



THOR100-X4-07E

1U 1/2 MIL-810 MILITARY COMPUTER



- 1U 1/2 Rugged Military Server
- Intel® Coffee Lake Xeon® E-2276ML
- DDR4 Up to 128GB, NVMe Up to 2TB
- Military D38999 Connectors Support : 2x DVI, 2x LAN, 2x USB 3.0
- Design for Naval Defense System , withstand 75G rms Shock
- 9V~36V DC-in, MIL-STD-461 EMI Filter
- Extended Temperature:-40~+70 Degree



LAND



SEA



AIR



Specifications

SYSTEM

Processor	Intel® 9th Gen. Xeon® E-2276ML (12M Cache, up to 2.0/4.2 GHz)
Memory type	4 x DDR4 2666MHz up to 128GB
Chipset	CM246

DISPLAY

Processor Graphics	Intel® UHD Graphics P630
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STORAGE

Storage(1)	NVMe M.2 up to 2TB
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INTERFACE CARD

Digital Input/Output	8 bit digital I/O , split into 2 groups of 4 , Programmable I/O
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FRONT I/O

X1	1x DC (AmphenolTV07RW09-98P)
X2	1x LAN (AmphenolTV07RW-9-09S)
X3	1x LAN (AmphenolTV07RW-9-09S)

REAR I/O

X4	1x DVI (AmphenolTV07RW-13-35S)
X5	1x DVI (AmphenolTV07RW-13-35S)
X6	1x USB 3.0 (Amphenol USB3FTV7AZNF312)
X7	1x USB 3.0 (Amphenol USB3FTV7AZNF312)

POWER REQUIREMENT

Power Input	MIL-STD 461 18V~36V
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PHYSICAL

Dimension (W x D x H)	220 x400 x 44mm
Chassis	Aluminum Alloy, Corrosion Resistant
Finish	Anodic aluminum oxide (Color Iron gray)
Cooling	Natural Passive Convection/Conduction. No Moving Parts
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Finish	Anodic aluminum oxide (Color Iron gray)

Cooling	Natural Passive Convection/Conduction. No Moving Parts	
Ingress Protection	IP65	

ENVIRONMENTAL

MIL-STD-810 Testing Methods (Operating)

Method 502.5 Procedure 2	Low Temperature	-40°C, 4 hours, $\pm 3^\circ\text{C}$
Method 501.5 Procedure 2	High Temperature	+70°C, 4 hours, $\pm 3^\circ\text{C}$
Method 507.5	Humidity	85%-95% RH without condensation, 24 hours/ cycle, conduct 10 cycles.
Method 514.6	Vibration	5-500Hz 5.0 g rms , 30mins by Z axis. 5-500Hz 7.0 g rms , 30mins by X/Y axis
Method 516.6	Shock	50 g, 11ms.

MIL-STD-810 Testing Methods (None-Operating)

Method 502.5	Low Temperature (Storage)	-40°C, 4 hours, change rate: $\leq 20^\circ\text{C}/\text{Hour}$
Method 501.5	High Temperature (Storage)	+85°C, 4 hours, change rate: $\leq 20^\circ\text{C}/\text{Hour}$
Method 514.6	Vibration	5-500Hz 7.0 g rms, 30mins by Z axis. 5-500Hz 10.0 g rms, 30mins by X/Y axis
Method 516.6	Shock	75 g, 6ms.

MIL-STD-461 Testing Methods (EMC)

CE102 basic curve	Power Leads	10kHz - 30 MHz
RE102	Electric Field	(1.5 MHz) -30 MHz - 5 GHz
RS103	Electric Field	1.5 MHz - 5 GHz, 50 V/m equal for all frequencies
	Radiated Susceptibility	2 MHz-80 Mhz 50V/m equal for all frequencies
		80 MHz - 3 GHz 50V/m equal for all frequencies
		3 GHz - 5 GHz, 50V/m equal for all frequencies
EN61000-4-2	Electromagnetic Compatibility	Air discharge: 8 kV, Contact discharge: 6kV

EN 61000-4-3	Electromagnetic Compatibility	0V/m
EN 61000-4-4	Electromagnetic Compatibility	Signal and DC-Net: 1 kV
EN 61000-4-5	Electromagnetic Compatibility	Leads vs. ground potential 1kV, Signal und DC-Net: 0.5 kV
EN55022	Radio Disturbance	Class A

* Option Test item: CS101/CS114/CS115/CS116/RS101/RS103/RE103/CE106

MIL-STD-1275 Testing Methods

Steady State	20V~33V
Surge Low	18V/500ms
Surge High	100V/500ms

Others

Reliability	No Moving Parts; Passive Cooling. Reliability Designed & Manufactured using ISO 9001/2005 Certified Quality Program.	
Operating Temp.	-40 to +70°C (ambient with air flow)	Operating Temp.
Storage Temp.	-40 to +85°C	Storage Temp.
Relative Humidity	5% to 95%, non-condensing.	Relative Humidity

Ordering Information

THOR100-X4-D7E-D10

MIL-STD Fanless Rugged Computer with Intel® 9th Gen Xeon® E-2276ML, IP65 , with 10 MIL-DTL-D38999 Connectors, Operating Temp. -40 to 70°C

THOR100-X4-D7E-D9

MIL-STD Fanless Rugged Computer with Intel® 9th Gen Intel® Core i7-9850HL, IP65, with 9 MIL-DTL-D38999 Connectors, Operating Temp. -40 to 70°C

THOR100-X4-D7E

THOR100-X4-D7E Fanless Rugged Computer with Intel® 9th Gen Xeon® E-2276ML, IP65 , with D38999 Connectors, Operating Temp. -40 to 70°C. Together with Rackmount brackets (To mount two computers side by side), I/O: 1 x DC-IN, 2 x LAN, 2 x DVI, 2 x USB3.0

Model No	THOR100-X4-C2	THOR100-X4-D7E	THOR100-X4-D10E
CPU	E-2276ML	E-2276ML	E-2276ML
RAM	DDR4 Up to 128GB	DDR4 Up to 128GB	DDR4 Up to 128GB
Storage	NVMe Up to 2TB	NVMe Up to 2TB	NVMe Up to 2TB
I/O			
LAN	2x	2x	3x
DVI	No	2x	2x
mDP	1x	No	No
USB3.0	No	2x	3x
USB2.0	2x	No	No
COM1	4x RS232/422/485	No	No
COM2	2x RS422	No	No
DIO	4x DI/DO	Options	3x DIO, Mic-in/Line Out
DC	1x	1x	1x
HD-SDI	Options	Options	Options
Power	18V~36V MIL-STD-461		

Front D38999 I/O



Rear D38999 I/O

