

# CPCI-X to PMC Adapter

## User Manual

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## **PREFACE**

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# INTRODUCTION

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## 1.0 FUNCTIONAL DESCRIPTION

The CPCI-X to PMC Adapter Board is used to operate a PMC board in a CPCI-X or a CPCI Bus. The Adapter has a 64Bit Bus and can be installed into a 64Bit or 32Bit CPCI or CPCI-X Bus. This version of the adapter not be used in a system that uses J2 as Rear Panel I/O, consult the factory for a different version. The adapter can be setup via jumpers to operate the primary side at CPCI-X operational speeds as high as 133MHz or the adapter can operate in a legacy 33MHz CPCI bus.

The PMC site or secondary bus can operate with 64Bit or 32Bit PMC cards. The operational clock speed of the PMC Bus can be selected via jumpers to have a system clock as high as 133 MHz PCI-X or as low as 33MHz Legacy PCI. The signaling environment of the PMC site can also be selected via jumpers to operate at 5V or 3.3V levels.

## 1.1 OPERATIONAL CHARACTERISTICS

Due to the multiple selectable features of the adapter, almost any PMC card can be used in a CPCI system without suffering performance issues.

### Signaling Environment Adaptation

The PMC (Secondary Bus) Signaling is jumper selectable and the CPCI-X (Primary Bus) Signaling is taken from the host computer. This allows a PMC card with signaling different from the host computer to be used together.

### 32Bit to 64Bit Data Packing

A PMC card with 32Bit Bus can operate in a 64Bit Bus but can only transfer data at 32Bits. With this adapter, when a block of data is transferred from a 32Bit PMC Card, the data is packed into 64bit format when it is transferred over the CPCI-X or CPCI Bus. This takes only half as much bus bandwidth as it would without the adapter.

### CPCI-X to PMC Conversion

The main operational mode of the adapter is to convert between bus Clock speeds without requiring the faster bus to throttle down the slowest speed. The main purpose of this is to use a slower PMC card to transfer data to a faster CPCI/CPCI-X card and still using the higher system bandwidth. This allows the use of PMC boards with functions or special features that do not exist in CPCI.

## JUMPER SETTINGS

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- *Do not change Jumpers Settings with POWER ON to the Host Bus! This may cause damage to your Host Computer and/or the PMC Board..*

### JUMPER NUMBERING

Orient the board so you can see the jumpers, the faceplate is on the left, and the CPCI connectors are on the right.

Jumpers J3, J4, J5, J6, J10, J11, J12, J13 :

Pin 1 is the lower leftmost pin. Pin 2 is the upper left most pin. All the odd number pins are in the lower row and increase from left to right. All the even number pins are in the upper row and also increase from left to right.

2 4 ...

1 3 ...

Jumpers J7, J8, J9 :

Pin 1 is to the left.

### \*\*\* USER SELECTABLE JUMPERS \*\*\*

#### J7 – SECONDARY SIGNALING SELECT

#### J8 – PMC VIO SELECT

These jumpers are used to indicate to the signaling level between the PCI-X Bridge and the PMC site. J7 selects the signaling levels the PCI-X Bridge to use to the PMC site. J8 selects the VIO Voltage to the PMC site that the PMC card will use to determine it's signaling levels. Both J7 and J8 must be set to the same level.

Set this to a level that is compatible with your PMC Card. A PMC card with Universal Signaling will operate in either a 5V or 3.3V Signaling environment.

PMC Signaling Voltage	J7	J8
5V Signaling *	Short J7:1-2	Short J8:1-2
3.3V Signaling (Default)*	Short J7:2-3	Short J8:2-3

- J7 & J8 must be set to the same level.

#### J9 – PRIMARY SIGNALING SELECT

This jumper is used in conjunction with J11:13-14 to indicate to the PCI-X Bridge the desired signaling to use to the Host PCI Bus. This used for factory testing and should be set to "Use Primary Bus VIO".

- Damage to Host Computer could occur if J11:13-14 is shorted when any pins on J9 are shorted.

PCI-X Signaling Voltage	J9	J11:13-14
Use Primary Bus VIO (Default) *	All OPEN	Shorted
5V Signaling *	Short J9:1-2	Open
3.3V Signaling *	Short J9:2-3	Open

**J10 – SECONDARY BUS CLOCK SPEED (PMC BUS CLOCK SPEED)**

This jumper is used to select the maximum PMC Bus Clock Speed.

PMC Bus Speed	J10:1-2	J10:3-4	J10:5-6	J10:7-8	J10:9-10	J10:11-12
PCI: 33MHz	Open	Open	Shorted	Open	Open	Shorted
PCI: 66MHz (Default)	Open	Open	Shorted	Open	Shorted	Open
PCI-X: 66MHz	Open	Shorted	Open	Open	Shorted	Open
PCI-X: 100MHz *	Open	Open	Open	Open	Open	Open
PCI-X: 133MHz *	Open	Open	Open	Open	Open	Open
Use PMC PCI-CAP Pin	Shorted	Open	Open	---	---	---
Use PMC M66EN Pin	---	---	---	Shorted	Open	Open

- 100MHz /133 MHz determined by J5:1-2. If J5:1-2 Open = 100 MHz. If J5:1-2 Shorted =133MHz.

**J12 – PRIMARY BUS CLOCK SPEED (PCI-X BUS CLOCK SPEED)**

This jumper is used to select the maximum PCI-X Bus Clock Speed.

PCI-X Bus Speed	J12:1-2	J12:3-4	J12:5-6
PCI: 33MHz	Shorted	Open	Shorted
PCI: 66MHz	Shorted	Open	Open
PCI-X: 66MHz	Open	Shorted	Open
PCI-X: 133MHz (Default)	Open	Open	Open

**\*\*\* RESERVED FACTORY JUMPERS \*\*\***

**J3 – TEST ---** Reserved for factory use. The jumper should remain as follows:

J3: 1-2 (Default)	Open
J3: 3-4 (Default)	Open
J3: 5-6 (Default)	Open
J3: 7-8 (Default)	Open
J3: 9-10 (Default)	Open
J3: 11-12 (Default)	Open
J3: 13-14 (Default)	Open
J3: 15-16 (Default)	Open
J3: 17-18 (Default)	Open
J3: 19-20 (Default)	Open
J3: 21-22 (Default)	Open
J3: 23-24 (Default)	Open
J3: 25-26 (Default)	Open
J3: 27-28 (Default)	Open

**J4 – BRIDGE GPIO** --- Reserved for factory use. The jumper should remain as follows:

<b>J4: 1-2 (Default)</b>	Open
<b>J4: 3-4 (Default)</b>	Open
<b>J4: 5-6 (Default)</b>	Open
<b>J4: 7-8 (Default)</b>	Open
<b>J4: 9-10 (Default)</b>	Open
<b>J4: 11-12 (Default)</b>	Open
<b>J4: 13-14 (Default)</b>	Open
<b>J4: 15-16 (Default)</b>	Open

**J5 – BRIDGE CLOCK CONTROL** --- Reserved for factory use. The jumper should remain as follows:

<b>J5: 1-2 (Default)</b>	Open
<b>J5: 3-4 (Default)</b>	Open
<b>J5: 5-6 (Default)</b>	Open
<b>J5: 7-8 (Default)</b>	Shorted
<b>J5: 9-10 (Default)</b>	Shorted
<b>J5: 11-12 (Default)</b>	Shorted

**J6 – HOT SWAP** --- Reserved for factory use. The jumper should remain as follows:

<b>J6: 1-2 (Default)</b>	Open
<b>J6: 3-4 (Default)</b>	Shorted
<b>J6: 5-6 (Default)</b>	Shorted
<b>J6: 7-8 (Default)</b>	Shorted
<b>J6: 9-10 (Default)</b>	Shorted

**J11 – BRIDGE STRAPPING OPTIONS** --- Reserved for factory use. The jumper should remain as follows:

<b>J11: 1-2 (Default)</b>	Open
<b>J11: 3-4 (Default)</b>	Shorted
<b>J11: 5-6 (Default)</b>	Shorted
<b>J11: 7-8 (Default)</b>	Shorted
<b>J11: 9-10 (Default)</b>	Open
<b>J11: 11-12 (Default)</b>	Shorted
<b>J11: 13-14 (Default)</b>	Shorted (Associated with J9)

**J13 – JTAG** --- Reserved for factory use. The jumper should remain as follows:

<b>J13: 1-2 (Default)</b>	Shorted
<b>J13: 3-4 (Default)</b>	Open
<b>J13: 5-6 (Default)</b>	Open
<b>J13: 7-8 (Default)</b>	Open
<b>J13: 9-10 (Default)</b>	Open