Dolphin MXH932 Adapter Firmware Release Note

30th November 2023

Version 2.7

Table of Contents

1   Introduction

This release note covers the Transparent MXH932 PCIe Gen4 x16 Adapter card firmware. The firmware consists of Microchip PFX runtime executables and configuration data and Board Management Controller firmware (BMC 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 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
- Transparent Target single upstream link x4-x16 – dual x8 downstream Edge
- Transparent Target single upstream link 4x-x16 – quad x4 downstream Edge

1.2   BMC Firmware versions

The Firmware version covers the MXH932 BMC firmware changelog.

Firmware version	Release date	Note
1	September 24th 2020	Initial firmware release. Support for single link configurations, x4, x8 or x16.
1.2	November 12th, 2020	• Adds support for transparent dual x8 and quad x4 configurations.
1.4	February 25th 2021	• Fixed BMC crash related to CMI. • Adds Board Firmware Recovery support. • Adds firmware version reporting. • Add support for AOC temperature reporting.
1.5	March 9th 2021	• Fixes reset issues with transparent dual x8 configuration. Bundled with eXpressWare 5.18
2.0	June 24th 2021	• Added support for PCI-SIG CMI sideband support, including reset and wake Signals. • 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. Bundled with eXpressWare 5.19
2.1	October 29th 2021	• Added support for overtemperature shutdown and DIP-switch to disable.
2.4	December 16th 2021	• Added support for MXH930-EF boards
2.5	February 9th 2022	• Fixes potential BMC code crash/auto restart issue. No customer impacts.
2.6	February 24th 2022	• No changes for MXH932, not released for MXH93x
2.7	April 24th 2022	• Adds support for 3 and 5 slot backplanes (only 3 slot available for test). • Added support for extended serial number format
2.8	May 16th 2022	• 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 FLASH version changelog. Please note that the Dolphin software tools report the PFX FLASH version as the EEPROM version.

FLASH	Release date	Note

version		
5	September 24th 2020	Initial firmware release.
6	October 2nd, 2020	• Applied Microchip version pm74605_pfx_03600049
7	December 10th, 2020	• Set management endpoint BAR to 4MB.
8	February 25th 2021	• Applied Microchip MR2, 3.70.0.4f • Support for MXS924 switches. Known issues: • Optical support for 4 x4 and 2 x8 configurations not enabled. Bundled with eXpressWare 5.18
9	June 24th 2021	• Fixed various/all PCI-SIG test compliance issues. • ChipLink version 1.62.00 • Increased TLP throttling from 50.000 to 70.000 (Microchip recommendation) Known issues: • Optical support for 4 x4 and 2 x8 configurations not enabled.
10	September 7th 2021	• Adds optical support for 4 x4 and 2 x8 configurations. • Enabled Completion Timeout Synthetic (CTS) and AER on UPS. Bundled with eXpressWare 5.19
11	June 25th 2022	Applied Microchip MR4 3.90.0.5b • 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

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.

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-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 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.