



THOR100

MIL-STD Rugged Computer
Quick Installation Guide



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 trademarks are the properties of the respective owners.
- All product specifications are subject to change without prior notice

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

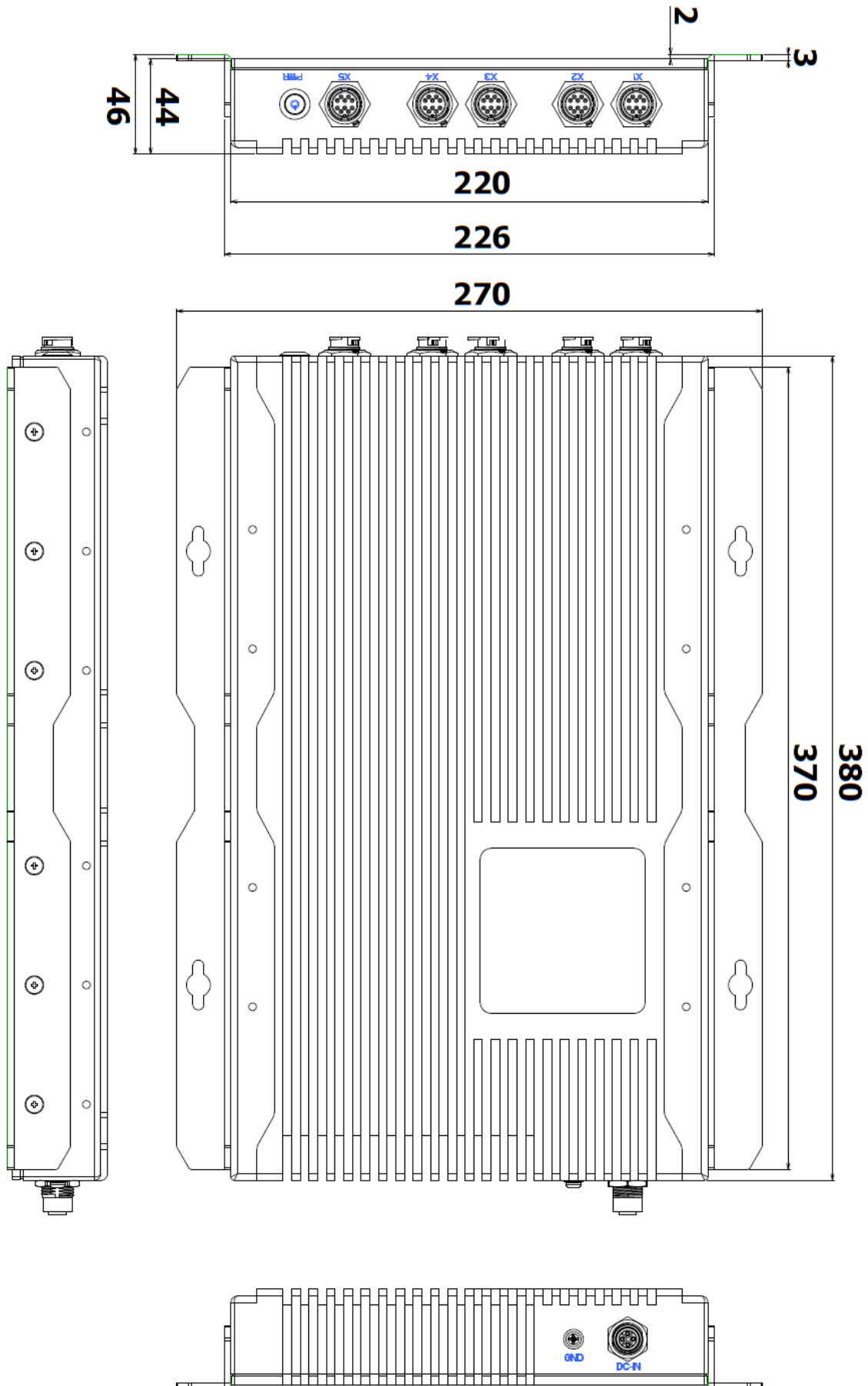
| System | |
|---|---|
| CPU | Intel® Core™ i7 Broadwell , BGA type Core i7-5650U (2C x 2.2/3.1 GHz), 4M Cache (15W) |
| Ethernet Chipset | Intel® I210IT & i218-LM GbE |
| Memory | 2 x DDR3L 1600 XR-DIMM up to 16 GB |
| Expansion Slot | 2 x mPCIe (1 with mSATA supported) |
| Storage Device | Onboard 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) |
| 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 |
| RS-485-2w | Data+, Data-, GND |
| 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 |
| Green Product | RoHS, WEEE compliance |

Specifications are subject to change without notice

1.2 Mechanical Dimensions

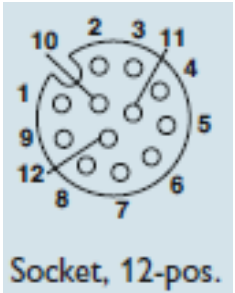


Chapter 2: Jumpers and Connectors

2.1 Connector Pin Definitions

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

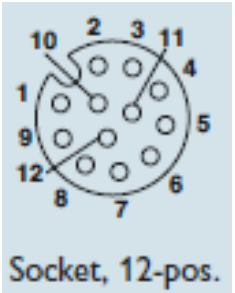
| Pin | RS-232 (Default) |
|-----|---------------------|
| 1 | DCD |
| 2 | RXD |
| 3 | TXD |
| 4 | DTR |
| 5 | GND |
| 6 | DSR |
| 7 | RTS |
| 8 | CTS |
| 9 | RI (Default) |
| 10 | |
| 11 | |
| 12 | |



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 |

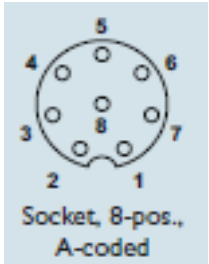


Socket, 12-pos.

X3: Intel i210IT

X4: Intel i218LM

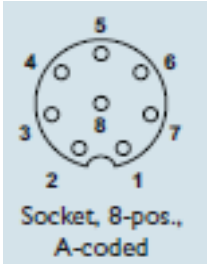
| LAN | |
|-----|------------|
| PIN | DEFINITION |
| 1 | D1+ |
| 2 | D1- |
| 3 | D2+ |
| 4 | D2- |
| 5 | D3+ |
| 6 | D3- |
| 7 | D4+ |
| 8 | D4- |



Socket, 8-pos.,
A-coded

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 |



Socket, 8-pos.,
A-coded

DC IN: DC Input

| PIN | DEFINITION |
|-----|------------|
| 1 | + |
| 2 | NA |
| 3 | - |
| 4 | Ground |

