

# **Flexible 32-bit PCI Riser**

## **Hardware Manual**

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**June 01, 2011**

**Revision 1.1**

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# 1 About this Document

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## 1.1 Purpose

This document describes Hardware installation, features, specification and operation for AMFELTEC Flexible 32-bit PCI Riser (SKU-050).

## 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](mailto: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

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### 2.1 Introduction

Flexible 32-bit PCI Riser (Riser) (Figure 1) is designed to support expansion of modern motherboards that has no or limited numbers of 32-bit PCI connectors. Adapter expands the standard 32-bit PCI motherboard slot into 2 32-bit PCI slot.

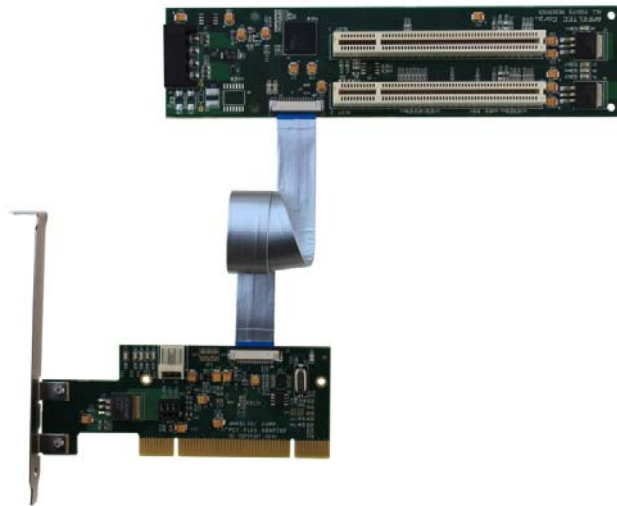


Figure 1: Flexible 32-bit PCI Riserr

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

Because of the flexible nature of the connection (unlike traditional rigid risers), expansion PCI add-in board can be positioned away from the 32-bit PCI connector on the motherboard inside a computer chassis.

PCI Flex 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 add-in PCI board “PRESENT” status.

**General Description**

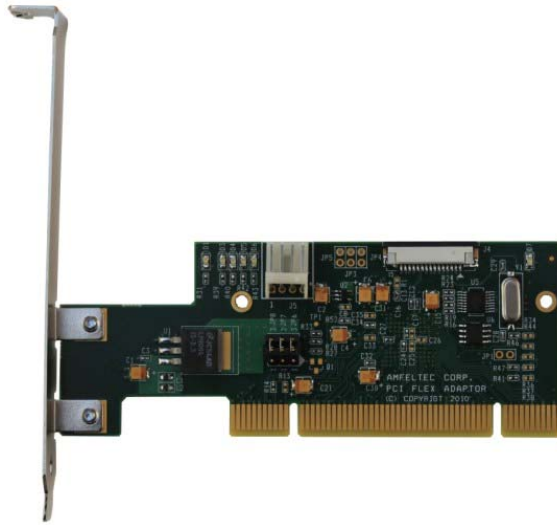


Figure 2: 32-bit PCI Host Card



Figure 3: PCI Bus Flex Adapter board

## 3 Requirements/Features

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### 3.1 Power Source

The power for the expansion PCI add-in boards is supplied from the standard ATX power supply or from any external Power supply (+12V and 5V) via PCI Backplane.

### 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

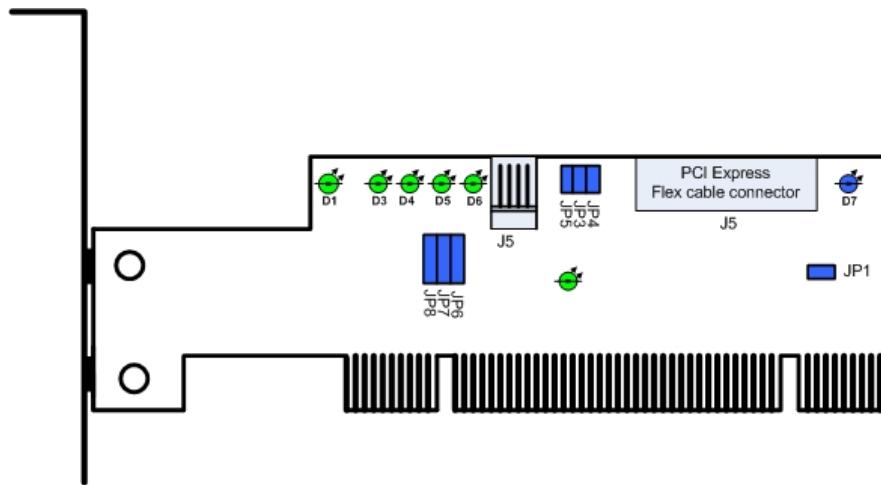


Figure 4: 32-bit PCI Host card layout

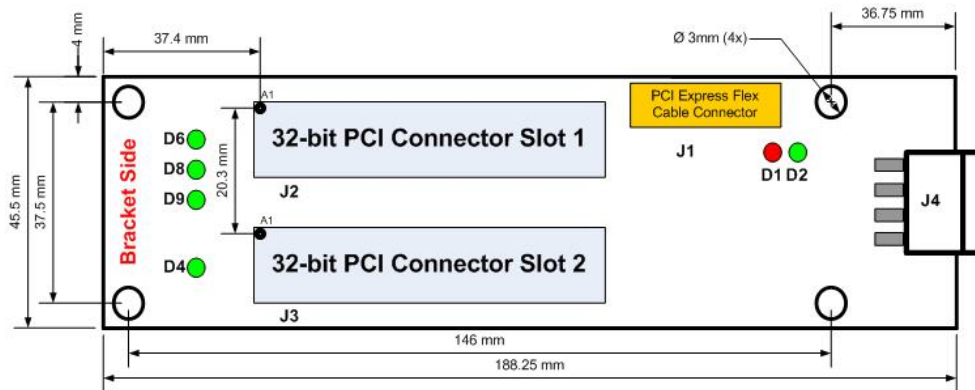


Figure 5: PCI Bus Flex Adapter board layout



## 4.2 LEDs

Name	RefDes	Color	Usage
+3.3 Volt	D1	Green	Internal 3.3Volt power
PRSNT	D7	Blue	Present signal from x1 PCI 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

Name	RefDes	Color	Usage
RST	D1	Red	Reset from Mini PCI Interface board
Link 1 UP	D2	Green	PCI Express link status between PCI Backplane and Mini PCI Interface board
Power +3.3V	D6	Green	+3.3V power status on the PCI Slot 1
Power +3.3V	D4	Green	+3.3V power status on the PCI Slot 2
Power +12V	D8	Green	+12V power status
Power –12V	D9	Green	-12V power status (optional)

Table 2: PCI Flex Adapter 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 3: 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 4: PCI Host Card connectors

RefDes	Type	Usage
J1	PCI Express Flex Cable connector	Connector via Flex PCI Express Cable to the Mini PCI Interface board.
J4	Standard ATX power connector (“hard disk” type )	Incoming power for the expansion add-in PCI boards
J2,J3	Standard 32-bit PCI connectors	Connection to the expansion add-in PCI boards.

Table 5: PCI Flex Adapter board connectors

## 5 Installation

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### 5.1 Hardware Installation

Following steps provide the exact sequence need to be followed in order to properly install the 32-bit PCI Riser 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 PCI 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 PCI Flex Adapter inside the chassis.
- Connect power cable to Molex connector of the PCI Flex Adapter.
- Locate your expansion add-in card such way that its bracket will be on the same side as bracket side of PCI Flex Adapter (opposite from black power Molex connector) (see Figure 6). **CAUTION: If your add-in card has not bracket connected to it, be sure that you properly detect right direction for your add-in card.**
- Holding your add-in 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 Flex Adapter.
- Now, you can close computer cover and power-up the host computer.

## Installation

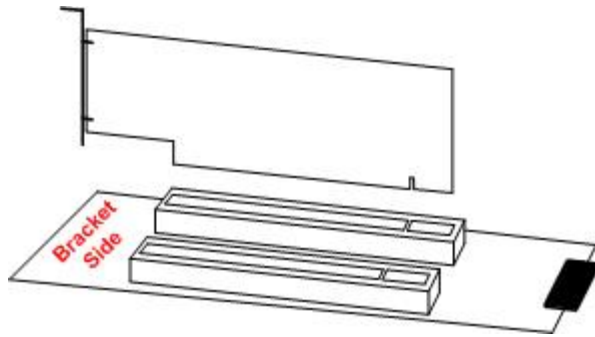


Figure 6: Inserting add-in card into PCI Flex Adapter



**BE SURE THAT BLUE LEDs D5 or D6 (see Table 1) ARE ON** (indicates that PCI Flex Adapter is “PRESENT”)!



**BE SURE THAT GREEN LED (D6) IS ON!**

## 6 Ordering Information

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### 6.1 Standard package

Standard package include the following components:

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

## **7 Appendix A: Limited warranty**

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