



NVIDIA Mellanox ConnectX-4 Adapter Cards Firmware Release Notes v12.28.1002

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Release Notes Update History

Revision	Date	Description
12.28.1002	July 30, 2020	Initial release of this Release Notes version, 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.

Firmware Download

Please visit www.mellanox.com → [Support & Education](#) → [Firmware Download](#)

Document Revision History

A list of the changes made to this document are provided in [Document Revision History](#).

Firmware Compatible Products

These are the release notes for the NVIDIA® Mellanox ConnectX®-4 adapters firmware Rev 12.28.1002. This firmware supports the following protocols:

- InfiniBand - SDR, QDR, FDR10, FDR, EDR
- Ethernet - 1GbE, 10GbE, 25GbE, 40GbE, 50GbE, 56GbE¹, 100GbE
- PCI Express 3.0, supporting backwards compatibility for v2.0 and v1.1

¹. 56GbE is a Mellanox propriety link speed and can be achieved while connecting a Mellanox adapter cards to Mellanox SX10XX switch series or connecting a Mellanox adapter card to another Mellanox adapter card.

Supported Devices

This firmware supports the devices and protocols listed below:

Device Part Number	PSID	Device Name	FlexBoot	UEFI x86	UEFI ARM	Enable/disable exprom Feature
MCX413A-BCAT	MT_21201 10027	ConnectX®-4 EN network interface card, 40GbE single-port QSFP28, PCIe3.0 x8, tall bracket, ROHS R6	Present (Enabled)	Present (Disabled)	Present (Disabled)	Exists
MCX413A-GCAT	MT_26001 10035	ConnectX®-4 EN network interface card, 50GbE single-port QSFP28, PCIe3.0 x8, tall bracket, ROHS R6	Present (Enabled)	Present (Disabled)	Present (Disabled)	Exists
MCX414A-BCAT	MT_21301 10027	ConnectX®-4 EN network interface card, 40GbE dual-port QSFP28, PCIe3.0 x8, tall bracket, ROHS R6	Present (Enabled)	Present (Disabled)	Present (Disabled)	Exists
MCX414A-GCAT	MT_26101 10035	ConnectX®-4 EN network interface card, 50GbE single-port QSFP28, PCIe3.0 x8, tall bracket, ROHS R6	Present (Enabled)	Present (Disabled)	Present (Disabled)	Exists
MCX415A-BCAT	MT_21201 11027	ConnectX®-4 EN network interface card, 40GbE single-port QSFP28, PCIe3.0 x16, tall bracket, ROHS R6	Present (Enabled)	Present (Disabled)	Present (Disabled)	Exists
MCX415A-CCAT	MT_21401 10033	ConnectX®-4 EN network interface card, 100GbE single-port QSFP28, PCIe3.0 x16, tall bracket, ROHS R6	Present (Enabled)	Present (Disabled)	Present (Disabled)	Exists
MCX415A-GCAT	MT_21201 10035	ConnectX®-4 EN network interface card; 50GbE single-port QSFP28; PCIe3.0 x16; ROHS R6	Present (Enabled)	Present (Disabled)	Present (Disabled)	Exists
MCX416A-BCAT	MT_21301 11027	ConnectX®-4 EN network interface card, 40GbE dual-port QSFP28, PCIe3.0 x16, tall bracket, ROHS R6	Present (Enabled)	Present (Disabled)	Present (Disabled)	Exists

Device Part Number	PSID	Device Name	FlexBoot	UEFI x86	UEFI ARM	Enable/disable exprom Feature
MCX416A-CCAT	MT_21501 10033	ConnectX®-4 EN network interface card, 100GbE dual-port QSFP28, PCIe3.0 x16, tall bracket, ROHS R	Present (Enabled)	Present (Disabled)	Present (Disabled)	Exists
MCX416A-GCAT	MT_21301 10035	ConnectX®-4 EN network interface card; 50GbE dual-port QSFP28; PCIe3.0 x16; ROHS R6	Present (Enabled)	Present (Disabled)	Present (Disabled)	Exists
MCX445A-ECAN	MT_25201 10032	ConnectX-4 VPI network interface card for OCP; EDR IB (100Gb/s) and 100GbE single-port QSFP28; PCIe3.0 x16; ROHS R6	Present (Enabled)	Present (Disabled)	Present (Disabled)	Exists
MCX453A-FCAT	MT_21601 10021	ConnectX®-4 VPI adapter card, FDR IB 40GbE, single-port QSFP28, PCIe3.0 x8, tall bracket, ROHS R6	Present (Enabled)	Present (Disabled)	Present (Disabled)	Exists
MCX454A-FCAT	MT_21701 10021	ConnectX®-4 VPI adapter card, FDR IB and 40GbE, dual-port QSFP28, PCIe3.0 x8, tall bracket, ROHS R6	Present (Enabled)	Present (Disabled)	Present (Disabled)	Exists
MCX455A-ECAT	MT_21801 10032	ConnectX®-4 VPI adapter card, EDR IB (100Gb/s) and 100GbE, single-port QSFP28, PCIe3.0 x16, tall bracket, ROHS R6	Present (Enabled)	Present (Disabled)	Present (Disabled)	Exists
MCX455A-FCAT	MT_21601 11021	ConnectX®-4 VPI adapter card, FDR IB and 40GbE, single-port QSFP28, PCIe3.0 x16, tall bracket, ROHS R6	Present (Enabled)	Present (Disabled)	Present (Disabled)	Exists
MCX456A-ECAT	MT_21901 10032	ConnectX®-4 VPI adapter card, EDR IB (100Gb/s) and 100GbE, dual-port QSFP28, PCIe3.0 x16, tall bracket, ROHS R6	Present (Enabled)	Present (Disabled)	Present (Disabled)	Exists
MCX456A-FCAT	MT_21701 11021	ConnectX®-4 VPI adapter card, FDR IB and 40GbE, dual-port QSFP28, PCIe3.0 x16, tall bracket, ROHS R6	Present (Enabled)	Present (Disabled)	Present (Disabled)	Exists

Supported Mellanox Cables and Modules

Please refer to the LinkX® Cables and Transceivers web page (<http://www.mellanox.com/products/interconnect/cables-configurator.php>) for the list of supported cables.

Validated and Supported QDR Cables

Speed	Cable OPN	Description
QDR	MC2206125-007	Mellanox® passive copper cable, IB QDR, 40Gb/s, QSFP, 7m

Validated and Supported FDR10 Cables

Speed	Cable OPN	Description
FDR10	MC2206128-004	Mellanox® passive copper cable, VPI, up to 40Gb/s, QSFP, 4m
FDR10	MC2206128-005	Mellanox® passive copper cable, VPI, up to 40Gb/s, QSFP, 5m
FDR10	MC2206130-001	Mellanox® passive copper cable, VPI, up to 40Gb/s, QSFP, 1m
FDR10	MC2206130-002	Mellanox® passive copper cable, VPI, up to 40Gb/s, QSFP, 2m
FDR10	MC2206130-003	Mellanox® passive copper cable, VPI, up to 40Gb/s, QSFP, 3m
FDR10	MC2206130-00A	Mellanox® passive copper cable, VPI, up to 40Gb/s, QSFP, 0.5m
FDR10	MC2206310-003	Mellanox® active fiber cable, IB QDR/FDR10, 40Gb/s, QSFP, 3m
FDR10	MC2206310-005	Mellanox® active fiber cable, IB QDR/FDR10, 40Gb/s, QSFP, 5m
FDR10	MC2206310-010	Mellanox® active fiber cable, IB QDR/FDR10, 40Gb/s, QSFP, 10m
FDR10	MC2206310-015	Mellanox® active fiber cable, IB QDR/FDR10, 40Gb/s, QSFP, 15m
FDR10	MC2206310-020	Mellanox® active fiber cable, IB QDR/FDR10, 40Gb/s, QSFP, 20m
FDR10	MC2206310-030	Mellanox® active fiber cable, IB QDR/FDR10, 40Gb/s, QSFP, 30m
FDR10	MC2206310-050	Mellanox® active fiber cable, IB QDR/FDR10, 40Gb/s, QSFP, 50m
FDR10	MC2206310-100	Mellanox® active fiber cable, IB QDR/FDR10, 40Gb/s, QSFP, 100m
FDR10	MC2210411-SR4E	Mellanox® optical module, 40Gb/s, QSFP, MPO, 850nm, up to 300m

Validated and Supported FDR Cables


Speed	Cable OPN	Description
FDR	MC2207126-004	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 4m
FDR	MC2207128-003	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 3m
FDR	MC2207128-0A2	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 2.5m
FDR	MC2207130-001	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 1m
FDR	MC2207130-002	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 2m
FDR	MC2207130-00A	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 0.5m
FDR	MC2207130-0A1	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 1.5m
FDR	MC220731V-003	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 3m
FDR	MC220731V-005	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 5m
FDR	MC220731V-010	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 10m
FDR	MC220731V-015	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 15m
FDR	MC220731V-020	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 20m
FDR	MC220731V-025	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 25m
FDR	MC220731V-030	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 30m
FDR	MC220731V-040	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 40m
FDR	MC220731V-050	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 50m
FDR	MC220731V-075	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 75m
FDR	MC220731V-100	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 100m
FDR	MCP1700-F001C	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 1m, Red Pulltab
FDR	MCP1700-F001D	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 1m, Yellow Pulltab
FDR	MCP1700-F002C	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 2m, Red Pulltab

Speed	Cable OPN	Description
FDR	MCP1700-F002D	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 2m, Yellow Pulltab
FDR	MCP1700-F003C	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 3m, Red Pulltab
FDR	MCP1700-F003D	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 3m, Yellow Pulltab
FDR	MCP170L-F001	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 1m
FDR	MCP170L-F002	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 2m
FDR	MCP170L-F003	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 3m
FDR	MCP170L-F00A	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 0.5m
FDR	MCP170L-F01A	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 1.5m
FDR	MMA1B00-F030D	Mellanox® transceiver, FDR, QSFP+, MPO, 850nm, SR4, up to 30m, DDMI

Validated and Supported EDR / 100Gb/s Cables

Speed	Cable OPN	Description
EDR	MCP1600-E001	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1m 30AWG
EDR	MCP1600-E001E30	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 1m, Black, 30AWG
EDR	MCP1600-E002	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2m 28AWG
EDR	MCP1600-E002E30	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 2m, Black, 30AWG
EDR	MCP1600-E003	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 3m 26AWG
EDR	MCP1600-E003E26	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 3m, Black, 26AWG
EDR	MCP1600-E004E26	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 4m, Black, 26AWG
EDR	MCP1600-E005E26	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 5m, Black, 26AWG
EDR	MCP1600-E00A	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 0.5m 30AWG
EDR	MCP1600-E00AE30	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 0.5m, Black, 30AWG
EDR	MCP1600-E00BE30	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 0.75m, Black, 30AWG
EDR	MCP1600-E01A	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1.5m 30AWG

Speed	Cable OPN	Description
EDR	MCP1600-E01AE30	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 1.5m, Black, 30AWG
EDR	MCP1600-E01BE30	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 1.25m, Black, 30AWG
EDR	MCP1600-E02A	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2.5m 26AWG
EDR	MCP1600-E02AE26	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 2.5m, Black, 26AWG
EDR	MFA1A00-E001	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1m
EDR	MFA1A00-E003	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 3m
EDR	MFA1A00-E005	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 5m
EDR	MFA1A00-E010	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 10m
EDR	MFA1A00-E015	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 15m
EDR	MFA1A00-E020	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 20m
EDR	MFA1A00-E030	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 30m
EDR	MFA1A00-E050	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 50m
EDR	MFA1A00-E100	Mellanox® active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 100m
EDR	MMA1B00-E100	Mellanox® transceiver, IB EDR, up to 100Gb/s, QSFP28, MPO, 850nm, SR4, up to 100m
EDR	MFA1A00-E003-TG	Mellanox® customized active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 3m
EDR	MFA1A00-E005-TG	Mellanox® customized active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 5m
EDR	MFA1A00-E010-TG	Mellanox® customized active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 10m
EDR	MFA1A00-E015-TG	Mellanox® customized active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 15m
EDR	MFA1A00-E020-TG	Mellanox® customized active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 20m
EDR	MFA1A00-E030-TG	Mellanox® customized active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 30m

 EDR links raise with RS-FEC.

Validated and Supported 10GbE Cables


Speed	Cable OPN	Description
10GE	MFM1T02A-LR	Mellanox® SFP+ optical module for 10GBASE-LR
10GE	MFM1T02A-SR	Mellanox® SFP+ optical module for 10GBASE-SR

Speed	Cable OPN	Description
10GE	MAM1Q00A-QSA	Mellanox® cable module, ETH 10GbE, 40Gb/s to 10Gb/s, QSFP to SFP+
10GE	MC2309124-005	Mellanox® passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 5m
10GE	MC2309124-007	Mellanox® passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 7m
10GE	MC2309130-001	Mellanox® passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 1m
10GE	MC2309130-002	Mellanox® passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 2m
10GE	MC2309130-003	Mellanox® passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 3m
10GE	MC2309130-00A	Mellanox® passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 0.5m
10GE	MC3309124-004	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 4m
10GE	MC3309124-005	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 5m
10GE	MC3309124-006	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 6m
10GE	MC3309124-007	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 7m
10GE	MC3309130-001	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m
10GE	MC3309130-002	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m
10GE	MC3309130-003	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 3m
10GE	MC3309130-00A	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 0.5m
10GE	MC3309130-0A1	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1.5m
10GE	MC3309130-0A2	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2.5m
10GE	MCP2100-X001B	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m, Blue Pulltab, Connector Label
10GE	MCP2100-X002B	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m, Blue Pulltab, Connector Label
10GE	MCP2100-X003B	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 3m, Blue Pulltab, Connector Label
10GE	MCP2101-X001B	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m, Green Pulltab, Connector Label
10GE	MCP2104-X001B	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m, Black Pulltab, Connector Label

Speed	Cable OPN	Description
10GE	MCP2104-X002B	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m, Black Pulltab, Connector Label
10GE	MCP2104-X003B	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 3m, Black Pulltab, Connector Label
10GE	MCP2104-X01AB	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1.5m, Black Pulltab, Connector Label
10GE	MCP2104-X02AB	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2.5m, Black Pulltab, Connector Label
Speed	Cable OPN	Description
10GE	MAM1Q00A-QSA	Mellanox® cable module, ETH 10GbE, 40Gb/s to 10Gb/s, QSFP to SFP+
10GE	MC2309124-005	Mellanox® passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 5m
10GE	MC2309124-007	Mellanox® passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 7m
10GE	MC2309130-001	Mellanox® passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 1m
10GE	MC2309130-002	Mellanox® passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 2m
10GE	MC2309130-003	Mellanox® passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 3m
10GE	MC2309130-00A	Mellanox® passive copper hybrid cable, ETH 10GbE, 10Gb/s, QSFP to SFP+, 0.5m
10GE	MC3309124-004	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 4m
10GE	MC3309124-005	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 5m
10GE	MC3309124-006	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 6m
10GE	MC3309124-007	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 7m
10GE	MC3309130-001	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m
10GE	MC3309130-002	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m
10GE	MC3309130-003	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 3m
10GE	MC3309130-00A	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 0.5m
10GE	MC3309130-0A1	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1.5m
10GE	MC3309130-0A2	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2.5m

Speed	Cable OPN	Description
10GE	MCP2100-X001B	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m, Blue Pulltab, Connector Label
10GE	MCP2100-X002B	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m, Blue Pulltab, Connector Label
10GE	MCP2100-X003B	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 3m, Blue Pulltab, Connector Label
10GE	MCP2101-X001B	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m, Green Pulltab, Connector Label
10GE	MCP2104-X001B	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1m, Black Pulltab, Connector Label
10GE	MCP2104-X002B	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2m, Black Pulltab, Connector Label
10GE	MCP2104-X003B	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 3m, Black Pulltab, Connector Label
10GE	MCP2104-X01AB	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 1.5m, Black Pulltab, Connector Label
10GE	MCP2104-X02AB	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 2.5m, Black Pulltab, Connector Label

Validated and Supported 25GbE Cables

 The 25GbE cables can be supported only when connected to the MAM1Q00A-QSA28 module.

Speed	Cable OPN	Description
25GE	MAM1Q00A-QSA28	Mellanox® cable module, ETH 25GbE, 100Gb/s to 25Gb/s, QSFP28 to SFP28
25GE	MCP2M00-A001	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 1m, 30AWG
25GE	MCP2M00-A001E30N	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 1m, Black, 30AWG, CA-N
25GE	MCP2M00-A002	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2m, 30AWG
25GE	MCP2M00-A002E30N	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2m, Black, 30AWG, CA-N
25GE	MCP2M00-A003E26N	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 3m, Black, 26AWG, CA-N
25GE	MCP2M00-A003E30L	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 3m, Black, 30AWG, CA-L
25GE	MCP2M00-A004E26L	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 4m, Black, 26AWG, CA-L
25GE	MCP2M00-A005E26L	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 5m, Black, 26AWG, CA-L

Speed	Cable OPN	Description
25GE	MCP2M00-A00A	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 0.5m, 30AWG
25GE	MCP2M00-A00AE30N	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 0.5m, Black, 30AWG, CA-N
25GE	MCP2M00-A01AE30N	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 1.5m, Black, 30AWG, CA-N
25GE	MCP2M00-A02AE26N	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2.5m, Black, 26AWG, CA-N
25GE	MCP2M00-A02AE30L	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2.5m, Black, 30AWG, CA-L
25GE	MFA2P10-A003	Mellanox® active optical cable 25GbE, SFP28, 3m
25GE	MFA2P10-A005	Mellanox® active optical cable 25GbE, SFP28, 5m
25GE	MFA2P10-A007	Mellanox® active optical cable 25GbE, SFP28, 7m
25GE	MFA2P10-A010	Mellanox® active optical cable 25GbE, SFP28, 10m
25GE	MFA2P10-A015	Mellanox® active optical cable 25GbE, SFP28, 15m
25GE	MFA2P10-A020	Mellanox® active optical cable 25GbE, SFP28, 20m
25GE	MFA2P10-A030	Mellanox® active optical cable 25GbE, SFP28, 30m
25GE	MFA2P10-A050	Mellanox® active optical cable 25GbE, SFP28, 50m
25GE	MMA2P00-AS	Mellanox® transceiver, 25GbE, SFP28, LC-LC, 850nm, SR, up to 100m
25GE	SFP25G-AOC10M-TG	Mellanox® customized active optical cable 25GbE, SFP28, 10m, Aqua
25GE	SFP25G-AOC30M-TG	Mellanox® customized active optical cable 25GbE, SFP28, 30m, Aqua
25GE	SFP25G-AOC07M-TG	Mellanox® customized active optical cable 25GbE, SFP28, 7m, Aqua
25GE	SFP25G-AOC05M-TG	Mellanox® customized active optical cable 25GbE, SFP28, 5m, Aqua
25GE	SFP25G-AOC03M-TG	Mellanox® customized active optical cable 25GbE, SFP28, 3m, Aqua
25GE	SFP25G-AOC20M-TG	Mellanox® customized active optical cable 25GbE, SFP28, 20m, Aqua
25GE	MMA2P00-ASHT	Mellanox® transceiver, 25GbE, SFP28, LC-LC, 850nm, SR, 85c, up to 100m
25GE	MMA2P00-AS_FF	Mellanox® transceiver, 25GbE, SFP28, LC-LC, 850nm, SR, up to 100m
25GE	MMA2P00-AS-SP	Mellanox® transceiver, 25GbE, SFP28, LC-LC, 850nm, SR, up to 100m, single package

Validated and Supported 40GbE Cables

Speed	Cable OPN	Description
40GE	MC2206128-004	Mellanox® passive copper cable, VPI, up to 40Gb/s, QSFP, 4m
40GE	MC2206128-005	Mellanox® passive copper cable, VPI, up to 40Gb/s, QSFP, 5m
40GE	MC2206130-001	Mellanox® passive copper cable, VPI, up to 40Gb/s, QSFP, 1m
40GE	MC2206130-002	Mellanox® passive copper cable, VPI, up to 40Gb/s, QSFP, 2m
40GE	MC2206130-003	Mellanox® passive copper cable, VPI, up to 40Gb/s, QSFP, 3m
40GE	MC2206130-00A	Mellanox® passive copper cable, VPI, up to 40Gb/s, QSFP, 0.5m
40GE	MC2210126-004	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 4m
40GE	MC2210126-005	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 5m
40GE	MC2210128-003	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 3m
40GE	MC2210130-001	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 1m
40GE	MC2210130-002	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 2m
40GE	MC2210310-003	Mellanox® active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 3m
40GE	MC2210310-005	Mellanox® active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 5m
40GE	MC2210310-010	Mellanox® active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 10m
40GE	MC2210310-015	Mellanox® active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 15m
40GE	MC2210310-020	Mellanox® active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 20m
40GE	MC2210310-030	Mellanox® active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 30m
40GE	MC2210310-050	Mellanox® active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 50m
40GE	MC2210310-100	Mellanox® active fiber cable, ETH 40GbE, 40Gb/s, QSFP, 100m
40GE	MC2210411-SR4E	Mellanox® optical module, 40Gb/s, QSFP, MPO, 850nm, up to 300m
40GE	MC2609125-005	Mellanox® passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 5m

Speed	Cable OPN	Description
40GE	MC2609130-001	Mellanox® passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 1m
40GE	MC2609130-003	Mellanox® passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 3m
40GE	MCP1700-B001E	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 1m, Black Pulltab
40GE	MCP1700-B002E	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 2m, Black Pulltab
40GE	MCP1700-B003E	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 3m, Black Pulltab
40GE	MCP1700-B01AE	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 1.5m, Black Pulltab
40GE	MCP1700-B02AE	Mellanox® passive copper cable, ETH 40GbE, 40Gb/s, QSFP, 2.5m, Black Pulltab
40GE	MMA1B00-B150D	Mellanox® transceiver, 40GbE, QSFP+, MPO, 850nm, SR4, up to 150m, DDMI
40GE	MCP7900-X01AA	Mellanox® passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 1.5m, Blue Pulltab, customized label
40GE	MCP7904-X002A	Mellanox® passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 2m, Black Pulltab, customized label
40GE	MCP7904-X003A	Mellanox® passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 3m, Black Pulltab, customized label
40GE	MCP7904-X01AA	Mellanox® passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 1.5m, Black Pulltab, customized label
40GE	MCP7904-X02AA	Mellanox® passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 2.5m, Black Pulltab, customized label
40GE	MC2210511-LR4	Optical Module 40Gb/s FDR 10 QSFP LC-LC 1310nm LR4 up to 10km

Validated and Supported 56GbE Cables

Speed	Cable OPN	Description
56GE	MC2207126-004	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 4m
56GE	MC2207128-003	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 3m
56GE	MC2207128-0A2	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 2.5m
56GE	MC2207130-001	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 1m

Speed	Cable OPN	Description
56GE	MC2207130-002	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 2m
56GE	MC2207130-00A	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 0.5m
56GE	MC2207130-0A1	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 1.5m
56GE	MC220731V-003	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 3m
56GE	MC220731V-005	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 5m
56GE	MC220731V-010	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 10m
56GE	MC220731V-015	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 15m
56GE	MC220731V-020	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 20m
56GE	MC220731V-025	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 25m
56GE	MC220731V-030	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 30m
56GE	MC220731V-040	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 40m
56GE	MC220731V-050	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 50m
56GE	MC220731V-075	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 75m
56GE	MC220731V-100	Mellanox® active fiber cable, VPI, up to 56Gb/s, QSFP, 100m
56GE	MCP1700-F001C	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 1m, Red Pulltab
56GE	MCP1700-F001D	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 1m, Yellow Pulltab
56GE	MCP1700-F002C	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 2m, Red Pulltab
56GE	MCP1700-F002D	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 2m, Yellow Pulltab
56GE	MCP1700-F003C	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 3m, Red Pulltab
56GE	MCP1700-F003D	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, 3m, Yellow Pulltab
56GE	MCP170L-F001	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 1m
56GE	MCP170L-F002	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 2m

Speed	Cable OPN	Description
56GE	MCP170L-F003	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 3m
56GE	MCP170L-F00A	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 0.5m
56GE	MCP170L-F01A	Mellanox® passive copper cable, VPI, up to 56Gb/s, QSFP, LSZH, 1.5m

Validated and Supported 100GbE Cables

Speed	Cable OPN	Description
100GE	MCP1600-C001	Mellanox® Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 1m 30AWG
100GE	MCP1600-C001E30N	Mellanox® Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 1m, Black, 30AWG, CA-N
100GE	MCP1600-C002	Mellanox® Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 2m 30AWG
100GE	MCP1600-C002E30N	Mellanox® Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 2m, Black, 30AWG, CA-N
100GE	MCP1600-C003	Mellanox® Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 3m 28AWG
100GE	MCP1600-C003E26N	Mellanox® Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 3m, Black, 26AWG, CA-N
100GE	MCP1600-C003E30L	Mellanox® Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 3m, Black, 30AWG, CA-L
100GE	MCP1600-C005E26L	Mellanox® Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 5m, Black, 26AWG, CA-L
100GE	MCP1600-C00A	Mellanox® Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 0.5m 30AWG
100GE	MCP1600-C00AE30N	Mellanox® Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 0.5m, Black, 30AWG, CA-N
100GE	MCP1600-C00BE30N	Mellanox® Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 0.75m, Black, 30AWG, CA-N
100GE	MCP1600-C01A	Mellanox® Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 1.5m 30AWG
100GE	MCP1600-C01AE30N	Mellanox® Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 1.5m, Black, 30AWG, CA-N
100GE	MCP1600-C02A	Mellanox® Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 2.5m 30AWG
100GE	MCP1600-C02AE26N	Mellanox® Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 2.5m, Black, 26AWG, CA-N
100GE	MCP1600-C02AE30L	Mellanox® Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP28, 2.5m, Black, 30AWG, CA-L
100GE	MCP1600-C03A	Mellanox® Passive Copper cable, ETH 100GbE, 100Gb/s, QSFP, PVC, 3.5m 26AWG

Speed	Cable OPN	Description
100GE	MCP1600-E001	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1m 30AWG
100GE	MCP1600-E002	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2m 28AWG
100GE	MCP1600-E003	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 3m 26AWG
100GE	MCP1600-E01A	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1.5m 30AWG
100GE	MCP1600-E02A	Mellanox® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2.5m 26AWG
100GE	MCP7F00-A001R	Mellanox® passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, colored pulltabs, 1m, 30AWG
100GE	MCP7F00-A001R30N	Mellanox® passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 1m, Colored, 30AWG, CA-N
100GE	MCP7F00-A002R	Mellanox® passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, colored pulltabs, 2m, 30AWG
100GE	MCP7F00-A002R30N	Mellanox® passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2m, Colored, 30AWG, CA-N
100GE	MCP7F00-A003R26N	Mellanox® passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3m, Colored, 26AWG, CA-N
100GE	MCP7F00-A003R30L	Mellanox® passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3m, Colored, 30AWG, CA-L
100GE	MCP7F00-A005R26L	Mellanox® passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 5m, Colored, 26AWG, CA-L
100GE	MCP7F00-A01AR	Mellanox® passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, colored pulltabs, 1.5m, 30AWG
100GE	MCP7F00-A01AR30N	Mellanox® passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 1.5m, Colored, 30AWG, CA-N
100GE	MCP7F00-A02AR26N	Mellanox® passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2.5m, Colored, 26AWG, CA-N
100GE	MCP7F00-A02AR30L	Mellanox® passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2.5m, Colored, 30AWG, CA-L
100GE	MCP7F00-A02ARLZ	Mellanox® passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2.5m, LSZH, Colored, 28AWG
100GE	MCP7F00-A03AR26L	Mellanox® passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3.5m, Colored, 26AWG, CA-L
100GE	MCP7H00-G001	Mellanox® passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 1m, 30AWG

Speed	Cable OPN	Description
100GE	MCP7H00-G001R	Mellanox® passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 1m, 30AWG
100GE	MCP7H00-G001R30N	Mellanox® passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 1m, Colored, 30AWG, CA-N
100GE	MCP7H00-G002R	Mellanox® passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 2m, 30AWG
100GE	MCP7H00-G002R30N	Mellanox® passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 2m, Colored, 30AWG, CA-N
100GE	MCP7H00-G003R	Mellanox® passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 3m, 28AWG
100GE	MCP7H00-G003R26N	Mellanox® passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 3m, Colored, 26AWG, CA-N
100GE	MCP7H00-G003R30L	Mellanox® passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 3m, Colored, 30AWG, CA-L
100GE	MCP7H00-G004R26L	Mellanox® passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 4m, Colored, 26AWG, CA-L
100GE	MCP7H00-G01AR	Mellanox® passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 1.5m, 30AWG
100GE	MCP7H00-G01AR30N	Mellanox® passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 1.5m, Colored, 30AWG, CA-N
100GE	MCP7H00-G02AR	Mellanox® passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, colored pulltabs, 2.5m, 30AWG
100GE	MCP7H00-G02AR26N	Mellanox® passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 2.5m, Colored, 26AWG, CA-N
100GE	MCP7H00-G02AR30L	Mellanox® passive copper hybrid cable, ETH 100Gb/s to 2x50Gb/s, QSFP28 to 2xQSFP28, 2.5m, Colored, 30AWG, CA-L
100GE	MFA1A00-C003	Mellanox® active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 3m
100GE	MFA1A00-C005	Mellanox® active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 5m
100GE	MFA1A00-C010	Mellanox® active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 10m
100GE	MFA1A00-C015	Mellanox® active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 15m

Speed	Cable OPN	Description
100GE	MFA1A00-C020	Mellanox® active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 20m
100GE	MFA1A00-C030	Mellanox® active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 30m
100GE	MFA1A00-C050	Mellanox® active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 50m
100GE	MFA1A00-C100	Mellanox® active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 100m
100GE	MFA7A20-C003	Mellanox® active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 3m
100GE	MFA7A20-C005	Mellanox® active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 5m
100GE	MFA7A20-C010	Mellanox® active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 10m
100GE	MFA7A20-C020	Mellanox® active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 20m
100GE	MFA7A50-C003	Mellanox® active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3m
100GE	MFA7A50-C005	Mellanox® active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 5m
100GE	MFA7A50-C010	Mellanox® active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 10m
100GE	MFA7A50-C015	Mellanox® active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 15m
100GE	MFA7A50-C020	Mellanox® active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 20m
100GE	MFA7A50-C030	Mellanox® active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 30m
100GE	MMA1B00-C100D	Mellanox® transceiver, 100GbE, QSFP28, MPO, 850nm, SR4, up to 100m, DDMI
100GE	MFA1A00-C001-TG	Mellanox® customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 1m
100GE	MFA1A00-C002-TG	Mellanox® customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP28, LSZH, 2m
100GE	MFA1A00-C003-TG	Mellanox® customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 3m
100GE	MFA1A00-C005-TG	Mellanox® customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 5m
100GE	MFA1A00-C007-TG	Mellanox® customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP28, LSZH, 7m
100GE	MFA1A00-C010-TG	Mellanox® customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 10m
100GE	MFA1A00-C015-TG	Mellanox® customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 15m

Speed	Cable OPN	Description
100GE	MFA1A00-C020-TG	Mellanox® customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 20m
100GE	MFA1A00-C030-TG	Mellanox® customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 30m
100GE	MFA1A00-C050-TG	Mellanox® customized active fiber cable, ETH 100GbE, 100Gb/s, QSFP, LSZH, 50m

Validated and Supported 200GbE Cables

Speed	Cable OPN	Description
200GE	MCP1650-V001E30	Mellanox® Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 1m, black pulltab, 30AWG
200GE	MCP1650-V002E26	Mellanox® Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 2m, black pulltab, 26AWG
200GE	MCP1650-V003E26	Mellanox® Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 3m, black pulltab, 26AWG
200GE	MCP1650-V00AE30	Mellanox® Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 0.5m, black pulltab, 30AWG
200GE	MCP1650-V01AE30	Mellanox® Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 1.5m, black pulltab, 30AWG
200GE	MCP1650-V02AE26	Mellanox® Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 2.5m, black pulltab, 26AWG
200GE	MCP1650-V00AE30	Mellanox® Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 0.5m, black pulltab, 30AWG

Supported 3rd Party Cables and Modules

Speed	Cable OPN	Description
10GbE	1-2053783-3	038-003-697, QSFP/QSFP, 100 OHM
10GbE	44X1371-N31295E	10G Amphenol Copper 7m cable
10GbE	BN-QS-SP-CBL-5M	40G QSFP+ to 4xSFP+ DAC Breakout Direct Attach Cable 5m
10GbE	BN-QS-SP-CBL-5M	40G QSFP+ to 4xSFP+ DAC Breakout Direct Attach Cable 5m
10GbE	CAB-SFP-SFP-1M	Arista 10GBASE-CR SFP+ Cable 1 Meter
10GbE	CAB-SFP-SFP-3M	Arista 10GBASE-CR SFP+ Cable 3 Meter
10GbE	CAB-SFP-SFP-3M	Arista Compatible 10G SFP+ Passive Cable 3m
10GbE	CAB-SFP-SFP-5M	Arista 10GBASE-CR SFP+ Cable 5 Meter
10GbE	FTLX1471D3BCL-ME	10GBASE-LR SFP+ 1310nm 10km DOM Transceiver Module
10GbE	SFP-10GB-SR	Cisco SFP+ 10GB SR optic module

Speed	Cable OPN	Description
10GbE	SFP-H10GB-CU1M	Cisco 1-m 10G SFP+ Twinax cable assembly, passive
10GbE	SFP-H10GB-CU3M	Cisco 3-m 10G SFP+ Twinax cable assembly, passive
10GbE	SFP-H10GB-CU5M	Cisco 5-m 10G SFP+ Twinax cable assembly, passive
25GbE	SFP-H25G-CU1M	25GBASE-CR1 Copper Cable 1-meter
25GbE	SFP-H25G-CU2M	25GBASE-CR1 Copper Cable 2-meter
40GbE	AFBR-79EBPZ-CS2	QSFP-40G-SR-BD
40GbE	BN-QS-QS-CBL-5M	40G QSFP+ DAC Direct Attach Cable 5m
40GbE	L45593-D118-B50	PASSIVE COPPER CABLE ETH 40GBE QSFP 3M
40GbE	QSFP-4SFP10G-CU5M	PASSIVE COPPER SPLITTER CABLE ETH 40GBE TO 4X10GBE 5M
40GbE	QAOC-40G4F1A25-C	CISCO-DELTA 25m 40GbE AOC
40GbE	QSFP-40G-SR4	Cisco 40GBASE-SR4, 4 lanes, 850 nm MMF
40GbE	QSFP-40G-SR-BD	Cisco 40GBASE-SR-BiDi, duplex MMF
40GbE	QSFP-H40G-ACU10M	Cisco 40GBASE-CR4 QSFP direct-attach copper cable, 10-meter, active
40GbE	QSFP-H40G-AOC10M	Cisco 40GBase-AOC QSFP direct-attach Active Optical Cable, 10-meter
40GbE	QSFP-H40G-AOC25M	Cisco AOC 40GBE QSFP 25M
40GbE	QSFP-H40G-CU3M	Cisco PASSIVE COPPER CABLE ETH 40GBE QSFP 3M
100GbE	10137498-2005LF	HPE 100GbE 2m copper cable
100GbE	10137498-2010LF	HPE 100GbE 4m copper cable
100GbE	AFBR-89CDDZ	QSFP28 Pluggable, Parallel Fiber-Optics Module 100 Gigabit Ethernet 850nm SR4, MMF, MPO Connector
100GbE	CAB-Q-Q-100GbE-3M	Passive 3 meter , QSFP+ to QSFP+ QSFP100 TWINAX 103.125Gbps-CR4
100GbE	FCBN425QE1C10-C1	100GbE Quadwire® QSFP28 Active Optical Cable 10M

Tested Switches

Tested EDR / 100Gb/s Switches

Speed	Switch Silicon	OPN # / Name	Description	Vendor
EDR	Switch-IB	MSB7790-XXX	36-port Unmanaged EDR 100Gb/s InfiniBand Switch Systems	Mellanox
EDR	Switch-IB	MSB7700-XXX	36-port Managed EDR 100Gb/s InfiniBand Switch Systems	Mellanox
EDR	Switch-IB 2	MSB7800-XXX	36-port Managed EDR 100Gb/s InfiniBand Switch Systems	Mellanox

Tested 10/40GbE Switches

Speed	Switch Silicon	OPN # / Name	Description	Vendor
10GbE	N/A	5548UP	32x 10GbE SFP+ Switch System	Cisco
10/40GbE	N/A	7050Q	16 x 40GbE QSFP+ Switch System	Arista
10/40GbE	N/A	7050S	48x 10GbE SFP+ and 4 x 40GbE QSFP+ Switch System	Arista
10/40GbE	N/A	G8264	48x 10GbE SFP+ and 4 x 40GbE QSFP+ Switch System	Lenovo
10/40GbE	N/A	QFX3500	48x 10GbE SFP+ and 4 x 40GbE QSFP+ Switch System	Juniper
10/40GbE	N/A	S4810P-AC	48x 10GbE SFP+ and 4 x 40GbE QSFP+ Switch System	Force10
10/40GbE	N/A	3064	48x 10GbE SFP+ and 4 x 40GbE QSFP+ Switch System	Cisco
10/40GbE	N/A	8164F	48x 10GbE SFP+ and 2 x 40GbE QSFP+ Switch System	Dell
10/40GbE	N/A	S5000	48x 10GbE SFP+ and 4 x 40GbE QSFP+ Switch System	Dell
10/40GbE	N/A	3132Q	4x 10GbE SFP+ and 32 x 40GbE QSFP+ Switch System	Cisco
40GbE	N/A	7050QX	32x 40GbE QSFP+ Switch System	Arista
40GbE	N/A	G8316	16x 40GbE QSFP+ Switch System	Lenovo
40GbE	N/A	S6000	32x 40GbE QSFP+ Switch System	Dell

Tested 100GbE Switches

Speed	Switch Silicon	OPN # / Name	Description	Vendor
100GbE	Spectrum-3	MSN4600-XXXX	64-port Non-blocking 100GbE Open Ethernet Switch System	Mellanox
100GbE	Spectrum-2	MSN3700-XXXX	32-port Non-blocking 100GbE Open Ethernet Switch System	Mellanox

Speed	Switch Silicon	OPN # / Name	Description	Vendor
100GbE	Spectrum-2	MSN3420-XXXX	48 SFP + 12 QSFP ports Non-blocking 100GbE Open Ethernet Switch System	Mellanox
100GbE	Spectrum	MSN2410-XXXX	48-port 25GbE + 8-port 100GbE Open Ethernet Switch System	Mellanox
100GbE	Spectrum	MSN2700-XXXX	32-port Non-blocking 100GbE Open Ethernet Switch System	Mellanox
100GbE	Spectrum	MSN2740-XXXX	32-port Non-blocking 100GbE Open Ethernet Switch System	Mellanox
100GbE	N/A	QFX5200-32C-32	32-port 100GbE Ethernet Switch System	Juniper
100GbE	N/A	S6820-56HF	48 SFP+ + 8 QSFP Ports 100GbE Switch Ethernet	H3C
100GbE	N/A	CE6860-1-48S8 CQ-EI	Huawei 100GbE Ethernet switch	Huawei
100GbE	N/A	7060CX-32S	32-port 100GbE Ethernet Switch System	Arista
100GbE	N/A	3232C	32-port 100GbE Ethernet Switch System	Cisco
100GbE	N/A	N9K-C9236C	36-port 100GbE Ethernet Switch System	Cisco
100GbE	N/A	93180YC-EX	48-port 25GbE + 6-port 100GbE Ethernet Switch System	Cisco
100GbE	N/A	T7032-IX7	32-port 100GbE Ethernet Switch System	Quanta


Tools, Switch Firmware and Driver Software

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
MLNX_OFED	5.1-0.6.6.0 / 5.0-2.1.8.0 / 5.0-2.1.8.0
MLNX_EN (MLNX_OFED based code)	5.1-0.6.6.0 / 5.0-2.1.8.0 / 5.0-2.1.8.0
WinOF-2	2.50.50000 / 2.40.50000 / 2.30
MFT	4.15.0/ 4.14.0-105 / 4.13.3

	Supported Version
MLNX-OS	3.9.0900 onwards
Onyx	3.9.0900 onwards
ConnectX-4 Firmware	12.28.1002/ 12.27.1016 / 12.26.1040
SwitchX-IB™ Firmware	11.2008.0236 / 11.2000.2626
SwitchX-IB 2 Firmware	15.2008.0236 / 15.2000.2626
Linux Inbox Drivers	<ul style="list-style-type: none"> • RH7.6 • Ubuntu 16.04.05
Windows Inbox Drivers	<ul style="list-style-type: none"> • Windows 2012 • Windows 2012 R2 • Windows 2016

Supported FlexBoot, UEFI

 Please be aware that not all firmware binaries contain FlexBoot or UEFI, support may vary between cards. For further information see [Supported Devices](#).

This firmware version is compiled with the following expansion ROMs and versions:

Expansion ROM	Supported Version
FlexBoot	3.6.101
UEFI	14.21.16



PRM Revision Compatibility

This firmware version complies with the following Programmer's Reference Manual:

- Mellanox Adapters Programmer's Reference Manual (PRM), Rev 0.47 or later, which has Command Interface Revision 0x5. The command interface revision can be retrieved by means of the QUERY_FW command and is indicated by the field cmd_interface_rev.

Changes and New Features

Important Notes

-  **Security Hardening Enhancements:** This release contains important reliability improvements and security hardening enhancements. Mellanox recommends upgrading your devices firmware to this release to improve the devices' firmware security and reliability.
-  **SR-IOV - Virtual Functions (VF) per Port -** The maximum Virtual Functions (VF) per port is 127. For further information, see [RoCE Limitations](#).

Changes and New Feature in this Firmware Version

Feature/Change	Description
12.28.1002	
Hardware Tag Matching	Increased the maximum XRQ number to 512.
Bug Fixes	See Bug Fixes .

Unsupported Features and Commands

Unsupported Features

The following advanced feature are unsupported in the current firmware version:

- The following service types:
 - SyncUMR
 - Mellanox transport
 - RAW IPv6
- INT-A not supported for EQs only MSI-X
- PCI VPD write flow (RO flow supported)
- Streaming Receive Queue (STRQ) and collapsed CQ
- Subnet Manager (SM) on VFs
- RoCE LAG in Multi-Host/Socket-Direct
- DC in Multi-Host, SR-IOV, and Ethernet (RoCE)
- RoCE LAG for VFs
- Mutlihost Ethernet

Unsupported Commands


- QUERY_MAD_DEMUX
- SET_MAD_DEMUX
- CREATE_RQ - MEMORY_RQ_RMP
- MODIFY_LAG_ASYNC_EVENT

Bug Fixes in this Firmware Version

Bug Fixes History lists the bugs fixed in this release. For a list of old Bug Fixes, please see [Bug Fixes History](#).

Internal Ref.	Issue
2131495	Description: Fixed an issue that caused the DCR to be destroyed before the retry option managed to work when the retry timeout is too big. in this case the DCR' time-to-live was increased, and the the maximum retry timeout was decreased.
	Keywords: Timeout DC
	Discovered in Version: 12.27.1016
	Fixed in Release: 12.28.1002
2200390	Description: Increased PHY power consumption limit to 1.5w.
	Keywords: Power consumption limit increase
	Discovered in Version: 12.27.1016
	Fixed in Release: 12.28.1002
2169365	Description: Fixed an issue that caused PortCounters.PortRcvErr / PPCNT.infiniband_counters.PortRcvErr not to report port icrc errors.
	Keywords: InfiniBand, ICRC, PortRcvErr, PortCounters
	Discovered in Version: 12.27.1016
	Fixed in Release: 12.28.1002

Known Issues

 For a list of older versions' Known Issues that are not listed in this chapter, please refer to the relevant firmware versions Release Notes in <https://docs.mellanox.com/category/adapterfw>.

Ethernet Rate Limit per VF in RoCE Mode Limitations

Dual Port Device				Single Port Device	
w/o LAG (TOTAL_VFS>32)		With LAG (TOTAL_VFS<32)		w/o LAG	
w/o QoS	Full QoS	w/o QoS	Full QoS	w/o QoS	Full QoS
127	45	32	20	127	100

Ethernet Rate Limit per VF in InfiniBand Mode Limitations

Dual Port Device		Single Port Device	
w/o LAG		w/o LAG	
w/o QoS	Full QoS	w/o QoS	Full QoS
127	26	127	55

Known Issues

Internal Ref.	Issue
2245422	Description: When MKEY_BY_NAME is enabled by NVCONFIG and a large number of VFs are configured, VM restart (VF/PF FLR) will take longer than when MKEY_BY_NAME is disabled
	Workaround: N/A
	Keywords: SR-IOV
	Discovered in Version: 12.28.1002
2075728	Description: Minor performance degradation in CREATE_QP throughput.
	Workaround: N/A
	Keywords: Performance
	Discovered in Version: 12.27.1016
2071210	Description: mlxconfig query for the BOOT_INTERRUPT_DIS TLV shows a wrong value in the "current value" field.
	Workaround: Use "next boot" indication to see the right value.
	Keywords: mlxconfig
	Discovered in Version: 12.27.1016

Internal Ref.	Issue
2058677	Description: In Socket Direct supported cards, after performing mlxfwreset, the expansion ROM register might be writable on all hosts for less than 1 second.
	Workaround: N/A
	Keywords: Expansion ROM, Socket Direct
	Discovered in Version: 12.27.1016
2057653	Description: quota_exceeded_command and invalid_command counters do not function properly. In this firmware version, the quota_exceeded_command counter's value always remains 0, whereas the invalid_command counter increases only for some Ethernet commands failure events.
	Workaround: N/A
	Keywords: quota_exceeded_command, invalid_command, vnic_env counters
	Discovered in Version: 12.27.1016
1840289	Description: Since Packet Pacing enforce max_tc value is "1", features that require multiple TCs will not be active when this mode is available.
	Workaround: N/A
	Keywords: Packet Pacing
	Discovered in Version: 12.26.1040
1796628	Description: Due to performance considerations, unicast loopback traffic will go through the NIC SX tables, and multicast loopback traffic will skip the NIC SX tables.
	Workaround: N/A
	Keywords: Performance, unicast loopback traffic, multicast loopback traffic
	Discovered in Version: 12.26.1040
1754253	Description: Firmware downgrade followed by mlxfwreset/mstfwreset action may cause sideband management connection issues.
	Workaround: Reset the BMC
	Keywords: mlxfwreset/mstfwreset
	Discovered in Version: 12.25.1020
1699214	Description: NODNIC VF is partially tested. It is fully tested only in ConnectX-5 adapter cards.
	Workaround: N/A
	Keywords: NODNIC VF
	Discovered in Version: 12.25.1020

Internal Ref.	Issue
1689186	Description: Changing priority to TC map during traffic might cause packet drops.
	Workaround: N/A
	Keywords: QoS
	Discovered in Version: 12.25.1020
1604699	Description: Ethernet RFC 2819 counter ether_stats_oversize_pkts and Ethernet IEEE 802.3 counter a_frame_too_long_errors share the same resource. Clearing each of them will affect the other.
	Workaround: N/A
	Keywords: Counters
	Discovered in Version: 12.25.1020
-	Description: In Ethernet mode, at 10/40GbE speeds, only NO-FEC in Force mode is supported. Other user configurations are overridden.
	Workaround: N/A
	Keywords: Ethernet, 10GbE, 40GbE, RS-FEC
	Discovered in Version: 12.25.1020
1498399	Description: If the XRC switches between SRQ/RMPs while there is an outstanding ODP on the responder XRC QP, a CQE with an error might be generated (that is not a PFAULT abort).
	Workaround: N/A
	Keywords: XRC SRQ/RMP ODP
	Discovered in Version: 12.25.1020
1546401	Description: vport_tc and para_vport_tc are not supported in this version.
	Workaround: N/A
	Keywords: SR-IOV vport_tc and para_vport_tc
	Discovered in Version: 12.24.1000
1546492	Description: Executing the update_lid command while the IB port sniffer utility is active can stop the utility.
	Workaround: N/A
	Keywords: IB Sniffer
	Discovered in Version: 12.24.1000

Internal Ref.	Issue																													
1537898	Description: Initializing a function while the IB port sniffer utility is active can stop the utility.																													
	Workaround: N/A																													
	Keywords: IB Sniffer																													
	Discovered in Version: 12.24.1000																													
1332714/1345824	Description: The maximum “read” size of MTRC_STDB is limited to 272 Bytes.																													
	Workaround: Set the MTRC_STDB.read_size to the maximum value of 0x110=272 Bytes																													
	Keywords: Access register, MTRC_STDB, tracer to dmesg, fwtrace to dmesg																													
	Discovered in Version: 12.23.1020																													
1408994	Description: FTE with both forward (FWD) and encapsulation (ENCAP) actions is not supported in the SX NIC Flow Table.																													
	Workaround: N/A																													
	Keywords: SX NIC Flow Table																													
	Discovered in Version: 12.23.1020																													
1350794	Description: Encapsulation / Decapsulation support in steering has the following limitations: <ul style="list-style-type: none">• Encapsulation / Decapsulation can be open on the FDB only if all VFs are non active.• Encapsulation / Decapsulation supports single mode only: FDB / NIC. Opening tables of both types is not supported.• Encapsulation / Decapsulation per device support:																													
	<table><thead><tr><th></th><th></th><th>NIC</th><th>FDB</th><th></th></tr></thead><tbody><tr><td rowspan="2">ConnectX-4</td><td>encap</td><td>NO</td><td>YES</td><td rowspan="2">non-MH</td></tr><tr><td>decap</td><td>NO</td><td>NO</td></tr><tr><td rowspan="2">ConnectX-4 Lx</td><td>encap</td><td>NO</td><td>YES</td><td rowspan="2">non-MH</td></tr><tr><td>decap</td><td>NO</td><td>YES</td></tr><tr><td rowspan="2">ConnectX-5</td><td>encap</td><td>YES</td><td>YES</td><td rowspan="2"></td></tr><tr><td>decap</td><td>YES</td><td>YES</td></tr></tbody></table>			NIC	FDB		ConnectX-4	encap	NO	YES	non-MH	decap	NO	NO	ConnectX-4 Lx	encap	NO	YES	non-MH	decap	NO	YES	ConnectX-5	encap	YES	YES		decap	YES	YES
			NIC	FDB																										
	ConnectX-4	encap	NO	YES	non-MH																									
		decap	NO	NO																										
	ConnectX-4 Lx	encap	NO	YES	non-MH																									
		decap	NO	YES																										
ConnectX-5	encap	YES	YES																											
	decap	YES	YES																											
Workaround: N/A																														
Keywords: Steering Encapsulation / Decapsulation																														
Discovered in Version: 12.23.1020																														
1027553	Description: While using e-switch vport sVLAN stripping, the RX steering values on the sVLAN might not be accurate.																													

Internal Ref.	Issue
	Workaround: N/A
	Keywords: e-sw vport sVLAN stripping, RX steering
	Discovered in Version: 12.24.1000
1799917	Description: Untagged CVLAN packets in the Steering Flow Tables do not match the SVLAN tagged packets.
	Workaround: N/A
	Keywords: Steering Flow Tables, CVLAN/SVLAN packets
	Discovered in Version: 12.23.1020
1355883	Description: Running the QUERY_VPORT_COUNTER command with clear bit results in discard counters being reset.
	Workaround: N/A
	Keywords: Discard counters
	Discovered in Version: 12.22.1002
1277762	Description: An Ethernet multicast loopback packet is not counted (even if it is not a local loopback packet) when running the nic_receive_steering_discard command.
	Workaround: N/A
	Keywords: Ethernet multicast loopback packet
	Discovered in Version: 12.22.1002
1114610	Description: During DC CNAK stress tests, DC CNAK timeout (CNAK drops) might occur.
	Workaround: N/A
	Keywords: DC CNAK
	Discovered in Version: 12.22.1002
1047184	Description: RDMA resq_local_length_error and resp_remote_invalid_request counters do not function properly.
	Workaround: N/A
	Keywords: RDMA counters
	Discovered in Version: 12.21.1000
1168594	Description: RoCE Dual Port Mode (a.k.a Multi-Port vHCA: MPV) is not supported in Multi-Host setups.
	Workaround: N/A

Internal Ref.	Issue
	Keywords: Multi-Port vHCA, Multi-Host
	Discovered in Version: 12.21.1000
1072337	Description: If a packet is modified in e-sw flow steering, the SX sniffer Flow Table (of the VF) will see the sniffed packet after the modification.
	Workaround: N/A
	Keywords: SX sniffer Flow Table
	Discovered in Version: 12.21.1000

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](#).

Supported Non-Volatile Configurations


Configuration	mlxconfig Parameter Name	Class	TLV ID
NV_MEMIC_CONF	MEMIC_BAR_SIZE	GLOBAL (0)	0x6
	MEMIC_SIZE_LIMIT		
NV_HOST_CHAINING_CONF	HOST_CHAINING_MODE		0x8
	HOST_CHAINING_DESCRIPTOR_S		
	HOST_CHAINING_TOTAL_BUFFER_SIZE		
NV_FLEX_PARS_CONF	FLEX_PARSER_PROFILE_ENABLE		0xe
	FLEX_IPV4_OVER_VXLAN_PORT		
NV_ROCE_1_5_CONF	ROCE_NEXT_PROTOCOL		0x10
NV_INTERNAL_RESOURCE_CONF	ESWITCH_HAIRPIN_DESCRIPTOR_S		0x13
	ESWITCH_HAIRPIN_TOT_BUFFER_SIZE		
NV_GLOBAL_PCI_CONF	NON_PREFETCHABLE_PF_BAR		0x80
	NUM_OF_VFS		
	SRIOV_EN		
	PF_LOG_BAR_SIZE		
	VF_LOG_BAR_SIZE		
	NUM_PF_MSIX		
	NUM_VF_MSIX		
NV_TPT_CONF	INT_LOG_MAX_PAYLOAD_SIZE		0x82
NV_POWER_CONF	SW_RECOVERY_ON_ERRORS		0x88
	RESET_WITH_HOST_ON_ERRORS		
	ADVANCED_POWER_SETTINGS		
NV_SW_OFFLOAD_CONFIG	CQE_COMPRESSION		0x10a
	IP_OVER_VXLAN_EN		

Configuration	mlxconfig Parameter Name	Class	TLV ID
	PCI_ATOMIC_MODE		
	LRO_LOG_TIMEOUT0		
	LRO_LOG_TIMEOUT1		
	LRO_LOG_TIMEOUT2		
	LRO_LOG_TIMEOUT3		
NV_IB_DC_CONF	LOG_DCR_HASH_TABLE_SIZE		0x190
	DCR_LIFO_SIZE		
NV_VPI_LINK_TYPE	LINK_TYPE	PHYSICAL_PORT (2)	0x12
NV_ROCE_CC	ROCE_CC_PRIO_MASK		0x107
	ROCE_CC_ALGORITHM		
NV_ROCE_CC_ECN	CLAMP_TGT_RATE_AFTER_TIME_INC		0x108
	CLAMP_TGT_RATE		
	RPG_TIME_RESET		
	RPG_BYTE_RESET		
	RPG_THRESHOLD		
	RPG_MAX_RATE		
	RPG_AI_RATE		
	RPG_HAI_RATE		
	RPG_GD		
	RPG_MIN_DEC_FAC		
	RPG_MIN_RATE		
	RATE_TO_SET_ON_FIRST_CNP		
	DCE_TCP_G		
	DCE_TCP_RTT		
	RATE_REDUCE_MONITOR_PERIOD		
	INITIAL_ALPHA_VALUE		
	MIN_TIME_BETWEEN_CNPS		

Configuration	mlxconfig Parameter Name	Class	TLV ID
	CNP_802P_PRI0		
	CNP_DSCP		
NV_LLDP_NB_CONF	LLDP_NB_DCBX		0x10a
	LLDP_NB_RX_MODE		
	LLDP_NB_TX_MODE		
NV_LLDP_NB_DCBX	DCBX_IEEE		0x18e
	DCBX_CEE		
	DCBX_WILLING		
NV_KEEP_LINK_UP	KEEP_ETH_LINK_UP		0x190
	KEEP_IB_LINK_UP		
	KEEP_LINK_UP_ON_BOOT		
	KEEP_LINK_UP_ON_STANDBY		
NV_QOS_CONF	NUM_OF_VL		0x192
	NUM_OF_TC		
	NUM_OF_PFC		
NV_MPFS_CONF	DUP_MAC_ACTION		0x196
	SRIOV_IB_ROUTING_MODE		
	IB_ROUTING_MODE		
NV_HCA_CONF	PCI_WR_ORDERING	HOST-FUNCTION [3]	0x112
	MULTI_PORT_VHCA_EN		
NV_EXTERNAL_PORT_CTRL	PORT_OWNER		0x192
	ALLOW_RD_COUNTERS		
	RENEG_ON_CHANGE		
	TRACER_ENABLE		
NV_ROM_BOOT_CONF2	IP_VER		0x195
	BOOT_UNDI_NETWORK_WAIT		
NV_ROM_UEFI_CONF	UEFI_HII_EN		0x196

Configuration	mlxconfig Parameter Name	Class	TLV ID
NV_ROM_UEFI_DEBUG_LEVEL	BOOT_DBG_LOG		0x206
	UEFI_LOGS		
NV_ROM_BOOT_CONF1	BOOT_VLAN		0x221
	LEGACY_BOOT_PROTOCOL		
	BOOT_RETRY_CNT		
	BOOT_LACP_DIS		
	BOOT_VLAN_EN		
NV_ROM_IB_BOOT_CONF	BOOT_PKEY		0x222
NV_PCI_CONF	ADVANCED_PCI_SETTINGS	HOST (7)	0x80
SAFE_MODE_CONF	SAFE_MODE_THRESHOLD		0x82
	SAFE_MODE_ENABLE		

Changes and New Feature History


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

Feature/Change	Description
12.27.4000	
Resourcedump	Added the following segments, as appeared in the PRM, to the Resource Dump: <ul style="list-style-type: none">• PRM_QUERY_QP• PRM_QUERY_CQ• PRM_QUERY_MKEY• QUERY_VNIC_ENV
Bug Fixes	See Bug Fixes .
12.27.2008	
Bug Fixes	See Bug Fixes .
12.27.1016	
RoCE Selective Repeat	RoCE Selective Repeat introduces a new QP retransmission mode in RoCE: recovery from packet drop by resending the dropped packet and not only all the PSN window (Go-Back-N protocol). This new capability comes with the following limitations: <ul style="list-style-type: none">• Selective repeat cannot be used with AR• Does not work with signature (T10-DIF)• Does not work with Tag Matching enabled
RedFish (RDE)	Allows BMC to query and control NIC over RedFish API (https://www.dmtf.org/standards/redfish). Currently, the NIC supports reading data and setting basic Ethernet and InfiniBand parameters.
ECMP with RoCE Traffic	Enables matching of source_vhca_port in the FDB flow for ECMP hardware offload on a single FDB
Hardware Offloaded Rules (Resource Dump)	Added support for dumping hardware steering entries (raw data) using the resource dump API
Link Down Counter	The eth_link_down_counter now counts logical link downs as well.
Bug Fixes	See Bug Fixes
Rev. 12.26.4012	
Globally Disable RoCE through MST	Enables the user to globally disable RoCE on init by writing to the access register NCFG_REG.
Zero-Touch RoCE (ZTR) Slow Start	Enabled Zero-Touch RoCE (ZTR) slow start capability for responder flows.
Resource Dump	Extracts and prints data segments generated by the firmware.

Bug Fixes	See Bug Fixes History .
Rev. 12.26.1040	
ICMD and Diagnostic Counters	Enabled the firmware by using the ICMD commands to deal with diagnostic counters similar to cmdif. They can be called via the vsec space. The counters' values are returned only via the tracer. The ICMD Query Caps indicate support and expose the list of the supported counters.
User Context Object (DEVX)	<p>This is a containerized sandbox per user, to access PRM command securely by using General Object commands, UMEM and UCTX contexts. The allowed functionalities of this capability depend on the user permissions.</p> <p>The following functionalities are still managed by the Kernel:</p> <ul style="list-style-type: none"> • Resource cleaning • UCTX stamping • Blocking the physical address and IRQ from these UCTX
DEVX Support for Asynchronous Events	Added support for reporting the supported affiliated and unaffiliated asynchronous events to DEVX users through the command interface.
Zero-Touch-RoCE Counters	Zero-Touch-RoCE counters are now available to the user for debuggability purposes when using the Zero-Touch-RoCE feature.
Security Hardening Enhancements	<p>This release contains important reliability improvements and security hardening enhancements.</p> <p>Mellanox recommends upgrading your device firmware to this release to improve the device firmware security and reliability.</p>
Bug Fixes	See Bug Fixes History .
Rev. 12.25.1020	
VSC Security	VSC security includes the mechanisms which will prevent a reasonable host from affecting other hosts from using VSC.
ODP support for SRQ & XRC	<p>Added support for send opcode operations targeting a SRQ/RMP with the receive WQEs using ODP memory. In case the receive WQE receives an ODP, the device will generate ODP notifications (EQE) and PFAULT will abort CQEs.</p> <p>Note: It is recommended to prefetch the memory used by the receive WQEs to reduce ODP occurrence as these have significant latencies and will cause a performance degradation.</p>
Auto-Sensing when using 25/10GbE Optical Modules	This new capability accelerates the network to auto-sense the port speed and use it when using a 25/10GbE optical module. Meaning, if the used module is 25GbE but the port is a 10GbE port, the speed used for that network will be 10GbE.
Package ID	Enabled Package ID configuration using server strap according OCP 3.0.
DPDK UIO	This capability provides a solution for improving user space drivers development, generic user space IO device services.

mlxconfig	Renamed the BOOT_RETRY_CNT1 parameter to BOOT_RETRY_CNT.
Reduced Firmware Upgrade Time	<p>Reduced firmware upgrade time using mlxfwreset tool to ~3 seconds. Using this capability requires enabling PARTIAL_RESET_EN in mlxconfig and using MFT version 4.12.0 and up. The "PARTIAL" refers to not resetting the port modules (which is not mandatory for firmware upgrades).</p> <p>Note: Currently this capability only supports firmware upgrade and downgrades to firmware versions newer than XX.25.1020.</p>
Bug Fixes	See Bug Fixes History .

Bug Fixes History

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

Internal Ref.	Issue
2126484	Description: Fixed a rare case where the the device hanged while running the sw reset flow under heavy stress and with many open resources.
	Keywords: sw reset
	Discovered in Version: 12.27.2008
	Fixed in Release: 12.27.4000
2119975	Description: Fixed low PXE performance while using the VSC to trigger the send_ring_doorbells.
	Keywords: NODNIC, DOORBELL
	Discovered in Version: 12.27.2008
	Fixed in Release: 12.27.4000
2120096	Description: Fixed an issue that prevented IPoIB and DC from working together.
	Keywords: IB DC, IPoIB
	Discovered in Version: 12.27.2008
	Fixed in Release: 12.27.4000
2120096	Description: Fixed DC functionality issues.
	Keywords: DC
	Discovered in Version: 12.27.2008
	Fixed in Release: 12.27.4000
2107103	Description: Fixed an issue that prevented the desched_threshold field from working properly.
	Keywords: DCQCN
	Discovered in Version: 12.27.1016
	Fixed in Release: 12.27.2008

Internal Ref.	Issue
1949324	Description: Fixed an issue that caused the ZTR counters query to always return 0.
	Keywords: ZTR counters
	Discovered in Version: 12.26.4012
	Fixed in Release: 12.27.1016
2064453	Description: Fixed an issue that prevented the adapter card from going into the bypass mode when the BMC disabled the hardware arbitration.
	Keywords: BMC, hardware arbitration, bypass mode
	Discovered in Version: 12.26.4012
	Fixed in Release: 12.27.1016
2003634	Description: Fixed a performance degradation issue, and a high packet drop when SR-IOV was enabled and packets went through the FDB default behaviour.
	Keywords: SR-IOV, FDB, Packet drop
	Discovered in Version: 12.25.1020
	Fixed in Release: 12.27.1016
1938614	Description: Due to the string DB not being updated after Live-Patch, the tracer cannot function after Live-Patch.
	Keywords: Live-Patch, LFWP, mlxfwreset, strings
	Discovered in Version: 12.26.1040
	Fixed in Release: 12.27.1016
1993707	Description: Fixed a rare issue that caused other active functions to receive a malformed CQE during driver (PF or VF) unload or FLR flows.
	Keywords: Malformed CQE
	Discovered in Version: 12.25.1020
	Fixed in Release: 12.27.1016
1973826	Description: Fixed an issue that cause the firmware to hang when an FLR occurred at the same time as the teardown. As a result, the teardown flow took a lock, and never released it because it was being aborted by an FLR.
	Keywords: FLR, teardown
	Discovered in Version: 12.26.1040
	Fixed in Release: 12.27.1016

Internal Ref.	Issue
1929850	Description: Creating an NVMeoF offloaded target while running the LFWP flow may cause the device to become unstable.
	Keywords: Live Firmware Patch, LFWP, NVME
	Discovered in Version: 12.26.1040
	Fixed in Release: 12.26.4012
1778343	Description: Fixed an issue that caused IPoIB not to function when there were DC CNAK QPs active.
	Keywords: IPoIB
	Discovered in Version: 12.25.1020
	Fixed in Release: 12.26.1040
1803791	Description: On rare occasions, when firmware coalesce Host stuck events occur, a async event might be delayed to be reported, and not be triggered until the next time the PCIe hangs on one of the hosts.
	Keywords: PCIe Error Notification
	Discovered in Version: 12.25.1020
	Fixed in Release: 12.26.1040
1824111	Description: Renamed the GMP Mellanox Vendor Specific External Capability mask enum from IsDiagnosticCountersSupported to IsDiagnosticDataSupported.
	Keywords: GMP Mellanox Vendor Specific External Capability mask DiagnosticData
	Discovered in Version: 12.25.1020
	Fixed in Release: 12.26.1040
1822787	Description: Fixed an issue that caused a function to misbehave when a PCIe TLP was set with a poisoned indication.
	Keywords: PCIe TLP
	Discovered in Version: 12.25.1020
	Fixed in Release: 12.26.1040
1771921	Description: Fixed an issue that prevented users with non-port owner privilege from using the "read DCBX access registry key" EGID_DCBX_APP/REGID_DCBX_PARAM.
	Keywords: DCBX
	Discovered in Version: 12.24.1000
	Fixed in Release: 12.25.1020

Internal Ref.	Issue
1615586	Description: Fixed a rare issue that caused the QP to falsely transition into the error state as a result of handling duplicate read/atomic request followed by memory key invalidation.
	Keywords: CQE
	Discovered in Version: 12.24.1000
	Fixed in Release: 12.25.1020
1678824	Description: Fixed an issue that prevented the user to enable the port after disabling it in the VF NODNIC.
	Keywords: VF NODNIC
	Discovered in Version: 12.24.1000
	Fixed in Release: 12.25.1020
1606289	Description: Enlarged the number of modify fields to 16 to avoid IPv6 header rewrite failure.
	Keywords: IPv6 header rewrite
	Discovered in Version: 12.24.1000
	Fixed in Release: 12.25.1020
1627973	Description: Fixed an issue that prevented IB QP counters for Acks/Responses from working as a results the NACK/OOS counters shown as zero.
	Keywords: IB QP counters for Acks/Responses
	Discovered in Version: 12.24.1000
	Fixed in Release: 12.25.1020

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