User Manual

cPCIeBPMC6UET

cPCI 6U 4HP 2 Position PMC Compatible Carrier
Extended Temperature
Revision E
Corresponding Hardware: Revision E
Fab number 10-2006-0705
cPCiBPMc6UET
cPCI and PMC Compatible Carrier

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Connection of incompatible hardware is likely to cause serious damage.
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**Product Description**

cPCIBPMC6UET is part of the Dynamic Engineering cPCI and PMC compatible family of modular I/O components.

The cPCIBPMC6UET is a 6U 4HP design with two PMC positions. The design is rated for industrial temperature operation “ET” -40°C ⇄ +85°C.

The bridge isolates the cPCI PCI bus from the local PMC PCI bus allowing mixed frequency and width operation. VIO is programmable allowing mixed voltage definitions as well.

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 +85°C]
- LED names within quotes:
  - LED’s on PMC Busmode “PMC-0” “PMC-1”
  - Voltage Monitors to generate LED voltage status
  - LED on plus 12V “P12V”
  - LED on minus 12V “M12V”
  - LED on plus 5V “P5V”
  - LED on plus 3.3V “P3.3V”
  - User selectable secondary VIO.
- 32 or 64 bit operation on either bus
- 66 or 33 MHz operation. With 66 MHz. primary bus speed the secondary bus can be 66 or 33 MHz. Secondary bus can be at a higher rate than the primary bus using oscillator option.
- Front panel connector access through cPCI bracket
- Rear Panel IO support with –RP model
- JTAG programming support option
- GPIO bus option
- Optional FANs

The cPCIBPMC6UET is ready to use with the default settings. Just install the PMC's onto the cPCIBPMC6UET and then into the system. There are a few settings to optimize performance.
DipSwitch Settings

Please note that the switch numbering and ‘C’ and ‘O’ definitions are per the silk screen.

DIPSWITCH #1 [SW1 table on silk-screen]
Switch #1 selects the secondary side VIO [SVIO]. When the switch = open “O” 3.3V is selected for the secondary side. When closed “C” is selected 5V is the VIO definition. The VIO plane is a reference for the IO level. The specification does not prohibit larger current consumption from these pins. The cPCIBPMC6UET design utilizes a MOSFET to control the 5V or 3.3V rails onto the VIO plane. Max consumption on the VIO rail is 3A. The factory setting is “O”.

Switch #2
The SM66EN signal interconnects the bridge and PMC connector pin M66EN plus SW #2. When the signal is a ‘1’ 66 MHz is selected. When the signal is a ‘0’ 33 MHz is selected. The three devices “vote” and the lowest speed wins. In this manner SW2 can force 33 MHz in the “C” position or allow 66 if the PMC and Bridge “agree” in the “O” position. The factory setting is ‘C’.

Switch #3 Config66 – bridge signal is tied to this switch. “C” on the switch selects 33 MHz. operation for the bridge. “O” on the switch allows for 66 MHz. operation. The factory setting is ‘C’.

Switch #4
Spare

Switch #5
Spare

Switch #6
selects PMC IDSEL range. ‘C’ selects the lower range with AD16 and AD17 used for slots 0 and 1 respectively. ‘O’ selects the upper range with AD20 and AD21. The factory setting is ‘O’.

Switch #7 selects PMC Monarch Mode position 0. For prPMC’s using the Monarch Mode pin, closing the switch [‘C’] will cause the Monarch Pin [64] at the PMC to be tied through a 1KΩ resistor to ground. With the switch open the Monarch pin is tied to 3.3V through 4.7KΩ. The factory setting is ‘O’.

Switch #8
Interrupts

Interrupts from the PMC’s are connected from the PMC to the primary PCI bus. INTA through INTD are mapped directly to the primary bus segment for position 0 and are rotated to connect [PMC] B,C,D,A to [PCI] A,B,C,D for slot 1.

Options

Dynamic Engineering offers two versions of the cPCI-BPMC6UET design.

The base design supports PMC’s with IO through the bezel.

The –RP version adds the J3 and J5 connectors to add “Rear Panel” IO capabilities. J4 has a position, and is not installed. If you want J4 installed please contact Dynamic Engineering.

For designers using the –RP version of the card the Dual PIM Carrier [http://www.dyneng.com/pim_carrier.shtml] has compatible IO definitions and provides an easy way to connect rear panel cabling. Custom and off-the-shelf PIMs [PMC IO Modules] are available. For larger quantities Dynamic Engineering can “flatten” the carrier/PIM combination into a custom IO card.

Fans. Add optional “Zero Slot” fans to the carrier to support higher thermal load PMC’s. Fans are numbered by position “0” and “1”. Fans can be mounted in the standard orientation which provides air flow to the primary side of the PMC. The “R” option reverses the individual fans to pull air from the PMC and exhaust out the rear of the carrier.

Other Signals

PME is tied between the cPCI connector and the PMC positions bypassing the bridge as a standard setting. The bridge can be inserted into the path if desired. Resistor jumpers are used for this option. Please contact Dynamic Engineering for this option.

Reset Out on PMC position 0 is tied to Reset In on the secondary side of the bridge. The signal is pulled-up for non-PrPMC implementations. This connection will allow the PrPMC to cause a reset to the local side of the bridge. More details are available in the Pericom data book.
JTAG support is available for each slot independently. 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 lower 4 bits are terminated with 4.7KΩ to 3.3V. The upper bits have internal [bridge] pull-ups.
In the table above Slot 0 PMC and J3 are part of the cPCIbPMMC6UET design. The third column [blue] for the PIM is shown as a reference for designers utilizing rear panel IO. The PIM markings are not found on the cPCIbPMMC6UET card. The cPCI Dual PIM carrier is designed to match the cPCIbPMMC6UET and provide the two PIM positions.
In the table above Slot 1 PMC and J5 are part of the cPCIBPMC6UET design. The third column [blue] for the PIM is shown as a reference for designers utilizing rear panel IO. The PIM markings are not found on the cPCIBPMC6UET card. The cPCI Dual PIM carrier is designed to match the cPCIBPMC6UET and provide the two PIM positions.
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 cPCIBPMC6UET 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 PCIBPMC6UET 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 cPCIBPMC6UET than the cPCIBPMC6UET itself, and it is smart system design when it can be achieved.
Construction and Reliability

The cPCIBPMC6UET 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’s installed have a large heat dissipation; fans are recommended.
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:

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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: transparent Bridge. Bridge registers in configuration space

Initialization: Selections for VIO, primary and secondary clock rates

Interface: PMC front bezel via cPCI bracket. Rear Panel IO option.

Dimensions: 6U 4HP

Order Information

standard temperature range –40 <sup>→</sup> +85°C

cPCIBPMC6UET  6U 4HP cPCI card with two PMC positions
http://www.dyneng.com/cPCIBPMC6UET.html

cPCIBPMC6UET-RP  6U 4HP cPCI card with no PMC positions and
RP IO connections on J3 / J5
http://www.dyneng.com/cPCIBPMC6UET.html

-FAN(01R)  Zero Slot Fans can be added in position 0 and
or position 1. Adding R to either or both
positions changes the Fan mounting to pull air
from that location instead of blowing directly on
the PMC. –FAN01 populates with fans in both
locations. –FAN0R1R populates with fans in
reversed orientation both locations. Any
combination is valid.

-CC  Conformal Coating is available as an option.
-ROHS  Add for ROHS processing.

Rear Panel IO support  Dual PIM carrier [6U] Two PIM positions with
compatible IO definitions for J3/J5
http://www.dyneng.com/pim_carrier.shtml

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