



THOR100

MIL-STD Rugged Computer

Quick Installation Guide



User's Manual

Revision Date: DEC. 08. 2016

Safety Information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the correct voltage in your area.
- If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your local distributor.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter any technical problems with the product, contact your local distributor

Statement

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- All product specifications are subject to change without prior notice

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Revision History

Revision	Date (yyyy/mm/dd)	Changes
V1.0	2016/12/08	Initial release

Packing list

- THOR100 MIL-STD Rugged Computer
- XR-DIMM up to 16 GB RAM *optional*

Accessories Kit

- Cable Kits *optional*
- CD (Driver + User's Manual)



If any of the above items is damaged or missing, please contact your local distributor.

Ordering Information

Model Number	Description
THOR100	Intel® Broadwell IP65 Rugged System with Core™ i7-5650U Processor, Amphenol M12 Connectors, 9V to 36V DC-in, Wide Temp. -40 to 70°C

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Chapter 1: Product Introduction

1-1 Key Features

System

CPU	Intel® Core™ i7 Broadwell , BGA type Core i7-5650U (2C x 2.2/3.1 GHz), 4M Cache (15W)
Ethernet Chipset	Intel® I210IT & i218-LM GbE
Memory	2 x DDR3L 1600 XR-DIMM up to 16 GB
Expansion Slot	2 x mPCIe (1 with mSATA supported)
Storage Device	Onboard uSSD SATAIII 64 GB 1 x 2.5" HDD/SSD Slot 1 x mSATA

Front I/O

Power Button	Power Button with dual color LED backlight
X1 (M12 12 pin A-code)	RS232/422/485 COM port
X2 (M12 12 pin A-code)	VGA
X3 (M12 8 pin A-code)	Intel i210IT GbE LAN
X4 (M12 8 pin A-code)	Intel i218LM GbE LAN
X5 (M12 8 pin A-code)	2 x USB2.0

Rear I/O

DC-IN (M12 4 pin S-code)	1
Ground Screw	1

Display

Display Interface	VGA (Innodisk EMPV-1201)
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Mechanical & Environment

Power Requirements	9V to 36V DC-in, AT/ATX mode supports with power delay on/off Power consumption : Under 40 Watt while system fully loading
Dimension (W x H x D)	220 x 44 x 380 mm (8.66" x 1.73" x 14.96")
Weight	5.5 kgs
Operating Temp.	-40 to 70°C (ambient with air flow)
Storage Temp.	-40 to 85°C
Relative Humidity	5% to 95%, non-condensing

Serial Interface & Signals

Serial Standards	1x RS-232/422/485 port, mode could be selected in BIOS
RS-232	TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND
RS-422	TxD+, TxD-, RxD+, RxD-, GND
RS-485-4w	TxD+, TxD-, RxD+, RxD-, GND

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RS-485-2w	Data+, Data-, GND
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Standards and Certifications

MIL-STD-810G Test Method 507.5, Procedure II (Temperature & Humidity)

Method 514.6, Procedure I (Category 20 & 24, Vibration)

Method 516.6, Procedure I (Mechanical Shock)

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)

EMC	CE and FCC compliance
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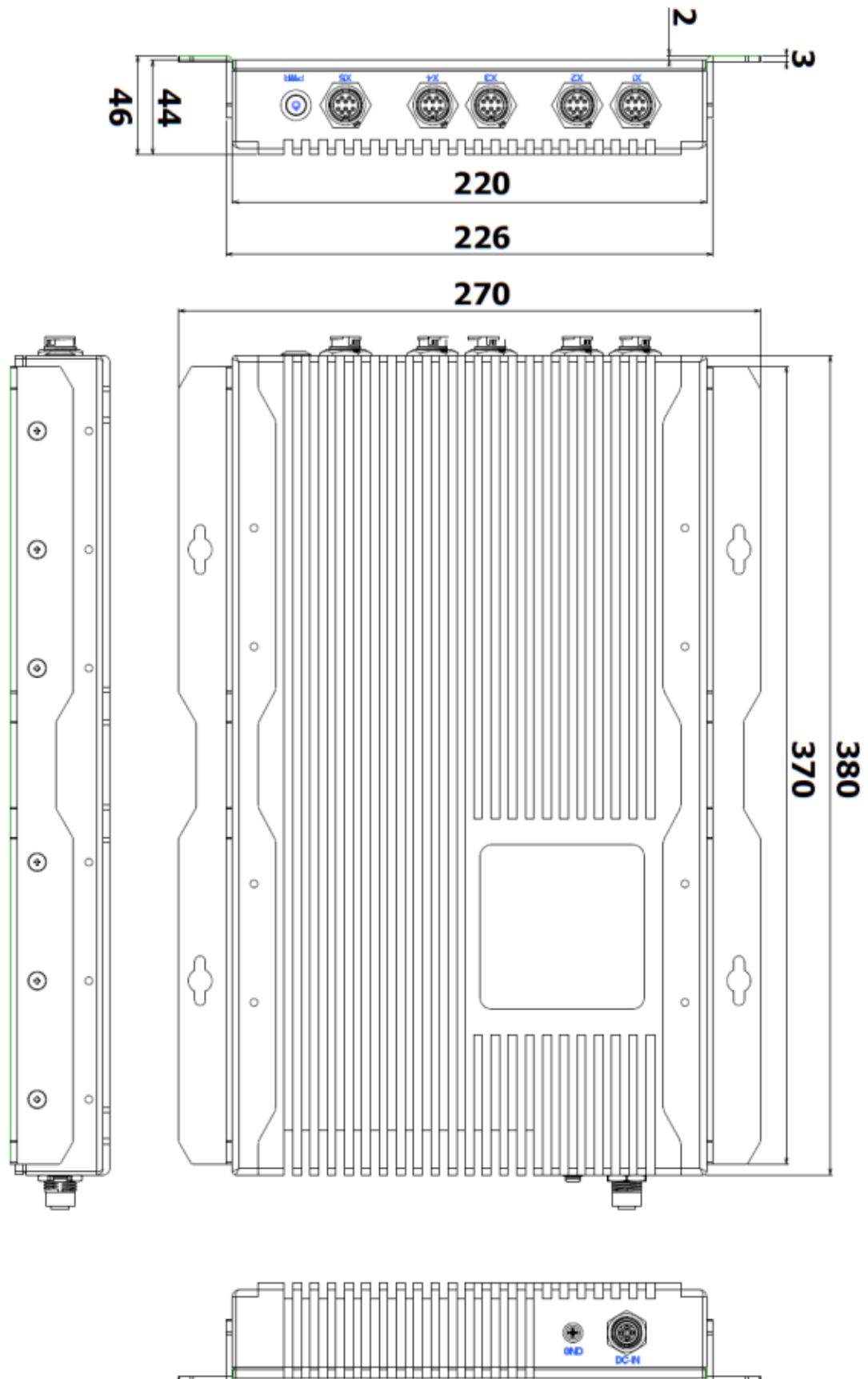
Green Product	RoHS, WEEE compliance
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Specifications are subject to change without notice

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1.2 Mechanical Dimensions



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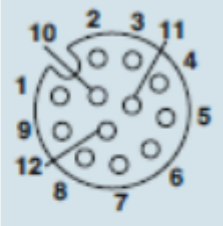
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Chapter 2: Jumpers and Connectors

2.1 Connector Pin Definitions

X1: COM1: RS232/422/485 with 5V/12V selectable

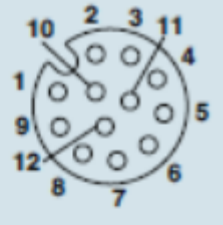
Pin	RS-232 (Default)
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI (Default)
10	
11	
12	



Socket, 12-pos.

X2: VGA

LAN	
PIN	DEFINITION
1	RED
2	R Ground
3	GREEN
4	G Ground
5	BLUE
6	B Ground
7	H-Sync
8	Ground
9	V-Sync
10	Ground
11	DDC DATA
12	DDC LOCK

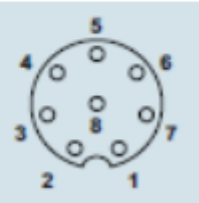


Socket, 12-pos.

X3: Intel i210IT

X4: Intel i218LM

LAN	
PIN	DEFINITION
1	D1+
2	D1-
3	D2+
4	D2-
5	D3+
6	D3-
7	D4+
8	D4-



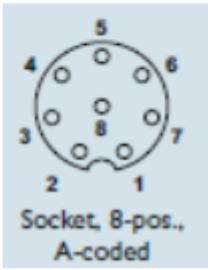
Socket, 8-pos.,
A-coded

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X5: 2 x USB2.0

USB2.0		
PIN	DEFINITION	
1	USB1	VCC
2		D-
3		D+
4		Ground
5	USB2	VCC
6		D-
7		D+
8		Ground



DC IN: DC Input

PIN	DEFINITION
1	+
2	NA
3	-
4	Ground

