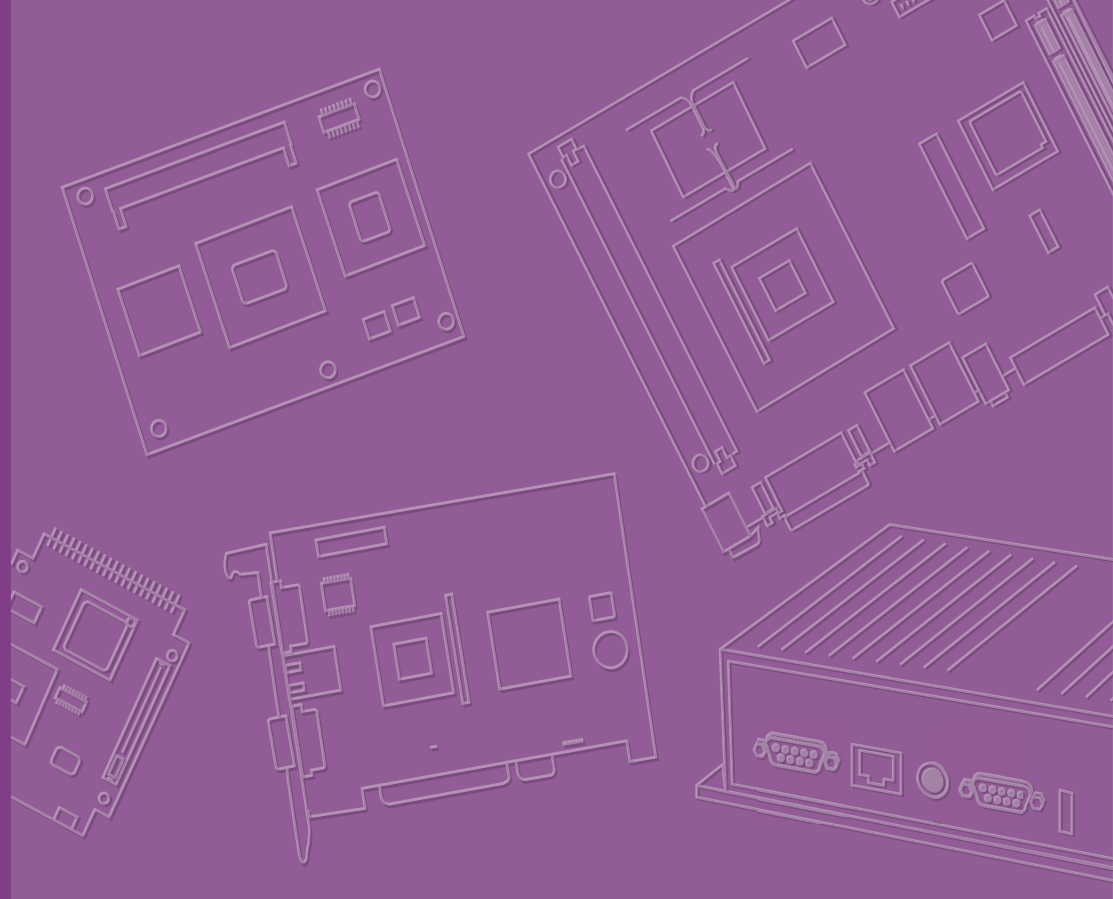




**User Manual**



# **DS-410**

**Palm-Sized Mini-PC with  
HDMI, VGA, and COM Ports**

**ADVANTECH**

*Enabling an Intelligent Planet*

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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 B

Declaration based on 47 CFR 15.19(a)(3)

“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.”

Statement for Class B based on 47 CFR 15.105(b)

“Note: This equipment has been tested and found to comply with the limits for a Class B digital 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 the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for assistance.



## Technical Support and Assistance

1. Visit the Advantech website at [www.advantech.com/support](http://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!



Les avertissements indiquent des conditions qui, si elles ne sont pas observées, peuvent causer des blessures!

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



“Batteries are at risk of exploding if incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type as recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.”

Des précautions sont incluses pour vous aider à éviter d'endommager le matériel ou à perdre des données. par exemple.

Une pile neuve risque d'exploser si elle n'est pas installée correctement. N'essayez pas de recharger, d'ouvrir de force ou de chauffer la batterie. Remplacez la pile uniquement par le même type ou un type équivalent recommandé par le fabricant. Jetez les piles usagées conformément aux instructions du fabricant.

**Note!** Notes provide additional optional information.



Les notes fournissent des informations supplémentaires facultatives.

**Warning!** The equipment is not suitable for use in locations where children are likely to be present.



Cet équipement ne convient pas à une utilisation dans des lieux pouvant accueillir des enfants

**Warning!** To avoid risk of electric shock, this equipment must only be connected to grounded supply mains.



Pour éviter tout risque d'électrocution, cet équipement ne doit être branché qu'au réseau d'alimentation avec une terre de protection.

**Warning!** Restricted access area: area accessible only to skilled persons and qualified persons with the proper authorization.



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## 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 DS-410 series player
- 1 x China RoHS Sheet
- 4 x Rubber feet and screws
- 1 x 19V power adapter

## 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 over-voltage.
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  $-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ ) or above  $60^{\circ}\text{C}$  ( $140^{\circ}\text{F}$ ) as this may damage the components. The equipment should be kept in a controlled environment.
16. **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.
17. In accordance with IEC 704-1:1982 specifications, the sound pressure level at the operator's position shall not exceed 70 dB (A).
18. **RESTRICTED ACCESS AREA:** The equipment should only be installed in a Restricted Access Area.

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. Lisez attentivement ces instructions de sécurité.
2. Conservez ce manuel de l'utilisateur pour référence ultérieure.
3. Débranchez cet appareil de toute prise secteur avant le nettoyage. Utilisez un chiffon humide. N'utilisez pas de détergents liquides ou en aérosol pour le nettoyage.
4. Pour les équipements enfichables, la prise de courant doit être située à proximité de l'équipement et doit être facilement accessible.
5. Gardez cet équipement à l'abri de l'humidité.
6. Placez cet équipement sur une surface fiable lors de l'installation. Le laisser tomber ou le laisser tomber peut causer des dommages.
7. Les ouvertures sur le boîtier sont destinées à la convection de l'air. Protégez l'équipement de la surchauffe. **NE COUVREZ PAS LES OUVERTURES.**
8. Assurez-vous que la tension de la source d'alimentation est correcte avant de connecter l'équipement à la prise de courant.
9. Positionnez 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'équipement n'est pas utilisé pendant une longue période, débranchez-le de la source d'alimentation pour éviter tout dommage dû à une surtension transitoire.
12. Ne jamais verser de liquide dans une ouverture. Cela pourrait provoquer un incendie ou un choc électrique.
13. Ne jamais ouvrir l'équipement. Pour des raisons de sécurité, l'équipement ne doit être ouvert que par du personnel qualifié.
14. Si l'une des situations suivantes se produit, faites vérifier l'équipement par le personnel de service:
  - Le cordon d'alimentation ou la fiche est endommagé
  - Un liquide a pénétré dans l'équipement.
  - 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 PAS LAISSER CET ÉQUIPEMENT DANS UN ENVIRONNEMENT O LA TEMPÉRATURE DE STOCKAGE POURRAIT 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. **ATTENTION: DANGER D'EXPLOSION EN CAS DE REMPLACEMENT INCORRECT DE LA BATTERIE. REMPLACEZ UNIQUEMENT AVEC LE MÊME TYPE OU LE TYPE ÉQUIVALENT RECOMMANDÉ PAR LE FABRICANT, DÉPOSEZ LES PILES UTILISÉES SELON LES INSTRUCTIONS DU FABRICANT.**
17. Le niveau de pression acoustique au poste de l'opérateur selon la norme CEI 704-1: 1982 n'est pas supérieur à 70 dB (A).

18. ZONE D'ACCÈS RESTRICTED: L'équipement ne doit être installé que dans une zone d'accès restreint.

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 document.

## DS-410 Series Part Numbers

	Remarks
DS-410GB-U0A1E	DS-410, J6412, Barebones, 4GB LPDDR4
DS-410GB-U1A1E	DS-410, J6412, Barebones, 8GB LPDDR4

DS410GB2301-T	DS410GB2401-T	DS410GB2501-T	DS410GB2601-T	DS410GB2701-T
DS410GB2302-T	DS410GB2402-T	DS410GB2502-T	DS410GB2602-T	DS410GB2702-T
DS410GB2303-T	DS410GB2403-T	DS410GB2503-T	DS410GB2603-T	DS410GB2703-T
DS410GB2304-T	DS410GB2404-T	DS410GB2504-T	DS410GB2604-T	DS410GB2704-T
DS410GB2305-T	DS410GB2405-T	DS410GB2505-T	DS410GB2605-T	DS410GB2705-T
DS410GB2306-T	DS410GB2406-T	DS410GB2506-T	DS410GB2606-T	DS410GB2706-T
DS410GB2307-T	DS410GB2407-T	DS410GB2507-T	DS410GB2607-T	DS410GB2707-T
DS410GB2308-T	DS410GB2408-T	DS410GB2508-T	DS410GB2608-T	DS410GB2708-T
DS410GB2309-T	DS410GB2409-T	DS410GB2509-T	DS410GB2609-T	DS410GB2709-T
DS410GB2310-T	DS410GB2410-T	DS410GB2510-T	DS410GB2610-T	DS410GB2710-T



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# Chapter 1

## General Information

This chapter details background information on the DS-410 series.

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## 1.1 Introduction

The Advantech DS-410 is a Mini PC powered by Intel® processors that delivers 4K UHD output via HDMI, and HD output via VGA. DS-410 is designed to save space, and features diverse built-in I/O — including HDMI, VGA, USB 3.1, RS232 (RJ-11), and dual-LAN (RJ-45). It enables media playback and display, and is ideal for all-in-one signage applications with space constraints.

## 1.2 Product Features

### 1.2.1 General

- Supports Intel® J6412
- Supports HDMI 2.0, VGA
- Supports M.2 2242 M-Key for storage
- Built-in M.2 2230 E-Key slot for Wi-Fi module expansion

### 1.2.2 Display

- 1 x HDMI 2.0, 3840 x 2160 @ 60 Hz
- 1 x VGA, 1920 x 1080 @ 30 Hz

### 1.2.3 Thermal Solution

- Fanless

## 1.3 Hardware & Software Specifications

- **CPU:** Intel® J6412
- **System Chipset:** Built-in CPU
- **Graphics Chipset:** Integrated graphics built-in processor
- **BIOS:** AMI uEFI 256 Mbit
- **System Memory:** 4GB or 8GB DDR4 on board
- **Storage:** M.2 2242 M-Key (SATA SSD)
- **SUSI:** SUSI is a special hardware management tool, made by Advantech, that provides DS-410 with a Win10 IoT image. It also provides the following functions:
  - Watchdog timer
  - Hardware monitor
  - System information
- **I/O Interfaces:**
  - 1 x HDMI 2.0
  - 1 x VGA
  - 2 x USB 3.0
  - 1 x RJ-11 (2 x RS232, 1 x system On/Off pin)
- **Ethernet Chipset:**
  - **Speed:** 10/100/1000 Mbps
  - **Interface:** 2 x RJ-45 jacks with LED
  - **Standard:** IEEE 802.3z/ab (1000 Base-T) or IEEE 802.3u 100 Base-T compliant

- **Resolution:**
  - 1 x HDMI 2.0, 3840 x 2160 @ 60 Hz
  - 1 x VGA, 1920 x 1080 @ 30 Hz
- **Expansion:** 1 x M.2 2230 E-Key (for Wi-Fi modules)

## 1.4 Mechanical Specifications

### 1.4.1 Dimensions

124 x 116 x 28 mm (L x W x H)

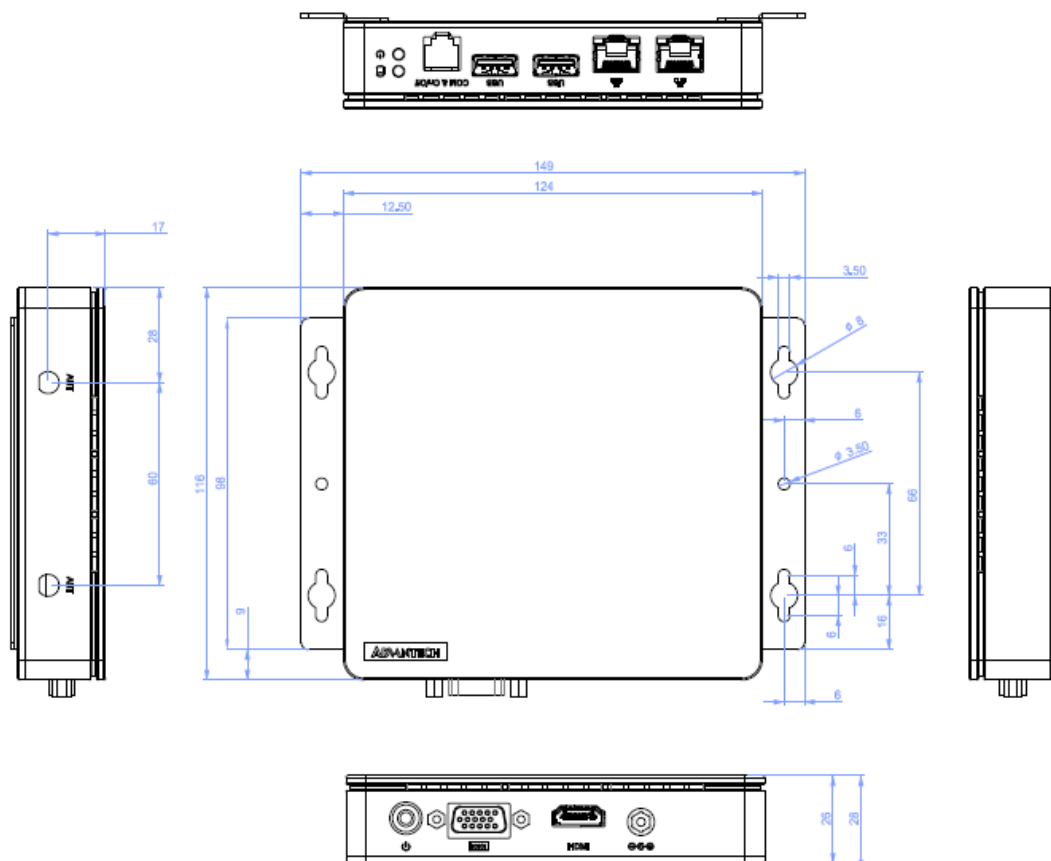


Figure 1.1 Dimensions

### 1.4.2 Weight

- 0.41 kg

---

## 1.5 Power Requirements

### 1.5.1 System Power

- **Minimum power input:** DC 19V, 3.42A

### 1.5.2 RTC Battery

Battery 3V 195mAH BR2032

## 1.6 Environmental Specifications

### 1.6.1 Operating Temperature

- 0 - 40°C @ 0.7 m/s airflow

### 1.6.2 Relative Humidity

- 95% @ 40°C (Non-Condensing)

### 1.6.3 Storage Temperature

- -20 - 60°C (-4 - 140°F)

### 1.6.4 Vibration Loading During Operation

- 0.5 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.

### 1.6.5 Shock During Vibration

- 20 G, IEC 60068-2-27, half sine, 11 ms duration

### 1.6.6 EMC

- CE, FCC Class B

# Chapter 2

## Hardware Configuration

This chapter introduces external I/O and the installation of DS-410 series hardware.

## 2.1 DS-410 Series I/O

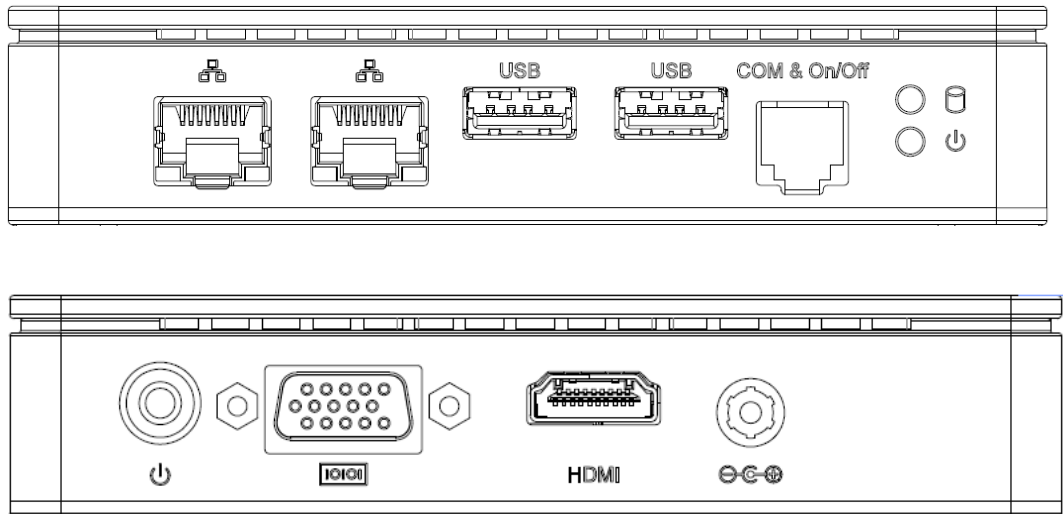


Figure 2.1 DS 410 I/O

### 2.1.1 LED

When the LED indicator displayed below turns green, it indicates power-on status.



Figure 2.2 Power

When the LED indicator displayed below turns orange, it indicates the SSD status.



Figure 2.3 LED - HDD

### 2.1.2 Power On/Off

Press the button indicated below to power the DS-410 on/off.



Figure 2.4 Power Button



### 2.1.3 VGA Connector

DS-410 provides one integrated 15-pin female VGA digital video interface, which supports up to 1920 x 1080 @ 30 Hz. Please refer to this pin assignment.

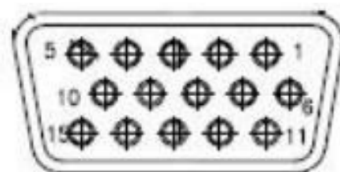


Figure 2.5 VGA Connector

Table 2.1: VGA Connector

Pin	Signal Name	Pin	Signal Name
1	Red	2	Green
3	Blue	4	NC
5	GND	6	GND
7	GND	8	GND
9	5V	10	GND
11	NC	12	DDAT
13	H-SYNC	14	V-SYNC
15	DCLK		

### 2.1.4 USB 3.0 Connector

DS-410 supports 2 x USB 3.0 interfaces. The USB interfaces comply with USB UHCI, Rev. 3.0 standards. Please refer to this pin assignment. USB 3.0 connectors contain legacy pins to interface with USB 2.0 devices, and a new set of pins for USB 3.0 connectivity.

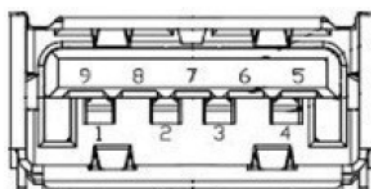


Figure 2.6 USB Connector

Table 2.2: USB 3.0 Connector

Pin	Signal Name	Pin	Signal Name
1	+5V	2	USB_Data-
3	USB_Data+	4	GND
5	SSRX-	6	SSRX+
7	GND	8	SSTX-
9	SSTX+		

## 2.1.5 LAN Connector

DS-410 provides 2 x RJ-45 LAN interface connectors, fully compliant with IEEE 802.3u 10/100/1000 Base-T CSMA/CD standards. The Ethernet port provides 1 x standard RJ-45 jack connector with LED indicators to show its Active/Link and speed status.

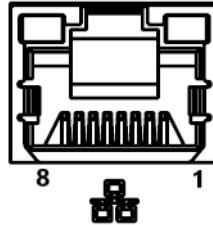


Figure 2.7 RJ-45 Connector

Table 2.3: LAN Port Pin Assignments

Pin	Signal
1	MDIO+
2	MDIO-
3	MDI1+
4	MDI1-
5	GND
6	GND
7	MDI2+
8	MDI2-

Table 2.4: LED

### Right side LED: Green LED

Link Status	Always on without transmitting/receiving data
Activity status	Flash

### Left side LED: Green/Orange LED

Status	Display
10 Mbps	Always off
100 Mbps	Green
1000 Mbps	Orange

## 2.1.6 Wi-Fi Antenna

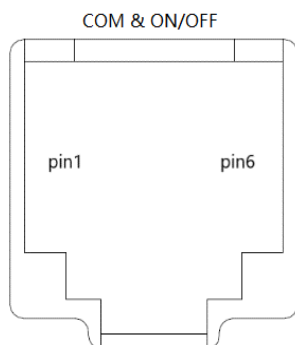
DS-410 provides 2 x Wi-Fi antenna connectors to connect with the SMA antenna.



Figure 2.8 SMA Connector

### 2.1.7 RJ-11 Connector

DS-410 provides 2 x RS232 (Tx/Rx) and 1 x stem Power On/Off Control pin. Order the cable (P/N 1700034193-01) to accommodate other kiosks or Mini PC setup demands.



**Table 2.5: RJ-11 Port Pin Assignments**

Pin	Signal
1	COM0_TXD
2	COM0_RXD
3	POWERBUTTON#
4	GND
5	COM1_TXD
6	COM1_RXD

## 2.1.8 HDMI Connector

The HDMI (High-Definition Multimedia Interface) provides an all-digital audio/video interface to transmit uncompressed audio/video signals and is HDCP compliant. Connect the HDMI audio/video device to this port. HDMI technology can support a maximum resolution of 3840 x 2160 @ 60 Hz, but the actual resolution supported depends on the monitor being used.

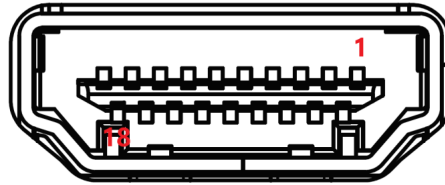


Figure 2.9 HDMI Connector

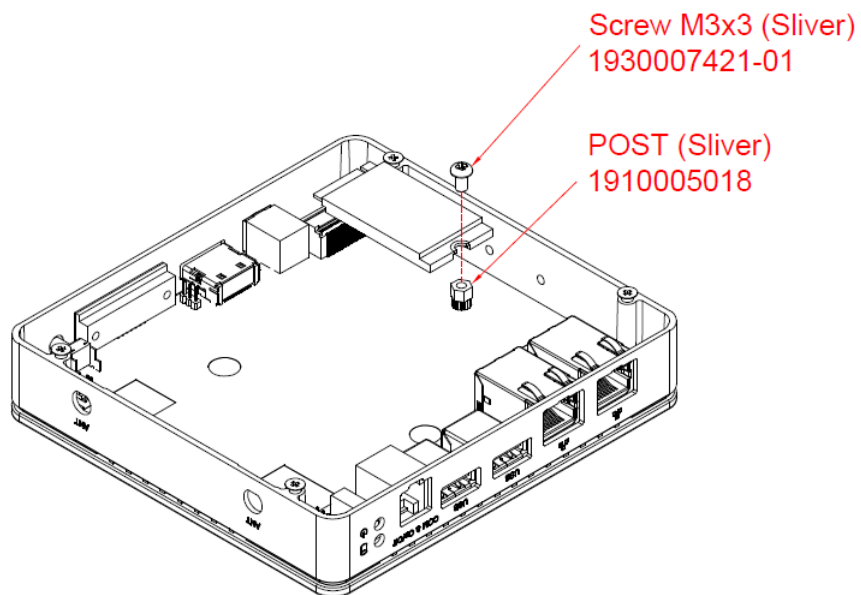
Table 2.6: HDMI Pin Assignments

Pin	Signal
1	TMDS Data 2+
2	TMDS Data 2 shield
3	TMDS Data 2-
4	TMDS Data 1+
5	TMDS Data 1 shield
6	TMDS Data 1-
7	TMDS Data 0+
8	TMDS Data 0 shield
9	TTMDS Data 0-
10	TMDS Clock+
11	TMDS Clock shield
12	TMDS Clock-
13	CEC
14	Reserved
15	SCL
16	SDA
17	DDC/CEC Ground
18	+5V
19	Hot Plug Detect

## 2.2 Hardware Installation

### 2.2.1 SSD Installation

1. Remove the back cover by loosening the 4 screws.
2. Insert the SSD module into the M.2 2242 M-Key socket and attach with a screw.
3. Reverse the above-mentioned steps to assemble the system.



## 2.3 Jumpers

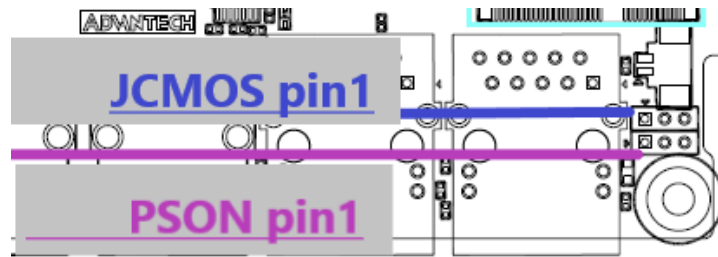
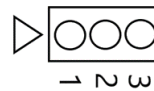


Figure 2.10 Jumper Layout

### 2.3.1 Clear CMOS (JCMOS1)

Table 2.7: Clear CMOS (JCMOS1)

<b>Location</b>	JCMOS1
<b>Part number</b>	1653003101
<b>Foot Print</b>	HD_3x1P_79_D
<b>Description</b>	PIN HEADER 3x1P2.0mm 180D(M)DIP 2000-13WS
<b>Setting</b>	<b>Function</b>
(1-2)*	Normal operation (Default)
(2-3)	Clear CMOS



### 2.3.2 AT/ATX (PSON1)

Table 2.8: AT/ATX (PSON1)

<b>Location</b>	PSON1
<b>Part number</b>	1653003101
<b>Foot Print</b>	HD_3x1P_79_D
<b>Description</b>	PIN HEADER 3x1P2.0mm 180D(M)DIP 2000-13WS
<b>Setting</b>	<b>Function</b>
(1-2)	AT
(2-3)*	ATX (Default)

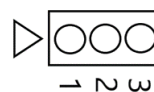


Figure 2.11

# Chapter 3

## BIOS Settings

## 3.1 BIOS Introduction

AMIBIOS has been integrated into motherboards for over two decades. With the AMIBIOS Setup program, users can modify BIOS settings and control various system features. This chapter describes the basic navigation of the DS-410 BIOS setup screens.



AMI's 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 <DEL> 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.



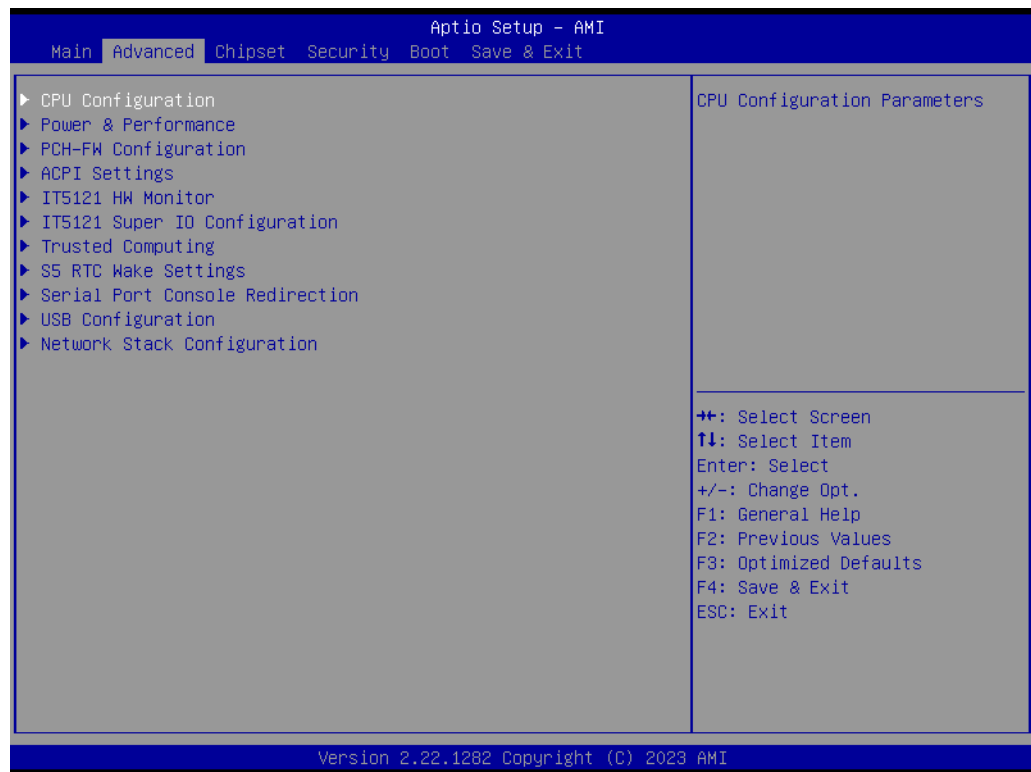
The Main BIOS setup screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured; options in blue can. The right frame displays the key legend.

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.

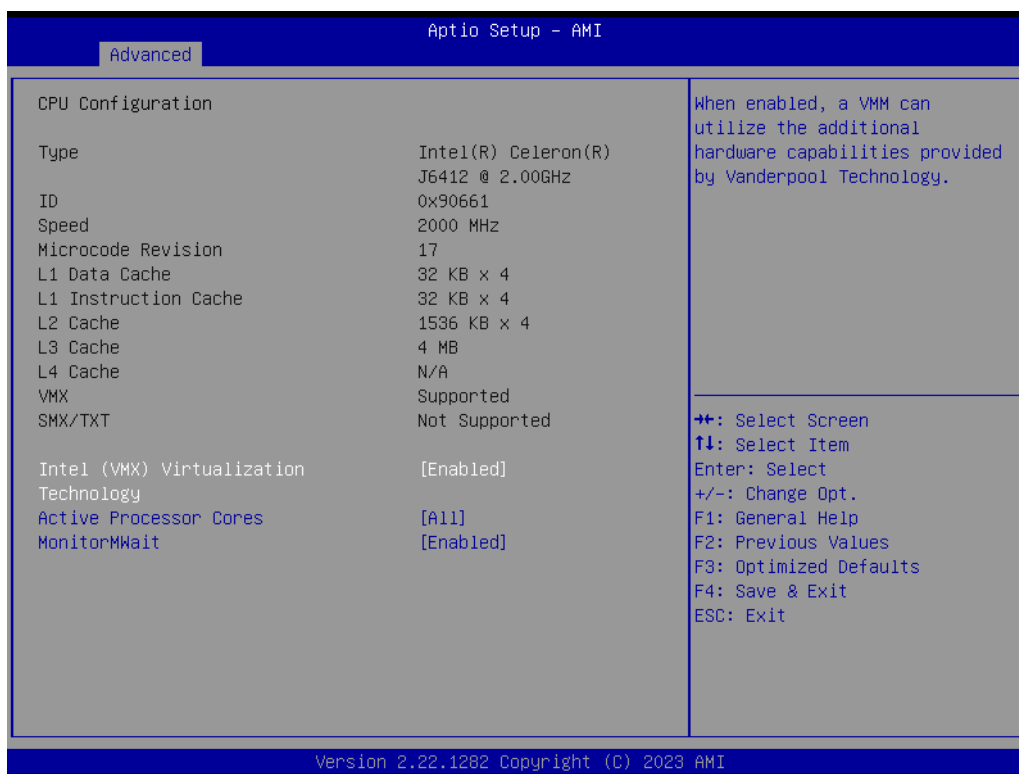
#### ■ System Time / System Date

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

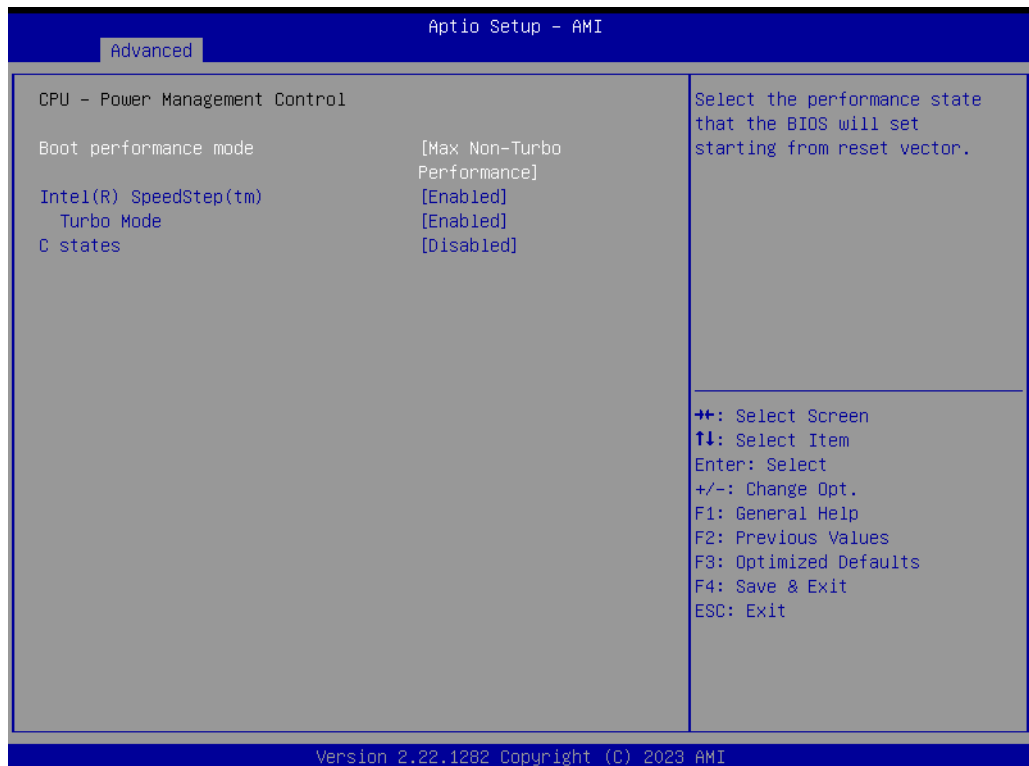
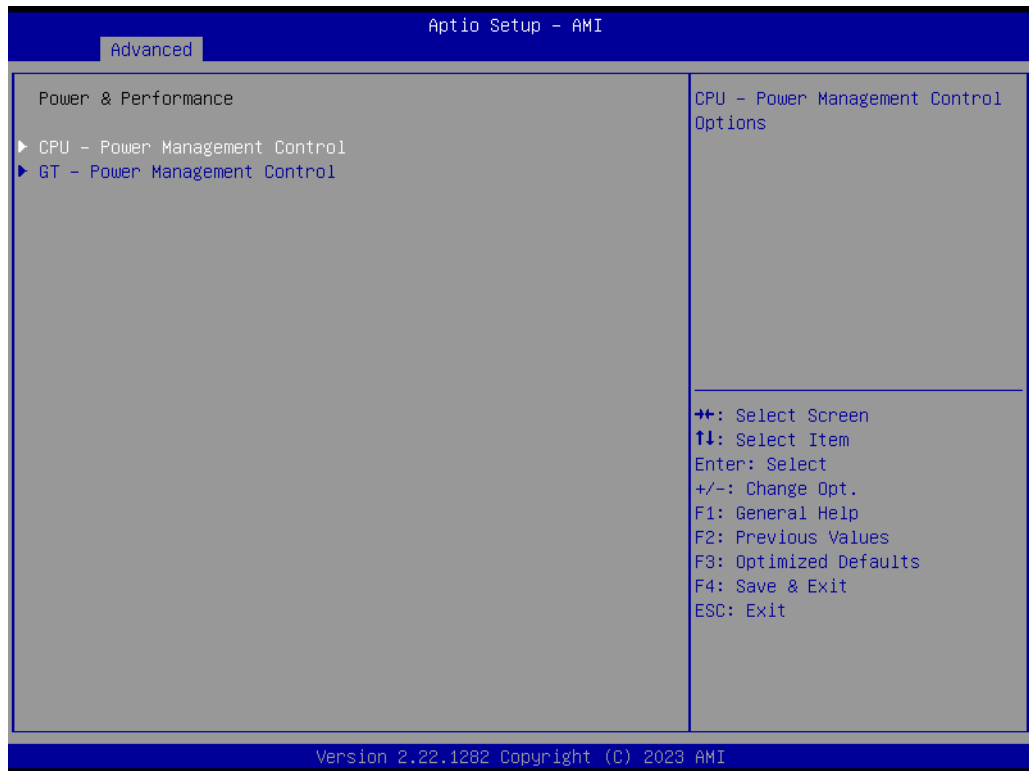


### 3.2.3 Advanced → CPU Configuration



- **Intel (VMX) Virtualization**  
Enable or disable Intel VMX Virtualization support.
- **Active Processor Cores**  
Enable all or 1/2/3.
- **MonitorMWait**  
Enable or disable MonitorMWait support.

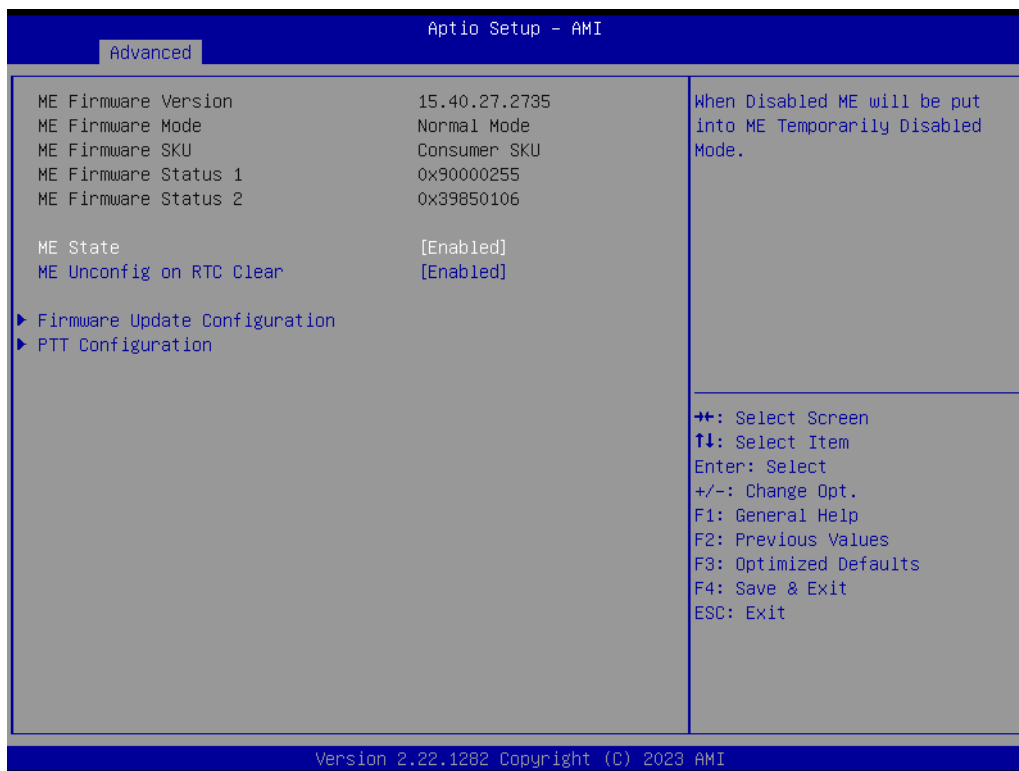
### 3.2.4 Advanced → Power & Performance



- **Boot performance mode**  
Max non-Turbo performance.  
Max battery  
Turbo performance.

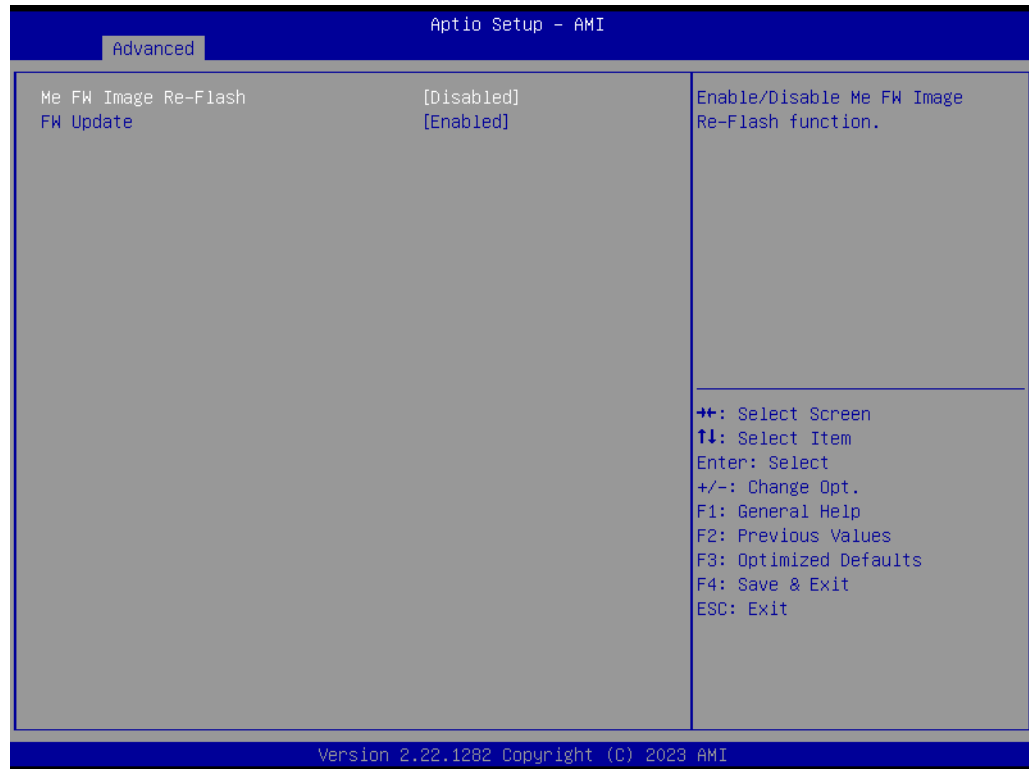
- **Intel SpeedStep**  
Enable or disable Intel SpeedStep support.
- **Turbo mode**  
Enable or disable Turbo mode.
- **C states**  
Enable or disable C states.

### 3.2.5 Advanced → PCH-FW Configuration



- **ME State**  
Enable or disable ME State.
- **ME Unconfig on RTC Clear**  
Enable or disable ME Unconfig on RTC Clear.

### 3.2.5.1 Advanced → PCH-FW Configuration → Firmware Update Configuration



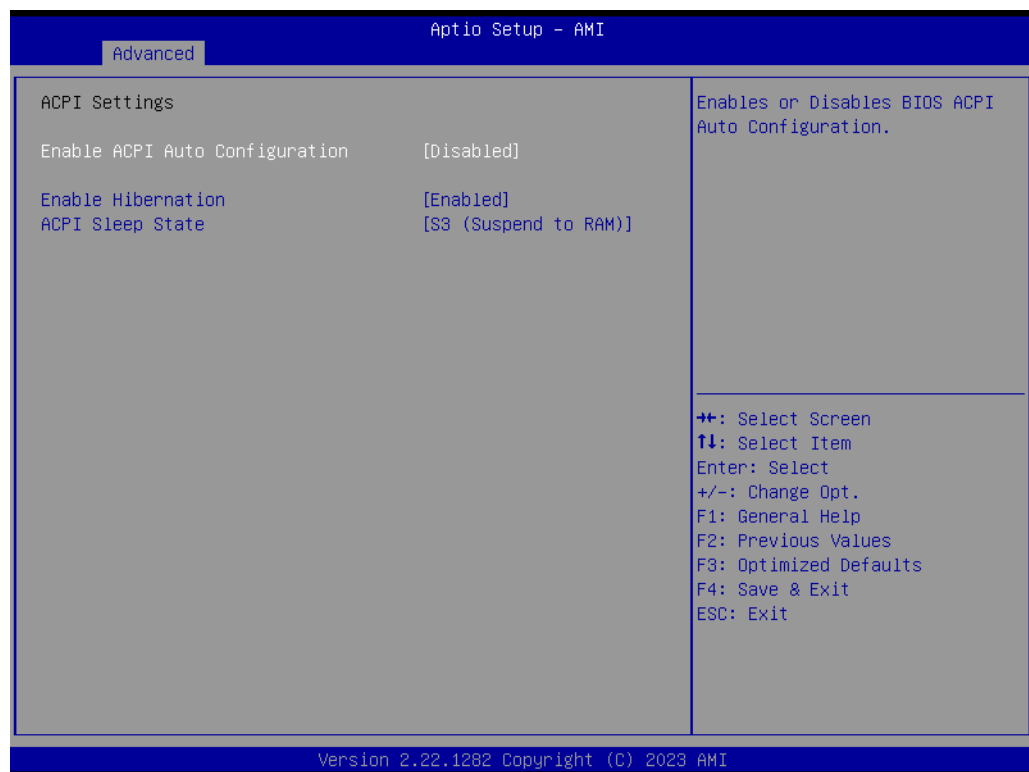
- **Me FW Image Re-Flash**  
Enable or disable Me FW Image Re-Flash.
- **FW Update**  
Enable or disable FW Update.

### 3.2.5.2 Advanced → PCH-FW Configuration → PTT Configuration



- **TPM Device Selection**  
Select PTT or dTPM.

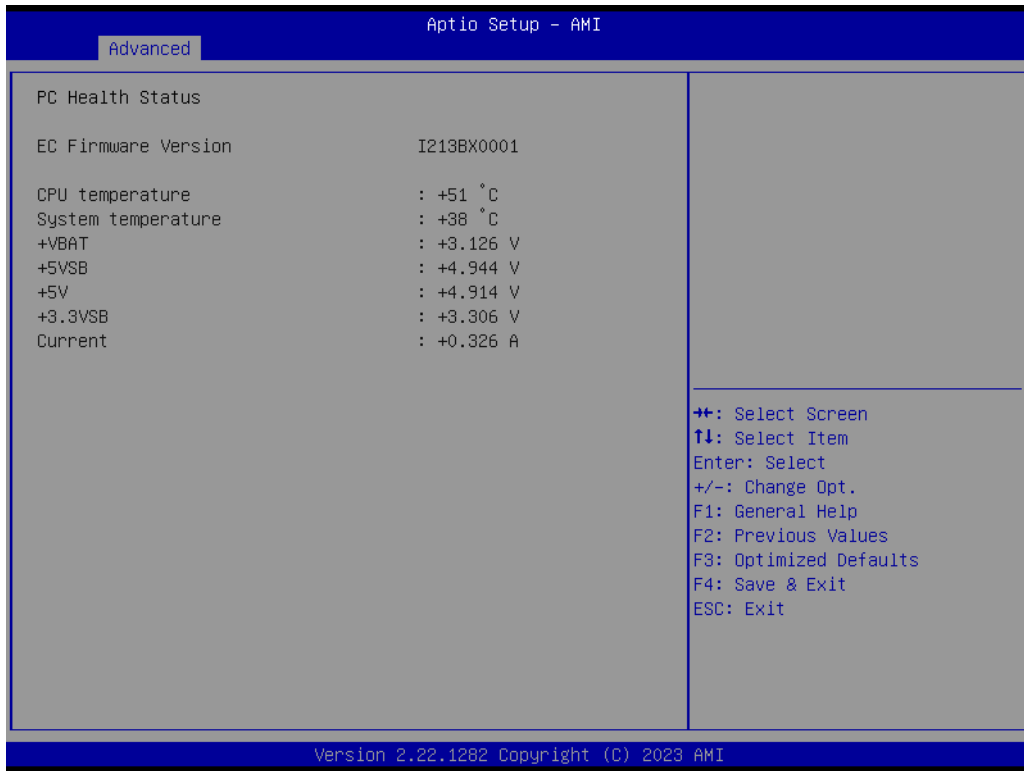
## 3.2.6 Advanced → ACPI Settings



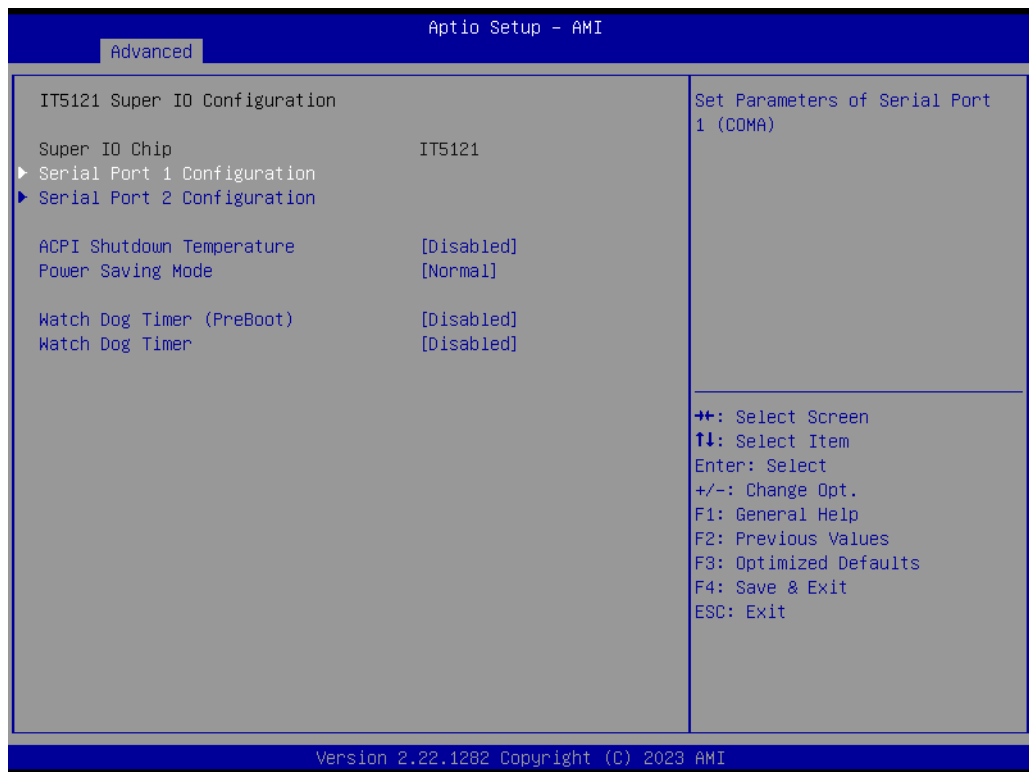
- **Enable ACPI Auto Configuration**  
Enable or disable ACPI Auto Configuration.
- **Enable Hibernation**  
Enable or disable Hibernation.
- **ACPI Sleep State.**  
Select S3 (Suspend to RAM) or suspend disabled.



### 3.2.7 Advanced → IT5121 HW Monitor

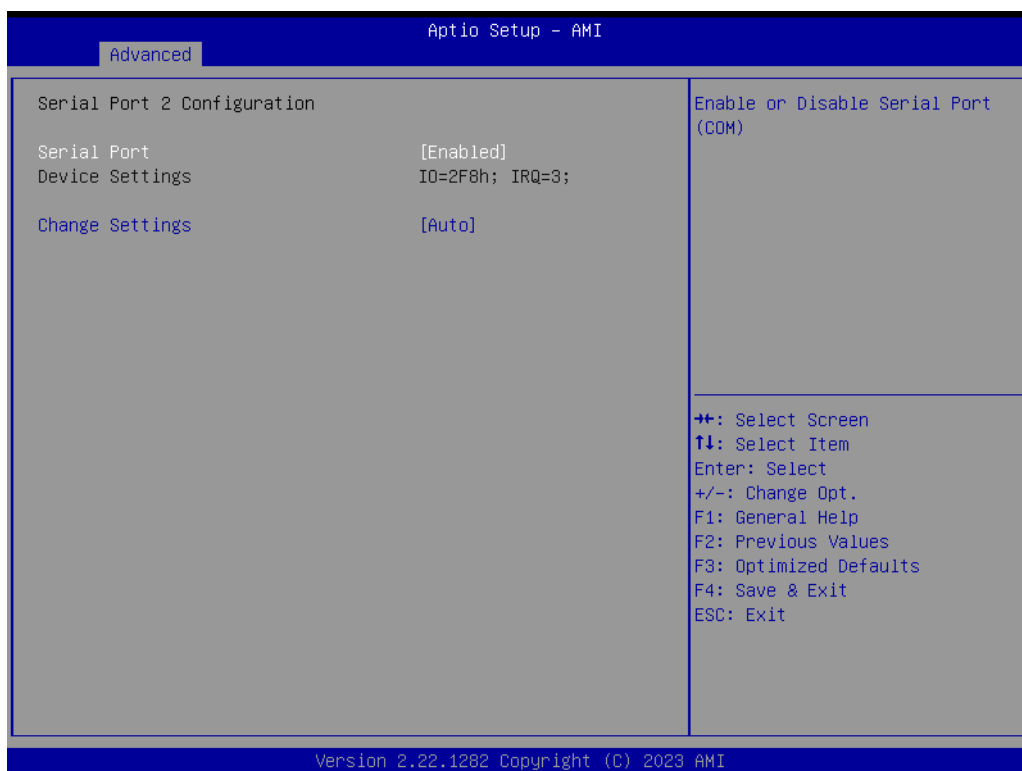
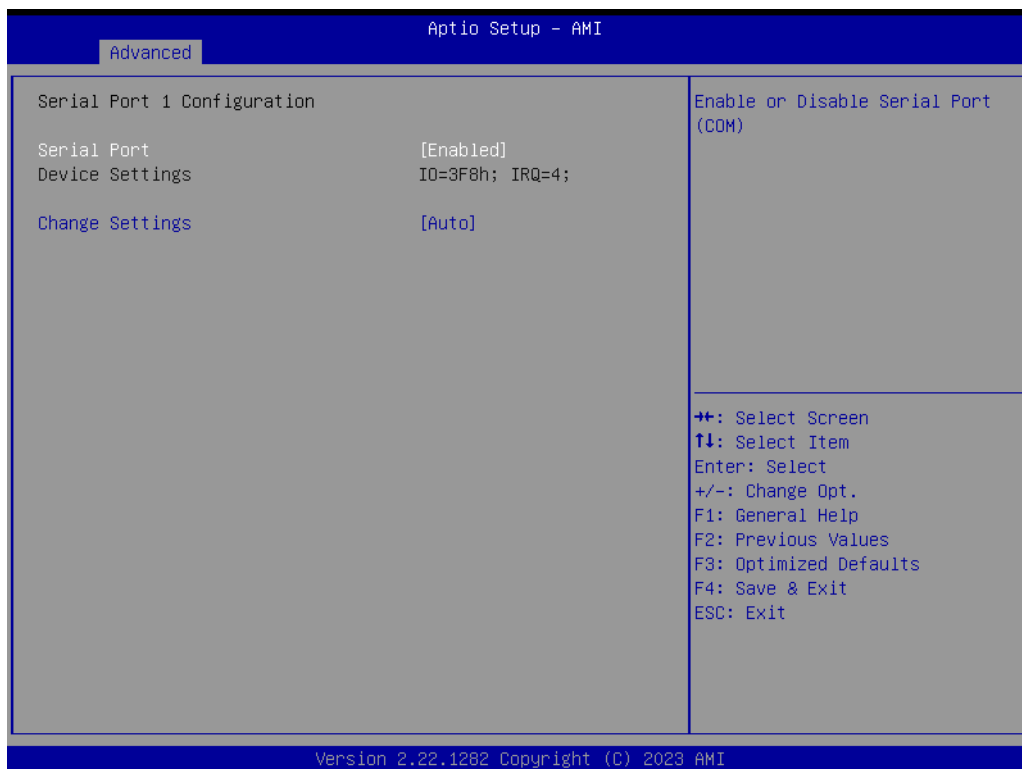


## 3.2.8 Advanced → IT5121 Super IO Configuration



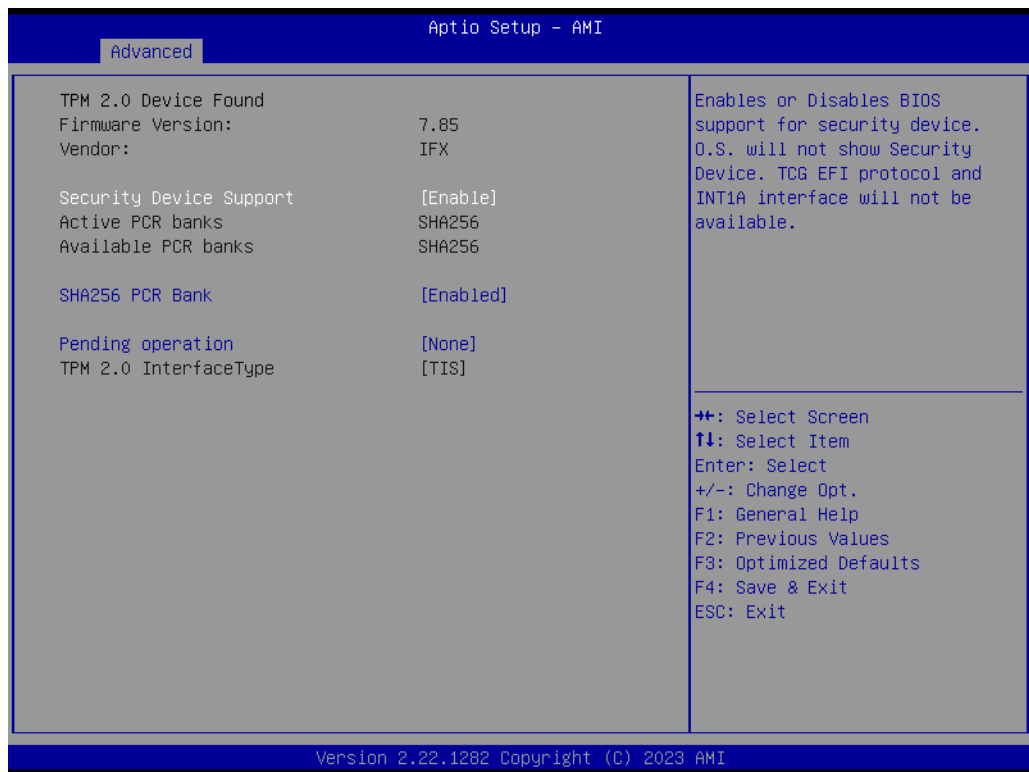
- **ACPI Shutdown Temperature**  
Disabled  
70°C / 158°F  
75°C / 167°F  
80°C / 176°F  
85°C / 185°F  
90°C / 194°F  
95°C / 205°F
- **Watch Dog Timer (PreBoot)**  
Enable or disable Watch Dog Timer (PreBoot).
- **Watch Dog Timer**  
Enable or disable Watch Dog Timer.

## 3.2.8.1 Advanced → IT5121 Super IO Configuration → Serial Port 1 Configuration



- **Serial Port**  
Enable or disable Serial Port.
- **Change Settings**  
Auto or Change IRQ setting.

### 3.2.9 Advanced → Trusted Computing



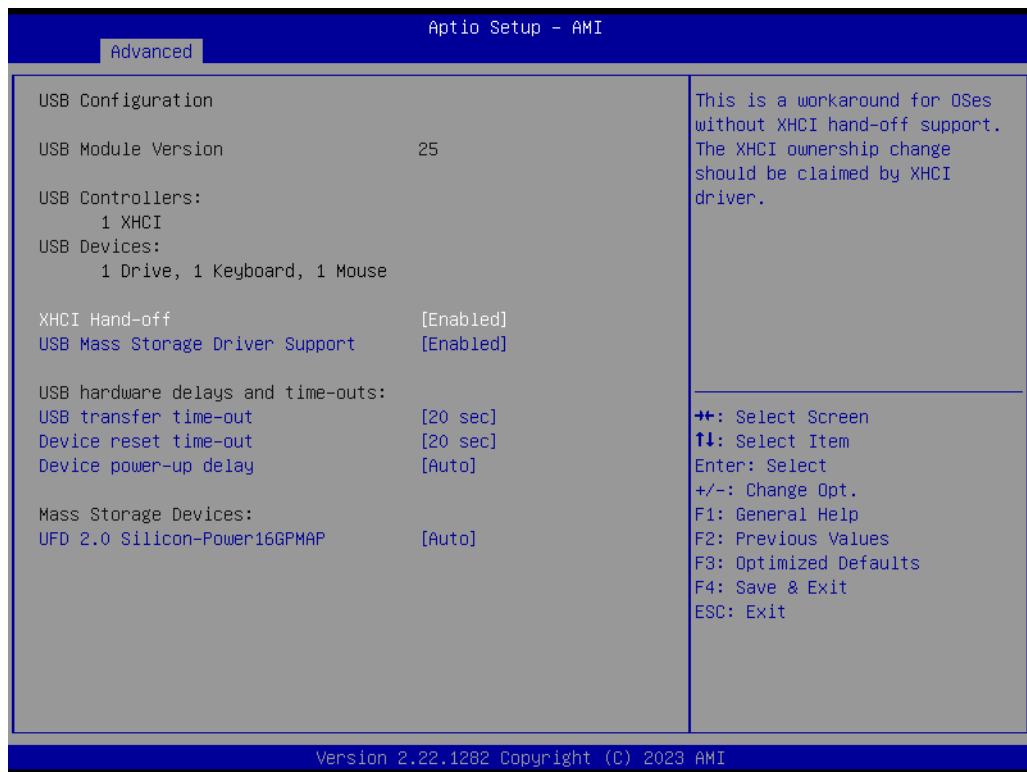
- **Security Device Support**  
Enable or disable Security Device Support.
- **SHA256 PCR Bank**  
Enable or disable SHA256 PCR Bank.
- **Pending operation**  
None or TPM Clear.

### 3.2.10 Advanced → S5 RTC Wake Settings



- **Wake system from S5**  
Enable or disable Wake system from S5.

### 3.2.11 Advanced → USB Configuration



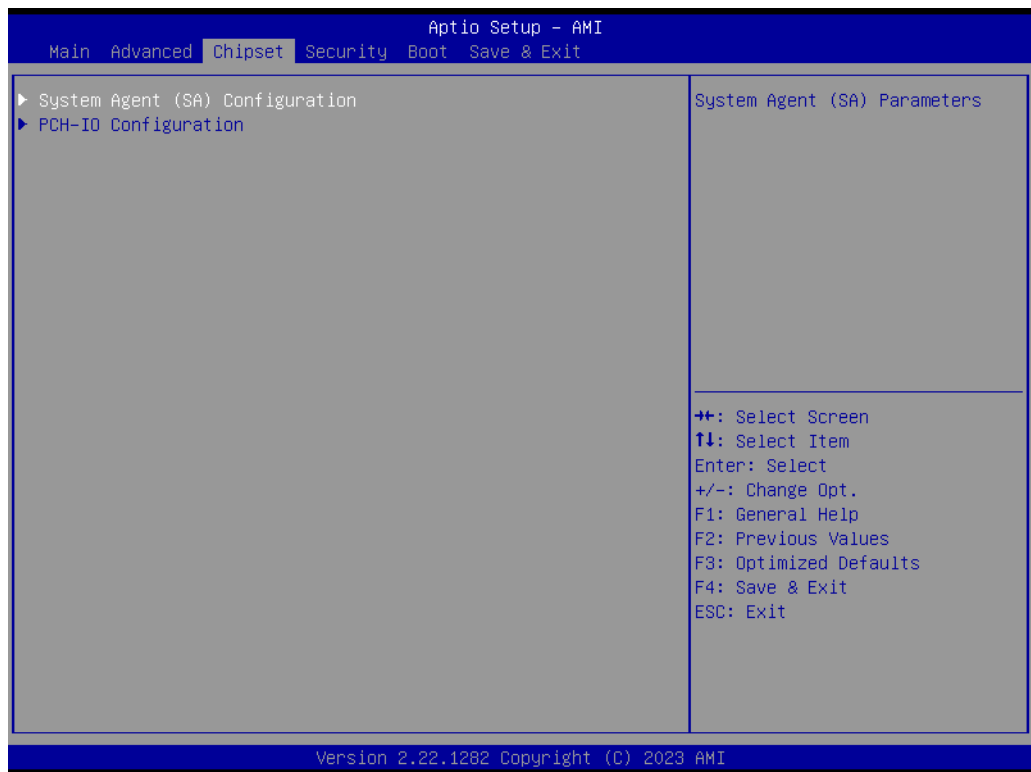
- **XHCI Hand-off**  
Enable or disable XHCI Hand-off.
- **USB Mass Storage Driver Support**  
Enable or disable USB Mass Storage Driver Support.
- **USB transfer time-out**  
Configure time for USB transfer time-out.
- **Device reset time-out**  
Configure time for Device reset time-out.
- **Device power-up delay**  
Auto or Manual set.
- **UFD 2.0 Silicon-Power16GPMAP**  
Auto or Floppy or Forced FDD or Hard Disk or CD-ROM.

### 3.2.12 Advanced → Network Stack Configuration

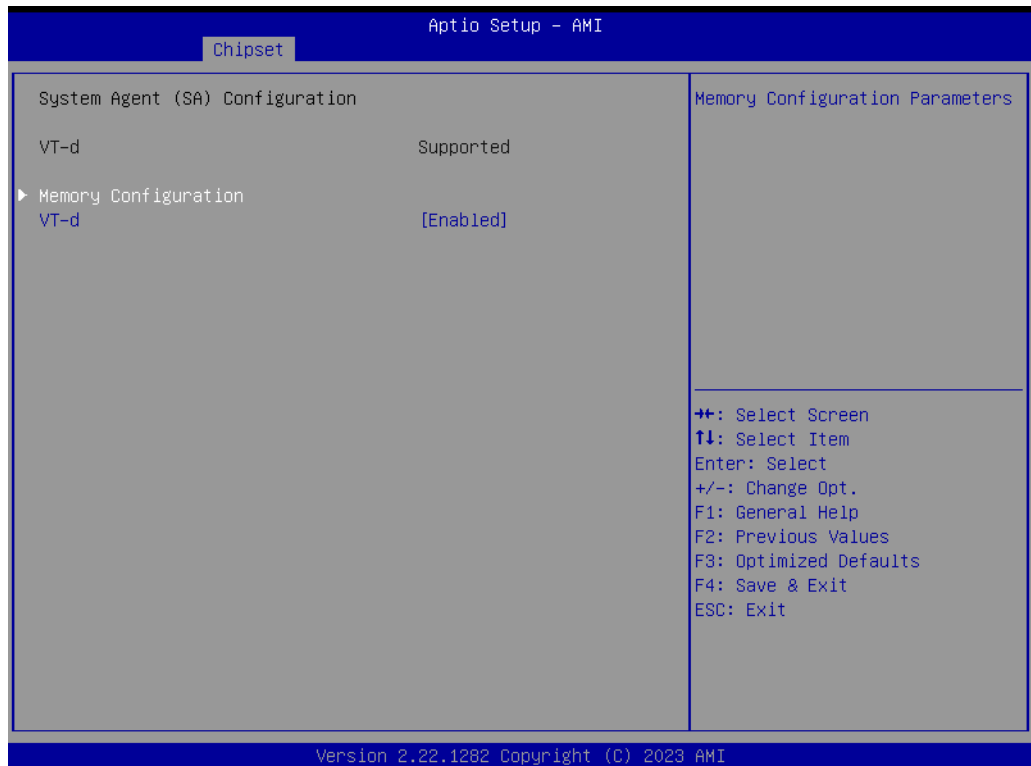


- **Network Stack**  
Enable or disable Network Stack.

## 3.3 Chipset



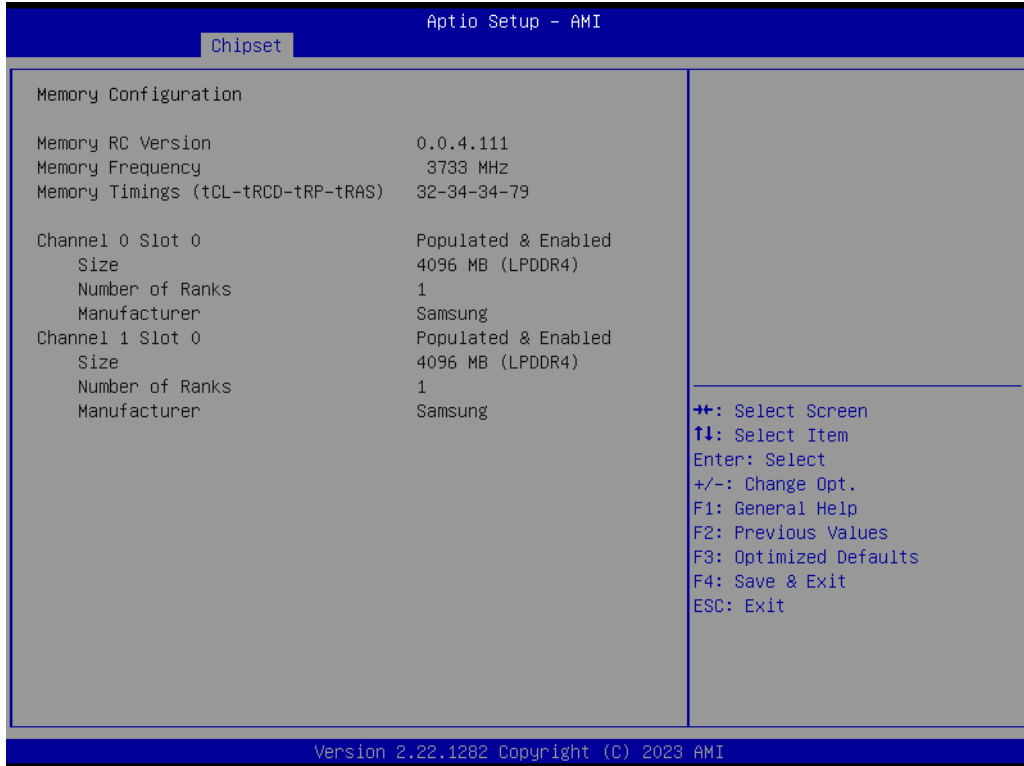
### 3.3.1 Chipset → System Agent (SA) Configuration



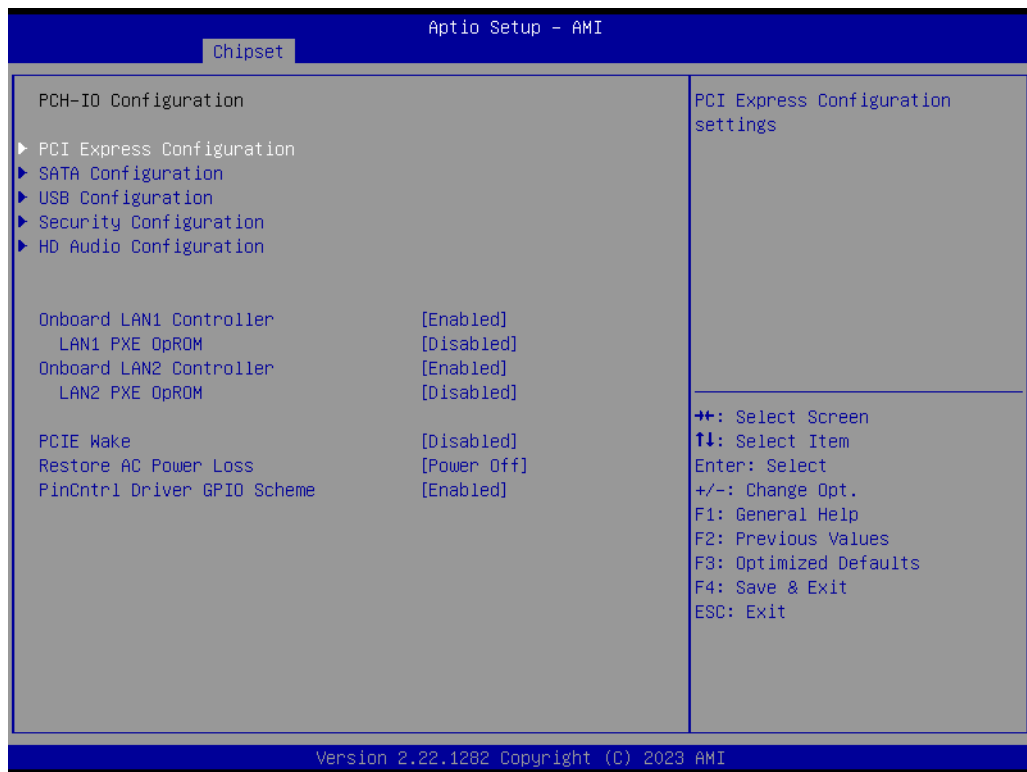
- **VT-d**  
Enable or disable VT-D.



### 3.3.1.1 Chipset → System Agent (SA) Configuration → Memory Configuration



### 3.3.2 Chipset → PCH-IO Configuration



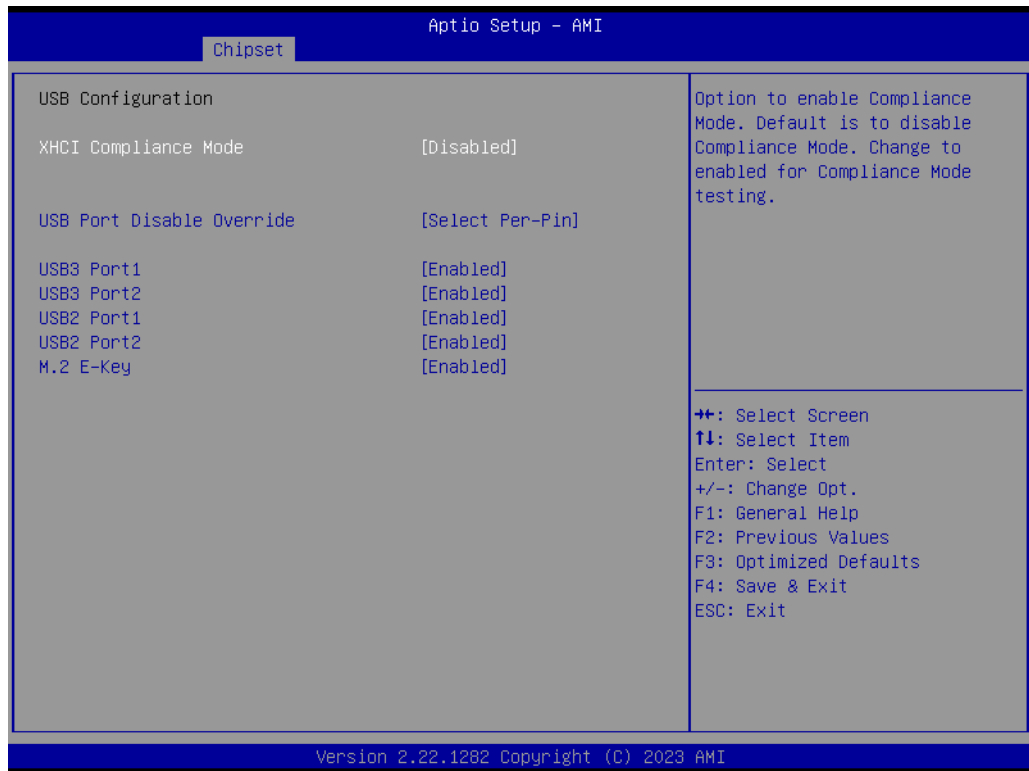
- **Onboard LAN Controller**  
Enable or disable Onboard LAN Controller.
- **LAN1 PXE OpROM**  
Enable or disable LAN1 PXE OpROM.
- **PCIE Wake**  
Enable or disable PCIE Wake.
- **PinCntrl Driver GPIO Scheme**  
Enable or disable PinCntrl Driver GPIO Scheme.

## 3.3.2.1 Chipset → PCH-IO Configuration → SATA Configuration



- **SATA Controller(s)**  
Enable or disable SATA Controller(s).
- **SATA Mode Selection**  
Select AHCI.
- **Aggressive LPM Support**  
Enable or disable Aggressive LPM Support.
- **SATA Controller Speed**  
Select Default or Gen1 or Gen2 or Gen3.
- **M.2 M-Key → Port 1**  
Enable or disable M.2 M-Key.

### 3.3.2.2 Chipset → PCH-IO Configuration → USB Configuration



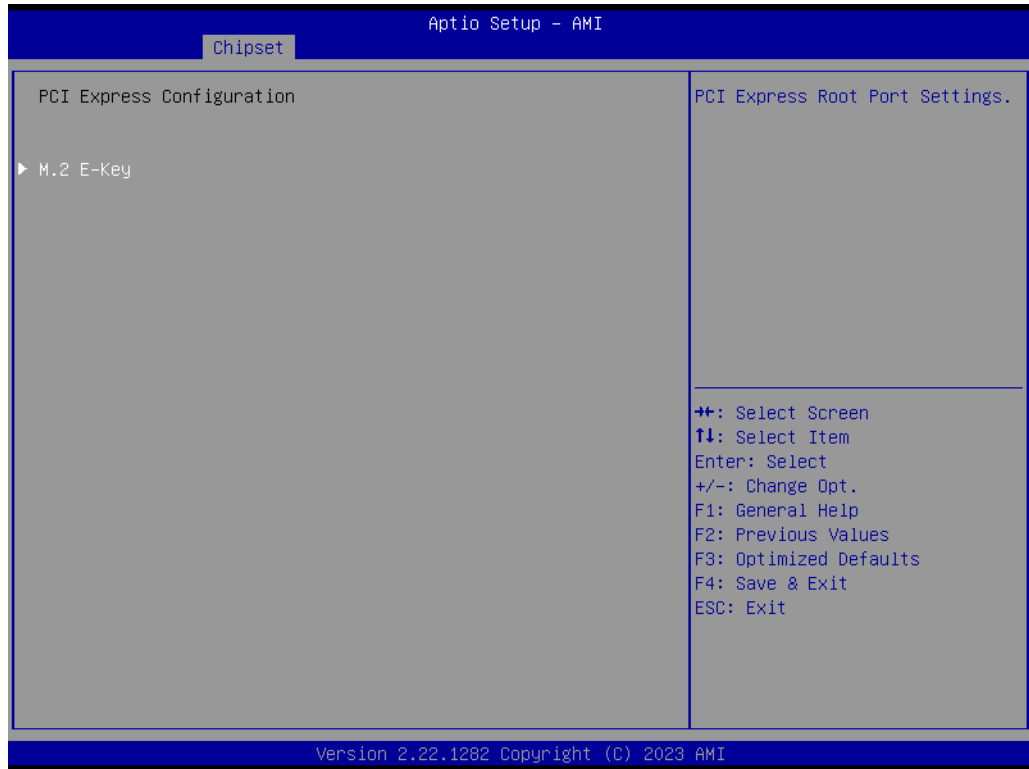
- **XHCI Compliance Mode**  
Enable or disable XHCI Compliance Mode.
- **USB3 Port 1**  
Enable or disable USB3 Port 1.
- **USB3 Port 2**  
Enable or disable USB3 Port 2.
- **USB2 Port 1**  
Enable or disable USB2 Port 1.
- **USB2 Port 2**  
Enable or disable USB2 Port 2.
- **M.2 E-Key Port**  
Enable or disable M.2 USB Port.

### 3.3.2.3 Chipset → PCH-IO Configuration → HD Audio Configuration



- **HD Audio**  
Enable or disable HD Audio.

### 3.3.2.4 Chipset → PCH-IO Configuration → PCI Express Configuration



- **PCI Express Root Port 2**  
Enable or disable PCIe for M.2.

## 3.4 Security



- **Administrator Password**  
Set/Configure Administrator Password.
- **User Password**  
Set/Configure User Password.

### 3.4.1 Security → Secure Boot



- **Secure Boot**  
Enable or disable Secure Boot.
- **Secure Boot Mode**  
Select Custom or Standard.



### 3.4.1.1 Security → Secure Boot → Key Management



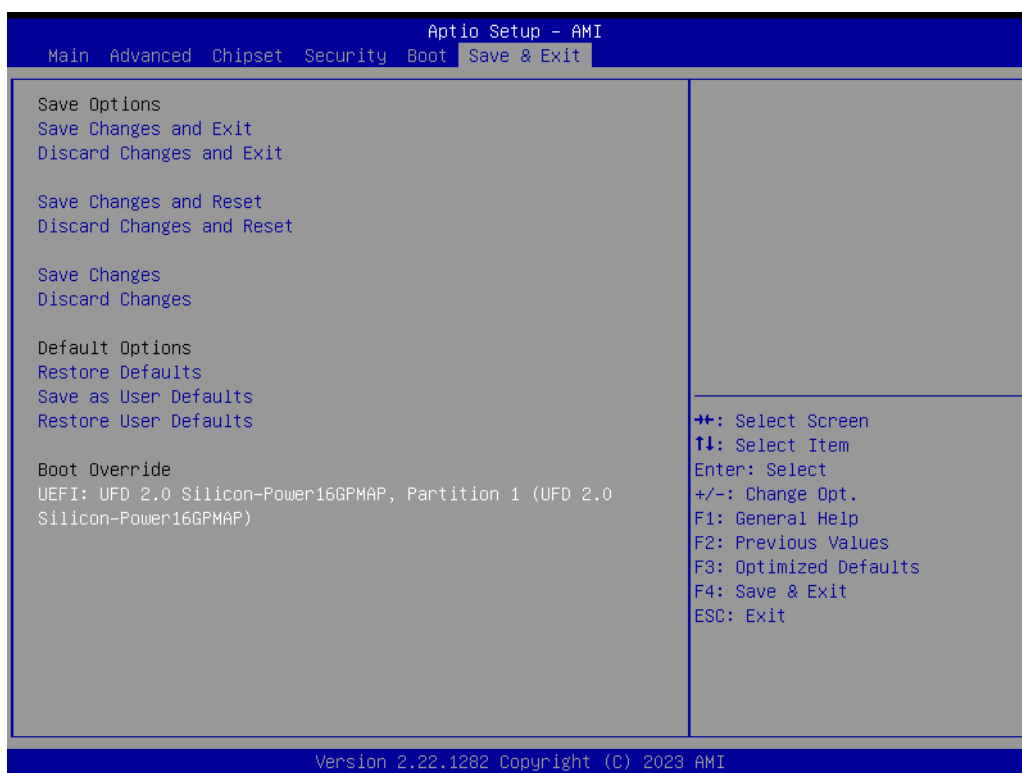
- **Factory Key Provision**  
Enable or disable Factory Key Provision.

## 3.5 Boot



- **Setup Prompt Timeout**  
Configure Setup Prompt Timeout.
- **Bootup Numlock State**  
Select On or off.
- **Quiet Boot**  
Enable or disable Quiet Boot.

## 3.6 Save & Exit



- **Save Changes and Exit**  
Save your changes and exit BIOS setup.
- **Discard Changes and Exit**  
Discard your changes and exit BIOS setup.
- **Save Changes and Reset**  
Save your changes and reset the system.
- **Discard Changes and Reset**  
Discard your changes and reset the system.
- **Save Changes**  
Save your changes.
- **Discard Changes**  
Discard your changes.
- **Restore Defaults**  
Restore all settings back to default.
- **Save as User Defaults**  
Save all your changes as user defaults.
- **Restore User Defaults**  
Restore back to user defaults.

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