THOR11-X6

Radar Signal & Data Processing Subsystem

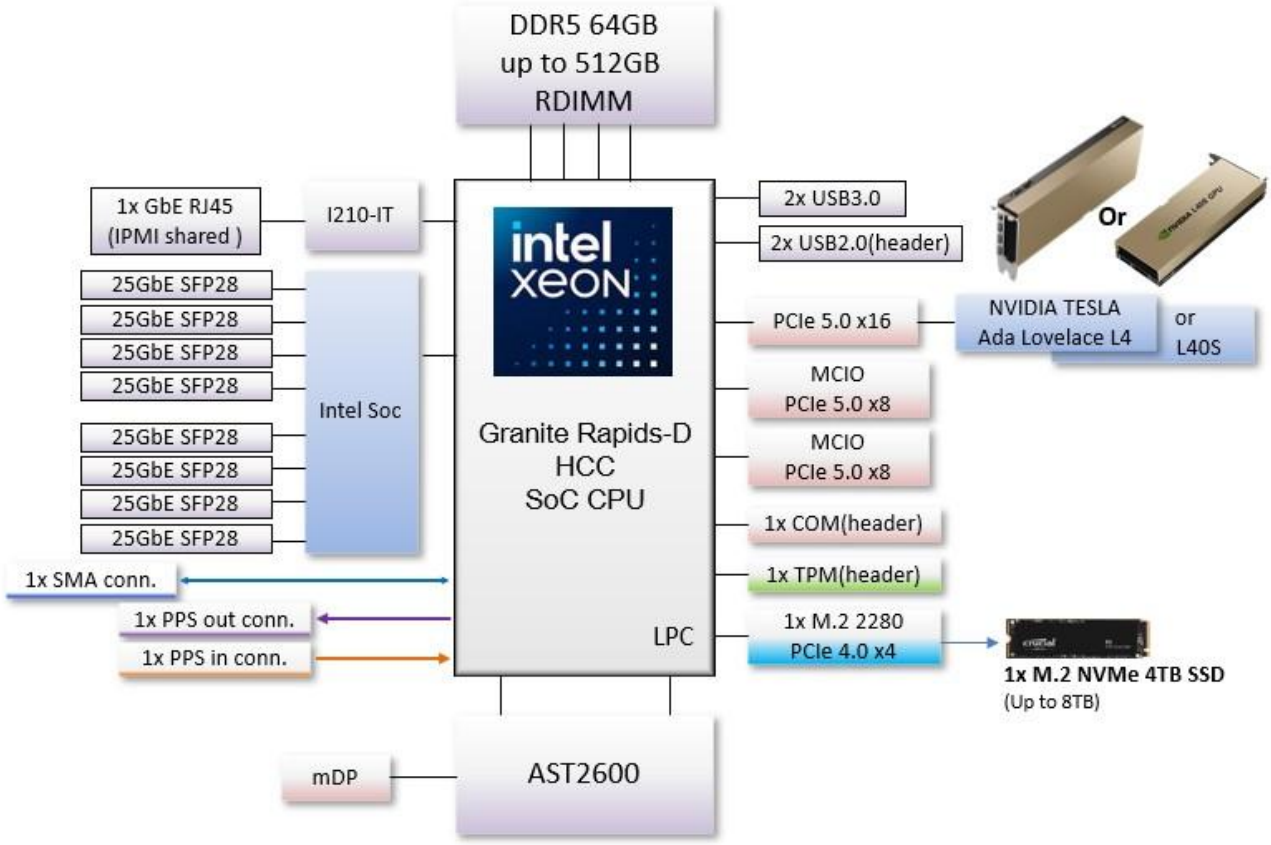
- Intel® Xeon® 6 Granite Rapids D SoC 6553P-B, 36 Cores, CPU TDP 235W
- Intel Quick Assist Technology, Intel vRAN Accelerator, Extended Temperature
- Up to 512GB ECC RDIMM DDR5-6400MT/s
- 1x M.2 NVMe Up to 8TB SSD
- GPU Options for Nvidia L4 or L40S
- 100~264 VAC 1200W Redundancy PSU
- 8 x 25GbE SFP28 with Intel SoC
- Onboard TPM2.0
- IEEE1588 v2 & Synchronous Ethernet support, timing module with DPLL/OCXO up to 8 hours hold-over
- 2 x SMA for PPS (1x Input,1 x Output), 1 x SMA for GNSS input with GNSS add-on module
- Operating Temperature -20°C to +60°C
- RTOS Support: RedHawk, VxWorks

INTRODUCTION

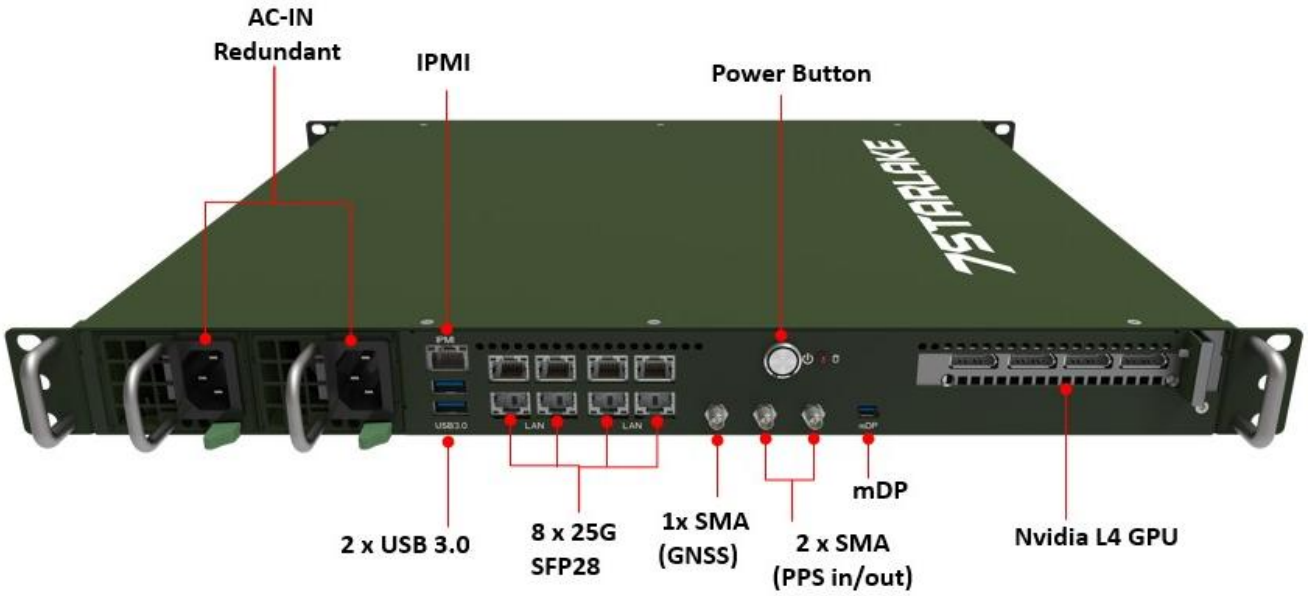
The THOR11-X6 is a high-performance 1U rackmount server purpose-built for radar signal and data processing. Powered by the latest Intel® Xeon® 6 Granite Rapids processor, it delivers exceptional processing power with support for DDR5 memory up to 6400MT/s, ensuring low latency and high-bandwidth performance. With up to 512GB RDIMM and SSD storage up to 8TB, it handles data-intensive tasks with ease.

Built for mission-critical operations on air, land, or water, the THOR11-X6 offers redundant 800W power supply and wide operating temperature from -20°C to 60°C, ensuring reliability in harsh conditions. 8 x 25GbE SFP28 ports and one GbE-T with shared IPMI provide high-throughput networking and remote manageability, while supporting RedHawk™ Linux RTOS. The compact 1U design allows for flexible integration without compromising on performance or durability. Whether supporting real-time analytics or AI workloads, the THOR11-X6 is engineered to meet the demands of modern infrastructure. Rugged, reliable, and powerful, the THOR11-X6 is ready for the future of military computing.

BLOCK DIAGRAM



Appearance


AC-IN
Redundant
IPMI
Power Button
2 x USB 3.0
8 x 25G
SFP28
1x SMA
(GNSS)
2 x SMA
(PPS in/out)
mDP
Nvidia L4 GPU

SPECIFICATIONS

SYSTEM	
CPU	Intel® Xeon® 6 SoC 6553P-B, 36C, CPU TDP 235W
Memory type	Up to 512GB RDIMM, 4CH DDR5 4800/6400 MHz in 4 Slots
Chipset	SoC
IPMI	ASPEED AST2600
GPU	NVIDIA Ada Lovelace L4 Tensor Core GPU
STORAGE	
HDD/SSD	1x M.2 NVMe Up to 8TB PCIe 4.0 x4 slot (M-Key 2280)
ETHERNET	
Ethernet	8 x 25GbE SFP28 with Intel SoC+1 x IPMI shared LAN 1 x GbE RJ45
EXPANSION	
MCIO	2 x PCIe 5.0 x 8 via MCIO Connector slots
OS	
OS support List	Windows 11, RHEL 9.4 64bit, RHEL 9.5 64bit, Oracle 9.4 64bit, Oracle 9.5 64bit, Rocky Linux 9.4 64bit, Rocky Linux 9.5 64bit, SLES 15 SP6 64bit, Ubuntu 24.04.1 64bit Server, VMWare ESXi 8.0U2
RTOS	RedHawk, VxWorks Support
ENVIRONMENT	
Power Requirement	100~264 VAC 1200W Power Supply 18~36V 500W DC Power Supply (optional)
Dimensions	410 x 400 x 44 mm (W x D x H); dependent on specific configuration
Weight	≦12 kg; final size is dependent on specific configuration
FRONT I/O	
Switch	1 x Power On switch
IPMI	1 x IPMI shared LAN 1x GbE RJ45
USB	2 x USB 3.0
LAN	8 x 100GbE QSFP28
Antenna	SMA x 3: 2 x PPS (Input/Output), 1 x GNSS
Display	1 x mDP
ENVIRONMENT	
Operating Temp.	-20°C to +60°C

Storage Temp.	-10°C to +70°C
Relative Humidity	5% to 95%, non-condensing

MIL-STD-810 Environment Testing Standards

Method 501, Operational Temperature, high:	Procedure II: +60°C, two-hour dwell, four cycles
Method 501, Storage Temperature, high:	Procedure I: +75°C, two-hour dwell, four cycles
Method 502, Operational Temperature, low:	Procedure II: -40°C, two-hour dwell, four cycles
Method 502, Storage Temperature, low:	Procedure I: -40°C, two-hour dwell, four cycles
Method 514, Vibration:	Category 24/Non-Operating (Category 20 & 24, Vibration)
Method 514, Vibration:	Category 20/Operating (Category 20 & 24, Vibration)
Method 516, Shock:	Procedure V Non-Operating (Mechanical Shock)
Method 516, Shock:	Procedure I Operating (Mechanical Shock)
Method 507, Humidity:	Procedure II: exposure to 10 cycles of 95% relative humidity at temperatures of 30 °C to 60 °C with conformal coating (optional)
Method 509, Salt fog:	Each cycle consists of 24 hours in salt-fog conditions of 5%NaCl, 95% relative humidity and 35 °C followed by 24 hours of drying in an environment with less than 50% relative humidity (optional)
Method 500, Altitude (Low Pressure):	15,000 feet transport, -200÷2500[m] ground operation and exposed to +55°C and -20°C operation (optional)
Method 510, Sand-Dust:	Procedure I: Blasting dust, 12 hours (optional)
Method 508, Fungus:	28 days, mixed spore, 30°C 95% RH (optional)

MIL-STD-461 ELECTROMAGNETIC Testing Standards

CE102	Conducted emissions, power leads, 10KHz to 10MHz
RE102	Radiated emissions, electric filed, 30MHz to 5GHz
RS103	Radiated susceptibility, electric filed, 80Mhz to 3GHz
CS101	Conducted susceptibility, power leads, 30Hz to 150KHz (Figure CS101-1: Curve #2) (optional)
CS114	Conducted susceptibility, bulk cable injection, 10KHz to 200MHz,

	curves 3&4 (10 kHz to 2 MHz: Curve #3 2MHz to 200MHz: Curve #4) (optional)
CS115	Conducted susceptibility, bulk cable injection, impulse excitation (5A) (optional)
CS116	Conducted susceptibility, damped sinusoidal transients, cables and power leads, 10KHz to 100MHz (10A) (optional)
CS118	Personnel borne electrostatic discharge (optional)