



### Trenton PCIe Expansion System

Shown with a 20-slot PCI Express expansion backplane, a host server motherboard and a 1M x16 PCIe cable

### FEATURES

- Secure PCI Express link expansion with any motherboard-based host server
- Extends PCI Express communication bus from the host server to remote I/O cards
- Simplifies host sever motherboard I/O card support in telecom, military & defense, industrial automation, storage and visualization applications
- The current x16 expansion cable supports 128Gb/s (16GB/s) of total bi-directional bandwidth between the host server and target expansion chassis
- Wide variety of target backplane choices to support multiple I/O card interfaces including PCI Express, PCI-X and PCI option cards
- Target system choices include 3U, 4U and 5U rackmount expansion chassis
- Made in U.S.A. for system longevity and dependability



### PCI EXPRESS EXPANSION OVERVIEW:

Trenton provides a variety of different system design tools for supporting a large number of I/O cards in a motherboard-based server environment. For example, a Trenton Systems PCIe expansion chassis ships with the Trenton PED8044 target card installed in the SHB slot of any standard PICMG 1.3 backplane, and a PEU8039 host card that plugs into any available x16 PCIe slot on a host server's motherboard. The connection between the PCIe expansion chassis and the host server is provided by the supplied 1M or 3M x16 PCIe interconnect cable. Trenton's PCI Express expansion chassis product line offers a variety of backplane options to expand the I/O capabilities of your host server. To take advantage of Trenton's end-to-end system longevity and dependability you may elect to have Trenton Systems supply a complete solution featuring one of our long-life motherboard-based host servers, a rugged, fully integrated PCI Express expansion chassis and an interconnect cable. The choice is yours!

### TRENTON PCI EXPRESS EXPANSION CHASSIS CONFIGURATION OPTIONS:



- Rugged, lightweight aluminum expansion chassis
- 3U rackmount height, 20"(508mm) chassis depth
- Includes PED8044 target card
- 14-slot backplane options for PCIe & PCI-X/PCI cards
- Choice of 1M or 3M x16 PCIe expansion cable
- PEU8039 host card included and packed separately



- Rugged, lightweight aluminum expansion chassis
- 4U height, 20"(508mm) chassis depth
- Includes PED8044 target card
- 14-slot backplane options for PCIe & PCI-X/PCI cards
- Choice of 1M or 3M x16 PCIe expansion cable
- PEU8039 host card included and packed separately



- Rugged, lightweight aluminum expansion chassis
- 5U height, 18"(457mm) chassis depth
- Includes PED8044 target card
- 20-slot backplane options for PCIe & PCI-X/PCI cards
- Choice of 1M or 3M x16 PCIe expansion cable
- PEU8039 host card included and packed separately

### PCIe Expansion Chassis Options

#### Trenton Systems PCIe Expansion Chassis

- PED8044 PCIe target card
- Target chassis with a 14-slot backplane
- 3M x16 cable option



**PCIe Expansion System**  
(Integrated Target Chassis & Existing Host Server)



**PCIe Expansion Kits**  
(PKT1 [1M] or PKT3 [3M])

## TECHNICAL SPECIFICATIONS - EXPANSION CHASSIS:

MODEL NAME	DESCRIPTION	DIMENSIONS	POWER SUPPLY	PCIe STATUS LEDs
TTX3100	3U expansion system for 14-slot backplanes	19.0"/483mm (W) x 5.25"/133mm (H) x 20.0"/508mm (D)	1 - ATX/EPS Fixed	Front & Rear Panels
TTX3101	3U expansion system for 14-slot backplanes	19.0"/483mm (W) x 5.25"/133mm (H) x 20.0"/508mm (D)	Redundant P/S	Front & Rear Panels
TTX4102	4U expansion system for 14-slot backplanes	19.0"/483mm (W) x 7.0"/178mm (H) x 20.0"/508mm (D)	1 - ATX/EPS Fixed	Front & Rear Panels
TTX4103	4U expansion system for 14-slot backplanes	19.0"/483mm (W) x 7.0"/178mm (H) x 20.0"/508mm (D)	Redundant P/S	Front & Rear Panels
TTX5100	5U expansion system for 20-slot backplanes	19.0"/483mm (W) x 8.75"/222mm (H) x 18.0"/457mm (D)	1U Micro-Redundant ATX	Front & Rear Panels

## TECHNICAL SPECIFICATIONS - EXPANSION CHASSIS BACKPLANE OPTIONS:

BACKPLANE OPTION	I/O CARD SLOTS SUPPORTED (1-PED8044 target card slot plus...)	3U CHASSIS	4U CHASSIS	5U CHASSIS
BPG8194	8 - x16 and 5 - x4 PCIe PCIe 3.0/2.0/1.1			x
BPG8155	2 - x16, 2 - x8, and 6 - x4 PCIe 3.0/2.0/1.1	x	x	
BPG7087	4 - x16 and 5 - x4 PCIe 2.0/1.1	x	x	
BPX6620	1 - x8 PCIe 1.1, 2 - 64-bit/133MHz and 8 - 64-bit/100MHz PCI-X	x	x	
BPG6615	1 - x16 and 4 - x4 PCIe 1.1, 2 - 64-bit/100MHz and 4 - 64-bit/66MHz PCI-X	x	x	
BPG8032	17 - x16 and 1 - x4 PCIe 3.0/2.0/1.1			x
BPX6806	4 - x8 and 13 - x4 PCIe 1.1 plus 1 - x4 PCIe 2.0/1.1			x

Note: Most Trenton backplanes use x16 mechanical PCI Express I/O card slot connectors regardless of the PCIe electrical interface. Contact Trenton for additional details and exception information.

## TECHNICAL SPECIFICATIONS - EXPANSION CARDS AND CABLES:

### PCI EXPRESS EXPANSION - SERVER HOST CARD

Model Name:	PEU8039
Description:	PCIe host card for PCIe over cable I/O expansion
PCIe Standard:	PCI Express Base Specification 2.0 and 1.1
Card Size:	6.125"/156mm L x 3.243"/82.4mm H
Edge Connector:	Standard x16 PCIe
Operating Temp:	0° C to 55° C
Storage Temp:	-20° C to 70° C

### PCI EXPRESS EXPANSION - TARGET CHASSIS CARD

Model Name:	PED8044
Description:	PCIe target card for PCIe over cable I/O expansion
PCIe Standard:	PCI Express Base Specification 2.0 and 1.1
Card Size:	6.625"/168mm L x 3.243"/82.4mm H
Edge Connector:	Standard PICMG 1.3 SHB slot connectors A & B
Operating Temp:	0° C to 55° C
Storage Temp:	-20° C to 70° C

### PCI EXPRESS EXPANSION CABLES - 1M or 3M

Model Name:	EXC1 or EXC3
Description:	x16 PCI Express expansion cable
PCIe Standard:	PCI Express Base Specification 2.0 and 1.1
Cable Lengths:	1M (39.4") or 3M (118.1")
Connectors:	iPass™ Integrated Cage and Connector Assembly
Current:	1A maximum per contact
Shielded:	Yes

## QUICK START GUIDE - PCIe EXPANSION CHASSIS & HOST CARD:

Server Chassis with PEU8039 Host Cards

5U PCIe Expansion Chassis with PED8044 Target Cards Installed

TTX5100 PCIe Expansion Chassis

Typical 19" Component Rack

- Using proper grounding and anti-static procedures, install the PEU8039 card in a x16 PCI Express slot on the host server's motherboard
- Connect the host server chassis to the PCIe expansion chassis using the 1M, or 3M x16 PCIe expansion cable (EXC1 or EXC3)
- Install the required I/O cards needed in the application into the backplane I/O card slots in the PCIe expansion chassis
- Apply power to the host server and PCIe expansion chassis
- Observe the PCIe link status LEDs on the expansion chassis

Note: The board, chassis and cable photos shown are for illustrative purposes only.

Trenton rackmount computers, industrial servers and video display wall controllers feature long-life, multi-core Intel® processors.

Trenton Systems offers complete system integration of a wide variety of standard and customer supplied operating systems and application software packages. Various Microsoft®, Linux and RTOS operating systems can be loaded on to your system by our highly skilled factory technicians. Other system integration services include the loading and testing of industry standard or COTS option cards as well as custom designed boards. Standard industry certifications and approvals for your specific system configuration are also available from Trenton Systems.

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