



Dolphin MXH916 Adapter Firmware Release Note

August 20th, 2025

Version 1.1

Table of Contents

1	Introduction	3
1.1	Supported Topologies	3
1.2	PFX FLASH Versions	3
2	Appendix	4
2.1	How to determine the Firmware versions	4
2.1.1	Linux platforms	4
2.1.2	Windows platforms.....	4
2.1.3	Example output.....	4
2.2	How to upgrade the firmware.....	5
2.2.1	Linux platforms	5
2.2.2	Windows platforms.....	5
2.3	How to contact Dolphin Support.....	5

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 firmware of the MXH916 PCIe 4.0 NTB Host adapter card. The firmware consists of Microchip PFX runtime executables and configuration data. It contains a summary of the changes made. Please contact Dolphin for details.

1.1 Supported Topologies

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

- Single x16 NTB Host
- Dual x8 NTB Host – 3 node NTB
- Quad x4 NTB Host – 5 node NTB

Please consult the MXH916 Users Guide for details on supported topologies and configurations.

1.2 PFX FLASH Versions

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

FLASH version	Release date	Note
1	June 10th, 2023	<ul style="list-style-type: none">• Initial firmware release.
2	August 30th, 2023	<ul style="list-style-type: none">• Converted to Microchip firmware release MR5• ChipLink version 1.77.00• Changed the connector setting to SHPC• Changed PERST #DSP propagation delay from 300.000 us to 10.000 us• Specified USP PCIe reset GPIO index for all ports (they were missing in some configs)• GPIO 110 virtual reset is working
3	October 10th, 2023	<ul style="list-style-type: none">• Increased the req ids from 8 to 40 for NTB configs.• Added 128G BAR2 in config #11• Changed stack #4 to 4x4
4	March 17th, 2024	<ul style="list-style-type: none">• Converted to Microchip firmware MR5, Patch 3<ul style="list-style-type: none">- File format 3.90.0.6C- ChipLink version 1.80.05• Improved multi-cast overlays from 1 to 16 Upstream port in NTB mode.• Improved the number of requester ids to 40 for Intel CPUs (Ice Lake and Sapphire Rapids)• Fixes x16 DMA capability - Microchip-related issue• Improved "Max TLP to NT doorbells Per Seconds" to 200.000• Improved Throttling Window from 120 to 80 us to reduce the number of throttling events during diagnostic testing• Set "Port Down Hold-Off Time" to 20.000 us for the DSP - to have a slightly longer cable link down after link failures
5	August 8 th , 2025	<ul style="list-style-type: none">• Convert to Microchip firmware release MR6<ul style="list-style-type: none">- File format 01.88.02- ChipLink version 03900070• Increase the link BAR2 from 1TB to 64TB to meet the address requirements for the latest server systems• Set 'BAR Address Type' to 64-bit addressing in Management setting <p>PCIe compliance requirements Bundled with eXpressWare 5.24 and newer</p>

2 Appendix

2.1 How to determine the Firmware versions

The version of the firmware components can be retrieved using the **dis_diag** tool. Please see options using `-h` option. This tool is available by installing eXpressWare Board Management Software 5.19 or newer. The software is available for Windows and Linux and can be downloaded from www.dolphinics.com/mx.

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 5.22.0 (Mon May 27 14:38:45 CEST 2024)
=====

dis_diag compiled in 64-bit mode
Driver : Dolphin IRM (GX) 5.22.0-d June 1st 2023 (rev 7eb1a41980)
Date   : Thu May 30 10:13:46 CEST 2024
System : Linux giza-5 4.18.0-348.7.1.el8_5.x86_64 #1 SMP Wed Dec 22 13:25:12 UTC 2021
x86_64 x86_64 x86_64 GNU/Linux

Number of configured local adapters found: 1

Adapter 0 > Type           : MXH916
           Mode           : NTB
           NodeId         : 4
           Serial number   : MXH916-AA-0000-000024
           MXH chip family : MICROCHIP - PFX PCIe 4
           MXH chip vendorId : 0x11f8
           MXH chip device  : 0x4028
           MXH chip revision : ZB
           EEPROM version  : 05
           EEPROM vendor info : 0x0000
           Card revision    : AA
```

2.2 How to upgrade the firmware

The firmware can be upgraded using the upgrade_eeprom utility bundled with eXpressWare version 5.19 or newer.

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 upgraded utility.

A complete system power cycle (including the removal of AuxPower) is required after the firmware upgrade.

Please verify that the firmware upgrade was successful after the system is powered on again, following the steps in the section. 2.1 How to determine the Firmware version above.

2.3 How to contact Dolphin Support

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

www.dolphinics.com/csp.