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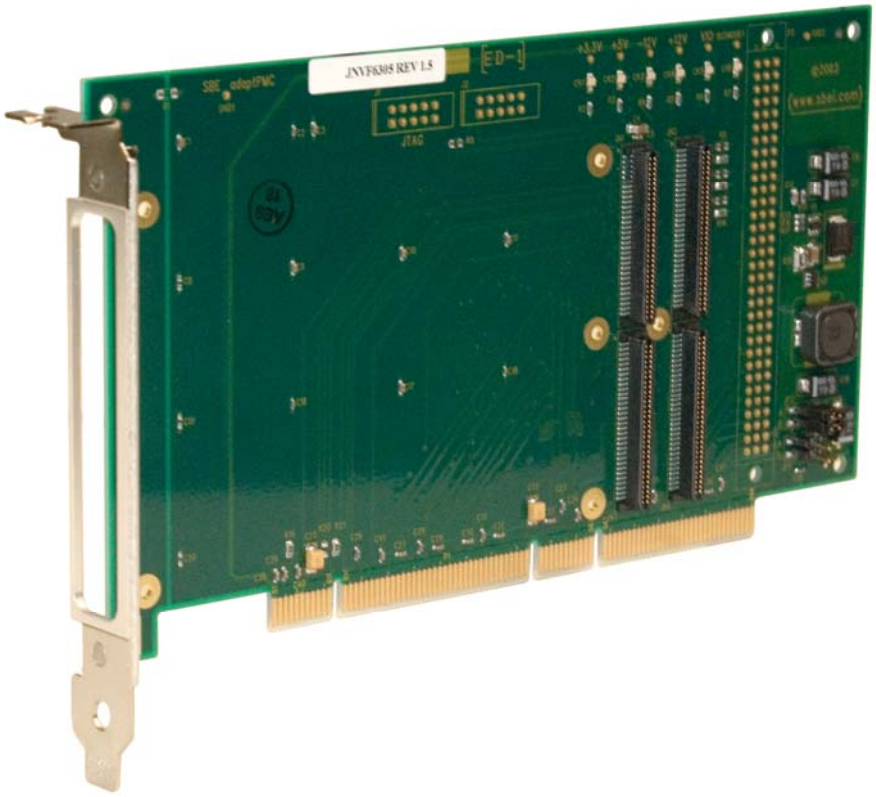

Four Port Gigabit PCI Adapter

OSS-adaptPCI-PMC

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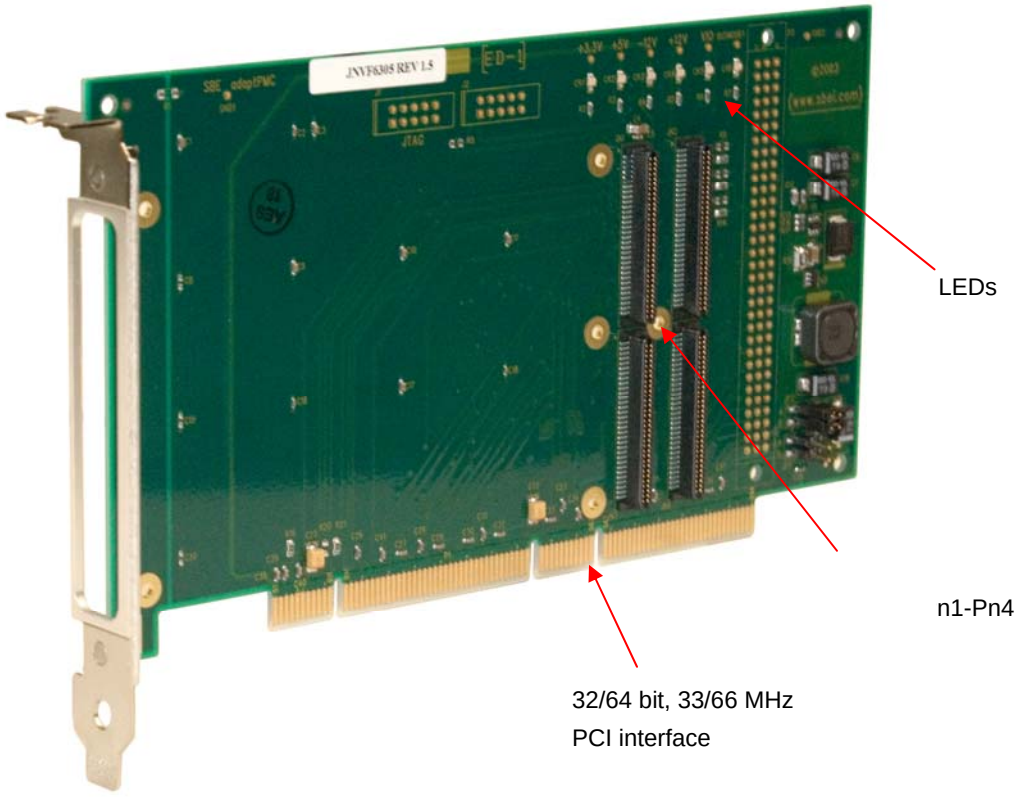
Description

When building a server of desktop system, required interface cards may not always be available in PCI form factor, but may be available in PMC. Adapting PMC cards to the PCI form factor is the purpose of the adaptPCI-PMC card. The adaptPCI-PMC is a passive adapter, allowing use of the PMC card's original software drivers with no interference from transparent or opaque bridges, or other active bus interface devices. The board outline is a PCI variable length card with a Universal PCI edge connector and 64 bit extension. The board will seat one PCI Mezzanine Card (PMC) card supporting PN1 through PN4 connections with both 3.3V and 5V signaling. PMC PN4 is connected to a VME P2 type connector using standardized VITA mapping.

The PCI interface conforms to the PCI 2.1 specification PCI 64. Data transfers of 32 or 64 bits at up to 66MHz are accommodated. Both 3.3V and 5V PCI bus signaling is supported. The board has an optional 3.3V on-board power regulator for older systems that do not have 3.3V available.

The board complies with the PCI Specification Revision 2.1, and IEEE 1386.1-2001 with the exception of signal trace length.



Initial Set-Up

Unpacking Instructions

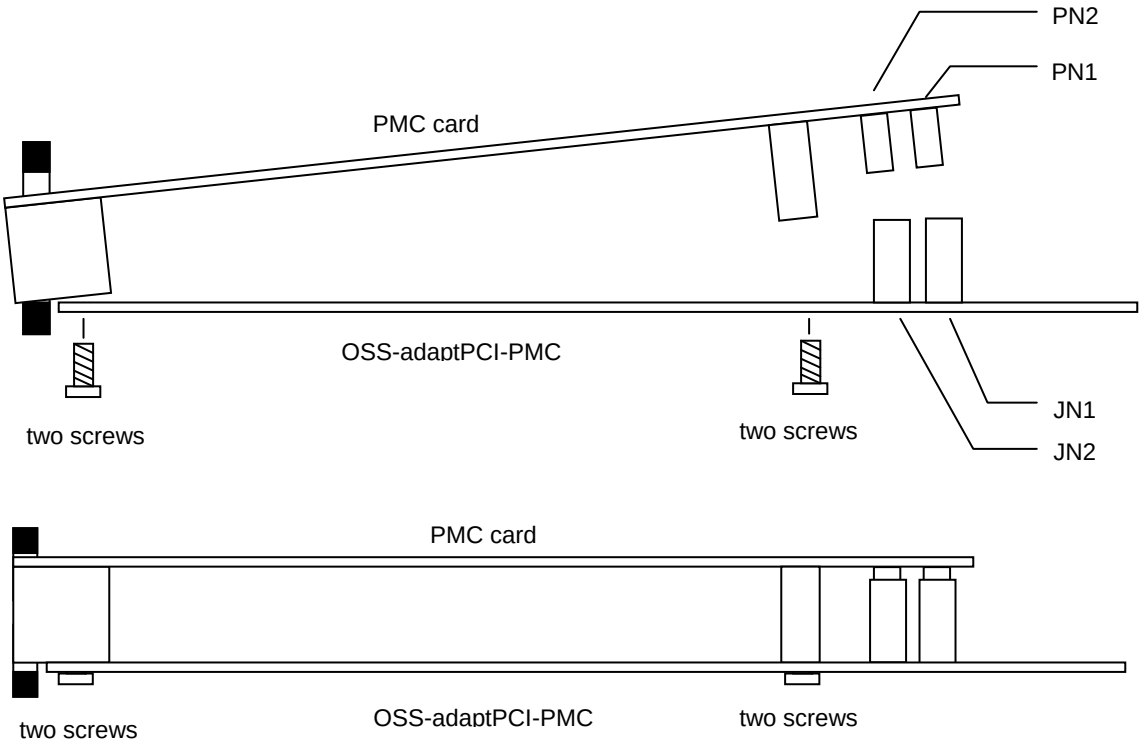
1. If the carton is damaged when you receive it, request that the carrier's agent be present when you unpack and inspect the equipment.
2. After unpacking, verify that all items listed in the packing list are present.
3. Inspect the equipment for shipping damage.
4. Save all packing material for storage or return shipment of the equipment.
5. For repairs or replacement of equipment damaged during shipment, contact One Stop Systems, Inc. to obtain a Return Materials Authorization (RMA) number and further shipping instructions.

Installation and Removal

1. Power down the host system.
2. Open the chassis according to your system documentation.
3. Let the power supply cool down, if necessary.
4. Remove the OSS-adaptPCI-PMC from the protective bag, observing proper ESD safety procedures.

Install the PMC Module

1. Press the PMC card's bezel into the cutout in the adaptPCI-PMC I/O panel. The gasket around the PMC bezel makes a tight fit to ensure an electromagnetic seal. Check that the bezel and gasket are pressed firmly into the carrier I/O.
2. Press the PMC card down onto the carrier so PN1–PN4 plug into JN1–JN4 on the adaptPCI-PMC.
3. Install four screws to secure the PMC card in place.
4. *You may mount a PMC card on either a 32-bit carrier or a 64-bit carrier. However, do not mount a 64-bit PMC card on a 32-bit carrier, and then install it in a 64-bit PCI slot. This violates the PCI specification in regards to REQ64# and ACK64#, and causes indeterminate results. See PCI Specification 3.2, Section 3.8.1.*



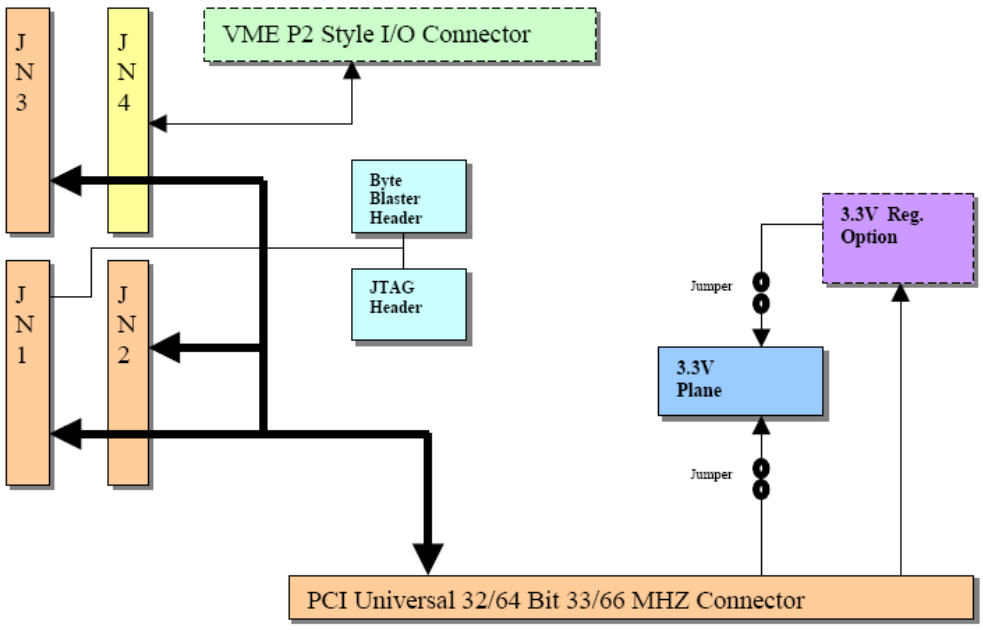
Installing the OSS-adaptPCI-PMC:

1. Insert the OSS-adaptPCI-PMC an open PCI slot. The adapter is a universal-keyed 64 bit 3.3V or 5V board.
2. Make sure that the adapter is well seated and tighten the screw.
3. Close the chassis according to your system documentation
4. Attach the ethernet cables.
5. Turn on power to the computer. Adapter installation is complete.
6. Reverse the above procedure to remove the boardSpecifications

Specifications

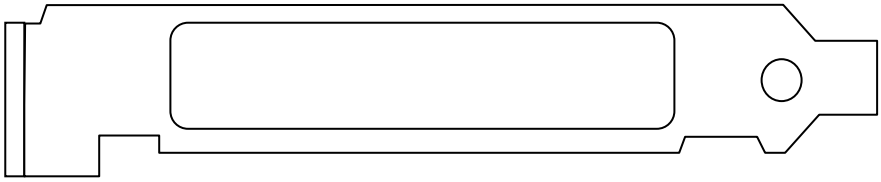
Electrical/Mechanical Specifications	
Form Factor:	32/64 bit, 33/66 MHz PCI interface (PCI Rev 2.2), 3.3V OR 5V Signaling,
Dimensions (H x L):	4.205 inches x 7.55 inches (107 x 192mm)
Front Panel :	PMC Module Cutout
Front Panel Indicators:	Dependant on PMC module
Power Consumption (designed to meet the following conditions	
	12.5W typical
Operating Environment (designed to meet the following conditions)	
Temperature Range:	0° to 55°C (32° to 131°F)
Relative Humidity:	5 to 90% non-condensing
Shock:	30g acceleration peak (11ms pulse)
Vibration:	5-17 Hz 0.5” double amplitude displacement; 7-2000Hz, 1.5g acceleration.
Agency Compliance Designed to meet, but not tested	
	Pending

Block Diagram



Front Panel

The adaptPCI-PMC CompactPCI front panel has custom cut outs with the appropriate thickness to accommodate one PMC bezel with EMC gaskets.



Bus Keying

Keying on the adaptPCI-PMC is used to prevent damage to the card and/or the backplane. There are two keying systems used on the adaptPCI-PMC, PCI and PMC.

PCI

As defined in PCI Specification 2.1, PCI 64, the adaptPCI-PMC has the appropriate edge card connector key slots signifying universal 64 bit PCI card. Because the PCI connector is configured as a Universal PCI card (to allow the adaptPCI-PMC to be inserted in most PCI bus slots), it is the responsibility of the user to ensure that any mounted PCI card has the correct signaling voltages from the PCI bus.

PMC Site

As a passive adapter, the adaptPCI-PMC will pass though whatever signaling voltages are present on the PCI bus, there for it is necessary for the user to supply the required keying posts for a particular PMC/PTMC card. While mounting holes are provided for the key posts, with the locations defined in IEEE 1386, the posts are not installed on the standard product. Proper key post installation is the responsibility of the user. Care must be taken to provide the proper keying, or damage could result from installation of an incompatible PMC or PTMC card.

PCI interface

The adaptPMC supports 32 and 64 bit data transfers up to 66MHz (See Section 2.5 regarding PCI-X). The PCI edge connector uses universal keying (both 3.3V and 5V keyways are present). Pin assignments for the PCI connector can be found in the PCI 2.2 Specification Table 4-11

PRSNT1# and PRSNT2#

The signals PRSNT1# and PRSNT2# are selectable by installing or removing resistors R20 and R21, located near the PCI connector pin B11. PRSNT1# and PRSNT2# are used to indicate 7.5W, 15W or 25W card power level requirements. 15W is the default configuration.

PRSNT1# -R20	**PRSNT2#- R21**	**Add-in Card Configuration**
Open	Open	No card Installed
Ground	Open	Card In, 25W Card
Open	Ground	Card In, 15W Card
Ground	Ground	Card In, 7.5W Card

M66EN

The M66EN signal is used to determine the bus transfer speed (33 or 66 Mhz). The M66EN signal is connected directly to the PMC module. The PMC module controls the M66EN level, and thus controls the bus transfer speed.

PCI JTAG Interface

The TDI and TDO JTAG signals at P1- A4 and P1-B4 are connected to a zero ohm jumper R19. This jumper is installed to continue the JTAG chain when the card is installed in a PCI slot. This jumper must be removed if the user's testing requires the need to break the JTAG chain. All other JTAG signals are no connects

PMC Interface

The adaptPMC supports 32 and 64 bit data transfers up to 66MHz. The PMC site has mounting locations for keying post (both 3.3V and 5V, not installed). Pin assignments for the PMC connectors Jn1 – Jn3 can be found in the IEEE Specification 1386.1-2001, Table 1.

PMC JTAG Interface

There is a JTAG TAP connector (J1) as well as an Altera Byte Blaster connector (J2) to provide an interface to the JTAG chain and device programming on a PMC module. Latest JTAG practice requires that the /TRST signal be pulled low for normal device operation. The /TRST signal is connected to pin 8 of the Byte Blaster connector through a zero ohm jumper. Install this jumper R8 to pull up /TRST when programming devices that pull /TRST low. Headers for J1 and J2 are not installed on the standard product.

A modified Byte Blaster cable is required to pull up / TRST.

BUSMODE Signals

The adaptPMC supplies BUSMODE[4:2]# signals to the PMC card. Zero ohm resistor stuffing options for BUSMODE[4:2]# allow for alternate mode selection. The standard stuffing for BUSMODE# is BUMSMODE4# = 0 , BUSMODE3# = 0 and BUSMODE2# = 1. BUSMODE1# from the PMC module is observable by an LED. Zero ohm jumpers R9 –R14 configure the mode.

BUSMODE4#	BUSMODE3#	BUSMODE2#	MODE	/BUSMODE1
R14 Installed 0	R12 Installed 0	R9 Installed 0	Card Present Test	0
R14 Installed 0	R12 Installed 0	R10 Installed 1	PCI Protocol Default Configuration	0
Any Other State			---	1

Jn1 through Jn3 connectors

The Jn1 through Jn3 connectors map directly to the PCI edge card connector. See the IEEE P1386.1-2001 specification, Table 1, for the mapping by signal name.

Jn4 to VME P2 style I/O connector

The JN4 connector is mapped to a VME style P2 connector as shown in the following table. This connection conforms to VITA 36-199X Draft 0.1, July 19, 1999.

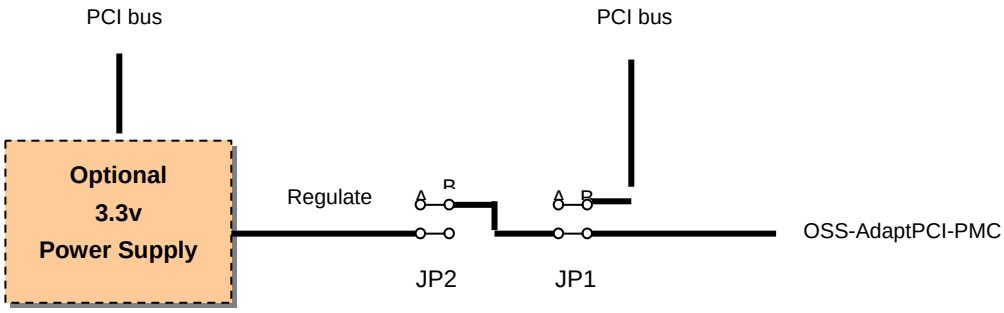
PN4 Pin #	VME P2	PN4 Pin #	VME P2	VME P2	POWER PIN
1	C1	2	A1	B1	GND
3	C2	4	A2	B2	+5V
5	C3	6	A3	B3	X
7	C4	8	A4	B4	X
9	C5	10	A5	B5	X
11	C6	12	A6	B6	X
13	C7	14	A7	B7	+3.3V
15	C8	16	A8	B8	GND
17	C9	18	A9	B9	X
19	C10	20	A10	B10	X
21	C11	22	A11	B11	X
23	C12	24	A12	B12	X
25	C13	26	A13	B13	X
27	C14	28	A14	B14	X
29	C15	30	A15	B15	X
31	C16	32	A16	B16	X
33	C17	34	A17	B17	X
35	C18	36	A18	B18	X
37	C19	38	A19	B19	X
39	C20	40	A20	B20	X
41	C21	42	A21	B21	X
43	C22	44	A22	B22	X
45	C23	46	A23	B23	+5V
47	C24	48	A24	B24	GND
49	C25	50	A25	B25	X
51	C26	52	A26	B26	X
53	C27	54	A27	B27	X
55	C28	56	A28	B28	X
57	C29	58	A29	B29	X
59	C30	60	A30	B30	X
61	C31	62	A31	B31	+3.3V
63	C32	64	A32	B32	GND

Power Supply

5v power is always supplied from the PCI connector. The adaptPCI-PMC may get its 3.3v power from one of two sources, the PCI bus, or the optional on-board 3.3v regulator which draws its power from PCI +5v. See **Error! Reference source not found.**.

When choosing to draw 3.3V power from the PCI Bus, dual jumper JP1A/B is installed, JP2 A/B is removed. This connects the 3.3V PCI source voltage directly to the board's 3.3v plane.

The optional on-board 3.3v switching power supply is provided to draw 3.3v power from the 5.0v source that is provided by the PCI Bus. When choosing this option jumper JP2A/B is installed and JP1A/B removed. With this option selected, 3.3 volts is supplied by a LT1772B switching buck regulator and support components. The board is capable of supplying up to 12 Watts from the on-board regulator.



Ground / Frame Ground connection

Zero Ohm Jumper R1 is provided as a means to connect Signal (Digital) Ground and Frame Ground. R1 is not installed in the default configuration. In practice signal ground and frame ground are normally not connected. The user has the option to connect the signal and frame grounds if needed by the application.

LEDs and test points

LEDs and test points are provided on the adaptPCI-PMC card to indicate status and to facilitate troubleshooting.

Power LEDs

Green Power Indication LEDS and test points are provided for –12V, +12V, 5V, 3.3V and VIO. The LEDs are located at the top edge of the card above the PMC connectors and are clearly marked.

BUSMODE#1 LED

The BUSMODE#1 signal is connected to a green LED that lights when BUSMODE#1 is driven low to indicate that a PMC card is present and PCI capable. A test point is also provided, directly above the BUSMODE#1 LED.

Ground test points

Two test points for ground are also provided. Both test points are located at the top edge of the board, one at the front (GND1), and the other (GND2) at the rear of the card

Power test points

Power test points are provided directly above the associated power LED