



Mellanox ConnectX[®]-2 Firmware (fw-ConnectX2) Release Notes

Rev 2.8.0600

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Mellanox Technologies
350 Oakmead Parkway
Sunnyvale, CA 94085
U.S.A.
www.mellanox.com
Tel: (408) 970-3400
Fax: (408) 970-3403

Mellanox Technologies, Ltd.
PO Box 586 Hermon Building
Yokneam 20692
Israel
Tel: +972-4-909-7200
Fax: +972-4-959-3245

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1 Overview

These are the release notes for the ConnectX®-2 and ConnectX®-2 EN adapters firmware, fw-ConnectX2 Rev 2.8.0600. This firmware supports the following protocols:

- InfiniBand
- Ethernet
- Fibre Channel over Ethernet (FCoE) – FCoE is at a beta level
- Virtual Protocol Interconnect (VPI) – this capability enables ConnectX-2 devices to support the InfiniBand, Ethernet and DCE network standards, including auto-sensing of the network protocol to which each device port is connected. This feature is not available with ConnectX-2 EN.

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>.

Notes

1. Firmware v2.8.000 is compatible with MFT tools v2.6.0 and above. Using older versions of MFT tools will cause failure during image creation.
2. After burning new firmware to an adapter card, reboot the machine so that the new firmware can take effect. If you do not reboot, you will get an error in the RUN_FW command.
3. The following Mellanox adapters are not supported in MLNX_OFED 1.5.2-2.1.0:
 - MHGH29B-XSR - Dual 4X IB DDR Port, PCIe Gen2 x8 2.0 (5GT/s), Short Bracket, RoHS-R6 HCA Card, CX4 Connectors. (PSID: MT_0D10110008)
 - MHGH29B-XTR - Dual 4X IB DDR Port, PCIe Gen2 x8 2.0 (5GT/s), Tall Bracket, RoHS-R6 HCA Card, CX4 Connectors. (PSID: MT_0D20110008)

Table 1 - Supported PCI Device IDs

PCI Device ID (Decimal)	Device Part Number	Device Name	Supported Protocols
26418	MT25408B0-FCC-GI	ConnectX-2, Dual Port 20Gb/s InfiniBand / 10GigE Adapter IC with PCIe 2.0 x8 5.0GT/s Interface	InfiniBand, Ethernet, FCoE, VPI
26428	MT25408B0-FCC-QI	ConnectX-2, Dual Port 40Gb/s InfiniBand / 10GigE Adapter IC with PCIe 2.0 x8 5.0GT/s Interface	
26478	MT25408B0-FCC-QE	ConnectX-2 EN, Single Port 40GigE Adapter IC with PCIe 2.0 x8 5.0GT/s Interface	Ethernet
26458	MT25458B0-FCC-TE	ConnectX-2 EN, Dual Port 10GBASE-T Adapter IC with PCIe 2.0 x8 5.0GT/s Interface	

The document consists of the following sections:

- “Revision Compatibility” on page 6
- “Changes and Major New Features” on page 7
- “Bug Fixes” on page 9

- “Known Issues” on page 10
- “History of Fixed Issues” on page 11

2 Revision Compatibility

Firmware fw-ConnectX2 Rev 2.8.0600 complies with the following programmer's reference manual:

- *ConnectX Programmer's Reference Manual (PRM), Rev 0.39 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*.

3 Changes and Major New Features

3.1 Changes in Rev 2.8.0600 From Rev 2.8.0000

- Bug Fixes - see Section 4, “Bug Fixes,” on page 9

3.2 Changes in Rev 2.8.000 From Rev 2.7.9112

Added support for the following features:

- NC-SI over Ethernet
- QSFP-SFP+ module
- Signal integrity improvements in IBTA 1.2.1 mode (Attenuation Based Algorithm)
- Ethernet Vlan stripping
- Eye opener MAD
- Cable info MAD
- CQ.OI to the MODIFY_CQ command to enable CORE-Direct
- Thermal warning event
- SET_NODE command
- PCIe device Serial Number capability
- LoosyVI MAD

3.3 Changes in Rev 2.7.9112 From Rev 2.7.8100

- Added PCIe Multifunction support
- Added WOL over Ethernet support
- Support for link speed/width changing via SET_PORT

3.4 Changes in Rev 2.7.8100 From Rev 2.7.200

- Added Max and Current temperature measurements
- Support HCA class code configuration
- Support Link and Width change using the SET_PORT command
- Automatic detection of XAUI or XFI using QSFP cables
- Local invalidation enabled on Fibre Channel QPs
- Automatic detection of 1G/10G Ethernet

3.5 Changes in Rev 2.7.700 From Rev 2.7.200

- Added support for up to 7M Direct Attached 10GigE cables
- Added RDMA over Converged Ethernet (RoCE) support

3.6 Changes in Rev 2.7.200 From Rev 2.7.000

- IBTA spec 1.2.1 speed autonegotiation compliance for all standard Mellanox adapter cards
- For ConnectX-2 adapters only: Added the firmware configuration (.ini) file parameter `a0_mode_in_cx2`. When set (1), this parameter indicates to ConnectX-2 to mimic the ConnectX device's GPIO assignment (Step A0 mode)

4 Bug Fixes

Table 2 - Firmware v2.8.0600 Bug Fixes

	Issue	Description	Discovered in	Fixed in
1.	PCIe compatibility issue with a specific PCIe root complex	Fixed	2.8.0000	2.8.0600
2.	Possible failure to link up in 1GigE with several 1GigE devices	Fixed	2.7.000	2.8.0000
3.	PCI express compliancy: The ConnectX-2 PCIe transmitter may stop transmitting for a short period during software reset	Fixed	2.7.000	2.8.0000
4.	HCA may hang upon CLOSE_PORT command during data stress (ID 91657)	Fixed	2.7.000	2.8.0000
5.	Ethernet: Potential packet drops in Pause mode	Fixed	2.7.000	2.8.0000
6.	QUERY_DEV_CAP.log_max_bf_regs_per_page fixed from 8 to 3	Fixed	2.7.000	2.8.0000
7.	PCIe slow handling of configuration cycles may cause NMI	Fixed	2.7.000	2.7.9112
8.	Wrong completion ID in PCI Express INTx message	Fixed	2.7.000	2.7.8100
9.	PCI Express Selective De-emphasis functionality	Fixed	2.7.000	2.7.8100
10.	Potential delay in responding to configuration cycles upon data stress	Fixed	2.7.000	2.7.8100
11.	High Bit Error Rate on active cables	Fixed	2.7.000	2.7.8100
12.	PCI Express compliancy: The ConnectX-2 device may transmit before the PCI Express receiver detect is enabled	Fixed	2.7.000	2.7.8100
13.	Slow VPD performance might cause NMI	Fixed	2.7.000	2.7.8100
14.	Possible wrong link state during link bring up	Fixed	2.7.000	2.7.700
15.	High Bit Error Rate on active cables	Fixed	2.7.000	2.7.700
16.	Potential delay in responding to configuration cycles upon data stress	Fixed	2.7.000	2.7.700
17.	Ethernet link issues with back-to-back setting on 5m Twi-nax cables	Fixed	2.7.000	2.7.700
18.	RoCE issue: Wrong GID in VPI	Fixed	2.7.700	2.8.0000
19.	RoCE issue: Missing GUIDs in Ethernet only cards	Fixed	2.7.700	2.8.0000

5 Known Issues

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

Table 3 - Known Issues

Index	Issue	Description	Current Implemented Workaround in FW	Possible Workaround	Scheduled Release (fix)
1.	RoCE performance in Lossy fabric	Massive packet drops in RoCE may cause low performance in lossy fabrics	N/A		N/A
2.	UAR Bar is too small for 64k-page machines	The small BAR causes driver loading to fail	N/A	Change the "log2_uar_bar_megabytes" .ini parameter under the [HCA] section as follows: log2_uar_bar_megabytes = 5	N/A
3.	Change of memory BARs on a disabled system	Changing memory bars size / addresses between SYS_DIS and SYS_EN may cause the device to hang (ID: 24206)	N/A	N/A	N/A
4.	BAR resizing on an enabled system	Changing BAR sizes when a system is enabled may cause the device to hang (ID: 24208)	N/A	N/A	N/A
5.	Ethernet only: Must query all capabilities upon boot	If not all capabilities are queried upon boot, then the query command may fail. See the QUERY_CAP command in <i>ConnectX Programmer's Reference Manual</i>	N/A	Query all capabilities upon boot	N/A
6.	Disrupting QDR negotiation may lead to port rising as SDR	Disconnecting an IB cable (or closing the port) during QDR negotiation and then reconnecting (or reopening) may cause the adapter to bring up the port at SDR	N/A	Disconnect the cable (or close the port) again and then reconnect (reopen). To avoid this scenario, wait for QDR negotiation to finish prior to disconnecting the cable (or closing the port) and reconnecting (or reopening). The following are two possible methods to verify QDR negotiation is complete: a. The physical (green) LED is on. b. A query of LinkPhyState using a GetPortInfo MAD indicates LinkUp.	N/A
7.	MTNIC driver is not supported				

Table 3 - Known Issues (Continued)

Index	Issue	Description	Current Implemented Workaround in FW	Possible Workaround	Scheduled Release (fix)
8.	InfiniBand Static rate is not supported				
9.	Wrong reporting of transceiver type				
10.	Autosensing after cable reconnection to different port protocol	If you disconnect a cable from an IB/Eth port and reconnect it to an Eth/IB port (different protocol), the link may not rise	N/A	Restart the driver (openibd restart)	N/A
11.	Some boot applications may fail to boot on VPI cards due to the infiniband PCIe.class_ID issue		N/A	Change class_ID by applying the following setting to the .ini file: Under the [HCA] section, enter: hca_header_class_code = 0x028000 eth_class_en_ib = true	N/A