



Dolphin MXH930 NTB Adapter Firmware Release Note

March 2nd, 2026

Version 2.8

Table of Contents

1	Introduction	3
1.2	Firmware versions	3
1.3	PFX FLASH Versions	4
1.4	Known issues and planned improvements	5
2	Appendix	6
2.1	How to check Firmware and EEPROM version	6
2.1.1	Linux platforms	6
2.1.2	Windows platforms	6
2.1.3	Example output	6
2.2	How to upgrade the firmware	6
2.2.1	Linux platforms	6
2.2.2	Windows platforms	6
2.3	How to contact Dolphin Support	7

DISCLAIMER

DOLPHIN INTERCONNECT SOLUTIONS RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY OF ITS PRODUCTS TO IMPROVE RELIABILITY, FUNCTION, OR DESIGN. DOLPHIN INTERCONNECT SOLUTIONS DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT.

LIFE SUPPORT POLICY

DOLPHIN INTERCONNECT SOLUTIONS' PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES.

1 Introduction

This release note covers the MXH930 PCIe Gen4 x16 NTB Adapter card firmware. The firmware consists of PFX configuration data and Board Management Controller (BMC) firmware. 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 covers the MXH930 BMC 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 and newer
2.0	June 24 th , 2021	<ul style="list-style-type: none">• Added longer delay before releasing PFX from reset after power on 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 and newer
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
2.9	Oct 7 th , 2022	<ul style="list-style-type: none">• Fixed problem with GPIO interrupts getting stuck after some time

2.10	Jan 26 th , 2024	<ul style="list-style-type: none"> Fixed rare bug where previously unprogrammed cards had to be upgraded twice Bundled with eXpressWare 5.22.0
2.11	Nov 19 th , 2024	<ul style="list-style-type: none"> Added temperature readout for active optical cables (AOCs) Bundled with eXpressWare 5.23.0 and newer

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 support Set management endpoint BAR to 4MB
8	February 25 th , 2021	<ul style="list-style-type: none"> Applied Microchip firmware release MR2, 3.70.0.4f Support 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 1.62.00 Increased 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 firmware release MR4 3.90.0.5b <ul style="list-style-type: none"> File format 3.90.0.5b ChipLink version 1.68.00 Fixes MR2 related problem with Optical support that could cause link to train to lower speed or narrower links. Bundled with eXpressWare 5.20.0
12	April 26 th , 2023	<ul style="list-style-type: none"> Increased the Requester ID table in the NT Endpoint setting from 8 to 32 to support Intel Ice Lake CPUs. NT-Links: 200/100/50 for x16/x8/x4 Enabled GAS accesses for all partitions for config #10 and #12 Changed default serial number from 00 00 00 00 to 00 00 00 01 Removed 4k space in BAR1 for partition 0 in 2x8 config #10: 2x8 – Added NTB config 1x16, 64GB BAR2 for config #6 Added NTB config 1x16, 128GB BAR2 for config #11
13	January 5 th , 2024	<ul style="list-style-type: none"> Converted to Microchip firmware release MR5 <ul style="list-style-type: none"> -File format 3.90.0.6c -ChipLink version 1.80.05 Number of MC Overlays changed from 1 to 16 (USP) in NTB mode Increased MAX number of requester IDs for USP from 32 to 40 Increased MAX number of requester IDs for USP from 32 to 40 MAX number of requester IDs for DSP <ul style="list-style-type: none"> - 1x16: 200 - 2x8: 100 - 2x4: 50 Increased "Max TLP to NT doorbells Per Seconds" to 200.000 Decreased Throttling Window from 120 to 80 us Set "Port Down Hold-Off Time" to 20.000 us for the DSP Removed BAR4 (64k) from Down Stream Ports (DSP)

14	August 20 th , 2025	<ul style="list-style-type: none"> • Converted to Microchip firmware release MR6 • File format: 3.90.0.70 • Added 1x8 NTB and 1x8 TRANSP configuration • Added 2x4 NTB and 2x4 TRANSP configuration • Removed TRANSP and TARGET configurations Bundled with eXpressWare 2.25 and newer
----	-----------------------------------	---

1.4 Known issues and planned improvements

- Windows Hot-Add is 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 the options using the **-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, which is 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

For general support questions, please contact Dolphin via the Jira Service Management portal:

<https://www.dolphinics.com/csp>.