NEXCOM

NEXCOM International Co., Ltd.

IoT Automation Solutions Business Group
Fan-less Computer
TT300-F00 and TT300-F30
User Manual

www.nexcom.com

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PREFACE

Copyright

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Acknowledgements

TT300-F00 and TT300-F30 are trademarks of NEXCOM International Co., Ltd. All other product names mentioned herein are registered trademarks of their respective owners.

Regulatory Compliance Statements

This section provides the FCC compliance statement for Class A devices and describes how to keep the system CE compliant.

Declaration of Conformity

FCC

This equipment has been tested and verified to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense.

CE

The product(s) described in this manual complies with all applicable European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.

RoHS Compliance

NEXCOM RoHS Environmental Policy and Status Update

NEXCOM is a global citizen for building the digital infrastructure. We are committed to providing green products and services, which are compliant with European Union RoHS (Restriction on Use of Hazardous Substance in Electronic Equipment) directive 2011/65/EU, to be your trusted green partner and to protect our environment.

RoHS restricts the use of Lead (Pb) < 0.1% or 1,000ppm, Mercury (Hg) < 0.1% or 1,000ppm, Cadmium (Cd) < 0.01% or 100ppm, Hexavalent Chromium (Cr6+) < 0.1% or 1,000ppm, Polybrominated biphenyls (PBB) < 0.1% or 1,000ppm, and Polybrominated diphenyl Ethers (PBDE) < 0.1% or 1,000ppm.

In order to meet the RoHS compliant directives, NEXCOM has established an engineering and manufacturing task force to implement the introduction of green products. The task force will ensure that we follow the standard NEXCOM development procedure and that all the new RoHS components and new manufacturing processes maintain the highest industry quality levels for which NEXCOM are renowned.

The model selection criteria will be based on market demand. Vendors and suppliers will ensure that all designed components will be RoHS compliant.

How to recognize NEXCOM RoHS Products?

For existing products where there are non-RoHS and RoHS versions, the suffix "(LF)" will be added to the compliant product name.

All new product models launched after January 2013 will be RoHS compliant. They will use the usual NEXCOM naming convention.

Warranty and RMA

NEXCOM Warranty Period

NEXCOM manufactures products that are new or equivalent to new in accordance with industry standard. NEXCOM warrants that products will be free from defect in material and workmanship for 2 years, beginning on the date of invoice by NEXCOM.

NEXCOM Return Merchandise Authorization (RMA)

- Customers shall enclose the "NEXCOM RMA Service Form" with the returned packages.

- Customers must collect all the information about the problems encountered and note anything abnormal or, print out any on-screen messages, and describe the problems on the "NEXCOM RMA Service Form" for the RMA number apply process.

- Customers can send back the faulty products with or without accessories (manuals, cable, etc.) and any components from the card, such as CPU and RAM. If the components were suspected as part of the problems, please note clearly which components are included. Otherwise, NEXCOM is not responsible for the devices/parts.

- Customers are responsible for the safe packaging of defective products, making sure it is durable enough to be resistant against further damage and deterioration during transportation. In case of damages occurred during transportation, the repair is treated as "Out of Warranty."

- Any products returned by NEXCOM to other locations besides the customers' site will bear an extra charge and will be billed to the customer.

Repair Service Charges for Out-of-Warranty Products

NEXCOM will charge for out-of-warranty products in two categories, one is basic diagnostic fee and another is component (product) fee.

System Level

- Component fee: NEXCOM will only charge for main components such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistor, capacitor.

- Items will be replaced with NEXCOM products if the original one cannot be repaired. Ex: motherboard, power supply, etc.

- Replace with 3rd party products if needed.

- If RMA goods can not be repaired, NEXCOM will return it to the customer without any charge.

Board Level

- Component fee: NEXCOM will only charge for main components, such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistors, capacitors.

- If RMA goods can not be repaired, NEXCOM will return it to the customer without any charge.

 TT300-F00 and TT300-F30 User Manual

Warnings

Read and adhere to all warnings, cautions, and notices in this guide and the documentation supplied with the chassis, power supply, and accessory modules. If the instructions for the chassis and power supply are inconsistent with these instructions or the instructions for accessory modules, contact the supplier to find out how you can ensure that your computer meets safety and regulatory requirements.

Cautions

Electrostatic discharge (ESD) can damage system components. Do the described procedures only at an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the computer chassis.

Installation Recommendations

Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.

Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:

▪ A Philips screwdriver

▪ A flat-tipped screwdriver

▪ A grounding strap

▪ An anti-static pad

Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nose pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

Safety Information

Before installing and using the device, note the following precautions:

▪ Read all instructions carefully.

▪ Do not place the unit on an unstable surface, cart, or stand.

▪ Follow all warnings and cautions in this manual.

▪ When replacing parts, ensure that your service technician uses parts specified by the manufacturer.

▪ Avoid using the system near water, in direct sunlight, or near a heating device.

▪ The load of the system unit does not solely rely for support from the rackmounts located on the sides. Firm support from the bottom is highly necessary in order to provide balance stability.

▪ The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Danger of explosion if battery is incorrectly replaced. Replace with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

ATTENTION
IL Y A RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UNE BATTERIE DE TYPE INCORRECT.
METTRE AU REBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS.

This product is intended to be supplied by a Listed Power Adapter, rated 24Vdc, 2.5A minimum, Tma = 55 degrees C, and the altitude of operation = 2000m.
(2000m for general requirement, 5000m for collocation with Adapter: FSP Group Inc. / FSP060-DAAN3.)
If need further assistance with purchasing the power source, please contact to NEXCOM (mfr.) for further information.

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Safety Precautions

1. Read these safety instructions carefully.

2. Keep this User Manual for later reference.

3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.

4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.

5. Keep this equipment away from humidity.

6. Put this equipment on a stable surface during installation. Dropping it or letting it fall may cause damage.

7. The openings on the enclosure are for air convection to protect the equipment from overheating. DO NOT COVER THE OPENINGS.

8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.

9. Place the power cord in a way so that people will not step on it. Do not place anything on top of the power cord. Use a power cord that has been approved for use with the product and that it matches the voltage and current marked on the product's electrical range label. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.

10. All cautions and warnings on the equipment should be noted.

11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.

12. Never pour any liquid into an opening. This may cause fire or electrical shock.

13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.

14. If one of the following situations arises, get the equipment checked by service personnel:
    a. The power cord or plug is damaged.
    b. Liquid has penetrated into the equipment.
    c. The equipment has been exposed to moisture.
    d. The equipment does not work well, or you cannot get it to work according to the user's manual.
    e. The equipment has been dropped and damaged.
    f. The equipment has obvious signs of breakage.

15. Do not place heavy objects on the equipment.

16. The unit uses a three-wire ground cable which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.

17. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

Technical Support and Assistance

1. For the most updated information of NEXCOM products, visit NEXCOM's website at www.nexcom.com.

2. For technical issues that require contacting our technical support team or sales representative, please have the following information ready before calling:
   – Product name and serial number
   – Detailed information of the peripheral devices
   – Detailed information of the installed software (operating system, version, application software, etc.)
   – A complete description of the problem
   – The exact wordings of the error messages

Warning!
1. Handling the unit: carry the unit with both hands and handle it with care.

2. Maintenance: to keep the unit clean, use only approved cleaning products or clean with a dry cloth.

Conventions Used in this Manual

Warning:
Information about certain situations, which if not observed, can cause personal injury. This will prevent injury to yourself when performing a task.

Caution:
Information to avoid damaging components or losing data.

Note:
Provides additional information to complete a task easily.

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TT300-F00 and TT300-F30 User Manual

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Package Contents

Before continuing, verify that the package that you received is complete. Your TT300-F00 and TT300-F30 package should have all the items listed in the following tables.

Item	Part Number	Description	Qty
1	60177A0843X00	(E)Quck Reference Guide for TT300 Series	1
2	4NCPM00302X00	(T)Terminal Blocks 3P Phoenix Contact	1
3	50311F0098X00	(H)Round Head Screw Long Fei	3
4	5050900008X00	Mini PCI-e Bracket	1
5	50311F0295X00	Flat Head Screw Long Fei:F2x4 Nylok NIGP	1
6	50311F0330X00	Round Head Screw Long Fei:P2x3 ISO+Nylon	3
7	5061600245X00	Washer Kang Yang:TW-320-01	8
8	50311F0215X00	(H)I Head Screw Long Fei:I3x5ISO+Nylok	2
9	50311F0575X00	P Head Screw W/Washer Long Fei	1
10	50311P0020X00	(N)F Head Screw Kang Yang:M3-6F(B)	8
11	50311F0213X00	Flat Head Screw Long Fei:F3x4ISO+Nylok	8
12	5042220051X00	Cable Tie Mount Kang Yang:CM-19S(3M)	2
13	6016600015X00	Cable Tie Kang Yang:YJ-100(B)	2
14	50311F0364X00	Flat Head Screw Long Fei:F3x10ISO	1

Ordering Information

The following information below provides ordering information for TT300-F00 and TT300-F30.

TT300-F00

- TT300-F00 without CPU (P/N: 10JT0030006X0)
- 24V, 120W AC to DC power adapter w/o power cord (P/N: 7400120029X00)

TT300-F30

- TT300-F30 without CPU (P/N: 10JT0030003X0)
- 24V, 120W AC to DC power adapter w/o power cord (P/N: 7400120029X00)
- 24V, 180W AC to DC power adapter w/o power cord (P/N: 7400180012X00)
- System Fan Kit for TT300-F2x/TT300-F3x (P/N: 10JT0030012X0)

Chapter 1: Product Introduction

Overview

TT300-F0x

Key Features

- Support 6, 7, 8, 9th Gen. Intel® Core™ i7/i5/i3 socket type processor

- Intel® H310C PCH

- 2 x HDMI (dual display)

- 4 x USB 2.0

- 2 x RS232/422/485, 4 x RS232

- 1 x M.2 2280 Key M (storage)

- 1x M.2 2242/3042 Key B (wireless connectivity)

- 1 x mSATA/mini PCIe (co-lay)

- 1 x SIM card socket

- Support +12V/24VDC input; support ATX power mode

Overview

TT300-F30

Key Features

- Support 6, 7, 8, 9th Gen. Intel® Core™ i7/i5/i3 socket type processor

- Intel® H310C PCH

- 2 x HDMI (dual display)

- 4 x USB 3.0

- 2 x RS232/422/485, 4 x RS232

- 1 x M.2 2280 Key M (storage)

- 1x M.2 3042 Key B (wireless connectivity)

- 1 x mSATA/mini PCIe (co-lay)

- 1 x PCIe x16, 2 x PCIe x4

- 1x SIM card socket

- Support +12V/24VDC input; support ATX power mode

Hardware Specifications (TT300-F00)

CPU Support

- Support 6, 7, 8, 9th Generation Intel® Core™ i7/i5/i3 socket type processor
  - Intel® Celeron® G4900T, 2 Core, 2.9GHz, 2M Cache
  - Intel® Core™ i5-8500T, 6 Core, 2.1GHz, 9M Cache
  - Intel® Core™ i7-8700T, 6 Core, 2.4GHz, 12M Cache

Main Memory

- 1 x DDR4 2133/2400/2666 SO-DIMM socket, supports up to 16GB

Display Option

- Dual independent display (2 x HDMI)

Front I/O interface Status LEDs

- 2 x GPO status
- COM TX/RX LEDS

I/O Interface - Front

- ATX power on/off switch
- 4 x USB 3.0 ports
- 2 x HDMI
- 1 x Intel® I210-IT and 1 x Intel® I219LM GbE LAN ports
- 2 x DB9 for COM1 and COM2
  - COM1/2: RS232/422/485 auto flow control

I/O Interface - Rear

- 3 x Antenna holes
- 4 x DB9 for COM3 to COM6
  - COM3/4/5/6: RS232 only

Storage Device

- 1 x M.2 2280 (Key M, PCIe x 1, SATA)
- 1 x M.2 2242/3042 (Key B, PCIe x 1, USB2.0)
- 1 x mSATA (co-lay with mini-PCIe)

Expansion Slot

- 1 x mini-PCIe socket support optional Wi-Fi/3.5G/4G LTE
  (co-lay with mSATA)
- 1 x M.2 2242/3042 Key B support optional Wi-Fi/4G LTE/storage
- 1 x nano-SIM card slot

Power Requirements

- AT/ATX power mode (default: ATX power mode)
- Power input: +12/+24V DC in
- Power adapter: optional AC to DC power adapter
  (24V DC, 120W)

Support OS

- Windows 10 64-bit

Dimensions

- 269(W) x 159.2(D) x 56(H) without wall mount bracket

Construction

- Aluminum and metal chassis with fanless design

Environment

- Operating temperature: ambient with air flow: -5°C to 50° (according to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14)
- Storage temperature: -20°C to 80°C
- Relative humidity: 10% to 95% (non-condensing)
- Shock protection:
  - mini-PCIe: 20G, half sine, 11ms, IEC60068-2-27-
  - M.2: 50G, half sine, 11ms, IEC60068-2-27
- Vibration protection with M.2/mini-PCIe condition:
  - Random: 0.5Grms @ 5~500 Hz, IEC60068-2-64
  - Sinusoidal: 0.5Grms @ 5~500 Hz, IEC60068-2-6
- Vibration protection with M.2/mini-PCIe condition:
  - Random: 2Grms @ 5~500 Hz, IEC60068-2-64
  - Sinusoidal: 2Grms @ 5~500 Hz, IEC60068-2-6

Certifications

- CE approval- EN61000-6-2- EN61000-6-4
- FCC Class A

NEXCOM

Hardware Specifications (TT300-F30)

CPU Support

- Support 6, 7, 8, 9th Generation Intel® Core™ i7/i5/i3 socket type processor
  - Intel® Celeron® G4900T, 2 Core, 2.9GHz, 2M Cache
  - Intel® Core™ i5-8500T, 6 Core, 2.1GHz, 9M Cache
  - Intel® Core™ i7-8700T, 6 Core, 2.4GHz, 12M Cache

Main Memory

- 1 x DDR4 2133/2400/2666 SO-DIMM socket, supports up to 16GB

Display Option

- Dual independent display (2 x HDMI)

Front I/O interface Status LEDs

- 2 x GPO status
- COM TX/RX LEDS

I/O Interface - Front

- ATX power on/off switch
- 4 x USB 3.0 ports
- 2 x HDMI
- 1 x Intel® I210-IT and 1 x Intel® I219LM GbE LAN ports
- 6 x DB9 for COM1 to COM6
  - COM1/2: RS232/422/485 auto flow control
  - COM3/4/5/6: RS23

I/O Interface - Rear

- 4 x Antenna holes

Storage Device

- 2 x SATAIII 2.5" SSD
- 1 x M.2 2280 (Key M, PCIe x 1, SATA)
- 1 x M.2 2242/3042 (Key B, PCIe x 1, USB2.0)
- 1 x mSATA (co-lay with mini-PCIe)

Expansion Slot

- 1 x Optional system fan kit
- 1 x PCIe x16 (with power output from riser card)
  - Add-on card length: 250mm max. (w/o system fan)
  - Add-on card length: 225mm max. (w/ system fan)
  - Power consumption: 150W/slot max
- 2 x PCIe x4 (only support PCIe x 1 speed and signal)
  - Add-on card length: 169mm max.
  - Power consumption: 10W/slot max
- 1 x mini-PCIe socket support optional Wi-Fi/3.5G/4G LTE
  (co-lay with mSATA)
- 1 x Nano SIM card slot

Power Requirements

- AT/ATX power mode (default: ATX power mode)
- Power input: +12/ +24V DC in
- Power adapter: optional AC to DC power adapter (24V DC, 120W / 180W)

Support OS

- Windows 10 64-bit

Dimensions

- 269(W) x 159(D) x 136(H) without wall mount bracket

Construction

- Aluminum and metal chassis with fanless design

Environment

- Operating temperature: ambient with air flow: -5°C to 50° (according to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14)
- Storage temperature: -20°C to 80°C
- Relative humidity: 10% to 95% (non-condensing)
- Shock protection:
  -SSD: 20G, half sine, 11ms, IEC60068-2-27
  - M.2: 50G, half sine, 11ms, IEC60068-2-27
- Vibration protection with SSD & M.2 condition:
  - Random: 0.5Grms @ 5~500 Hz, IEC60068-2-64
  - Sinusoidal: 0.5Grms @ 5~500 Hz, IEC60068-2-6
- Vibration protection with SSD & M.2 condition:
  - Random: 2Grms @ 5~500 Hz, IEC60068-2-64
  - Sinusoidal: 2Grms @ 5~500 Hz, IEC60068-2-6

Certifications

- CE approval- EN61000-6-2- EN61000-6-4
- FCC Class A

Knowing Your TT300-F00

Front Panel

TT300-F00
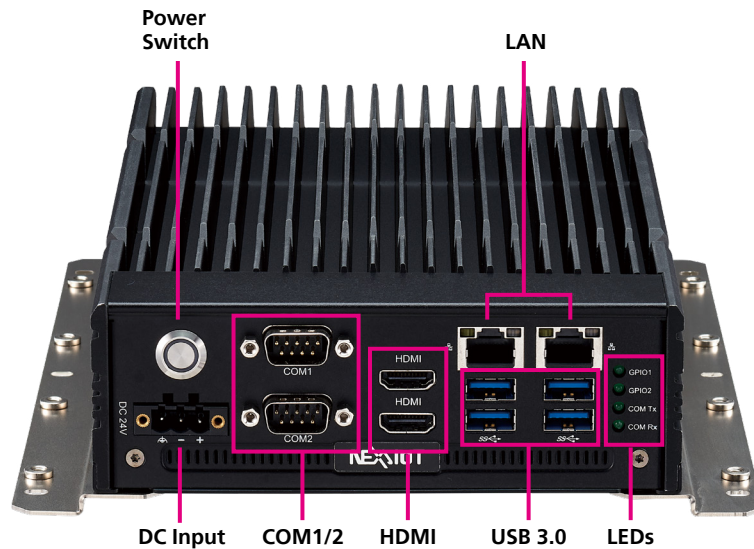
Power Switch
Press to power-on or power-off the system.

DC Input
Used to plug a DC power cord.

COM1 to COM2
Two DB9 ports used to connect serial devices.
  - COM1/2: RS232/422/485 auto flow control

HDMI
Used to connect a high-definition display.

LAN
Used to connect the system to a local area network.

USB 3.0
USB 3.0 ports to connect the system with devices.

LED Indicators
Indicates the hard drive and GPIO (programmable) activity of the system.

Rear Panel

TT300-F00

COM3 to COM6
Four DB9 ports used to connect serial devices.
  - COM3/4/5/6: RS232 only

COM3/4/5/6

Knowing Your TT300-F30

Front Panel

TT300-F30
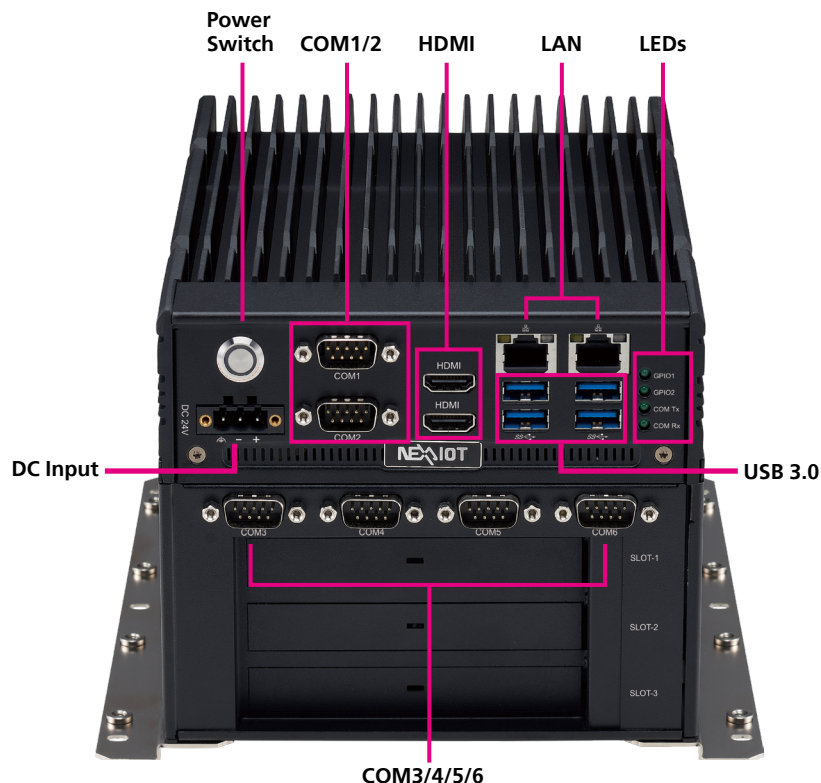
Power Switch
Press to power-on or power-off the system.

DC Input
Used to plug a DC power cord.

COM1 to COM2
Two DB9 ports used to connect serial devices.
- COM1/2: RS232/422/485 auto flow control

HDMI
Used to connect a high-definition display.

LAN
Used to connect the system to a local area network.

USB 3.0
USB 3.0 ports to connect the system with devices.

LED Indicators
Indicates the hard drive and GPIO (programmable) activity of the system.

COM3 to COM10

Four DB9 ports used to connect serial devices.
- COM3/4/5/6: RS23 only

Mechanical Dimensions

TT300-F0x

Mechanical Dimensions

TT300-F30
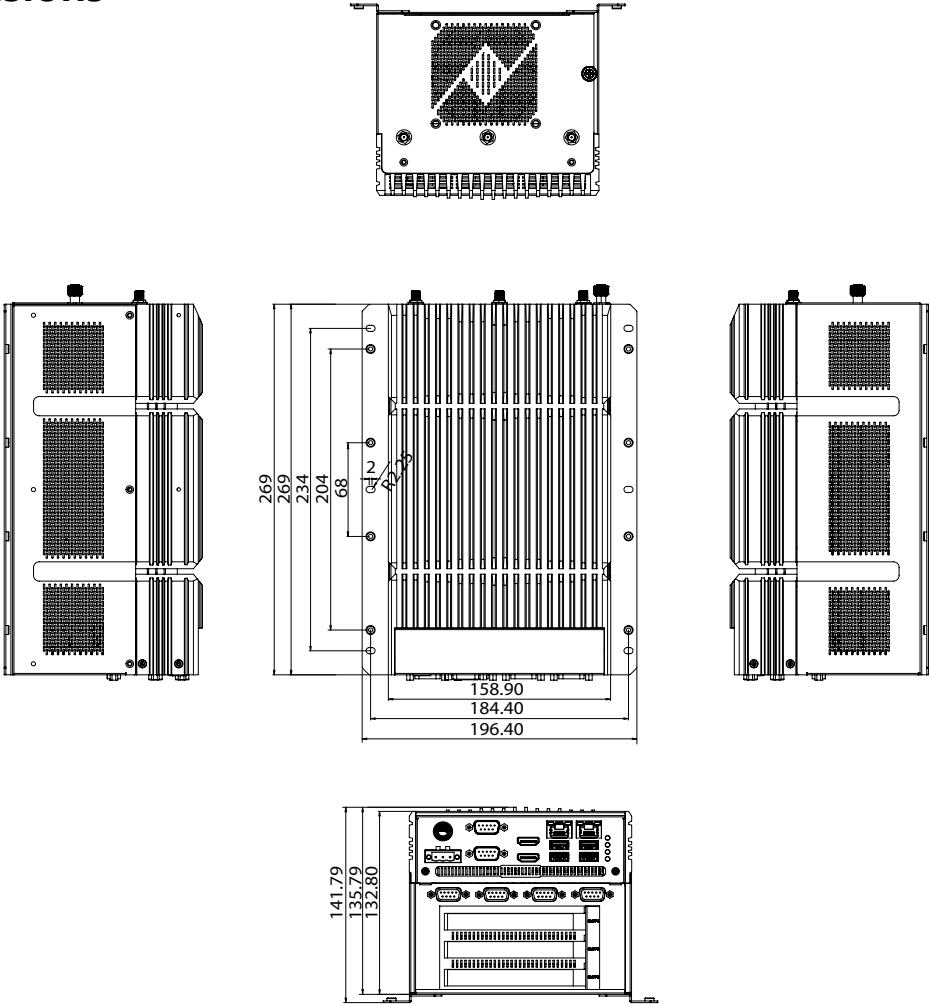
CHAPTER 2: JUMPERS AND CONNECTORS

This chapter describes how to set the jumpers and connectors on the TT300-F00 and TT300-F30 motherboard.

Before You Begin

▪ Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.

▪ Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:
  – A Philips screwdriver
  – A flat-tipped screwdriver
  – A set of jewelers screwdrivers
  – A grounding strap
  – An anti-static pad

▪ Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nosed pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

▪ Before working on internal components, make sure that the power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environments tend to have less static electricity than dry environments. A grounding strap is warranted whenever danger of static electricity exists.

Precautions

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on computers that are still connected to a power supply can be extremely dangerous.

Follow the guidelines below to avoid damage to your computer or yourself:
▪ Always disconnect the unit from the power outlet whenever you are working inside the case.

▪ If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.

▪ Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Don't flex or stress the circuit board.

▪ Leave all components inside the static-proof packaging that they shipped with until they are ready for installation.

▪ Use correct screws and do not over tighten screws.

Jumper Settings

A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is open.

Refer to the illustrations below for examples of what the 2-pin and 3-pin jumpers look like when they are short (on) and open (off).

Two-Pin Jumpers: Open (Left) and Short (Right)
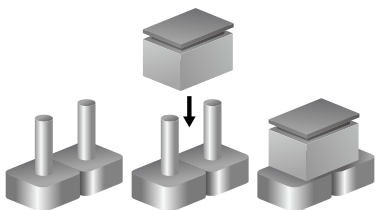
Three-Pin Jumpers: Pins 1 and 2 are Short
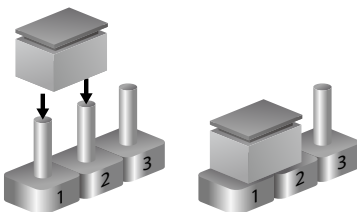
Locations of the Jumpers and Connectors for TT300 (Top View)

The figure below is the top view of the TT300 main board which is the main board used in TT300-F00 and TT300-F30. It shows the locations of the jumpers and connectors.
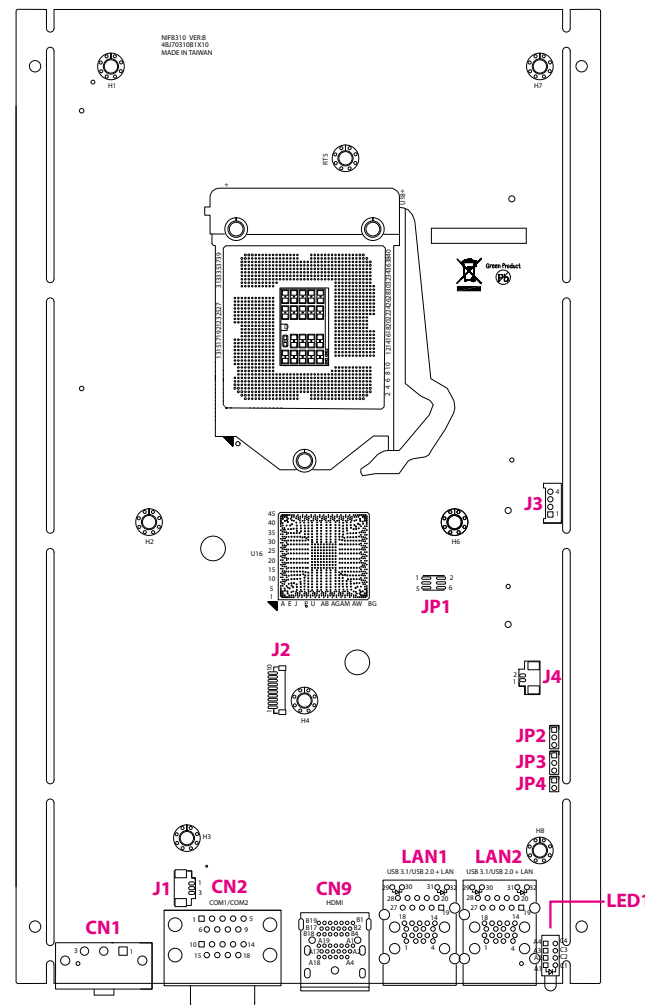
Locations of the Jumpers and Connectors for TT300 (Bottom View)

SLOT2
PCIe x16

SLOT1
PCIe x8

B82 A82
B12 A12
B11 A11
B1   A1
B49 A49

2 1

144 143
146 145

260 259

DIMM1

H10
74 75

CN3
M.2 Key M
(PCIE/SATA)
2 1

H9

CN4
M.2 Key B
(PCIE/USB 2.0)
74 75
2 1

MH6

CN6
COM3/COM4/
COM5/COM6
(Full RS232)
40 39
2 1

CN5
mini-PCIe
(PCIE/SATA3/LTE/USB 2.0)
51 52
17 18
15 16
1 2

SIM1
SIM CARD
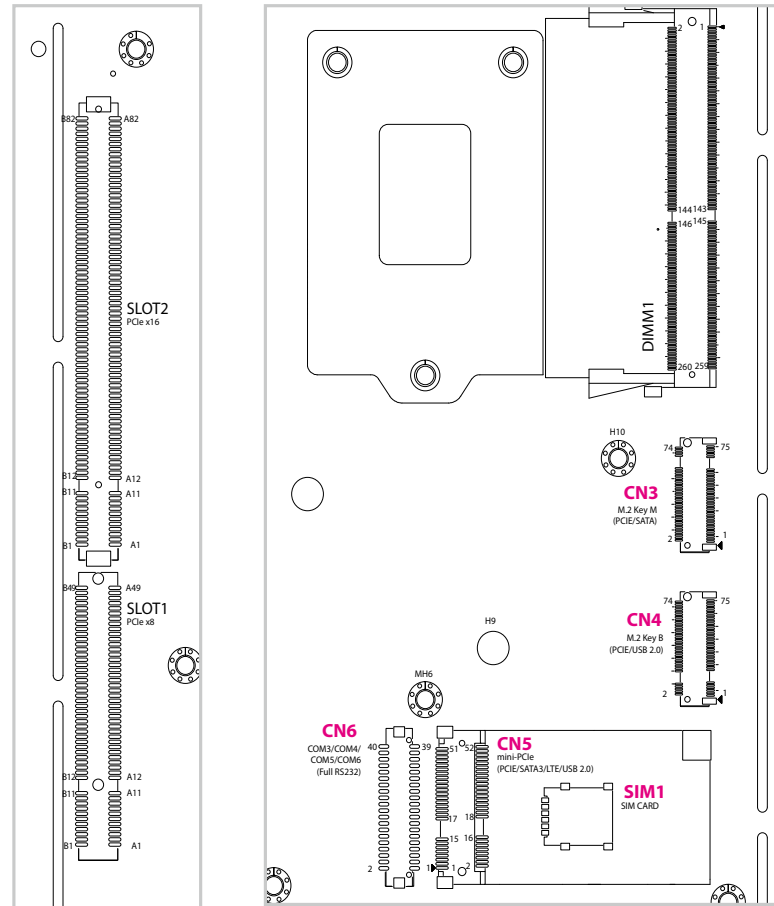
Jumpers

AT/ATX Power Select

Connector type: 1x3 3-pin header, 2.00mm pitch
Connector location: JP3

1 ☐ ○ ○ 3

Pin	Settings
1-2 On	AT Mode
2-3 On	ATX Mode

2-3 On: default

Pin	Definition
1	AT_PWRBT#
2	S_PWRBTN#
3	PBT_SW

CPU CFG Strap Pin

Connector type: 2x2 4-pin header, 1.27mm pitch, DIP Switch
Connector location: SW1
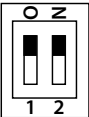
Pin	Definition	Pin	Definition
1	GND	2	GND
3	CFG_6	4	CFG_5

CMOS Clear Select

Connector type: 1x3 3-pin header, 2.00mm pitch
Connector location: JP2

1 ☐ ○ ○ 3
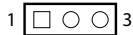
Pin	Settings
1-2 On	Normal
2-3 On	Clear CMOS

1-2 On: default

Pin	Definition
1	NC
2	S_RTCRST#
3	GND

Connector Pin Definitions

External I/O Interfaces - Front Panel
COM 1 Port (Full RS232/422/485)

Connector type: DB-9 port, 9-pin D-Sub
Connector location: CN2A
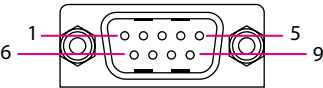
Pin	Definition	Pin	Definition
1	COM1DCDL	2	COM1RXD
3	COM1TXD	4	COM1DTRL
5	GND	6	COM1DSRL
7	COM1RTSL	8	COM1CTSL
9	COM1RIL		
MH1	GND_CHASIS_F	MH2	GND_CHASIS_F

COM 2 Port (Full RS232/422/485)

Connector type: DB-9 port, 9-pin D-Sub
Connector location: CN2B
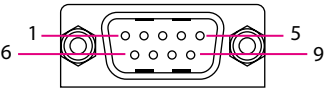
Pin	Definition	Pin	Definition
1	COM2DCDL	2	COM2RXD
3	COM2TXD	4	COM2DTRL
5	GND	6	COM2DSRL
7	COM2RTSL	8	COM2CTSL
9	COM2RIL		
MH1	GND_CHASIS_F	MH2	GND_CHASIS_F

DC-IN

Connector location: CN1

Power Button

Connector location: J1
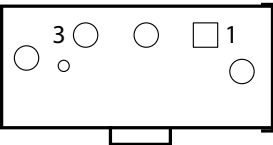
Pin	Definition	Pin	Definition
1	VIN_1	2	VIN_VSS
3	VINPIN3	NH1	NC
NH2	NC		

Pin	Definition	Pin	Definition
1	PBT_PU	2	GND
3	PB_POWER	4	GND
MH1	GND	MH2	GND

HDMI 1

Connector type: HDMI port
Connector location: CN9A
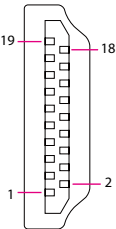
Pin	Definition	Pin	Definition
A1	HDMITX2P1	A2	GND_CHASIS_F
A3	HDMITX2N1	A4	HDMITX1P1
A5	GND_CHASIS_F	A6	HDMITX1N1
A7	HDMITX0P1	A8	GND_CHASIS_F
A9	HDMITX0N1	A10	HDMICLKP1
A11	GND_CHASIS_F	A12	HDMICLKN1
A15	HDMIDDCSCL	A16	HDMIDDCSDA
A17	GND	A18	VCC5HDMI
A19	HDMIHPD		

HDMI 2

Connector type: HDMI port
Connector location: CN9B
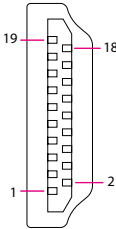
Pin	Definition	Pin	Definition
B1	HDMITX2P1_2	B2	GND_CHASIS_F
B3	HDMITX2N1_2	B4	HDMITX1P1_2
B5	GND_CHASIS_F	B6	HDMITX1N1_2
B7	HDMITX0P1_2	B8	GND_CHASIS_F
B9	HDMITX0N1_2	B10	HDMICLKP1_2
B11	GND_CHASIS_F	B12	HDMICLKN1_2
B15	HDMIDDCSCL_2	B16	HDMIDDCSDA_2
B17	GND	B18	VCC5HDMI_2
B19	HDMIHPD_2		

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LAN1 and USB3.1 Ports

Connector type: RJ45 port with LEDs and dual USB 3.1 ports
Connector location: LAN1
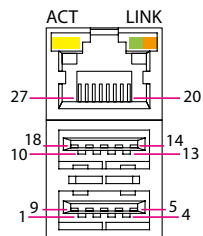
Act	Status
Flashing Yellow	Data activity
Off	No activity

Link	Status
Steady Green	1G network link
Steady Orange	100Mbps network link
Off	10Mbps or no link

Pin	Definition	Pin	Definition
1	5VUSB4	2	USB2N_3
3	USB2P_3	4	GND
5	S_USB31_RXN3	6	S_USB31_RXP3
7	GND	8	USB31_TXN3
9	USB31_TXP3	10	5VUSB1
11	USB2N_1	12	USB2P_1
13	GND	14	S_USB31_RXN4
15	S_USB31_RXP4	16	GND
17	USB31_TXN4	18	USB31_TXP4
19	LAN2TCT	20	MDI_PLUS0
21	MDI_MINUS0	22	MDI_PLUS1
23	MDI_MINUS1	24	MDI_PLUS2
25	MDI_MINUS2	26	MDI_PLUS3
27	MDI_MINUS3	28	GND
29	LAN2_ACTPW	30	LAN2LEDACTN
31	LAN2LED100#	32	LAN2LINK

Pin	Definition	Pin	Definition
MH1	GND_CHASIS_F	MH2	GND_CHASIS_F
MH3	GND_CHASIS_F	MH4	GND_CHASIS_F
MH5	GND_CHASIS_F	MH6	GND_CHASIS_F
MH7	GND_CHASIS_F	MH8	GND_CHASIS_F

LAN2 and USB3.1 Ports

Connector type: RJ45 port with LEDs and dual USB 3.1 ports
Connector location: LAN2
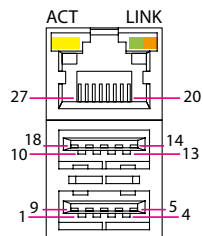
Act	Status
Flashing Yellow	Data activity
Off	No activity

Link	Status
Steady Green	1G network link
Steady Orange	100Mbps network link
Off	10Mbps or no link

Pin	Definition	Pin	Definition
1	5VUSB3	2	USB2N_4
3	USB2P_4	4	GND
5	S_USB31_RXN1	6	S_USB31_RXP1
7	GND	8	USB31_TXN1
9	USB31_TXP1	10	5VUSB3
11	USB2N_7	12	USB2P_7
13	GND	14	S_USB31_RXN2
15	S_USB31_RXP2	16	GND
17	USB31_TXN2	18	USB31_TXP2
19	LAN1TCT	20	LAN1MDI0P
21	LAN1MDI0N	22	LAN1MDI1P
23	LAN1MDI1N	24	LAN1MDI2P
25	LAN1MDI2N	26	LAN1MDI3P
27	LAN1MDI3N	28	GND
29	LAN1ACTW	30	LAN1LEDACTN
31	LAN1LED100#	32	LAN1LINK

Pin	Definition	Pin	Definition
MH1	GND_CHASIS_F	MH2	GND_CHASIS_F
MH3	GND_CHASIS_F	MH4	GND_CHASIS_F
MH5	GND_CHASIS_F	MH6	GND_CHASIS_F
MH7	GND_CHASIS_F	MH8	GND_CHASIS_F

Internal Connectors
BIOS Pin Header

Connector type: 2x3 6-pin header, 2.0mm pitch
Connector location: JP1

SATA Signal Connector

Connector location: CN7
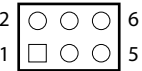
Pin	Definition	Pin	Definition
1	VCCSPI_EXT	2	GND
3	CS#_0	4	CLK_0
5	DO_0	6	DI_0
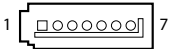
Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP2
3	SATA_TXN2	4	GND
5	SATA_RXN2	6	SATA_RXP2
7	GND		

SATA Power Connector

Connector type: 1x2 2-pin header, 2.5mm pitch
Connector location: CN8
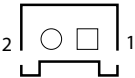
Pin	Definition
1	VCC5
2	GND

USB2.0 Connector

Connector type: 1x4 4-pin header, 2.0mm pitch
Connector location: J3
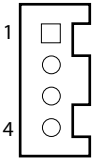
Pin	Definition	Pin	Definition
1	5VUSB2	2	USB2N_5
3	USB2P_5	4	GND

SIM Card Connector

Connector location: SIM1

System Reset

Connector type: 1x2 2-pin header, 2.0mm pitch
Connector location: JP4
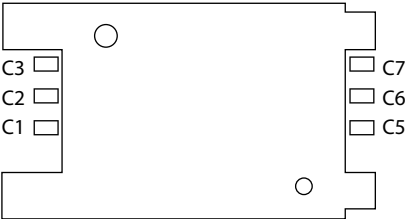
Pin	Definition	Pin	Definition
C1	UIM_PWR	C2	UIM_RESET
C3	UIM_CLK	C5	GND
C6	UIM_VPP	C7	UIM_DATA
MH1	N/A	MH2	N/A
MH3	N/A	MH4	N/A

Pin	Definition
1	SYSRESETN
2	GND

Port 80

Connector type: 1x10 10-pin header, 1.0mm pitch
Connector location: J2

10 ○○○○○○○○○□ 1
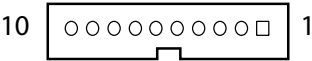
Pin	Definition	Pin	Definition
1	GND	2	SIO_PLTRSTN
3	CLKOUT_LPC1	4	LPC_FRAME#
5	LPC_AD3	6	LPC_AD2
7	LPC_AD1	8	LPC_AD0
9	SERIRQ	10	VCC3
MH1	GND	MH2	GND

RTC Battery Connector

Connector type: 1x2 2-pin header, 1.25mm pitch
Connector location: J4

1 2
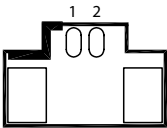
Pin	Definition
1	GND3
2	V_BAT1

COM3/COM4/COM5/COM6 (Full RS232)

Connector location: CN6
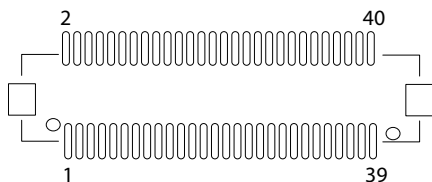
P0 2x20P Housing Pitch:1.25mm		P1 (A) D-SUB9 Male Connector
Functional Define	PIN No.	PIN No.
DTR#3	5	4
RTS#3	7	7
TXD3	9	3
DCD#3	11	1
CTS#3	13	8
DSR#3	15	6
RXD3	17	2
RI#3	19	9
GND	21	5

P0 2x20P Housing Pitch:1.25mm		P2 (B) D-SUB9 Male Connector
Functional Define	PIN No.	PIN No.
RTS#4	23	7
TXD#4	25	3
DTR#4	27	4
DCD#4	29	1
CTS#4	31	8
DSR#4	33	6
RXD#4	35	2
RI#4	37	9
GND	39	5

P0 2x20P Housing Pitch:1.25mm		P3 (C) D-SUB9 Male Connector
Functional Define	PIN No.	PIN No.
DTR#5	6	4
RTS#5	8	7
TXD5	10	3
DCD#5	12	1
CTS#5	14	8
DSR#5	16	6
RXD5	18	2
RI#5	20	9
GND	22	5

COM3/COM4/COM5/COM6 (Full RS232) Cont.

Connector location: CN6
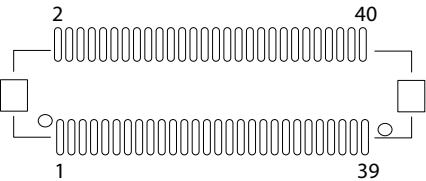
P0 2x20P Housing Pitch:1.25mm		P4 (D) D-SUB9 Male Connector
Functional Define	PIN No.	PIN No.
RTS#6	24	7
TXD#6	26	3
DTR#6	28	4
DCD#6	30	1
CTS#6	32	8
DSR#6	34	6
RXD#6	36	2
RI#6	38	9
GND	40	5

Mini PCIe Connector (PCIe/SATA/LTE/USB2.0)

Connector location: CN5

Pin	Definition	Pin	Definition
1	I_WAKEN	2	3VSBMINIPCIE
3	N/A	4	GND
5	N/A	6	1V5MINIPCIE
7	SRCCLKREQ8N	8	UIM_PWR
9	GND	10	UIM_DATA
11	I_CLKOUTPCIEN8	12	UIM_CLK
13	I_CLKOUTPCIEP8	14	UIM_RESET
15	GND	16	UIM_VPP
17	N/A	18	GND
19	N/A	20	MINICARD2DIS#
21	GND	22	MINIPCIEPERSTN
23	PCIE_mSATA_RXN_1R	24	3VSBMINIPCIE
25	PCIE_mSATA_RXP_1R	26	GND
27	GND	28	1V5MINIPCIE
29	GND	30	SMB_CLK
31	PCIE_mSATA_TXN_1R	32	SMB_DATA

Pin	Definition	Pin	Definition
33	PCIE_mSATA_TXP_1R	34	GND
35	GND	36	I_USB2N8
37	GND	38	I_USB2P8
39	3VSBMINIPCIE	40	GND
41	3VSBMINIPCIE	42	N/A
43	GND	44	N/A
45	N/A	46	N/A
47	N/A	48	1V5MINIPCIE
49	N/A	50	GND
51	NC	52	3VSBMINIPCIE

NGFF Key M (M.2 PCIe/SATA) Connector:

Connector location: CN3
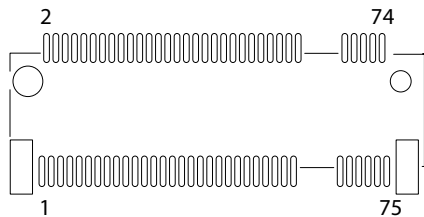
Pin	Definition	Pin	Definition
1	GND	2	M2MKEYPWR
3	GND	4	M2MKEYPWR
5	NC	6	NC
7	NC	8	NC
9	GND	10	M2SATADSSL
11	NC	12	M2MKEYPWR
13	NC	14	M2MKEYPWR
15	GND	16	M2MKEYPWR
17	NC	18	M2MKEYPWR
19	NC	20	NC
21	GND	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC
29	NC	30	NC
31	NC	32	NC

Pin	Definition	Pin	Definition
33	GND	34	NC
35	NC	36	NC
37	NC	38	DEVSLP_0
39	GND	40	NC
41	PCIE_mSATA_RXN_R	42	NC
43	PCIE_mSATA_RXP_R	44	NC
45	GND	46	NC
47	PCIE_mSATA_TXN_R	48	NC
49	PCIE_mSATA_TXP_R	50	M2M_PLTRSTN
51	GND	52	SRCCLKREQ3N
53	I_CLKOUTPCIEN3	54	I_WAKEN
55	I_CLKOUTPCIEP3	56	NC
57	GND	58	NC
59		60	
61		62	
63		64	
65		66	
67	NC	68	M2MSUSCLK
69	PCIE_mSATA_SEL	70	M2MKEYPWR
71	GND	72	M2MKEYPWR
73	GND	74	M2MKEYPWR
75	GND		

NGFF Key B (M.2 PCIe/USB2.0) Connector:

Connector location: CN4
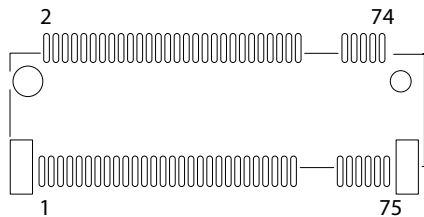
Pin	Definition	Pin	Definition
1	GND	2	M2LTEPWR
3	GND	4	M2LTEPWR
5	GND	6	M2POWEROFF
7	S_USB2P_2	8	M2LTEDISL
9	S_USB2N_2	10	M2SATADSSL
11	GND	12	
13		14	
15		16	
17		18	
19		20	NC
21	M2LTECONFIG0	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC
29	NC	30	NC
31	NC	32	NC

Pin	Definition	Pin	Definition
33	GND	34	NC
35	NC	36	NC
37	NC	38	NC
39	GND	40	NC
41	H_PCIERXN12	42	NC
43	H_PCIERXP12	44	NC
45	GND	46	NC
47	H_PCIETXN12	48	NC
49	H_PCIETXP12	50	M2B_PLTRSTN
51	GND	52	NC
53	NC	54	I_WAKEN
55	NC	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC
67	M2LTERSTL	68	M2SUSCLK
69	M2LTECONFIG1	70	M2LTEPWR
71	GND	72	M2LTEPWR
73	GND	74	M2LTEPWR
75	M2LTECONFIG2		

TT300-F00 and TT300-F30 User Manual

PEG x8 Slot:

Connector type: PCIe x8 Slot
Connector location: SLOT1
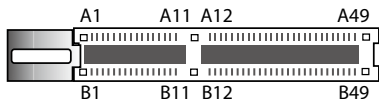
Pin	Definition	Pin	Definition
A1	VIN	A2	VIN
A3	VIN	A4	GND
A5	VCC5	A6	VCC5
A7	VCC5	A8	VCC5
A9	1V8SB	A10	1V8SB
A11	PCIEX8PLTRSTN	A12	GND
A13	I_CLKOUTPCIEP9	A14	I_CLKOUTPCIEN9
A15	GND	A16	SATA_TXP2
A17	SATA_TXN2	A18	GND
A19	SATA_RXN2	A20	SATA_RXP2
A21	GND	A22	
A23		A24	
A25	GND	A26	H_PCIERXP6
A27	H_PCIERXN6	A28	GND
A29	H_PCIERXP6_1	A30	H_PCIERXN6_1
A31	GND	A32	H_PCIERXP6_2
A33	H_PCIERXN6_2	A34	GND
A35	H_PCIERXP6_3	A36	H_PCIERXN6_3
A37	GND	A38	H_PCIERXP7
A39	H_PCIERXN7	A40	GND
A41	H_PCIERXP7_1	A42	H_PCIERXN7_1
A43	GND	A44	H_PCIERXP7_2

Pin	Definition	Pin	Definition
A45	H_PCIERXN7_2	A46	GND
A47	H_PCIERXP7_3	A48	H_PCIERXN7_3
A49	GND		
B1	VIN	B2	VIN
B3	VIN	B4	GND
B5	SMB_CLK	B6	SMB_DATA
B7	GND	B8	5VSB
B9	5VSB	B10	5VSB
B11	PCIE_SLOT_WAKE#	B12	GND
B13	I_CLKOUTPCIEP11	B14	I_CLKOUTPCIEN11
B15	GND	B16	
B17		B18	
B19		B20	
B21		B22	
B23		B24	
B25	GND	B26	H_PCIETXP6
B27	H_PCIETXN6	B28	NC
B29	H_PCIETXP6_1	B30	H_PCIETXN6_1
B31	PRSNT1#_2	B32	H_PCIETXP6_2
B33	H_PCIETXN6_2	B34	H_PCIETXN7
B35	H_PCIETXP6_3	B36	H_PCIETXN6_3
B37	NC	B38	H_PCIETXP7
B39	H_PCIETXN7	B40	GND
B41	H_PCIETXP7_1	B42	H_PCIETXN7_1
B43	GND	B44	H_PCIETXP7_2
B45	H_PCIETXN7_2	B46	GND
B47	H_PCIETXP7_3	B48	H_PCIETXN7_3
B49	GND		

PEG x16 Slot:

Connector type: PCIe x16 Slot
Connector location: SLOT2

```
A1    A11 A12                              A82
┌─────────────────────────────────────────┐
│ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪  │
│ ▪▪▪▪▪▪▪▪ ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪  │
└─────────────────────────────────────────┘
B1    B11 B12                              B82
```

Pin	Definition	Pin	Definition
A1	VIN	A2	VIN
A3	VIN	A4	GND
A5	SATA_TXP3	A6	SATA_TXN3
A7	GND	A8	VCC3
A9	VCC3	A10	VCC3
A11	PCIEX16PLTRSTN	A12	GND
A13	I_CLKOUTPCIEP10	A14	I_CLKOUTPCIEN10
A15	GND	A16	SERIRQ
A17	LPC_FRAME#	A18	LPC_AD0
A19	LPC_AD1	A20	LPC_AD2
A21	LPC_AD3	A22	RCIN#
A23	CLKOUT_LPC0	A24	ESPI_ALERT0#
A25	ESPI_RESET#	A26	VCCRTC
A27	PECI	A28	CPU_VTT
A29	SIO_RSMRST#	A30	
A31		A32	
A33		A34	
A35	PEG_RXP0	A36	PEG_RXN0
A37	GND	A38	PEG_RXP1
A39	PEG_RXN1	A40	GND
A41	PEG_RXP2	A42	PEG_RXN2
A43	GND	A44	PEG_RXP3

Pin	Definition	Pin	Definition
A45	PEG_RXN3	A46	GND
A47	PEG_RXP4	A48	PEG_RXN4
A49	GND	A50	PEG_RXP5
A51	PEG_RXN5	A52	GND
A53	PEG_RXP6	A54	PEG_RXN6
A55	GND	A56	PEG_RXP7
A57	PEG_RXN7	A58	GND
A59	PEG_RXP8	A60	PEG_RXN8
A61	GND	A62	PEG_RXP9
A63	PEG_RXN9	A64	GND
A65	PEG_RXP10	A66	PEG_RXN10
A67	GND	A68	PEG_RXP11
A69	PEG_RXN11	A70	GND
A71	PEG_RXP12	A72	PEG_RXN12
A73	GND	A74	PEG_RXP13
A75	PEG_RXN13	A76	GND
A77	PEG_RXP14	A78	PEG_RXN14
A79	GND	A80	PEG_RXP15
A81	PEG_RXN15	A82	GND
B1	VIN	B2	VIN
B3	VIN	B4	GND
B5	SATA_RXN3	B6	SATA_RXP3
B7	GND	B8	3VSB
B9	3VSB	B10	3VSB
B11	3VSB	B12	FAN_TAC1
B13	FAN_CTL1	B14	SIO_GP70
B15	SIO_GP71	B16	GND
B17		B18	

Pin	Definition	Pin	Definition
B19		B20	
B21		B22	
B23		B24	
B25		B26	
B27		B28	
B29		B30	
B31		B32	
B33		B34	GND
B35	PEG_TXP0	B36	PEG_TXN0
B37	GND	B38	PEG_TXP1
B39	PEG_TXN1	B40	GND
B41	PEG_TXP2	B42	PEG_TXN2
B43	GND	B44	PEG_TXP3
B45	PEG_TXN3	B46	GND
B47	PEG_TXP4	B48	PEG_TXN4
B49	GND	B50	PEG_TXP5
B51	PEG_TXN5	B52	GND
B53	PEG_TXP6	B54	PEG_TXN6
B55	GND	B56	PEG_TXP7
B57	PEG_TXN7	B58	GND
B59	PEG_TXP8	B60	PEG_TXN8
B61	GND	B62	PEG_TXP9
B63	PEG_TXN9	B64	GND
B65	PEG_TXP10	B66	PEG_TXN10
B67	GND	B68	PEG_TXP11
B69	PEG_TXN11	B70	GND
B71	PEG_TXP12	B72	PEG_TXN12
B73	GND	B74	PEG_TXP13

Pin	Definition	Pin	Definition
B75	PEG_TXN13	B76	GND
B77	PEG_TXP14	B78	PEG_TXN14
B79	GND	B80	PEG_TXP15
B81	PEG_TXN15	B82	GND

CHAPTER 3: SYSTEM SETUP

Removing the Chassis Cover

CAUTION! Prior to removing the chassis cover, make sure the unit's power is off and disconnected from the power sources to prevent electric shock or system damage.

1. Remove the thumb screw on the side of the chassis cover.

2. With the screw removed, push the cover to the right and remove it from the chassis.

3. Remove the screws and copper posts from the chassis.
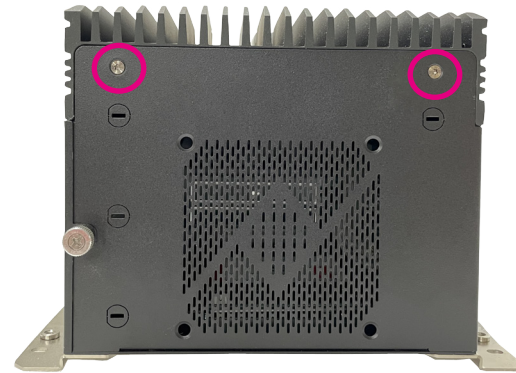
4. Remove the board's COM Port cable tie.
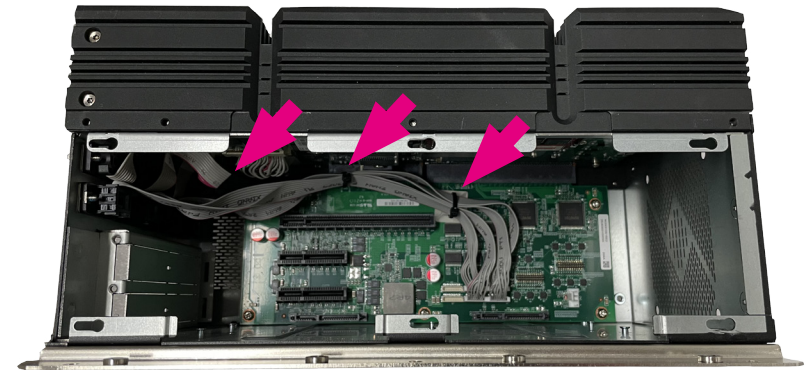
5. With the screws, copper posts and cable tie removed, lift up the cover and remove it from the chassis.

6. Complete
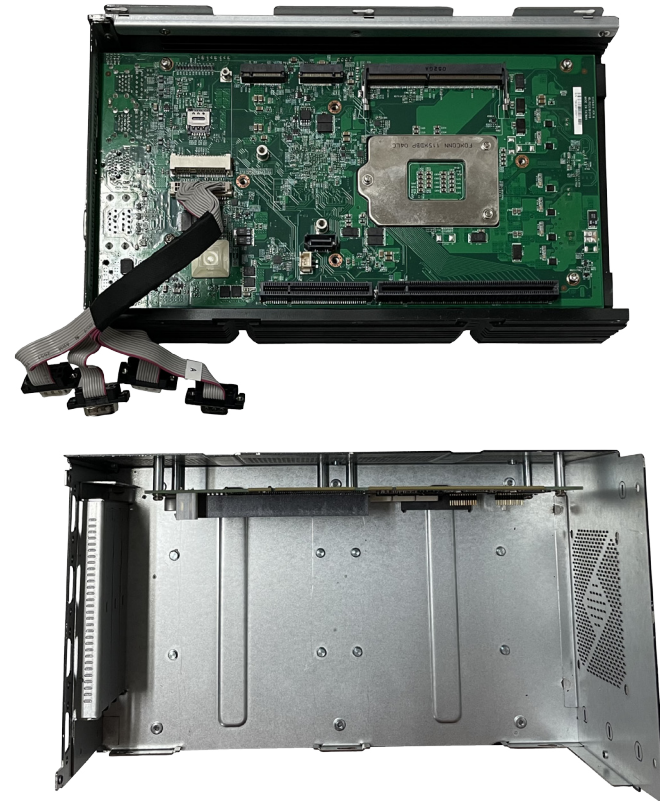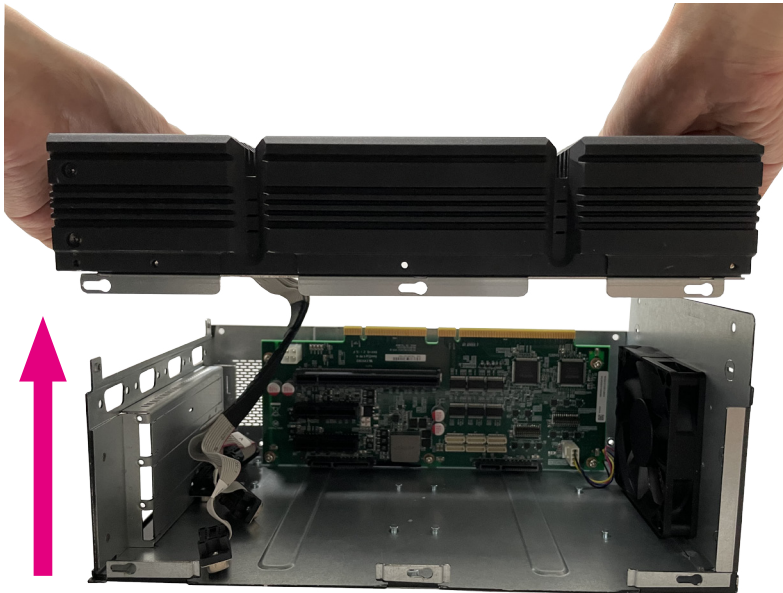
Removing the Chassis Cover
(TT300-F0x)

CAUTION! Prior to removing the chassis cover, make sure the unit's power is off and disconnected from the power sources to prevent electric shock or system damage.

1. Remove the screws from the bottom cover of the chassis.

2. Open the bottom cover.
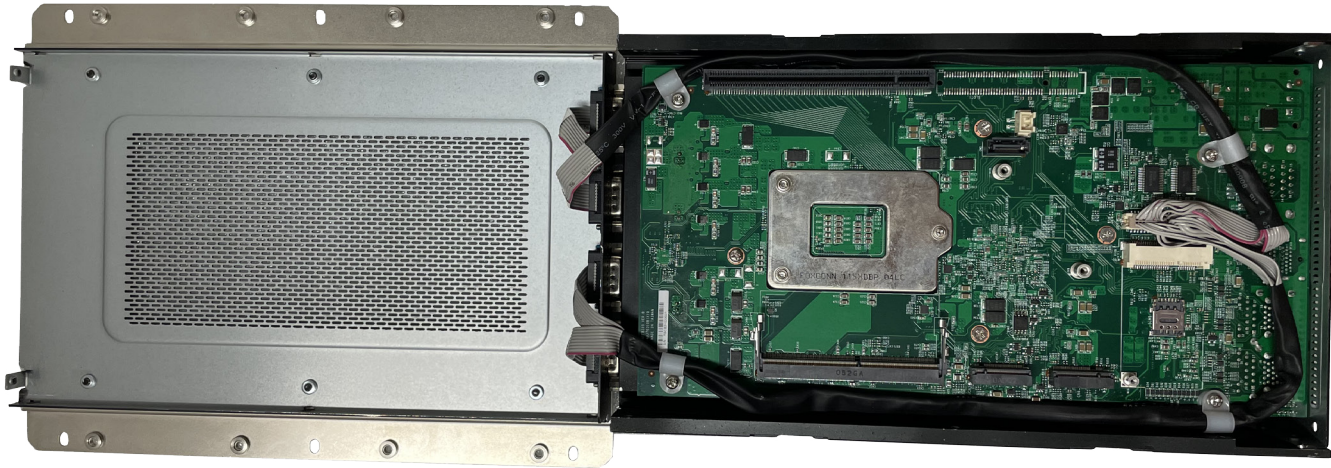
Installing CPU

1. Remove the screws from the top cover of the chassis.

2. Remove the screws from the back of the board.
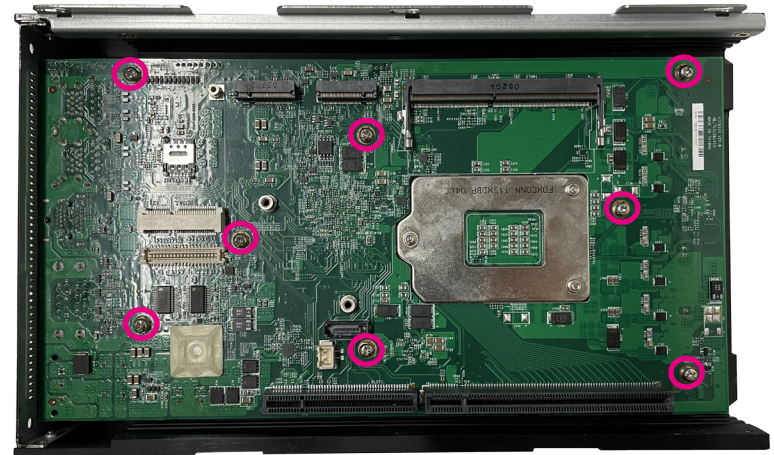
3. Now, the board and front panel can be lifted together.
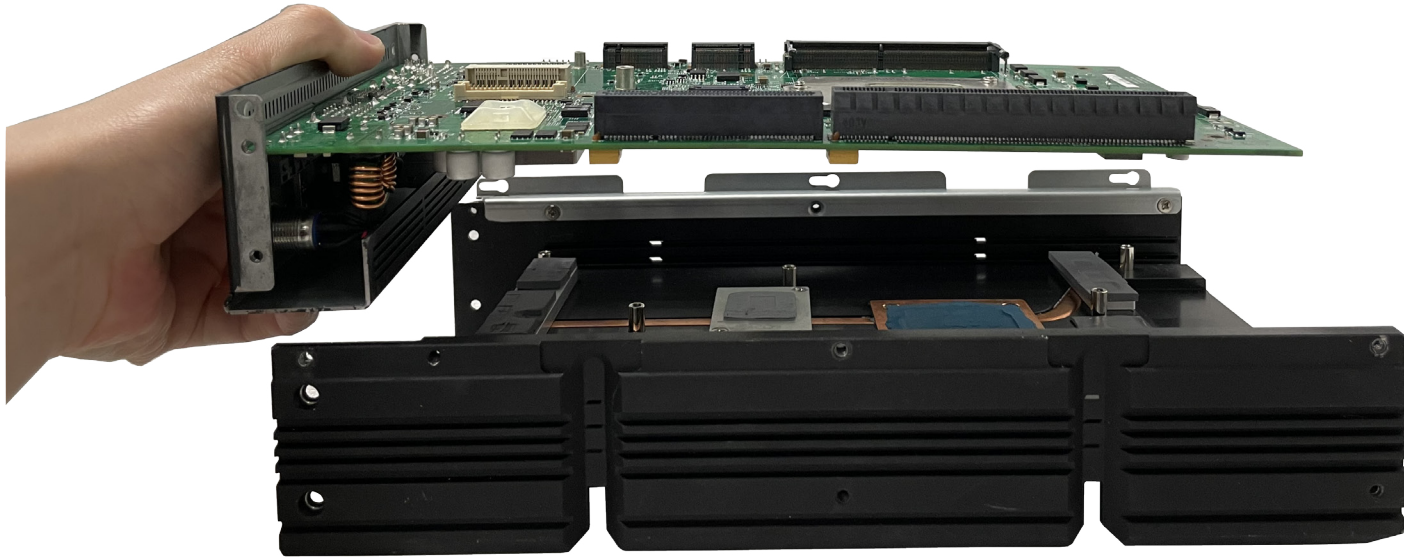
Installing CPU

1. Locate the CPU socket on the board.

2. Unlock the socket by pushing the load lever down, moving it sideways until it is released from the retention tab.
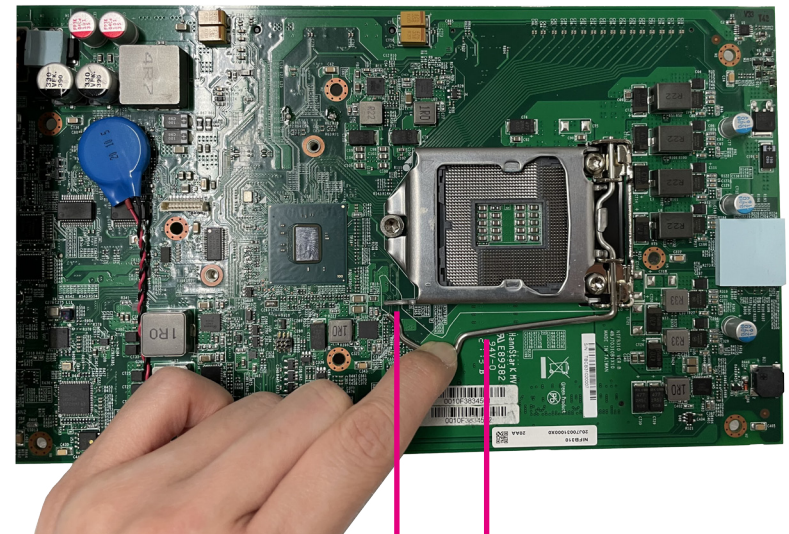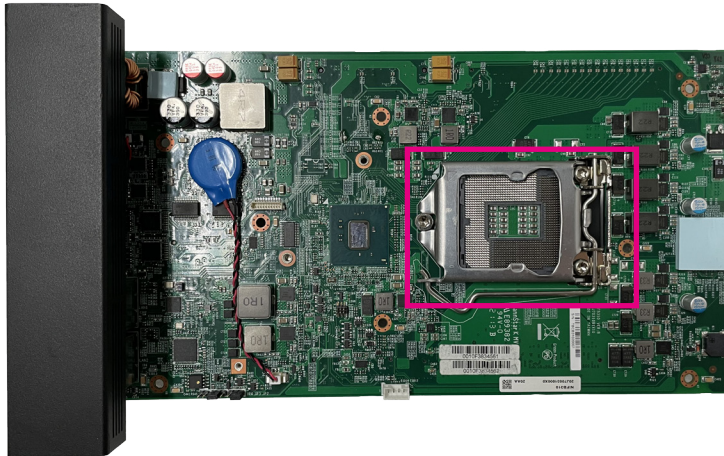
Retention tab

Load lever

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3. Lift the load lever up to open the CPU retention bracket.
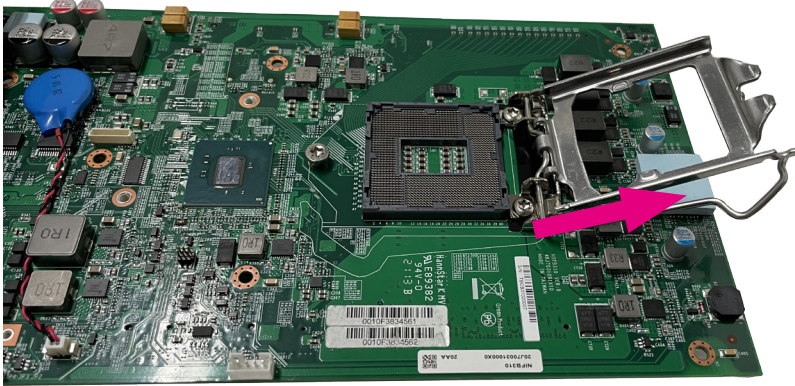
4. Insert the CPU into the socket. The triangular edge on the CPU must align with the corner of the CPU socket shown in the following photo.

Alignment key
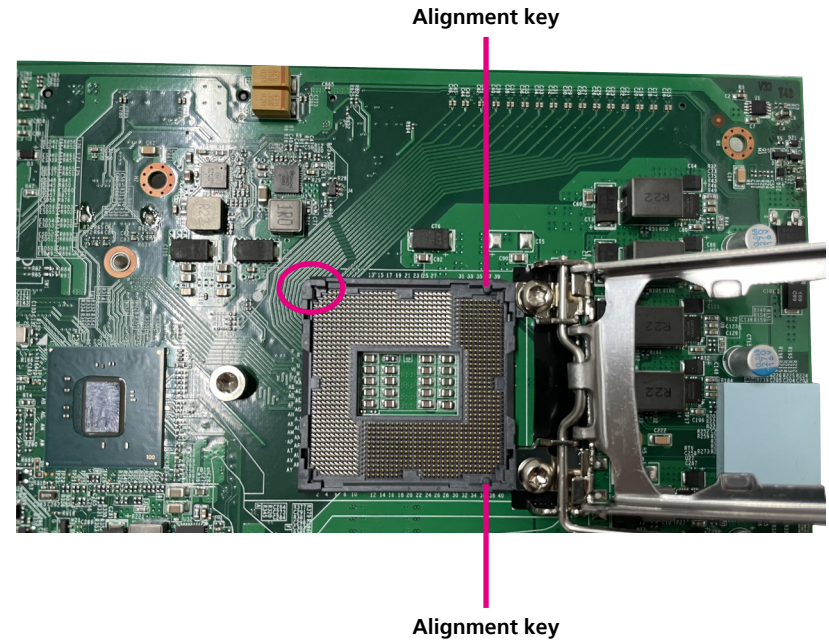
Alignment key

The CPU's notch will at the same time fit into the socket's alignment key.

5. With the CPU installed, close the retention bracket and then hook the load lever under the retention tab. Ensure that the notch on the retention bracket is slid under the screw before lowering the load lever as shown below.
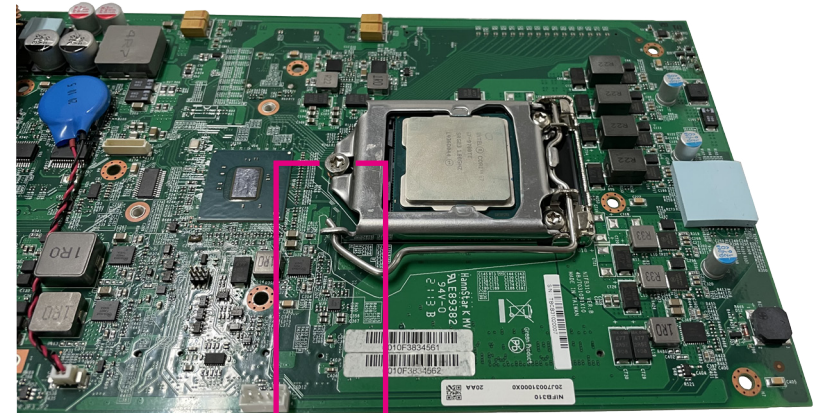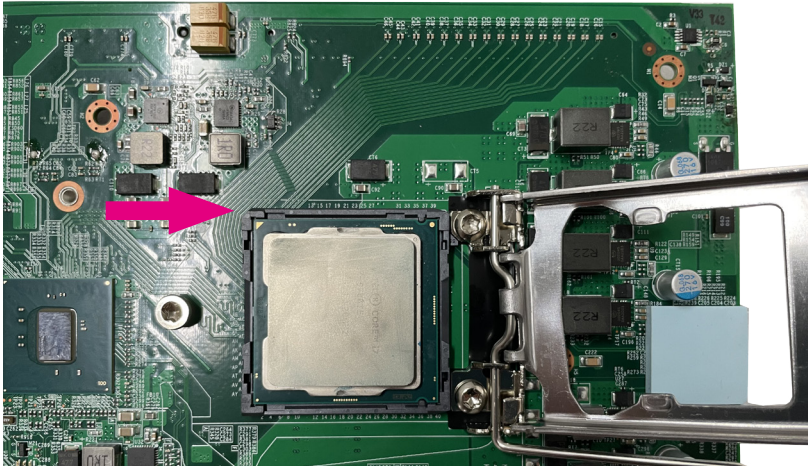
Screw   **Notch**

CAUTION!
- Handle the CPU by its edges and avoid touching the pins.
- The CPU will fit in only one orientation and can easily be inserted without exerting any force.

CAUTION!
- Do not force the CPU into the socket. Forcing the CPU into the socket may bend the pins and damage the CPU.

<Reminder> After installing the CPU, remove the plastic protective sheet attached to the CPU thermal pad at the top cover before assembling.
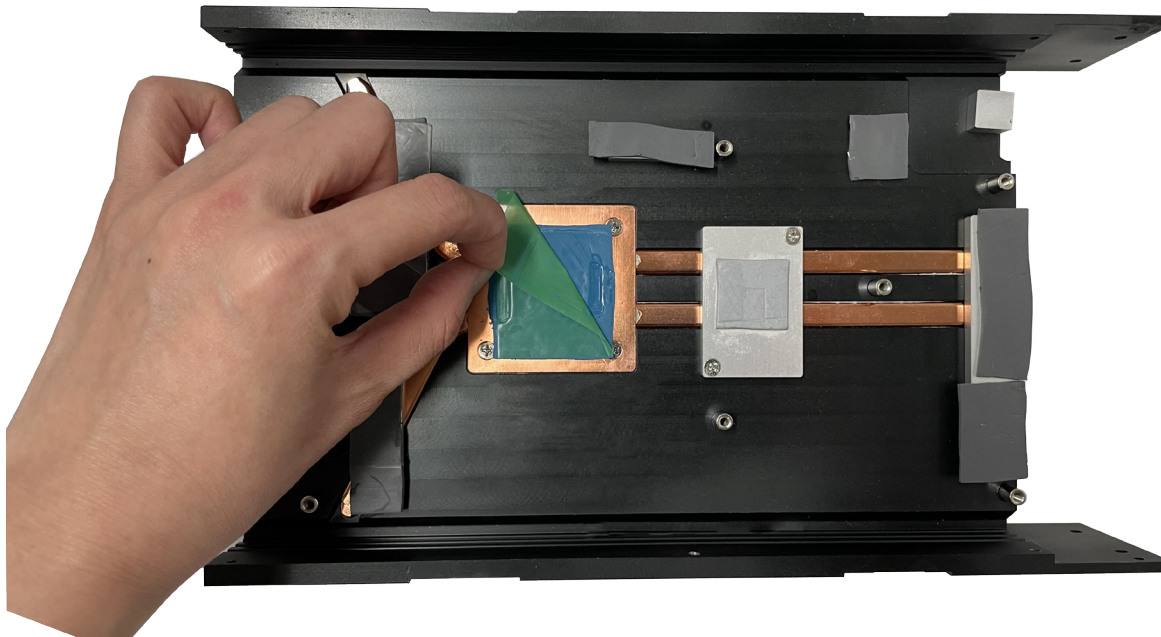
Installing a SO-DIMM Memory Module

(Note : remove the chassis before installing a SO-DIMM module)

1. Locate the SO-DIMM socket.

SO-DIMM socket

2. Insert the module into the socket at an approximately 30 degrees angle. The ejector tab at the ends of the socket will automatically snap into the locked position to hold the module in place.

Memory Module
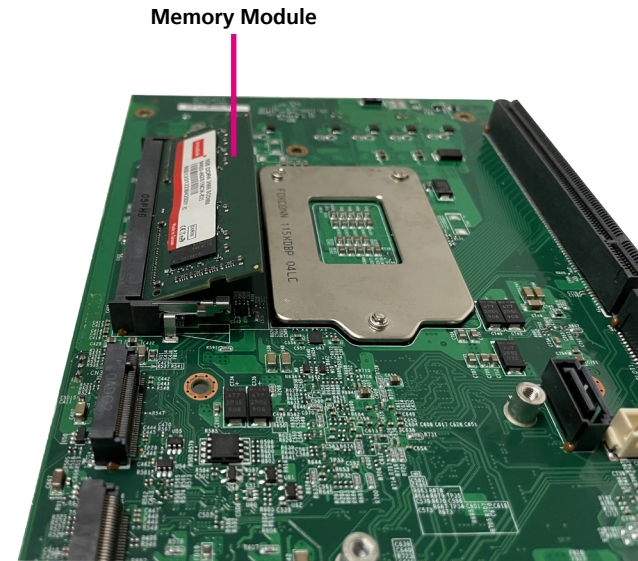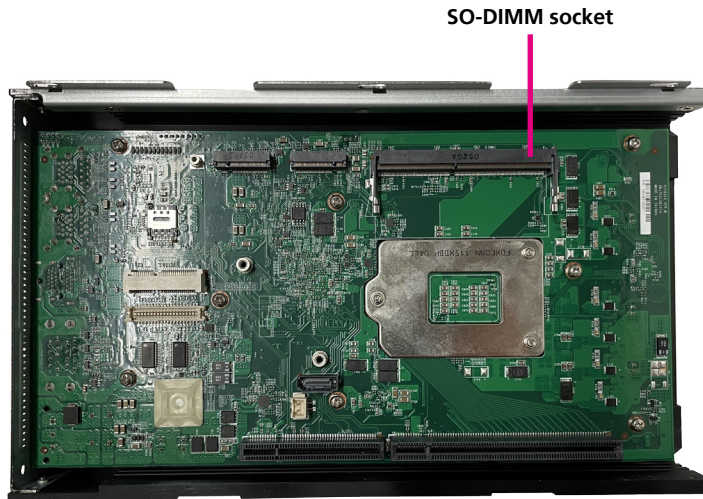
3. Complete.

Installing a Mini-PCIe 4G LTE/mSATA Module (Full-size)

1. Locate the mini-PCIe slot on the board.

2. Insert the module into the mini-PCIe Express slot at a 45-degree angle until the gold-plated connector on the edge of the module completely dissapears into the slot.

Mini-PCIe socket

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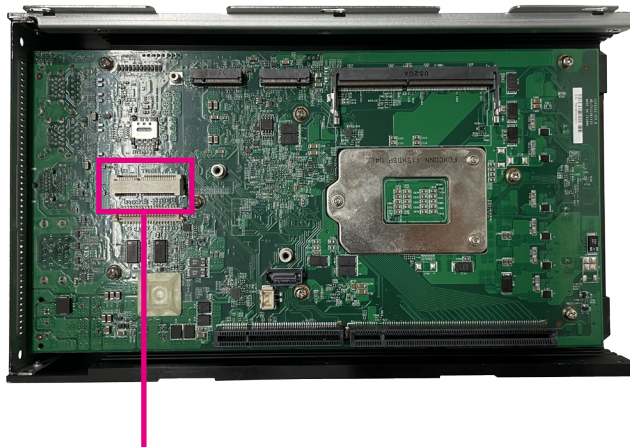
3. Push the module down and secure it with a screw.
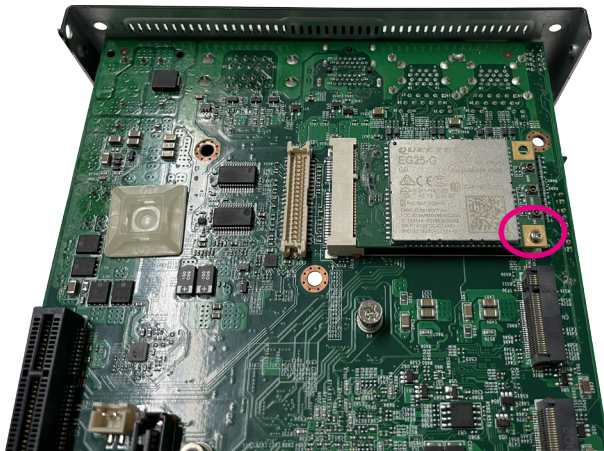
Installing a WLAN/Bluetooth Mini-PCIe Module (Half-size)

1. Align the wireless LAN module to the module bracket and secure both together with screws.

2. Fix the antenna cable onto the WIFI module, and insert the WIFI module into the mini-PCIe slot. Push the module down and then secure it with mounting screws.
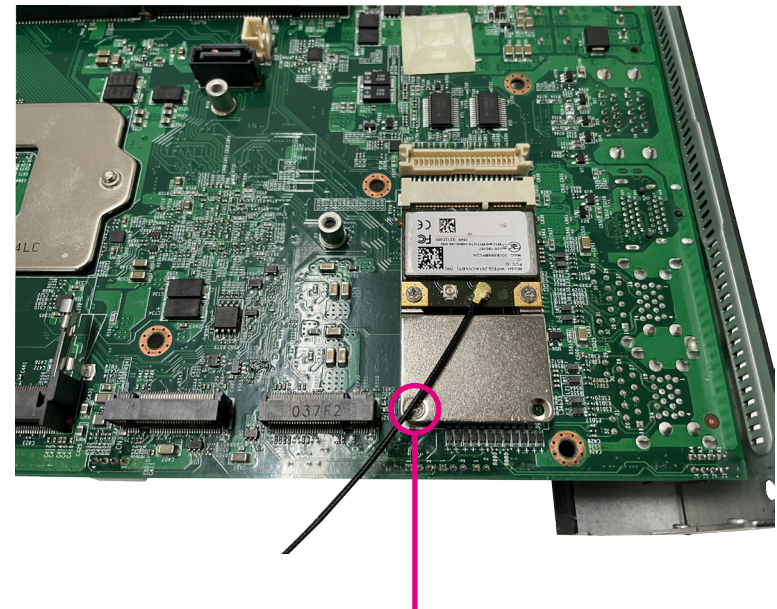
Mounting screw

Installing an Antenna

(Note: Please remove the gaskets (ring1 and ring 2) on the SMA antenna jack first.

1. Remove the antenna hole cover located on the rear panel.

Ring 2
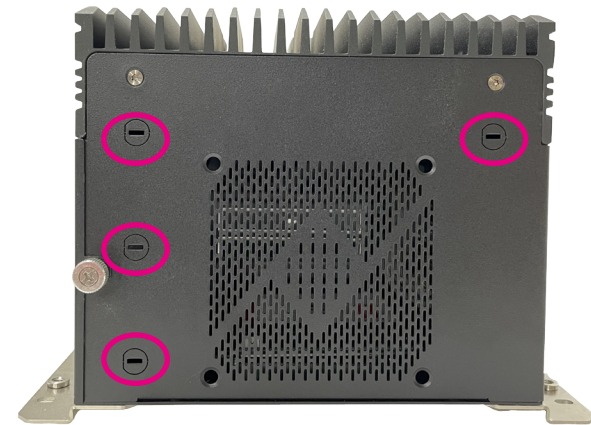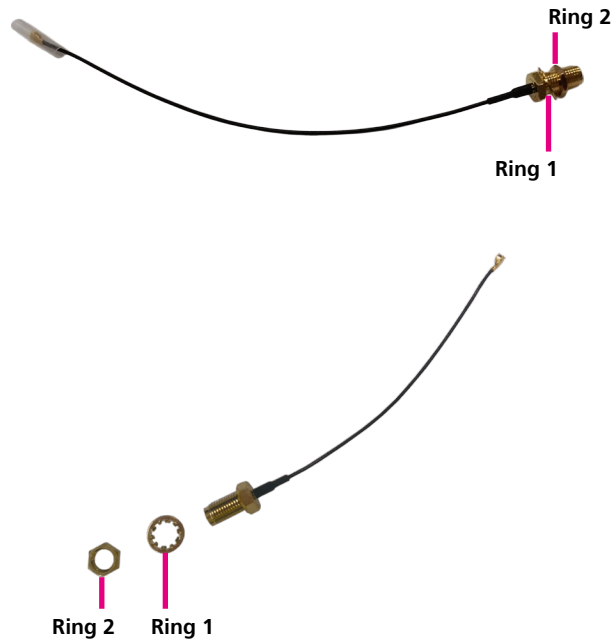
Ring 1

Ring 2   **Ring 1**

2. Insert the SMA antenna jack end of the cable through the antenna hole, and insert the 2 rings (ring 1 and ring 2) and two washer back to the antenna jack.

Note: Installation order of the gasket and washer.
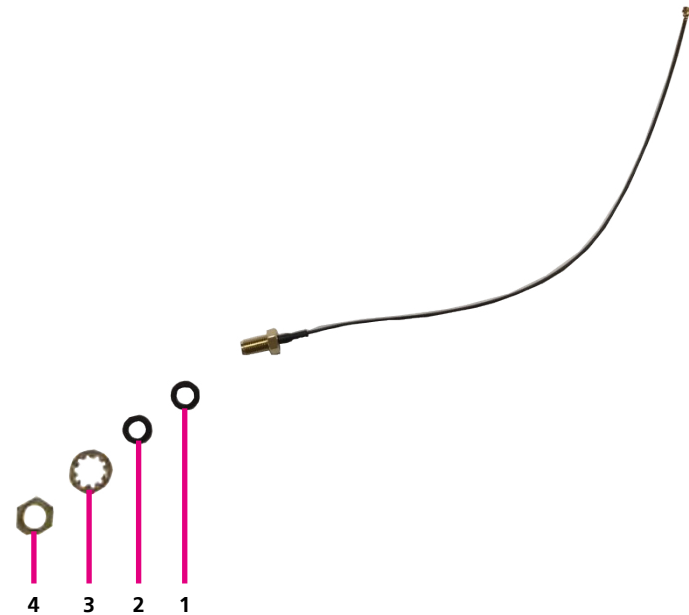
Note: When installing WIFI or 4G LTE antennas, make sure the washer (P/N: 5061600245X00) are fitted onto the antenna connector, one on each side as shown below.

Side A

Side B

Side A facing inwards and each other.

Installing a SIM Card

1. Locate the SIM card holder on the board.
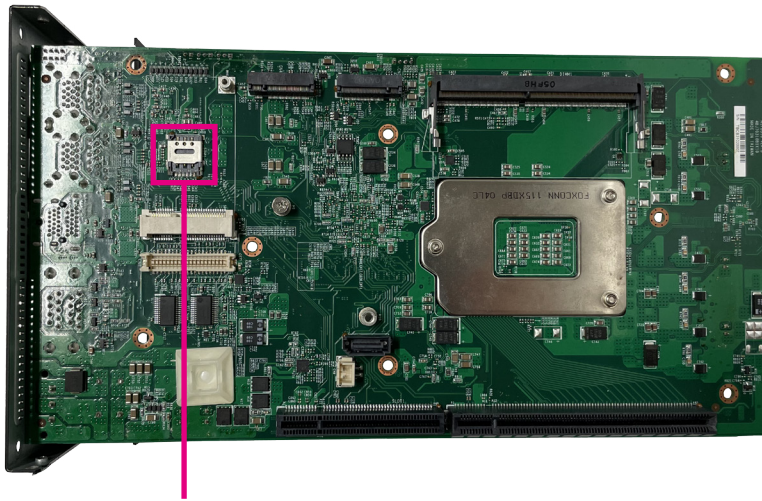
2. Release the cover and place the SIM card on the holder.
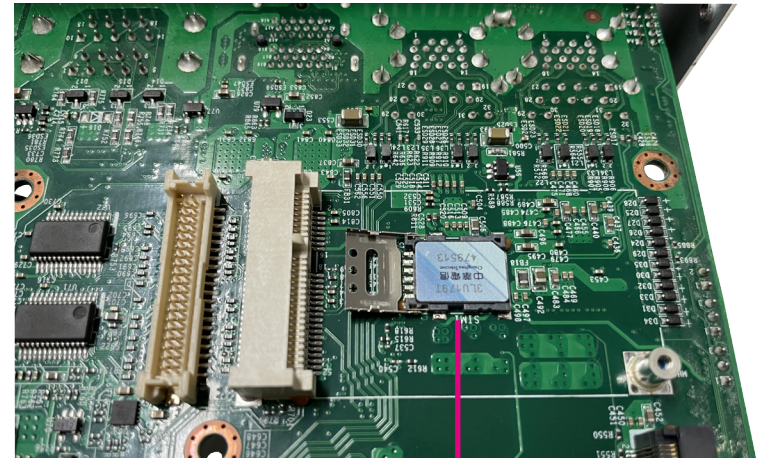
SIM card cover

SIM card

3. Close the cover and secure it to the original position.
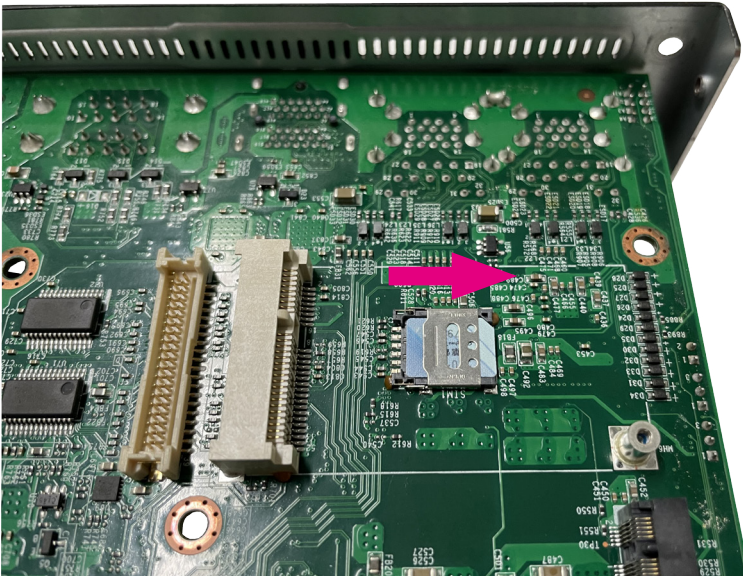
Installing an M.2 Card for Storage and 4G LTE (2242/3042)

1. Locate the M.2 B Key slot on the board.

2. Insert the M.2 module into the slot at a 30-degree angle.
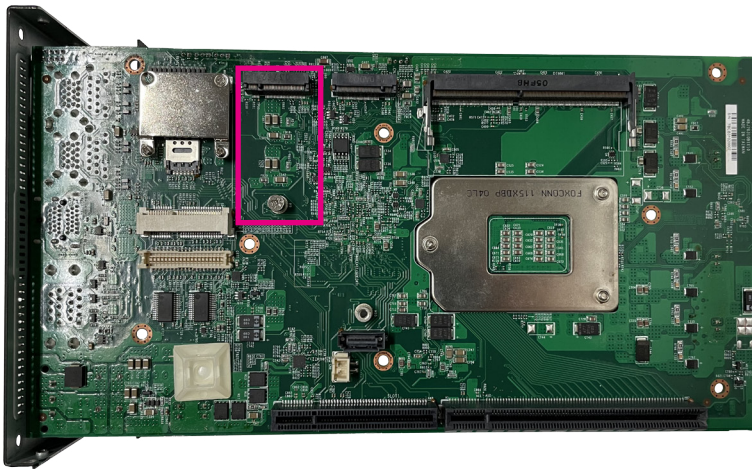
3. Push the module down and then secure it with a mounting screw.
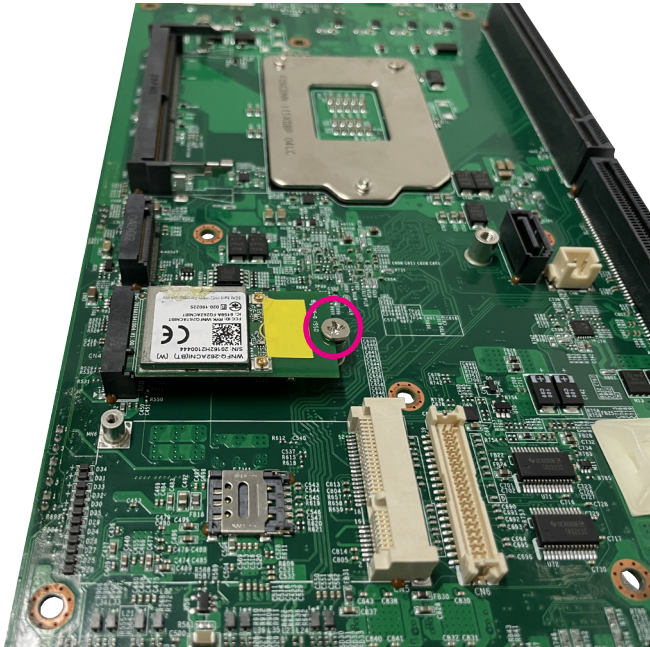
Installing a M.2 Card for Storage (2280)

1. Locate the M.2 M Key slot on the board.

2. Insert the M.2 module into the slot at a 30-degree angle.
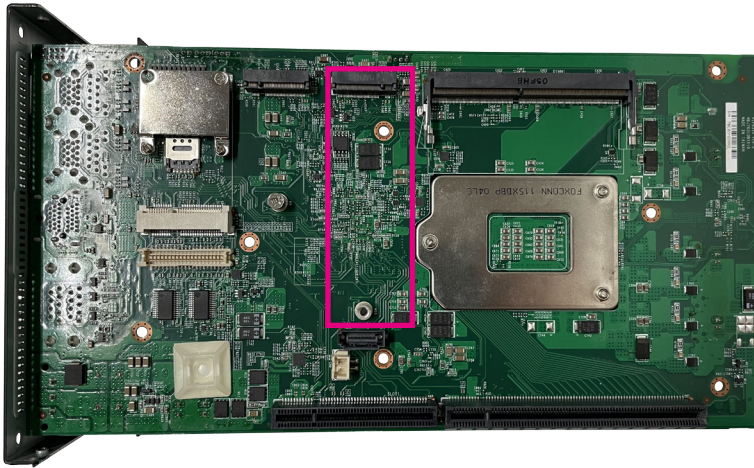
3. Push the module down and then secure it with a mounting screw.
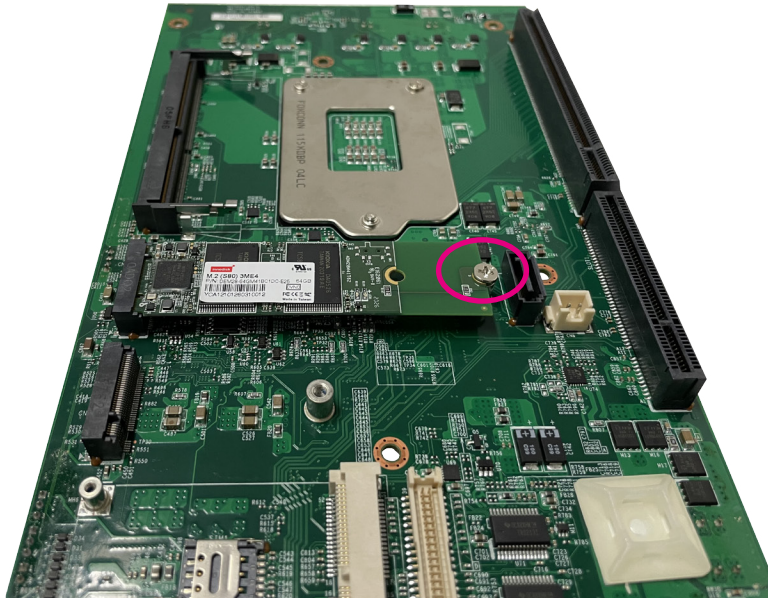
Installing a PCIe expansion card

1. Remove the PCIe cover from the chassis.

2. Insert the PCIe expansion card and fasten the screws to secure the card in place.

Note: TT300-F2x is equipped with two PCIe x 4 expansion slots. Whereas, TT300-F3x is equipped with one PCIe x 16 and two PCIe x 4 slots.
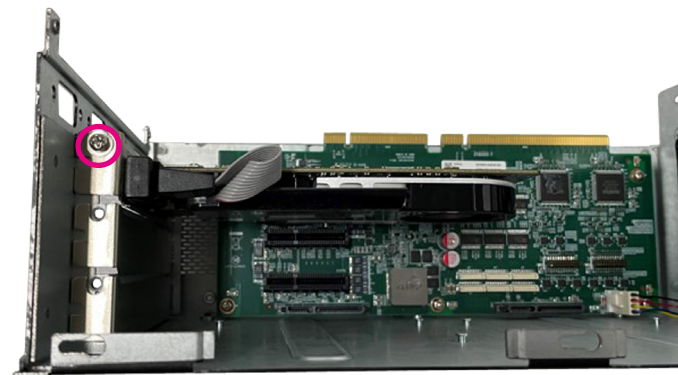
Installing an SATA Storage Drive

1. Open the side cover, there are two SSD trays at the bottom of the case.
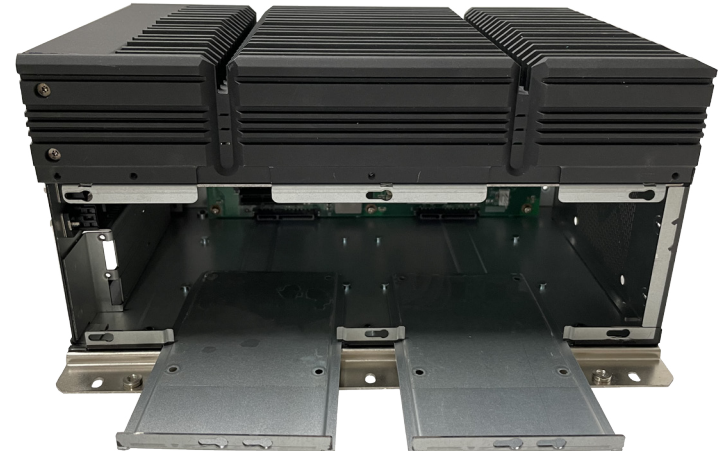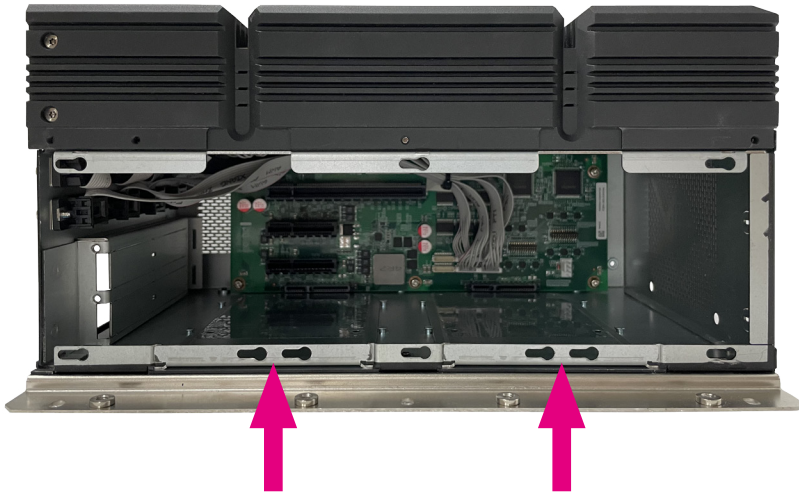
2. Insert the storage drive into the drive bay with SATA data facing towards the end. Next, while supporting the storage drive, turn the bracket to the other side. From the outside of the storage bracket, secure the drive in place with screws.

3. Push the tray disk with the SSD installed to the end, and confirm that it is stuck in the SATA connector.

Note: When pushing the SSD tray back, pay attention to the four positioning/fixing rivets in the middle of the tray.
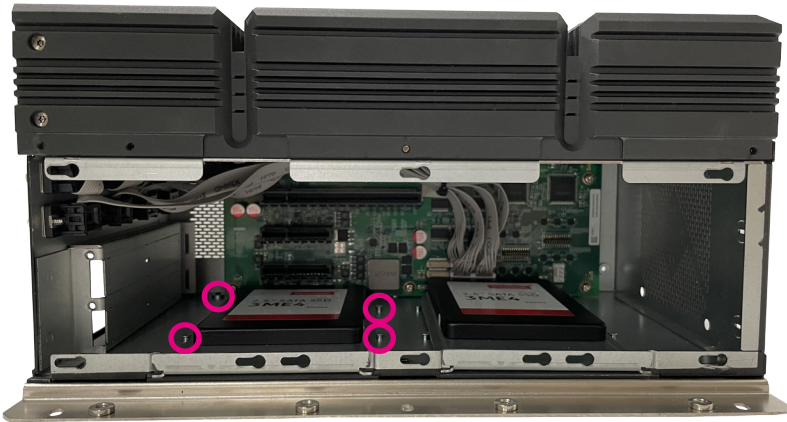
Installing a System Fan

1. Locate the FAN connector on the riser card, connect the fan power cable and connector.
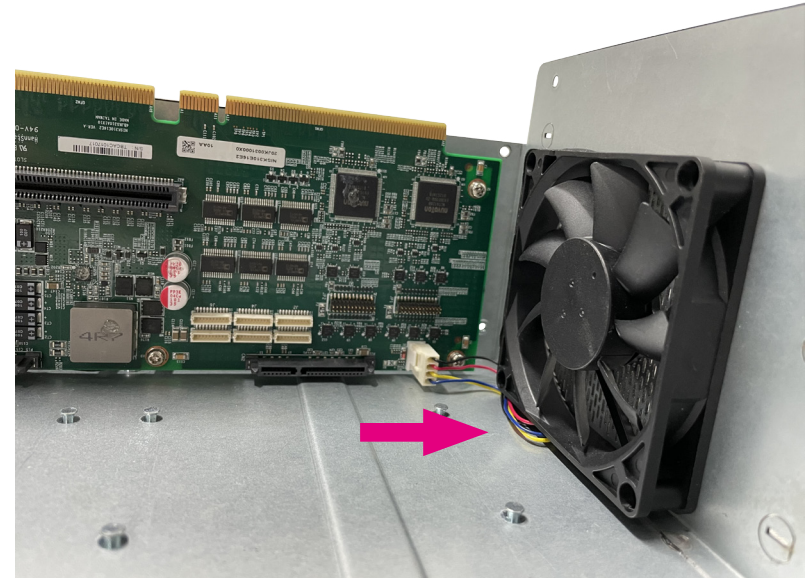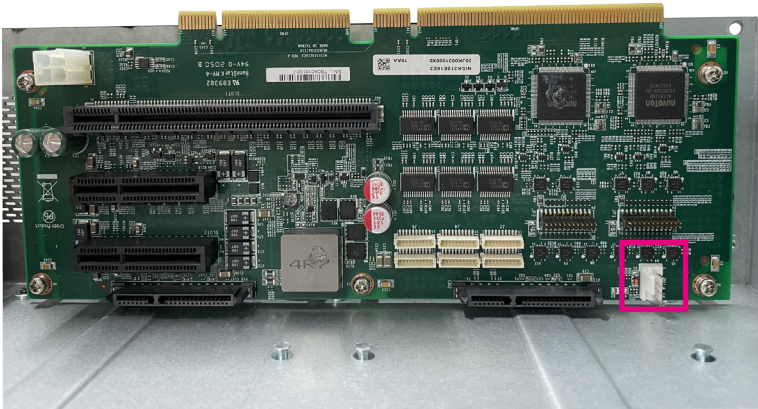
Note: The fan cable can be stored under the fan.

2. The screw holes of the fan are located on the back panel of the chassis and are fixed with screws.
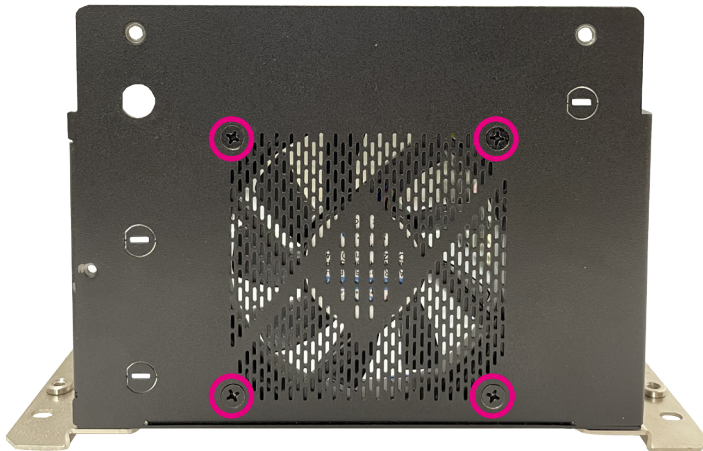
Wallmount Brackets

The wallmount brackets provide a convenient and economical way of mounting the system on the wall.

1. The mounting holes are located at the bottom of the system. Secure the brackets on each side of the system using the provided mounting screws. Secure the brackets to the system by inserting four retention screws (M6*10mm) into each bracket.

Secure the bracket to the system
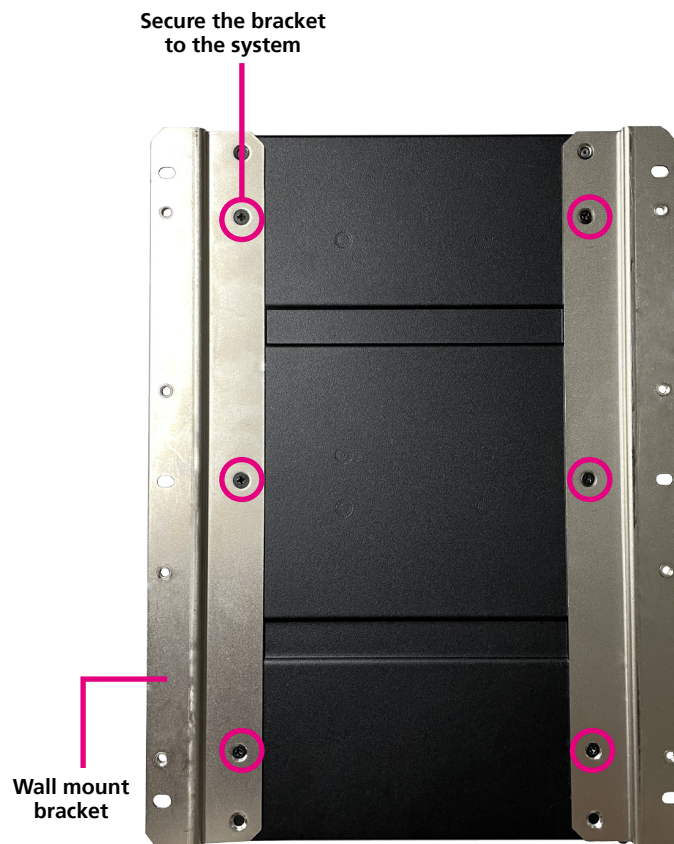
Wall mount bracket

Note: Shipping default, wall mount is locked at the bottom.

When the wall mount is locked vertically, the screw pointed by the arrow needs to be the black screw included in the accessory kit. (P/N: 50311F0364X00 Flat Head Screw Long Fei:F3x10ISO)

Secure the bracket to the system
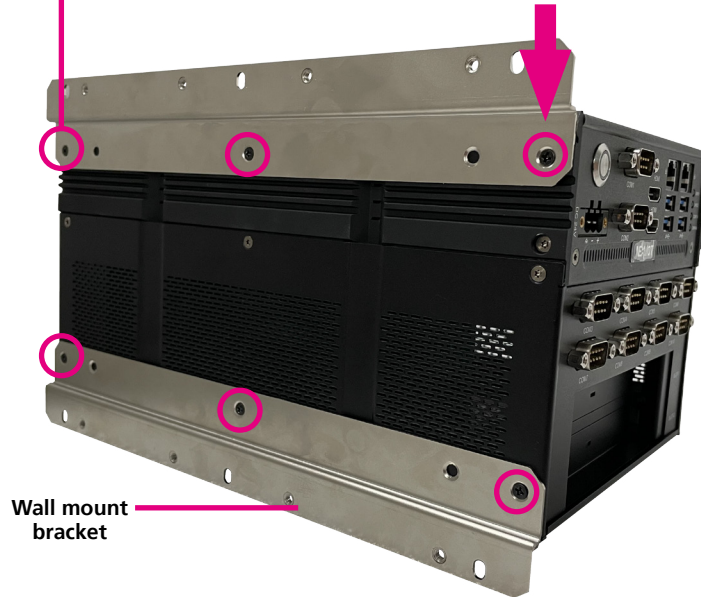
Wall mount bracket

Note: The second method is to lock the wall mount onto the side cover.

2. Mount the system on the wall by fastening screws through the bracket's mounting holes.
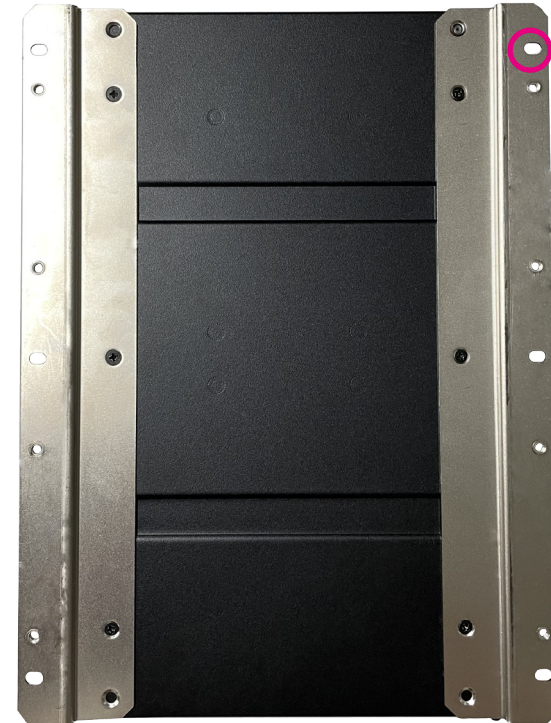
Fasten screws to mount the system to the wall

Chapter 4: BIOS Setup

This chapter describes how to use the BIOS setup program for TT300-F00 and TT300-F30. The BIOS screens provided in this chapter are for reference only and may change if the BIOS is updated in the future.

To check for the latest updates and revisions, visit the NEXCOM website at www.nexcom.com.tw.

About BIOS Setup

The BIOS (Basic Input and Output System) Setup program is a menu driven utility that enables you to make changes to the system configuration and tailor your system to suit your individual work needs. It is a ROM-based configuration utility that displays the system's configuration status and provides you with a tool to set system parameters.

These parameters are stored in non-volatile battery-backed-up CMOS RAM that saves this information even when the power is turned off. When the system is turned back on, the system is configured with the values found in CMOS.

With easy-to-use pull down menus, you can configure such items as:
- Hard drives, diskette drives, and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power management features

The settings made in the setup program affect how the computer performs. It is important, therefore, first to try to understand all the setup options, and second, to make settings appropriate for the way you use the computer.

When to Configure the BIOS

- This program should be executed under the following conditions:
- When changing the system configuration
- When a configuration error is detected by the system and you are prompted to make changes to the setup program
- When resetting the system clock
- When redefining the communication ports to prevent any conflicts
- When making changes to the Power Management configuration
- When changing the password or making other changes to the security setup

Normally, CMOS setup is needed when the system hardware is not consistent with the information contained in the CMOS RAM, whenever the CMOS RAM has lost power, or the system features need to be changed.

Default Configuration

Most of the configuration settings are either predefined according to the Load Optimal Defaults settings which are stored in the BIOS or are automatically detected and configured without requiring any actions. There are a few settings that you may need to change depending on your system configuration.

Entering Setup
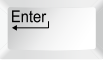
When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines. These routines perform various diagnostic checks; if an error is encountered, the error will be reported in one of two different ways:

- If the error occurs before the display device is initialized, a series of beeps will be transmitted.

- If the error occurs after the display device is initialized, the screen will display the error message.

Powering on the computer and immediately pressing <Del> allows you to enter Setup.

Press the Del key to enter Setup:

Legends

Key	Function
← →	Moves the highlight left or right to select a menu.
↑ ↓	Moves the highlight up or down between sub-menus or fields.
Esc	Exits the BIOS Setup Utility.
+	Scrolls forward through the values or options of the highlighted field.
−	Scrolls backward through the values or options of the highlighted field.
Tab	Selects a field.
F1	Displays General Help.
F2	Load previous values.
F3	Load optimized default values.
F4	Saves and exits the Setup program.
Enter	Press <Enter> to enter the highlighted sub-menu

Scroll Bar

When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

Submenu

When "▶" appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press [Enter] .

BIOS Setup Utility

Once you enter the AMI BIOS Setup Utility, the Main Menu will appear on the screen. The main menu allows you to select from several setup functions and one exit. Use arrow keys to select among the items and press [Enter,] to accept or enter the submenu.

Main

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.

```
                Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
    Main      Advanced    Chipset    Security    Boot    Save & Exit

    GT Info                      GT2 (0x3E92)                Set the Time. Use Tab to switch
                                                             between Time elements.
    IGFX VBIOS Version           N/A
    IGFX GOP Version             9.0.1101
    Memory RC Version            3.7.9.0
    Total Memory                 32768 MB
    Memory Frequency              2667 MHz

    PCH Information
    Name                         KBL PCH-H
    PCH SKU                      H310C
    Stepping                     A0
    Hsio Revision                11                         →←: Select Screen
    Production Type              Production                 ↑↓: Select Item
                                                            Enter: Select
    ME FW Version                11.6.10.1196               +/-: Change Opt.
    ME Firmware SKU              Consumer SKU                F1: General Help
                                                            F2: Previous Values
                                                            F3: Optimized Defaults
    System Language              [English]                  F4: Save & Exit
                                                            ESC: Exit
    System Date                  [Fri 10/01/2021]
    System Time                  [14:32:18]

                Version 2.20.1274. Copyright (C) 2021 American Megatrends, Inc.
```

System Date

The date format is <day>, <month>, <date>, <year>. Day displays a day, from Monday to Sunday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1999 to 2099.

System Time

The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

Advanced

The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.

⚠️ Setting incorrect field values may cause the system to malfunction.

```
                    Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
      Main        Advanced      Chipset      Security       Boot      Save & Exit

 ► CPU Configuration                                      CPU Configuration Parameters
 ► Power & Performance
 ► Network Stack Configuration
 ► Intel(R) I210 Gigabit Network Connection -
     00:10:F3:83:43:EA
 ► Trusted Computing
 ► NCT6126D Super IO Configuration
 ► IT8786SEC Super IO Configuration
 ► Hardware Monitor
 ► USB Configuration
 ► CSM Configuration
 ► NVMe Configuration
                                                         →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit

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```

CPU Configuration

This section is used to configure the CPU.

```
                    Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
            Advanced

 CPU Configuration                                       When enabled, a VMM can
                                                         utilize the additional hardware
 Type                      Intel (R) Core (TM)           capabilities provided by
                           i7-8700T CPU @ 2.40 GHz       Vanderpool Technology.
 ID                        0x906EA
 Speed                     2400 MHz
 L1 Data Cache             32 KB x 6
 L1 Instruction Cache      32 KB x 6
 L2 Cache                  256 KB x 6
 L3 Cache                  12 MB
 L4 Cache                  N/A
 VMX                       Supported
 SMX/TXT                   Supported                     →←: Select Screen
                                                         ↑↓: Select Item
 Intel (VMX) Virtualization  [Enabled]                   Enter: Select
 Technology                                              +/-: Change Opt.
 Active Processor Cores      [All]                        F1: General Help
 Hyper-Threading             [Enabled]                   F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit

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```

Intel (VMX) Virtualization Technology
When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Active Processors Cores
Select the number of cores to enable in each processor package.

Hyper-Threading
Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and disabled for other OS (OS not optimized for hyper-threading technology).

Power & Performance

This section is used to configure the CPU power management features.

```
Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
  Advanced

 Power & Performance                              CPU - Power Management
                                                  Control Options
 ▶ CPU - Power Management Control




                                                  →←: Select Screen
                                                  ↑↓: Select Item
                                                  Enter: Select
                                                  +/-: Change Opt.
                                                  F1: General Help
                                                  F2: Previous Values
                                                  F3: Optimized Defaults
                                                  F4: Save & Exit
                                                  ESC: Exit

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```

CPU - Power Management Control
Configures the power management control options.

CPU - Power Management Control

```
Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
  Advanced

 CPU - Power Management Control                   Allows more than two frequency
                                                  ranges to be supported.
 Intel(R) SpeedStep(tm)          [Disabled]
 C states                        [Disabled]




                                                  →←: Select Screen
                                                  ↑↓: Select Item
                                                  Enter: Select
                                                  +/-: Change Opt.
                                                  F1: General Help
                                                  F2: Previous Values
                                                  F3: Optimized Defaults
                                                  F4: Save & Exit
                                                  ESC: Exit

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```

Intel® SpeedStep™
Enables or disables Intel SpeedStep technology.

C States
Enables or disables CPU power management. Allows CPU to go to C states when it's not 100% utilized.

Intel(R) I210 Gigabit Network Connection - 00:10:F3:83:43:EA

This section is used to configure network settings of the LAN controller.

```
Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
 Advanced

▶ NIC Configuration                                    Click to configure the network
                                                       device port.
  Blink LEDs                     0

  UEFI Driver                    Intel(R) PRO/1000
                                 7.1.07 PCI-E
  Adapter PBA                    000200-000
  Device Name                    Intel(R) I210 Gigabit
                                 Network Connection
  Chip Type                      Intel i210
  PCI Device ID                  1533
  PCI Address                    01:00:00

  Link Status                    [Disconnected]        →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
  MAC Address                    00:10:F3:83:43:EA     +/-: Change Opt.
  Virtual MAC Address            00:00:00:00:00:00     F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit

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```

NIC Configuration
Enters the network configuration sub-menu of the network controller.

Blink LEDs
Identify the physical network port by blinking the associated LED.

NIC Configuration

```
Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
 Advanced

  Link Speed                     [Auto Negotiated]     Specifies the port speed used for
  Wake on LAN                    [Disabled]            the selected boot protocol.


















                                                       →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit

          Version 2.20.1274. Copyright (C) 2021 American Megatrends, Inc.
```

Link Speed
Specifies the link speed of the network interface.

Wake on LAN
Enables or disables Wake-on-LAN support.

Trusted Computing

This section is used to configure Trusted Platform Module (TPM) settings.

```
            Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
            Advanced

   TPM20 Device Found                                  Enables or Disables BIOS
   Firmware Version:           5.62                     support for security device.
   Vendor:                     IFX                      O.S will not show Security
                                                        Device. TCG EFI protocol and
                                                        INT1A interface will not be
   Security Device Support     [Enabled]                available.
   Active PCR banks            SHA-1, SHA256
   Available PCR banks         SHA-1, SHA256

   SHA-1 PCR Bank              [Enabled]
   SHA256 PCR Bank             [Enabled]

   Pending operation           [None]
   Platform Hierarchy          [Enabled]                →←: Select Screen
   Storage Hierarchy           [Enabled]                ↑↓: Select Item
   Endorsement Hierarchy       [Enabled]                Enter: Select
   TPM2.0 UEFI Spec Version     [TCG_2]                 +/-: Change Opt.
   Physical Presence Spec Version [1.3]                 F1: General Help
   TPM 20 InterfaceType        [TIS]                    F2: Previous Values
   Device Select               [Auto]                   F3: Optimized Defaults
   Disable Block Sid           [Disabled]               F4: Save & Exit
                                                        ESC: Exit



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```

Security Device Support
Enables or disables BIOS support for security device. O.S will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

SHA-1 PCR Bank
Enables or disables SHA-1 PCR Bank.

SHA256 PCR Bank
Enables or disables SHA256 PCR Bank.

Pending operation
Schedules an operation for the security device.

Platform Hierarchy
Enables or disables platform hierarchy.

Storage Hierarchy
Enables or disables storage hierarchy.

Endorsement Hierarchy
Enables or disables endorsement hierarchy.

TPM2.0 UEFI Spec Version
Configures the TPM2.0 UEFI spec version.

TCG_1_2:   The compatible mode for Windows 8/Windows 10.
TCG_2:   Support new TCG2 protocol and event format for Windows 10 or later.

Physical Presence Spec Version
Configures which physical presence spec version the OS will support. Please note that some HCK tests might not support 1.3.

Device Select
TPM 1.2 will restrict support to TPM 1.2 devices. TPM 2.0 will restrict support to TPM 2.0 devices. Auto will support both TPM 1.2 and 2.0 devices with the default set to TPM 2.0 devices if not found, and TPM 1.2 devices will be enumerated.

Disable Block Sid
Enables or disables the option to allow SID authentication in TCG storage device.

NCT6126D Super IO Configuration

This section is used to configure the serial ports of the NCT6126D Super IO.

```
            Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
  Advanced

   NCT6126D Super IO Configuration                          Set Parameters of Serial Port
                                                            1 (COMA)
   Super IO Chip                    NCT6126D
 ▶ Serial Port 1 Configuration
 ▶ Serial Port 2 Configuration
 ▶ Serial Port 3 Configuration
 ▶ Serial Port 4 Configuration
 ▶ Serial Port 5 Configuration
 ▶ Serial Port 6 Configuration

                                                            →←: Select Screen
                                                            ↑↓: Select Item
                                                            Enter: Select
                                                            +/-: Change Opt.
                                                            F1: General Help
                                                            F2: Previous Values
                                                            F3: Optimized Defaults
                                                            F4: Save & Exit
                                                            ESC: Exit

            Version 2.20.1274. Copyright (C) 2021 American Megatrends, Inc.
```

Super IO Chip

Displays the Super I/O chip used on the board.

Serial Port 1 Configuration

This section is used to configure serial port 1.

```
            Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
  Advanced

   Serial Port 1 Configuration                              Enable or Disable Serial Port
                                                            (COM)
   Serial Port                      [Enabled]
   Device Settings                  IO=3E8h; IRQ=4;

                                                            →←: Select Screen
                                                            ↑↓: Select Item
                                                            Enter: Select
                                                            +/-: Change Opt.
                                                            F1: General Help
                                                            F2: Previous Values
                                                            F3: Optimized Defaults
                                                            F4: Save & Exit
                                                            ESC: Exit

            Version 2.20.1274. Copyright (C) 2021 American Megatrends, Inc.
```

Serial Port

Enables or disables the serial port.

Serial Port 2 Configuration

This section is used to configure serial port 2.

```
Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
 Advanced

 Serial Port 2 Configuration                              Enable or Disable Serial Port
                                                          (COM)
 Serial Port                       [Enabled]
 Device Settings                   IO=2F8h; IRQ=3;

                                                          →←: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit

         Version 2.20.1274. Copyright (C) 2021 American Megatrends, Inc.
```

Serial Port
Enables or disables the serial port.

Serial Port 3 Configuration

This section is used to configure serial port 3.

```
Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
 Advanced

 Serial Port 3 Configuration                              Enable or Disable Serial Port
                                                          (COM)
 Serial Port                       [Enabled]
 Device Settings                   IO=3E8h; IRQ=7;

                                                          →←: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit

         Version 2.20.1274. Copyright (C) 2021 American Megatrends, Inc.
```

Serial Port
Enables or disables the serial port.

Serial Port 4 Configuration

This section is used to configure serial port 4.

```
          Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
  Advanced

  Serial Port 4 Configuration                            Enable or Disable Serial Port
                                                         (COM)
  Serial Port                    [Enabled]
  Device Settings                IO=2E8h; IRQ=6;




                                                         →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit


          Version 2.20.1274. Copyright (C) 2021 American Megatrends, Inc.
```

Serial Port
Enables or disables the serial port.

Serial Port 5 Configuration

This section is used to configure serial port 5.

```
          Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
  Advanced

  Serial Port 5 Configuration                            Enable or Disable Serial Port
                                                         (COM)
  Serial Port                    [Enabled]
  Device Settings                IO=220h; IRQ=11;




                                                         →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit


          Version 2.20.1274. Copyright (C) 2021 American Megatrends, Inc.
```

Serial Port
Enables or disables the serial port.

Serial Port 6 Configuration

This section is used to configure serial port 6.

```
                Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
   Advanced

   Serial Port 6 Configuration                                  Enable or Disable Serial Port
                                                                (COM)
   Serial Port                        [Enabled]
   Device Settings                    IO=228h; IRQ=5;




                                                                →←: Select Screen
                                                                ↑↓: Select Item
                                                                Enter: Select
                                                                +/-: Change Opt.
                                                                F1: General Help
                                                                F2: Previous Values
                                                                F3: Optimized Defaults
                                                                F4: Save & Exit
                                                                ESC: Exit



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```

Serial Port
Enables or disables the serial port.

IT8786SEC Super IO Configuration

This section is used to configure the serial ports of the IT8786SEC Super IO.

```
                Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
   Advanced

   IT8786SEC Super IO Configuration                             Set Parameters of Serial Port
                                                                1 (COMA)
   Super IO Chip                      IT8786SEC
 ▶ Serial Port 1 Configuration
 ▶ Serial Port 2 Configuration
 ▶ Serial Port 3 Configuration
 ▶ Serial Port 4 Configuration
 ▶ Serial Port 5 Configuration
 ▶ Serial Port 6 Configuration

                                                                →←: Select Screen
                                                                ↑↓: Select Item
                                                                Enter: Select
                                                                +/-: Change Opt.
                                                                F1: General Help
                                                                F2: Previous Values
                                                                F3: Optimized Defaults
                                                                F4: Save & Exit
                                                                ESC: Exit



                Version 2.20.1274. Copyright (C) 2021 American Megatrends, Inc.
```

Super IO Chip
Displays the Super I/O chip used on the board.

Serial Port 1 Configuration

This section is used to configure serial port 1.

```
          Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
    Advanced

 Serial Port 1 Configuration                          Enable or Disable Serial Port
                                                       (COM)
 Serial Port                    [Enabled]
 Device Settings                IO=240h; IRQ=10;
 Onboard Serial Port Mode           [RS232]




                                                       →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit



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```

Serial Port
Enables or disables the serial port.

Onboard Serial Port Mode
Select this to change the serial port mode to RS232, RS422, RS485 No Terminator or RS485 With Terminator.

Serial Port 2 Configuration

This section is used to configure serial port 2.

```
          Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
    Advanced

 Serial Port 2 Configuration                          Enable or Disable Serial Port
                                                       (COM)
 Serial Port                    [Enabled]
 Device Settings                IO=248h; IRQ=10;
 Onboard Serial Port Mode           [RS232]




                                                       →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit



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```

Serial Port
Enables or disables the serial port.

Onboard Serial Port Mode
Select this to change the serial port mode to RS232, RS422, RS485 No Terminator or RS485 With Terminator.

Serial Port 3 Configuration

This section is used to configure serial port 3.

```
Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
  Advanced

Serial Port 3 Configuration                            Enable or Disable Serial Port
                                                       (COM)
Serial Port                      [Enabled]
Device Settings                  IO=250h; IRQ=10;




                                                       →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit


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```

Serial Port
Enables or disables the serial port.

Serial Port 4 Configuration

This section is used to configure serial port 4.

```
Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
  Advanced

Serial Port 4 Configuration                            Enable or Disable Serial Port
                                                       (COM)
Serial Port                      [Enabled]
Device Settings                  IO=258h; IRQ=10;




                                                       →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit


      Version 2.20.1274. Copyright (C) 2021 American Megatrends, Inc.
```

Serial Port
Enables or disables the serial port.

Serial Port 5 Configuration

This section is used to configure serial port 5.

Advanced	
Serial Port 5 Configuration	Enable or Disable Serial Port (COM)
Serial Port [Enabled]	
Device Settings IO=260h; IRQ=10;	
	→←: Select Screen
	↑↓: Select Item
	Enter: Select
	+/-: Change Opt.
	F1: General Help
	F2: Previous Values
	F3: Optimized Defaults
	F4: Save & Exit
	ESC: Exit

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Serial Port
Enables or disables the serial port.

Serial Port 6 Configuration

This section is used to configure serial port 6.

Advanced	
Serial Port 6 Configuration	Enable or Disable Serial Port (COM)
Serial Port [Enabled]	
Device Settings IO=268h; IRQ=10;	
	→←: Select Screen
	↑↓: Select Item
	Enter: Select
	+/-: Change Opt.
	F1: General Help
	F2: Previous Values
	F3: Optimized Defaults
	F4: Save & Exit
	ESC: Exit

Version 2.20.1274. Copyright (C) 2021 American Megatrends, Inc.

Serial Port
Enables or disables the serial port.

H/W Monitor

This section is used to monitor hardware status such as temperature, fan speed and voltages.

```
         Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
         Advanced

   PC Health Status

   System temperature          : +41 C
   CPU temperature             : +42 C
   Fan1 Speed                  : N/A
   VCore                       : +0.891 V
   +3V                         : +3.319 V
   +5V                         : +5.115 V

                                              →←: Select Screen
                                              ↑↓: Select Item
                                              Enter: Select
                                              +/-: Change Opt.
                                              F1: General Help
                                              F2: Previous Values
                                              F3: Optimized Defaults
                                              F4: Save & Exit
                                              ESC: Exit

          Version 2.20.1274. Copyright (C) 2021 American Megatrends, Inc.
```
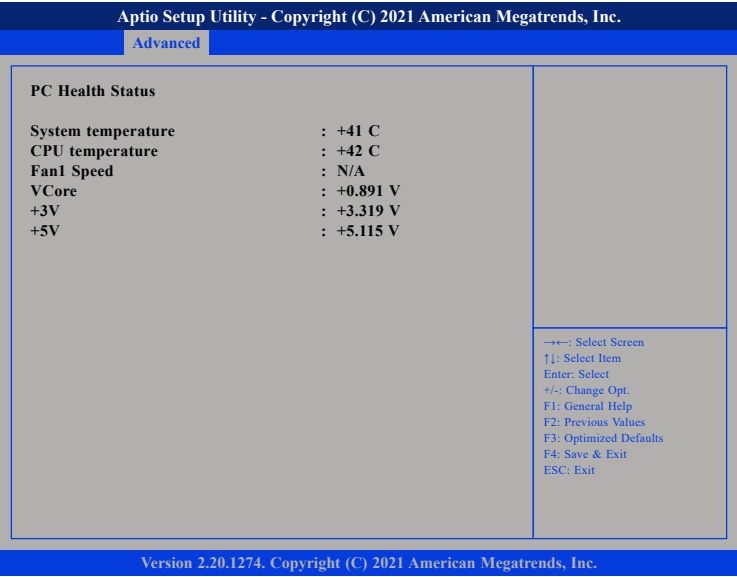
System Temperature
Detects and displays the current system temperature.

CPU Temperature
Detects and displays the current CPU temperature.

Fan1 Speed
Detects and displays the current fan speed of the fans connected to Fan 1.

VCore to +5V
Detects and displays the output voltages.

USB Configuration

This section is used to configure the USB.

```
Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
  Advanced

  USB Configuration                                   Enables Legacy USB support.
                                                      AUTO option disables legacy
  USB Module Version            23                    support if no USB devices are
                                                      connected. DISABLE option will
  USB Controllers                                     keep USB devices available
      1 XHCI                                          only for EFI applications.
  USB Devices:
      1 Keyboard, 1 Mouse

  Legacy USB Support            [Enabled]
  XHCI Hand-off                 [Enabled]

  USB hardware delays and time-outs:                  →←: Select Screen
  Device reset time-out         [20 sec]              ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit

             Version 2.20.1274. Copyright (C) 2021 American Megatrends, Inc.
```

Legacy USB Support

Enable   Enables Legacy USB.
Auto   Disables support for Legacy when no USB devices are connected.
Disable   Keeps USB devices available only for EFI applications.

XHCI Hand-off

This is a workaround for OSs that does not support XHCI hand-off. The XHCI ownership change should be claimed by the XHCI driver.

Device reset time-out

USB mass storage device start unit command time-out.

CSM Configuration

This section is used to configure the compatibility support module features.

```
Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
  Advanced

  Compatibility Support Module Configuration          Enable/Disable CSM Support.

  CSM Support                   [Disabled]




                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit

             Version 2.20.1274. Copyright (C) 2021 American Megatrends, Inc.
```

CSM Support

Enables or disables CSM support.

NVMe Configuration

This section is used to configure the NVMe devices installed.

```
            Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
    Advanced

    NVMe Configuration

 ▶ SP128GIMEC355EVO




                                                       →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit



            Version 2.20.1274. Copyright (C) 2021 American Megatrends, Inc.
```
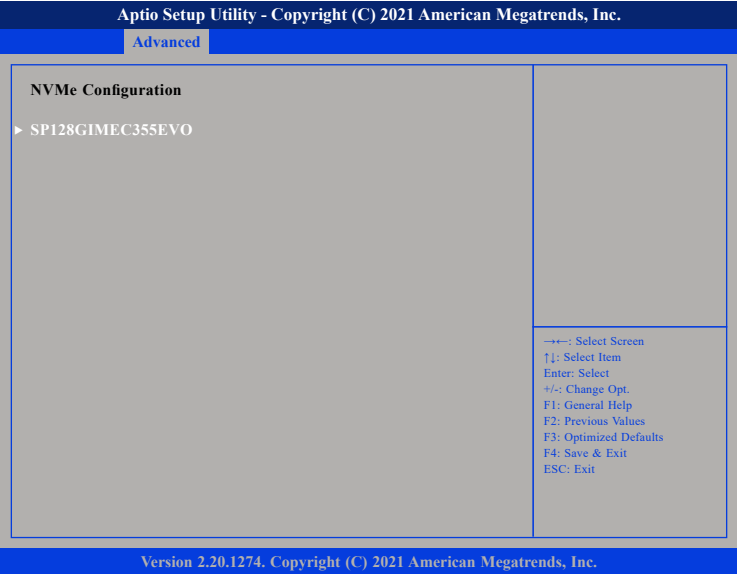
NVMe Device (SP128GIMEC355EVO)
Enters the submenu of the NVMe device.

Chipset

This section gives you functions to configure the system based on the specific features of the chipset. The chipset manages bus speeds and access to system memory resources.

```
            Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
    Main      Advanced    Chipset    Security    Boot    Save & Exit

 ▶ System Agent (SA) Configuration                     System Agent (SA) Parameters
 ▶ PCH-IO Configuration




                                                       →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit

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```

System Agent (SA) Configuration
System Agent (SA) parameters.

PCH-IO Configuration
PCH-IO parameters.

System Agent (SA) Configuration

This section is used to configure the System Agent (SA) configuration.

```
            Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
                     Chipset

  System Agent (SA) Configuration                        Graphics Configuration

  SA PCIe Code Version          3.7.9.0
  VT-d                          Supported

▶ Graphics Configuration
▶ PEG Port Configuration

  VT-d                          [Enabled]

                                                    →←: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit

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```

Graphics Configuration

Enters the Graphics Configuration submenu.

PEG Port Configuration

Enters the PEG Port Configuration submenu.

VT-d

Enables or disables VT-d function on MCH.

Graphics Configuration

```
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                     Chipset

  Graphics Configuration                             Select DVMT5.0 Total Graphic
                                                     Memory size used by the
  DVMT Total Gfx Mem            [256M]               Internal Graphic Device.

                                                    →←: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit

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```

DVMT Total Gfx Mem

Configures the DVMT5.0 Total Graphic Memory size used by the internal graphics device.

PEG Port Configuration

```
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   PEG Port Configuration                            Enable or Disable the Root Port

   PEG 0:1:0                    Not Present
     Enable Root Port           [Auto]
     Max Link Speed             [Auto]
   PEG 0:1:1                    Not Present
     Enable Root Port           [Auto]
     Max Link Speed             [Auto]

                                                    →←: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit

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```

Enable Root Port
Enables or disables the root port.

Max Link Speed
Configures the maximum link speed of the PEG device.

PCH-IO Configuration

This section is used to configure the PCH-IO configuration.

```
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                          Chipset

   PCH-IO Configuration                              SATA Device Options Settings

 ► SATA And RST Configuration
 ► Security Configuration
 ► HD Audio Configuration

   State After G3               [SO State]
   USB2.0 Power State in Standby [Power Off]
   USB3.0 Power State in Standby [Power On]
   GPS Enable                   [Disabled]

   LAN2                         [Enabled]
   LAN1                         [Enabled]          →←: Select Screen
   M.2                          [Enabled]          ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit

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```

State After G3
Configures the power state when power is re-applied after a power failure (G3 state).

USB2.0 Power State in Standby
Configures the USB 2.0 power state in standby mode.

USB3.0 Power State in Standby
Configures the USB 3.0 power state in standby mode.

GPS Enable
Enables or disables GPS.

LAN1 to LAN2
Enables or disables LAN1/LAN2 controller

M.2
Enables or disables the M.2 connector

SATA and RST Configuration

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Chipset		

SATA And RST Configuration		Enable/Disable SATA Device.
SATA Controller(s)	[Enabled]	
MSATA(CN5)	InnoDisk Corp. (128.0GB)	
MSATA(CN5)	[Enabled]	
M.2 (CN3)	Empty	
M.2 (CN3)	[Enabled]	
SATA1	2.5" SATA SSD (256.0GB)	
SATA1	[Enabled]	
SATA2	Empty	
SATA2	[Enabled]	

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

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SATA Controller(s)
Enables or disables SATA device.

Security Configuration

Chipset

Security Configuration

Enable will lock bytes 38h-3Fh in the lower/upper 128-byte bank of RTC RAM

RTC Lock   [Enabled]

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

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RTC Lock
Enables or disables bytes 38h-3Fh in the upper and lower 128-byte bank of RTC RAM.

HD Audio Configuration

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Chipset

HD Audio Subsystem Configuration Settings

Control Detection of the HD-Audio device. Disabled = HDA will be unconditionally disabled Enabled = HDA will be unconditionally enabled Auto = HDA will be enabled if present, disabled otherwise.

HD Audio   [Enabled]

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

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HD Audio
Control detection of the HD audio device.

Disabled   HD audio will be unconditionally disabled.
Enabled   HD audio will be unconditionally enabled.
Auto   HD audio will be enabled if present, disabled otherwise.

Security

Main	Advanced	Chipset	Security	Boot	Save & Exit

Password Description

If ONLY the Administrator's password is set,
then this only limits access to Setup and is
only asked for when entering Setup.
If ONLY the User's password is set, then this
is a power on password and must be entered to
boot or enter Setup. In Setup the User will
have Administrator rights.
The password length must be
in the following range:

Minimum length	3
Maximum length	20

Administrator Password
User Password

Set Administrator Password

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

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Administrator Password
Select this to reconfigure the administrator's password.

User Password
Select this to reconfigure the user's password.

Boot

This section is used to configure the boot features.

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Main	Advanced	Chipset	Security	Boot	Save & Exit

Boot Configuration
Setup Prompt Timeout — 1
Bootup NumLock State — [On]
Quiet Boot — [Disabled]

Boot Option Priorities
Boot Option #1 — [Windows Boot Manager] (SP128GIMEC355EVO)]
Boot Option #2 — [UEFI OS (SP128GIMEC355EVO)]
Boot Option #3 — [UEFI: Built-in EFI Shell]
Fast Boot — [Disabled]

Number of seconds to wait for setup activation key. 65535 (0xFFFF) means indefinite waiting.

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

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Setup Prompt Timeout
Selects the number of seconds to wait for the setup activation key. 65535(0xFFFF) denotes indefinite waiting.

Bootup NumLock State
This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on wherein the function of the numeric keypad is the number keys. When set to Off, the function of the numeric keypad is the arrow keys.

Quiet Boot

Enabled   Displays OEM logo instead of the POST messages.
Disabled   Displays normal POST messages.

Boot Option Priorities

Adjusts the boot sequence of the system. Boot Option #1 is the first boot device that the system will boot from, next will be #2 and so forth.

Fast Boot

Enables or disables fast boot technology to speed up the system boot time. This is achieved by skipping specific tests during BIOS POST routine.

Save & Exit

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Main	Advanced	Chipset	Security	Boot	Save & Exit

Save Options
Save Changes and Exit
Discard Changes and Exit

Save Changes and Reset
Discard Changes and Reset

Save Changes
Discard Changes

Default Options
Restore Defaults
Save as User Defaults
Restore User Defaults

Boot Override
UEFI: Built-in EFI Shell
UEFI OS (SP128GIMEC355EV0)
Windows Boot Manager (SP128GIMEC355EV0)
Launch EFI Shell from filesystem device

Exit system setup after saving the changes.

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

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Save Changes and Exit

To save the changes and exit the Setup utility, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes. You can also press <F4> to save and exit Setup.

Discard Changes and Exit

To exit the Setup utility without saving the changes, select this field then press <Enter>. You may be prompted to confirm again before exiting. You can also press <ESC> to exit without saving the changes.

Save Changes and Reset

To save the changes and reset, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes

Discard Changes and Reset
To exit the Setup utility and reset without saving the changes, select this field then press <Enter>. You may be prompted to confirm again before exiting.

Save Changes
To save changes and continue configuring the BIOS, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Discard Changes
To discard the changes, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes to discard all changes made and restore the previously saved settings.

Restore Defaults
To restore the BIOS to default settings, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Save as User Defaults
To use the current configurations as user default settings for the BIOS, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Restore User Defaults
To restore the BIOS to user default settings, select this field then press <Enter>. A dialog box will appear. Confirm by seleccing Yes.

Boot Override
To bypass the boot sequence from the Boot Option List and boot from a particular device, select the desired device and press <Enter>.

Launch EFI Shell from filesystem device
To launch EFI shell from a filesystem device, select this field and press <Enter>.

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APPENDIX A: POWER CONSUMPTION MEASUREMENT

Purpose

The purpose of the power consumption test is to verify the power dissipation of system, and the loading of power supply.

Test Equipment/Software

1. DC power supply
2. Operating System OS: Windows 10 pro 64bit
3. Burn-In Test Software
4. Intel® Thermal Analysis Tool Software
5. Network test program
6. Functional port fixture:

Functional port	Front/Rear Panel
USB3.0*4	5V, 1.0A (Cement Resistor)
COM1~COM6 Port	RS232 Loopback (115200 baud rate)
Display Interface	HDMI Interface LCD Monitor
USB	Keyboard & Mouse

Test Procedure

1. Make sure mechanical structure and electrical functionality are normal before testing.
2. Install all I/O load devices in according to system input voltage specifications to setup DC Power supply voltage.
3. Measure system maximum power consumption as below mode:
   - BIOS mode
   - ACPI Sleep State Mode
   - 100% Full loading mode (Include USB load fixture)
4. Measure and record system maximum power consumption value.

BIOS Mode Power Consumption		Total (W)
Voltage (V)	Current (A)	
24V	0.734A	17.62 W
ACPI Sleep Mode Power Consumption		
24V	0.145A (without USB loader)	3.48 W
100% Full Loading Mode Power Consumption		
24V	3.55A	85.2 W

Test Result: Electrical function and appearance & mechanical function were normal.

APPENDIX B: GPI/O PROGRAMMING GUIDE

GPI/O (General Purpose Input/Output) pins are provided for custom system design. This appendix provides definitions and its default setting for the ten GPI/O pins in the TT300 series. The pin definition is shown in the following table:

First Set A40h to 0x00

Pin No.	GPI/O mode	Address	Pin No.	GPI/O mode	Address
1	VCC	-	2	GND	-
3	GPI0	A42h (Bit1)			
5	GPI1	A42h (Bit2)			
7	GPI2	A42h (Bit3)			
9	GPI3	A42h (Bit4)			
11	GPI4	A42h (Bit5)			
13	GPI5	A42h (Bit6)			
15	GPI6	A42h (Bit7)			

JP1 - GPI/O Connector(1)

First Set A40h to 0x01

Pin No.	GPI/O mode	Address	Pin No.	GPI/O mode	Address
17	GP17	A42h (Bit0)	4	GPI11	A42h (Bit3)
19	GPI8	A42h (Bit1)	6	GPI12	A42h (Bit4)
21	GPI9	A42h (Bit2)	8	GPI13	A42h (Bit5)
			10	GPI14	A42h (Bit6)
			12	GPI15	A42h (Bit7)

JP1 - GPI/O Connector(2)

First Set A40h to 0x02

Pin No.	GPI/O mode	Address	Pin No.	GPI/O mode	Address
			14	GPI16	A42h (Bit0)
			16	GPI17	A42h (Bit1)
			18	GPI18	A42h (Bit2)
			20	GPI19	A42h (Bit3)
			22	GPI20	A42h (Bit4)
			24	GPI21	A42h (Bit5)

JP1 - GPI/O Connector(3)

First Set A40h to 0x09

Pin No.	GPI/O mode	Address	Pin No.	GPI/O mode	Address
23	GP10	A42h (Bit6)			

JP1 - GPI/O Connector(4)

First Set A40h to 0x02

Pin No.	GPI/O mode	PowerOn Default	Address	Pin No.	GPI/O mode	Address
1	VCC	-	-	2	GND	-
3	GPO0	Low	A42h (Bit6)			
5	GPO1	Low	A42h (Bit7)			

JP2 - GPI/O Connector(1)

First Set A40h to 0x03

Pin No.	GPI/O mode	PowerOn Default	Address	Pin No.	GPI/O mode	Address
7	GPO2	Low	A42h (Bit0)			
9	GPO3	Low	A42h (Bit1)			
11	GPO4	Low	A42h (Bit2)			
13	GPO5	Low	A42h (Bit3)			
15	GPO6	Low	A42h (Bit4)			
17	GPO7	Low	A42h (Bit5)			
19	GPO8	Low	A42h (Bit6)			
21	GPO9	Low	A42h (Bit7)			

JP2 - GPI/O Connector(2)

First Set A40h to 0x04

Pin No.	GPI/O mode	PowerOn Default	Address	Pin No.	GPI/O mode	PowerOn Default	Address
23	GPO10	Low	A42h (Bit0)	4	GPO11	Low	A42h (Bit1)
				6	GPO12	Low	A42h (Bit2)
				8	GPO13	Low	A42h (Bit3)
				12	GPO15	Low	A42h (Bit4)
				14	GPO16	Low	A42h (Bit5)
				16	GPO17	Low	A42h (Bit6)
				18	GPO18	Low	A42h (Bit7)

JP2 - GPI/O Connector(3)

First Set A40h to 0x09

Pin No.	GPI/O mode	PowerOn Default	Address	Pin No.	GPI/O mode	PowerOn Default	Address
				10	GPO14	Low	A42h (Bit0)
				20	GPO19	Low	A42h (Bit1)
				24	GPO21	Low	A42h (Bit7)

JP2 - GPI/O Connector(4)

First Set A40h to 0x00

Pin No.	GPI/O mode	PowerOn Default	Address	Pin No.	GPI/O mode	PowerOn Default	Address
				22	GPO20	Low	A42h (Bit0)

JP2 - GPI/O Connector(5)

Pin No.	GPI/O mode	PowerOn Default	Address
A4	GPO	High	A06h (Bit2)
A3	GPO	High	A06h (Bit3)

LED1 - GPO LED

Control the GPO pin (A3/A4) level from I/O port A06h bit (3/2).
The bit is Set/Clear indicated output High/Low.

APPENDIX C: WATCHDOG PROGRAMMING GUIDE

ITE8786 WatchDog Programming Guide

```
#define SUPERIO_PORT     0x2E
#define WDT_ PWRGD       0xFA
#define WDT_SET    0x72
#define WDT_VALUE 0x73

void main(void)
{
  #Enter SuperIO Configuration
    outportb(SUPERIO_PORT, 0x87);
    outportb(SUPERIO_PORT, 0x01);
    outportb(SUPERIO_PORT, 0x55);
    outportb(SUPERIO_PORT, 0x55);

  # Set LDN
    outportb(SUPERIO_PORT, 0x07);
    outportb(SUPERIO_PORT+1 ,0x04);

  # Set WDT setting
    outportb(SUPERIO_PORT, WDT_PWRGD);
    outportb(SUPERIO_PORT+1, 0x20);       # WDT output through PWRGD

  # Set LDN
    outportb(SUPERIO_PORT, 0x07);
    outportb(SUPERIO_PORT+1 ,0x07);
```

```
# Set WDT setting
  outportb(SUPERIO_PORT, WDT_SET);
  outportb(SUPERIO_PORT+1, 0x80);     # Use the second
                                      # Use the minute, change value to 0x10

# Set WDT sec/min
  outportb(SUPERIO_PORT, WDT_VALUE);
  outportb(SUPERIO_PORT+1, 0x05);        #Set 5 seconds
}
```