

Flexible 32-bit PCI to MiniPCI Express Adapter

Hardware Manual

June 01, 2011

Revision 1.1

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1 About this Document

1.1 Purpose

This document describes Hardware installation, features, specification and operation for AMFELTEC Flexible 32-bit PCI to MiniPCI Express Bus Adapter (SKU-057).

1.2 Feedback

AMFELTEC Corp. makes every effort to ensure that the information contained in this document is accurate and complete at time of release. Please contact AMFELTEC Corp. if you find any errors, inconsistency or have trouble understanding any part of this document.

To provide your feedback, please send an email to support@amfeltec.com

Your comments or corrections are greatly valued in our effort for excellence and continued improvement.

1.3 Revision History

Rev. No.	Description	Rev. Date
1.0	Initial Release.	March 10, 2011
1.1	Update hardware installation instructions	June 01, 2011

2 General Description

2.1 Introduction

Flexible 32-bit PCI to MiniPCI Express Bus Adapter (Adapter) (Figure 1) is designed to support expansion of modern motherboards that has no or limited numbers of MiniPCI Express connectors. Adapter converts the standard 32-bit PCI motherboard slot into MiniPCI Express slot.

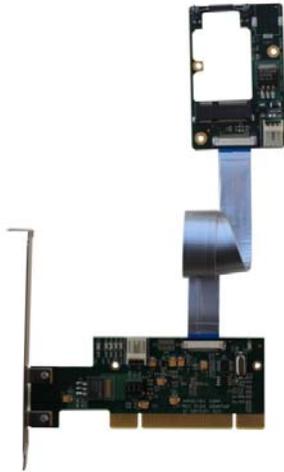


Figure 1: Flexible PCI to MiniPCIe Adapter

It includes one 32-bit PCI Host Card (Figure 2) and MiniPCI Express Adapter board (Figure 3). The 32-bit PCI Host Card has to be plugged into standard 32-bit PCI motherboard connector. MiniPCI Express Adapter board connects to the PCI Host Card via 12" PCI Express Flex cable. The expansion MiniPCI express add-in board has to be plugged into the standard MiniPCI express connector on the MiniPCI Express Adapter board.

General Description



Figure 2: 32-bit PCI Host Card

Because of the flexible nature of the connection (unlike traditional rigid risers), expansion MiniPCI express add-in board can be positioned away from the PCI connector on the motherboard inside a computer chassis.

MiniPCI Express Adapter board has two mounting holes allowing them to be securely fixed inside a computer chassis.

The Adapter functions right out of the box, no additional software needs to be installed. The 32-bit PCI Host Card has LEDs for displaying downstream PCI express Link status as well as expansion MiniPCI express add-in board “PRESENT” status.



Figure 3: MiniPCI Express Adapter board

3 Requirements/Features

3.1 Power Source

The power for MiniPCI Express add-in board (3.3V and 1.5V) is supplied via MiniPCI Express connector.

MiniPCI Express Adapter board can receive power via standard 4-pin “Floppy drive” power connector from the following sources:

- From 32-bit PCI host card via power cable
- From standard ATX power supply
- From any 5V external power supply

3.2 Power and Signaling

- PCI host card is powered from 5V or 3.3V power from the PCI edge connector (defined by Jumpers block).
- Meets PCI express 1.1 specification and PCI bus 3.0 specifications.
- Supports 32-bit 66 MHz PCI bus operation.
- LED indication of +3.3V internal power.
- LED indication of PCI Express link status.
- LED indication of PCI to PCI Express bridge status.

3.3 Software

There is no software needed for normal operation.

4 Hardware Description

4.1 Board Layout

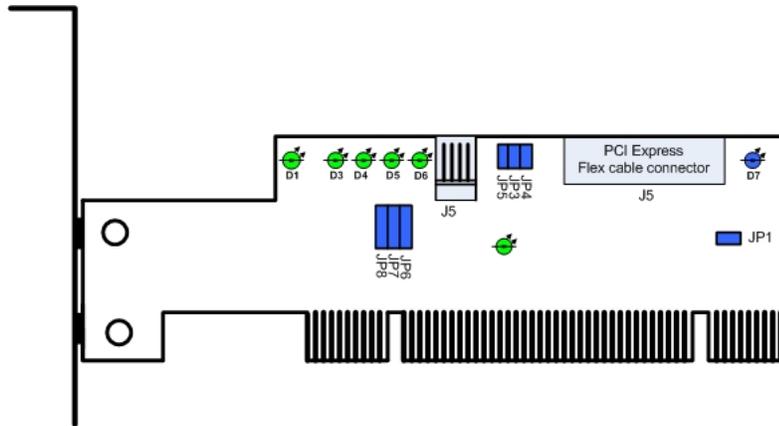


Figure 4: 32-bit PCI Host Card layout.

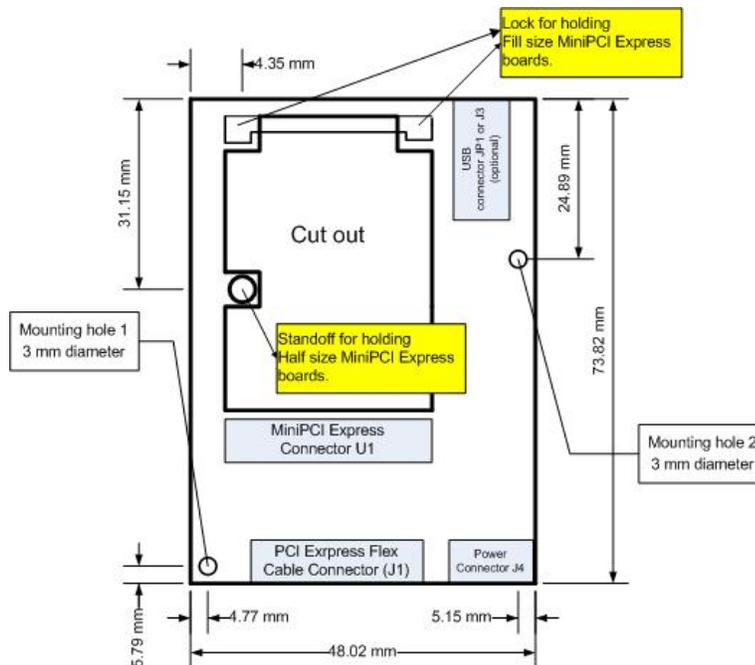


Figure 5: MiniPCI Express Adapter board layout

4.2 LEDs

Name	RefDes	Color	Usage
+3.3 Volt	D1	Green	Internal 3.3Volt power
PRSNT	D7	Blue	Present signal from MiniPCI Express Adapter
GPIO3	D3	Red	PCI to PCI Express bridge status or general purpose IO.
GPIO2	D4	Red	PCI to PCI Express bridge status or general purpose IO.
GPIO1	D5	Red	PCI to PCI Express bridge status or general purpose IO.
GPIO0	D6	Green	PCI Express Link status or general purpose IO. (LED ON – link active)

Table 1: 32-bit PCI Host Card LEDs

4.3 Jumpers

RefDes	Type	Usage
JP1	2 pins jumper	Enable 66 MHz or 33 MHz PCI bus operation. (Jumper set – force to 33 MHz only operation)
JP3	2 pins jumper	Delay PCI Express link training by 12 ms after reset, (Jumper closed = enable delay)
JP4	2 pins jumper	Flow control Credits, (Jumper closed = normal operation, Jumper open = advertise infinite flow control credits for completions). Note: Jumper must always be set during reset.
JP5	2 pins jumper	Enable internal aperture for PCI to PCI Express bridge internal registers. (Jumper closed - enabled).
JP6,JP7,JP8	Block of Jumpers (3x3)	Define power source for the PCI Host board +3.3 Volt power. If 1-2 pins on all jumpers are closed, then +3.3 Volt for PCI Express connector taken from PCI bus +3.3 Volt power pins. If 2-3 pins on all jumpers are closed, then +3.3 Volt for PCI Express connector generated from PCI bus +5Volt power pins through a voltage regulator.

Table 2: PCI Host Card jumpers

4.4 Connectors

RefDes	Type	Usage
J1	32 bit male Universal PCI bus connector	32-bit Universal PCI bus.
J5	“Floppy disk” power connector	3.3V and 12V for external Adapter
J4	Flat connector	PCI express connector for cable connection to Adapter card.

Table 3: PCI Host Card connectors

RefDes	Type	Usage
J1	PCI Express Flex Cable connector	Connection via Flex PCI Express Cable to the MiniPCI Host Card.
J4	Standard ATX power connector (“floppy disk” type)	Incoming power for the expansion add-in MiniPCI Express board
JP1	10 pins 2 row 2.5mm Header	Connection to the USB interface of the MiniPCI Express add-in board (optional)
J3	USB type B standard connector	Connection to the USB interface of the MiniPCI Express add-in board (optional)
U1	Standard Mini PCI Express connector	Connection to the expansion add-in PCI boards (supports full and half size MiniPCI Express boards).

Table 4: MiniPCI Express Adapter board connectors

5 Installation

5.1 Hardware Installation

Following steps provide the exact sequence need to be followed in order to properly install the 32-bit PCI to MiniPCI Express Bus Adapter from AMFELTEC Corp.:

Warning: Before touching anything inside the computer or any components, be sure to discharge your body's static electricity by touching a grounded surface.

- Turn off host computer and unplug it from the wall outlet.
- Remove the chassis cover or side panel from host computer. Refer to the computer manual for instructions if you need them.
- If the unit is a tower unit, turn it over on its side to make access easier.
- Ground yourself to the PC case. Attach a grounding wrist strap (if available) to the computer's metal chassis and your wrist. **CAUTION: If you choose not to use the grounding wrist strap, be sure to take adequate precautions to discharge static electricity from your body before touching any components.**
- Select power source on PCI host card (JP6-JP7-JP8). Please refer to Table 2.
- Insert PCI Express Flex Cable into the connectors on the PCI Host card and on the MiniPCI Express Adapter.
- Holding PCI host card by its edges and the mounting bracket, position the card with the contacts downward over the PCI slot and insert the card into the slot. Do not let it touch any of the components on the motherboard or PCI host card.
- Secure the adapter to the rear panel with the screw.
- Place and retain MiniPCI Express Adapter inside the chassis.
- Connect power to MiniPCI Express Adapter.
- Insert add-in MiniPCI Express card into MiniPCI Express connector on the MiniPCI Express Adapter board. Do not let it touch any of the components on the motherboard or MiniPCI Express Adapter.
- Now, you can close computer cover and power-up the host computer.

Installation



BE SURE THAT TWO GREEN LEDS (D1 and D7) ARE ON!



BE SURE THAT GREEN LED (D6) IS ON!

6 Ordering Information

6.1 Standard package

Standard package include the following components:

- 32-bit PCI Host Card
- MiniPCI Express Adapter board with PCI Express Flex cable
- User manual

7 Appendix A: Limited warranty

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