



Mellanox ConnectX[®]-6 Firmware Release Notes

Rev 20.26.1040

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Release Update History

Table 1 - Release Update History

Release	Date	Description
Rev 20.26.1040	November 11, 2019	Added section Section 1.2.1, “Switch and HCAs Cable Connectivity Matrix” , on page 7
Rev 20.26.1040	September 29, 2019	Initial version of this firmware release. This version introduces New Features Section 2, “Changes and New Features in Rev 20.26.1040” , on page 16 and Bug Fixes (see Section 4, “Bug Fixes History” , on page 25).

1 Overview

These are the release notes for the ConnectX®-6 adapters firmware Rev 20.26.1040.

This firmware supports the following protocols:

- InfiniBand - SDR, EDR, HDR
- Ethernet - 10GbE, 25GbE, 40GbE, 50GbE, 100GbE¹, 200GbE (**Alpha**)
- PCI Express 4.0, supporting backwards compatibility for v3.0,v2.0 and v1.1



Note: Please note, PCI Express 4.0 is currently at Beta level in ConnectX-6.



Note: The minimal required Mellanox Quantum firmware version is 27.2000.1260



Note: Please make sure to use a PCIe slot that is capable of supplying the required power to the ConnectX-6 adapter card as stated in section *Specifications* in the adapter card's User Manual.

1.1 Supported Devices

This firmware supports the devices and protocols listed in [Table 2](#)

Table 2 - Supported Devices (Sheet 1 of 2)

Device Part Number	PSID	Device Name	FlexBoot	UEFI x86	UEFI ARM	Enable/disable exprom Feature
MCX653106A-EFAT	MT_0000000219	ConnectX-6 VPI adapter card; 100Gb/s (HDR100; EDR IB and 100GbE); dual-port QSFP56; PCIe3.0/4.0 2x8 in a row	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX653105A-ECAT	MT_0000000222	ConnectX-6 VPI adapter card; 100Gb/s (HDR100; EDR IB and 100GbE); single-port QSFP56; PCIe3.0 x16; tall bracket; ROHS R6	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX653105A-HDAT	MT_0000000223	ConnectX-6 VPI adapter card; HDR IB (200Gb/s) and 200GbE; single-port QSFP56; PCIe4.0 x16; tall bracket; ROHS R6	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX653106A-ECAT	MT_0000000224	ConnectX-6 VPI adapter card; H100Gb/s (HDR100; EDR IB and 100GbE); dual-port QSFP56; PCIe3.0 x16; tall bracket; ROHS R6	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists

1. ConnectX-6 Ethernet adapter cards currently support only Force mode, Auto-Negotiation mode is not supported.

Table 2 - Supported Devices (Sheet 2 of 2)

Device Part Number	PSID	Device Name	FlexBoot	UEFI x86	UEFI ARM	Enable/disable exprom Feature
MCX653106A-HDAT	MT_0000000225	ConnectX-6 VPI adapter card; HDR IB (200Gb/s) and 200GbE; dual-port QSFP56; PCIe4.0 x16; tall bracket; ROHS R6	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX654105A-HCAT	MT_0000000226	ConnectX-6 VPI adapter card; HDR IB (200Gb/s) and 200GbE; single-port QSFP56; Socket Direct 2x PCIe3.0 x16; tall bracket; ROHS R6	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX654106A-ECAT	MT_0000000227	ConnectX-6 VPI adapter card; 100Gb/s (HDR100; EDR InfiniBand and 100GbE); dual-port QSFP56; Socket Direct 2x PCIe3.0 x16; tall bracket; ROHS R6	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX654106A-HCAT	MT_0000000228	ConnectX-6 VPI adapter card; HDR IB (200Gb/s) and 200GbE; dual-port QSFP56; Socket Direct 2x PCIe3.0 x16; tall bracket; ROHS R6	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists
MCX653105A-EFAT	MT_0000000237	ConnectX-6 VPI adapter card; 100Gb/s (HDR100; EDR IB and 100GbE); single-port QSFP56; PCIe3.0/4.0 Socket Direct 2x8 in a row; ROHS R6	Present (Enabled)	Present (Enabled)	Present (Enabled)	Exists

1.2 Supported 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.

1.2.1 Switch and HCAs Cable Connectivity Matrix

Mellanox Quantum™ based switches and ConnectX®-6 HCAs support HDR (PAM4, 50Gb/s per lane) and EDR (NRZ, 25Gb/s per lane) technologies.

As the ConnectX adapter cards are identified by their maximum supported throughput (e.g. ConnectX-6 VPI 100Gb/s card can support either 2-lanes of 50Gb/s or 4-lanes of 25Gb/s), the exact connectivity will be determined by the cable that is being used.

As a reference:

Speed Mode	Speed Supported	Number of Lanes Used
HDR	200Gb/s InfiniBand	4 lanes of 50Gb/s
HDR100	100Gb/s InfiniBand	2 lanes of 50Gb/s
EDR	100Gb/s InfiniBand	4 lanes of 25Gb/s

The following table presents the connectivity matrix, between Mellanox Quantum based switches, ConnectX-6 HCA, and the cables.

Table 3 - Switch to Switch Connectivity

Switch	Switch	Cable					
		H cable DAC	H cable AOC	HDR DAC	HDR AOC	EDR DAC	EDR AOC
Mellanox Quantum	Mellanox Quantum	No such cable	HDR100	HDR	HDR	EDR	EDR
Switch-IB 2	Mellanox Quantum	Not Supported	Not Supported	EDR	Not supported	EDR	EDR

Table 4 - Adapter to Switch Connectivity

Adapter	Switch	Cable					
		Y cable DAC	Y cable AOC	HDR DAC	HDR AOC	EDR DAC	EDR AOC
ConnectX-6 200Gb/s	Mellanox Quantum	HDR100	HDR100	HDR	HDR	EDR	EDR
ConnectX-6 100Gb/s	Mellanox Quantum	HDR100	HDR100	EDR	EDR ^a	EDR	EDR

a. This is currently not supported. For further information see Known Issues 1796936.

1.2.2 Validated and Supported 1GbE Cables

Table 5 - Validated and Supported 1GbE Cables

Speed	Cable OPN #	Description
1GB/S	MC3208011-SX	Mellanox Optical module, SX, 850nm
1GB/S	MC3208411-T	Mellanox® module, ETH 1GbE, 1Gb/s, SFP, Base-T, up to 100m

1.2.3 Validated and Supported 10GbE Cables

Table 6 - Validated and Supported 10GbE Cables

Speed	Cable OPN #	Description
10GbE	FTLX8571D3BCL-ME	10gb SFP 850nm Optic Transceiver
10GbE	SP7051-HP	HP-MethodeElec. 10GbE AOM

1.2.4 Validated and Supported 25GbE Cables



The 25GbE cables can be supported in ConnectX-6 adapter cards only when connected to the MAM1Q00A-QSA28 module.

Table 7 - Validated and Supported 25GbE Cables

Speed	Cable OPN #	Description
25GbE	MCP2M00-A001	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 1m
25GbE	MCP2M00-A002	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2m
25GbE	MCP2M00-A003	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 3m
25GbE	MCP2M00-A003AP	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 3m, 26AWG
25GbE	MCP2M00-A005E26L	Mellanox Passive Copper Cable, ETH, up to 25GB/S, SFP28, 5M, black, 26AWG, CA-L
25GbE	MCP2M00-A00A	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 0.5m
25GbE	MCP2M00-A01A	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 1.5m
25GbE	MCP2M00-A02A	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 2.5m
25GbE	MCP7F00-A001	Mellanox Passive Copper Hybrid cable ETH 100GbE to 4X25GBS QSFP28 to 4XSFP28 1M
25GbE	MCP7F00-A002	Mellanox Passive Copper Hybrid Cable ETH 100GbE TO 4X25GBS QSFP28 TO 4XSFP28 2M
25GbE	MCP7F00-A003	Mellanox Passive Copper Hybrid Cable ETH 100GbE TO 4X25GBS QSFP28 TO 4XSFP28 3M
25GbE	MCP7F00-A003-AM	Mellanox® passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 3M 30AWG
25GbE	MCP7F00-A005AM	Mellanox Passive Copper Hybrid Cable ETH 100GbE TO 4X25GBS QSFP28 to 4XSFP28 5M
25GbE	MCP7F00-A01A	Mellanox Passive Copper Hybrid Cable ETH 100GbE to 4X25GBS QSFP28 to 4XSFP28 1.5M
25GbE	MCP7F00-A02A	Mellanox Passive Copper Hybrid Cable ETH 100GbE to 4X25GBS QSFP28 to 4XSFP28 2.5M
25GbE	MFA2P10-Axxx	Mellanox® active optical cable 25GbE, SFP28, up to 50m
25GbE	MMA2L20-AR	Mellanox® optical transceiver, 25GbE, 25Gb/s, SFP28, LC-LC, 1310nm, LR up to 10km
25GbE	MMA2P00-AS	Mellanox® transceiver, 25GbE, SFP28, LC-LC, 850nm, SR, up to 100m

1.2.5 Validated and Supported 40GbE Cables

Table 8 - Validated and Supported 40GbE Cables

Speed	Cable OPN #	Description
40GbE	AFBR-7QER15Z-CS1	Cisco 40GbE 15m AOC
40GbE	2231254-2	Cisco 3m 40GbE copper
40GbE	NDCCGJ-C402	15m (49ft) Avago AFBR-7QER15Z Compatible 40G QSFP+ Active Optical Cable

1.2.6 Validated and Supported 50GbE Cables

Table 9 - Validated and Supported 50GbE Cables

Speed	Cable OPN #	Description
50GbE	MCP7H00-G001	Mellanox Passive Copper Hybrid Cable ETH 100GbE TO 2X50GBS QSFP28 TO 2XQSFP28 1M
50GbE	MCP7H00-G002	Mellanox Passive Copper Hybrid Cable ETH 100GbE TO 2X50GBS QSFP28 TO 2XQSFP28 2M
50GbE	MCP7H00-G003	Mellanox Passive Copper Hybrid Cable ETH 100GbE TO 2X50GBS QSFP28 TO 2XQSFP28 3M
50GbE	MFA7A20-C020	Mellanox® active fiber hybrid solution, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 20m

1.2.7 Validated and Supported 100GbE Cables

Table 10 - Validated and Supported 100GbE Cables

Speed	Cable OPN #	Description
100GbE	CAB-Q-Q-100GbE-3M	Passive 3 meter , QSFP+ to QSFP+ QSFP100 TWINAX 103.125Gbps-CR4
100GbE	FCBN425QE1C30-C1	100GbE Quadwire® QSFP28 Active Optical Cable 30M
100GbE	MCP1600-C001	Mellanox Passive Copper Cable ETH 100GbE 100GBS QSFP LSZH 1M
100GbE	MCP1600-C002	Mellanox Passive Copper Cable ETH 100GbE 100GBS QSFP LSZH 2M
100GbE	MCP1600-C003	Mellanox Passive Copper Cable ETH 100GbE 100GBS QSFP LSZH 3M
100GbE	MCP1600-C00A	Mellanox Passive Copper Cable ETH 100GbE 100GBS QSFP LSZH 0.5M
100GbE	MCP1600-C01A	Mellanox® Passive Copper cable, ETH 100GbE, 100GbE, QSFP, LSZH, 1.5m
100GbE	MCP1600-C02A	Mellanox® Passive Copper cable, ETH 100GbE, 100GbE, QSFP, LSZH, 2.5m
100GbE	MCP7F00-A005R26L	Mellanox® passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 5m, Colored, 26AWG, CA-L
100GbE	MCP7H00-G005R26L	Mellanox® passive copper hybrid cable, ETH 100GbE to 2x50GbE, QSFP28 to 2xQSFP28, 5m, Colored, 26AWG, CA-L
100GbE	MFA1A00-C003	Mellanox® Active Fiber Cable, ETH 100GbE, 100GbE, QSFP, LSZH, 3m
100GbE	MFA1A00-C005	Mellanox® Active Fiber Cable, ETH 100GbE, 100GbE, QSFP, LSZH, 5m
100GbE	MFA1A00-C010	Mellanox® Active Fiber Cable, ETH 100GbE, 100GbE, QSFP, LSZH, 10m
100GbE	MFA1A00-C015	Mellanox® Active Fiber Cable, ETH 100GbE, 100GbE, QSFP, LSZH, 15m
100GbE	MFA1A00-C020	Mellanox® Active Fiber Cable, ETH 100GbE, 100GbE, QSFP, LSZH, 20m
100GbE	MFA1A00-C030	Mellanox® Active Fiber Cable, ETH 100GbE, 100GbE, QSFP, LSZH, 30m
100GbE	MFA1A00-C050	Mellanox® Active Fiber Cable, ETH 100GbE, 100GbE, QSFP, LSZH, 50m
100GbE	MFA1A00-C100	Mellanox® Active Fiber Cable, ETH 100GbE, 100GbE, QSFP, LSZH, 100m
100GbE	MMA1L10-CR	Mellanox® optical transceiver, 100GbE, QSFP28, LC-LC, 1310nm, LR4 up to 10km Note: Only revision A2 and above.
100GbE	MMA1L30-CM	Mellanox® optical module, 100GbE, 100Gb/s, QSFP28, LC-LC, 1310nm, CWDM4, up to 2km
100GbE	SQF1002L4LNC101P	Cisco-SUMITOMO 100GbE AOM
100GbE	FTLC9152RGPL	100G 100M QSFP28 SWDM4 OPT TRANS

Table 10 - Validated and Supported 100GbE Cables

Speed	Cable OPN #	Description
100GbE	NDAAFJ-C102	SF-NDAAFJ100G-005M
100GbE	QSFP28-LR4-AJ	CISCO-PRE 100GbE LR4 QSFP28 Transceiver Module
100GbE	CAB-Q-Q-100G-3M	Passive 3 meter, QSFP+ to QSFP+ QSFP100 TWINAX 103.125Gbps-CR4
100GbE	QSFP-100G-AOC30M	30m (98ft) Cisco QSFP-100G-AOC30M Compatible 100G QSFP28 Active Optical Cable

1.2.8 Validated and Supported 200GbE Cables

Table 11 - Validated and Supported 200GbE Cables

Speed	Cable OPN #	Description
200GbE	MCP1650-V001E30	Mellanox® Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 1m, black pultab, 30AWG
200GbE	MCP1650-V002E26	Mellanox® Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 2m, black pultab, 26AWG
200GbE	MCP1650-V00AE30	Mellanox® Passive Copper cable, 200GbE, 200Gb/s, QSFP56, LSZH, 0.5m, black pultab, 30AWG
200GbE	MCP7H50-V001R30	Mellanox® Passive Copper hybrid cable, 200GbE 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, colored, 1m, 30AWG
200GbE	MFS1S00-VXXXE	Mellanox® Active Fiber cable, 200GbE, 200Gb/s, QSFP56, LSZH, black pulltab, up to 100m
200GbE	MMA1T00-VS	Mellanox® transceiver, 200GbE, up to 200Gb/s, QSFP56, MPO, 850nm, SR4, up to 100m

1.2.9 Validated and Supported EDR / 100Gb/s Cables

Table 12 - Validated and Supported EDR / 100Gb/s Cables

Speed	Cable OPN #	Description
EDR	MCP1600-E001	Mellanox Passive Copper Cable VPI 100Gb/s QSFP LSZH 1M
EDR	MCP1600-E002	Mellanox Passive Copper Cable VPI 100Gb/s QSFP LSZH 2M
EDR	MCP1600-E003	Mellanox Passive Copper Cable VPI 100GB/S QSFP LSZH 3M
EDR	MCP1600-E00A	Mellanox Passive Copper Cable VPI 100Gb/s QSFP LSZH 0.5M
EDR	MCP1600-E01A	Mellanox® Passive Copper cable, VPI, up to 100Gb/s, QSFP, LSZH, 1.5m
EDR	MCP1600-E02A	Mellanox® Passive Copper cable, VPI, up to 100Gb/s, QSFP, LSZH, 2.5m
EDR	MCP1OPT-E002	Mellanox® Passive Copper cable, VPI, up to 100Gb/s, QSFP, LSZH, 2m
EDR	MFA1A00-E005	Mellanox Active Fiber Cable, VPI, up to 100Gb/s, QSFP, 5m
EDR	MFA1A00-E006	Mellanox Active Fiber Cable, VPI, up to 100Gb/s, QSFP, 6m
EDR	MFA1A00-E010	Mellanox Active Fiber Cable, VPI, up to 100Gb/s, QSFP, 10m
EDR	MFA1A00-E015	Mellanox Active Fiber Cable, VPI, up to 100Gb/s, QSFP, 15m
EDR	MFA1A00-E020	Mellanox Active Fiber Cable, VPI, up to 100Gb/s, QSFP, 20m
EDR	MFA1A00-E030	Mellanox Active Fiber Cable, VPI, up to 100Gb/s, QSFP, 30m
EDR	MFA1A00-E050	Mellanox Active Fiber Cable, VPI, up to 100Gb/s, QSFP, 50m

Table 12 - Validated and Supported EDR / 100Gb/s Cables

Speed	Cable OPN #	Description
EDR	MFA1A00-E100	Mellanox Active Fiber Cable, VPI, up to 100Gb/s, QSFP, 100m
EDR	MMA1L30-CM	Mellanox® optical module, 100Gb/s, QSFP28, LC-LC, 1310nm, CWDM4, up to 2km
EDR	3800486800	AMPHENOL 3m EDR cable
EDR	3800486600	Luxshare 2m EDR cable



EDR links raise with RS-FEC.

1.2.10 Validated and Supported HDR / 200Gb/s Cables

Table 13 - Validated and Supported HDR Cables

Speed	OPN # / Name	Description
HDR	MCP1650-H001E30	Mellanox® Passive Copper cable, IB HDR, up to 200Gb/s, QSFP28, PVC, 1m, white pultab, 30AWG
HDR	MCP1650-H002E26	Mellanox Passive Copper Cable, IB HDR, up to 200GB/S, QSFP56, LSZH, 2M, black pultab, 26AWG
HDR	MCP1650-H00AE30	Mellanox Passive Copper Cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, 0.5M, black pultab, 30AWG
HDR	MCP1650-H01AE30	Mellanox® Passive Copper cable, IB HDR, up to 200Gb/s, QSFP28, PVC, 1.5m, white pultab, 30AWG
HDR	MCP1650-H01AE30	Mellanox Passive Copper Cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, 1.5M, black pultab, 30AWG
HDR	MCP7H50-H001R30	Mellanox® passive copper hybrid cable, IB HDR 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, colored, 1m, 30AWG
HDR	MCP7H50-H002R26	Mellanox® passive copper hybrid cable, IB HDR 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, colored, 2m, 26AWG
HDR	MCP7H50-H003R26	Mellanox® passive copper hybrid cable, IB HDR 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, colored, 3m, 26AWG
HDR	MCP7H50-H01AR30	Mellanox® passive copper hybrid cable, IB HDR 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, colored, 1.5m, 30AWG
HDR	MFS1S00-H003E	Mellanox® active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 3m
HDR	MFS1S00-H005E	Mellanox® active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 5m
HDR	MFS1S00-H010E	Mellanox® active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 10m
HDR	MFS1S00-H015E	Mellanox® active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 15m
HDR	MFS1S00-H020E	Mellanox® active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 15m
HDR	MFS1S00-H030E	Mellanox® active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 15m

Table 13 - Validated and Supported HDR Cables

Speed	OPN # / Name	Description
HDR	MFS1S00-H050E	Mellanox® active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 50m
HDR	MFS1S00-H100E	Mellanox® active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 100m
HDR	MFS1S50-H003E	Mellanox® active fiber splitter cable, IB HDR, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, 3m
HDR	MFS1S50-H005E	Mellanox® active fiber splitter cable, IB HDR, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, 5m
HDR	MFS1S50-H010E	Mellanox® active fiber splitter cable, IB HDR, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, 10m
HDR	MFS1S50-H015E	Mellanox® active fiber splitter cable, IB HDR, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, 15m
HDR	MFS1S50-H020E	Mellanox® active fiber splitter cable, IB HDR, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, 20m
HDR	MFS1S50-H030E	Mellanox® active fiber splitter cable, IB HDR, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56, LSZH, 30m
HDR	MMA1T00-HS	Mellanox® transceiver, HDR, QSFP56, MPO, 850nm, SR4, up to 100m



HDR links raise with RS-FEC.

1.3 Tested Switches

1.3.1 Tested EDR / 100Gb/s Switches

Table 14 - Tested EDR Switches

Speed	Switch Silicon	OPN # / Name	Description	Vendor
EDR	Switch-IB	MSB7790-EB2F	36-port EDR 100Gb/s InfiniBand Switch Systems	Mellanox
EDR	Switch-IB 2	MSB7800-ES2R	36-port Non-blocking Managed EDR 100Gb/s InfiniBand Smart Switch	Mellanox

1.3.2 Tested HDR / 200Gb/s Switches

Table 15 - Tested HDR Switches

Speed	Switch Silicon	OPN # / Name	Description	Vendor
HDR	Quantum	MQM8700-HS2F	40-port Non-blocking HDR 200Gb/s InfiniBand Smart Switch	Mellanox
HDR	Quantum	MQM8790-HS2F	40-port Unmanaged, Non-blocking HDR 200Gb/s InfiniBand Smart Switch	Mellanox

1.4 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 firmware Rev 20.26.1040:

Table 16 - Tools, Switch Firmware and Driver Software

	Supported Version
MLNX_OFED	4.7-x.0.0.0 / 4.6-1.0.1.1
MLNX_EN (MLNX_OFED based code)	4.7-x.0.0.0 / 4.6-1.0.1.1
WinOF-2	2.30 / 2.20
MFT	4.13.0 / 4.12.0
MLNX-OS	3.8.2004
ConnectX-6 Firmware	20.25.7020 / 20.25.6000
Quantum™ Firmware	27.2000.2046 / 27.2000.2162 (Embedded firmware version in MLNX-OS v3.8.2004)
Linux Inbox Drivers	- RH7.6 - Ubuntu 16.04.05
Windows Inbox Drivers	- Windows 2012 - Windows 2012 R2 - Windows 2016

1.5 Supported FlexBoot, UEFI

Firmware Rev 20.26.1040 supports the following FlexBoot:

Table 17 - Supported FlexBoot, UEFI

Expansion ROM	Supported Version
FlexBoot	3.5.803
UEFI	14.19.14

1.6 Revision Compatibility

Firmware Rev 20.26.1040 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`.

2 Changes and New Features in Rev 20.26.1040

Table 18 - Changes and New Features in Rev 20.26.1040

Feature/Change	Description
Rev. 20.26.1040	
Link Speed	[Alpha] Added support for 200GbE link speed only when in Force mode (non-Auto-Negotiation).
Link Down Reasoning	Added support for Link Down Reasoning.
Physical Layer Retransmission (PLR)	Added support to the Physical Layer Retransmission (PLR) functionality for HDR speed.
Cables	Removed PLR from active cables longer than 30m.
Address Translation Service (ATS)	Added Address Translation Service (ATS) support for MKEY and UMEM.
VPD	Added support for exposing the VPD on the VF.
Hairpin Drop Counter	Added support for Hairpin Drop Counter.
User Context Object (DEVX)	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. The following functionalities are still managed by the Kernel: • 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.
Software Managed Steering Tables	Added support for creating software managed steering tables in eSwitch/FDB.
Security Hardening Enhancements	This release contains important reliability improvements and security hardening enhancements. Mellanox recommends upgrading your device firmware to this release to improve the device firmware security and reliability.
Bug Fixes	See Section 4, “Bug Fixes History” , on page 25

3 Known Issues

The following table describes known issues in this firmware release and possible workarounds.

Table 19 - Ethernet Rate Limit per VF in InfiniBand Mode Limitations

Adapter Card	Dual Port Device		Single Port Device	
	w/o LAG		w/o LAG	
	w/o QoS	Full QoS	w/o QoS	Full QoS
ConnectX-6	127	127	127	127

Table 20 - Known Issues (Sheet 1 of 8)

Internal Ref.	Issue
1919403	Description: Hardware arbitration is currently disabled in OCP3.0 cards. It will be supported on future releases for the same hardware.
	Workaround: N/A
	Keywords: Hardware arbitration, OCP3.0
	Discovered in Version: 20.26.1040
1912117	Description: The sw_reset option is not supported when ATS is enabled.
	Workaround: N/A
	Keywords: ATS, sw_reset
	Discovered in Version: 20.26.1040
1911160	Description: When is in loopback mode, the link is not raised when using Cisco 10GbE AOM.
	Workaround: N/A
	Keywords: Loopback mode, link up
	Discovered in Version: 20.26.1040
1733559	Description: The effective BER of ~ 1E-7 is expected when using ConnectX-6 adapter cards in 50GbE link speed and connecting to a Spectrum-2 SN3700 switch systems using copper split cable (100-->2x50).
	Workaround: N/A
	Keywords: BER, 50GbE, Spectrum-2
	Discovered in Version: 20.26.1040
1750460	Description: BER issues might occur when using ConnectX-6 adapter cards in 100GbE link speed, and connecting with and 3rd party switch systems.
	Workaround: N/A
	Keywords: BER, 100GbE, Spectrum-2
	Discovered in Version: 20.26.1040
1917123	Description: Links between ConnectX-6 adapter cards and Spectrum-2 SN3700 switch systems do not go up when using Cisco BiDi module at 100GbE link speed.
	Workaround: N/A
	Keywords: Link up
	Discovered in Version: 20.26.1040

Table 20 - Known Issues (Sheet 2 of 8)

Internal Ref.	Issue
1887922	Description: When using a ConnectX-6 VPI card, setting one port as ETH and the other as IB is not supported. If such configuration is applied, the ETH port will be down when the second port is configured as IB.
	Workaround: N/A
	Keywords: Eth, IB, port
	Discovered in Version: 20.26.1040
1906389	Description: When using 100GbE link speed and connecting to a Cisco9000 switch, the link might take up to 2 min to raise.
	Workaround: N/A
	Keywords: Link speed
	Discovered in Version: 20.26.1040
1918749	Description: mlxlink tool displays a wrong speed when using ETH cables on ConnectX-6 adapter cards.
	Workaround: N/A
	Keywords: mlxlink
	Discovered in Version: 20.26.1040
1901198	Description: Firmware is not loaded on Multi-Host setups after reboot.
	Workaround: N/A
	Keywords: Firmware load, Multi-Host
	Discovered in Version: 20.26.1040
1842278	Description: DC LAG can function only in case there is a single PF per port without any active VFs.
	Workaround: N/A
	Keywords: DC LAG
	Discovered in Version: 20.26.1040
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: 20.26.1040
1797493	Description: Firmware asserts may occur when setting the PF_BAR2_SIZE value higher than the maximum supported size (maximum PF_BAR2_SIZE is 4 for .
	Workaround: Configure within limits (NIC PF_BAR_SIZE <= 4).
	Keywords: Multi-GVMI, Sub-Function, SFs, BAR2
	Discovered in Version: 20.26.1040
-	Description: Coherent Accelerator Processor Interface (CAPI) in ConnectX-6 firmware v20.25.7020 and above has low test coverage, however, it has no known issues.
	Workaround: N/A
	Keywords: CAPI
	Discovered in Version: 20.25.7020

Table 20 - Known Issues (Sheet 3 of 8)

Internal Ref.	Issue
1856717	Description: High BER may occur when connecting cables of type 0.5/1m DAC to an HDR speed.
	Workaround: N/A
	Keywords: Cables
	Discovered in Version: 20.25.7020
1761271	Description: CWDM4 AOM cable is currently not supported.
	Workaround: N/A
	Keywords: Modules/Cables
	Discovered in Version: 20.26.10407020
1563590	Description: LR4 modules are currently not supported.
	Workaround: N/A
	Keywords: Modules/Cables
	Discovered in Version: 20.25.6000
1848091	Description: Although the effective BER (after FEC) is expected to meet our design targets (e.g. 10e-14 or lower), occasionally it may be higher.
	Workaround: N/A
	Keywords: Cables
	Discovered in Version: 20.25.6000
1796936	Description: HDR optical cables and Split cables support only HDR speed.
	Workaround: N/A
	Keywords: Link Speed, cables, Break-Out cables
	Discovered in Version: 20.25.6000
1755286	Description: Port speed may change to SDR spontaneously, without a clear reason.
	Workaround: Keep the "keep_ib_link_up" bit at 0 in NVconfig to make sure the port is raised with the correct speed.
	Keywords: SDR, port speed
	Discovered in Version: 20.25.2006
1778616	Description: If the flash memory is not cleared, link_maintenance can be wrongly disabled by the NV configuration.
	Workaround: N/A
	Keywords: Flash memory
	Discovered in Version: 20.25.2006
1752009	Description: When working with Multi-GVMI and SR-IOV, and with a high number of Virtual Functions and sub-functions, the driver start may fail for the VFs/sub-functions.
	Workaround: Decrease the number of configured VFs or sub-functions using mlxconfig PF_BAR2_SIZE or NUM_OF_VFS.
	Keywords: Multi-GVMI, SR-IOV
	Discovered in Version: 20.25.2006

Table 20 - Known Issues (Sheet 4 of 8)

Internal Ref.	Issue
1774135	Description: PXE boot is not functional when connecting a splitter cable to the host.
	Workaround: Update the SM as follow: - MLNX_OFED SM: - Set the default partition in the SM partitions.conf file as shown in the example below: <code>Default=0x7fff, ipoib, rate=5:ALL=full;</code> Note: "rate" must be set to "5" regardless to the other flags values. - MLNX-OS SM: Run the following CLI commands: <code>no ib sm</code> <code>ib partition Default rate 5</code> <code>ib sm</code> - UFM SM: Use REST API to change default partition rate: PUT <code>https://<some IP>/ufmRest/resources/networks/management</code> <pre>{ "qos_parameters": { "rate_limit": 900 } }</pre> As a result, <code>/opt/ufm/files/conf/opensm/partitions.conf</code> will include the following line: <code>management=0x7fff, ipoib, sl=0, rate=5, defmember=full : ALL,</code> <code>ALL_SWITCHES=full, SELF=full;</code>
	Keywords: PXE boot, splitter cable
	Discovered in Version: 20.25.2006
1762142	Description: PF / ECPF FLR does not clear all its dependent sub-functions. QUERY_ESW_FUNCTIONS and ALLOC/DEALLOC_SF commands might fail / show allocated SFs after PF FLR.
	Workaround: Perform a graceful shutdown, and not an FLR.
	Keywords: Multi-GVMI, SF, Sub-Functions, FLR
	Discovered in Version: 20.25.2006
1768814/1772474	Description: Due to hardware limitation, REG_C cannot be passed over loopback when the FDB action is forwarded to multiple destinations.
	Workaround: N/A
	Keywords: Connection-Tracking
	Discovered in Version: 20.25.2006
1770736	Description: When a PF or ECPF with many VFs (SR-IOV), and/or SFs (Multi-GVMI) triggers an FLR, PCIe completion timeout might occur.
	Workaround: Increase the PCIe completion timeout.
	Keywords: Multi-GVMI, SR-IOV, Sub-Function, Virtual Function, PF FLR
	Discovered in Version: 20.25.2006

Table 20 - Known Issues (Sheet 5 of 8)

Internal Ref.	Issue
1774890	Description: If ConnectX-6 adapter card is connected to a Quantum based switch over an HDR fiber optic cable, EDR and SDR speeds will not function. This limitation causes PXE not to function when performing: - PXE boot, as PXE traffic utilizes SDR speed - PXE boot over IB, when using either an optic cable or a copper splitter
	Workaround: N/A
	Keywords: PXE, Quantum, SDR, EDR, HDR, cables
	Discovered in Version: 20.25.2006
1716334	Description: When mlxconfig.PF_BAR2_EN is enabled, configuring more than 255 PCI functions will raise an assert.
	Workaround: When working with BAR2, configure SR-IOV to align to the 255 PCI functions limitation. mlxconfig.NUM_OF_VFS controls the number of configured SR-IOV VFs. e.g.: - Smart NICs: 2 External Host PFs, 2 ARM ECPFs, 125 VFs per PF. - Non-smart NICs: 2 External Host PFs, 126 VFs per PF
	Keywords: Multi-GVMI, PF_BAR2_EN, Sub-Functions, SR-IOV, VFs
	Discovered in Version: 20.25.1500 [Beta]
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: 20.25.1500 [Beta]
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: 20.25.1500 [Beta]
-	Description: The supported length of HDR copper cables is currently up to 2M.
	Workaround: N/A
	Keywords: HDR cables
	Discovered in Version: 20.25.1500 [Beta]
-	Description: In Ethernet mode, at 25/50/100GbE speeds, only RS-FEC in Force mode is supported. Other user configurations are overridden.
	Workaround: N/A
	Keywords: Ethernet, 25GbE, 50GbE, 100GbE, RS-FEC
	Discovered in Version: 20.25.1500 [Beta]
-	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: 20.25.1500 [Beta]

Table 20 - Known Issues (Sheet 6 of 8)

Internal Ref.	Issue
1574876	Description: DC RoCE LAG is functional only if the router posts VRRP address as the source MAC.
	Workaround: N/A
	Keywords: DC RoCE LAG
	Discovered in Version: 20.25.1500 [Beta]
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: 20.25.1500 [Beta]
-	Description: In some cases, the power consumption might be 10% higher than what is stated in the adapter cards User Manual.
	Workaround: Power consumption will be aligned with the User Manual statement in the next release
	Keywords: Power consumption
	Discovered in Version: 20.25.1500 [Beta]
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: 20.25.1500 [Beta]
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: 20.25.1500 [Beta]
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: 20.25.1500 [Beta]
1414290	Description: When getting an inline scatter CQE on IB striding RQ, the stride index in the CQE will be zero.
	Workaround: N/A
	Keywords: Scatter CQE
	Discovered in Version: 20.25.1500 [Beta]
1332714	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: 20.25.1500 [Beta]
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: 20.25.1500 [Beta]

Table 20 - Known Issues (Sheet 7 of 8)

Internal Ref.	Issue
1027553	Description: While using e-switch vport sVLAN stripping, the RX steering values on the sVLAN might not be accurate.
	Workaround: N/A
	Keywords: e-sw vport sVLAN stripping, RX steering
	Discovered in Version: 20.25.1500 [Beta]
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: 20.25.1500 [Beta]
1277762	Description: An Ethernet multicast loopback packet is not counted (even if it is not a local loopback packet) when running the <code>nic_receive_steering_discard</code> command.
	Workaround: N/A
	Keywords: Ethernet multicast loopback packet
	Discovered in Version: 20.25.1500 [Beta]
1306342	Description: Signature-accessing WQEs sent locally to the NVMeF target QPs that encounter signature errors, will not send a SIGERR CQE.
	Workaround: N/A
	Keywords: Signature-accessing WQEs, NVMeF target
	Discovered in Version: 20.25.1500 [Beta]
1168594	Description: RoCE Dual Port Mode (a.k.a Multi-Port vHCA: MPV) is not supported in Multi-Host setups.
	Workaround: N/A
	Keywords: Multi-Port vHCA, Multi-Host
	Discovered in Version: 20.25.1500 [Beta]
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: 20.25.1500 [Beta]
1171013	Description: Signature Handover Operations is not supported when FPP (Function-Per-Port) mode is disabled.
	Workaround: N/A
	Keywords: Signature Handover Operations, FPP
	Discovered in Version: 20.25.1500 [Beta]

Table 20 - Known Issues (Sheet 8 of 8)

Internal Ref.	Issue
1059975	Description: NVMeF limitation: • Transaction size - up to 128KB per IO (non-inline) • Support up to 16K connections • Support single namespace per drive • Staging buffer size must be at least 16MB in order to allow SRQ size of 64 entries
	Workaround: N/A
	Keywords: NVMeF
	Discovered in Version: 20.25.1500 [Beta]

4 Bug Fixes History

Table 21 lists the bugs fixed in this release.

Table 21 - Bug Fixes History

Internal Ref.	Issue
1718734	Description: Upon temperature changes, HDR link can potentially go down due to a temperature change higher than 6 degrees Celsius.
	Keywords: HDR link
	Discovered in Version: 20.25.1500 [Beta]
	Fixed in Release: 20.26.1040
1891441	Description: Fixed a rare issue that resulted in firmware getting stuck with the below message in dmesg during driver restart or driver reboot, and under stress of QP timeouts (packet drops/network congestion): <i>mlx5_core 0000:a1:00:0: Firmware over 120000 MS in pre-initializing state, aborting.</i>
	Keywords: Pre-initializing state, driver restart
	Discovered in Version: 20.25.7020
	Fixed in Release: 20.26.1040
1859715	Description: The bandwidth on MFS1S00-H050E cables is 99G/s and on MFS1S00-H100E cables is 67Gb/s when connecting at HDR speed to an HDR switch.
	Keywords: Cables
	Discovered in Version: 20.25.7020
	Fixed in Release: 20.26.1040
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: 20.25.6000
	Fixed in Release: 20.26.1040
182411	Description: Renamed the GMP Mellanox Vendor Specific External Capability mask enum from <code>IsDiagnosticCountersSupported</code> to <code>IsDiagnosticDataSupported</code> .
	Keywords: GMP Mellanox Vendor Specific External Capability mask DiagnosticData
	Discovered in Version: 20.25.6000
	Fixed in Release: 20.26.1040
1698990	Description: HDR link up time when using optical and copper cables may take 6 minutes or more (up to 20 minutes).
	Keywords: HDR, optical cables, link up times
	Discovered in Version: 20.25.1500 [Beta]
	Fixed in Release: 20.25.7020
1797452	Description: A port may hang while Link-Maintenance runs on it and the second port's link is toggled.
	Keywords: Link-Maintenance, port toggling
	Discovered in Version: 20.25.6000
	Fixed in Release: 20.25.7020

Table 21 - Bug Fixes History

Internal Ref.	Issue
1790437	Description: Fixed an issue that prevented the firmware from resetting the port speed to its default speed HDR due to a TEARDOWN_HCA with open resources event that led to a bad state in firmware, where attributes were not reset to their default between drivers.
	Keywords: TEARDOWN_HCA, Panic Teardown, FLR, SDR
	Discovered in Version: 20.25.2006
	Fixed in Release: 20.25.6000
1774870	Description: Link flapping and packet loss during High/Low temperature changes.
	Keywords: Link
	Discovered in Version: 20.25.2006
	Fixed in Release: 20.25.6000
1778837	Description: When using a copper splitter cable up to 2m length in HDR100 mode, traffic may drop.
	Keywords: Cables, HDR100
	Discovered in Version: 20.25.2006
	Fixed in Release: 20.25.6000
1723236/ 1718645/ 1710631	Description: On rare occasions, HDR link may not raise properly due to temperature changes.
	Keywords: HDR link
	Discovered in Version: 20.25.1500 [Beta]
	Fixed in Release: 20.25.6000
1775228	Description: In a rare scenario when the driver is executing the "2err" command and the QP is in SQ drain state, the firmware might post event of broken WQ instead of sending error CQEs on all the WQEs.
	Keywords: QP, WQE, CQE
	Discovered in Version: 20.25.2006
	Fixed in Release: 20.25.6000
1771921	Description: Fixed an issue that prevented users with non-port owner privilege from using the read DCBX access registry key REGID_DCBX_APP/REGID_DCBX_PARAM.
	Keywords: DCBX
	Discovered in Version: 20.24.4010 [Beta]
	Fixed in Release: 20.25.2006
1707075	Description: When connected to a Switch-IB or Switch-IB 2 based switch system using HDR cables, link may become stuck during polling.
	Keywords: Switch-IB, Switch-IB2, Link, HDR Cable
	Discovered in Version: 20.24.4010 [Beta]
	Fixed in Release: 20.25.1500 [Beta]
1608206	Description: Fixed an issue that resulted in out-of-order packet transmission due to an internal bypass race.
	Keywords: Packet transmission
	Discovered in Version: 20.24.4010 [Beta]
	Fixed in Release: 20.25.1500 [Beta]

Table 21 - Bug Fixes History

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: 20.24.4010 [Beta]
	Fixed in Release: 20.25.1500 [Beta]

5 Firmware Changes and New Feature History

Table 22 - Firmware Changes and New Feature History (Sheet 1 of 2)

Feature/Change	Description
Rev. 20.25.7020	
Physical Layer Retransmission (PLR)	Added support to the Physical Layer Retransmission (PLR) functionality for HDR speed.
Link Speed	Link-up time improvements. The link up time is up to 60 sec
Bug Fixes	See Section 4, “Bug Fixes History”, on page 25
Rev. 20.25.6000	
Software Managed Steering Tables	Added support for creating software managed steering tables in eSwitch/FDB.
Bug Fixes	See Section 4, “Bug Fixes History”, on page 25
Rev. 20.25.2006	
General	HDR speed rate is at GA level.
Zero-Touch-RoCE Counters	Zero-Touch-RoCE counters are now available to the user for debuggability purposes when using the Zero-Touch-RoCE feature.
Bug Fixes	See Section 4, “Bug Fixes History”, on page 25
Rev. 20.25.1500 [Beta]	
General	This is the initial firmware version of Mellanox ConnectX-6 adapter cards at the following speed rates and development stages: - When using it as InfiniBand, at HDR speed rate, HDR is at Beta level - When using it as Ethernet, at 100GbE speed rate, 100GbE works only in ‘Force mode’. 100GbE is at Alpha level
Immediate Responder Not Ready (RNR)	The switch sends an RNR with T=0x1 when a limited packet is dropped. This might occur after a specific timer to prevent retransmission due to no response or when the buffer is released. Immediate Responder Not Ready (RNR) enables the hardware to re-send the packet immediately, to allow the senders to sync.
VSC Security	VSC security includes the mechanisms which will prevent a reasonable host from affecting other hosts from using VSC.
Extended Responder Not Ready (RNR)	Enabled Responder Not Ready (RNR) configuration. Now the number of RNRs can be set higher than 6 and lower than indefinite.
ODP support for SRQ & XRC	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. 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.
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.
mlxconfig	Renamed the BOOT_RETRY_CNT1 parameter to BOOT_RETRY_CNT.

Table 22 - Firmware Changes and New Feature History (Sheet 2 of 2)

Feature/Change	Description
Reduced Firmware Upgrade Time	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). Note: Currently this capability only supports firmware upgrade and downgrades to firmware versions newer than XX.25.1020.
Bug Fixes	See Section 4, “Bug Fixes History” , on page 25

6 PreBoot Drivers (FlexBoot/UEFI)

6.1 FlexBoot Changes and New Features

For further information, please refer to FlexBoot Release Notes

<https://docs.mellanox.com> --> Software --> Firmware Management --> PreBoot Drivers (FlexBoot/UEFI)

6.2 UEFI Changes and Major New Features

For further information, please refer to UEFI Release Notes

<https://docs.mellanox.com> --> Software > Firmware Management --> PreBoot Drivers (FlexBoot/UEFI)

7 Unsupported Features and Commands

7.1 Unsupported Features

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

Table 23 - Unsupported Features

Feature	ConnectX-6
The following service types: • SyncUMR • Mellanox transport • RAW IPv6	No
INT-A not supported for EQs only MSI-X	No
PCI VPD write flow (RO flow supported)	No
Streaming Receive Queue (STRQ) and collapsed CQ	No
Subnet Manager (SM) on VFs	No
RoCE LAG in Multi-Host/Socket-Direct	No

7.2 Unsupported Commands

- QUERY_MAD_DEMUX
- SET_MAD_DEMUX
- CREATE_RQ - MEMORY_RQ_RMP
- MODIFY_LAG_ASYNC_EVENT

8 Supported Non-Volatile Configurations

Table 24 - 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		
	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		0x13
	ESWITCH_HAIRPIN_TOTAL_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		
	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

Table 24 - Supported Non-Volatile Configurations

Configuration	mlxconfig Parameter Name	Class	TLV ID
NV_ROCE_CC	ROCE_CC_PRIO_MASK	PHYSICAL_PORT (2)	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		
	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_MPFS_CONF	DUP_MAC_ACTION	PHYSICAL_PORT (2)	0x196
	SRIOV_IB_ROUTING_MODE		
	IB_ROUTING_MODE		

Table 24 - Supported Non-Volatile Configurations

Configuration	mlxconfig Parameter Name	Class	TLV ID
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
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		