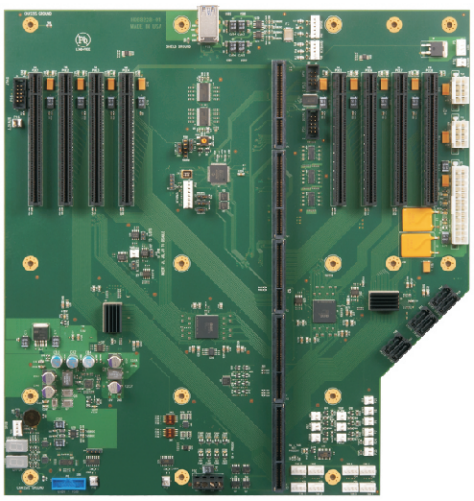
HDB8228

HDEC® Series MIDSIZE FORMAT BACKPLANE

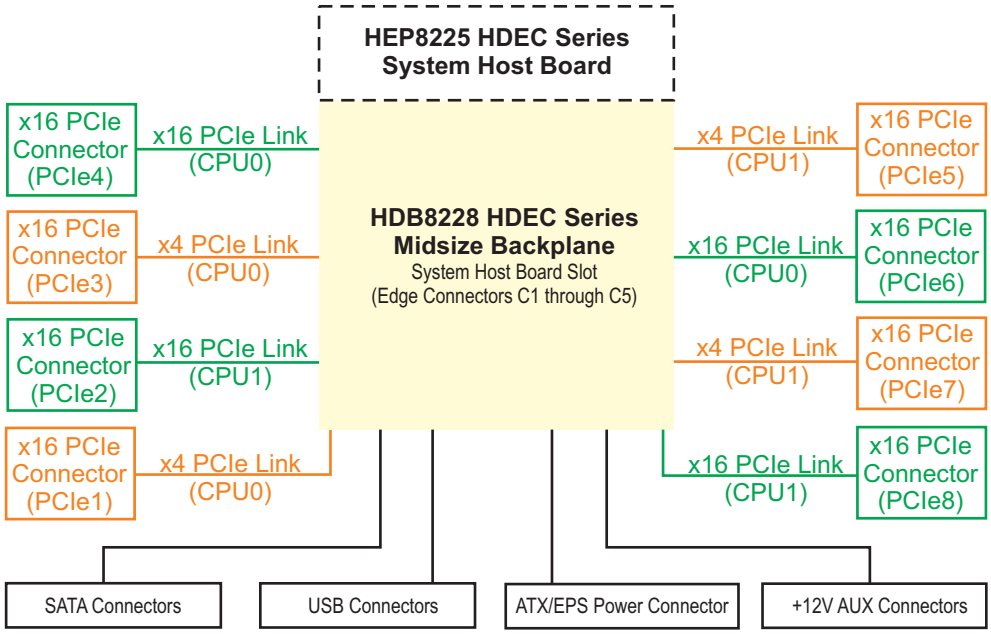


FEATURES

- Midsize format backplane supports one HDEC® system host board
- Switchless backplane design lowers data latency and overall system cost
- Ideal for dual-processor Trenton HEP8225 HDEC Series system host boards
- Direct PCI Express GEN3 links to the SHB's processors from each plug-in option card slot maximizes data throughput speeds
- Supports industry standard PCI Express® 3.0, 2.0 and 1.1 option cards
- Eight x16 PCI Express mechanical card slots
- PCIe GEN3 card slot electrical configuration: four x16, and four x4
- Six USB 3.0 and six SATA/600 system I/O connections
- Built-in system fan control maximizes system longevity
- Five-year factory warranty
- Made in U. S. A.

TRENTON SYSTEMS®
Engineered For Reliability

BLOCK DIAGRAM:



HDEC SERIES MIDSIZE BACKPLANE:

The HDB8228 is a midsize backplane compatible with HDEC Series system host boards such as the Trenton Systems' HEP8225. The HDB8228 takes full advantage of the eighty (80) available PCI Express GEN3 links from the HEP8225 SHB. The backplane architecture enables a completely switchless design that virtually eliminates data latency from a system's PCIe option cards and the Haswell-EP host processors on the system host board. All option card slots utilize x16 mechanical connectors with card slots PCIe2, PCIe4, PCIe5 and PCIe7 driven with by the SHB's x16 PCIe 3.0 electrical links. The remaining four card slots are driven with x4 PCIe 3.0 electrical links. Automatic PCIe link negotiation is fully supported enabling system support for a wide variety of standard PCI Express plug-in cards including GPUs. The HDB8228 backplane has an ATX/EPS and two 12V AUX vertical power connectors plus a four-position terminal block to meet expanded system power demands.

APPLICATION EXAMPLES:

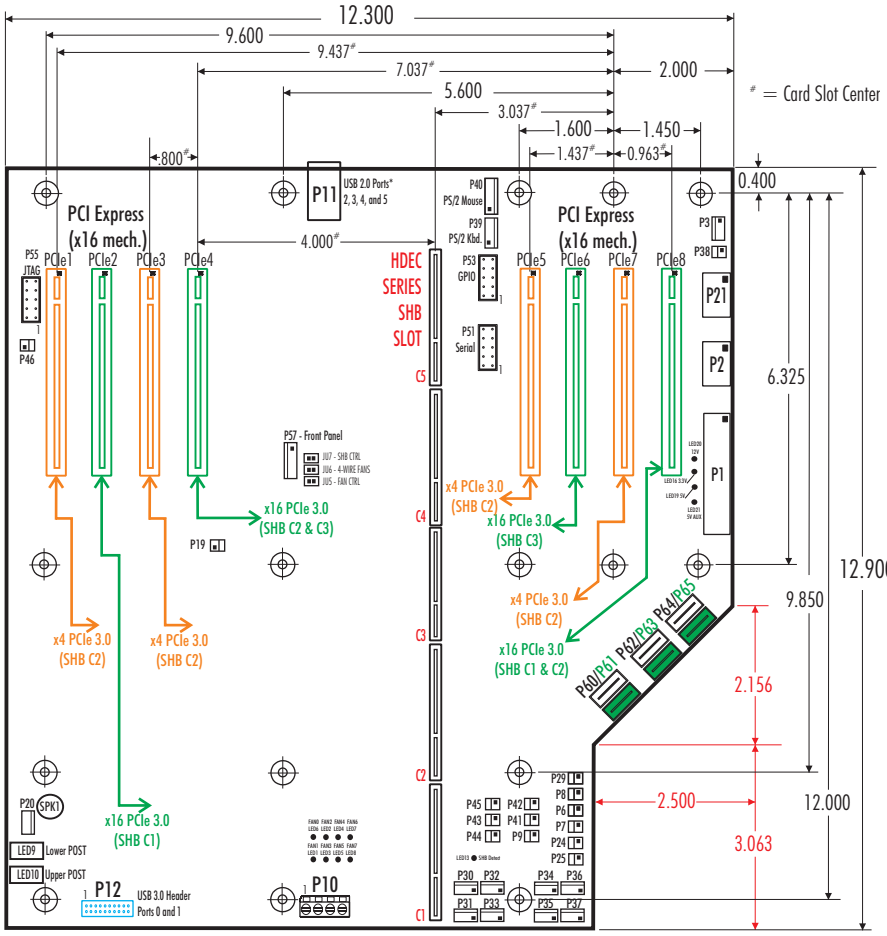
The innovative mechanical design of the HDB8228 enables this midsize HDEC Series backplane to drop into virtually any standard 4U rackmount computer chassis. Expanded system I/O connections are supported by the backplane in conjunction with a compatible HDEC Series SHB like Trenton's HEP8225. The placement of the SHB slot on the backplane and the deployment of various system I/O connectors 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 option cards used in medical diagnostics, military/aerospace, video wall controllers and communication systems.

HDEC SERIES BACKPLANE MODEL: HDB8228

MODEL#	MODEL NAME	DESCRIPTION
8228-038	HDB8228-CST	HDEC Series SHB compatible backplane with one ATX/EPS, two 12V AUX vertical power connectors, and a 4-position terminal block

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

HDB8228 BACKPLANE LAYOUT & MOUNTING HOLE PATTERN DIMENSIONS:



SUGGESTED TRENTON HDEC SERIES SHB:

DUAL PROCESSOR SYSTEM HOST BOARD: HEP8225

ENVIRONMENTAL SPECS.:#

Operating Temp.: 0° C to 60° C
Storage Temp.: -40° C to 70° C
Humidity: 5% to 90%, non-condensing

#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 HDB8228 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 HDB8228 backplane is designed for UL60950 and CAN/CSA C22.2 No. 60950-00.

ENGINEERING NOTES:

1. The power connectors are shown in the layout drawing represents backplane model number 8228-038.
2. Mounting holes: 0.156" diameter
3. Nominal PCB thickness: 0.080"
4. All dimensions are inches.
5. The PCI Express 3.0 links on this HDEC Series backplane are driven directly from the HDEC Series system host board. PCIe 3.0 link re-timers are used to ensure single integrity between the SHB and each plug-in PCIe option card.
6. PCIe electrical interface key for the option card slots:
   Green = Slot driven with a x16 PCIe 3.0 link from the HEP8225 SHB
   Orange = Slot driven with a x4 PCIe 3.0 link from the HEP8225 SHB
7. *The P11 ports support USB 3.0 interfaces; however, the current USB routing for P11 from the HEP8225 SHB only operates at the USB 2.0 device speed.

SYSTEM I/O CONNECTIONS AVAILABLE ON THE HDB8228 HDEC SERIES BACKPLANE:

The HDB8228 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. Use the following backplane connectors to ensure the most efficient system I/O wiring possible for embedded computer systems.

HDB8228 Connector	Function
P1	ATX/EPS power inputs from system supply
P2 and P21	+12V AUX power inputs from system supply
P3	LED dimmer interface
P10	Additional +3.3V inputs for extended current apps.
P11(*see engineering note 7)	USB3.0 Rear Panel I/O (Port2/Port3/Port4/Port5)
P12	USB3.0 header for Port0/Port1front panel interfaces
P20	System speaker interface

HDB8228 Connector	Function
P30 - P37	System fan connectors (8)
P39	PS/2 keyboard header
P40	PS/2 mouse header
P51	Serial interface header (RS232/422/485)
P53, P55	GPIO interface header (8 signals), JTAG interface header
P57	Keypad header for system front panel
P60 - P65	SATA/600 interfaces for HDD/SDDs (6)

ADDITIONAL SYSTEM INTERFACE CONNECTIONS, JUMPERS and LEDS:

There are a number of additional connectors, jumpers and LEDs available on the HDB8228 that are designed to simplify cable routing in an embedded computer system and aid in system operation.

Connector	Function	Conn.	Function
P6	PSON	P42	TEMP Alarm
P7	PWRBTN	P43	Volt Alarm
P8	RESET	P44	Error
P9	PWRGD	P45	LED
P19	SMB	P46	3.3V AUX Enable (all slots)
P24, P25	TEMP0, TEMP1		
P29	Clear CMOS		
P38	Intruder		
P41	FAN Alarm		

Jumper	Function
JU5	Fan Ctrl Enable
JU6	Four-wire FANs

Jumper	Function
JU7	SHB Fan Ctrl
JU8	Spk. Enable
JU9	SMB Enable
JU10	I2C Enable
JU11	Retimer Enable

LEDs	Function
1 - 8	Sys. Fans
9	Lower POST Codes

LEDs	Function
10	Upper POST Codes
11	1v Pwr. Reg. Gd.
12	1.8v Pwr. Reg. Gd.
13	SHB Present
16	+3.3V Supply
19	+5V Supply
20	+12V Supply
21	+5V AUX

Product Photo Note: The photo of the HDB8228 backplane is a provided for illustrative purposes only. Actual connector and mounting locations are illustrated in the backplane layout drawing.

TRENTON SYSTEMS®
Engineered For Reliability

intel IoT Solutions Alliance

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