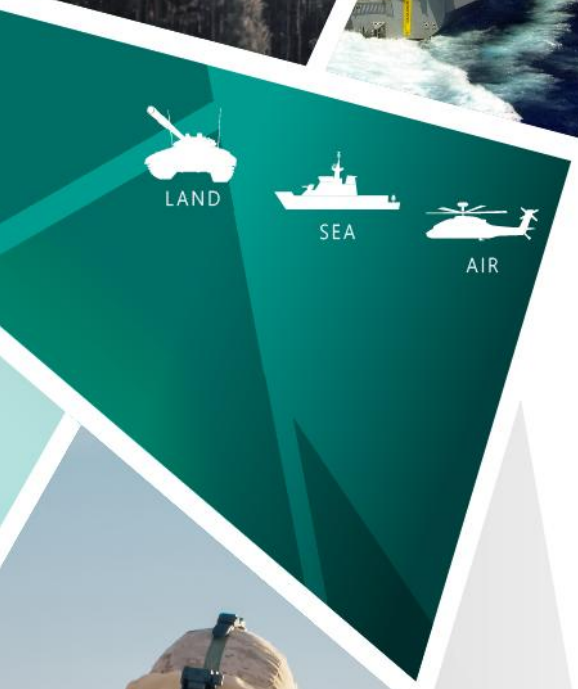


Air Borne Liquid Cooling AI Super Server NVIDIA RTX Pro 6000 & Xeon® 6 SoC 6726P-B

- Intel Xeon 6 Granite Rapids-D 6726P-B, 42 Cores 2.3GHz/3.5 GHz
- NVIDIA RTX A6000 Tensor Core GPU Integrated (24064 CUDA and AI 752 TFLOPS, 96GB GDDR7)
- 512GB RDIMM ECC DDR5-6400 MHz
- 2 x 8TB U.2 NVMe SSD
- Support ARINC429/MIL-STD-1553
- 8 ADC/8 DAC RFSoC
- Designed to meet MIL-STD-810/ 461 Standards
- Trusted Platform Module (TPM) 2.0 support

Introduction

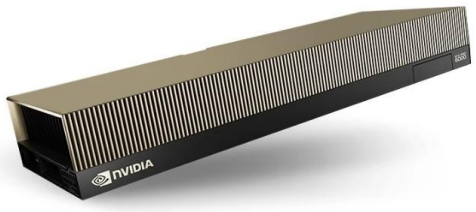
Ultra-High Performance Intel Xeon Granite Rapids-D SoC with VMware8.x Support

The Intel® Xeon® Granite Rapids-D 6 SoC delivers exceptional performance for demanding workloads such as database management, virtualization, and cloud computing. Designed for space-constrained environments, Intel® Xeon® D SoCs integrate Platform Controller Hub (PCH) functionality into a single system-on-chip (SoC), enabling simplified system design and a reduced footprint. The Intel® Xeon® Granite Rapids-D 6726P-B features 42 cores with base and turbo frequencies of 2.3 GHz and up to 3.5 GHz, supports VMware v8 and later, and offers a seven-year extended supply lifecycle, making it well suited for long-term Internet of Things (IoT) and embedded deployments.

The platform supports DDR5-6400 memory with ECC for enhanced reliability and Intel® Hyper-Threading Technology to improve processing efficiency. It also provides comprehensive security and virtualization capabilities, including Intel® Boot Guard, Intel® Trusted Execution Technology, Intel® AES New Instructions (AES-NI), Intel® Software Guard Extensions (Intel® SGX), Intel® Virtualization Technology (VT-x), Intel® Virtualization Technology for Directed I/O (VT-d), and VT-x with Extended Page Tables (EPT).

Edge AI Inference, NVIDIA Pro 6000 Tensor Core GPU

The F50 is a ruggedized AI inference platform purpose-built for advanced acceleration workloads, including voice, video, image, and recommendation services. Powered by the NVIDIA RTX PRO 6000 Tensor Core GPU, the platform 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 F50 enables real-time inference on trained neural network models, ensuring high throughput and low latency in demanding operational environments.



The F50 utilizes 7STARLAKE's Open Modular, Scalable Architecture and provides an optimized cooling solution for the RTX PRO 6000 GPU, ensuring stable system operation in harsh environments. Whether it's for outdoor use, manufacturing plants, or other challenging environments, the F50 can withstand tough conditions while delivering top-notch AI performance.

MIL-STD-810/ 461 Standards

The F50 is a rugged edge AI inference server purpose-built to meet stringent size, weight, and power (SWaP) requirements while delivering reliable performance in extreme operating conditions. Designed to meet MIL-STD-810, it has undergone rigorous testing for temperature extremes, altitude, shock, and vibration. The system also complies with MIL-STD-461, providing strong EMI/EMC protection against voltage spikes and electrostatic discharge. Housed in a sealed, compact chassis, the F50 protects internal circuit cards from sand, dust, humidity, and salt fog, ensuring dependable operation for mission-critical military and defense applications.

Specifications

System	
Processor	Intel® Xeon® Granite Rapids-D Processor 6726P-B (Frequency 2.3GHz, Turbo Boost Frequency up to 3.5GHz), 42 Core, 84 Thread Support, 168MB Smart Cache TDP 235W
Memory Type	512GB RDIMM ECC DDR5 6400MHz
Chipset	SoC
GPU	
NVIDIA	Nvidia RTX PRO 6000 Tensor Core GPU
AI TFLOPS	752
CUDA Cores	24064
Memory	96 GB GDDR7, 1792 GB/sec
Graphics Output	
1x VGA	ASPEED AST2600
Resolution	Up to 1920 x1200 @60Hz 32bpp
Storage	
HDD/SSD	2 x 8TB NVMe U.2 SSD
I/O	
X1 (RS232/422/485/CAN/LAN/DIO)	1x Amphenol TV07RW13-35SN (55PIN)
X2 (ARINC429/MIL-STD-1553)	1 x Amphenol TV07RW-13-98S (37PIN)
X3 (USB3.0)	1 x Amphenol USB3FTV7AZNF312
X4 (QSFP28 100G)	1 x Amphenol FSI MPOFTV70ZNN
X5 (QSFP28 100G)	1x Amphenol FSI MPOFTV70ZNN
X6 (DVI/VGA)	1 x Amphenol TV07RW-13-98S (10PIN)
X7 (DC-In)	1 x Amphenol TV07RW-13-04P (4PIN)
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	18V~36V DC-In (MIL-STD 461 optional)
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		
Dimensions	190 x 370 x 269 mm (W x D x H)	
Estimated Weight	18 kg (39.68 lbs) final weights dependent on specific configuration	
Chassis	Aluminum Alloy, Corrosion Resistant	
Finish	Anodic aluminum Oxide	
Cooling	Liquid Cooling	
Ingress Protection	IP65	
MIL-STD-810 STANDARDS		
High Temperature	High Temperature Storage	+74°C per MIL-STD-810G/501.5/I for 7 cycles
High Temperature	High Temperature Operation	55°C per MIL-STD-810G/501.5/II for 3 cycles
Low Temperature	Low Temperature Storage	-46°C for 72 hours per MIL-STD-810G/502.5/I
Low Temperature	Low Temperature Operation	-33°C per MIL-STD-810G/502.5/II
Vibration	C-130(J/K) aircraft	Test duration 400 minutes per axis (x,y,z), simulating 120 flight hours including 20 landings and takeoffs
	Functional Vibration	vibration experienced on Ford F-550 in neutral gear
	Tactical Transportation test Not Operational	Test duration: 120 minutes per axis to simulate 500,000 km driving distance.
Shock	Road Transportation	10 Grms, 11ms, 3 (X, Y, Z) axes, Sawtooth Pulse
Immersion	Method 502.5	Test according to IEC 60529/ IP65
MIL-STD-461 STANDARDS		
Conducted Emissions Power Leads	CE102	10KHz to 10MHz (Figure CE102-1)
Conducted Susceptibility Power Leads	CS101	30Hz to 150KHz (Figure CS101-1: Curve #2)
Conducted Susceptibility, bulk cable injection	CS114	10KHz to 200MHz, curves 3&4 (10 kHz to 2 MHz: Curve #3 2MHz to 200MHz: Curve #4)
Conducted Susceptibility, bulk cable injection	CS115	impulse excitation (5A)
Conducted Susceptibility Damped sinusoidal transients, cables and power leads	CS116	10KHz to 100MHz (10A)
Radiated Emissions electric filed	RE102	2MHz to 18GHz (Figure RE102-4)
Radiated Susceptibility electric filed	RS103	2Mhz to 18GHz, 50V/m (2MHz to 100MHz: 50V/m 100MHz to 18GHz: 50V/m)

Appearance