SB-244-RPLU

SB-244-11315U SB-244-11335U

Industrial Fanless PC w/ Intel[®] Tiger Lake Core[™] i5/i3 Processors

User Manual

Version 1.0



Revision History

Version	Date	Description
1.0	2025.09	Initial release

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Declaration of Conformity

CE

The CE symbol on your product indicates that it is in compliance with the directives of the European Union (EU). A Certificate of Compliance is available by contacting Technical Support.

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from ARBOR. Please contact your local supplier for ordering information.

Warning

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC Class A

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the 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 instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

RoHS

ARBOR Technology Corp. certifies that all components in its products are in compliance and conform to the European Union's Restriction of Use of Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive 2002/95/EC.

The above mentioned directive was published on 2/13/2003. The main purpose of the directive is to prohibit the use of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE) in electrical and electronic products. Member states of the EU are to enforce by 7/1/2006.

ARBOR Technology Corp. hereby states that the listed products do not contain unintentional additions of lead, mercury, hex chrome, PBB or PBDB that exceed a maximum concentration value of 0.1% by weight or for cadmium exceed 0.01% by weight, per homogenous material. Homogenous material is defined as a substance or mixture of substances with uniform composition (such as solders, resins, plating, etc.). Lead-free solder is used for all terminations (Sn(96-96.5%), Ag(3.0-3.5%) and Cu(0.5%)).

SVHC / REACH

To minimize the environmental impact and take more responsibility to the earth we live, Arbor hereby confirms all products comply with the restriction of SVHC (Substances of Very High Concern) in (EC) 1907/2006 (REACH --Registration, Evaluation, Authorization, and Restriction of Chemicals) regulated by the European Union.

All substances listed in SVHC < 0.1 % by weight (1000 ppm)

Important Safety Instructions

Read these safety instructions carefully

- 1. Read all cautions and warnings on the equipment.
- 2. Place this equipment on a reliable surface when installing. Dropping it or letting it fall may cause damage
- 3. Make sure the correct voltage is connected to the equipment.
- 4. For pluggable equipment, the socket outlet should be near the equipment and should be easily accessible.
- 5. Keep this equipment away from humidity.
- 6. The openings on the enclosure are for air convection and protect the equipment from overheating. DO NOT COVER THE OPENINGS.
- 7. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- 8. Never pour any liquid into opening. This may cause fire or electrical shock.
- 9. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
- 10. If one of the following situations arises, get the equipment checked by service personnel:
 - 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 or damaged.
 - f. The equipment has obvious signs of breakage.
- 11. Keep this User's Manual for later reference.

Warning

The Box PC and its components contain very delicately Integrated Circuits (IC). To protect the Box PC and its components against damage caused by static electricity, you should always follow the precautions below when handling it:

- Disconnect your Box PC from the power source when you want to work on the inside.
- 2. Use a grounded wrist strap when handling computer components.
- 3. Place components on a grounded antistatic pad or on the bag that came with the Box PC, whenever components are separated from the system.

Lithium Battery Replacement

Incorrect replacement of the lithium battery may lead to a risk of explosion.

The lithium battery must be replaced with an identical battery or a battery type recommended by the manufacturer.

Do not throw lithium batteries into the trash can. It must be disposed of in accordance with local regulations concerning special waste.

Technical Support

If you have any technical difficulties, please consult the user's manual first at: https://www.arbor-technology.com

Please do not hesitate to call or e-mail our customer service when you still cannot find out the answer.

https://www.arbor-technology.com

E-mail: info@arbor.com.tw

Warranty

This product is warranted to be in good working order for a period of two year from the date of purchase. Should this product fail to be in good working order at any time during this period, we will, at our option, replace or repair it at no additional charge except as set forth in the following terms. This warranty does not apply to products damaged by misuse, modifications, accident or disaster.

Vendor assumes no liability for any damages, lost profits, lost savings or any other incidental or consequential damage resulting from the use, misuse of, or inability to use this product. Vendor will not be liable for any claim made by any other related party.

Vendors disclaim all other warranties, either expressed or implied, including but not limited to implied warranties of merchantability and fitness for a particular purpose, with respect to the hardware, the accompanying product's manual(s) and written materials, and any accompanying hardware. This limited warranty gives you specific legal rights.

Return authorization must be obtained from the vendor before returned merchandise will be accepted. Authorization can be obtained by calling or faxing the vendor and requesting a Return Merchandise Authorization (RMA) number. Returned goods should always be accompanied by a clear problem description.

Chapter 1

Introduction

1.1. Features

- Intel[®] Raptor Lake Core[™] i5/i3 Processors
- 1 x SO-DRAM DDR5 4800 MHz (max. 32GB)
- Support Four Gigabit LAN
- Support HDMI Two independent video outputs
- Support 10-36V Wide DC Input
- Support Discrete TPM2.0

1.2. About this Manual

This manual is meant for the experienced users and integrators with hardware knowledge of personal computers. If you are not sure about the description in this manual, consult your vendor before further handling.

We recommend that you keep one copy of this manual for the quick reference for any necessary Maintenance in the future. Thank you for choosing ARBOR products.

1.3. Specifications

System			
СРИ	Intel® Core i3-1315U (1.2 GHz/4.5GHz), 6 cores (Threads: 8) Intel® Core i5-1335U (1.3 GHz/4.6GHz), 10 cores (Threads: 12)		
Memory 1 x 262-pin DDR5 SO-DIMM socket, supporting 4800 MHz SDRAM to 32GB			
Graphics Intel® UHD Graphics for 13th Gen Processors			
LAN Chipset	1 x Intel I219-LM GbE PHY 3 x Intel I226-V 2.5 GbE controllers		
Watchdog Timer	Programmable 255 levels timer interval, from 1~255 sec/min		
Storage			
Device 1 x M.2 B key 2242 slot (SATA signal) 1 x SATA 3.0 (2.5" HDD/SSD) (Note: Both M.2 2242 and 2.5" support RAID 0/1 by BIOS configurence of the support			
External I/O	External I/O		
Serial Ports	4 x RS232/422/485(default as RS232) with auto flow control (5pin Phoenix Terminal Head interface)		
USB Ports 3 x USB3.2 3 x USB2.0			
LAN 4 x RJ45			
Video Ports 2 x HDMI (Max Resolution: 4096 x 2304@60Hz)			
Audio 1 x Audio (Line-out & Mic-in)(Chipset ALC888S/897)			
SIM Slot	1 x SIM Card socket for 4G/5G module		
GPIO	1 x 8 bit programmable GPIO pin header (3.3 5V Jumper adjustable)		
Remote 1 x SW			
Button 1 x Power button w/LED			
Internal I/O			
Expansion Slot	1 x full-size Mini-PCIe slot (PCIex1/USB2.0 Signals) 1 x M.2 E key 2230 slot (PCIex1/USB2.0 Signals) 1 x M.2 M key 2280 slot (PCIex4 Signals[NVMe]) 1 x M.2 B key 2242 slot (SATA signal) or 3042/3052 cellular module (USB3.2 Signals) [Note: M.2 2242 SATA, M.2 3042, M.2 3052 share one card slot, only one of the cards can be inserted]		

USB 2.0 Ports	SB 2.0 Ports 2 x USB2.0 by Pinhead		
2 x RS232 by 3-wire Pinhead			
Mechanical			
Chassis	Aluminum Alloy		
Mounting	Wall-Mount, DIN-Rail		
Dimension (W x H x D)	200 x 140 x 55.7 mm		
Weight (Net)	1.8kg		
Environmental			
Operating Temp.	np20 ~ 60°C (-4 ~ 140°F)		
Storage Temp.	-40 ~ 85°C (-40 ~ 185°F)		
Operating Humidity	10% ~ 95% (non-condensing)		
Random Vibration 5~500Hz, 2Grms operation			
Shock Operation: 10G@11ms Non-operation: 30G@11ms			
Qualification	Qualification		
Certification CE, FCC			
Power System			
Power Input	Power Input 10-36VDC, 2-pin Phoenix connector		
OS Support			
Windows 10/11 Ubuntu 22.04			

1.4. Inside the Package

Upon opening the package, carefully inspect the contents. If any of the items is missing or appears damaged, contact your local dealer or distributor. The package should contain the following items:



1 x SB-244-11XXXX Series

Accessory Pack

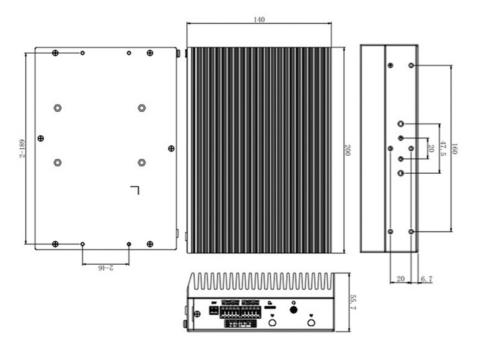
- Wall mount bracket
- DIN-Rail kit
- Thermal Pad
- DIP-10 Terminal block
- 2 pin power terminal block
- 22-pin SATA & Power cable and screws



Chapter 2

Getting Started

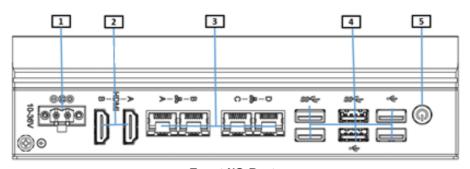
2.1. Dimensions



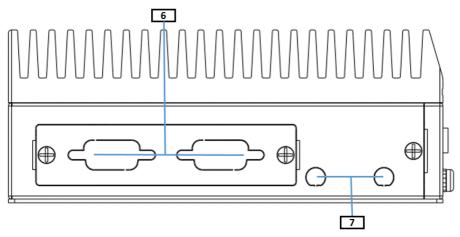
Unit: mm

2.2. Overview

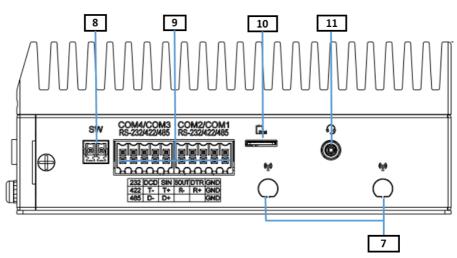
2.2.1 External I/O Port



Front I/O Ports



Left Side View



Right I/O Port

No.	ltem	No.	Item
1	DC-IN	2	HDMI
3	4 x LAN	4	3 x USB3.2, 3 x USB2.0
5	Power ON/OFF	6	2 x DB9 Service Doors
7	Antenna Pre-Hole	8	Remote ON/OFF
9	4 x RS485/422/232	10	SIM Slot
11	Audio		

2.2.2 Power Button

Function: Power Button

Power LED Status White OFF: Power OFF

White ON: Power ON White Flashing: S3 sleep



2.2.3 HDMI

Description	Status	Figure
HDMI	4096x2304@60Hz	CONTRACTOR OF THE PARTY OF THE

2.2.4 USB Ports

Function: USB 3.2/2.0 Stacked Connectors
Connector Type: USB 3.0/2.0 type A connectors

Pin Assignment: The pin assignments conform to the industry standard.

USB Ver.	Max Speed	Speed name	Max V/I
USB2.0	480Mbps(60MB/S)	High-Speed	5V/500mA
USB3.2	5Gbps(625MB/S)	Super-Speed USB	5V/900mA

2.2.5 LAN Port

4x LAN ports, one Intel I219-LM GbE PHY & three Intel i226-V 2.5GbE Controllers, support Wake on LAN.

Function: RJ-45 port for Giga LAN

Connector Type: 4 x RJ-45 connectors that support 10/100/1000Mbps fast Ethernet

Pin Assignment: The pin assignments conform to the industry standard.



2.2.6 DC-IN Power Connector

The SB-244-11XXXX Series device features a Phoenix connector and supports a wide range of voltage inputs, ranging from 10-36VDC. Additionally, it comes with reverse wiring protection, which ensures that the system will not be damaged even if the ground and power lines are connected in reverse.

Function: DC-IN Power Connector **Connector Type:** 2-pin phoenix connector

Pin Assignment: The pin assignments conform to the industry standard.

Pin	Description	
1	GND	
2	+10~36V	



2.2.7 Outdoor Expansion Connector

Choose the module interface based on functional requirements, which can be expanded to include 2 x COM, etc.



2.2.8 Audio Connector

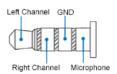
Function: For external microphone, headphones or speakers.

Connector Type: 3.5mm audio port interface

Pin Assignment: Support a 2-in-1 audio I/O interface with a 3.5mm hole

diameter for external microphones, headphones, or

speakers on a 4-segment devices.



Note: As the microphone pins of Android and iPhone version devices are opposite, they cannot be used the same audio input/output ports.

2.2.9 Serial Port Connector RS-232/RS-422/RS-485 (COM1 ~ COM4)

COM1, COM2, COM3, COM4

COM4/COM3
RS 232/422/405
RS 232/422/405
COM4
RE RE RE RE RE RE RECOM1
1, 2, 3, 4, 5

Function: RS-232/RS-422/RS-485 Selectable Serial Port

Connector Type: External 9-pin D-sub male connector

Pin Assignment: COM1~4 RS485/RS-422/RS-232 connector

Pin	RS-232	RS-422	RS-485
1	DCD	TX-	Data-
2	SIN	TX+	Data+
3	SOUT	RX+	NC
4	DTR	RX-	NC
5	GND	GND	GND

Note: COM 1~4 can be set as selection mode through BIOS mode and support RS-485/RS-422/RS-232 auto-flow.

2.2.10 3G/4G/5G Pre-Antenna Hole



2.2.11 SIM Card Socket

Function: 3G/4G/5G SIM card Socket

Connector Type: SIM Card Socket

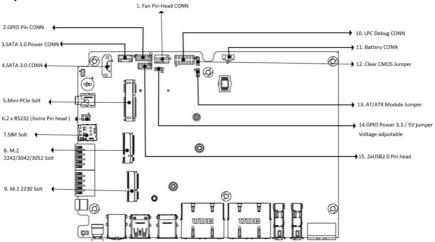
Pin Assignment: The pin assignments conform to the industry standard.





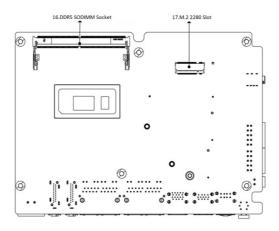
2.3. Internal Connector / Jumper

Top Side:



Pin	Pin Definition	Printing
1	FAN Pin Head connector	SYS_FAN1
2	GPIO PIN connector	JGPIO1
3	SATA3.0 Power connector	JSATAPWR1
4	SATA 3.0 connector	SATA1
5	Mini-PCle slot	MINI_PCIE1
6	2 x RS232 (3-Wire Pin head)	JCMO5_1
7	SIM slot (4G/5G)	JSIM1
8	M.2 B Key slot (2242/3042/3052)	M2_KEY_B1
9	M.2 E Key slot (2230)	M2_WIFI
10	LPC debug connector	JDEBUG1
11	Battery connector	JBAT1
12	Clear CMOS	JCMOS1
13	AT/ATX Selection Jumper	JP1
14	GPIO voltage switch Jumper	JGPSET1
15	2 x USB2.0 Pin head	JUSB1

Bottom Side:



Pin	Pin Definition	Printing
16	DDR5 SO-DIMM Socket	DIMM1
17	M.2 M Key slot (2280)	M2M_PCIE1

2.3.1 Mini-PCle Slot

Function: Mini PCI-e Socket support Wi-Fi/CAN/4G module

Connector Type: Mini PCI-e 52-pin Socket

Pin Assignment: The pin assignments conform to the industry standard.



Note: MINI_PCIE1 support Wi-Fi/CAN/4G module expansion.

2.3.2 8bit GPIO pin header



Pin	Pin Definition	Pin	Pin Definition
1	VCC_GPIO	2	VCC_GPIO
3	JPIO1	4	JPIO5
5	JPIO2	6	JPIO6
7	JPIO3	8	JPIO7
9	JPIO4	10	JPIO8
11	X	12	GND

2.3.3 8bit GPIO voltage switch jumper

Short 2-3

Function:	GPIO voltage switch		
Setting:	Pin	Description	
	Short 1-2 (Default)	5V	1. Q

3.3V

2.3.4 AT/ATX Selection Jumper

This jumper supports two power-on modes: AT mode and ATX mode.

When AT mode is selected, the system will automatically turn on after being connected to the power supply; When ATX mode is selected, the system needs to press the power-on button after the system is connected to the power supply.

AT/ATX mode can be set through jumpers or BIOS options. For jumper settings, please refer to the settings below:

Function:	AT/ATX selection mode (JP1)			
Setting:	Pin	Description		
	Short 1-2 (Default)	ATX Mode	1.	
	Short 2-3	AT Mode	1. 	

2.3.5 Clear CMOS

CMOS is a readable and writable RAM chip on the computer motherboard. Because of its readable and writable characteristics, it is used on the computer motherboard to save the data after the BIOS has set the computer hardware parameters. This chip is only used to store data.

Function:	Clears/keeps CMOS		
Setting:	Pin	Description	
	Short 1-2	Clears CMOS	1.
	Short 2-3 (Default)	Keeps CMOS	1.

2.3.6 SATA Power Connector

Function: SATA Power Connector

Connector Type: 2.54mm pitch 4-pin Wafer

Pin Assignment: Pin Description

Pin	Description
1	VCC5
2	GND
3	GND
4	+12V



2.3.7 COM5/6 Pin header

Function: COM5/6 Pin header **Connector Type:** 2.54mm pitch 6-pin

Pin Assignment: Pin

Pin	Description
1	COM5_SOUT
2	COM6_SOUT
3	COM5_SIN
4	COM6_SIN
5	GND
6	GND



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Chapter 3

Installation & Maintenance

3.1. Installation and Maintenance

1. Remove 6 screws from the bottom cover, as shown in Figure 3.1-1.

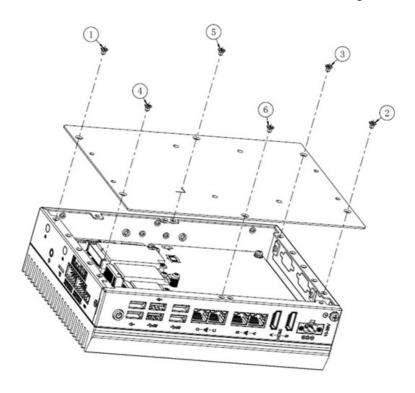


Figure 3.1-1 Installation and Maintenance

- 2. Remove four M3x4 screws of the corner, disassembly schematic diagram as shown in Figure 3.1-2.
- 3. Remove the two M3x6 spring screws in the middle of the motherboard and remove the aluminum extrusion.

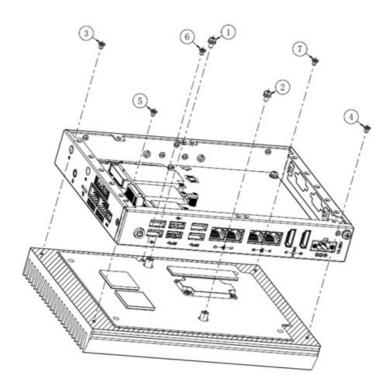


Figure 3.1-2 Disassembly Schematic Diagram

3.2. Key Parts installation and removal

1. Remove the memory module and M.2 2242 module then remove 1 pan-head M3x3 screw, as shown in Figure 3.2-1.

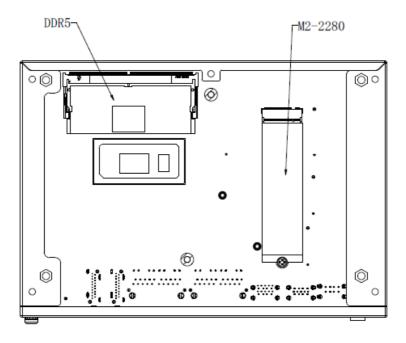


Figure 3.2-1 Install and Remove key parts

2. Remove the Mini-PCle module: Remove 1 flat-head M2x3 screw and remove the M2-2230 Wi-Fi module, as shown in Figure 3.2-2.

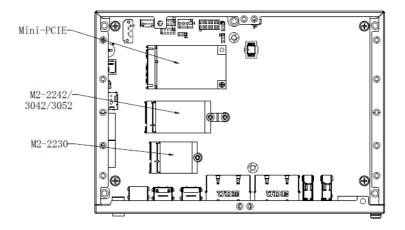


Figure 3.2-2 Install and Remove key parts

3.3. Install/Remove HDD

- 1. Remove six M3x4 screws and the bottom cover.
- 2. Place the HDD and bracket in the direction as shown in the figure, and secure them with four I-head M3x4 screws on the sides.
- 3. Insert four pieces of rubber into the groove of the bracket, and place the module on the bottom cover studs.
- 4. Use four screws to lock the module in sequence and fix it to the bottom cover studs.
- 5. Connect the HDD cable and the other end to the corresponding interface on the motherboard.
- 6. Install the bottom cover and lock it with 6 countersunk head M3x4 screws.

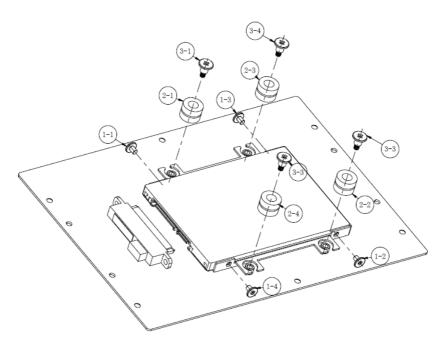


Figure 3.3-1 Install and Remove HDD

Chapter 4

BIOS

The BIOS Setup utility is to configure the system settings stored in the system's BIOS ROM. The BIOS is activated once the computer powers on. When the computer is off, the battery on the main board supplies power to BIOS RAM.

To enter the BIOS Setup utility, keep hitting the "Delete" key upon powering on the computer.



Note: Actual model name and board information varies according to your model.

Key Commands

The BIOS Setup utility relies on a keyboard to receive user's instructions. Hit the following keys to navigate within the utility and use the utility.

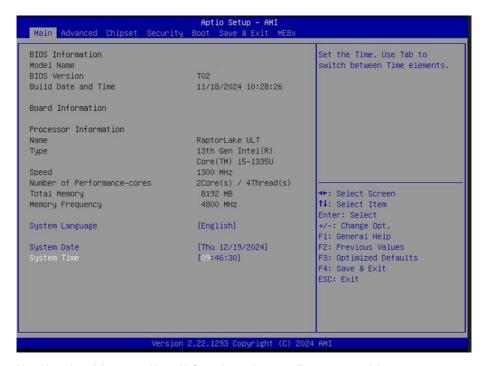
Hot-Key	Function	Description
	Enter BIOS mode	After System is powered ON
<f7></f7>	Enter the boot up sequence menu	
<ctrl>+<alt>+</alt></ctrl>	Restart the system	
← →	Moves left/right between the top menus.	In the BIOS menu
↓ ↑	Moves up/down between highlight items.	
Enter	Selects an highlighted item/field.	
<f3></f3>	Load defaults	
<f4></f4>	Exits the utility saving the changes that have been made.	
Esc	Exit BIOS mode	

Note: Pay attention to the "WARNING" that shows at the left pane onscreen when making any change to the BIOS settings.

This BIOS Setup utility is updated from time to time to improve system performance and hence the screenshots hereinafter may not fully comply with what you actually have onscreen.

4.1. Main - Sets system Time & Date

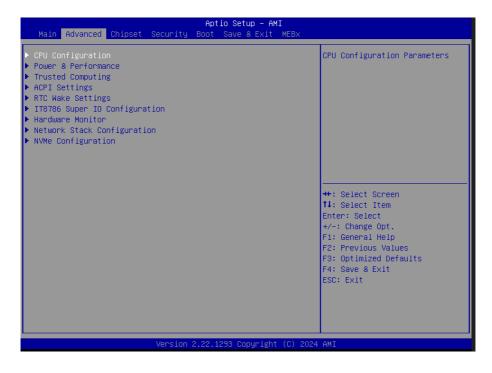
The **Main** menu features the settings of **System Date** and **System Time** and displays some BIOS info.



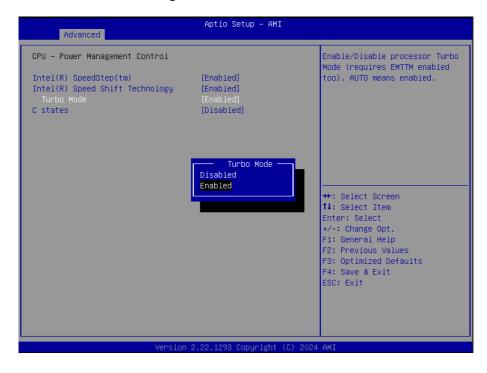
Note: Actual model name and board information varies according to your model.

Setting	Description	
System Date	Sets system date.	
System Time	Sets system time.	

4.2. Advanced

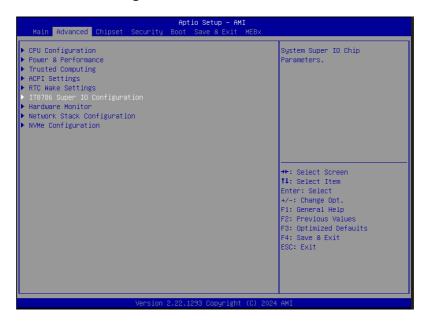


4.2.1 Turbo Mode Setting



Enter Advanced menu, select "Power & Performance" -> "CPU-Power Management Control" -> "Turbo Mode". After that users can choose Enabled/ Disabled. After setting, press F4 to save and exit, the system will take effect after reboot.

4.2.2 COM Mode Setting







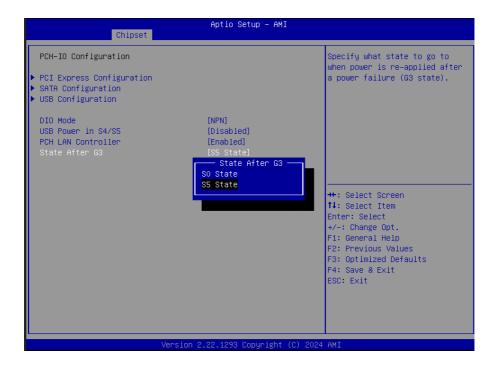
Under the **Advanced** menu, select "IT8786 Super IO Configuration" -> "Serial Port X Configuration" -> "COM Mode Select". Users can select RS232, RS422 and RS485 for COM mode setting. After setting, press F4 to save and exit, the system will take effect after reboot.

4.3. Chipset Menu



Use the arrow keys on the keyboard to move to the Chipset option. The submenu is detailed as shown.

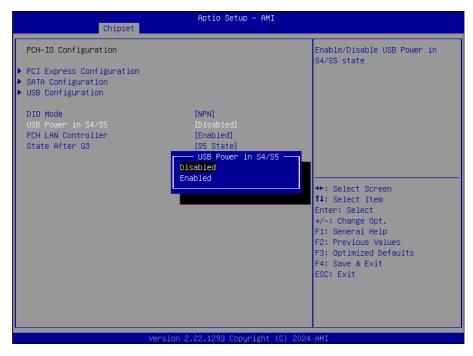
4.4. Auto TURN-ON (AT/ATX)



Enter "Chipset" menu, and select "Chipset"->"PCH-IO Configuration"->"State After G3" in order. Users can select "S0 State/S5 State" for power mode on the system. "S0 State" is AT mode, it will power on the system automatically after connecting the power supply, and S5 State is ATX mode. Users need to press the power button to turn on the system after connecting the power supply. S5 State is ATX mode. After connecting the power supply, you need to press the power button to power up the device. After setting, press F4 to save and exit, the system will take effect after reboot.

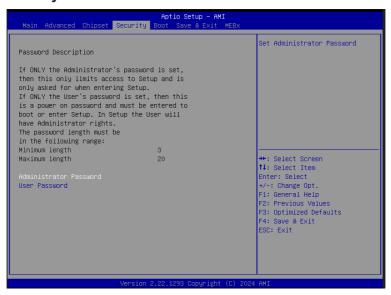
4.5. USB Power in S4/S5

Set whether the USB port is powered during sleep or shutdown.



Enabled: USB port with power in S4/S5.

4.6. Security



Use the arrow keys on the keyboard to move to the **Security option**. The submenu has detailed option descriptions, including security settings. Administrator and user passwords can be set to protect the computer from infringement.

Setting	Description
	To set up an administrator password:
	Select Administrator Password.
Administration Password	2. An Create New Password dialog then pops up onscreen.
Administration 1 assivora	3. Enter your desired password that is no less than 3 characters and no more than 20 characters.
	4. Hit [Enter] key to submit.
	To set up an administrator password:
	Select User Password.
User Password	2. An Create New Password dialog then pops up onscreen.
osci i dosmora	Enter your desired password that is no less than 3 characters and no more than 20 characters.
	4. Hit [Enter] key to submit.

Note: Users can select Administrator Password and User Password to set the administrator password and user password respectively, the minimum length is 3 digits, the maximum length is 20 digits.

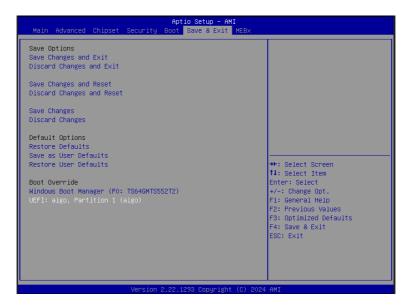
4.7. Boot



"Boot" menu contains the boot settings above. Users can set the boot logo or select the bootup devices, etc.

Setting	Description
Bootup NumLock State	➤ Set NumLock on or off when booting.
Quiet Boot	 Enabled: Logo will be displayed at boot up. Disabled: Boot up the system and display the self-test screen, no logo, white label interface.
Boot Option Priorities	■ Users can set the order in which devices are started at startup Boot Option #1 is the first priority startup item, Boot Option #2 is the second startup item, and so on. Press F4 to save and exit, the system will take effect after reboot.

4.8. Save & Exit



The Save & Exit menu displays the way to exit the BIOS setup utility. When users have completed the setup, users must save and exit for the changes to take effect.

Setting	Description
Save Changes and Exit	Save the changes and then restart the system.
Discard Changes and Exit	Discard the changes and restart the system.
Restore Defaults	Restore default values.
Boot Override	Set boot device priority.