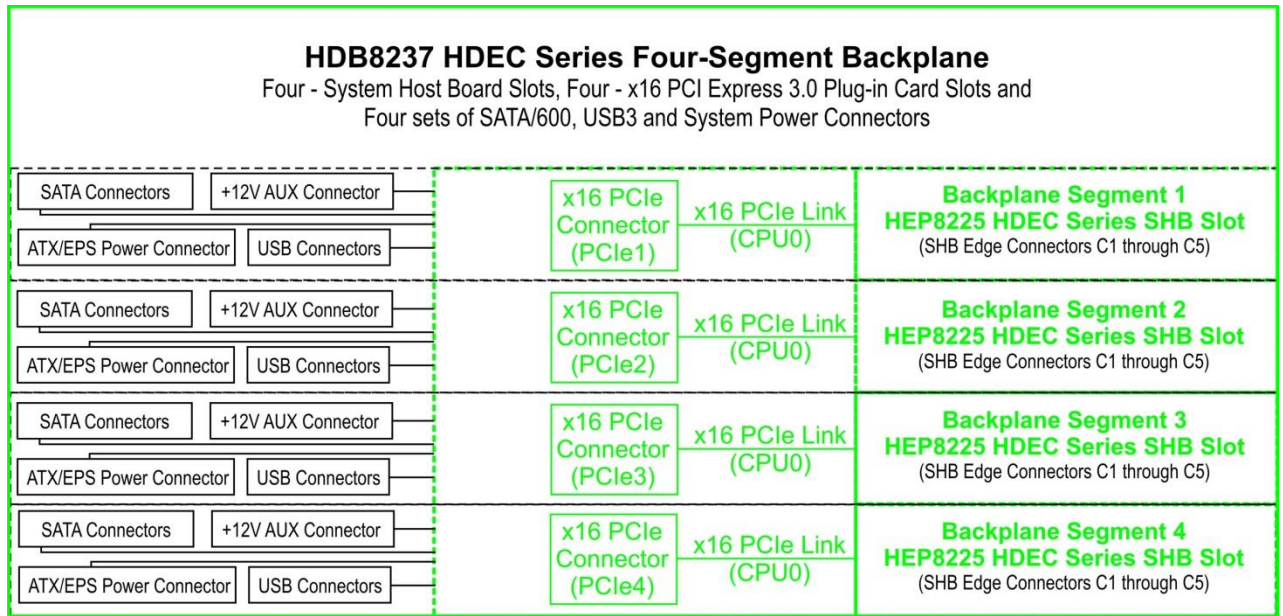


## Technical Information – Connectors and Status LEDs

### HDB8237 (8237) HDEC Series Four-Segment Backplane

#### Block Diagram

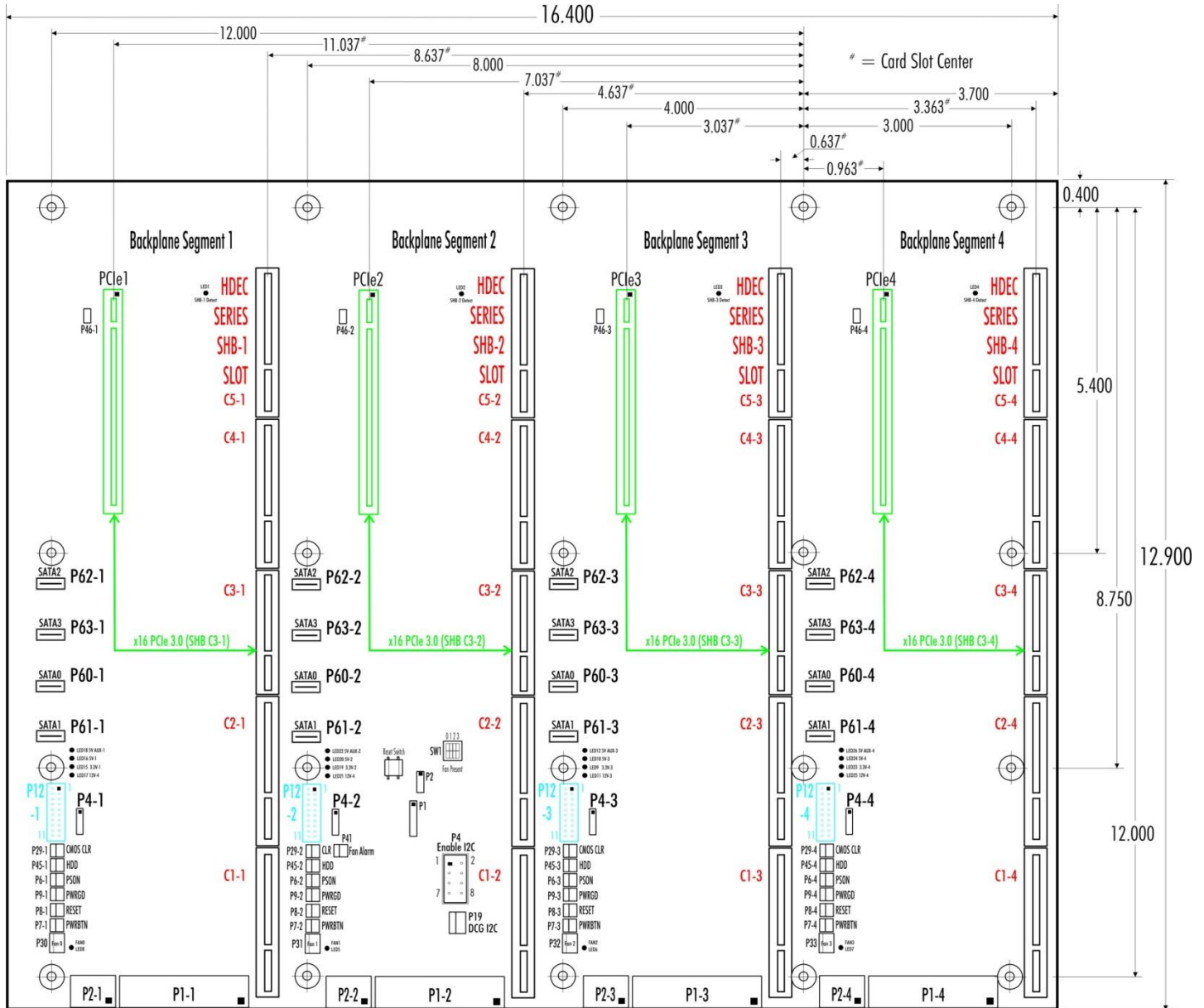


**HDB8237 Block Diagram Key**  
Green = x16 PCIe Gen3 link

**NOTE:** The HDB8237 backplane is optimized for use with HDEC Series SHBs such as the Trenton HEP8225. A native x16 PCI Express 3.0 root link from one of the HEP8225 processors drive the x16 PCIe 3.0 card slot in each backplane segment. The backplane segment's PCI Express 3.0 link retimer between the processors and the card slot ensures that reliable link communications are established between the CPUs and segment's plug-in card.

The backplane supports industry standard PCI Express 3.0, 2.0, and 1.1 plug-in cards having x1, x4, x8 or x16 link widths. Plug-in cards having a x16 PCIe electrical link width are supported in each backplane segment plug-in option card slot at the x16 data throughput rate. The HEP8225 processors will auto-negotiate link communication between the CPUs and the plug-in cards to establish a communication link that best matches the plug-in card's specific interface type and link width.

## Layout Diagram – 8237-037



### Notes:

1. Backplane layout diagram dimensions are in inches.
2. The right-angle power connectors shown in the layout diagram represents backplane model number 8237-037.
3. The nominal backplane thickness is 0.080 inches.
4. Mounting holes have a .156" diameter.
5. USB, SATA, and system diagnostics provided by each segment's HEP8225 system host board.
6. Refer to the status LED section for functional definition.

## **8237-037 Connectors**

The setup of the for each backplane connector is described below.

**NOTE:** Refer to the backplane layout drawing for the pin 1 position of the connectors as indicated by the black square (■).

<u>Connector</u>	<u>Description</u>																				
<b>P1</b> -	<p><b>Micro-Controller Programing Port</b> (Factory Use Only) 5 pin single row header, Tyco (AMP) #87224-5</p> <table border="0"> <thead> <tr> <th style="text-align: left;"><u>Pin</u></th> <th style="text-align: left;"><u>Signal</u></th> </tr> </thead> <tbody> <tr><td>1</td><td>Vpp</td></tr> <tr><td>2</td><td>Vdd</td></tr> <tr><td>3</td><td>Gnd</td></tr> <tr><td>4</td><td>ICSPDAT</td></tr> <tr><td>5</td><td>ICSPCLK</td></tr> </tbody> </table>	<u>Pin</u>	<u>Signal</u>	1	Vpp	2	Vdd	3	Gnd	4	ICSPDAT	5	ICSPCLK								
<u>Pin</u>	<u>Signal</u>																				
1	Vpp																				
2	Vdd																				
3	Gnd																				
4	ICSPDAT																				
5	ICSPCLK																				
<b>P2</b> -	<p><b>PIC Power Select Enable</b> (Factory Use Only) 3 pin single row header, Molex #22-03-2031</p> <table border="0"> <thead> <tr> <th style="text-align: left;"><u>Pin</u></th> <th style="text-align: left;"><u>Signal</u></th> </tr> </thead> <tbody> <tr><td>1</td><td>+3.3V</td></tr> <tr><td>2</td><td>PICPOWER</td></tr> <tr><td>3</td><td>Vdd</td></tr> </tbody> </table>	<u>Pin</u>	<u>Signal</u>	1	+3.3V	2	PICPOWER	3	Vdd												
<u>Pin</u>	<u>Signal</u>																				
1	+3.3V																				
2	PICPOWER																				
3	Vdd																				
<b>P4</b> -	<p><b>I2C Card Slot Disable Connector</b> 2 pin single row header, Molex #10-89-7082 Installing jumpers across the following P4 pins disables the I2C signals to a backplane segment's retimer</p> <table border="0"> <thead> <tr> <th style="text-align: left;"><u>Pin</u></th> <th style="text-align: left;"><u>Signal</u></th> <th style="text-align: left;"><u>Pin</u></th> <th style="text-align: left;"><u>Signal</u></th> </tr> </thead> <tbody> <tr><td>1</td><td>I2C_EN1</td><td>2</td><td>Gnd</td></tr> <tr><td>3</td><td>I2C_EN2</td><td>4</td><td>Gnd</td></tr> <tr><td>5</td><td>I2C_EN3</td><td>6</td><td>Gnd</td></tr> <tr><td>7</td><td>I2C_EN4</td><td>8</td><td>Gnd</td></tr> </tbody> </table>	<u>Pin</u>	<u>Signal</u>	<u>Pin</u>	<u>Signal</u>	1	I2C_EN1	2	Gnd	3	I2C_EN2	4	Gnd	5	I2C_EN3	6	Gnd	7	I2C_EN4	8	Gnd
<u>Pin</u>	<u>Signal</u>	<u>Pin</u>	<u>Signal</u>																		
1	I2C_EN1	2	Gnd																		
3	I2C_EN2	4	Gnd																		
5	I2C_EN3	6	Gnd																		
7	I2C_EN4	8	Gnd																		
<b>P19</b> -	<p><b>I2C Slot Header</b> (Factory Use Only) 3 pin single row header, Molex #22-23-2031</p> <table border="0"> <thead> <tr> <th style="text-align: left;"><u>Pin</u></th> <th style="text-align: left;"><u>Signal</u></th> </tr> </thead> <tbody> <tr><td>1</td><td>I2C_Header_SDA</td></tr> <tr><td>2</td><td>I2C_Header_SCL</td></tr> <tr><td>3</td><td>Gnd</td></tr> </tbody> </table>	<u>Pin</u>	<u>Signal</u>	1	I2C_Header_SDA	2	I2C_Header_SCL	3	Gnd												
<u>Pin</u>	<u>Signal</u>																				
1	I2C_Header_SDA																				
2	I2C_Header_SCL																				
3	Gnd																				
<b>P41</b> -	<p><b>Fan Alarm LED Connector</b> 2 pin single row header, Tyco (AMP) #640546-2</p> <table border="0"> <thead> <tr> <th style="text-align: left;"><u>Pin</u></th> <th style="text-align: left;"><u>Signal</u></th> </tr> </thead> <tbody> <tr><td>1</td><td>FF_LED</td></tr> <tr><td>2</td><td>+5V</td></tr> </tbody> </table>	<u>Pin</u>	<u>Signal</u>	1	FF_LED	2	+5V														
<u>Pin</u>	<u>Signal</u>																				
1	FF_LED																				
2	+5V																				

### **8237-037 Connectors (continued)**

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

**P1-1, - ATX/EPS Power Connector**

**P1-2,** 24 pin right angle dual row, Molex #39-30-1240

<b>P1-3,</b>	<u>Pin</u>	<u>Signal</u>	<u>Pin</u>	<u>Signal</u>
<b>P1-4</b>	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

**P2-1, - +12V Power Connector**

**P2-2,** 8 pin right angle dual row, Molex #39-30-0080

<b>P2-3,</b>	<u>Pin</u>	<u>Signal</u>	<u>Pin</u>	<u>Signal</u>
<b>P2-4</b>	1	Gnd	8	+12V
	2	Gnd	7	+12V
	3	Gnd	6	+12V
	4	Gnd	5	+12V

**P4-1, - USB 2.0 Redirect Connector (Factory Use Only)**

**P4-2,** 4 pin vertical single row header, Tyco (AMP) #5-146280-4

<b>P4-3,</b>	<u>Pin</u>	<u>Signal</u>
<b>P4-4</b>	1	VBUSn
	2	NC
	3	NC
	4	Gnd

n = the segment/SHB number

**P6-1, - Power-On Connector (PSO#)**

**P6-2,** 2 pin vertical single row header, Tyco (AMP) #640456-2

<b>P6-3,</b>	<u>Pin</u>	<u>Signal</u>
<b>P6-4</b>	1	Gnd
	2	n-PSO#

n = segment/SHB number

**P7-1, - Power Button Connector (PWRBTN)**

**P7-2,** 2 pin vertical single row header, Tyco (AMP) #640456-2

<b>P7-3,</b>	<u>Pin</u>	<u>Signal</u>
<b>P7-4</b>	1	Gnd
	2	n-PWRBTN#

n = segment/SHB number

### **8237-037 Connectors (continued)**

#### **P8-1, - Reset Connector**

**P8-2,** 2 pin vertical single row header, Tyco (AMP) #640456-2

**P8-3,** Pin Signal

**P8-4** 1 Gnd  
2 n-SHB\_RST#  
n = segment/SHB number

#### **P9-1, - Power Good Connector**

**P9-2,** 2 pin vertical single row header, Tyco (AMP) #640456-2

**P9-3,** Pin Signal

**P9-4** 1 n-PWRGD\_LED  
2 +5V  
n = segment/SHB number

#### **P12-1, - Universal Serial Bus 3.0 (USB) Connector**

**P12-2,** 19 pin dual row header, LOTES #ABA-USB-050-K04

**P12-3,** Pin Signal Pin Signal

<b>P12-4</b>	1	+5=USB4n (VBUS1n)	11	USB5n-DP
	2	USB4n-SRXN	12	USB5n-DN
	3	USB4n-SRXP	13	Gnd-USB5n
	4	Gnd-USB4n	14	USB5n-STXP
	5	USB4n-STXN	15	USB5n-STXN
	6	USB4n-STXP	16	Gnd-USB5n
	7	Gnd-USB4n	17	USB5n-SRXP
	8	USB4n-DN	18	USB5n-SRXN
	9	USB4n-DP	19	+5V-USB5n (VBUS19)
	10	NC		n = segment/SHB number

#### **P29-1, - Clear CMOS Connector**

**P29-2,** 2 pin single row header, Tyco (AMP) #640456-2

**P29-3,** Pin Signal

**P29-4** 1 Gnd  
2 n-CMOSCLR#  
n = segment/SHB number

---

**NOTE:** To clear a system host board's CMOS using backplane connector P29-n, power down the system segment and install the P29-n jumper. Wait for at least two seconds, remove the jumper and turn the power on. Clearing CMOS on the system host board will not result in a checksum error on the following boot. If you want to change a BIOS setting, you must press DEL or the F2 key during POST to enter the SHB's BIOS setup after clearing CMOS.

**NOTE 2:** Backplane Clear CMOS capability is a planned capability for the HDEC specification, to be implemented on future SHB products. The HEP8225 SHB does not support this capability.  
For full P29 connector support information, contact Trenton.

---

### **8237-037 Connectors (continued)**

#### **P30, - +12V 12V Chassis Fan Connectors**

**P31,** 4 pin right-angle header, Tyco (AMP) #640456-3

**P32,** Pin    Signal

**P33**     1    PWMn\_3W (n=0,1,2,or 3)

          2    +12V

          3    Gnd

          Note: 0=P30, 1=P31,

          2=P32, 3=P33

#### **P45-1, - HDD LED Connector**

**P45-2,** 2 pin single row header, Tyco (AMP) #5-146280-2

**P45-3,** Pin    Signal

**P45-4**    1    n\_HDD\_LED (n = segment/SHB number)

          2    +5V

#### **P46-1, - 3.3V AUX Card Slot Enable Connector**

**P46-2,** 2 pin single row header, Tyco (AMP) #5-146280-2

**P46-3,** Pin    Signal

**P46-4**    1    3.3V\_AUX

          2    +3.3V\_n (n = segment/SHB number)

          Installing jumper P46-n enables +3.3V AUX on the segment's PCIe card slot

#### **P60-n, - SATA Connectors (4 per SHB segment)**

**P61-n,** 7 pin vertical connector with latch, Molex # 67800-8005

**P62-n,** P60-n = SHB Segment SATA0, P61-n = SHB Segment SATA1

**P63-n** P62-n = SHB Segment SATA2, P63-n = SHB Segment SATA3

Pin    Signal

1    n\_Gnd

2    n\_TXn\_p

3    n\_TXn\_n

4    n\_Gnd

5    n\_RXn\_p

6    n\_RXn\_n

7    n\_Gnd

          n = segment/SHB

          number



### **8237-037 Diagnostic LED Status Indicators**

<b>LED Reference Designation</b>	<b>Backplane Silkscreen Wording</b>	<b>LED On</b>	<b>LED Off</b>
LED1, LED2, LED3, LED4 (Red)	Segment SHB Detect	SHB is not properly seated in the segment's socket	Normal operation – SHB Detected
LED5, LED6, LED7, LED8 (Green)	LED5=FAN1, LED6=FAN2, LED7=FAN3, LED8=FAN0	System fan present	System fan not present
LED9, LED10, LED11, LED12(Green)	BP Segment 3 Power LEDs LED9=3.3V, LED10=5V, LED11=12V, LED12=5V AUX	Acceptable voltage level	Voltage level not acceptable
LED15, LED16, LED17, LED18(Green)	BP Segment 1 Power LEDs LED15=3.3V, LED16=5V, LED17=12V, LED18=5V AUX	Acceptable voltage level	Voltage level not acceptable
LED19, LED20, LED21, LED22(Green)	BP Segment 2 Power LEDs LED19=3.3V, LED20=5V, LED21=12V, LED22=5V AUX	Acceptable voltage level	Voltage level not acceptable
LED23, LED24, LED25, LED26(Green)	BP Segment 4 Power LEDs LED23=3.3V, LED24=5V, LED25=12V, LED26=5V AUX	Acceptable voltage level	Voltage level not acceptable

\*See the HEP8225 hardware reference manual for a description of the SHB's post code error code numbers