



Connect. Accelerate. Outperform.™

Mellanox FlexBoot for ConnectX®-4 / ConnectX®-4 Lx and Connect-IB® Release Notes

Rev 3.4.812

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

© Copyright 2016. Mellanox Technologies LTD. All Rights Reserved.

Mellanox®, Mellanox logo, BridgeX®, CloudX logo, Connect-IB®, ConnectX®, CoolBox®, CORE-Direct®, EZchip®, EZchip logo, EZappliance®, EZdesign®, EZdriver®, EZsystem®, GPUDirect®, InfiniHost®, InfiniScale®, Kotura®, Kotura logo, Mellanox Federal Systems®, Mellanox Open Ethernet®, Mellanox ScalableHPC®, Mellanox Connect Accelerate Outperform logo, Mellanox Virtual Modular Switch®, MetroDX®, MetroX®, MLNX-OS®, NP-1c®, NP-2®, NP-3®, Open Ethernet logo, PhyX®, SwitchX®, Tiler®, Tiler logo, TestX®, The Generation of Open Ethernet logo, UFM®, Virtual Protocol Interconnect®, Voltaire® and Voltaire logo are registered trademarks of Mellanox Technologies, Ltd.

All other trademarks are property of their respective owners.

For the most updated list of Mellanox trademarks, visit <http://www.mellanox.com/page/trademarks>

Table of Contents

Table of Contents	3
List Of Tables	4
Release Update History	5
Chapter 1 Overview	6
1.1 Supported Adapter Cards and Firmware	6
1.2 Supported Tools (MFT)	6
1.3 Supported Operating Systems	6
1.4 Tested Platforms	7
Chapter 2 Changes and New Features in Rev 3.4.812	8
Chapter 3 Known Issues	9
Chapter 4 Bug Fixes History	14
Chapter 5 Changes and New Feature History	15

List Of Tables

Table 1:	Supported Adapter Cards and Firmware	6
Table 2:	Supported Tools (MFT).	6
Table 3:	Operating Systems.	6
Table 4:	Tested Platforms	7
Table 5:	Changes and New Features	8
Table 6:	Known Issues.	9
Table 7:	Fixed Bugs List	14
Table 8:	Changes and Fixes	15

Release Update History

Release	Date	Description
Rev. Rev 3.4.812	June 02, 2016	Initial release of this FlexBoot version for ConnectX-4/ConnectX-4 Lx adapter cards.

1 Overview

These are the release notes for "Mellanox FlexBoot", the software for Boot over Mellanox Technologies adapter devices supporting VPI. FlexBoot enables booting kernels or operating systems (OS) from remote servers in compliance with the PXE specification.

This package is based on the open source project iPXE available at <http://www.ipxe.org>.

1.1 Supported Adapter Cards and Firmware

Table 1 - Supported Adapter Cards and Firmware

Adapter Cards	Firmware Version
ConnectX-4 Lx EN	14.16.1000
ConnectX-4	12.16.1000
Connect-IB (OEM cards only)	10.16.1000

For the complete list of supported cards, please refer to ConnectX-4 Lx EN and ConnectX-4 EN web pages at www.mellanox.com.

1.2 Supported Tools (MFT)

Table 2 - Supported Tools (MFT)

Tools	Version
MFT (Mellanox Firmware Tools)	4.4.0

1.3 Supported Operating Systems

Table 3 - Operating Systems

OSs	Version
ESXi	5.5
RHEL	6.4
RHEL	6.6
RHEL	7.0
RHEL	7.1
RHEL	7.2
SLES	11.3
SLES	11.4 - Ethernet only
SLES	12
Ubuntu	14.04 - Ethernet only
Ubuntu	15.4
Windows Server	2012
Windows Server	2012R2

1.4 Tested Platforms

Table 4 - Tested Platforms

Server Vendor & Model	BIOS Manuf. & Version
DELL C6220	Dell Inc. 2.5.3
DELL C6220 II	Dell Inc. 2.4.2
DELL C7220N	2.1.11
DELL M630	Dell Inc. 1.4.4
DELL R720	Dell Inc. 2.5.2
DELL R730	Dell Inc. 1.5.4
HP BL460c Gen9	I36 v1.52
HP DL160 Gen9	U20 9/14/2015
HP DL360 Gen9	P89 10/04/2015
HP DL380 Gen9	P89 10/04/2015
HP Moonshot Anders M710	HP systems – H06
HP ProLiant SE2140s Gen8 (MiniPooch)	P87
HP ProLiant XL230b Gen9	U13 v2.0
HP SE.02140s Gen8	P87
HP SE2160w Gen9	U16 v1.30
HP SL230s Gen8	P75
HP XL230a Gen9	U13 09/25/2015
HP XL230b Gen9	U12 12/12/2014
IBM Flex system x220	KSE144BUS-1.61
IBM Flex system x240	B2E142AUS-1.50
IBM System x3650 M4	VVE146AUS-2.0
IBM System x3850 X6	A8E11AUS-1.00 2014/07/18
Quanta Winterfell	American Megatrends Inc. F03_3B07
Supermicro X9DRW	American Megatrends Inc. 3.0c
ZT	American Megatrends Inc. 2.59

2 Changes and New Features in Rev 3.4.812

Table 5 - Changes and New Features

Category	Description
FlexBoot UI	Added debug prints option in the FlexBoot boot menu. For further information, please refer to FlexBoot and UEFI User Manual.
System Diagnosis	Added the ability to diagnose problems in released ROMs by enabling the debug log levels for specific modules. Note: This ability should be used only when debug session is needed.
Interrupts	Added support for ConnectX-4/ConnectX-4 Lx interrupts.
Upstream sync	Synced the source with iPXE (upstream sync)

3 Known Issues

The following is a list of general limitations and known issues of the various components of this FlexBoot release.

Table 6 - Known Issues

Internal Ref.	Description
-	Description: Several BIOS vendors have limited boot-vector space and may not display FlexBoot in their boot menu.
	WA: Disable the embedded NIC boot agent in BIOS
	Keywords: BIOS
-	Description: In several BIOS, the server might hang during FlexBoot booting due to wrong configuration of the PMM.
	WA: N/A
	Keywords: BIOS
-	Description: Only EBX, ESI, DS, ES registers can be saved in Boot Entry.
	WA: N/A
	Keywords: BIOS
-	Description: If a client returned control to the BIOS after a successful connection to an iSCSI target (but did not boot from it), then, unexpected behavior may occur.
	WA: Follow the instructions described in the FlexBoot UM for the proper iSCSI boot/install
	Keywords: BIOS
673114	Description: FlexBoot banner might not be shown in some BIOSes.
	WA: N/A
	Keywords: BIOS
-	Description: In some cases, PXE boot will not work if the client was given only the file-name without next-server (siaddr).
	WA: N/A
	Keywords: PXE Boot
-	Description: PXE boot after iSCSI boot with static configuration is currently not supported.
	WA: N/A
	Keywords: PXE Boot

Table 6 - Known Issues

Internal Ref.	Description
-	Description: Boot over VLAN with IB port is currently not supported.
	WA: N/A
	Keywords: PXE Boot
-	Description: Some faulty boot loaders do not close the underlying UNDI device which may result in unexpected behavior and possible system crash after the OS starts to load.
	WA: N/A
	Keywords: PXE Boot
-	Description: Chain-loading gPXE stack may result in undesirable behavior.
	WA: N/A
	Keywords: PXE Boot
647143	Description: Executing a partial boot loop while only downloading the NBP and selecting localboot is unsupported and may cause undefined behavior.
	WA: N/A
	Keywords: PXE Boot
670421	Description: Using filename for PXE boot with rootpath for hooking an iSCSI target (to install) is not supported when the PXE boot loader uses UNDI API, since all traffic must get to the boot loader.
	WA: N/A
	Keywords: PXE Boot
-	Description: iSCSI over IB is not tested.
	WA: N/A
	Keywords: iSCSI
-	Description: iSCSI over DCB is not supported.
	WA: N/A
	Keywords: iSCSI
-	Description: FlexBoot supports only a single active iSCSI connection. Thus, when iSCSI-boot via Port 1 succeeds to connect but fails to boot, it will fail to connect via Port 2.
	WA: N/A
	Keywords: iSCSI

Table 6 - Known Issues

Internal Ref.	Description
-	Description: Boot retries is currently not functional when booting from iSCSI.
	WA: N/A
	Keywords: iSCSI
655800	Description: IPv6 is not supported.
	WA: N/A
	Keywords: iSCSI
-	Description: Boot menu is displayed as READ ONLY if the HCA card does not support flash configuration.
	WA: N/A
	Keywords: User Interface
-	Description: FlexBoot Boot Menu will not be visible in serial output.
	WA: N/A
	Keywords: User Interface
-	Description: FlexBoot Boot Menu will not be shown in ConnectX-4 and ConnectX-4 Lx if the physical port is IB
	WA: N/A
	Keywords: User Interface
-	Description: Large Receive Offload (LRO) and iSCSI may not interoperate due to a bug in current Linux kernel distributions.
	WA: Disable LRO in the IPoIB module when using iSCSI. See the Mellanox FlexBoot user's manual for details under the Diskless Machines chapter (InfiniBand Ports).
	Keywords: Networking
-	Description: FlexBoot supports only 2K MTU.
	WA: N/A
	Keywords: Networking
-	Description: 56Gb/s is currently not supported.
	WA: N/A
	Keywords: Link Speed
-	Description: Blink LEDs are currently not supported.
	WA: N/A
	Keywords: LED

Table 6 - Known Issues

Internal Ref.	Description
-	Description: Setting the number of Virtual Functions higher than the machine's memory capability may cause memory issues and system instability.
	WA: N/A
	Keywords: Virtualization
-	Description: SLAM, FTP, HTTPS and SRP are currently not supported.
	WA: N/A
	Keywords: Protocols
-	Description: Occasionally, using the Spanning Tree Protocol (STP) in the switches may cause packet drops and boot failure in the system.
	WA: Enable the "edgemode" if disabled on the switch, or use either portfast or edgemode functionality on the switch ports connected to the NICs.
	Keywords: Protocols
-	Description: FCoE, BCV are not supported.
	WA: N/A
	Keywords: Protocols
655800	Description: IPv6 can only run if a RADVD service is running in the network.
	WA: N/A
	Keywords: Protocols
-	Description: IPv6 over IB is not supported.
	WA: N/A
	Keywords: Protocols
655800	Description: IPv6 over WDS is not supported.
	WA: N/A
	Keywords: Protocols
655800	Description: Enabling IPv6 first and then IPv4 is currently not supported.
	WA: N/A
	Keywords: Protocols
656001	Description: Booting from WDS and Windows DHCP server when only Option 66 is enabled (without Option 67), is not supported.
	WA: N/A
	Keywords: DHCP

Table 6 - Known Issues

Internal Ref.	Description
691148	Description: When connecting a pre-configured port with VLAN to an IB fabric, the port runs as Ethernet port with the VLAN tag.
	WA: Disable VLAN in the boot menu before connecting the Ethernet port to the Infini-Band fabric.
	Keywords: VLAN, Port Management
-	Description: As ConnectX-4 and Connect-IB HCAs do not support FlexBoot menu, pressing Ctrl-B will not open the UI menu although the Ctrl-B prompt at the FlexBoot banner is present.
	WA: N/A
	Keywords: Ctrl-B, ConnectX-4 and Connect-IB HCAs, FlexBoot menu
776057	Description: Citrix PVS boot is not supported.
	WA: N/A
	Keywords: Citrix PVS boot
780862	Description: Set default (CTRL+d key) feature is not supported in Wake-On-Lan setting.
	WA: N/A
	Keywords: CTRL+d, WoL
792432	Description: Booting PXE using Grub2.X over HP G9/G8 servers results in system hang.
	WA: N/A
	Keywords: PXE boot, Grub2.X, HP G9/G8

4 Bug Fixes History

Table 7 - Fixed Bugs List

Internal Ref.	Description
690792	Description: If the PMM fails to allocate memory, the system hangs since FlexBoot cannot load from the expansion ROM.
	Keywords: PMM, expansion ROM
	Discovered in Release: 3.4.719
	Fixed in Release: 3.4.812
697291	Description: In ConnectX-4, the PXE boot time measurement over TFTP Ethernet is 1:30 min for image size of 1GB, TFTP InfiniBand is 1:20 min, and iSCSI boot time measurement is 8 seconds for image size of 25 MB.
	Keywords: PXE Boot
	Discovered in Release: 3.4.719
	Fixed in Release: 3.4.812
689068	Description: In hybrid BIOSes, if the BIOS loads legacy driver without closing the UEFI driver, the legacy driver fails to load.
	Keywords: BIOS, legacy mode
	Discovered in Release: 3.4.719
	Fixed in Release: 3.4.812
634794	Description: Enabled 'boot_pci_busdevfn' initialization when booting from UNDI loader.
	Keywords: UNDI loader
	Discovered in Release: 3.4.650
	Fixed in Release: 3.4.719
-	Description: Removed the instruction that enabled write-protected section modifications after POST.
	Keywords: PXE Boot
	Discovered in Release: 3.4.650
	Fixed in Release: 3.4.719

5 Changes and New Feature History

Table 8 - Changes and Fixes

Release	Changes
3.4.719	<ul style="list-style-type: none"> • Added x64 architecture support in ConnectX-4 EN adapter cards • Added IPv6 support (Beta level) • Removed support for the following SHELL CLI commands: <ul style="list-style-type: none"> • Non-volatile option storage commands • SAN boot commands • Menu commands • Login command • Sync command • DNS resolving command • Time commands • Image crypto digest commands • Loopback testing commands • VLAN commands • PXE commands • Reboot command <p>For further information, please refer to: http://ipxe.org/cmd</p> <ul style="list-style-type: none"> • Synced the source with iPXE (upstream sync)
3.4.650	<ul style="list-style-type: none"> • Added support for .mrom images larger than 128kB • Added boot over IB with non-default PKey for ConnectX®-3, ConnectX®-3 Pro cards • Synced the source with iPXE (upstream sync) • Added support for detecting Spanning Tree Protocol non-forwarding ports (RSTP/MSTP) • Moved to flat real mode when calling INT 1a,b101 to avoid BIOSes issues •