Dolphin MXH915 Adapters Firmware Release Note

02nd September 2024

Version 1.0

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1   Introduction

This release note covers the firmware of the MXH915 Transparent Host PCIe Gen4 single x4 adapter card. The firmware consists of Microchip PFX runtime executables and configuration data. 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 x4 Host

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.

PFX FLASH version	Release date	Note
1	June 10th, 2023	• Initial firmware release.
2	August 30th, 2023	• Converted to 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	• Changed stack 4 to 4x4
4	March 17th, 2024	• Applied Microchip MR5, Patch 3 - File format 3.90.0.6C -ChipLink version 1.80.05 • The microchip MRS Patch 3 release , fixes the wrong DMA capability register • 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

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 5.22.0 (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                   : MXH915
            Mode                   : Transparent
            NodeId                 : 4
            Serial number          : MXH915-AA-0000-000024
            MXH chip family        : MICROCHIP - PFX GEN4
            MXH chip vendorId      : 0x11f8
            MXH chip device        : 0x4028
            MXH chip revision      : ZB
            EEPROM version         : 04
            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.