TCS2/450x

TRENTON CRYPTOGRAPHIC SYSTEMS

Trenton TCS2504
2U Cryptographic System

Trenton TCS4504
4U Cryptographic System

IBM® 4767-002
PCIe Cryptographic Coprocessor

TRENTON SYSTEMS®

| Rugged Computers	Modular Computers	Military Computers	Boards

TRENTON CRYPTOGRAPHIC SYSTEMS OVERVIEW:

The Trenton Cryptographic Systems (TCS) are a family of 19" rugged rackmount computers which are IBM®-approved x86 architecture servers featuring the IBM® 4767-002 PCIe Cryptographic Coprocessor (Hardware Security Module (HSM)) as well as a choice of dual or single-processor single board computers in 2U and 4U height dimensions. Deploying cryptography is a crucial element of modern business applications, enabling the protection of privacy and confidentiality of data, ensuring its integrity and providing user accountability through digital signature techniques. The Trenton Cryptographic Systems enable secure Internet business transactions and are suited for a wide variety of cryptographic applications.

The 2U and 4U Trenton Systems® 19" rackmount chassis solutions are capable of both server room and rugged field deployment locations that require outstanding system performance in a stable computing platform. At the heart of the Trenton Cryptographic Systems are your choice of Trenton's TKL8255 PICMG 1.3 single-processor 7th generation Intel® Core ™ i7-based Single Board Computer, or HEP8225 HDEC Series® dual-processor Intel® Xeon® E5-2600 v4 series-based System Host Board, both of which are U.S.-designed and Made in America and feature 7+ years of availability.

The IBM® 4767-002 PCIe Cryptographic Coprocessor (HSM) is a high-end, secure coprocessor implemented on a PCIe card with a multi-chip embedded module. It is a foundation for secure applications such as high-assurance digital signature generation or financial transaction processing, utilizing the IBM® Common Cryptographic Architecture (CCA) API and security architecture, as well as custom software options. It affords high-security processing and high-speed cryptographic operations at maximum flexibility and maximum trust for a computing system while operating in physically insecure environments. The IBM® 4767-002 has tamper-responding programmable secure hardware designed to meet FIPS 140-2 Level 4 certification, the highest U.S. government accreditation standard for cryptographic modules and is currently undergoing NIST validation.
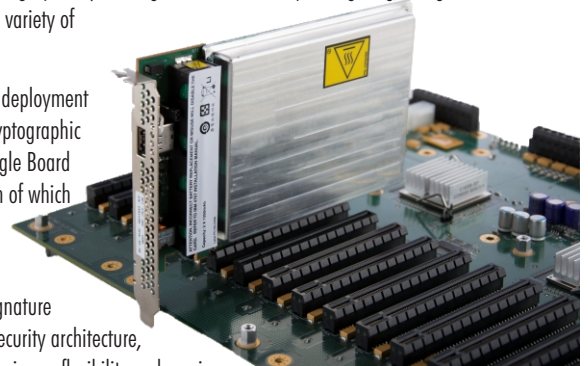
2U Trenton Cryptographic System Layout Example:

4U Trenton Cryptographic System Layout Example:
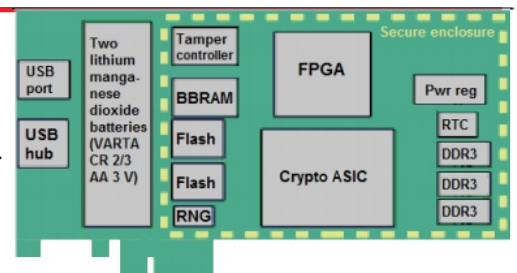

TRENTON CRYPTOGRAPHIC SYSTEMS: TCS2/450X

SERVER MODEL	DESCRIPTION
TCS2503, 2504 4503, 4504	2U or 4U, 19" rackmount computer systems with a Single Board Computer and Backplane interconnect methodology, with a IBM® 4767-002 PCIe Cryptographic Coprocessor (HSM) capable of remote, rugged field cryptography deployment with a variety of power supply and storage drive options.

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TECHNICAL SPECIFICATIONS (Standard Configurations[2]):

MODEL NAME	TCS2503	TCS4503	TCS2504	TCS4504
DESCRIPTION	2U Cryptographic System	4U Cryptographic System	2U Cryptographic System	4U Cryptographic System
SYSTEM STANDARD	PICMG 1.3		High Density Embedded Computing (HDEC Series®)	
CONSTRUCTION	Aluminum with a black front surface and ruggedized feature set to facilitate remote deployment			
SYSTEM HOST BOARD	Trenton TKL8255 PICMG 1.3 System Host Board Featuring a 7th-Generation Intel® Core™ i7-6700 Processor		Trenton HEP8225 HDEC System Host Board Featuring Intel® Xeon® E5-2680v4 Processors	
SYSTEM PCIe STANDARD	20 lanes of PCIe 3.0 passed to backplane		80 lanes of PCIe 3.0 passed to backplane	
SYSTEM MEMORY STANDARD	16GB DDR4-2133 ECC (64GB max.)		64GB DDR4-2133 ECC (512GB max.)	
BACKPLANE	Trenton BPC8219	Trenton BPG8155	Trenton BPG8227	Trenton HDB8228
BACKPLANE PCIe CONFIGURATION	3 - PCIe x16 & 1 - PCIe x4	2 - PCIe x16, 3 - PCIe x8, 6 - PCIe x4	4 - PCIe x16	8 - PCIe x16
DRIVE BAYS	2 - 3.5" Front Access 1 - Slim-Line Optical	4 - 3.5" Front Access 1 - Slim-Line Optical	2 - 3.5" Front Access, 1 - Slim-Line Optical	4 - 3.5" Front Access, 1 - Slim-Line Optical
INDICATORS	LEDs for Power, HDD Activity and Fan Fail			
FRONT PORTS	2 - USB 2.0		2 - USB 3.0	
FRONT SWITCHES	Power and Reset Momentary Switches			
POWER SUPPLY OPTIONS	650W ATX Fixed, 600W Redundant	1500W ATX Fixed, 800W Redundant	650W ATX Fixed, 600W Redundant	860W ATX Fixed, 800W Redundant
SYSTEM COOLING	3 - 80mm fans, 67CFM ea.	2 - 120mm hot-swap fans	4 - 60mm fans, 67CFM ea.	2 - 120mm hot-swap fans
CHASSIS NET WEIGHT [3]	23.8 Lbs.	30.8 Lbs.	23.8 Lbs.	34.5 Lbs.
DIMENSIONS	19"W, 3.5"H, 18"D	19"W, 7"H, 16.5"D	19"W, 3.5"H, 18.2"D	19"W, 7"H, 16.5"D
ENVIRONMENTAL	Operating: +10℃ to +30℃, 8 to 80% Relative Humidity, 10,000 ft Max. Altitude (700 mbar minimum). Storage: +1℃ to +60℃, 5 to 80% Relative Humidity, Minimum 700 mbar pressure			

IBM® 4767-002 Cryptographic Coprocessor Hardware Security Module[4,5]:

The IBM® 4767 Hardware Security Module (HSM) has been designed to meet the FIPS 140-2 Level 4 requirements by protecting against attacks that include probe penetration or other intrusion into the secure module, side-channel attacks, power manipulation and temperature manipulation. From the time of manufacture, the hardware is self-protecting by using tamper sensors to detect probing or drilling attempts. If the tamper sensors are triggered, the 4767 HSM destroys critical keys and certificates, and is rendered permanently inoperable.

Trenton Systems® offers complete system integration of a wide variety of standard and customer supplied operating systems and application software packages. Various Microsoft Corp.® and Linux Foundation® operating systems can be loaded on to your system by our highly skilled factory technicians. Validation testing for this cryptographic system configuration has been completed with Red Hat® Enterprise Linux® 7.2. Additional compatible operating systems are available. Other system integration services include loading and testing of industry standard or Commercial off the Shelf (COTS) option cards as well as custom designed boards. Standard industry certifications and approvals for your specific system configuration are also available from Trenton.

Final system weight, environmental specifications and total power consumption estimates are a function of the specific system configuration. Contact Trenton for additional information on this product family or customizing a specific configuration for your application.