N/A |

| Internal Ref. | Issue |
|---|---|
| | **Keywords:** PCIe PML1 |
| | **Discovered in Version:** 32.38.1002 |
| 3525865 | **Description:** Unexpected system behavior might be observed if the driver is loaded while reset is in progress. |
| | **Workaround:** N/A |
| | **Keywords:** Sync 1 reset, firmware reset |
| | **Discovered in Version:** 32.38.1002 |
| 3275394 | **Description:** When performing PCIe link secondary-bus-reset, disable/enable or mlxfwreset on AMD based Genoa systems, the device takes longer then expected to link up, due to a PCIe receiver termination misconfiguration. |
| | **Workaround:** N/A |
| | **Keywords:** PCIe |
| | **Discovered in Version:** 32.37.1306 |
| 2878841 | **Description:** The firmware rollback fails for the signature retransmit flow if the QPN field is configured in the mkey (as it only allows the given QP to use this Mkey) as the firmware rollback flow relies on an internal QP that uses the mkey. |
| | **Workaround:** N/A |
| | **Keywords:** Signature retransmit flow |
| | **Discovered in Version:** 32.37.1306 |
| 3412847 | **Description:** Socket-Direct is currently not supported. |
| | **Workaround:** N/A |
| | **Keywords:** Socket-Direct |
| | **Discovered in Version:** 32.37.1306 |

# PreBoot Drivers (FlexBoot/UEFI)

## FlexBoot Changes and New Features

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

## UEFI Changes and Major New Features

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

# Validated and Supported Cables and Modules

## 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 |

## NDR / 400GbE Cables

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | 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 |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| 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 | 980-9I81B-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 | 980-9I81C-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 | 980-9I76G-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 | 980-9I76H-00N005 | MCA7J75-N005 | NVIDIA Active copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xQSFP112, 5m | Prototype |
| 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 |
| 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- | MCP7Y10-N02A | NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, | P-Rel |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| | | 00N02A | | OSFP to 2xQSFP112,2.5m | |
| 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 | 980-9I73U-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 |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| 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 |
| 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- | MFP7E20-N015 | NVIDIA passive fiber cable, MMF, MPO12 APC to 2xMPO12 APC, 15m | MP |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| | | 00N015 | | | |
| 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 P/N | 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 | 980-9I580-00N030 | MFP7E30-N040 | NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 40m | MP |
| NDR | N/A | 980-9I58H-00N050 | MFP7E30-N050 | NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 50m | MP |
| NDR | N/A | 980-9I581-00N050 | MFP7E30-N060 | NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 60m | MP |
| NDR | N/A | 980-9I582-00N050 | MFP7E30-N070 | NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 70m | MP |
| NDR | N/A | 980-9I58I-00N100 | MFP7E30-N100 | NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 100m | MP |
| NDR | N/A | 980-9I58J-00N150 | MFP7E30-N150 | NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 150m | MP |
| NDR | N/A | 980-9I58K-00N003 | MFP7E40-N003 | NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 3m | MP |
| NDR | N/A | 980-9I58L-00N005 | MFP7E40-N005 | NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 5m | MP |
| NDR | N/A | 980-9I58M- | MFP7E40-N007 | NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 7m | MP |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| | | 00N007 | | | |
| NDR | N/A | 980-9I58N-00N010 | MFP7E40-N010 | NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 10m | MP |
| NDR | N/A | 980-9I56O-00N015 | MFP7E40-N015 | NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 15m | MP |
| NDR | N/A | 980-9I56P-00N020 | MFP7E40-N020 | NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 20m | MP |
| NDR | N/A | 980-9I56Q-00N030 | MFP7E40-N030 | NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 30m | MP |
| NDR | N/A | 980-9I56R-000050 | MFP7E40-N050 | NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 50m | MP |
| 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 |

# HDR / 200GbE Cables

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| HDR | NA | 980-9I45L-00H150 | MFS1S00-H150E | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 150m | EOL [HVM] |
| HDR | NA | 980-9I45O-00H200 | MFS1S00-H200E | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 200m | EOL [EVT] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| NDR | NA | 980-9I068-00NM00 | MMS1X00-NS400 | NVIDIA single port transceiver, 400Gbps, NDR, QSFP112, MPO, 1310nm SMF, up to 500m, flat top | Early BOM |
| HDR | 200GE | 980-9I548-00H001 | MCP1650-H001E30 | Nvidia Passive Copper cable, up to 200Gbps, QSFP56 to QSFP56, 1m | HVM |
| HDR | 200GE | 980-9I549-00H002 | MCP1650-H002E26 | Nvidia Passive Copper cable,up to 200Gbps, QSFP56 to QSFP56, 2m | HVM |
| HDR | 200GE | 980-9I54A-00H00A | MCP1650-H00AE30 | Nvidia Passive Copper cable, up to 200Gbps, QSFP56 to QSFP56, 0.5m | HVM |
| HDR | 200GE | 980-9I54B-00H01A | MCP1650-H01AE30 | Nvidia Passive Copper cable, up to 200Gbps, QSFP56 to QSFP56, 1.5 m | HVM |
| N/A | 200GE | 980-9I54C-00V001 | MCP1650-V001E30 | NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 1m, black pulltab, 30AWG | LTB [HVM] |
| N/A | 200GE | 980-9I54D-00V002 | MCP1650-V002E26 | NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 2m, black pulltab, 26AWG | LTB [HVM] |
| N/A | 200GE | 980-9I54G-00V003 | MCP1650-V003E26 | NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 3m, black pulltab, 26AWG | EOL [HVM] |

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

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| 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] |
| 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 to4x50Gb/s, QSFP56 to 4xSFP56, colored, 2.5m, 26AWG | EOL [P-Rel] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| 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 |
| 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 | 980-9I124-00H003 | MFS1S00-H003E | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 3m | EOL [HVM] |
| 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- | MFS1S00-H010E | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, | EOL [HVM] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| | | 00H010 | | 10m | |
| 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 P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| HDR | 200GE | 980-9I44H-00H100 | MFS1S00-H100V | Nvidia active optical cable, up to 200Gbps, QSFP56 to QSFP56, 100m | MP |
| HDR | N/A | 980-9I44I-00H130 | MFS1S00-H130E | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 130m | EOL [HVM] |
| 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- | MFS1S00-V050E | NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, | LTB [HVM] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| | | 00V050 | | 50m | |
| 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 |
| 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] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| HDR | 200GE | 980-9I96L-00H020 | MFS1S50-H020V | Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 20m | HVM |
| HDR | 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] |
| 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- | MFS1S50-V030E | NVIDIA active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to | EOL [HVM] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| | | 00V030 | | 2xQSFP56, LSZH, black pulltab, 30m | |
| HDR | N/A | 980-9I961-00H010 | MFS1S90-H010E | NVIDIA active fiber splitter cable, IB HDR, 2x200Gb/s to 2x200Gb/s, 2xQSFP56 to 2xQSFP56 , LSZH, 10m | LTB [HVM] |
| HDR | N/A | 980-9I423-00H020 | MFS1S90-H020E | NVIDIA active fiber splitter cable, IB HDR, 2x200Gb/s to 2x200Gb/s, 2xQSFP56 to 2xQSFP56 , LSZH, 20m | LTB [HVM] |
| HDR | N/A | 980-9I424-00H030 | MFS1S90-H030E | NVIDIA active fiber splitter cable, IB HDR, 2x200Gb/s to 2x200Gb/s, 2xQSFP56 to 2xQSFP56 , LSZH, 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 |

# EDR / 100GbE Cables

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| 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 | 980-9I620-00C001 | 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] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| 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] |
| N/A | 100GE | 980-9I620-00C003 | MCP1600-C003E30L | NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 3m, Black, 30AWG, CA-L | HVM |
| N/A | 100GE | 980-9I622-00C003 | MCP1600-C003LZ | NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, 3m, LSZH, 26AWG | EOL [MP] |
| N/A | 100GE | 980-9I625-00C005 | MCP1600-C005E26L | NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 5m, Black, 26AWG, CA-L | HVM |
| N/A | 100GE | 980-9I626-00C00A | MCP1600-C00A | NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 0.5m 30AWG | EOL [HVM] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| N/A | 100GE | 980-9I627-00C00A | MCP1600-C00AE30N | NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 0.5m, Black, 30AWG, CA-N | EOL [HVM] |
| N/A | 100GE | 980-9I629-00C00B | MCP1600-C00BE30N | NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 0.75m, Black, 30AWG, CA-N | EOL [HVM] |
| N/A | 100GE | 980-9I62B-00C01A | MCP1600-C01A | NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 1.5m 30AWG | EOL [HVM] |
| N/A | 100GE | 980-9I62C-00C01A | MCP1600-C01AE30N | NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 1.5m, Black, 30AWG, CA-N | HVM |
| N/A | 100GE | 980-9I62G-00C02A | MCP1600-C02A | NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 2.5m 30AWG | EOL [HVM] |
| N/A | 100GE | 980-9I62H-00C02A | MCP1600-C02AE26N | NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 2.5m, Black, 26AWG, CA-N | EOL [HVM] |
| N/A | 100GE | 980-9I62I-00C02A | MCP1600-C02AE30L | NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28,2.5m, Black, 30AWG, CA-L | HVM |
| N/A | 100GE | 980-9I62M-00C03A | MCP1600-C03A | NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 3.5m 26AWG | EOL [P-Rel] |
| EDR | 100GE | 980-9I62P-00C001 | MCP1600-E001 | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1m 30AWG | EOL [HVM] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| 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- | MCP1600- | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 0.75m, Black, 30AWG | EOL [HVM] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| | | 00E00B | E00BE30 | | [HIBERN/ ATE] |
| EDR | 100GE | 980-9I623-00C01A | MCP1600-E01A | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1.5m 30AWG | EOL [HVM] |
| EDR | N/A | 980-9I624-00E01A | MCP1600-E01AE30 | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 1.5m, Black, 30AWG | HVM |
| EDR | N/A | 980-9I625-00E01C | MCP1600-E01BE30 | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 1.25m, Black, 30AWG | EOL [HVM] [HIBERN/ ATE] |
| EDR | 100GE | 980-9I626-00C02A | MCP1600-E02A | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2.5m 26AWG | EOL [HVM] |
| EDR | N/A | 980-9I627-00E02A | MCP1600-E02AE26 | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 2.5m, Black, 26AWG | HVM |
| N/A | 100GE | 980-9I645-00C001 | MCP7F00-A001R | NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, colored pulltabs, 1m, 30AWG | EOL [HVM] |
| N/A | 100GE | 980-9I486-00C001 | MCP7F00-A001R30N | NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 1m, Colored, 30AWG, CA-N | LTB [HVM] |
| N/A | 100GE | 980-9I48A-00C002 | MCP7F00-A002R | NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, colored pulltabs, 2m, 30AWG | EOL [HVM] |
| N/A | 100GE | 980-9I48B-00C002 | MCP7F00-A002R30N | NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2m, Colored, 30AWG, CA-N | LTB [HVM] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| N/A | 100GE | 980-9I48G-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 | 980-9I48H-00C003 | MCP7F00-A003R30L | NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3m, Colored, 30AWG, CA-L | LTB [HVM] |
| N/A | 100GE | 980-9I48J-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- | MCP7F00- | NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, | EOL [HVM] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| | | 00C03A | A03AR26L | 3.5m, Colored, 26AWG, CA-L | |
| 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] |
| N/A | 100GE | 980-9I99G-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 | 980-9I99J-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 | 980-9I99K-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 | 980-9I99L-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 | 980-9I99O-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 | 980-9I99Q-00C003 | MCP7H00- | NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 3m, Colored, 26AWG, CA-N | EOL [HVM] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| | | | G003R26N | | |
| N/A | 100GE | 980-9I39R-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 | 980-9I99S-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 | 980-9I99W-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 | 980-9I99X-00C01A | MCP7H00-G01AR30N | NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 1.5m, Colored, 30AWG, CA-N | LTB [HVM] |
| N/A | 100GE | 980-9I992-00C02A | 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 | 980-9I994-00C02A | 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 | 980-9I395-00C02A | 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 | 980-9I13S-00C003 | MFA1A00-C003 | NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 3m | HVM |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| N/A | 100GE | 980-9I13X-00C005 | MFA1A00-C005 | NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 5m | HVM |
| N/A | 100GE | 980-9I134-00C010 | MFA1A00-C010 | NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 10m | HVM |
| N/A | 100GE | 980-9I13A-00C015 | MFA1A00-C015 | NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 15m | HVM |
| N/A | 100GE | 980-9I13F-00C020 | MFA1A00-C020 | NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 20m | HVM |
| N/A | 100GE | 980-9I13N-00C030 | MFA1A00-C030 | NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 30m | HVM |
| N/A | 100GE | 980-9I130-00C050 | MFA1A00-C050 | NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 50m | HVM |
| N/A | 100GE | 980-9I13B-00C100 | MFA1A00-C100 | NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 100m | LTB [HVM] |
| EDR | N/A | 980-9I13D-00E001 | MFA1A00-E001 | NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1m | HVM |
| EDR | N/A | 980-9I13F-00E003 | MFA1A00-E003 | NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 3m | HVM |
| EDR | N/A | 980-9I13J-00E005 | MFA1A00-E005 | NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 5m | HVM |
| EDR | N/A | 980-9I13M- | MFA1A00-E007 | NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 7m | LTB [HVM] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| | | 00E007 | | | |
| 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 | 980-9I13S-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] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| 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 |
| N/A | 100GE | 980-9I40N-00C003 | MFA7A50-C003 | NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3m | EOL [HVM] |
| N/A | 100GE | 980-9I40O-00C005 | MFA7A50-C005 | NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 5m | EOL [HVM] |
| N/A | 100GE | 980-9I49P-00C010 | MFA7A50-C010 | NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 10m | EOL [HVM] |
| N/A | 100GE | 980-9I49Q-00C015 | MFA7A50-C015 | NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 15m | EOL [HVM] |
| N/A | 100GE | 980-9I49R-00C020 | MFA7A50-C020 | NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 20m | EOL [HVM] |
| N/A | 100GE | 980-9I49S-00C030 | MFA7A50-C030 | NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 30m | EOL [HVM] |
| N/A | 100GE | 980-9I149-00CS00 | MMA1B00-C100D | NVIDIA transceiver, 100GbE, QSFP28, MPO, 850nm, SR4, up to 100m, DDMI | HVM |
| N/A | 100GE | 980-9I17D-00CS00 | MMA1B00-C100T | NVIDIA® transceiver, 100GbE, QSFP28, MPO, 850nm, up to 100m, OTU4 | Preliminary |
| EDR | N/A | 980-9I17L- | MMA1B00-E100 | NVIDIA transceiver, IB EDR, up to 100Gb/s, QSFP28, MPO, 850nm, SR4, up to 100m | HVM |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| | | 00E000 | | | |
| N/A | 100GE | 980-9I17P-00CR00 | MMA1L10-CR | NVIDIA optical transceiver, 100GbE, 100Gb/s, QSFP28, LC-LC, 1310nm, LR4 up to 10km | HVM |
| N/A | 100GE | 980-9I17Q-00CM00 | MMA1L30-CM | NVIDIA optical module, 100GbE, 100Gb/s, QSFP28, LC-LC, 1310nm, CWDM4, up to 2km | MP |
| 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 | 980-9I53X-00C000 | SPQ-CE-ER-CDFL-M | 40km 100G QSFP28 ER Optical Transceiver | P-Rel |
| N/A | 100GE | 980-9I63F-00CM00 | X65406 | NVIDIA® optical module, 100GbE, 100Gb/s, QSFP28, LC-LC, 1310nm, CWDM4, up to 2km | Preliminary |

# FDR / 56GbE Cables

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | 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- | MC2207128-0A2 | NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 2.5m | EOL [MP] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| | | 00L02A | | | |
| 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 | MC2207310V-003 | NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 3m | EOL [HVM] |
| FDR | 56GE | 980-9I15V-00L005 | MC2207310V-005 | NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 5m | EOL [HVM] |
| FDR | 56GE | 980-9I15W-00L010 | MC2207310V-010 | NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 10m | EOL [HVM] |
| FDR | 56GE | 980-9I15X-00L015 | MC2207310V-015 | NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 15m | EOL [HVM] |
| FDR | 56GE | 980-9I15Y-00L020 | MC2207310V-020 | NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 20m | EOL [HVM] |
| FDR | 56GE | 980-9I15Z-00L025 | MC2207310V-025 | NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 25m | EOL [HVM] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| 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 | 980-9I678-00L00A | 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] |
| FDR | N/A | 980-9I17M-00FS00 | MMA1B00-F030D | NVIDIA transceiver, FDR, QSFP+, MPO, 850nm, SR4, up to 30m, DDMI | LTB [HVM] |

# 25GbE Cables

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| N/A | 10GE | 980-9I71G-00J000 | MAM1Q00A-QSA | NVIDIA cable module, ETH 10GbE, 40Gb/s to 10Gb/s, QSFP to SFP+ | HVM |
| N/A | 10GE | 980-9I65P-00J005 | MC2309124-005 | NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 5m | EOL [P-Rel] |
| N/A | 10GE | 980-9I65Q-00J007 | MC2309124-007 | NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 7m | EOL [P-Rel] |
| N/A | 10GE | 980-9I65R-00J001 | MC2309130-001 | NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 1m | EOL [HVM] |
| N/A | 10GE | 980-9I65S-00J002 | MC2309130-002 | NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 2m | EOL [HVM] |
| N/A | 10GE | 980-9I65T-00J003 | MC2309130-003 | NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 3m | EOL [HVM] |
| 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- | MC3309124- | NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 7m | EOL [HVM] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| | | 00J007 | 007 | | |
| 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] |
| 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] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| 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 | 930-9O000-0000-343 | MFM1T02A-LR | NVIDIA SFP+ optical module for 10GBASE-LR | HVM |
| N/A | 10GE | MFM1T02A-LR-F | MFM1T02A-LR-F | NVIDIA optical module, ETH 10GbE, 10Gb/s, SFP+, LC-LC, 1310nm, LR up to 10km | HVM |
| N/A | 10GE | 930-9O000-0000-409 | MFM1T02A-SR | NVIDIA SFP+ optical module for 10GBASE-SR | HVM |
| N/A | 10GE | MFM1T02A-SR-F | MFM1T02A-SR-F | NVIDIA optical module, ETH 10GbE, 10Gb/s, SFP+, LC-LC, 850nm, SR up to 300m | HVM |
| N/A | 10GE | MFM1T02A-SR-P | MFM1T02A-SR-P | NVIDIA optical module, ETH 10GbE, 10Gb/s, SFP+, LC-LC, 850nm, SR up to 300m | HVM |

# 10GbE Cables

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| N/A | 10GE | 980-9I71G-00J000 | MAM1Q00A-QSA | NVIDIA cable module, ETH 10GbE, 40Gb/s to 10Gb/s, QSFP to SFP+ | HVM |
| N/A | 10GE | 980-9I65P-00J005 | MC2309124-005 | NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 5m | EOL [P-Rel] |
| N/A | 10GE | 980-9I65Q-00J007 | MC2309124-007 | NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 7m | EOL [P-Rel] |
| N/A | 10GE | 980-9I65R-00J001 | MC2309130-001 | NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 1m | EOL [HVM] |
| N/A | 10GE | 980-9I65S-00J002 | MC2309130-002 | NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 2m | EOL [HVM] |
| N/A | 10GE | 980-9I65T-00J003 | MC2309130-003 | NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 3m | EOL [HVM] |
| 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- | MC3309124- | NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 7m | EOL [HVM] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| | | 00J007 | 007 | | |
| 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 | 980-9I68B-00J002 | MCP2100-X002B | NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m, Blue Pulltab, Connector Label | EOL [HVM] [HIBERN/ATE] |
| N/A | 10GE | 980-9I68C-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] |

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | Description | LifeCycle Phase |
|---|---|---|---|---|---|
| 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 | 930-9O000-0000-343 | MFM1T02A-LR | NVIDIA SFP+ optical module for 10GBASE-LR | HVM |
| N/A | 10GE | 930-9O000-0000-409 | MFM1T02A-SR | NVIDIA SFP+ optical module for 10GBASE-SR | HVM |

## 1GbE Cables

| IB Data Rate | Eth Data Rate | NVIDIA P/N | Legacy P/N | 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 |

## Supported 3rd Party Cables and Modules

| Speed | Cable OPN | Description |
|---|---|---|
| 800 GbE | RTXM600-710 | 800G OSFP to 2x400G QSFP112 AOC (OSFP rev 113.5.0, QSFP rev 6.0.0) |
| 800 GbE | DME8821-EC30 | OSFP to 2×QSFP112 AOC 800Gb/s to 2×400Gb/s Active Optical Cable (OSFP rev 0.1.0, QSFP rev 32.1.0) |
| 800 GbE | C-OSG8CNSxxx-N00 | 800G OSFP DR8 to 2x400G QSFP112 DR4 AOC |
| 400 GbE | FCBN950QE1C05 | 400G-2x200G split 5M AOC cables (400G QSFP-DD breaking out to 2x 200G QSFP56) (Rev A0) |
| 400 GbE | RTXM600-610 | 400G QSFP-DDtoQSFP112AOC (Rev 01) |
| 400 GbE | C-GD4CNS010-N00 | InnoLight 400G QSFP112 to 400G QSFP-DD active optical cable with full real-time digital diagnostic monitoring (Rev 1A) |
| 400 GbE | DME8811-EC07 | 400G-2x200G split 7M AOC cables (400G QSFP-DD breaking out to 2x 200G QSFP56) (Rev 12) |
| 400 GbE | RTXM500-910 | 400G-2x200G split 10M AOC cables (400G QSFP-DD breaking out to 2x 200G QSFP56) (Rev 10) |
| 200 GbE | RTXM500-301-F1 | 200G QSFP56 SR4 100m Optical Transceiver |
| 200 GbE | RTXM500-905 | 400G-2x200G split 5M AOC cables (400G QSFP-DD breaking out to 2x 200G QSFP56) (Rev C0) |
| 100 GbE | 1AT-3Q4M01XX-12A | O-NET QSFP28 100G Active cable/module |
| 100 GbE | AQPMANQ4EDMA0784 | QSFP28 100G SMF 500m Transceiver |
| 100 GbE | CAB-Q-Q-100G-3M | Passive 3 meter, QSFP+ to QSFP+ QSFP100 TWINAX 103.125Gbps-CR4 |
| 100 GbE | CAB-Q-Q-100GbE-3M | Passive 3 meter , QSFP+ to QSFP+ QSFP100 TWINAX 103.125Gbps-CR4 |

| Speed | Cable OPN | Description |
|---|---|---|
| 100 GbE | FCBN425QE1C30-C1 | 100GbE Quadwire® QSFP28 Active Optical Cable 30M |
| 100 GbE | FTLC1151RDPL | TRANSCIEVER 100GBE QSFP LR4 |
| 100 GbE | FTLC9152RGPL | 100G 100M QSFP28 SWDM4 OPT TRANS |
| 100 GbE | FTLC9555REPM3-E6 | 100m Parallel MMF 100GQSFP28Optical Transceiver |
| 100 GbE | NDAAFJ-C102 | SF-NDAAFJ100G-005M |
| 100 GbE | QSFP-100G-AOC30M | 30m (98ft) Cisco QSFP-100G-AOC30M Compatible 100G QSFP28 Active Optical Cable |
| 100 GbE | QSFP28-LR4-AJ | CISCO-PRE 100GbE LR4 QSFP28 Transceiver Module |
| 100 GbE | QSFP-40/100-SRBD | CISCO-PRE 100G AOM BiDi |
| 100 GbE | 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 |

# Release Notes History

## Changes and New Feature History

| Feature/Change | Description |
|---|---|
| 32.41.1000 | |
| **SuperNIC Mode** | SuperNIC mode is now the default mode for the following SKUs:<br>• 900-9D3B4-00CC-EA0<br>• 900-9D3B4-00SC-EA0<br>• 900-9D3B4-00CV-EA0<br>• 900-9D3B4-00SV-EA0<br>• 900-9D3B4-00EN-EA0<br>• 900-9D3B4-00PN-EA0<br>• 900-9D3D4-00EN-HA0<br>• 900-9D3D4-00NN-HA0 |
| **virtio-net Emulation Device** | Added support for VIRTIO_NET_F_HASH_REPORT(57) bit for the virtio-net emulation device. |
| | Added support for VIRTIO_NET_F_SPEED_DUPLEX(63) bit for the virtio-net emulation device. |
| **virtio Full Emulation** | Added support for virtio full emulation scale up to 2k devices. |
| **ODP Event** | Added support for the following prefetch fields on ODP event: pre_demand_fault_pages, post_demand_fault_pages. |
| **TRNG FIPS Compliance** | Implemented Deterministic Random Bit Generator (DRBG) algorithm on top of firmware TRNG (the source for raw data input) in accordance with NIST SP800-90A. |
| **PSP** | Added support for PSP in Hardware Steering. |
| **NVConfig** | Added a new NVConfig option to copy AR bit from the BTH header to the DHCP header. |

| Feature/Change | Description |
|---|---|
| **Generic Emulation** | Generic Emulation enables the programmers to define their own custom PCI devices to be exposed to the host using the new hot-plug/unplug function flow. The API enables the programmer to control the device BARs layout, software defined BAR registers and hardware offloading mechanisms (MSI-X, DBs). |
| **Steering** | Added the option provide field's offset and length in Steering add_action option. |
| **Steering Match** | Added support for steering match on packet l4_type through FTG/FTE. |
| **RSHIM PF** | RSHIM PF functionalities are now dynamically locked/unlocked during runtime by Platform BMC via the NC-SI commands. |
| **BAR Pages** | Added support for 64KB pages.<br>**Note:** Configuring BAR_PAGE_ALIGNMENT to ALIGN_64KB(2) while one of the following is configured will cause the device to ignore the BAR_PAGE_ALIGNMENT configuration:<br>• PF_NUM_PF_MSIX>256 on any of the Physical Functions<br>• VIRTIO_EMULATION_HOTPLUG_TRANS/VIRTIO_NET_EMULATION_PF_PCI_LAYOUT/ VIRTIO_NET_EMULATION_VF_PCI_LAYOUT/ VIRTIO_BLK_EMULATION_PF_PCI_LAYOUT/ VIRTIO_BLK_EMULATION_PF_PCI_LAYOUT=VIRTIO_TRANSITIONAL(1) |
| **ATF/UEFI Version Query** | Added the ability to query ATF/UEFI version via the MISOC register. |
| **Programmable Congestion Control** | Added support for PCC NP for RTT according to the IFA2.0 standards. |
| **Flex Parser Merge Mechanism** | Extended Flex Parser merge mechanism to support hardware capabilities. |
| **Flex Parser** | Enabled the option to disable the native parser when the parse graph node is configured with the same conditions. |
| **Flex Parser** | Added support for father/son headers parsing. |

| Feature/Change | Description |
|---|---|
| **LRO** | Added support for tunnel_offload in LRO. |
| **Bug Fixes** | See *Bug Fixes in this Firmware Version* section. |

| Feature/Change | Description |
|---|---|
| 32.40.1000 | |
| **Socket Direct Single netdev Mapped to Two PCIe Devices** | Enabled Single Netdev mapping to two PCIe devices (Socket Direct).<br>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.<br>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.<br>Currently, this capability is limited to PFs only, and up to two devices (sockets). To enable the feature, one must configure the same Socket Direct group (non zero) for both PFs through mlxconfig SD_GROUP. |
| **ACL** | Added support for egress ACL to the uplink by adding a new bit to the Set Flow Table Entry: allow_fdb_uplink_hairpin. |
| **Port Rate Limiting** | Added a new access register (PBWS) to set the port maximum bandwidth to a value between 95% to 100%. |
| **mlxconfig** | Added a new NVConfig parameter to force Congestion Control algorithm to be SW-DCQCN. |
| **Bug Fixes** | See *Bug Fixes in this Firmware Version* section. |

| Feature/Change | Description |
|---|---|
| 32.39.2048 | |
| **FEC Configuration** | Changed the default FEC configuration for the "Protocol Aware" and "Active DME Modules" (ETH cables).<br>For the list of cable identifiers, see tables below. |

| Feature/Change | Description |
|---|---|
| **NC-SI Channels** | Added support for two passthrough channels on dual-port adapter cards. |
| **Expansion ROM** | Added a caching mechanism to improved expansion ROM performance and to avoid any slow boot occurrences when loading the expansion ROM driver. |
| **Live Migration Support for Image Size above 4GB** | Added support for image size above 4GB when performing a live migration by splitting the image to chunks. |
| **Crypto Algorithms** | Extended the role-based authentication to cover all crypto algorithms. Now the TLS. IPsec. MACsec. GCM, mem2mem, and NISP work when nv_crypto_conf.crypto_policy = CRYPTO_POLICY_FIPS_LEVEL_2, meaning all cryptographic engines can also work in wrapped mode and not only in plaintext mode. |
| **DSCP (priority) of ACK Packets** | Added the ability to configure the DSCP (priority) of ACK packets using the ROCE_ACCL access register. |
| **Performance Improvements** | Added support for large MTU for force loopback QPs to improve performance (using the aes_xts_tweak_inc_64 parameter). This capability is enabled by mlxconfig LARGE_MTU_TWEAK_64 parameter. |
| **DDR Poison: DDR Uncorrectable Error** | When there is DDR poison (uncorrectable ECC error), firmware reports the health syndrome ICM_FETCH_PCI_DATA_POISONED_ERR (0x14), and triggers the FLR on the the function causing this error. Due to this error, the DDR data is mostly corrupted therefore, the firmware blocks other operations on this function. |
| **Live Firmware Patch** | Added support for Live Firmware Patch. |
| **Reserved mkey** | Added new support for reserved mkey index range. When enabled, a range of mkey indexes is reserved for mkey by name use. |
| **Admin Queue** | Added support for admin queue in virtio device object. |
| **Enhanced NIC Mode: GGA Modules** | Enabled GGA modules for all working modes (except for RXP) when using Enhanced NIC Mode. |

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

| **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 | **NO FEC** | RS FEC | |
| 0x21 | 100G BIDI PAM4 | No | **NO FEC** | RS FEC | SFBR-89BDDZ-CS4 |
| 0x25 | 100GBASE-DR | No | **NO FEC** | RS FEC | MMS1V70-CM |
| 0x26 | 100GBASE-FR | No | **NO FEC** | RS FEC | QSFP28-FR-C |
| 0x27 | 100GBASE-LR | No | **NO FEC** | RS FEC | SPTSBP4LLCDF |

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 |
|---|---|---|---|---|---|
| 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 | **NO FEC** | RS FEC | MMA1L10-CR |
| 0x3 | 25GBASE-LR | Yes | **RS FEC** | FC FEC | MMA2L20-AR |
| 0x4 | 100GBASE-ER4 | Yes | **NO FEC** | RS FEC | SPQCEERCDF LM Source Photonics |
| 0x5 | 100GBASE-SR10 | Yes | **NO FEC** | RS FEC | |

| Byte 192 of Page 0 for sff cables | Name | **Auto Detect FEC** | **Current Default FEC** | **Previous Default FEC** | P/N - Example of one module |
|---|---|---|---|---|---|
| 0x6 | 100G CWDM4 MSA with FEC | Yes | RS FEC | RS FEC | MMA1L30-CM |
| 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 | **NO FEC** | RS FEC | LQ210CR-CPA2 |
| 0x17 | 100G CLR4 | Yes | RS FEC | RS FEC | |
| 0x18 | 100G AOC | Yes | **NO FEC** | RS FEC | MFA1A00-C010 |
| 0x19 | 100G ACC | Yes | **NO FEC** | 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 | |

Active DME Modules ETH Cables

### ⚠ Warning

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

| Feature/Change | Description |
|---|---|
| 32.38.3056 | |
| **DPA Signing** | Added support for customer-signed DPA application authentication. |
| **Bug Fixes** | See *Bug Fixes in this Firmware Version* section. |

| Feature/Change | Description |
|---|---|
| 32.38.1002 | |
| **DOCA Programmable Congestion Control** | This new capability enables the user to control the programmability of congestion control based on DOCA including APIs, libraries, reference applications and advanced features such as high availability. |
| **Header Modification** | Added support to the metadata reg_c 8-11 (packet fields) for matching and modifying the header, and Advanced Steering Operation (ASO) actions. |
| **Precision Time Protocol (PTP)** | Added support for PTP on 200G port link speed. PTP uses an algorithm and method for synchronizing clocks on various devices across packet-based networks to provide sub-microsecond accuracy. NVIDIA Spectrum supports PTP in both one-step and two-step modes and can serve either as a boundary or a transparent clock. |
| **INT Packets** | Added support for forwarding INT packets to the user application for monitoring purposes by matching the BTH acknowledge request bit (bth_a). |
| **Crypto Support (GCM algorithm)** | Added crypto support (GCM algorithm) via the Memory-to-Memory offload (MMO) engine. |
| **NC-SI, Strap Values** | Implemented NVIDIA NC-SI OEM command query_strap_options (command 0x0, parameter 0x34). |
| **mlxconfig** | Implemented the following mlxconfig parameters related to the sideband interface enable/disable method: |

| Feature/Change | Description |
|---|---|
| | • PCIE_IN_BAND_VDM_DISABLE: When TRUE, the management processor will disable PCIe in-band VDM (MCTP over PCIe) interface.<br>• PCIE_SMBUS_DISABLE: When TRUE, the management processor will disable SMBUS (embedded on the PCIe connector) interface.<br>• RBT_DISABLE: When TRUE, the management processor will disable RBT interface.<br>• PLDM_FW_UPDATE_DISABLE: When TRUE, PLDM FW update over PCIe and SMBUS are disabled.<br>• HM_RDE_DISABLE: When TRUE, RDE over PCIe and SMBUS are disabled. |
| **AES-XTS** | Added the ability to increase the tweak for every block by (1<<64) instead of by 1 in AES-XTS. |
| **DPA PROCESS ERROR** | Added support for a new value for coredump_type field in DPA_PROCESS_COREDUMP, [FIRST_ERROR_THREAD_DUMP (1).]. |
| **Bug Fixes** | See *Bug Fixes in this Firmware Version* section. |

| Feature/Change | Description |
|---|---|
| 32.37.3012 | |
| **General** | This is the initial firmware release of NVIDIA BlueField-3 SmartNICs. |
| **Return DPU to 'out of factory' State** | Enables the user to return DPU to 'out of factory' state. This capability provides an option to 're-use' the DPUs to allow easy switch of tenants in bare-metal by clearing all the DPU data, and then re-provision it. |
| **1k Emulated virtio-blk Devices** | The virtio-blk device presents a block device to the Virtual Machine and offers high performance due to a thin software stack.<br>This version supports 1k emulated virtio-blk devices.<br>A typical configuration for this capability is:<br>• 4 virtio-blk PFs and 253 virtio-blk VFs on each PF<br>or |

| Feature/Change | Description |
|---|---|
| | • 8 virtio-blk PFs and 126 virtio-blk VFs on each PF |
| **Geneve** | GENEVE hardware offload enables the traditional offloads to be performed on the encapsulated traffic. The data center operators can decouple the overlay network layer from the physical NIC performance, thus achieving native performance in the new network architecture. |
| **Monitoring Cloud Guest RoCE Statistics on Cloud Provider** | This new capability enables the VM to track and limit its Vport's activity. This is done using the new q_counters counter which enables aggregation of other Vport's from PF GVMI. |
| **Linux Bridge Offload** | Added a flow rule that enables offloading of multicast traffic by broadcasting it to multi-Flow-Table in FDB. |
| **Selective Repeat** | Selective repeat improves network utilization in case of a lossy fabric. This features is enabled by default. |
| **Provisioning Flow** | Provisioning flow enables the user to "clean" flash data, and reprogram the flash and and the NIC. |
| **Dynamic VF MSIX Allocation** | Added support for dynamic MSIX modification on a VF NVME device emulation.<br>If a PF NVME device emulation is created with dynamic_vf_msix_control = 1, then the dynamic_vf_msix_reset can set the PF device emulation's VF MSIX number to 0. The num_msix is used in the modified VF device emulation to modify the MSIX number of the VF device emulation. |
| **InfiniBand Congestion Control (IB CC)** | Enabled IB CC per Service Level (SL) for RC/UC on the HCA side.<br>Now different SLs can be configured to be CC on/off according to the bitmask decided by the software. |
| **Hardware Steering: Bulk Allocation** | Added support for 32 actions in the header modify pattern using bulk allocation. |
| **InfiniBand Congestion Control - RTT Response Service Level** | The software can explicitly set the SL of an RTT response packet, instead of it being taken from the RTT request packet's SL. |

| Feature/Change | Description |
|---|---|
| | The RTT response packet SL may be set/queried via the CONGESTION_CONTROL_HCA_NP_PARAMETER MAD. |
| **PCC Algorithms** | Enables a smooth and statically switch between PCC algorithms. In addition, the user can now switch between PCC algorithms while running traffic. |
| **IPSEC Side Acceleration with DPDK** | **[Beta]** Added support for crypto (GCM) via the MMO engine. |
| **AES-XTS** | Added the ability to increase the tweak for every AES-XTS block by (1<<64) instead of by 1. |

# Bug Fixes History

| Internal Ref. | Issue |
|---|---|
| 3675068 | **Description:** Added the TX_SCHEDULER_FWS_REACTIVITY nvconfig flag to solved an mlnx_qos ETS settings issue. |
| | **Keywords:** nvconfig, ETS |
| | **Discovered in Version:** 32.39.2048 |
| | **Fixed in Release:** 32.41.1000 |
| 3787123 | **Description:** Improved ZTR_RTTCC algorithm fairness when running with 4K MTU. |
| | **Keywords:** PCC |
| | **Discovered in Version:** 32.39.2048 |
| | **Fixed in Release:** 32.41.1000 |
| 3729783 | **Description:** Fixed an issue where Congestion Control could malfunction due to an invalid database. |
| | **Keywords:** Congestion Control |
| | **Discovered in Version:** 32.39.2048 |

| Internal Ref. | Issue |
|---|---|
| | **Fixed in Release:** 32.41.1000 |
| 3809139 | **Description:** Enabled NC-SI NVIDIA OEM command Get PF MAC Address accessed inexistent PF MAC when "Hide second port". |
| | **Keywords:** NC-SI |
| | **Discovered in Version:** 32.39.2048 |
| | **Fixed in Release:** 32.41.1000 |

| Internal Ref. | Issue |
|---|---|
| 3712016 | **Description:** Fixed an issue that prevented Congestion Control from behaving properly when GRH is used in traffic of an IB cluster. |
| | **Keywords:** IB Congestion Control, CNP, SL |
| | **Discovered in Version:** 32.39.2048 |
| | **Fixed in Release:** 32.40.1000 |
| 3708035 | **Description:** Fixed an issue with Selective-Repeat configuration which occasionally caused retransmission to wait for timeout instead of out-of-sequence NACK. |
| | **Keywords:** RoCE, SR |
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.40.1000 |
| 3695219 | **Description:** Enabled the lowest minimum rate for SW DCQCN to enable congestion control to hold a larger amount of QPs without pauses or drops. |
| | **Keywords:** Congestion control, PCC, DCQCN |
| | **Discovered in Version:** 32.38.3056 |
| | **Fixed in Release:** 32.40.1000 |
| 3481864 | **Description:** Fixed an issue that resulted in console getting stuck and kernel call trace when trying to destroy native VFs or unload the MLNX_OFED driver when setting the mlxconfig configuration of 192 native VFs + 416 VBLK VFs + 416 VNET VFs. |

| Internal Ref. | Issue |
|---|---|
| | **Keywords:** Call trace, host, NIC mode, DPU mode |
| | **Discovered in Version:** 32.38.3056 |
| | **Fixed in Release:** 32.40.1000 |
| 3659549 | **Description:** Fixed an issue that resulted in packets loss in 3rd party NVMF target when using migreq==0 over ethernet. Such error is now ignored, and the systems stays with the current (MIGRATED) PA state. |
| | **Keywords:** NVMe-oF Connectivity |
| | **Discovered in Version:** 32.38.3056 |
| | **Fixed in Release:** 32.40.1000 |
| 3469692 | **Description:** Added support for 16M IPsec sessions. |
| | **Keywords:** IPsec |
| | **Discovered in Version:** 32.38.3056 |
| | **Fixed in Release:** 32.40.1000 |
| 3671356 | **Description:** Added new parameters for PLDM temperature thresholds to the B3140H DPU cards:<br>• Warning - 97 C<br>• Critical - 102 C<br>• Hysteresis - 5 C |
| | **Keywords:** PLDM, temperature |
| | **Discovered in Version:** 32.38.3056 |
| | **Fixed in Release:** 32.40.1000 |
| 3686150 | **Description:** Fixed an issue in the RTT template that resulted in letters at the end of the filename being dropped from its description as they were not aligned when querying for the description using the PPCC command. |
| | **Keywords:** PPCC, DOCA PCC |
| | **Discovered in Version:** 32.38.3056 |
| | **Fixed in Release:** 32.40.1000 |

| Internal Ref. | Issue |
|---|---|
| 3614288 | **Description:** Fixed an issue on special systems with separate power supply that caused the host to hang and RDMA to fail in virtio-net-controller when performing the following steps:<br>1. hotplug 31 vnet device<br>2. host power off<br>3. unplug 31 vnet device<br>4. hotplug 31 vnet device<br>5. host power on |
| | **Keywords:** hotplug, RDMA, virtio-net-controller |
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.39.2048 |
| 3661385 | **Description:** BlueField Arm cores that serve as PCIe Root-Port of PCIe End-Point devices (eg NVMe SSDs) connected to BlueField's PCIe interfaces may receive MSI-X (used by a device to indicate an event) prior to PCIe CQE writes, resulting in a driver interrupt handler trying to retrieve data in an inconsistent state. |
| | **Keywords:** MSI-X, NVMe |
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.39.2048 |
| 3629353 | **Description:** Fixed the cr_space in port configuration to prevent wrong timestamp of cqes. |
| | **Keywords:** Hardware timestamp |
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.39.2048 |
| 3627384 | **Description:** Fixed an issue that prevented the PCC flow context database from being cleared when starting a new DOCA PCC application used to avoid the "left state by legacy" active application from impacting the new application's behavior. |
| | **Keywords:** PCC flow |

| Internal Ref. | Issue |
|---|---|
| | **Discovered in Version:** 32.38.3056 |
| | **Fixed in Release:** 32.39.2048 |
| 3630586 | **Description:** Updated the HW ETS (QETCR RL) default to be per host-port instead of per physical-port to prevent bandwidth degradation. |
| | **Keywords:** Performance |
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.39.2048 |
| 3636595 | **Description:** Fixed an issue that caused the TX to hang and create a "TX timeout" error in dmesg after unplugging the device forcefully during server warm reboot. |
| | **Keywords:** hotplug, virtio, NVMe, warm reboot, TX timeout |
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.39.2048 |
| 3653763 | **Description:** Fixed the issue that caused the server not to boot up (after power cycle) when there are 31 hotplug devices on a customized server with BlueField-3 DPU with an independent power supply. |
| | **Keywords:** Power cycle, hotplug device, server |
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.39.2048 |
| 3547022 | **Description:** Fixed an issue that resulted in reset failure when unloading network drivers on an external host and the sync1 reset is still reported as 'supported' although it is not. |
| | **Keywords:** sync1 reset |
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.39.2048 |
| 3546787 | **Description:** Extended the number of elastic buffer lock attempts, to prevent rare cases of Tx issues during Gen1. |
| | **Keywords:** PCIe |

| Internal Ref. | Issue |
|---|---|
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.39.2048 |
| 3591726 | **Description:** Fixed an issue when in LAG mode that resulted in RoCE traffic having less throughput when Congestion Control (CC) mode is enabled than when CC mode is disabled. |
| | **Keywords:** Congestion Control, LAG, bond, Bandwidth, RoCE |
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.39.2048 |
| 3482251 | **Description:** Added support for hairpin drop counter in QUERY_VNIC_ENV command. |
| | **Keywords:** Hairpin |
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.39.2048 |
| 3571251 | **Description:** Fixed an issue that resulted in migration data corruption when running parallel save_vhca_state/load_vhca_state commands on the same PF. |
| | **Keywords:** VF live migration |
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.39.2048 |
| 3602176 | **Description:** Updated OOB counter behavior. |
| | **Keywords:** OOB |
| | **Discovered in Version:** 32.37.1306 |
| | **Fixed in Release:** 32.39.2048 |
| 3140048 | **Description:** The DPC mechanism is currently not supported. |
| | **Keywords:** DPC, PCIe |
| | **Discovered in Version:** 32.37.1306 |
| | **Fixed in Release:** 32.39.2048 |

| Internal Ref. | Issue |
|---|---|
| 3629562 | **Description:** Fixed a code mismatch in the process of handling the cause to the link being down when the remote faults were received. |
| | **Keywords:** Link down |
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.38.3056 |
| 3602526 | **Description:** Fixed an issue that led to packet drops on lossless fabric due to an Rx buffer overflow. |
| | **Keywords:** PFC |
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.38.3056 |
| 3614448 | **Description:** Fixed an issue that resulted in RoCE traffic showing significantly less throughput when the CC mode was enabled rather than disabled when using the LAG mode. |
| | **Keywords:** Bandwidth, LAG, CC |
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.38.3056 |
| 3535284 | **Description:** Fixed an issue related to sending loopback traffic when the Rate Limiter was enabled as it limited the user from having more than the wire speed. |
| | **Keywords:** Rate Limiter |
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.38.3056 |
| 3556822 | **Description:** Modified the CC events arriving flow to the PCC application to be received after the PCC application finishes information synchronization with the firmware when loading a new application. |
| | **Keywords:** DOCA PCC, Programmable Congestion Control, high availability |
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.38.3056 |

| Internal Ref. | Issue |
|---|---|
| 3605649 | **Description:** Fixed an issue related to SXP port VL rate limiter that resulted in bandwidth degradation. Additionally, cleared the token in SXD VL rate limiter, so when setting new rate during traffic the token will not get negative and stuck all outgoing bandwidth. |
| | **Keywords:** Rate Limiter, VL, bandwidth |
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.38.3056 |
| 3583456 | **Description:** Fixed an issue that caused the PCC DPA application to suffer from continuous communication failure due to retry asynchronous error. This issue resulted in PCC DPA application failure to start or mlxreg set/get PCC register failure. |
| | **Keywords:** DOCA PCC |
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.38.3056 |
| 3580406 | **Description:** Fixed an issue related to VFs performance throughput across multiple VF FLRs while using carveout pages. |
| | **Keywords:** Performance |
| | **Discovered in Version:** 32.38.1002 |
| | **Fixed in Release:** 32.38.3056 |

| Internal Ref. | Issue |
|---|---|
| 3506017 | **Description:** Updated the firmware INI to enable MCTP over SMBUS and PCIe. |
| | **Keywords:** MCTP |
| | **Discovered in Version:** 32.37.1306 |
| | **Fixed in Release:** 32.38.1002 |
| 3331179 | **Description:** Improved token calculation. |
| | **Keywords:** Token calculation |

| Internal Ref. | Issue |
|---|---|
| | **Discovered in Version:** 32.37.1306 |
| | **Fixed in Release:** 32.38.1002 |
| 3495889 | **Description:** Fixed a QoS host port rate limit shaper inaccuracy that occurred when the shaper was configured via the QSHR access register. |
| | **Keywords:** Port rate limit shaper |
| | **Discovered in Version:** 32.37.1306 |
| | **Fixed in Release:** 32.38.1002 |
| 3432080 | **Description:** Fixed a reburst issue. |
| | **Keywords:** Rate limit |
| | **Discovered in Version:** 32.37.1306 |
| | **Fixed in Release:** 32.38.1002 |
| 3432080 | **Description:** Improved the grated2hw token calculation. |
| | **Keywords:** Rate limit (vQoS) |
| | **Discovered in Version:** 32.37.1306 |
| | **Fixed in Release:** 32.38.1002 |
| 3457472 | **Description:** Disabling the Relaxed Ordered (RO) capability (relaxed_ordering_read_pci_enabled=0) using the vhca_resource_manager is currently not functional. |
| | **Keywords:** Relaxed Ordered |
| | **Discovered in Version:** 32.37.1306 |
| | **Fixed in Release:** 32.38.1002 |

# 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.42.1000 | • HCA Firmware EULA<br>• 3rd Party Unify Notice<br>• License |
| MLNX_OFED | 24.07-0.6.1.0 | • License<br>• 3rd Part Notice |
| MFT FreeBSD | 4.29.0-131 | • 3rd Party Notice<br>• License |
| MFT Linux | | • 3rd Party Notice<br>• License |
| MFT VMware | | • 3rd Party Notice<br>• License |
| MFT Windows | | • 3rd Party Notice<br>• License |