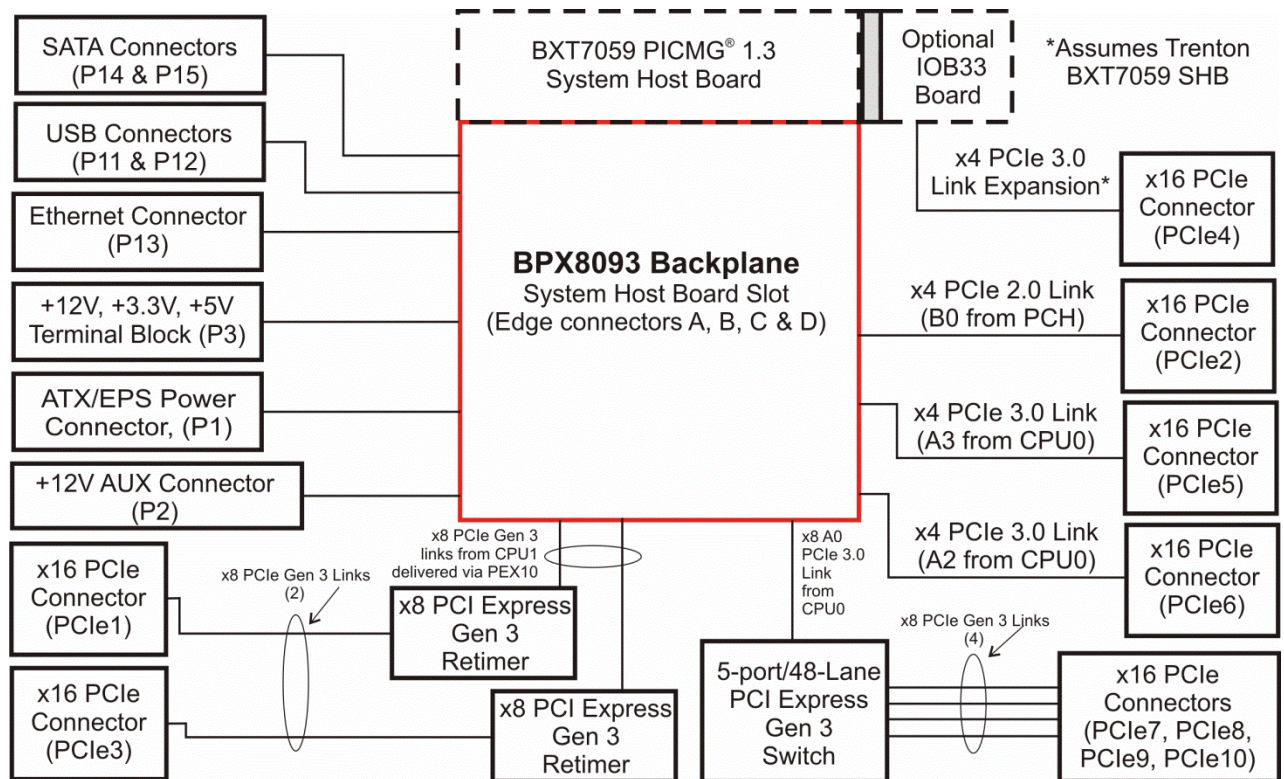


## Technical Information –Jumpers, Connectors and Status LEDs

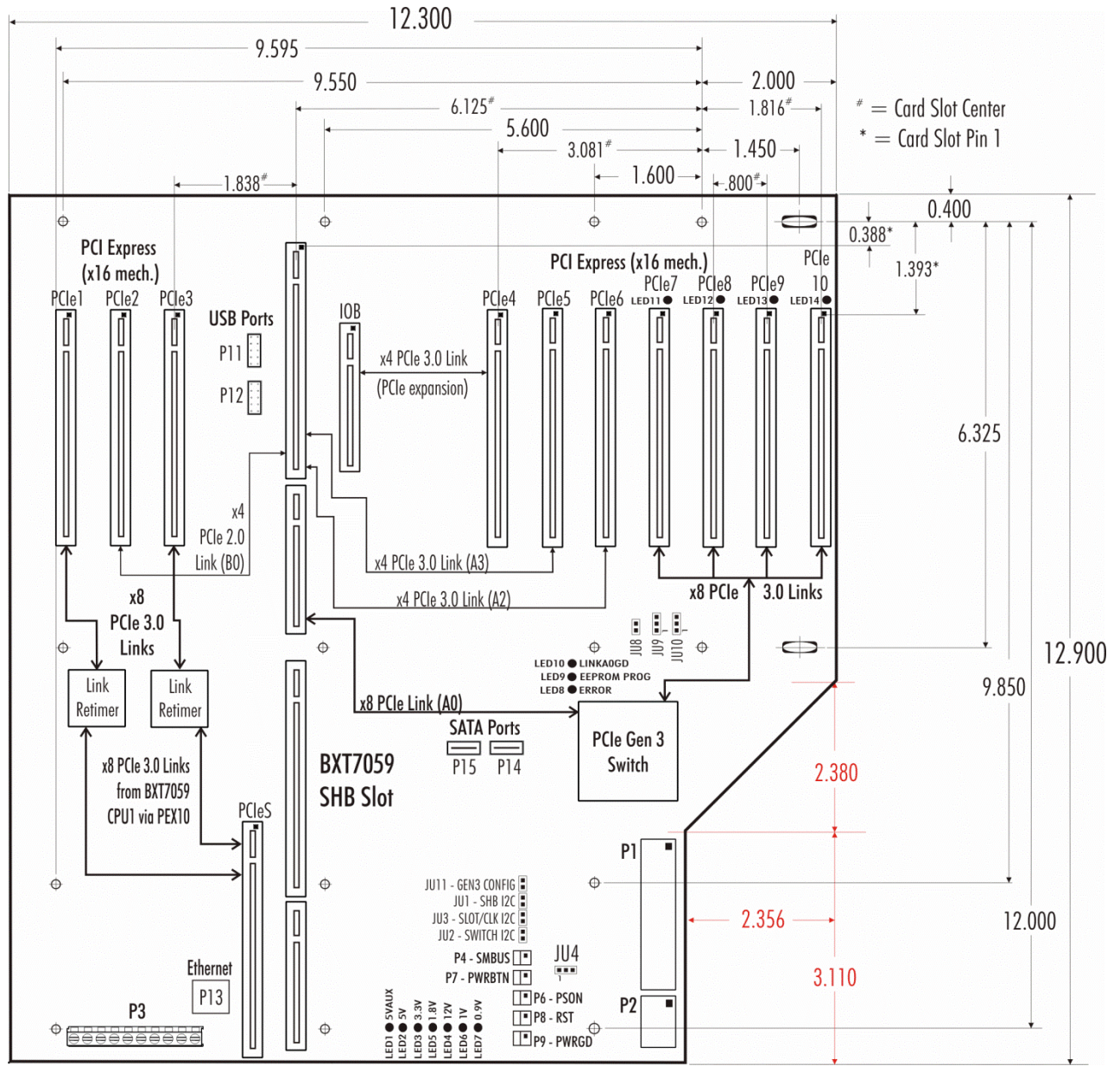
### BPX8093 (8093) Server-Class PCI Express 3.0 Backplane

#### Block Diagram



\* The BPX8093 backplane is optimized for use with the BXT7059 system host board. Other dual-processor SHBs such as the JXT6966 may be used with the BPX8093 backplane, but the PCIe link to slot PCIe4 will be a x1 PCIe 2.0 link. When using the JXT6966 card slots PCIe1, PCIe3, PCIe2, PCIe5 and PCIe6 will operate using the SHB's PCI Express 2.0 interface links.

## Layout Diagram – 8093-007 – PICMG 1.3 Mounting Hole Pattern



### Notes:

1. BPX8093 supports the standard PICMG 1.3 mounting hole pattern for 14-slot backplanes
2. Connector spacing: 0.800"
3. Power connectors shown represents backplane model number 8093-007
4. 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.
5. Mounting holes: .156" diameter
6. All dimensions are in inches.
7. Optional USB, SATA and Ethernet connectivity provided by BXT7059 SHB. Not all SHBs support these capabilities.
8. Refer to the status LED section for definitions on the PCI Express link speed and state for each diagnostic LED



## **8093-007 Configuration Jumpers**

The setup of the configuration jumpers on the backplane is described below. An \* indicates the jumper default value.

**NOTE:** For the JU9 and JU10 3-pin / two-position jumpers, “TOP” and “BOTTOM” refers to positioning when the backplane is viewed with the slots at the top end of the backplane.

<u>Jumper</u>	<u>Description</u>
<b>JU1</b>	<b>SHB I2C Enable</b> (2-pin Jumper) Open to ENABLE I2C communication between the SHB and the 8093 I2C Bus* - Do not populate jumper
<b>JU2</b>	<b>PCIe Switch I2C Enable</b> (2-pin Jumper) Open to ENABLE I2C communication between the PCIe switch and the 8093 I2C Bus* - Do not populate jumper
<b>JU3</b>	<b>Slot Clock I2C Enable</b> (2-pin Jumper) Open to ENABLE I2C communication between the PCIe Slots, Clock Buffers, PCIe Retimers and the 8093 I2C Bus* - Do not populate jumper
<b>JU4</b>	<b>+5V Auxiliary Voltage</b> (3-pin Jumper/Two Position) Install on the RIGHT (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 LEFT (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. *
<b>JU8</b>	<b>PCIe Switch (U31) Configuration</b> (2-pin Jumper) Open for normal operation* / Install jumper for initial device configuration via I2C
<b>JU9</b>	<b>PCIe Switch (U31) I2C Configuration</b> (3-pin Jumper/Two Position) Install on the TOP (pins 2-3) * for normal I2C slave operations  Install on the BOTTOM (pins 1-2) to enable SMBUS with ARP  Remove jumper to enable SMBUS without ARP



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### **8093-007 Configuration Jumpers (continued)**

- JU10**      **PCIe Switch (U31) GEN** (3-pin Jumper/Two Position)  
Install on the BOTTOM (pins 1-2)\* for GEN3/2/1 support  
  
Install the TOP (pins 2-3) for GEN1 only support  
  
Remove jumper for GEN2/1 only support
- JU11**      **GEN3 Configuration** (2-pin Jumper)  
Open to ENABLE I2C communication between the GEN3 Equalization  
EEPROM and the 8093 I2C Bus\* - Do not populate jumper

\*Default position

## **8093-007 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 right angle dual row, Molex #39-30-1240

<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	PSON#
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 Power Connector**

8 pin right angle dual row, Molex #39-30-0080

<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

### **P3 - Terminal Block Connector**

10 position terminal block, Phoenix Contact #19 35 24 2  
20 amps per circuit

<u>Pin</u>	<u>Signal</u>
1	+12V
2	+12V
3	+5V
4	+3.3V
5	+3.3V
6	Gnd
7	Gnd
8	Gnd
9	Gnd
10	Gnd

### **P4 - SMBUS Connector**

2 pin vertical single row header, Amp #5-146280-2

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

## **8093-007 Connectors (continued)**

**P6 - Power-On Connector**

2 pin vertical single row header, Amp #5-146280-2

<u>Pin</u>	<u>Signal</u>
1	PS0N#
2	Gnd

**P7 - Power Button Connector**

2 pin vertical single row header, Amp #5-146280-2

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

**P8 - Reset Connector**

2 pin vertical single row header, Amp #5-146280-2

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

**P9 - Power Good Connector**

2 pin vertical single row header, Amp #5-146280-2

<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-

**8093-007 Connectors (continued)**

**P14 - SATA Primary Connector<sup>#</sup>**

7 pin vertical connector, Molex #67491-1031

<u>Pin</u>	<u>Signal</u>
1	Gnd
2	TX0_p
3	TX0_n
4	Gnd
5	RX0_p
6	RX0_n
7	Gnd

**P15 - SATA Connector<sup>#</sup>**

7 pin vertical connector, Molex #67491-1031

<u>Pin</u>	<u>Signal</u>
1	Gnd
2	TX0_p
3	TX0_n
4	Gnd
5	RX0_p
6	RX0_n
7	Gnd

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

**P25 - 12V Chassis Fan Connectors (4)**

**P28** 3 pin right-angle header, Amp #5-146280-3

<u>Pin</u>	<u>Signal</u>
1	Gnd
2	+12V
3	NC

### **8093-007 Diagnostic LED Functions**

<b>LED Reference Designation</b>	<b>Backplane Silkscreen Wording</b>	<b>Function</b>
LED1	+5AUX	Indicates presence of 5V AUX source voltage
LED2	+5V	Indicates presence of 5V source voltage
LED3	+3.3V	Indicates presence of 3.3V source voltage
LED4	+12V	Indicates presence of 12V source voltage
LED5	1.8V	Indicates that the 1.8V regulator is receiving power
LED6	1.0V	Indicates that the 1.0V regulator is receiving power
LED7	0.9V	Indicates that the 0.9V regulator is receiving power
LED8	ERROR	PCI Express port error at the PCIe Switch U31
LED9	EEPROM PROG	Programming error for the EEPROM values used by PCIe Switch U31
LED10	LINKA0GD	Indicated A0 link established between SHB and PCIe Switch U31
LED11	PCIE7 GD	Indicates PCIe link status between PCIe Switch U31 and the slot PCIe7 end point card
LED12	PCIE8 GD	Indicates PCIe link status between PCIe Switch U31 and the slot PCIe8 end point card
LED13	PCIE9 GD	Indicates PCIe link status between PCIe Switch U31 and the slot PCIe9 end point card
LED14	PCIE10 GD	Indicates PCIe link status between PCIe Switch U31 and the slot PCIe10 end point card

### **8093-007 Diagnostic LED Status – Power Indicators**

<b>LED Reference Designation</b>	<b>Backplane Silkscreen Wording</b>	<b>LED On</b>	<b>LED Off</b>
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	1.8V	Voltage Detected	Voltage Not Detected
LED6	1.0V	Voltage Detected	Voltage Not Detected
LED7	0.9V	Voltage Detected	Voltage Not Detected

### **8093-007 Diagnostic LED10 though LED14 – PCI Express Link Status for the PCIe Switch and the PCI Express Card Slots**

<b>LED Pattern</b>	<b>PCI Express Link State</b>
ON	Link is up and running at PCIe Gen 3 speed (8.0GT/s)
OFF	Link down
Blinking, 0.25 sec. ON, 0.25 sec. OFF	Link is up and running at PCIe Gen 2 speed (5.0GT/s)
Blinking, 0.5 sec. ON, 1.5 sec. OFF	Link is up and running at PCIe Gen1.1 speed (2.5GT/s)