



# **Mellanox ConnectX<sup>®</sup>-2 Firmware (fw-ConnectX2) Release Notes**

Rev 2.7.700

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# Table of Contents

|  |           |
|--|-----------|
| <b>Table of Contents</b> .....                                     | <b>3</b>  |
| <b>Chapter 1 Overview</b> .....                                    | <b>4</b>  |
| <b>Chapter 2 Revision Compatibility</b> .....                      | <b>6</b>  |
| <b>Chapter 3 Changes and Major New Features</b> .....              | <b>7</b>  |
| 3.1 Changes of Rev 2.7.700 From Rev 2.7.000 .....                  | 7         |
| <b>Chapter 4 Bug Fixes</b> .....                                   | <b>8</b>  |
| <b>Chapter 5 Known Issues</b> .....                                | <b>9</b>  |
| <b>Chapter 6 Creating a Device Configuration (.ini) File</b> ..... | <b>10</b> |
| 6.1 Configuration (.ini) File Format .....                         | 10        |

# 1 Overview

These are the release notes for the ConnectX®-2 and ConnectX®-2 EN adapters firmware, fw-ConnectX2 Rev 2.7.700. This firmware supports the following protocols:

- InfiniBand
- Ethernet
- Fibre Channel over Ethernet (FCoE) - FCoE is at beta level.
- Virtual Protocol Interconnect (VPI) – this capability enables ConnectX-2 devices to support the InfiniBand, Ethernet and DCE network standards, including auto-sensing of the network protocol to which each device port is connected.

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>.

## Notes:

1. This intermediate firmware release has been verified only for the MNPH[28][29]C-X[ST]R ConnectX®-2 EN network interface SFP+ cards, with PCIe2.0 x8 2.5 or 5.0 GT/s (short/tall brackets).
2. After burning new firmware to an adapter card, reboot the machine so that the new firmware can take effect. If you do not reboot, you will get an error in the RUN\_FW command.

*Table 1 - PCI Device ID*

| PCI Device ID (Decimal) | Device Part Number | Device Name  | Supported Protocols             |
|-------------------------|--------------------|--|---------------------------------|
| 25408                   | MT25408B0-FCC-SI   | ConnectX-2, Dual Port 10Gb/s InfiniBand / 10GigE Adapter IC with PCIe 2.0 x8 2.5GT/s Interface | InfiniBand, Ethernet, FCoE, VPI |
| 25418                   | MT25408B0-FCC-DI   | ConnectX-2, Dual Port 20Gb/s InfiniBand / 10GigE Adapter IC with PCIe 2.0 x8 2.5GT/s Interface |                                 |
| 26418                   | MT25408B0-FCC-GI   | ConnectX-2, Dual Port 20Gb/s InfiniBand / 10GigE Adapter IC with PCIe 2.0 x8 5.0GT/s Interface |                                 |
| 26428                   | MT25408B0-FCC-QI   | ConnectX-2, Dual Port 40Gb/s InfiniBand / 10GigE Adapter IC with PCIe 2.0 x8 5.0GT/s Interface |                                 |
| 25448                   | MT25408B0-FCC-SE   | ConnectX-2 EN, Dual Port 10GigE Adapter IC with PCIe 2.0 x8 2.5GT/s Interface                  | Ethernet                        |
| 26448                   | MT25408B0-FCC-TE   | ConnectX-2 EN, Dual Port 10GigE Adapter IC with PCIe 2.0 x8 5.0GT/s Interface                  |                                 |
| 26478                   | MT25408B0-FCC-QE   | ConnectX-2 EN, Single Port 40GigE Adapter IC with PCIe 2.0 x8 5.0GT/s Interface                |                                 |
| 25458                   | MT25458B0-FCC-SE   | ConnectX-2 EN, Dual Port 10BASE-T Adapter IC with PCIe 2.0 x8 2.5GT/s Interface                |                                 |
| 26458                   | MT25458B0-FCC-TE   | ConnectX-2 EN, Dual Port 10BASE-T Adapter IC with PCIe 2.0 x8 5.0GT/s Interface                |                                 |

The document consists of the following sections:

- Section 2, “Revision Compatibility,” on page 6
- Section 3, “Changes and Major New Features,” on page 7
- Section 4, “Bug Fixes,” on page 8
- Section 5, “Known Issues,” on page 9
- Section 6, “Creating a Device Configuration (.ini) File,” on page 10

## 2 Revision Compatibility

Firmware fw-25408 Rev 2.7.700 complies with the following programmer's reference manual:

- *ConnectX Programmer's Reference Manual (PRM), Rev 0.39 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*.

## 3 Changes and Major New Features

### 3.1 Changes of Rev 2.7.700 From Rev 2.7.000

- Added support for up to 7M twinax cables
- Added the firmware configuration (.ini) file parameter `a0_mode_in_cx2`. When set (1), this parameter orders ConnectX-2 to mimic ConnectX device's GPIO assignment (Step A0 mode)

## 4 Bug Fixes

- Ethernet link issues with back-to-back setting on 5m Twinax cables



## 5 Known Issues

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

Table 2 - Known Issues

| Index | Issue   | Description   | Current Implemented Workaround in FW | Possible Workaround   | Scheduled Release (fix) |
|-------|---|---|--------------------------------------|---|-------------------------|
| 1.    | UAR Bar is too small for 64k-page machines                      | The small BAR causes driver loading to fail   | N/A                                  | Change the "log2_uar_bar_megabytes" .ini parameter under the [HCA] section as follows:<br>log2_uar_bar_megabytes = 5  | N/A                     |
| 2.    | Change of memory bars on a disabled system                      | Changing memory bars size / addresses between SYS_DIS and SYS_EN may cause the device to hang (ID: 24206)   | N/A                                  | N/A   | N/A                     |
| 3.    | BAR resizing on an enabled system                               | Changing bar sizes when a system is enabled may cause the device to hang (ID: 24208)  | N/A                                  | N/A   | N/A                     |
| 4.    | Ethernet only:<br>Must query all capabilities upon boot         | If not all capabilities are queried upon boot, then the query command may fail. See the QUERY_CAP command in <i>ConnectX EN Programmer's Reference Manual</i> | N/A                                  | Query all capabilities upon boot  | N/A                     |
| 5.    | Disrupting QDR negotiation may lead to port rising as SDR       | Disconnecting an IB cable (or closing the port) during QDR negotiation and then reconnecting (or reopening) may cause the adapter to bring up the port at SDR | N/A                                  | Disconnect the cable (or close the port) again and then reconnect (reopen).<br><br>To avoid this scenario, wait for QDR negotiation to finish prior to disconnecting the cable (or closing the port) and reconnecting (or reopening). The following are two possible methods to verify QDR negotiation is complete:<br>a. The physical (green) LED is on.<br>b. A query of LinkPhyState using a GetPortInfo MAD indicates LinkUp. | N/A                     |
| 6.    | MTNIC driver is not supported                                   |   |                                      |   |                         |
| 7.    | InfiniBand Static rate is not supported                         |   |                                      |   |                         |
| 8.    | Wrong reporting of transceiver type                             |   |                                      |   |                         |
| 9.    | Autosensing after cable reconnection to different port protocol | If you disconnect a cable from an IB/Eth port and reconnect it to an Eth/IB port (different protocol), the link may not rise                                  | N/A                                  | Restart the driver (openibd restart)  | N/A                     |

## 6 Creating a Device Configuration (.ini) File

Mellanox firmware burning tools enable setting and/or changing configuration variables by the use of an optional configuration (.ini) file. This is needed in case the default values of some variables do not suit a user's specific system requirements. This section describes how to create this configuration file.

To begin with, the .ini file is a text file is composed of one or several configuration sections (see Section 6.1 for the format and/or an example). It is recommended to include, under the appropriate sections, only those variables that need to be changed.

A firmware release includes a reference file called fw-25218-defaults.ref. This file contains the list of all variables which can be configured by a configuration (.ini) file. For each variable the reference file includes a short explanation, the [<section>] it should be under, the range of possible values, and a line with the default setting of the variable which is assumed by the firmware release.

To create the .ini file, simply copy the lines with the variables you wish to set, paste them under their appropriate [<section>] headings, and change the setting values as desired.

### 6.1 Configuration (.ini) File Format

The .ini file is composed of one or more sections with variable settings. Each section in the file starts with its name between square brackets, e.g. [ADAPTER], [HCA], [IB], etc. The section name is followed by one or more lines of configuration settings and comments, as in the .ini file example shown below. Note that comment lines start with a semicolon.

#### Excerpt from fw-25408-defaults.ref:

```
;;;; VPD support can be Disabled/Enabled
;;;; Under [ADAPTER] section
;;;; Boolean parameter. Possible values: true, false .
vpd_enable = true
```

#### Example of a .ini file:

```
;Begin of .ini file
[ADAPTER]
vpd_enable = false
;This is a comment line
;End of .ini file
```