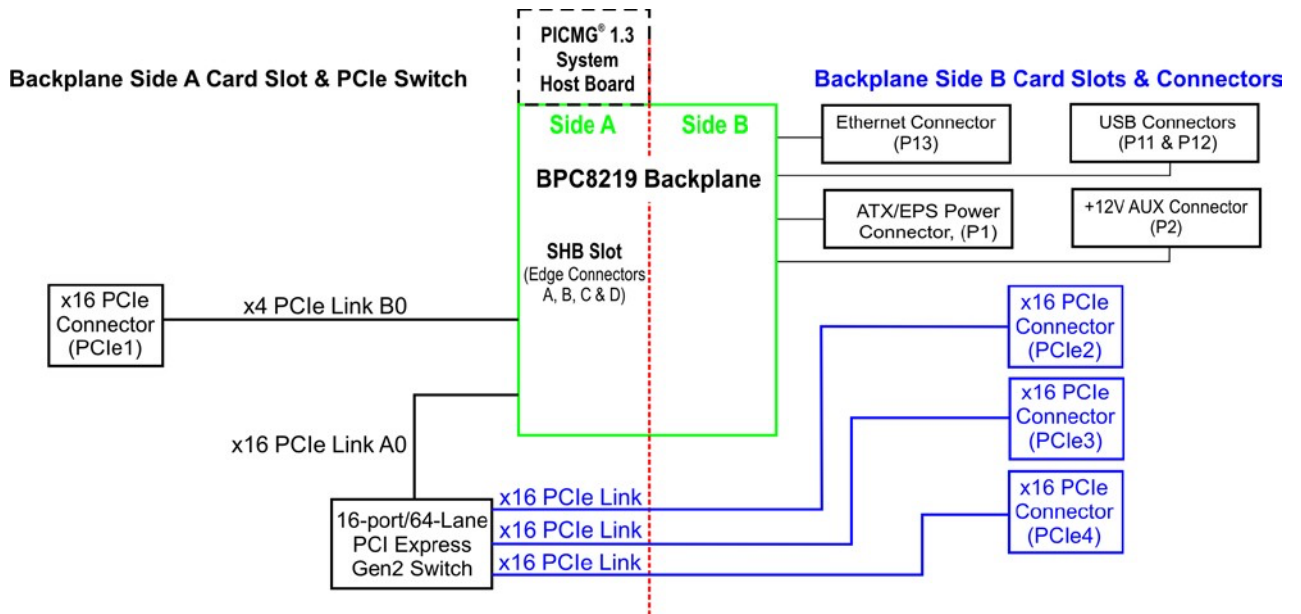




## Technical Information – Jumpers, Connectors and Status LEDs BPC8219 (8219) 2U PCI Express 2.0 Backplane

### Block Diagram



#### **BPC8219 Block Diagram Key**

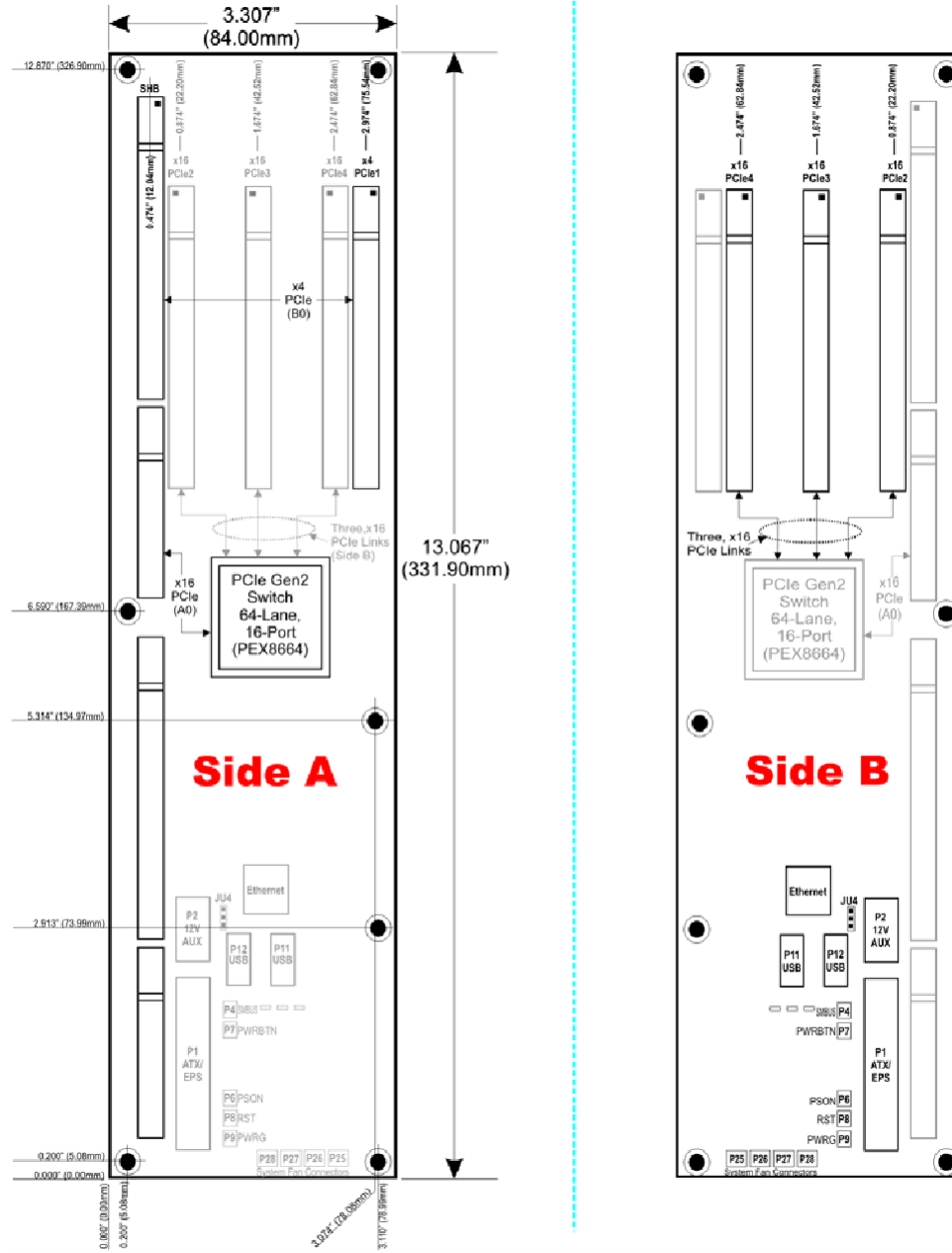
Blue = x16 PCIe Gen2 links

Black = x4 PCIe Gen2/1.1 Link

**NOTE:** The BPC8219 backplane is optimized for use with PCI Express 2.0 system host boards such as the Trenton TSB7053 and the JXT6966. Non-Gen2 single and dual-processor PICMG 1.3 SHBs; such as the BXT7059 and TQ9, may be used with the BPC8219 backplane, but the PCIe root link to the Gen2 switch will be operating at the PCIe 2.0 or 1.1 link speed respectively for these two specific SHBs. In this usage case, all downstream links from the Gen2 switch will deliver PCIe 2.0 link speeds when a Gen2 PCIe card (i.e. endpoint) is installed in any of the three, x16 PCI Express 2.0 option card slots on backplane side B regardless of the SHB's root link interface.



## Layout Diagram – 8219-013 – Mounting Hole Pattern



### Notes:

1. Connector spacing: 0.800"
2. Power connectors shown represents backplane model number 8219-013
3. The nominal backplane thickness is 0.080"; however, the backplane mounting holes are recessed 0.018" on the bottom to provide an effective PCB thickness of 0.062" for use in the chassis design process.
4. Mounting holes: .156" diameter
5. All dimensions are in inches.
6. Optional PICMG 1.3 USB and Ethernet connectivity provided by Trenton PICMG 1.3 SHBs. Not all SHBs support these capabilities.
7. Refer to the status LED section for definitions on the PCI Express link speed and state for each diagnostic LED



## **8219-013 Configuration Jumpers**

The setup of the configuration jumpers on the backplane is described below. All four backplane jumpers are located on side B of the BPC8219 backplane. An \* indicates the jumper default value.

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**NOTE:** For the JU4 3-pin / two-position jumper, “TOP” and “BOTTOM” refers to positioning when the backplane is viewed with the slots at the top end of the backplane.

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<u>Jumper</u>	<u>Description</u>
<b>JU1</b>	<b>SHB I2C Enable</b> (2-pin Jumper/One Position) Open to ENABLE I2C communication between the SHB and the 8219 I2C Bus* - Do not populate jumper
<b>JU2</b>	<b>PCIe Switch I2C Enable</b> (2-pin Jumper/One Position) Open to ENABLE I2C communication between the PCIe switch and the 8219 I2C Bus* - Do not populate jumper
<b>JU3</b>	<b>Slot Clock I2C Enable</b> (2-pin Jumper/One Position) Open to ENABLE I2C communication between the PCIe Slots, Clock Buffers, PCIe Retimers and the 8219 I2C Bus* - Do not populate jumper
<b>JU4</b>	<b>+5V Auxiliary Voltage</b> (3-pin Jumper/Two Position) Install on the TOP (pins 1-2) if +5V auxiliary voltage is provided by the standard +5V supply. This option is used for systems which do not have either an ATX or EPS standard power input. This mode provides the necessary +5V for the SHB’s +5VAUX signal lines. Sleep mode recovery is not supported using non- ATX/EPS power supplies.  Install on the BOTTOM (pins 2-3) if +5V auxiliary voltage is provided by a separate +5VAUX signal input pin. This enables the necessary SHB power signaling and allows recovery from sleep mode. This option is used for ATX or EPS standard power supplies. *

**\*Default position**



## **8219-013 Connectors**

**NOTE:** Pin 1 on the connectors is indicated by the square pad on the PCB.

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### **P1 - ATX/EPS Power Connector**

24 pin vertical dual row, Molex #44206-0007

<u>Pin</u>	<u>Signal</u>	<u>Pin</u>	<u>Signal</u>
1	+3.3V	13	+3.3V
2	+3.3V	14	NC
3	Gnd	15	Gnd
4	+5V	16	PSO#
5	Gnd	17	Gnd
6	+5V	18	Gnd
7	Gnd	19	Gnd
8	PWRGD	20	NC
9	+5VAUX	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	Gnd

### **P2 - +12V AUX Power Connector**

8 pin vertical dual row, Molex #44206-0005

<u>Pin</u>	<u>Signal</u>	<u>Pin</u>	<u>Signal</u>
1	Gnd	8	+12V
2	Gnd	7	+12V
3	Gnd	6	+12V
4	Gnd	5	+12V

### **P4 - SMBUS Connector**

2 pin vertical single row header, Amp #640456-2

<u>Pin</u>	<u>Signal</u>
1	SMDAT
2	SMCLK

### **P6 - Power-On Connector**

2 pin vertical single row header, Amp #640456-2

<u>Pin</u>	<u>Signal</u>
1	PSO#
2	Gnd

### **P7 - Power Button Connector**

2 pin vertical single row header, Amp #640456-2

<u>Pin</u>	<u>Signal</u>
1	PWRBT#
2	Gnd

### **P8 - Reset Connector**

2 pin vertical single row header, Amp #640456-2

<u>Pin</u>	<u>Signal</u>
1	SHB_RST#
2	Gnd



## **8219-013 Connectors (continued)**

- P9 - Power Good Connector**  
2 pin vertical single row header, Amp #640456-2
- | <u>Pin</u> | <u>Signal</u> |
|------------|---------------|
| 1          | PWRGD         |
| 2          | +5V           |
- P11 - Universal Serial Bus (USB) Connector<sup>#</sup>**  
8 pin dual row header, Amp #5103308-1
- | <u>Pin</u> | <u>Signal</u> | <u>Pin</u> | <u>Signal</u> |
|------------|---------------|------------|---------------|
| 1          | +5V-USB1      | 2          | +5V-USB0      |
| 3          | USB1-         | 4          | USB0-         |
| 5          | USB1+         | 6          | USB0+         |
| 7          | Gnd-USB1      | 8          | Gnd-USB0      |
- P12 - Universal Serial Bus (USB) Connector<sup>#</sup>**  
8 pin dual row header, Amp #5103308-1
- | <u>Pin</u> | <u>Signal</u> | <u>Pin</u> | <u>Signal</u> |
|------------|---------------|------------|---------------|
| 1          | +5V-USB3      | 2          | +5V-USB2      |
| 3          | USB3-         | 4          | USB2-         |
| 5          | USB3+         | 6          | USB2+         |
| 7          | Gnd-USB3      | 8          | Gnd-USB2      |
- P13 - 10/100/1000Base-T Ethernet Connector – LAN 0<sup>#</sup>**  
8 pin vertical RJ-45 connector, Molex #42878-8410
- | <u>Pin</u> | <u>Signal</u> |
|------------|---------------|
| 1          | TRP1+         |
| 2          | TRP1-         |
| 3          | TRP2+         |
| 4          | TRP3+         |
| 5          | TRP3-         |
| 6          | TRP2-         |
| 7          | TRP4+         |
| 8          | TRP4-         |
- P25, P26, P27, P28 - 12V Chassis Fan Connectors (4)**  
3 pin right-angle header, Amp #640456-3
- | <u>Pin</u> | <u>Signal</u> |
|------------|---------------|
| 1          | Gnd           |
| 2          | +12V          |
| 3          | NC            |

<sup>#</sup>Backplane functionality provided by the system host board



**8219-013 Diagnostic LED Status – Power Indicators**

LED Reference Designation	Backplane Silkscreen Wording	LED On	LED Off
LED1	+5AUX	Voltage Detected	Voltage Not Detected
LED2	+5V	Voltage Detected	Voltage Not Detected
LED3	+3.3V	Voltage Detected	Voltage Not Detected
LED4	+12V	Voltage Detected	Voltage Not Detected
LED5	PWRGD 2.5V	Voltage Detected	Voltage Not Detected
LED6	PWRGD 1V	Voltage Detected	Voltage Not Detected

**8219-013 Diagnostic LED Functions – PCI Express Links**

LED Reference Designation	Backplane Silkscreen Wording	Function
LED7	LINKA0GD	Indicates A0 link established between SHB and PCIe Switch U30
LED8	PCIE2 GD	Indicates PCIe link status between PCIe Switch U30 and the slot PCIe2 end point card
LED9	PCIE3 GD	Indicates PCIe link status between PCIe Switch U30 and the slot PCIe3 end point card
LED10	PCIE4 GD	Indicates PCIe link status between PCIe Switch U30 and the slot PCIe4 end point card
LED11	EEPROM PROG	Programming error for the EEPROM values used by PCIe Switch U30

**8219-013 Diagnostic LED7, LED8, LED9, and LED10 – PCI Express Link Status for the PCIe Switch and the Three x16 PCI Express Card Slots on Side B**

LED Pattern	PCI Express Link State
ON	Link is up, 5.0GT/s, all lanes are up
OFF	Link is down
Blinking, 0.5 seconds On, 0.5 seconds Off	Link is up, 5.0GT/s, reduced lanes are up
Blinking, 1.5 seconds On, 0.5 seconds Off	Link is up, 2.5GT/s, all lanes are up
Blinking, 0.5 seconds On, 1.5 seconds Off	Link is up, 2.5GT/s, all lanes are up