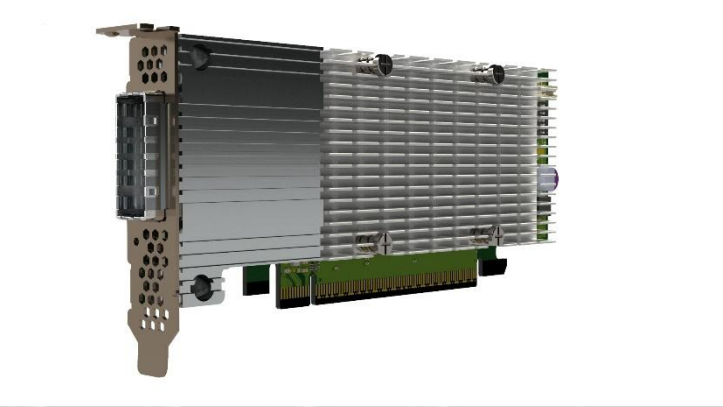
Dolphin PCI Express MXH572 Adapter



MXH572 Transparent Adapter Users Guide

Version 3.0

Date: September 23rd, 2026

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Scope

This version of the MXH572 Users Guide is valid for firmware version 5 and BMC version 3.12.

Terms and Acronyms

Important terms and acronyms used in this manual

AOC	**A**ctive **O**ptical **C**able. PCIe fiber cable assembly compliant to the CopprLink 1.0 specification available from Dolphin.
CDFP	Connector system used by CopprLink 1.0 cables.
BMC Controller	Microcontroller on the MXH572 used to implement various board management functions.
CopprLink cable	Cable compliant to the PCI-SIG CopprLink Specification 1.0.
eXpressWare	Dolphin's software stack for PCIe clustering and IO. Please visit www.dolphinics.com/software for more information.
Host mode	The adapter card is installed in a root complex / Host PC.
Hot-Add	Attaching an IO Expansion system after the server is booted.
Hot Plug	PCIe Configuration option to support hot plug events.
Lane	One PCI Express Lane contains a differential pair for transmission and a differential pair for reception.
LFM	Linear Feet per Minute, airflow measurement
Link	A collection of one or more PCI Express Lanes providing the communication path between an Upstream and Downstream Port.
Port	PCIe Cable port. The MXH572 has one x16 CDFP port.

Introduction

This manual covers the MXH572 and MXH572F PCIe 5.0 x16 CDFP Transparent/Host adapter card available from Dolphin. The MXH572 and MXH572F models are identical, except that the MXH572F incorporates an active heat sink fan to support use cases with low airflow. Please consult the section Airflow - Operating Environment for more information. MXH572 is used throughout the remaining document to cover both models except for details related to the MXH572F.

MXH572 High Level Specification

The MXH572 is a low-profile, half-length PCIe adapter that can be configured as a Transparent Host Adapter card or a Target adapter card. Once installed in any server's or PC's PCI Express compliant slot, an MXH572 can connect to another MXH572 configured for Transparent Target operation or any target device compliant to the PCI Express CopprLink 1.0. The MXH572, configured as a Transparent Target card, can be installed in a PCI Express-compliant expansion upstream slot. Please contact Dolphin for a list of compliant expansion chassis. The MXH572 supports PCIe 1.0 through 5.0 speeds and x1, x2, x4, x8 and x16 link-widths. The card will operate at the highest common speed shared between the slot and the card (PCIe 5.0) and the widest common link-width (x16).

- PCI Express Base Specification, Rev. 5.0.
- PCI Express CEM Specification, Rev. 5.0.
- PCI Express CopprLink specification 1.0
- PCI Express 5.0 128 GT/s per lane signaling – 512 GT/s total signaling.
- PCI Express 5.0 x16 edge connector. The card can be installed in any PCI Express slot that has a physical x16 connector.
- Compliant with PCI Express 1.0 through 5.0 computers and IO systems, auto detection.
    - The MXH572 supports transparent connections to IO systems (Host and Target operation).
    - Single CDFP cable connector
    - Durability max total 250 mating cycles
- Cable port configuration
    - One x16
- Microchip Switchtec PM50036 PFX PCI Express 5.0 chipset.
- 100-nanosecond cut-through latency port to port.
- Cable port power to support active optical cables.
- Low profile, Half-length - PCI Express Electromechanical Specification, Rev 5.0.
    - Dimensions 167.65mm (6.600 inches) x 68.90 mm (2.713 inches).
- Comes with both a low profile and a full-height profile PCI Express bracket.
- Host clock isolation. Automatic support for host running CFC or SSC mode.
- Prepared for SRIS clocking.
- VAUX powered board management controllers for flexible configuration and cable management.
- Flash recovery option. PFX Multiconfiguration support.
- Maximum power ratings:
    - 12V: 2.8A (no port power)
    - 12V: 4.0A (max port power)
    - 3.3V: Not connected
    - 3.3V Vaux: 100mA
- Typical power ratings:
    - 12V: 2.5A (Copper Cable)
    - 12V: 3.5A (AOC)
    - 3.3V: Not connected
    - 3.3V Aux:100mA
- Cable port power ratings
    - 12V (11V-13V): 1.0A Max (12W)
    - 3.3V (3.2V-3.4V): 1.5A Max (5W)
- Operating Temperature: 0°C - 45°C (32°F - 131°F)
- Relative Humidity: 5% - 95% (non- condensing)
- CE, EFUP 50, FCC and KCC markings

MTBF by Temperature and Environment

The MTBF (in hours) for the MXH572 is listed in the table below. The numbers are calculated using the Telcordia SR-332(2016) standard.

Ambient Temperature [°C]	Environment		
	Ground Fixed, Controlled (GB)	Ground Fixed, Uncontrolled (GF)	Ground Mobile (GM)
0	10.372.583	6.915.055	5.186.292
5	8.555.784	5.703.856	4.277.892
10	6.957.974	4.638.649	3.478.987
15	5.583.317	3.722.211	2.791.659
20	4.426.032	2.950.688	2.213.016
25	3.471.535	2.314.357	1.735.768
30	2.698.859	1.799.239	1.349.429
35	2.083.451	1.388.967	1.041.725
40	1.599.944	1.066.629	799.972
45	1.224.251	816.167	612.125
50	934.820	623.213	467.410
55	713.254	475.503	356.627
60	544.377	362.918	272.189

Table 1: MXH572 MTBF vs. Temperature for GB, GF, and GM Environment

The MTBF (in hours) for the MXH572F is listed in the table below. The numbers are calculated using the Telcordia SR-332(2016) standard.

Ambient Temperature [°C]	Environment		
	Ground Fixed, Controlled (GB)	Ground Fixed, Uncontrolled (GF)	Ground Mobile (GM)
0	12.726.532	8.484.355	6.363.266
5	10.607.829	7.071.886	5.303.914
10	8.730.803	5.820.535	4.365.402
15	7.099.399	4.732.932	3.549.699
20	5.708.251	3.805.501	2.854.126
25	4.543.637	3.029.091	2.271.819
30	3.585.090	2.390.060	1.792.545
35	2.808.090	1.872.060	1.404.045
40	2.186.552	1.457.702	1.093.276
45	1.694.915	1.129.944	847.458
50	1.309.588	873.059	654.794
55	1.009.784	673.189	504.892
60	777.818	518.546	388.909

Table 2: MXH572F MTBF vs. Temperature for GB, GF, and GM Environment

Packaging

The MXH572 includes the following components.

- MXH572 Adapter Board with full height profile PCIe bracket mounted
- Low profile PCIe bracket
- Anti-static bag
- Getting started guide with serial number for downloading the optional Dolphin Board Management software

Pre-Installation Questions

Certain steps should be taken prior to installing the MXH572. You should determine the following configuration requirements.

- Which PCIe slot and system will the card be installed in?
- Will the board act as a host adapter or target adapter?
- What is the speed and link width of the slot that the card will be installed in?
- What is the operating environment in which the card will be installed?
- What type and length of cables will be used?
- How to establish proper operational conditions, temperature, and airflow.

PCIe Slot Determination

The MXH572 supports PCIe 1.0 through 5.0 speeds and x1, x2, x4, x8, and x16 link-widths. The slot width and speed will affect the card's performance. The card is compatible with x16 slots and can also be physically installed in open-ended x4 or x8 slots. The card will auto-configure the slot speed and width.

- Install the board in a slot connecting directly to the CPU for optimal shared memory performance.
- Install the board behind a PCIe switch in the IO system for optimal PCIe peer-to-peer performance (e.g., between GPUs and FPGAs)

MXH572 Host / Target Configuration

The MXH572 can act as either a host adapter or a target adapter. The MXH572 has a DIP switch bank to control these functions. The DIP switch labeled is located nearthe upper edge of the board. The main configuration options are host or target operations . The default DIP switch setting is transparent host x16 operations. Backplanes requires different settings, please carefully read the users guide for the backplane being used to determine the required MXH572 settings.

Airflow - Operating Environment

required airflow is present. When using the MXH572 in office cabinets with inadequate cooling, especially alongside other high-power PCIe devices, such as GPUs without active cooling, extra caution is necessary.

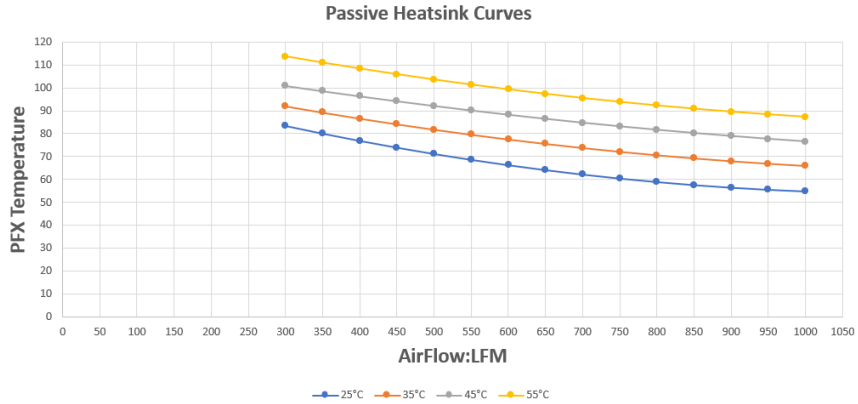
Operating Temperature: 0°C - 45°C (32°F - 131°F)
Operating Temperature with AOC: 0°C - 30°C (32°F - 86°F)

The MXH572F features a Fan heat sink, enabling the card to operate in low-airflow environments. The fan will automatically adjust its speed based on the board's temperature sensors.

PLEASE note: The fan will stop if the PCIe switch temperature is below 55°C (131°F).

MXH572 Passive Heatsink Performance

The table below is relevant for the MXH572 card

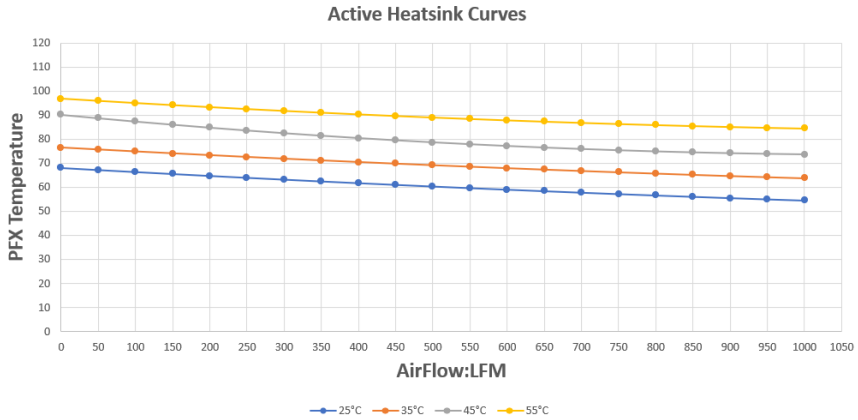


The chart shows PCIe switch temperature versus airflow (LFM) for ambient conditions of 25°C, 35°C, 45°C, and 55°C.

- Higher airflow reduces the PCIe switch temperature across all ambient conditions.
- At 300 LFM, the PCIe switch temperature ranges from ~82°C (25°C ambient) to ~115°C (55°C ambient).
- Cooling improvement diminishes above 800 LFM, indicating a performance plateau.
- Ensure airflow is sufficient for high temperature-ambient environments; passive cooling alone may not meet thermal limits at 45°C+ without >700 LFM.

MXH572F Active Heatsink Performance

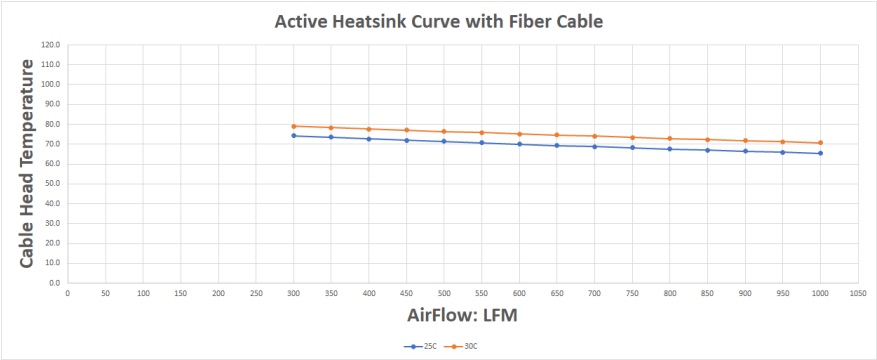
The table below is relevant for the MXH572F card



- Active cooling significantly lowers PCIe switch temperature compared to passive solutions.
- At 300 LFM, PCIe switch temperature ranges from ~68°C (25°C ambient) to ~98°C (55°C ambient).
- Temperature reduction with airflow is less steep than passive cooling, as the fan provides baseline airflow.

MXH572F Active Heatsink Performance with Fiber Cables

The table below is relevant for the MXH572F card with Fiber Cables



- The Fiber head temperature should be kept below 70°C for best performance and lifetime. The fiber will shut down at 85°C.
- 600 LFM, is the minimum internal airflow requirement when using fiber cables.
- Providing airflow over the cable head will improve the thermal profile further.
- Should strongly be considered when using fiber optic cables.

TIP: Please use the dis_diag tool immediately after installing the software to verify the temperature. If dis_diag indicates that the chip temperature exceeds 95°C, or the fiber temperature exceeds 70°C it is advisable to improve airflow as a precautionary measure. When used with MXH572F, dis_diag will also show the fan speed.

Summary: Passive vs Active Heatsink

- **Active heatsink provides better thermal performance** than passive across all airflow and ambient conditions.
- At **300 LFM**, active cooling is ~15°C lower than passive.
- Both solutions show diminishing improvements above **700–800 LFM**.
- Active cooling is recommended in many cases when using fiber optics.

Recommendation: Use active cooling for ambient temperatures at ≥45°C; passive cooling may suffice at lower ambient temperatures with airflow ≥300 LFM. Please pay extra attention if you are using fiber optic cables.

Thermal shutdown

The MXH572 card includes overheating protection. The BMC will automatically shut down the MXH572 card if the PCIe switch temperature exceeds 105°C (221°F). Similarly, if an AOC is plugged in, the MXH572 card will automatically shut down if the max operating temperature announced by the connected AOC is violated by 15°C (59°F). Please consult the AOC data sheet for details.

NOTE: The MXH572 link LED will start flashing yellow when an overheating situation is detected.

NOTE: The automatic shutdown can be disabled by setting DIP-Switch 6 ON. Before disabling automatic shutdown, please ensure proper airflow is established.

NOTE: Operating the card or AOC above the maximum specified operating temperature will void the warranty.

NOTE: If the card shuts down due to overheating, you must improve the cooling before fully powering the system and cycling it.

Cable Connections

The MXH572 cable port is compliant to the PCI-SIG CopprLink 1.0 Specification. One x16 cables is needed for full PCIe x16 connectivity. Qualified CopperLink 1.0 compliant copper and fiber cables are available from Dolphin.

NOTE: If you are not buying cables from Dolphin, please ensure the cable is compliant to the CopprLink 1.0 specification.

NOTE: Some “CDFP cables” available on the market have a through-the-cable wire connection for the 12V CDFP supply – this is a violation of the CopprLink 1.0 specification and can cause problems. Use of non-compliant cables will void the warranty.

PCI Express 5.0 Cables

When used with cables compliant to the new PCI-SIG CopprLink 1.0 specification, the MXH572 card will initialize CMI communication to the link partner. The card can be connected to an MXH572 in Target mode or any PCIe device compliant to the new cable standard.

Active Optical PCIe Cables (AOC)

Dolphin offers active optical PCIe fiber cables for the MXH572 card. Please note: Long fiber optic cables will affect latency and throughput. Each meter adds 4-5 nanoseconds of latency.

CMI Functionality

The MXH572 BMC firmware release 3.7 and the newer supports the following CMI operations:

- Publishes card and CMI status information in a readable memory map

- Supports sending and receiving CMI reset, wake and power status messages
- Supports receiving indicators (LED/messages).

Installation

Step 1 - Unpack board

The MXH572 card is shipped in an anti-static bag to prevent static electricity damage. The card should only be removed from the bag after ensuring that anti-static precautions are taken. Static electricity from your clothes or work environment can damage your PCI Express adapter card or your PC. Always wear a grounded anti-static wrist strap while opening the PC and when the MXH572 is removed from the anti-static bag.



Unpack the MXH572 from the anti-static bag using proper anti-static procedures.

Step 2 - Change PCIe Bracket if necessary

The MXH572 package includes a standard and low-profile PCI Express bracket. By default, the standard height bracket is installed on the board. If you need to replace the mounted bracket with a low-profile bracket, carefully unscrew the two mounting screws to remove the full height bracket. Save the two mounting screws and replace the bracket with the low-profile bracket. Use the two mounting screws to install the low-profile bracket. The screws should be carefully tightened but be careful not to overtighten. Make sure you are properly grounded to avoid static discharges that may destroy the adapter card before performing this procedure.

Step 3 - Configure the Board for Proper Operation

Set the DIP switch settings for proper operation depending on the firmware. Please refer to the section Configuration and DIP Switches on page 13 for details.

Step 4 - Ensure proper Airflow

Please pay close attention to ensure that the selected server/slot position provides the minimum required airflow.

TIP: Please use the dis_diag tool immediately after installing the software to verify the temperature. If dis_diag indicates the chip temperature exceeds 95°C, increase airflow as a precaution.

NOTE: Operating the card or AOC above the maximum specified operating temperature will void the warranty.

Step 5 - Install the Adapter Card

Before installing the adapter card, make sure you are properly grounded to prevent static discharges that could damage your computer or the adapter card. Ensure you are properly grounded before opening your computer or the anti-static bag containing the MXH572. Please follow your computers or expansion chassis manual on how to install a PCI Express card.



The MXH572 Adapter card can be installed into any PCI Express x16 slot. The MXH572 supports PCIe 1.0 through 5.0 signaling.
NOTE: A PCIe 5.0 slot is recommended as it typically doubles the performance compared to a PCIe 4.0 slot. The MXH572 is an x16 card, so maximum performance will only be attained if the slot provides full electrical x16 signaling.
The MXH572 supports hosts that use either spread-spectrum or constant-frequency clocking. The card implements clock isolation.

Step 6 - Installing and Removing the Cable

Installing and removing cables should be done with both host and expansion system powered off. Please contact your Dolphin representative if you intend to continuously connect and disconnect the PCI Express cables.

Connecting the Cable

Please carefully install the cable connector into the connector housing on the MXH572 adapter card. To install the cable, match the cable house with the connector on the MXH572 adapter card. Use even pressure to insert the connector until it is secure. Adhere to ESD guidelines when installing the cables to prevent damage to the board.

Cable stain relief

Strain-relief on PCIe cables are important to protect the PCIe card from fatigue loading and damage. The cable should be mechanically connected to the rack or cabinet. This is especially important for long heavy cables and cables going between cabinets and racks.

Supported cable lengths

The MXH572 supports both copper and active optical PCIe cables (AOC). Maximum lengths between a MXH572 card and other Dolphin products can be found in Table 3 below.

Cable - SKU	Speed	Device	Device	Distance
PCPR5C-444	PCIe 5.0	MXH572	MXH570, MXH572	Up to 3 meters
PCPR5FC-444	PCIe 5.0	MXH572	MXH570, MXH572	Up to 30 meters (50 and 100 meters being qualified)
PCPR5PC-44	PCIe 5.0	MXH572	MXH570, MXH572	Up to 30 meters (50 and 100 meters being qualified)

Table 3: Cable Specifications

Disconnecting the Cable

Please carefully pull the release tab to release the cable from the locking latches and gently pull the cable out of the connector guides.

Step 7 - Installing the Dolphin Board Management Software

The MXH572 adapter card comes with a perpetual license for the Dolphin's Board Management software. Please visit www.dolphinics.com/mx to register and download the latest documentation and software. For your operating system, follow the quick installation guide on the website listed above to install the software.

The MXH572 is supported by Dolphin software DIS 5.25.2 or later.

Downloading the software

The software download requires a password to log in. To receive the password, register at

www.dolphinics.com/support/download-register-mx.html

The password will be emailed to you automatically if you register at the link above and type in the MX Software and Documentation Access code / Serial number found on the getting-started document bundled with the adapter card.

Note: If you do not provide the correct MX software and Documentation access code / serial number listed in the Getting Started document, you will not be able to download the software. Please file a Support ticket at www.dolphinics.com/CSP if the Getting Started Document has been lost.

After receiving the password by email – you can download the software from

www.dolphinics.com/support/index_support_mx.html

Step 8 - Verify Installation & LEDs

The MXH572 comes with 4 RGB LEDs which show the corresponding cable port status according to Table 4: LED below.
The LEDs are visible through cut-outs in the PCIe bracket on each side of the cable connector block.

LED color	Function
Off	No cable installed
Yellow	Cable installed; no link
Yellow blink	Link reset
Red blinking	Temperature overheat warning, please immediately improve cooling to avoid thermal damage or system shutdown
Green	Cable installed; link operational
Green blinking (slow)	Link operating at lower speed or reduced link width

Table 4: LED behavior

Configuration and DIP Switches

The standard use case for the MXH572 is to create transparent PCIe expansion system – a host having a MXH572 installed, connecting to another MXH572 in Target mode in one of Dolphins eBox expansion products, or connecting to a 3rd party device compliant to the PCI-SIG CopprLink 1.0 specification.

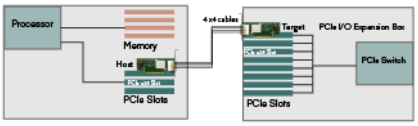


Figure 1 Basic use case

The MXH572 has one bank of 8 DIP switches. The default factory setting for the MXH572 is Transparent Host mode, x16 link connection.

The MXH572 has DIP switches for setting special modes or operations, the meaning of each DIP switch depends on the loaded firmware. Please carefully read the documentation shipped with the card before modifying any DIP switch settings. Please pay close attention to ON and OFF positions written on the DIP switch.

DIP Switches

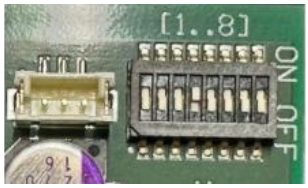


Figure 2: DIP Switch shows the DIP switch for the MXH572. It is used to configure the adapter card. Please leave all undocumented DIP switches in the default position. Table 5: DIP Switch settings shows all the various DIP switch settings for the MXH572.

DIP no.	Description	ON	OFF	Default
1-5	Configuration DIP switch selector, details below			OFF
6	Thermal Shutdown Disable.	Will disable thermal shutdown	Card will shut down on thermal overheat	OFF
7	Holds the management processors in reset. Do NOT ACTIVATE without instructions from Dolphin.	Board management is held in reset	Normal operation	OFF
8	Do NOT ACTIVATE without instructions from Dolphin.	Do not activate without instructions from Dolphin	Normal operation	OFF

Table 5: DIP Switch settings

NOTE: DIP switch configuration options may be changed in future versions. Please always consult the latest version of the MXH572 User Guide for details. The table above is valid for BMC version 3.5

Thermal shutdown

The MXH572 card includes overtemperature overheat protection. The BMC will automatically shut down the MXH572 card if a PCIe switch temperature beyond 105°C (221°F) is detected. Similarly, if an AOC is plugged in, the MXH572 card will automatically shut down if the max operating temperature announced by the connected AOC is violated by 15°C (59°F). Please consult the AOC data sheet for details.

NOTE: The MXH572 link LEDs will start flashing yellow when a PCIe switch temperature of 95°C (203°F) is reached or when the AOC has reached the max operating temperature. Please consult the AOC data sheet for details.

NOTE: The automatic shutdown can be disabled by setting DIP-Switch OPT6. Prior to disabling the automatic shutdown, please ensure you have established proper airflow. Operating the card or AOC above the maximum specified operating temperature will void the warranty.

NOTE: If the card shuts down due to an overtemperature situation – you must improve the cooling before completely power cycling the system.

Configuration DIP switch Selector

DIP switch 1-5 is used to select the onboard firmware load enabling various use cases described below.

NOTE: The following configurations are available with BMC firmware 3.9 and newer. Please consult the MXH572 Firmware Release Note for details.

MXH572 installed into Host

One MXH572 is installed in the Host. Cables connecting to a Dolphin eBox 4 / eBox 4 Pro or a general Transparent IO Expansion system. MXH572 DIP switches for the card installed in the Host should be set as specified in the table below. Target operation use cases with Dolphin's series of eBox expansion systems are described in the sections below. Please contact Dolphin if you would like to utilize a Transparent Target operation in a 3rd party device.

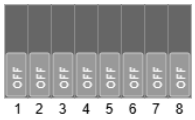
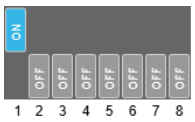
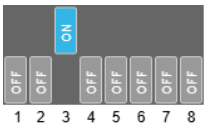
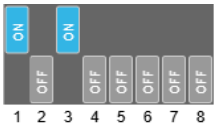
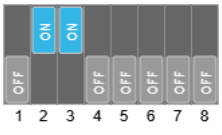
MXH572 Use case	DIP switch setting	DIP view
Transparent Host connecting to transparent IO system PCI-SIG Hot-Plug enabled	All off	
Transparent Host connecting to transparent IO system PCI-SIG Hot-Plug disabled	DIP 1: ON	

Table 6: MXH572 Host DIP switch settings

MXH572 installed into eBox 4 Expansion

A MXH572 card can be used with any of the passive backplanes available with the eBox 4 expansion systems. The hosts must have a MXH570 or MXH572 depending on if you would like to utilize Hot-Add or standard transparent operation. Please consult the eBox 4 Users Guide for more details. MXH572 DIP switches should be set as specified in the table below.

MXH572 Use case	DIP switch setting	DIP view
MXH572 installed in eBox 4 Expansion chassis / IBP-G5X16-2 uplink slot Single x16 target configuration for use with IBP-G5X16-2 (Please note revision 1.2 of the IBP-G5X16-2 is required)	DIP 3: ON	
MXH572 installed in eBox 4 Expansion chassis / IBP-G5X16-3 uplink slot Dual x8 target configuration, for use with an IBP-G5X16-3	DIP 1: ON DIP 3: ON	
MXH572 installed in eBox 4 Expansion chassis / IBP-G5X16-5 uplink slot	DIP 2: ON DIP 3: ON	

Quad x4 target configuration for use with an IBP-G5X16-5		

Table 7: eBox 4 Expansion DIP switch settings

MXH572 installed into eBox 4 Pro Expansion

A MXH572 card can be used with the eBox 4 Pro Expansion systems. The hosts must have a MXH570 or MXH572 depending on if you would like to utilize Hot-Add or standard transparent operation. Please consult the eBox 4 Pro Users Guide for more details. MXH572 DIP switches should be set as specified in the table below.

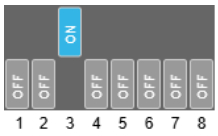
MXH570 Use case	DIP switch setting	DIP view
MXH572 installed in eBox 4 Pro Expansion Uplink slot. Please consult the eBox 4 Pro users guide to select the appropriate configuration setting and slot.	DIP 3: ON	

Table 8: eBox 4 Pro Expansion DIP switch settings

Support and maintenance

EEPROM and Firmware Upgrade

The MXH572 design uses a microcontroller to implement the PCIe CMI protocol and other maintenance functions. Dolphin may from time to time publish updated firmware for the Board Management Controller (BMC), PCIe switch or EEPROM data for the card.

WARNING: Please note that standard Microchip tools (ChipLink) cannot be used to upgrade the firmware as this will violate the warranty. Please contact Dolphin for instructions on how to upgrade the MXH572 firmware.

Note: Please consult the MXH572 Firmware Release Note for details on supported configurations.

The MXH572 Firmware Release Note can be found under the "DOCUMENTATION DOWNLOAD" button at www.dolphinics.com/MX. Please note you need the same password as you do to download the Board Management Software. More details can be found in Step 7 - Installing the Dolphin Board Management Software at page 12.

Identifying the Card

The card has a label-sticker with the serial number in the format 'MXH572-YY-ZZZZZZ', where YY denotes the card revision (e.g. BB) and ZZZZZZ denotes the serialized production number (e.g. 012345) – this whole string makes up the serial number of the card (i.e. MXH572-AB-012345).

You can also get this information using lspci in Linux:

First, identify the devices for the Dolphin Host card:

```
# lspci | grep "Device 5036"

01:00.0 PCI bridge: PMC-Sierra Inc. Device 5036
01:00.1 Bridge: PMC-Sierra Inc. Device 5036
02:00.0 PCI bridge: PMC-Sierra Inc. Device 5036
```

Then run lspci and identify the card. It will show up as something like

Second, do

```
# lspci -s 1:0.0 -v | grep -E "Subsystem|Serial"
        Capabilities: [a4] Subsystem: Dolphin Interconnect Solutions AS Device 0572
        Capabilities: [100] Device Serial Number 00-00-41-43-00-00-00-ff
```

```
# lspci -s 1:0.0 -v
01:00.0 PCI bridge: PMC-Sierra Inc. Device 5036 (prog-if 00 [Normal decode])
        Flags: bus master, fast devsel, latency 0, IRQ 122
        Bus: primary=01, secondary=02, subordinate=03, sec-latency=0
        I/O behind bridge: 00002000-00002fff
        Prefetchable memory behind bridge: 00000000c8000000-00000000c81fffff
        Capabilities: [40] Express Upstream Port, MSI 00
        Capabilities: [7c] MSI: Enable+ Count=1/8 Maskable- 64bit+
        Capabilities: [8c] Power Management version 3
        Capabilities: [94] Subsystem: Dolphin Interconnect Solutions AS Device 0572
        Capabilities: [100] Advanced Error Reporting
        Capabilities: [148] Power Budgeting <?>
        Capabilities: [158] #12
        Capabilities: [188] #19
        Capabilities: [1b4] Device Serial Number 00-00-41-43-00-00-00-24
        Capabilities: [1c0] Latency Tolerance Reporting
        Capabilities: [1c8] Access Control Services
        Capabilities: [1f0] #25
        Capabilities: [1fc] #26
        Capabilities: [23c] #27
        Capabilities: [7f8] Vendor Specific Information: ID=ffff Rev=1 Len=808 <?>
        Kernel driver in use: pcieport
        Kernel modules: shpchp
```

This shows the card as revision 0x4143 (hexadecimal values of the 'AC' letters in the ASCII table), with the production number 0x000000ff (00000255 in decimal).

Support

More information about the product, support and software download can be found at www.dolphinics.com/mx.
For general support questions, please contact Dolphin via the Jira Service Management portal: www.dolphinics.com/csp.

Technical Information

Board revision history

The following table gives a general overview of the hardware revision history. Please consult the MXH572 PCN available from Dolphin for details.

Adapter card revision	Capabilities
MXH572-AA	• Initial version
MXH572-BC	• First product release version

MXH572 Reset Implementation

The MXH572 card is implemented to the PCI-SIG CopprLink 1.0 specification and support both the #perst sideband line as well as CMI over the I2C lines. The MXH572 will transfer the reset over CMI if the downstream partner responds to the CMI protocol and fall back to using the #PERST if not.

MXH572 PCIe x16 Edge Connector Pinout

The MXH572 Edge connector follows PCI Express CEM Specification, Rev. 5.0 section 6 – Card Connector Specification. Signal names are shown in Table 9. In host mode, the MXH572 is PCI-SIG compliant. The signals in **bold** are bi-directional, where the direction depends on if the card is configured for host or target mode. The MXH572 is always expected to receive a 100 MHz reference clock (SSC or CFC) on the REFCLK+/REFCLK- pins (both host and target mode).

Pin	Side B	Note	Side A	Note
1	+12		PRSNT1#	
2	+12		+12	
3	+12		+12	
4	GND		GND	
5	SMCLK	BMC	TCK	NC
6	SMDAT	BMC	TDI	NC
7	GND		TDO	NC
8	+3,3V	PWR	TMS	NC
9	TRST#	NC	+3,3	PWR
10	+3,3V aux	Standby	+3,3	PWR
11	**WAKE#**	Wake up	**PERST#**	Reset
12		NC	GND	
13	GND		REFCLK+	Ref clock +
14	PERp0		REFCLK-	Ref clock -
15	PERn0		GND	
16	GND		PETp0	
17	PRSNT2#		PETn0	
18	GND		GND	
19	PERp1			NC
20	PERn1		GND	
21	GND		PETp1	
22	GND		PETn1	
23	PERp2		GND	
24	PERn2		GND	
25	GND		PETp2	
26	GND		PETn2	
27	PERp3		GND	
28	PERn3		GND	
29	GND		PETp3	
30		NC	PETn3	
31	PRSNT2#		GND	
32	GND			NC
33	PERp4			NC

Pin	Side B	Note	Side A	Note
34	PERn4		GND	
35	GND		PETp4	
36	GND		PETn4	
37	PERp5		GND	
38	PERn5		GND	
39	GND		PETp5	
40	GND		PETn5	
41	PERp6		GND	
42	PERn6		GND	
43	GND		PETp6	
44	GND		PETn6	
45	PERp7		GND	
46	PERn7		GND	
47	GND		PETp7	
48	PRSSNT2#		PETn7	
49	GND		GND	
50	PERp8		NC	
51	PERn8		GND	
52	GND		PETp8	
53	GND		PETn8	
54	PERp9		GND	
55	PERn9		GND	
56	GND		PETp9	
57	GND		PETn9	
58	PERp10		GND	
59	PERn10		GND	
60	GND		PETp10	
61	GND		PETn10	
62	PERp11		GND	
63	PERn11		GND	
64	GND		PETp11	
65	GND		PETn11	
66	PERp12		GND	

Pin	Side B	Note	Side A	Note
67	PERn12		GND	
68	GND		PETp12	
69	GND		PETn12	
70	PERp13		GND	
71	PERn13		GND	
72	GND		PETp13	
73	GND		PETn13	
74	PERp14		GND	
75	PERn14		GND	

Pin	Side B	Note	Side A	Note
76	GND		PETp14	
77	GND		PETn14	
78	PERp15		GND	
79	PERn15		GND	
80	GND		PETp15	
81	PRSNT2#		PETn15	
82		NC	GND	

Table 9: PCIe Edge Connector Pinout

Compliance and Regulatory Testing

EMC Compliance

The Dolphin PCI Express MXH572 adapter has been tested to PASS the following relevant test standards for PCI Express cards, telecommunication and industry equipment installed in a standard PC:

- EN 55032:2015 + A11:2020
- EN 55035:2017 + A11:2020
- EN 61000-3-2:2014
- EN 61000-3-3:2013
- 47 CFR Part 15, Subpart B last amended 2025-09-17 excluding clause
- 15.105, in conjunction with ANSI C63.4:2014
- ICES-003, issue 7 excluding clause 4.2 in conjunction with ICES-Gen, Issue
- 2 and ANSI C63.4-2014 amended as per ANSI C63.4a:2017
- KS C 9832:2024(CISPR 32:2015 + COR1:2016 + AMD1:2019)
- KS C 9835:2019(CISPR 35:2016)

This does not ensure that it will comply with these standards in any random PC. It is the responsibility of the integrator to ensure that their products are compliant with all regulations regarding where their product will be used.

FCC Class A

This equipment has been tested and found to comply with the Class A digital device limits under Part 15 of the FCC Rules.

RoHS Compliance

The Dolphin MXH572 is RoHS compliant. A Compliance certificate issued by the manufacturer is available upon request.

KCC Certificate

Dolphin MXH572 bears the KCC certification mark, demonstrating compliance with applicable regulatory requirements. A valid Certificate of Compliance has been issued for this product.

EFUP China RoHS

The number of years during which the Dolphin MXH572 can be used under normal conditions without hazardous substances causing environmental pollution or harm to human health, in accordance with China RoHS.

WEEE Notice

The adapter card is labelled in accordance with European Directive 2002/96/EC concerning waste electrical and electronic equipment (WEEE). The Directive establishes the framework for the return and recycling of used appliances, applicable across the European Union. This label is applied to products to indicate that they should not be discarded but returned to your local approved WEEE waste collector.

Declaration of Conformity

A separate Declaration of Conformity document for the adapter card is available for download.

Limited Warranty

Dolphin Interconnect Solutions warrants this product to be free from manufacturing defects under the following terms:

Warranty Period

The warranty applies for one (1) year from the date of purchase. Extended warranty is available.

Coverage

To the extent permitted by applicable law, this warranty does not apply to:

- Damage caused by operator error or non-compliance with instructions available for the product.
- Use or attempt to use or program firmware not approved by Dolphin.
- Damage due to accidents, abuse, misuse, improper handling or installation, moisture, corrosive environments, high voltage surges, shipping, or abnormal working conditions.
- Damage caused by acts of nature, e.g. floods, storms, fire, or earthquakes.
- Damage caused by any power source out of range or not provided with the product.
- Normal wear and tear.
- Attempts to repair, modify, open, or upgrade the product by personnel or agents not authorized by Dolphin.
- Products for which the serial number label has been tampered with or removed.
- Damage to the product caused by products not supplied by Dolphin.

Service Procedure

In the event that the product proves defective during the Warranty Period, you should contact the seller that supplied you with the product, or if you purchased it directly from Dolphin, visit www.dolphinics.com/csp to obtain a valid RMA number and instructions. Products returned to Dolphin without a proper RMA number will not be serviced under this warranty.