

FRONT MODULAR

# Blade Servers | 3<sup>rd</sup> Gen Xeon<sup>®</sup> 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.



**ULTRA-FAST SSDs**

Up to two high-capacity, ultra-fast SSDs in a 1U and 2U bladed architecture for faster/secure data access, reduced latency, and enhanced overall system efficiency.



## Overview

1U and 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<sup>®</sup> PFR** protects against firmware attacks using an Intel<sup>®</sup> 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<sup>®</sup> 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<sup>®</sup> 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.



# ILM8296 BOARD

## Technical Overview

SPECIFICATION	DETAILS
CPUs	Single/Dual Intel® 3 <sup>rd</sup> Gen Xeon® SP (Ice Lake), per blade
Memory	6/12x DDR4-3200 ECC RDIMM slots (6x per CPU)
Storage	Up to 2x SATA/NVMe SSDs, per blade (FIPS 140-2/3 available)
Form Factors	1U/2U rack servers ranging from 21.5" - 24" depth
Network Interface	1GbE, 10GbE, 25GbE, and 100GbE ports supporting IPMI, per blade
PCIe Interconnect	1x x16 PCIe slot via riser card
Power	1x 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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# TECH SPECS - 8296 BOARD

## PROCESSORS (UP TO 36 CORES PER CPU, UP TO 72 TOTAL)

Single/Dual Intel® 3rd Gen Xeon® Scalable Processors (Ice Lake)  
up to 185W  
Chipset: Intel® C621 Lewisburg

## MEMORY (UP TO 1.5 TB)

6/12x DDR4-3200 ECC RDIMM slots, single DIMM per channel (6x per CPU)

## PCIe x16 SLOTS (CAN SUPPORT FHFL GPU)

1x PCIe x16 slot via riser card

## I/O

- ▶ **NVMe:** 1x PCIe U.2
- ▶ **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 AST2500 BMC
- ▶ **Video:** 1x VGA port
- ▶ **LAN:** 2x 1GbE RJ-45 ports (1x Shared IPMI) driven from a dual Intel® i350 controller, 2x 10GbE SFP+ ports driven from a dual Intel® x710 controller, up to 4x SFP+ 25GbE ports driven from a Intel® x810 controller, and 1x 100GbE QSFP+ port driven from a Intel® e810 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)

6x 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 AST2500 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

6.85 in. x 18.46 in. (17.4 cm x 46.9 cm)

## ENVIRONMENTAL SPECIFICATIONS

- ▶ Operating Temperature: 0°C - 40°C
- ▶ Storage Temperature: -20°C - 70°C
- ▶ Operating Humidity: 5% - 95% non-condensing
- ▶ Non-Operating Humidity: 5% - 95% non-condensing
- ▶ Shock: 3 axis, 35g, 25ms
- ▶ 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
- ▶ MIL-STD-1310
- ▶ MIL-STD-464C
- ▶ DO-160F
- ▶ 2014/35/EU (LVD)
- ▶ 2014/30/EU (EMC)

\*Environmental specifications and compliance apply within Trenton 1U/2U chassis.

## SYSTEM VARIATIONS

#	SYSTEM	BLADES	BOARD	DEPTH	POWER	STORAGE	SLOTS
1	1U MBS.FM	UP TO 2X 1U, DUAL-CPU BLADES	8296	21.5"	1X 1200W, NON-REDUNDANT, 461-FILTERED, REMOVABLE	---	---
2	1U MBS.FM LITE	UP TO 2X 1U, SINGLE-CPU BLADES	8296	21.5"	1X 1200W, NON-REDUNDANT, 461-FILTERED, REMOVABLE	UP TO 2X SATA/NVME DRIVES (INTERNAL, PER BLADE)	---
3	1U MBS.FM+	UP TO 2X 1U, SINGLE-CPU BLADES	8296	24"	1X 1200W, NON-REDUNDANT, 461-FILTERED, REMOVABLE	UP TO 2X SATA/NVME DRIVES (INTERNAL, PER BLADE)	---
4	2U MBS.FM	UP TO 4X 1U OR 2X 2U, DUAL-CPU BLADES	8296	21.5"	1X 1200W, NON-REDUNDANT, 461-FILTERED, REMOVABLE	---	---
5	2U MBS.FM+	UP TO 2X 1U AND 1X 2U, SINGLE-CPU BLADES	8296	24"	2X 1200W, REDUNDANT, 461-FILTERED, REMOVABLE	UP TO 2X SATA/NVME DRIVES (INTERNAL, PER BLADE)	1X X16 PCIe FHFL VIA RISER FOR GPU
6	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 AND FHFL SLOTS 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.

