

***JNUC-AND1***

***User's Manual***

***NO.: G03-JNUC-ADN1-F***  
***Revision: 2.0***  
***Release date: July 16, 2024***

**Trademark:**

- \* Specifications and Information contained in this documentation are furnished for information use only, and are subject to change at any time without notice, and should not be construed as a commitment by manufacturer.

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## Environmental Protection Announcement

Do not dispose this electronic device into the trash while discarding. To minimize pollution and ensure environment protection of mother earth, please recycle.



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## Environmental Safety Instruction

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- Avoid the dusty, humidity and temperature extremes. Do not place the product in any area where it may become wet.
- 0 to 60 centigrade is the suitable temperature. (The figure comes from the request of the main chipset)
- Generally speaking, dramatic changes in temperature may lead to contact malfunction and crackles due to constant thermal expansion and contraction from the 'welding spots' that connect components and PCB. Computer should go through an adaptive phase before it boots when it is moved from a cold environment to a warmer one to avoid condensation phenomenon. These water drops attached on PCB or the surface of the components can bring about phenomena as minor as computer instability resulted from corrosion and oxidation from components and PCB or as major as short circuit that can burn the components. Suggest starting the computer until the temperature goes up.
- The increasing temperature of the capacitor may decrease the life of computer. Using the close case may decrease the life of other device because the higher temperature in the inner of the case.
- Attention to the heat sink when you over-clocking. The higher temperature may decrease the life of the device and burned the capacitor.

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## Manual Revision Information

Reversion	Revision History	Date
2.0	Second Edition	July 16, 2024

## Item Checklist

- Motherboard
- Cable(s)

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# Chapter 1

## Introduction of the Motherboard

### 1-1 Feature of Motherboard

- Onboard Intel® N-series Processors, with low power consumption never denies high performance
- Support 1\* DDR5 4800MHz SO-DIMM, up to 32GB
- Onboard 2\* Intel® 2.5GbE LAN port
- 1\* M.2 M-key 2260/2280 slot (SATA/PCIe 3.0 x2) support NVMe
- 1\* M.2 E-key 2230 slot (USB2.0/PCIe 3.0x1) support CNVio
- Support 1\* SATAIII device
- Onboard 64GB eMMC (**Optional JNUC-ADN1-N97004 /JNUC-ADN1-N97008**)
- 1\* HDMI2.0b port, 1\* DP1.4 port, 2\* type-c DP port, support Triple Independent Display
- 1\* COM Port (support RS232/RS422/RS485)
- 2\* USB3.2 (Gen.2), 2\* USB 3.2 (Gen.2) type-C port with ALT mode, 3\* USB2.0
- Support CPU Smart FAN
- Compliance with ErP standard
- Support Watchdog function
- Solution for Edge Computing / IoT / Industrial Automation

## 1-2 Specification

Spec	Description
Design	<ul style="list-style-type: none"> <li>● NUC form factor; PCB size: 10.1 cm x 10.1 cm</li> </ul>
Embedded CPU	<ul style="list-style-type: none"> <li>● Integrated with Intel® N-series Processors (<b>TDP 12W</b>)</li> </ul> <p><i>* Note: CPU model varies from different IPC options. Please consult your dealer for more information of onboard CPU. TDP varies depending on CPU.</i></p>
Memory Slot	<ul style="list-style-type: none"> <li>● 1* DDR5 4800MHz, Single Channel SODIMM, up to 32GB</li> </ul> <p><i>* Note: For more memory compatibility information please consults your local dealer.</i></p>
Expansion Slot	<ul style="list-style-type: none"> <li>● <b>M2E1:</b> 1* M.2 E-key 2230 (USB2.0/PCIe 3.0x1) supports CNVio for WIFI/BT Module</li> </ul> <p><i>*Note: M2E slot maximum current limit is 2A while using 3.3V.</i></p>
Storage	<ul style="list-style-type: none"> <li>● 1* SATAIII 6Gb/s port</li> <li>● <b>M2M1:</b> 1* M.2 M-Key 2260/2280 (SATA/PCIe 3.0 x2) support NVMe</li> </ul> <p><i>*Note: M2M1 slot maximum current limit is 2A while using 3.3V.</i></p> <ul style="list-style-type: none"> <li>● Onboard 64GB eMMC option (Optional <b>JNUC-ADN1-N97004 /JNUC-ADN1-N97008</b>)</li> </ul>
LAN Chip	<ul style="list-style-type: none"> <li>● Integrated with 2* Intel i225V 2.5Gigabit LAN chip,</li> <li>● Support Fast Ethernet LAN function of providing 10/100/1000/2500Mbps Ethernet data transfer rate</li> </ul>
Audio Chip	<ul style="list-style-type: none"> <li>● Integrated with Realtek HD audio chip</li> </ul>
Graphics	<p><b>Intel® UHD Graphics, shared memory for:</b></p> <ul style="list-style-type: none"> <li>● 1* HDMI2.0b</li> <li>● 1* DP1.4</li> <li>● 2* DP1.4 from external USB Type-C</li> </ul> <p><i>*Note: Support Triple Displays.</i></p>
BIOS	<ul style="list-style-type: none"> <li>● AMI 256Mb Flash ROM</li> </ul>
Rear I/O	<ul style="list-style-type: none"> <li>● 1* 12~19V DC-in system power Jack</li> <li>● 1* USB2.0</li> <li>● 2* USB3.2 (Gen. 2)</li> <li>● 2* 2.5Gbps RJ-45 LAN port</li> </ul>

	<ul style="list-style-type: none"> <li>● 1* DP1.4</li> <li>● 1* HDMI2.0b</li> </ul>
<b>Front I/O</b>	<ul style="list-style-type: none"> <li>● 1* Front Panel Power Switch</li> <li>● 1* RS232/422/485</li> <li>● 1* Audio Line-Out &amp; MIC combo jack</li> <li>● 2* USB3.2 (Gen. 2) Type C support ALT mode</li> </ul>
<b>Internal I/O</b>	<ul style="list-style-type: none"> <li>● 1* 9-pin USB2.0 header (Expansible to 2* USB2.0 ports)</li> <li>● 1* 8-bit GPIO header</li> <li>● 1* SMBUS header</li> <li>● 1* CPU FAN connector</li> <li>● 1* SATA Power-out connector</li> <li>● 1* Front panel header</li> <li>● 1* Front panel power LED and button</li> </ul>
<b>TPM 2.0</b>	<ul style="list-style-type: none"> <li>● Supported by <b>JNUC-ADN1-N97002</b> / <b>JNUC-ADN1-N97008</b> series</li> </ul>
<b>OS Support</b>	<ul style="list-style-type: none"> <li>● <i>for detailed OS support information please visit our website for latest update</i></li> </ul>

**\*Note:** The main differences among **JNUC-ADN1** series are listed as below:

<b>Model</b>	<b>TPM2.0</b>	<b>Onboard 64GB eMMC</b>
<b>JNUC-ADN1-N97000</b>	<b>N/A</b>	<b>N/A</b>
<b>JNUC-ADN1-N97002</b>	<b>Yes</b>	<b>N/A</b>
<b>JNUC-ADN1-N97004</b>	<b>N/A</b>	<b>Yes</b>
<b>JNUC-ADN1-N97008</b>	<b>Yes</b>	<b>Yes</b>

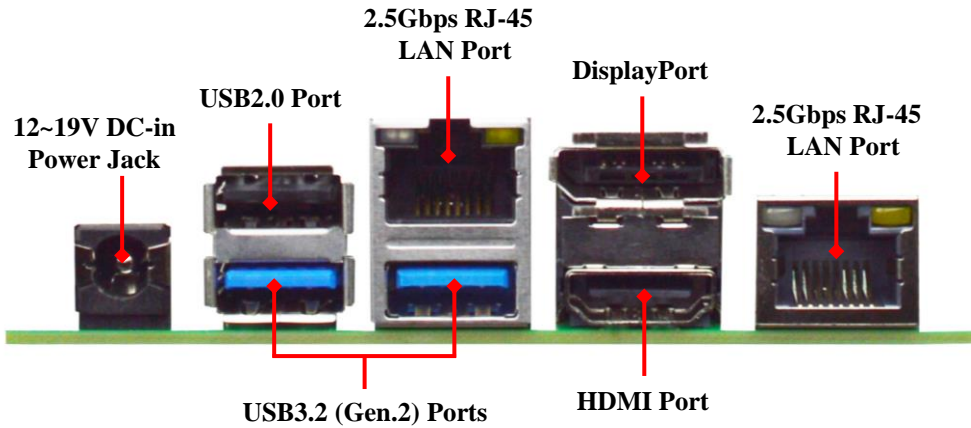


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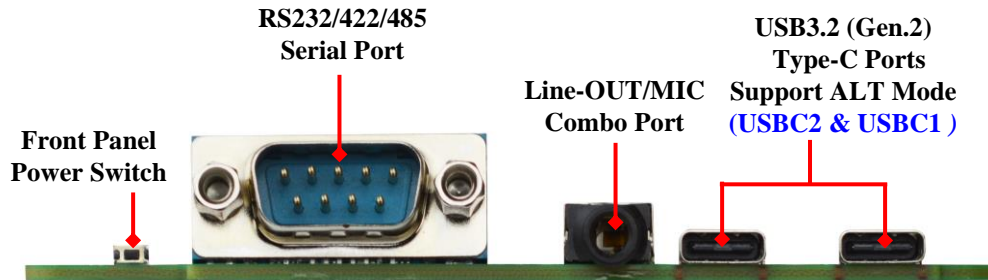
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## 1-3 Layout Diagram

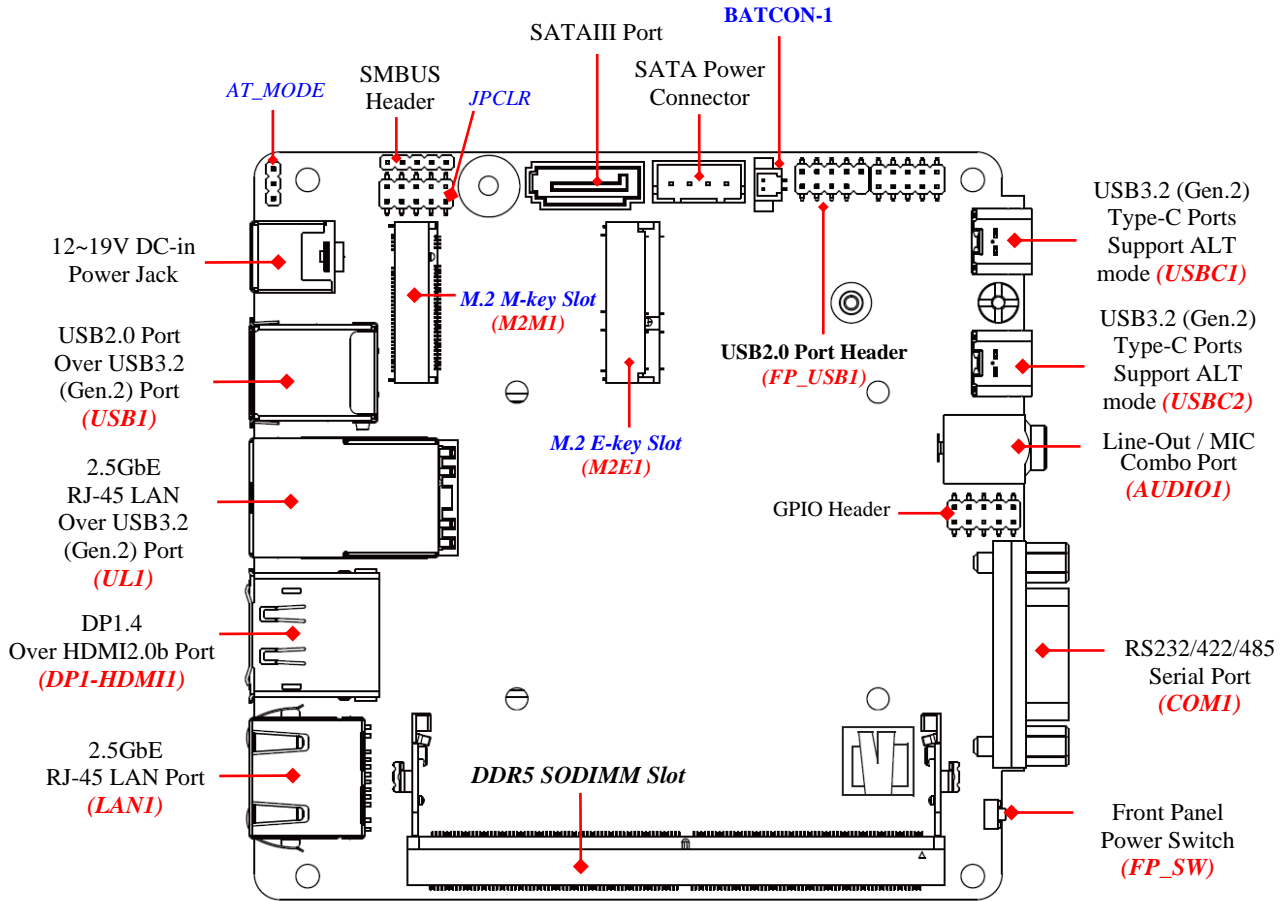
*Rear IO Diagram:*



*Front IO Diagram:*



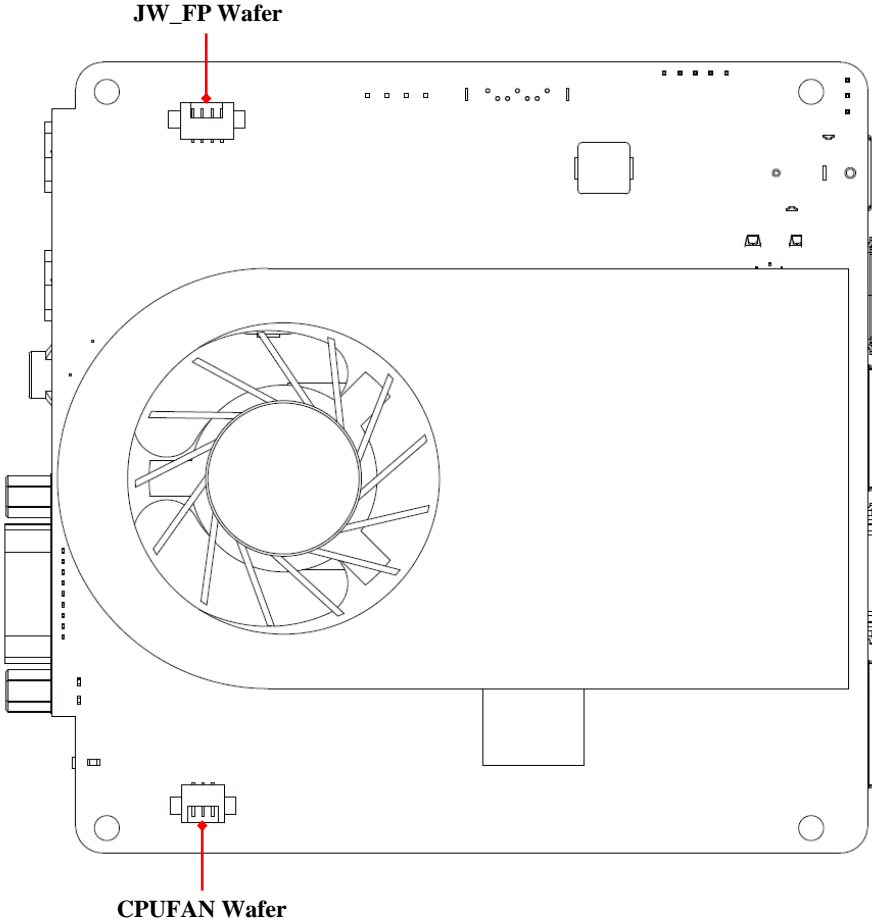
**Diagram-Front Side and Jumper Positions:**



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*Diagram-Back Side:*



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## Jumpers

Jumper	Name	Description	Pitch
AT_MODE	ATX Mode/AT Mode Select	3-Pin Block	2.0mm
JPCLR	<b>Pin (1-2):</b> Clear RTC <b>Pin (3-4):</b> Clear CMOS <b>Pin (5-6):</b> ME DISABLE <b>Pin (7-8):</b> CASE OPEN <b>Pin (9-10):</b> 80 PORT	10-Pin Block	2.0mm

## Connectors

Connector	Name
DCIN	12~19V DC-in System Power Jack
USB1	USB2.0 over USB3.2 (Gen.2) Port Connector
UL1	<b>Top:</b> RJ-45 LAN Port Connector <b>Bottom:</b> USB3.2 (Gen.2) Port Connect
DP1-HDMI1	<b>Top:</b> DisplayPort Connector <b>Bottom:</b> HDMI Connector
LAN1	RJ-45 LAN Port Connector
USBC1/USBC2	USB3.2 (Gen.2) Type-C Port Connector X2 <i>*Support DP ALT Mode</i>
AUDIO1	Line-Out/MIC Combo Connector
COM1	RS232/422/485 Serial Port Connector
FP_SW	Front Panel Power Switch
SATA1	SATAIII Port Connector
SATAPWR1	SATA Power-out Connector
BATCON-1	Internal 2-Pin Battery Connector

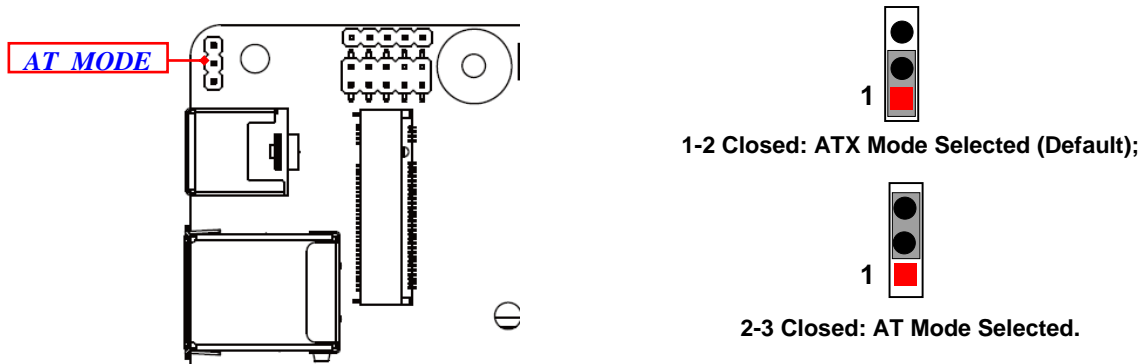
## Headers & Wafers

Header	Name	Description	Pitch
<b>SMBUS</b>	SM BUS Header	5-pin Block	2.0mm
<b>FP_USB1</b>	USB 2.0 Port Header	9-pin Block	2.0mm
<b>GPIO</b>	GPIO Port Header	10-pin Block	2.0mm
<b>JW_FP</b> (backside)	Front Panel Wafer	4-pin Block	1.25mm
<b>CPUFAN</b> (backside)	CPUFAN Wafer	3-pin Block	1.25mm

# Chapter 2 Hardware Installation

## 2-1 Jumper Settings

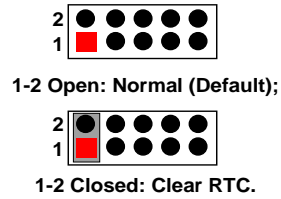
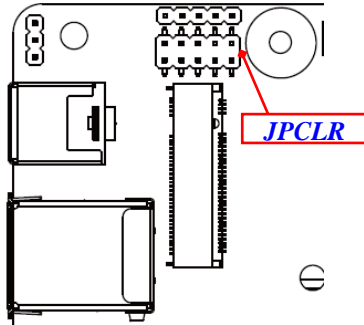
**AT\_MODE (3-pin): ATX Mode/AT Mode Select** (2.0 pitch)



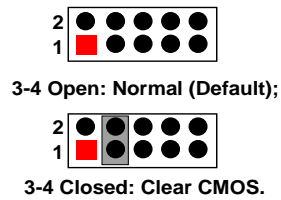
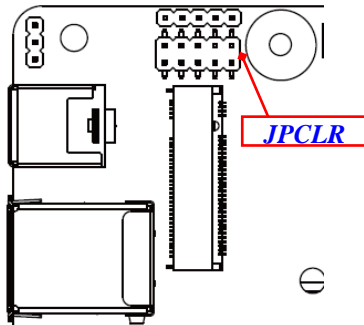
**\*ATX Mode Selected:** Press power button to power on after power input ready;  
**AT Mode Selected:** Directly power on as power input ready.

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**Pin (1-2) of JPCLR (10-pin): Clear RTC** (2.0 pitch)

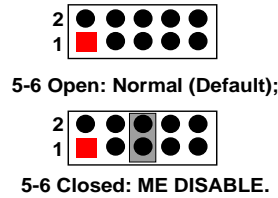
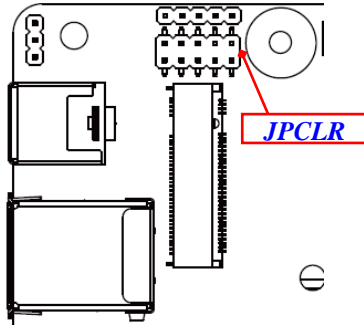


**Pin (3-4) of JPCLR (10-pin): Clear CMOS** (2.0 pitch)

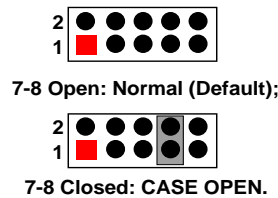
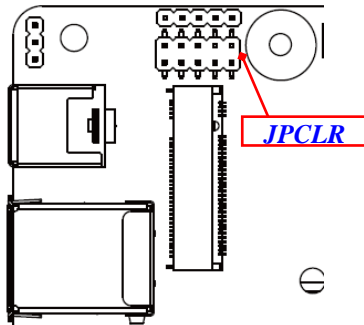


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**Pin (5-6) of JPCLR (10-pin): ME DISABLE** (2.0 pitch)

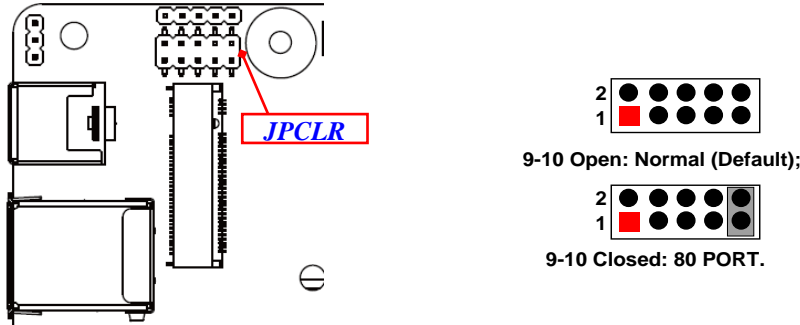


**Pin (7-8) of JPCLR (10-pin): CASE OPEN** (2.0 pitch)




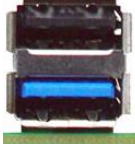

**Pin (7&8) Closed:** When Case open function pin short to GND, the Case open function was detected. When used, needs to enter BIOS and enable '**Case Open Detect**' function. In this case if your case is removed, next time when you restart your computer, a message will be displayed on screen to inform you of this.

**Pin (9-10) of JPCLR (10-pin): 80 PORT** (2.0 pitch)









## 2-2 Connectors, Headers and Wafers

### 2-2-1 Connectors

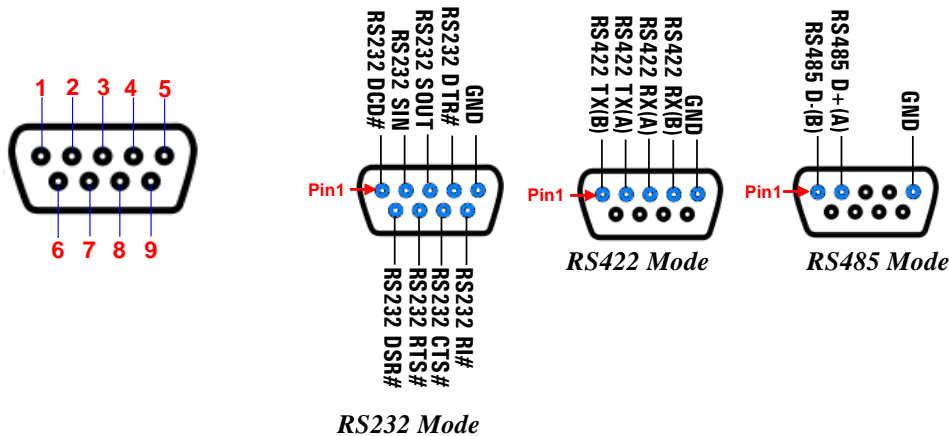
<i>Icon</i>	<i>Name</i>	<i>Function</i>
	<b>Power Connector</b>	12~19V DC—in system power connector. For user to connect compatible power adapter to provide power supply for the system.
	<b>Type-A USB2.0 Port Over USB3.2 (Gen.2) Port</b>	Top: To connect USB keyboard, mouse or other devices compatible with USB2.0 specification. Bottom: To connect USB keyboard, mouse or other devices compatible with USB3.2 (Gen.2) specification. Ports support up to 10Gbps data transfer rate.
	<b>2.5Gbps RJ-45 LAN Port Over USB3.2 (Gen.2) Port</b>	<b>Top:</b> This connector is standard RJ-45 LAN jack for Network connection which supports 10/100/1000/2500 Mbps Ethernet data transfer rate ( <b>*Note: 2.5Gbps is only supported with CAT 5e UTP cable</b> ). <b>Bottom:</b> To connect USB keyboard, mouse or other



		devices compatible with USB3.2 (Gen.2) specification. Ports support up to 10Gbps data transfer rate.
	<b>DP1.4 Port Over HDMI2.0b Port</b>	Top: To the system to corresponding display device with compatible display port cable. Bottom: For user to connect display device that support HDMI2.0b specification.
	<b>2.5Gbps RJ-45 LAN Port</b>	This connector is standard RJ-45 LAN jack for Network connection which supports 10/100/1000/2500 Mbps Ethernet data transfer rate ( <i>*Note: 2.5Gbps is only supported with CAT 5e UTP cable</i> ).
	<b>Type-C USB3.2 (Gen.2) Port</b>	Type-C USB3.2 (Gen.2) port also <b>supports ALT mode</b> .
	<b>Line-Out/MIC Combo Connector</b>	This connector can functions as audio Line-Out jack and MIC jack with compatible cables & devices.
	<b>Serial Port</b>	RS232/422/485 Serial Port
	<b>Front Panel Power Switch</b>	For user to connect compatible Front Panel power to provide power supply for the system.

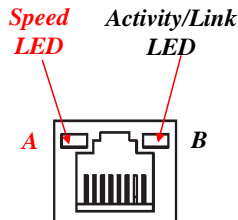
### (1) COM1 (9-pin Block): RS232/422/485 Serial Port

COM1 port can function as RS232/422/485 port. In normal settings COM1 functions as RS232 port. With compatible COM1 cable they can function as RS422 or RS 485 port. User also needs to go to BIOS to set '**Transmission Mode Select**' for COM (refer to Page-27) at first, before using specialized cable to connect different pins of this port.



### (2) 2.5Gbps RJ-45 LAN port LED Signals:

\*\* There are two LED next to the RJ-45 LAN port. Please refer to the table below for LAN port LED indications.



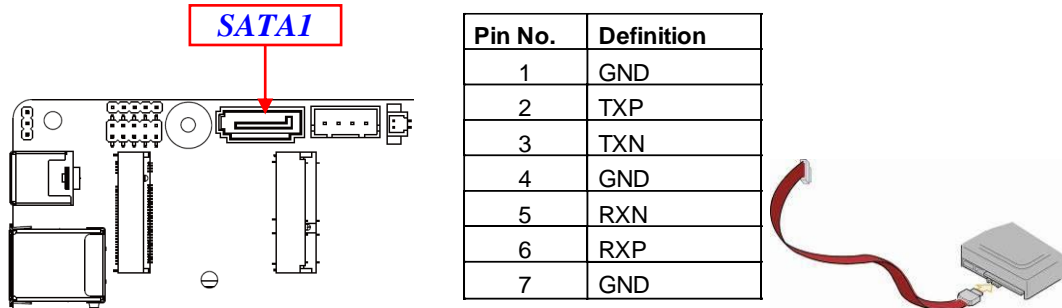
A: Speed LED		B: Activity/Link LED	
Status	Description	Status	Description
Off	10/100Mbps connection	Off	No Link
Orange	1000Mbps connection	Blinking	Data Activity
Green	2.5Gbps connection	On	Link

**\*Note:** 2.5Gbps high-speed transmission rate is **only** supported over **CAT 5e UTP** cable.

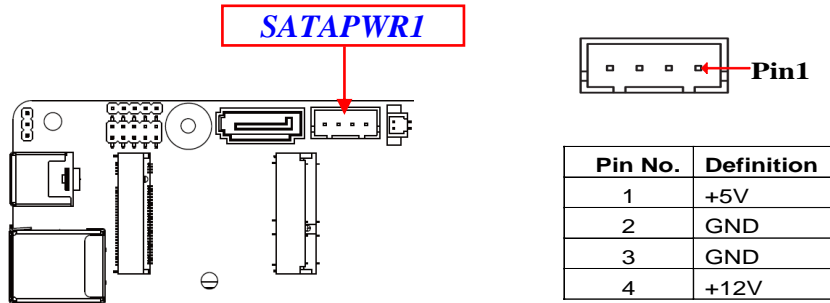
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### (3) SATA1 (7-pin Block): SATAIII Port connector

The board comes with a SATAIII port that supports 6GB/s transfer rate.

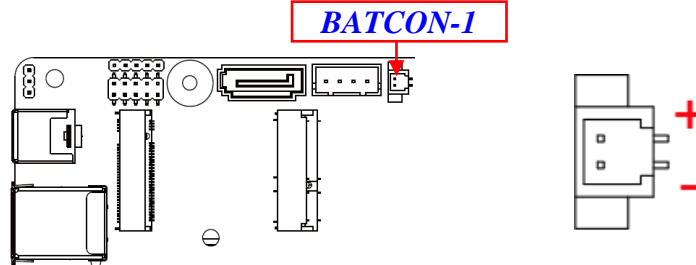


### (4) SATAPWR1 (4-pin): SATA Power out Connector



**\*Note:** Maximum current limit is 2A while using 5V or 12V working voltage.

### (5) BATCON-1 (2-pin): Battery Connector

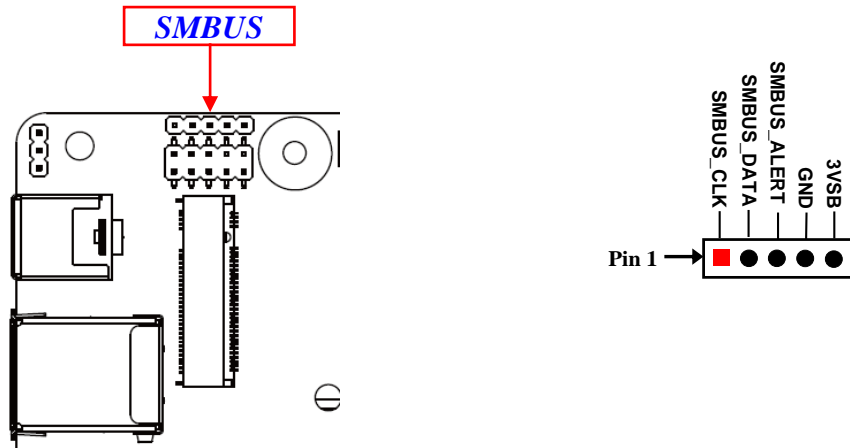


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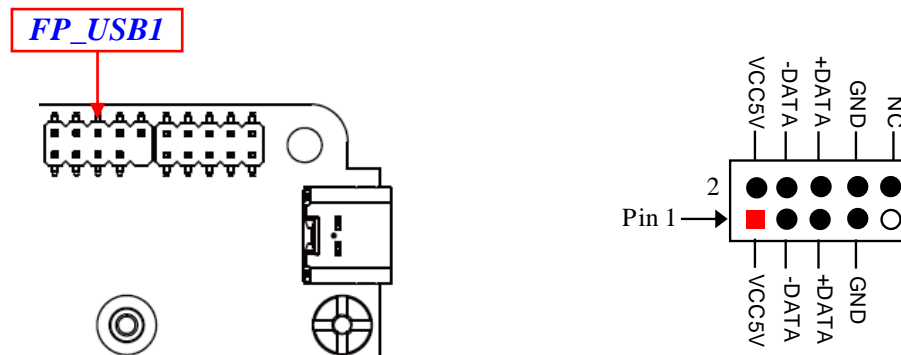
## 2-2-2 Pin Definition for Headers & Wafers

### SMBUS (5-pin): SM BUS Header (2.0 pitch)



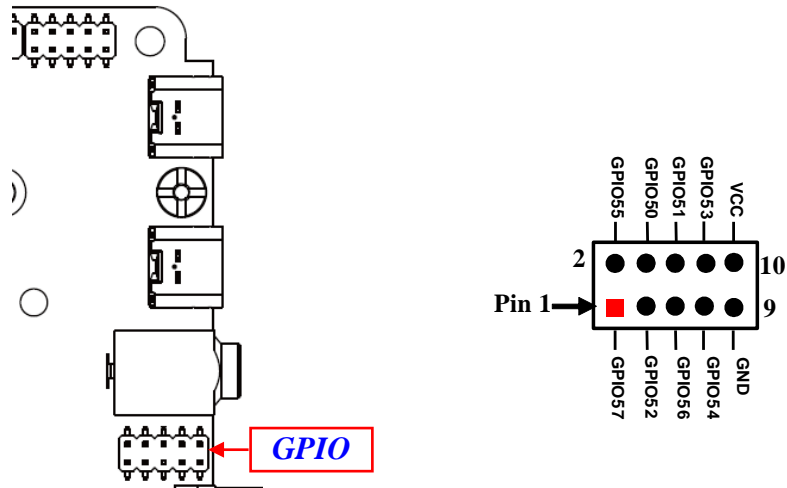
**\*Note:** Maximum current limit is **0.3A** while using **5V** working voltage.

### FP\_USB1 (9-pin): USB 2.0 Port Header (2.0 pitch)

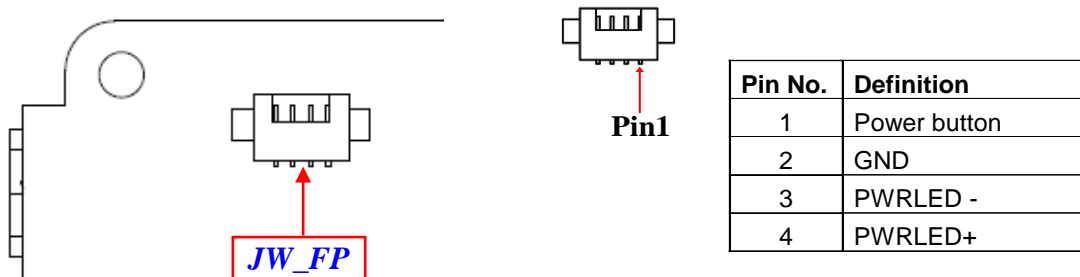


**\*Note:** Maximum current limit is **0.5A** while using **5V** working voltage

**GPIO (10-pin): GPIO Port Header** (2.0 pitch)



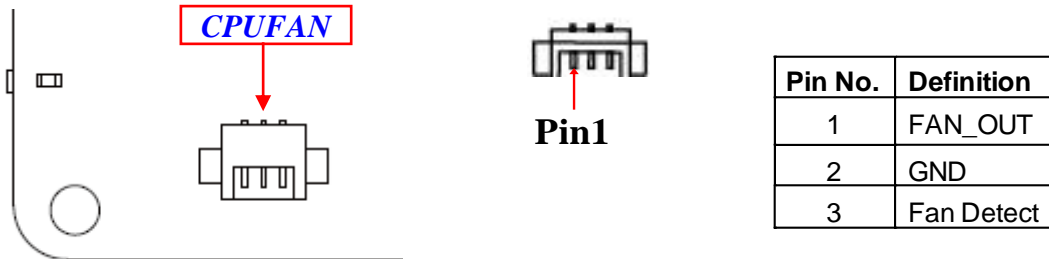
**JW\_FP (4-pin): Front Panel Wafer (backside)** (1.25 pitch)



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### CPUFAN (3-pin): CPUFAN Wafer (backside) (1.25 pitch)



### 2-2-3 Maximum Voltage & Current Limit

Below is a list of maximum voltage & Current Limit specification for motherboard interface (including but not limited to slots, connectors and headers) for setup reference:

	Parts	Working Voltage	Current Support
USB Port from	<b>USB1</b>	5V	0.9A + 0.5A
	<b>UL1</b>	5V	0.9A
	<b>USBC1 (Type-C)</b>	5V	3A
	<b>USBC2 (Type-C)</b>	5V	3A
	<b>FP_USB1</b>	3.3V	1A
	<b>DP1-HDMI1</b>	5V	0.5A
	<b>GPIO</b>	5V	0.25A
	<b>DCIN</b>	12-19V	Depends on CPU

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# Chapter 3

## Introducing BIOS

**Notice!** The BIOS options in this manual are for reference only. Different configurations may lead to difference in BIOS screen and BIOS screens in manuals are usually the first BIOS version when the board is released and may be different from your purchased motherboard. Users are welcome to download the latest BIOS version form our official website.

The BIOS is a program located on a Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program will gain control. The BIOS first operates an auto-diagnostic test called POST (power on self test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization. Only when these tasks are completed done it gives up control of the computer to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performance as its best.

### 3-1 Entering Setup

Power on the computer and by pressing <Del> immediately allows you to enter Setup.

If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to

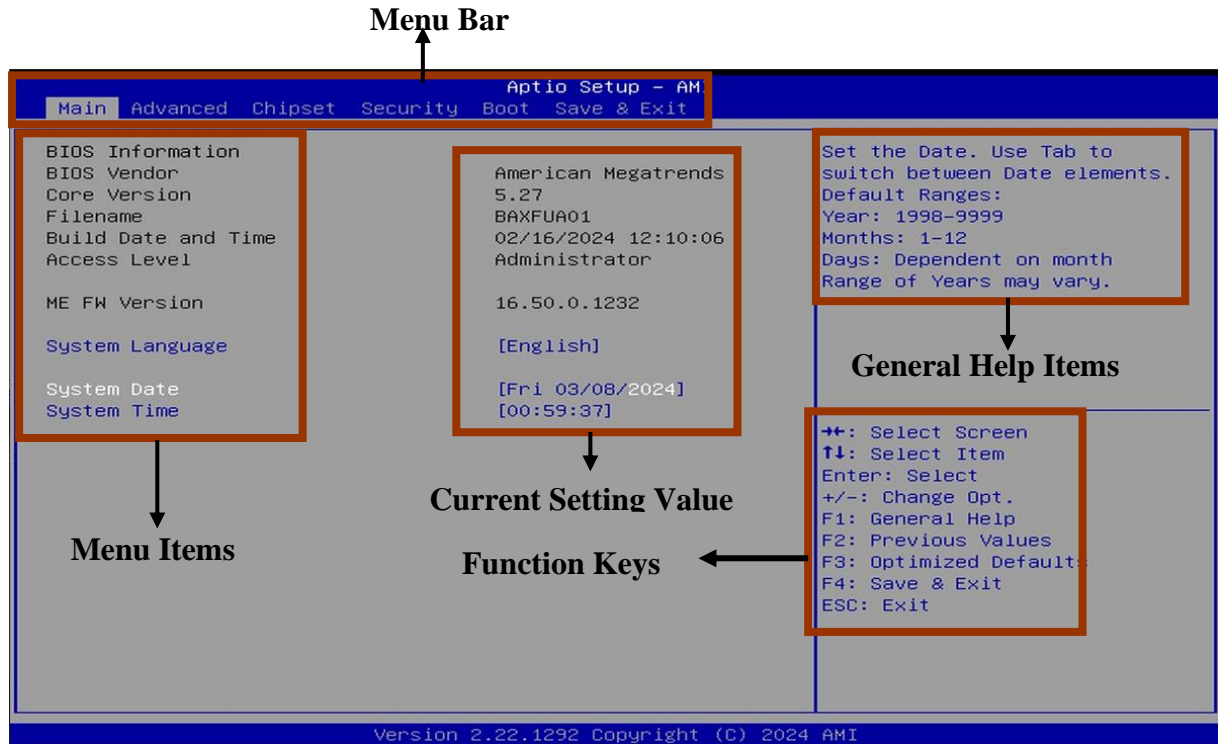
Press **<Del>** to enter Setup; press **< F7>** to enter pop-up Boot menu.

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BIOS Boot Menu Screen (boot device options please refer to actual configuration)

## 3-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen:



## 3-3 Function Keys

In the above BIOS Setup main menu of, you can see several options. We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:



- 
- 
- Press ←→ (left, right) to select screen.
  - Press ↑↓ (up, down) to choose, in the main menu, the option you want to confirm or to modify.
  - Press <Enter> to select.
  - Press <+>/<-> keys when you want to modify the BIOS parameters for the active option.
  - [F1]: General help.
  - [F2]: Previous values.
  - [F3]: Optimized defaults.
  - [F4]: Save & Exit.
  - Press <Esc> to exit from BIOS Setup.

### 3-4 Getting Help

#### Main Menu

The on-line description of the highlighted setup function is displayed at the top right corner the screen.

#### Status Page Setup Menu/Option Page Setup Menu

Press **[F1]** to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press **<Esc>**.

### 3-5 Menu Bars

**There are six menu bars on top of BIOS screen:**

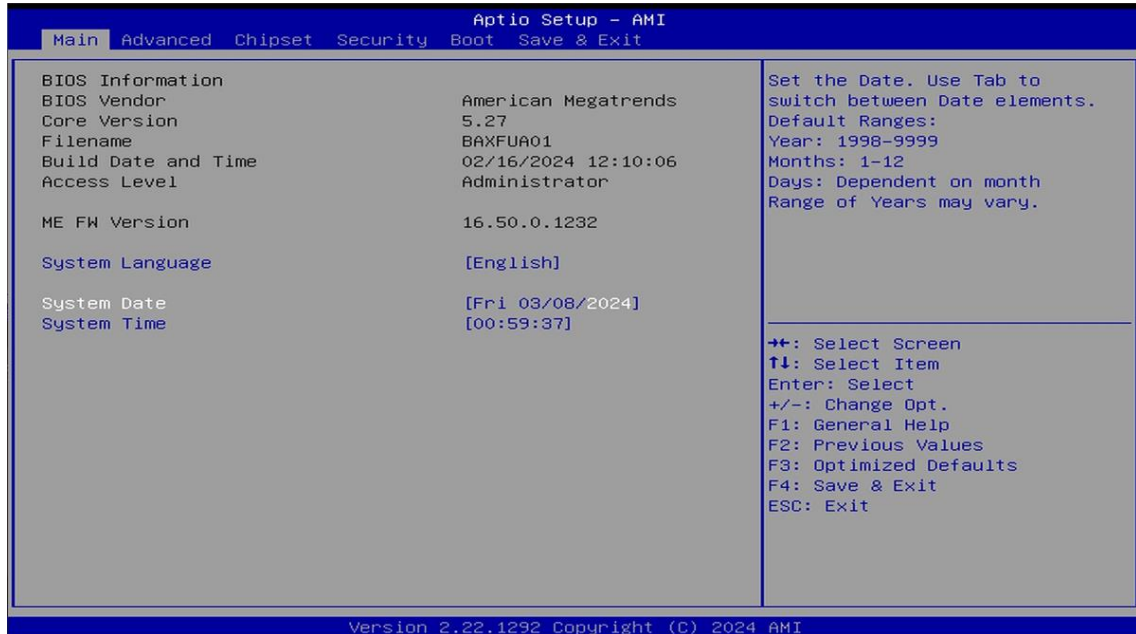
<b>Main</b>	To change system basic configuration
<b>Advanced</b>	To change system advanced configuration
<b>Chipset</b>	To change chipset configuration
<b>Security</b>	Password settings
<b>Boot</b>	To change boot settings
<b>Save &amp; Exit</b>	Save setting, loading and exit options.

---

User can press the right or left arrow key on the keyboard to switch from menu bar. The selected one is highlighted.

### 3-6 Main Menu

Main menu screen includes some basic system information. Highlight the item and then use the <+> or <-> and numerical keyboard keys to select the value you want in each item.



#### System Language

Choose the system default language. Set the default value to: [English]

#### System Date

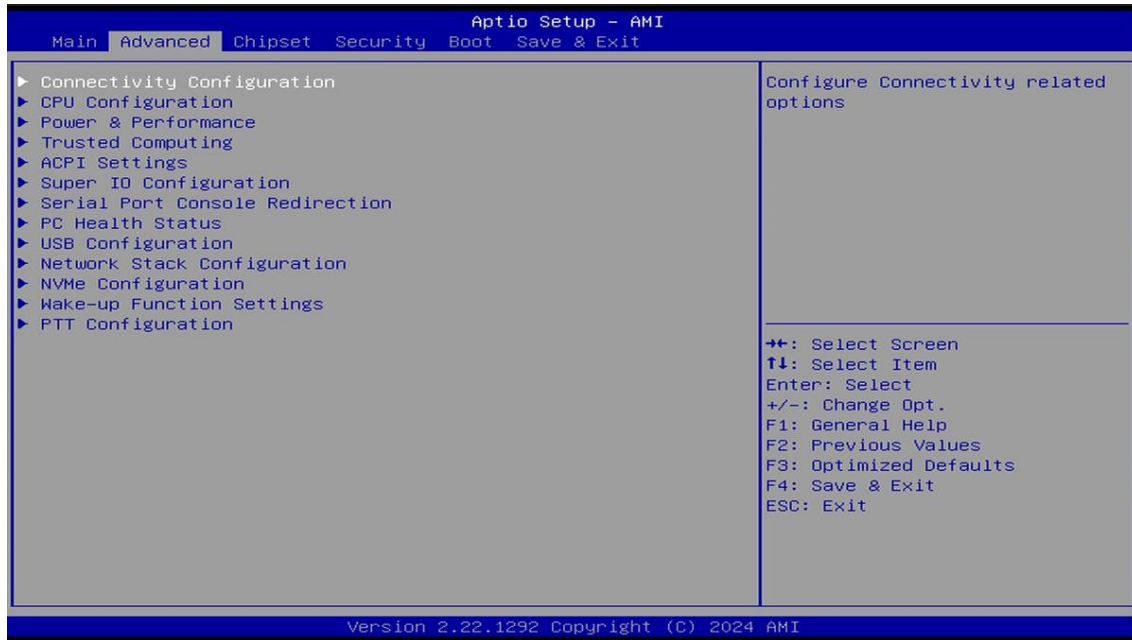
Set the date. Please use [Tab] to switch between date elements.

#### System Time

Set the time. Please use [Tab] to switch between time elements.

---

## 3-7 Advanced Menu



### ▶ **Connectivity Configuration**

Use this item to configure Connectivity related options.

Press [Enter] to make settings for the following sub-items:

#### **CNVi CRF Present**

##### **CNVi Mode**

This option configures Connectivity.

CNVi Mode Set the default value to: [Auto Detection].

The optional settings: [Disabled Integrated]; [Auto Detection].

**[Auto Detection]** means that if Discrete solution is discovered it will be enabled by default. Otherwise Integrated solution (CNVi) will be enabled;

**[Disabled Integrated]** disables Integrated Solution.

### ▶ **CPU Configuration**

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Press [Enter] to view current CPU configuration and make settings for the following sub-items:

▶ **Efficient-Core Information**

Use this item to displays the E-Core information.

Press [Enter] to make settings for the following sub-items:

**L1 Data Cache/L1 Instruction Cache/L2 Cache/L3 Cache**

▶ **Performance-Core Information**

**Boot Performance Mode**

Use this item to select the performance state that the BIOS will set starting from reset vector.

Boot Performance Mode Set the default value to: [Turbo Performance].

The optional settings: [Min Non-Turbo Performance]; [Max Non-Turbo Performance]; [Turbo Performance].

**Intel(R) SpeedStep(tm)**

This item allows more than two frequency ranges to be supported.

Intel(R) SpeedStep(tm) Set the default value to: [Enabled].

The optional settings: [Disabled]; [Enabled].

**Turbo Mode**

Use this item to enable or disable processor Turbo Mode (requires Intel Speed Step or Intel Speed Shift to be available and enabled).

Turbo Mode Set the default value to: [Enabled]

The optional settings: [Disabled]; [Enabled].

**\*Note:** *'Turbo Mode' is only available to optional models(Enabled for JNUC-ADN1-N97000/JNUC-ADN1-N97002/JNUC-ADN1-N97004/JNUC-ADN1-N97008; Disabled only for Barebone used).*

**C states**

Use this item to enable or disable CPU Power Management. When set as [Enabled], it allows CPU to go to C states when it's not 100% utilized.

C states Set the default value to: [Enabled].

The optional settings: [Disabled]; [Enabled].

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### **Package C State Limit**

Use this item to maximum package C State Limit setting. CPU default: leaves to factory default value. Auto: initializes to deepest available package C State Limit. Package C State Limit Set the default value to: [Auto].

The optional settings: [C0/C1]; [C2]; [C3] ; [C6] ; [C7] ; [C7S] ; [C8] ; [C9] ; [C10] ; [CPU Default] ; [Auto].

#### ▶ **Power & Performance**

Press [Enter] to make settings for the following sub-items:

#### ▶ **CPU-Power Management Control**

Press [Enter] to make settings for the following sub-items:

##### **Power Limit 1 Override**

Use this item to enable/disable power limit 1 override if this option is disabled. BIOS will program the default values for power limit 1 and power limit 1 time window.

Power Limit 1 Override Set the default value to: [Enabled].

The optional settings: [Enabled]; [Disabled].

When set as **[Enabled]**, the following items shall appear:

##### **Power Limit 1**

Use this item to power Limit 1 in Milli Watts. BIOS will round to the nearest 1/8W when programming. 0= no custom override. For 12.50W, enter 12500. Overclocking SKU: Value must be between Max and Min Power Limits (specified by PACKAGE\_POWER\_SKU\_MSR). Other SKUs: This value must be between Min Power Limit and TDP Limit. If value is 0, BIOS will program TDP value.

Power Limit 1 Set the default value to: [0].

##### **Power Limit 1 Time Window**

Use this item to power Limit 1 Time Window value in seconds. The value may vary from 0 to 128. 0=default value (28 sec for Mobile and 8 sec for desktop). Defines time Window which TDP value should be maintained.

Power Limit 1 Time Window Set the default value to: [0].

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The optional settings: [0]; [1]; [2]; [3]; [4]; [5]; [6]; [7]; [8]; [10]; [12]; [14]; [16]; [20]; [24]; [28]; [32]; [40]; [48]; [56]; [64]; [80]; [96]; [112]; [128].

### **Power Limit 2 Override**

Use this item to enabled/disable power Limit 2 override. If this option is disabled, BIOS will program the default values for Power Limit 2.

Power Limit 2 Override Set the default value to: [Enabled].

The optional settings: [Disabled]; [Enabled].

When set as [Enabled], user can make further settings in the following items:

### **Power Limit 2**

Use this item to power Limit 2 vallue in Milli watts. BIOS will round to the nearest 1/8W when programming. If the value is 0, BIOS will program this value as 1.25\*TDP. For 12.50W, enter 12500. Processor applies control policies such that the package power does not exceed this limit.

Power Limit 2 Set the default value to: [0].

## ▶ **GT-Power Management Control**

Press [Enter] to make settings for the following sub-items:

### **RC6(Render Standby)**

Use this item to check to enable render standby support

RC6(Render Standby) Set the default value to: [Enabled].

The optional settings: [Disabled]; [Enabled].

### **Maximum GT frequency**

Use this item to Maximum GT frequency limited by the user. Choose between 200MHZ (RPN) and 1200MHZ (RP0). Value beyond the range will be clipped to min/max supported by SKU

RC6(Render Standby) Set the default value to: [Default Max Frequency]

The optional settings: [Default Max Frequency]; [100Mhz]; [150Mhz]; [200Mhz]; [250Mhz]; [300Mhz]; [350Mhz]; [400Mhz]; [450Mhz]; [500Mhz]; [550Mhz]; [600Mhz]; [650Mhz]; [700Mhz]; [750Mhz]; [800Mhz]; [850Mhz]; [900Mhz]; [950Mhz]; [1000Mhz]; [1050Mhz]; [1100Mhz]; [1150Mhz]; [1200Mhz].

### ***Disable Turbo GT frequency***

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▶ **Trusted Computing**

Press [Enter] to view current status information, or make further settings in the following sub-items:

**Security Device Support**

Use this item to enable or disable BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

Security Device Support Set the default value to: [Enabled].

The optional settings: [Disabled]; [Enabled].

When set as **[Enabled]**, user can make further settings in the following items:

**Active PCR Banks**

**Available PCR Banks**

**SHA256 PCR Bank**

Use this item to Enable or Disable SHA256 PCR Bank

SHA256 PCR Bank Set the default value to: [Enabled].

The optional settings: [Disabled]; [Enabled].

**SHA384 PCR Bank**

Use this item to Enable or Disable SHA384 PCR Bank

SHA384 PCR Bank Set the default value to: [Disabled].

The optional settings: [Disabled]; [Enabled].

**Pending Operation**

Use this item to schedule an operation for the security device

NOTE: Your computer will reboot during restart in order to change state of security device

Pending Operation Set the default value to: [None].

The optional settings: [None]; [TPM Clear].

▶ **ACPI Settings**

Press [Enter] to make settings for the following sub-item:

**ACPI Sleep State**

Use this item to select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.

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Pending Operation Set the default value to: [S3(Suspend to RAM)]  
The optional settings: [Suspend Disabled]; [S3(Suspend to RAM)].

▶ **Super I/O Configuration**

Press [Enter] to make settings for the following sub-item:

**Super IO Configuration**

▶ **Serial Port 1 Configuration**

Use this item to set parameters of serial port 1 (COMA)

Press [Enter] to make settings for the following sub-item:

**Serial Port**

Use this item to enable or disable serial port (COM)

Pending Operation Set the default value to: [Enabled].

The optional settings: [Disabled]; [Enabled].

When set as [**Enabled**], user can make further settings in the following items:

**Device Settings**

**Change Settings**

Use this item to select an optimal settings for super IO device

Change Settings Set the default value to: [Auto]

The optional settings: [Auto]; [IO= 3F8h; IRQ=4]; [IO= 2F8h; IRQ=3]; [IO= 3E8h; IRQ=4]; [IO= 2E8h; IRQ=3].

**Transmission Mode Select**

Transmission Mode Select Set the default value to: [RS232].

The optional settings: [RS422]; [RS232]; [RS485].

**Mode Speed Select**

Use this item to RS232/RS422/RS485 Speed Select

Mode Speed Select Set the default value to: [RS232=1Mbps, RS422/RS485=10Mbps].

The optional settings: [RS232/RS422/RS485=250kps]; [RS232=1Mbps, RS422/RS485=10Mbps].

**ERP Support**

Use this item to Energy-Related Products function. Disable ERP to active all wake-up functions.



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ERP Support Set the default value to: [Disabled].

The optional settings: [Disabled]; [Enabled].

### **Case Open Detect**

Use this item to detect if case have ever been opened. Show message in POST.

Case Open Detect Set the default value to: [Disabled].

The optional settings: [Disabled]; [Enabled].

When set as [Enabled], system will detect if COPEN has been short or not (*refer to JPCLR jumper setting for Case Open Detection*); if Pin 7-8 is short, system will show Case Open Message during POST.

### **WatchDog Reset Timer**

Use this item to support WDT reset function

WatchDog Reset Timer Set the default value to: [Disabled].

The optional settings: [Disabled]; [Enabled].

When set as **[Enabled]**, user can make further settings in the following items:

### **WatchDog Reset Timer Value**

WatchDog Reset Timer Value Set the default value to: [10].

User can select a value in the range of [10] to [255] seconds when '**WatchDog Reset Timer Unit**' set as [Sec]; or in the range of [1] to [255] minutes when '**WatchDog Reset Timer Unit**' set as [Min].

### **WatchDog Reset Timer Unit**

WatchDog Reset Timer Unit Set the default value to: [Sec.].

The optional settings: [Sec.]; [Min.].

### **WatchDog Wake-up Timer**

User this item to support WDT Wake-up

WatchDog Wake-up Timer Set the default value to: [Disabled].

The optional settings: [Disabled]; [Enabled].

When set as **[Enabled]**, user can make further settings in the following items:

### **WatchDog Wake-up Timer Value**

WatchDog Wake-up Timer Value Set the default value to: [10].

User can select a value in the range of [10] to [255] seconds when '**WatchDog Wake-up Timer Unit**' set as [Sec]; or in the range of [1] to [255] minutes when

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'WatchDog Wake-up Timer Unit' set as [Min].

### **WatchDog Wake-up Timer Unit**

WatchDog Wake-up Timer Unit Set the default value to: [Sec.].

The optional settings: [Sec.]; [Min.].

### **ATX Power Emulate AT Power**

This item support Emulate AT power function, MB power On/Off control by power supply. Use needs to select 'AT or ATX Mode' on MB jumper at first (refer to AT\_MODE jumper setting Pin 1&2 of for ATX Mode & Pin 2&3 of AT Mode Select)

#### ▶ **Serial Port Console Redirection**

User this item to serial port console redirection

Press [Enter] to make settings for the following sub-item:

#### **COM1**

#### **Console Redirection**

User this item to Console Redirection Enable or Disable

Console Redirection Set the default value to: [Sec.].

The optional settings: [Disabled]; [Enabled].

When set as [**Enabled**], user can make further settings in the following items:

#### ▶ **Console Redirection Settings**

User this item to the settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings

Press [Enter] to make settings for the following sub-item:

#### **Terminal Type**

Terminal Type Set the default value to: [ANSI].

The optional settings: [VT100]; [VT100+]; [VT-UTF8]; [ANSI].

Emulation: [ANSI]: Extended ASCII char set; [VT100]: ASCII char set; [VT100+]:

Extends VT100 to support color, function keys, etc.; [VT-UTF8]: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.

#### **Bits per second**

Use this item to select serial port transmission speed. The speed must be

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matched on the other side. Long or noisy lines may require lower speeds.

Terminal Type Set the default value to: [115200].

The optional settings: [9600]; [19200]; [38400]; [57600]; [115200].

### **Data Bits**

Use this item to data bits

Terminal Type Set the default value to: [8].

The optional settings: [7]; [8].

### **Parity**

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

Parity Set the default value to: [None].

The optional settings: [None]; [Even]; [Odd]; [Mark]; [Space].

[Even]: parity bit is 0 if the num of 1's in the data bits is even; [Odd]: parity bit is 0 if num of 1's in the data bits is odd; [Mark]: parity bit is always 1; [Space]: Parity bit is always 0; [Mark] and [Space] Parity do not allow for error detection.

### **Stop Bits**

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

Stop Bits Set the default value to: [1].

The optional settings: [1]; [2].

### **Flow Control**

Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a "stop" signal can be sent to stop the data flow. Once the buffers are empty, a "start" signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.

Flow Control Set the default value to: [None].

The optional settings: [None]; [Hardware RTS/CTS].

### **VT-UTF8 Combo key Support**

Use this item to enable VT-UTF8 combination key support for ANSI/VT100 terminals.

VT-UTF8 Combo key Support Set the default value to: [Enabled].

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The optional settings: [Disabled]; [Enabled].

### **Recorder Mode**

Use this item to with this mode enabled only text will be sent. This is to capture Terminal data.

Recorder Mode Set the default value to: [Disabled].

The optional settings: [Disabled]; [Enabled].

### **Resolution 100X31**

Use this item to Enables or disables extended terminal resolution

Resolution 100X31 Set the default value to: [Disabled].

The optional settings: [Disabled]; [Enabled].

### **Putty KeyPad**

Use this item to select FunctionKey and KeyPad on Putty

Putty KeyPad Set the default value to: [V100].

The optional settings: [VT100]; [Linux]; [XTERMR6]; [SCO]; [ESCN]; [VT400].

### **Serial Port for Out-of-Band Management**

#### **Windows Emergency Management Services (EMS)**

#### **Console Redirection EMS**

Console Redirection EMS Set the default value to: [Disabled].

The optional settings: [Disabled]; [Enabled]. When set as [Enabled], the following sub-items shall appear:

#### **▶ Console Redirection Settings**

The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.

Press [Enter] to make settings for the following items:

#### **Terminal Type EMS**

Terminal Type EMS Set the default value to: [VT-UTF8]

The optional settings: [VT100]; [VT100+]; [VT-UTF8]; [ANSI].

[VT-UTF8] is the preferred terminal type for out-of-band management. The next best choice is [VT100+] and them [VT100]. See above, in Console Redirection

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Settings page, for more help with Terminal Type/Emulation.

**Bits per second EMS**

Use this item to select serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.

Terminal Type EMS Set the default value to: [115200].

The optional settings: [9600]; [19200]; [57600]; [115200].

**Flow Control**

Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a “stop” signal can be sent to stop the data flow. Once the buffers are empty, a “start” signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.

Flow Control Set the default value to: [None].

The optional settings: [None]; [Hardware RTS/CTS]; [Software Xon/Xoff].

**Data Bits EMS**

The default setting is: [8].

*\*This item may or may not show up, depending on different configuration.*

**Parity EMS**

The default setting is: [None].

*\*This item may or may not show up, depending on different configuration.*

**Stop Bits EMS**

The default setting is: [1].

*\*This item may or may not show up, depending on different configuration*

▶ **PC Health Status**

Press [Enter] to view current hardware health status, make further settings in ‘**SmartFAN Configuration**’ and set value in ‘**Shutdown Temperature**’.

▶ **SmartFAN Configuration**

Press [Enter] to make settings for ‘**SmartFan Configuration**’:

**SmartFAN Configuration**

**CPUFAN Smart Mode**

CPUFAN Smart Mode Set the default value to: [Enabled].

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The optional settings: [Disabled]; [Enabled].

When set as **[Enabled]**, the following sub-items shall appear:

**CPUFAN Full-Speed Temperature**

Use this item to set CPUFAN full speed temperature. Fan will run at full speed when above this pre-set temperature.

CPUFAN Full-Speed Temperature Set the default value to: [75].

**CPUFAN Full-Speed Duty**

Use this item to set CPUFAN full-speed duty. Fan will run at full speed when above this pre-set duty.

CPUFAN Full-Speed Duty Set the default value to: [100].

**CPUFAN Idle-Speed Temperature**

Use this item to set CPUFAN idle speed temperature. Fan will run at idle speed when below this pre-set temperature.

CPUFAN Idle-Speed Temperature Set the default value to: [40].

**CPUFAN Idle-Speed Duty**

Use this item to set CPUFAN idle speed duty. Fan will run at idle speed when below this pre-set duty.

CPUFAN Idle-Speed Duty Set the default value to: [40].

▶ **USB Configuration**

Press [Enter] to make settings for the following sub-items:

**USB Configuration**

**XHCI Hand-off**

This is a workaround for OSES without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.

XHCI Hand-off Set the default value to: [Enabled].

The optional settings: [Enabled]; [Disabled].

**USB Mass Storage Driver Support**

Use this item to enable or disable USB mass storage driver support.

USB Mass Storage Driver Support Set the default value to: [Enabled].

The optional settings: [Disabled]; [Enabled].

**USB hardware delays and time-outs:**

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### **USB transfer time-out**

Use this item to set the time-out value for Control, Bulk, and Interrupt transfers.

USB transfer time-out Set the default value to: [20 sec].

The optional settings: [1 sec]; [5 sec]; [10 sec]; [20 sec].

### **Device Reset time-out**

Use this item to set USB mass storage device Start Unit command time-out.

Device Reset time-out Set the default value to: [20 sec].

The optional settings: [10 sec]; [20 sec]; [30 sec]; [40 sec].

### **Device Power-up delay**

Use this item to set maximum time the device will take before it properly reports itself to the host controller. 'Auto' uses default value: for a root port it is 100 ms, for a hub port the delay is taken from hub descriptor.

Device Power-up delay Set the default value to: [Auto].

The optional settings: [Auto]; [Manual].

When set as [Manual], user can make further settings in the following items:

### **Device Power-up Delay in Seconds**

Use this item to delay range is 1..40 seconds, in one second increments

Device Power-up Delay in Seconds Set the default value to: [5].

## ▶ **Network Stack Configuration**

Press [Enter] to go to '**Network Stack**' screen to make further settings.

### **Network Stack**

Use this item to enable or disable UEFI Network Stack.

Network Stack Set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

When set as [**Enabled**], the following sub-items shall appear:

### **IPv4 PXE Support**

Use this item to enable IPv4 PXE boot support. When set as [Disabled], IPv4 boot support will not be available.

IPv4 PXE Support Set the default value to: [Enabled].

The optional settings: [Disabled]; [Enabled].

### **IPv6 PXE Support**

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Use this item to enable IPv6 PXE boot support. When set as [Disabled], IPv6 boot support will not be available.

IPv6 PXE Support Set the default value to: [Disabled].

The optional settings: [Disabled]; [Enabled].

#### **PXE Boot Wait Time**

Use this item to set wait time to press [ESC] key to abort the PXE boot.

Use either [+] / [-] or numeric keys to set the value.

PXE Boot Wait Time Set the default value to: 5

#### **Media Detect Count**

Use this item to set number of times presence of media will be checked.

Use either [+] / [-] or numeric keys to set the value.

Media Detect Count Set the default value to: 5

#### ▶ **NVMe Configuration**

Press [Enter] to view current NVMe Configuration.

*\*Note: options only when NVMe device is available.*

#### ▶ **Wake-up Function Settings**

Press [Enter] to make settings for the following sub-items:

##### **Wake-up System With Fixed Time**

Use this item to enable or disable System wake on alarm event.

Wake-up System With Fixed Time Set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

When set as **[Enabled]**, the following items shall appear:

##### **Wake-up Hour**

Use this item to select 0-23. For example enter 3 for 3am and 15 for 3pm.

Wake-up Hour Set the default value to: [0].

##### **Wake-up Minute**

Use this item to select 0-59.

Wake-up Minute Set the default value to: [0].

##### **Wake-up Second**

Use this item to select 0-59.

Wake-up Second Set the default value to: [0].



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### Wake-up System with Dynamic Time

Use this item to enable or disable System wake on alarm event.

System will wake on the current time + Increase minute(s).

Wake-up System with Dynamic Time Set the default value to: [Disabled]

The optional settings: [Disabled]; [Enabled].

When set as [Enabled], user can make further settings in the following items:

#### Wake-up Time Increase

Use this item to 1 to 60 minute(s)

Wake-up Time Increase Set the default value to: [1].

#### PS2 KB/MS Wake-up from S3-S5

Use this item to PS2 KB/MS Wake-up is affected by ERP function in S4-S5, Please disable ERP before activating this function in S4-S5.

PS2 KB/MS Wake-up from S3-S5 Set the default value to: [Disabled].

The optional settings: [Disabled]; [Enabled].

#### USB Power Gating S4-S5

Use this item to USB Wake-up is affected by ERP function is S4. Please disable ERP before activating this function in S4.

USB Power Gating S4-S5 Set the default value to: [Enabled].

The optional settings: [Disabled]; [Enabled].

#### PCIE Wake-up from S3-S5

PCIE Wake-up from S3-S5 Set the default value to: [Disabled].

The optional settings: [Disabled]; [Enabled].

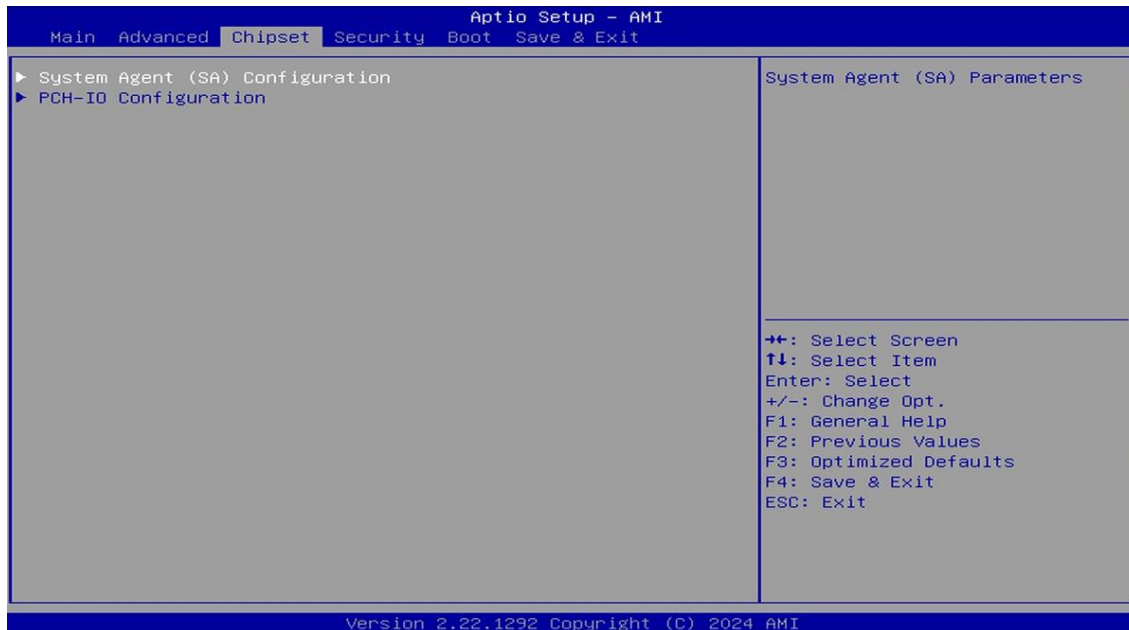
### ▶ PTT Configuration

#### TPM Device Selection

TPM Device Selection Set the default value to: [dTPM]

**\*Note:** *'TPM Mode' is only available to optional models (dTPM for JNUC-ADN1-N97002/JNUC-ADN1-N97008 ; PTT for JNUC-ADN1-N97000/JNUC-ADN1-N97004)*

## 3-8 Chipset Menu



▶ **System Agent (SA) Configuration**

Press [Enter] to make settings for the following sub-items:

**System Agent (SA) Configuration**

**GTT Size**

Use this item to select the GTT Size.

GTT Size Set the default value to: [8MB] .

The optional settings: [2MB]; [4MB]; [8MB].

**DVMT Pre-Allocated**

Use this item to select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.

DVMT Pre-Allocated Set the default value to: [128M].

The optional settings: [0M]; [32M]; [64M]; [96M]; [128M]; [160M]; [4M]; [8M]; [12M]; [16M]; [20M]; [24M]; [28M]; [32M/F7]; [36M]; [40M]; [44M]; [48M]; [52M]; [56M] ; [60M].

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### **Maximum Memory Frequency**

Use this item to Maximum Memory Frequency selections in Mhz.

Maximum Memory Frequency Set the default value to: [Auto].

The optional settings: [Auto]; [2133]; [2200]; [2400]; [2600]; [2667]; [2800]; [2933]; [3000]; [3200].

#### ▶ **PCH-IO Configuration**

Press [Enter] to make settings for the following sub-items:

##### **PCH-IO Configuration**

#### ▶ **SATA Configuration**

Press [Enter] to make settings for the following sub-items:

##### **SATA Controller(s)**

Use this item to enable or disable SATA device.

SATA Controller Set the default value to: [Enabled].

The optional settings: [Disabled]; [Enabled].

When set as **[Enabled]**, the following sub-items shall appear:

##### **SATA Mode Selection**

SATA Controller Set the default value to: [AHCI].

This item determines how SATA controller(s) operate.

The optional settings: [AHCI].

##### **M.2**

##### **Port**

##### **Port**

Port Set the default value to: [Enabled].

The optional settings: [Disabled]; [Enabled].

##### **SATA Port**

##### **Port**

Port Set the default value to: [Enabled].

The optional settings: [Disabled]; [Enabled].

##### **HD-Audio Support**

HD-Audio Support Set the default value to: [Enabled].

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The optional settings: [Disabled]; [Enabled].

### **eMMC Controller**

eMMC Controller Set the default value to: [Enabled].

**\*Note:** 'eMMC mode' is only applicable to specific models (64GB For JNUC-ADN1-N97004/JNUC-ADN1-N97008 ).

The optional settings: [Disabled]; [Enabled].

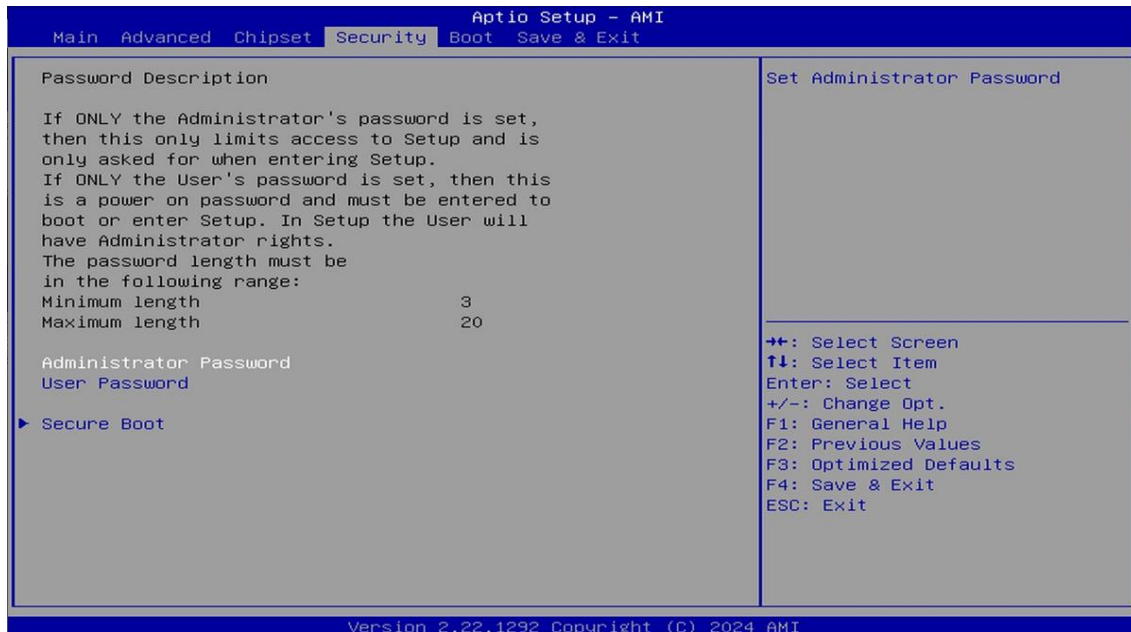
### **System State after Power Failure**

Use this item to specify what state to go to when power is re-applied after a power failure.

System State after Power Failure Set the default value to: [Always off].

The optional settings: [Always On]; [Always off]; [Former State].

## **3-9 Security Menu**



Security menu allow users to change administrator password and user password

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settings.

### **Administrator Password**

If there is no password present on system, please press [Enter] to create new administrator password. If password is present on system, please press [Enter] to verify old password then to clear/change password. Press again to confirm the new administrator password.

### **User Password**

If there is no password present on system, please press [Enter] to create new user password. If password is present on system, please press [Enter] to verify old password then to clear/change password. Press again to confirm the new administrator password.

### ▶ **Secure Boot**

Press [Enter] to make customized secure settings:

#### **System Mode**

##### **Secure Boot**

Secure Boot feature is active if secure boot is enabled, Platform Key(PK) is enrolled and the system is in user mode. The mode change requires platform reset.

Secure Boot Set the default value to: [Enabled].

The optional settings are: [Disabled]; [Enabled].

##### **Secure Boot Mode**

Use this item to Secure Boot mode to Standard mode or Custom mode. This change is effective after save. After reset, this mode will return to Standard mode. In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication.

Secure Boot Mode Set the default value to: [Standard].

The optional settings: [Standard]; [Custom].

When set as [**Custom**], user can make further settings in the following items that show up:

##### **Restore Factory Keys**

This item force system to user mode. Install factory default secure boot key

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databases.

### **Reset to Setup Mode**

#### **Key Management**

Press [Enter] to make settings for the following sub-items:

#### **Vendor Keys**

##### **Factory Key Provision**

This item install factory default Secure Boot keys after the platform reset and while the system is in setup mode.

Factory Key Provision Set the default value to: [Disabled].

The optional settings are: [Disabled]; [Enabled].

##### ▶ **Restore Factory Keys**

Use this item to force system to User Mode, to install factory default Secure Boot key databases.

##### ▶ **Reset To Setup Mode**

Use this item to delete all Secure Boot Key databases from NVRAM.

##### ▶ **Export Secure Boot variables**

Use this item to copy NVRAM content of Secure Boot variables to files in a root folder on a file system device.

##### ▶ **Enroll Efi Image**

This item allows the image to run in Secure Boot Mode.

Enroll SHA256 Hash certificate of a PE image into Authorized Signature Database (db).

#### **Device Guard Ready**

##### ▶ **Remove 'UEFI CA' from DB**

Device Guard ready system must not list 'Microsoft EFI CA' Certificate in Authorized Signature database (db).

##### ▶ **Restore DB defaults**

Use this item to restore DB variable to factory defaults.

#### **Secure Boot Variable/Size/Keys/Key Source**

##### ▶ **Platform Key (PK)/Key Exchange Keys/Authorized Signature/Forbidden**

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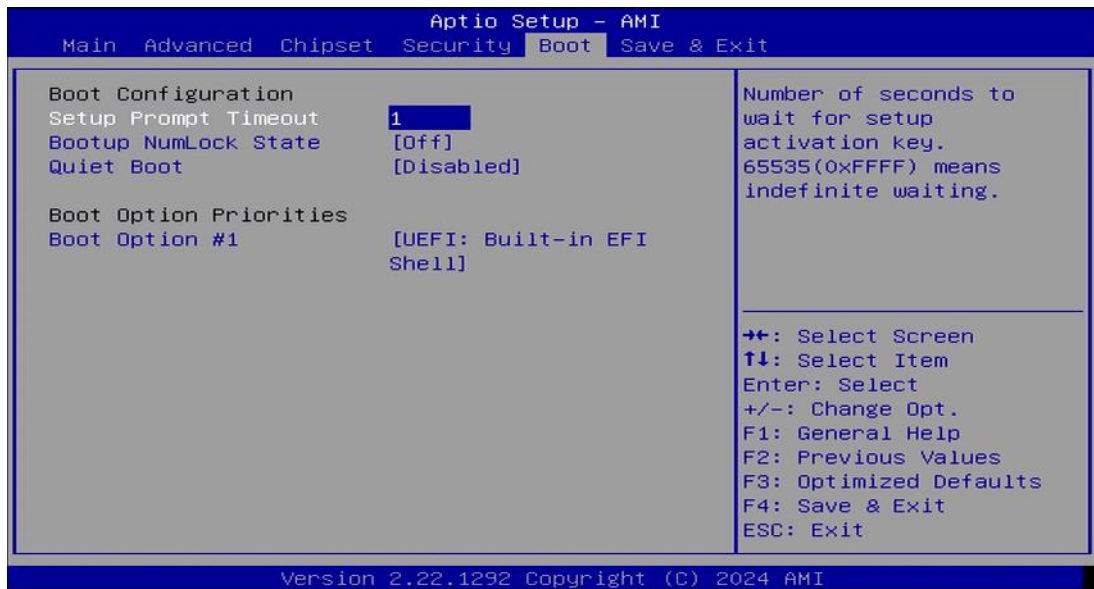
## Signature/ Authorized TimeStamps/OS Recovery Signatures

Use this item to enroll Factory Defaults or load the keys from a file with:

1. Public Key Certificate in:
  - a) EFI\_SIGNATURE\_LIST
  - b) EFI\_CERT\_X509 (DER)
  - c) EFI\_CERT\_RSA2048 (bin)
  - d) EFI\_CERT\_SHAXXX
2. Authenticated UEFI Variable
3. EFI PE/COFF Image (SHA256)

Key Source: Factory, External, Mixed.

## 3-10 Boot Menu



### Boot Configuration

#### Setup Prompt Timeout

Use this item to set number of seconds to wait for setup activation key.

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65535(0Xffff) means indefinite waiting  
Setup Prompt Timeout Set the default value to: [1].

**Bootup Numlock State**

Use this item to select keyboard numlock state.  
Bootup Numlock State Set the default value to: [Off].  
The optional settings are: [On]; [Off].

**Quiet Boot**

Quiet Boot Set the default value to: [Disabled].  
The optional settings are: [Disabled]; [Enabled].

**Boot Option Priorities**

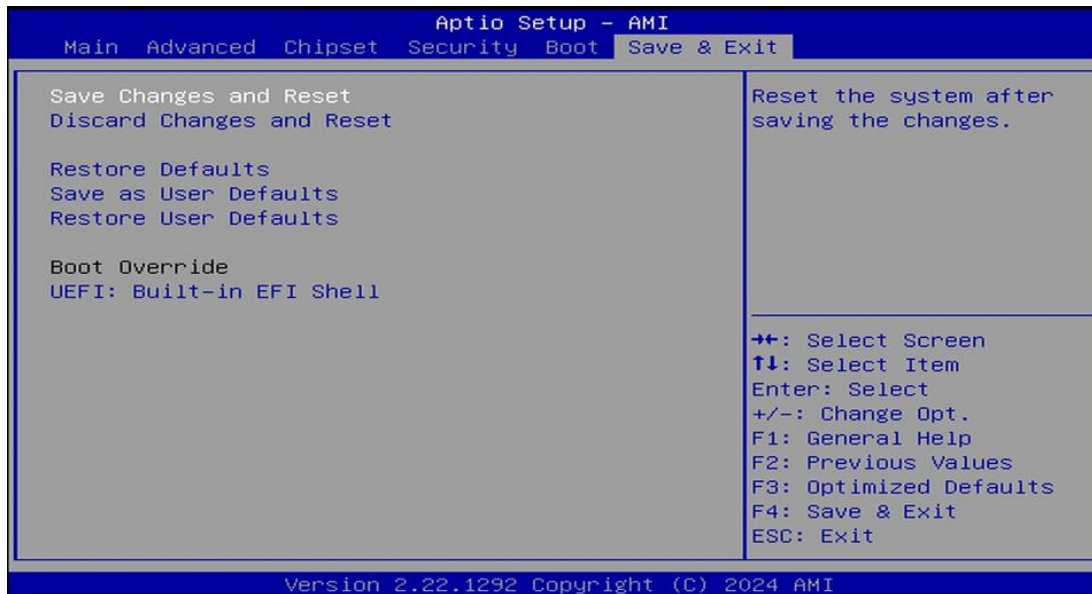
**Boot Option #1**

Boot Option #1 Set the default value to: [UEFI: Built-in EFI Shell]  
The optional settings are: [UEFI: Built-in EFI Shell]; [Disabled].

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## 3-11 Save & Exit Menu





### **Save Changes and Reset**

This item allows user to reset the system after saving the changes.

### **Discard Changes and Reset**

This item allows user to reset the system without saving any changes.

### **Restore Defaults**

Use this item to restore /load default values for all the setup options.

### **Save as User Defaults**

Use this item to save the changes done so far as user defaults.

### **Restore User Defaults**

Use this item to restore defaults to all the setup options.

### **Boot Override**

### **UEFI: Built-in EFI Shell**