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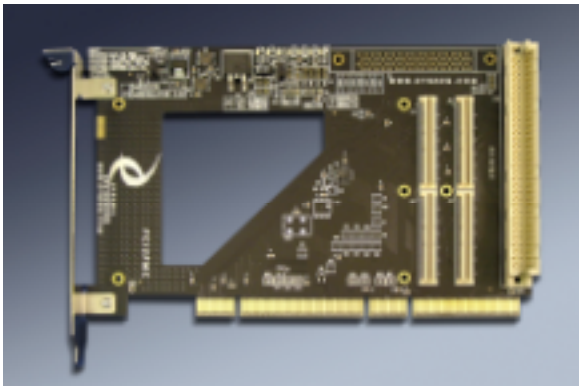
User Manual

PCI2PMC

PCI Single Slot PMC Compatible Carrier
Use Your PMC in a PC



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PCI2PMC
PCI and PMC Compatible Carrier

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The electronic equipment described herein generates, uses, and can radiate radio frequency energy. Operation of this equipment in a residential area is likely to cause radio interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

Dynamic Engineering's products are not authorized for use as critical components in life support devices or systems without the express written approval of the president of Dynamic Engineering.

Connection of incompatible hardware is likely to cause serious damage.

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Product Description

PCI2PMC is part of the PCI and PMC Compatible family of modular I/O components. The PC2PMC adapts one PMC to one PCI slot. Dynamic Engineering has several versions of the PCI2PMC including bridged and two slot versions. The PCI2PMC is a single slot passive design.

Special features:
• Universal PCI 1/2 length card.
LED's are green and steady on when the voltages are active.
• LED1 is PMC Busmode "Present"
• LED2 is 3.3V to PMC
• LED3 is 3.3 from PCI bus.
• LED4 is 3.3 from Regulator
• LED5 is plus 5
• LED6 is plus 12
• LED7 is minus 12
• Jumper selection for onboard 1500mA regulator or PCI 3.3V supply
• 32 or 64 bit operation
•10 ohm series resistors on AD31-0
• Clamping Diodes on critical PCI signals
• Zero delay buffer for PCI clock distribution
• PrPMC clocking options
• Front panel connector access through PCI bracket
• User IO [Pn4] available through 2 cable connectors (DIN IDC and SCSI II compatible)
• Spare pins on SCSI connector can be jumper selected to 5V or ground.
• Matched length IO.
• Cooling cutout for increased airflow to PMC
• Jumper selection on M66EN
• JTAG and Monarch mode control header options

PCI2PMC is a passive design incurring no added delays in connection from the PCI to the PMC buses. The design incorporates features to prevent the physical length of the traces from affecting operation. There may be cases where the backplane can't support all slots with PCI2PMC cards installed.

Our bridged products including PCIBPMC, PCIBPMCET, PCIBPMCX1, and PCIBPMCX2 can be used in situations where a bridge is desired. Please refer to the Dynamic Engineering website for more information on these and other products.

Usage Notes:

The regulator LED may not illuminate unless there is a load from the PMC on the 3.3V supply, and the regulator is selected as the power source for the 3.3V.

The Regulator path can provide up to 1500 mA of 3.3V power. Two FET's are used to allow the user to select PCI 3.3V or local regulator as the source for the 3.3V power to the PMC. If the PMC uses more than 1.5A the PCI selection must be made.

The FET has a small internal resistance and the protection DIODE has a separate current sensitive drop. For low current levels the IR drop is small and the 3.3 will be with the legal range. For larger current levels the –HC option should be selected to minimize the voltage drop.

Jumper options are clearly marked in the component side silk screen.

J1 3.3V Source selector. open = regulated, installed = PCI source.
J2 Connected to pins 33, 67 on P2. 1-2 = 5V, 2-3 = GND installed with –SCSI
J3 Connected to pins 34, 68 on P2. 1-2 = 5V, 2-3 = GND installed with -SCSI
J4 Connected to M66EN. Installed = GND = 33 MHz. Open = bus condition = 33 or 66 MHz.

J5 is the JTAG Header with options for connection to PCI bus or from Flying leads. Installed with -JTAG

	PCI Side	PMC Side
TRST#	1	2
TCK	3	4
TMS	5	6
TDI	7	8
TDO	9	10

The header can be jumpered across to connect the PCI side to the PMC side or the PMC side can be connected to flying leads from your JTAG interface.

J8 Pin 1 = 3.3, and pin 2 = gnd used for reference with JTAG

Add –JTAG to the Part Number if you need J5 and J8 installed.

J6 and **J7** control the PrPMC clock options. Installed with –M option.

J6	**J7**	
OPN	OPN	PCI CLK VIA PLL TO PMC – standard non –M signal path.
SHNT	SHNT	OSC TO BP & PMC BIPASS PLL
SHNT	OPN	OSC TO BP & PMC USING PLL
OPN	SHNT	PMC DRIVING CLOCK TO BP

J9 is installed when the –M option is requested. J9 is a two pin header. When a shunt is installed the 1KΩ resistor provides a pull-down. When open a 10KΩ resistor provides the pull-up. The installed PrPMC can usually override either setting after power-up using software.

PCI2PMC is a product consisting of a PCB and added components. The components can be swapped or left off to create different versions.

The standard version of the board is called “PCI2PMC” and comes with a complete 64 bit PCI path to support 32 and / or 64 bit operation at 33 and / or 66 MHz. The PMC may have IO through its bezel or via Pn4 or both. The Bezel IO is supported via the PCI rear IO port. The Pn4 IO is supported with either a DIN or SCSI connector. The DIN connector is standard and the **–SCSI** option swaps the DIN for the SCSI.

The PCI2PMC–ME version removes the Upper part of the PCI bus and the rear IO leaving the primary 32 bit PCI path and PMC Bezel IO. This version is usually provided with the –HC option to remove the regulator and FET’s etc. to provide a hardwired PCI 3.3V sourced board.

The PCI2PMC, PCI2PMC-SCSI, and PCI2PMC-ME-HC are stocked items. Other combinations are built to order. Please see the last page for more ordering options.

Notes:

A) Revision 4 and later boards M66EN is connected to the PMC slot [Jn2-47]. Recent revision 3 boards are reworked to have the equivalent functionality.

B) Shunts are capable of 800 mA. The Shunts on J2,J3 are not fuse protected. Your circuit must limit total power consumed.

C) Rev 1-4 required –HC option for more than 800 mA of 3.3V from the backplane to be routed to the PMC. Revision 5 and later have MOSFET switches controlled by J1 with a 10A rating. The local regulator has been upgraded to 1500 mA.

D) Revision 5 and later boards with the PrPMC option; not installed unless ordered. Standard configuration is the equivalent of the PCI clock through the PLL to the PMC.

E) Rev 5 and later boards have power reference for JTAG header.

F) Rev 7 switched to 0603 capacitors and increased quantity

G) Rev 8 has matched length IO for Pn4.

PMC Module Backplane IO Interface Pin Assignment

The figure below gives the pin assignments for the PMC Module IO Interface – from Pn4 to the PCI2PMC connectors. Also see the User Manual for your PMC board for more information.

DIN IDC [P3]		SCSI II [P2]			Pn4	
C1	A1	1	35		1	2
C2	A2	2	36		3	4
C3	A3	3	37		5	6
C4	A4	4	38		7	8
C5	A5	5	39		9	10
C6	A6	6	40		11	12
C7	A7	7	41		13	14
C8	A8	8	42		15	16
C9	A9	9	43		17	18
C10	A10	10	44		19	20
C11	A11	11	45		21	22
C12	A12	12	46		23	24
C13	A13	13	47		25	26
C14	A14	14	48		27	28
C15	A15	15	49		29	30
C16	A16	16	50		31	32
C17	A17	17	51		33	34
C18	A18	18	52		35	36
C19	A19	19	53		37	38
C20	A20	20	54		39	40
C21	A21	21	55		41	42
C22	A22	22	56		43	44
C23	A23	23	57		45	46
C24	A24	24	58		47	48
C25	A25	25	59		49	50
C26	A26	26	60		51	52
C27	A27	27	61		53	54
C28	A28	28	62		55	56
C29	A29	29	63		57	58
C30	A30	30	64		59	60
C31	A31	31	65		61	62
C32	A32	32	66		63	64
		33	67	Open, +5 or GND via J2 silk screen defined		
		34	68	Open, +5 or GND via J3		

FIGURE 1 PCI2PMC PN4 INTERFACE STANDARD

Read table:
P3-C1 = P2-1 = Pn4-1
P3-A1 = P2-35 = Pn4-2
etc.

Applications Guide

Interfacing

Some general interfacing guidelines are presented below. Do not hesitate to contact the factory if you need more assistance.

Installation
The PMC is mounted to the PCI2PMC prior to installation within the chassis. For best results: with the PCI bracket installed, install the PMC at an angle so that the PMC front panel bezel penetrates the PCI bracket then rotate down to mate with the PMC [JnX - PnX] connectors.

If the PCI bracket is not installed, plug in the PMC and then attach the PCI bracket. Use the mounting screws that come with the PMC to secure to the PCI2PMC.

There are four mounting locations. Two into the PMC mounting bezel and two for the standoffs near the PMC bus connectors.

Start-up
Make sure that the "system" can see your hardware before trying to access it. Many BIOS will display the PCI devices found at boot up on a "splash screen" with the VendorID and CardId for the PMC installed and an interrupt level.

Watch the system grounds. All electrically connected equipment should have a fail-safe common ground that is large enough to handle all current loads without affecting noise immunity. Power supplies and power consuming loads should all have their own ground wires back to a common point.

Power all system power supplies from one switch. Connecting external voltage to the PCI2PMC when it is not powered can damage it, as well as the rest of the host system. This problem may be avoided by turning all power supplies on and off at the same time. This applies more to the PMC installed into the PCI2PMC than the PCI2PMC itself, and it is smart system design when it can be achieved.

Construction and Reliability

PMC Modules were conceived and engineered for rugged industrial environments. The PCI2PMC is constructed out of 0.062 inch thick HiTemp FR4 material. The material is UL recognized per 94V-0. ROHS and non-ROHS assemblies are available.

A cooling cutout has been designed into the product for improved air flow to the PMC. The components on the PCI2PMC are passive and do not generate an appreciable thermal load.

Surface mounted components are used. The connectors are SMT for the PMC bus and through hole for the IO.

The PMC Module connectors are keyed and shrouded. They are rated at 1 Amp per pin, 100 insertion cycles minimum. These connectors make consistent, correct insertion easy and reliable.

The PMC Module is secured against the carrier with the PMC connectors. It is recommended, for enhanced security against vibration, that the PMC mounting screws are installed. The screws are supplied with the PMC from the OEM. Dynamic Engineering has screws, standoffs, blank bezels and other PMC hardware available at a reasonable cost if your PMC was not shipped with some of the require attachment hardware or if it has been misplaced.

Thermal Considerations

The PCI2PMC design consists of passive circuits. The power dissipation due to internal circuitry is very low. If the PMC installed has high heat dissipation; forced air is recommended.

The PCIBPMC() series has fan capability. If your PMC is “hot” please consider the bridged carriers and choose a FAN option to keep your hardware cool. Alternatively your PC may have sufficient air movement within the chassis to use the passive cooling designed into the PCI2PMC.

Warranty and Repair

Please refer to the warranty page on our website for the current warranty offered and options.

http://www.dyneng.com/warranty.html

Service Policy

Before returning a product for repair, verify as well as possible that the suspected unit is at fault. Then call the Customer Service Department for a RETURN MATERIAL AUTHORIZATION (RMA) number. Carefully package the unit, in the original shipping carton if this is available, and ship prepaid and insured with the RMA number clearly written on the outside of the package. Include a return address and the telephone number of a technical contact. For out-of-warranty repairs, a purchase order for repair charges must accompany the return. Dynamic Engineering will not be responsible for damages due to improper packaging of returned items. For service on Dynamic Engineering Products not purchased directly from Dynamic Engineering contact your reseller. Products returned to Dynamic Engineering for repair by other than the original customer will be treated as out-of-warranty.

Out of Warranty Repairs

Out of warranty repairs will be billed on a material and labor basis. The current minimum repair charge is $100. Customer approval will be obtained before repairing any item if the repair charges will exceed one half of the quantity one list price for that unit. Return transportation and insurance will be billed as part of the repair and is in addition to the minimum charge.

For Service Contact:

Customer Service Department
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Specifications

Logic Interfaces:	PCI Interface 33/32 ⇔ 66/64
Access types:	PCI bus accesses
CLK rates supported:	33 or 66 MHz PCI clock rates
Software Interface:	direct access to PMC
Initialization:	jumper selections for 3.3V power source, PrPMC support and cable options, PCI Bus Speed
Interface:	PMC front bezel via PCI bracket and User IO connector via DIN and or SCSI II/III connector. SCSI connector is matched length routed from Pn4. DIN is matched per side with a small offset between the sides. Column A is matched and Column C is matched.
Dimensions:	1/2 length PCI board.
Construction:	High Temp FR4 Multi-Layer Printed Circuit, Through Hole and Surface Mount Components.

Order Information

Base options shown. Please refer to the website for more options.

standard temperature range –40⇔+85ºC

PCI2PMC	1/2 length PCI card with PMC position and most popular options. IO connector, 3.3V regulator and source selector, all PMC connectors, DIN rear IO. http://www.dyneng.com/pci2pmc.html
-SCSI	Add SCSI connector instead of DIN
PCI2PMC-ME-HC	Optimized for 32 bit operation with high current option. No rear IO on this model. Lower price point.
-HC	Add high current option
-M(33,66)	Any version board with PrPMC clocking options added.
-JTAG	Any version board with JTAG header added
-ROHS	Add ROHS processing.
-CC	Add conformal Coating

HDEterm68	http://www.dyneng.com/HDEterm68.html 68 pin SCSI II to 68 screw terminal converter with DIN rail mounting.
HDEcabl68	http://www.dyneng.com/HDEcabl68.html 68 pin SCSI II cable with multiple length and termination options. Mates with PCI2PMC-SCSI and HDEterm68.
DINterm64	http://www.dyneng.com/DINterm64.html 64 pin DIN connector rows A&C to 64 screw terminal converter with DIN rail mounting. Option for testpoints instead of screw terminal.
DINribn64	http://www.dyneng.com/DINribn64.html 64 pin Ribbon cable with multiple length and termination options. Mates with PCI2PMC and DINterm64.