HDB8237

HDEC[®] Series FOUR-SEGMENT BACKPLANE



FEATURES

- Four-segment backplane supports four independent HDEC[®] system host boards
- Enables four-in-one system consolidation in a single rackmount computer enclosure
- Delivers secure isolation of divergent software applications within a single, component rack space-saving, computer chassis
- Ideal for dual-processor Trenton HEP8225 HDEC Series system host boards
- A direct PCI Express GEN3 link to the SHB's processors from each plug-in option card slot maximizes data throughput speeds
- Each segment supports an industry standard PCI Express[®] 3.0, 2.0 and 1.1 option card
- Four x16 PCI Express 3.0 mechanical and electrical card slots total
- Each segment supports four SATA/600 and two USB 3.0 system I/O connections
- Five-year factory warranty
- Made in U. S. A.



BLOCK DIAGRAM:

HDB8237 HDEC Series Four-Segment Backplane

Four - System Host Board Slots, Four - x16 PCI Express 3.0 Plug-in Card Slots and Four sets of SATA/600, USB3 and System Power Connectors

SATA Connectors +12V AUX Connector ATX/EPS Power Connector USB Connectors	x16 PCle Connector (PCle1) (CPU0)	Backplane Segment 1 HEP8225 HDEC Series SHB Slot (SHB Edge Connectors C1 through C5)
SATA Connectors +12V AUX Connector ATX/EPS Power Connector USB Connectors	x16 PCle Connector (PCle2) x16 PCle Link (CPU0)	Backplane Segment 2 HEP8225 HDEC Series SHB Slot (SHB Edge Connectors C1 through C5)
SATA Connectors +12V AUX Connector ATX/EPS Power Connector USB Connectors	x16 PCIe Connector (PCIe3) x16 PCIe Link (CPU0)	Backplane Segment 3 HEP8225 HDEC Series SHB Slot (SHB Edge Connectors C1 through C5)
SATA Connectors +12V AUX Connector ATX/EPS Power Connector USB Connectors	x16 PCIe Connector (PCIe4) x16 PCIe Link (CPU0)	Backplane Segment 4 HEP8225 HDEC Series SHB Slot (SHB Edge Connectors C1 through C5)

HDEC SERIES FOUR-SEGMENT BACKPLANE:

The HDB8237 HDEC Series four segment backplane provides a system integration methodology that enables four-in-one system consolidation in a single rackmount computer enclosure. This multi-system within a common enclosure integration approach enables divergent software applications to be totally isolated, yet does not require physically separate computer systems; thereby, saving on the total costs of system ownership and integration. This innovative four-segment backplane design supports an industry standard x16 PCI Express 3.0 plug-in card within each segment that interfaces directly to the processors located on that segment's HDEC Series system host board. In addition to the native x16 PCIe link for each HDB8237 backplane segment's option card slot, the dual Intel[®] Xeon[®] E5-2680 v3 processors available on an HEP8225 HDEC Series system host board provides a combined 24-cores of processing capacity within each backplane segment.

APPLICATION EXAMPLES:

The HDB8237's mechanical design enables this four-segment HDEC Series backplane to drop into an industry standard 5U rackmount computer chassis. Expanded system I/O connections are supported by the backplane in conjunction with a compatible HDEC Series SHB like Trenton's HEP8225. The placement of each SHB slot, and the deployment of various system I/O connectors within each backplane segment, enables simplified system cabling while maximizing system airflow in order to enable long and trouble-free hardware deployments in robust computing applications. The ability of the backplane to automatically support either PCI Express 3.0, 2.0 or 1.1 cards builds an element of scalability into any system design. The backplane enhances system design flexibility by supporting the many different types of standard, plug-in PCI Express x16 option cards used in a wide variety of military, government and industrial applications.

HDEC SERIES BACKPLANE MODEL: HDB8237

8237-037

MODEL# MODEL NAME DESCRIPTION

HDB8237-CRA HDEC Series SHB compatible four-segment backplane with ATX/EPS and 12V AUX right-angle power connectors within each segment

TRENTON Systems Inc. • 2350 Centennial Drive, Gainesville, Georgia 30504 • Sales: (800) 875-6031 • Phone: (770) 287-3100 • Fax: (770) 287-3150 E-mail: Sales@TrentonSystems.com • Web: www.TrentonSystems.com

HDB8237 BACKPLANE LAYOUT & MOUNTING HOLE PATTERN DIMENSIONS:

16,400 -12.000 -11.037' 8.637*-= Card Slot Center - 8 000 7.037* 4.637 3.363*-3.700 4.000 3.037* 3.000 0 637 • • 0.963*-0.400 ۲ \bigcirc ۲ \oplus Backplane Segment 2 Backplane Segment 1 Backplane Segment 3 Backplane Segment 4 PCle HDEC HDEC PCIe2 HDEC HDEC Π SERIES SERIES SERIES SERIES 0 P46 D P46-7 D Park SHB-1 SHB-2 SHB-3 SHB-4 SLOT SLOT SLOT SLOT 5.400 (5-1 C5-2 **(5**-3 **C5-**4 (4-1 Π C4-2 (4-(4-4 SATA2 P62-1 ⊕ ≦##2 P62-2 ⊕ ≦##A2 P62-3 € ĿU 12.900 SATA2 P62-4 Π **C**3-1 C3-2 C3-3 C3-4 8.750 SATA3 P63-3 SATA3 P63-4 SATA3 P63-1 SATA3 P63-2 (16 PCle 3.0 (SHB C3-1) x16 PCle 3.0 (SHB C3-2) 16 PCIe 3.0 (SHE SATAO P60-1 SATAO P60-3 SATA0 P60-2 SATAO P60-4 SATA1 P61-2 SATA1 P61-3 C2-1 C2-2 C2-3 N_ P61-4 **C2**-4 SATA1 P61-1 swi 🎹 ţ, LIEDH 5V-4 LIEDH 5V-4 LIEDH 5V-4 LIEDH 51/4 • 1000 54-3 • 1000 54-3 • 1000 134-3 P2 P4-2 P4-1 P4-3 P4-4 Π 1 12 000 Π **C1-**1 C1-2 0-3 C1-P19 DCG I2C WRBT) P30 = • • rase P31 (m1 P32 = 2 ¢ ۲ P2-1 P1-1 P2-2. P1-2 P2-3 P1-3 P2-4 P1-4

HDECSeries®

SUGGESTED HDEC SERIES SHB **DUAL PROCESSOR, HEP8225**

ENVIRONMENTAL SPECS.:*

Operating Temp.:	0° C to 60° C
Storage Temp.:	-40 $^\circ$ C to 70 $^\circ$ C
Humidity:	5% to 90%,
	non-condensina

*Environmental specifications for system host boards / single board computers are usually lower than those of the backplane. Check with your SHB/SBC vendor.

The Trenton HDB8237 is a lead-free, RoHS compliant backplane.

This backplane is designed to meet worldwide EMI emissions requirements, CE conformity and immunity standards. Contact Trenton for the specific standard numbers this product.

The Trenton HDB8237 backplane is designed for UL60950 and CAN/CSA C22.2 No. 60950-00.

HDB8237 ENGINEERING NOTES:

1. The power connectors shown in the layout drawing represents backplane model number 8237-037.

PCIe card slot. PCIe 3.0 link re-timers ensure single integrity between the SHB and the PCIe card.

2. All dimensions are in inches, mounting holes: 0.156" diameter, and nominal PCB thickness: 0.080" 3. Each segment uses a PCI Express 3.0 link directly from the segment's HDEC Series SHB to drive the segment's 4. PCIe electrical interface key: Green = Slot driven with a x16 PCIe 3.0 link from the HEP8225 SHB

their respective owners

5. In some system designs a backplane segment's PCIe card slot may not be available with higher performance processor options that require taller processor cooling solutions.

SYSTEM I/O CONNECTIONS AVAILABLE ON THE HDB8237 HDEC SERIES BACKPLANE:

The HDB8237 takes full advantage of the system I/O interfaces brought down to the backplane via the edge card fingers on the HDEC Series system host board. Each set of backplane segment connectors ensure the most efficient system I/O wiring possible for four-in-one embedded computer systems. (Note: the letter "n" indicates backplane segment number 1, 2, 3, or 4.)

HDB8237 Connector	Function	HDB8237 Connector	Function
P1-n	ATX/EPS power inputs from system supply	P12-n	USB3.0 header for PortO/Port1front panel interfaces
P2-n	+ 12V AUX power inputs from system supply	P30 - P33	System fan connectors (4)
P4-n	USB 2.0 redirect	P60-n through P63-n	SATA/600 interfaces for HDD/SDDs (4)
			Product Photo Note: The photo of the HDB8237 backplane is a provided for illustrative purposes only. Actual connector and mounting locations are illustrated in the backplane layout drawing.

ADDITIONAL SYSTEM INTERFACE CONNECTIONS, and LEDS

There are a number of additional connectors, and LEDs available on the HDB8237 that are designed to simplify cable routing in an embedded computer system and aid in system operation.

Connector	Function	LEDs	Function
P6-n	PSON	1 - 4	SHB Present
P7-n	PWRBTN	4 - 8	Sys. Fan Present
P8-n	RESET	9 - 12	Segment 3 Power LEDs: 9=3.3V, 10=5V, 11=12V, 12=5V AUX
P9-n	PWRGD	15 - 18	Segment 1 Power LEDs: 15=3.3V, 16=5V, 17=12V, 18=5V AUX
P29-n	Clear CMOS	19 - 22	Segment 2 Power LEDs: 19=3.3V, 20=5V, 21=12V, 22=5V AUX
P45-n	HDD LED	23 - 26	Segment 4 Power LEDs: 23=3.3V, 24=5V, 25=12V, 26=5V AUX
P46-n	3.3V AUX Enable		
P41	FAN Alarm (system wide)		



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