



Mellanox ConnectX[®]-3 Firmware (fw-ConnectX3) Release Notes

Rev 2.30.3000

Last Updated: September 17, 2013

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1 Overview

These are the release notes for the ConnectX®-3 adapters firmware, fw-ConnectX3 Rev 2.30.3000. This firmware supports the following protocols:

- InfiniBand - SDR, DDR, QDR, FDR10, FDR
- Ethernet - 1GigE, 10GigE, 40GigE and 56GigE
- PCI Express 3.0, supporting backwards compatibility for v2.0 and v1.1



Firmware Rev 2.30.3000 is compatible with MFT tools v2.7.0a and above. Using older versions of MFT tools will cause failure during image creation.

1.1 Supported Devices

This firmware supports the devices and protocols listed in Table 1. For the most updated list of adapter cards supported, visit the firmware download pages via <http://www.mellanox.com>.



Please contact your Mellanox local FAE for firmware updates to pre-production cards not on this list.

Table 1 - Supported PSIDs (Sheet 1 of 2)

Device Part Number	PSID	Device Name	Supported Protocols
MCX311A-XCAT	MT_1170110023	ConnectX®-3 EN network interface card, 10GbE, single-port SFP+, PCIe3.0 x4 8GT/s, tall bracket, RoHS R6	Ethernet
MCX312A-XCAT	MT_1050110023	ConnectX®-3 EN network interface card, 10GbE, dual-port SFP+, PCIe3.0 x8 8GT/s, tall bracket, RoHS R6	Ethernet
	MT_1050120023		
MCX312A-XCBT	MT_1080110023	ConnectX®-3 EN network interface card, 10GbE, dual-port SFP+, PCIe3.0 x8 8GT/s, tall bracket, RoHS R6	Ethernet
	MT_1080120023		
MCX312B-XCBT	MT_1200110023	ConnectX®-3 EN network interface card, 10GbE, dual-port SFP+, PCIe3.0 x8 8GT/s, tall bracket, RoHS R6	Ethernet
	MT_1200210023		
MCX313A-BCAT	MT_1110110023	ConnectX®-3 EN network interface card, 40GbE, single-port QSFP, PCIe3.0 x8 8GT/s, tall bracket, RoHS R6	Ethernet
	MT_1110120023		

Table 1 - Supported PSIDs (Sheet 2 of 2)

Device Part Number	PSID	Device Name	Supported Protocols
MCX313A-BCBT	MT_1060110023	ConnectX®-3 EN network interface card, 40/56GbE, single-port QSFP, PCIe3.0 x8 8GT/s, tall bracket, RoHS R6	Ethernet
	MT_1060140023		
MCX314A-BCAT	MT_1020110023	ConnectX®-3 EN network interface card, 40GbE, dual-port QSFP, PCIe3.0 x8 8GT/s, tall bracket, RoHS R6	Ethernet
	MT_1020120023		
MCX314A-BCBT	MT_1090110023	ConnectX®-3 EN network interface card, 40/56GbE, dual-port QSFP, PCIe3.0 x8 8GT/s, tall bracket, RoHS R6	Ethernet
MCX353A-FCAT	MT_1060110019	ConnectX®-3 VPI adapter card, single-port QSFP, FDR IB (56Gb/s) and 40GbE, PCIe3.0 x8 8GT/s, tall bracket, RoHS R6	InfiniBand/ Ethernet VPI
	MT_1060120019		
MCX353A-FCBT	MT_1100110019	ConnectX®-3 VPI adapter card, single-port QSFP, FDR IB (56Gb/s) and 40/56GbE, PCIe3.0 x8 8GT/s, tall bracket, RoHS R6	InfiniBand/ Ethernet VPI
	MT_1100120019		
MCX353A-QCAT	MT_1120110018	ConnectX®-3 VPI adapter card, single-port QSFP, QDR IB (40Gb/s) and 10GbE, PCIe3.0 x8 8GT/s, tall bracket, RoHS R6	InfiniBand/ Ethernet VPI
	MT_1120120018		
MCX353A-TCAT	MT_1060110028	ConnectX®-3 VPI adapter card, single-port QSFP, FDR10 IB (40Gb/s) and 10GbE, PCIe3.0 x8 8GT/s, tall bracket, RoHS R6	InfiniBand/ Ethernet VPI
	MT_1060120028		
MCX353A-TCBT	MT_1100110028	ConnectX®-3 VPI adapter card, single-port QSFP, FDR10 IB (40Gb/s) and 10GbE, PCIe3.0 x8 8GT/s, tall bracket, RoHS R6	InfiniBand/ Ethernet VPI
MCX354A-FCAT	MT_1020110019	ConnectX®-3 VPI adapter card, dual-port QSFP, FDR IB (56Gb/s) and 40GbE, PCIe3.0 x8 8GT/s, tall bracket, RoHS R6	InfiniBand/ Ethernet VPI
	MT_1020120019		
MCX354A-FCBT	MT_1090110019	ConnectX®-3 VPI adapter card, dual-port QSFP, FDR IB (56Gb/s) and 40/56GbE, PCIe3.0 x8 8GT/s, tall bracket, RoHS R6	InfiniBand/ Ethernet VPI
	MT_1090120019		
MCX354A-QCBT	MT_1090110018	ConnectX®-3 VPI adapter card, dual-port QSFP, QDR IB (40Gb/s) and 10GbE, PCIe3.0 x8 8GT/s, tall bracket, RoHS R6	InfiniBand/ Ethernet VPI
MCX354A-TCAT	MT_1020110028	ConnectX®-3 VPI adapter card, dual-port QSFP, FDR10 IB (40Gb/s) and 10GbE, PCIe3.0 x8 8GT/s, tall bracket, RoHS R6	InfiniBand/ Ethernet VPI
	MT_1020120028		
MCX354A-TCBT	MT_1090110028	ConnectX®-3 VPI adapter card, dual-port QSFP, QDR IB (40Gb/s) and 10GbE, PCIe3.0 x8 8GT/s, tall bracket, RoHS R6	InfiniBand/ Ethernet VPI

1.2 Supported Cables and Modules

Please refer to the Mellanox Products Approved Cable Lists document (Doc Nr. 3796) for the list of supported cables.

http://www.mellanox.com/related-docs/user_manuals/Mellanox_approved_cables.pdf

1.2.1 Tested Cables and Modules

Table 2 - Tested Cables and Modules

Speed	OPN #	Description	Vendor
DDR	MC1204128-005	Mt Passive Copper Cable 4x Cx4 To QSFP 20Gb/s 28awg 5m	Mellanox Technologies
DDR	MC1204130-001	Mt Passive Copper Cable 4x Cx4 To QSFP 20Gb/s 30awg 1m	Mellanox Technologies
DDR	MC1204130-003	Mt Passive Copper Cable 4x Cx4 To QSFP 20Gb/s 30awg 3m	Mellanox Technologies
SDR	MC1104130-001	Mt Passive Copper Cable 4x Cx4 20Gb/s 30awg 1m	Mellanox Technologies
SDR	MC1104130-003	Mt Passive Copper Cable 4x Cx4 20Gb/s 30awg 3m	Mellanox Technologies
QDR	MC2206310-300	Mt Active Fiber Cable 4x QSFP 40Gb/s 200m	Mellanox Technologies
QDR	MC2206125-007	Mt Passive Copper Cable 4x QSFP 40Gb/s 25awg 7m	Mellanox Technologies
QDR	MC2206126-006	Mt Passive Copper Cable 4x QSFP 40Gb/s 26awg 6m	Mellanox Technologies
QDR	MC2206230-010	Mt Active Copper Cable Ib QDR40Gb/s QSFP 10m	Mellanox Technologies
QDR/FDR10	MC2206310-030	Mt Active Fiber Cable 4x QSFP 40Gb/s 30m	Mellanox Technologies
QDR / FDR10	MC2206310-100	Mt Active Fiber Cable 4x QSFP 40Gb/s 100m	Mellanox Technologies
QDR / FDR10/ 40GE	MFS4R12CB-100	Mt Active Fiber Cable Ib QDR/FDR10 40Gb/s QSFP 100m	Mellanox Technologies
QDR / FDR10	MC2206128-005	Mt Passive Copper Cable 4x QSFP 40Gb/s 28awg 5m	Mellanox Technologies
QDR / FDR10	MC2206130-003	Mt Passive Copper Cable 4x QSFP 40Gb/s 30awg 3m	Mellanox Technologies
QDR / FDR10	MC2206130-00A	Mt Passive Copper Cable 4x QSFP 40Gb/s 30awg 0.5m	Mellanox Technologies
QDR / FDR10 on SwitchX only	MC2210511-LR4 - F	Mellanox Optical Module 40Gb/s QSFP Lc-lc 1310nm Lr4. Up To 10km	Mellanox Technologies

Table 2 - Tested Cables and Modules

Speed	OPN #	Description	Vendor
QDR / FDR10/ 40GE	MC2210411- SR4 -T	Mellanox Optical Module 40Gb/s QSFP Lc-lc 850nm Lr4. Up To 100m	Mellanox Technologies
QDR / FDR10/ 40GE	MC2210411- SR4 -F	Mellanox Optical Module 40Gb/s QSFP Lc-lc 850nm Lr4. Up To 100m	Mellanox Technologies
40GE	MC2210126-004	Mt Passive Copper Cable 4x QSFP 40GE 26awg 4m	Mellanox Technologies
40GE	MC2210126-005	Mt Passive Copper Cable 4x QSFP 40GE 26awg 5m	Mellanox Technologies
40GE	MC2210128-003	Mt Passive Copper Cable 4x QSFP 40GE 28awg 3m	Mellanox Technologies
40GE	MC2210130-001	Mt Passive Copper Cable 4x QSFP 40GE 30awg 1m	Mellanox Technologies
40GE	MC2210310-30- E	Mellanox® Active Fiber Cable, Eth 40GbE, 40Gb/s, QSFP	Mellanox Technologies
40GE	MC2210310- 100-E	Mellanox® Active Fiber Cable, Eth 40GbE, 40Gb/s, QSFP	Mellanox Technologies
40GE- >10GE	MC2609125-005	Mt Passive Copper Cable QSFP To 4 SFP+ 10Gb/s 26awg 5m	Mellanox Technologies
40GE- >10GE	MC2609130-001	Mt Passive Copper Cable QSFP To 4 SFP+ 10Gb/s 30awg 1m	Mellanox Technologies
40GE- >10GE	MC2609130-003	Mt Passive Copper Cable QSFP To 4 SFP+ 10Gb/s 30awg 3m	Mellanox Technologies
40GE- >10GE	MC6709309-050	Mt Passive Optical Cable Multimode Splitter Mpo To 8xlc 50 Meter	Mellanox Technologies
10GE	MC2309124-006	Mt Passive Copper Cable 1x SFP+ To QSFP 10Gb/s 24awg 7m	Mellanox Technologies
10GE	MC2309124-007	Mt Passive Copper Cable 1x SFP+ To QSFP 10Gb/s 24awg 7m	Mellanox Technologies
10GE	MC2309130- 00A	Mt Passive Copper Cable 1x SFP+ To QSFP 10Gb/s 30awg 0.5m	Mellanox Technologies
10GE	MC2309130-003	Mt Passive Copper Cable 1x SFP+ To QSFP 10Gb/s 30awg 3m	Mellanox Technologies
10GE	MC3309130- 00A	Mt Passive Copper Cable 1x SFP+ 10Gb/s 30awg 0.5m	Mellanox Technologies
10GE	MC3309124-005	Mt Passive Copper Cable 1x SFP+ 10Gb/s 24awg 5m	Mellanox Technologies
10GE	MC3309130-003	Mt Passive Copper Cable 1x SFP+ 10Gb/s 30awg 3m	Mellanox Technologies

Table 2 - Tested Cables and Modules

Speed	OPN #	Description	Vendor
10GE	MC3309124-007	Mt Passive Copper Cable 1x SFP+ 10Gb/s 24awg 7m	Mellanox Technologies
10GE	MFM1T02A-LR	Mellanox Optical Module Eth 10GbE 10Gb/s SFP+ Lc-lc 1310nm Lr Up To 10km	Mellanox Technologies
10GE	MFM1T02A-SR	Mt Optical Module Eth 10GbE 10Gb/s SFP+ Lc-lc 850nm Sr Up To 300m	Mellanox Technologies
1GE	MC3208011-SX	Mellanox Optical Module Eth 1GbE 1Gb/s SFP Lc-lc Sx 850nm Up To 500m	Mellanox Technologies
1GE	MC3208411-T	Mellanox Module Eth 1GbE 1Gb/s SFP Base-t Up To 100m	Mellanox Technologies
10GE	MAM1Q00A-QSA	Mellanox QSFP To SFP+ Adapter	Mellanox Technologies
FDR; 56G VPI	MC2207130-00A	Mt Passive Copper Cable 4x QSFP 56Gb/s 30awg 0.5m	Voex - (Taipan)
FDR; 56G VPI	MC2207130-002	Mt Passive Copper Cable 4x QSFP 56Gb/s 30awg 2m	Voex - (Taipan)
FDR; 56G VPI	MC2207128-003	Mt Passive Copper Cable 4x QSFP 56Gb/s 28awg 3m	Voex - (Taipan)
FDR; 56G VPI	MC2207126-004*	Mt Passive Copper Cable 4x QSFP 56Gb/s 28awg 4m	Voex - (Taipan)
FDR; 56 VPI	MC2207312-003	Mt Active Fiber Cable VPI Ib FDR (56Gb/s) And Eth 40GbE QSFP 3m	Voex - (Taipan)
FDR; 56G VPI	MC2207310-030-E	Mt Active Fiber Cable 4x QSFP 56Gb/s 30m	Mellanox Technologies
FDR; 56G VPI	MC2207312-100	Mt Active Fiber Cable 4x QSFP 56Gb/s 100m	Mellanox Technologies
FDR; 56G VPI	MC2207310-100-E	Mt Active Fiber Cable 4x QSFP 56Gb/s 100m	Mellanox Technologies
FDR; 56G VPI	MC2207310-030-F	Mt Active Fiber Cable 4x QSFP 56Gb/s 30m	Mellanox Technologies
FDR; 56G VPI	MC2207310-100-F	Mt Active Fiber Cable 4x QSFP 56Gb/s 100m	Mellanox Technologies
10GE	Cisco SFP-H10GB-CU1M	Cisco SFP+ cable	Cisco
10GE	Cisco SFP-H10GB-CU3M	Cisco SFP+ cable	Cisco
10GE	Cisco SFP-H10GB-CU5M	Cisco SFP+ cable	Cisco

Table 2 - Tested Cables and Modules

Speed	OPN #	Description	Vendor
40GE	QSFP-H40G-CU1M	Cisco QSFP 40GbE cable	Cisco
40GE	QSFP-H40G-CU3M	Cisco QSFP 40GbE cable	Cisco
40GE	QSFP-H40G-CU5M	Cisco QSFP 40GbE cable	Cisco
40GE->10GE	MC2309124-007	QSFP-4SFP10G	Cisco
40GE->10GE	MC2309124-007	QSFP-4SFP10G	Cisco
10GE	CAB-SFP-SFP-1M	passive copper cable, SFP+, 10 Gb/s, 1m	Arista
10GE	CAB-SFP-SFP-2M	passive copper cable, SFP+, 10 Gb/s, 2m	Arista
10GE	CAB-SFP-SFP-3M	passive copper cable, SFP+, 10 Gb/s, 3m	Arista
10GE	CAB-SFP-SFP-5M	passive copper cable, SFP+, 10 Gb/s, 5m	Arista
40GE	40GbE QSFP+ to QSFP	QSFP+ copper cable 3M	Arista
40GE	40GbE QSFP+ to QSFP	QSFP+ copper cable 5M	Arista
10GE	J9281B	HP X242 10G SFP+ to SFP+ 1m Direct Attach Copper Cable	HP
10GE	J9283B	HP X242 10G SFP+ SFP+ 3m DAC Cable	HP
10GE	J9285B	HP X242 10G SFP+ SFP+ 7m DAC Cable	HP
10GE	JD096B	HP X240 10G SFP+ SFP+ 1.2m DAC Cable	HP
10GE	JD095B	HP X240 10G SFP+ SFP+ 0.65m DAC Cable	HP
10GE	JD097B	HP X240 10G SFP+ SFP+ 3m DAD Cable	HP
10GE	487649-B21	HP BLc SFP+ .5m 10GbE Copper Cable	HP
10GE	487652-B21	HP BLc SFP+ 1m 10GbE Copper Cable	HP
10GE	487655-B21	HP BLc SFP+ 3m 10GbE Copper Cable	HP
10GE	537963-B21	HP BLc SFP+ 5m 10GbE Copper Cable	HP
10GE	487658-B21	HP BLc SFP+ 7m 10GbE Copper Cable	HP
10GE	AP784A	HP 3m C-series Passive Copper SFP+ Cable	HP

Table 2 - Tested Cables and Modules

Speed	OPN #	Description	Vendor
10GE	AP785A	HP 5m C-series Passive Copper SFP+ Cable	HP
10GE	AP818A	HP 1m B-series Active Copper SFP+ Cable	HP
10GE	AP819A	HP 3m B-series Active Copper SFP+ Cable	HP
1GB	453151-B21	HP BLc VC 1Gb SX SFP Opt Kit	HP
1GB	453154-B21	HP BLc VC 1Gb RJ-45 SFP Opt Kit	HP
10GE	455883-B21	HP BLc 10Gb SR SFP+ Opt	HP
10GE	455886-B21	HP BLc 10Gb LR SFP+ Opt	HP
10GE	J9150A	HP X132 10G SFP+ LC SR Transceiver	HP
10GE	J9151A	HP X132 10G SFP+ LC LR Transceiver	HP

1.3 Tested Switches

Table 3 - Tested Switches

Speed	OPN # /Name	Description
IB SDR	F-X430060	24-port SDR-Switch
IB DDR	F-X430044	24-port DDR-Switch
IB DDR	Qlogic 9024, DDR	24-port DDR-Switch
IB QDR	QLogic 12300	36-Port 40Gb QDR Infiniband Switch, Management Module, Dual Power
IB QDR	Mellanox MIS5025Q-1SFC	InfiniScale® IV QDR InfiniBand Switch, 36 QSFP ports, 1 Power Supply, Unmanaged, PSU side to connector side airflow, Standard depth, Rail Kit and RoHS5
IB QDR	Mellanox MIS5024Q-1BFR	InfiniScale® IV QDR InfiniBand Switch, 36 QSFP ports, 1 power supply, Unmanaged, PSU side to Connector side airflow, no FRUs, with rack rails, Short Depth Form Factor
IB QDR	Mellanox QDR-Switch 4036	InfiniScale® IV QDR Mellanox Grid Director 4036 36-Port QDR InfiniBand Switch - Part ID: VLT-30011
IB FDR	Mellanox MSX6036F-1BFR	SwitchX® based FDR InfiniBand Switch, 36 QSFP ports, 1 Power Supply, Short depth, Managed, PSU side to Connector side airflow, Rail Kit and RoHS6

Table 3 - Tested Switches

Speed	OPN # /Name	Description
IB FDR10	Mellanox MSX6025T-1SFR	SwitchX® based FDR10 Infiniband Switch, 36 QSFP ports, 1 Power Supply, Standard depth, Unmanaged, PSU side to Connector side air-flow, Rail Kit and RoHS6
40Gb/s	Mellanox MSX1036B-1BFR	SwitchX® based 36-port QSFP 40GigE 1U Ethernet
10Gb/s	Mellanox MSX1016X-1BFR	SwitchX® based 64-port SFP+ 10GigE, 1U Ethernet switch
10/40Gb/s	Mellanox MSX1024B-1BFS	SwitchX®-2 based 48-port SFP+ 10GbE, 12 port QSFP 40GbE, 1U Ethernet switch
10/40Gb/s	Force 10 S4810P-AC	48-port 10Gb/40Gb Switch
IB FDR	SX65XX FDR	SX65XX 108-Port InfiniBand Director Switch
10/40Gb/s	Cisco 3064	48-port 10Gb/40Gb Switch
10/40Gb/s	Arista 7050Q	16-port 40Gb Switch
10/40Gb/s	Arista 7050S	48-port 10Gb/40Gb Switch
10Gb/s	Fujitsu 10GbE (XAUI)	Ethernet Switch 24 ports, 20xCX4 and 4xQSFP
10Gb/s	HP ProCurve 6600-24XG	24-port 10GbE switch
10Gb/s	Cisco 5548	Cisco 10GB ETH switch
10Gb/s	Cisco 5020	Cisco 10GB ETH switch
10/40Gb/s	BNT G8264	BNT 10/40GB ETH switch
10Gb/s	Juniper EX2500	Juniper 10GB ETH switch
10Gb/s	Juniper EX4550	Juniper 10GB ETH switch
10/40Gb/s	Juniper EX3500	Juniper 10/40GB ETH switch
1/10Gb/s	Summit X650	Extreme 10GB ETH switch
10Gb/s	Brocade 8000	Brocade 10GB ETH switch
10/40Gb/s	HP ASF5900	HP 10GB ETH switch
1Gb/s	HP 2810-24G	HP 1GB ETH switch
IB FDR	M4001F	SwitchX® 56Gb/s 16+16 port InfiniBand switch blade for the Dell M1000e Blade System
IB FDR10	M4001T	SwitchX® 40Gb/s 16+16 port InfiniBand switch blade for the Dell M1000e Blade System
IB QDR	M3601Q	40Gb/s 16+16 port InfiniBand switch blade for the Dell M1000e Blade System
IB DDR	M2401G	Infiniscale III 24-Port 20Gb/s InfiniBand Switch for Dell M1000E Blade System

Table 3 - Tested Switches

Speed	OPN # /Name	Description
40GbE	689638-B21	Mellanox SX1018HP Enet Switch 40G Ethernet
10GbE	516733-B21	HP ProCurve 6120XG 10GbE Ethernet Blade Switch
10GbE	538113-B21	HP 10GbE Pass-Through Module (PTM)
1GbE	3020X	Cisco Catalyst 3020X 1GbE switch blade
1GbE	3020	Cisco Catalyst 3020 1GbE switch blade
1GbE	438030-B21	HP 1GbE switch module - GbE2c Layer 2/3 Ethernet Blade Switch
1GbE	6120G	HP ProCurve 6120G/XG 1GbE switch blade
IB FDR	648311-B21	HP BLc 4X FDR IB Switch
IB QDR	489184-B21	HP BLc 4X QDR IB Switch
IB DDR	410398-B21	HP BLc 4X DDR IB Switch
40GbE	90Y3477	BM Flex System EN6131 40Gb Ethernet Switch
IB FDR	90Y3452	IBM Flex System IB6131 Infiniband Switch
10GbE	EN4093	IBM PureFlex System Fabric EN4093 10 Gigabit Scalable Switch Module

1.4 Tools, Switch Firmware and Driver Software

Firmware Rev 2.30.3000 is tested with the following tools, SwitchX® firmware, and driver software:

- Driver versions:
 - MLNX-OFED 1.5.3-4.0.35 and higher
 - MLNX-OFED 2.0-2.0.5 and higher
 - MLNX_EN 1.5.10 and higher
 - WinOF 4.30 and higher
- MFT for Linux version: 3.0.0 and higher
- MFT for Windows version: 3.0.0 and higher
- PXE version 3.4.142 and higher
- CLP version 8025
- UEFI version 4.0.458

1.5 Revision Compatibility

Firmware fw-ConnectX3 Rev 2.30.3000 complies with the following programmer's reference manual:

- *ConnectX Programmer's Reference Manual (PRM), Rev 1.1 or later*, which has Command Interface Revision 0x3. The command interface revision can be retrieved by means of the QUERY_FW command and is indicated by the field *cmd_interface_rev*.

2 Supported Features

2.1 Changes and Major New Features in Rev 2.30.3000

- Added support for the `UPDATE_QP PRM` command
- Added support for resetting the modified MAC addresses in the standby mode by the `MOD_STAT_CFG` command
- Added support for receiving TCP and UDP truncated packets of certain type
- Added support for 56GbE in all devices supporting 40GbE
 - Establishing 56GbE link with SwitchX® requires 56GbE enablement on the switch
 - Establishing 56GbE link on back to back setup requires additions to the INI.

For further information, please contact Mellanox Support
- `mlxconfig` tool is not supported in this release
- RDMA/RoCE read retransmission improvement
- PFC thresholds improvements
- PCI speed_change flow improvement
- Added support for `DIAG_RPRT` per port
- Added PCIe Polling Compliance mode
- RoCE default configuration fixes:
 - ethertype now updated per port at `SET_PORT`
 - The default value of `rroce.ip_next_protocol` is 0xfe
- Increased the number of extended interface counters (`max_if_cnt_extended`) to 0x80, as reported in `QUERY_DEV_CAP PRM` command
- Improved link parallel detection calibration of 40GbE
- Added support for PFC counters in `DUMP_ETH_STAT PRM` command
- Fixed wrong reporting of RSS context in `QUERY_FW` of RSS QP
- Added Sniffer QP support on Port#1
- Device managed Flow Steering performance enhancements
- Disabled `"pkt.dmac==qp.mac"` for RoCE/RoCE over IP
- Added missing loopback blocking for device managed Flow Steering
- Fixed `SET_PORT.mac_table` configuration issue which caused minor packet loss on Port A when working in bonding mode and closing Port B.
- Fixed issues with NC-SI commands reason codes
- Fixed the insertion of L4 head rule in device managed Flow Steering
- Added to the INI for 10/40GbE parallel detect Serdes parameters
- Added support for "reset upon parity error"
- Added support for 40Gb/s MC2210411-SR4 optical module
- Fixed interoperability issue with the Intel 12300 switch using firmware version 6.1.0.1.11

- Improved QDR link stability when connected to InfiniScale® IV and SwitchX® switches

2.2 Changes and Major New Features in Rev 2.11.0500

- Added SR-IOV support
- Added VPI auto-sensing support
- Mellanox Link Property Negotiation (MLPN)
Enables ports to negotiate link properties between Mellanox devices.
The MLPN is activated by INI.
- CR4 + KR4
Auto-negotiation 40GBASE CR4 and KR4 as described in IEEE 802.3.
CR4 + KR4 is enabled by the INI.
- 1GbE Clause37
Auto-negotiation 1000BASE-X as described in IEEE 802.3 clause 37.
1GbE Clause37 is enabled by default.
- cable_info MAD extension for more I2C addressed
Enables different address for cable access through I2C.
cable_info MAD extension is enabled by the INI.
- secure_host
smp firewall described in the PRM.
Activated by the INI (active by default).
- cq_2_eq mapping command
Modifies EQ by MODIFY_CQ command, described in the PRM
- multi-function reserved lkey
Described in the PRM.
- increase CQE timestamp to 48bit
Described in the PRM.
- 56Gb Ethernet (proprietary) - Beta level
Activated by the INI (disabled by default).
- mlxconfig - Beta level (requires MFT 3.0.0-3 or above)
Modifies the device cfg.
- FMR for SRIOV - Beta level
Described in the PRM.
- Power reduction in PCI Gen3
- Fixed general_info MAD
- “Bug Fixes History” on page 21.

2.3 Changes and Major New Features in Rev 2.10.0800

- No new features
- “Bug Fixes History” on page 21.

2.4 Changes and Major New Features in Rev 2.10.0700

- No new features
- “Bug Fixes History” on page 21.

2.5 Changes and Major New Features in Rev 2.10.0000

- InfiniBand:
 - FDR
 - FDR10
 - QDR
 - SDR
 - DDR
- Ethernet:
 - 1GigE
 - 10GigE XAUI
 - 10GigE XFI/SFI
 - 40GigE
- PCI Express 3.0, with backwards compatibility with v2.0 and v1.1
- Huge pages
- ConnectX®-3 firmware includes all ConnectX®-2 cards supported features

3 Known Issues

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

Table 4 - Known Issues

Index	Issue	Description	Current Implemented Workaround in FW	Scheduled Release (fix)
1.	sense_port failure	Ethernet cards fail to work with mlnx_ofed unless the do_sense is disabled in the INI	Add 'do_sense = false' in the INI under the [IB] section	Future Release
2.	GUID ConnectX-3 Ethernet adapter cards	On ConnectX-3 Ethernet adapter cards, there is a mismatch between the GUID value returned by firmware management tools and that returned by fabric/driver utilities that read the GUID via device firmware (e.g., using ibstat). Mlxburn/flint return 0xffff as GUID while the utilities return a value derived from the MAC address. For all driver/firmware/software purposes, the latter value should be used.	N/A. Please use the GUID value returned by the fabric/driver utilities (not 0xffff).	N/A
3.	SBR assertion	SBR should be asserted for a minimum of 50 milliseconds for the ConnectX@-3 adapters	N/A	N/A
4.	PCIe	On Pilot1 SL230, PCIe link occasionally does not come up at Gen3 speed	Production SL230 should be used for PCIe Gen3 operation	N/A
5.	453154-B21 - HP BLc VC 1Gb RJ-45 SFP Opt Kit	Although Link and Ping are established using this SFP to RJ45 module, support is not declared for this SFP to RJ45 module, due to effects on link up/down on the adjacent port.	Use other SFP to RJ45 adapters	Future Release
6.	Kernel panic in SR-IOV with RH6.3 driver Inbox and VPI cards	RH6.3 Inbox driver causes kernel panic when SR-IOV is enabled on VPI cards due to driver compatibility issue.	Set the "do_sense=false" parameter in the [IB_TAB] in the INI of the VPI card	N/A
7.	FDR speed degradation with 0.5m cables	In a back-to-back setup of FDR cards connected with a 0.5m FDR cable, a FDR10 link is established instead of FDR.	N/A	Future Release
8.	MFT locking of flash semaphore	MFT tools might leave the flash semaphore locked if the tool operation is forced stopped. The locked semaphore prevents the firmware from accessing the flash and causes firmware hang.	Clear the semaphore using MFT command: 'flint - clear_semaphore'	Future Release

Table 4 - Known Issues

Index	Issue	Description	Current Implemented Workaround in FW	Scheduled Release (fix)
9.	Incompatibility between Device managed Flow steering and NC-SI	Device managed Flow steering and NC-SI cannot be enabled simultaneously.	N/A	Future Release
10.	PCIe correctable errors in speed change	When PCIe Gen3 is enabled, temporary correctable errors might occur when changing speed between PCIe Gen1 and PCIe Gen2.	Disable PCIe Gen3 in the INI when working only in PCIe Gen2	Future Release
11.	MC2210411-SR4 module with Cable Info MAD	Cable Info MAD reports a wrong cable info when using the MC2210411-SR4 module	N/A	2.30.8000
12.	40GbE is not supported in Auto-Sensing	Auto-Sensing is not supported with 40GbE connections in VPI cards	N/A	Future Release
13.	40GbE link up waiting time	Occasionally, 40GbE link takes longer to establish link when CR4 is used.	N/A	Future Release
14.	PCIe failure on temperature shock 10C/min	Gen2 failure at temperature sweep up to 10C/min (for MT27518A1-FDIR-BV only).	N/A	Future Release
15.	InfiniBand port_rcv_pkts counter	InfiniBand port_rcv_pkts counter over counts when LLR is enabled on the port. The port_rcv_pkts counter continues to count packets even when no traffic is received.	N/A	Future Release
16.	PCIe Gen2 link	PCIe Gen2 link unstable at temperature sweep of 10C/min for MT27518A1-FDIR-BV	N/A	Future Release
17.	Changing from an LLR to non-LLR requires driver restart	Driver restart required when switching from InfiniBand FDR link with LLR enabled to InfiniBand link w/o LLR (for example: between SwitchX® and GD4036).	N/A	Future Release
18.	VLAN filter	VLAN filter is currently not supported.	N/A	Future Release
19.	Bloom filter	Bloom filter is currently not supported.	N/A	Future Release
20.	PXE	PXE is currently not supported in 40GbE in VPI cards	N/A	Future Release
21.		PXE is currently not supported in QSFP to SFP+ hybrid cable	N/A	Future Release

Table 4 - Known Issues

Index	Issue	Description	Current Implemented Workaround in FW	Scheduled Release (fix)
22.	Firmware downgrade	<p>When downgrading from firmware v2.11.0000 and using MFT 3.0.0-3, the following message is displayed due to the mlxconfig tool:</p> <pre>You are trying to override configurable FW by non-configurable FW. If you continue, old FW configurations will be cleared, do you want to continue ? (y/n) [n] : y You are trying to restore default configuration, do you want to continue ? (y/n) [n] : Y</pre>	N/A	Future Release

4 Bug Fixes History

Table 5 lists the bugs fixed in this release.

Table 5 - Fixed Bugs List

Issue	Description	Discovered in Release	Fixed in Release
No NC-SI after PXE teardown	Management transport was not supported, after PXE driver teardown (unload). Fixed the flow to issue software reset, after the driver was stopped.	2.11.0500	2.30.3000
Revision ID	Updated the Revision ID of Node Info and General Info MADs to reflect hardware Rev ID instead of 0	2.11.0500	2.30.3000
Ports PLL calibration issue	PLL calibration were affected by operating point configuration	2.11.0500	2.30.3000
Port Error counters reset	Port error counters were not cleared upon XAUI/SGMII link up	2.11.0500	2.30.3000
Receiver SerDes tuning	Enhanced the receiver SerDes tuning for 10GE, to support specific 10GbE QSFP to SFP+ splitter cables	2.11.0500	2.30.3000
Access to closed resources	Fixed a possible access to unmapped resource memory	2.11.0500	2.30.3000
Slow link establishment in NC-SI	Slow link establishment in NC-SI caused due to slow cable reading in boot	2.11.0500	2.30.3000
PCIe speed change	Occasionally, a failure occurred in speed when changing to Gen2	2.11.0500	2.30.3000
PXE teardown issue	PXE might halt during teardown	2.11.0500	2.30.3000
InfiniBand loopback	InfiniBand loopback was blocked during link negotiation on the same port	2.11.0500	2.30.3000
Voltage scaling	Fixed process voltage scaling issue	2.11.0500	2.30.3000
DMA address 0x0	Fixed a possible read access to DMA address 0x0	2.11.0500	2.30.3000
cqe issue	Fixed miss cqe issue due to interrupt moderation	2.11.0500	2.30.3000
Cable reading issue	Fixed a rare cable reading issue upon cable insertion	2.11.0500	2.30.3000
PXE boot failure	On rare occasions, PXE boot fails due to a firmware issue interfering with the PXE load from the card's flash. Upon failure, the following message is received: "Payload inaccessible - cannot continue"	2.11.0500	2.30.3000
Momentarily packet drop on one port while the other port goes down	When the same VLAN is configured for both ports and one port goes down, the second port may suffer a momentarily packet drop	2.11.0500	2.30.3000

Table 5 - Fixed Bugs List

Issue	Description	Discovered in Release	Fixed in Release
Advanced Error Reporting	Fixes to Advanced Error Reporting according to the PTC (PCIe compliancy) Test failures	2.11.0500	2.30.3000
10GbE link remains down after changing to a 40GbE link	When changing link connection between 40GbE to 10GbE, the port might stay down until the next driver restart.	2.11.0500	2.30.3000
Race in PCIe L1 flow	The device may enter an L1 power state before completing an incoming configuration request if it arrived before the power state change ack for Root Complex	2.11.0500	2.30.3000
Wrong link speed after several cable re-insertions	During repeated cable reinsertion, the link may raise in a lower speed than expected/	2.11.0500	2.30.3000
Changing port protocol from ETH to IB requires driver restart	Bad configuration of <code>ib_protocol</code> when setting the port to InfiniBand after exchanging it from Ethernet/RoCE on the same port	2.11.0500	2.30.3000
Rare NMI error on HP servers when using PXE	On rare occasions, an NMI error is received when stopping PXE boot in the middle of an action on HP servers	2.11.0500	2.30.3000
Race in PCI configuration handling	The system was unresponsive when a race between PCI configuration cycles handling in hardware and firmware occurred.	2.11.0500	2.30.3000
NMI event using the PXE CLI	On rare occasions, an NMI event occurred on HP ALOM while trying to using the PXE CLI	2.11.0500	2.30.3000
RoCE breaks IPv6 traffic	IPv6 packets dropped while RoCE was enabled	2.11.0500	2.30.3000
Link reset, HCA to SwitchX®	On rare link reset occasions, an HCA to SwitchX® link may remain in ARM state after SwitchX reboot, and not reach the Active state.	2.11.0500	2.30.3000
40GbE switches link down upon repeated insertion and removing of cables	When repeatedly plugging out and plugging in cables to/from a 40GbE switch, the link remains down.	2.10.0800	2.11.0500
FDR/QDR vs DDR switch	The link is raised as SDR rather than DDR	2.10.0800	2.11.0500
0.5M, 1M Copper FDR cable support	0.5M, 1M Copper FDR cables (Paralink11, Paralink14) are not supported in back to back connection.	2.10.0800	2.11.0500
Changing FDR cables from Fiber to Copper	Changing FDR cables from Fiber to Copper and vice versa might cause link speed degradation from FDR to FDR10 or FDR10 to QDR.	2.10.0800	2.11.0500
Changing 40GbE connection	Changing 40GbE connection from back to back to a switch port and vice versa might cause the link to stay down in the ConnectX®-3 side.	2.10.0800	2.11.0500

Table 5 - Fixed Bugs List

Issue	Description	Discovered in Release	Fixed in Release
SDR vs QDR switch	InfiniBand link vs QDR switch rises as DDR or SDR	2.10.0800	2.11.0500
QDR link up time	On rare occasions, the QDR link up time between an FDR card and a QDR device was up to 4 minutes	2.10.0800	2.11.0500
QDR Link stability	QDR Link stability between ConnectX®-3 and InfiniScale® IV	2.10.0800	2.11.0500
Signal integrity issues	Signal integrity issues in all speeds	2.10.0800	2.11.0500
PCI correctable error	Fixed bad PCI reporting	2.10.0800	2.11.0500
RoCE re-transmission	Not re-transmitting from the beginning of the message but from PSN NAK.	2.10.0800	2.11.0500
RoCE	R-RoCE ignored SMAC check	2.10.0800	2.11.0500
Function Level Reset (FLR)	FLR to PPF in SRIOV	2.10.0800	2.11.0500
	FLR in no-driver mode	2.10.0800	2.11.0500
SR-IOV	Comchannel bug fix	2.10.0800	2.11.0500
40GbE performance	40GbE full wire speed was not reached with former cards configuration for MCX314 and MCX313 40GbE cards. Fix: Increased core frequency to support 40GbE full wire speed. This change requires 1V input. Affected cards: MCX313A-BCB, MCX314A-BCB	2.10.0700	2.10.0800
	The ConnectX® card was not receiving frames with minimum IPG when configured to 40GbE. Fix: Updated firmware configuration. Affected cards: All cards capable of 40GbE speed	2.10.0700	2.10.0800
GUIDs for RoCE	Ethernet only cards did not have GUIDs flashed on the device. This caused RoCE to fail once two or more cards were active on the same machine. Fix: The firmware generates the GUIDs from the flashed MACs for ETH only cards. Affected cards: All ETH only cards.	2.10.0700	2.10.0800
40GbE signal integrity	Signal integrity improved in 40GbE speed.	2.10.0000	2.10.0700
PCIe Gen3 receiver sensitivity due to BIOS changes	Due to BIOS changes required by latest Intel guidelines for PCIe Gen3, a sensitivity in PCIe eye_centering algorithm caused link degradation on some platforms.	2.10.0600	2.10.0620
FDR, FDR10, 10GbE XFI/SFI signal integrity	Signal integrity improved for the following speeds: FDR, FDR10, 10GbE XFI/SFI.	2.10.0000	2.10.0600

Table 5 - Fixed Bugs List

Issue	Description	Discovered in Release	Fixed in Release
VDD_MODE GPIO changed after reset	In boards with VDD_MODE GPIO, the GPIO was dropped after reset hence, causing voltage to be reduced to 0.9v. Fix: The GPIO in boards with VDD_MODE GPIO is no longer dropped across resets.	2.10.0000	2.10.0600
PCIe configuration type1 requests were dropped after a PCIe hot reset	After a PCIe hot reset, PCIe configuration type1 requests were dropped instead of being replied as unsupported. Fix: A proper notification is sent every time PCIe configuration type1 requests are dropped.	2.10.0000	2.10.0600