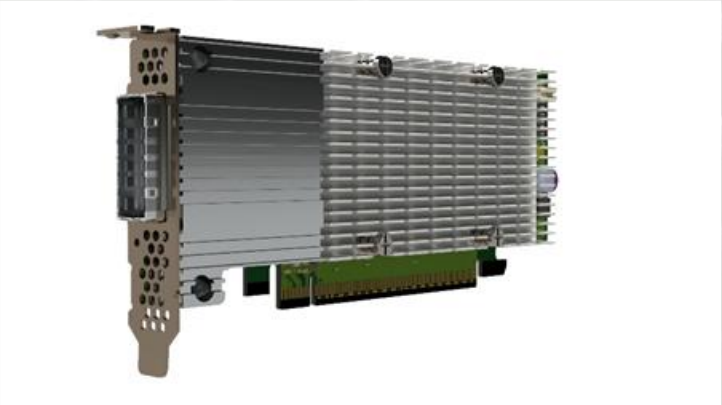
Dolphin PCI Express MXH570 Adapter



MXH570 NTB Adapter Users Guide

Version 3.1

Date: October 29th, 2026

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Scope

This version of the MXH570 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 MXH570 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 MXH570 has one x16 CDFP port.

Introduction

This manual covers the MXH570 and MXH570F PCIe 5.0 x16 CDFP NTB Host adapter card available from Dolphin. The MXH570 and MXH570F models are identical, except that the MXH570F incorporates an active heat sink fan to support use cases with low airflow. Please consult the section Airflow - Operating Environment for more information. MXH570 is used throughout the remaining document to cover both models except for details related to the MXH570F.

MXH570 High-Level Specification

The MXH570 is a low-profile, half-length PCIe adapter supporting various NTB configurations. Once installed in any server's or PC's PCI Express compliant slot, an MXH570 can connect to another MXH570 or MXH572. The MXH570 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) 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 is 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
- Support cables compliant to the PCI-SIG CopprLink 1.0 specification
    - Single CDFP cable connector
    - Durability max total 250 mating cycles
- Cable port configuration
    - One x16
- Microchip Switchtec PM50036 PFX PCI Express 5.0 chipset with DMA
- Pre-loaded NTB configurations, DIP switch selectable
- 100-nanosecond cut-through latency port to port
- Low profile, Half-length - HHHL
    - Dimensions 167.65mm (6.600 inches) x 68.90 mm (2.713 inches).
- Comes with both low-profile and standard-profile PCI Express brackets.
- Host clock isolation. Automatic support for a host running CFC or SSC mode.
- 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 MXH570 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: MXH570 MTBF vs. Temperature for GB, GF, and GM Environment

The MTBF (in hours) for the MXH570F 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: MXH570F MTBF vs. Temperature for GB, GF, and GM Environment

Packaging

The MXH570 includes the following components:

- MXH570 Adapter Board with full-height profile PCIe bracket mounted.
- Low-profile PCIe bracket.
- Anti-static bag.
- Getting started guide with serial number for quick Dolphins eXpressWare PCIe software download.

Pre-Installation Questions

Specific steps should be taken before installing the MXH570. You should determine the following configuration requirements:

- Which PCIe slot and system will the card be installed in?
- 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 MXH570 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)

TIP: After installing the eXpressWare software, run the “sisci_benchmarks” benchmark suite to verify the expected performance. Please contact Dolphin support if you need assistance to achieve the expected performance.

MXH570 Configuration

The MXH570 has a DIP switch bank to control the card's main configuration. The DIP switch is located near the upper edge of the board. The default DIP switch setting is single-link x16 NTB operations. Alternative configuration settings are listed in the chapter **Error! Reference source not found.** on page **Error! Bookmark not defined.**.

Airflow - Operating Environment

To maximize the product's lifespan and maintain the warranty, please adhere to the specified operating temperature and ensure the required airflow is present. When using the MXH570 in office cabinets with inadequate cooling, especially alongside other high-power PCIe devices, such as GPUs without active cooling, extra caution is necessary.

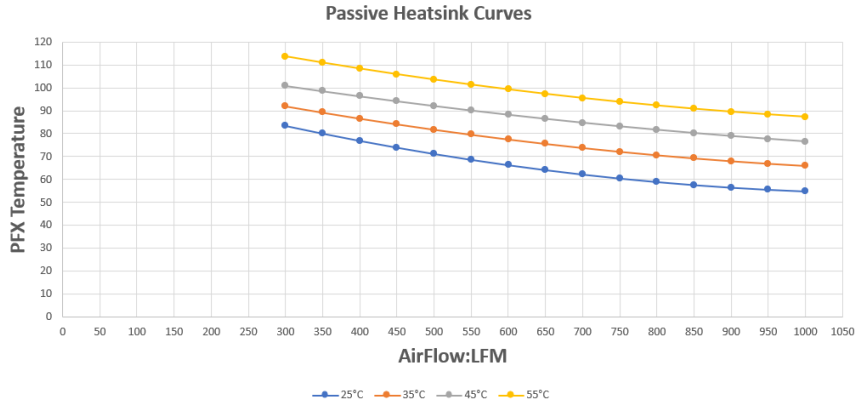
Operating Temperature: 0°C - 45°C (32°F - 131°F)
Operating Temperature with AOC: 0°C - 30°C (32°F - 86°F)

The MXH570F 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).

MXH570 Passive Heatsink Performance

The table below is relevant for the MXH570 card

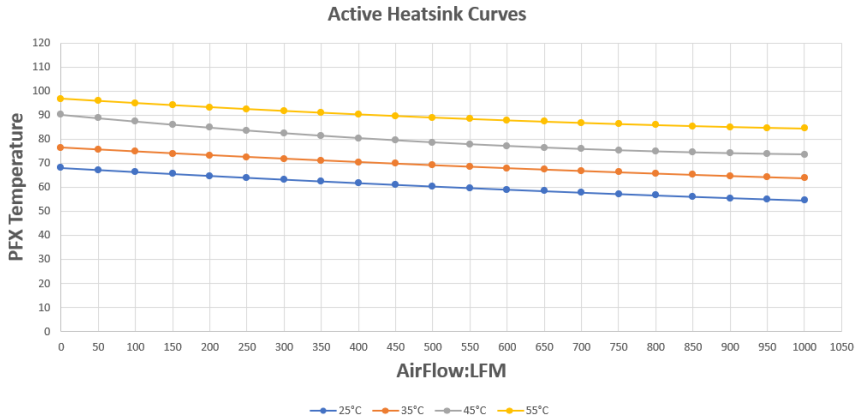


The chart shows PCIe switch temperature versus airflow (LFM) for ambient conditions of 25°C, 35°C, 45°C, and 55°C.

- 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.

MXH570F Active Heatsink Performance

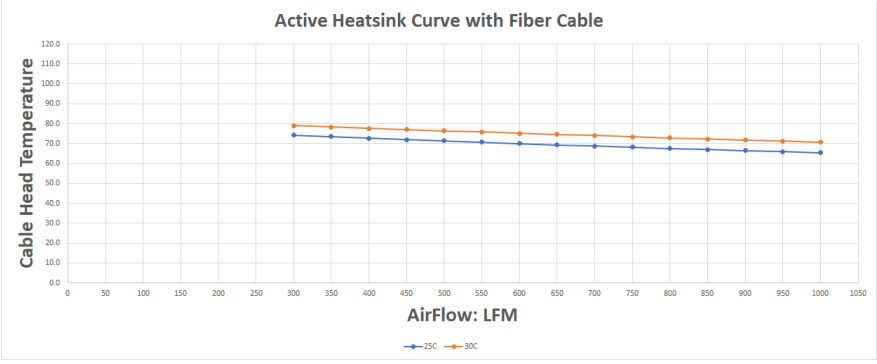
The table below is relevant for the MXH570F card



- 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.

MXH570F Active Heatsink Performance with Fiber Cables

The table below is relevant for the MXH570F card with Fiber Cables



- The Fiber head temperature should be kept below 70°C for best performance and life time. 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 MXH570F, 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 MXH570 card includes overheating protection. The BMC will automatically shut down the MXH570 card if the PCIe switch temperature exceeds 105°C (221°F). Similarly, if an AOC is plugged in, the MXH570 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 MXH570 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 MXH570 cable port is compliant to the PCI-SIG CopprLink 1.0 Specification. One x16 cable 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” on the market have a through-the-cable wire connection for the 12V CDFP supply – this violates the CopprLink 1.0 specification and can cause problems. Use of non-compliant cables will void the warranty.

Installation

Step 1 - Unpack the board

The MXH570 card ships in an anti-static bag to prevent damage from static electricity. 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 PC. Always wear a grounded anti-static wrist strap when opening the PC and when removing the MXH570 from the anti-static bag.



Unpack the MXH570 from the anti-static bag using proper anti-static procedures.

Step 2 - Change the PCIe Bracket if necessary

The MXH570 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 tightened carefully but avoid overtightening. Ensure you are properly grounded to prevent static discharge before performing this procedure, as it could damage the adapter card.

Step 3 - Configure the Board for Proper Operation

Set the DIP switch settings for proper operation, depending on the firmware version. Please refer to the section Configuration and DIP Switches on page 12 for details.

Step 4 - Ensure proper Airflow

Please ensure 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, ensure you are properly grounded to prevent static discharge that could damage your computer or the adapter card. Ensure you are grounded before opening your computer or the anti-static bag containing the MXH570. Please follow the manual on installing a PCI Express card on your computer or expansion chassis.



The MXH570 Adapter card can be installed into any PCI Express x16 slot. The MXH570 supports PCI Express 1.0 through 5.0 signaling.

NOTE: It is recommended to use a PCIe 5.0 slot, as it typically delivers twice the performance of a PCIe 4.0 slot.
The MXH570 is an x16 card, so maximum performance will be achieved only if the slot provides full electrical x16 signaling.
The MXH570 supports hosts using either spread-spectrum or constant-frequency clocking. The card implements clock isolation.

Step 6 - Installing and Removing the Cable

Both the host system and the expansion system should be powered off before installing or removing cables. Please contact your Dolphin representative if you intend to connect and disconnect PCI Express cables repeatedly.

Connecting the Cable

Please carefully install the cable connector into the connector housing on the MXH570 adapter card. To install the cable, match the cable house with the connector on the MXH570 adapter card. Use even pressure to insert the connector until it is secure. Adhere to ESD guidelines when installing the cables to ensure you don't damage the board.

Cable strain relief

Strain relief on the PCIe cables is 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 between cabinets and racks.

Supported Cables

The MXH570 supports both copper and active optical PCIe cables (AOC). Maximum lengths between a MXH570 card and other Dolphin products can be found in Table 3 below.

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

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 eXpressWare Software

The MXH570 adapter card complies with Dolphin's eXpressWare software package for the MX product line. 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.

Notice: Dolphin offers software and documentation for multiple product families; **ensure you select the MX product family before downloading**.

The MXH570 is supported by Dolphin software DIS 5.25.3 or later. For new installations, we recommend using the latest release available.

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

Note: Please consult the eXpressWare release note for detailed information on available software functionality. Please contact Dolphin for more information.

Step 7 – Verify Installation & LEDs

The MXH570 comes with 4 RGB LEDs, which show the corresponding cable port status according to Table 4: LED behavior 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	Link operating at lower speed

Table 4: LED behavior

Configuration and DIP Switches

The MXH570 has one bank of 8 DIP switches. The default factory setting for the MXH570 is an x16 NTB link connection suitable for a two-node configuration.

The MXH570 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 the ON and OFF positions written on the DIP switch.

DIP Switches

Figure 1: DIP Switch shows the DIP switch for the MXH570. It is used to configure the adapter card. Please leave all undocumented DIP switches in the default position.

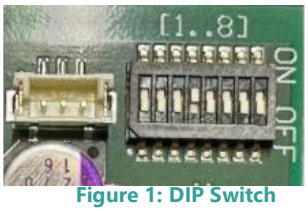


Figure 1: DIP Switch

DIP switch 1-5 is used to select the onboard firmware load. DIP 6-8 is used to set operational modes.

DIP no.	Description	ON	OFF	Default
1-5	Configuration DIP switches , details below			DIP 4: ON
6	Thermal Shutdown Disable	Will disable thermal shutdown	The card will shut down on thermal overload.	OFF
7	Holds the management processors in reset. Do NOT ACTIVATE without instructions from Dolphin.	Board management is held in reset. Do not activate without instructions from Dolphin	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 user guide for details.

Thermal shutdown Disable

The MXH570 card includes overheat protection. The BMC will automatically shut down the MXH570 card if the PCIe switch temperature exceeds 105°C (221°F) or when the AOC has reached the max operating temperature violated by 15°C (59°F). Please consult the AOC data sheet for details.

NOTE: The MXH570 link LEDs will start flashing yellow when the PCIe switch temperature reaches 95°C (203°F) or when the AOC has reached the max operating temperature.

NOTE: The automatic shutdown can be disabled by setting DIP-Switch 6. 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 Settings

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 MXH570 Firmware Release Note for details.

MXH570 Installed in a Host

2 Node Configuration – NTB Mode

Each node has an MXH570 adapter and a direct x16 cable connection to the other system. This configuration is fully supported by Dolphin eXpressWare 5.25.2 and newer. MXH570 DIP switches should be set as specified in the table below.

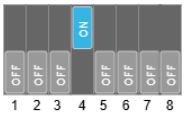
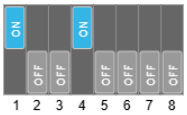
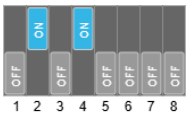
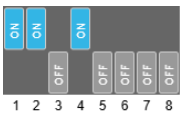
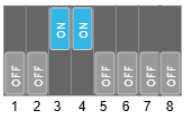
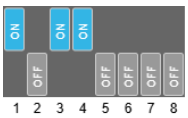
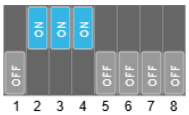
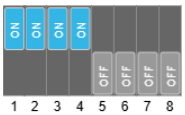
MXH570 Use case	BAR SIZE	DIP switch setting	DIP view
Two-node NTB configuration. Both systems have MXH570 installed.	256 Megabytes	DIP 4: ON	
	2 Gigabytes	DIP 1: ON DIP 4: ON	
	32 Gigabytes	DIP 2: ON DIP 4: ON	
	64 Gigabytes	DIP 1: ON DIP 2: ON DIP 4: ON	
	128 Gigabytes	DIP 3: ON DIP 4: ON	
	256 Gigabytes	DIP 1: ON DIP 3: ON DIP 4: ON	
	512 Gigabytes	DIP 2: ON DIP 3: ON DIP 4: ON	
	1 Terabytes	DIP 1: ON DIP 2: ON DIP 3: ON DIP 4: ON	

Table 6: NTB DIP switch settings

Linux SmartIO Transparent Hot-Add

The host has one MXH570 adapter and a direct x16 cable connection to the downstream transparent expansion system, e.g Dolphins eBox 4 or eBox 4 Pro. The Dolphin eXpressWare SmartIO software must be installed to enable the transparent operation of the IO device. Please consult the SmartIO documentation at docs.dolphinics.com/smartio/introduction.html for more information. MXH570 DIP switches should be set as specified in the table below.

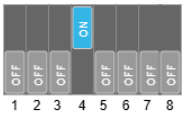
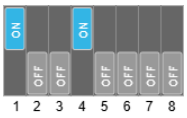
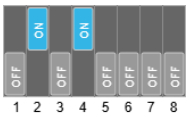
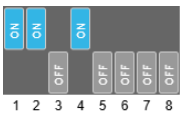
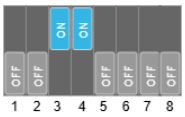
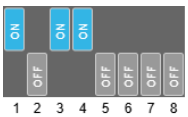
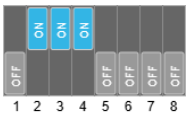
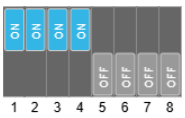
MXH570 Use case	BAR SIZE	DIP switch setting	DIP view
Single Node Linux Hot-Add MXH570 installed in Host connecting to transparent IO system	256 Megabytes	DIP 4: ON	
	2 Gigabytes	DIP 1: ON DIP 4: ON	
	32 Gigabytes	DIP 2: ON DIP 4: ON	
	64 Gigabytes	DIP 1: ON DIP 2: ON DIP 4: ON	
	128 Gigabytes	DIP 3: ON DIP 4: ON	
	256 Gigabytes	DIP 1: ON DIP 3: ON DIP 4: ON	
	512 Gigabytes	DIP 2: ON DIP 3: ON DIP 4: ON	
	1 Terabytes	DIP 1: ON DIP 2: ON DIP 3: ON DIP 4: ON	

Table 7: Linux Hot-Add DIP switch settings

Use Case Windows Hot-Add

The Windows host has one MXH570 card installed with a single x16 downstream port. It supports three different configurations for reserving BAR space as per the table below. Windows Hot-Add requires eXpressWare support, please consult the Dolphin eXpressWare documentation for more information. MXH570 DIP switches should be set as specified in the table below.

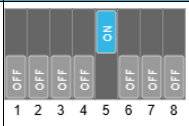
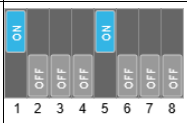
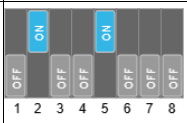
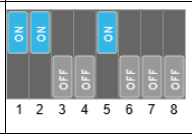
MXH570 Use case	BAR SIZE	DIP switch setting	DIP view
Single Node Linux Hot-Add MXH570 installed in Host connecting to transparent IO system	2 Gigabytes	DIP 5: ON	
	64 Gigabytes	DIP 1: ON DIP 5: ON	
	256 Gigabytes	DIP 2: ON DIP 5: ON	
	512 Gigabytes	DIP 1: ON DIP 2: ON DIP 5: ON	

Table 8: Windows Hot-Add DIP switch settings

Transparent Host mode

One MXH570 is installed in the Host connecting to a Transparent IO Expansion system or Dolphin eBox 4 / eBox 4 Pro / eBox 4 Enterprise Expansion. MXH570 DIP switches should be set as specified in the table below.

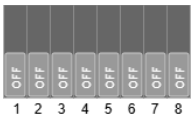
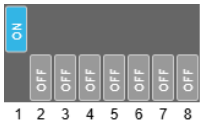
MXH570 Use case	DIP switch setting	DIP view
Transparent Host connecting to transparent IO system Hot-Plug enabled	All off	
Transparent Host connecting to transparent IO system Hot-Plug disabled	DIP 1: ON	

Table 9: Transparent Host Mode DIP switch settings

MXH570 installed in eBox 4 Pro Expansion

The MXH570 cards can be used with the eBox 4 Pro expansion system as an uplink. The host must have a MXH570 card installed and be running Dolphin eXpressWare 5.26 or newer. Please consult the eBox 4 Pro Users Guide / the MXB585 Firmware Release note for configuration details for the eBox 4 Pro. MXH570 DIP switches should be set as specified in the table below.

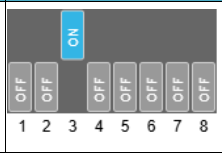
MXH570 Use case	DIP switch setting	DIP view
MXH570 installed in eBox 4 Pro Expansion chassis. Please consult the eBox 4 Pro users guide to select the appropriate configuration setting and slot.	DIP 3: ON	

Table 10: eBox 4 Pro Expansion DIP switch settings

MXH570 installed in eBox 4 Enterprise Expansion

Up to 5 MXH570 cards can be used with the eBox 4 Enterprise expansion system as uplink. If you are using two or more uplinks, the expansion system supports both host-to-host communication as well as IO sharing (eBox D-switch Expansion). The hosts must have MXH570 cards installed and be running Dolphin eXpressWare 5.25.3 or newer. Please consult the eBox 4 Enterprise Users Guide / the MXB585 Firmware Release note for configuration details for the eBox 4 Enterprise. MXH570 DIP switches should be set as specified in the table below.

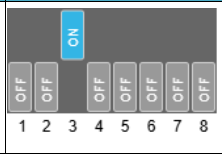
MXH570 Use case	DIP switch setting	DIP view
MXH570 installed in eBox 4 Pro Expansion chassis. Please consult the eBox 4 Pro users guide to select the appropriate configuration setting and slot.	DIP 3: ON	

Table 11: eBox 4 Enterprise Expansion DIP switch settings

MXH570 installed in eBox 4 Expansion

A MXH570 card can be used with any of the passive backplanes available with the eBox 4 expansion systems. The host must have a MXH570 or MXH572. Please consult the eBox 4 Users Guid for more details. MXH570 DIP switches should be set as specified in the table below.

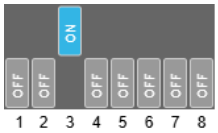
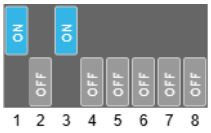
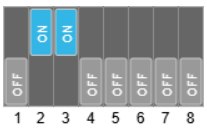
MXH570 Use case	DIP switch setting	DIP view
MXH570 installed in eBox 4 Expansion chassis / IBP-G5X16-2 uplink slot Single x16 target configuration for use with IBP-G5X16-2 (Please note revision 1.2 of the IBP-G5X16-2 is required)	DIP 3: ON	
MXH570 installed in eBox 4 Expansion chassis / IBP-G5X16-3 uplink slot Dual x8 target configuration, for use with an IBP-G5X16-3	DIP 1: ON DIP 3: ON	
MXH570 installed in eBox 4 Expansion chassis / IBP-G5X16-5 uplink slot Quad x4 target configuration for use with an IBP-G5X16-5	DIP 2: ON DIP 3: ON	

Table 12: eBox 4 Expansion DIP switch settings

Firmware Upgrade

The MXH570 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 microcontroller, PCIe switch, or the card's EEPROM.

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 upgrading the MXH570.

Note: Please consult the MXH570 firmware release note for details on supported configurations. This document is compliant with BMC version 3.7.

Identifying the Card

The card has a label-sticker with the serial number in the format 'MXH570-YY-ZZZZZZ', where YY denotes the card revision (e.g., BC) and ZZZZZZ denotes the serialized production number (e.g., 012345). This entire string makes up the card's serial number (i.e., MXH570-BC-012345).

You can also get this information using lspci in Linux:

First, identify the devices for the Dolphin Host card:

```
# lspci | grep "Device 5036"

09:00.0 PCI bridge: PMC-Sierra Inc. Device 5036
09:00.1 Bridge: PMC-Sierra Inc. Device 5036
0a:00.0 PCI bridge: PMC-Sierra Inc. Device 5036
```

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

```
# lspci -s 9:0.0 -v
09:00.0 PCI bridge: PMC-Sierra Inc. Device 5036 (prog-if 00 [Normal decode])
        Flags: bus master, fast devsel, latency 0
        Bus: primary=01, secondary=02, subordinate=03, sec-latency=0
        I/O behind bridge: 00002000-00002fff
        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 0570
        Capabilities: [100] Advanced Error Reporting
        Capabilities: [148] Power Budgeting <?>
        Capabilities: [158] #12
        Capabilities: [188] #19
        Capabilities: [1b4] Device Serial Number 00-00-42-43-00-00-00-21
        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
```

Second, do

```
# lspci -s 9:0.0 -v | grep -E "Subsystem|Serial"
        Capabilities: [a4] Subsystem: Dolphin Interconnect Solutions AS Device 0570
        Capabilities: [100] Device Serial Number 00-00-42-43-00-00-00-ff
```

This shows the card as revision 0x4243 (the hexadecimal value of the 'BC' 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. A separate product change notification (PCN) will be issued for any change to the product after the initial product version release. The PCN can be downloaded from the document download section found at www.dolphinics.com/MX

Adapter card revision	Capabilities
MXH570-AB, BB	• Engineering release versions
MXH570-BC	• Initial product version

Table 13: Hardware revisions

Compliance and Regulatory Testing

EMC Compliance

The Dolphin PCI Express MXH570 adapter is 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 on any random PC. It is the integrator's responsibility to ensure that their products comply with all applicable regulations for the intended use.

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 MXH570 is RoHS compliant. A Compliance certificate issued by the manufacturer is available upon request.

KCC Certificate

The Dolphin MXH570 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 MXH570 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. An 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 resulting from violation of the specified operating or storage temperatures and airflow.
- 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 tears.
- 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 who 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.

NOTE: Products returned to Dolphin without a proper RMA number will not be serviced under this warranty.