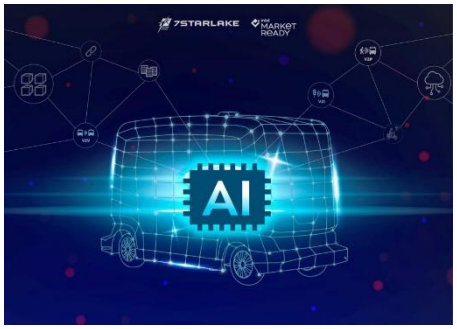
AV2000

Conduction-Over-Liquid Cooled Multi CPU-GPU Server

- Thermal Dissipation Coefficient: 15KW
- Liquid Cooled Platform: Gun Drill x 600 x 10mm Pass (⌀ x L x H)
- Dual Intel® Xeon® 6 6760P Granite Rapids SP (128 Cores, 256 Threads)
- Dual NVIDIA RTX PRO™ 6000 Blackwell 96 GB GDDR7, PCIe Gen 5 x16
- 2TB RDIMM ECC DDR4-3200MHz
- 8 x 10GBase-T Ethernet
- 1 x 1GBase-T Ethernet for IPMI LAN
- Storage 1: RAID 1- 2TB by Gen 4.0 NVMe U.2
- Storage 2: RAID 10 - S-SATA 32TB by SATA SSD
- Dimensions: 480 x 600 x 132 mm (W x D x H)

Introduction

Global digital transformation is driving rapid growth in data center compute, networking, and storage demands. Modern workloads increasingly depend on GPUs to deliver scalable, high-performance processing for AI, HPC, cloud services, and 5G applications. As data volumes grow and workloads diversify, data centers must adopt GPU-accelerated architectures to meet performance, latency, and efficiency requirements.



7StarLake AV2000 Conduction Liquid Cooled AI Inference GPU Server is powered by dual Intel® Xeon® 6 6760P Granite Rapids-SP processors (64 cores, 128 threads each) and NVIDIA RTX PRO™ 6000 Blackwell GPUs with 24,064 CUDA cores and 96GB of GDDR7 memory. The system is configured with 2TB Gen 4 NVMe U.2 storage (RAID 1) and 32TB SATA SSD storage (RAID 10), delivering a high-performance foundation for data-centric workloads spanning multi-cloud environments and intelligent edge deployments.

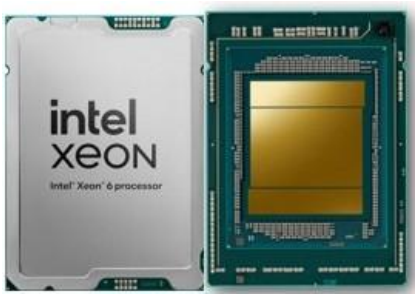
The AV2000 delivers consistent, high-throughput AI inference for machine learning and deep learning applications. Its balanced CPU, GPU, and expansion capabilities make it a ruggedized, versatile platform for demanding edge AI and data center inference workloads.

Featuring an advanced conduction liquid-cooling architecture, AV2000 uses a precision "gun-drilled" thermal design with ten cooling pipes (each 10 mm × 10 mm × π × 800 mm), enabling efficient heat dissipation of up to 15 kW and ensuring sustained performance under extreme workloads.

Intel® Xeon® 6 6760P Granite Rapids Processor

Purpose-built for modern data centers, the Intel® Xeon® 6760P processor enables server consolidation while delivering higher efficiency and lower power consumption. Designed to meet the demands of today's AI-driven workloads, Xeon 6 provides industry-leading performance across machine learning, generative AI, and GPU-accelerated applications. As a high-capacity host CPU, Xeon® 6760P offers the optimal balance of performance and energy efficiency, making it the ideal foundation for AI systems. It pairs exceptionally well with GPUs as a host node processor, ensuring maximum utilization and scalability across accelerated workloads.

Compared to the previous generation, Xeon® 6 delivers an average of 1.4× higher performance across a broad range of industrial and AI workloads, while drastically improving performance-per-watt efficiency.



Strengths of the Intel® Xeon® 6 6760P Granite Rapids Processor:

- 64 Cores, 128 Threads, Base Frequency 2.2 GHz, Max 3.8 GHz, TDP 330W

- 4 x higher Performance Energy Efficiency
- Modern Workloads
- Increased Reliability and Uptime
- Enhanced Hardware-based Security

NVIDIA RTX PRO™ 6000 Blackwell GPU

The NVIDIA RTX PRO 6000 Tensor Core GPU delivers up to 120 TFLOPS of FP32 performance, peak FP4 AI performance of up to 4 PFLOPS, and 355 TFLOPS of ray tracing capability. Leveraging a PCIe Gen 5 x16 high-speed interface, the GPU enables real-time inference on trained neural network models, ensuring high throughput and low latency in demanding operational environments.

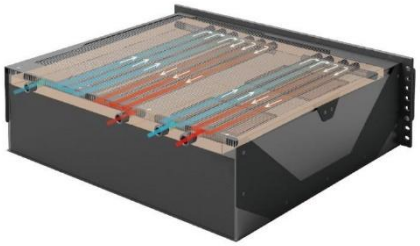
7STARLAKE's modular data center, powered by NVIDIA RTX™ PRO 6000 Tensor Core GPU, delivers exceptional compute density, resilience, and deployment flexibility for military and defense operations. Engineered for high-performance AI, simulation, and real-time analytics, the RTX PRO 6000 provides the Tensor, CUDA, and RT core capabilities required to accelerate mission-critical workloads such as ISR, battlefield simulation, autonomous systems, and secure edge inference. Its reliability and deterministic performance make it well suited for ruggedized, rapidly deployable modular environments where space, power, and latency constraints are paramount. By integrating RTX PRO 6000 GPU, modular data centers can deliver scalable, GPU-accelerated computing at the edge, enabling faster decision-making, enhanced situational awareness, and operational superiority in contested environments.

NVIDIA RTX PRO 6000 Blackwell	
GPU Architecture	Blackwell Architecture
CUDA Parallel Processing cores	24,064
Tensor Cores	752 (5th Gen)
RT Cores	188 (4th Gen)
Single-Precision Performance (FP32)	120 TFLOPS
Peak FP4 AI PFLOPS	4 PFLOPS
RT Core Performance	355 TFLOPS
GPU Memory	96 GB GDDR7 with ECC
Memory Interface	512-bit
Memory Bandwidth	1597 GB/s
Power Consumption	Up to 600W (Configurable)
Multi-Instance GPU	Up to 4 MIGs @ 24GB
NVENC | NVDEC | JPEG	4x | 4x | 4x
Confidential Compute	Supported
Secure Boot with Root of Trust	Yes
Graphics Bus	PCI Express 5.0 x16
Display Connectors	4x DisplayPort 2.1
Form Factor	4.4" (H) x 10.5" (L), dual slot
Thermal Solution	Passive
Power Connector	1x PCIe CEM5 16-pin

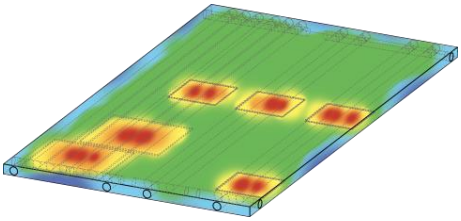
Conduction-Over-Liquid Cold Plate

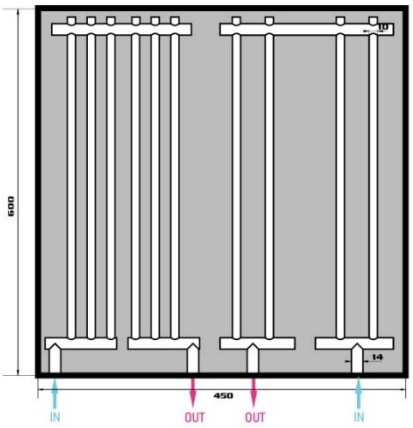
Most liquid-cooling solutions rely on closed-loop, direct-to-chip (D2C) designs that integrate pumps and cold plates within the system, raising concerns about potential liquid leakage.

At 7StarLake, system reliability is a top priority. To address these risks while maintaining high thermal performance, our engineering team developed the AV2000 with a conduction-over-liquid-cooled architecture focused on stability, safety, and long-term operation.



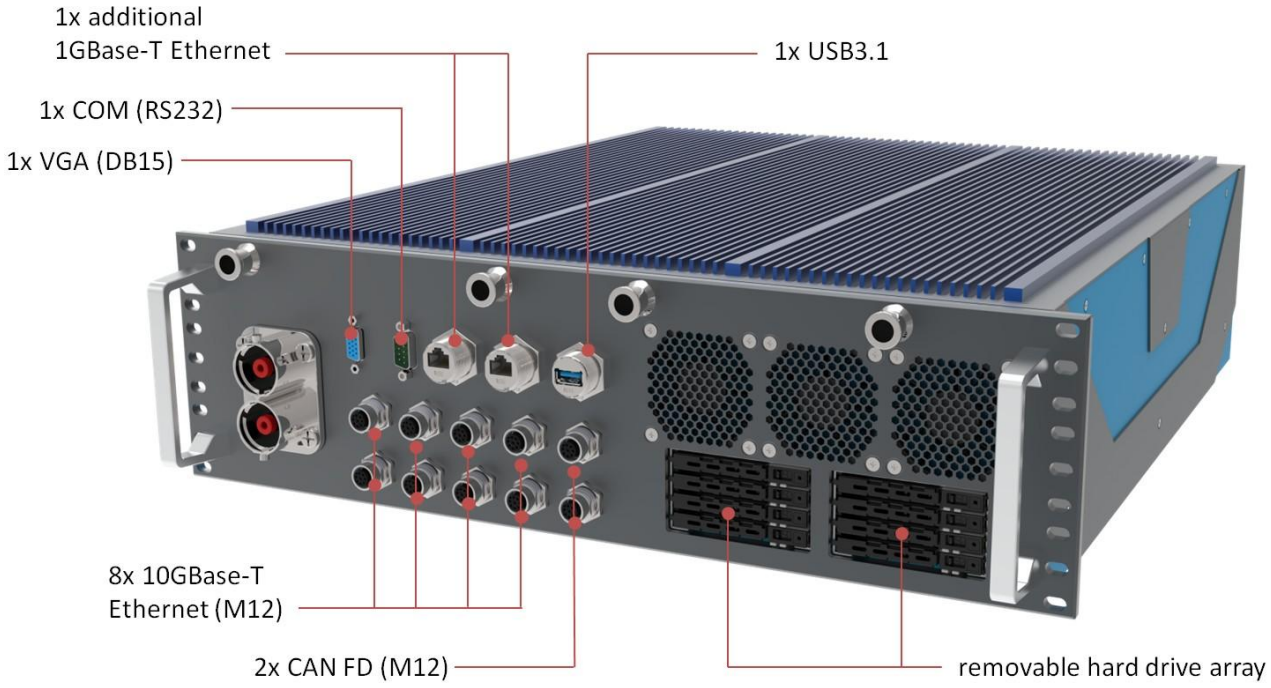
Instead of a conventional D2C approach, the AV2000 features an innovative heat exchanger with a conduction-over-liquid cold plate integrated into the computing system. The cold plate supports multi-channel coolant flow with configurable inlets and outlets, up to four in and four out. As coolant passes through the top sink, heat is rapidly absorbed and transferred away from critical components to the heat exchanger.





Heated coolant is then cooled within the heat exchanger by nine active 120 × 120 mm fans operating at 2,000–3,000 RPM. By combining the strengths of liquid cooling and air cooling, this hybrid design enables higher rack density, improved energy efficiency, reduced power consumption, and greater overclocking potential for demanding data center and edge deployments.

Dimensions


1x additional
1GBase-T Ethernet
1x COM (RS232)
1x VGA (DB15)
1x USB3.1
8x 10GBase-T
Ethernet (M12)
2x CAN FD (M12)
removable hard drive array

Specifications

System

Processor	2 x Intel® Xeon® 6 6760P Granite Rapids SP (64C, 128T), Base Frequency 2.2 GHz, Max3.8 GHz, TDP 330W
Memory type	Up to 4TB RDIMM, DDR5 5600MHz / 2TB RDIMM, DDR4 3200MHz

GPU

Graphics Card	2 x NVIDIA RTX PRO™ 6000 Blackwell (24,064 CUDA Cores, 96 GB GDDR7 GPU Memory)

Storage

SDD (bootable)	2 x NVMe PCIe GEN 4.0 x 2TB with RAID 1
SDD (Drive Pack)	32TB SAS/SATA with RAID10 hard drive array

LAN

8 x 10GBase-T	2 x Intel X710-T4 Quad Port 10GbE RJ45 PCIe 3.0 x8 Converged Network Adapter 1 x 1GbEbase-T RJ45 for IPMI LAN

RAID

Raid	1 x 2Port PCIe Gen4 x8 NVMe RAID Integrated Host RAID 1 & 0

CAN FD I/O

CAN FD I/O	1 x PCAN-PCI express FD Dual Channel

Front I/O

X1	DC IN
X2	1 x USB 3.1
X3	1 x VGA
X4	1 x IPMI LAN
X5	1 x 1GbE LAN
X6	1 x COM (RS232)
X7	2 x CAN FD (M12)
X8~X15	8 x 10GbE (M12)

Power Button	1 x Power Button with LED backlight

Power Requirement

Power Input	24V DC 2500W (Options for 2500W AC Redundant)

Operating System

Operating System	Windows 10 64Bit, Linux by request.

Physical

Dimensions (W x D x H)	480 x 600 x 132 (mm)
Weight	20 kg
Chassis	Aluminum Alloy, Corrosion Resistant
Finish	Anodic aluminum oxide (Color Iron gray)
Cooling	7SL Conduction Over Liquid Cooling

Environmental

Reliability	Designed & Manufactured using ISO 9001 Certified Quality Program
Operating Temp.	0°C to +60°C
Storage Temp.	0°C to +70°C
Relative Humidity	5% to 95%, non-condensing

This datasheet is for marketing purposes only and does not constitute a warranty. All specifications, dimensions, and data are subject to change without notice. For the latest specifications and updates, please contact your 7STARLAKE representatives