



# Dolphin MXH932 Adapter Firmware Release Note

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Version 4.1

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## **LIFE SUPPORT POLICY**

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# 1 Introduction

This release note covers the Transparent MXH932 PCIe 4.0 x16 Adapter card firmware. The firmware consists of Microchip PFX runtime executables and configuration data and Board Management Controller firmware (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 transparent configurations:

- Single Transparent x16 Host
- Dual Transparent x8 Host
- Quad Transparent x4 Host
- Transparent Target single upstream link x4-x16 – single x16 downstream Edge
  - For use with Dolphins two slot passive backplanes
- Transparent Target single upstream link x4-x16 – dual x8 downstream Edge
  - For use with Dolphins three slot passive backplanes
- Transparent Target single upstream link x4-x16 – quad x4 downstream Edge
  - For use with Dolphins five slot passive backplanes

## 1.2 BMC Firmware versions

The Firmware version covers the MXH932 BMC firmware changelog.

Firmware version	Release date	Note
1	September 24 <sup>th</sup> , 2020	Initial firmware release. Support for single link configurations, x4, x8 or x16.
1.2	November 12 <sup>th</sup> , 2020	<ul style="list-style-type: none"><li>• Adds support for transparent dual x8 and quad x4 configurations.</li></ul>
1.4	February 25 <sup>th</sup> , 2021	<ul style="list-style-type: none"><li>• Fixed BMC crash related to CMI.</li><li>• Adds Board Firmware Recovery support.</li><li>• Adds firmware version reporting.</li><li>• Add support for AOC temperature reporting.</li></ul>
1.5	March 9 <sup>th</sup> , 2021	<ul style="list-style-type: none"><li>• Fixes reset issues with transparent dual x8 configuration.</li></ul> Bundled with eXpressWare 5.18
2.0	June 24 <sup>th</sup> , 2021	<ul style="list-style-type: none"><li>• Added support for PCI-SIG CMI sideband support, including reset and wake Signals.</li><li>• Added longer delay before releasing PFX from reset after power on in order to allow clocks to stabilize.</li><li>• Fixed link status issues with MR2 PFX firmware.</li></ul> Bundled with eXpressWare 5.19
2.1	October 29 <sup>th</sup> 2021	<ul style="list-style-type: none"><li>• Added support for overtemperature shutdown and DIP-switch to disable.</li></ul>
2.4	December 16 <sup>th</sup> , 2021	<ul style="list-style-type: none"><li>• Added support for MXH930-EF boards</li></ul>
2.5	February 9 <sup>th</sup> , 2022	<ul style="list-style-type: none"><li>• Fixes potential BMC code crash/auto restart issue. No customer impacts.</li></ul>
2.6	February 24 <sup>th</sup> 2022	No changes for MXH932, not released for MXH93x
2.7	April 24 <sup>th</sup> , 2022	<ul style="list-style-type: none"><li>• Added support for 3 and 5 slot backplanes. Please consult the updated MXH932 Users Guide for details on new DIP switch settings.</li><li>• Added support for extended serial number format</li></ul>
2.8	May 16 <sup>th</sup> , 2022	<ul style="list-style-type: none"><li>• Increases AOC temperature shutdown threshold to 85 °C (185°F) and warning threshold to 70°C (158°F)</li></ul> Bundled with eXpressWare 5.20.0

2.9	October 7 <sup>th</sup> , 2022	No changes for MXH932, not released for MXH93x
2.10	January 26 <sup>th</sup> , 2024	No changes for MXH932, companion released for MXH93x Bundled with eXpressWare 5.22.0
2.11	November 19 <sup>th</sup> , 2024	Adds support for reading out AOC temperature with dis_diag  Bundled with eXpressWare 5.24.0 and newer

### 1.3 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
5	September 24 <sup>th</sup> , 2020	Initial firmware release.
6	October 2 <sup>nd</sup> , 2020	Applied Microchip version pm74605_pfx_03600049
7	December 10 <sup>th</sup> , 2020	<ul style="list-style-type: none"> <li>Set management endpoint BAR to 4MB.</li> </ul>
8	February 25 <sup>th</sup> 2021	<p>Applied Microchip firmware release MR2, 3.70.0.4f</p> <ul style="list-style-type: none"> <li>Support for MXS924 switches.</li> </ul> <p>Known issues:</p> <ul style="list-style-type: none"> <li>Optical support for 4 x4 and 2 x8 configurations not enabled.</li> </ul> <p>Bundled with eXpressWare 5.18</p>
9	June 24 <sup>th</sup> , 2021	<ul style="list-style-type: none"> <li>ChipLink version 1.62.00</li> <li>Fixed various/all PCI-SIG test compliance issues.</li> <li>Increased TLP throttling from 50.000 to 70.000 (Microchip recommendation)</li> </ul> <p>Known issues:</p> <ul style="list-style-type: none"> <li>Optical support for 4 x4 and 2 x8 configurations not enabled.</li> </ul>
10	September 7 <sup>th</sup> , 2021	<ul style="list-style-type: none"> <li>Adds optical support for 4 x4 and 2 x8 configurations.</li> <li>Enabled Completion Timeout Synthetic (CTS) and AER on UPS.</li> </ul> <p>Bundled with eXpressWare 5.19</p>
11	June 25 <sup>th</sup> , 2022	<p>Applied Microchip firmware release MR4 3.90.0.5b</p> <ul style="list-style-type: none"> <li>ChipLink file format 3.90.0.5b</li> <li>ChipLink version 1.68.00</li> </ul> <p>Changes:</p> <ul style="list-style-type: none"> <li>Fixes MR2 related problem with Optical support that could cause link to train to lower speed or narrower links.</li> </ul> <p>Bundled with eXpressWare 5.20.0</p>
12	April 26 <sup>th</sup> , 2023	<p>Changes:</p> <ul style="list-style-type: none"> <li>Changed default serial number from 00 00 00 00 to 00 00 00 01</li> </ul> <p>Bundled with eXpressWare 5.21.x</p>
13	January 5 <sup>th</sup> , 2024	<p>Applied Microchip firmware release MR5</p> <ul style="list-style-type: none"> <li>ChipLink version 1.80.05</li> <li>ChipLink file format 3.90.0.6c</li> </ul> <p>Changes:</p> <ul style="list-style-type: none"> <li>Decreased Throttling Window from 120 to 80 us</li> <li>Set "Port Down Hold-Off Time" to 20.000 us for the DSP</li> </ul> <p>NXP v2.10: emmentaler-main-nxp-v2.10.bin NXP BL v5.0: emmentaler-bootloader-nxp-v5.bin</p> <p>Bundled with eXpressWare 5.22.0</p>
14	November 16 <sup>th</sup> ,	Applied Microchip firmware release MR6

	2024	<ul style="list-style-type: none"><li>• ChipLink version: 01.85.01</li><li>• ChipLink file format: 03900070</li></ul> Changes: Added 3 new DIP switch configurations were the "Hot Plug Capability" is disabled. Please consult the updated MXH932 Users Guide for details. <ul style="list-style-type: none"><li>• Host 1x16, Hot plug disabled</li><li>• Host 2x8, Hot plug disabled</li><li>• Host 4x4, Hot plug disabled</li></ul> Bundled with eXpressWare 5.23.0 and newer
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## 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 both Windows and Linux and can be downloaded from [www.dolphinics.com/mx](http://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 5.19.0 (Mon Oct 12 16:44:17 CET 2021)
=====

dis_diag compiled in 64 bit mode
Driver : Dolphin IRM (GX) 5.19.0 Oct 24th 2021 (rev 33fff3a)
Date   : Mon Oct 12 12:59:28 CET 2021
System : Linux somenode 3.10.0-514.21.1.el7.x86_64 #1 SMP Thu Oct 12 17:04:51 UTC 2021
x86_64 x86_64 x86_64 GNU/Linux

Number of configured local adapters found: 1

Adapter 0 > Type           : MXH932
           Mode           : TRANSPARENT
           NodeId         : 4
           Serial number  : MXH932-DE-000015
           MXH chip family : MICROSEMI - PFX GEN4
           MXH chip vendorId : 0x11f8
           MXH chip device  : 0x4036
           MXH chip revision : 0x0 (ZA)
           EEPROM version : 14
           EEPROM vendor info : 0x0000
           Firmware version : 2.11
           Card revision    : DE
```

## 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 upgrade utility.

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

Please verify the firmware upgrade was successful after system is powered on again following the steps found in 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:

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