

# **Flexible x1 PCI Express to 3 MiniPCI Splitter**

## **Hardware Manual**

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**May 20, 2012**  
**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 x1 PCI Express to 3 MiniPCI 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](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.	September 10, 2011
1.1	Added Gen2 support	May 20, 2012

## 2 General Description

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### 2.1 Introduction

Flexible x1 PCI Express to 3 MiniPCI Splitter (Splitter) is designed to extend motherboard PCI Express bus. Splitter allows connecting three standard 124-pin MiniPCI add-in boards to the motherboard PCI Express connector.



It includes x1 PCI Express Host board (Figure 1,2) and three MiniPCI Adapter boards (Figure 3). The x1 PCI Express Host board has to be plugged into the motherboard PCI Express connector. Each of three MiniPCI Adapter boards connecting to the PCI Express Host board via three 10” Flat PCI Express cables. The expansion MiniPCI add-in boards have to be plugged into the standard 124-pin MiniPCI connectors placed on each MiniPCI Adapter board.

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

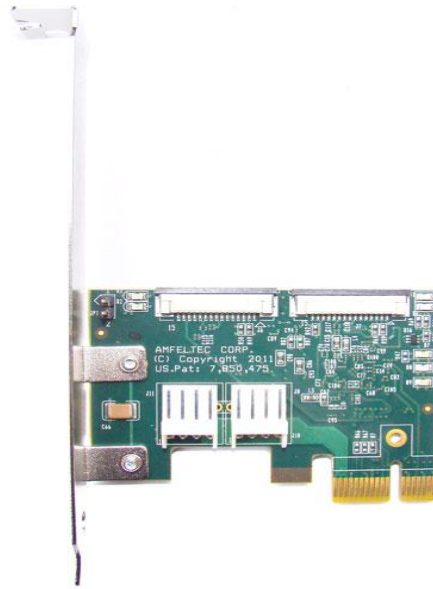


Figure 1: x1 PCI Express Host board (top side)



Figure 2: x1 PCI Express Host board (back side)

The Splitter functions right out of the box, no additional software needs to be installed. The x1 PCI Express Host board has LEDs for displaying Link status between PCI Express Host card and MiniPCI Adapter boards as well as MiniPCI Adapter boards “PRESENT” status.

**General Description**

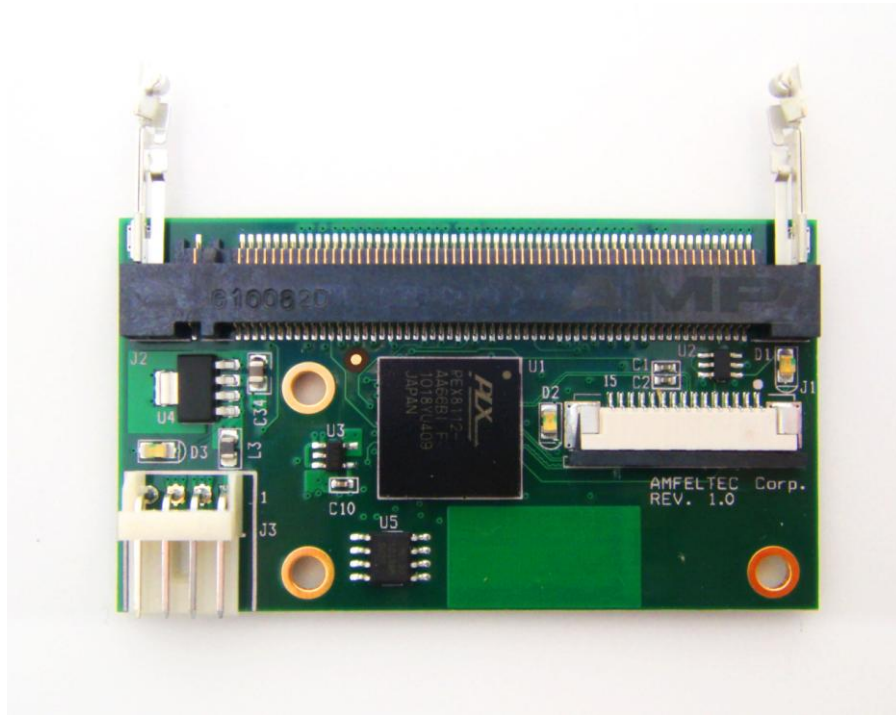


Figure 3: MiniPCI Adapter board



## **3 Requirements/Features**

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### **3.1 Power Source**

The power for the expansion MiniPCI add-in boards is supplied from standard ATX power supply (“floppy disk” power connector (5V)) via MiniPCI Adapter board.

### **3.2 Software**

There is no additional software needs for the x1 PCI Express to 3 MiniPCI Splitter.

## 4 Hardware Description

### 4.1 Board Layout

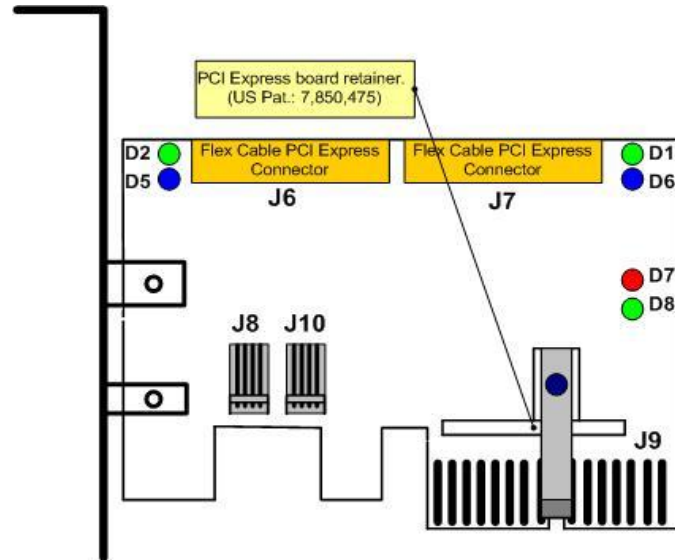


Figure 4: x1 PCI Express Host board layout (top side)

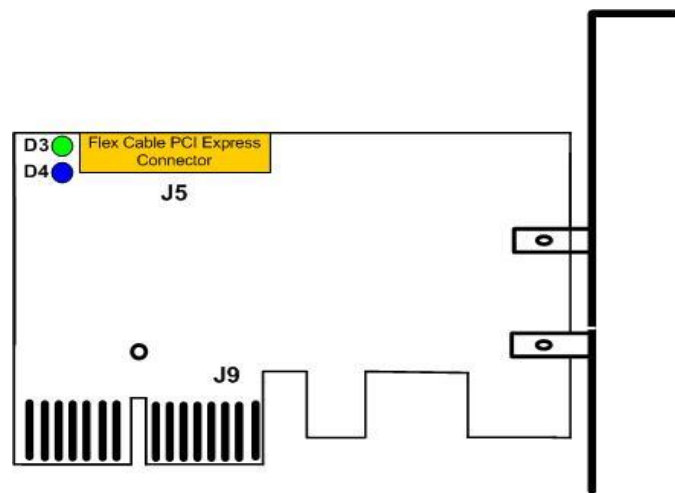


Figure 5: x1 PCI Express Host board layout (bottom side)

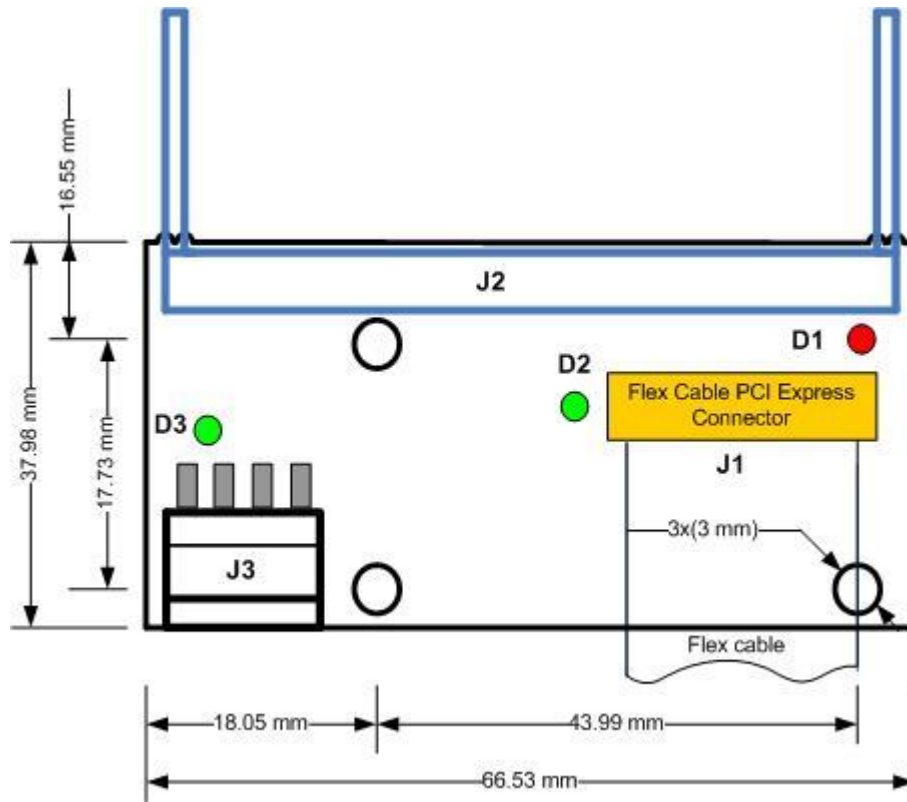


Figure 6: MiniPCI Adapter board

## 4.2 LEDs

Name	RefDes	Color	Usage
RESET	D7	Red	Global PCI Express RESET signal from upstream connector J9.
LINK	D8	Green	Upstream port 1 link status. ( <b>Solid Off</b> - Lane is disabled, <b>Solid On</b> –Lane is enabled, 5GT/s, <b>0.5 seconds On, 0.5 seconds Off</b> – Lane is enabled, 2.5 GT/s)
PRSNT 1	D4	Blue	First downstream port “PRSNT” signal
PRSNT 2	D5	Blue	Second downstream port “PRSNT” signal
PRSNT 3	D6	Blue	Third downstream port “PRSNT” signal
LINK 1	D3	Green	Downstream port 1 link status. ( <b>Solid Off</b> - Lane is disabled, <b>0.5 seconds On, 0.5 seconds Off</b> – Lane is enabled, 2.5 GT/s)
LINK 2	D2	Green	Downstream port 2 link status. ( <b>Solid Off</b> - Lane is disabled, <b>0.5 seconds On, 0.5 seconds Off</b> – Lane is enabled, 2.5 GT/s)
LINK 3	D1	Green	Downstream port 3 link status. ( <b>Solid Off</b> - Lane is disabled, <b>0.5 seconds On, 0.5 seconds Off</b> – Lane is enabled, 2.5 GT/s)

Table 1: LEDs on the x1 PCI Express Host board

Name	RefDes	Color	Usage
Link Status	D2	Green	PCI Express Link status between motherboard and MiniPCI adapter board
RESET	D1	Red	PCI Express reset signal status
Power	D3	Green	Power status on the MiniPCI adapter board

Table 2: LEDs on the MiniPCI Adapter board

## 4.3 Connectors

RefDes	Type	Usage
J9	Upstream x1 PCI Express male connector	Connection to the upstream PCI Express bus on motherboard (bandwidth up to 5Gbit/sec).
J8,J10	“Floppy disk” male power connectors	Optional
J5,J6,J7	PCI Express Flex Cable connector	Connector via Flex PCI Express Cable to the MiniPCI Adapter board.(bandwidth 2.5 Gbit/sec)

Table 3: x1 PCI Express Host board connectors

RefDes	Type	Usage
J1	PCI Express Flex Cable connector	Connector via Flex PCI Express Cable to the MiniPCI Express Host board.
J3	“Floppy disk” male power connectors	Incoming 5V power from the standard ATX power supply or any external power supply.
J2	Downstream 124-pin standard MiniPCI female connector	Connection to the expansion MiniPCI add-in board.

Table 4: MiniPCI Adapter board connectors

## 5 Installation

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### 5.1 Hardware

Following steps provide the exact sequence need to be followed in order to properly install the Flexible x1 PCI Express to 3 MiniPCI 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 Adapter boards.
- Install the Host board into the motherboard PCI Express slot. Place and retain MiniPCI Adapter boards inside the chassis. Connect power for the MiniPCI adapter boards.
- Plug-in expansion add-in boards into MiniPCI Adapter boards.

Now, you can power-up the host computer.



**BE SURE THAT BLUE LED D4, D5 and D6 IS ON!**

### 5.2 Software

Flexible x1 PCI to 3 MiniPCI Splitter doesn't require any software/device driver for normal operation.

## 6 Ordering Information

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### 6.1 Standard package

Standard package include the following components:

- x1 PCI Express Host Board
- Three MiniPCI Adapter boards with Flat PCI Express cables

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

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