



NVIDIA Mellanox ConnectX-6 Dx Adapter Cards Firmware Release Notes v22.28.1002

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Release Notes Update History

Revision	Date	Description
22.28.1002	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®-6 Dx adapters firmware Rev 22.28.1002. This firmware supports the following protocols:

- Ethernet - 1GbE, 10GbE, 25GbE, 40GbE, 50GbE¹, 100GbE¹, 200GbE²
- PCI Express 4.0, supporting backwards compatibility for v3.0, v2.0 and v1.1

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

². Speed that supports PAM4 mode only.



Please make sure to use a PCIe slot that can supply the required power to the ConnectX-6 Dx adapter card as stated in section Specifications in the adapter card's User Manual.

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
MCX623435M N-CDAB	MT_00000 00326	ConnectX-6 Dx EN adapter card; 100GbE for OCP 3.0; with Multi-Host and host management; Single-port QSFP56; PCIe 3.0/4.0 x16; Internal Lock	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623102A N-ADAT	MT_00000 00355	ConnectX-6 Dx EN adapter card; 25GbE; Dual-port SFP28; PCIe 4.0/3.0 x16	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX621102A N-ADAT	MT_00000 00356	ConnectX-6 Dx EN adapter card; 25GbE; Dual-port SFP28; PCIe 4.0/3.0 x8	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623106A N-CDAT	MT_00000 00359	ConnectX-6 Dx EN adapter card; 100GbE; Dual-port QSFP56; PCIe 4.0/3.0 x16;	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623436A C-CDAB	MT_00000 00394	ConnectX-6 Dx EN adapter card; 100GbE; OCP3.0; With Host management; Dual-port QSFP56; PCIe 4.0 x16; Crypto and Secure Boot;	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623405A N-CDAN	MT_00000 00396	ConnectX-6 Dx EN adapter card; 100GbE OCP2.0; With Host management; Type 2; Single-port QSFP56; PCIe 4.0 x16; No Crypto	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists

Device Part Number	PSID	Device Name	FlexBoot	UEFI x86	UEFI ARM	Enable/disable exprom Feature
MCX621102A C-ADAT	MT_00000 00430	ConnectX-6 Dx EN adapter card; 25GbE; Dual-port SFP28; PCIe 4.0 x8; Crypto and Secure Boot	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623105A N-CDAT	MT_00000 00434	ConnectX-6 Dx EN adapter card; 100GbE; Single-port QSFP56; PCIe 4.0 x16; No Crypto	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623106A C-CDAT	MT_00000 00436	ConnectX-6 Dx EN adapter card; 100GbE; Dual-port QSFP56; PCIe 4.0 x16; Crypto and Secure Boot	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623106A S-CDAT	MT_00000 00437	ConnectX-6 Dx EN adapter card; 100GbE; Dual-port QSFP56; PCIe 4.0 x16; Secure Boot; No Crypto	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623405A C-CDAN	MT_00000 00459	ConnectX-6 Dx EN adapter card; 100GbE OCP2.0; With Host management ; Type 2; Single-port QSFP56; PCIe 4.0 x16; Crypto and Secure Boot	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623102A C-ADAT	MT_00000 00460	ConnectX-6 Dx EN adapter card; 25GbE; Dual-port SFP28; PCIe 4.0 x16; Crypto and Secure Boot	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623436A S-CDAI	MT_00000 00471	ConnectX-6 Dx EN adapter card; 100GbE; OCP3.0; With Host management ; Dual-port QSFP56; PCIe 4.0 x16; Secure Boot; No Crypto	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623105A N-VDAT	MT_00000 00362	ConnectX-6 Dx EN adapter card; 200GbE; Single-port QSFP56; PCIe 4.0 x16; No Crypto	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623105A C-VDAT	MT_00000 00442	ConnectX-6 Dx EN adapter card; 200GbE; Single-port QSFP56; PCIe 4.0 x16; Crypto and Secure Boot	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623435A N-VDAB	MT_00000 00512	ConnectX-6 Dx EN adapter card; 200GbE; OCP3.0; With Host management; Single-port QSFP56; PCIe 4.0 x16; No Crypto;	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623435A S-VDAI	MT_00000 00458	ConnectX-6 Dx EN adapter card; 200GbE; OCP3.0; With Host management ; Single-port QSFP56; PCIe 4.0 x16; Secure Boot; No Crypto	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists

Device Part Number	PSID	Device Name	FlexBoot	UEFI x86	UEFI ARM	Enable/disable exprom Feature
MCX623435A C-VDAB	MT_00000 00457	ConnectX-6 Dx EN adapter card; 200GbE; OCP3.0; With Host management ; Single-port QSFP56; PCIe 4.0 x16; Crypto and Secure Boot	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623105A S-VDAT	MT_00000 00435	ConnectX-6 Dx EN adapter card; 200GbE; Single-port QSFP56; PCIe 4.0 x16; Secure Boot; No Crypto	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623102A C-GDAT	MT_00000 00432	ConnectX-6 Dx EN adapter card; 50GbE; Dual-port SFP56; PCIe 4.0 x16; Crypto and Secure Boot	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623102A S-GDAT	MT_00000 00433	ConnectX-6 Dx EN adapter card; 50GbE; Dual-port SFP56; PCIe 4.0 x16; Secure Boot; No Crypto	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623102A N-GDAT	MT_00000 00353	ConnectX-6 Dx EN adapter card; 50GbE; Dual-port SFP56; PCIe 4.0/3.0 x16	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623436A N-CDAB	MT_00000 00327	ConnectX-6 Dx EN adapter card; 100GbE for OCP 3.0; with host management; Dual-port QSFP56; PCIe 3.0/4.0 x16; Internal Lock	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623432A N-GDA	MT_00000 00325	ConnectX-6 Dx EN adapter card; 50GbE for OCP 3.0; with host management; Dual-port SFP56; PCIe 3.0/4.0 x16; Internal Lock	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exist
MCX623102A E-GDAT	MT_00000 00529	ConnectX-6 Dx EN adapter card; 50GbE; Dual-port SFP56; PCIe 4.0 x16; Crypto; No Secure Boot	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exist
MCX623105A E-VDAT	MT_00000 00530	ConnectX-6 Dx EN adapter card; 200GbE; Single-port QSFP56; PCIe 4.0 x16; Crypto; No Secure Boot	Present (Enabled)	Present (Enabled)	Exist (Enabled)	Exist
MCX623106A E-CDAT	MT_00000 00528	ConnectX-6 Dx EN adapter card; 100GbE; Dual-port QSFP56; PCIe 4.0 x16; Crypto; No Secure Boot	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exist
MCX623432A S-GDAI	MT_00000 00472	ConnectX-6 Dx EN adapter card; 50GbE OCP3.0; With Host management ; Dual-port SFP56; PCIe 4.0 x16; Secure Boot; No Crypto	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exist
MCX621102A E-ADAT	MT_00000 00536	ConnectX-6 Dx EN adapter card; 25GbE ; Dual-port SFP28; PCIe 4.0 x8; Crypto; No Secure Boot;	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exist

Device Part Number	PSID	Device Name	FlexBoot	UEFI x86	UEFI ARM	Enable/disable exprom Feature
MCX623405M N-CDAN	MT_00000 00328	ConnectX-6 Dx EN adapter card; 100GbE for OCP 2.0; with Multi-Host and host management; Single-port QSFP56; PCIe 3.0/4.0 x16; No Bracket	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exist
MCX623432A N-ADA	MT_00000 00357	ConnectX-6 Dx EN adapter card; 25GbE for OCP 3.0; with host management; Dual-port SFP28; PCIe 3.0/4.0 x16	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exist
MCX623432A C-ADAB	MT_00000 00440	ConnectX-6 Dx EN adapter card; 25GbE OCP3.0; With Host management; Dual-port SFP28; PCIe 4.0 x16; Crypto and Secure Boot;	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exist
MCX623432A C-GDAB	MT_00000 00393	ConnectX-6 Dx EN adapter card; 50GbE OCP3.0; With Host management; Dual-port SFP56; PCIe 4.0 x16; Crypto and Secure Boot;	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exist
MCX623106P N-CDAT	MT_00000 00438	ConnectX-6 Dx EN adapter card; 100GbE; Dual-port QSFP56; with PPS In/Out; PCIe 4.0 x16; No Crypto	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX623106P C-CDAT	MT_00000 00500	ConnectX-6 Dx EN adapter card; 100GbE; Dual-port QSFP56; with PPS In/Out; PCIe 4.0 x16; Crypto and Secure Boot	Present (Enabled)	Present (Enabled)	Present (Enabled)	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 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
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

Speed	Cable OPN	Description
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
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

Speed	Cable OPN	Description
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
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

Speed	Cable OPN	Description
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
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


Speed	Cable OPN	Description
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

Speed	Cable OPN	Description
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
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

 The 56GbE cables are used to raise 40GbE link speed as the 56GbE speed is not supported.

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
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

Speed	Cable OPN	Description
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
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

Speed	Cable OPN	Description
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
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

Speed	Cable OPN	Description
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
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

Speed	Cable OPN	Description
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
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

Speed	Cable OPN	Description
100GbE	MMA1L10-CR	Mellanox® optical transceiver, 100GbE, QSFP28, LC-LC, 1310nm, LR4 up to 10km Note: Only revision A2 and above.
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
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-V002E26_FF	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	MCP7H50-V001R30	Mellanox® passive copper hybrid cable, 200GbE 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, colored, 1m, 30AWG

Speed	Cable OPN	Description
200GE	MCP7H50-V002R26	Mellanox® passive copper hybrid cable, 200GbE 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, colored, 2m, 26AWG
200GE	MCP7H50-V003R26	Mellanox® passive copper hybrid cable, 200GbE 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, colored, 3m, 26AWG
200GE	MCP7H50-V01AR30	Mellanox® passive copper hybrid cable, 200GbE 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, colored, 1.5m, 30AWG
200GE	MCP7H50-V02AR26	Mellanox® passive copper hybrid cable, 200GbE 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, colored, 2.5m, 26AWG
200GE	MCP7H70-V001R30	Mellanox® passive copper hybrid cable, 200GbE 200Gb/s to 4x50Gb/s, QSFP56 to 4xSFP56, colored, 1m, 30AWG
200GE	MCP7H70-V002R26	Mellanox® passive copper hybrid cable, 200GbE 200Gb/s to 4x50Gb/s, QSFP56 to 4xSFP56, colored, 2m, 26AWG
200GE	MCP7H70-V003R26	Mellanox® passive copper hybrid cable, 200GbE 200Gb/s to 4x50Gb/s, QSFP56 to 4xSFP56, colored, 3m, 26AWG
200GE	MCP7H70-V01AR30	Mellanox® passive copper hybrid cable, 200GbE 200Gb/s to 4x50Gb/s, QSFP56 to 4xSFP56, colored, 1.5m, 30AWG
200GE	MCP7H70-V02AR26	Mellanox® passive copper hybrid cable, 200GbE 200Gb/s to 4x50Gb/s, QSFP56 to 4xSFP56, colored, 2.5m, 26AWG
200GE	MFS1S00-V003E	Mellanox® active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 3m
200GE	MFS1S00-V005E	Mellanox® active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 5m
200GE	MFS1S00-V010E	Mellanox® active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 10m
200GE	MFS1S00-V015E	Mellanox® active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 15m
200GE	MFS1S00-V020E	Mellanox® active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 20m
200GE	MFS1S00-V030E	Mellanox® active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 30m
200GE	MFS1S00-V050E	Mellanox® active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 50m
200GE	MFS1S00-V100E	Mellanox® active fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, 100m
200GE	MCP1650-V00AE30	Mellanox® Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 0.5m, black pulltab, 30AWG
200GE	MMA1T00-VS	Mellanox® transceiver, 200GbE, up to 200Gb/s, QSFP56, MPO, 850nm, SR4, up to 100m

Speed	Cable OPN	Description
200GE	MFS1S50-V003E	Mellanox® active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 3m
200GE	MFS1S50-V005E	Mellanox® active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 5m
200GE	MFS1S50-V010E	Mellanox® active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 10m
200GE	MFS1S50-V015E	Mellanox® active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 15m
200GE	MFS1S50-V020E	Mellanox® active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 20m
200GE	MFS1S50-V030E	Mellanox® active fiber splitter cable, 200GbE, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, black pulltab, 30m

Supported 3rd Party Cables and Modules

Speed	Cable OPN	Description
100GbE	FTLC1151RDPL	TRANSCIEVER 100GBE QSFP LR4
100GbE	FCBN425QE1C10-C1	AOC 100GBE QSFP 1M
100GbE	QSFP28-LR4-AJ	CISCO-PRE 100G AOM

Tested Switches

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	MSN3700-CXXXX	32 QSFP28 ports, 100GbE Open Ethernet Switch System	Mellanox
100GbE	Spectrum	MSN2700-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	7060CX-32S	32-port 100GbE Ethernet Switch System	Arista
100GbE	N/A	3232C	32-port 100GbE Ethernet Switch System	Cisco
100GbE	N/A	N9K-C9236C	36-port 100GbE Ethernet Switch System	Cisco
100GbE	N/A	93180YC-EX	48-port 25GbE + 6-port 100GbE Ethernet Switch System	Cisco
100GbE	N/A	S6820-56HF	H3C S6850-56HF L3 Ethernet Switch with 48 SFP28 Ports and 8 QSFP28 Ports	H3C
100GbE	N/A	BMS T7032-IX7	32 QSFP28 ports support for 10/25/40/50/100GbE	Quanta Mesh
100GbE	N/A	CE8860EI	Huawei 02350NBS CE8860-EI-B-B0A CE8860EI Bundle	Huawei
100GbE	N/A	Wedge100	Wedge 100-32X 100GbE Data Center Switch	Facebook

Tested 200GbE Switches


Speed	Switch Silicon	OPN # / Name	Description	Vendor
200GbE	Spectrum	MSN3700-VXXXX	32 QSFP56 ports, 200GbE Open Ethernet Switch System Note: This switch is at Beta level in this firmware version.	Mellanox

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
MFT	4.15.0 / 4.14.4
mstflint	4.14.0-1 / 4.13.3-1
ConnectX-6 Dx Firmware	22.27.6008 / 22.27.2008 / 22.27.1016
Linux Inbox Drivers	<ul style="list-style-type: none"> • RH7.6 • Ubuntu 16.04.05

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
22.28.1002	
GPRS Tunneling Protocol	Added support for GPRS Tunneling Protocol (GTP).
IPSec Full Offload	Enabled with IPSec transport mode (ESP header over IP header). All the bellow settings are done by the hardware (full offload): <ul style="list-style-type: none">• packet re-formatting, adding/deleting ESP header/trailer, and SN configuration• encryption and decryption
Flow Sampling and Mirroring	Added support for flow sampling and mirroring with an associated capable software.
NC-SI 1.2 New Command	Implemented the following new command from NS-SI 1.2 specification: <ul style="list-style-type: none">• Get PF Assignment
vDPA Bonding	Added support for vDPA bonding on two PFs.
Flow Metering	[Beta] Added support for Flow Metering.
SerDes Lane Receive Eye Diagram (SLRD)	Added a new register to read the SerDes receive eye diagram for each eye.
PTP	Updated the Packet Pacing clock to be in sync with the PTP clock.
PTP	Added support for hardware real time clock by UTC timestamp in PCIE BAR and CQE.
Enhanced Connection Establishment (ECE)	ECE is new negotiation scheme used to exchange extra information about QPs capabilities and later negotiate them at the connection establishment phase. It is used to support various features such as RoCE Selective Repeat and PCC.

Feature/Change	Description
22.28.1002	
RoCE Selective Repeat using Enhanced Connection Establishment (ECE)	<p>RoCE Selective Repeat activation now is available using ECE. This feature is enabled automatically using ECE if <code>NV_config.sr_enable</code> parameter is set 1 otherwise using go back N retransmission.</p> <p>This new capability comes with the following limitations:</p> <ul style="list-style-type: none"> • Selective Repeat results in packets arriving out of order • Signature is not supported with Selective Repeat. • Need to create mkey with signature before QPs are opened in gvmi
Non-Volatile Configurations (NVCONFIG)	<p>Added the following new mlxconfig parameters to the Non-Volatile Configurations section.</p> <ul style="list-style-type: none"> • <code>log_max_outstanding_wqe</code> • <code>ece_disable_mask</code> • <code>NV_config.sr_enable</code>
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

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
2072943	Description: Running several Phyless resets in a row might result in a race between the previous Phyless reset handling the action and the current one.
	Keywords: Phyless reset
	Discovered in Version: 22.27.2008
	Fixed in Release: 22.28.1002
2117173	Description: When running several Phyless Reset iteration in sequence, the device may get stuck.
	Keywords: Phyless
	Discovered in Version: 22.27.2008
	Fixed in Release: 22.28.1002
2120378	Description: Phyless Reset is not supported when using Non-DME cables.
	Keywords: Phyless, Non-DNE
	Discovered in Version: 22.27.2008
	Fixed in Release: 22.28.1002
2233774	Description: When NVMe is enabled (NVME_EMULATION_ENABLE=1) and VirtIO full emulation is disabled (VIRTIO_NET_EMULATION_ENABLE=0; VIRTIO_BLK_EMULATION_ENABLE=0), vDPA is not supported
	Keywords: vDPA; NVMe; emulation; VirtIO
	Discovered in Version: 22.27.6008
	Fixed in Release: 22.28.1002
2149674	Description: Fixed an issue that caused packets to get stuck when the Rate Limiter was enabled.
	Keywords: Rate Limiter
	Discovered in Version: 22.27.6008
	Fixed in Release: 22.28.1002
2092538	Description: The port link might be unstable after phyless reset when the keep_link_up configuration is set to False, and phyless reset might be malfunction.
	Keywords: Phyless, firmware reset, phyless reset
	Discovered in Version: 22.27.6008
	Fixed in Release: 22.28.1002

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	127	64	64	127	127

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: 22.28.1002
-	Description: Phylless reset is currently not supported in PAM4 mode.
	Workaround: N/A
	Keywords: PAM4, phylless reset
	Discovered in Version: 22.28.1002
2199939	Description: High linkup time may be experienced when connecting to an H3C switch using 25GbE\50GbE\100GbE link speeds.
	Workaround: N/A
	Keywords: Linkup time, switch
	Discovered in Version: 22.28.1002
2200443	Description: On very rare occasions, a raw BER of 10e-12 might be experienced.
	Workaround: N/A
	Keywords: Raw BER
	Discovered in Version: 22.28.1002

Internal Ref.	Issue
2201468	Description: Running multiple resets ("mlxfwreset --sync=1") simultaneously is not functioning properly,
	Workaround: Wait a few seconds until you run "mlxfwreset --sync=0".
	Keywords: mlxfwreset, reset-sync, reset, sync
	Discovered in Version: 22.28.1002
2245038	Description: TCP/IP traffic received by the guest kernel with version higher than 4.10 is unstable because of corrupted GSO header. The following message can be seen from dmegs: "bad gso: type: xx, size: xxxx".
	Workaround: N/A
	Keywords: vDPA offload, GSO header
	Discovered in Version: 22.28.1002
2235317	Description: Creating multiple queues on multi VMs/VFs, (e.g., creating 16 queues on 16 VFs), may result in object creation failure.
	Workaround: Use less queues per VM.
	Keywords: Multi virtio queue, multi VMs, virtio object
	Discovered in Version: 22.28.1002
2224993	Description: The timestamp in CQE of LRO timeout packets will use free running clock even when the UTC is configured.
	Workaround: N/A
	Keywords: PTP
	Discovered in Version: 22.27.6008
2089277	Description: The CRC is being removed despite using the keep_crc flag, and the byte count of the packet are counted without the CRC.
	Workaround: N/A
	Keywords: Decapsulated packets
	Discovered in Version: 22.27.6008
2149437	Description: When the SLTP configuration is wrongly set, the "Bad status" explanation will not be presented (only error indication) to the user.
	Workaround: N/A
	Keywords: SLTP configuration
	Discovered in Version: 22.27.6008

Internal Ref.	Issue
2078760	Description: Modifying the Flow Control attributes during traffic might cause all packets to drop.
	Workaround: If such scenario took place, perform the following: <ol style="list-style-type: none"> 1. Restart the driver. 2. Stop the traffic. 3. Change the Flow Control attributes again.
	Keywords: VoQ, Shared Buffer, Rx Buffer, PFCC, PBMC, PPTB, SBCM, SBPM, SBPR, Rx buffer modifications
	Discovered in Version: 22.27.2008
1895917	Description: On Dual-Port devices, and only after Rx buffer modification, resetting all Physical Functions over one port (through reboot / driver restart / FLR), while there are active Physical Functions over the second port (which caused the Rx buffer changes), will cause the Rx buffer default values to be restored, although not expected by the active Physical Function on the second port.
	Workaround: <ul style="list-style-type: none"> • Re-apply the changes • Reset the functions from both ports together (driver restart / FLRs / reboot) • Power cycle or reset the firmware
	Keywords: VoQ, Shared Buffer, Rx Buffer, PFCC, PBMC, PPTB, SBCM, SBPM, SBPR, Rx buffer modifications
	Discovered in Version: 22.27.2008
2052399	Description: After Shared Buffer modifications such as SBPR, SBPM, SBCM, the PFCC flow control modifications will override the previous Shared Buffer modifications.
	Workaround: Apply Shared Buffer modifications after PFCC (flow control) modifications.
	Keywords: VoQ, Shared Buffer, Rx Buffer, PFCC, PBMC, PPTB, SBCM, SBPM, SBPR, Rx buffer modifications
	Discovered in Version: 22.27.2008
2120378	Description: Phylless Reset is not supported when using a PAM4 mode.
	Workaround: N/A
	Keywords: Phylless, PAM4 mode, 200GbE
	Discovered in Version: 22.27.2008
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: 22.27.1016

Internal Ref.	Issue
2063038	Description: PRBS is not functional when using Wedge switch.
	Workaround: N/A
	Keywords: PRBS
	Discovered in Version: 22.27.1016
1796936	Description: 200GbE Optical cables in Auto-Negotiation mode work only in 200GbE speed.
	Workaround: N/A
	Keywords: Cables
	Discovered in Version: 22.27.1016
2078760	Description: Modifying the Flow Control attributes during traffic might cause all packets to drop.
	Workaround: If such scenario took place, perform the following: <ol style="list-style-type: none"> 1. Restart the driver. 2. Stop the traffic. 3. Change the Flow Control attributes again.
	Keywords: PFCC, FC, Flow Control, Shared Buffer, VoQ, ethtool, mlx_qos
	Discovered in Version: 22.27.1016
2031082	Description: Linkup time to Wedge 100 Switch in Force mode with RS-FEC/No-FEC is 24 seconds.
	Workaround: N/A
	Keywords: Wedge 100, FORCE, RS-FEC, No-FEC
	Discovered in Version: 22.27.1016
2038821	Description: When running MH TCP, few packets are dropped every second due to no Receive WQEs.
	Workaround: Use 4K RX queue size: <code>ethtool -G <intf> rx 4096</code>
	Keywords: Performance, MH, WQE
	Discovered in Version: 22.27.1016
-	Description: After programing firmware in LF, power-cycle must be recovered.
	Workaround: N/A
	Keywords: LF
	Discovered in Version: 22.27.1016
1995010	Description: Under certain congestion conditions, where traffic packets are small, accuracy of the shared buffer configuration might not be achieved.
	Workaround: N/A
	Keywords: VoQ, Shared Buffer

Internal Ref.	Issue
	Discovered in Version: 22.27.1016
2029716	Description: Software Reset does not work on ConnectX-6 Dx adapter cards.
	Workaround: N/A
	Keywords: Software Reset
	Discovered in Version: 22.27.1016

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_GLOBAL_MASK	ece_disable_mask		0x116

Configuration	mlxconfig Parameter Name	Class	TLV ID
NV_SW_OFFLOAD_CONFIG	CQE_COMPRESSION		0x10a
	IP_OVER_VXLAN_EN		
	PCI_ATOMIC_MODE		
	LRO_LOG_TIMEOUT0		
	LRO_LOG_TIMEOUT1		
	LRO_LOG_TIMEOUT2		
	LRO_LOG_TIMEOUT3		
	log_max_outstandng_wqe		
	NV_config.sr_enable (ConnectX-6 Dx and above)		
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		

Configuration	mlxconfig Parameter Name	Class	TLV ID
	DCE_TCP_RTT		
	RATE_REDUCE_MONITOR_PERIOD		
	INITIAL_ALPHA_VALUE		
	MIN_TIME_BETWEEN_CNPS		
	CNP_802P_PRIO		
	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_MPF5_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		

Configuration	mlxconfig Parameter Name	Class	TLV ID
	TRACER_ENABLE		
NV_ROM_BOOT_CONF2	IP_VER		0x195
	BOOT_UNDI_NETWORK_WAIT		
NV_ROM_UEFI_CONF	UEFI_HII_EN		0x196
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
Unable to render include or excerpt-include. Could not retrieve page.	
PAM4 Link Speeds when Using 400GbE/200GbE	<p>The following are the minimal software/firmware versions that support PAM4 link speeds when connected using Mellanox NIC to Mellanox Switch and Mellanox NIC to 3rd Party Switches:</p> <ul style="list-style-type: none"> • Mellanox Spectrum-3: 30.2007.1142 • Mellanox Spectrum-2: 29.2007.1142 • Switch SDK: 4.4.0920 • Mellanox Onyx: 3.9.0830-038 • SONiC/SAI: 201911 • ConnectX-6 Dx: 22.27.2008* <p>*Note: NICs with this firmware version support Mellanox-to-Mellanox connectivity with PAM4 link speeds</p>
Programmable Congestion Control (CC)	Programmable Congestion Control (PCC) is at GA level.
TLS	Enabled TLS offload v1.3 with key size 256.
vDPA	Added support for vDPA including LSO and csum offload.
Resourcedump	<p>Added the following segments, as appeared in the PRM, to the Resource Dump:</p> <ul style="list-style-type: none"> • PRM_QUERY_QP • PRM_QUERY_CQ • PRM_QUERY_MKEY • QUERY_VNIC_ENV
Bug Fixes	See Bug Fixes .
22.27.2008	
Ethernet Connectivity	Added support for PAM4 at Beta level.
Ethernet Connectivity	Added support for Auto Detect NRZ vs PAM4 and speed detect when connected using Mellanox NIC to Mellanox Switch and Mellanox NIC to 3rd Party Switches.
Programmable Congestion Control (CC)	[Beta] Programmable Congestion Control solution combines hardware improvements including dedicated iRISCs for Congestion Control, as well as programmable and efficient firmware support to allow users to develop and deploy their own Congestion Control algorithms.
RDMA over Converged Ethernet (RoCE)	RDMA over Converged Ethernet (RoCE) is at GA level.
Bug Fixes	See Bug Fixes .

22.27.1016	
RoCE Selective Repeat	<p>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),</p> <p>This new capability comes with the following limitations:</p> <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.
PHY-less Reset in PLU	<p>[Beta] Enables the user to reset the firmware without resetting the PHY. The links that were up will stay up, all the other links will be disabled.</p> <p>Note: Currently this capability does not support firmware upgrade and downgrade.</p>
Internet Protocol Security (IPsec)	Internet Protocol Security (IPsec) offload allows the NIC to accelerate IPsec AES-GCM 128/256. The hardware will encrypt/decrypt the packet and send it to wire/host accordingly.
VirtIO Hardware Offload	[Beta] Added support for vDPA (VirtIO 0.95 and 1.0).
VirtIO Hardware Offload	[Beta] Added support for live migration on vDPA (VirtIO 0.95 and 1.0).
Hardware Offloaded Rules (Resource Dump)	Added support for dumping hardware steering entries (raw data) using the resource dump API.
Auto-Negotiation (AN) Mode	<p>100GbE link speed is supported in Auto-Negotiation Mode.</p> <p>For limitations related to this speed and mode, see issue 2094355 in Known Issues.</p>
Force Mode	<p>200GbE link speed is supported in Force Mode.</p> <p>For limitations related to this speed and mode, see issue 2094355 in Known Issues.</p>
RDMA over Converged Ethernet (RoCE)	[Beta] RDMA over Converged Ethernet (RoCE) is a mechanism to provide this efficient data transfer with very low latencies on lossless Ethernet networks.
Relaxed Ordering Read	<p>[Beta] Added support for Relaxed Ordering Read using the create_mkey flag.</p> <p>Note: This capability is not supported when using Multi-Host cards and when in PCIe-Switch mode.</p>
NC-SI host2bmc Interface	Enabled traffic directly from OS to BMC and backwards through NIC.
NC-SI over RMII	Enabled the NCSI management protocol over RMII interface.
PLDM Sensors	Opened additional sensors for all Facebook adapter cards.
Virtual Output Queuing	Added support for configuring Virtual Output Queuing (VoQ).

Expansion ROM for UEFI and PXE	Added support for expansion ROM for UEFI and PXE.
Legacy Hardware ECN	Enabled the hardware to identify and mark congestion.
Secure Firmware Update	A “Secure firmware update” is the ability of a device to verify digital signatures of new firmware binaries, in order to assure that only officially approved versions can be installed from the host, the network or a Board Management Controller (BMC).
Legacy Mode Debuggability	Enables the counters to expose any legacy mode debuggability information.

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
2035739	Description: On lossy traffic, there might be drops in port counters (e.g. rx_discards_low in ethtool) instead of drops in VoQ shared buffer (seen in PPCNT register).
	Keywords: VoQ
	Discovered in Version: 22.27.1016
	Fixed in Release: 22.27.2008
2004533	Description: A system fault (glitch) occurs between PTP master and slave cards syncs.
	Keywords: PTP
	Discovered in Version: 22.27.1016
	Fixed in Release: 22.27.2008
2096594	Description: Fixed an issue that caused packets to drop when using POP VLAN and decapsulation actions in the same flow table entry.
	Keywords: POP VLAN, decapsulation, Flow Table
	Discovered in Version: 22.27.1016
	Fixed in Release: 22.27.2008
2083691	Description: Fixed an issue that prevented the load of the correct PCIe Tx parameters when the speed was changed after the PCIe link was disabled.
	Keywords: PCIe
	Discovered in Version: 22.27.1016
	Fixed in Release: 22.27.2008
2101810	Description: Fixed an issue that caused the "roce_adp_retrans" counter to present the values of the "local_ack_timeout_err" counter.
	Keywords: RoCE, lossy, q_counter
	Discovered in Version: 22.27.1016
	Fixed in Release: 22.27.2008

Internal Ref.	Issue
2063264	Description: If Relaxed Ordering is disabled by running the "setpci" command, it will not be functional even after re-enabling it by running the "setpci" command again.
	Keywords: PCI Relaxed Ordering
	Discovered in Version: 22.27.1016
	Fixed in Release: 22.27.2008
2090029	Description: Updated the RoCE Tx CNP's BECN value to be 1.
	Keywords: RoCE, CNP
	Discovered in Version: 22.27.1016
	Fixed in Release: 22.27.2008
2094355	Description: NRZ and PAM4 Limitations in 100GbE adapter cards: <ul style="list-style-type: none"> • The default configuration is NRZ speeds in Auto-Neg mode • PAM4 speeds should be set manually (using the MFT tool – mlxlink) • PAM4 speeds should be configured as single speeds: 50G_1x or 100G_2x • 200G_4x optical cables (including 200G_4x splitter cable) will raise link only after manual configuration of PAM4 speeds (50G_1x or 100G_2x)
	Keywords: NRZ, PAM4, 100GbE, cables
	Discovered in Version: 22.27.1016
	Fixed in Release: 22.27.2008
2094355	Description: NRZ and PAM4 Limitations in 200GbE adapter cards: <ul style="list-style-type: none"> • The default configuration is 200G_x4 in Force mode • NRZ speeds should be set manually. Configuration can include multiple NRZ speeds (using the MFT tool – mlxlink) • PAM4 speeds should be configured as single speeds: 50G_1x or 100G_2x or 200G_4x
	Keywords: NRZ, PAM4, 200GbE, cables
	Discovered in Version: 22.27.1016
	Fixed in Release: 22.27.2008

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