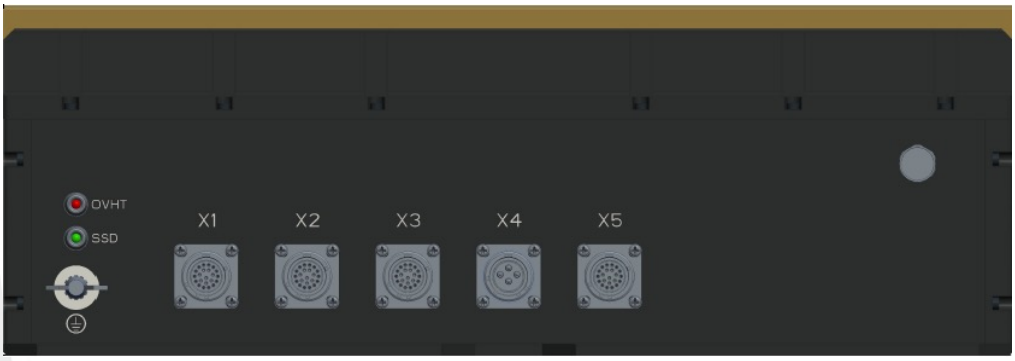
AVR800-S4L4

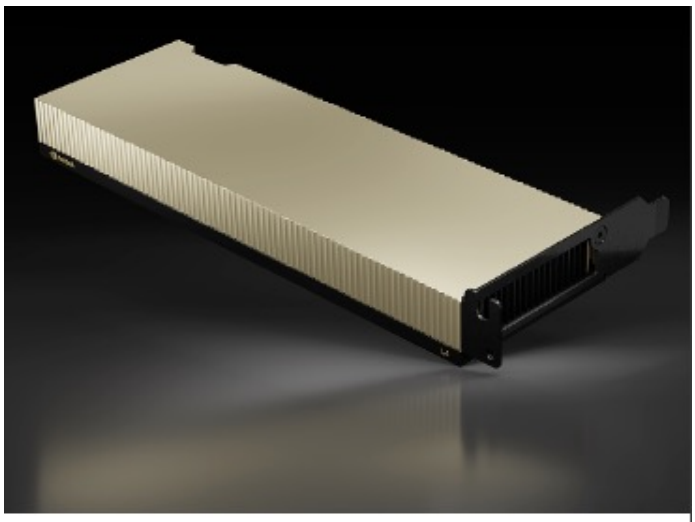
Edge AI Inference
NVIDIA Ada Lovelace L4
& Xeon® SP Gold 5411N



- **Ultra-High-Performance Intel® Xeon® SP Gold 5411N (1.9GHz, Max 3.9GHz 20 cores, 40 threads)**
- **NVIDIA Ada Lovelace L4 Tensor Core GPU Integrated (7424 CUDA and 30.3 TFLOPS, 24GB GDDR6)**
- **512GB RDIMM ECC DDR5-5600 MHz**
- **2 x 8TB U.2 NVMe for Fast & Mass Storage with SED**
- **Certification MIL-STD-810**
- **Certification MIL-STD 461**
- **Trusted Platform Module (TPM) 2.0 support**
- **RoHS and REACH Compliance**

Features

Edge AI Inference, NVIDIA Ada Lovelace L4 Tensor Core GPU & INTEL XEON SP 5411N



The AVR800-S4L4 is a ruggedized AI inference platform designed specifically for advanced inference acceleration applications such as voice, video, image, and recommendation services. This platform is powered by the NVIDIA Ada Lovelace L4 Tensor Core GPU, which features 30.3 TFLOPS in FP32 and 485 TOPs in INT8 PCIe Gen 4 x 16 high speed bus for real-time inference based on trained neural network models.

In addition to the powerful GPU, the AVR800-S4L4 is equipped with an Intel® XEON Sapphire Rapids processor and two U.2 NVMe slots for fast storage access. This combination of stunning inference performance, a powerful CPU, and expansion capability makes the AVR800-S4L4 the perfect ruggedized platform for versatile edge AI applications.

The AVR800-S4L4 utilizes 7STARLAKE's Open Modular, Scalable Architecture and provides an optimized cooling solution for the NVIDIA Ada Lovelace L4 Tensor Core GPU, ensuring stable system operation in harsh environments. Whether it's for outdoor use, manufacturing plants, or other challenging environments, the AVR800-S4L4 can withstand tough conditions while delivering top-notch AI performance.

Overall, the AVR800-S4L4 is an ideal solution for customers looking for a ruggedized AI inference platform that can handle a variety of edge computing applications with ease.

Specifications	
FP32	30.3 teraFLOPs
TF32 Tensor Core	120 teraFLOPS*
FP16 Tensor Core	242 teraFLOPS*
BFLOAT16 Tensor Core	242 teraFLOPS*
FP8 Tensor Core	485 teraFLOPs*
INT8 Tensor Core	485 TOPs*
GPU memory	24GB
GPU memory bandwidth	300 GB/s
NVENC | NVDEC | JPEG decoders	2 | 4 | 4
Max thermal design power (TDP)	72W
Form factor	1-slot low-profile, PCIe
Interconnect	PCIe Gen4 x16 64GB/s
Server options	Partner and NVIDIA-Certified Systems with 1–8 GPUs

Features

Ultra-High Performance Intel Xeon SP Performance with VMware8.x Support

Intel XEON Sapphire Rapids: The Intel Xeon Sapphire Rapids Technology is a fully support based on Intel® Boot Guard, Intel® Trusted Execution Technology, Intel® AES New Instructions, Intel® Software Guard Extensions (Intel® SGX), Supports virtualization (VMware v8 and upwards), Intel® Virtualization Technology (VT-x), Intel® Virtualization Technology for Directed I/O (VT-d), Intel® VT-x with Extended Page Tables (EPT) technology. delivers exceptional performance for demanding workloads, such as database management, virtualization, and cloud computing. The processor also supports DDR5-5600 memory with ECC for enhanced reliability, and Intel Hyper-Threading Technology for increased processing efficiency.

For applications where space is at a premium, the Intel Xeon Sapphire Rapids Technology offers an integrated Platform Controller Hub C741 chipset technology, offering an inspiring level of design simplicity. The Intel Xeon Sapphire Rapids Gold 5411N Technology also offers a seven-year extended supply life for Internet of Things designs.

Certification MIL-STD 810, MIL-STD 461

AVR800-S4L4 is designed to meet strict size, weight, and power (SWaP) requirements and to withstand harsh environments, including temperature extremes, shock/vibe, sand/dust, and salt/fog.

AVR800-S4L4 is MIL-461 EMI/EMC compliant rugged Edge AI Inference server. It passes numerous environmental tests including Temperature, Altitude, Shock, Vibration, Voltage Spikes, Electrostatic
Discharge and more. The sealed compact chassis shields circuit cards from external environmental conditions such as sand, dust, and humidity.

Specifications

System	
Processor	Intel® Xeon® Sapphire Rapids Processor Gold 5411N(Frequency 1.9GHz, Turbo Boost Frequency up to 3.9GHz), 20 Core, 40 Thread Support, 45MB Smart Cache TDP 165W
Memory type	512GB RDIMM ECC DDR5 5600MHz
Chipset	Intel C741
GPU	
NVIDIA	TESLA Ada Lovelace L4 Tensor Core GPU
TFLOPS	30.3
CUDA Cores	7424
Memory	24 GB GDDR6, 300 GB/sec
Graphics Output	
1x VGA	ASPEED AST2600
Resolution	Up to 1920x1200@60Hz 32bpp
Storage	
HDD/SSD	2 x 8TB U.2 NVMe SSD with SED
Side I/O	
X1(2 x 10 GbE)	1x Amphenol TVS07RF13-35SN (22PIN) Nickel Plated
X2(VGA)	1 x Amphenol TVS07RF-13-98S
X3(4 x USB2.0)	1 x Amphenol TVS07RF13-35SB (22PIN)
X4(DC-IN)	1 x Amphenol TVS07RF-13-04P (4PIN)
X5(2 x 1GbE RJ45)	1x Amphenol TVS07RF13-35SN (22PIN) Nickel Plated
Dedicated LED	2 x Red/Green LEDs (SSD)
Hardware	Trusted Platform Module (TPM) 2.0 , Silicon Root Trust (RoT) -NIST 800-193 Compliant
Features	UEFI Secure Boot/ Secure Firmware Updates
Power Requirement	
Power Input	DC-DC 18 to 36V (300W max) MIL-STD 461

Applications, Operating System	
Applications	C4ISR, Commercial and Military Platforms Requiring Compliance to MIL-STD-810 Process Control, where Harsh Temperature, Shock, Vibration, Altitude, Dust and EMI Conditions

OS Support List A	Windows 10 64bit Enterprise, Windows 10 64bit Pro Workstations, Windows 10 IoT 64bit Enterprise, Windows 11 64bit Enterprise (OR001), Windows 11 64bit Pro Workstations (OR001), Windows 11 IoT 64bit Enterprise (OR001), Windows Server 2019 64bit, Windows Server 2022 64bit	
OS Support List B	RHEL 8.5 64bit, RHEL 8.6 64bit, RHEL 9.0 64bit, RHEL 9.2 64bit, CentOS 8.5. 64bit, Oracle 8.5 64bit, Oracle 8.6 64bit, Rocky Linux 8.5 64bit, openSUSE Leap 15.4 64bit, SLES 15 SP3 64bit, Ubuntu 22.04 64bit Server, Ubuntu 21.10 64bit Server.	
VMware	VMWare ESXi 7.0u3d x64, VMWare ESXi 8.0x64	
PHYSICAL		
Dimension	450x 154 x316 mm (D x H x W)	
Estimated Weight	18Kg (39.68lbs) final weights is dependent on specific configuration	
Chassis	Aluminum Alloy, Corrosion Resistant	
Finish	Anodic aluminum oxide	
Cooling	Conduction Cooling with Air Force smart fan Ingress Protection	
Ingress Protection	IP65	
ENVIRONMENTAL		
Operating Test MIL-STD-810		
Low air pressure	Method 500.5 Procedure 2	Operation/Air Carriage 4572m (15.000 ft)
Low Temperature	Method 502.5 Procedure 2	-20°C, 4 hours, ±3°C
High Temperature	Method 501.5 Procedure 2	+55°C, 4 hours, ±3°C
Humidity	Method 507.5	85%-95% RH without condensation, 24 hours/ cycle, conduct 10 cycle
Vibration	Method514.6	5-500Hz, Vertical 7.7Grms, 40mins x 3axis
	Category 24	Operation/Air Carriage 4572m (15.000 ft)
Shock	Method 516.6	20 Grms, 11ms, 3 axes
Non-Operating Test MIL-STD-810		
Low Temperature	Method 502.5	-33°C, 4 hours, change rate: ≦20°C/ Hour -15°C, 72hours (By request)

High Temperature	Method 501.5	+71°C, 4 hours, change rate: ≦20°C/ Hour
	Procedure 1	+68°C, 240 hours (By request)
Vibration	Method514.6	5-500Hz, Vertical 7.7Grms, 40mins x 3axis
Shock	Method 516.6	20 Grms, 11ms, 3 axes
Salt Fog	Method 509.7	Salt Spray (50±5)g/L
MIL-STD 461		
Conducted Emissions	CE102 basic curve	10kHz – 30MHz
Power Leads		
Conducted Emissions	RE102-4	1.5HMz - 30MHz – 5GHz
Electric Field		
Radiated Susceptibility	RS103	1.5 MHz – 3GHz, 50 V/m equal for all frequencies
		2MHz – 80MHz, 50 V/m equal for all frequencies
Electric Field		80MHz – 3GHz, 50 V/m equal for all frequencies
		3GHz – 5GHz, 50 V/m equal for all frequencies
Electrostatic Discharge	EN 61000-4-2	Air DISCHARGE: 8 Kv, Contact discharge : 6kV
Electromagnetic compatibility	EN61000-4-4	Signal and DC Net: 1 kV
Electromagnetic compatibility	EN61000-4-5	Lead vs. ground potential 1Kv, ignal und DC Net: 1 kV
Radio disturbance	EN55022	Class A
Electromagnetic compatibility	EN61000-4-3	10V/m
Electromagnetic compatibility	EN 61000-4-5	Lead vs. ground potential 1Kv, ignal und DC Net: 0.5 kV
MIL-STD-1275 Specifications		
Steady State	20V~33V	
Surge Low	20V~33V	
Surge High	18V/500ms	

Appearance & Dimension