

DYNAMIC ENGINEERING

150 DuBois St. Suite C Santa Cruz CA 95060

831-457-8891 Fax 831-457-4793

<http://www.dyneng.com>

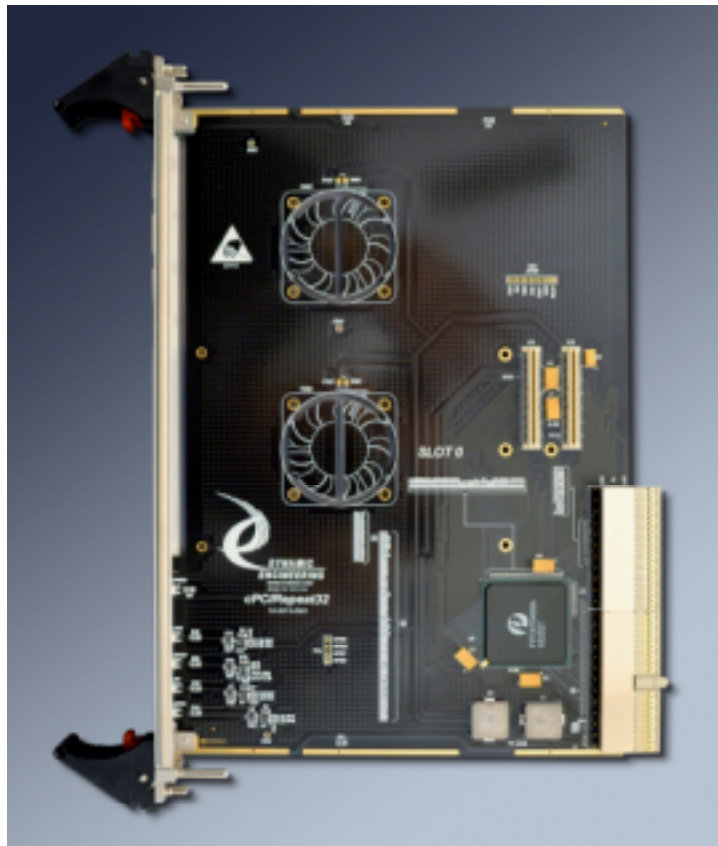
sales@dyneng.com

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User Manual

cPCIRepeat32

cPCI 6U 4HP PMC Carrier With PCI Bus Expansion
Extended Temperature



Revision A

Corresponding Hardware: Revision A

Fab number 10-2013-0501

cPCIRepeat32
cPCI and PMC Compatible Carrier

Dynamic Engineering
150 DuBois St Suite C
Santa Cruz, CA 95060
831-457-8891
831-457-4793 FAX

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Connection of incompatible hardware is likely to cause serious damage.



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FIGURE 1 CPCIREPEAT32 J2 PIN ASSIGNMENT

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Product Description

cPCIRepeat32 is part of the Dynamic Engineering cPCI and PMC compatible family of modular I/O components.

The cPCIRepeat32 is a 6U 4HP design with one PMC position. The design is rated for industrial temperature operation “ET” $-40C \Leftrightarrow +85C$.

The bridge isolates the cPCI PCI bus [J1] from the local PMC PCI bus. Connector J2 has a “Repeated” copy of the PCI bus to be used for bus expansion purposes. Please note: J2 is not pinned out in the standard manner. Do not use in a backplane not designed for cPCIRepeat32. The arbitration and clock references from the secondary side of the bridge are also available on J2.

Easy to use as a plug and play device. In transparent mode no special software is required for the carrier. A special hidden address range is available to allow high-speed local bus operations without interfering with the cPCI bus.

Special features:

- Universal cPCI 6U 4HP.
 - Extended temperature range [-40 +85C]
- LED names within quotes:** LED's for power rails are illuminated when corresponding voltage is within tolerance.
- LED on PMC Busmode “PMC-0”
 - LED on plus 12V “P12V”
 - LED on minus 12V “M12V”
 - LED on plus 5V “P5V”
 - LED on plus 3.3V “P3.3V”
 - Secondary VIO set to 3.3V
 - 32 bit operation on both PCI buses
 - 66 or 33 MHz operation. With 66 MHz. primary bus speed the secondary bus can be 66 or 33 MHz.
 - Front panel connector access through cPCI bracket
 - JTAG programming support option
 - GPIO bus option

cPCIRepeat32 is ready to use with the default settings. Just install the PMC onto the cPCIRepeat32 and then into the system.



Interrupts and Arbitration

Request and Grants for 0-6 are tied to J2. The Rqst/Gnt pair 7 is tied to the PMC. The corresponding IDSEL of AD26 is tied to the PMC. Interrupts from the PMC and secondary bus are connected to the primary PCI bus. INTA through INTD are mapped directly to the primary bus segment for J2 and are rotated to connect [PMC] CDAB to match the IDSEL, Request and Grant. Essentially the PMC is set to be the last item discovered in the chain.

Other Signals

JTAG support is available for the PMC. The JTAG header positions are clearly marked in the silk screen. The headers are frequently not used and are not installed unless requested. Please contact Dynamic Engineering for this option.

The Bridge supports a GPIO function. A header position is available with the positions clearly marked in the silk-screen. The header is installed by request. Please contact Dynamic Engineering for this option. The 4 bits are terminated with 4.7K Ω to 3.3V.



Bus Expansion J2 Pin Assignment

<u>J2</u>	<u>Name</u>
J2.E22	CLK0
J2.D22	GND
J2.C22	CLK2
J2.B22	CLK1
J2.A22	GND
J2.E21	GND
J2.D21	AD0
J2.C21	GND
J2.B21	GND
J2.A21	AD1
J2.E20	AD2
J2.D20	REQ2
J2.C20	AD3
J2.B20	AD4
J2.A20	GNT4
J2.E19	AD5
J2.D19	AD6
J2.C19	GNT1
J2.B19	GND
J2.A19	AD7
J2.E18	CBE0
J2.D18	REQ1
J2.C18	AD8
J2.B18	AD9
J2.A18	GNT2
J2.E17	AD10
J2.D17	AD11
J2.C17	
J2.B17	GND
J2.A17	AD12
J2.E16	AD13
J2.D16	GND
J2.C16	AD14
J2.B16	AD15
J2.A16	
J2.E15	CBE1
J2.D15	PAR
J2.C15	
J2.B15	GND
J2.A15	SERR
J2.E14	PERR
J2.D14	GND
J2.C14	REQ3
J2.B14	GNT3

J2.A14	
J2.E13	LOCK#
J2.D13	STOP
J2.C13	
J2.B13	GND
J2.A13	DEVSEL
J2.E12	TRDY
J2.D12	GND
J2.C12	IRDY
J2.B12	FRAME
J2.A12	GNT0
J2.E11	CBE2
J2.D11	GND
J2.C11	AD16
J2.B11	AD17
J2.A11	AD18
J2.E10	AD19
J2.D10	AD20
J2.C10	
J2.B10	GND
J2.A10	AD21
J2.E9	AD22
J2.D9	GND
J2.C9	AD23
J2.B9	
J2.A9	CBE3
J2.E8	AD24
J2.D8	AD25
J2.C8	REQ0
J2.B8	GND
J2.A8	AD26
J2.E7	AD27
J2.D7	GND
J2.C7	AD28
J2.B7	AD29
J2.A7	AD30
J2.E6	AD31
J2.D6	
J2.C6	
J2.B6	
J2.A6	
J2.E5	
J2.D5	GND
J2.C5	RST
J2.B5	
J2.A5	GNT5
J2.E4	GND

J2.D4	REQ4
J2.C4	REQ6
J2.B4	GND
J2.A4	GNT6
J2.E3	INTD
J2.D3	REQ5
J2.C3	INTC
J2.B3	INTB
J2.A3	INTA
J2.E2	GND
J2.D2	GND
J2.C2	CLK3
J2.B2	GND
J2.A2	GND
J2.E1	CLK6
J2.D1	CLK7
J2.C1	GND
J2.B1	CLK4
J2.A1	CLK5

FIGURE 1

CPCIREPEAT32 J2 PIN ASSIGNMENT

Please note: 1) all signals are per PCI specifications even if name is a bit different – no _N etc. 2) F1-21 odd are also tied to ground.

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 cPCIRepeat32 prior to installation within the chassis. For best results: with the cPCI bracket installed, install the PMC at an angle so that the PMC front panel bezel penetrates the cPCI bracket then rotate down to mate with the PMC [PnX] connectors.

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

Start-up

A third party PCI device cataloging tool will be helpful to check that the VendorID and CardID are “seen” by the OS.

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 cPCIRepeat32 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 cPCIRepeat32 than the cPCIRepeat32 itself, and it is smart system design when it can be achieved.



Construction and Reliability

cPCIRepeat32 is constructed out of 0.062 high temp ROHS compliant material. Gold has been used for plating rather than Tin for improved performance over time. “leaded or unleaded” components can be used along with solder choices. Dynamic Engineering can support both processes.

Surface mounted components are used. The connectors are SMT for the PMC bus and through hole [compression fit] for the cPCI. The PMC Module connectors are keyed and shrouded with Gold plated pins on both plugs and receptacles. They are rated at 1 Amp per pin, 100 insertion cycles minimum. These connectors make consistent, correct insertion easy and reliable.

The PMC Modules are secured against the carrier with the PMC connectors. It is recommended, for enhanced security against vibration, that the PMC’s 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 required attachment hardware or if it has been misplaced.

Thermal Considerations

If the PMC installed has a large heat dissipation; forced air cooling is recommended. Two Fan positions are available for optional Fan installation.



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 \$125. 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
Dynamic Engineering
150 DuBois St. Suite C
Santa Cruz, CA 95060
831-457-8891
831-457-4793 fax
InterNet Address support@dyneng.com



Specifications

Logic Interfaces:	PCI Interface 32 bit on J1 and repeated on J2.
Access types:	PCI bus accesses
CLK rates supported:	33 or 66 MHz PCI clock rates
Software Interface:	transparent Bridge. Bridge registers in configuration space
Initialization:	none required
Interface:	PMC front bezel via cPCI bracket.
Dimensions:	6U 4HP
Construction:	High Temp ROHS compliant Multi-Layer Printed Circuit board, Through Hole and Surface Mount Components. Add -ROHS for ROHS processing.

Order Information

standard temperature range $-40 \leftrightarrow +85^{\circ}\text{C}$

cPCIRepeat32

6U 4HP cPCI card with PMC position and Bus Expansion

<http://www.dyneng.com/cPCIRepeat32.html>

-CC
-ROHS
-FAN

Conformal Coating is available as an option. Add for ROHS processing. Add -Fan0,1 for "Zero Slot" fans installed in those positions. Add "R" to reverse orientation "Fan0R" Add HV for higher velocity fans, these interfere with the slot behind the cPCIRepeat32.

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