

Flexible x4 PCI Express to 4 MiniPCI Express Splitter

Hardware Manual

September 10, 2011

Revision 0.1

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1 About this Document

1.1 Purpose

This document describes Hardware installation, features, specification and operation for AMFELTEC Flexible x4 PCI Express to 4 MiniPCI Express Splitter.

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.

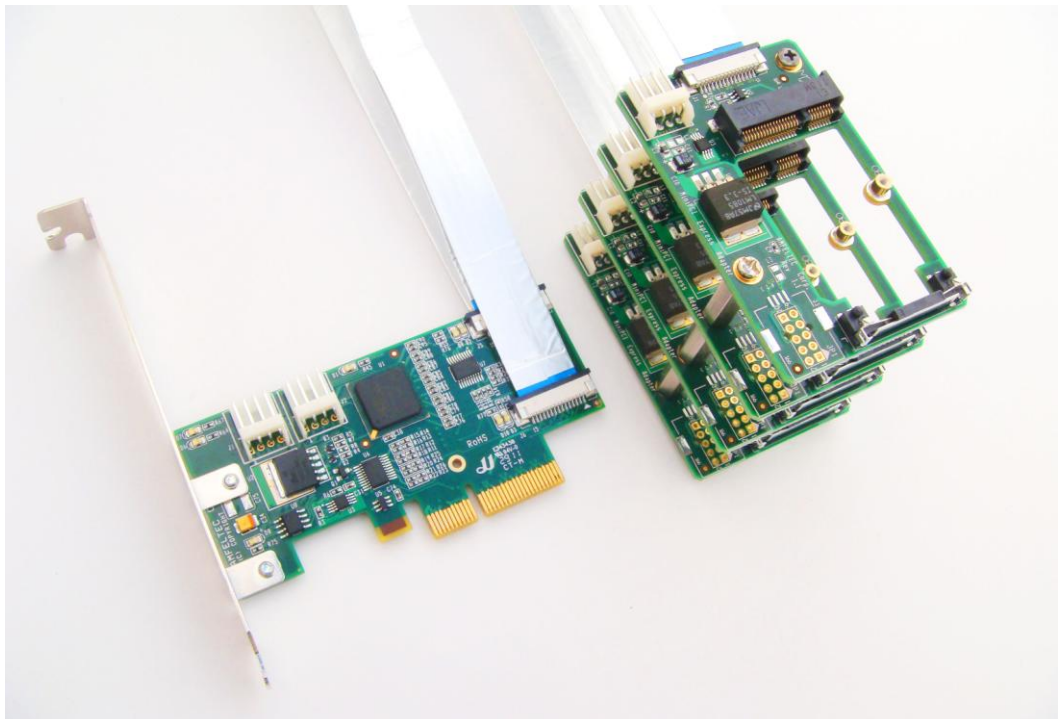
1.3 Revision History

Rev. No.	Description	Rev. Date
1.0	Initial Release.	September 10, 2011

2 General Description

2.1 Introduction

Flexible x4 PCI Express to 4 MiniPCI Express Splitter (Splitter) is designed to extend motherboard PCI Express bus. Splitter allows connecting four MiniPCI Express add-in boards to the motherboard PCI Express connector.



It includes x4 PCI Express Host board (Figure 1, 2) and four MiniPCI Express Adapter boards (Figure 3). The x4 PCI Express Host board has to be plugged into the motherboard PCI Express connector. Each of three MiniPCI Express Adapter boards connecting to the PCI Express Host board via four 12" Flat PCI Express cables. The expansion MiniPCI Express add-in boards have to be plugged into the standard MiniPCI Express connector placed on each MiniPCI Express Adapter board.

Because of the flexible nature of the connection, expansion MiniPCI Express add-in boards can be positioned away from the PCI Express Host board, including around any obstacles inside a computer chassis. MiniPCI Express Adapter board has two mounting holes allowing them to be securely fixed inside a computer chassis.



Figure 1: x4 PCI Express Host board (top side)



Figure 2: x4 PCI Express Host board (back side)

The Splitter functions right out of the box, no additional software needs to be installed. The x4 PCI Express Host board has LEDs for displaying Link status between PCI Express Host card and MiniPCI Express Adapter boards as well as MiniPCI Express Adapter boards “PRESENT” and “RESET” status.

General Description



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 has standard 4-pin “Floppy drive” power connector for getting 5V power from standard ATX power supply or 3.3V power from PCI express Host card.

3.2 Software

There is no additional software needs for the x4 PCI Express to 4 MiniPCI Splitter.

4 Hardware Description

4.1 Board Layout

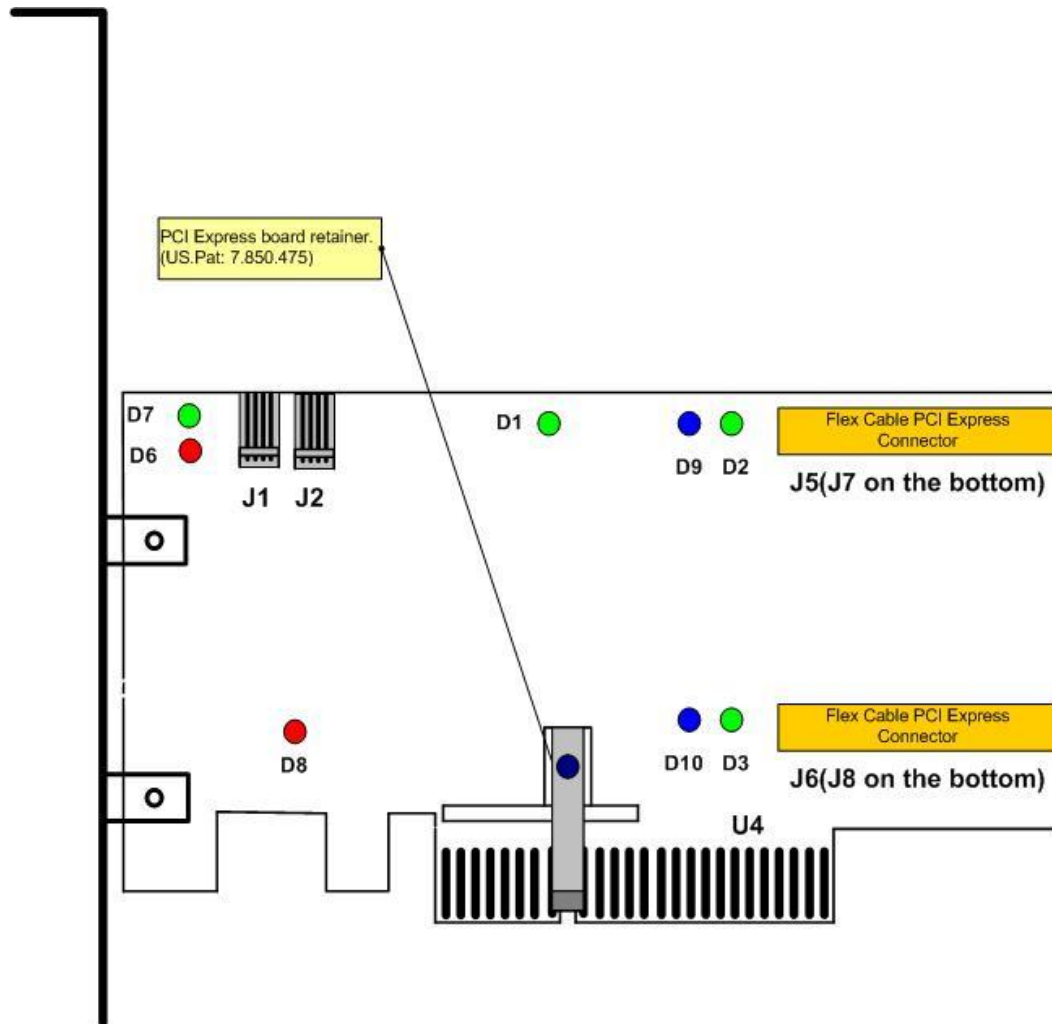


Figure 4: x4 PCI Express Host board layout (top side)

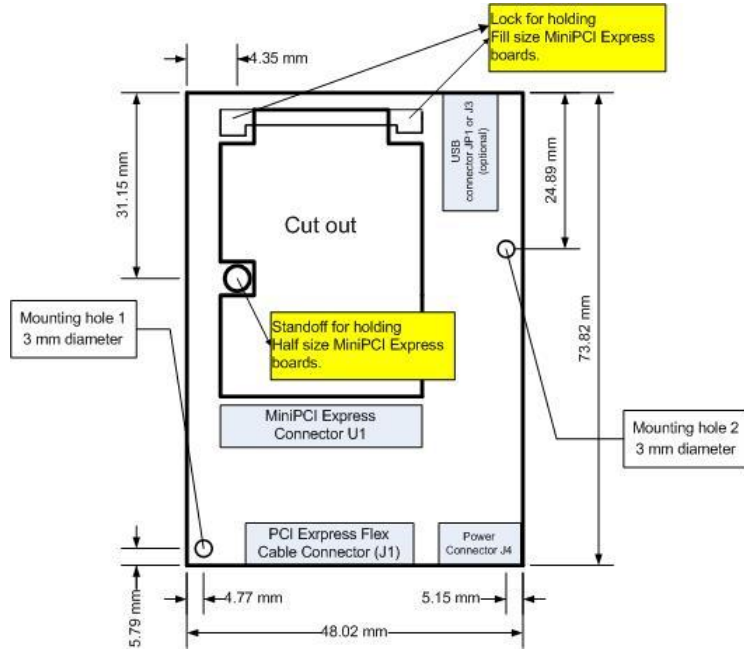


Figure 5: MiniPCI Express Adapter board

4.2 LEDs

Name	RefDes	Color	Usage
Link 1 UP	D1	Green	Upstream Link status
Link 2 UP	D2	Green	First downstream link status
Link 3 UP	D3	Green	Second downstream link status
Link 4 UP	D4	Green	Third downstream link status (bottom side)
Link 5 UP	D5	Green	Fours downstream link status (bottom side)
	D6	Red	Switch status
	D7	Green	Switch status
RESET	D8	Red	Upstream PCI express reset signal
PRSNT 2	D9	Blue	First link “PRSNT” signal
PRSNT 3	D10	Blue	Second link “PRSNT” signal
PRSNT 4	D11	Blue	Third link “PRSNT” signal
PRSNT 5	D12	Blue	Fours link “PRSNT” signal

Table 1: LEDs on the x4 PCI Express Host board

4.3 Connectors

RefDes	Type	Usage
U4	Upstream x4 PCI Express male connector	Connection to the upstream PCI Express bus on motherboard
J1,J2	“Floppy disk” male power connectors	Supply power for the expansion add-in PCI Express boards
J5,J6,J7 J8	PCI Express Flex Cable connector	Connector via Flex PCI Express Cable to the x1 PCI Express Adapter boards.

Table 2: x4 PCI Express Host board 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 3: MiniPCI Express Adapter board connectors

5 Installation

5.1 Hardware

Following steps provide the exact sequence need to be followed in order to properly install the Flexible x4 PCI Express to 4 MiniPCI Express Splitter from AMFELTEC Corp.:

- Turn OFF host computer before installation.
- Remove the chassis cover from host computer.
- Insert Flat PCI Express Cables to the connectors on the PCI Express Host board and on the MiniPCI Express Adapter boards.
- Install the Host board into the motherboard PCI Express slot. Place and retain MiniPCI Express Adapter boards inside the chassis. Connect power for the MiniPCI Express Adapter boards.
- Plug-in expansion add-in boards into MiniPCI Express Adapter boards.

Now, you can power-up the host computer.



BE SURE THAT TWO LEDS: D1 (GREEN) IS ON and D8 (RED) IS OFF!
(Upstream Link status and PCI Express RESET signal).



BE SURE THAT GREEN LEDS ARE ON where BLUE LEDS ARE ON!
(Downstream Link connected where expansion PCI Express board is presented)

5.2 Software

Flexible x4 PCI to 4 MiniPCI Express Splitter doesn't require any software/device driver for normal operation.

6 Operation Modes

7 Ordering Information

7.1 Standard package

Standard package include the following components:

- x4 PCI Express Host Board
- Four MiniPCI Express Adapter boards with Flat PCI Express cables
- User manual

8 Appendix A: Limited warranty

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