CP100

**Fanless System with IBASE
IB200 2.5" Single Board Computer**

User Manual

Version 1.0
December 2025

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Compliance

$C\epsilon$

This product has passed CE tests for environmental specifications and limits. This product is in accordance with the directives of the European Union (EU). If users modify and/or install other devices in this equipment, the CE conformity declaration may no longer apply.

FC

This product has been tested and found to comply with the limits for a Class B device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications.

WEEE

This product must not be disposed of as normal household waste, in accordance with the EU directive for Waste Electrical and Electronic Equipment (WEEE – 2012/19/EU). Instead, it should be disposed of by returning it to a municipal recycling collection point. Check local regulations for disposal of electronic products.

Green IBASE

This product is compliant with the current RoHS 2 restrictions and prohibits use of the following substances in concentrations exceeding 0.1% by weight (1000 ppm) except for cadmium, limited to 0.01% by weight (100 ppm).
• Hexavalent chromium: 1,000 ppm
• Polybrominated biphenyls (PBBs): 1,000 ppm
• Polybrominated diphenyl ethers (PBDEs): 1,000 ppm
• Cadmium: 100 ppm
• Mercury: 1,000 ppm
• Lead: 1,000 ppm
• Bis(2-ethylhexyl) phthalate (DEHP): 1,000 ppm
• Butyl benzyl phthalate (BBP): 1,000 ppm
• Dibutyl phthalate (DBP): 1,000 ppm
• Diisobutyl phthalate (DIBP): 1,000 ppm

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Important Safety Information

Carefully read the precautions before using the device.

Environmental conditions:

- Lay the device horizontally on a stable and solid surface in case the device may fall, causing serious damage.
- Leave plenty of space around the device and do not block the openings for ventilation. Never drop or insert any objects of any kind into the ventilation openings.
- Slots and openings on the chassis are for ventilation. Do not block or cover these openings. Make sure you leave plenty of space around the device for ventilation. Never insert objects of any kind into the ventilation openings.

Care for your IBASE products:

- Before cleaning the device, turn it off and unplug all cables such as power in case a small amount of electrical current may still flow.
- Use neutral cleaning agents or diluted alcohol to clean the device chassis with a cloth. Then wipe the chassis with a dry cloth.
- Vacuum the dust with a computer vacuum cleaner to prevent the air vent or slots from being clogged.

 WARNING

Attention during use:

- Do not use this product near water.
- Do not spill water or any other liquids on your device.
- Do not place heavy objects on the top of the device.
- Operate this device from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your distributor or local power company.
- Do not walk on the power cord or allow anything to rest on it.
- If you use an extension cord, make sure that the total ampere rating of the product plugged into the extension cord does not exceed its limits.

Avoid Disassembly

You are not suggested to disassemble, repair or make any modification to the device. Disassembly, modification, or any attempt at repair could generate hazards and cause damage to the device, even bodily injury or property damage, and will void any warranty.

⚠ CAUTION

Danger of explosion if the internal lithium-ion battery is replaced with an incorrect type. Replace only with the same or an equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Warranty Policy

- **IBASE standard products:**

    24-month (2-year) warranty from the date of shipment. If the date of shipment cannot be ascertained, the product serial numbers can be used to determine the approximate shipping date.

- **3rd-party parts:**

    12-month (1-year) warranty from delivery for the 3rd-party parts that are not manufactured by IBASE, such as CPU, memory, SSD/HDD, power adapter, panel and touchscreen.

* *Products that fail due to misuse, accident, improper installation or unauthorized repair shall be treated as out of warranty and customers shall be billed for repair and shipping charges.*

Technical Support & Services

1. Visit the IBASE website at www.ibase.com.tw to find the latest information about the product.
2. If you need any further assistance from your distributor or sales representative, prepare the following information of your product and elaborate upon the problem.

    - Product model name
    - Product serial number
    - Detailed description of the problem
    - The error messages in text or in screenshots if there is any
    - The arrangement of the peripherals
    - Software in use (such as OS and application software, including the version numbers)

3. If repair service is required, you can download the RMA form at the website of IBASE. Fill out the form and contact your distributor or sales representative.

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Table of Contents

Chapter 1
General Information

The information provided in this chapter includes:

- Features
- Packing List
- Specifications
- Product View
- Dimensions

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1.1 Introduction

The CP100 is a compact fanless embedded system built with the IBASE IB200 2.5-inch single board computer, designed for reliable operation in space-constrained industrial and commercial environments. Featuring efficient ARM-based processing, onboard LPDDR4(x) memory, high-speed eMMC storage, and versatile I/O options including USB, HDMI, COM, GPIO, and Ethernet, the CP100 delivers stable performance for applications such as digital signage, automation, and intelligent control. Its ruggedized fanless construction ensures silent, maintenance-free operation, making it ideal for deployment in harsh or thermally demanding environments.

CP100 with thermal bracket

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1.2 Features

- AMD Ryzen™ Embedded R2000 series APU on board, up to 4 cores/8 threads
- Onboard DDR4 memory, Max. 8GB
- 2x HDMI 2.0b & LVDS: 5V/3.3V, 24 bit, dual channel (LVDS: 1920x1080 @60 Hz)
- 2x GbE LAN, 4x COM, 2x USB 3.2 Gen2 (10Gbps) [with PDPC support], 3x USB 2.0 via pin headers
- Supports 1x M.2 (M-key, type 2280) & 1x M.2 (E-key, type 2230)
- Supports 4x COM - COM1/COM2: RS-232/422/485, COM3/COM4: RS232 (Default: RS-232, adjustable in BIOS)

1.3 Packing List

Your product package should include the items listed below.

- Carrier board
- Power Adaptor
- Power Cord
- Cable Bracket

The user's manual can be downloaded from the IBASE website.

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1.4 Specifications

Product Name	CP100
System Motherboard	IB200 with AMD Ryzen™ R2312 or R2314 CPU
System Speed	Up to 3.5GHz
System Memory	Onboard DDR4 memory, Max. 8GB
Front Panel External I/O	- DC-in (12V) - Power Button 2x HDMI 2x Intel® Gigabit LAN 2x USB 3.2 Gen2 (10Gbps)
Rear Panel External I/O	- Two antenna holes - COM1 / COM2 : RS-232/422/485 (Default: RS-232, adjustable via BIOS) - COM3 / COM4 : RS232
Expansion Slots	1x M.2 (M-key, type 2280)
Storage	1x SATA III 1x M.2 (M-key)
Audio	Built-in audio w/ Realtek audio codec ALC888S-VD2-GR
Construction	Aluminum & steel
Chassis Color Gray	Gray
Mounting Type	Mounting bracket x 2 ; CP100 V-A1 RoHS2
Dimensions	94 mm (W) x 133 mm (D) x 51.4 mm (H)
Certification	CE / LVD / FCC Class B
Others	Digital I/O, TPM 2.0
Environment	
Operating Temperature	0°C~45°C (32°F~113°F)
Storage Temperature	-10°C ~ 80°C (-14°F ~ 176°F)
Relative Humidity	90% (non-condensing@60°C)
Vibration	- Non-Operating: 1.0 grms / 5~500Hz / random operation - Operatiing:0.25 grms / 5~500Hz / random operation
Shock	- Operating: 20 g / 11 ms - Non-operating: 40 g / 11 ms

All specifications are subject to change without prior notice.

1.5 Product View

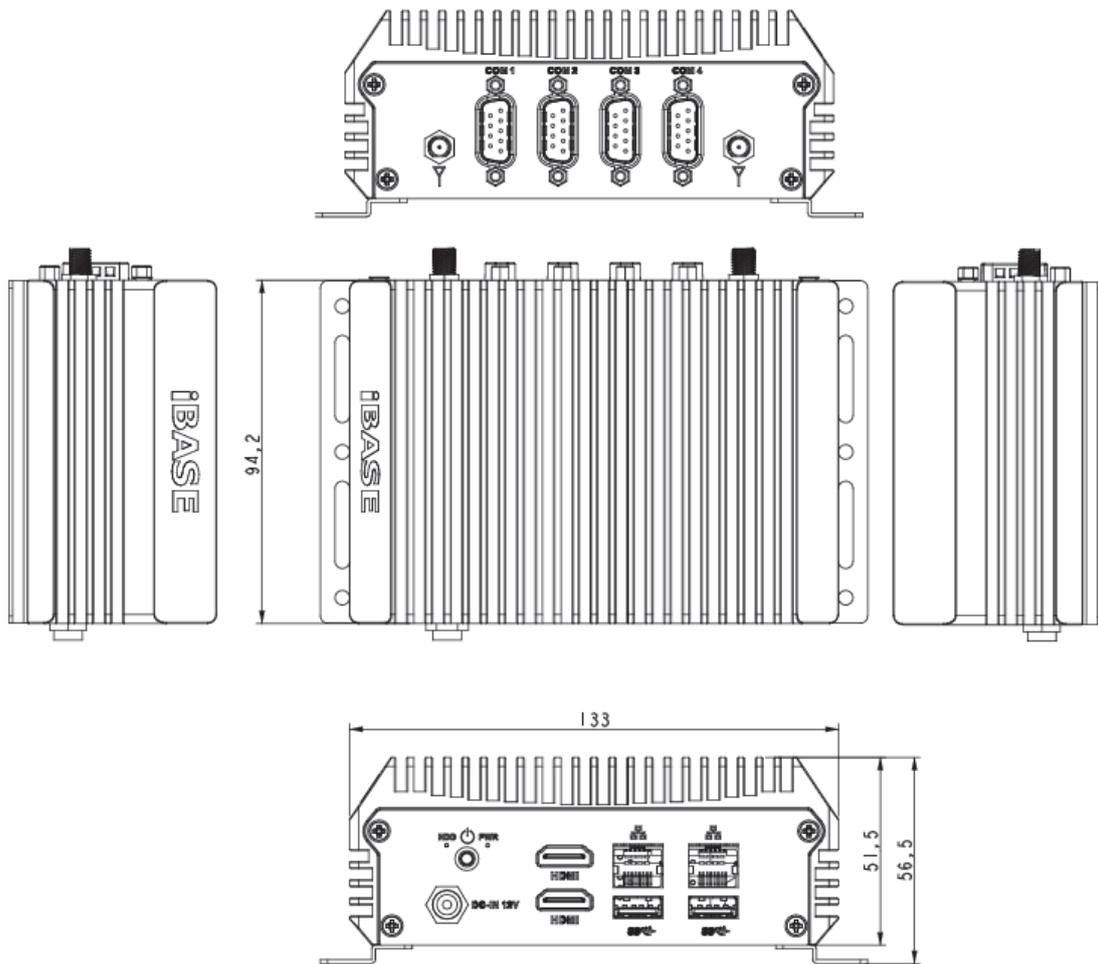| Front Panel External I/O	- DC-in (12V) - Power Button 2x HDMI 2x Intel® Gigabit LAN 2x USB 3.x

Rear Panel External I/O	- Two antenna holes - COM1 / COM2 : RS-232/422/485 (Default: RS-232, adjustable via BIOS) - COM3 / COM4 : RS232

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1.6 Dimensions

Unit: mm

Unit Only (L*W*H)
133 x 94.2 x51.5 mm
Unit with mounting bracket (L*W*H)
133 x 94.2 x56.5 mm

Chapter 2
Hardware Configuration

The information provided in this chapter includes:

- installations
- Information and locations of connectors

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2.1 Installation

The CP100 Fanless System is designed with a modular mechanical structure that allows users to access internal components such as storage modules, expansion sockets, and onboard connectors after removing the external chassis plates. This chapter provides a detailed step-by-step disassembly and reassembly procedure to safely access the IBASE IB200 2.5" Single Board Computer (SBC) and its associated sockets.

The following instructions must be carried out only by qualified personnel. Always disconnect the system from its power source before performing any installation or service work.

After completing the disassembly steps outlined in this chapter, users will be able to access internal sockets such as:

- M.2 slots (for WiFi/BT or storage modules)

- Onboard storage devices (if applicable)

- Debug, GPIO, I²C, SPI, RTC battery connectors

- Other internal expansion headers on the IB200 SBC

Required Tools
- Phillips screwdriver (#1 or #2 depending on screw size)
- ESD protection (recommended)

2.1.1 System Disassembly Procedure

Follow the sequence below to safely remove each chassis component and gain access to the mainboard.

Step 1 – Remove the Mounting Brackets (Side Brackets)

1. After removing the bottom plate, locate the two system mounting brackets fixed to the chassis as shown in the image above.
2. Each bracket is secured by **two M3 × 6 round-head screws with spring washers (110° head)**.
3. **Remove 4 screws total** (2 per bracket).
4. Carefully detach both **Mounting Brackets (2 pcs)** from the chassis.

Mounting
Bracket 2 pcs

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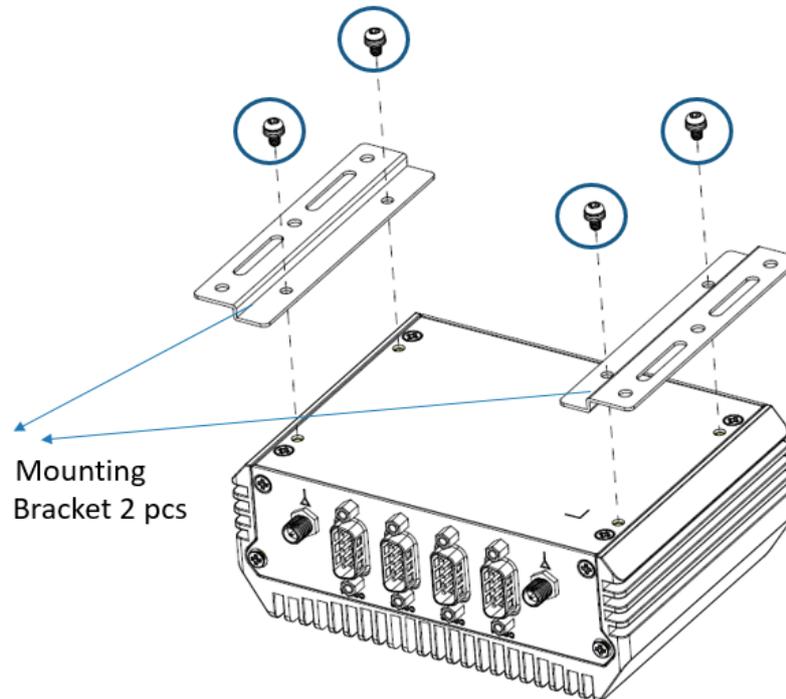
Step 2 – Remove the Bottom Plate

1. Place the CP100 system upside down on a clean, non-abrasive surface.
2. Identify the four **M3 × 6 black countersunk screws (110° head)** securing the bottom plate.
3. **Remove all 4 screws** using a Phillips driver.
4. Lift and remove the **Bottom Plate** to expose the mounting brackets beneath.

Bottom Plate
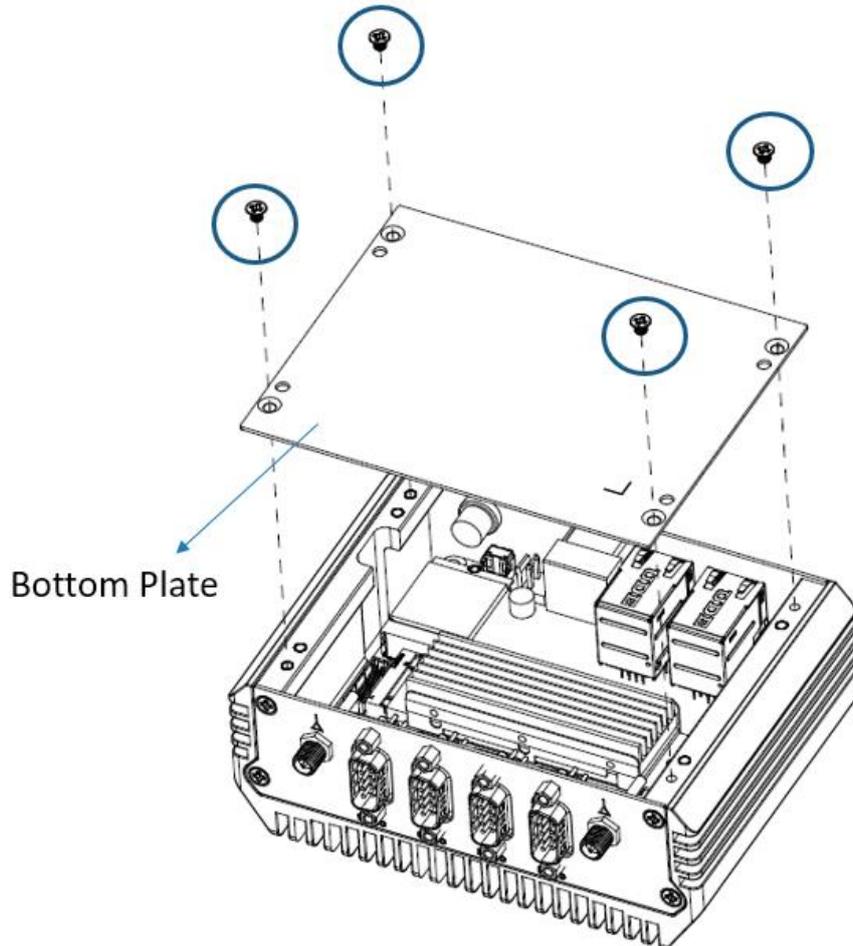
Step 3 – Remove the Front and Rear Plates

1. Turn the system upright again.
2. Locate the **eight M3 × 6 black countersunk screws (110° head)** securing the **Front Plate** and **Rear Plate**.
3. **Remove all 8 screws**.
4. Gently pull both plates away from the chassis to expose the outer perimeter of the internal heatsink assembly.


Front Plate
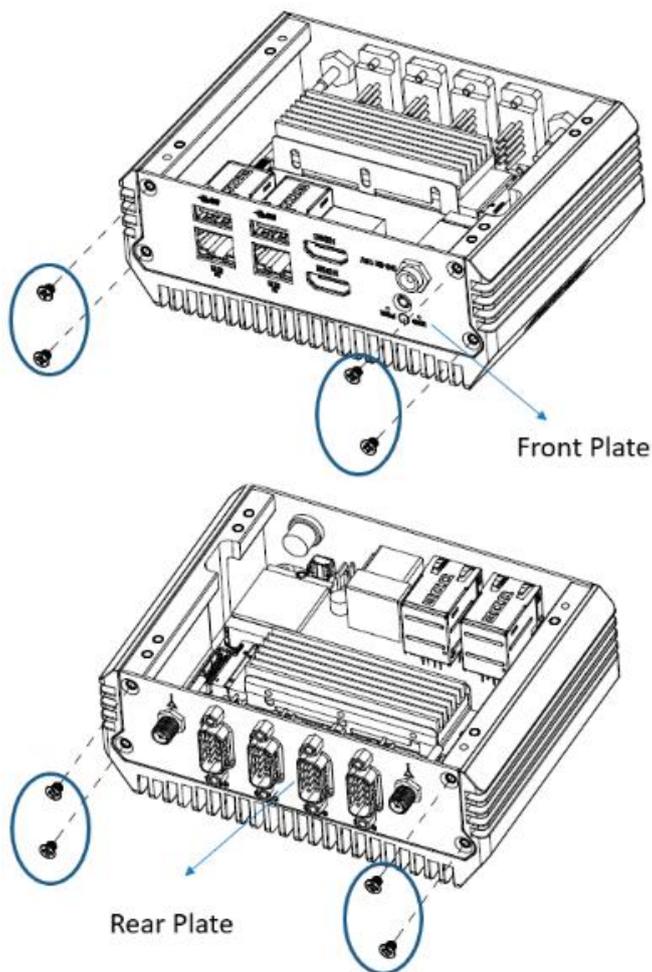
Rear Plate

Step 4 – Remove the Upper Thermal Bracket (If Installed)

1. At the top side of the chassis, locate the **four M3 × 6 black countersunk screws (110° head)** that fasten the **Thermal Bracket** to the Front and Rear Plates.
2. **Remove all 4 screws**.
3. Lift the **Thermal Bracket** upward and set it aside.

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Step 5 – Remove the Mainboard (IB200 SBC)

With all chassis plates removed, the internal PCB becomes accessible.

1. Locate the **four M3 × 6 round-head screws with spring washers (110° head)** securing the mainboard to the internal standoffs.
2. **Remove all 4 screws**.
3. Hold the edges of the **IB200 SBC** and carefully lift it upward.
4. Avoid pulling directly on any cables or connectors.
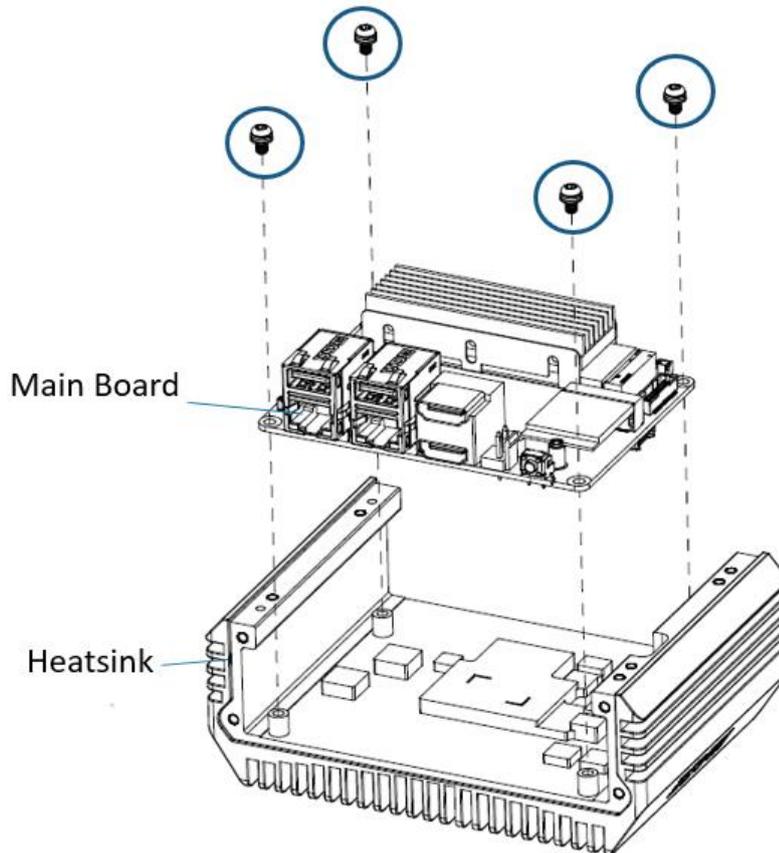
After removal of the mainboard, all onboard sockets—including M.2, debug connectors, GPIO, I²C, SPI, RTC battery connector, and other module interfaces—are fully accessible for replacement or installation of new components.

Once the IB200 mainboard is removed, users can access:

- **M.2 slot(s):** for WiFi/BT modules or NVMe/storage depending on configuration
- **Onboard eMMC or storage connectors** (if applicable)
- **GPIO, I²C, SPI headers**
- **RTC battery connector (BAT1)**
- **Debug interfaces and internal USB/COM headers**

Refer to the **Jumpers & Connectors** chapter for the exact location, pin assignments, signal descriptions, and usage guidelines.

2.1.2   Reassembly Procedure

Reassembly follows the reverse order:

1. Install and secure the **Mainboard** (4 × M3 × 6 screws, round-head, with spring washers)
2. Reattach the **Thermal Bracket** (4 × black M3 × 6 countersunk screws)
3. Install **Front Plate** and **Rear Plate** (8 × black M3 × 6 countersunk screws)
4. Reinstall **Mounting Brackets** (4 × M3 × 6 round-head screws)
5. Attach the **Bottom Plate** (4 × black M3 × 6 countersunk screws)

Ensure all screws are fully tightened but not over-torqued.

2.1.3   Antenna Installation

Thread the antenna extension cable through the antenna connectors in the system. There are a total of six antenna connectors, with two in front and four on the side. Fasten the antenna as shown below and apply adhesive to the edge of the hex nut to prevent the extension cable from falling off.

1. Thread and fasten the hex nut and the washer. Then install the antenna.
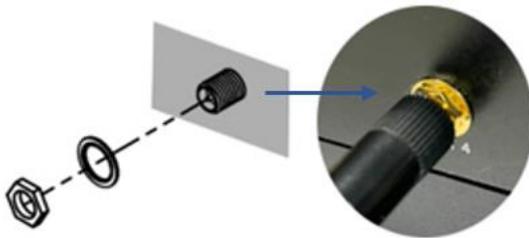
2. Apply adhesive around here.
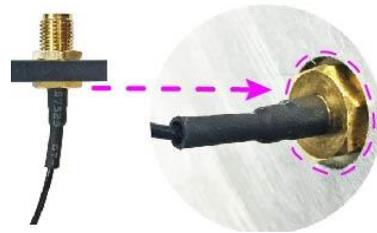
**Info:** The diameter of the nut is around 6.35 mm (0.25"-36UNC).

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2.2 Mainboard Information

The CP100 Fanless System is designed with the IBASE IB200 2.5" Single Board Computer (SBC). This section shows the internal components such as storage modules, expansion sockets, and onboard connectors that are accessible after removing the external chassis plates.

2.2.1   Setting the Jumpers

Set up and configure your board by using jumpers for various settings and features according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your use.

Jumpers are short-length conductors consisting of several metal pins with a non-conductive base mounted on the circuit board. Jumper caps are used to have the functions and features enabled or disabled. If a jumper has 3 pins, you can connect either PIN1 to PIN2 or PIN2 to PIN3 by shorting.
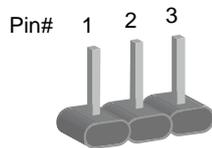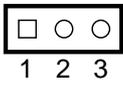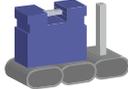

A 3-pin jumper   **A jumper cap**

Refer to the illustration below to set jumpers.

Pin closed	Oblique view	Illustration
Open		
1-2		
2-3		
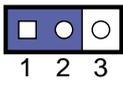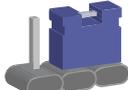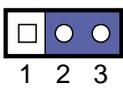
When two pins of a jumper are encased in a jumper cap, this jumper is **closed**, i.e. turned **on**. When a jumper cap is removed from two jumper pins, this jumper is **open**, i.e. turned **off**.

2.2.2 Connector Locations on IB200

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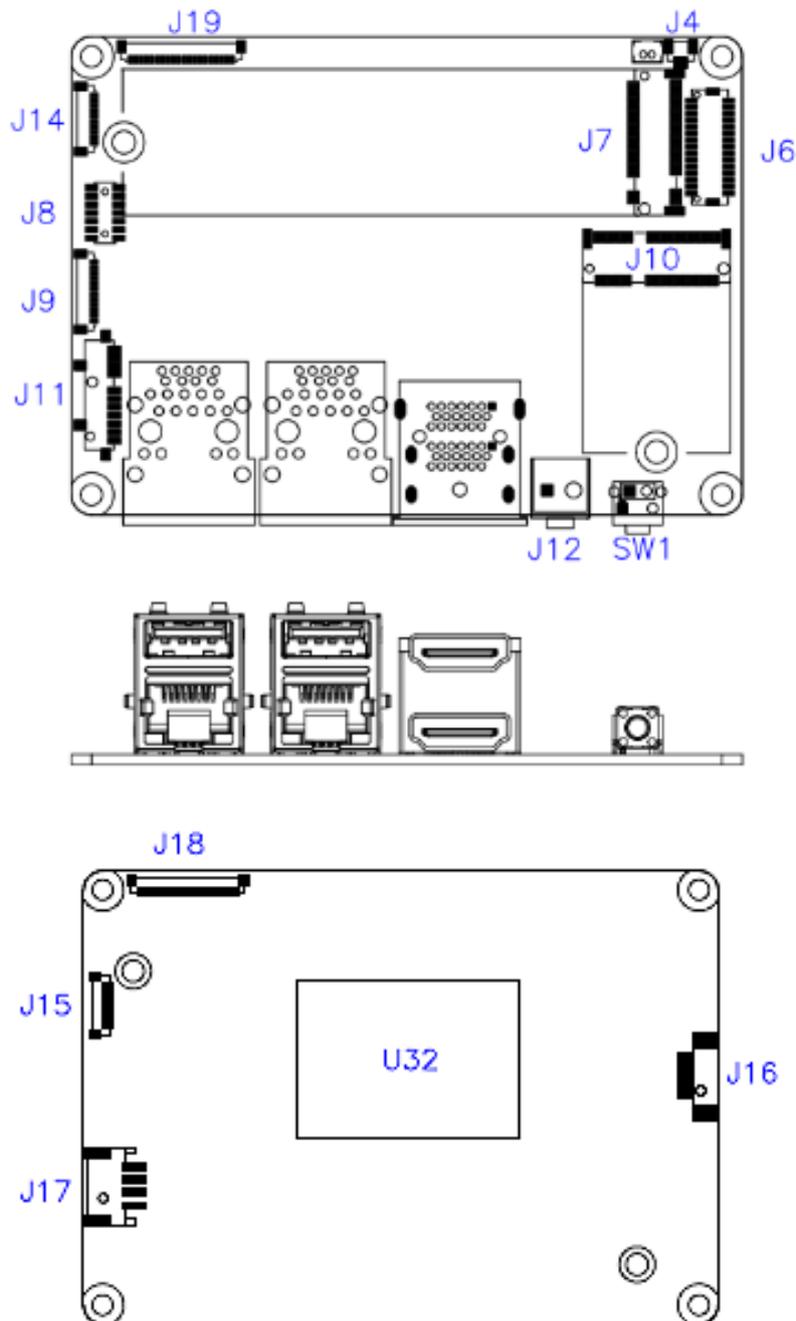
2.2.3 Connector Quick Reference

Function	Connector
Power Switch	SW1
System Reset	J4
LVDS Connector	J6
M.2 M-Key 2280 Socket	J7
USB 2.0 Connector	J8
M.2 E-Key 2230 Socket	J10
SATA Connector	J11
Audio Connector	J9
DC Power Input Connector	J12
Digital IO	J14
Debug Port	J15
LCD Backlight Connector	J16
CPU Fan Power Connector	J17
COM1 & COM2 Ports	J18
COM3 & COM4 Ports	J19

2.2.3.1. Power Switch (SW1)
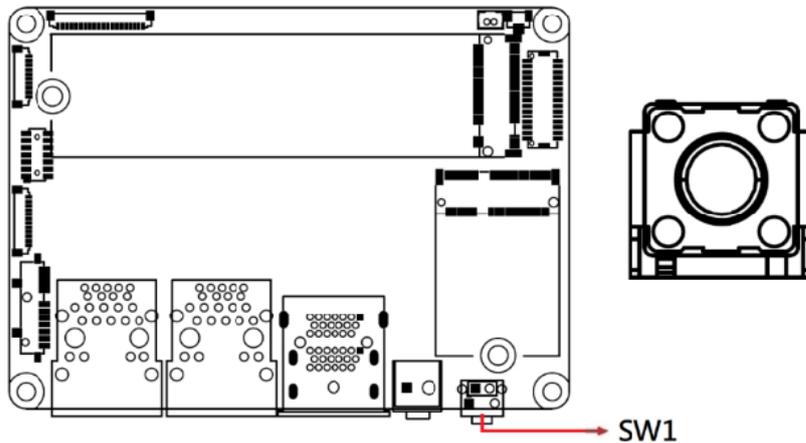
2.2.3.2. System Reset (J4)
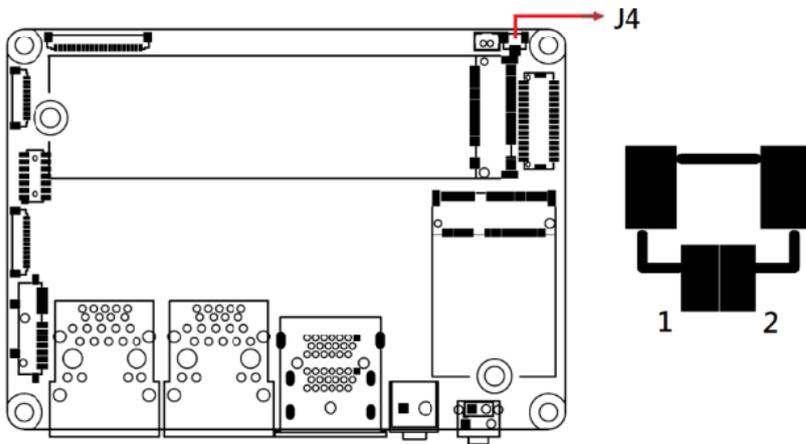
Pin	Assignment
1	Reset
2	Ground

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2.2.3.3. LVDS Connector   (J6)
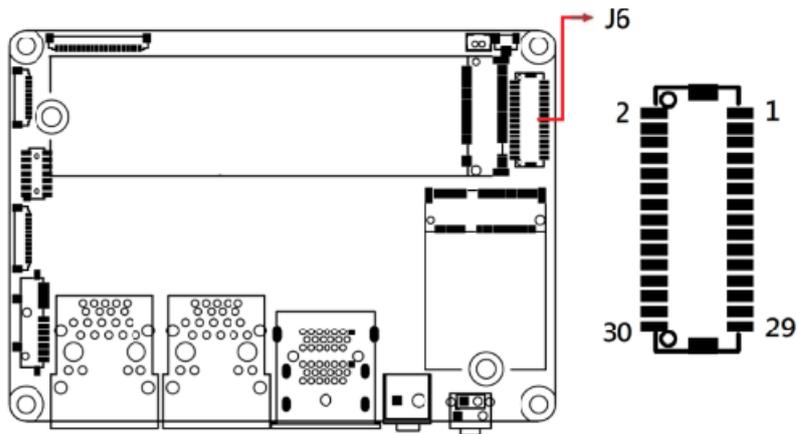
Pin	Assignment	Pin	Assignment
1	LVSDE_P	2	LVSDO_P
3	LVSDE_N	4	LVSDO_N
5	GND	6	GND
7	LVSCKE_P	8	LVSCKO_P
9	LVSCKE_N	10	LVSCKO_N
11	GND	12	GND
13	LVSCE_P	14	LVSCO_N
15	LVSCE_N	16	LVSCO_P
17	GND	18	GND
19	LVSBE_P	20	LVSBO_P
21	LVSBE_N	22	LVSBO_N
23	GND	24	GND
25	LVSAE_P	26	LVSAO_N
27	LVSAE_N	28	LVSAO_P
29	VDD	30	VDD

2.2.3.4. M.2 M-Key 2280 Socket (J7)
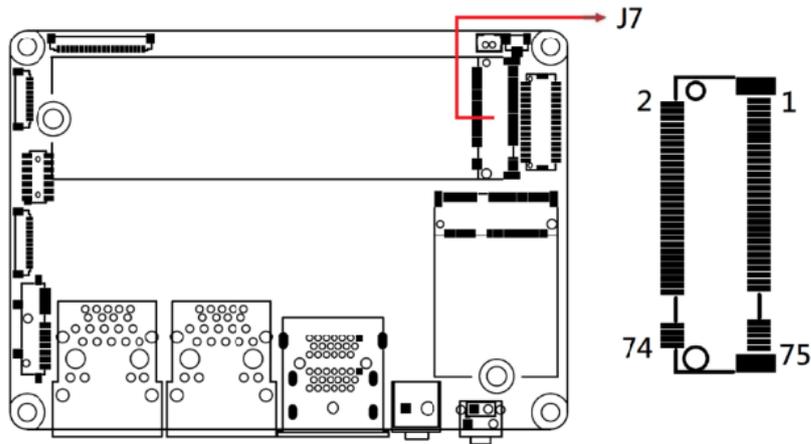
2.2.3.5. USB 2.0 Connector (J8)
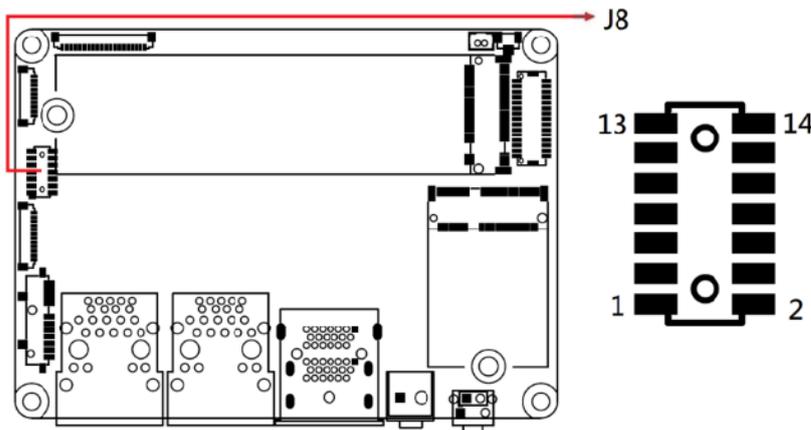
Pin	Assignment	Pin	Assignment
1	VCC	2	VCC
3	D0-	4	D1-
5	D0+	6	D1+
7	Ground	8	Ground
9	VCC5	10	VCC5
11	D2-	12	Ground
13	D2+	14	VCC

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2.2.3.6. M.2 E-Key 2230 Socket (J10)
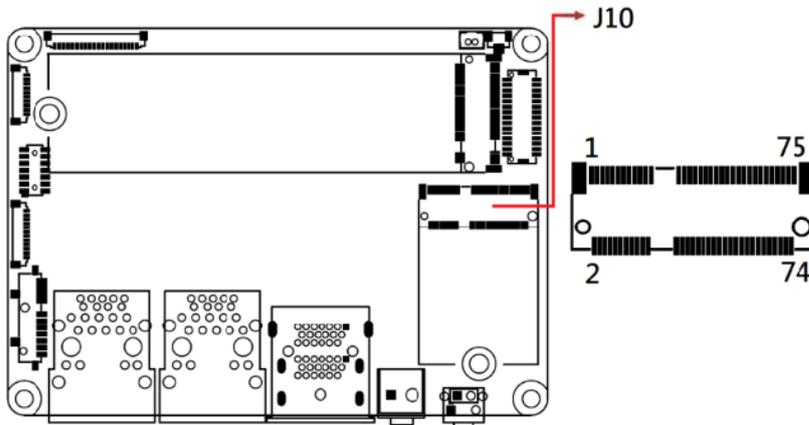
2.2.3.7. SATA Connector (J11)
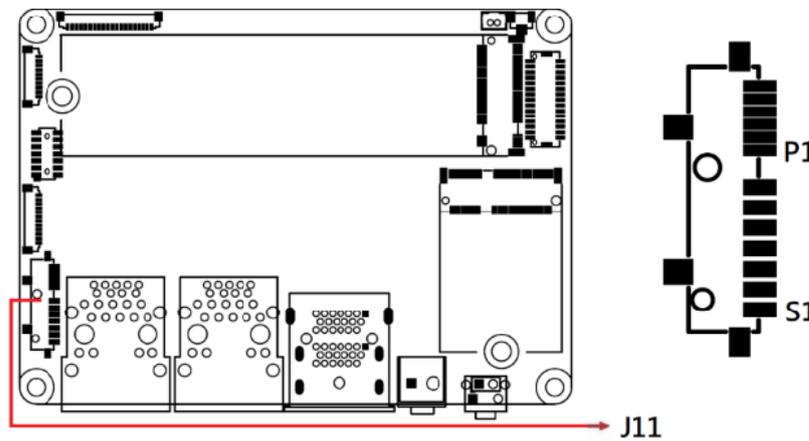
Pin	Assignment	Pin	Assignment
1	GND	P1	NC
S2	SATA_TXP0	P2	NC
S3	SATA_TXN0	P3	GND
S4	GND	P4	GND
S5	SATA_RXN0	P5	+5V
S6	SATA_RXP0	P6	+5V
S7	GND		

2.2.3.8. Audio Connector (J9)
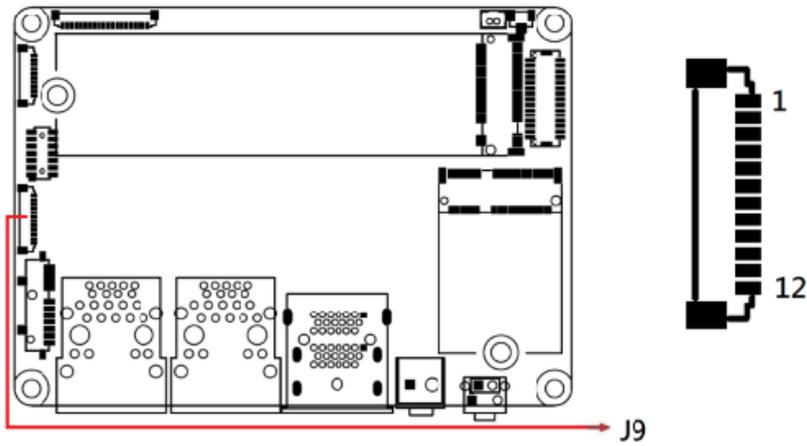
Pin	Assignment
1	GND
2	LINE _OUT_R
3	LINE _OUT_L
4	JD_FRONT
5	GND
6	LINE_IN_R
7	LINE_IN_L
8	JD_LINEIN
9	GND
10	MIC1_R
11	MIC1_L
12	JD_MIC1

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2.2.3.9. DC Power Input Connector (J12)
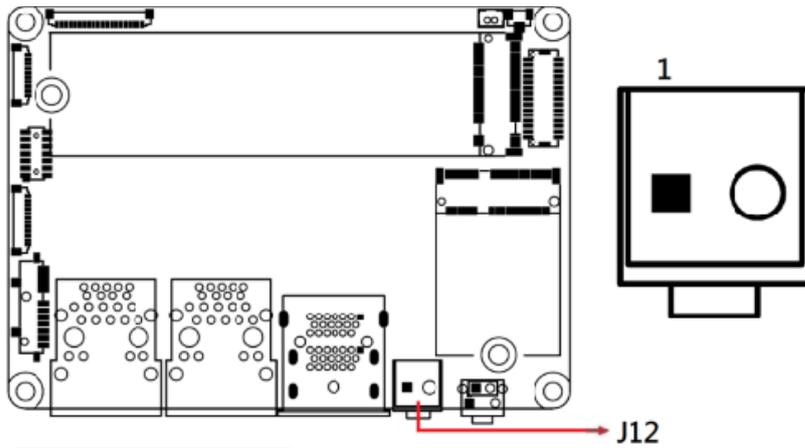
Pin	Assignment
1	+12V
2	Ground

2.2.3.10. Digital IO (J14)
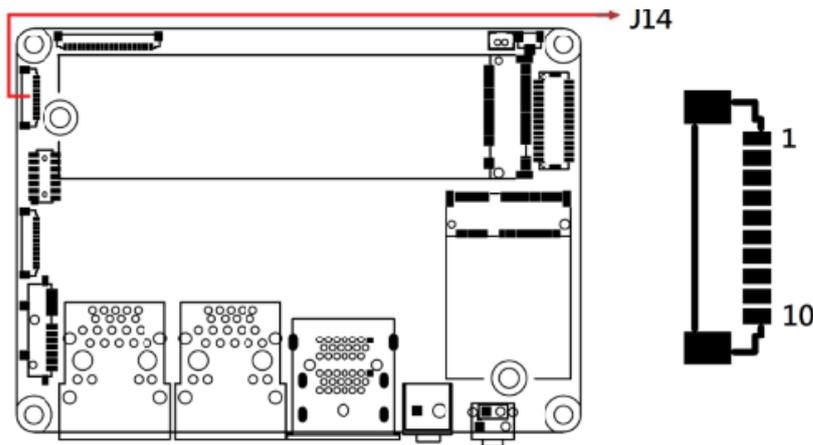
Pin	Assignment
1	+5V
2	OUT0
3	OUT1
4	OUT2
5	OUT3
6	GND
7	IN0
8	IN1
9	IN2
10	IN3

2.2.3.11. Debug Port (J15)
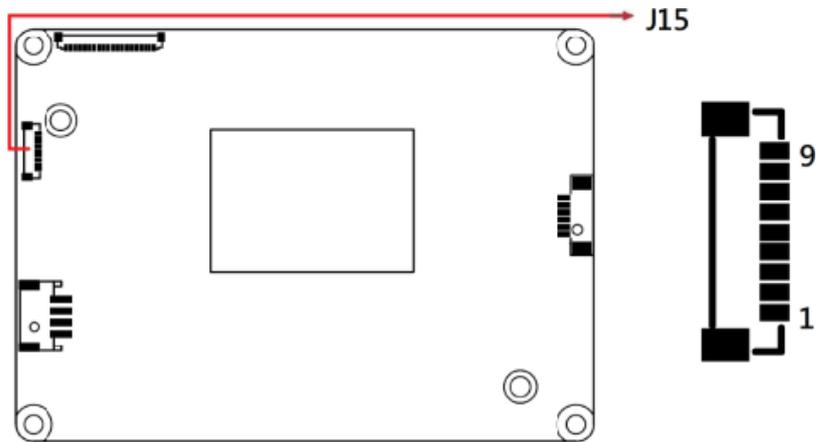
Remarks: bottom side

Pin	Assignment
1	+3.3V
2	LPC_RST#
3	LPC_FRAME#
4	GND
5	LPC_AD0
6	LPC_AD1
7	LPC_AD2
8	LPC_AD3
9	LPC_CLK0

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2.2.3.12. LCD Backlight Connector (J16)
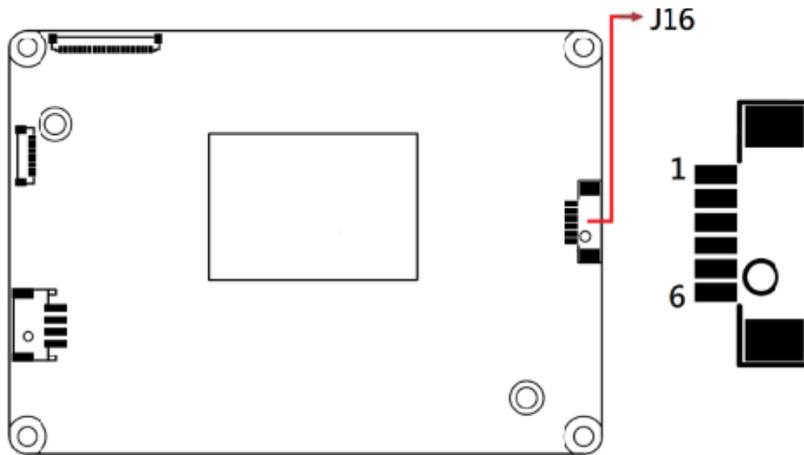
Remarks: bottom side

Pin	Assignment
1	+12V
2	+12V
3	GND
4	GND
5	Backlight Enable
6	Brightness Control

2.2.3.13. CPU Fan Power Connector (J17)
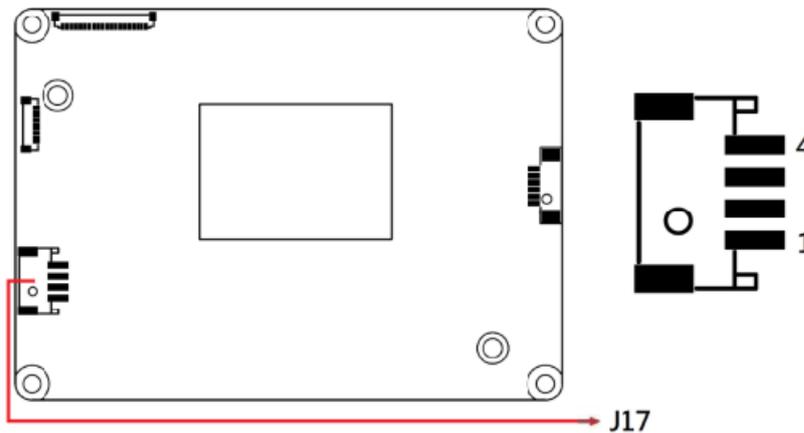
Remarks: bottom side

Pin	Assignment	Pin	Assignment
1	Ground	3	Rotation detection
2	+12V	4	Control

2.2.3.14.   COM1 & COM2 Ports   (J18)
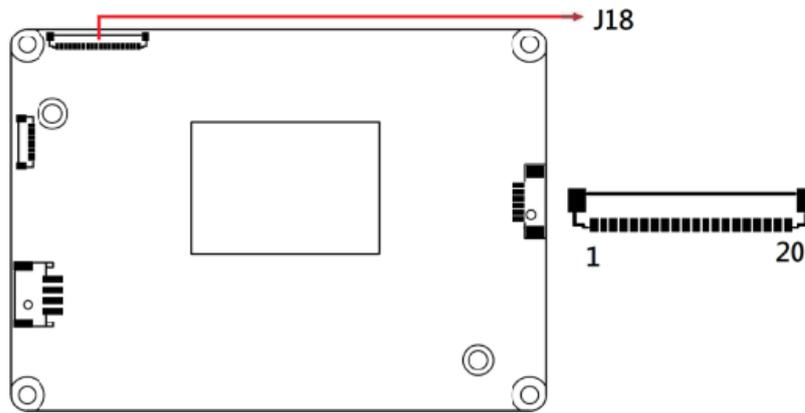
Remarks: bottom side

Pin	Assignment	Pin	Assignment
1	DCD#1	11	DCD#2
2	SIN1	12	SIN2
3	SOUT1	13	SOUT2
4	DTR#1	14	DTR#2
5	GND	15	GND
6	DSR#1	16	DSR#2
7	RTS#1	17	RTS#2
8	CTS#1	18	CTS#2
9	RI#1	19	RI#2
10	RI#1	20	RI#2

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2.2.3.15. COM3 & COM4 Ports (J19)
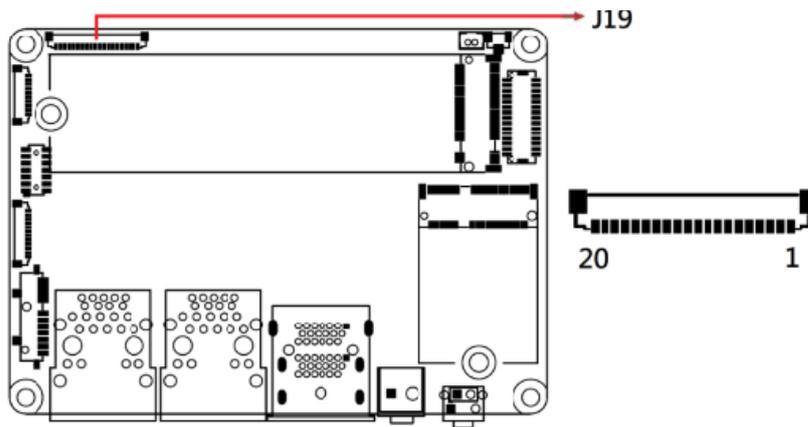
Pin	Assignment	Pin	Assignment
1	DCD#3	11	DCD#4
2	SIN3	12	SIN4
3	SOUT3	13	SOUT4
4	DTR#3	14	DTR#4
5	GND	15	GND
6	DSR#3	16	DSR#4
7	RTS#3	17	RTS#4
8	CTS#3	18	CTS#4
9	RI#3	19	RI#4
10	RI#3	20	RI#4

Chapter 3
Drivers Installation

This chapter introduces installation of the following drivers:

- AMD Ryzen™ R2000 Chipset Drivers
- AMD Ryzen™ R2000 Graphics Drivers
- Realtek High Definition Audio Driver
- Intel LAN Controller Drivers

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3.1 AMD Ryzen™ R2000 Chipset Drivers

1. Go to the download page of the product. Copy the compressed drivers file to your computer. Double click the file to decompress it. Run "CDGuide" to go to the main drivers page as shown below. Click **AMD** on the left pane and then **AMD Ryzen R2000 Drivers** on the right.
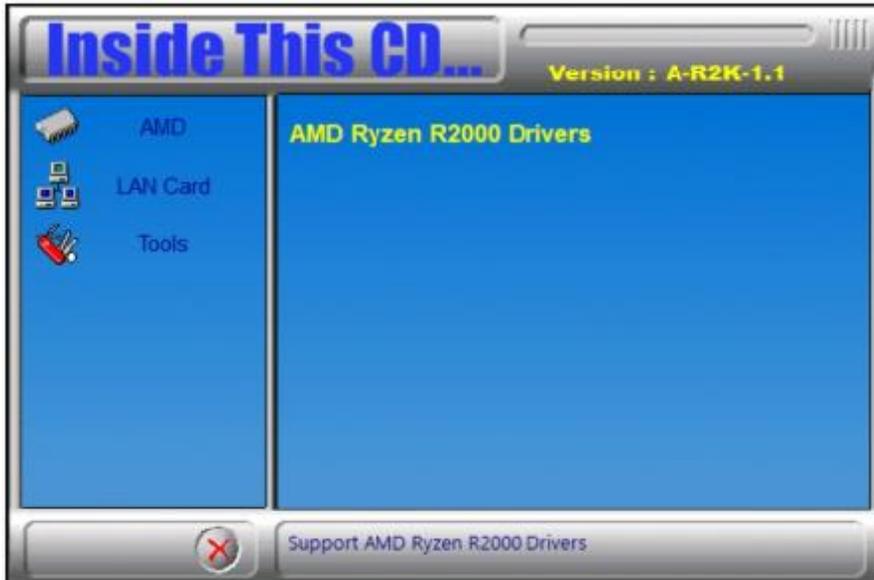
2. Click **AMD Ryzen R2000 Chipset Drivers**.
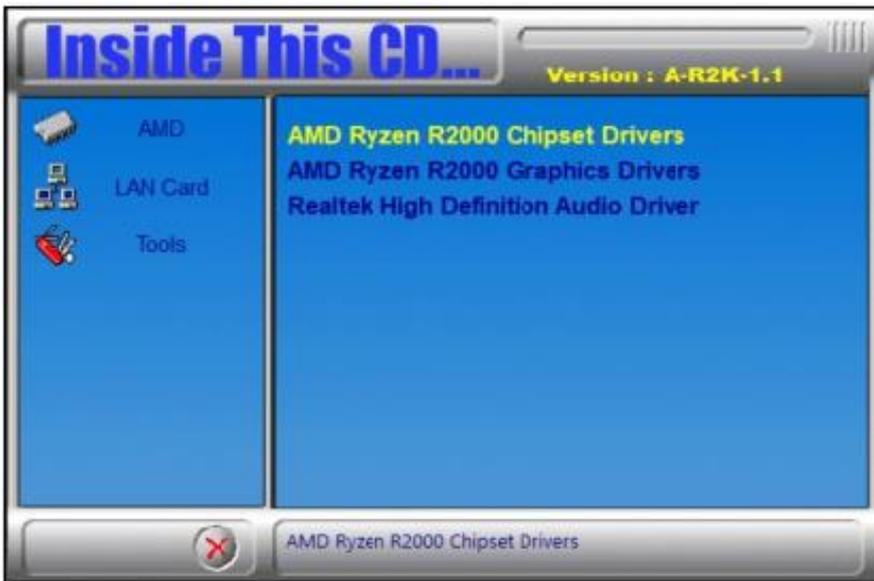
3. On the following screen (AMD Chipset Software Installer), click **Install.**
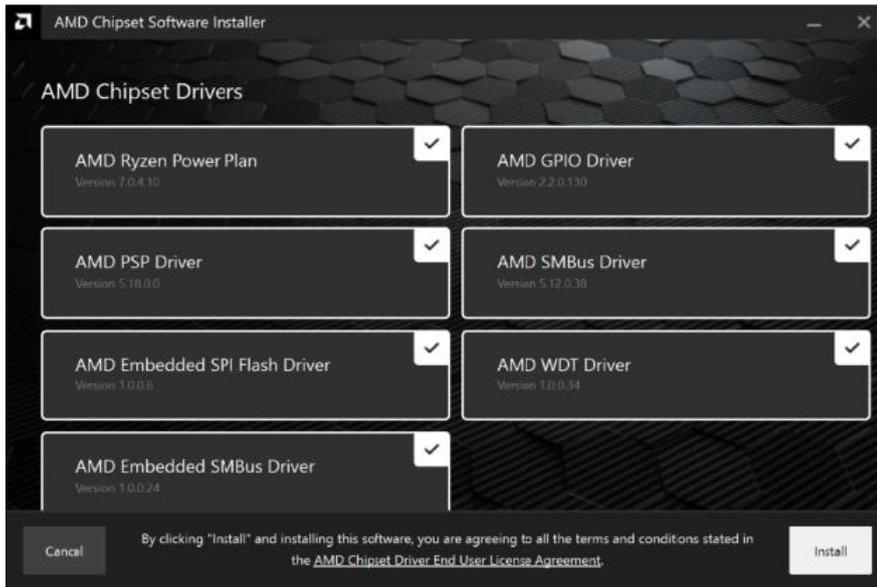
4. After the AMD Chipset Software is installed successfully, click Restart.

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3.2 AMD Ryzen™ R2000 Graphics Drivers

1. Click **AMD** on the left pane and then **AMD Ryzen R2000 Drivers** on the right pane.
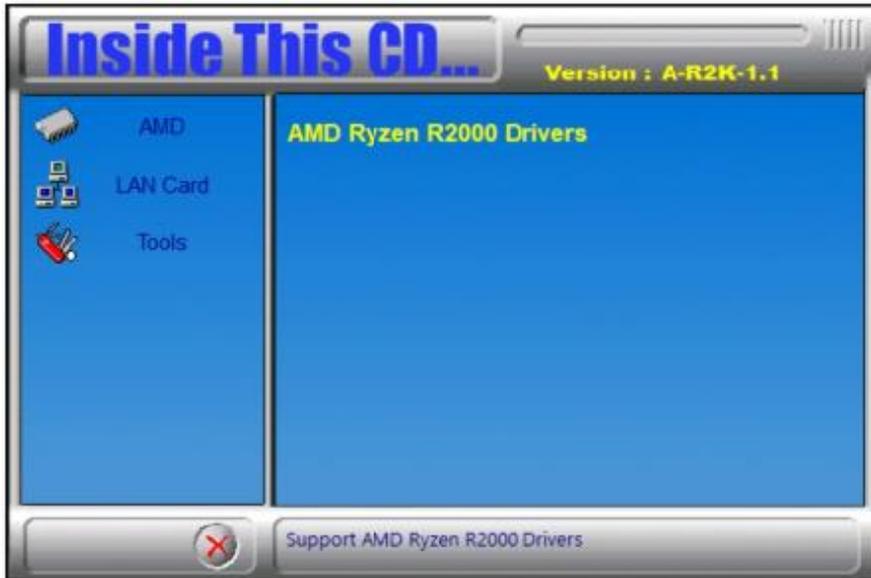
2. Click **AMD Ryzen R2000 Graphics Drivers**.
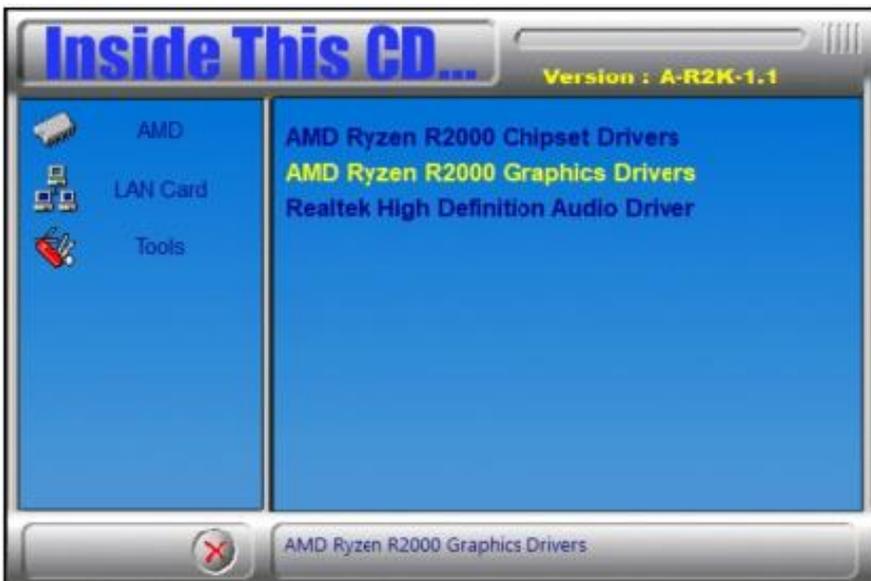
3. On the following screen (AMD Radeon PRO Software Installer), click **Install**.
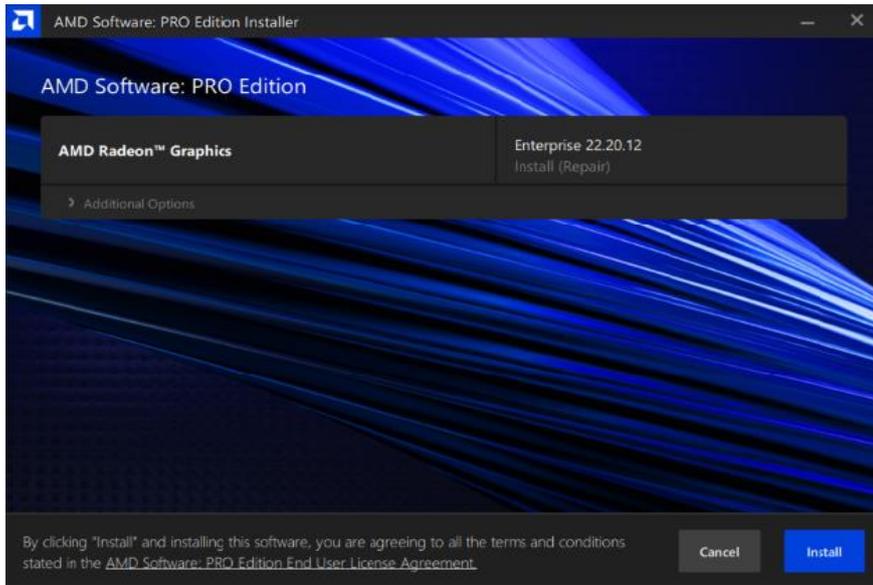
4. To complete the installation process, click Restart.

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3.3 Realtek High Definition Audio Driver

1. Click **AMD** on the left pane and then **AMD Ryzen R2000 Drivers** on the right pane.
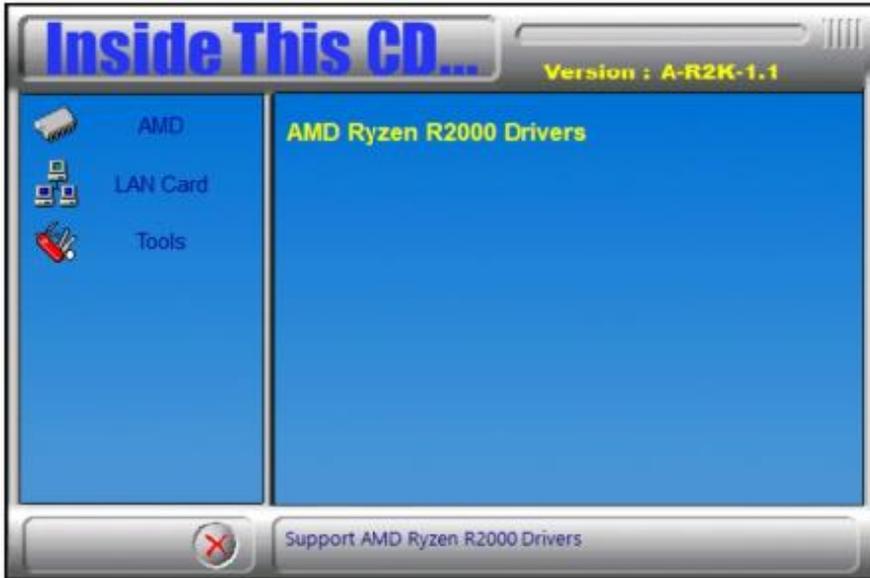
2. Click **Realtek High Definition Audio Driver**.
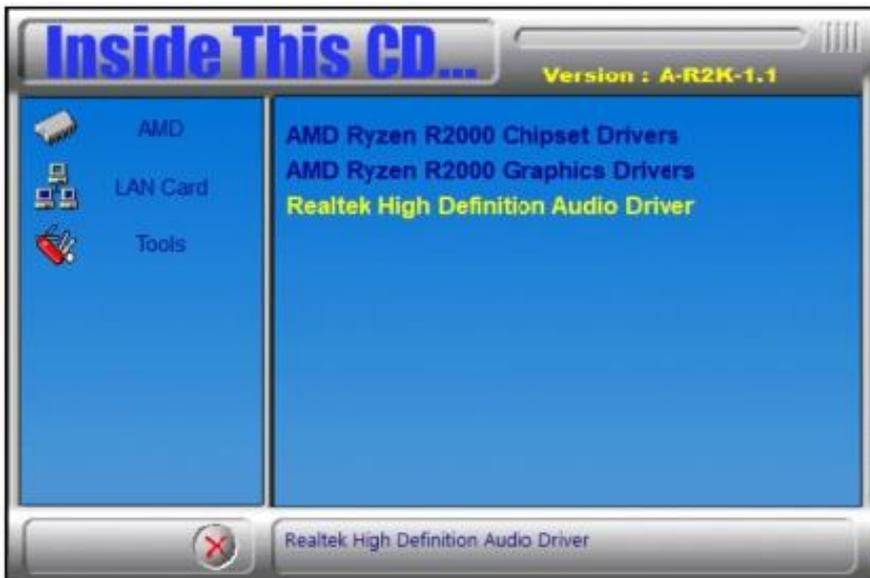
3. On the Welcome screen to the InstallShieldWizard for the audio driver, click **Next** to continue.

4. The next screen describes the setup options. Click **Next**.
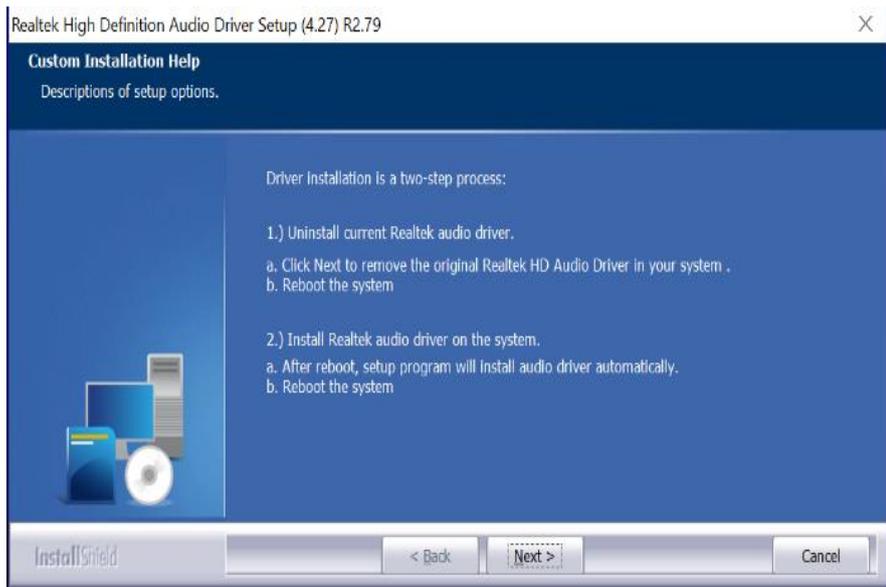
5. When the InstallShield Wizard has completed the audio driver installation, you must restart your computer.

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3.4 Intel LAN Controller Drivers

1. Click **LAN Card** on the left pane and then **Intel LAN Controller Drivers** on the right pane.

2. Click **Intel(R) I21x / I22x Gigabit Network Drivers**.
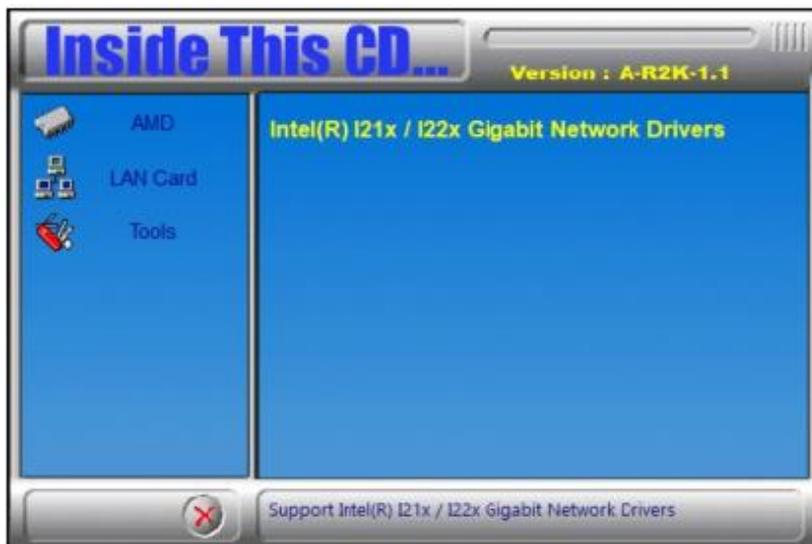
3. On the next screen, click **Install Drivers and Software** to continue.
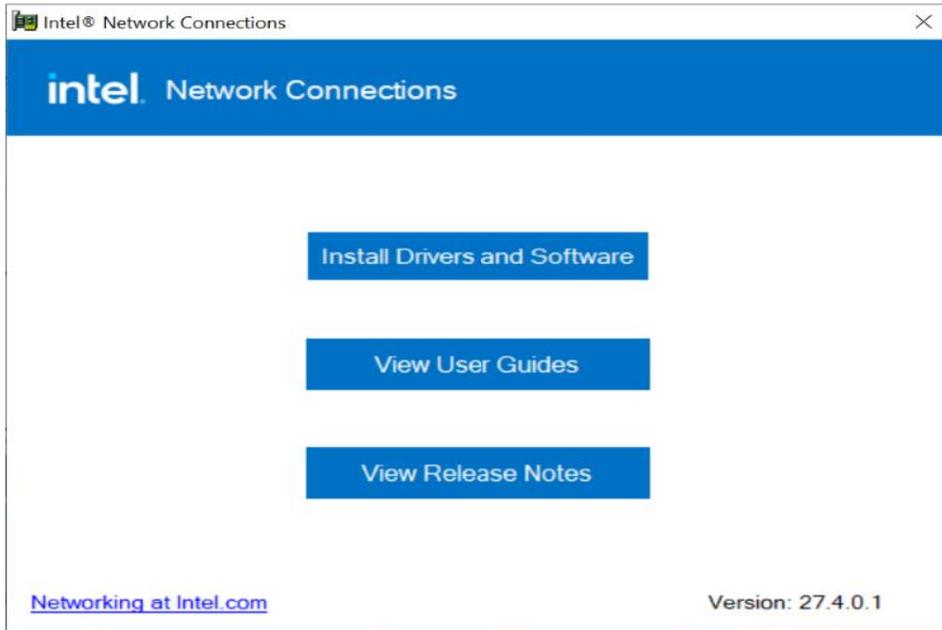
4. On the Welcome screen to the Install wizard for the Intel® Network Connections, click **Next**.
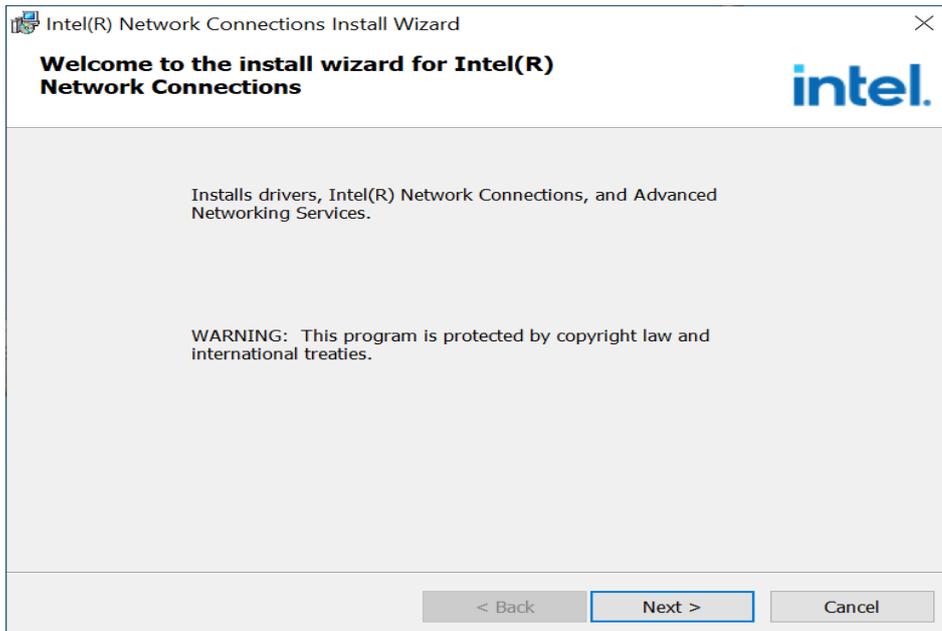
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5. On the next screen, click Next to accept the terms in the license agreement.

6. Select the program features to be **installed in the Setup Options** and click **Next**.
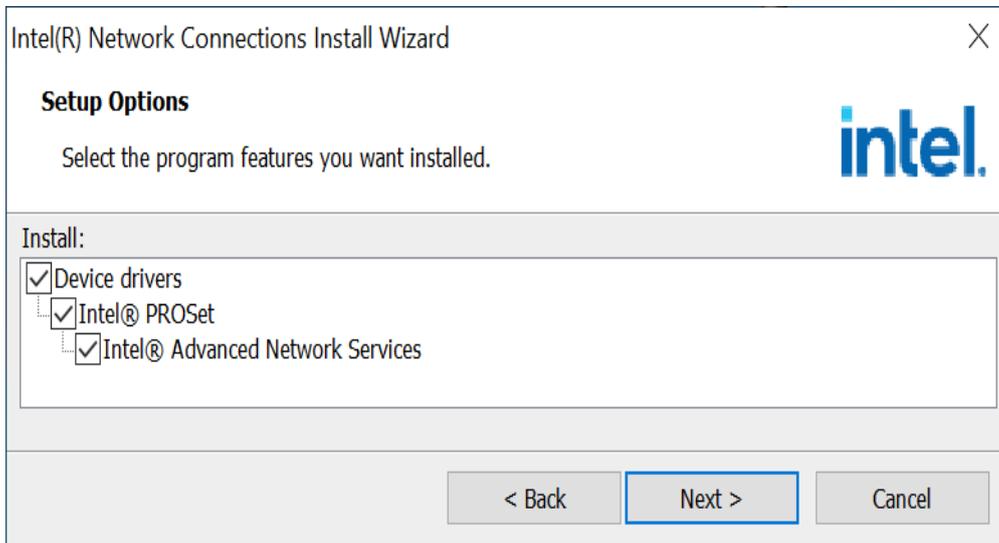
7. On the following screeen (Ready to Install the Program), click **Install** to begin the installation.
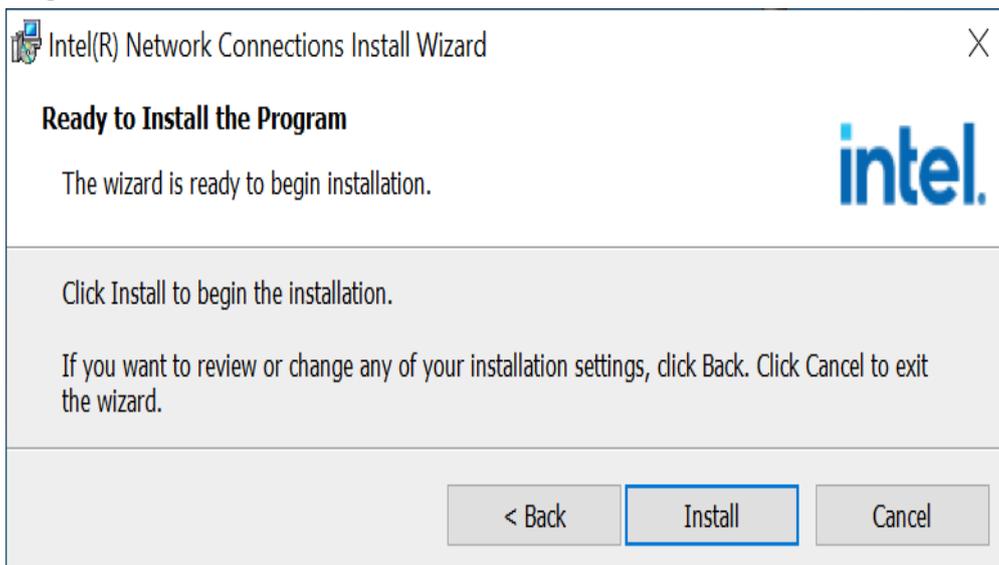
8. On the next screen (**Install wizard Completed**), click **Finish**.

Chapter 4
BIOS Setup

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4.1 Introduction

The BIOS (Basic Input/Output System) installed in the ROM of your computer system supports AMD APU. The BIOS provides critical low-level support for standard devices such as disk drives and serial ports. It also provides password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

4.2 BIOS Setup

The BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the BIOS is immediately activated. Press the <Del> key immediately allows you to enter the Setup utility. If you are a little bit late pressing the <Del> key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup.

If you still need to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system Off and back On again.

The following message will appear on the screen:

```
Press <DEL> to Enter Setup
```

In general, press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help, and <Esc> to quit.

When you enter the BIOS Setup utility, the *Main Menu* screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

Warning: It is strongly recommended that you avoid making any changes to the chipset defaults.

These defaults have been carefully chosen by both AMI and your system manufacturer to provide the absolute maximum performance and reliability. Changing the defaults could make the system unstable and crash in some cases.

4.3 Main Settings
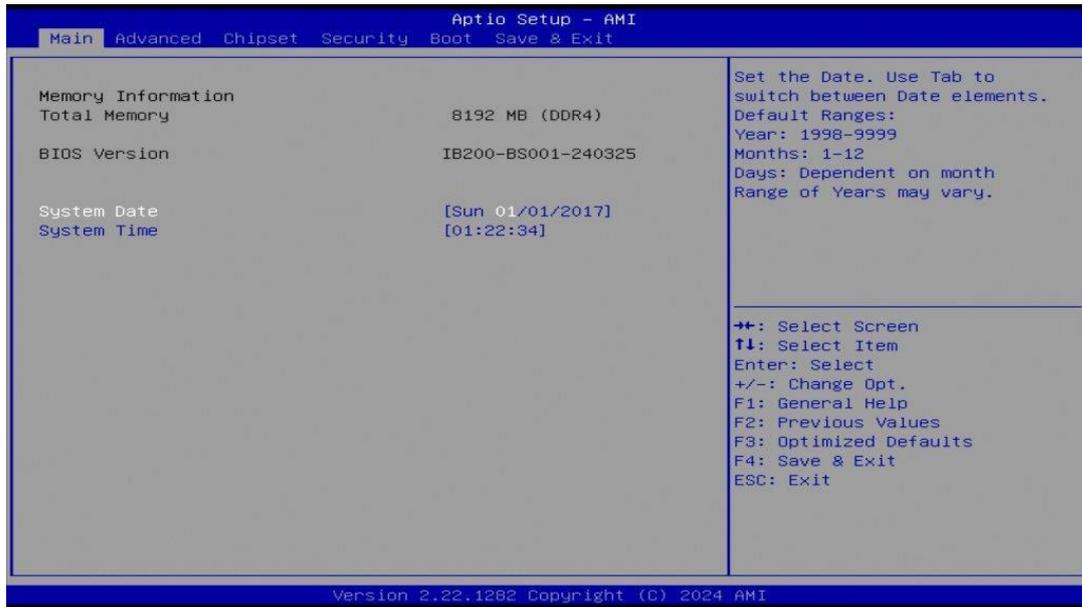
BIOS Setting	Description
System Date	Sets the date. Use the <Tab> key to switch between the date elements.
System Time	Set the time. Use the <Tab> key to switch between the time elements.

4.4 Advanced Settings

This section allows you to configure, improve your system and allows you to set up some system features according to your preference.

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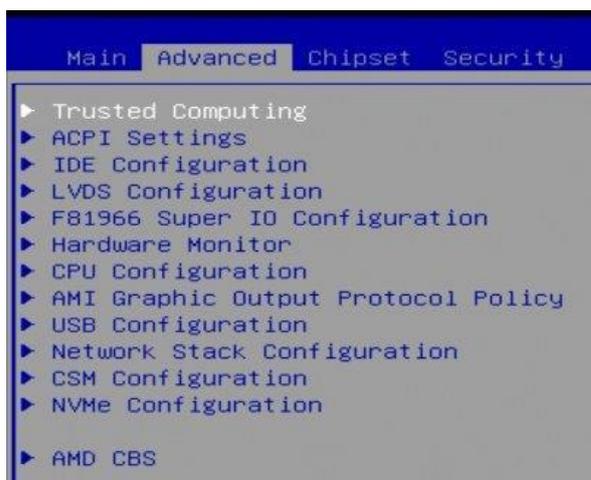
4.4.1 Trusted Computing

```
TPM 2.0 Device Found
Firmware Version:                  3.78
Vendor:                            AMD

Security Device Support           [Enable]
Active PCR banks                  SHA256
Available PCR banks               SHA256

SHA256 PCR Bank                   [Enabled]

Pending operation                 [None]
Platform Hierarchy                [Enabled]
Storage Hierarchy                 [Enabled]
Endorsement Hierarchy             [Enabled]
Physical Presence Spec Version    [1.3]
TPM 2.0 InterfaceType             [CRB]
Device Select                     [Auto]
```

BIOS Setting	Description
Security Device Support	Enables / Disables 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	Options: Enable or Disable
Pending operation	Schedule an operation for the security device. Note: Your computer will reboot during restart in order to change state of security device.
Platform / Storage / Endorsement Hierarchy	Options: Enable or Disable
TPM2.0 UEFI Spec Version	Select the TCG2 Spec Version Support. TCG_1_2: the compatible mode for Win8/Win10. TCG_2: Support new TCG2 protocol and event format for Win10 or later.
Physical Presence Spec Version	Select to tell O.S. to support PPI Spec Version 1.2 or 1.3. Note: 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 with the default set to TPM 2.0 devices. If not found, TPM 1.2 devices will be enumerated.

4.4.2   ACPI Settings

```
ACPI Settings

Enable ACPI Auto Configuration        [Disabled]

Enable Hibernation                    [Disabled]
ACPI Sleep State                      [Suspend Disabled]
```

BIOS Setting	Description
Enable ACPI Auto Configuration	Enables / Disables BIOS ACPI auto configuration.
Enable Hibernation	Enables / Disables the system ability to hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
ACPI Sleep State	Selects an ACPI sleep state where the system will enter when the Suspend button is pressed.

4.4.3   IDE Configuration

```
IDE Configuration

SATA Port0                            Not Present
SATA Port1                            Not Present
```

BIOS Setting	Description
SATA Ports	Detects the connection of SATA0 and SATA1.

4.4.4   LVDS Configuration

```
LVDS Configuration

LVDS Control                          [Enabled]
LVDS Backlight Control                [7(Max)]

                        ┌─── LVDS Backlight Control ───
                        │ 0(Min)
                        │ 1
                        │ 2
                        │ 3
                        │ 4
                        │ 5
                        │ 6
                        │ 7(Max)
```

BIOS Setting	Description
LVDS Control	Options: Enable or Disable
LVDS Backlight Control	Options: 0(Min), 1, 2, 3, 4, 5, 6, 7 (Max)

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4.4.5　F81966 Super IO Configuration

```
FB1966 Super IO Configuration

Super IO Chip                         F81966
Serial Port 1 Configuration
Serial Port 2 Configuration
Serial Port 3 Configuration
Serial Port 4 Configuration
```

BIOS Setting	Description
Serial Ports Configuration	Sets parameters of Serial Ports. Enables / Disables the serial port and select an optimal setting for the Super IO device.

Serial Port 1~4 Configuration

```
Serial Port 1 Configuration

Serial Port                    [Enabled]
Device Settings                ID=3F8h; IRQ=4:

Change Settings                [Auto]

SERIAL PORT MODE SELECT        [RS232 Mode]
```

```
Serial Port 2 Configuration

Serial Port                    [Enabled]
Device Settings                ID=2F8h; IRQ=3

Change Settings                [Auto]

SERIAL PORT MODE SELECT        [RS232 Mode]
```

```
Serial Port 3 Configuration

Serial Port                    [Enabled]
Device Settings                ID=3E8h; IRQ=10

Change Settings                [Auto]
```

```
Serial Port 4 Configuration

Serial Port                    [Enabled]
Device Settings                ID=2E8h; IRQ=11

Change Settings                [Auto]
```

4.4.6 Hardware Monitor

```
Pc Health Status

CPU Fan smart fan control          [Disabled]
CPU temperature                  : +41 C
System temperature               : +40 C
CPU Fan Speed                    : 5747 RPM
Vcore                            : +1.216 V
+5V                              : +5.003 V
+12V                             : +11.792 V
Memory Voltage                   : +1.208 V
VCC3V                            : +3.328 V
```

BIOS Setting	Description
CPU Smart Fan Control	Options: Disabled, 50C, 60C, 70C, 80C
Temperatures / Voltages	These fields are the parameters of the hardware monitoring function feature of the motherboard. The values are read-only values as monitored by the system and show the PC health status.

4.4.7 CPU Configuration

```
CPU Configuration                      View Memory Information
                                       related to Node 0
Node 0 Information


Socket0: AMD Ryzen Embedded R2312 with Radeon Graphics
2 Core(s) Running @ 2724 MHz  1218 mV
Processor Family: 17h
Processor Model: 10h-1Fh
CPUID: 00810F81
```

BIOS Setting	Description
Node 0 Information	Displays the memory information related to Node 0.

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4.4.8 AMI Graphic Output Protocol Policy
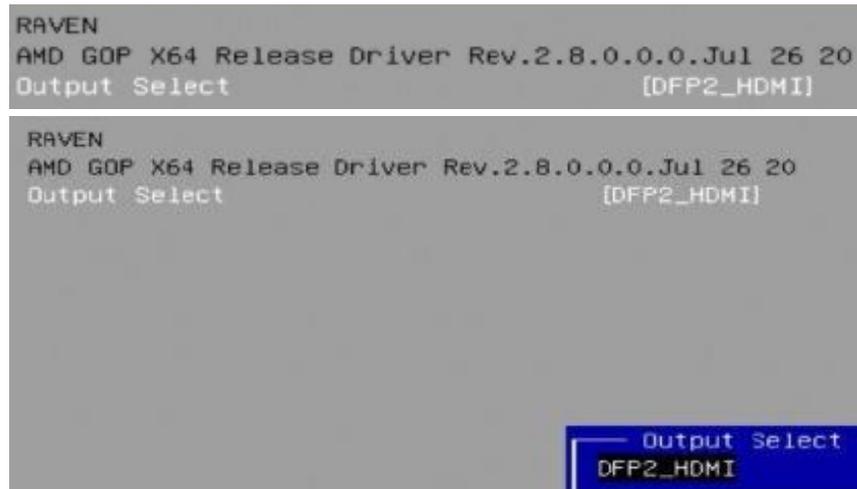
BIOS Setting	Description
Output Select	Allows you to select an output interface.

4.4.9   USB Configuration

```
USB Configuration

USB Module Version                28

USB Controllers:
     2 XHCIs
USB Devices:
     1 Keyboard

Legacy USB Support                [Enabled]
XHCI Hand-off                     [Enabled]
USB Mass Storage Driver Support   [Enabled]
Port 60/64 Emulation              [Enabled]

USB hardware delays and time-outs:
USB transfer time-out             [20 sec]
Device reset time-out             [20 sec]
Device power-up delay             [Auto]
```

BIOS Setting	Description
Legacy USB Support	Enables Legacy USB support. • **Auto** disables legacy support if there is no USB device connected. • **Disable** keeps USB devices available only for EFI applications.
XHCI Hand-off	This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
USB Mass Storage Driver Support	Enables / Disables the support for USB mass storage driver.
Port 60/64 Emulation	Enables I/O port 50h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.
USB Transfer time-out	The time-out value for control, bulk, and Interrupt transfers. Options: 1 sec / 5 sec / 10 sec / 20 sec
Device reset time-out	Seconds of delaying execution of start unit command to USB mass storage device. Options: 10 sec / 20 sec / 30 sec / 40 sec
Device power-up delay	The maximum time the device will take before it properly reports itself to the Host Controller. **Auto** uses default value for a Root port it is 100ms. But for a Hub port, the delay is taken from Hub descriptor. Options: Auto / Manual

4.4.10 Network Stack Configuration

BIOS Setting	Description
Network Stack	Enables / Disables UEFI Network Stack
IPv4 PXE Support	Enables / Disables IPv4 PXE Boot Support. If disabled, Ipv4 PXE boot option will not be available.
IPv4 HTTP Support	Enables / Disables IPv4 HTTP Boot Support. If disabled, Ipv4 HTTP boot option will not be available.
IPv6 PXE Support	Enables / Disables IPv6 PXE Boot Support. If disabled, Ipv4 PXE boot option will not be available.
IPv6 HTTP Support	Enables / Disables IPv6 HTTP Boot Support. If disabled, Ipv4 HTTP boot option will not be available.
PXE boot wait time	Assigns a period of time to press ESC key to abort the PXE boot.
Media detect count	Assigns a number of times to check the presence of media.

4.4.11 CSM Configuration

4.4.12 NVMe Configuration

4.4.13 AMD CBS

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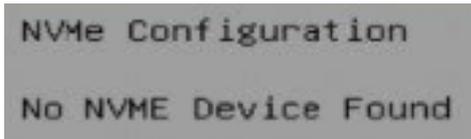
4.5 Chipset Settings
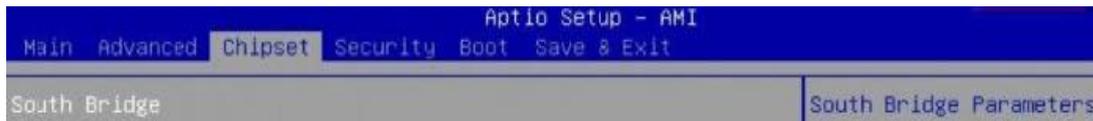
4.5.1   SB USB Configuration
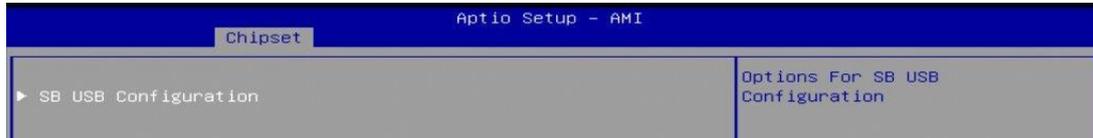
BIOS Setting	Description
SB USB Configuration	Options for SB USB Configuration.

4.5.1.1. XHCI Ports
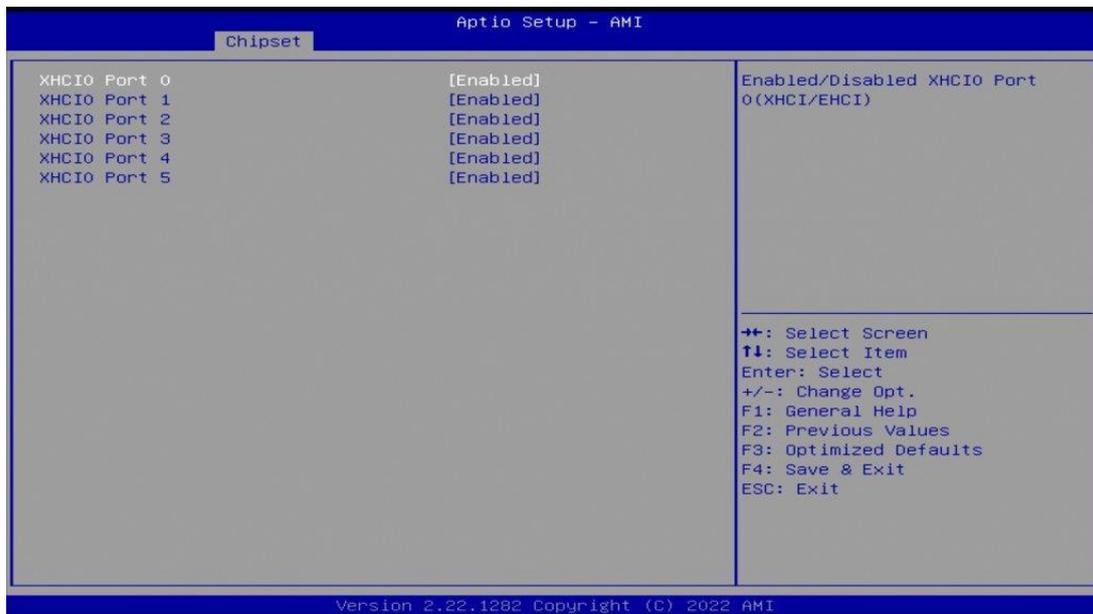
BIOS Setting	Description
XHCI 0 & XHCI 1 Ports	Enables / Disables the XHCI0 & XHCI1 ports (XHCI/EMCI).

4.6   Security Settings

```
                            Aptio Setup - AMI
    Main  Advanced  Chipset  Security  Boot  Save & Exit

    Password Description                            Set Administrator Password

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



                Version 2.22.1282 Copyright (C) 2022 AMI
```

BIOS Setting	Description
Administrator Password	Sets an administrator password for the setup utility.
User Password	Sets a user password.

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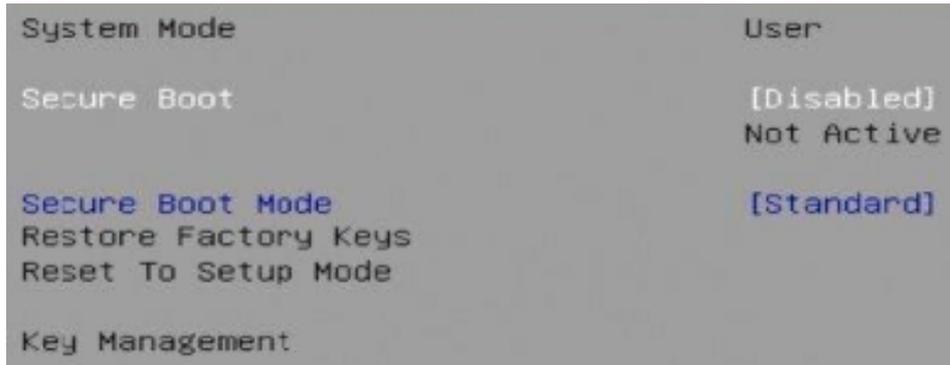
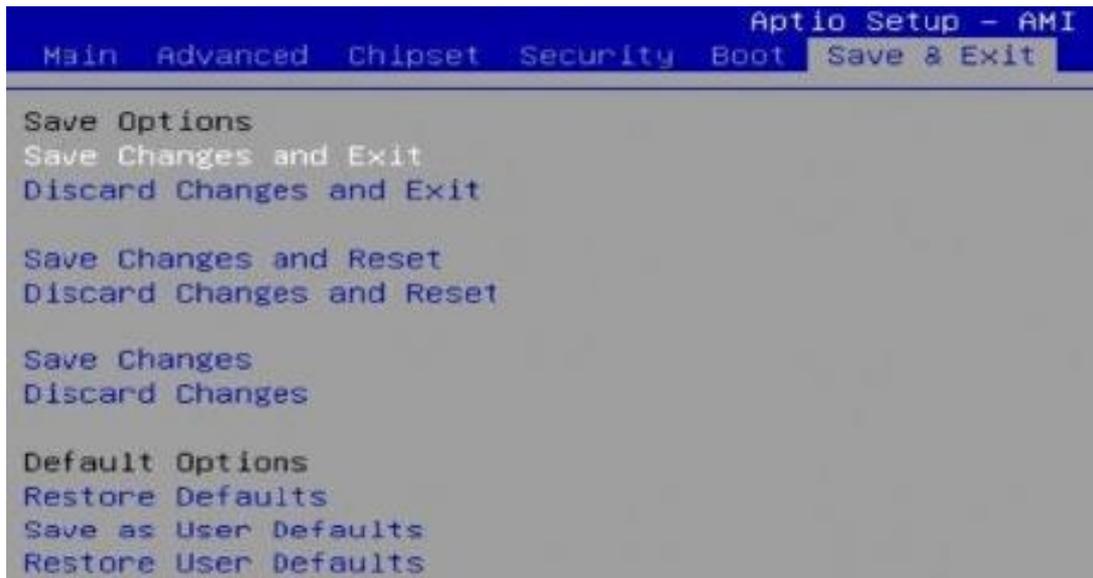| BIOS Setting	Description
Secure Boot	Secure Boot feature is active if Secure Boot is enabled. Platform Key(PK) is enrolled and the system is in user mode. The mode change requires platform reset.
Secure Boot Mode	Secure Boot mode options: Standard or Custom. In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication.
Restore Factory Keys	Force System to User Mode. Install factory default Secure Boot key databases.
Reset To Setup Mode	Delete all Secure Boot key databases from NVRAM
Key Management	Enables expert users to modify Secure Boot Policy variables without full authentication

4.7 Boot Settings

BIOS Setting	Description
Setup Prompt Timeout	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Bootup NumLock State	Selects the keyboard NumLock state.
Quiet Boot	Enables / Disables Quiet Boot option.
Boot mode select	Selects a Boot mode, Legacy / UEFI.
Boot Option Priorities	Sets the system boot order.
UEFI USB Key Drive BBS Priorities	Specifies the Bood Device Priority sequence from available UEFI USB Key Drives.

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4.8 Save & Exit Settings

```
                                          Aptio Setup - AMI
   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
```

BIOS Setting	Description
Save Changes and Exit	Exits system setup after saving the changes.
Discard Changes and Exit	Exits system setup without saving any changes.
Save Changes and Reset	Resets the system after saving the changes.
Discard Changes and Reset	Resets system setup without saving any changes.
Save Changes	Saves changes done so far to any of the setup options.
Discard Changes	Discards changes done so far to any of the setup options.
Restore Defaults	Restores / Loads defaults values for all the setup options.
Save as User Defaults	Saves the changes done so far as User Defaults.
Restore User Defaults	Restores the user defaults to all the setup options.