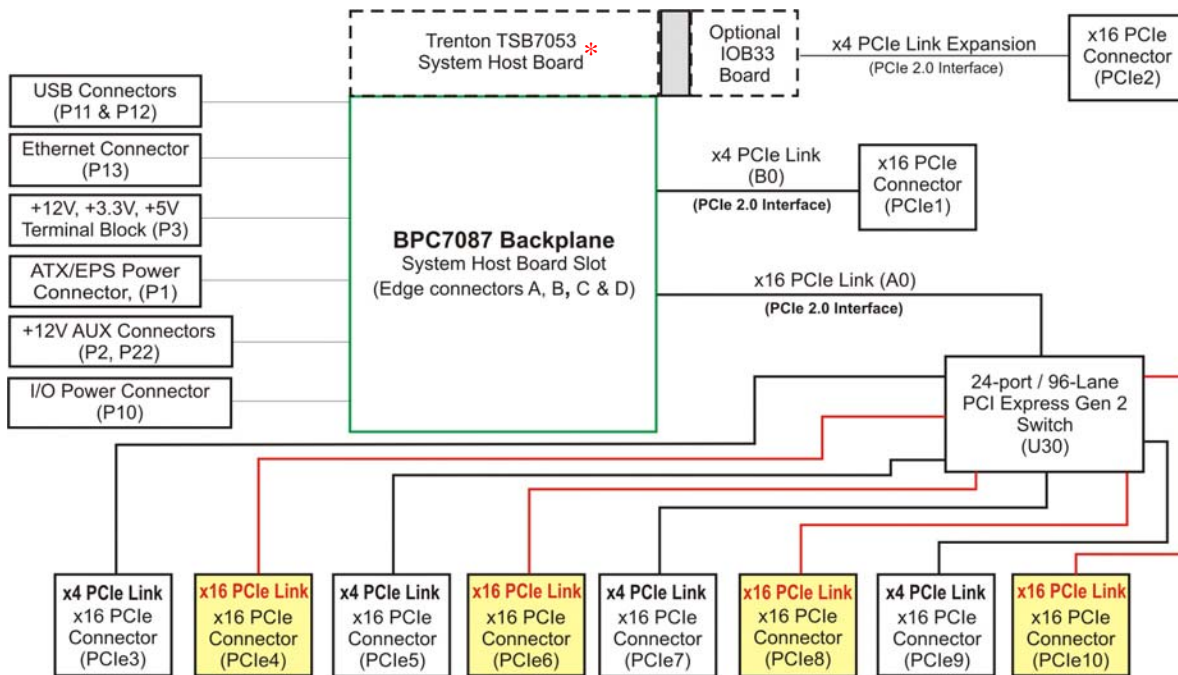## Technical Information –Jumpers and Connectors
BPG7087 (7087) Graphics-Class PCI Express 2.0 Backplane
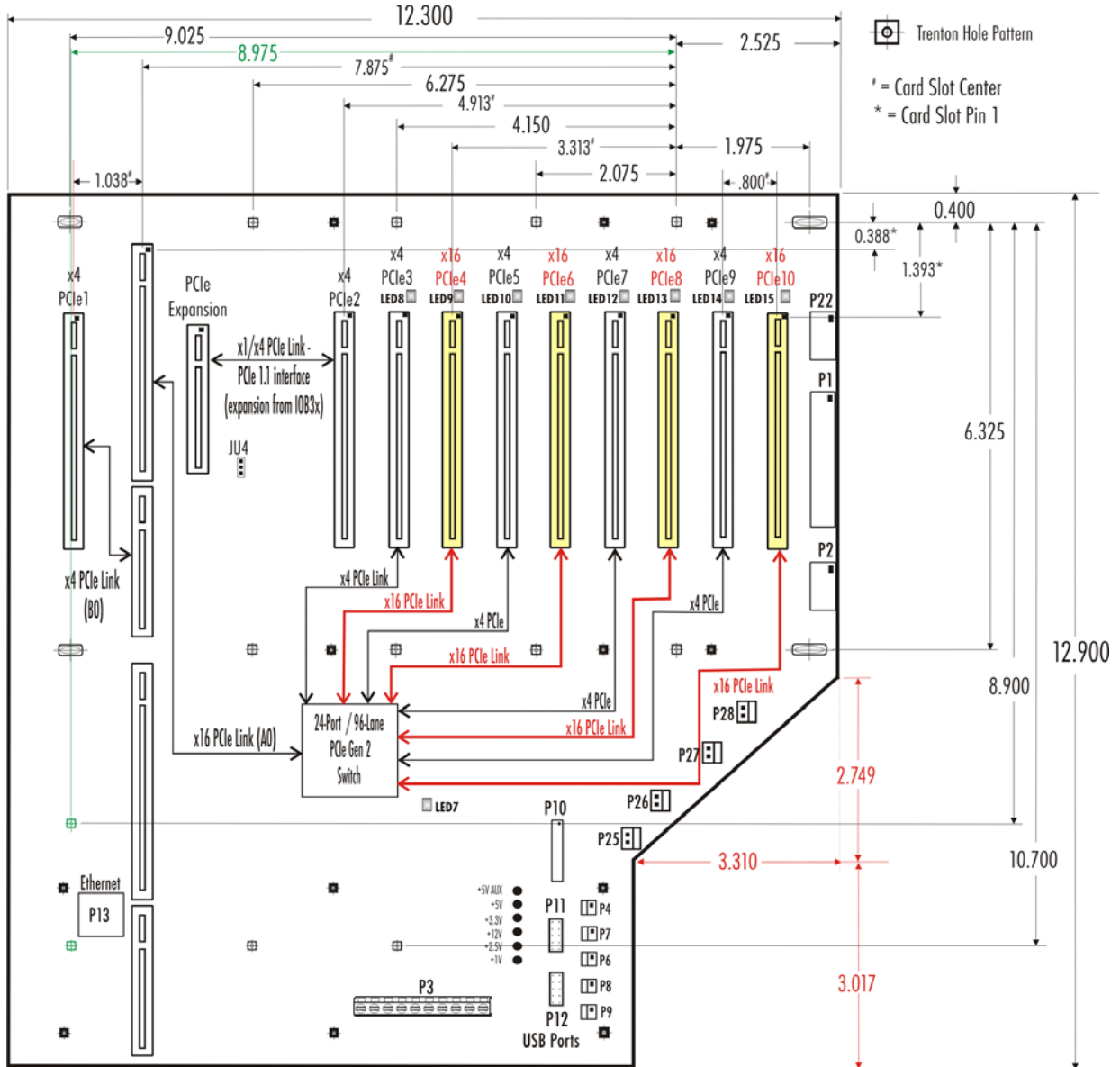
Block Diagram

* Other system host boards such as the JXT6966, BXT7059, JXTS6966, TQ9 and TML may be used with the BPG7087 backplane. The link width (x4 vs. x1) and link speed (PCIe 1.1 vs. PCIe 2.0 vs. PCIe 3.0) of the PCIe expansion connection from the IOB33 to the PCIe2 card slot varies as a function of the SHB.
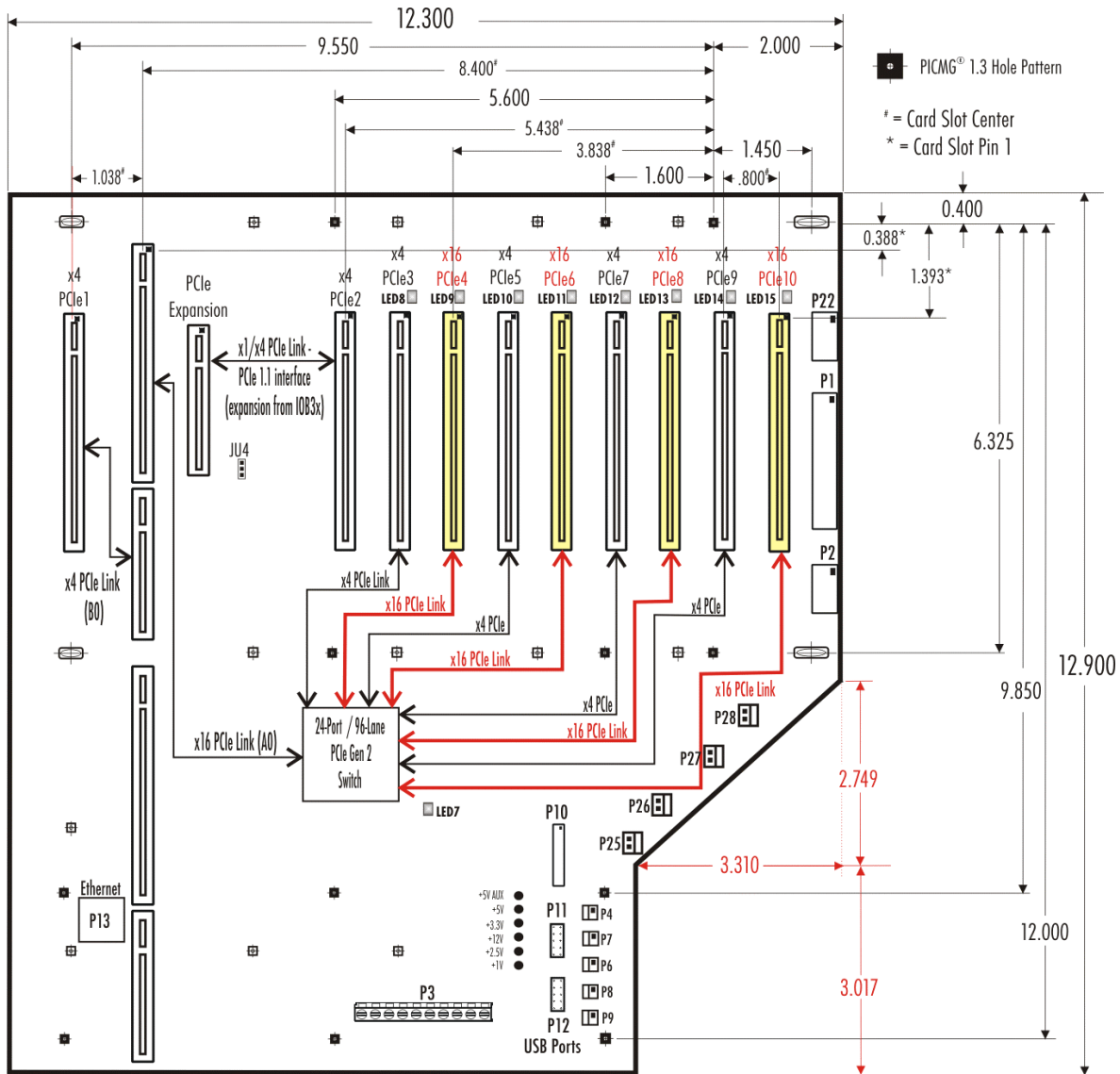
Layout Diagram – 7087-008 – Trenton 14-slot Mounting Hole Pattern

Layout Diagram – 7087-008 – PICMG 1.3 Mounting Hole Pattern

Notes:
1. BPG7087 supports Trenton's traditional 14-slot and the PICMG 1.3 backplane chassis mounting hole patterns
2. Connector spacing: 0.800"
3. Power connectors are populated based on model.
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 inches.
7. Optional USB and Ethernet connectivity provided by PICMG 1.3 SHB. Not all SHBs support this capability.
8. Refer to the LED section for definitions of the PCI Express link speed and state for each diagnostic LED

7087-008 Configuration Jumpers

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

NOTE: For the two-position jumper (3-post), "TOP" and "BOTTOM" refer to positioning when the backplane is viewed with the slots at the top end of the backplane.

Jumper	Description
JU1	**SHB I2C Enable/Disable** (2-pin Jumper) Open to ENABLE* / Install jumper to DISABLE
JU2	**PCIe Switches I2C Enable/Disable** (2-pin Jumper) Open to ENABLE* / Install jumper to DISABLE
JU3	**Card Slots/Redrives Enable/Disable** (2-pin Jumper) Open to ENABLE* / Install jumper to DISABLE
JU4	**+5V Auxiliary Voltage** (3-pin Jumper/Two Position) Install on the TOP 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 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

7087-007 and 7087-008 Connectors

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

P1 **-** **ATX/EPS Power Connector**
24 pin vertical dual row, Molex #44206-002 (7087-008)

Pin	Signal	Pin	Signal
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 Connectors**
P22 **-** 8 pin vertical dual row, Molex #44206-0005 (7087-008)

Pin	Signal	Pin	Signal
1	Gnd	8	+12V
2	Gnd	7	+12V
3	Gnd	6	+12V
4	Gnd	5	+12V

P3 **-** **Terminal Block Connector**
10 position terminal block, Amp #1-796949-0 (7087-008)
20 amps per circuit

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

P6 - **Power-On Connector**
2 pin vertical single row header, Amp #640456-2

Pin	Signal
1	PSON#
2	Gnd

7087-008 Connectors (continued)

P7 - Power Button Connector
2 pin vertical single row header, Amp #640456-2

Pin	Signal
1	PWRBT#
2	Gnd

P8 - Reset Connector
2 pin vertical single row header, Amp #640456-2

Pin	Signal
1	SHB_RST#
2	Gnd

P9 - Power Good Connector
2 pin vertical single row header, Amp #640456-2

Pin	Signal
1	PWRGD
2	+5V

P10 - I/O Power Connector
20 pin vertical dual row header, Molex #87831-2020

Pin	Signal	Pin	Signal
1	Gnd	2	+12V
3	NC	4	Gnd
5	NC	6	+5V
7	SMDAT	8	+5VAUX
9	SMCLK	10	+3.3V
11	PWRBT#	12	PSON#
13	Gnd	14	SHB_RST#
15	PWRGD	16	5VAUX
17	Gnd	18	5VAUX
19	Gnd	20	NC

P11 - Universal Serial Bus (USB) Connector
8 pin dual row header, Molex #702-46-0801
(+5V fused with self-resetting fuses)

Pin	Signal	Pin	Signal
1	+5V-USB1	2	+5V-USB0
3	USB1-	4	USB0-
5	USB1+	6	USB0+
7	Gnd-USB1	8	Gnd-USB0

7087-008 Connectors (continued)

P12 -   Universal Serial Bus (USB) Connector
8 pin dual row header, Molex #702-46-0801
(+5V fused with self-resetting fuses)

Pin	Signal	Pin	Signal
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
8 pin right angle shielded RJ-45 connector, Molex #43860-0025

Pin	Signal
1	TRP1+
2	TRP1-
3	TRP2+
4	TRP3+
5	TRP3-
6	TRP2-
7	TRP4+
8	TRP4-

P25, P26,   12V Chassis Fan Connectors
P27, P28   3 pin right-angle header, Molex # 22-05-3031

Pin	Signal
1	Gnd
2	+12V
3	NC

P5   PCIe Switch Cooling Fan Connectors
(Only used with active cooling solution option)
3 pin right-angle header, Molex # 22-05-3031

Pin	Signal
1	Gnd
2	+12V
3	NC

7087-008 Diagnostic LED Functions

LED Reference Designation	Backplane Silkscreen Wording	Function
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	2.5V	Indicates that the 2.5V regulator is receiving power
LED6	1.2V	Indicates that the 1.2V regulator is receiving power
LED7	A0 LINK GD	Indicates that the PCIe A0 link to the switch is receiving power
LED8	PCIE3 GD	Indicates the status of the link between the PCIE3 card slot and the endpoint card
LED9	PCIE4 GD	Indicates the status of the link between the PCIE4 card slot and the endpoint card
LED10	PCIE5 GD	Indicates the status of the link between the PCIE5 card slot and the endpoint card
LED11	PCIE6 GD	Indicates the status of the link between the PCIE6 card slot and the endpoint card
LED12	PCIE7 GD	Indicates the status of the link between the PCIE7 card slot and the endpoint card
LED13	PCIE8 GD	Indicates the status of the link between the PCIE8 card slot and the endpoint card
LED14	PCIE9 GD	Indicates the status of the link between the PCIE9 card slot and the endpoint card
LED15	PCIE10 GD	Indicates the status of the link between the PCIE10 card slot and the endpoint card

7087-008 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	2.5V	Voltage Detected	Voltage Not Detected
LED6	1V	Voltage Detected	Voltage Not Detected

7087-008 Diagnostic LED8 though LED15 – PCI Express Link Status for the PCIe Switch and the PCI Express Card Slots

LED Pattern	PCI Express Link State
ON	Link is up an running at PCIe Gen 2 speed (5.0GT/s), all lanes are up
OFF	Link down
Blinking, 0.5 sec. ON, 0.5 sec. OFF	Link is up an running at PCIe Gen 2 speed (5.0GT/s), reduced lanes are up
Blinking, 1.5 sec. ON, 0.5 sec. OFF	Link is up an running at PCIe Gen 1.1 speed (2.5GT/s), all lanes are up
Blinking, 0.5 sec. ON, 1.5 sec. OFF	Link is up an running at PCIe Gen1.1 speed (2.5GT/s), reduced lanes are up