

FRONT MODULAR

Blade Servers | 4th Gen Xeon[®] SP

Modular Blade Servers - Front Modular are compact, high-density solutions carrying multiple blades per chassis. Each blade houses its own CPUs, memory, storage, and networking capabilities, creating a self-contained unit that can be easily inserted or removed via the front of the chassis.



COMPUTE DENSITY-DRIVEN

Unlock unprecedented levels of computing power with multiple single/dual-CPU blades, tackling demanding workloads to achieve exceptional processing capabilities.



MODULAR ARCHITECTURE

Scalable and consolidated computing power, maximum space utilization, and simplified management with self-contained blade modules for flexibility + performance.



FAST NVMe SSDs

Up to two high-capacity, ultra-fast SSDs in a 2U bladed architecture for faster/secure data access, reduced latency, and enhanced overall system efficiency.



Overview

2U modules and chassis in a single/dual CPU form factor (per blade). Each blade has a fixed and customizable I/O board which allows you to have application-specific flexibility to scale your hardware infrastructure as your projects evolve over time.

This feature eliminates the need to disconnect I/O cables when removing each blade for the fastest MTTR (mean-time-to-replace) on the market today!



SOLUTION HIGHLIGHTS



Intel[®] PFR protects against firm-ware attacks using an Intel[®] MAX 10 Field-Programmable Gate Array (FPGA).



Strict revision control is achieved through Trenton's approved vendor list (AVL), ensuring engineer-vetted parts.



In-house engineers (hardware, software, mechanical, and electrical) control the design of your system down to the board and chip level.



Intel[®] SGX includes predefined portions of memory that can better protect sensitive information.



Counterfeit Protection Program (CPP) helps Trenton detect, remove, and destroy counterfeit parts and components.



TAA compliance is achieved because Trenton manufactures Blade Servers, and its other solutions, in the United States.



Intel[®] Total Memory Encryption provides encryption of a computer system's physical memory.



Vetted supply chain helps protect your system from potentially compromised counterfeit electronic parts and components.



CSfC, ITAR, ISO9001, and AS9100 adherence and compliance allow Trenton to consistently provide secure, high-quality computing solutions.



Technical Overview

SPECIFICATION	DETAILS
CPU	Single/Dual Intel® 4 th Gen Xeon® SP (Sapphire Rapids), per blade
Memory	16x DDR5-4800 ECC RDIMM slots (8x per CPU)
Storage	Up to 2x E1.S NVMe SSDs, per blade (FIPS 140-2/3 available)
Form Factors	2U rack server at 21.5" depth
Network Interface	2x 1GbE ports, 1x supporting IPMI, 4x 25GbE ports, per blade
PCIe Interconnect	1x x16 PCIe 5.0 slot via riser card, per blade
Power	Up to 2x 1200W, non-redundant, 461-filtered, removable

The Modular Blade Servers can be customized to your most complex technical, performance, and environmental specifications in consultation with our team.

Contact us for pricing and availability.

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PROCESSORS (UP TO 24 CORES PER CPU, UP TO 48 TOTAL)

Single/Dual Intel® 4th Gen Xeon® Scalable Processors (Sapphire Rapids) up to 205W
 Chipset: Intel® C741 Emmitsburg

MEMORY (UP TO 2 TB)

16x DDR5-4800 ECC RDIMM slots, single DIMM per channel (8x per CPU)

PCIe GEN 5 SLOTS (CAN SUPPORT FHFL GPUs)

1x PCIe Gen 5 x16 slot via riser card

I/O

- ▶ **NVMe:** 2x front-removable E1.S NVMe PCIe 4.0
- ▶ **USB:** 2x USB2 via on-board header, 2x USB3 via I/O board
- ▶ **IPMI:** IPMI 2.0 with virtual media over LAN and KVM-over-LAN support
- ▶ **Graphics:** ASPEED AST2600 BMC
- ▶ **Video:** 1x VGA port
- ▶ **LAN:** 2x 1GbE RJ-45 ports driven from a dual Intel® i350 controller (1x Shared IPMI), 4x 25GbE SFP ports driven from a Intel® x810 controller
- ▶ **Serial:** 1x RS232 serial port

SECURITY

▶ TPM 2.0

*For a comprehensive list of cybersecurity features, please contact one of our team members.

COOLING (BMC Controlled)

7x 4 pin system fan headers, 2x 4 pin CPU fan headers

SYSTEM BIOS

- ▶ InsydeH20 UEFI BIOS from Insyde
 - Plug and Play (PnP)
 - PCI 2.2
 - ACPI 1.0 / 2.0
 - USB Keyboard Support
 - SMBIOS 2.3
 - UEFI

SYSTEM MANAGEMENT (BMC)

ASPEED AST2600 baseboard management controller: rKVM, system monitoring, out-of-band management

OS COMPATIBILITY

- ▶ Windows Enterprise, Server
- ▶ Linux
 - RHEL
 - Ubuntu
 - SUSE

*Contact us for the full compatibilities list

DIMENSIONS

TBD

ENVIRONMENTAL SPECIFICATIONS

- ▶ Operating Temperature: 0°C - 45°C
- ▶ Storage Temperature: -20°C - 70°C
- ▶ Operating Humidity: 5% - 90% non-condensing
- ▶ Non-Operating Humidity: 5% - 90% non-condensing
- ▶ Shock: 3 axis, 6G, 11ms
- ▶ Vibration: 4.76Grms, 10Hz to 2000 Hz (SSD)
- ▶ Altitude: 0 to 10,000 ft (3,048m)
- ▶ Non-Operating Altitude: 0 to 30,000 ft (9,144m)

*Preliminary numbers noted. Final numbers expected to outperform current specifications.

*Conformal coating available upon request.

COMPLIANCE

Designed to meet the following standards/certifications:

- ▶ MIL-STD-810H
- ▶ MIL-STD-461G
- ▶ DO-160F

*Environmental specifications and compliance apply within Trenton 2U chassis.

SYSTEM VARIATIONS

#	SYSTEM	BLADES	BOARD	DEPTH	POWER	STORAGE	SLOTS
1	2U MBS.FM	UP TO 2X 2U, SINGLE-OR DUAL-CPU BLADES	8335	21.5"	2X 1200W (1X PER MODULE), NON-REDUNDANT, 461-FILTERED, REMOVABLE	UP TO 2X FRONT-REMOVABLE E1.2 NVME DRIVES (PER BLADE)	1X X16 FHFL PCIe 5.0 VIA RISER (PER BLADE)
2	1U-2U	1U OR 2U SINGLE-OR DUAL-CPU BLADES	COTS, MOTS, CUSTOM	18"-28"	LOW/MID/HIGH WATTAGE, REDUNDANT OR NON-REDUNDANT, 461-OPTIONAL, FIXED OR REMOVABLE	SAS/SATA/NVME DRIVES (INTERNAL, FRONT-REMOVABLE, VIA RAID CONTROLLER, OR VIA RISER)	HALF-HEIGHT OR FHFL PCIe 3.0/4.0/5/0

If you need a different system variation not listed above, please contact a Trenton Systems engineer to configure a system or solution to your specific application or program requirements.