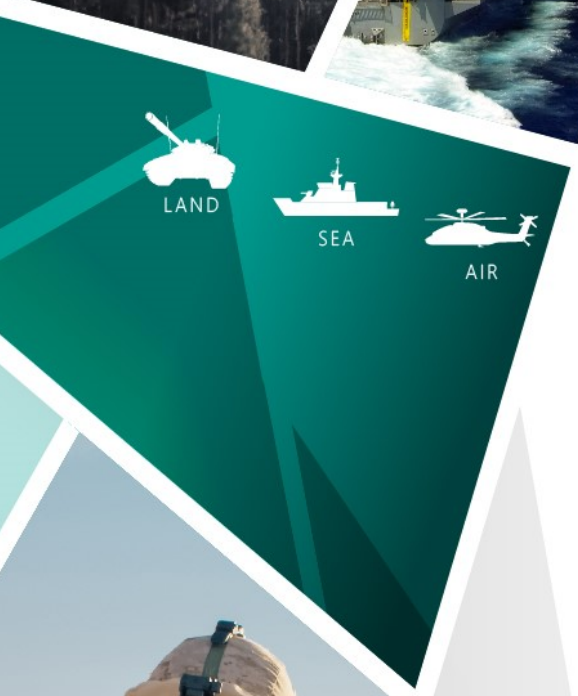






AV710-X3

Military MXM-GPU Fanless System



MIL-STD 461/1275

MIL-STD 810

- Intel® XEON-D(Broadwell-DE) D-1577 (16xCores)
- NVIDIA MXM-GPU Quadro RTX5000
- 1 x GbE, 2 x 10GbE, 1 x COM, 1 x DVI-D
- IP65 Rating DTL38999 Connector
- IP65 Sealed with rugged external cooling for turbo mode
- Waterproof valve
- MIL-STD-810G Method 500.5 Altitude
- MIL-STD-461 EMI 18V~36V DC-In
- Extreme Rugged Operating Temperature -40~+60°C

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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 Tensor RT and the new architecture-based GeForce Accelerator is an ideal combination for demanding and latency-sensitive workloads.

I. Ultra-High Performance Intel® Xeon® D Processor

- **Broadwell DE:**

Intel® Xeon® processor D-1500 product family offers hardware and software scalability up to sixteen cores, making it the perfect choice for a broad range of high-performing, low-power solutions that will bring intelligence and Intel® Xeon® reliability, availability, and serviceability (RAS) to the edge.

- **Enhanced performance per watt:**

Intel® Xeon® processor D-1500 product family delivers exceptional value and unmatched performance density per watt. Its TDP of 45W, industry-leading 14 nm process technology and a compute-only design make it ideal for meeting the diverse needs of customers seeking mid-range low-power, high-density solutions.

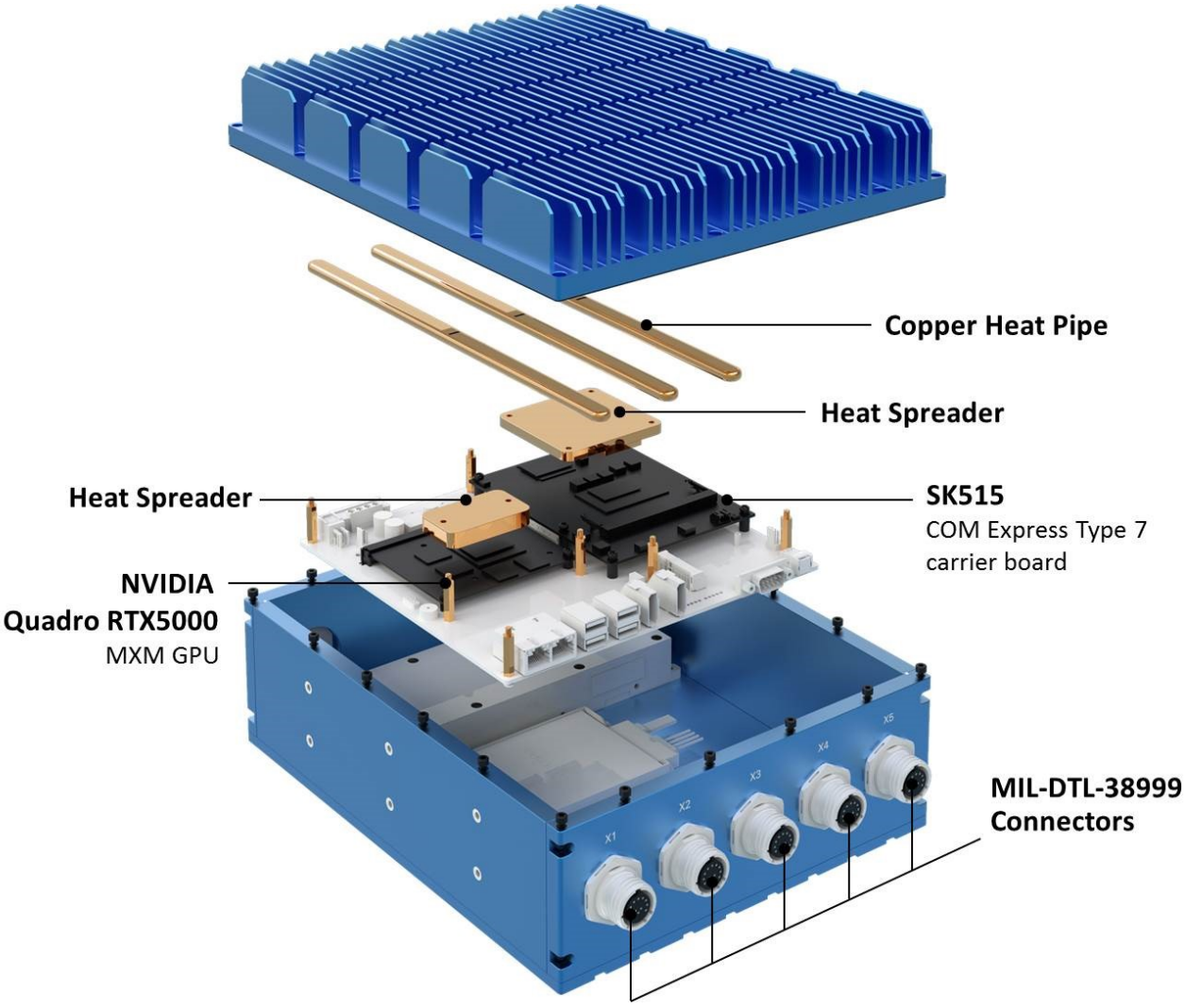
II. NVIDIA Quadro RTX5000 MXM

AV710-X3 supports **1 x NVIDIA Quadro RTX5000** MXM Module; can power the planets most reliable mainstream workstations. Designed into a 110-watt package, RTX5000 is powered by NVIDIA Turing architecture, supplying innovative multi-precision performance to accelerate a vast range of modern applications. AV710-X3 w/ Quadro RTX5000 GPU accelerates diverse cloud workloads. These include high-performance computing, data analytics, deep learning training and inference, graphics and machine learning. RTX5000 MXM features multi-precision Turing Tensor Cores. It comes in a very compact MXM form factor, helping AV710-X3 deliver ground-breaking performance at scale.

SPECIFICATIONS	
GPU Architecture	**NVIDIA Turing**
NVIDIA Turing Tensor Cores	**384**
NVIDIA® CUDA® Cores	**3,072**
Peak FP32 Perf.	**9.49 TFLOPS**
PeaK FP16 Perf.	**18.98 TFLOPS**
GPU Memory	**16GB GDDR6 448 GB/sec**
MAX Power	**110 W**
Form Factor	**MXM 3.1 Type B**
Compute APIs	**CUDA, CUDA-X AI (RTX), DirectCompute, OpenCL**

III. Patented Thermal Solution

7STARLAKE designs a unique enclosure that is able to stack together both horizontally and vertically. The aluminum heat sink enclosure of AV710-X3 secures top heat dissipation. It's well-known that fanless method relies heavily on the precise calculation of the efficiency of each heat dissipating component. 7STARLAKE exclusively adopts special heat radiating material and combining with special CNC cutting, further forged into a lavish sophisticated metal. Superior fanless design guarantees silent operation that enhances the flexibility of mobility and prevents the intrusion of dust and debris. Achieving ultimate reliability and stability, AV710-X3 can operate under extended temperature ranging from -40 to 60°C.



2. Specifications

System	
Processor	Intel® Xeon® D-1577 Processor, 16Cores, 32Threads, Base Frequency 1.3GHz, Turbo Frequency up to 2.1GHz, 24M Cache
Memory type	2 x SODIMM up to 32GB DDR4 2133MHz
GPU	
Graphics Card	NVIDIA Quadro RTX 5000 MXM (16GB GDDR6, 3072 CUDA Cores)
Storage	
HDD/SDD	1 x 2.5" SSD
Front I/O	
DC-In	1 (Amphenol TV07RW-11-54P)
Power Button	1 x Power Button with LED backlight
Waterproof valve	1
Rear I/O	
X1	1 x GbE LAN (Amphenol TV07RW-13-98S)
X2	1 x 10GbE Copper LAN (Amphenol TV07RW-13-98S)
X3	1 x 10GbE Copper LAN (Amphenol TV07RW-13-98S)
X4	1 x DVI-D (Amphenol TV07RW-13-35S)
X5	1 x COM (Amphenol TV07RW-13-98S)
Power Requirement	
Power Input	MIL-STD-461 EMI power supply, 18V~36V DC-In (300W)
Applications	
Applications	Military Platforms Requiring Compliance to MIL-STD-810G Embedded Computing and applications subject to Harsh Temperature, Shock, Vibration,Altitude, Dust and EMI Conditions.
Operating System	
Operating System	Windows 10 64Bit, Linux by request.
Physical	
Dimension (W x D x H)	280 x 350 x 122 (mm) (11.02" x 13.77" x 4.80")
Weight	10.50KGS

Chassis	Aluminum Alloy, Corrosion Resistant
Finish	Anodic aluminum oxide (Color Iron gray)
Cooling	Natural Passive Convection/Conduction. No Moving Parts
ENVIRONMENTAL	
MIL-STD-810G 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 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	No Moving Parts; Passive Cooling. Designed & Manufactured using ISO 9001 Certified Quality Program.
EMC	MIL-STD-461E : CE102 basic curve, 10kHz - 30 MHz RE102-4, (1.5 MHz) -30 MHz - 5 GHz RS103, 1.5 MHz - 5 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
Operating Temp.	-40 to +60°C (ambient with air flow)
Storage Temp.	-40 to +85°C
Relative Humidity	5% to 95%, non-condensing.

3. Ordering Information

AV710-X3

Military MXM-GPU Fanless System with Intel® Xeon® D-1577 Processor, IP65 rating, MIL-STD D38999 Connectors, 18V~36V DC-in, Extreme Rugged operating temperature -40~+60 °C

4. Dimensions

