



# AV800-X1L

Edge AI Inference  
NVIDIA Ada Lovelace L4  
& Xeon®D-2183IT



- Ultra-High-Performance Intel® Xeon® D-2183IT (3.0GHz, 16 cores, 32 threads)
- NVIDIA Ada Lovelace L4 Tensor Core GPU Integrated (7424 CUDA and 30.3 TFLOPS, 24GB GDDR6)
- 512GB LRDIMM ECC DDR4-3200 MHz
- 1 x 8TB U.2 NVMe for Fast & Mass Storage and 2 x 2.5" 1TB SATAIII SSD
- Certification MIL-STD-810 Temperature, Shock, Vibration, MIL-STD-810 Salt Fog
- Certification MIL-STD 461 EMI/EMC

# Features

## Edge AI Inference, NVIDIA Ada Lovelace L4 Tensor Core GPU & INTEL XEON D-2183IT

The AV800-X1L 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 AV800-X1L is equipped with an Intel® XEON Sky LAKE DE 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 AV800-X1L the perfect ruggedized platform for versatile edge AI applications.

The AV800-X1L 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 AV800-X1L can withstand tough conditions while delivering top-notch AI performance.

Overall, the AV800-X1L 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 Performance with VMware Support



SKYLAKE D HCC: The Intel Xeon SKYLAKE D D-2183IT Technology is a 64-bit system on a chip (SOC) based on Intel 10 nm silicon technology. It delivers exceptional performance for demanding workloads, such as database management, virtualization, and cloud computing. The processor also supports DDR4 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 SKYLAKE D D-2183IT Technology offers an integrated Platform Controller Hub (PCH) technology and Intel Ethernet in a ball grid array (BGA) package, offering an inspiring level of design simplicity. The Intel Xeon SKYLAKE D D-2183IT Technology also offers a seven-year extended supply life and 10-year reliability for Internet of Things designs.

### Certification MIL-STD 810, MIL-STD 461



AV800-X1L 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.

AV800-X1L 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® Processor D-2183IT (Frequency 2.2GHz, Turbo Boost Frequency up to 3.0GHz), 16 Core, 32 Thread Support, 22MB Smart Cache |
| Memory type | 512GB LRDIMM ECC DDR4 3200MHz  |
| Chipset     | SoC, integrated with CPU   |

## GPU

|            |                                       |
|------------|---------------------------------------|
| NVIDIA     | TESLA Ada Lovelace L4 Tensor Core GPU |
| TFLOPS     | 30.3                                  |
| CUDA Cores | 7424                                  |
| Memory     | 24 GB GDDR6, 300 GB/sec               |

## Graphics Output

|            |                            |
|------------|----------------------------|
| 1xVGA      | ASPEED AST2500             |
| Resolution | Up to 1920x1200@60Hz 32bpp |

## Storage

|         |  |
|---------|--|
| HDD/SSD | 1 x 8TB U.2 NVMe SSD and 2 x 2.5" 1TB SATAIII SSD (Easy Swappable) |
|---------|--|

## Side I/O

|                   |   |
|-------------------|---|
| X1(4 x 10GbE LAN) | 1x Amphenol TV07RW-15-37SB (37PIN)            |
| X2(VGA)           | 1x Amphenol TV07RW-13-98S (10PIN)             |
| X3(USB2.0x2)      | 1x Amphenol TV07RW-13-35SB (22PIN)            |
| X4 (DC-IN)        | 1 x Amphenol TV07RW-13-04P (4PIN)             |
| Button            | 1 x Power Switch with Dedicated LED           |
| SSD Tray          | 2 x 2.5" HDD/SSD Easy Swap Tray Dedicated LED |
| Dedicated LED     | 2 x Red/Green LEDs (SSD)                      |

## 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   |
| Operating System | Windows 10 64Bit, Windows Server 2019 64bit, Windows 2016 64bit, Hyper-V Server 2016 R2, Ubuntu16.04.3 LTS/17.10/18.04.1LTS, Fedora 25/26, RedHat Linux EL 6.8/6.9/7.3/7.4/7.6, VMware ESXi 6.5u1, VMware ESXi 6.7U2 |

## Physical

|                    |   |
|--------------------|---|
| Dimension          | 455x 154 x316 mm (W x H x D)  |
| Weight             | 15Kg (33.06lbs)   |
| Chassis            | Aluminum Alloy, Corrosion Resistant   |
| Finish             | Anodic aluminum oxide   |
| Cooling            | Natural Passive Convection/Conduction Cooling. No Moving Parts Ingress Protection |
| Ingress Protection | IP65  |

## Environmental

### Operating Test MIL-STD-810

|                  |                             |   |
|------------------|-----------------------------|---|
| Low air pressure | Method 500.5<br>Procedure 2 | Operation/Air Carriage 4572m (15.000 ft)                              |
| Low Temperature  | Method 502.5<br>Procedure 2 | -20°C, 4 hours, ±3°C  |
| High Temperature | Method 501.5<br>Procedure 2 | +55°C, 4 hours, ±3°C  |
| Humidity         | Method 507.5                | 85%-95% RH without condensation, 24 hours/<br>cycle, conduct 10 cycle |
| Vibration        | Method 514.6<br>Category 24 | 5-500Hz, Vertical 7.7Grms, 40mins x 3axis                             |
| 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<br>-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        | Method 514.6 | 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<br>curve | basic | 10kHz – 30MHz  |
| Power Leads                                    |                |       |  |
| Conducted Emissions                            | RE102-4        |       | 1.5MHz - 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           |
| 80MHz – 3GHz, 50 V/m equal for all frequencies |                |       |  |
| 3GHz – 5GHz, 50 V/m equal for all frequencies  |                |       |  |
| Electric Field                                 |                |       |  |
| 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, signal 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, signal und DC Net: 0.5 kV |

### MIL-STD-1275 Specifications

|              |           |
|--------------|-----------|
| Steady State | 20V~33V   |
| Surge Low    | 20V~33V   |
| Surge High   | 18V/500ms |

# Appearance & Dimension

