



Mellanox Connect-IB™ Firmware (fw-ConnectIB) Release Notes

Rev 10.10.1000

NOTE:

THIS HARDWARE, SOFTWARE OR TEST SUITE PRODUCT (“PRODUCT(S)”) AND ITS RELATED DOCUMENTATION ARE PROVIDED BY MELLANOX TECHNOLOGIES “AS-IS” WITH ALL FAULTS OF ANY KIND AND SOLELY FOR THE PURPOSE OF AIDING THE CUSTOMER IN TESTING APPLICATIONS THAT USE THE PRODUCTS IN DESIGNATED SOLUTIONS. THE CUSTOMER'S MANUFACTURING TEST ENVIRONMENT HAS NOT MET THE STANDARDS SET BY MELLANOX TECHNOLOGIES TO FULLY QUALIFY THE PRODUCT(S) AND/OR THE SYSTEM USING IT. THEREFORE, MELLANOX TECHNOLOGIES CANNOT AND DOES NOT GUARANTEE OR WARRANT THAT THE PRODUCTS WILL OPERATE WITH THE HIGHEST QUALITY. ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT ARE DISCLAIMED. IN NO EVENT SHALL MELLANOX BE LIABLE TO CUSTOMER OR ANY THIRD PARTIES FOR ANY DIRECT, INDIRECT, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES OF ANY KIND (INCLUDING, BUT NOT LIMITED TO, PAYMENT FOR PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY FROM THE USE OF THE PRODUCT(S) AND RELATED DOCUMENTATION EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.



Mellanox Technologies
 350 Oakmead Parkway Suite 100
 Sunnyvale, CA 94085
 U.S.A.
www.mellanox.com
 Tel: (408) 970-3400
 Fax: (408) 970-3403

Mellanox Technologies, Ltd.
 Beit Mellanox
 PO Box 586 Yokneam 20692
 Israel
www.mellanox.com
 Tel: +972 (0)74 723 7200
 Fax: +972 (0)4 959 3245

© Copyright 2013. Mellanox Technologies. All Rights Reserved.

Mellanox®, Mellanox logo, BridgeX®, ConnectX®, CORE-Direct®, InfiniBridge®, InfiniHost®, InfiniScale®, MLNX-OS®, PhyX®, SwitchX®, UFM®, Virtual Protocol Interconnect® and Voltaire® are registered trademarks of Mellanox Technologies, Ltd.

Connect-IB™, ExtendX™, FabricIT™, Mellanox Open Ethernet™, Mellanox Virtual Modular Switch™, MetroX™, MetroDX™, ScalableHPC™, Unbreakable-Link™ are trademarks of Mellanox Technologies, Ltd.

All other trademarks are property of their respective owners.

Table of Contents

List of Tables	4
Chapter 1 Overview	5
1.1 Supported Devices	5
1.2 Supported Cables and Modules	5
1.2.1 Tested Cables and Modules	6
1.3 Tools and Driver Software	7
1.4 Revision Compatibility	7
Chapter 2 Supported Features	8
2.1 New Features in Rev 10.10.1000	8
Chapter 3 Known Issues	9
Chapter 4 Unsupported Features, Commands and access_regs	11
4.1 Unsupported Features	11
4.2 Unsupported Commands	11
4.3 Unsupported access_regs	12

List of Tables

Table 1: Supported PSIDs	5
Table 2: Tested Cables and Modules	6
Table 3: Known Issues	9
Table 4: Unsupported access_regs	12

1 Overview

These are the release notes for the Connect-IB™ adapters firmware, fw-ConnectIB Rev 10.10.1000. This firmware supports the following protocols:

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

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

Device Part Number	PSID	Device Name	Supported Protocols
MCB191A-FCAT	MT_1230110019	Connect-IB™ Host Channel Adapter, single-port QSFP, FDR 56Gb/s, PCIe3.0 x8, tall bracket, RoHS R6	InfiniBand
MCB192A-FCAT	MT_1240110019	Connect-IB™ Host Channel Adapter, dual-port QSFP, FDR 56Gb/s, PCIe3.0 x8, tall bracket, RoHS R6	InfiniBand
MCB193A-FCAT	MT_1220110019	Connect-IB™ Host Channel Adapter, single-port QSFP, FDR 56Gb/s, PCIe3.0 x16, tall bracket, RoHS R6	InfiniBand
MCB193A-FBAT	MT_1220110030	Connect-IB™ Host Channel Adapter; single-port QSFP; FDR 56Gb/s; PCIe2.0 x16; RoHS R6	InfiniBand
MCB194A-FCAT	MT_1210110019	Connect-IB™ Host Channel Adapter, dual-port QSFP, FDR 56Gb/s, PCIe3.0 x16, tall bracket, RoHS R6	InfiniBand

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
QDR	MC2206310-300-E	Mellanox active fiber cable, up to IB QDR/FDR10 (40Gb/s), 4X QSFP, 300M	Mellanox Technologies
QDR	MC2206125-007	Mellanox copper cable, up to IB QDR/FDR10 (40Gb/s), 4X QSFP, 7M	Mellanox Technologies
QDR	MC2206126-006	Mellanox copper cable, up to IB QDR/FDR10 (40Gb/s), 4X QSFP, 6M	Mellanox Technologies
QDR	MC2206230-010	Mt Active Copper Cable IB QDR40Gb/s QSFP 10M	Mellanox Technologies
QDR / FDR10/ 40GE	MC2206310-030-E	Mellanox active fiber cable, up to IB QDR/FDR10 (40Gb/s), 4X QSFP, 30M	Mellanox Technologies
QDR / FDR10/ 40GE	MC2206310-100-E	Mellanox active fiber cable, up to IB QDR/FDR10 (40Gb/s), 4X QSFP, 100M	Mellanox Technologies
QDR / FDR10/ 40GE	MFS4R12CB-100-L	Mellanox active fiber cable, up to IB QDR/FDR10 (40Gb/s), 4X QSFP, 100M	Mellanox Technologies
QDR / FDR10	MC2206128-005	Mellanox copper cable, up to IB QDR/FDR10 (40Gb/s), 4X QSFP, 5M	Mellanox Technologies
QDR / FDR10	MC2206130-00A	Mellanox copper cable, up to IB QDR/FDR10 (40Gb/s), 4X QSFP, 0.5M	Mellanox Technologies
QDR / FDR10	MC2206130-001	Mellanox copper cable, up to IB QDR/FDR10 (40Gb/s), 4X QSFP, 1M	Mellanox Technologies
QDR / FDR10	MC2206130-002	Mellanox copper cable, up to IB QDR/FDR10 (40Gb/s), 4X QSFP, 2M	Mellanox Technologies
QDR / FDR10	MC2206130-003	Mellanox copper cable, up to IB QDR/FDR10 (40Gb/s), 4X QSFP, 3M	Mellanox Technologies
QDR / FDR10	MC2206130-004	Mellanox copper cable, up to IB QDR/FDR10 (40Gb/s), 4X QSFP, 4M	Mellanox Technologies
FDR	MC2207411-SR4L	56Gbe VPI optical module for 30m ,Finisar LR module	Mellanox Technologies
QDR / FDR10/ 40GE	MC2210411-SR4 -F	40Gbe VPI optical module for 30m, Finisar SR module	Mellanox Technologies
FDR	MC2207130-00A	FDR InfiniBand QSFP passive copper cable 0.5M	Volex - (Taipan)

Table 2 - Tested Cables and Modules

Speed	OPN #	Description	Vendor
FDR	MC2207130-001	FDR InfiniBand QSFP passive copper cable 1M	Volex - (Taipan)
FDR	MC2207130-002	FDR InfiniBand QSFP passive copper cable 2M	Volex - (Taipan)
FDR	MC2207128-003	FDR InfiniBand QSFP passive copper cable 3M	Volex - (Taipan)
FDR	MC2207126-004	FDR InfiniBand QSFP passive copper cable 4M	Volex - (Taipan)
FDR	MC2207312-003	IB QDR, FDR, 10GigE, 40GigE 3M	Volex - (Taipan)
FDR	MC2207310-030	IB QDR, FDR, 10GigE, 40GigE 30M	Mellanox Technologies
FDR	MC2207310-100	B QDR, FDR, 10GigE, 40GigE 100M	Mellanox Technologies

1.3 Tools and Driver Software

Firmware Rev 10.10.1000 is tested with the following tools and driver software:

- Driver versions:
 - MLNX-OFED 2.0-3.0.0 and higher
- MFT for Linux version: 3.1.0 and higher
- PXE version 4.4.103 and higher

1.4 Revision Compatibility

Firmware fw-ConnectIB Rev 10.10.1000 complies with the following programmer's reference manual:

- *ConnectIB Programmer's Reference Manual (PRM), Rev 1.80 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 New Features in Rev 10.10.1000

- Initial Release of Connect-IB™
- Port speed up to FDR
- PCI Express 3.0 x16, with backwards compatibility with v2.0 and v1.1
- Dynamically Connected (DC) transport at Alpha level

3 Known Issues

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

Table 3 - Known Issues

Index	Issue	Description	Workaround	Scheduled Release (fix)
1.	Upgrading/Downgrading	Flashing the firmware requires server reboot	Reboot the server after firmware flashing	Future Release
2.	MADs	Setting the port to 'sleep' state is not supported.	N/A	Future Release
3.	Atomic support	Extended Atomics over 32B are not supported. The limitation is outside InfiniBand spec which only supports 8B.	N/A	Future Release
4.		Atomic response endianness is always a big endian	Byte swap in driver. Currently not implemented in MLNX_OFED 2.0-3.0.0	Future Release
5.	Quality of Service (at Beta level)	On rare occasions, SL to VL modification with functioning QPs results in traffic hangs.	N/A	Future Release
6.		VL arbitration configuration does not ensure minimum bandwidth for VL as configured.	N/A	Future Release
7.	Port asynchronous events	This issue only occurs when using non Mellanox drives. Port asynchronous events documentation are different from the PRM. All port events have a type value of 0x9. The following subtype values are used for the following events: <ul style="list-style-type: none"> link down=0x1 link up=0x4 link initialized=0x5 lid change=0x6 PKEY change=0x7 GUID change=0x8 client reregister=0x9 	N/A	Future Release
8.	False alarm report	On very rare occasions, a false firmware "hanged" report is printed in the dmesg.	N/A	Future Release
9.	Ports	When connecting to InfiniScale family switches and non-Mellanox InfiniBand switches DDR and QDR speeds may show line errors and in some cases might downgrade to SDR speed.	N/A	Future Release

Table 3 - Known Issues

Index	Issue	Description	Workaround	Scheduled Release (fix)
10.	PCIe,	L1 power state enter requests are ignored by the device.	N/A	Future Release
11.		Link width x1 might get Replay Timer Timeout, on speed change.	N/A	Future Release
12.		Very minor spec incompliance - Wrong pre-cursor and cursor coefficients (equal to FS and LF accordingly) when exiting Equalization from phase 1.	N/A	Future Release

4 Unsupported Features, Commands and access_regs

4.1 Unsupported Features

The following advanced feature as described in ConneC-IB PRM Rev 1.80 are unsupported in the current firmware version:

- Automatic Path Migration
- Sniffer QP and IB dump enablement
- Service types not supported:
 - SyncUMR
 - Mellanox transport
 - PTP
 - RAW IPv6
 - PTP (ieee 1588)
- Asynchronous events:
 - GPIO change
 - Stall VL event
- Virtualization - SR-IOV and eSwitch. Connect-IB™ only supports a single physical function model at this time.
- On demand paging
- Fast path and latency sensitive traffic (QoS)
- CQ buffer resize
- INT-A not supported for EQs only MSI-X
- PCI VPD write flow (RO flow supported)
- Cross channel I/O operation (aka core direct)
- Streaming receive queue (STRQ) and collapsed CQ
- Precise clock synchronization over the network (IEEE 1588)
- Data integrity validation of control structures

4.2 Unsupported Commands

- `CMDIF_OP_MODIFY_CQ` – change size is not supported
- `CMDIF_OP_QUERY_MAD_DEMUX`
- `CMDIF_OP_ATTACH_TO_SNIFFER`
- `CMDIF_OP_DETACH_FROM_SNIFFER`
- `CMDIF_OP_ACCESS_REG_SPACE`
- `CMDIF_OP_ACCESS_REG_SPACE_DWORD`
- `CMDIF_OP_RESIZE_SRQ`

4.3 Unsupported access_regs

Table 4 - Unsupported access_regs

Register name	Address
REGID_PMTU	0x5003
REGID_PTYS	0x5004
REGID_PAOS	0x5006
REGID_PUDE	0x5009
REGID_PELC	0x500e
REGID_PMPE	0x5010
REGID_PMAOS	0x5012