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Mellanox Switch-IB™ Firmware Release Notes

Rev 11.1200.0102

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Release Update History

Table 1 - Release Update History

Release	Date	Description
Rev 11.1200.0102	September 30, 2016	First release

1 Overview

These are the release notes for the Switch-IB™ firmware, Rev 11.1200.0102. This firmware complements the Switch-IB™ silicon architecture with a set of advanced features, allowing easy and remote management of the switch.



Firmware Rev 11.1200.0102 is compatible with MFT tools v4.4.0-44. Using older versions of MFT tools causes failure during image creation.

1.1 Supported Systems

This firmware supports the devices and protocols listed in [Table 2](#). For the most updated list of switches supported, visit the Firmware Download pages on Mellanox.com.

Table 2 - Supported Systems

Device Part Number	Description
MSB7790	Switch-IB™ based EDR InfiniBand switch; 36 QSFP28 ports; externally managed

1.2 Firmware and Software Interoperability

To raise links with platforms based on the following ICs, these minimum requirements must be met:

- ConnectX®-2 – firmware v2.9.1000
- ConnectX®-3 – firmware v2.31.6130
- ConnectX®-4 – firmware v12.0100.6440
- Connect-IB® – firmware v10.10.4020
- SwitchX®-2 – firmware v9.2.8000
- Switch-IB™ 2 – firmware v15.0300.0354

1.3 Supported EDR Cables and Modules

[Table 3](#) presents the qualified EDR cables for externally managed EDR switch systems.

Table 3 - Qualified EDR Cables

Mellanox P/N	Description	Cable Length
MCP1600-E00A ^a	Mellanox® passive copper cable, up to 100Gb/s, QSFP28, LSZH	0.5m
MCP1600-E001 ^a	Mellanox® passive copper cable, up to 100Gb/s, QSFP28, LSZH	1m
MCP1600-E01A ^a	Mellanox® passive copper cable, up to 100Gb/s, QSFP28, LSZH	1.5m
MCP1600-E002 ^a	Mellanox® passive copper cable, up to 100Gb/s, QSFP28, LSZH	2m
MCP1600-E02A	Mellanox® passive copper cable, up to 100Gb/s, QSFP28, LSZH	2.5m

Table 3 - Qualified EDR Cables

Mellanox P/N	Description	Cable Length
MCP1600-E003	Mellanox® passive copper cable, up to 100Gb/s, QSFP28, LSZH	3m
MCP1600-E004	Mellanox® passive copper cable, up to 100Gb/s, QSFP28, LSZH	4m
MFA1A00-E005 ^a	Mellanox® active fiber cable, up to 100Gb/s, QSFP28	5m
MFA1A00-E010 ^a	Mellanox® active fiber cable, up to 100Gb/s, QSFP28	10m
MFA1A00-E015 ^a	Mellanox® active fiber cable, up to 100Gb/s, QSFP28	15m
MFA1A00-E050	Mellanox® active fiber cable, up to 100Gb/s, QSFP28	50m
MFA1A00-E100	Mellanox® active fiber cable, up to 100Gb/s, QSFP28	100m

a. Forward Error Correction (FEC) is deactivated on this cable.

Please refer to the LinkX™ Cables and Transceivers webpage (www.mellanox.com → Products → Cables and Transceivers) for the full list of supported cables and transceivers.

1.4 Firmware Upgrade

Firmware upgrade may be performed directly from any previous version to this version. To upgrade firmware, please refer to the Mellanox Firmware Tools (MFT) package at:

http://www.mellanox.com/page/management_tools

1.5 PRM Revision Compatibility

Firmware Rev 11.1200.0102 complies with the *Mellanox Switches Programmer's Reference Manual (PRM)*, Rev 1.45 or later.

2 Changes and New Features in Rev 11.1200.0102

Table 4 - Firmware Rev 11.1200.0102 Changes and New Features

Category	Description
General	Added support for fast flash burn with new register MFMC and updates to current flash burn register MFPA (according to Section 3.9 of the Switches PRM)
Link	Added support for PRBS generation tool (according to registers PPTT and PPRT registers in Section 7.14 of the Switches PRM)
Link	Added support for new PHY statistical counters group to register PPCNT (according to Section 7.14 of the Switches PRM)

3 Known Issues

Table 5 describes known issues in this firmware release and possible workarounds.

Table 5 - Known Issues

Index	Category	Description	Possible Workaround
1.	General	Congestion control is not supported	N/A
2.	LEDs	Port LEDs do not flash on system boot.	N/A
3.	LEDs	Switch LEDs do not blink during boot	N/A
4.	LEDs	Fan LEDs may behave unexpectedly in the first 5 seconds of system boot.	N/A
5.	Power Management	Link width reduction is not supported in this release.	N/A
6.	Interoperability	If QDR is not enabled for the switch's InfiniBand Port Speed while connected to ConnectX-3/Pro or Connect-IB® FDR adapters or to SwitchX® / SwitchX®-2 FDR switches, links will rise at SDR or DDR (even if FDR is enabled)	Enable QDR (in addition to FDR) when connecting to peer ports running at FDR
7.	Interoperability	When explicitly configuring FDR10 on Switch-IB™, the link may not rise.	To raise link with an FDR10 device, make sure all speeds, including EDR, are configured on Switch-IB.
8.	Network	Adaptive routing and adaptive routing notification do not support 3D Torus topologies.	N/A
9.	Link	Link rises at DDR speed instead of FDR10 when using 100m QDR/FDR10 optical cables.	N/A
10.	Link	FDR link may rise with symbol errors on optic EDR cable longer than 30M.	N/A

4 Bug Fixes History

Table 6 - Fixed Bugs List

Index	Category	Description	Discovered in Release	Fixed in Release
1.	System Management	Insertion of QDR cables into a Switch-IB™ based switch overwrites non-volatile fields (rx_output_amp/emp).	11.1100.0072	11.1200.0102
2.	Link	Bubbles appear as symbol errors when link raises FDR 1x.	11.1.1002	11.1200.0102
3.	Chassis Management	PSU fans set to work with 60% max speed by default.	11.0350.0394	11.1100.0072
4.	Chassis Management	The command “show interfaces ib * transceiver” shows no cable is connected while link is up.	11.0350.0394	11.1100.0072
5.	General	Fixed MSGI data reading	11.1.1002	11.0350.0394
6.	Link	In rare cases, link may degrade speed from EDR or FDR to a lower speed. In other cases physical errors may increment.	11.0350.0372	11.0350.0394
7.	Temperature	Minimum fan speed may drop	11.0200.0120	11.0204.0124
8.	Link	Bit error rate is not optimal on QDR links	11.1.1002	11.0200.0118
9.	Interoperability	Only connections to Switch-IB™, ConnectX®-3, ConnectX-3 Pro, Connect-IB™, and SwitchX® family devices are supported	11.1.1002	11.0100.0112
10.	Interoperability	Connecting a cable longer than 30m to ConnectX-3, ConnectX-3 Pro or Connect-IB plat- forms causes interoperability issues..	11.1.1002	11.0100.0112
11.	pLFT	Packets are lost on private linear forwarding table (pLFT).	11.1.1002	11.0100.0112
12.	Chassis Management	Port LEDs may continue to blink even after a bad cable is removed.	11.1.1002	11.0100.0112

5 Firmware Changes and New Feature History

Table 7 - History of Major Changes and New Features

Category	Description
11.1100.0072	
Chassis Management	Added support of IB NodeDescription Set
System Management	Added system MKey support
Modules	Added support to read from pages with password through cable info MAD For more information, please refer to register MCIA in the Switch PRM and the Cableinfo VS-MAD
11.0350.0394	
General	Added support for Port Mirroring
General	Improved support for adaptive routing, adaptive routing notification, fault routing, fault routing notification
Link	Removed out-of-the-box Forward Error Correction (FEC), reaching 90ns latency, on Mellanox GA level AOCs equal to or shorter than 30m. • MFA1A00-EXXX: 3, 5, 10, 15, 20, 30
Link	Removed out-of-the-box FEC, reaching 90ns latency, on Mellanox GA level copper cables equal to or shorter than 2m. • MCP1600-EXXX: A, 1, 1A, 2
Link	Added support for FDR10 speed
Chassis Management	Added support for power supply monitoring (for more information please refer to the MSPS register in the SwitchX Family Programmer's Reference Manual)
11.0204.0124	
General	Bug fixes
11.0200.0120	
Power Management	Reduced typical system power consumption to 136W
Network	Added support for Adaptive Routing
Link	Removed forward error correction (FEC) on cables shorter or equal to 2 meters and with 12G attenuation less than 14
Release 11.0100.0112	
General	Added virtual-lane-to-virtual-lane (VL2VL) support as part of ExtendedSwitchInfo
General	Bug fixes
Release 11.1.1002	

Table 7 - History of Major Changes and New Features

Category	Description
General	This is the first firmware GA release for Switch-IB™ based EDR InfiniBand switch
General	Reduced fan speed to 60% from 100% in SB7790 switch system