Innova-2™ Flex Open for Application Acceleration EN Adapter Card

Software and Firmware Bundle Release Notes

Rev: 18.11

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Release Update History

Table 1 - Release Update History

Release	Date	Description
18.11	November 29, 2018	First release of this version

1 Overview

These are the release notes for the GA release of Innova_Flex_Open_18_11. Please refer to Section 1.1, "Innova-2 Flex Open Bundle Contents," on page 3 for the list of supported software, firmware and firmware tools versions.

1.1 Innova-2 Flex Open Bundle Contents

Table 2 - Innova-2 Flex Open Bundle Contents Versions

Content	Description
FPGA Factory Image Version	178
FPGA Flex Image Version	179
Firmware Version	16.24.1000
Vivado Version	Vivado 2017.3
PCI Burn Application Version	18.11.00

Mellanox OFED and MFT are not included in the bundle and can be obtained here:

Table 3 - Mellanox OFED and MFT

Version	Reference
MFT Version: mft-4.11.0	http://www.mellanox.com/page/management_tools
Mellanox OFED Version: Rev 4.5-1.0.1.0	http://www.mellanox.com/page/products_dyn?product_family=26&mtag=linux_sw_drivers

1.2 Supported Platforms/Operating Systems

Table 4 - Supported Platforms/Operating Systems

Operating Systems	X86	PPC - LE	PPC - BE
RHEL 7.5	X	X	X
RHEL 7.6 ALT		X	
Ubuntu 18.04.01	X	X	
SLES 15 SP0	X		
FreeBSD 10.4	X		
FreeBSD 12	X		

1.3 List of Supported Cables

Table 5 - Validated and Supported 10/40GbE Cables

Speed	Cable OPN #	Length Tested (m)	Description
25GbE	MCP2M00-A005AM	5	Mellanox® Passive Copper cable, ETH, up to 25Gb/s, SFP28, 5m, 26AWG
25GbE	FTLF8536P4BCL	-	Finisar 25GE SR SFP28 Optical Transceiver
25GbEx4	MCP7F00-A002	2	Mellanox® passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 2m, 30AWG
25GbEx4	MCP7F00-A005R26L	5	Mellanox® passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 5m, Colored, 26AWG, CA-L
25GbEx4	MCP7F00-A005AM	5	Mellanox® passive copper hybrid cable, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 5m, 26AWG
25GbEx4	MFA7A50-C030	30	Mellanox® active fiber hybrid solution, ETH 100GbE to 4x25GbE, QSFP28 to 4xSFP28, 30m
10GbEx4	MC2609125-005	5	Mellanox® passive copper hybrid cable, ETH 40GbE to 4x10GbE, QSFP to 4xSFP+, 5m
10GbE	MC3309124-005	5	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 5m
10GbE	MC3309124-007	7	Mellanox® passive copper cable, ETH 10GbE, 10Gb/s, SFP+, 7m
10GbE	MFM1T02A-SR	-	Mellanox® SFP+ optical module for 10GBASE-SR
1GbE	MC3208411-T	-	Mellanox® module, ETH 1GbE, 1Gb/s, SFP, Base-T, up to 100m

2 Changes and New Features History

Table 6 - Changes and New Features History

Feature/Change	Description
Version 18.11.00	
JTAG Access	Added the option to enable JTAG Access. See description in “JTAG Access to the FPGA” in the User Manual.
Factory Image	Added a Factory Image. See description in "FPGA images on card: Factory/Flex/User” in the User Manual.
FPGA Power Control	Added the ability to control FPGA power while the Flex Image is running.
FPGA Temperature	Added the ability to obtain FPGA temperature while User Image is active.
Image Burn	Added the ability to burn User Image without using the Innova-2 onboard DDR device.
Innova-2 Flex Application Log	Added a log for Innova-2 Flex application. Resides in /var/log/morse_install.log".
Innova-2 Flex 25G/Innova-2 Flex VPI Support	Added support for Innova-2 Flex VPI

2.1 Upgrading from Bundle 18.07 to Bundle 18.11

This bundle is accompanied by an automated upgrade script. This script seamlessly upgrades the ConnectX firmware and FPGA images to the new bundle.

The following files were added to the bundle:

- ./update_script/install.sh
- Configuration files in the bundle root: 18_7.conf, main.conf, version

Running the script:

- Upgrade OFED to the release specified above (note: must be done before running the upgrade script)
- Run from bundle root: /update_script/install.sh -cfg_file 18_7.conf

Comments:

- The script was verified on RHEL 7.5 only
- The script can be used only on a card installed with a clean Innova-2 Flex 18.07 bundle, i.e. ConnectX FW and FPGA images supplied with bundle 18.07
- The script overrides user images burnt on the Innova-2 Flex card
- The script requires a shutdown of the server during the process
- If the card was set to User mode before running the script, after the upgrade it will be set to Flex mode

In case you wish to manually update the system from bundle 18.07 to bundle 18.11, it is suggested to perform the following steps:

Table 7 - Upgrading from Bundle 18.07 to Bundle 18.11

Step	Step Description	Innova-2 Flex Application	Comments
0	Update mlx5 driver	---	---
1	Boot to 18.07 Flex Image	18.07	---
2	Burn new Factory Image to flash at address 0x0	18.07	• Offset should be specified explicitly. Note that the existing Flex Image will be overwritten. • The application should be run with the --mlx_force flag.
3	Burn the new Innova-2 Flex related ConnectX-5 firmware	---	Use the MFT Flint Tool
4	Boot to a new Factory Image	18.11	Power cycle is required
5	Burn a new Flex Image	18.11	• Image burnt (by default) at offset 0x3000000 • The application should be run with the --mlx_force flag.
6	Boot to Flex Image	18.11	Power cycle is required
7	Burn any User Image	18.11	Image burnt (by default) at offset 0x1000000

2.2 Bundle Interoperability

Please note that no bundle interoperability is guaranteed.

Components of an Innova Flex Open bundle (FPGA images, ConnectX-5 firmware, BOPE driver and Flex Open Application) are compatible and have been tested only within a certain bundle and there is no assurance that they will work with components from other bundles.

3 Known Issues

The following table describes known issues in this bundle release and possible workarounds. For list of known issues for ConnectX-5 firmware, please refer to http://www.mellanox.com/page/firmware_table_ConnectX5EN.

Table 8 - Known Issues

Internal Ref.	Issue
1580893	**Description:** When the User image is set to load, after server reboot there is a small chance that it will not be visible over PCI. This occurs due to a suboptimal loading process of the FPGA image that may cause the OS PCI enumeration to complete before the FPGA is visible over PCI. Please contact Mellanox support in case this behavior is consistent. This will be fixed in future releases.
	Workaround: N/A
	Keywords: User image, server reboot, PCI
1481202	**Description:** FPGA images on flash should be burned using the Innova-2 Flex application. If a JTAG cable is used, it is highly recommended to perform the following actions: 1. Burn the image to the flash 2. Perform power-cycle Note: It is not recommended to load the image to the FPGA and then perform system reboot, as this may leave the FPGA PCI core in an unstable state.
	Workaround: N/A
	Keywords: JTAG image burn, PCI instability

4 Bug Fixes History

The following table describes bug fixes in this bundle release.

Table 9 - Bug Fixes History

Internal Ref.	Issue
1480139	**Description:** When two Innova_2_Flex_Open cards are installed on a server, the Innova-2 Flex Open application does not function.
	Keywords: burning tool
	Discovered in release: 18.07
	Fixed in release: 18.11
1381592	**Description:** When a User Image is burned through PCI burn tool, the tool deletes another 4KB from the flash after last image byte.
	Keywords: burn tool, flash
	Discovered in release: 18.05
	Fixed in release: 18.07
1382476	**Description:** Burning progress bar will wrap around to zero for images larger than 40 MB. This has no affect on the burn process.
	Keywords: burn progress
	Discovered in release: 18.05
	Fixed in release: 18.07
1383037	**Description:** If the user burns a corrupted User Image and power cycles the machine (which loads the FPGA from flash), the FPGA will not be programmed.
	Keywords: User Image, FPGA
	Discovered in release: 18.05
	Fixed in release: 18.07