



Dolphin MXH930 NTB Adapter Firmware Release Note

21st July 2022

Version 2.5

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1 Introduction

This release note covers the MXH930 PCIe Gen4 x16 NTB Adapter card firmware. The firmware consists of PFX configuration data and Management processor firmware (NXP config). This release note contains a summary of the changes made. Please contact Dolphin for details.

1.1 Supported topologies

The latest released firmware supports the following NTB / Hot-Add configurations

- Dual Host x16 Host
- Three Host x8
- Five Hosts x4
- Switched topologies using MXS924
- Single NTB Hot-Add x16 Host
- Dual NTB Hot-Add x8 Host
- Quad NTB Hot-Add x4 Host

Please find additional information on supported topologies and functionalities in the eXpressWare release notes. Please note 3 and 5 node NTB use cases requires minimum eXpressWare 5.20.

1.2 Firmware versions

The Firmware version is covering the MXH930 NXP firmware changes.

Firmware version	Release date	Note
1	September 24 th 2020	Initial firmware release. Support for single x4, x8 or x16 link configuration.
1.2	November 12 th , 2020	Code reorganized and improved. No functional changes for NTB use.
1.4	February 25 th 2021	<ul style="list-style-type: none">• Adds Board Firmware Recovery support.• Adds firmware version reporting.• Add support for AOC temperature reporting
1.5	March 9 th 2021	<ul style="list-style-type: none">• Fixes reset issues with transparent dual x8 configuration. Not relevant for NTB use cases. Bundled with eXpressWare 5.18
2.0	June 24 th 2021	<ul style="list-style-type: none">• Added longer delay before releasing PFX from reset after power on in order to allow clocks to stabilize.• Fixed link status issues with MR2 PFX firmware.
2.1	October 29 th 2021	<ul style="list-style-type: none">• Added support for overtemperature shutdown and DIP-switch to disable. Bundled with eXpressWare 5.19.2
2.4	December 16 th 2021	<ul style="list-style-type: none">• Added support for MXH930-EF Boards
2.5	February 9 th 2022	<ul style="list-style-type: none">• Fixes potential BMC code crash/auto restart issue. No customer impacts.
2.6	February 24 th 2022	<ul style="list-style-type: none">• No changes for MXH93x, not released for MXH93x
2.7	April 26 th 2022	<ul style="list-style-type: none">• Added support for extended serial number format• Prevent invalid cable data from triggering thermal cable shutdown
2.8	May 16 th 2022	<ul style="list-style-type: none">• Increases AOC temperature shutdown threshold to 85 °C (185°F) and warning threshold to 70°C (158°F) Bundled with eXpressWare 5.20.0

1.3 PFX FLASH Versions

The PFX version changelog. Please note that the Dolphin software tools report the PFX FLASH version as the EEPROM version.

PFX Multiconfig version	Release date	Note
5	September 24 th 2020	Initial firmware release.
6	October 2 nd , 2020	<ul style="list-style-type: none">Applied Microchip version pm74605_pfx_03600049
7	December 10 th , 2020	<ul style="list-style-type: none">Added DMA supportSet management endpoint BAR to 4MB
8	February 25 th 2021	<ul style="list-style-type: none">Applied Microchip MR2, 3.70.0.4fSupport for MXS924 Bundled with eXpressWare 5.18
9	June 24 th 2021	<ul style="list-style-type: none">Fixed various PCI-SIG test compliance issues.ChipLink version 1.62.00Increased TLP throttling from 50.000 to 70.000 (Microchip recommendation)
10	September 7 th 2021	<ul style="list-style-type: none">Adds support for 4 x4 and 2 x8 NTB / Hot-Add configurations.Enabled Completion Timeout Synthetic (CTS) and AER on UPS. Bundled with eXpressWare 5.19.2
11	June 25 th 2022	Applied Microchip MR4 3.90.0.5b <ul style="list-style-type: none">File format 3.90.0.5bChipLink version 1.68.00Fixes MR2 related problem with Optical support that could cause link to train to lower speed or narrower links. Bundled with eXpressWare 5.20.0

1.4 Known issues and planned improvements

- PFX Synthetic Endpoint not supported. Contact Dolphin for information.

2 Appendix

2.1 How to check Firmware and EEPROM version

The version of the firmware components can be retrieved using the **dis_diag** tool. This information is available by installing eXpressWare 5.18 or newer. Please see options using **-h** option. This software is available for both Windows and Linux.

2.1.1 Linux platforms

```
# cd /opt/DIS/sbin
# ./dis_diag
```

2.1.2 Windows platforms

```
> cd %ProgramFiles%\Dolphin Express MX\Util
> .\dis_diag
```

2.1.3 Example output

```
# dis_diag
=====
Dolphin diagnostic tool -- dis_diag version 5.18.0 (Mon Oct 12 16:44:17 CET 2020)
=====
dis_diag compiled in 64 bit mode
Driver : Dolphin IRM (GX) 5.18.0 Oct 24th 2020 (rev 33fff3a)
Date   : Mon Oct 12 12:59:28 CET 2020
System : Linux somenode 3.10.0-514.21.1.el7.x86_64 #1 SMP Thu Oct 12 17:04:51 UTC 2020
x86_64 x86_64 x86_64 GNU/Linux
```

Number of configured local adapters found: 1

```
Adapter 0 > Type           : MXH930
           Mode           : NTB
           NodeId        : 4
           Serial number  : MXH930-CC-000015
           MXH chip family : MICROSEMI - PFX GEN4
           MXH chip vendorId : 0x11f8
           MXH chip device  : 0x4036
           MXH chip revision : 0x0 (ZA)
           EEPROM version   : 10
           EEPROM vendor info : 0x0000
           Firmware version : 2.0
           Card revision    : CC
```

2.2 How to upgrade the firmware

The firmware can be upgraded using the **upgrade_eeprom** utility bundled with eXpressWare.

2.2.1 Linux platforms

```
# cd /opt/DIS/sbin
# ./upgrade_eeprom.sh --upgrade
```

2.2.2 Windows platforms

Start PowerShell with administrative capabilities (Press Windows+X, select Windows PowerShell (Admin))

```
PS > cd "${env:ProgramFiles}\Dolphin Express MX\Util"
PS > Set-ExecutionPolicy AllSigned -Scope Process
PS > .\upgrade_eeprom.ps1 --upgrade
```

Please carefully review the output from the upgrade utility.

A complete power cycle of the system (including removal of AuxPower) is required. Please verify the firmware upgrade was successful after system is powered on again following the steps found in section 2.1 How to check Firmware and EEPROM version above.

2.3 How to contact Dolphin Support

Please contact Dolphin support at pci-support@dolphinics.com if you have any questions or issue.