



# **NVIDIA BlueField-3 DPU Firmware Release Notes v32.38.3056**

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## **Note**

You can download a PDF version of the release notes [here](#).

## Release Notes Update History

Revision	Date	Description
32.38.3056	November 20, 2023	Added a new Known Issue (3627384), see <a href="#">Known Issues</a> .
32.38.3056	October 23, 2023	Initial release of this Release Notes version, This version introduces <a href="#">Changes and New Features</a> and <a href="#">Bug Fixes</a> .

## 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](#).

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# 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<sup>2</sup>, NDR<sup>2</sup>
- Ethernet - 25GbE, 40GbE, 50GbE<sup>1</sup>, 100GbE<sup>1</sup>, 200GbE<sup>2</sup>, 400GbE<sup>2</sup>
- PCI Express 4.0, supporting backwards compatibility for v3.0, v2.0 and v1.1

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

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

## Supported Devices

SKUs	PSID	Description
900-9D3B6-00CN-AB0	MT_0 00000 0883	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_0 00000 0884	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_0 00000 0964	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
900-9D3B6-	MT_0 00000 0965	NVIDIA BlueField-3 B3220 P-Series FHHL DPU; 200GbE (default mode) / NDR200 IB; Dual-port QSFP112; PCIe Gen5.0 x16 with x16 PCIe

00SV-AAO		extension option; 16 Arm cores; 32GB on-board DDR; integrated BMC; Crypto Disabled
900-9D3B4-00EN-EAO	MT_0 00000 1010	NVIDIA BlueField-3 B3140L E-Series FHHL DPU; 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-EAO	MT_0 00000 1011	NVIDIA BlueField-3 B3140L E-Series FHHL DPU; 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-AAO	MT_0 00000 1024	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-AAO	MT_0 00000 1025	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-HAO	MT_0 00000 1069	Nvidia BlueField-3 B3140H E-series HHHL DPU; 400GbE(default mode)/NDR IB; Single-port QSFP112; PCIe Gen5.0 x16; 8 Arm cores; 16GB on board DDR; integrated BMC; Crypto Enabled
900-9D3D4-00NN-HAO	MT_0 00000 1070	Nvidia BlueField-3 B3140H E-series HHHL DPU; 400GbE(default mode)/NDR IB; Single-port QSFP112; PCIe Gen5.0 x16; 8 Arm cores; 16GB on board DDR; integrated BMC; Crypto Disabled
699-21014-0230	NVDO 00000 0038	NVIDIA A800T WITH BLUEFIELD-3; P1014 SKU 230; GENERIC; GA100 80GB HBM2E; PASSIVE DUAL SLOT 350W GEN5; DPU CRYPTO ON

## 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	32.38.3056 / 32.38.1002 / 32.37.1306

	Supported Version
BlueField DPU OS Software	4.2.2
MLNX_OFED	23.07-0.5.0.0 / 23.04-0.5.3.3 <b>Note:</b> For the list of the supported Operating Systems, please refer to the driver's Release Notes.
MLNX_EN (MLNX_OFED based code)	23.07-0.5.0.0 / 23.04-0.5.3.3 <b>Note:</b> For the list of the supported Operating Systems, please refer to the driver's Release Notes.
WinOF-2	23.7.50000 / 23.4.50010 <b>Note:</b> For the list of the supported Operating Systems, please refer to the driver's Release Notes.
MFT	4.25.1 / 4.25.0 / 4.24.0 <b>Note:</b> For the list of the supported Operating Systems, please refer to the driver's Release Notes.
mstflint	4.25.1 / 4.25.0 / 4.24.0 <b>Note:</b> For the list of the supported Operating Systems, please refer to the driver's Release Notes.
FlexBoot	3.7.201
UEFI	14.31.22
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

## NVIDIA Validated and Supported Cables and Modules

### Validated and Supported 400GbE Cables

Speed	OPN	Description
400GbE	MMA1Z00-NS400	NVIDIA single port transceiver, 400Gbps,NDR, QSFP112, MPO12 APC, 850nm MMF, up to 50m, flat top

## Validated and Supported 200GbE Cables

Speed	Part Number	Marketing Description
200GE	MFS1S00-V003E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 3m
200GE	MFS1S00-V005E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 5m
200GE	MFS1S00-V010E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 10m
200GE	MFS1S00-V015E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 15m
200GE	MFS1S00-V020E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 20m
200GE	MFS1S00-V030E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 30m
200GE	MFS1S00-V050E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 50m
200GE	MFS1S00-V100E	NVIDIA active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 100m
200GE	MCP1650-V001E30	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 1m, black pulltab, 30AWG
200GE	MCP1650-V002E26	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 2m, black pulltab, 26AWG
200GE	MCP1650-V00AE30	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 0.5m, black pulltab, 30AWG



200 GE	MCP1650-V01AE30	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 1.5m, black pulltab, 30AWG
200 GE	MCP1650-V02AE26	NVIDIA Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 2.5m, black pulltab, 26AWG
200 GE	MCP7H50-V001R30	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, colored, 1m, 30AWG
200 GE	MCP7H50-V002R26	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, colored, 2m, 26AWG
200 GE	MCP7H50-V01AR30	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, colored, 1.5m, 30AWG
200 GE	MCP7H50-V02AR26	NVIDIA passive copper hybrid cable, 200GbE 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, colored, 2.5m, 26AWG
200 GE	MMA1T00-VS	NVIDIA transceiver, 200GbE, up to 200Gb/s, QSFP56, MPO, 850nm, SR4, up to 100m

## Validated and Supported 100GbE Cables

Speed	Part Number	Marketing Description
100 GbE	MCP1600-C001	NVIDIA passive copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 1m 30AWG
100 GbE	MCP1600-C001E30N	NVIDIA passive copper cable, ETH 100GbE, 100Gb/s, QSFP28, 1m, black, 30AWG, CA-N
100 GbE	MCP1600-C001LZ	NVIDIA passive copper Cable, ETH 100GbE, 100Gb/s, QSFP, 1m, LSZH, 30AWG
100 GbE	MCP1600-C002	NVIDIA passive copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 2m 30AWG
100 GbE	MCP1600-C002E30N	NVIDIA passive copper cable, ETH 100GbE, 100Gb/s, QSFP28, 2m, black, 30AWG, CA-N
100 GbE	MCP1600-C003	NVIDIA passive copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 3m 28AWG
100 GbE	MCP1600-C003E26N	NVIDIA passive copper cable, ETH 100GbE, 100Gb/s, QSFP28, 3m, black, 26AWG, CA-N

Speed	Part Number	Marketing Description
100 GbE	MCP1600-C003E30L	NVIDIA passive copper cable, ETH 100GbE, 100Gb/s, QSFP28, 3m, black, 30AWG, CA-L
100 GbE	MCP1600-C003LZ	NVIDIA passive copper cable, ETH 100GbE, 100Gb/s, QSFP, 3m, LSZH, 26AWG
100 GbE	MCP1600-C005E26L	NVIDIA passive copper cable, ETH 100GbE, 100Gb/s, QSFP28, 5m, black, 26AWG, CA-L
100 GbE	MCP1600-C00A	NVIDIA passive copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 0.5m 30AWG
100 GbE	MCP1600-C00AE30N	NVIDIA passive copper cable, ETH 100GbE, 100Gb/s, QSFP28, 0.5m, black, 30AWG, CA-N
100 GbE	MCP1600-C00BE30N	NVIDIA passive copper cable, ETH 100GbE, 100Gb/s, QSFP28, 0.75m, black, 30AWG, CA-N
100 GbE	MCP1600-C01A	NVIDIA passive copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 1.5m 30AWG
100 GbE	MCP1600-C01AE30N	NVIDIA passive copper cable, ETH 100GbE, 100Gb/s, QSFP28, 1.5m, black, 30AWG, CA-N
100 GbE	MCP1600-C02A	NVIDIA passive copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 2.5m 30AWG
100 GbE	MCP1600-C02AE26N	NVIDIA passive copper cable, ETH 100GbE, 100Gb/s, QSFP28, 2.5m, black, 26AWG, CA-N
100 GbE	MCP1600-C02AE30L	NVIDIA passive copper cable, ETH 100GbE, 100Gb/s, QSFP28, 2.5m, black, 30AWG, CA-L
100 GbE	MCP1600-C03A	NVIDIA passive copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 3.5m 26AWG
100 GbE	MCP1600-E001	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1m 30AWG
100 GbE	MCP1600-E002	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2m 28AWG
100 GbE	MCP1600-E003	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 3m 26AWG
100 GbE	MCP1600-E01A	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1.5m 30AWG

Speed	Part Number	Marketing Description
100 GbE	MCP1600-E02A	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2.5m 26AWG
100 GbE	MCP7F00-A001R	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, colored pull-tabs, 1m, 30AWG
100 GbE	MCP7F00-A001R30N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 1m, colored, 30AWG, CA-N
100 GbE	MCP7F00-A002R	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, colored pull-tabs, 2m, 30AWG
100 GbE	MCP7F00-A002R30N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2m, colored, 30AWG, CA-N
100 GbE	MCP7F00-A003R26N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3m, colored, 26AWG, CA-N
100 GbE	MCP7F00-A003R30L	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3m, colored, 30AWG, CA-L
100 GbE	MCP7F00-A005R26L	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 5m, colored, 26AWG, CA-L
100 GbE	MCP7F00-A01AR	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, colored pull-tabs, 1.5m, 30AWG
100 GbE	MCP7F00-A01AR30N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 1.5m, colored, 30AWG, CA-N
100 GbE	MCP7F00-A02AR26N	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2.5m, colored, 26AWG, CA-N
100 GbE	MCP7F00-A02AR30L	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2.5m, colored, 30AWG, CA-L
100 GbE	MCP7F00-A02ARLZ	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2.5m, LSZH, colored, 28AWG
100 GbE	MCP7F00-A03AR26L	NVIDIA passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3.5m, colored, 26AWG, CA-L
100 GbE	MCP7H00-G001	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 1m, 30AWG
100 GbE	MCP7H00-G001R	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pull-tabs, 1m, 30AWG

Speed	Part Number	Marketing Description
100 GbE	MCP7H00-G001R30N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 1m, colored, 30AWG, CA-N
100 GbE	MCP7H00-G002R	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pull-tabs, 2m, 30AWG
100 GbE	MCP7H00-G002R30N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 2m, colored, 30AWG, CA-N
100 GbE	MCP7H00-G003R	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pull-tabs, 3m, 28AWG
100 GbE	MCP7H00-G003R26N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 3m, colored, 26AWG, CA-N
100 GbE	MCP7H00-G003R30L	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 3m, colored, 30AWG, CA-L
100 GbE	MCP7H00-G004R26L	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 4m, colored, 26AWG, CA-L
100 GbE	MCP7H00-G01AR	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pull-tabs, 1.5m, 30AWG
100 GbE	MCP7H00-G01AR30N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 1.5m, colored, 30AWG, CA-N
100 GbE	MCP7H00-G02AR	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pull-tabs, 2.5m, 30AWG
100 GbE	MCP7H00-G02AR26N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 2.5m, colored, 26AWG, CA-N
100 GbE	MCP7H00-G02AR30L	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 2.5m, colored, 30AWG, CA-L
100 GbE	MFA1A00-C003	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 3m
100 GbE	MFA1A00-C005	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 5m
100 GbE	MFA1A00-C010	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 10m
100 GbE	MFA1A00-C015	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 15m

Speed	Part Number	Marketing Description
100 GbE	MFA1A00-C020	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 20m
100 GbE	MFA1A00-C030	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 30m
100 GbE	MFA1A00-C050	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 50m
100 GbE	MFA1A00-C100	NVIDIA active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 100m
100 GbE	MFA7A20-C003	NVIDIA active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 3m
100 GbE	MFA7A20-C005	NVIDIA active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 5m
100 GbE	MFA7A20-C010	NVIDIA active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 10m
100 GbE	MFA7A20-C020	NVIDIA active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 20m
100 GbE	MFA7A50-C003	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3m
100 GbE	MFA7A50-C005	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 5m
100 GbE	MFA7A50-C010	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 10m
100 GbE	MFA7A50-C015	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 15m
100 GbE	MFA7A50-C020	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 20m
100 GbE	MFA7A50-C030	NVIDIA active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 30m
100 GbE	MMA1B00-C100D	NVIDIA transceiver, 100GbE, QSFP28, MPO, 850nm, SR4, up to 100m, DDMI
100 GbE	MMA1B00-C100D_FF	NVIDIA transceiver, 100GbE, QSFP28, MPO, 850nm, SR4, up to 100m, DDMI

Speed	Part Number	Marketing Description
100 GbE	MMA1L10-CR	NVIDIA optical transceiver, 100GbE, 100Gb/s, QSFP28, LC-LC, 1310nm, LR4 up to 10km
100 GbE	MMA1L30-CM	NVIDIA optical module, 100GbE, 100Gb/s, QSFP28, LC-LC, 1310nm, CWDM4, up to 2km
100 GbE	MMS1C10-CM	NVIDIA active optical module, 100Gb/s, QSFP, MPO, 1310nm, PSM4, up to 500m
100 GE	MFA7A20-C02A	NVIDIA active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 2.5m
100 GE	MFA7A20-C03A	NVIDIA active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 3.5m
100 GE	MMA1B00-C100T	NVIDIA transceiver, 100GbE, QSFP28, MPO, 850nm, up to 100m, OTU4
100 GE	MCP7H00-G00000	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 5m, Colored, 26AWG, CA-L
100 GE	MCP1600-C002E26N	NVIDIA Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 2m, Black, 26AWG, CA-N
100 GE	MCP7H00-G002R26N	NVIDIA passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 2m, Colored, 26AWG, CA-N
100 GE	SPQ-CE-ER-CDFL-M	40km 100G QSFP28 ER Optical Transceiver

## Validated and Supported 56GbE Cables

Speed	Part Number	Marketing Description
56GbE	MC2207126-004	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 4m
56GbE	MC2207128-003	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 3m
56GbE	MC2207128-0A2	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 2.5m

Speed	Part Number	Marketing Description
56GbE	MC2207130-001	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 1m
56GbE	MC2207130-002	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 2m
56GbE	MC2207130-00A	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 0.5m
56GbE	MC2207130-0A1	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 1.5m
56GbE	MC220731V-003	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 3m
56GbE	MC220731V-005	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 5m
56GbE	MC220731V-010	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 10m
56GbE	MC220731V-015	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 15m
56GbE	MC220731V-020	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 20m
56GbE	MC220731V-025	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 25m
56GbE	MC220731V-030	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 30m
56GbE	MC220731V-040	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 40m
56GbE	MC220731V-050	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 50m
56GbE	MC220731V-075	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 75m
56GbE	MC220731V-100	NVIDIA active fiber cable, VPI, up to 56Gb/s, QSFP, 100m
56GbE	MCP1700-F001C	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 1m, Red pull-tab

Speed	Part Number	Marketing Description
56GbE	MCP1700-F001D	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 1m, Yellow pull-tab
56GbE	MCP1700-F002C	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 2m, Red pull-tab
56GbE	MCP1700-F002D	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 2m, Yellow pull-tab
56GbE	MCP1700-F003C	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 3m, Red pull-tab
56GbE	MCP1700-F003D	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, 3m, Yellow pull-tab
56GbE	MCP170L-F001	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 1m
56GbE	MCP170L-F002	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 2m
56GbE	MCP170L-F003	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 3m
56GbE	MCP170L-F00A	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 0.5m
56GbE	MCP170L-F01A	NVIDIA passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 1.5m

## Validated and Supported 40GbE Cables

Speed	Part Number	Marketing Description
40GbE	MC2206128-004	NVIDIA passive copper cable, VPI, up to 40Gb/s, QSFP, 4m
40GbE	MC2206128-005	NVIDIA passive copper cable, VPI, up to 40Gb/s, QSFP, 5m
40GbE	MC2206130-001	NVIDIA passive copper cable, VPI, up to 40Gb/s, QSFP, 1m



Speed	Part Number	Marketing Description
40GbE	MC2206130-002	NVIDIA passive copper cable, VPI, up to 40Gb/s, QSFP, 2m
40GbE	MC2206130-003	NVIDIA passive copper cable, VPI, up to 40Gb/s, QSFP, 3m
40GbE	MC2206130-00A	NVIDIA passive copper cable, VPI, up to 40Gb/s, QSFP, 0.5m
40GbE	MC2210126-004	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 4m
40GbE	MC2210126-005	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 5m
40GbE	MC2210128-003	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 3m
40GbE	MC2210130-001	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 1m
40GbE	MC2210130-002	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 2m
40GbE	MC2210310-003	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 3m
40GbE	MC2210310-005	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 5m
40GbE	MC2210310-010	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 10m
40GbE	MC2210310-015	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 15m
40GbE	MC2210310-020	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 20m
40GbE	MC2210310-030	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 30m
40GbE	MC2210310-050	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 50m
40GbE	MC2210310-100	NVIDIA active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 100m

Speed	Part Number	Marketing Description
40GbE	MC2210411-SR4E	NVIDIA optical module, 40Gb/s, QSFP, MPO, 850nm, up to 300m
40GbE	MC2609125-005	NVIDIA passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 5m
40GbE	MC2609130-001	NVIDIA passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 1m
40GbE	MC2609130-003	NVIDIA passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 3m
40GbE	MCP1700-B001E	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 1m, black pull-tab
40GbE	MCP1700-B002E	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 2m, black pull-tab
40GbE	MCP1700-B003E	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 3m, black pull-tab
40GbE	MCP1700-B01AE	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 1.5m, black pull-tab
40GbE	MCP1700-B02AE	NVIDIA passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 2.5m, black pull-tab
40GbE	MCP7900-X01AA	NVIDIA passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 1.5m, blue pull-tab, customized label
40GbE	MCP7904-X002A	NVIDIA passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 2m, black pull-tab, customized label
40GbE	MCP7904-X003A	NVIDIA passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 3m, black pull-tab, customized label
40GbE	MCP7904-X01AA	NVIDIA passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 1.5m, black pull-tab, customized label
40GbE	MCP7904-X02AA	NVIDIA passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 2.5m, black pull-tab, customized label
40GbE	MMA1B00-B150D	NVIDIA transceiver, 40GbE, QSFP+, MPO, 850nm, SR4, up to 150m, DDMI
40GbE	MCA7J60-C003	NVIDIA passive fiber hybrid cable, MPO to 8xLC, 10m

Speed	Part Number	Marketing Description
40GE	MCA7J70-C003	NVIDIA passive fiber hybrid cable, MPO to 8xLC, 10m

## Validated and Supported 25GbE Cables

Speed	Part Number	Marketing Description
25GbE	MAM1Q00A-QSA28	NVIDIA cable module, ETH 25GbE, 100Gb/s to 25Gb/s, QSFP28 to SFP28
25GbE	MCP2M00-A001	NVIDIA passive copper cable, ETH, up to 25Gb/s, SFP28, 1m, 30AWG
25GbE	MCP2M00-A001E30N	NVIDIA passive copper cable, ETH, up to 25Gb/s, SFP28, 1m, black, 30AWG, CA-N
25GbE	MCP2M00-A002	NVIDIA passive copper cable, ETH, up to 25Gb/s, SFP28, 2m, 30AWG
25GbE	MCP2M00-A002E30N	NVIDIA passive copper cable, ETH, up to 25Gb/s, SFP28, 2m, black, 30AWG, CA-N
25GbE	MCP2M00-A003E26N	NVIDIA passive copper cable, ETH, up to 25Gb/s, SFP28, 3m, black, 26AWG, CA-N
25GbE	MCP2M00-A003E30L	NVIDIA passive copper cable, ETH, up to 25Gb/s, SFP28, 3m, black, 30AWG, CA-L
25GbE	MCP2M00-A004E26L	NVIDIA passive copper cable, ETH, up to 25Gb/s, SFP28, 4m, black, 26AWG, CA-L
25GbE	MCP2M00-A005E26L	NVIDIA passive copper cable, ETH, up to 25Gb/s, SFP28, 5m, black, 26AWG, CA-L
25GbE	MCP2M00-A00A	NVIDIA passive copper cable, ETH, up to 25Gb/s, SFP28, 0.5m, 30AWG
25GbE	MCP2M00-A00AE30N	NVIDIA passive copper cable, ETH, up to 25Gb/s, SFP28, 0.5m, black, 30AWG, CA-N
25GbE	MCP2M00-A01AE30N	NVIDIA passive copper cable, ETH, up to 25Gb/s, SFP28, 1.5m, black, 30AWG, CA-N

Speed	Part Number	Marketing Description
25GbE	MCP2M00-A02AE26N	NVIDIA passive copper cable, ETH, up to 25Gb/s, SFP28, 2.5m, black, 26AWG, CA-N
25GbE	MCP2M00-A02AE30L	NVIDIA passive copper cable, ETH, up to 25Gb/s, SFP28, 2.5m, black, 30AWG, CA-L
25GbE	MFA2P10-A003	NVIDIA active optical cable 25GbE, SFP28, 3m
25GbE	MFA2P10-A005	NVIDIA active optical cable 25GbE, SFP28, 5m
25GbE	MFA2P10-A007	NVIDIA active optical cable 25GbE, SFP28, 7m
25GbE	MFA2P10-A010	NVIDIA active optical cable 25GbE, SFP28, 10m
25GbE	MFA2P10-A015	NVIDIA active optical cable 25GbE, SFP28, 15m
25GbE	MFA2P10-A020	NVIDIA active optical cable 25GbE, SFP28, 20m
25GbE	MFA2P10-A030	NVIDIA active optical cable 25GbE, SFP28, 30m
25GbE	MFA2P10-A050	NVIDIA active optical cable 25GbE, SFP28, 50m
25GbE	MMA2P00-AS	NVIDIA transceiver, 25GbE, SFP28, LC-LC, 850nm, SR, up to 150m
25GbE	MCP2M00-A002E26N	NVIDIA Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2m, Black, 26AWG, CA-N

## Validated and Supported 10GbE Cables

Speed	Part Number	Marketing Description
10GbE	MAM1Q00A-QSA	NVIDIA cable module, ETH 10GbE, 40Gb/s to 10Gb/s, QSFP to SFP+

Speed	Part Number	Marketing Description
10GbE	MC2309124-005	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 5m
10GbE	MC2309124-007	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 7m
10GbE	MC2309130-001	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 1m
10GbE	MC2309130-002	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 2m
10GbE	MC2309130-003	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 3m
10GbE	MC2309130-00A	NVIDIA passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 0.5m
10GbE	MC3309124-004	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 4m
10GbE	MC3309124-005	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 5m
10GbE	MC3309124-006	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 6m
10GbE	MC3309124-007	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 7m
10GbE	MC3309130-001	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m
10GbE	MC3309130-002	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m
10GbE	MC3309130-003	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 3m
10GbE	MC3309130-00A	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 0.5m
10GbE	MC3309130-0A1	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1.5m
10GbE	MC3309130-0A2	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2.5m

Speed	Part Number	Marketing Description
10GbE	MCP2100-X001B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m, blue pull-tab, connector label
10GbE	MCP2100-X002B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m, blue pull-tab, connector label
10GbE	MCP2100-X003B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 3m, blue pull-tab, connector label
10GbE	MCP2104-X001B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m, black pull-tab, connector label
10GbE	MCP2104-X002B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m, black pull-tab, connector label
10GbE	MCP2104-X003B	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 3m, black pull-tab, connector label
10GbE	MCP2104-X01AB	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1.5m, black pull-tab, connector label
10GbE	MCP2104-X02AB	NVIDIA passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2.5m, black pull-tab, connector label
N/A	MFM1T02A-LR	NVIDIA SFP+ optical module for 10GBASE-LR
N/A	MFM1T02A-SR	NVIDIA SFP+ optical module for 10GBASE-SR
10GE	MFM1T02A-LR-F	NVIDIA optical module, ETH 10GbE, 10Gb/s, SFP+, LC-LC, 1310nm, LR up to 10km
10GE	MFM1T02A-SR-F	NVIDIA optical module, ETH 10GbE, 10Gb/s, SFP+, LC-LC, 850nm, SR up to 300m
10GE	MFM1T02A-SR-P	NVIDIA optical module, ETH 10GbE, 10Gb/s, SFP+, LC-LC, 850nm, SR up to 300m

## Validated and Supported NDR Cables

Speed	OPN	Description
NDR	MMA1Z00-NS400	NVIDIA single port transceiver, 400Gbps, NDR, QSFP112, MPO12 APC, 850nm MMF, up to 50m, flat top
NDR	MCP7Y10-N001	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xQSFP112, 1m
NDR	MCP7Y10-N002	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xQSFP112, 2m
NDR	MCP7Y10-N003	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xQSFP112, 3m
NDR	MCP7Y10-N01A	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xQSFP112, 1.5m
NDR	MCP7Y10-N02A	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 2x400Gb/s, OSFP to 2xQSFP112, 2.5m
NDR	MCP7Y40-N001	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xQSFP112, 1m
NDR	MCP7Y40-N002	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xQSFP112, 2m
NDR	MCP7Y40-N003	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xQSFP112, 3m
NDR	MCP7Y40-N01A	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xQSFP112, 1.5m
NDR	MCP7Y40-N02A	NVIDIA passive copper splitter cable, IB twin port NDR 800Gb/s to 4x200Gb/s, OSFP to 4xQSFP112, 2.5m
NDR	MFP7E10-N003	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 3m
NDR	MFP7E10-N005	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 5m
NDR	MFP7E10-N007	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 7m
NDR	MFP7E10-N010	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 10m
NDR	MFP7E10-N015	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 15m

Speed	OPN	Description
NDR	MFP7E10-N020	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 20m
NDR	MFP7E10-N025	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 25m
NDR	MFP7E10-N030	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 30m
NDR	MFP7E10-N035	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 35m
NDR	MFP7E10-N040	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 40m
NDR	MFP7E10-N050	NVIDIA passive fiber cable, MMF, MPO12 APC to MPO12 APC, 50m
NDR	MFP7E20-N003	NVIDIA passive fiber cable, MMF, MPO12 APC to 2xMPO12 APC, 3m
NDR	MFP7E20-N005	NVIDIA passive fiber cable, MMF, MPO12 APC to 2xMPO12 APC, 5m
NDR	MFP7E20-N007	NVIDIA passive fiber cable, MMF, MPO12 APC to 2xMPO12 APC, 7m
NDR	MFP7E20-N010	NVIDIA passive fiber cable, MMF, MPO12 APC to 2xMPO12 APC, 10m
NDR	MFP7E20-N015	NVIDIA passive fiber cable, MMF, MPO12 APC to 2xMPO12 APC, 15m
NDR	MFP7E20-N020	NVIDIA passive fiber cable, MMF, MPO12 APC to 2xMPO12 APC, 20m
NDR	MFP7E20-N030	NVIDIA passive fiber cable, MMF, MPO12 APC to 2xMPO12 APC, 30m
NDR	MFP7E20-N050	NVIDIA passive fiber cable, MMF, MPO12 APC to 2xMPO12 APC, 50m
NDR	MFP7E30-N001	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 1m
NDR	MFP7E30-N002	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 2m



Speed	OPN	Description
NDR	MFP7E30-N003	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 3m
NDR	MFP7E30-N005	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 5m
NDR	MFP7E30-N007	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 7m
NDR	MFP7E30-N010	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 10m
NDR	MFP7E30-N015	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 15m
NDR	MFP7E30-N020	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 20m
NDR	MFP7E30-N030	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 30m
NDR	MFP7E30-N040	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 40m
NDR	MFP7E30-N050	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 50m
NDR	MFP7E30-N060	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 60m
NDR	MFP7E30-N070	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 70m
NDR	MFP7E30-N100	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 100m
NDR	MFP7E30-N150	NVIDIA passive fiber cable, SMF, MPO12 APC to MPO12 APC, 150m
NDR	MFP7E40-N003	NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 3m
NDR	MFP7E40-N005	NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 5m
NDR	MFP7E40-N007	NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 7m

Speed	OPN	Description
NDR	MFP7E40-N010	NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 10m
NDR	MFP7E40-N015	NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 15m
NDR	MFP7E40-N020	NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 20m
NDR	MFP7E40-N030	NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 30m
NDR	MFP7E40-N050	NVIDIA passive fiber cable, SMF, MPO12 APC to 2xMPO12 APC, 50m

## Validated and Supported HDR Cables

Speed	Part Number	Marketing Description
HD R	MCP7H50-H001R30	NVIDIA passive copper hybrid cable, IB HDR 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, colored, 1m, 30AWG
HD R	MCP7H50-H002R26	NVIDIA passive copper hybrid cable, IB HDR 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, colored, 2m, 26AWG
HD R	MCP7H50-H01AR30	NVIDIA passive copper hybrid cable, IB HDR 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, colored, 1.5m, 30AWG
HD R	MMA1T00-HS	NVIDIA transceiver, HDR, QSFP56, MPO, 850nm, SR4, up to 100m
HD R	MFS1S90-H010E	NVIDIA active fiber splitter cable, IB HDR, 2x200Gb/s to 2x200Gb/s, 2xQSFP56 to 2xQSFP56, LSZH, 10m
HD R	MFS1S90-H020E	NVIDIA active fiber splitter cable, IB HDR, 2x200Gb/s to 2x200Gb/s, 2xQSFP56 to 2xQSFP56, LSZH, 20m
HD R	MFS1S90-H030E	NVIDIA active fiber splitter cable, IB HDR, 2x200Gb/s to 2x200Gb/s, 2xQSFP56 to 2xQSFP56, LSZH, 30m

## Validated and Supported EDR Cables

Speed	Part Number	Marketing Description
EDR	MCP1600-E001	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1m 30AWG
EDR	MCP1600-E001E30	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP28, 1m, black, 30AWG
EDR	MCP1600-E002	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2m 28AWG
EDR	MCP1600-E002E30	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP28, 2m, black, 30AWG
EDR	MCP1600-E003	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 3m 26AWG
EDR	MCP1600-E003E26	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP28, 3m, black, 26AWG
EDR	MCP1600-E004E26	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP28, 4m, black, 26AWG
EDR	MCP1600-E005E26	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP28, 5m, black, 26AWG
EDR	MCP1600-E00A	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 0.5m 30AWG
EDR	MCP1600-E00AE30	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP28, 0.5m, black, 30AWG
EDR	MCP1600-E00BE30	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP28, 0.75m, black, 30AWG
EDR	MCP1600-E01A	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1.5m 30AWG
EDR	MCP1600-E01AE30	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP28, 1.5m, black, 30AWG
EDR	MCP1600-E01BE30	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP28, 1.25m, black, 30AWG
EDR	MCP1600-E02A	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2.5m 26AWG

Speed	Part Number	Marketing Description
EDR	MCP1600-E02AE26	NVIDIA passive copper cable, IB EDR, up to 100Gb/s, QSFP28, 2.5m, black, 26AWG
EDR	MFA1A00-E001	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1m
EDR	MFA1A00-E003	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 3m
EDR	MFA1A00-E005	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 5m
EDR	MFA1A00-E010	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 10m
EDR	MFA1A00-E010_FF	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 10m
EDR	MFA1A00-E015	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 15m
EDR	MFA1A00-E020	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 20m
EDR	MFA1A00-E030	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 30m
EDR	MFA1A00-E050	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 50m
EDR	MFA1A00-E100	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 100m
EDR	MMA1B00-E100	NVIDIA transceiver, IB EDR, up to 100Gb/s, QSFP28, MPO, 850nm, SR4, up to 100m
EDR	MFA1A00-E007	NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 7m
EDR	MCP1600-E002E26	NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 2m, Black, 26AWG

## 3rd Party Validated and Supported Cables and Modules

Speed	Cable OPN	Description
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
100GbE	1AT-3Q4M01XX-12A	O-NET QSFP28 100G Active cable/module
100GbE	AQPMANQ4EDM A0784	QSFP28 100G SMF 500m Transceiver
100GbE	CAB-Q-Q-100G-3M	Passive 3 meter, QSFP+ to QSFP+ QSFP100 TWINAX 103.125Gbps-CR4
100GbE	CAB-Q-Q-100GbE-3M	Passive 3 meter , QSFP+ to QSFP+ QSFP100 TWINAX 103.125Gbps-CR4
100GbE	FCBN425QE1C30-C1	100GbE Quadwire® QSFP28 Active Optical Cable 30M
100GbE	FTLC1151RDPL	TRANSCIEVER 100GBE QSFP LR4
100GbE	FTLC9152RGPL	100G 100M QSFP28 SWDM4 OPT TRANS
100GbE	FTLC9555REPM3-E6	100m Parallel MMF 100GQSFP28Optical Transceiver
100GbE	NDAAFJ-C102	SF-NDAAFJ100G-005M
100GbE	QSFP-100G-AOC30M	30m (98ft) Cisco QSFP-100G-AOC30M Compatible 100G QSFP28 Active Optical Cable
100GbE	QSFP28-LR4-AJ	CISCO-PRE 100GbE LR4 QSFP28 Transceiver Module

Speed	Cable OPN	Description
100GbE	SFBR-89BDDZ-CS2	CISCO-PRE 100G AOM BiDi
100GbE	SQF1002L4LNC101P	Cisco-SUMITOMO 100GbE AOM
200GbE	RTXM500-905	400G-2x200G split 5M AOC cables (400G QSFP-DD breaking out to 2x 200G QSFP56)

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# Changes and New Features

## Changes and New Feature in this Firmware Version

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

## Unsupported Functionalities

As of firmware v32.38.1002, DPU NIC mode has been upgraded. 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.

 **Warning**

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



# Bug Fixes in This Version

Internal Ref.	Issue
362 956 2	<b>Description:</b> Fixed a code mismatch in the process of handling the cause to the link being down when the remote faults were received.
	<b>Keywords:</b> Link down
	<b>Discovered in Version:</b> 32.38.1002
	<b>Fixed in Release:</b> 32.38.3056
360 252 6	<b>Description:</b> Fixed an issue that led to packet drops on lossless fabric due to an Rx buffer overflow.
	<b>Keywords:</b> PFC
	<b>Discovered in Version:</b> 32.38.1002
	<b>Fixed in Release:</b> 32.38.3056
361 444 8	<b>Description:</b> 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.
	<b>Keywords:</b> Bandwidth, LAG, CC
	<b>Discovered in Version:</b> 32.38.1002
	<b>Fixed in Release:</b> 32.38.3056
353 528 4	<b>Description:</b> 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.
	<b>Keywords:</b> Rate Limiter
	<b>Discovered in Version:</b> 32.38.1002
	<b>Fixed in Release:</b> 32.38.3056
355 682 2	<b>Description:</b> 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.

	<b>Keywords:</b> DOCA PCC, Programmable Congestion Control, high availability
	<b>Discovered in Version:</b> 32.38.1002
	<b>Fixed in Release:</b> 32.38.3056
360 564 9	<b>Description:</b> 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.
	<b>Keywords:</b> Rate Limiter, VL, bandwidth
	<b>Discovered in Version:</b> 32.38.1002
	<b>Fixed in Release:</b> 32.38.3056
358 345 6	<b>Description:</b> 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.
	<b>Keywords:</b> DOCA PCC
	<b>Discovered in Version:</b> 32.38.1002
	<b>Fixed in Release:</b> 32.38.3056
358 040 6	<b>Description:</b> Fixed an issue related to VFs performance throughput across multiple VF FLRs while using carveout pages.
	<b>Keywords:</b> Performance
	<b>Discovered in Version:</b> 32.38.1002
	<b>Fixed in Release:</b> 32.38.3056

# Known Issues

Internal Ref.	Issue
362 738 4	<p><b>Description:</b> PCC flow context database is not cleared when starting a new DOCA PCC application. The "left state by legacy" active application would impact the new application's behavior.</p> <p><b>Workaround:</b> After the new application is loaded, trigger the flow's force-clear option to enable the relevant algo_slot by the PPCC command.</p> <p>The following is an example for enabling algo_slot 0.</p> <p><b>Note:</b> The slot number should be the actual slot number used by the new application.</p> <pre>sudo mlxreg -d /dev/mst/mt41692_pciconf0 -y --set "cmd_type=1" --reg_name PPCC --indexes "local_port=1,pnat=0,lp_msb=0,algo_slot=0,algo_param_index=0"</pre> <pre>sudo mlxreg -d /dev/mst/mt41692_pciconf0.1 -y --set "cmd_type=1" --reg_name PPCC --indexes "local_port=1,pnat=0,lp_msb=0,algo_slot=0,algo_param_index=0"</pre> <p><b>Keywords:</b> PCC flow</p> <p><b>Discovered in Version:</b> 32.38.3056</p>
356 594 8	<p><b>Description:</b> 1k virtio-net devices cannot be created when using a BFB image of 64K page size and setting the PF_LOG_BAR_SIZE default value to 5. In this case, the virtio-net-controller will report "check_create_alias_uar 270 - Failed to create alias for UAR" in the Arm side log.</p> <p><b>Workaround:</b> Set PF_LOG_BAR_SIZE=6.</p> <p><b>Keywords:</b> 1k virtio-net devices, PF_LOG_BAR_SIZE</p> <p><b>Discovered in Version:</b> 32.38.1002</p>

343 943 8	<p><b>Description:</b> When connecting to a High Speed Traffic Generator in 400G speed, the linkup time may takes up to 3 minutes.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> 400G linkup time</p> <p><b>Discovered in Version:</b> 32.38.1002</p>
353 412 8	<p><b>Description:</b> External flash access such as flash read using the MFT tools will fail if there is a pending image on the flash.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> Flash access</p> <p><b>Discovered in Version:</b> 32.38.1002</p>
353 421 9	<p><b>Description:</b> 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).</p> <p><b>Workaround:</b> Before downgrading the firmware, perform:</p> <ul style="list-style-type: none"> <li>• echo 0 &gt; /sys/bus/platform/drivers/mlxbf-bootctl/large_icm</li> <li>• Arm reboot</li> </ul> <p><b>Keywords:</b> BlueField-3; downgrade</p> <p><b>Discovered in Version:</b> 32.38.1002</p>
354 702 2	<p><b>Description:</b> 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.</p>

	<p><b>Workaround:</b> N/A</p>
	<p><b>Keywords:</b> Sync1 reset</p>
	<p><b>Discovered in Version:</b> 32.38.1002</p>
343 943 8	<p><b>Description:</b> When connecting to a Spirent switch in 400G speed, the linkup time may takes up to 3 minutes.</p>
	<p><b>Workaround:</b> N/A</p>
	<p><b>Keywords:</b> Spirent, 400G, linkup time</p>
	<p><b>Discovered in Version:</b> 32.38.1002</p>
352 586 5	<p><b>Description:</b> PCIe PML1 is disabled.</p>
	<p><b>Workaround:</b> N/A</p>
	<p><b>Keywords:</b> PCIe PML1</p>
	<p><b>Discovered in Version:</b> 32.38.1002</p>
352 586 5	<p><b>Description:</b> Unexpected system behavior might be observed if the driver is loaded while reset is in progress.</p>
	<p><b>Workaround:</b> N/A</p>
	<p><b>Keywords:</b> Sync 1 reset, firmware reset</p>
	<p><b>Discovered in Version:</b> 32.38.1002</p>
327 539 4	<p><b>Description:</b> When performing PCIe link secondary-bus-reset, disable/enable or mlxfwreset on AMD based Genoa systems, the device takes longer then expected to link up, due to a PCIe receiver termination misconfiguration.</p>

	<b>Workaround:</b> N/A
	<b>Keywords:</b> PCIe
	<b>Discovered in Version:</b> 32.37.1306
314 004 8	<b>Description:</b> The DPC mechanism is currently not supported.
	<b>Workaround:</b> N/A
	<b>Keywords:</b> DPC, PCIe
	<b>Discovered in Version:</b> 32.37.1306
287 884 1	<b>Description:</b> 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.
	<b>Workaround:</b> N/A
	<b>Keywords:</b> Signature retransmit flow
	<b>Discovered in Version:</b> 32.37.1306
341 284 7	<b>Description:</b> Socket-Direct is currently not supported.
	<b>Workaround:</b> N/A
	<b>Keywords:</b> Socket-Direct
	<b>Discovered in Version:</b> 32.37.1306

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# 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](#).

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# Release Notes History

## Changes and New Feature History

Feature/Change	Description
32.38.1002	
<b>DOCA Programmable Congestion Control</b>	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.
<b>Header Modification</b>	Added support to the metadata <code>reg_c 8-11</code> (packet fields) for matching and modifying the header, and Advanced Steering Operation (ASO) actions.
<b>Precision Time Protocol (PTP)</b>	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.
<b>INT Packets</b>	Added support for forwarding INT packets to the user application for monitoring purposes by matching the BTH acknowledge request bit ( <code>bth_a</code> ).
<b>Crypto Support (GCM algorithm)</b>	Added crypto support (GCM algorithm) via the Memory-to-Memory offload (MMO) engine.
<b>NC-SI, Strap Values</b>	Implemented NVIDIA NC-SI OEM command <code>query_strap_options</code> (command <code>0x0</code> , parameter <code>0x34</code> ).
<b>mlxconfig</b>	Implemented the following <code>mlxconfig</code> parameters related to the sideband interface enable/disable method: <ul style="list-style-type: none"><li>• <code>PCIE_IN_BAND_VDM_DISABLE</code>: When TRUE, the management processor will disable PCIe in-band VDM (MCTP over PCIe) interface.</li><li>• <code>PCIE_SMBUS_DISABLE</code>: When TRUE, the management processor will disable SMBUS (embedded on the PCIe connector) interface.</li></ul>



Feature/Change	Description
	<ul style="list-style-type: none"> <li>• RBT_DISABLE: When TRUE, the management processor will disable RBT interface.</li> <li>• PLDM_FW_UPDATE_DISABLE: When TRUE, PLDM FW update over PCIe and SMBUS are disabled.</li> <li>• HM_RDE_DISABLE: When TRUE, RDE over PCIe and SMBUS are disabled.</li> </ul>
<b>AES-XTS</b>	Added the ability to increase the tweak for every block by (1<<64) instead of by 1 in AES-XTS.
<b>DPA PROCESS ERROR</b>	Added support for a new value for coredump_type field in DPA_PROCESS_COREDUMP, [FIRST_ERROR_THREAD_DUMP (1)].
<b>Bug Fixes</b>	See <i>Bug Fixes in this Firmware Version</i> section.

Feature/Change	Description
32.37.3012	
<b>General</b>	This is the initial firmware release of NVIDIA BlueField-3 SmartNICs.
<b>Return DPU to 'out of factory' State</b>	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.
<b>1k Emulated virtio-blk Devices</b>	<p>The virtio-blk device presents a block device to the Virtual Machine and offers high performance due to a thin software stack.</p> <p>This version supports 1k emulated virtio-blk devices. A typical configuration for this capability is:</p> <ul style="list-style-type: none"> <li>• 4 virtio-blk PFs and 253 virtio-blk VFs on each PF</li> </ul> <p style="text-align: center;">or</p> <ul style="list-style-type: none"> <li>• 8 virtio-blk PFs and 126 virtio-blk VFs on each PF</li> </ul>
<b>Geneve</b>	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.

Feature/Change	Description
<b>Monitoring Cloud Guest RoCE Statistics on Cloud Provider</b>	This new capability enables the VM to track and limit its Vport's activity. This is done using the new q_counters counter which enables aggregation of other Vport's from PF GVMI.
<b>Linux Bridge Offload</b>	Added a flow rule that enables offloading of multicast traffic by broadcasting it to multi-Flow-Table in FDB.
<b>Selective Repeat</b>	Selective repeat improves network utilization in case of a lossy fabric. This features is enabled by default.
<b>Provisioning Flow</b>	Provisioning flow enables the user to "clean" flash data, and reprogram the flash and and the NIC.
<b>Dynamic VF MSIX Allocation</b>	Added support for dynamic MSIX modification on a VF NVME device emulation. If a PF NVME device emulation is created with <code>dynamic_vf_msix_control = 1</code> , then the <code>dynamic_vf_msix_reset</code> can set the PF device emulation's VF MSIX number to 0. The <code>num_msix</code> is used in the modified VF device emulation to modify the MSIX number of the VF device emulation.
<b>InfiniBand Congestion Control (IB CC)</b>	Enabled IB CC per Service Level (SL) for RC/UC on the HCA side. Now different SLs can be configured to be CC on/off according to the bitmask decided by the software.
<b>Hardware Steering: Bulk Allocation</b>	Added support for 32 actions in the header modify pattern using bulk allocation.
<b>InfiniBand Congestion Control - RTT Response Service Level</b>	The software can explicitly set the SL of an RTT response packet, instead of it being taken from the RTT request packet's SL. The RTT response packet SL may be set/queried via the <code>CONGESTION_CONTROL_HCA_NP_PARAMETER</code> MAD.
<b>PCC Algorithms</b>	Enables a smooth and statically switch between PCC algorithms. In addition, the user can now switch between PCC algorithms while running traffic.
<b>IPSEC Side Acceleration with DPDK</b>	<b>[Beta]</b> Added support for crypto (GCM) via the MMO engine.
<b>AES-XTS</b>	Added the ability to increase the tweak for every AES-XTS block by $(1 \ll 64)$ instead of by 1.

# Bug Fixes History

Internal Ref.	Issue
3506017	<b>Description:</b> Updated the firmware INI to enable MCTP over SMBUS and PCIe.
	<b>Keywords:</b> MCTP
	<b>Discovered in Version:</b> 32.37.1306
	<b>Fixed in Release:</b> 32.38.1002
3331179	<b>Description:</b> Improved token calculation.
	<b>Keywords:</b> Token calculation
	<b>Discovered in Version:</b> 32.37.1306
	<b>Fixed in Release:</b> 32.38.1002
3495889	<b>Description:</b> Fixed a QoS host port rate limit shaper inaccuracy that occurred when the shaper was configured via the QSHR access register.
	<b>Keywords:</b> Port rate limit shaper
	<b>Discovered in Version:</b> 32.37.1306
	<b>Fixed in Release:</b> 32.38.1002
3432080	<b>Description:</b> Fixed a reburst issue.
	<b>Keywords:</b> Rate limit
	<b>Discovered in Version:</b> 32.37.1306
	<b>Fixed in Release:</b> 32.38.1002
3432080	<b>Description:</b> Improved the grated2hw token calculation.
	<b>Keywords:</b> Rate limit (vQoS)
	<b>Discovered in Version:</b> 32.37.1306
	<b>Fixed in Release:</b> 32.38.1002
3457472	<b>Description:</b> Disabling the Relaxed Ordered (RO) capability (relaxed_ordering_read_pci_enabled=0) using the vhca_resource_manager is currently not functional.
	<b>Keywords:</b> Relaxed Ordered
	<b>Discovered in Version:</b> 32.37.1306

Internal Ref.	Issue
	<b>Fixed in Release:</b> 32.38.1002

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Product	Version	Legal Notices and 3rd Party Licenses
Firmware	xx.37.1014	<ul style="list-style-type: none"> <li>• <a href="#">HCA Firmware EULA</a></li> <li>• <a href="#">3rd Party Notice</a></li> </ul>
MLNX_OFED	23.04-0.5.3.3	<ul style="list-style-type: none"> <li>• <a href="#">License</a></li> <li>• <a href="#">3rd Part Notice</a></li> </ul>
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