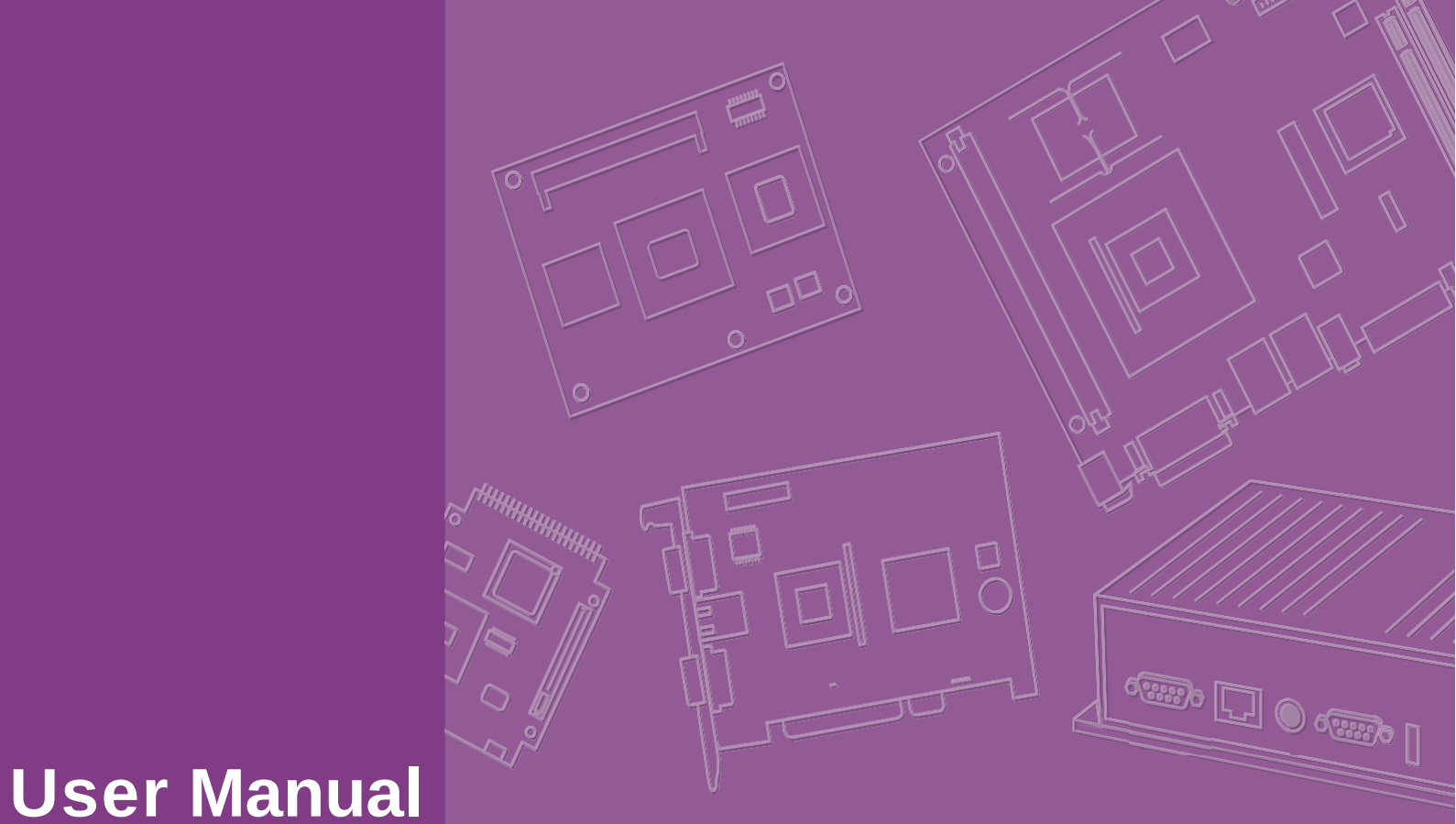




User Manual

AIR-540

Computer

ADVANTECH

Enabling an Intelligent Planet

Attention!

This product contains a hard copy of the Chinese user manual for China CCC certification purposes. A PDF of the English user manual is included on the accompanying CD. Please disregard the hard copy Chinese user manual if the product is not sold and/or installed in China.

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https://www.advantech.com/en/products/air-edge-ai-hpcs/sub_5bfbf78e-c85b-43d2-83d9-7c12eabc6ef8

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Product Warranty (2 years)

Advantech warrants the original purchaser that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products that have been repaired or altered by persons other than repair personnel authorized by Advantech, or products that have been subject to misuse, abuse, accident, or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced free of charge during the warranty period. For out-of-warranty repairs, customers will be billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details.

If you believe your product to be defective, follow the steps outlined below.

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages displayed when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain a return merchandise authorization (RMA) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a completed Repair and Replacement Order Card, and a proof of purchase date (such as a photocopy of your sales receipt) into a shippable container. Products returned without a proof of purchase date are not eligible for warranty service.
5. Write the RMA number clearly on the outside of the package and ship the package prepaid to your dealer.

Declaration of Conformity

FCC Class A

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 this event, users are required to correct the interference at their own expense.

Technical Support and Assistance

1. Visit the Advantech website at www.advantech.com/support to obtain the latest product information.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before calling:
 - Product name and serial number
 - Description of your peripheral attachments
 - Description of your software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wording of any error messages

Warnings, Cautions and Notes

Warning! *Warnings indicate conditions that if not observed can cause personal injury!*



Caution! *Cautions are included to help prevent hardware damage and data losses.*



Note! *Notes provide additional optional information.*



Packing List

Before system installation, check that the items listed below are included and in good condition. If any item does not accord with the list, contact your dealer immediately.

- 1 x AIR-540 Unit
- 1 x Heatsink
- 1 x CPRS cover
- 4 x GPU bracket

Ordering Information

Model	RDIMM 288-Pin Slot	USB	VGA	2.5 GbE	10 GbE	PCIe x16 slot	PCIe x8
AIR-5400-00A1U Bare system*	6	3	1	2	2	4	2**

Remarks

* Bare system, NO PSU, NO CPU, NO RAM, NO Storages.

** PCIe signal x16 or two x8 depending on GPU selection by auto detection and BIOS setting.

Option Items

Power Cable	
1702002600	Power cable 3-pin 183 cm, USA type (2000 W)
1702031801-11	Power cable 3-pin 183 cm, UK type (2000 W)
1702002605	Power cable 3-pin 183 cm, Europe type (2000 W)
1700000237-01	Power cable 3-pin 183 cm, JP type (2000 W)
1700000596-11	Power cable 3-pin 183 cm, CN type (2000 W)
1700027909-02	Power cable 3-pin 183 cm, TW type (2000 W)
1700024782-01	Power cable 3-pin 180 cm, USA type (2700 W)
1700023533-01	Power cable 3-pin 183 cm, Europe type (2700 W)
1700023534-01	Power cable 3-pin 183 cm, UK type (2700 W)
GPU Cable	
1700035523-01	180 to 180 16-pin ATX 3.1 graphics card power cable (normal GPU)
1700035522-01	90 to 180 16-pin ATX 3.1 graphics card power cable (for 5090)
1700028855-01+	8-pin CPU power cable**
1700032675-01	CPU 8 pin to 2x PCIe 8 pin Power Cable **
Accessory	
96PSRM-A2KWCRPA	2000 W CRPS*
96PSRM-A2K7WCRT	2700 W CRPS*
TBD	Fan Duct for GPU

Remark

*2000W/2700W CRPS Input Power 110V provide 1000 W only, Input Power 220V can provide 2000W/2700W.

** for general PCIe 6+2 PCIe card, needs to use two cables

Safety Instructions

1. Read these safety instructions carefully.
2. Retain this user manual for future reference.
3. Disconnect the equipment from all power outlets before cleaning. Use only a damp cloth for cleaning. Do not use liquid or spray detergents.
4. For pluggable equipment, the power outlet socket must be located near the equipment and easily accessible.
5. Protect the equipment from humidity.
6. Place the equipment on a reliable surface during installation. Dropping or letting the equipment fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. Do not cover the openings.
8. Ensure that the voltage of the power source is correct before connecting the equipment to a power outlet.
9. Position the power cord away from high-traffic areas. Do not place anything over the power cord.
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 from transient overvoltage.
12. Never pour 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 any of the following occurs, have the equipment checked by service personnel:
 - The power cord or plug is damaged.
 - Liquid has penetrated the equipment.
 - The equipment has been exposed to moisture.
 - The equipment is malfunctioning, or does not operate according to the user manual.
 - The equipment has been dropped and damaged.
 - The equipment shows obvious signs of breakage.
15. Do not leave the equipment in an environment with a storage temperature of below -20 °C (-4 °F) or above 60 °C (140 °F) as this may damage the components. The equipment should be kept in a controlled environment.
16. Any unverified component may cause unexpected damage. To ensure correct installation, always use the components (e.g., screws) provided in the accessory box.
17. **CAUTION:** Batteries are at risk of exploding if incorrectly replaced. Replace only with the same or equivalent type as recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.
18. Always disconnect the power cord from the chassis before manually handling the hardware. Do not implement connections or configuration changes while the device is powered on. Sudden power surges may damage sensitive electronic components.
19. In accordance with IEC 704-1:1982 specifications, the sound pressure level at the operator's position does not exceed 70 dB (A).
20. The equipment should only be installed in a restricted access area.

21. This product is intended to be supplied by a UL Listed power supply suitable for use at minimum Tma 50° C (122° F) whose output meets PS2 (or LPS), ES1 (or SELV) and output is rated: 9-36Vdc, 16.65-4.16A. Please contact Advantech for further information.
22. DISCLAIMER: These instructions are provided according to IEC 704-1 standards. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Consignes de Sécurité

1. Veuillez lire attentivement ces instructions de sécurité.
2. Veuillez conserver ce manuel de l'utilisateur pour référence ultérieure.
3. Veuillez débrancher cet équipement de la prise secteur avant le nettoyage. Utilisez un chiffon humide. Ne pas utiliser de détergent liquide ou pulvérisé pour le nettoyage. Utilisez une feuille ou un chiffon humide pour le nettoyage.
4. Pour les équipements enfichables, la prise de courant doit être à proximité de l'équipement et doit être facilement accessible.
5. S'il vous plaît garder cet équipement de l'humidité.
6. Posez cet équipement sur une surface fiable lors de l'installation. Une chute ou une chute pourrait causer des blessures.
7. Les ouvertures sur le boîtier sont destinées à la convection d'air, protégeant ainsi l'équipement de la surchauffe. **NE COUVREZ PAS LES OUVERTURES.**
8. La prise de courant doit avoir une connexion mise à la terre.
9. Placez le cordon d'alimentation de sorte que personne ne puisse marcher dessus.
Ne placez rien sur le cordon d'alimentation.
10. Tous les avertissements et mises en garde sur l'équipement doivent être notés.
11. Si l'appareil n'est pas utilisé pendant une longue période, débranchez-le du secteur pour ne pas être endommagé par une surtension transitoire.
12. Ne jamais verser de liquide dans les ouvertures de ventilation; Cela pourrait provoquer un incendie ou un choc électrique.
13. N'ouvrez jamais l'équipement. Pour des raisons de sécurité, seul le personnel de maintenance qualifié doit ouvrir l'équipement.
14. Si l'une des situations suivantes se présente, faites vérifier le matériel par le personnel de service:
 - Le cordon d'alimentation ou la fiche est endommagé.
 - Un liquide a pénétré dans l'appareil.
 - L'équipement a été exposé à l'humidité.
 - L'équipement ne fonctionne pas bien ou vous ne pouvez pas le faire fonctionner conformément au manuel d'utilisation.
 - L'équipement est tombé et a été endommagé.
 - L'équipement présente des signes évidents de rupture.
15. Ne laissez pas cet équipement dans un environnement où la température de stockage peut être inférieure à -20° C (-4° F) ou supérieure à 60° C (140° F). Cela pourrait endommager l'équipement. L'équipement doit être dans un environnement contrôlé.
16. Tout composant non vérifié peut causer des dommages inattendus. Pour garantir une installation correcte, veuillez toujours utiliser les composants (ex. Vis) fournis avec la boîte d'accessoires.
17. **ATTENTION:** L'ordinateur est équipé d'un circuit d'horloge temps réel alimenté par batterie. Il y a un risque d'explosion si la batterie est remplacée de manière incorrecte.

Remplacez uniquement avec le même type ou un type équivalent recommandé par le fabricant. Jetez les piles usagées conformément aux instructions du fabricant.

18. Débranchez toujours complètement le cordon d'alimentation de votre châssis lorsque vous utilisez du matériel. Ne faites pas de connexion quand l'appareil est sous tension. Les composants électroniques sensibles peuvent être endommagés par des surtensions soudaines.
19. Niveau de pression acoustique au poste de l'opérateur selon la norme CEI 704-1: 1982 n'est pas supérieur à 70 dB (A).
20. L'équipement ne doit être installé que dans une zone d'accès restreint.
21. Au moyen d'un cordon d'alimentation connecté à une prise de courant avec mise à la terre.
22. Ce produit est destiné à être alimenté par un bloc d'alimentation homologué UL adapté à une utilisation à Tma 50 degrés C min. dont la sortie est conforme à PS2 (ou LPS), ES1 (ou SELV) et dont la sortie est nominale: 9-36Vdc, 16.65-4.16A, si besoin d'aide supplémentaire, veuillez contacter Advantech pour plus d'informations.
23. **AVERTISSEMENT:** Cet ensemble d'instructions est donné conformément à la norme CEI 704-1. Advantech décline toute responsabilité quant à l'exactitude des déclarations contenues dans ce.

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Chapter 1

General Introduction

This chapter details background information on the AIR-540 series.

1.1 Introduction

The Advantech AIR-540 is a 4U high-density HPC and Edge AI server platform designed for GPU-accelerated computing. It is powered by AMD EPYC™ Embedded 8004 Series processors and supports high-bandwidth PCIe expansion, ECC RDIMM memory up to 576GB. With robust I/O and PCIe expandability, it's ideal for demanding AI tasks such as LLM. Bundled with Advantech's GenAI Studio and inference tools, it delivers top-edge AI power and value.

PCIe-optimized Powerhouse Workstation

The AMD EPYC 8004 series processor delivers exceptional performance with up to 64 cores, support for up to 576GB of DDR5 memory, and six PCIe slots, four dedicated for AI cards and two for add-on cards. With a theoretical performance this processor is designed to handle demanding workloads with ease, making it an ideal choice for advanced computing and AI applications.

High-Capacity I/O for Edge AI Bandwidth

The system features high-speed connectivity with three 10Gbps USB 3.2 Gen ports for rapid data transmission, alongside 2 x 10GbE and 2 x 2.5GbE LAN ports for seamless data streaming. It also includes 2 x M.2 M-Key slots for NVMe storage, ensuring robust performance and cutting-edge wireless capabilities for demanding applications.

Precision Software for Edge AI Applications

The system includes GenAI Studio, a no-code GUI that simplifies large language model (LLM) training, making it accessible for users of all skill levels. Additionally, the Edge AI SDK accelerates inference performance evaluation, enabling efficient optimization and deployment of AI models at the edge.

1.2 Product Features

Table 1.1: Product Features

	CPU	8534P	8434P	8324P	8224P	8124P
Processor	Core	64	48	32	24	16
	Base frequency (GHz)	2.3	2.5	2.65	2.55	2.45
	Max Speed (GHz)	3.1	3.1	3	3	2.95
	L3 Cache (MB)	128	128	128	64	64
	TDP (W)	200	200	180	160	125
BIOS	AMI BIOS UEFI 256 Mbits SPI					
Memory	Technology	DDR5 up to 4800 MT/s, ECC memory supported				
	Max. Capacity	576GB (up to 96GB per DIMM)				
	Socket	6 x 288-pin RDIMM				
PCIe Slot	PCIe Signal	PCIe Gen5 x16				
	Slot Qty.	4				
Display	VGA	1				
Ethernet	Controller	2.5GbE: Intel® I226-LM (LAN1, 2) 10GbE: Intel® X710-AT2 (LAN3, 4)				

Table 1.1: Product Features

Others	Watch dog Timer	255-level timer interval, setup by software
	TPM	TPM 2.0
I/O Interface	USB 3.2 Gen1	1 x USB 3.2 Gen1 (Front) 2 x USB 3.2 Gen1 (Rear)
	RJ-45	4
	Serial	1 x RS232
Expansions	MCIO	1 x PCIe x16 or 2 x PCIe x8(default) / CXL module EDSFF 2C(optional) / 8 x SATA(optional)
Storage	NVMe	2 x PCIe Gen4 x4
	2.5" SSD	8 (optional)
	3.5" HDD	2 (optional)
Software Support	Microsoft Windows	Windows Win11 LTSC
	Linux	Ubuntu 24.04
Power Requirements	Power Type	AC in
	Power Input Voltage	100 - 240 V
	Power Supply	CRPS up-to 2700W
Mechanical	Dimensions	436.8 x 458.5 x183 (L x W x H) mm
	Weight	16.8 kg
Environment	Operating Temperature	0 ~ 40°C (w/o Graphic card)
	Vibration During Operation	With SSD: 3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.
	Shock During Operation	With SSD: 10 G, IEC 60068-2-27, half sine, 11 ms duration
	Relative Humidity	95% @40°C (non-condensing)
	EMC	CE/FCC Class A
	Safety	CB, UL, CCC, BSMI

Note! For CXL module EDSFF 2C/2.5" SSD*8/3.5" HDD 2 options are available by project-based request or TPN.



1.3 Mechanical Specifications

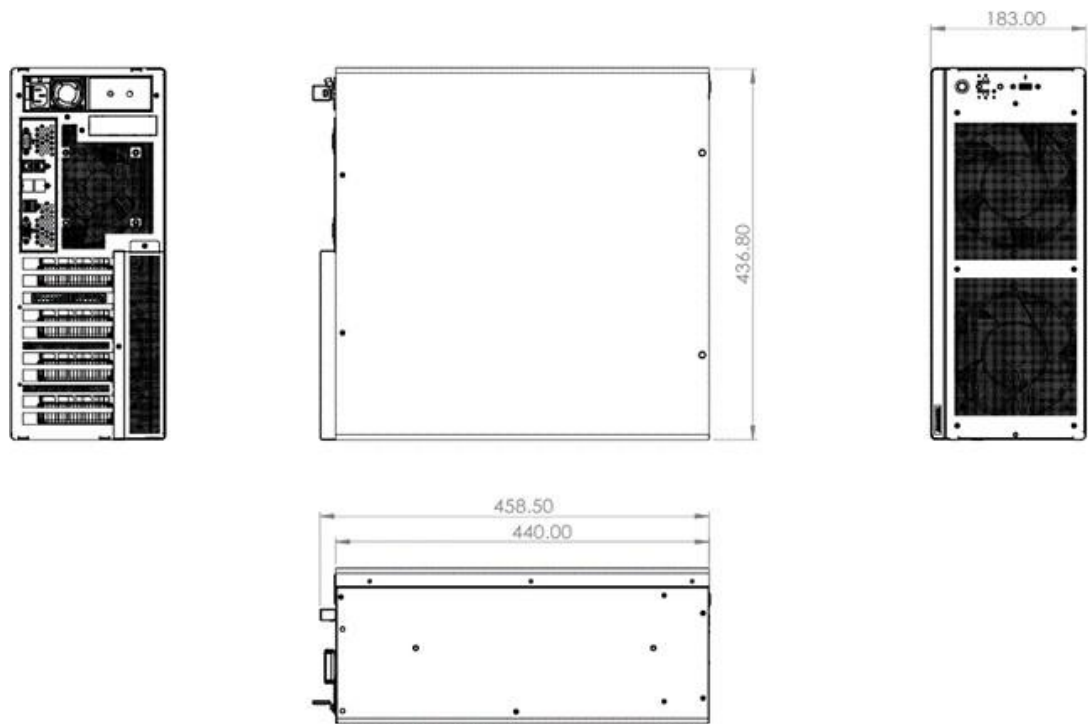


Figure 1.1 AIR-540 Mechanical Dimensions Diagram

Chapter 2

Hardware Configuration

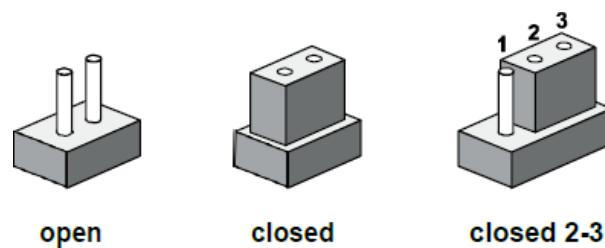
2.1 Introduction

The following sections show the internal jumper settings and the external connector pin assignments for different applications.

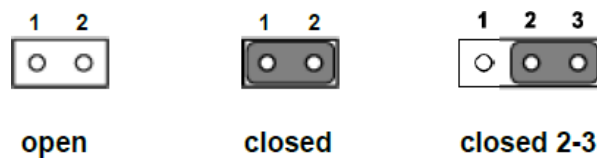
2.2 Jumpers

2.2.1 Jumper Description

You may configure AIR-540 to match the needs of your application by setting jumpers. A jumper is a metal bridge used to close an electric circuit. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To close a jumper, you connect the pins with the clip. To open a jumper, remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2, or 2 and 3.



The jumper settings are schematically diagrammed in this manual as follows:



A pair of needle-nose pliers may be helpful when working with jumpers. If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes. Generally, you simply need a standard cable to make most connections.

2.2.2 Jumper List

Table 2.1: Jumper List

JCMOS1	Clear CMOS
PSON1	AT/ATX Mode Selection (Auto Power On Setting)
JWDT1	Watchdog Timer Selection
SW3	MCIO signal PCIe/SATA

2.2.3 Jumper Location

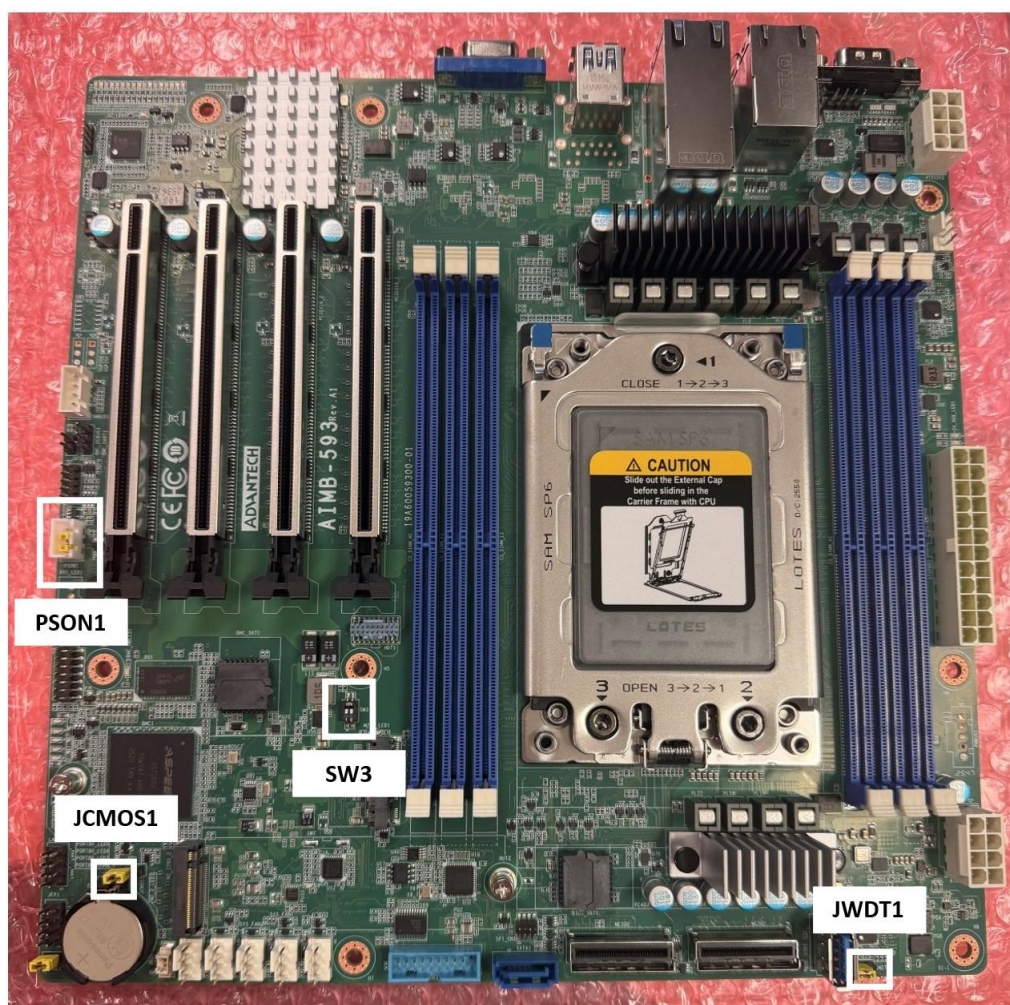


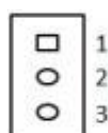
Figure 2.1 Jumper Layout

2.2.4 Jumper Settings

2.2.4.1 Clear CMOS Setting for JCMOS1

Table 2.2: JCMOS1 Clear CMOS Setting

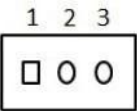
(1-2)	Normal Operation (Default)
(2-3)	Clear CMOS



2.2.4.2 Auto Power On (ATX/AT) Setting for PSON1

Table 2.3: PSON1 Auto Power on Setting

(1-2)	Auto Power On (AT)
(2-3)	Power button for Power On (Default ATX)



2.2.4.3 Watchdog Timer Selection for JWDT1

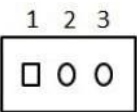


Table 2.4: JWDT1 Watchdog Timer Selection

(1-2)	Enable (Default)
(2-3)	Disable

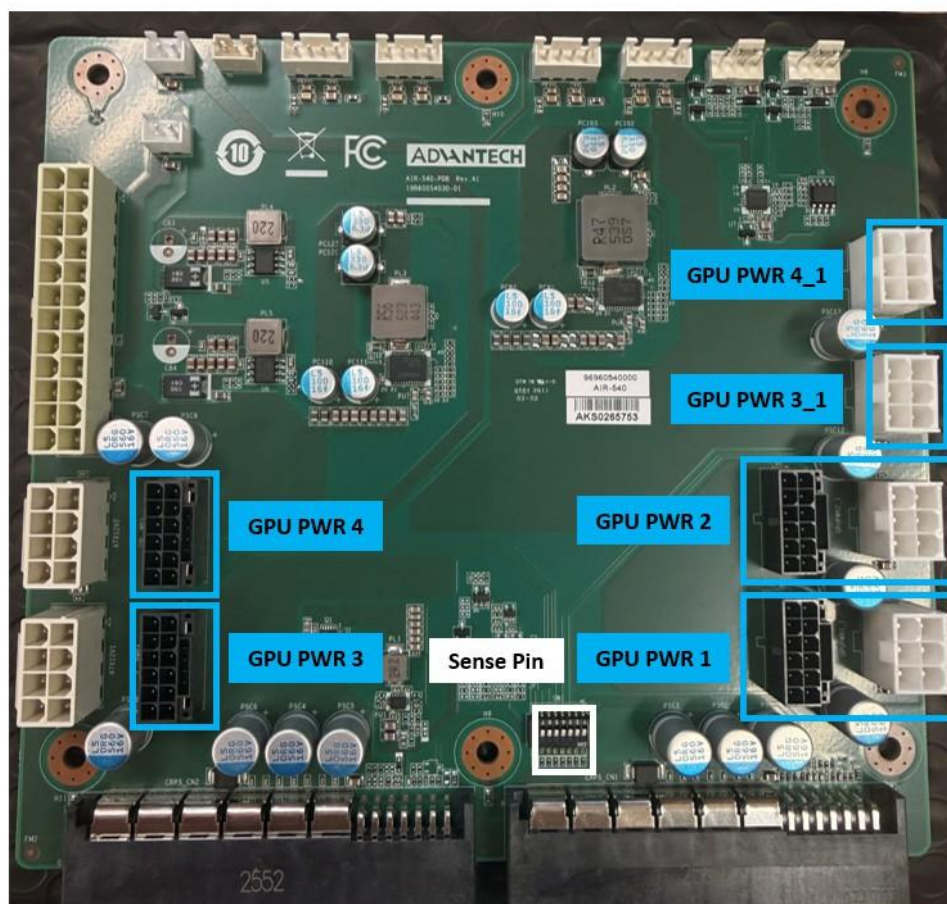
2.2.4.4 MCIO Signal to PCIe/SATA for SW3



Table 2.5: SW3 MCIO to PCIe/SATA Setting

(1-2)OFF	PCIe signal (Default)
(1-2)ON	SATA signal

2.2.4.5 PDB Power Switch Control



GPU PWR 1, 2, 3 (&3_1), 4 3 (&4_1) provide 600W power each.

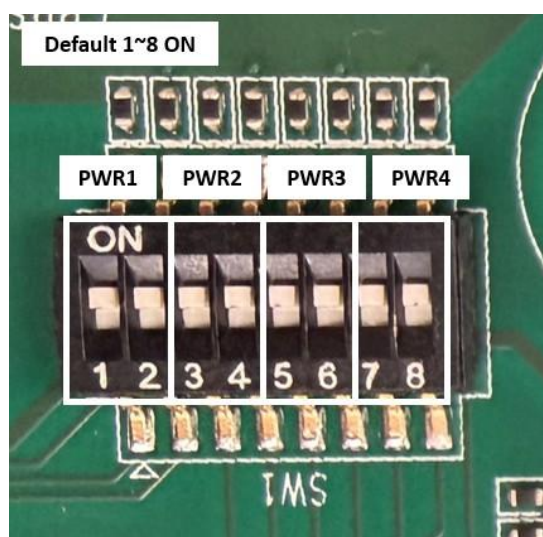


Table 2.6: Power

	Sense 0	Sense 1
PWR 1	1	2
PWR 2	3	4
PWR 3	5	6
PWR 4	7	8

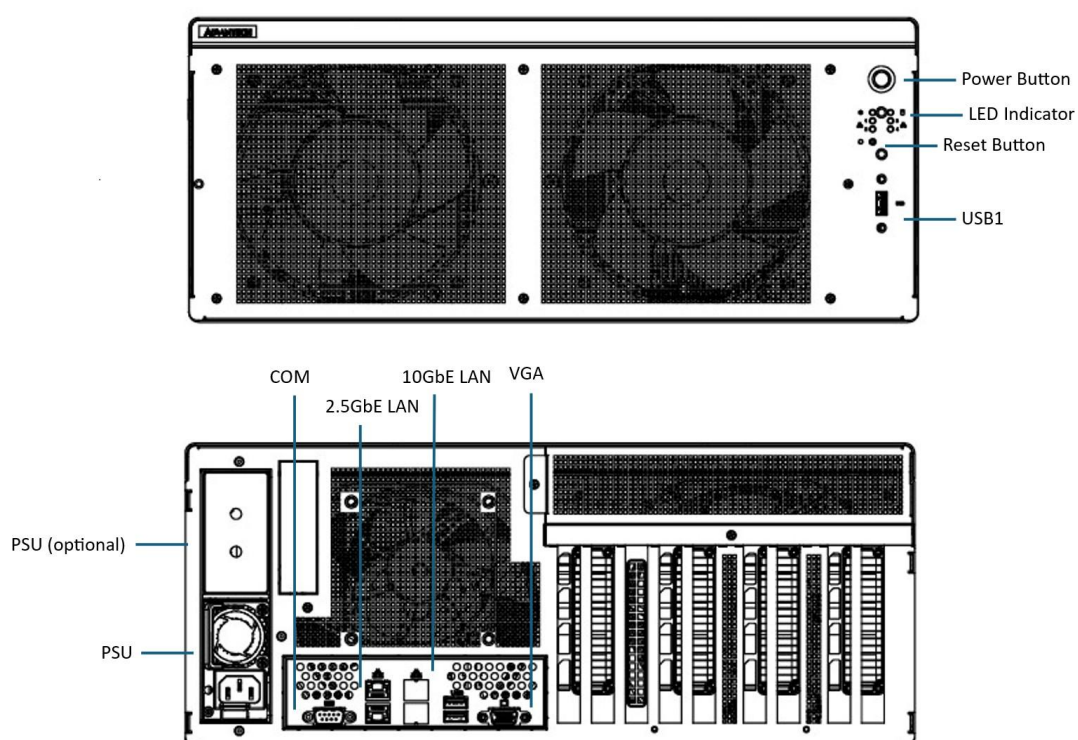
There are 4 different mode for each power.

Table 2.7: Mode

	Sense 0	Sense 1	Maximum Sustain Power	Initial Permitted Power
Mode 1	ON	ON	600W	375W
Mode 2	OFF	ON	450W	225W
Mode 3	ON	OFF	300W	150W
Mode 4	OFF	OFF	150W	100W

2.3 Connectors

2.3.1 External I/O Locations

**Figure 2.2 I/O Connector Diagram**

2.3.1.1 COM Port Connector

The AIR-540 provides D-sub 9-pin connectors. Offers RS-232 serial communication only.

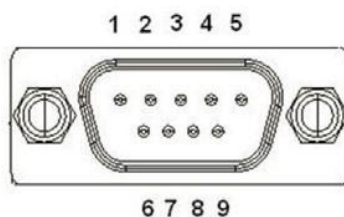


Figure 2.3 COM Port Connector

Table 2.8: COM Connector Pin Assignments

Pin	Signal Name
1	B_COM1_DCD
2	B_COM1_RXD#
3	B_COM1_TXD#
4	B_COM1_DTR
5	GND
6	B_COM1_DSR
7	B_COM1_RTS
8	B_COM1_CTS
9	B_COM1_RI

2.3.1.2 Ethernet connector

The AIR-540 is equipped 4 x Ethernet ports, LAN1_2 are 2.5GbE port and LAN3_4 are 10GbE port. These Ethernet ports provide standard RJ-45 jack connectors with LED indicators to show its “Active/Link” status (active in green light blinking and link in green light) and “Speed” status in green or orange light, details below.

- **2.5GbE speed LED:** 2.5GbE in green light; 1 GbE in orange light.
- **10GbE speed LED:** 10GbE in green light; 2.5GbE in orange light.

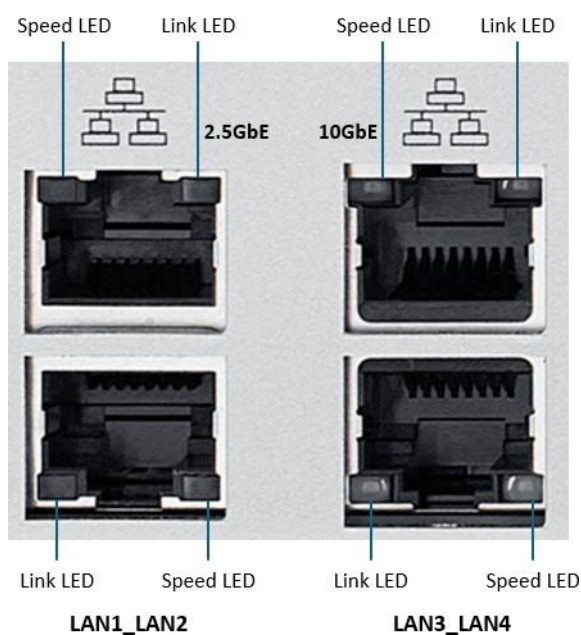


Figure 2.4 Ethernet Connector

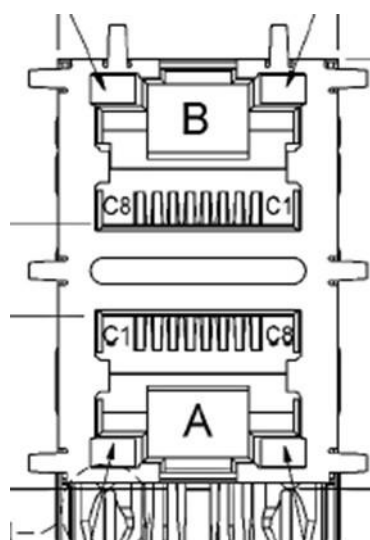


Figure 2.5 RJ-45 Connector (2.5GbE)

Table 2.9: RJ-45 Connector (2.5GbE) Pin Assignments

Pin	Signal Name	Pin	Signal Name
RA1	LAN1_MDI_P0	RB1	LAN2_MDI_P0
RA2	LAN1_MDI_N0	RB2	LAN2_MDI_N0
RA3	LAN1_MDI_P1	RB3	LAN2_MDI_P1
RA4	LAN1_MDI_N1	RB4	LAN2_MDI_N1
RA5	LAN1_MDI_P2	RB5	LAN2_MDI_P2
RA6	LAN1_MDI_N2	RB6	LAN2_MDI_N2
RA7	LAN1_MDI_P3	RB7	LAN2_MDI_P3
RA8	LAN1_MDI_N3	RB8	LAN2_MDI_N3

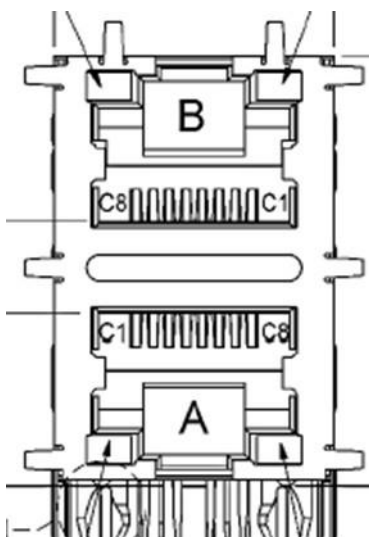


Figure 2.6 RJ-45 Connector (10GbE)

Table 2.10: RJ-45 Connector (10GbE) Pin Assignments

Pin	Signal Name	Pin	Signal Name
A1	X710_MDIO_0_P	B1	X710_MDI1_0_P
A2	X710_MDIO_0_N	B2	X710_MDI1_0_N
A4	X710_MDIO_1_P	B4	X710_MDI1_1_P
A5	X710_MDIO_1_N	B5	X710_MDI1_1_N
A7	X710_MDIO_2_P	B7	X710_MDI1_2_P
A8	X710_MDIO_2_N	B8	X710_MDI1_2_N
A10	X710_MDIO_3_P	B10	X710_MDI1_3_P
A11	X710_MDIO_3_N	B11	X710_MDI1_3_N

2.3.1.3 LED Indicators

There are six LEDs on the front panel that indicate the system's status:

Left side from top:

Power LED: system in S5 with yellow light; in S0 with green light
LAN1, 2 LED for link status with green light

Right side from top:

HDD LED: SATA, M.2 HDD are working with green light
LAN3, 4 LED for link status with green light



Figure 2.7 LED Indicators

2.3.1.4 USB3.2 Connector

The AIR-540 supports 2 x USB3.2 interfaces, which support Plug-and-Play functionality and hot swapping for external devices. The USB interfaces comply with USB UHCI, Rev. 3.2. USB3.2 connectors contain legacy pins to interface to USB2.0 devices and a new set of pins for USB3.2 connectivity.

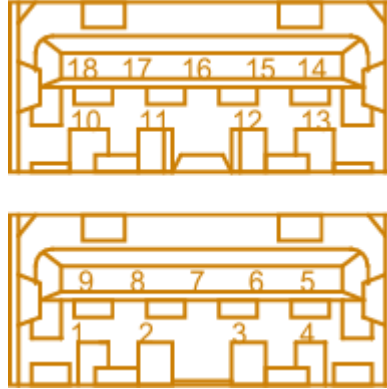


Figure 2.8 USB3.2 Connector

Table 2.11: USB3.2 Connector Pin Assignments

Pin	Signal Name	Pin	Signal Name
1	+5V	10	+5V
2	USB_data-	11	USB_data-
3	USB_data+	12	USB_data+
4	GND	13	GND
5	SSRX-	14	SSRX-
6	SSRX+	15	SSRX+
7	GND	16	GND
8	SSRX-	17	SSRX-
9	SSRX+	18	SSRX+

2.3.1.5 VGA Connector

The AIR-540 provides an integrated 15-pin female VGA digital video interface, which supports up to 1920 x 1200 @60Hz.

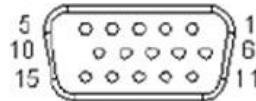


Figure 2.9 VGA Connector

Table 2.12: VGA Connector Pin Assignments

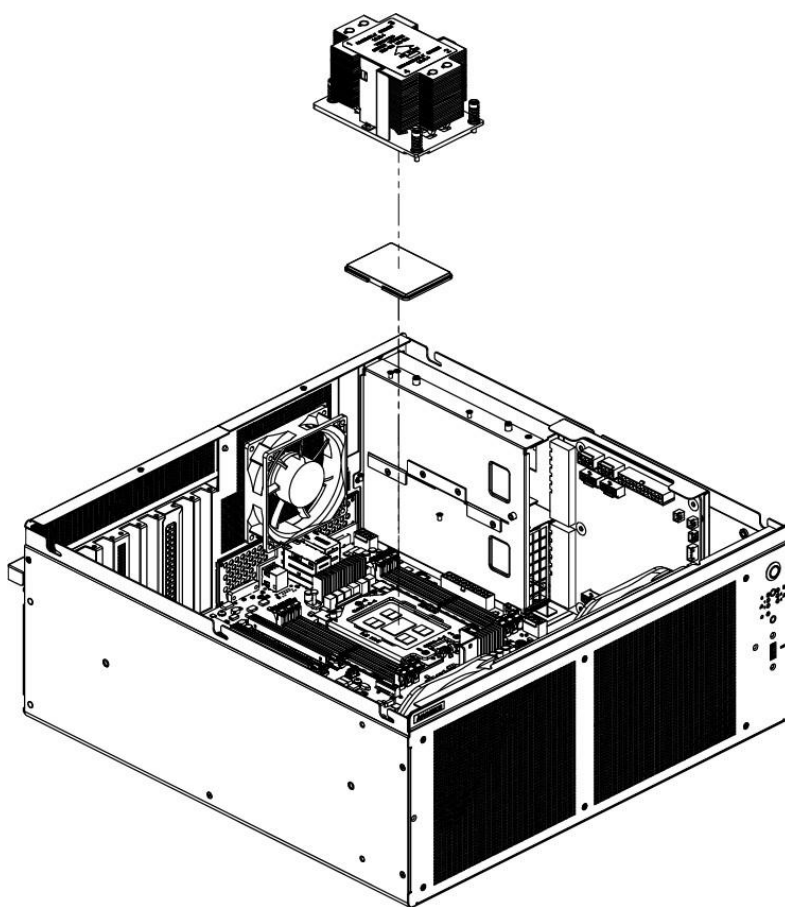
Pin	Signal Name	Pin	Signal Name
1	Red	9	+5V
2	Green	10	GND
3	Blue	11	NC
4	NC	12	DDC_DATAO
5	GND	13	HSYNC_BUF_R
6	GND	14	VSYNC_BUF_R

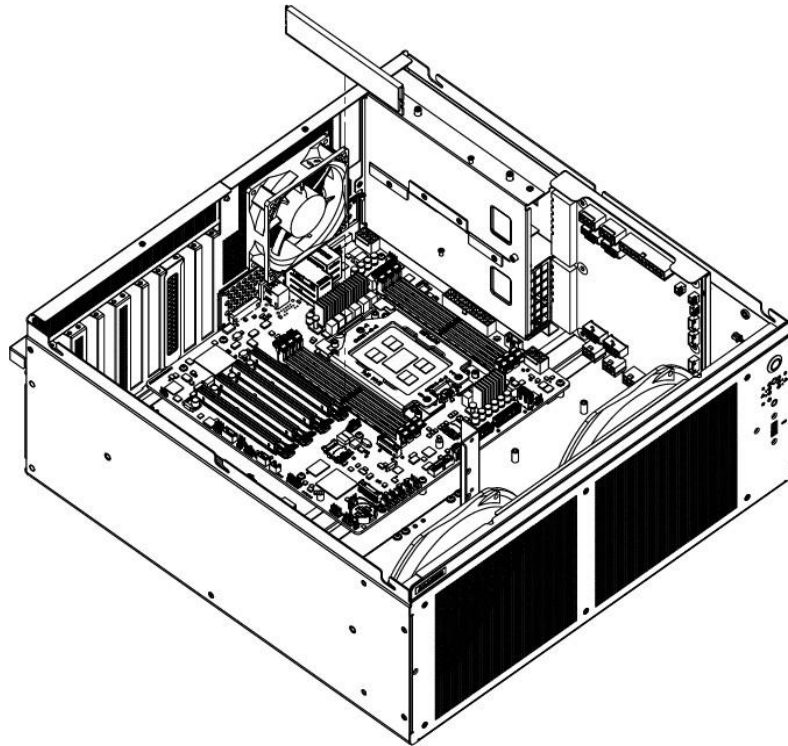
Table 2.12: VGA Connector Pin Assignments

7	GND	15	DDC_CLKO
8	GND		

2.4 Installation

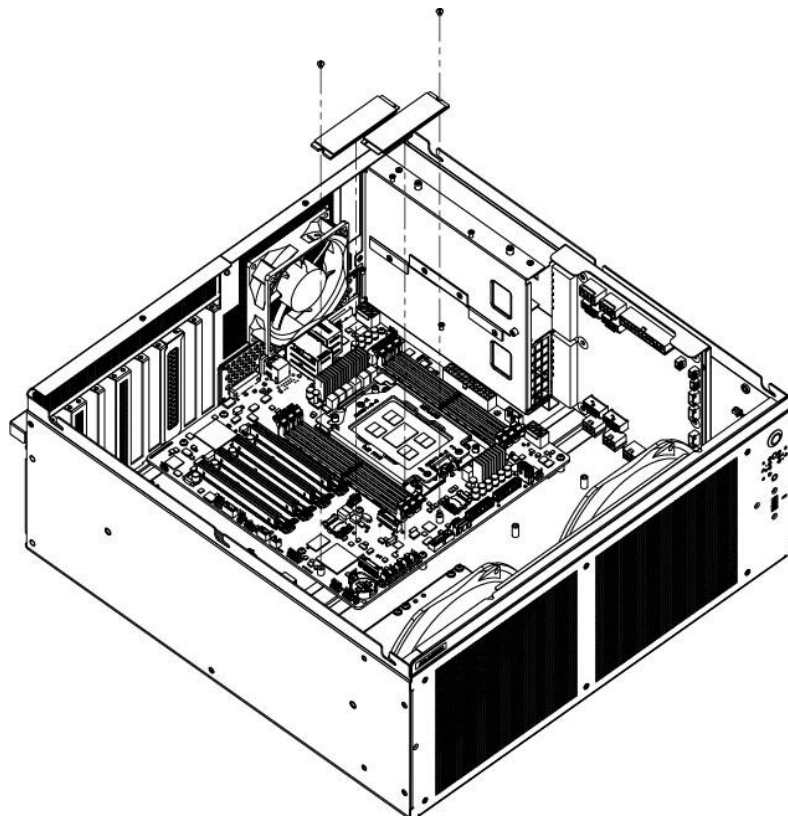
2.4.1 CPU/CPU Heatsink/Memory Installation





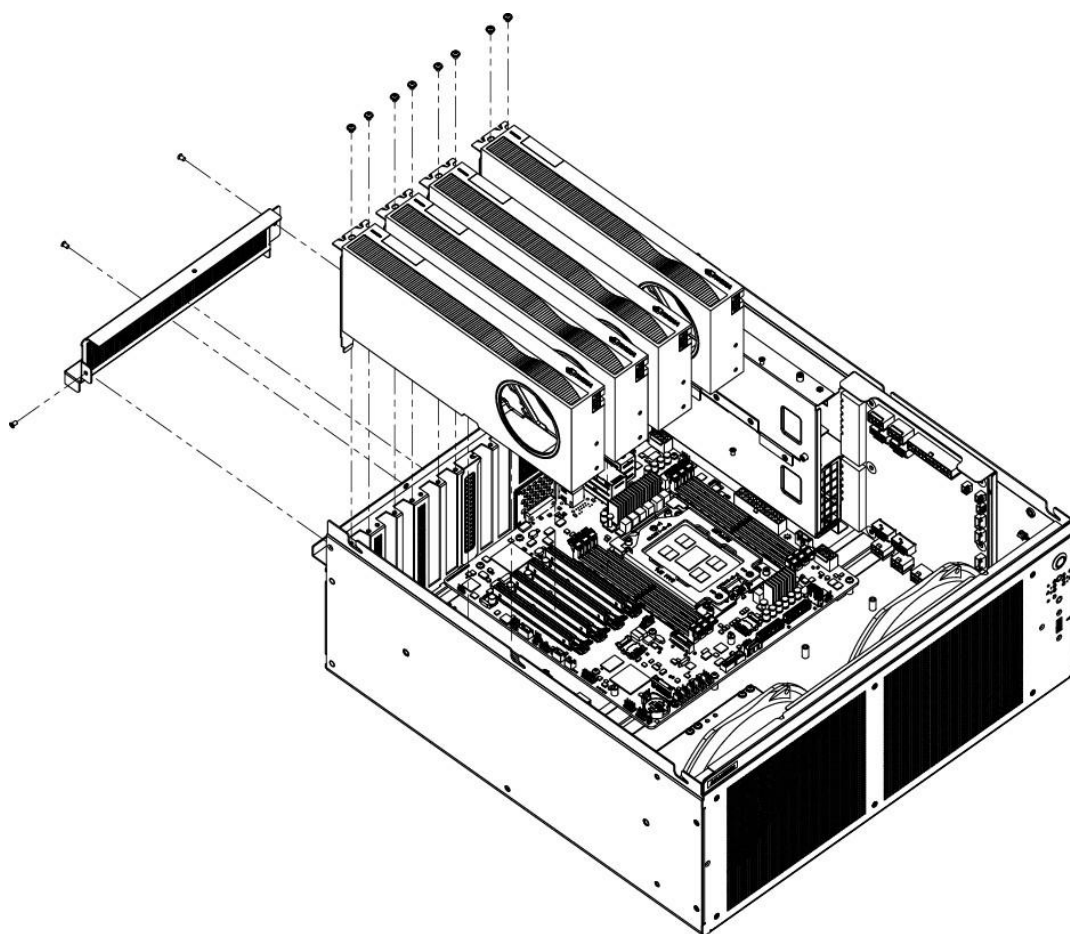
1. Unscrew the screws on the cover, and remove the cover.
2. Install the CPU (AMD SP6) and CPU Heatsink (1970005926N011).
3. Install the memory into the system.

2.4.2 M.2 Module Installation (Optional)



1. Remove 2 screws for M.2 Module.
2. Install M.2 module and tighten the screw on the module.

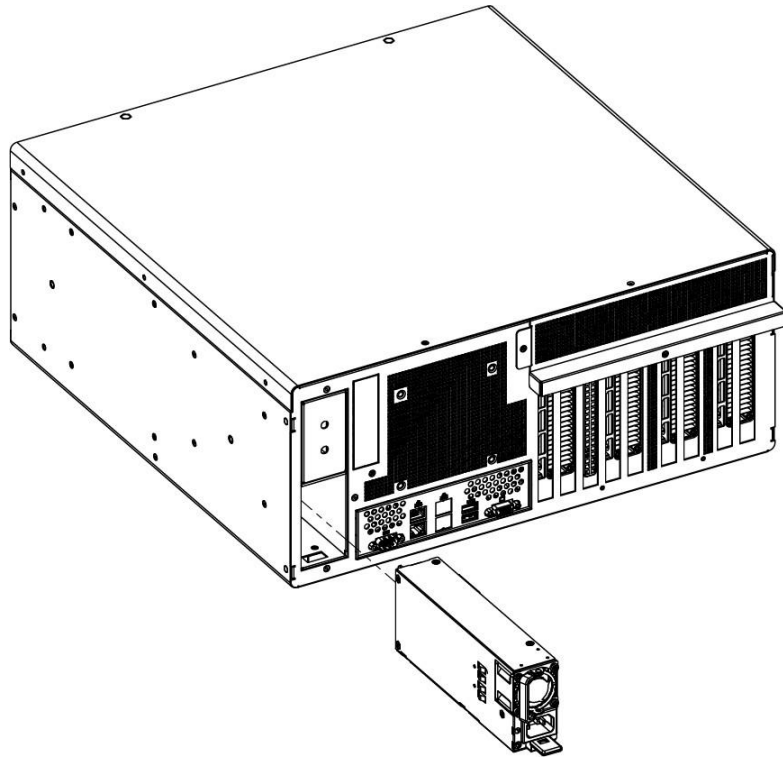
2.4.3 Graphic Card Installation (Optional)



1. Remove the rear slot cover and brackets.
2. Install the GPU card into the PCIe slot.
3. Put the rear slot cover back.

4. Connect all required GPU auxiliary power cables.

2.4.4 Redundant PSU Installation (Optional)



1. Remove the PSU cover if any.
2. Install the redundant PSU(s) to the PSU slot.

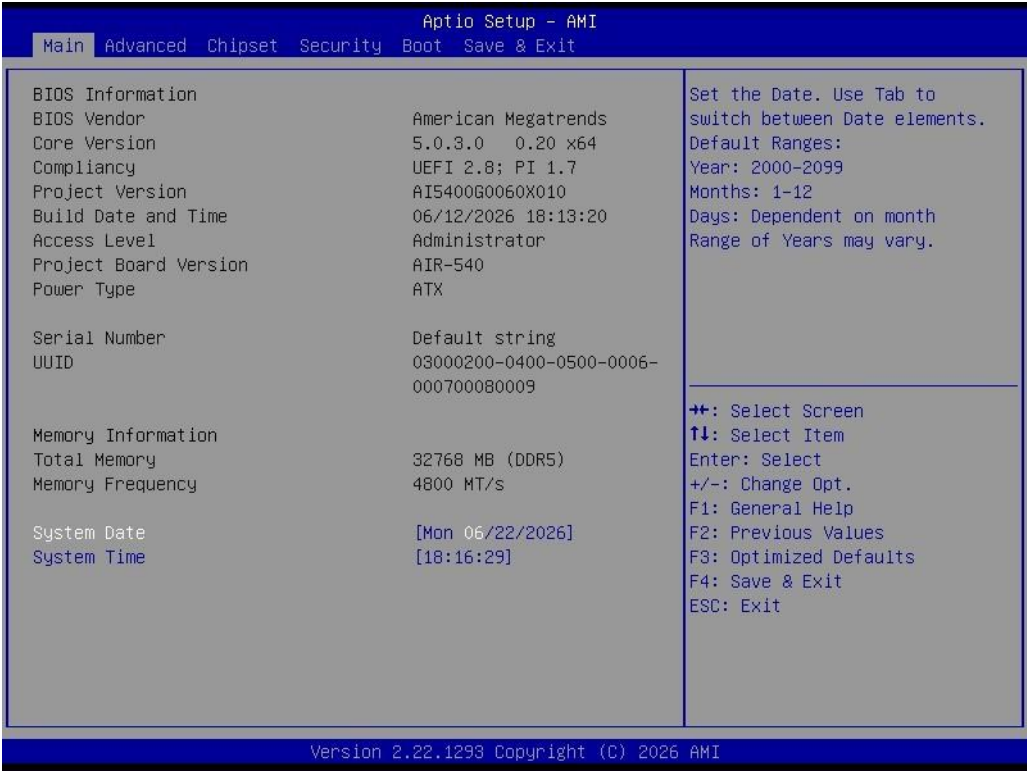
Remark: The 2000W PSU requires 220V Input to deliver full capacity. Using 110V Input will limit output to 1000W.

Chapter 3

BIOS Settings

3.1 Introduction

AMI BIOS has been integrated into motherboards for over two decades. With the AMI BIOS Setup program, users can modify BIOS settings and control various system features. This chapter describes the basic navigation of the AIR-540 BIOS setup screens.



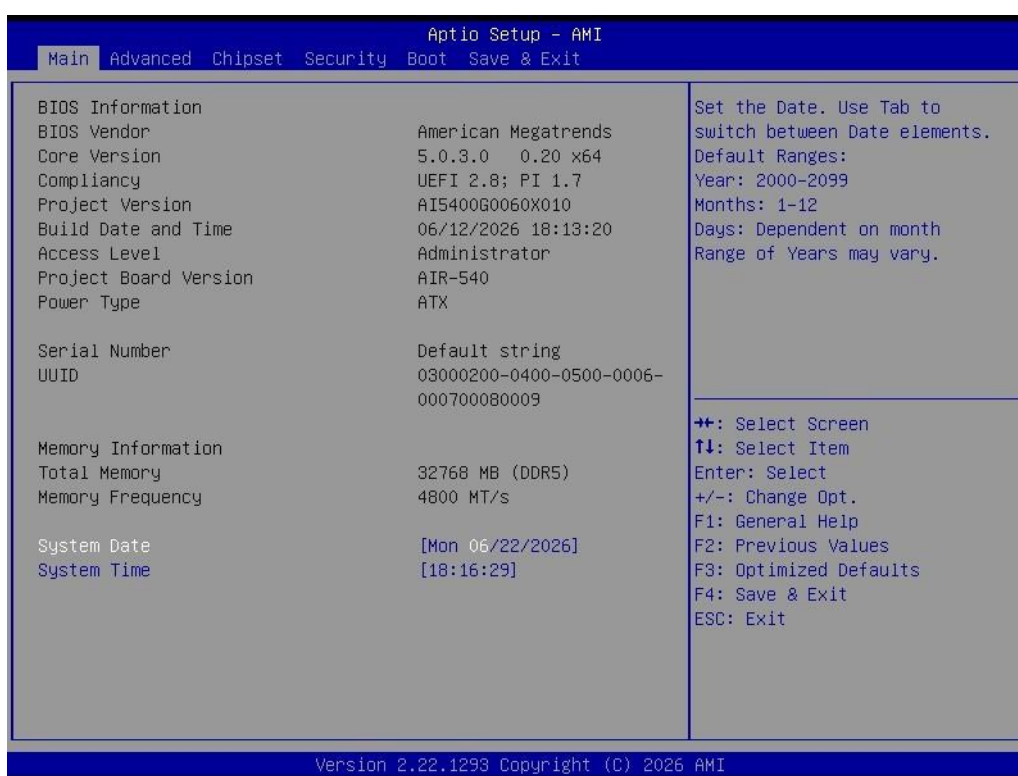
The AMI BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This information is stored in flash ROM so it retains the Setup information when the power is turned off.

3.2 Entering the Setup

Turn on the computer and check for the patch code. If there is a number assigned to the patch code, it means that BIOS supports your CPU. If there is no number assigned to the patch code, please contact an Advantech application engineer to obtain an up- to-date patch code file. This will ensure that your CPU's system status is valid. After ensuring that you have a number assigned to the patch code, press and you will immediately be allowed to enter Setup.

3.2.1 Main Setup

When users first enter the BIOS Setup Utility, they will enter the Main setup screen. Users can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.



The Main BIOS setup screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured; options in blue can. The right frame displays the key legend.

Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is

highlighted in white. Often a text message will accompany it.

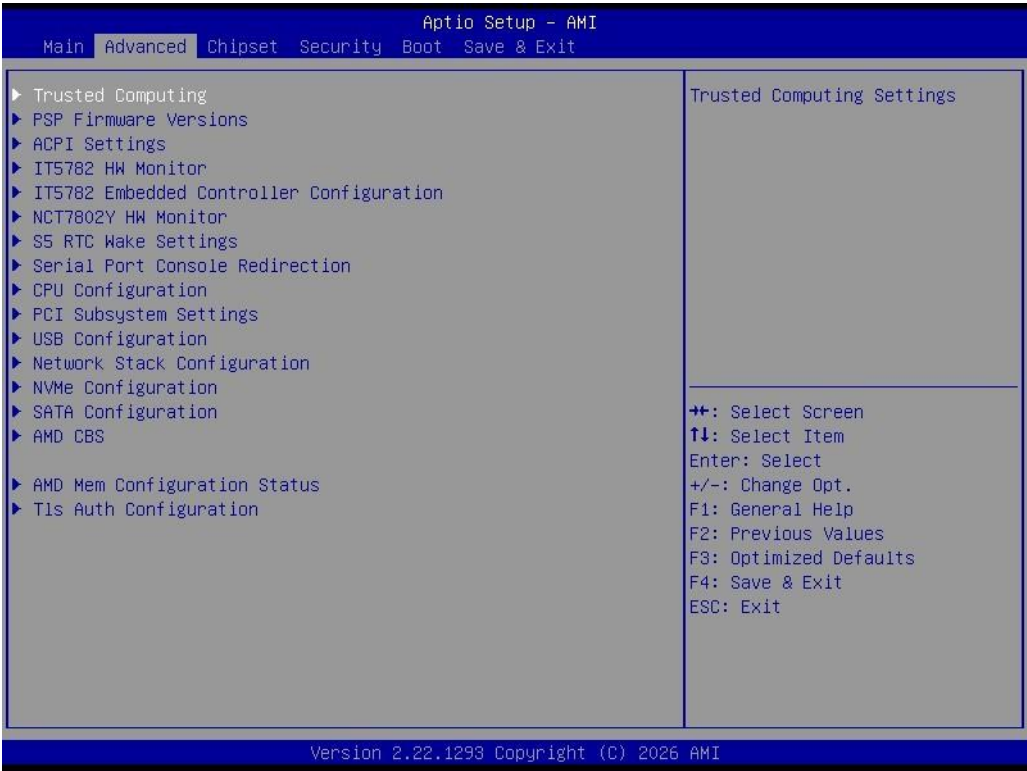
■ System Time/System Date

Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time must be entered in HH:MM:SS format.

3.2.2 Advanced BIOS Features Setup

Select the Advanced tab from the AIR-540 setup screen to enter the Advanced BIOS Setup screen. Users can select any item in the left frame of the screen, such as CPU Configuration, to go to the sub menu for that item. Users can display an Advanced BIOS Setup option by highlighting it using the <Arrow> keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screens are shown below. The sub menus are described on the following pages.

3.2.2.1 Trusted Computing



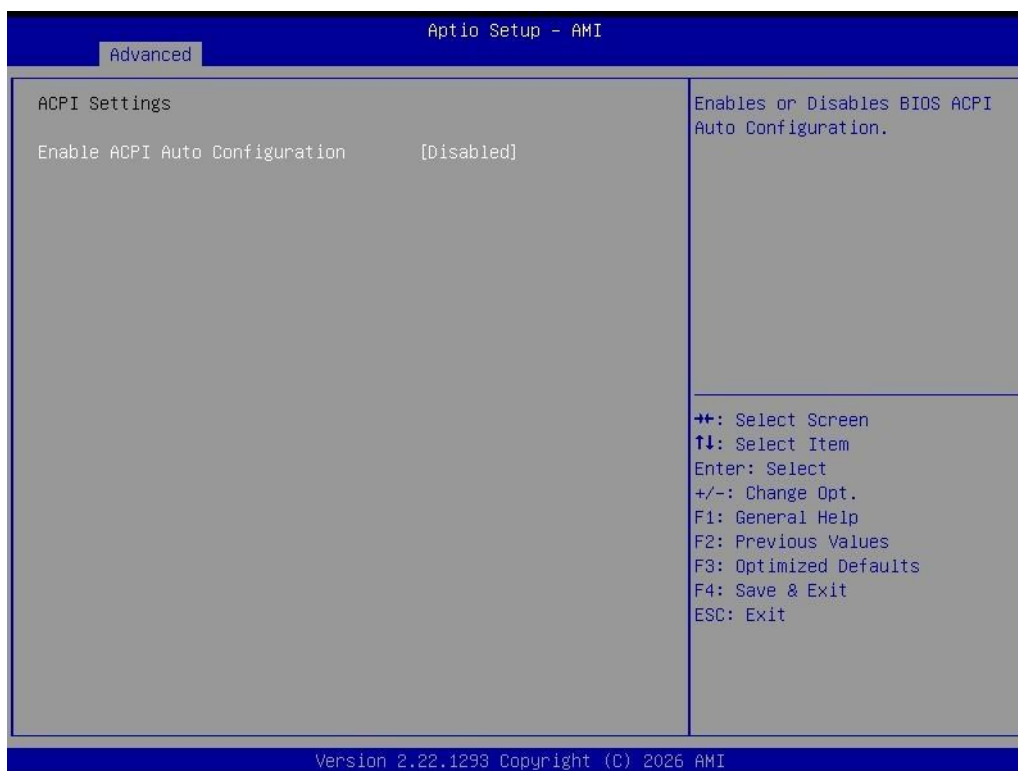
Physical TPM related setup.

3.2.2.2 PSP Firmware Version/AMD TPM Setting



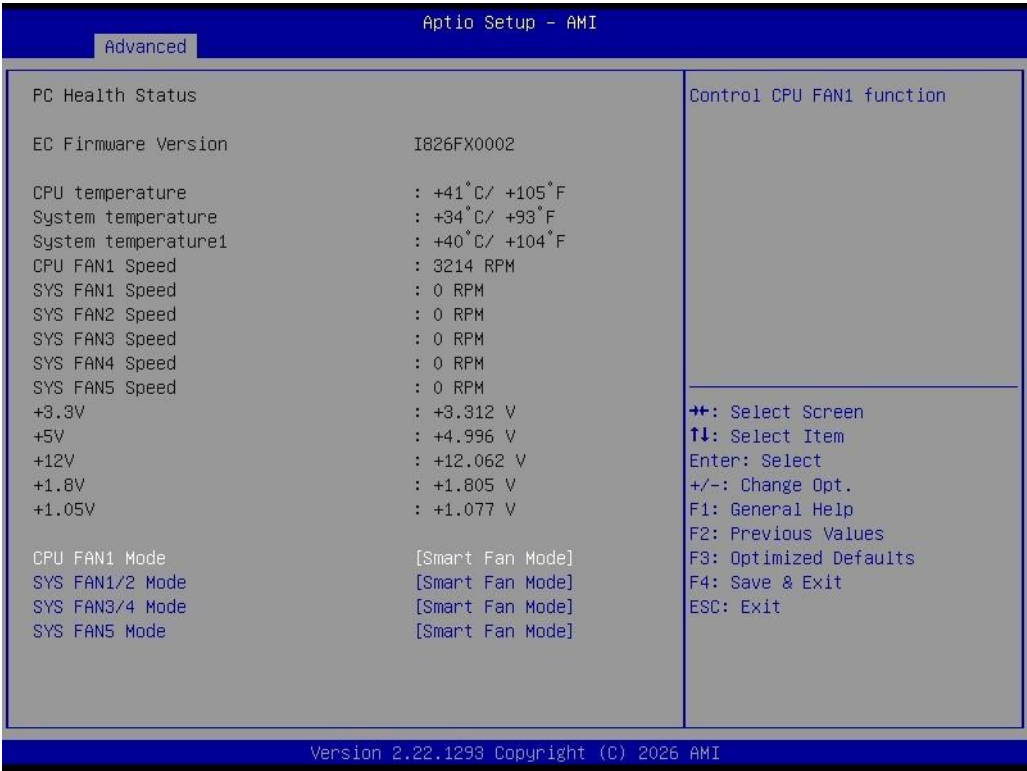
Set Enable to reset TPM when new CPU is installed.

3.2.2.3 ACPI Settings



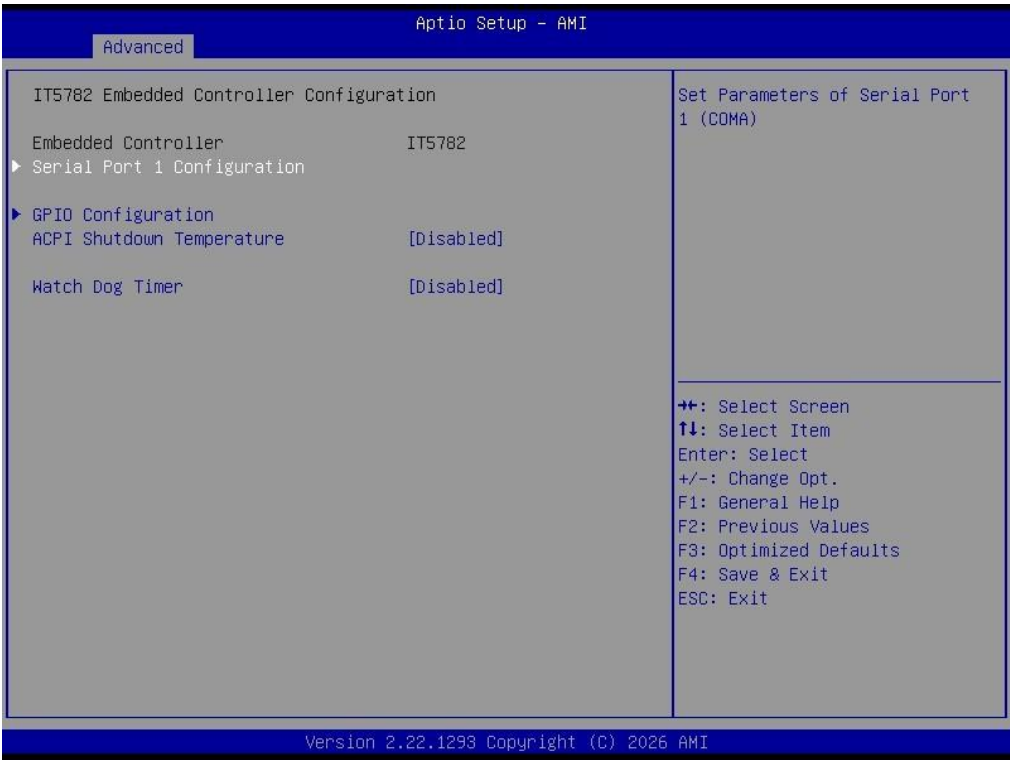
Set system ACPI related parameters.

3.2.2.4 IT5782 HW Monitor



Check system hardware status and set the smart fan parameter. Fan control for CPU FAN1: CPU Cooler, SYS FAN1/2 & FAN3/4: front 2pcs system fan (17 cm), SYS FAN5: inside system (9 cm).

3.2.2.5 IT5782 Embedded Controller Configuration



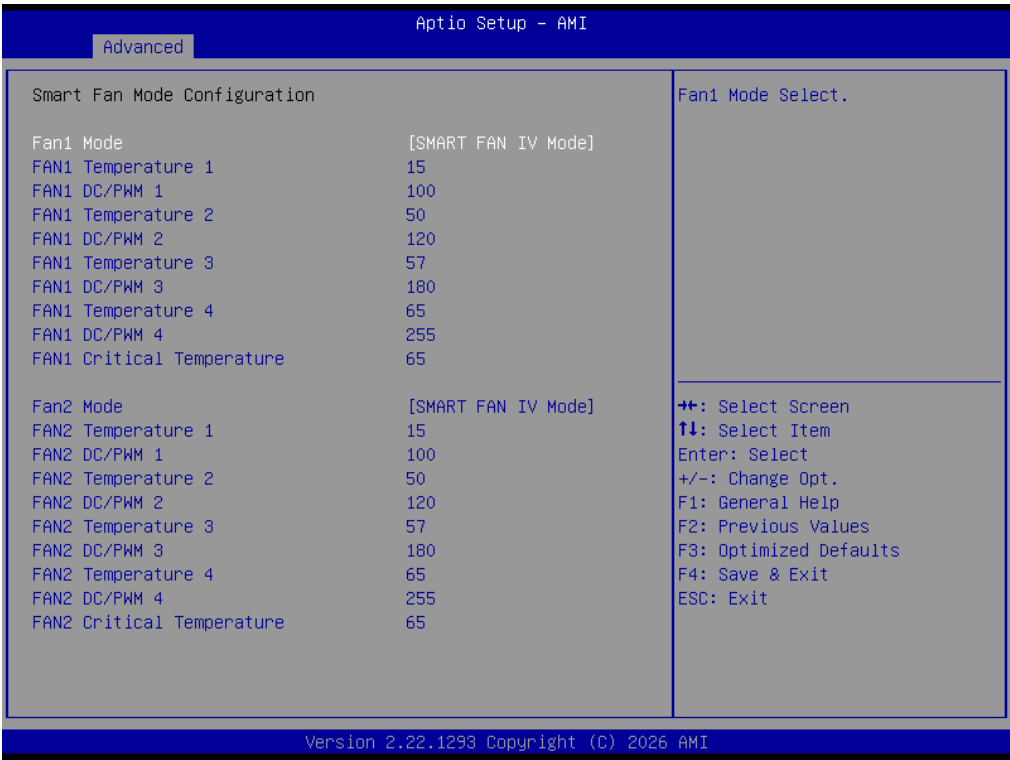
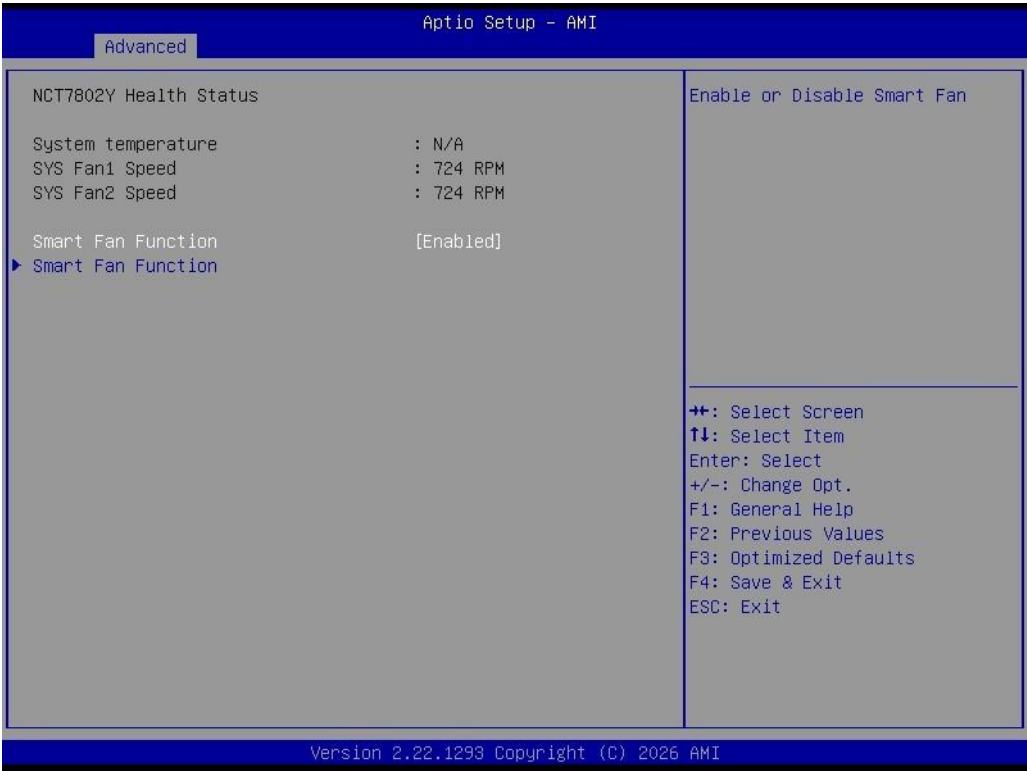


Set system COM ports parameters support the RS-232 only.

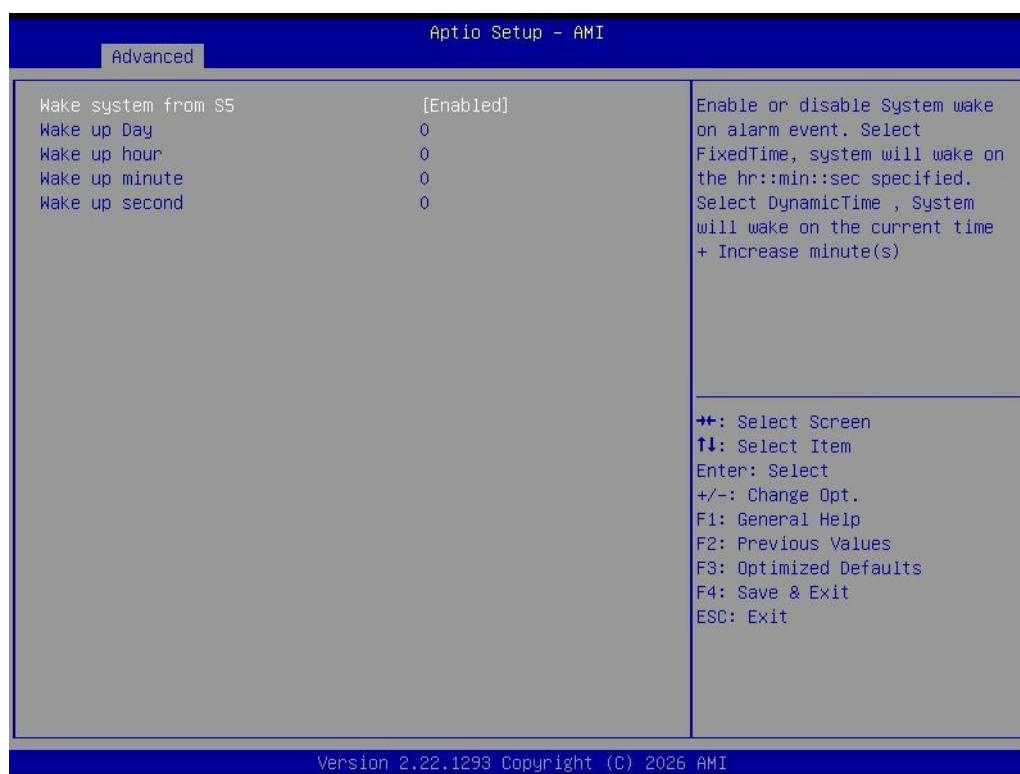


GPIO Control.

3.2.2.6 NCT7802Y HW Monitor

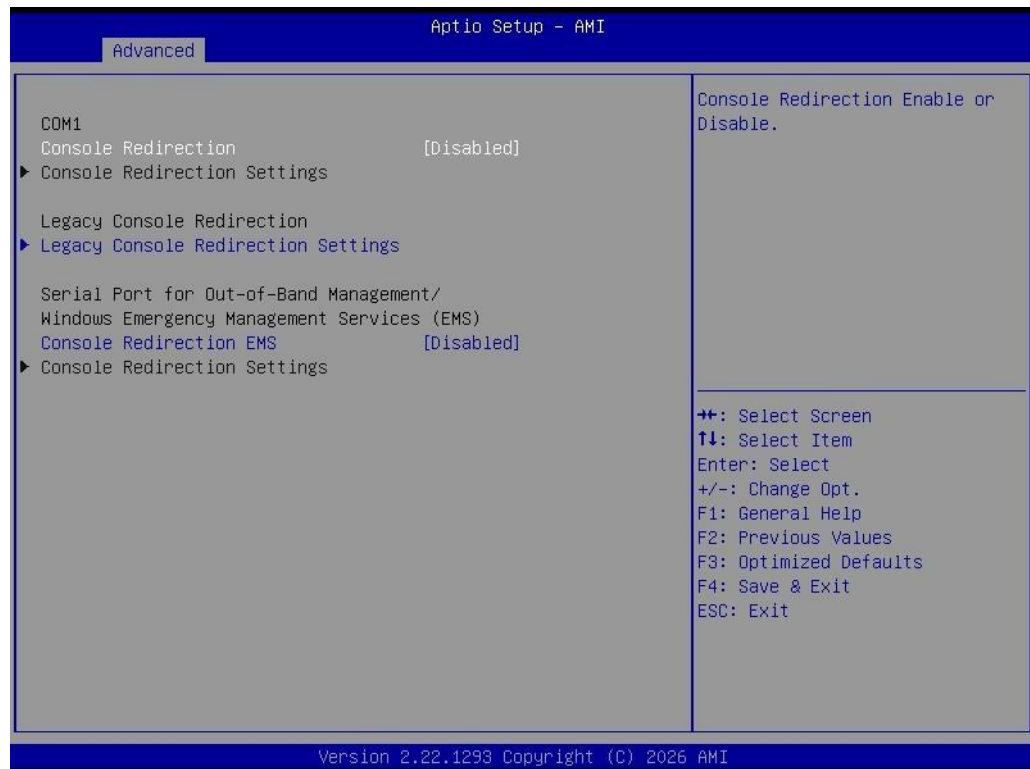


3.2.2.7 S5 RTC Wake Settings



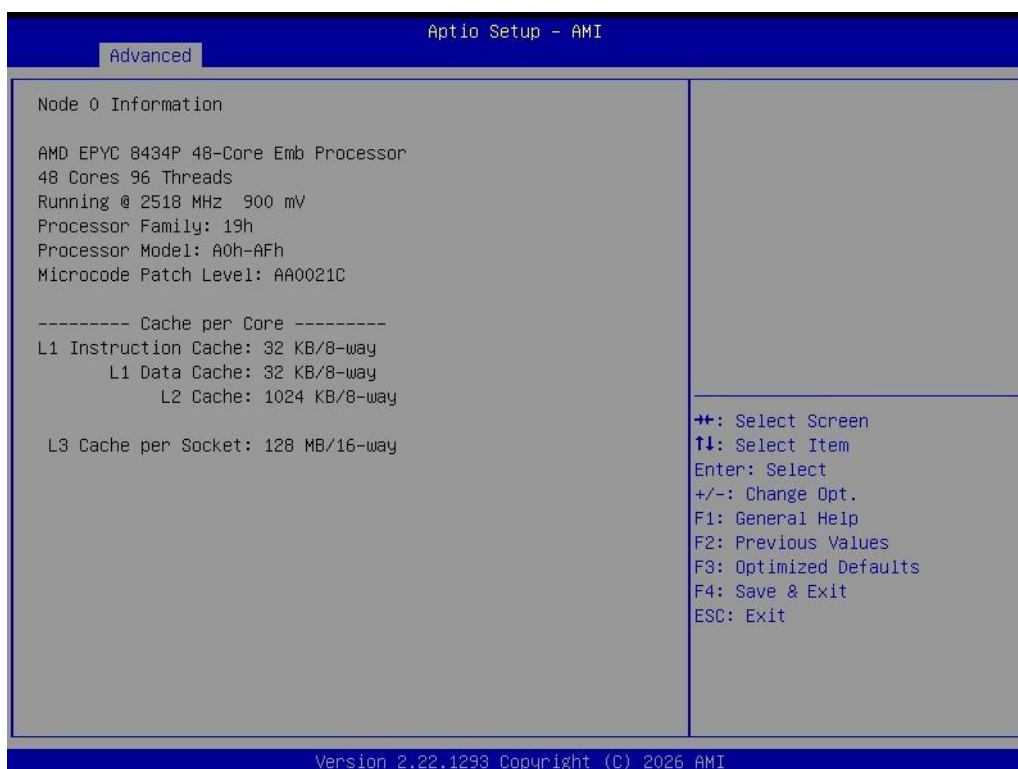
Enable or disable System wake on alarm event. Select FixedTime, system will wake on the hr::min::sec specified.

3.2.2.8 Serial Port Console Redirection



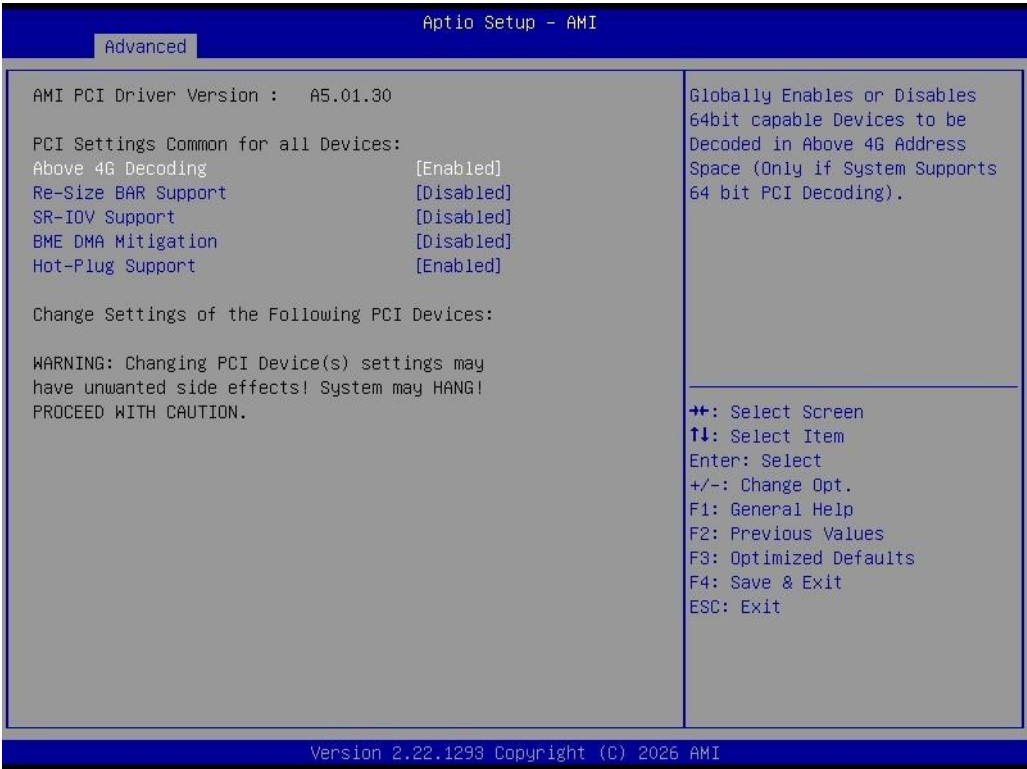
- **Console Redirection**
This item allows users to enable or disable console redirection for Microsoft Windows Emergency Management Services (EMS).
- **Redirection COM Port**
Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages.

3.2.2.9 CPU Configuration

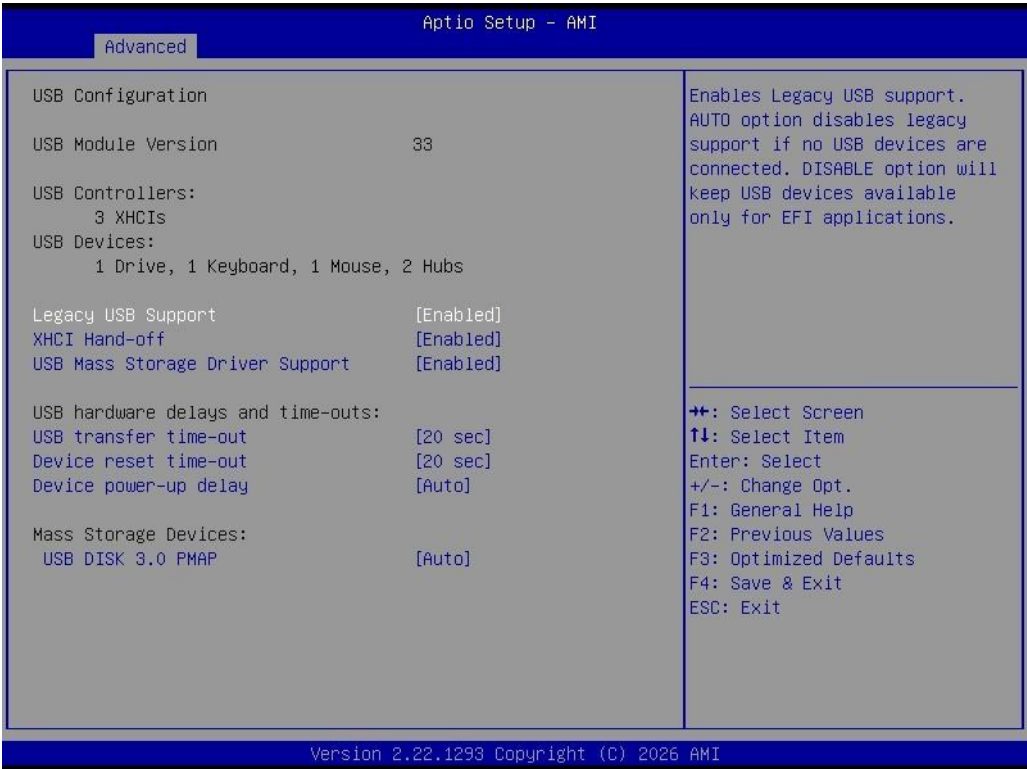


CPU related parameter setup.

3.2.2.10 PCI Subsystem Settings

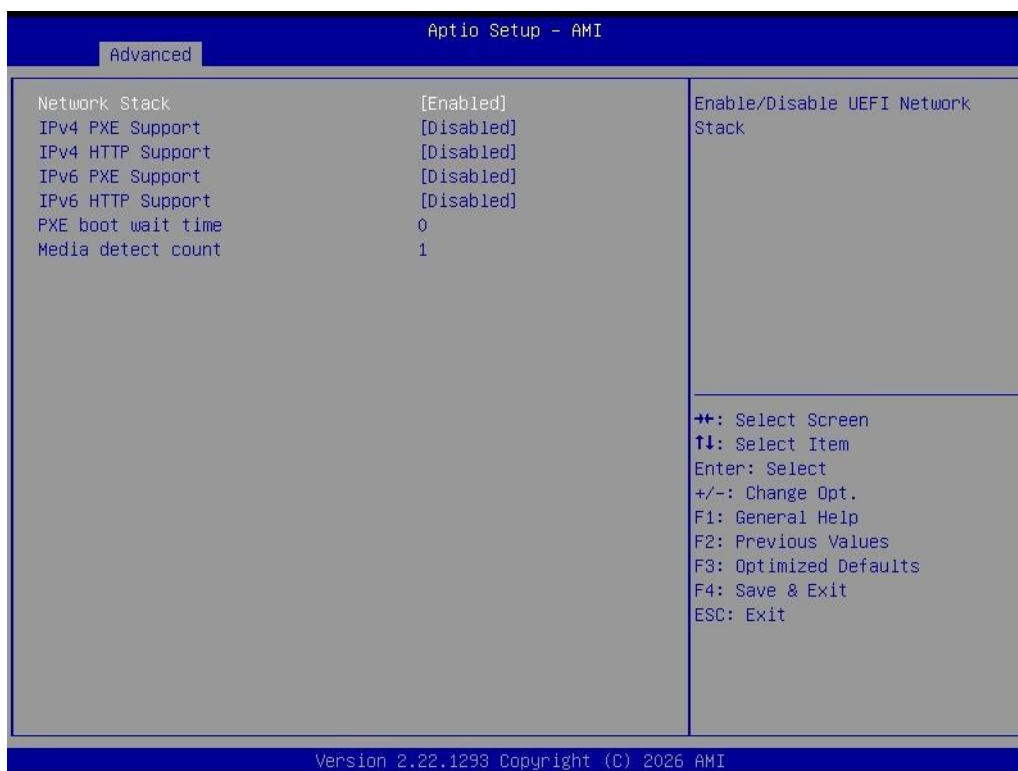


3.2.2.11 USB Configuration



USB related parameter setup.

3.2.2.12 Network Stack Configuration



Enable/Disable UEFI Network Stack.

3.2.2.13 NVMe Configuration



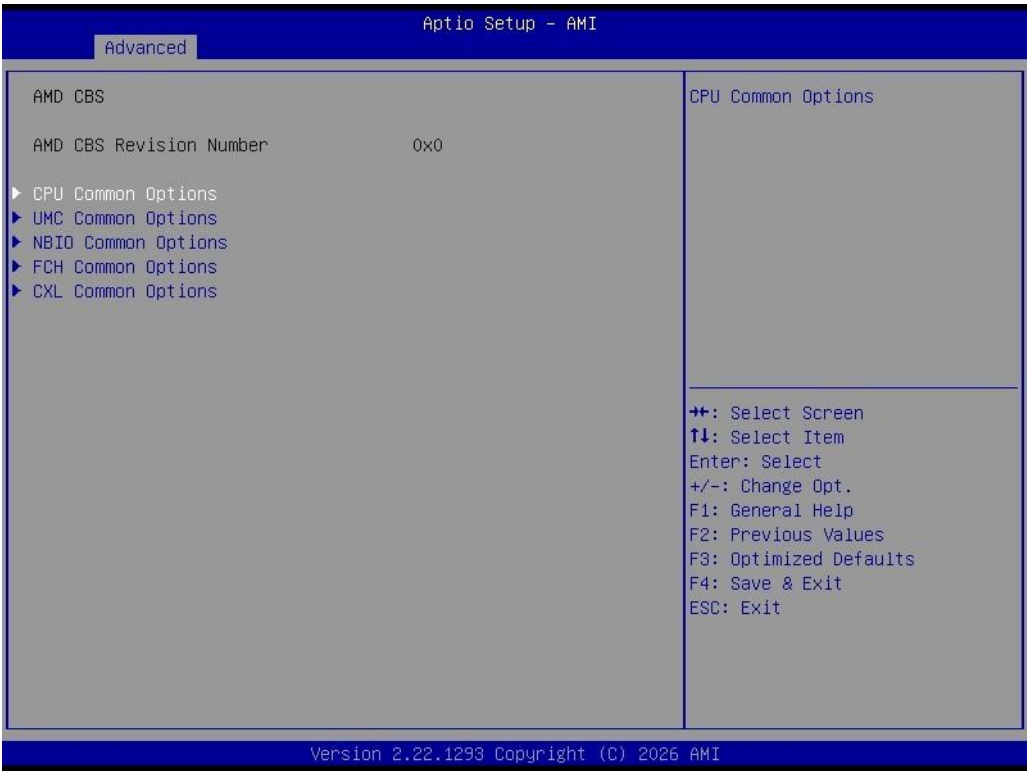
NVMe device related parameter info.

3.2.2.14 SATA Configuration



SATA device related parameter info.

3.2.2.15 AMD CBS



To set AMD CPU common options.

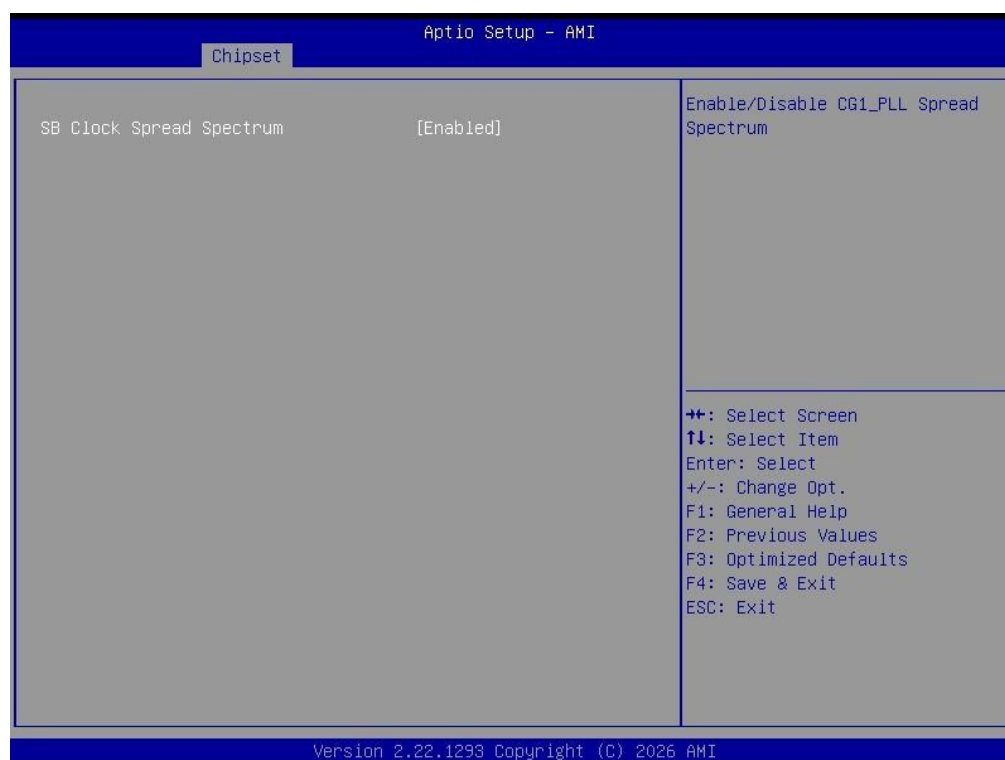
3.2.3 Chipset Configuration

Chipset tab allow you to read information or set parameters for South Bridge, North Bridge and Platform Misc Configuration.



3.2.3.1 South Bridge





3.2.3.2 North Bridge



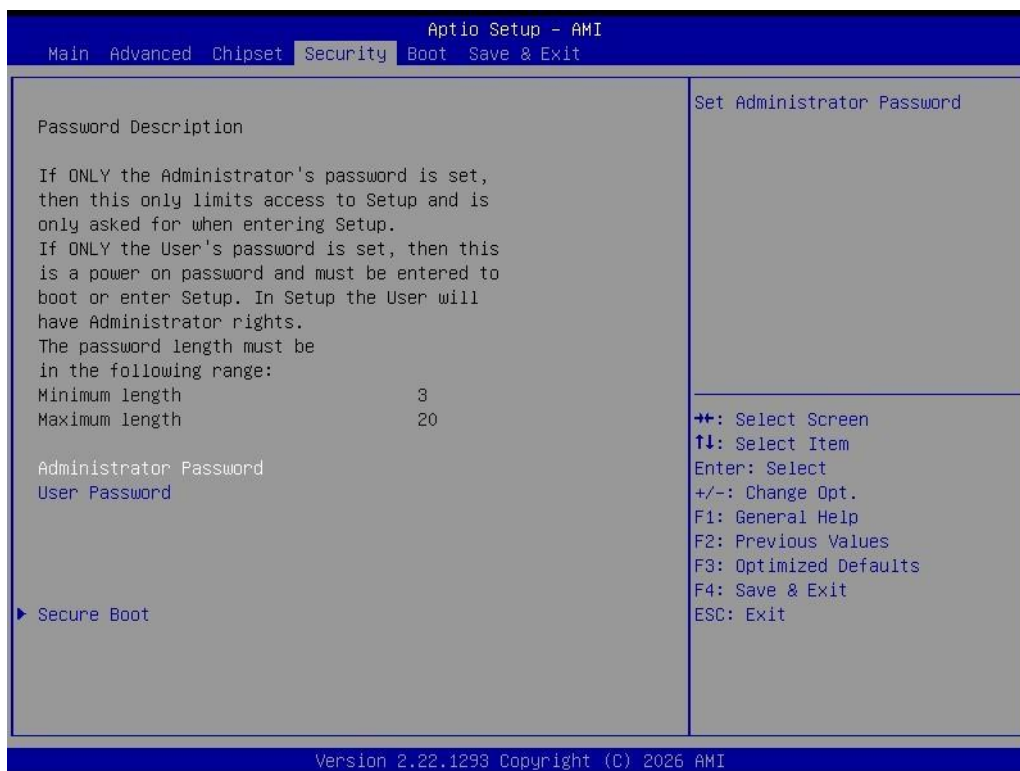
To read DRAM socket related info.

3.2.3.3 Platform Misc Configuration/PCI Express Configuration



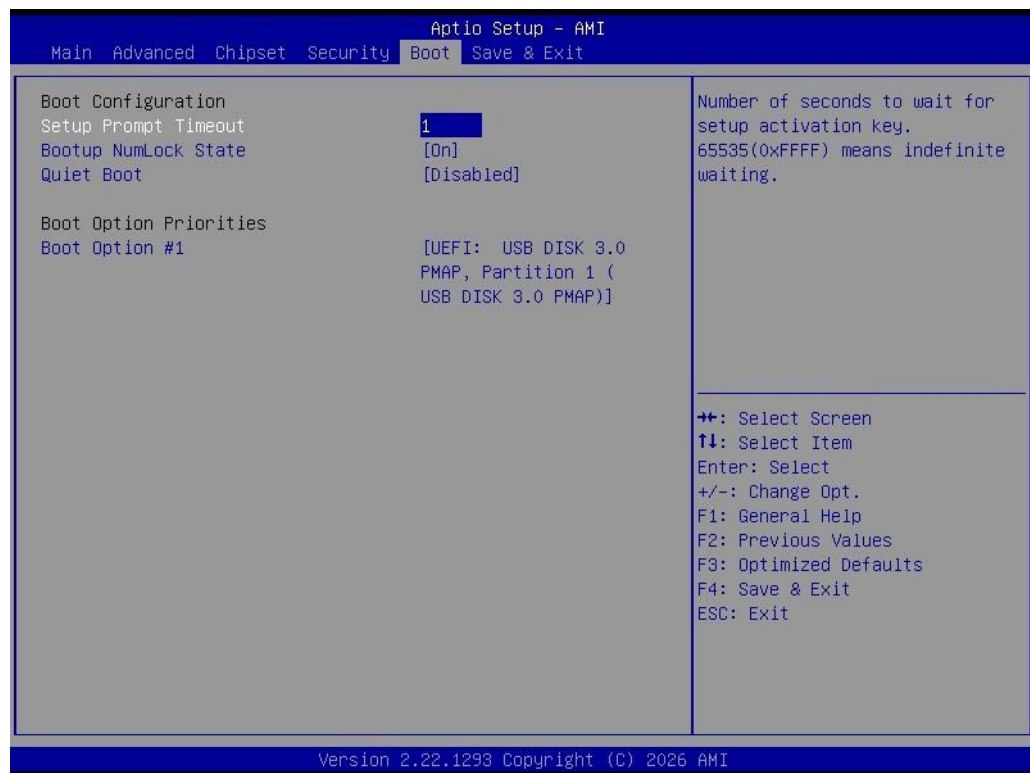
- **PCI Express Configuration**
PCI Express Configuration Settings.
- **LAN PXE OPROM**
Enable or Disable onboard LAN's PXE option ROM.
- **PCIE Wake**
Enable or Disable PCIE to wake the system from S5.
- **Restore AC Power Loss**
Specify what state to go to when power is re-applied after a power failure (AC Power Loss).

3.2.4 Security



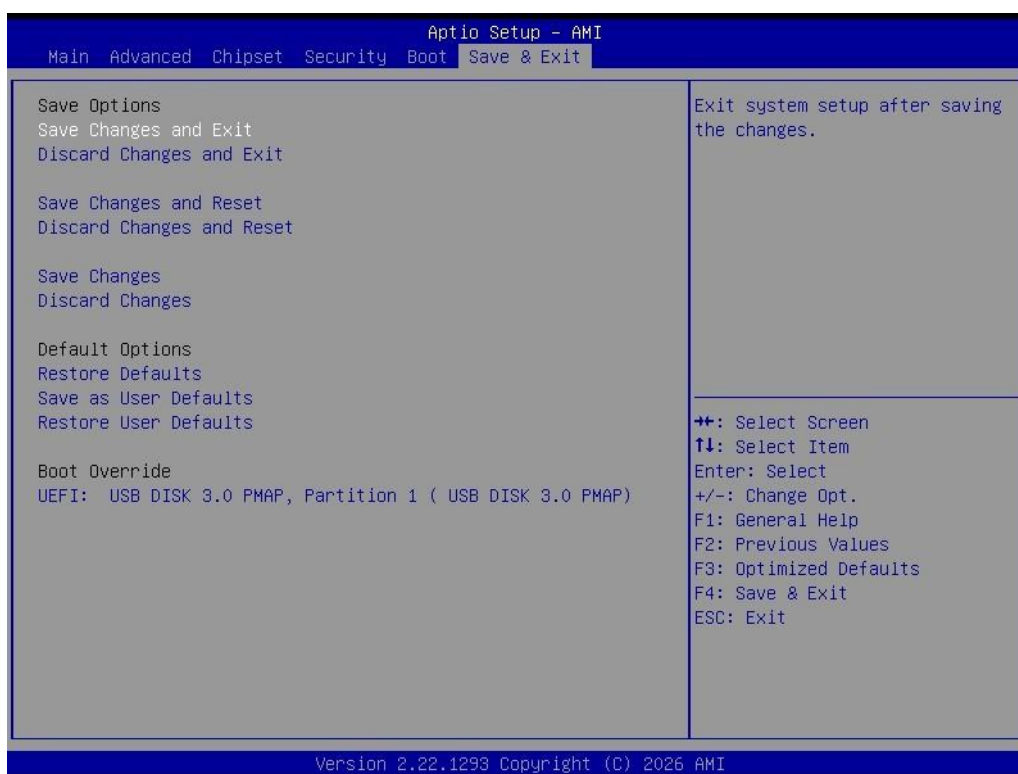
- **Change Administrator/User Password**
 Select this option and press to access the sub menu, and then type in the password.
- **Secure Boot**
 Secure Boot feature is Active if Secure Boot is Enabled, Platform Key (PK) is enrolled and the system is in User mode. The mode change requires platform res.

3.2.5 Boot



- **Setup Prompt Timeout**
Number of seconds to wait for setup activation key. 65535 (0xFFFF) means indefinite waiting.
- **Bootup NumLock State**
Select the keyboard NumLock state.
- **Quiet Boot**
Enables or disables Quiet Boot option.
- **Boot Option**
Display and select boot devices.

3.2.6 Save & Exit



- **Save Changes and Exit**
Exit system setup after saving the changes.
- **Discard Changes and Exit**
Exit system setup without saving any changes.
- **Save Changes and Reset**
Reset the system after saving the changes.
- **Discard Changes and Reset**
Reset system setup without saving any changes.
- **Save Changes**
Save Changes done so far to any of the setup options.
- **Discard Changes**
Discard Changes done so far to any of the setup options.
- **Restore Defaults**
Restore/Load Default values for all the setup options.
- **Save as User Defaults**
Save the changes done so far as User Defaults.
- **Restore User Defaults**
Restore the user defaults to all the options.
- **Boot Override**
Boot device select can override your boot priority.



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