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PCIeBPMC

PCIe [Express] to PMC Adapter / Carrier
 Shown with optional "Zero Slot Fans"™ in both positions.
 Fans available in either, both, or neither position



- Features
- Benefits
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PCIeBPMC (PCI/PCI-X Bus Compatible) Bridge based PCIe and PMC Compatible Adapter Carrier Front View shown with 1 installed fans model # PCIeBPMC-FAN2

Now you can use your PMC with a new PC. The new PC's have PCIe connectors in larger quantities than PCI slots. The PCIeBPMC (PCIe Bridge PMC 1 slot) adapter / carrier converter card provides the ability to install one PMC card into a standard PCIe (Express) 1 lane slot. Suitable for PCI operation with the PMC; 32 bit or 64 bit data and PCI (25, 33, 50, 66)MHz clock. Auto selected or switch programmable speeds. PCIeBPMC is a copy of the PCIeBPMCX1 design reduced to 1 lane operation. PCIeBPMC can be used in single lane as well as multi-lane slots. For use in higher lane count slots the PCIeBPMCX1 is recommended. All clock speeds and modes are available on the PMC side of the Bridge, however from a bandwidth point of view the single lane can only "really" support 32/33 operation for DMA. 64/66 can be used along with the other configurations if the overall performance does not exceed that of a single lane slot.

Why the Tsi384 instead of the PEX8114? Most current PCIe carriers for PMC are using the PLX PEX8114

device. The Tundra Tsi384 has significantly better performance. For the details request the Tundra speed comparison document [from Tundra]. It is a confidential document so we can't reprint the results here.

We can tell you that we ran more than 100K DMA loop-tests using the PMC BiSerial III MDS1 as a test bench. We ran the test for 54 hours and could have left it longer....The DMA loop uses a message size of 1Mb, significantly larger than the 1K x 32 FIFO within the [MDS1](#) design. HW moves the data between FIFO's. DMA moves the data back again. The FIFOs are relatively small when compared to the file size being transferred. The TX and RX side have independent DMA controllers on the MDS1. There are 4 channels per MDS1. The hardware starts transferring the RX side as soon as there is data in the RX FIFO. The result is that data is being transferred in both directions using DMA across the PCIe bus. The transfers will be somewhat asynchronous to each other creating all possible conditions when allowed to run for an extended period of time.

The hardware ran Friday - Monday without error. The test operates faster than in a standard PCI slot. When you do the math an impressive amount of data was transferred and checked.

Faster, lower powered, less complex power supply requirements, higher MTBF. In short a better product. We use PLX devices on a number of our designs. In this case the Tundra part is superior. If you care about performance, when comparing PCI Express carriers check for the Tsi384 bridge.

The PMC user IO connector Pn4 is available on a SCSI II connector. The Pn4 "user IO" is routed differentially with matched length and impedance control to the SCSI connector. The PMC front panel connector is mounted through the PCIe mounting bracket.

For superior performance the PCIeBPMC has dual cooling cutouts for increased airflow to the PMC. If your application requires a fan you can order the **PCIeBPMC-FAN** to have a fan(s) mounted to your PCIeBPMC. The FAN positions are numbered 1-2 with 1 closest to the PCIe Bezel [left edge in the picture above]. Both fan positions can be mounted. The 2nd position can have a "Zero Slot Fan"™ mounted where the fan does not take any extra slots. The first position can be fitted with the "Zero Slot Fan"™, if the PMC to be installed does not need the full 10 mm height in the connector area. If the PMC to be mounted needs to use more than 4.7 mm of the height in the connector area the standard fan - rear mounted can be used and potentially require an extra slot.

The PCIe bus is interconnected to the PMC via a bridge. The bridge can operate with 1, 2, 3, or 4 lanes in operation. Only lane 0 is connected on the PCIeBPMC design. For 4 lane PCI-X speed capability use the [PCIeBPMC X1](#). LEDs are provided to indicate the Lane status. The Secondary side of the bridge can operate with 32 or 64 bit data and PCI or PCI-X programming. The design uses a DIPSWITCH to allow selection of auto or force on the clocks. With Auto the PMC PCIXCAP and M66EN signals are used to determine the clock speed. With Force, the DIPSWITCH is used to select the clock rate. The buffering within the bridge will take care of the rate and data matching. The local side can also operate at 133, 100, 66, 50, 33, or 25 MHz depending on the PMC's installed. The PCI-X controls are also selectable via dipswitch.

The voltage definitions are buffered between the PCIe and PMC buses. PCIe is fixed LVDS levels, and the PMC VIO is set to 3.3V.

The bridge is located near the PCIe "gold fingers" and routed with PCIe specification compliant traces for impedance and length to insure maximum performance from your Express system.

Local Regulation of the 3.3V power insures clean power on the 3.3V rail, and that the rail is energized. The -12V, 5V, and 3.3V for the PMC are regulated on board. The regulator designs utilize a switching regulator controlling a MOSFET to convert 12V. An LC filter insures clean power at the PMC. The bridge uses a small amount of 3.3 plus 1.2V also derived from +12 with a switching power supply. The PCIe gold fingers are rated for 1.1A each, and a total of 5.5A on the +12V rail. 59.4W are available to the card after power conversion, and about 2W is used for the Bridge leaving 57.4W for the PMC. In most cases this is enough power. The PCIeBPMC has a cable connector to allow additional 12V power to be added to the card. The two supplies are DIODE coupled. The bridge is properly bypassed with additional capacitors near the PMC connectors.

The individual pins on the JN4 (PN4) connectors for each slot are accessible by a 68 pin SCSI connector. We recommend using our SCSI cable and the [HDEterm68](#) breakout block with the SCSI connector.

The PMC JTAG connections are routed to a header. The header is configured to for discrete connections. Please let us know if you want the header installed.

- 1 year warranty
- Quantity discounts available

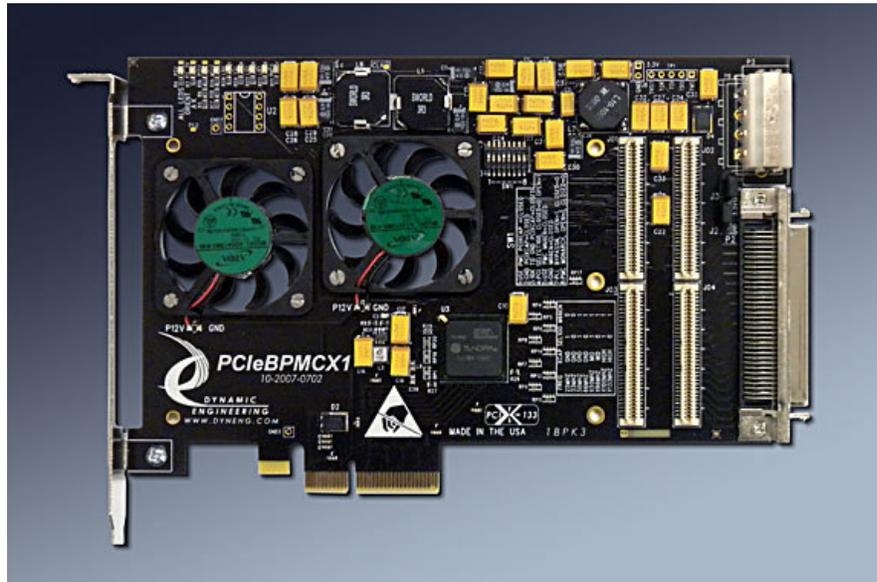


PCIeBPMC [X1 version] shown loaded with a Dynamic Engineering [PMC BiSerial III Module](#)

PCIeBPMC Features

- **Size** Half size PCIe card.
- **PMC compliant slots** 1 PMC Slot provided. DMA capable.
- **Clocks** PCI secondary bus can operate at PCI(66, 50, 33,25) MHz. User switch or automatic selection clock selection. For **continuous** operation above 32/33 the "X1" version is recommended
- **Access Width** Standard PCI byte lanes supported for byte, word and long access dependent on installed PMC. 64 or 32 bit operation supported by Bridge.
- **Software Interface** Industry Standard TS1384 Bridge register definitions. The bridge **does not** require any user set-up. PMC register definitions as defined by installed hardware.
- **Interrupts** INTA, INTB, INTC, INTD routed to to Bridge and handled per PCIe convention. Most PMCs use one Interrupt level [INTA].
- **Power** 3.3, 5, -12V, regulated from +12V rail
- **PMC VIO** 3.3V
- **Thermal** The PCIeBPMC has cut-outs to support increased airflow over the PMC component side. Optional Zero Slot fan(s) with two mounting positions are available.
- **IO Interface** Front Bezel IO supported at PCIe bracket. Jn4 "user IO" supported with SCSI connector. Differential Impedance controlled matched length traces from Pn4 to SCSI connector.
- **Specification** PCIe, PCI, PICMG 2.15 specification compliant
- **LED's** +3V, +5V, +12V, -12V and Busmode 1 [present], PCIe Lane Status [1]
- **DIP switch** 8 position switch provided to allow for configuration control and to support the secondary clocking options.
- **JTAG** Optional PMC JTAG connections are tied to a labeled header.

- **MTBF** 25C GB 1,714,065 Hrs. To be revised upward when final vendor data become available.
- **Statement of Volatility** [Download PDF here](#)



PCIeBPMC [X1 version] Rear View shown without the bezel or fans installed

PCIeBPMC Benefits

- **Speed** The PCIeBPMC has full rate 32/33 operation or bursted operation at higher clock rates at the PMC slot. For continuous operation at 64 bits or 66/100/133 frequencies the "X1" version is recommended
- **Price** Make use of existing PMC designs in PCIe applications without paying for the expense of a new design and layout. Quantity discounts are available.
- **Ease of Use** The PCIeBPMC is easy to use. A plug and play interface to the PMC site. The Bridge can be configured with the user switch on board; eliminating any requirement for special software for the bridge itself. The PCIeBPMC is a Transparent Bridge. In most cases the switches can be left with the factory settings. The manual contains clear directions for switch options.
- **Availability** PCIeBPMC is a popular board. We keep PCIeBPMC in stock. Send in your order and in most cases have your hardware the next day - delivered to you via FedEx.
- **Size** PCIeBPMC is a half size PCI board which conforms to the PCIe mechanical and electrical specifications. Eliminate mechanical interference issues. PCIeBPMC can be used in all full and half length PCIe compliant slots. With the rear IO connector in use a full length slot will likely be required. Fan options for no extra slot required cooling.
- **PMC Compatibility** PCIeBPMC is **PMC** compliant per the IEEE 1386 specification. All Dynamic Engineering PMC Modules are compatible with the PCIeBPMC. All other PMC Modules which are compliant with the PMC specification are compatible with PCIeBPMC.

- **PCIe Compatibility** PCIeBPMC is **PCI Express** compliant. PCIeBPMC can be expected to work in any PCIe compliant backplane. PCIeBPMC has been tested in multiple backplanes. 1 or more lane connector slots support the PCIeBPMC.

Engineering Kit

PCIeBPMC-BO.....Break Out Kit for PCIeBPMC includes:
3' HDEcabl68 and HDEterm68-MP

Ordering Information

- **PCIeBPMC** base version (PCIeBPMC with SCSI connector and standard processing [lead solder])
- **PCIeBPMCX1-FAN()** Need additional cooling? order the **PCIeBPMCX1-FAN()** for a pre-installed 12V 5.2CFM fan(s) to maximize cooling and functionality of your card. The fan has been tested with high wattage prPMC devices. Fan position 1 is closest to the PCI bezel. Valid Fan options include: (1,1R) slot 1 only low profile or rear mount, (2,2R) slot 2 only low profile or rear mount or any combination with at most 1 fan per slot defined. Please note with revision 2 and later cards both fan positions are legal for PMC height specifications. 8 CFM fans are available as R mount only (add -FAN(1,2)8R to PN for this option).
- **PCIeBPMC-NC** with no SCSI or power connector installed. This card is 1/2 length
- **PCIeBPMC-ROHS** with ROHS processing. Standard processing will result without this option
- **PCIeBPMC-DD** with a PC standard "Disk Drive" connector installed for supplemental power. The "-DD" option will allow an added 5A [60W] to be used on the card.
- **PCIeBPMC-DDV** with a vertical PC style "Disk Drive" connector installed for supplemental power. The "-DDV" option will allow an added 5A [60W] to be used on the card. This version is usually used with the -NC option for high current boards in a short PCIe slot.
- **PCIeBPMC-OT** with a high power connector installed for supplemental power. Special screw terminal style positive lock connector with 20A rating. Perfect for high powered cards and or custom cable requirements. Comes with board side connector installed. Cable side connector provided to terminate your power cable. Pins 1,2 = GND. Pins 3,4 = 12V. Custom cables available. Please contact Dynamic Engineering for this option.

Please note that the standard card without the -DD, -DDV, or -OT option will work in most situations. Many PMC's fit within the "gold finger" power budget.

If you are unsure of your power requirements, we recommend ordering with a Power Connector installed to support your future development, and eliminate needing to install at a later date.

- **PCIeBPMC** Order combinations of the above options by simply adding the extension(s) to your order request.

Ordering Options: Please select the board version, eng. kit & fan options you wish to order.

Processing: Standard	Board Version	Please Select Fan options:n
Select Breakout Kit Option if needed:	Related Accessories: Related access	
Other Accessories		
Quantity <input type="text" value="1"/>	Add to Cart	View Cart

Manual

You must have Adobe Acrobat to read our PDF files.

Download the [PCIeBPMC and PCIeBPMCX1 Manual](#) in PDF format.

Related Items

[HDEcabl68](#) SCSI II/III Cable

[HDEterm68](#) SCSI II/III to 68 pin terminal block

[Custom, IP, PMC, XMC, PCIe, PCI, cPCI, VME Hardware, Software designed to your requirements](#)

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