Mellanox Switch-IB™ 2 Firmware Release Notes

Rev 15.2000.2626

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

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Release Update History

Table 1 - Release Update History

Date	Description
November 27, 2019	Initial release of this firmware version.

1 Overview

These are the release notes for the Switch-IB™ 2 firmware, Rev 15.2000.2626. This firmware complements the Switch-IB™ 2 silicon architecture with a set of advanced features, allowing easy and remote management of the switch.

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	PSID	Description
MSB7890	MT_2640110032	Switch-IB™ 2 based EDR InfiniBand switch; 36 QSFP28 ports; externally managed

1.2 Firmware Interoperability

This FW version has been validated to work against platforms with the following SW versions.

Table 3 - Firmware Interoperability

HCA/Switch	Firmware Version
Switch-IB™	11.2000.2626
SwitchX®-2	9.4.2000
ConnectX®-5 (Ex)	16.26.1040
ConnectX-4 Lx	14.26.1040
ConnectX-4	12.26.1040
Connect-IB®	10.16.6000
ConnectX-3 (Pro)	2.42.5000
MFT	4.13.0

1.3 Supported Cables and Modules

For a list of the Mellanox supported cables please visit the LinkX™ Cables and Transceivers page of the Mellanox Website at:

http://www.mellanox.com/products/interconnect/cables-configurator.php

When using Mellanox AOC cables longer than 50m use one VL to achieve full wire speed.

Please refer to the LinkX™ Cables and Transceivers webpage (http://www.mellanox.com/products/interconnect/cables-configurator.php) 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 15.2000.2626 complies with the Mellanox Switches Programmer's Reference Manual (PRM), Rev 1.45 or later.

2 Changes and New Features in Rev 15.2000.2626

Table 4 - Changes and New Features

Category	Description
15.2000.2626	
General	Added support for Error Injection with PTER register.
Speed Link	SDR link speed on InfiniBand systems is now available for all cables, including cables that do not advertise InfiniBand speed in their memory map.

3 Known Issues

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

Table 5 - Known Issues

Internal Ref.	Issue
955641	**Description**: VL_HIGH_LIMIT is not affecting the VL arbiter as expected.
	Workaround: Arbitration table should be set using only the low priority VL arbitration table
	Keywords: VL Arbitration
1249608	**Description**: Configuring weight “0” for VL, results in unexpected behavior.
	Workaround: Arbitration table should be configured with weights other than “0”.
	Keywords: VL Arbitration
982005	**Description**: When connecting 6 & 7 meters, link may raise DDR instead of QDR against GD4000/IS5000 switches.
	Workaround: N/A
	Keywords: Link
-	**Description**: Congestion control 1.3 supports congestion log only.
	Workaround: N/A
	Keywords: QoS
-	**Description**: VL2VL mode is not supported from an aggregation port to an egress port.
	Workaround: N/A
	Keywords: SHARP
-	**Description**: FDR link may rise with symbol errors on optic EDR cable longer than 30M.
	Workaround: N/A
	Keywords: Link
-	**Description**: Port LEDs do not flash on system boot.
	Workaround: N/A
	Keywords: LEDs
-	**Description**: Link width reduction is not supported in this release.
	Workaround: N/A
	Keywords: Power Management
-	**Description**: 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).
	Workaround: Enable QDR (in addition to FDR) when connecting to peer ports running at FDR
	Keywords: Interoperability

Table 5 - Known Issues

Internal Ref.	Issue
-	**Description**: Force FDR10 is not supported on EDR products.
	Workaround: To raise link with an FDR10 device, make sure all speeds, including EDR, are configured on Switch-IB.
	Keywords: Interoperability
-	**Description**: Fallback Routing is not supported for DF+ topology. Fallback Routing Notifications and Adaptive Routing notifications are not supported for topologies others then trees.
	Workaround: N/A
	Keywords: Network
-	**Description**: Module info page in Diagnostics Data VS-MAD is not supported
	Workaround: N/A
	Keywords: Diagnostics Data VS-MAD

4 Bug Fixes History

Table 6 - Bug Fixes History

Internal Ref.	Issue
1786686	**Description:** Wrong behavior of ARGroupTableCopy MAD.
	Keywords: Adaptive Routing
	Discovered in Release: 15.2000.1142
	Fixed in Release: 15.2000.1600
1730194	**Description:** In rare cases, when connecting between Switch-IB/Switch-IB 2 and Quantum switch systems, traffic lose might occur.
	Keywords: Traffic, Switch-IB/Switch-IB 2, Quantum
	Discovered in Release: 15.2000.1000
	Fixed in Release: 15.2000.1142
1337469	**Description:** In rare cases, when a receiver's electrical eye is narrow, link might raise with BER higher (worse) than 10^{-12}.
	Keywords: Link
	Discovered in Release: 15.1500.0034
	Fixed in Release: 15.1630.0206
1092005	**Description:** Enable SDR speed regardless of cable supported speeds
	Keywords: Link
	Discovered in Release: 15.1400.0102
	Fixed in Release: 15.1500.0106
1089528	**Description**: SHARP not functional in case of groups larger than 14 members
	Keywords: SHARP
	Discovered in Release: 15.1430.0160
	Fixed in Release: 15.1500.0106
964972	**Description**: In info block 29 (Thermal algorithm values): DELTA TEMP REPORTING > '4' will be considered '1'. DELTA TEMP REPORTING = 1,2,3 returns no issues.
	Keywords: Thermal Management
	Discovered in Release: 15.1310.0138
	Fixed in Release: 15.1310.0150
-	**Description**: VL arbitration does not distribute traffic as expected in case of multiple VLs
	Keywords: General
	Discovered in Release: 15.1200.0102
	Fixed in Release: 15.1300.0100

Table 6 - Bug Fixes History

Internal Ref.	Issue
-	**Description**: In rare cases, FDR links may rise with errors. (Improved BER performance.)
	Keywords: Link
	Discovered in Release: 15.1.1002
	Fixed in Release: 15.1300.0092

5 Firmware Changes and New Feature History

Table 7 - History of Major Changes and New Features

Category	Description
15.2000.2046	
PSU's Temperature Thresholds	Now PSU's temperature thresholds (high and low) can be queried via the MTMP register.
15.2000.1600	
Bug Fixes	See Section 4, "Bug Fixes History," on page 11
15.2000.1142	
Bug Fixes	See Section 4, "Bug Fixes History," on page 11
15.2000.1000	
Chassis Management	Changed the PSU voltage read from "Vout" to "Vin".
General	System stability improvements.
15.1910.0618	
General	Added support for PortStateTable standard SMP MAD
Chassis Management	Added support for PSU utilization and consumption of output power
Chassis Management	Added support for PSU temperature and 12V Vout monitoring
15.1701.0010	
General	Added support for congestion control log 1.3 as described in IBTA IB specification release 1.3, Annex A10
General	Added additional information (PDDR pages as described in the *Switches PRM*, section 8.15.50 PDDR - Port Diagnostics Database Register) to diagnostics data VS-MAD as described in Mellanox Vendor Specific MAD Specification 1.3 section 3.33 – DiagnosticData
Chassis Management	Added ability to read part numbers and serial numbers for fans (by using MFNR register) and the power supply (by using MSPS register)
15.1610.0210	
SHARP	Added support for SHARP reproducibility configuration
15.1610.0206	
General	Bug fixes
15.1610.0200	
Chassis Management	Added ability to read part numbers and serial numbers for fans (by using MFNR register) and the power supply (by using MSPS register)
15.1610.0196	
General	Added support for congestion control log 1.3 as described in IBTA IB specification release 1.3, Annex A10

Table 7 - History of Major Changes and New Features

Category	Description
General	Added additional information (PDDR pages as described in the *Switches PRM*, section 8.15.50 PDDR - Port Diagnostics Database Register) to diagnostics data VS-MAD as described in Mellanox Vendor Specific MAD Specification 1.4 section 3.33 – DiagnosticData
SHARP	Added support for group join optimization using root GID as described in Mellanox Vendor Specific MAD Specification 1.4 section 4.10 – Aggregation Group Join
15.1500.0106	
General	Added support for IB telemetry, Top Talkers. For more details, refer to section “Congestion Telemetry” in the Mellanox Switches Programmer’s Reference Manual.
Module	Added support for 100GbE PSM4/LR4 modules.
15.1430.0160	
General	Added support for Adaptive Routine (AR) optimizations with ConnectX-5 (RC Mode)
Link	Added support for Force EDR on Switch IB systems as described in Mellanox Switches Programmer's Reference Manual (PRM) under PTYS Register
15.1400.0102	
General	Added support for IB telemetry, Congestion Monitoring-Thresholds (See Mellanox Switches PRM (Programmer's Reference Manual) - section 9.7 - Congestion Telemetry).
General	Added support for Additional Port Counters Extended (See IB Specification Vol 1-Release-1.3, MgtWG 1.3 Errata).
General	Added support for IB Router Port (Port 37) Counters (See IB Specification Vol 1-Release-1.3).
15.1300.0126	
General	Added support for burst/traffic histograms (described in Vendor Specific MAD PRM Rev 1.3, Section 3.33 – Mellanox Performance Histograms)
Link	Added support for Port PHY Link Mode (PLLM) register (For register description, See Switch PRM - PPLM - Port Phy Link Mode)
Link	Added support for QSFP copper cables which do not publish attenuation in the memory map
15.1200.0102	
General	Added support for SHARP performance improvements (UD, Group trimming)
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)

Table 7 - History of Major Changes and New Features

Category	Description
15.1100.0072	
General	Added support for SHARP
System Management	Added system MKey support
Chassis Management	Added support of IB NodeDescription Set
Modules	Added support for reading 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
15.0400.0064	
General	First beta-level release
General	Added support for port mirroring
General	Added support for SHARP
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	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)