AV800-D27-A45S4

IP65 MILTARY ICELAKE D-2796NT, 10GSFP, 10G Base-T, with GPU server

- Design to meet MIL-810, MIL-461 EMC/EMI.
- Intel® Xeon D-2796NT 20 cores 2.0GHz Max Turbo 3.1GHz.
- Nvidia RTX A4500 5888 CUDA cores PCIe Gen 4.0 x16.
- 1x 10GbE SFP28 LAN Port + 1x RJ45 10 GbE base-T port + 2x RJ45 1 GbE base-T.
- M.2 NVMe 2TB (R/W, 7150/5250 MB/sec)
- U.2 NVMe 8TB x 2.
- Hardware with Swappable Cage
- Extreme Temperature -20~60C
- Size: 405 x 316 x 204.8 mm.
- IP65 Sealed with External Cooling Blade
- MIL-STD-810 Thermal, Shock, Vibration, Humidity
- Power 18V~36V DC Input

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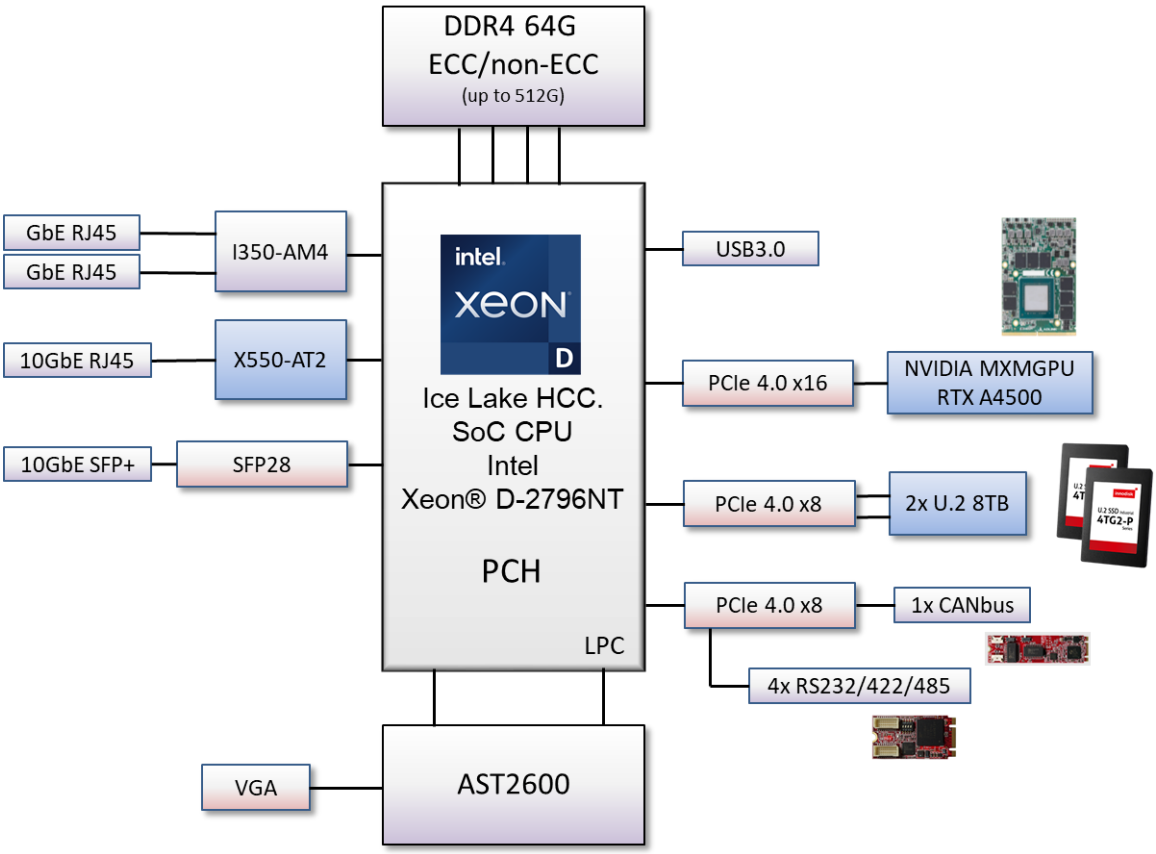
1. INTRODUCTION

Artificial intelligence (AI) is quickly becoming one of the most crucial elements of business success.
Today, deploying powerful computing platforms that can accelerate and scale their AI-based products and services while adapting them to harsh environments has become vital for many successful military applications.
7Starlake is innovating to address the emerging high-throughput inference market driven by IoT devices which are generating huge amounts of data. The combination of NVIDIA CUDA parallel Processor cores and the new architecture-based GeForce Accelerator is an ideal combination for demanding and latency-sensitive workloads.

2.MAIN FEATURE

- Ultra High Performance Intel® Xeon Ice Lake-D, D-2796NT (20 Cores)
- NVIDIA MXM-GPU Quadro RTX A4500 5888 CUDA
- MIL-STD 810 Thermal, Vibration, Shock, Humidity
- 1x 10GbE SFP28, 1x10GbE RJ45, 2 x1GbE RJ45
- 64GB (Up to 512GB LRDIMM/256GB RDIMM)
- 2 x NVMe PCIe Gen 4.0 U.2, 1 x NVMe PCIe Gen4 M.2.
- Dual Removable Anti-Drop U.2 Solid-State Disk
- IP65 Sealed with External Cooling Blade
- MIL-STD-810 Thermal, Shock, Vibration, Humidity
- MIL-STD 461 EMI/EMC
- Power 18V~36V DC-IN
- Extreme Temperature Support -20~+60°C



3.MIL-STD Environment

- Operating Temperature High: 50℃, MIL-STD-810G, Method 501.5, Procedure I.
- Operating Temp Low: 0℃, MIL-STD-810G, Method502.5, Procedure I.
- Non-Operating Temperature High: 70℃, MIL-STD-810G,Method 501.5, Procedure II.
- Non-Operating Temperature Low:-40℃, MIL-STD-810G,Method 502.5, Procedure II.
- Operating Altitude: Up to 15,000ft., MIL-STD-810G,Method 500.5.
- Non-Operating Altitude: Up to 45,000ft., MIL-STD-810G,Method 500.5.
- Humidity: MIL-STD-810G,Method 507.5., Procedure Ib(Natural Cycle B3)
- Shock: MIL-STD-810G,Method 516.6, 30g's,Saw-tooth, 11ms & MIL-DTL-901E Grade A., Class II., Type B.
- Vibration: MIL-STD-167, Type I, Deck Mounted Equipment.
- EMI/EMC: MIL-STD-461F, RE101, RE102, (Shipboard Level 1), RS103, CE101, CE102, CS101, CS114, CS116.
- Airborne Noise: MIL-STD-740-1 compliance: 43.7dBA (Idle), 52.5dBA(50%), 54.6dBA(80%)

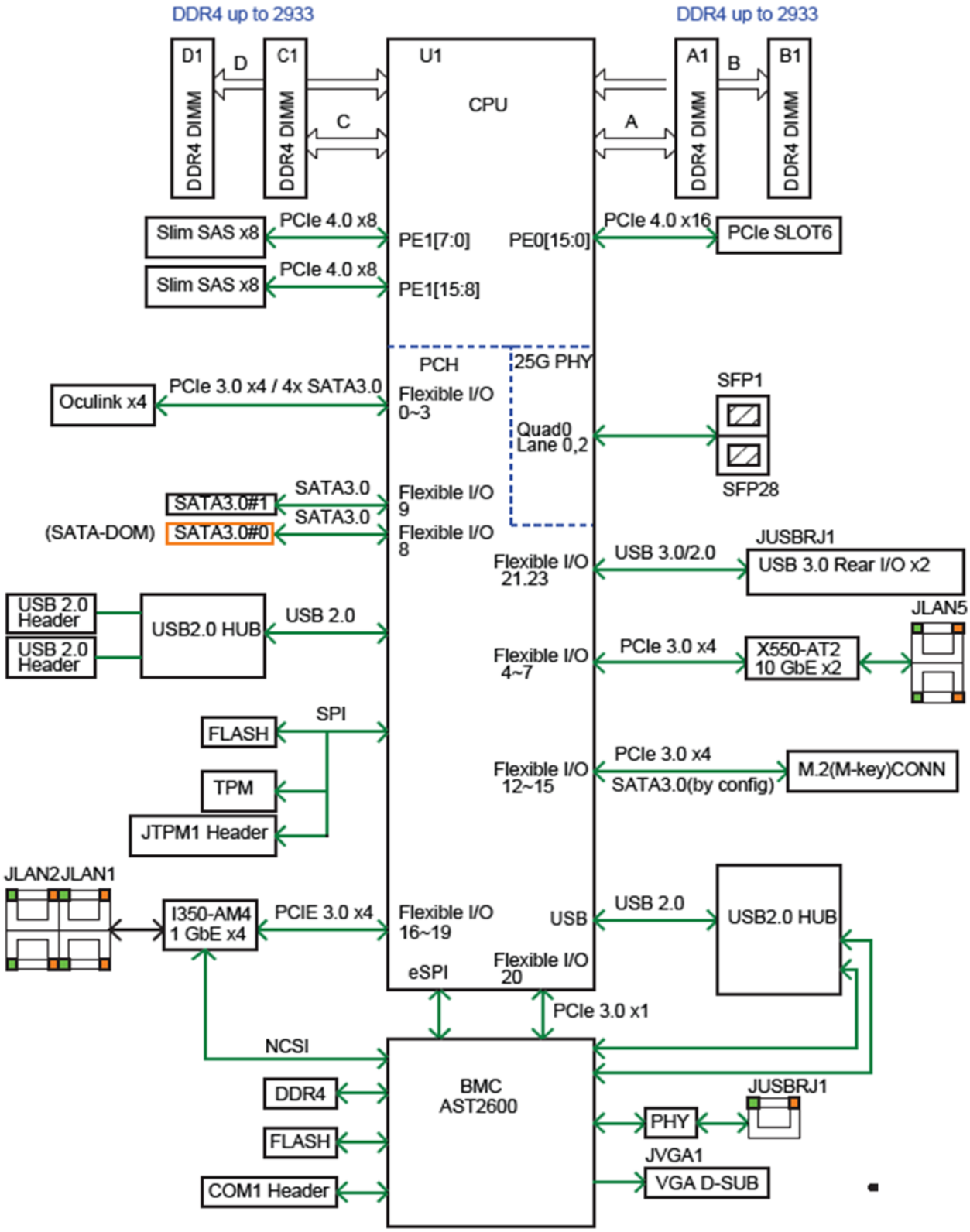
4.SYSTEM SPEC

System	
CPU	Intel® Xeon® D-2796NT, 20 core, 40 thread, 30MB Cache, 2.0GHz Max Turbo up to 3.1GHz. Single socket FCBGA-2579 , up to 120W TDP。
Memory type	64GB RDIMM ECC DDR4-3200/2933 MHz,
Chipset	Intel® SoC Integrated
GPU	1x MXM NVidia® RTX A4500, 5888 CUDA Cores, PCIe Gen4.0 x16
Display	VGA, Resolution up to 1920x1200@60Hz 32bpp
Chipset	Aspeed AST2600 BMC
Ethernet Controller	25G SFP28 LAN via SoC 10G LAN via Intel® X550 Gigabit LAN via Intel®i350
LAN	2x 1GBase-T , 1x 10GBase-T LAN, 1x 10GBase SFP+
Storage	2 x 8TB, 2.5" U.2 SSD hot-swap 1 x 2TB, NVMe M.2 2280 by PCIe
Power Type	18V~36V DC Input
Dimension	405mm x 316mm x 204.8mm (W x L x H)
Front I/O	
X1	1x CAN BUS TVS07RF-9-98S connector
X2	1x10GbE(SFP+) LCFTV70NN connector
X3	1 x 10GbE TVS07RF-11-35SA connector
X4	1x DC-IN TV07RW-13-4P connector
X5	4x RS232/422/485 24FD35SN connector
X6	1x GbE TVS07RF-11-35S-LC connector
X7	1x GbE TVS07RF-11-35S-LC connector
X8	1x USB3.0 USB3FTV7AZNF312 connector
X9	1x VGA D-sub 15 connector with waterproof cap
Operating System	
Operating System	Ubunto 20.04.6
RoHS	RoHS compliant

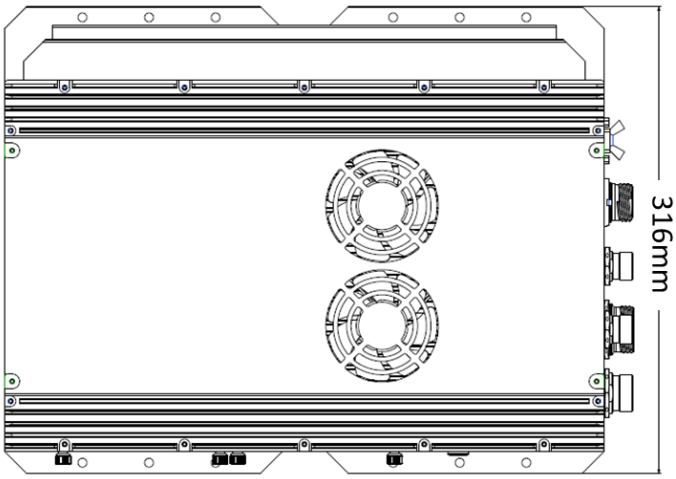
Environmental

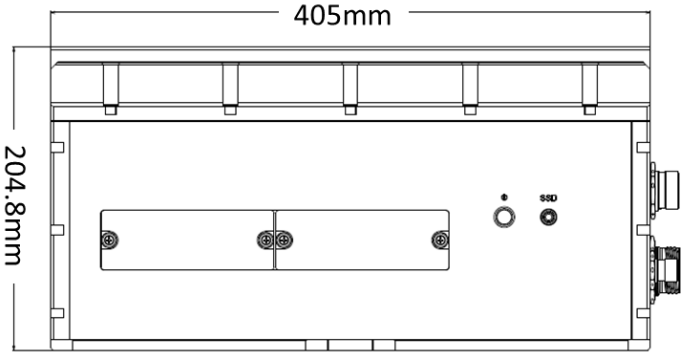
MIL-STD-810 Test	Method 500.5, Procedures I and II (Altitude, Operation): 12,192M, (40,000 ft) for the initial cabin altitude (18.8Kpa or 2.73 Psia) Method 500.5, Procedures III and IV (Altitude, Non-Operation): 15,240, (50,000 ft) for the initial cabin altitude (14.9Kpa or 2.16 Psia) Method 501.5, Procedure I (Storage/High Temperature) Method 501.5, Procedure II (Operation/High Temperature) Method 502.5, Procedure I (Storage/Low Temperature) Method 502.5, Procedure II (Operation/Low Temperature) Method 503.5, Procedure I (Temperature shock) Method 507.5, Procedure II (Temperature & Humidity) Method 509.7 Salt Spray (50±5)g/L Method 514.6, Vibration Category 24/Non-Operating (Category 20 & 24,Vibration) Method 514.6, Vibration Category 20/Operating (Category 20 & 24,Vibration) Method 516.6, Shock-Procedure V Non-Operating (Mechanical Shock) Method 516.6, Shock-Procedure I Operating (Mechanical Shock)
Reliability	Conduction Cooling. Designed & Manufactured using ISO 9001 Certified Quality Program.
MIL-STD-461	CE102 basic curve, 10kHz - 30 MHz RE102-4, (1.5 MHz) -30 MHz - 5 GHz RS103, 200 MHz - 3.2 GHz, 50 V/m equal for all frequencies EN 61000-4-2: Air discharge: 8 kV, Contact discharge: 6kV EN 61000-4-3: 10V/m EN 61000-4-4: Signal and DC-Net: 1 kV EN 61000-4-5: Leads vs. ground potential 1kV, Signal und DC-Net: 0.5 kV CE and FCC
MIL-STD-1275	Steady State – 20V~33V, Surge Low – 18V/500ms, Surge High – 100V/500ms Emitted spikes Injected Voltage surges Emitted voltage surges Voltage ripple (2V) Voltage spikes Starting Operation Reverse polarity
Operating Temp.	-20 to +60°C
Storage Temp.	-40 to +85°C
Relative Humidity	5% to 95%, non-condensing.

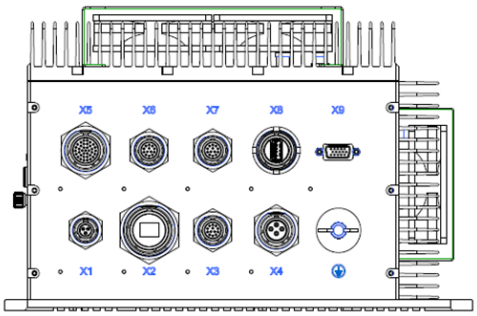
5.Block Diagram



6.Dimension







7. Ordering Information

Model	AV800-D27-A45S4
Type	Rugged
CPU	Intel Xeon D-2796NT
Memory	64GB RDIMM ECC DDR4-3200/2933 MHz
GPU	1x MXM embedded NVIDIA RTX™ A4500
Storage 1	M.2 NVMe 2TB Gen4 x4
Storage 2	2 x U.2 PCIe Gen4 x4 (8TB) with swappable cage
Expansion	1x CAN bus
	4x RS232/422/485
LAN	1x 10GbE(SFP+) + 1x 10GbE + 2x GbE LAN
Power	18V~36V DC Input
Dimension	405 x 316 x 204.8mm (W x D x H)