



**NEXCOM International Co., Ltd.**

**Network and Communication Solutions**

**Industrial-Grade Platform**

**ISA 141**

User Manual

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# PREFACE

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## Acknowledgements

ISA 141 is a trademark 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 in 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. HCP series products (Blade Server) which are manufactured by NEXCOM are covered by a three year warranty period.

### 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.

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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.

## 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.

## 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.

## 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 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](http://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.
3. CFast: Turn off the unit's power before inserting or removing a CFast storage card.

## 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.

## Global Service Contact Information

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## Package Contents

Before continuing, verify that the ISA 141 package that you received is complete. Your package should have all the items listed in the following table.

Item	Item Number	Name	Description	Qty
1	19L10014100X0	ISA141 ASSY		1
2	6012200053X00	PE ZIPPER BAG #3 炎洲:印刷由任袋3號	100x70mm,W/China RoHS SYMBOL	1
3	6012200169X00	PE BAG FOR SG 105/115 SERIES VER:A FULPAK PE	300x320x0.08mm	1
4	6023309081X00	CABLE EDI:232091081804-RS	COM PORT. DB9 FEMALE TO RJ45 8P8C L:1800mm	1
5	4NCPF00204X00	TERMINAL BLOCKS 2P PHOENIX CONTACT:1777989	ASSY 5.08mm FEMALE GREEN	2
6	60111B0075X00	OUTSIDE CARTON FOR ISA140 VER:B YI GIA	300x242x190mm B FLUTE 16KG (OUTSIDE DIMENSION)	1
7	Z300000040X00	OUTSIDE BOX LABEL FOR STANDARD VER.A	60x60mm ART PAPER CLW5	1
8	6014606898X00	LABEL BLANK WAI GHA	60x60mm ART PAPER CLW5	2
9	6014401540X00	ESD LABEL JAYRAY	60x30mm YELLOW	1
10	6014605767X00	ORIGINAL SEAL LABEL JAYRAY	50x25mm MATT SILVER#25 VOID	2
11	6013301896X00	EPE FOR ISA141 VER:A TSAIJIN	290x173x90.5mm	2
12	60110A0346X00	ACCESSORY BOX FOR ISA141 VER:A FULPAK	246x176x41mm E FLUTE 8KG (INSIDE DIMENSION)	1

---

## Ordering Information

The following below provides ordering information for ISA 141.

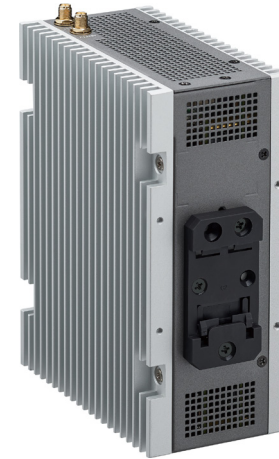
### **Barebone**

#### **ISA 141 (P/N: 10L10014X0)**

Intel Atom® x6413E processor, BGA type, 4 cores, 1 x SODIMM 8GB DDR4 memory module, 40G SSD, 3 x 1GbE RJ45 ports with 1 combo port

# CHAPTER 1: PRODUCT INTRODUCTION

## Overview



## Key Features

- Intel Atom® x6413E processor SoC, BGA type
- 1 x SODIMM DDR4 3200 8GB module
- 1 x 40GB SSD module
- 1 x RJ45 console port
- 2 x USB 3.0
- 3 x 1GbE RJ45 with 1 combo port
- Dual Wi-Fi 6E
- Dual LTE/5G
- Dual DC (9~36VDC)
- Supports OOB

# Hardware Specifications

## Main Board

- Intel Atom® x6413E processor, 4 cores, 1.5M cache, 1.50 GHz
- TPM 2.0 onboard

## Main Memory

- 1 x SODIMM 3200 8GB memory module

## Storage

- 1 x 16GB eMMC
- 1 x 40GB pSLC 2242 SSD module

## Interface External

- 3 x 1GbE RJ45 ports
  - with 1 Combo port
- 1 x RJ45 Console Port
- 2 x USB3.0 Ports
- 1 x TPM2.0
- Power & Reset Button
- LED: SYS/PWR1/PWR2/SSD/LTE 5G 1,2/WIFI 1,2
- 1 x ground screw
- 2 x Nano Dual SIM slots

## Interface Internal

- 2 x mini-PCIe slots for Wi-Fi 6E modules
- 2 x M.2 3042 Key B slots for LTE/5G modules

## Power Input

- Dual DC (9~36VDC)

## Dimension and Weight

- Chassis dimension (mm): 165 x 129.4 x 68.95mm (W x D x H)
- Package dimension (mm): 300 x 242 x 190mm
- Without package: 1.8kg
- With package: 2.6kg

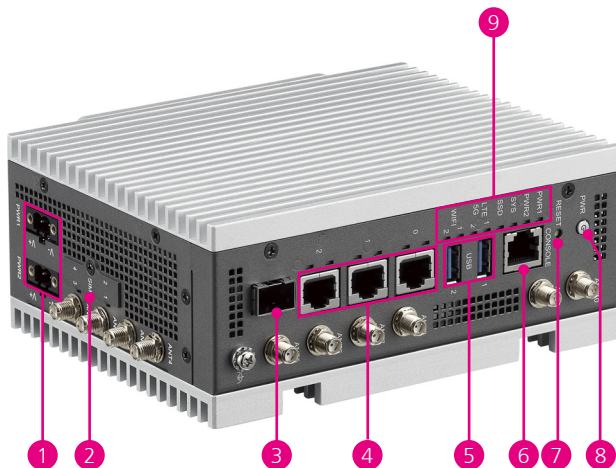
## Environment

- Operating temperature: -20°C~60°C
- Storage temperature: -40°C~80°C
- Relative humidity: 0%~95% non-condensing

## Certifications

- CE/FCC Class A

## Knowing Your ISA 141

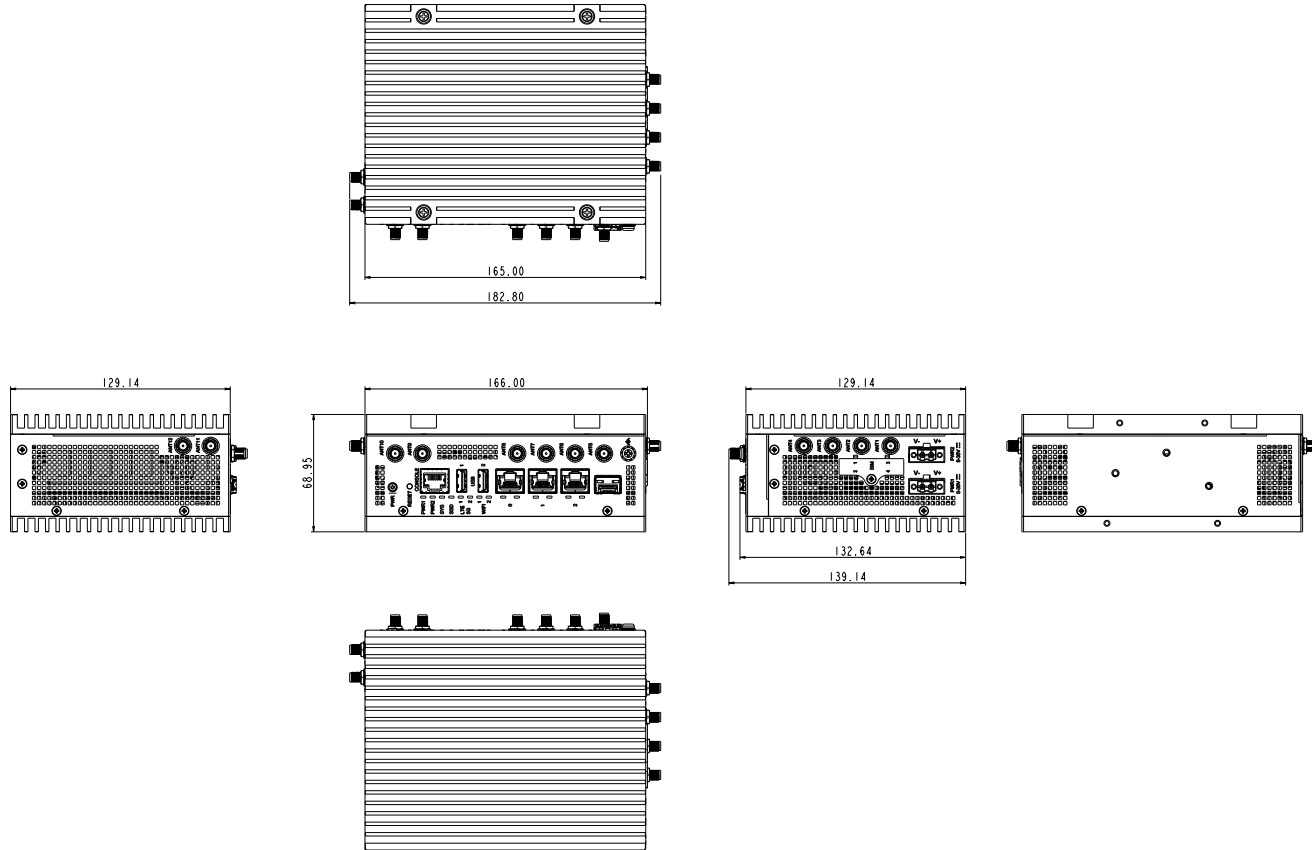


- 1 **9V to 36V DC Power Inputs**  
Used to plug DC power cords.
- 2 **SIM Cards Slots**  
Used to plug SIM cards.
- 3 **SFP Port\***  
Used to connect network devices.
- 4 **LAN 0 to LAN 2 Ports\***  
Used to connect network devices.
- 5 **USB 3.0 Port**  
Used to connect USB 3.0/2.0 devices.
- 6 **RJ45 Console Port**  
Used to connect to devices with RJ45 type console connection.
- 7 **Reset Button**  
Press to reset the system.
- 8 **Power Button**  
Press to power-on or power-off the system.
- 9 **LED Indicators**  
Indicate the power 1/2, S/W Programmable, SSD, LTE/5G 1/2, and Wi-Fi 1/2 status of the system.



Only one of the SFP and LAN2 ports can be enabled at a time. When one port is selected for activation, the other will be disabled.

# Mechanical Dimensions



## CHAPTER 2: JUMPERS AND CONNECTORS

This chapter describes how to set the jumpers and connectors on the ISA 141 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:

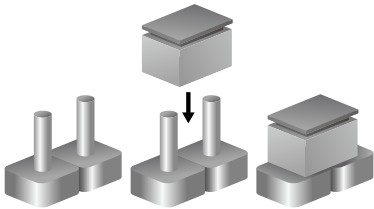
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal 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

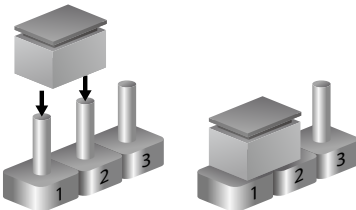
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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

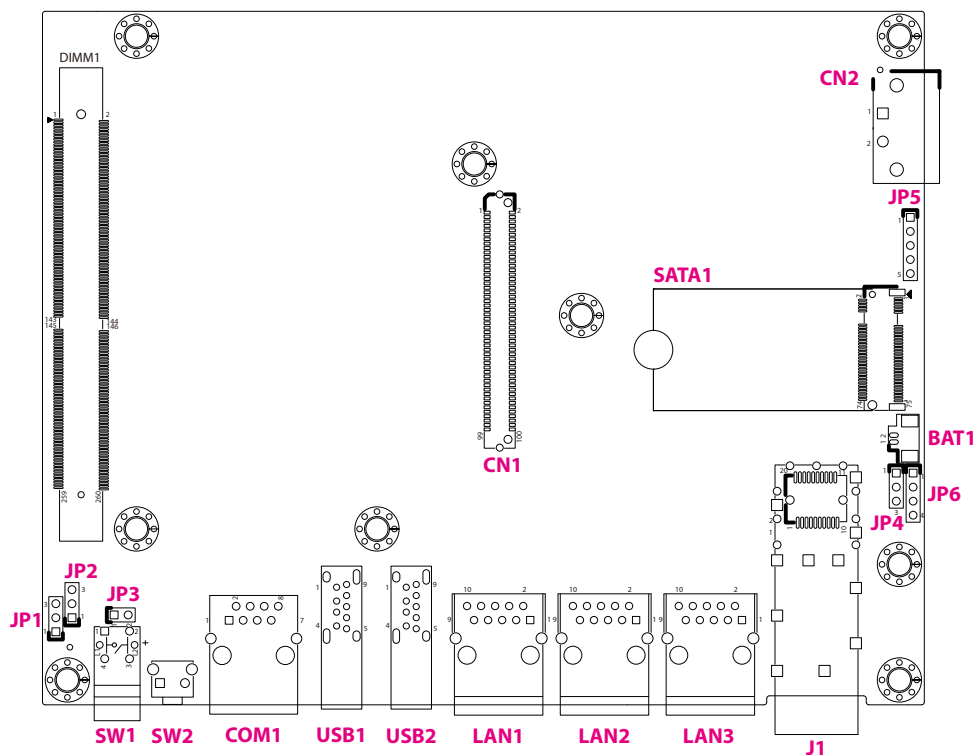




## Locations of the Mainboard Jumpers and Connectors

The following figure shows the mainboard used in the ISA 141, and indicate the locations of the jumpers and connectors. Refer to this chapter for detailed pin settings and definitions of the connectors marked in pink on this figure.

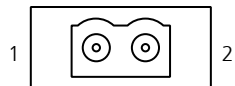
### ISA 141 Mainbaord Top View



## External I/O Pin Definitions

### Power Connector

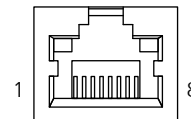
Connector location: CN2



Pin	Definition
1	POWER_IN1
2	PGND

### Console Port

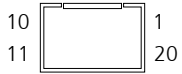
Connector location: COM1



Pin	Definition	Pin	Definition
1	COM_UART_RTS_N	2	COM_UART_DTR_N
3	COM_UART_TXD	4	GND
5	COM_UART_DCD_N	6	COM_UART_RXD
7	COM_UART_DSR_N	8	COM_UART_CTS_N

## SFP Connector

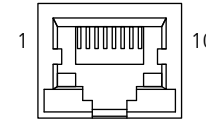
Connector location: J1



Pin	Definition	Pin	Definition
1	GND	2	SFP_TXFAULT
3	TX_DISABLE0_1	4	SFP_SDA
5	SFP_SCL	6	SFP_MOD-ABS
7	SFP_RS0	8	SFP_RX_LOS
9	SFP_RS1	10	GND
11	GND	12	SFP_RX_N
13	SFP_RX_P	14	GND
15	P3V3_SFP+_RX0	16	P3V3_SFP+_TX0
17	GND	18	SFP_TX_P
19	SFP_TX_N		GND

## LAN Ports

Connector location: LAN1, LAN2, LAN3



### LAN1

Pin	Definition	Pin	Definition
1	MDI_P_00A	2	MDI_N_00A
3	MDI_P_01A	4	MDI_N_01A
5	CT	6	CT
7	MDI_P_02A	8	MDI_N_02A
9	MDI_P_03A	10	MDI_N_03A

**LAN2**

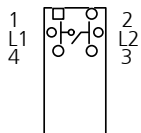
Pin	Definition	Pin	Definition
1	MDI_P_00B	2	MDI_N_00B
3	MDI_P_01B	4	MDI_N_01B
5	CT	6	CT
7	MDI_P_02B	8	MDI_N_02B
9	MDI_P_03B	10	MDI_N_03B

**LAN3**

Pin	Definition	Pin	Definition
1	MDI_P_00C	2	MDI_N_00C
3	MDI_P_01C	4	MDI_N_01C
5	CT	6	CT
7	MDI_P_02C	8	MDI_N_02C
9	MDI_P_03C	10	MDI_N_03C

## Power Button

Connector location: SW1



Pin	Definition	Pin	Definition
1	GND	2	FP_PWRBTN_N
3	FP_PWRBTN_N	4	GND
L1	LED (Blue)	L2	LED (RED)

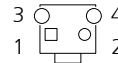


L1: LED Blue indicates that the system is in S0 mode.

L2: LED Red indicates that the system is in S5 mode.

## Reset Button

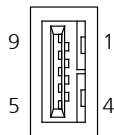
Connector location: SW2



Pin	Definition	Pin	Definition
1	GND	2	FP_RST_BTN_N_L
3	CHASSIS GND	4	CHASSIS GND

## USB 3.0 Ports

Connector location: USB1, USB2



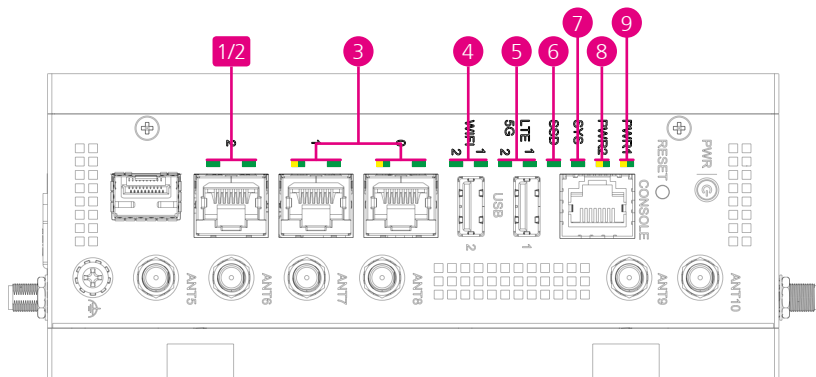
### USB1

Pin	Definition	Pin	Definition
1	P5V_USB3	2	USB2N0_C
3	USB2P0_C	4	GND
5	USB3RN0_C	6	USB3RP0_C
7	GND	8	USB3TN0_C
9	USB3TP0_C	10	

### USB2

Pin	Definition	Pin	Definition
1	P5V_USB3	2	USB2N1_C
3	USB2P1_C	4	GND
5	USB3RN1_C	6	USB3RP1_C
7	GND	8	USB3TN1_C
9	USB3TP1_C	10	

## LED Indicators



1. The SFP and LAN2 ports share the same LED indicators.
2. This connector is a dual-purpose port that can be used as either an OOB or a LAN port.

No.	LED Indicator	Description	LED Behavior
1	SFP Port* <sup>1</sup>	Link (Left)	Steady Green
		Activity (Right)	Blinking Green
2	LAN Port2 (OOB Port)* <sup>2</sup>	Link (Left)	Steady Green
		Activity (Right)	Blinking Green
3	LAN Port 0/1	Speed (Left)	Steady Green for 1G speed Steady Yellow for 100M speed Off for 10M speed
		Link/Active (Right)	Steady Green while the LAN is linking Blinking Green while the LAN is active with traffic
4	Wi-Fi 1/2	Module installed	Steady Green
		No module (software defined)	Stay On or Off with MCU
5	LTE LED 1/2	Module installed	Steady Green
		No module (software defined)	Stay On or Off with MCU
6	SSD		Stay Off (default) Blinking Green while access
7	SYS	S/W Programmable	Stay Off (default)
8	PWR2	S0	Steady Green
		S5	Steady Yellow
		No Power	Stay Off
9	PWR1	S0	Steady Green
		S5	Steady Yellow
		No Power	Stay Off

## Pin Definitions for Internal Jumpers

### Clear RTC Registers

Connector location: JP2

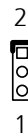


Pin	Definition
1	SRTC_RST_N
2	GND
3	NC

Pin	Definition
1-2 On	Clear RTC Registers
2-3 On	Save RTC Registers (Default)

### Clear CMOS

Connector location: JP4



Pin	Definition
1	RTC_RST_N
2	GND
3	NC

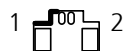
Pin	Definition
1-2 On	Clear CMOS
2-3 On	Save MOS (Default)



## Pin Definitions for Internal Connectors

### Battery Connector

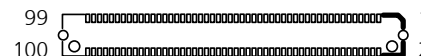
Connector location: BAT1



Pin	Definition
1	BAT_C
2	GND

### Board to Board Connector

Connector location: CN1



Pin	Definition	Pin	Definition
1	VIN	2	VIN
3	VIN	4	VIN
5	VIN	6	VIN
7	PGND	8	PGND
9	PGND	10	PGND
11	PGND	12	PGND
13	P3V3	14	P3V3
15	P3V3	16	P3V3
17	P3V3	18	P3V3
19	GND	20	GND
21	P1V8	22	GND
23	P3V3_5G_EN	24	P3V3_AUX
25	P3V3_5G_PG	26	P3V3_AUX
27	MCU_5G_SERRIA_PLAS2#_0	28	P3V3_AUX
29	MCU_5G_SERRIA_PLAS2#_1	30	MCU_5G_DIS_1

Pin	Definition	Pin	Definition
31	MCU_5G_W_DISABLE#_0	32	MCU_5G_GPS_DISABLE#_0
33	MCU_5G_W_DISABLE#_1	34	MCU_5G_GPS_DISABLE#_1
35	MCU_5G_POWER_OFF#_0	36	BUF_PLT_RST_R_N
37	MCU_5G_POWER_OFF#_1	38	DC_IN2_STATUS
39	WIFI0_W_DISABLE1#	40	WIFI_PCIE_RST1#
41	WIFI1_W_DISABLE1#	42	WIFI_PCIE_RST0#
43	MCU_5G_DIS_0	44	MCU_5G_MODULE_RST1#
45	MODULE_WIFI_LED_0	46	MCU_5G_MODULE_RST0#
47	MODULE_WIFI_LED_1	48	WIFI_CLKREQ_N_1
49	MODULE_5G_LED_0	50	WIFI_CLKREQ_N_0
51	MODULE_5G_LED_1	52	5G_CLKREQ_N_1
53	GND	54	5G_CLKREQ_N_0
55	PCIE_CLK3_DN	56	SLOT_SMB_MCU_CLK
57	PCIE_CLK3_DP	58	SLOT_SMB_MCU_DATA
59	GND	60	GND
61	PCIE_CLK2_DP	62	USB2_P2_DP
63	PCIE_CLK2_DN	64	USB2_P2_DN
65	GND	66	USB2_P3_DP

Pin	Definition	Pin	Definition
67	PCIE_CLK1_DP	68	USB2_P3_DN
69	PCIE_CLK1_DN	70	USB2_P4_DP
71	GND	72	USB2_P4_DN
73	PCIE_CLK0_DP	74	USB2_P5_DP
75	PCIE_CLK0_DN	76	USB2_P5_DN
77	GND	78	GND
79	MINIW_TX_DP1	80	MINIW_RX_DP1
81	MINIW_TX_DN1	82	MINIW_RX_DN1
83	GND	84	GND
85	MINIW_TX_DP0	86	MINIW_RX_DP0
87	MINIW_TX_DN0	88	MINIW_RX_DN0
89	GND	90	GND
91	USB3_5G_TX_DP1	92	USB3_5G_RX_DP1
93	USB3_5G_TX_DN1	94	USB3_5G_RX_DN1
95	GND	96	GND
97	USB3_5G_TX_DP0	98	USB3_5G_RX_DP0
99	USB3_5G_TX_DN0	100	USB3_5G_RX_DN0

## SOC UART Header

Connector location: JP1



Pin	Definition
1	PSE_UART2_RXD_R
2	GND
3	PSE_UART2_TXD_R

## Power Button Header (For debug)

Connector location: JP3



### USB1

Pin	Definition
1	FP_PWRBTN_N_R
2	GND

## MCU UART Header

Connector location: JP6

1

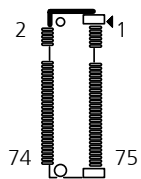


4

Pin	Definition
1	P3V3_MCU
2	MCU_UART2_TX
3	MCU_UART2_RX
4	GND

## M.2 Key B for SATA

Connector location: SATA1



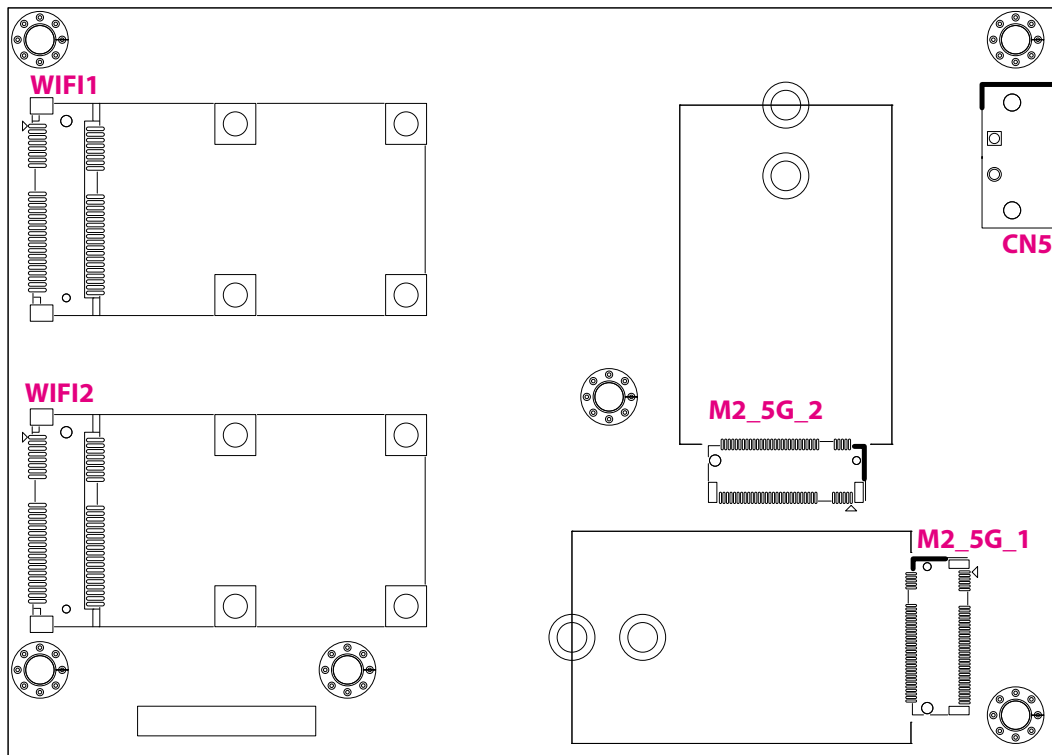
Pin	Definition	Pin	Definition
1	NC	2	P3V3
3	GND	4	P3V3
5	GND	6	NC
7	NC	8	NC
9	NC	10	M2_SATA_LED#
11	NC	20	NC
21	NC	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC
29	NC	30	NC
31	NC	32	NC
33	GND	34	NC
35	NC	36	NC
37	NC	38	NC
39	GND	40	NC
41	M2_RX_DP	42	NC

Pin	Definition	Pin	Definition
43	M2_RX_DN	44	NC
45	GND	46	NC
47	M2_TX_DN	48	NC
49	M2_TX_DP	50	NC
51	GND	52	NC
53	NC	54	NC
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	NC	68	NC
69	NC	70	P3V3
71	GND	72	P3V3
73	GND	74	P3V3
75	NC		

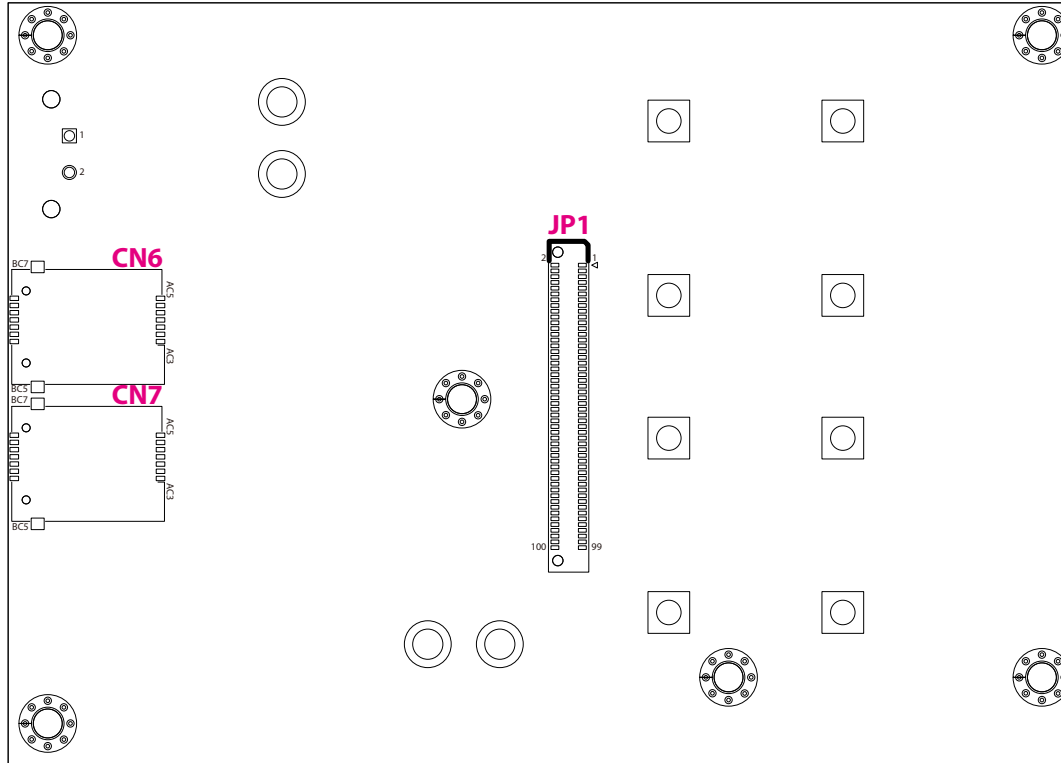
## Locations of the Carry Board Connectors

The following figures show the carry board used in the ISA 141, and indicate the locations of the jumpers and connectors. Refer to this chapter for detailed pin settings and definitions of the connectors marked in pink on this figure.

### ISA 141 Carry Board Top View



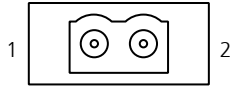
## ISA 141 Carry Board Bottom View



## External I/O Pin Definitions

### Power Connector

Connector location: CN5



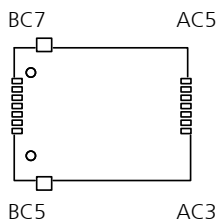
Pin	Definition
1	POWER_IN2
2	PGND



## Pin Definitions for Internal Connectors

### SIM Card Slots

Connector location: CN6, CN7



#### CN6

Pin	Definition	Pin	Definition
AC1	5G_UIM2_PWR1	AC2	5G_UIM2_RESET1
AC3	5G_UIM2_CLK1	ACD	UIM2_DETECT1
AC5	GND	AC6	NC
AC7	5G_UIM2_DATA1		
BC1	5G_UIM2_PWR2	BC2	5G_UIM2_RESET2
BC3	5G_UIM2_CLK2	BCD	UIM2_DETECT2
BC5	GND	BC6	NC
BC7	5G_UIM2_DATA2		

#### CN7

Pin	Definition	Pin	Definition
AC1	5G_UIM1_PWR1	AC2	5G_UIM1_RESET1
AC3	5G_UIM1_CLK1	ACD	UIM1_DETECT1
AC5	GND	AC6	NC
AC7	5G_UIM1_DATA1		
BC1	5G_UIM1_PWR2	BC2	5G_UIM1_RESET2
BC3	5G_UIM1_CLK2	BCD	UIM1_DETECT2
BC5	GND	BC6	NC
BC7	5G_UIM1_DATA2		

## Board to Board Connector

Connector location: JP1



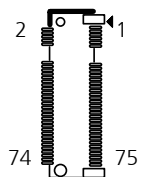
Pin	Definition	Pin	Definition
1	VIN	2	VIN
3	VIN	4	VIN
5	VIN	6	VIN
7	PGND	8	PGND
9	PGND	10	PGND
11	PGND	12	PGND
13	P3V3	14	P3V3
15	P3V3	16	P3V3
17	P3V3	18	P3V3
19	GND	20	GND
21	P1V8	22	GND
23	P3V3_5G_EN	24	P3V3_AUX
25	P3V3_5G_PG	26	P3V3_AUX
27	MCU_5G_SERRIA_PLAS2#_0	28	P3V3_AUX
29	MCU_5G_SERRIA_PLAS2#_1	30	MCU_5G_DIS_1
31	MCU_5G_W_DISABLE#_0	32	MCU_5G_GPS_DISABLE#_0
33	MCU_5G_W_DISABLE#_1	34	MCU_5G_GPS_DISABLE#_1

Pin	Definition	Pin	Definition
35	MCU_5G_POWER_OFF#_0	36	BUF_PLT_RST_R_N
37	MCU_5G_POWER_OFF#_1	38	DC_IN2_STATUS
39	WIFI0_W_DISABLE1#	40	WIFI_PCIE_RST1#
41	WIFI1_W_DISABLE1#	42	WIFI_PCIE_RST0#
43	MCU_5G_DIS_0	44	MCU_5G_MODULE_RST1#
45	MODULE_WIFI_LED_0	46	MCU_5G_MODULE_RST0#
47	MODULE_WIFI_LED_1	48	WIFI_CLKREQ_N_1
49	MODULE_5G_LED_0	50	WIFI_CLKREQ_N_0
51	MODULE_5G_LED_1	52	5G_CLKREQ_N_1
53	GND	54	5G_CLKREQ_N_0
55	NC	56	NC
57	NC	58	NC
59	GND	60	GND
61	NC	62	USB2_P2_DP
63	NC	64	USB2_P2_DN
65	GND	66	USB2_P3_DP
67	PCIE_CLK1_DP	68	USB2_P3_DN

Pin	Definition	Pin	Definition
69	PCIE_CLK1_DN	70	USB2_P4_DP
71	GND	72	USB2_P4_DN
73	PCIE_CLK0_DP	74	USB2_P5_DP
75	PCIE_CLK0_DN	76	USB2_P5_DN
77	GND	78	GND
79	MINIW_TX_DP1	80	MINIW_RX_DP1
81	MINIW_TX_DN1	82	MINIW_RX_DN1
83	GND	84	GND
85	MINIW_TX_DP0	86	MINIW_RX_DP0
87	MINIW_TX_DN0	88	MINIW_RX_DN0
89	GND	90	GND
91	USB3_5G_TX_DP1	92	USB3_5G_RX_DP1
93	USB3_5G_TX_DN1	94	USB3_5G_RX_DN1
95	GND	96	GND
97	USB3_5G_TX_DP0	98	USB3_5G_RX_DP0
99	USB3_5G_TX_DN0	100	USB3_5G_RX_DN0

## M.2 Key B Connectors

Connector location: M2\_5G\_1, M2\_5G\_2



### M2\_5G\_1

Pin	Definition	Pin	Definition
1	M2_5G_CONFIG3_0	2	P3V3_5G
3	GND	4	P3V3_5G
5	GND	6	5G_POWER_OFF#_0
7	USB2_P2_DP	8	5G_W_DISABLE#_0
9	USB2_P2_DN	10	MODULE_5G_LED_0
11	GND	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	NC
19	NC	20	PCIE_DIS_0
21	M2_5G_CONFIG0_0	22	VBUS_SENSE_0
23	WAKE_ON_WWAN	24	VCC1_5G_0
25	DPR_5G_0	26	5G_GPS_DISABLE#_0

Pin	Definition	Pin	Definition
27	GND	28	5G_SERRIA_PLAS2#_0(NC)
29	USB3_5G_RX_DN0	30	5G_UIM1_RESET1
31	USB3_5G_RX_DP0	32	5G_UIM1_CLK1
33	GND	34	5G_UIM1_DATA1
35	USB3_5G_TX_DN0	36	5G_UIM1_PWR1_M
37	USB3_5G_TX_DP0	38	VCC2_5G_0
39	GND	40	5G_UIM1_DETECT2
41	NC	42	5G_UIM1_DATA2
43	NC	44	5G_UIM1_CLK2
45	GND	46	5G_UIM1_RESET2
47	NC	48	5G_UIM1_PWR2_M
49	NC	50	NC
51	GND	52	5G_CLKREQ_N_0(NC)

Pin	Definition	Pin	Definition
53	NC	54	NC
55	NC	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	5G_UIM1_DETECT1
67	MODULE0_1P8_RST#(NC)	68	VCC3_5G_0
69	M2_5G_CONFIG1_0	70	P3V3_5G
71	GND	72	P3V3_5G
73	GND	74	P3V3_5G
75	M2_5G_CONFIG2_0		

### M2\_5G\_2

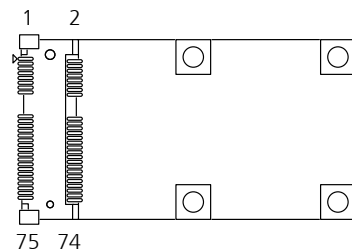
Pin	Definition	Pin	Definition
1	M2_5G_CONFIG3_1	2	P3V3_5G
3	GND	4	P3V3_5G
5	GND	6	5G_POWER_OFF#_1
7	USB2_P3_DP	8	5G_W_DISABLE#_1
9	USB2_P3_DN	10	MODULE_5G_LED_1
11	GND	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	NC
19	NC	20	PCIE_DIS_1
21	M2_5G_CONFIG0_1	22	VBUS_SENSE_1
23	WAKE_ON_WWAN(NC)	24	VCC1_5G_1
25	DPR_5G_1	26	5G_GPS_DISABLE#_1

Pin	Definition	Pin	Definition
27	GND	28	5G_SERRIA_PLAS2#_1(NC)
29	USB3_5G_RX_DN1	30	5G_UIM2_RESET1
31	USB3_5G_RX_DP1	32	5G_UIM2_CLK1
33	GND	34	5G_UIM2_DATA1
35	USB3_5G_TX_DN1	36	5G_UIM2_PWR1_M
37	USB3_5G_TX_DP1	38	VCC2_5G_1
39	GND	40	5G_UIM2_DETECT2
41	NC	42	5G_UIM2_DATA2
43	NC	44	5G_UIM2_CLK2
45	GND	46	5G_UIM2_RESET2
47	NC	48	5G_UIM2_PWR2_M
49	NC	50	NC
51	GND	52	5G_CLKREQ_N_1(NC)

Pin	Definition	Pin	Definition
53	NC	54	NC
55	NC	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	5G_UIM2_DETECT1
67	MODULE1_1P8_RST#(NC)	68	VCC3_5G_1
69	M2_5G_CONFIG1_1	70	P3V3_5G
71	GND	72	P3V3_5G
73	GND	74	P3V3_5G
75	M2_5G_CONFIG2_1		

## Mini PCIe Slots

Connector location: WIFI1, WIFI2



### WIFI1

Pin	Definition	Pin	Definition
1	Wake	2	P3V3_MNPE
3	NC	4	GND
5	NC	6	NC
7	WIFI_CLKREQ_N_0(NC)	8	NC
9	GND	10	NC
11	PCIE_CLK0_DN	12	NC
13	PCIE_CLK0_DP	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	WIFI0_W_DISABLE1#
21	GND	22	WIFI_PCIE_RST0#
23	MINIW_RX_DN0	24	P3V3_MNPE
25	MINIW_RX_DPO	26	GND

Pin	Definition	Pin	Definition
27	GND	28	NC
29	GND	30	NC
31	MINIW_TX_DN0	32	NC
33	MINIW_TX_DPO	34	GND
35	GND	36	USB2_P4_DN(NC)
37	NC	38	USB2_P4_DP(NC)
39	P3V3_MNPE	40	GND
41	P3V3_MNPE	42	NC
43	GND	44	MODULE_WIFI_LED_0
45	NC	46	NC
47	NC	48	NC
49	NC	50	GND
51	NC	52	P3V3_MNPE

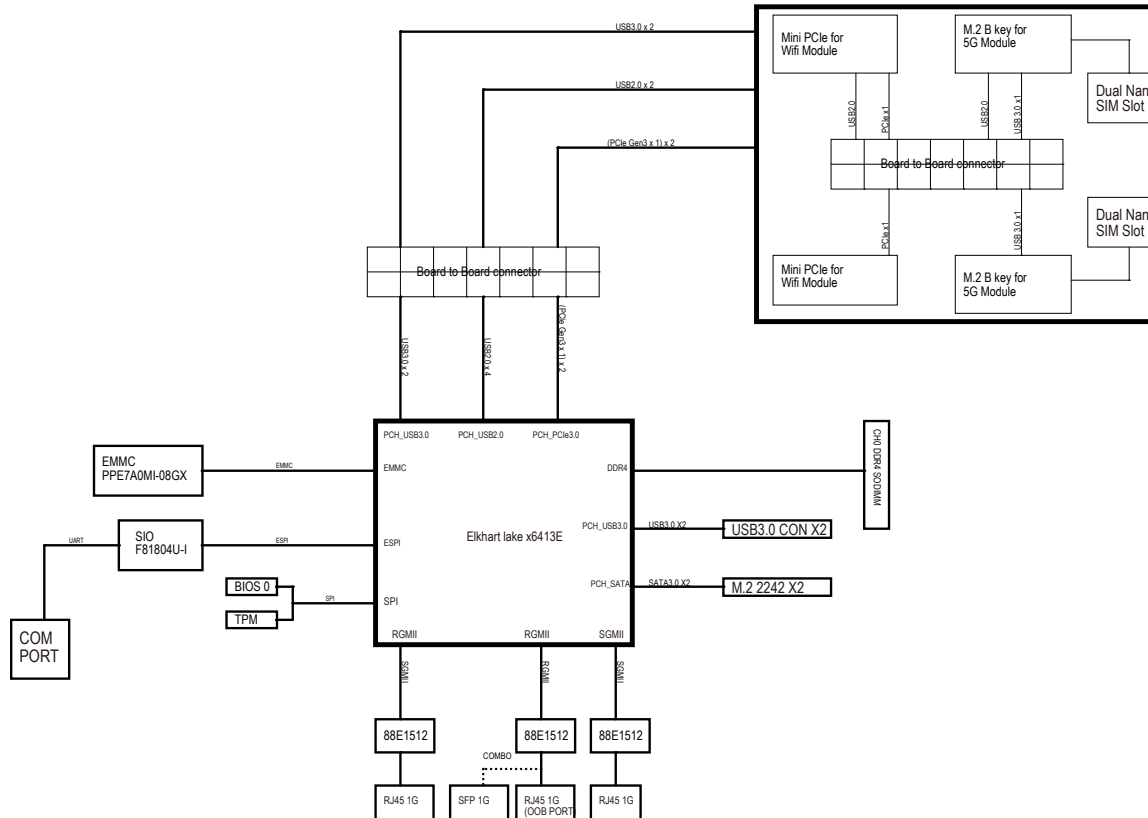
## WIFI2

Pin	Definition	Pin	Definition
1	Wake	2	P3V3_MNPE
3	NC	4	GND
5	NC	6	NC
7	WIFI_CLKREQ_N_1(NC)	8	NC
9	GND	10	NC
11	PCIE_CLK1_DN	12	NC
13	PCIE_CLK1_DP	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	WIFI1_W_DISABLE1#
21	GND	22	WIFI_PCIE_RST1#
23	MINIW_RX_DN1	24	P3V3_MNPE
25	MINIW_RX_DP1	26	GND

Pin	Definition	Pin	Definition
27	GND	28	NC
29	GND	30	NC
31	MINIW_TX_DN1	32	NC
33	MINIW_TX_DP1	34	GND
35	GND	36	USB2_P5_DN(NC)
37	NC	38	USB2_P5_DP(NC)
39	P3V3_MNPE	40	GND
41	P3V3_MNPE	42	NC
43	GND	44	MODULE_WIFI_LED_1
45	NC	46	NC
47	NC	48	NC
49	NC	50	GND
51	NC	52	P3V3_MNPE



# Block Diagram



## CHAPTER 3: SYSTEM SETUP

### Removing the Top Chassis Cover



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.

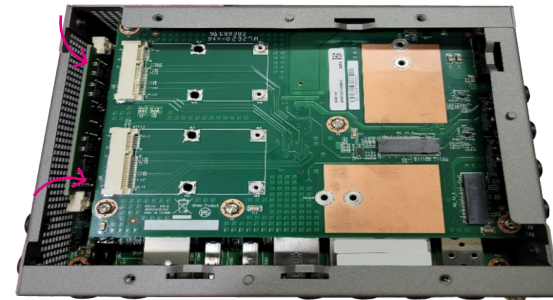
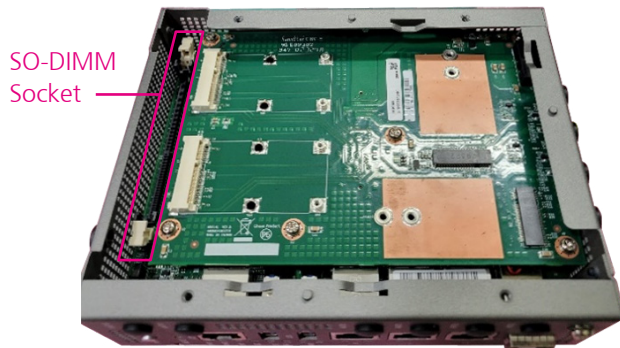
1. The screws on the top cover are used to secure the cover to the chassis. Remove these screws and put them in a safe place for later use.



2. With the screws removed, lift up the cover and remove it from the chassis.

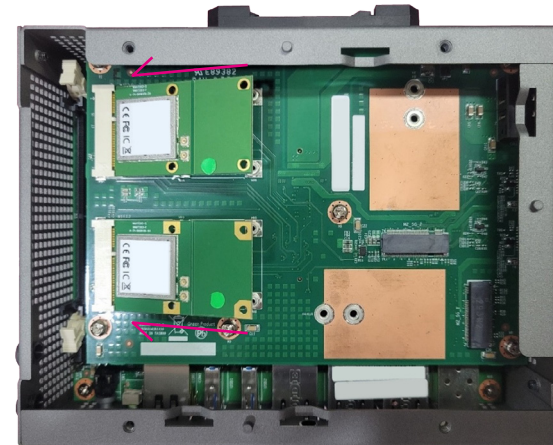
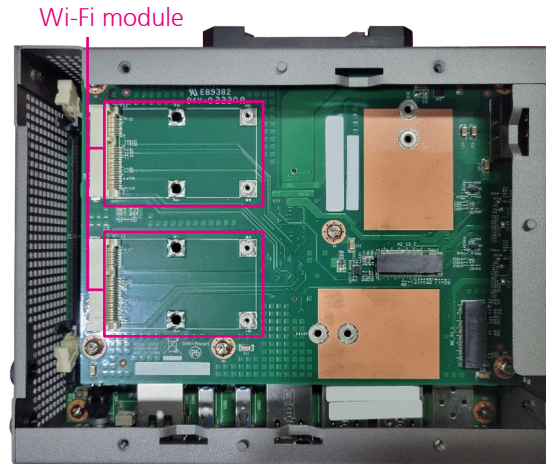
## Installing an SO-DIMM DRAM module

1. With the chassis cover removed, install a memory module in the SO-DIMM socket. Push the module down until the clips on both sides of the socket lock into position. The gold-plated connector on the edge of the module will almost completely disappear inside the socket.
2. Push the module down until the clips on both sides of the socket lock into position. You will hear a distinctive “click” sound, indicating the module is correctly locked into position.

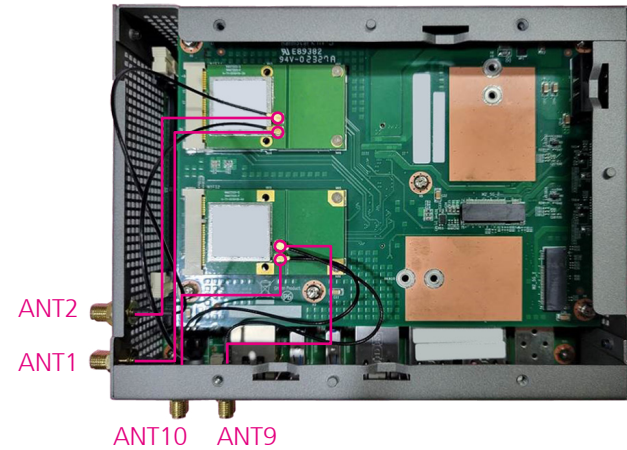
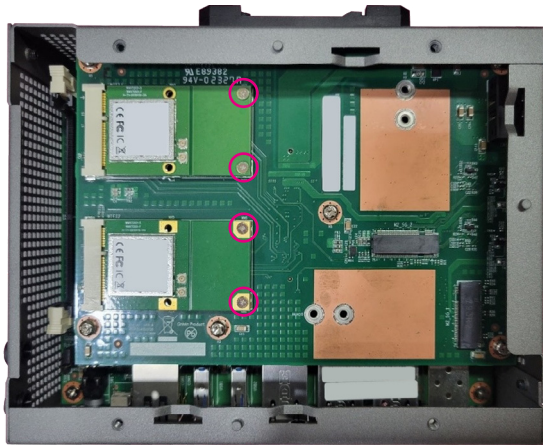


## Installing a Wi-Fi Module

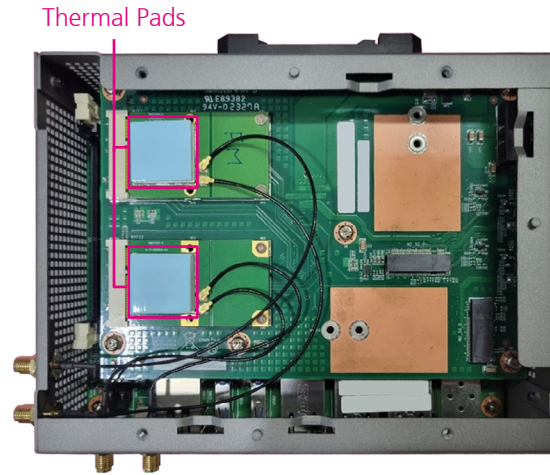
1. With the chassis cover removed, locate the mini-PCIe slot on the carrier board.
2. Insert the Wi-Fi module into the slot at a 45-degree angle until the gold-plated connector on the edge of the module is completely inside the slot.



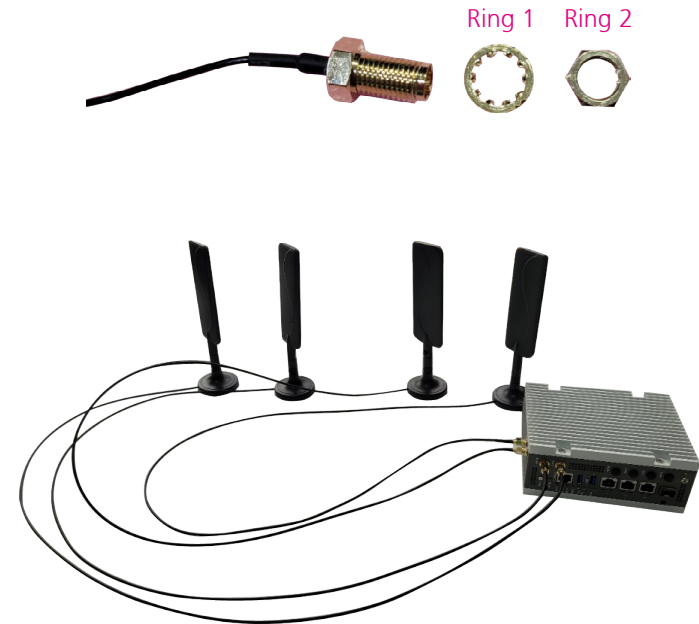
- Secure the module in place by tightening four screws into the mounting holes.
- Attach the RF cables to the module and connect the other ends of the cables to the antenna holes on the chassis.



5. Place two thermal pads on the Wi-Fi modules.



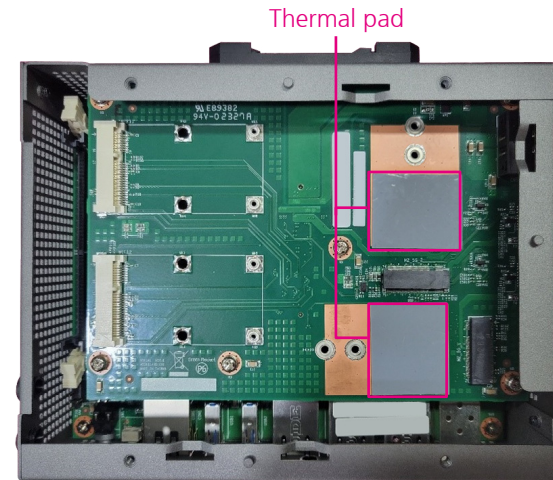
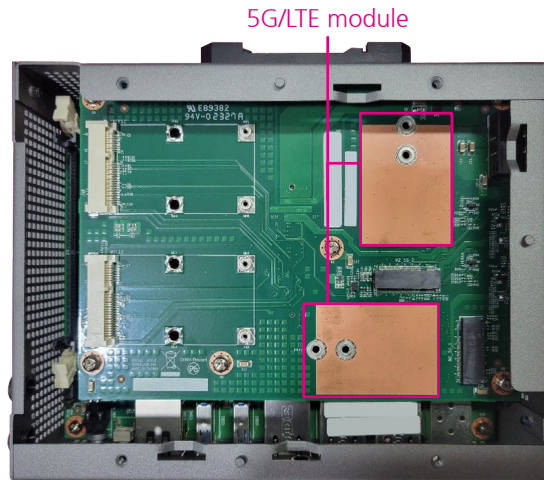
6. Insert the 2 rings (ring 1 then ring 2) into the Wi-Fi antenna jacks. Please remove the two antenna hole covers on the chassis before installing the antenna jacks.



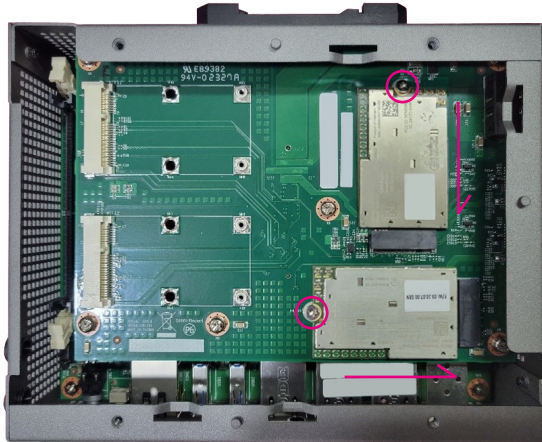


## Installing 5G/LTE Modules

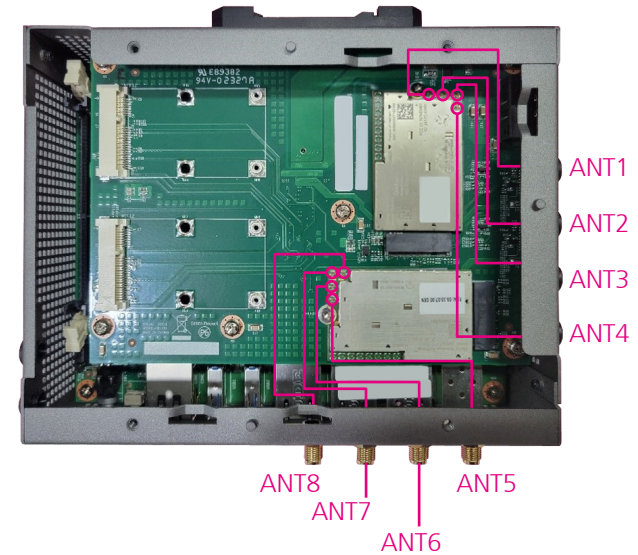
1. With the chassis cover removed, locate the LTE slot on the carry board.
2. Insert two thermal pads in the 5G/LTE positions.



3. Insert the 5G/LTE module into the slot at a 45 degree angle until the goldplated connector on the edge of the module completely disappears inside the slot. Push the module down and fasten screws into the mounting holes to secure the module.

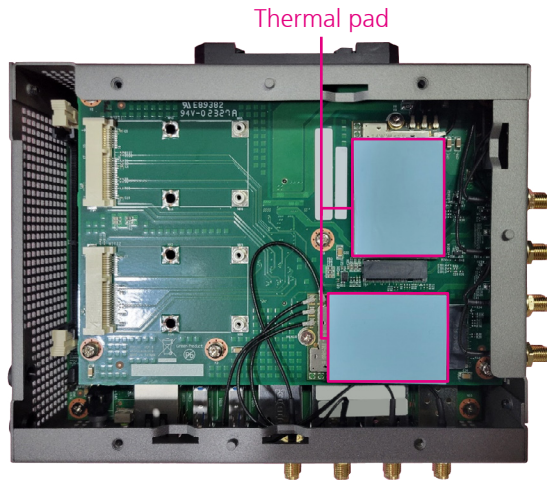


4. Attach the RF cables onto the module and mount the other ends of the cables to the antenna holes on the chassis.

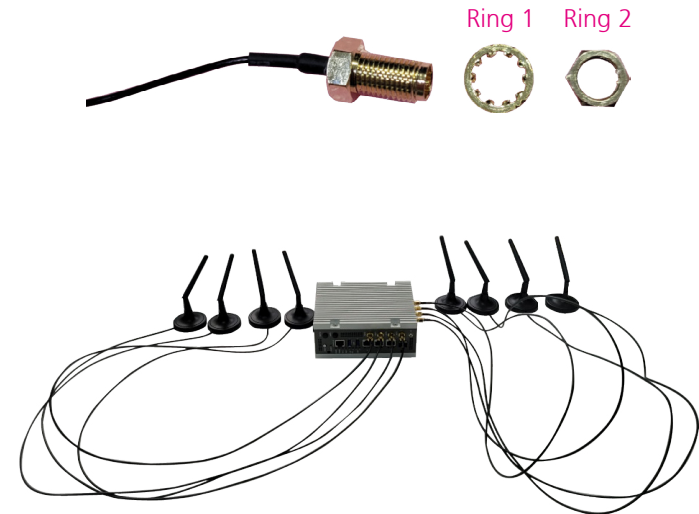




5. Insert two thermal pads on the 5G/LTE modules.

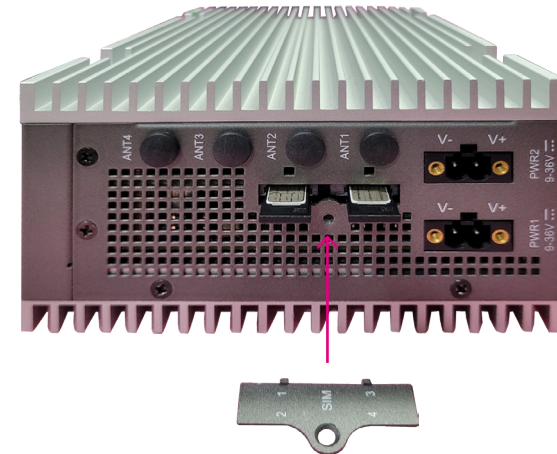
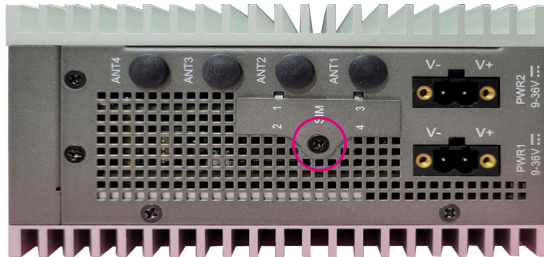


6. Insert the 2 rings (ring 1 then ring 2) into the LTE antenna jacks. Please remove the two antenna hole covers on the chassis before installing the antenna jacks.



## Installing a SIM Card

1. The SIM card socket is located on the right side of the system. Loosen the screw and then remove the SIM card socket cover.
2. Once the SIM card is inserted, secure the cover.



# CHAPTER 4: BIOS SETUP

This chapter describes how to use the BIOS setup program for ISA 141. 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](http://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  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.
	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.
	Selects a field.
	Displays General Help.
	Load previous values.
	Load optimized default values.
	Saves and exits the Setup program.
	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

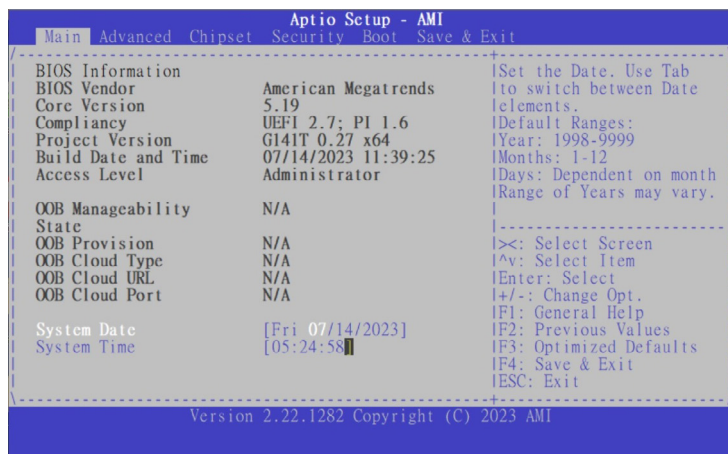
When “▶” appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press  .

## 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  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.



### 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

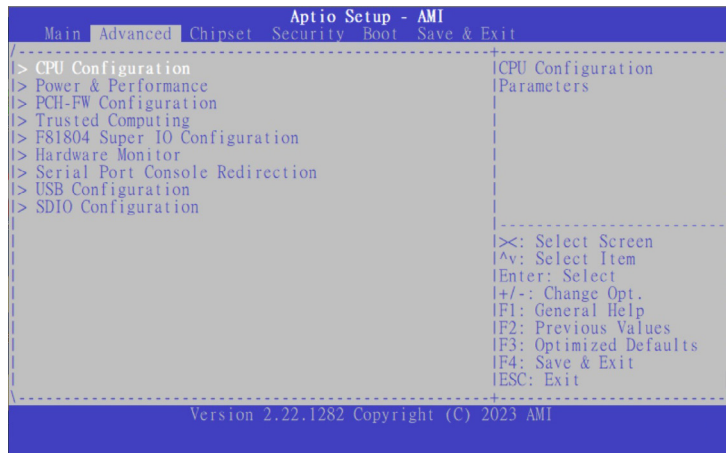
The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

## 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.

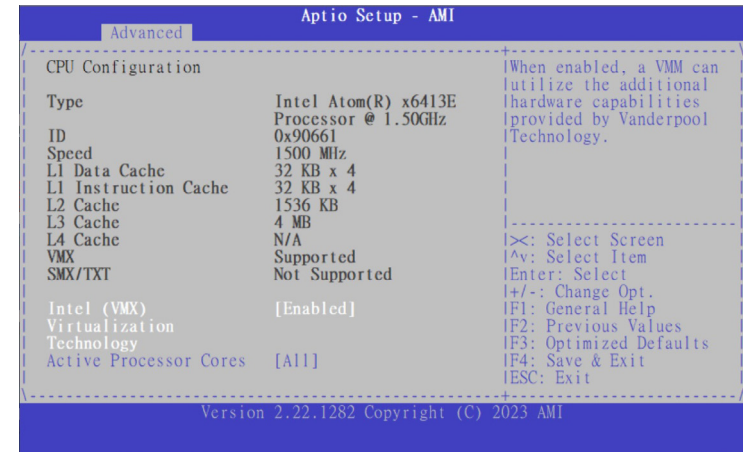


Setting incorrect field values may cause the system to malfunction.



## CPU Configuration

This section is used to configure the CPU.



### Intel® Virtualization Technology

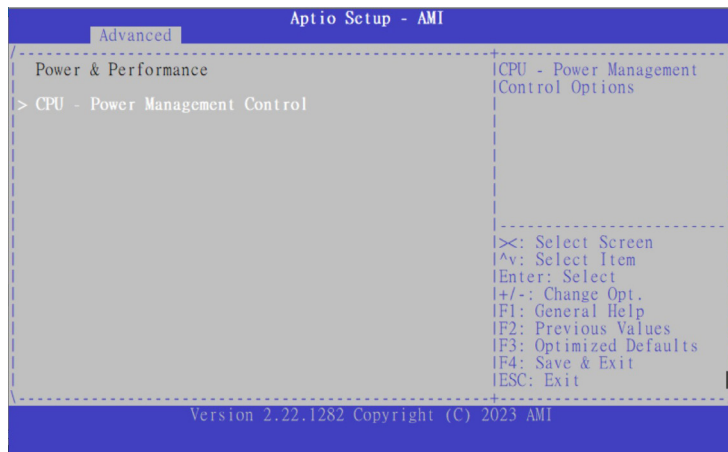
When this field is set to Enabled, the VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

### Active Processor Cores

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

## Power & Performance

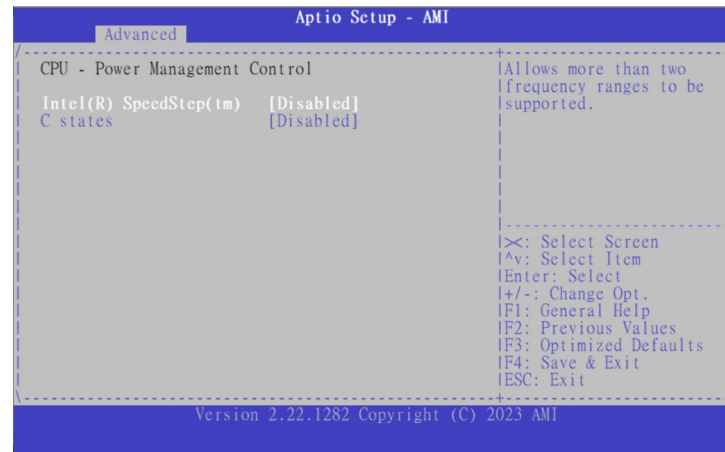
This section is used to configure the CPU power management features.



### CPU - Power Management Control

Enter the CPU - Power Management Control sub-menu.

### CPU - Power Management Control



#### Intel® SpeedStep™

Enable or disable Intel SpeedStep technology.

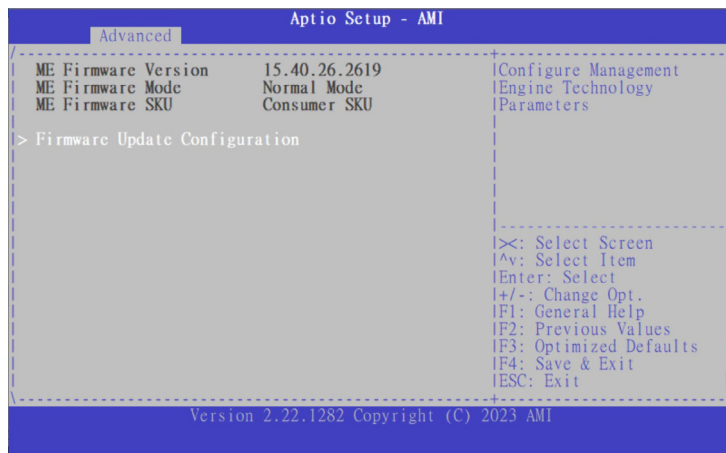
#### C states

Enable or disable CPU C states support for power saving.



## PCH-FW Configuration

This section is used to configure the firmware update options.

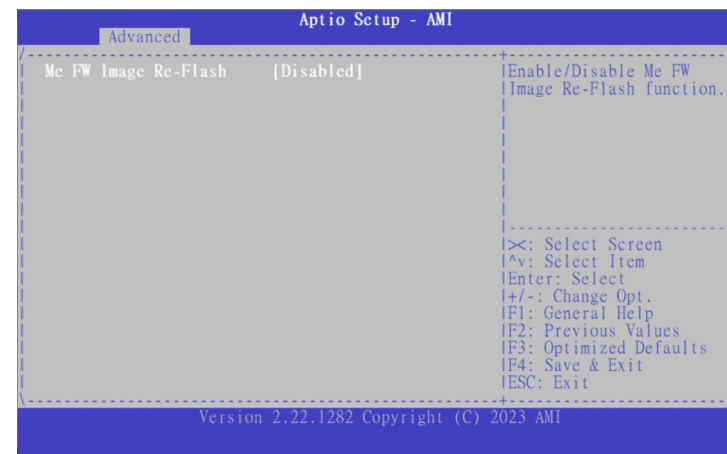


### Firmware Update Configuration

Enter the Firmware Update Configuration submenu.

## Firmware Update Configuration

This section is used to configure the firmware update options.

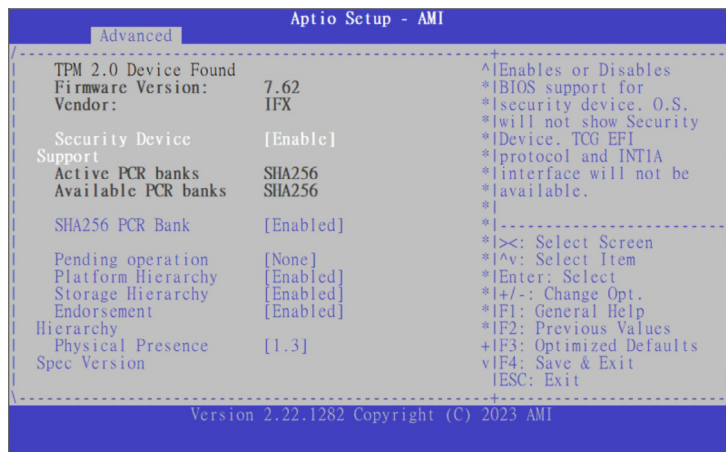


### Me FW Image Re-Flash

Enable or disable the ME firmware image re-flash function.

## Trusted Computing

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



### Security Device Support

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

### SHA256 PCR Bank

Enable or disable SHA256 PCR Bank.

### Pending operation

Schedule an operation for the security device.

### Platform Hierarchy

Enable or disable platform hierarchy.

## Storage Hierarchy

Enable or disable storage hierarchy.

## Endorsement Hierarchy

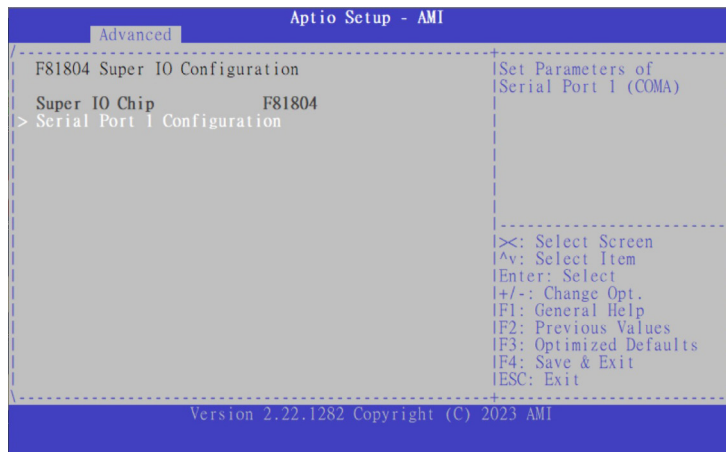
Enable or disable endorsement hierarchy.

## Physical Presence Spec Version

Configure the physical presence spec version.

## F81804 Super IO Configuration

This section is used to configure the serial ports.



### Super IO Chip

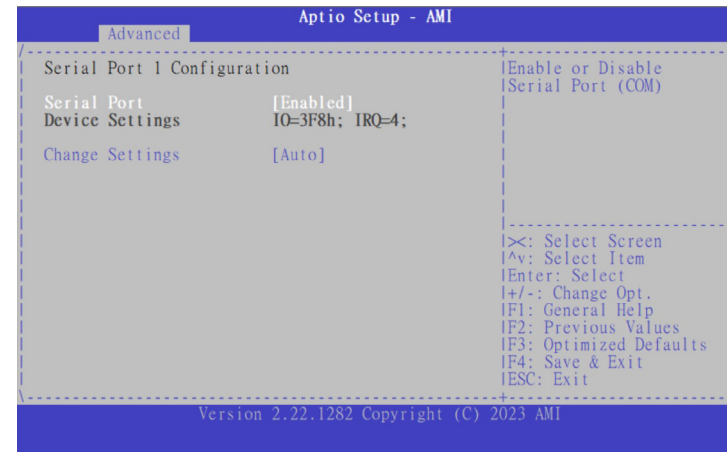
Display the Super I/O chip used on the board.

### Serial Port 1 Configuration

Enter the submenu to set the parameters for serial port 1.

## Serial Port 1 Configuration

This section is used to configure serial port 1.



### Serial Port

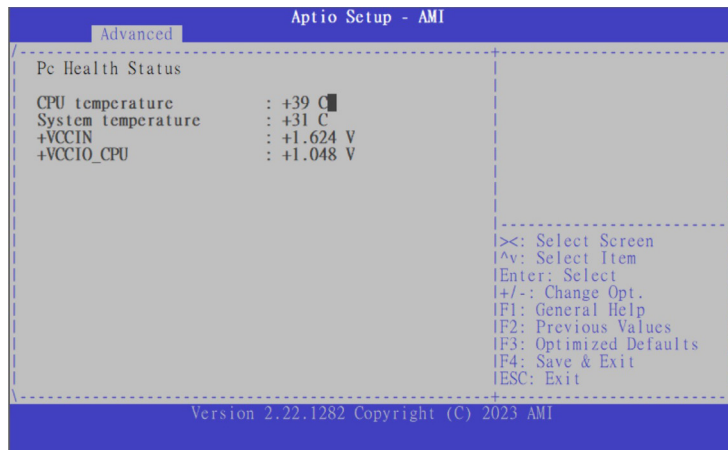
Enable or disable serial port.

### Change Settings

Select an optimal setting for the Super IO device.

## Hardware Monitor

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



### CPU temperature

Detect and display the current CPU temperature.

### System temperature

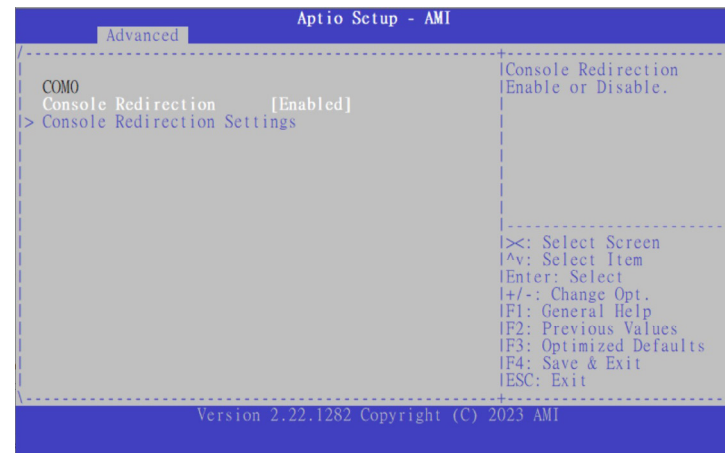
Detect and display the current system temperature.

### +VCCIN to +VCCIO\_CPU

Detect and display the +VCCIN and +VCCIO\_CPU voltage.

## Serial Port Console Redirection

This section is used to configure the serial port that will be used for console redirection.



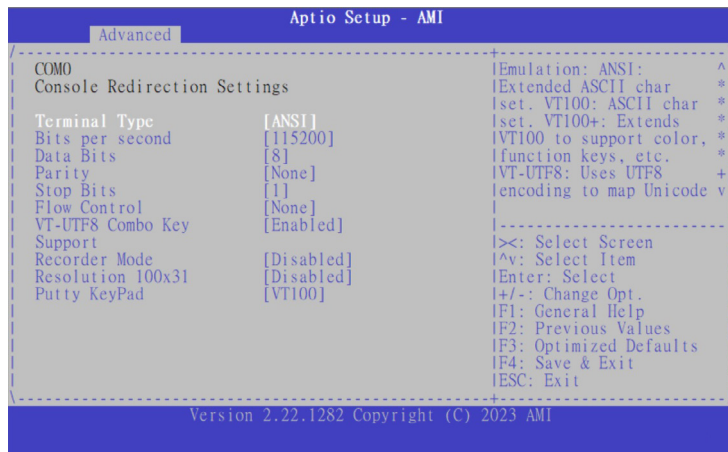
### Console Redirection

Enable or disable the console redirection.

### Console Redirection Settings

Enter the Console Redirection submenu.

## COM0 Console Redirection Settings



### Terminal Type

- ANSI Extended ASCII character set.
- VT100 ASCII character set.
- VT100+ Extends VT100 to support color, function keys, etc.
- VT-UTF8 Uses UTF8 encoding to map Unicode characters onto 1 or more bytes.

### Bits Per Second

Select the serial port transmission speed. The speed must match the other side. Long or noisy lines may require a lower speed.

### Data Bits

The options are 7 and 8.

### Parity

A parity bit can be sent with the data bits to detect some transmission errors.

- Even Parity bit is 0 if the number of 1's in the data bits is even.
- Odd Parity bit is 0 if number of 1's in the data bits is odd.

### Stop Bits

Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.

### Flow Control

Flow control can prevent data loss from buffer overflow. When sending data and the receiving buffers are full, a "stop" signal can be sent to stop the data flow.

### VT-UTF8 Combo Key Support

Enable or disable VT-UTF8 combo key support.

### Recorder Mode

When this field is enabled, only text will be sent. This is to capture the terminal data.

### Resolution 100x31

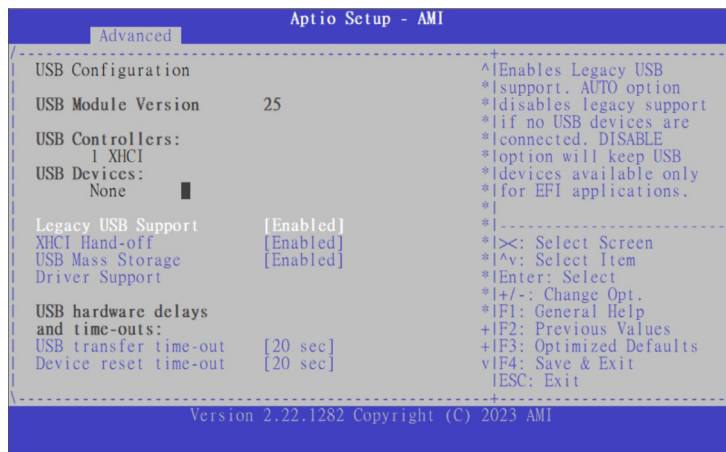
Enable or disable extended terminal resolution.

### Putty Keypad

Select the Putty keyboard emulation type.

## USB Configuration

This section is used to configure the USB.



### Legacy USB Support

Enable Enable Legacy USB.

Auto Disable support for Legacy when no USB devices are connected.

Disable Keep 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. USB Mass Storage Driver Support

Enable or disable USB mass storage device driver support.

### USB Transfer Time-out

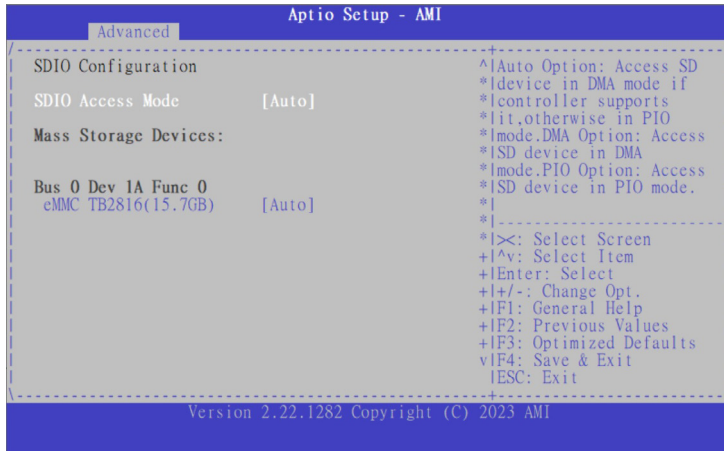
The time-out value for control, bulk, and Interrupt transfers.

### Device Reset Time-out

Select the USB mass storage device's start unit command timeout.

## SDIO Configuration

This section is used to configure the SDIO access mode.



### SDIO Access Mode

**Auto Option** Access SD device in DMA mode if controller support it, otherwise in PIO mode.

**DAM Option** Access SD device in DMA mode.

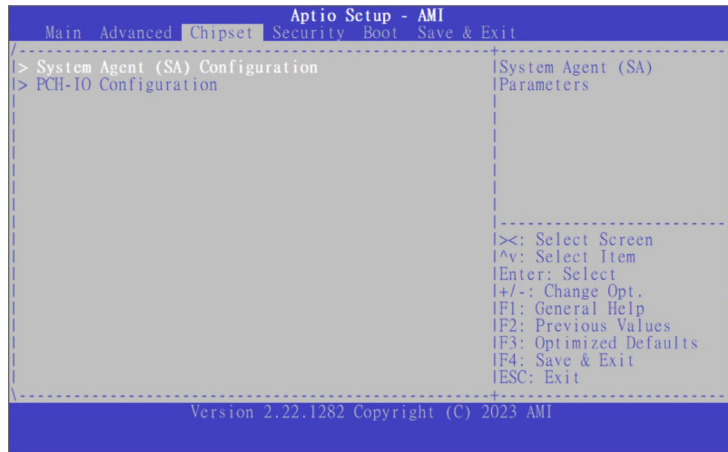
**PIO Option** Access SD device in PIO mode.

### eMMC MMC8GB (15.7GB)

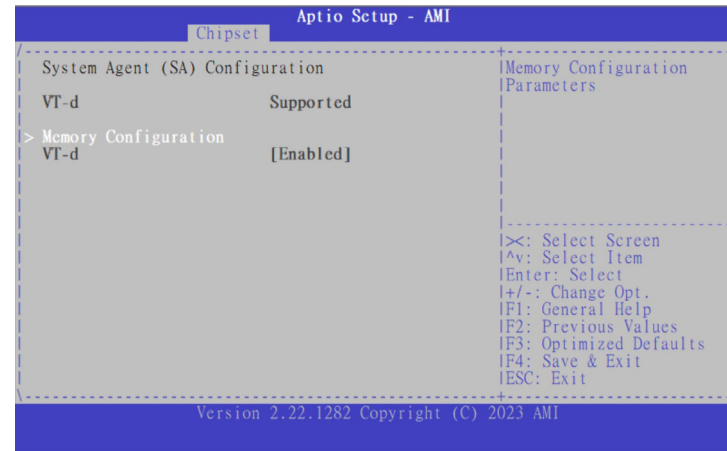
Mass storage device emulation type. **Auto** enumerates devices less than 530MB as floppies. Forced FDD option can be used to force HDD formatted drive to boot as FDD.

## 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.



## System Agent (SA) Configuration



### VT-d

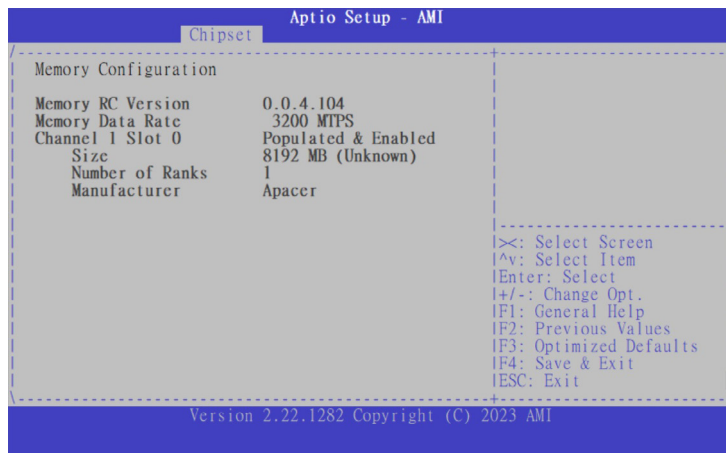
Enable or disable the VT-d.

### Memory Configuration

Enter the Memory Configuration submenu to set the parameters.



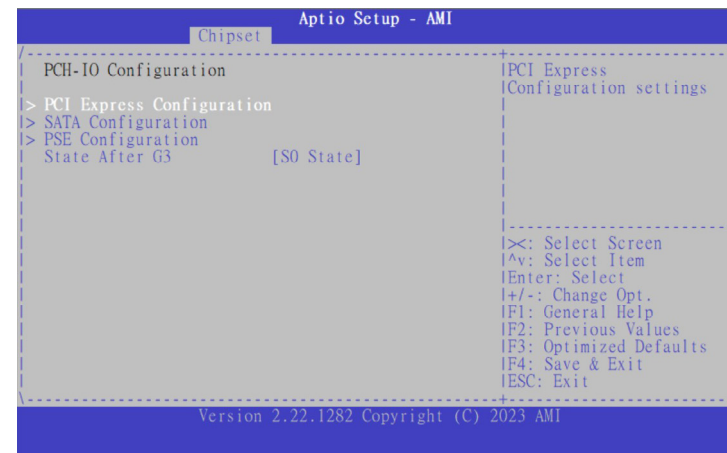
## Memory Configuration



### Memory Configuration

Display the information on the memory installed.

## PCH-IO Configuration



### PCI Express Configuration

Enter the PCI Express Configuration submenu.

### SATA Configuration

Enter the SATA Configuration submenu.

### PSE Configuration

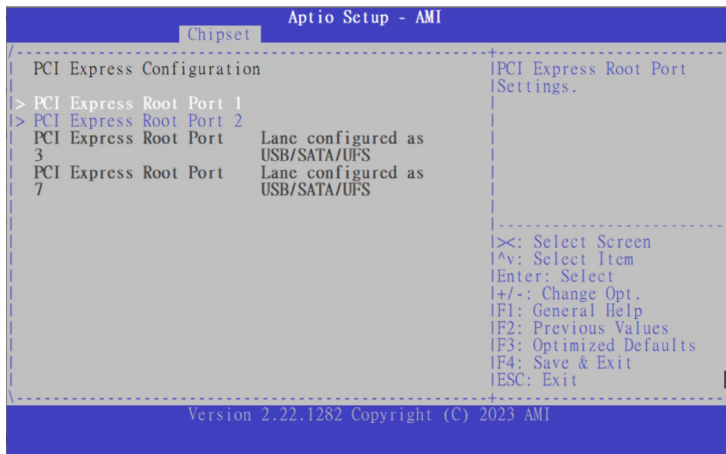
Enter the PSE Configuration submenu.

### State After G3

Configure the power state when power is re-applied after a power failure (G3 state)

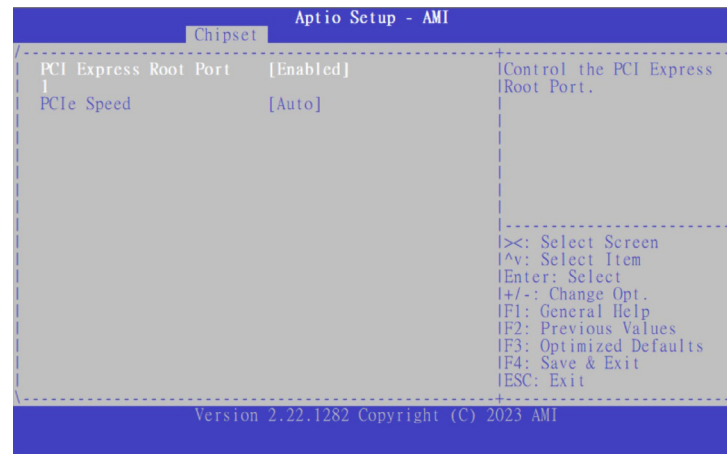
### PCI Express Configuration

This section is used to configure PCI Express configuration.



### PCI Express Root Port 1/2/3/7

This section is used to configure PCI Express configuration.



### PCI Express Root Port 1, 2, 3, 7

Enter the PCI Express Root Port 1, 2, 3, and 7 submenu.

### PCI Express Root Port

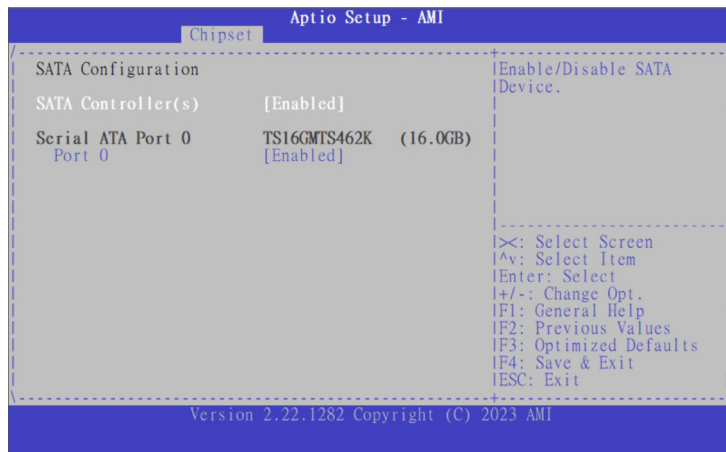
Enable or disable the PCI Express port.

### PCIe Speed

Configure the speed of the PCI Express Root Port.

## SATA Configuration

This section is used to configure PCI Express configuration.



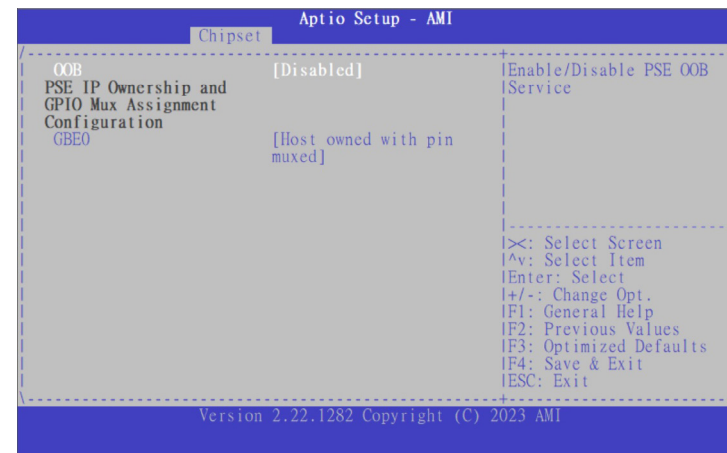
### SATA Controller(s)

Enable or disable the SATA controller.

### Port 0

Enable or disable the port 0.

## PSE Configuration



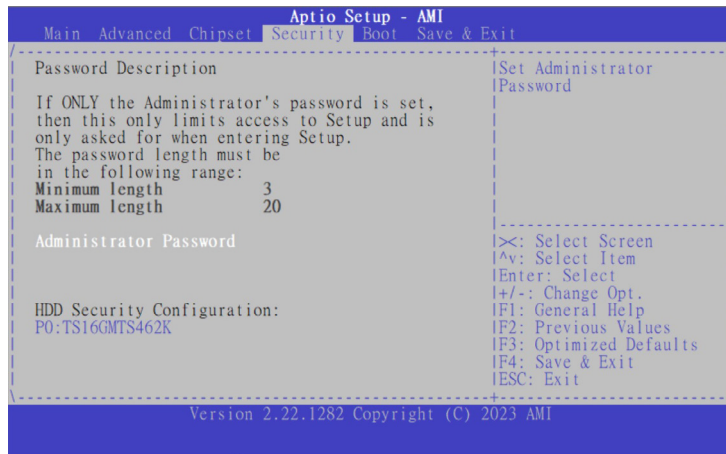
### OOB

Enable or disable PSE OOB Service.

### GBE0

Select ownership for GBE.

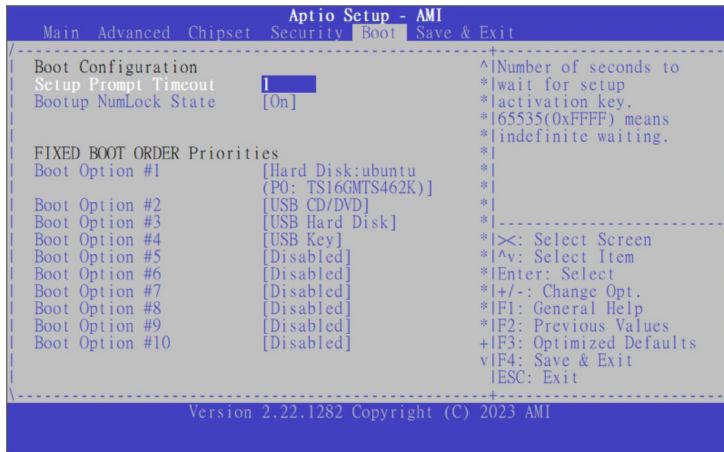
## Security



### Administrator Password

Select this to reconfigure the administrator's password.

## Boot



### Setup Prompt Timeout

Select 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.

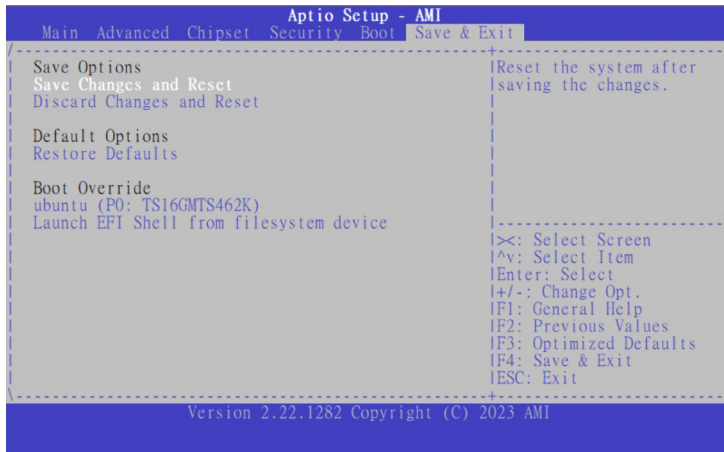
### Fixed Boot Order Priorities

Adjust 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.

### UEFI Hard Drive BBS Priorities

Configure the boot device priority sequence from available UEFI hard drive devices.

## Save & Exit



### 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.

### Restore Defaults

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

Launch the EFI shell.