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LPC-2Tx Series P-cap Panel PC With 11th Gen., Core-i7/5/3 User Manual

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Revision : V0.1

Warning!

This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instruction's manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Electric Shock Hazard – Do not operate the machine with its back cover removed. There are dangerous high voltages inside.

Disclaimer

This information in this document is subject to change without notice. In no event shall ELGENS Co., Ltd. be liable for damages of any kind, whether incidental or consequential, arising from either the use or misuse of information in this document or in any related materials.

Packing List

Accessories (as ticked) included in this package are:
☐ Panel Mounting Kits
☐ 3 Pin Male Terminal Block
☐ Optional Adapter
☐ Other._____(please specify)

Safety Precautions

Follow the messages below to avoid your systems from damage:

- Avoid your system from static electricity on all occasions.
- Prevent electric shock. Don't touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.
- Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

Table of Contents

Chapter 1 Getting Started

1.1 Brief Description of LPC P-cap Series

The LPC P-cap 2Tx series is a power-optimized and delivers robust performance-per-watt for embedded HMI, powered by an Intel 11th Gen., TigerLake-UP3 Core-i7/i5/i3 processors. It comes with a Bezel-Free design, M.2(NVME) slot and a SATA 2.5-inch lockable HDD tray, up to 64GB DDR4 memory, audio jack, 2 Ethernet, and 4 USB 3.2 ports. The unit supports Windows 10 / Windows 11 operation system.

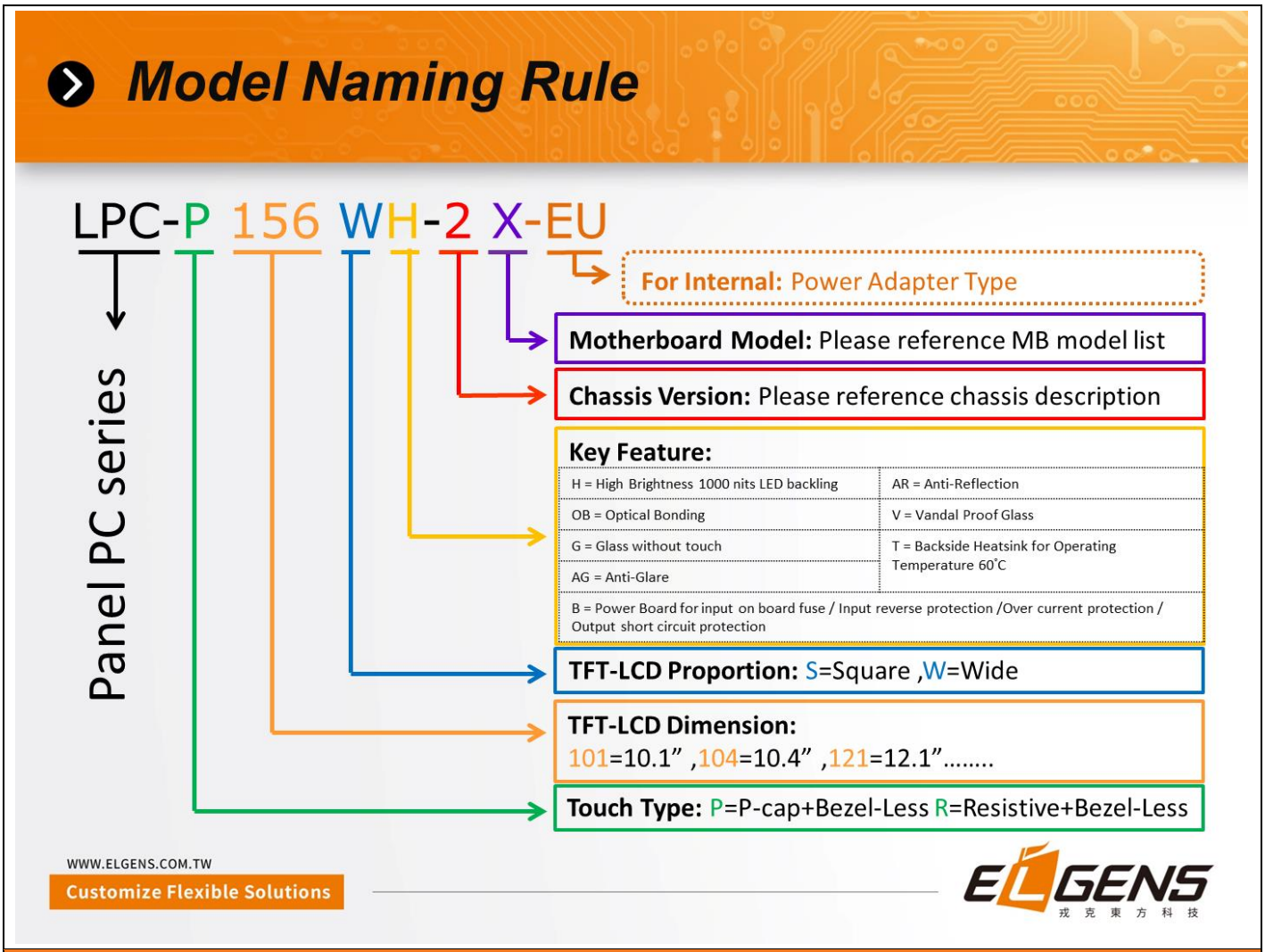
The Elgens' fanless touch panel computer is ideal for use as Web Browser, Terminal, HMI at all levels of automation control or a high-performance system that working on rash environment.

1.2 System Specifications

Model Number	LPC-P150S-2Tx	LPC-P156W-2Tx	LPC-P170S-2Tx	LPC-P185W-2Tx
Max Resolution	1024*768	1920*1080	1280*1024	1920*1080
Color	16.2M	16.2M	16.7M	16.7M
Luminance	350 nits	450 nits	350 nits	350 nits
View Angle (H/V)	160/140	170/170	160/140	178/178
Contrast Ratio	700	800	800	1000
Computing				
Processor	Intel® TGL-UP3 i7-1185G7E/i5-1145G7E/i3-1115G4E Processors			
System Memory	2 x DDR4 SO-DIMM, up to 64GB			
Storage	1 x 2.5" Storage Bay 1 x M.2 M-key (NVME) 2280 Socket			
External I/O Port	4 x USB 3.2 Gen2 Ports 2 x RJ45 GbE LAN (Intel® I225-LM supports 2.5GbE LAN) 1 x Display Port 1 x HDMI 4 x RS-232/422/485 1 x Audio out 1 x Power press button 1 x 3-Pin Power Input			
Expansion Slots	1 x M.2 B-key 2242/3042 (SATA 3.0, PCIe x1, USB 2.0) 1 x M.2 E-key 2230 (PCIe x1, USB 2.0)			
OS support	Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2) Windows 11 IoT Enterprise (64-bit, 21H2, Pre-scan) Linux Ubuntu 22.04 (64-bit, by request)			

	Linux Yocto Project 3.1 (64-bit, by request)
Touch Screen	
Type	USB P-cap Touch
Light Transmission	90%
Power Supply	
Power Input	■ DC12~24V Wide Range Power Input ■ 3-Pin Terminal Block
Mechanical	
Construction	Aluminum Heatsink for 35W
IP Rating	Front Panel compliant IP65
Mounting	Panel/VESA
Environmental	
Operating Temperature	-40~70 °C
Storage Temperature	-40~70 °C
Storage Humidity	10~90% @40 °C non-condensing

1.3 Naming Rule

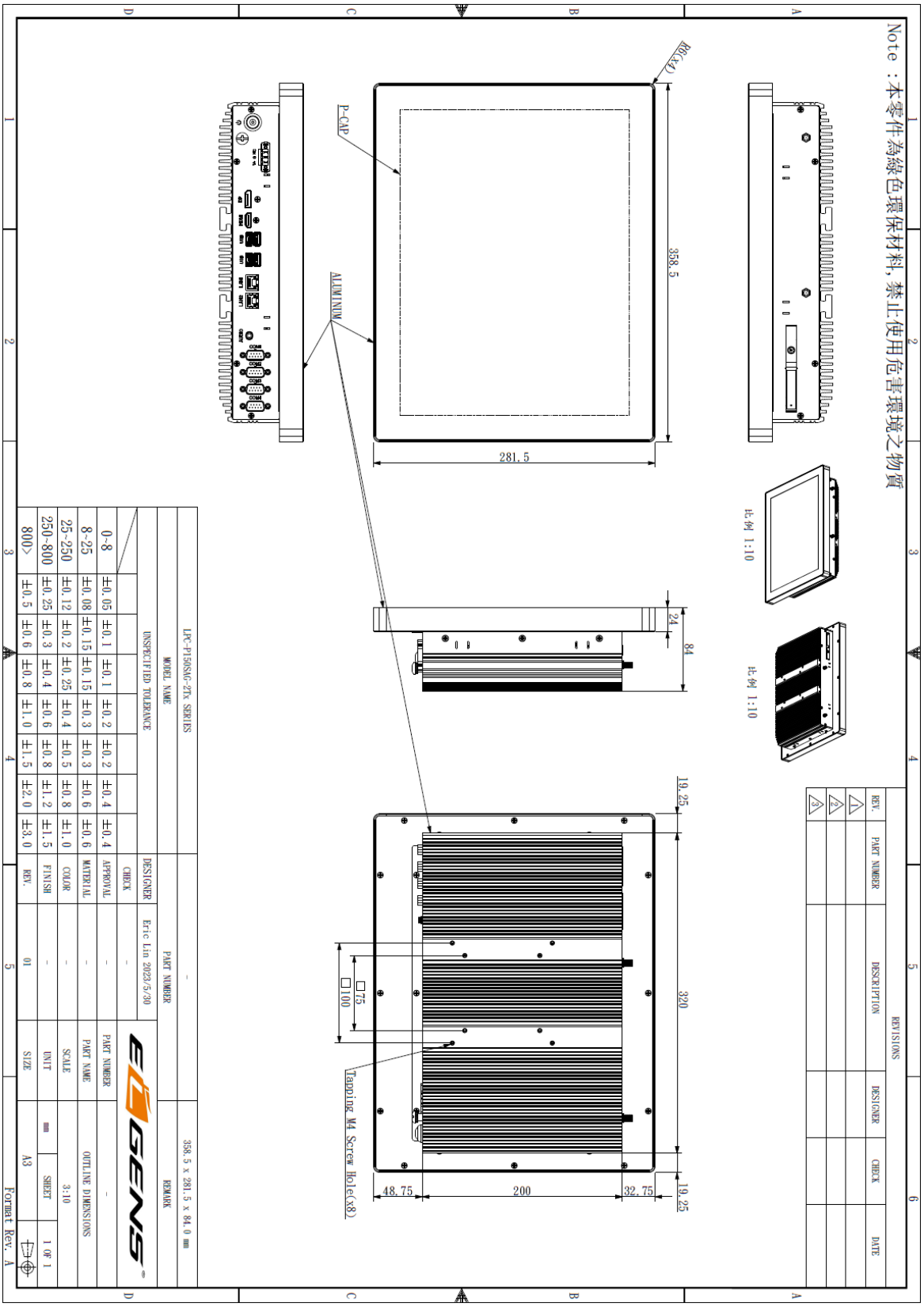


Order Information	
LPC-Pxxxx-**2T3**	Bezel-Free P-cap Panel PC, Intel® Tigerlake-UP3 Core™ i3-1115G4E, IP65 Aluminum Front Bezel, AG, Removable 2.5" HDD/SSD Tray, DC 12~24V Power Input, -40~70°C
LPC-Pxxxx-**2T5**	Bezel-Free P-cap Panel PC, Intel® Tigerlake-UP3 Core™ i5-1145G7E, IP65 Aluminum Front Bezel, AG, Removable 2.5" HDD/SSD Tray, DC 12~24V Power Input, -40~70°C
LPC-Pxxxx-**2T7**	Bezel-Free P-cap Panel PC, Intel® Tigerlake-UP3 Core™ i7-1185G7E, IP65 Aluminum Front Bezel, AG, Removable 2.5" HDD/SSD Tray, DC 12~24V Power Input, -40~70°C
WFK-524M2	M.2 Wi-Fi kits w/ cable & Antenna (2.4 & 5GHz, 802.11 a/b/g/n/ac + BT, 2T2R)

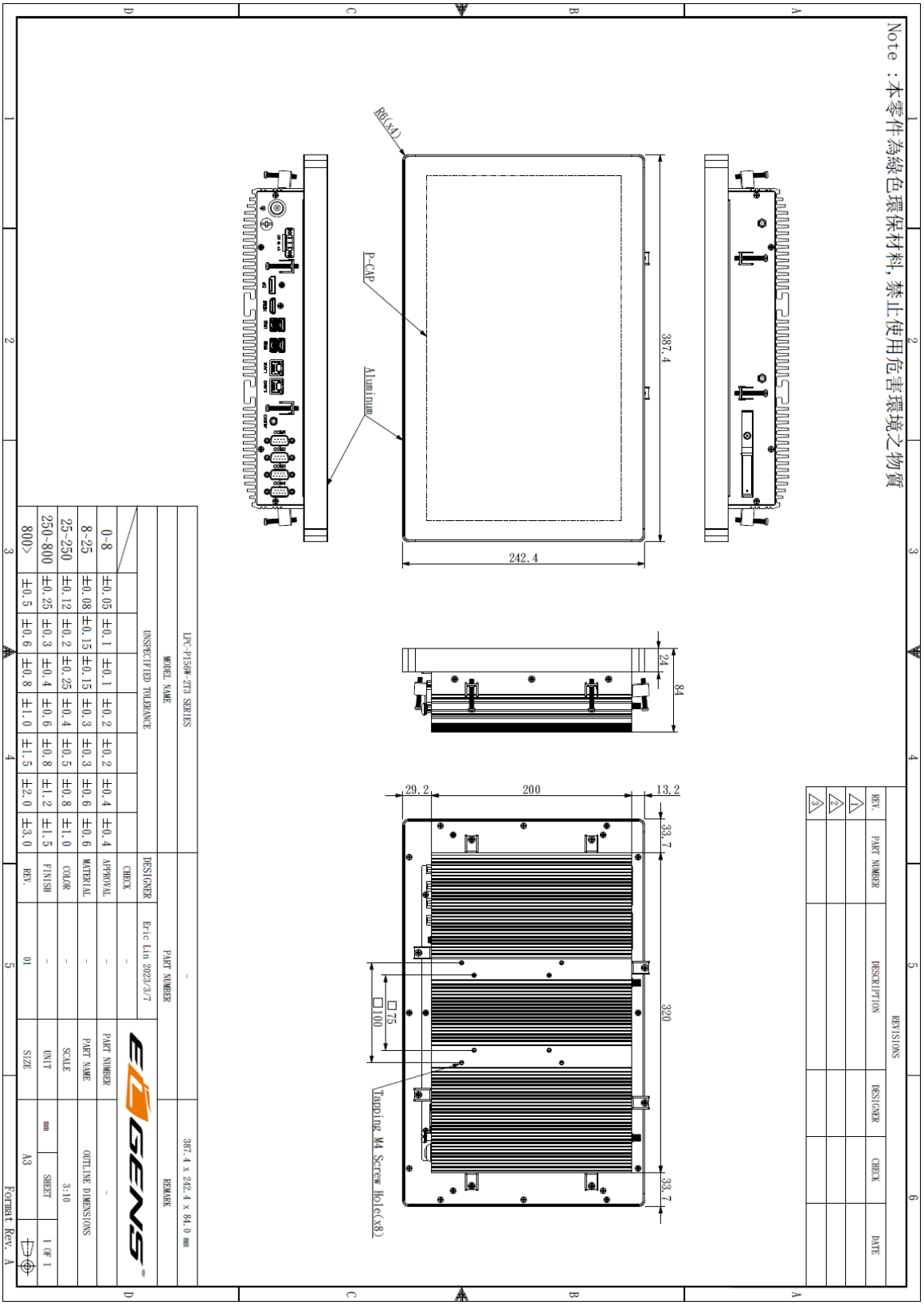
Order Code	
LPC-PxxxS/W	-H / -OB / -AG / -AR / -B / -V
P = P-Cap touch	
B = Glass without touch	
xxx = size, For example, 10.1” = 101	
S = Dimension Ratio Square = 4:3 or 5:4	
W= Dimension Ration Wide = 16:9 or 16:10	
H = High Brightness 1000 nits LED backlight (Optional, up to 1600 nits backlight)	
OB = Optical Bonding (Optional)	
AG = Anti-Glare (Optional)	
AR = Anti-Reflection (Optional)	
V = Vandal Proof Glass (Optional)	

1.4 Dimension

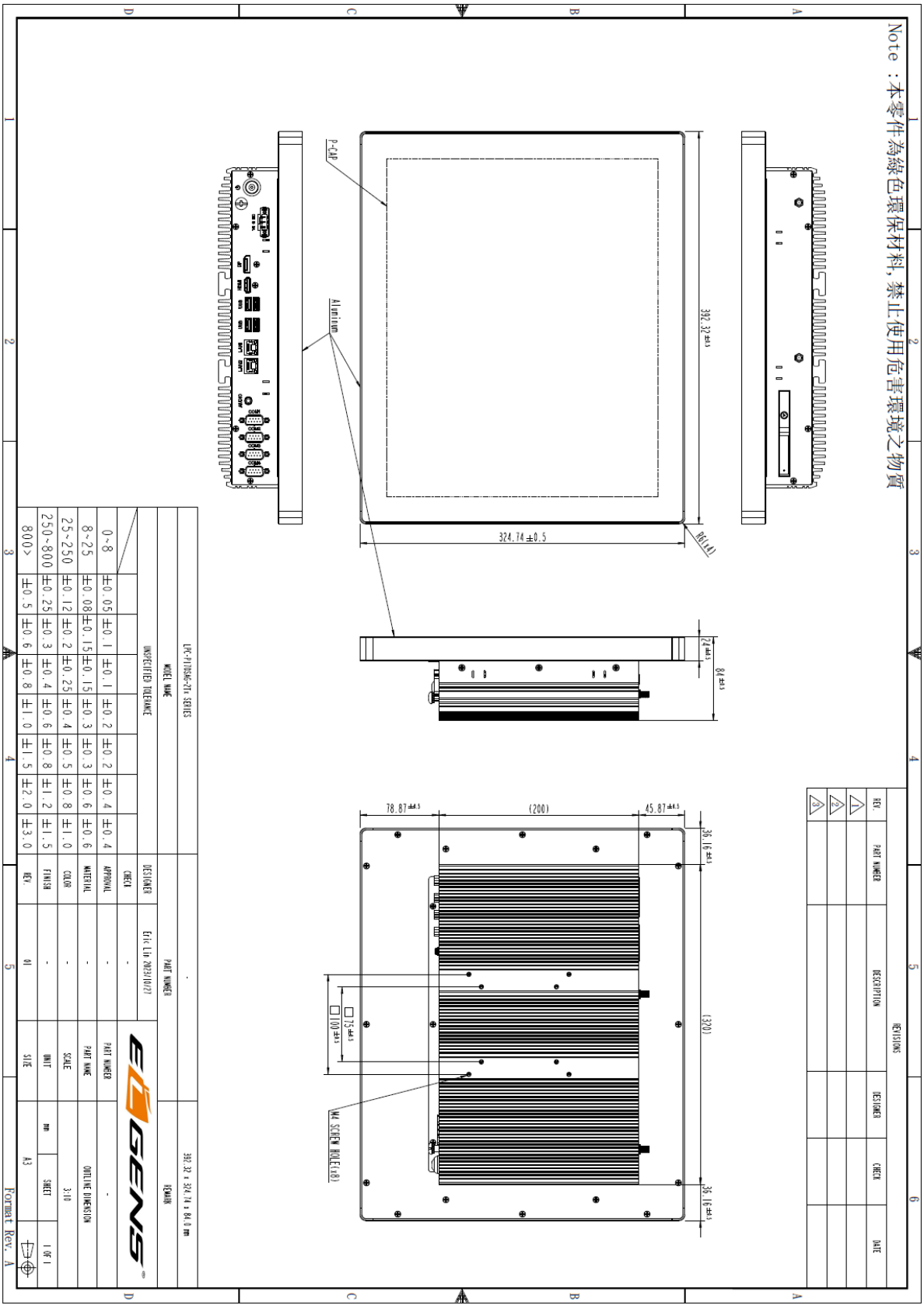
LPC-P150S-2Tx Drawing



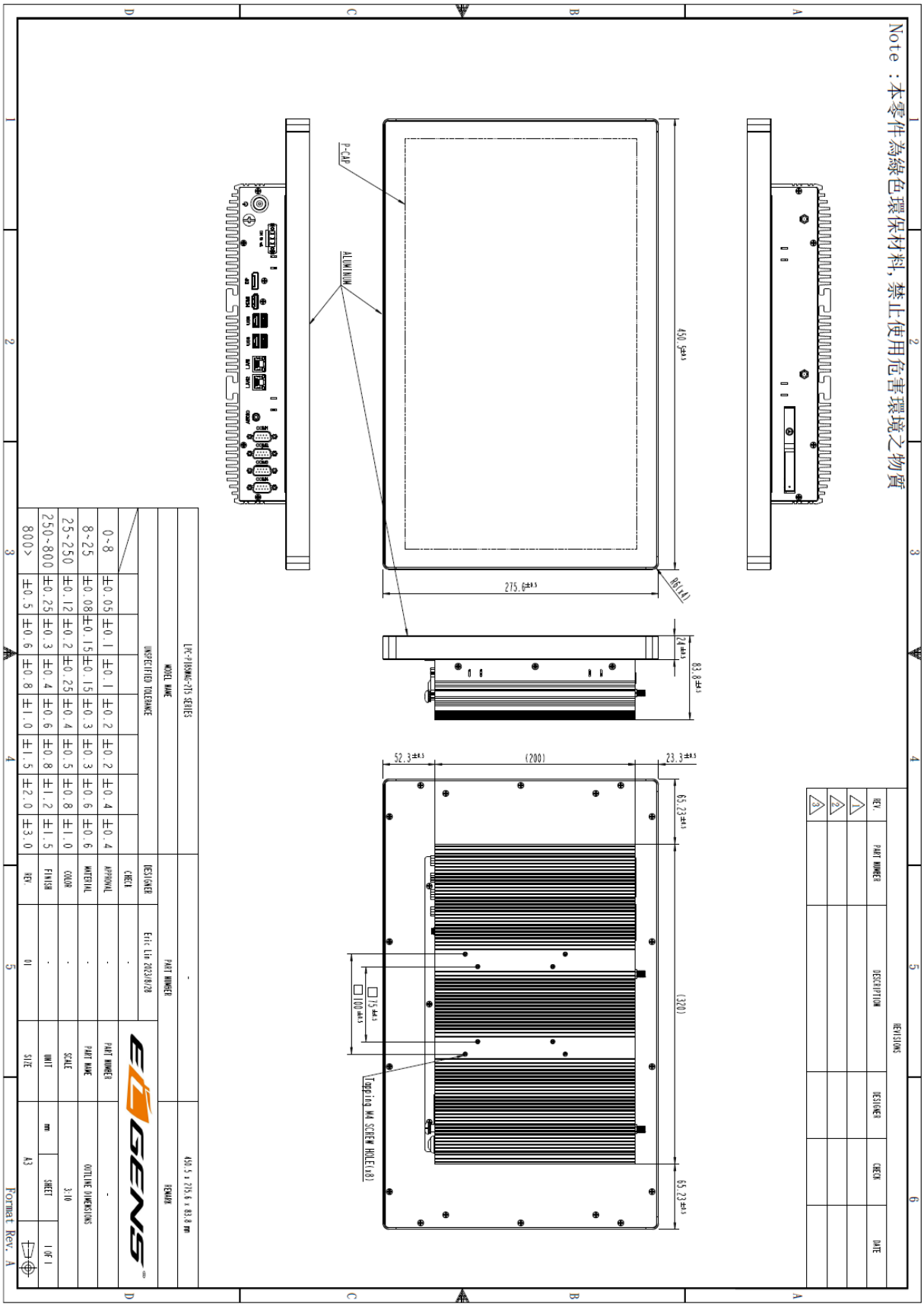
LPC-P156W-2Tx Drawing



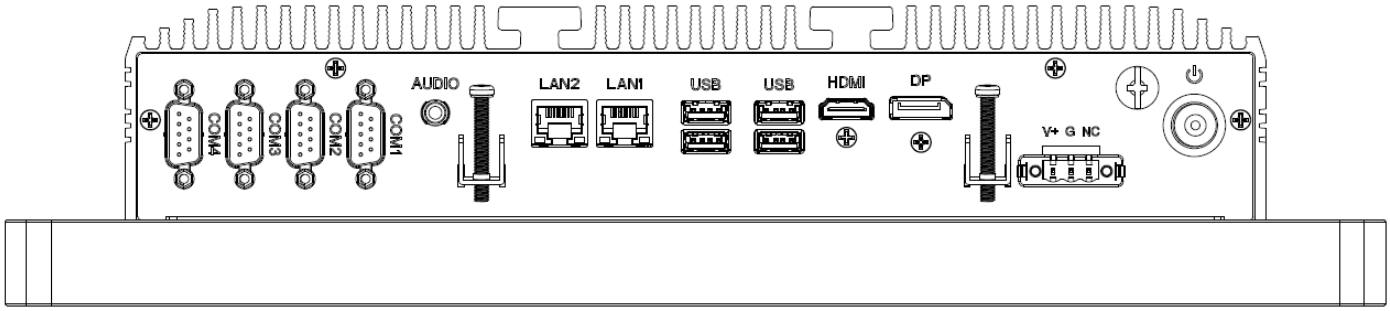
LPC-P170S-2Tx Drawing



LPC-P185W-2Tx Drawing



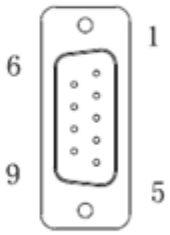
1.5 General Rear IO Placement



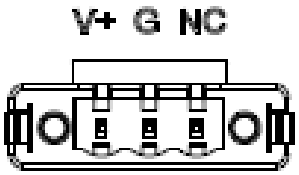
The default setting of COM ports is RS-232 as below pin definition, adjustable to RS-RS422/485 by BIOS.

Pin No	Color	RS-232	RS-422	RS-485
1	Brown	DCD	422 TXD-	485 TXD-
2	Red	SIN	422 TXD+	485 TXD+
3	Orange	SOUT	422 RXD+	NC
4	Yellow	DTR	422 RXD-	NC
5	Black	GND	GND	GND
6	Green	DSR	NC	NC
7	Blue	RTS	NC	NC
8	Purple	CTS	NC	NC
9	Grey	VCC	VCC	VCC

COM 1



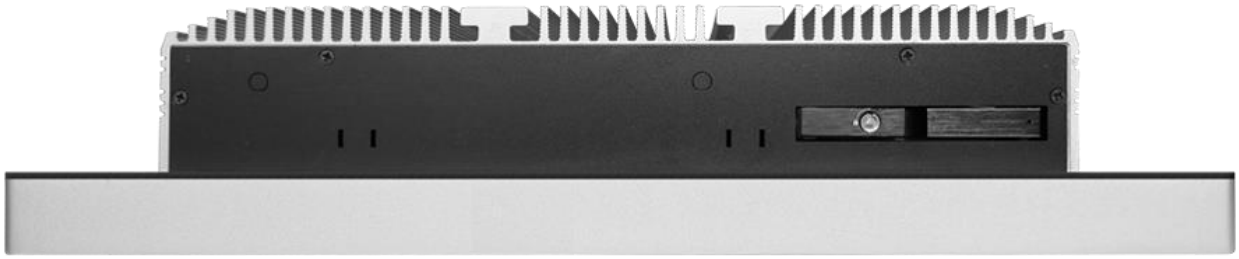
Power input terminal block pin definition is as below.



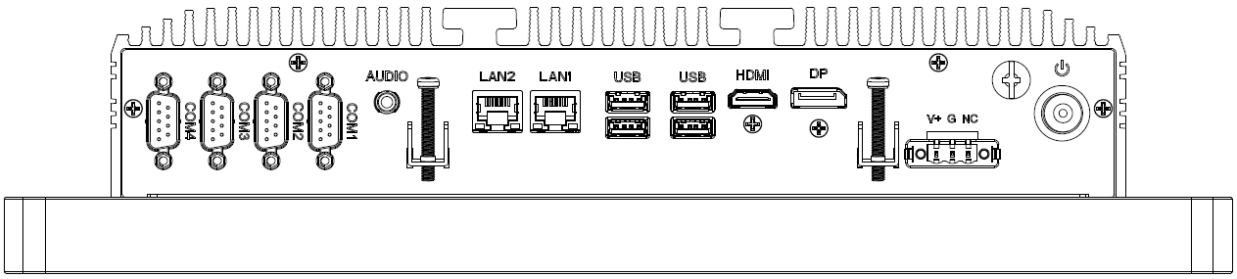
1.6 Front View of LPC- 2Tx Series

1.7 Rear View of LPC- 2Tx Series

1.8 Top / Bottom IO View



Top IO



Bottom IO

1.9 Installation of HDD

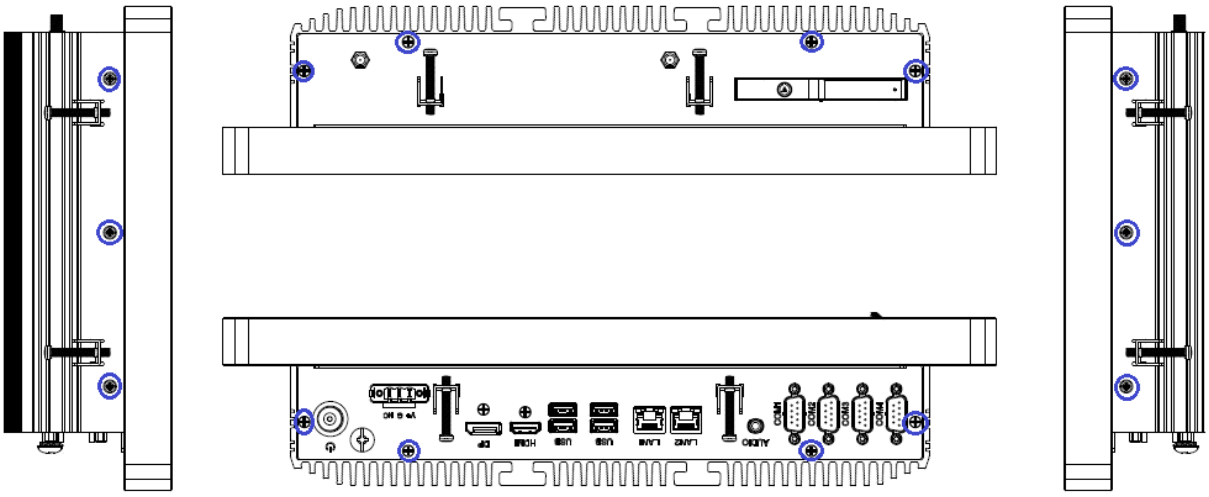
Chapter 2 Installation

The LPC 2Tx series is a panel pc with 3.5” motherboard. Before you install the accessories on motherboard, study the installation guide to ensure that the accessories be secured.

2.1 Remove Heatsink

The heatsink cover is secured onto the chassis with 18 M3*5 zinc-coated screws located at 4 sides. Use a Phillips screwdriver to unscrew them.

Step 1. Loosen screws as below picture



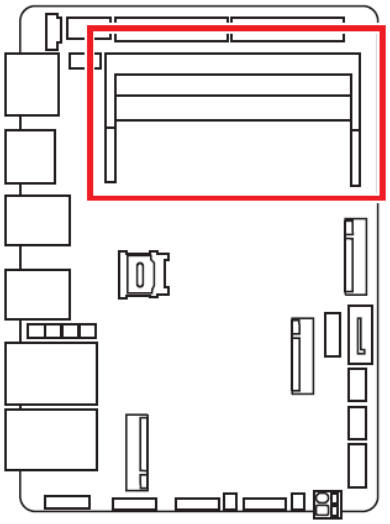
Step 2. You can access internal accessories while you pull-up the heatsink.

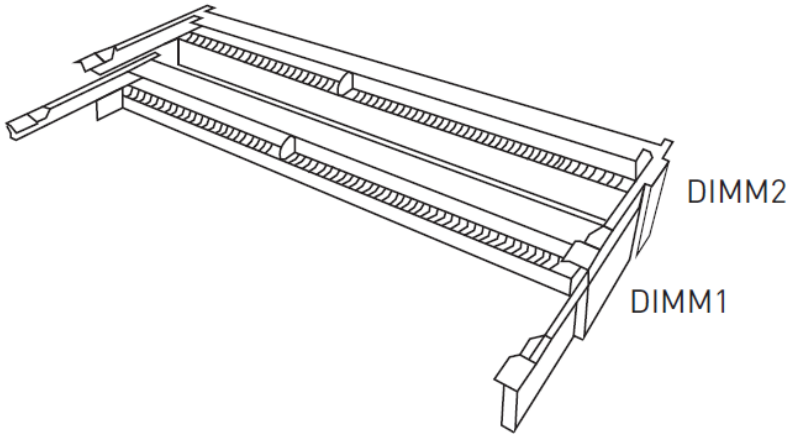
1. Remove all power source before you start to remove heatsink.
2. It is easy to cause damage after the heatsink been removed. Please be carefully do not drop tools and/or parts on it while heatsink had removed.
3. Make sure all parts and screws are secured before you cover up.

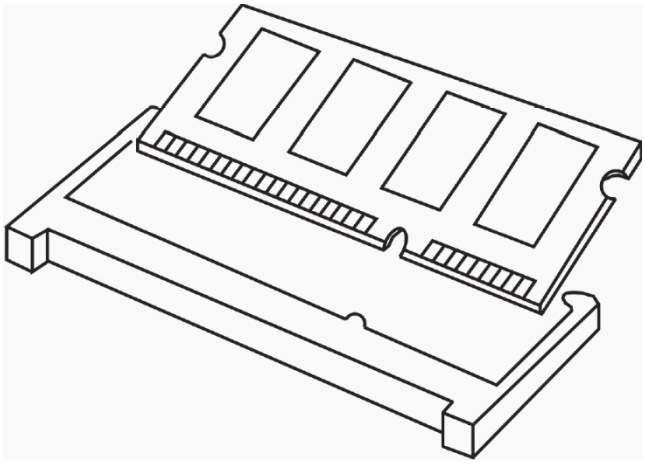
2.2 Install DRAM Modules

Step 1. Following CH2.1 to remove heatsink.

Step 2. Align a SO-DIMM on the slot such that the notch on the SO-DIMM matches the break on the slot.



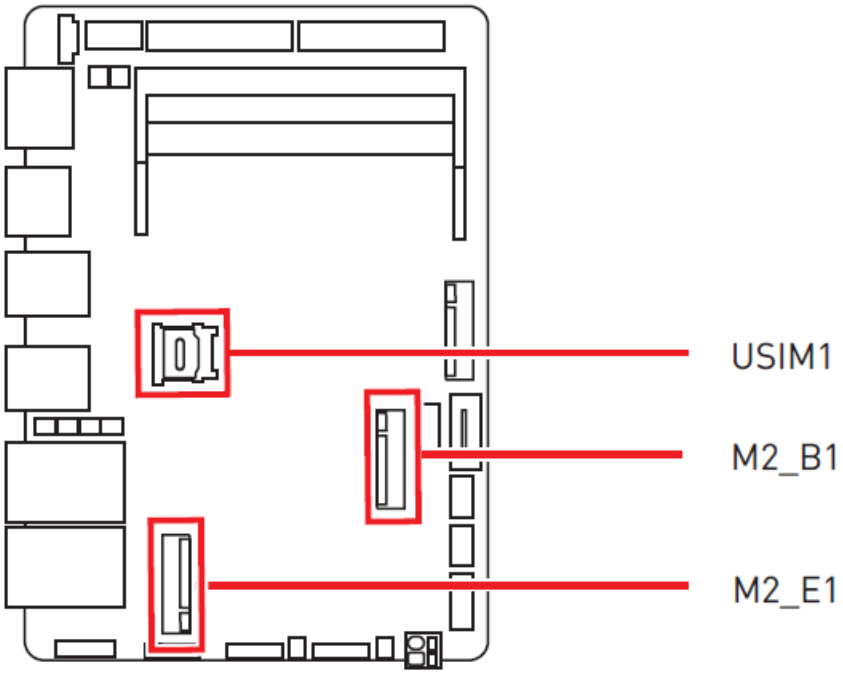




1. Always insert memory modules in the DIMM1 slot first.
2. The SO-DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the SO-DIMM if you force the SO-DIMM into the slot at incorrect orientation.
3. Please do not intermix different voltage SO-DIMMs on this motherboard.

Step 3. Firmly insert the SO-DIMM into the slot until the retaining clips at both ends fully snap back in place and the SO-DIMM is properly seated.

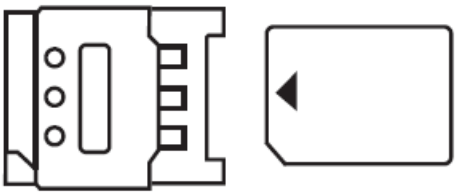
2.3 Install Nano SIM Card



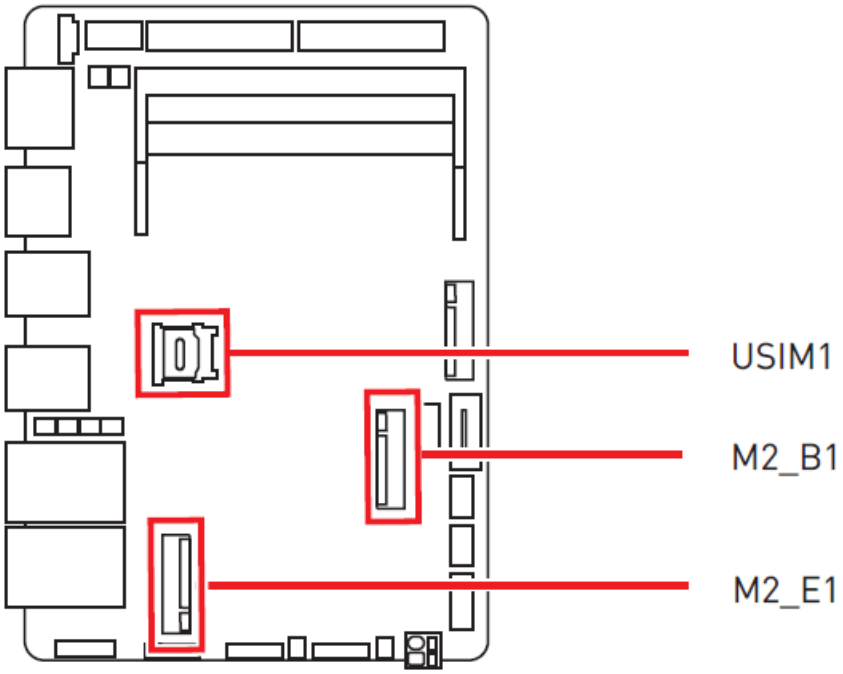
Step 1. Following CH2.1 to remove heatsink.

Step 2. Install USIM1-Nano SIM Holder.

This holder is provided for 3G, 4G, LTE, 5G Nano SIM cards.



2.4 Install M.2 Expansion Modules

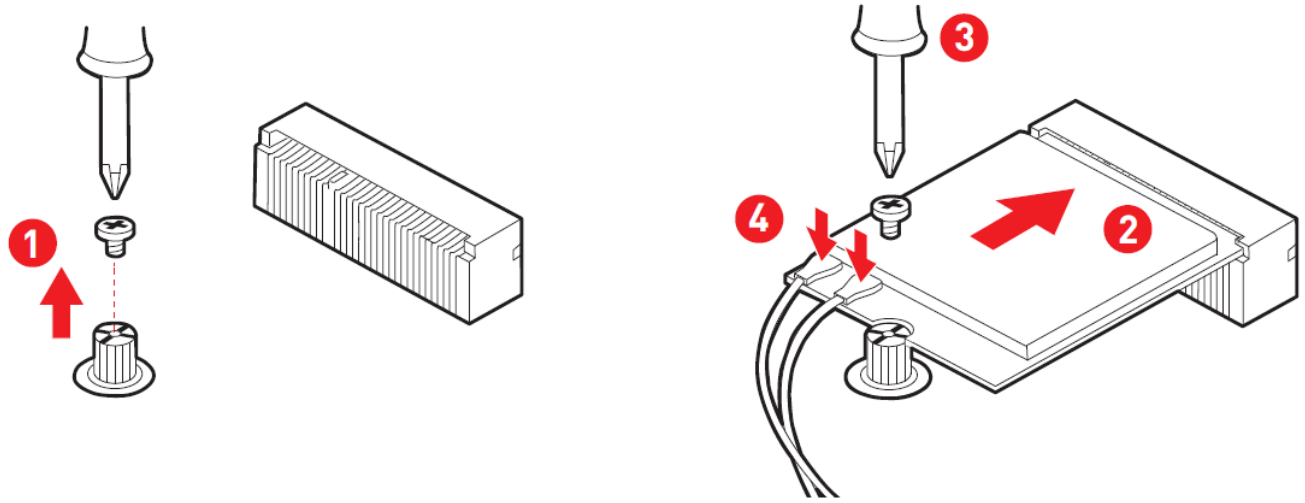


Step 1. Following CH2.1 to remove heatsink.

Step 2. Install M.2 expansion modules.

Please install the Wi-Fi/ Bluetooth card into the M2_E1 M.2 slot.

Please install the WWAN Card/ solid-state drive (SATA SSD) into the M2_B1 M.2 slot.

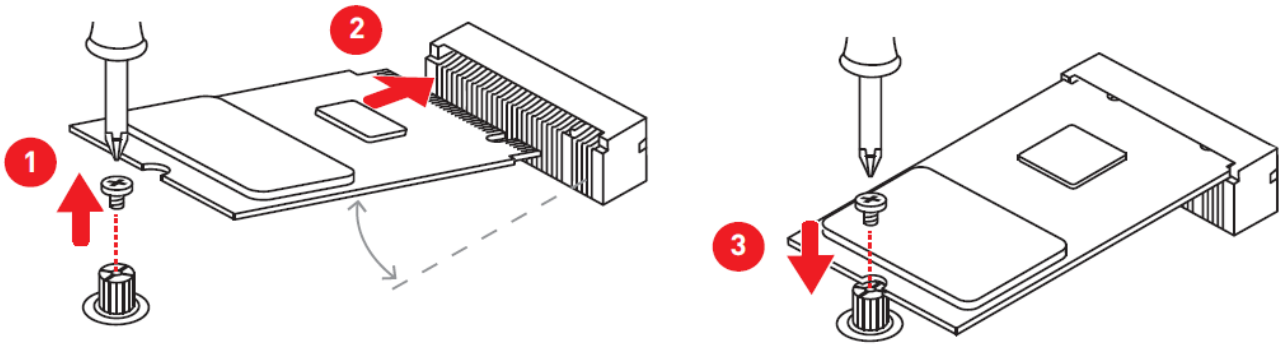


1. M2_E1 slot supports PCIe x 1 & USB 2.0 signal.
2. M2_B1 slot supports PCIe x 1, SATA 3.0, USB 2.0 signal.

2.5 Install M.2 NVME SSD

Step 1. Following CH2.1 to remove heatsink.

Step 2. Please install the M.2 solid-state drive (NVME SSD) into the M.2 slot as shown below.



1. Supports PCIe Gen 4 x4 NVME signal.

Chapter 3 BIOS Setup

This chapter provides information on the BIOS Setup program and allows users to configure the system for optimal use.

Users may need to run the Setup program when:

- An error message appears on the screen at system startup and requests users to run SETUP.
- Users want to change the default settings for customized features.

Important

- Please note that BIOS update assumes technician-level experience.
- As the system BIOS is under continuous update for better system performance, the illustrations in this chapter should be held for reference only.

3.1 Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <DEL> or <F2> key to enter Setup.

Press <DEL> or <F2> to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

Important

The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.

Control Keys

← →	Select Screen
↑ ↓	Select Item
Enter	Select
+ -	Change Value
Esc	Exit
F1	General Help
F7	Previous Values
F9	Optimized Defaults
F10	Save & Reset*
F12	Screenshot capture
<K>	Scroll help area upwards
<M>	Scroll help area downwards

Getting Help

After entering the Setup menu, the first menu you will see is the Main Menu.

Main Menu

The main menu lists the setup functions you can make changes to. You can use the arrow keys (↑↓) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

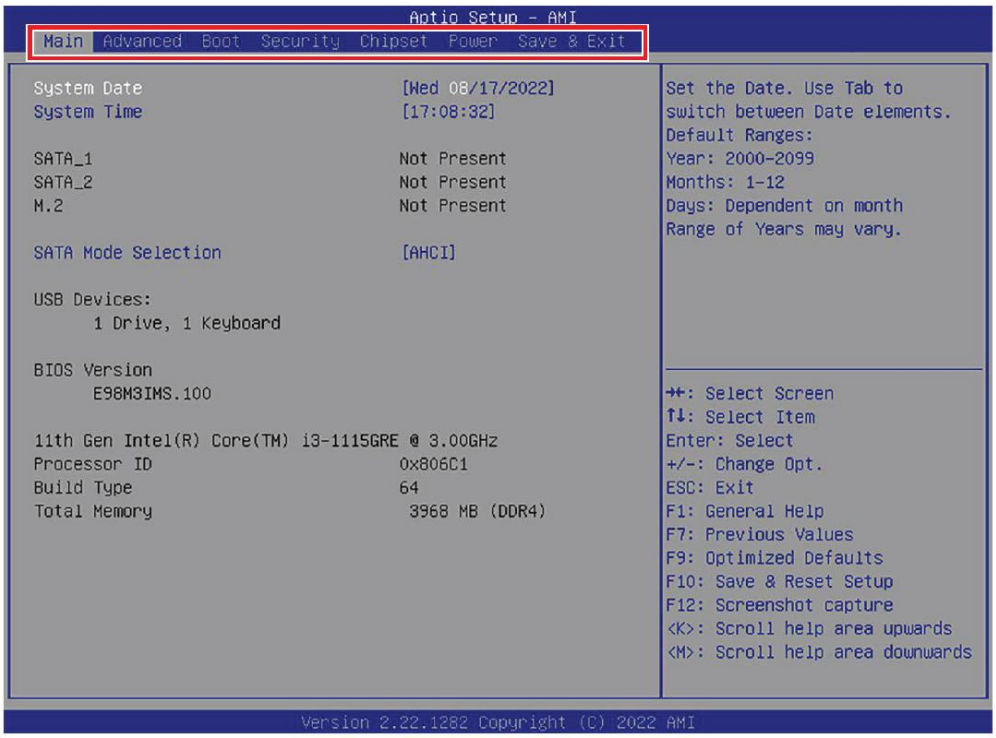
Sub-Menu

If you find a right pointer symbol appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys (↑↓) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <Esc >.

General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

3.2 The Menu Bar



» Main

Use this menu for basic system configurations, such as time, date, etc.

» Advanced

Use this menu to set up the items of special enhanced features.

» Boot

Use this menu to specify the priority of boot devices.

» Security

Use this menu to set supervisor and user passwords.

» Chipset

This menu controls the advanced features of the onboard chipsets.

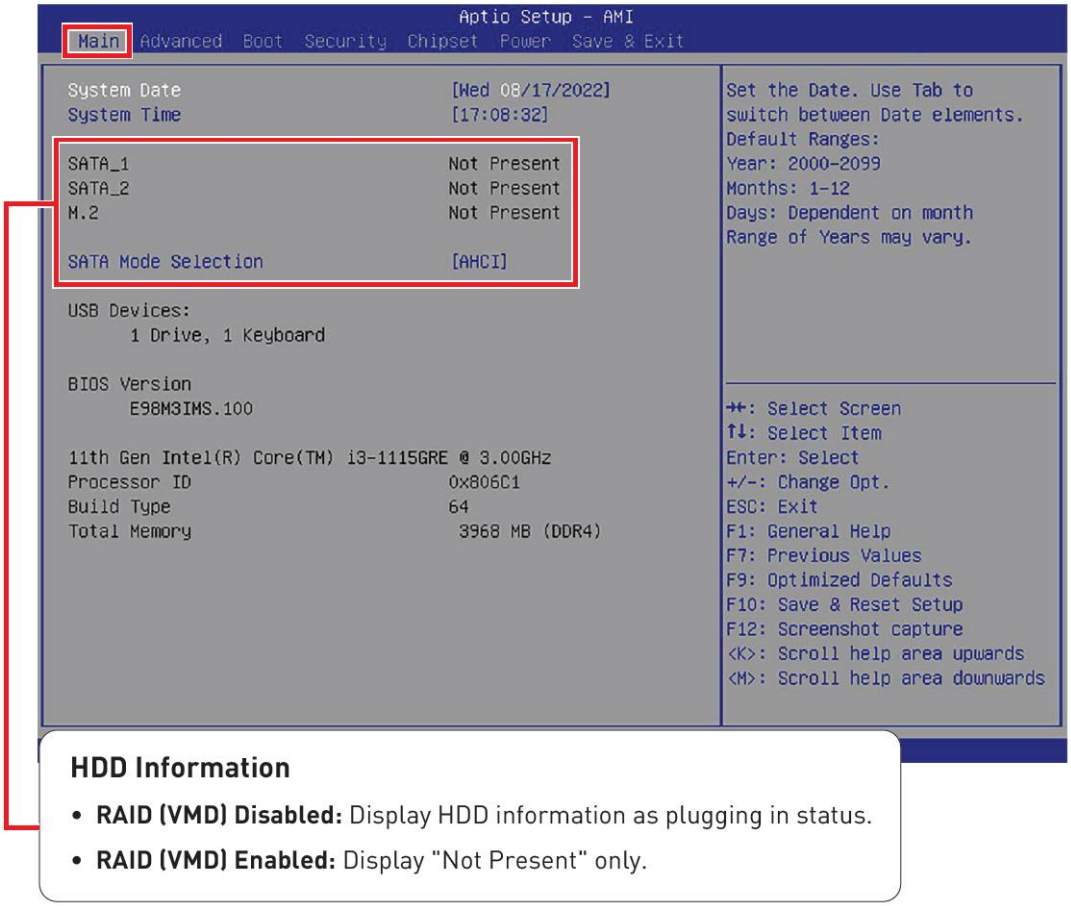
» Power

Use this menu to specify your settings for power management.

» Save & Exit

This menu allows you to load the BIOS default values or factory default settings into the BIOS and exit the BIOS setup utility with or without changes.

3.3 Main



» System Date

This setting allows you to set the system date. The date format is <Day>, <Month>, <Date>, <Year>.

» System Time

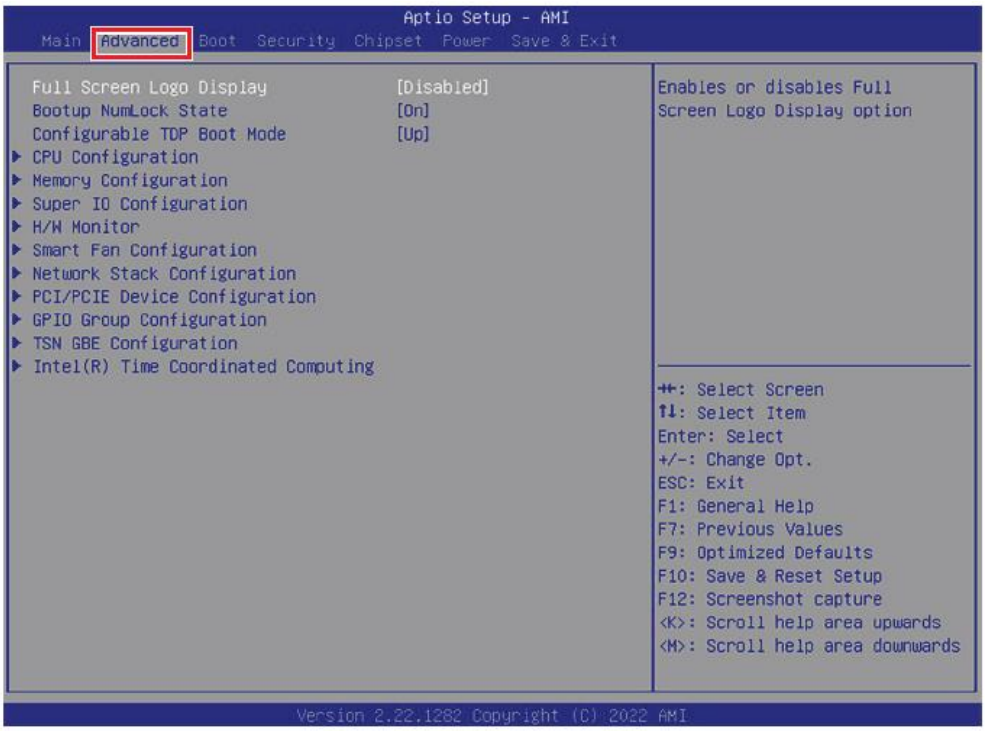
This setting allows you to set the system time. The time format is <Hour> <Minute> <Second>.

» SATA Mode Selection

This setting specifies the SATA controller mode.

[AHCI]	AHCI (Advanced Host Controller Interface), is a technical standard for an interface that allows the software to communicate with Serial ATA (SATA) devices. It offers advanced SATA features such as Native Command Queuing (NCQ) and hot-plugging.
[RAID]	RAID (Redundant Array of Independent Disks) is a virtual disk storage technology that combines multiple physical disks into one unit for data redundancy, performance improvement, or both.

3.4 Advanced



» Full Screen Logo Display

This BIOS feature determines if the BIOS should hide the normal POST messages with the motherboard or system manufacturer's full-screen logo.

[Enabled]	BIOS will display the full-screen logo during the boot-up sequence, hiding normal POST messages.
[Disabled]	BIOS will display the normal POST messages, instead of the full-screen logo.

Please note that enabling this BIOS feature often adds 2-3 seconds of delay to the booting sequence. This delay ensures that the logo is displayed for a sufficient amount of time. Therefore, it is recommended that you disable this BIOS feature for a faster boot-up time.

» Bootup NumLock State

This setting is to set the Num Lock status when the system is powered on.

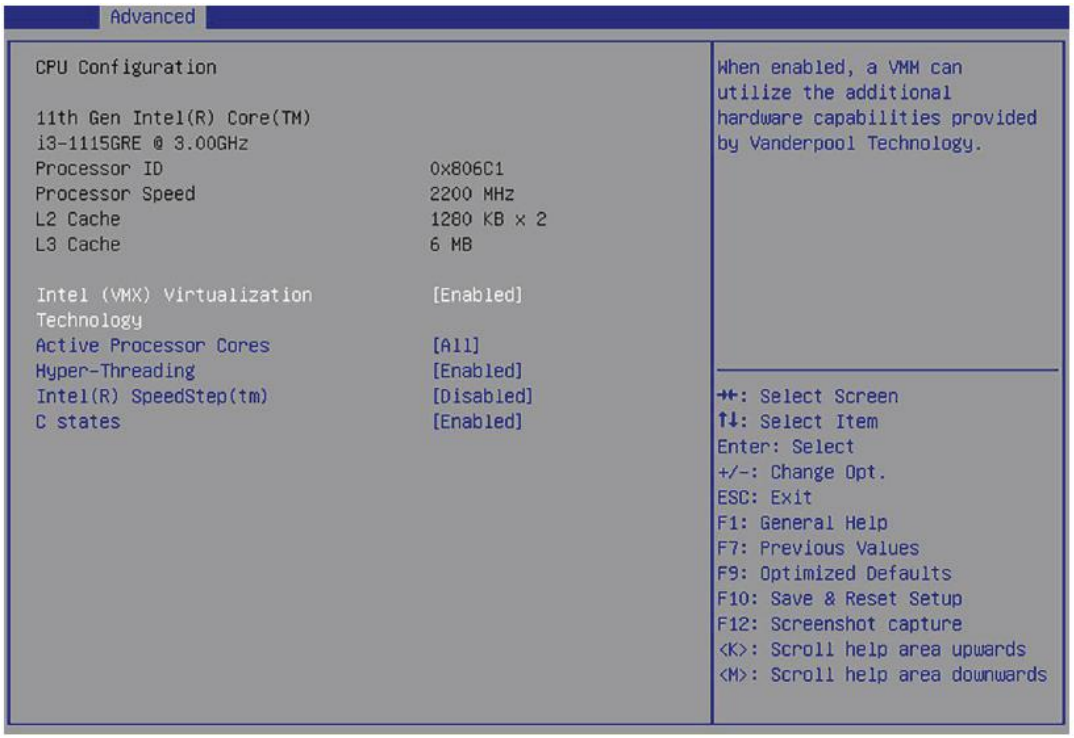
[On]	Turn on the Num Lock key when the system is powered on.
[Off]	Allow users to use the arrow keys on the numeric keypad.

» Configurable TDP Boot Mode

This feature allows you sets the TDP (Thermal Design Power) Boot mode to either Nominal, Down or Up.

TDP Power Spec			
Processor Family	Nominal	Down	Up
Intel® Core™ Processors	28W	12W	15W
Intel® Celeron® Processors	15W	N/A	N/A

3.4.1 CPU Configuration



» Intel (VMX) Virtualization Technology

Virtualization enhanced by Intel Virtualization Technology will allow a platform to run multiple operating systems and applications in independent partitions. With Virtualization, one computer system can function as multiple “virtual” systems.

» Active Processor Cores

This setting specifies the number of active processor cores.

» Hyper-Threading

The processor uses Hyper-Threading technology to increase transaction rates and reduces end-user response times. The technology treats the two cores inside the processor as two logical processors that can execute instructions simultaneously. In this way, the system performance is highly improved. If you disable the function, the processor will use only one core to execute the instructions. **Please disable this item if your operating system doesn’t support HT Function**, or unreliability and instability may occur.

» Intel® SpeedStep™

EIST (Enhanced Intel SpeedStep Technology) allows the system to dynamically adjust processor voltage and core frequency, which can result in decreased average power consumption and decreased average heat production.

When disabled, the processor will return the actual maximum CPUID (CPU Identification) input value of the processor when queried.

» Turbo Mode

Enables or disables the Turbo Mode. This feature only display when Intel® SpeedStep™ is enabled.

[Enabled]	Enables this function to boost CPU performance automatically over specification when system request the highest performance state.
[Disabled]	Disables this function.

» C-States

This setting controls the C-States (CPU Power states).

[Enabled]	Detects the idle state of system and reduce CPU power consumption accordingly.
[Disabled]	Disables this function.

3.4.2 Memory Configuration

» In-Band ECC Support

Enables or disables In-Band ECC(Error-Correcting Code) Support.

[Enabled]	When enabled this function, a portion(1/32) of memory space will be reserved to store ECC data.
[Disabled]	Disables this function.

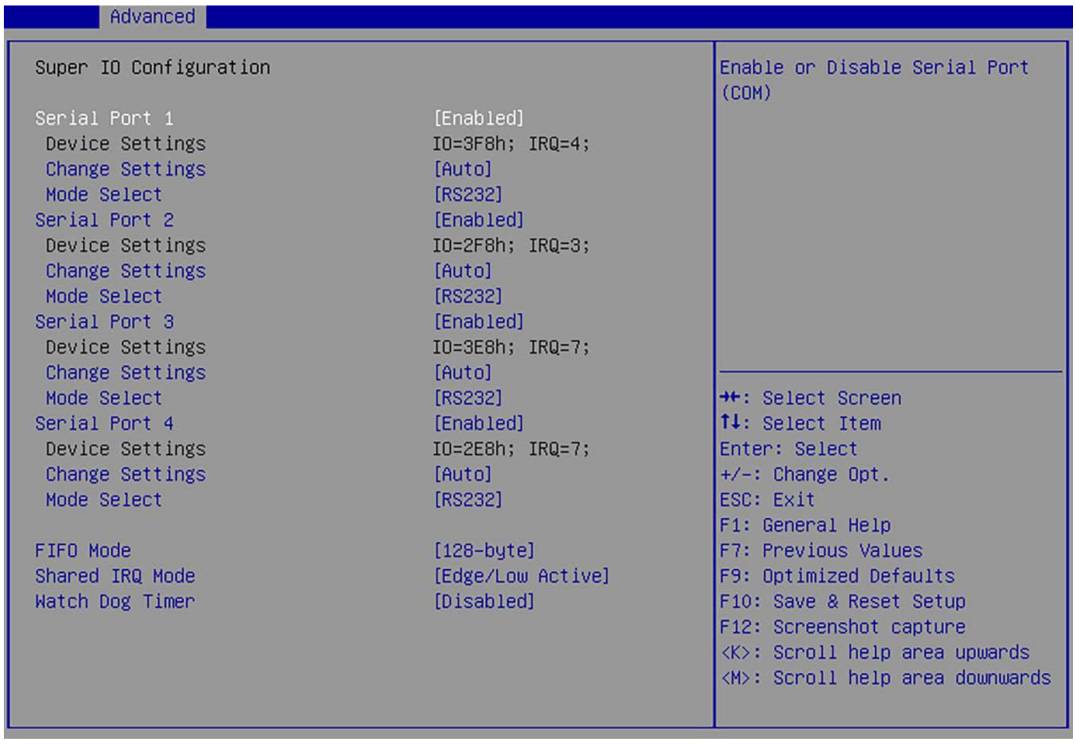
▸ **In-Band ECC Error Injection**

Enables or disables In-Band ECC Error Injection. This feature only display when In-Band ECC Support is enabled.

▸ **In-Band ECC Error Operation Mode**

Select an operation mode from 0-2. This feature only display when In-Band ECC Support is enabled.

3.4.3 Super IO Configuration



» Serial Port 1/ 2/ 3/ 4/ 5/ 6

This setting enables/disables the specified serial port.

▶ **Change Settings**

This setting is used to change the address & IRQ settings of the specified serial port.

▶ **Mode Select**

Select an operation mode for the specified serial port.

» FIFO Mode

This setting controls the FIFO data transfer mode.

» Shared IRQ Mode

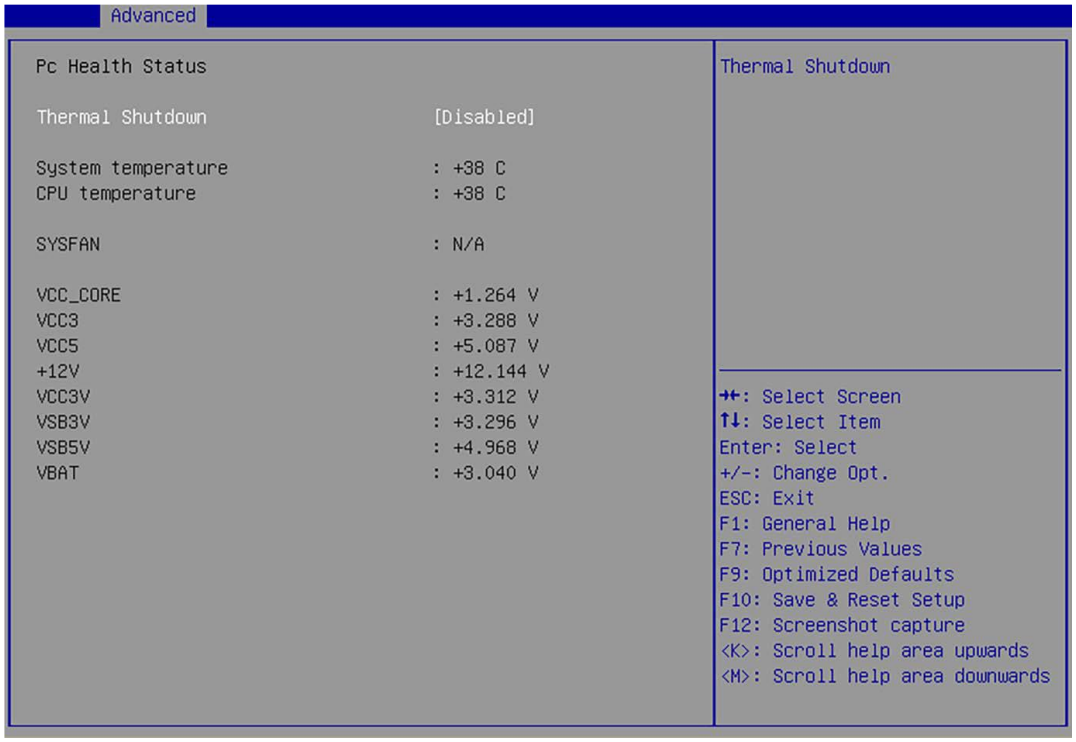
This setting provides the system with the ability to share interrupts among its serial ports.

» Watch Dog Timer

You can enable the system watch-dog timer, a hardware timer that generates a reset when the software that it monitors does not respond as expected each time the watch dog polls it.

3.4.4 H/W Monitor

These items display the status of all monitored hardware devices/components such as voltages, temperatures, and all fans' speeds.



» Thermal Shutdown

This setting enables/disables the Thermal Shutdown function. It will automatically shut down when the internal temperature reaches the critical level.

3.4.5 Smart Fan Configuration

» SYSFAN

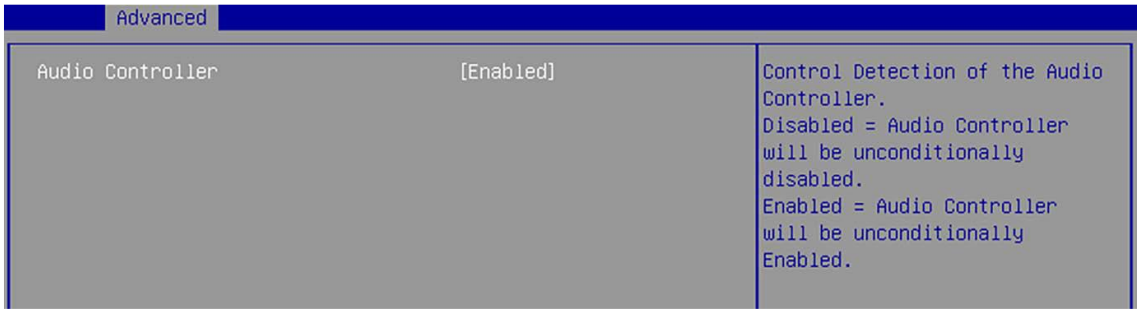
This setting enables/disables the Smart Fan function. Smart Fan is an excellent feature which will adjust the CPU/system fan speed automatically depending on the current CPU/system temperature, avoiding the overheating to damage your system.

3.4.6 Network Stack Configuration

» Network Stack

This menu provides Network Stack settings for users to enable network boot (PXE) from BIOS. The following items will display when Network Stak is enabled.

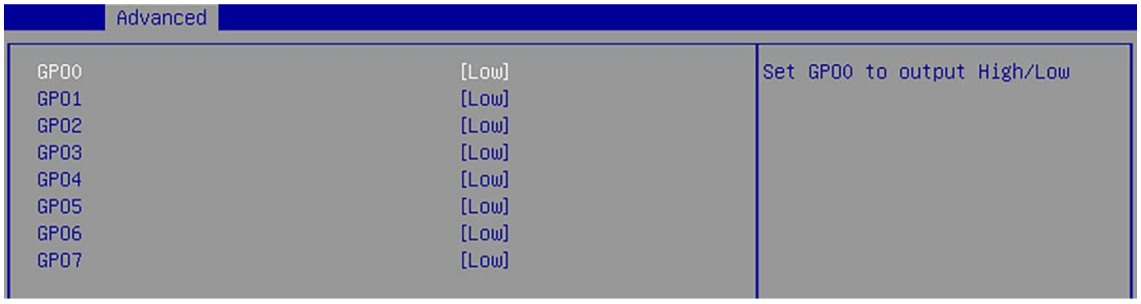
3.4.7 PCI/PCIE Device Configuration



» Audio Controller

This setting enables/disables the onboard audio controller.

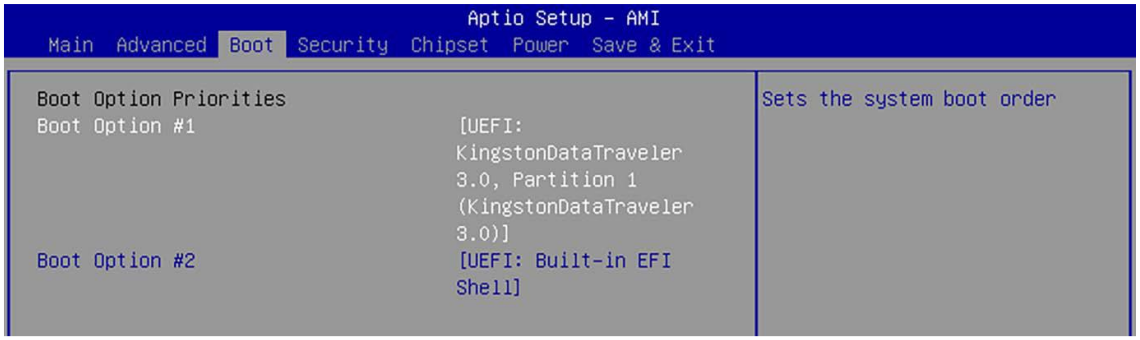
3.4.8 GPIO Group Configuration



» GPO0 ~ GPO7

These settings control the operation mode of the specified GPIO.

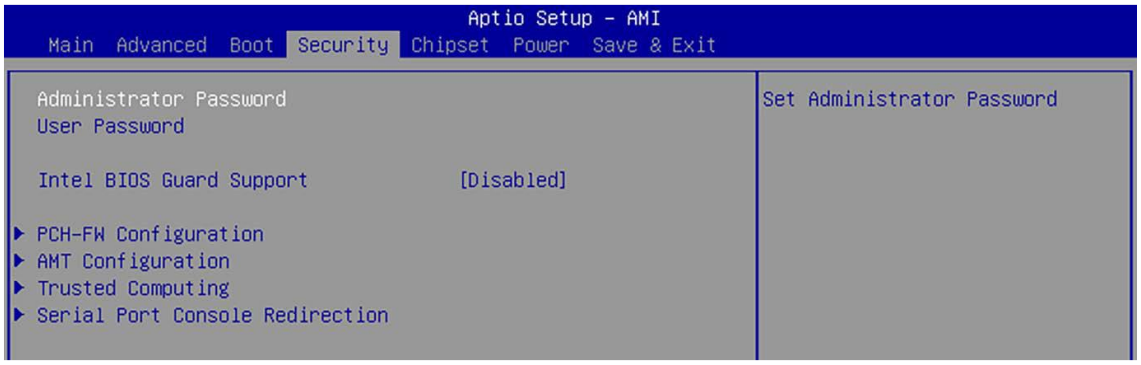
3.5 Boot



» Boot Option Priorities

This setting allows users to set the sequence of boot devices where BIOS attempts to load the disk operating system.

3.6 Security



» Administrator Password

Administrator Password controls access to the BIOS Setup utility.

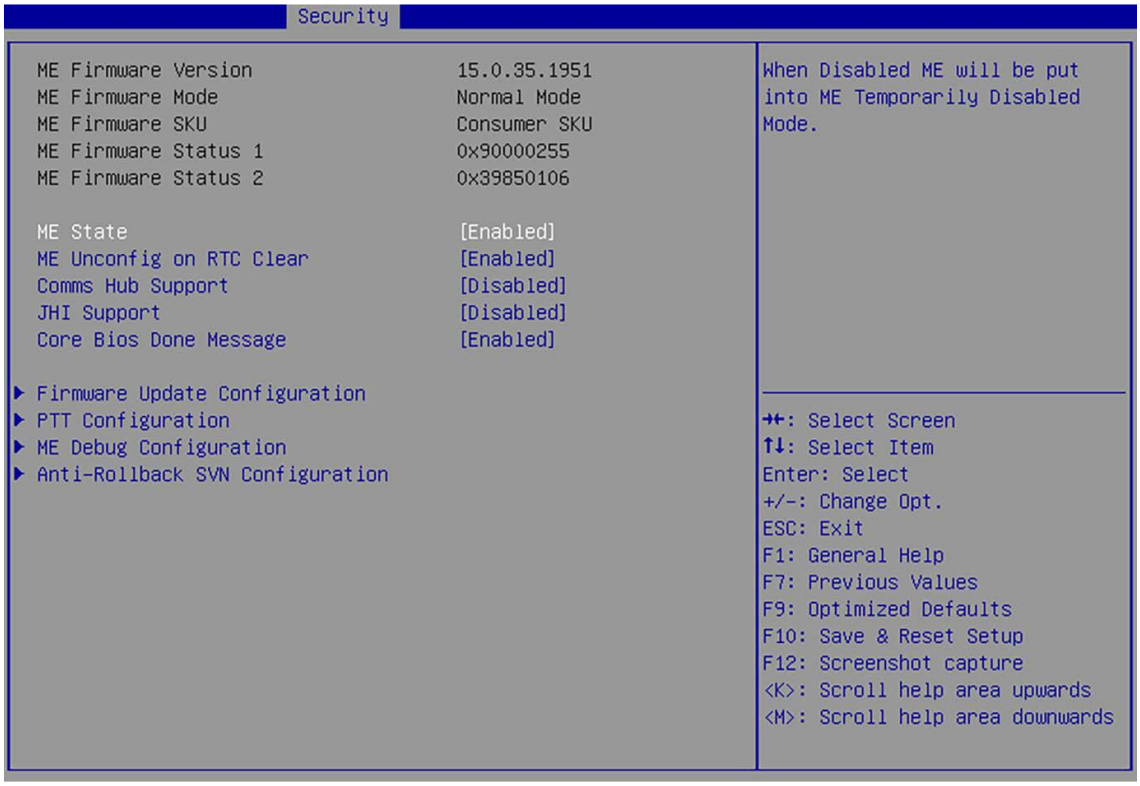
» User Password

User Password controls access to the system at boot and to the BIOS Setup utility.

» Intel Trusted Execution Technology

Intel Trusted Execution Technology provides highly scalable platform security in physical and virtual infrastructures.

3.6.1 PCH-FW Configuration



» ME Firmware Version, ME Firmware Mode, ME Firmware SKU, System Integrity Value, ME Firmware Status 1, ME Firmware Status 2, NFC Sup-port

These settings show the firmware information of the Intel ME (Management Engine).

» ME Status

This setting enables/disables the ME status.

» ME Unconfig on RTC Clear

This setting enables/disables ME Firmware Un-configure on RTC clear state.

» Comms Hub Support

This setting enables/disables Communications Hub Support.

» JHI Support

This setting enables/disables support for Intel Dynamic Application Loader Host Interface (JHI).

» Core BIOS Done Message

This setting enables/disables Core BIOS Done Message sent to ME.

3.6.1.1 Firmware Update Configuration

» ME FW Image Re-Flash

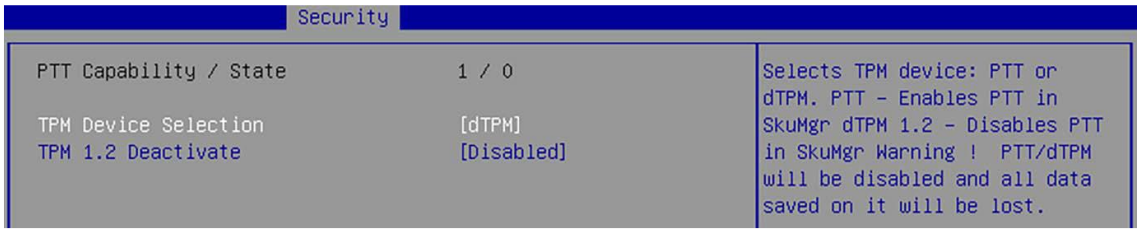
This setting enables/ disables the ME FW (Firmware) image re-flash.

» FW Update

This setting enables/ disables the FW (Firmware) update.

3.6.1.2 PTT Configuration

Intel Platform Trust Technology (PTT) is a platform functionality for credential storage and key management used by Microsoft Windows.

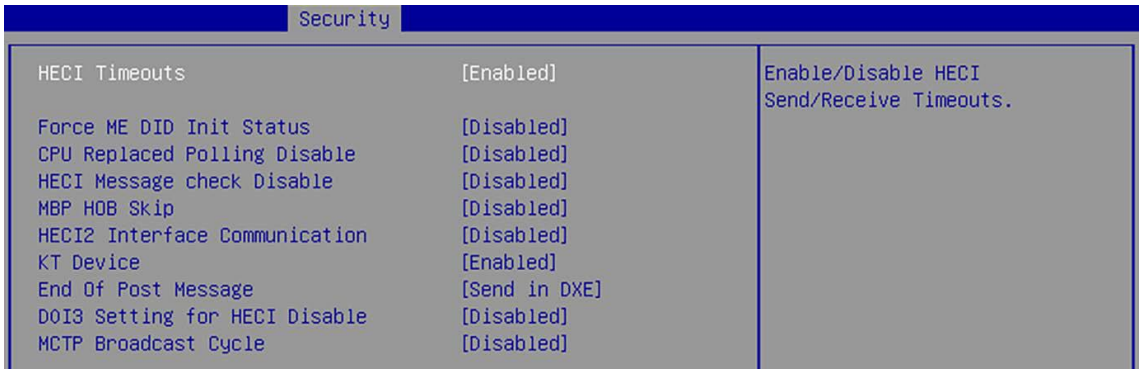


» TPM Device Selection

Select TPM (Trusted Platform Module) devices from PTT or dTPM (Discrete TPM).

[PTT]	Enables PTT in SkuMgr.
[dTPM]	Disables PTT in SkuMgr. **Warning! PTT/ Discrete TPM will be disabled and all data saved on it will be lost.**

3.6.1.3 ME Debug Configuration



» HECI Timeouts

This setting enables/ disables the HECI (Host Embedded Controller Interface) send/receive timeouts.

» Force ME DID Init Status

Forces the DID initialization status value.

» CPU Replaced Polling Disable

Setting this option disables the CPU replacement polling loop.

» HECI Message Check Disable

This setting disables message check for BIOS boot path when sending messages.

» MBP HOB Skip

Setting this option will skip MBP HOB.

» HECI2 Interface Communication

This setting Adds/ Removes HECI2 device from PCI space.

» KT Device

This setting enables/ disables KT Device.

» End of Post Message

This setting enables/ disables End of Post Message sent to ME.

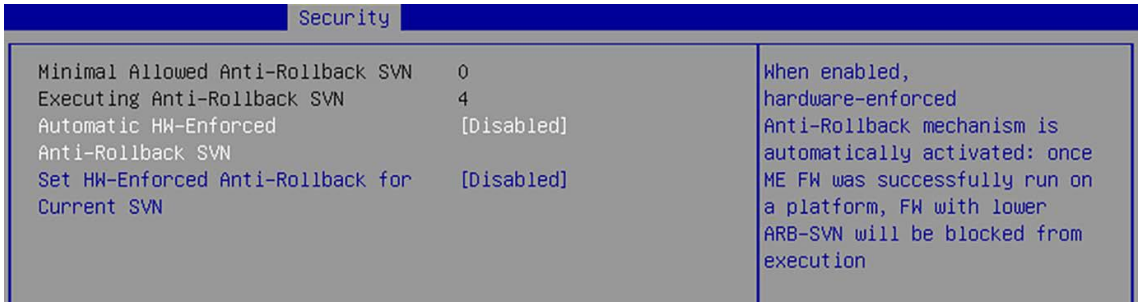
» DOI3 Setting for HECI Disable

Setting this option disables setting DOI3 bit for all HECI devices.

» MCTP Broadcast Cycle

This setting enables/ disables Management Component Transport Protocol (MCTP) Broadcast Cycle.

3.6.1.4 Anti-Rollback SVN Configuration



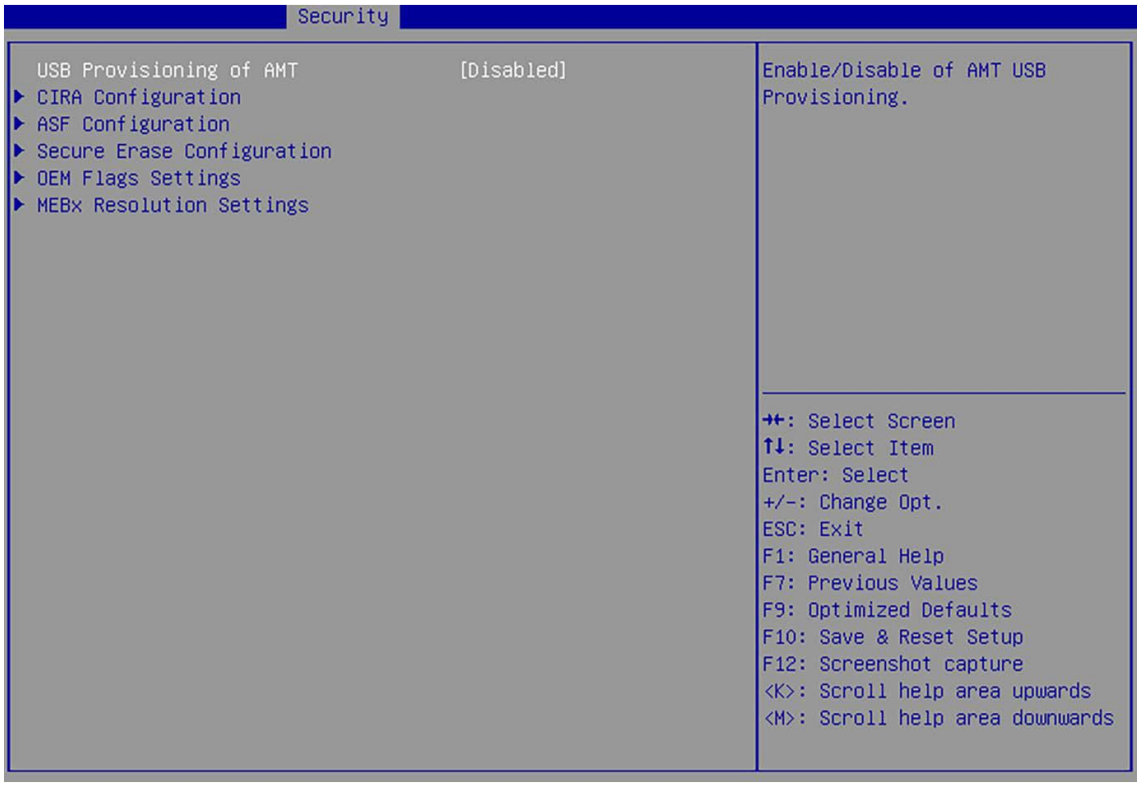
» Automatic HW-Enforced Anti-Rollback SVN

Setting this option enables will automatically activate the hardware-enforced Anti-Rollback security version (HW ERB SVN). Once ME FW was successfully run on a platform, FW with lower ARB-VN will be blocked from execution.

» Set HW-Enforced Anti-Rollback for Current SVN

Enable HW ERB mechanism for current ARB SVN value. FW with lower ARB-SVN will be blocked from execution. The value will be restored to disable after the command is sent.

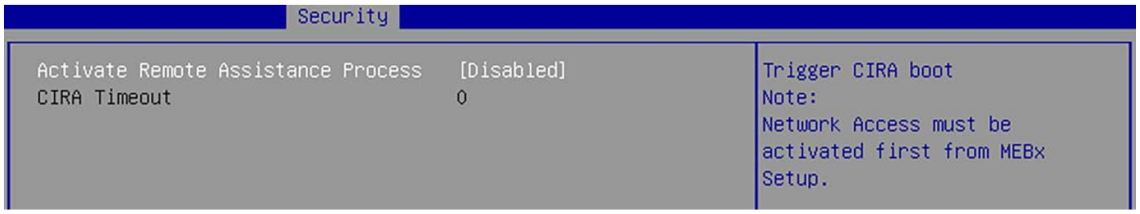
3.6.2 AMT Configuration



» USB Provisioning of AMT

Enables or disable USB Provisioning of AMT.

3.6.2.1 CIRA Configuration



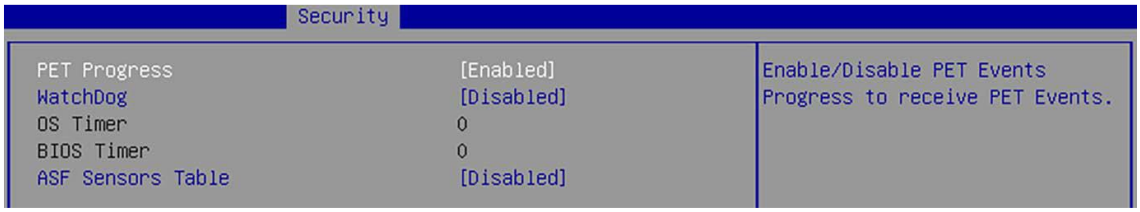
» Activate Remote Assistance Process

Setting this option enables will trigger CIRA boot.

» CIRA Timeout

This item displays CIRA Timeout.

3.6.2.2 ASF Configuration



» PET Progress

Setting this option enables/ disables to receive PET Events.

» WatchDog

This setting enables/ disables the watchdog timer.

» OS Timer

This item displays OS Timer.

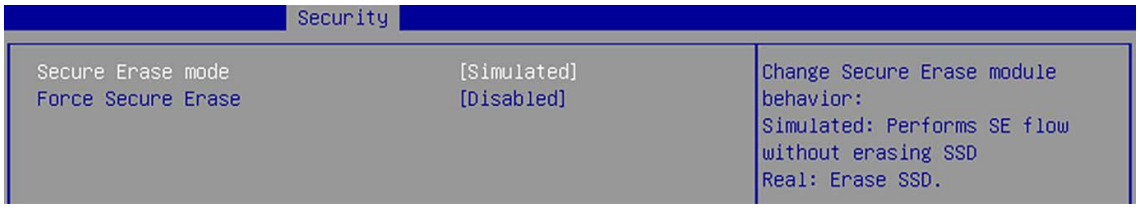
» BIOS Timer

This item displays BIOS Timer.

» ASF Sensor Table

This setting enables/ disables Alert Standard Format(ASF) Sensor Table.

3.6.2.3 Secure Erase Configuration



» Secure Erase Mode

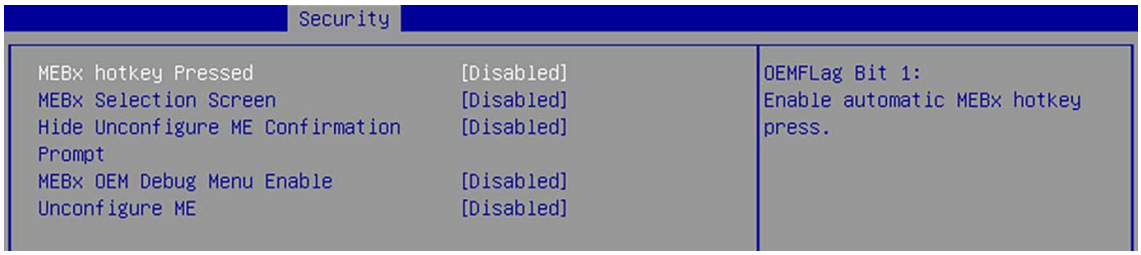
This setting changes Secure Erase module behavior.

[Simulated]	Performs SE flow without erasing SSD.
[Real]	Erase SSD.

» Force Secure Erase

Setting this option enables/ disables to force Secure Erase on next boot.

3.6.2.4 OEM Flag Setting



» MEBx hotkey Pressed

This setting enables/ disables the management Engine BIOS Extension (MEBx) hotkey Pressed.

» MEBx Selection Screen

This setting enables/ disables the MEBx Selection Screen.

» Hide Unconfigure ME Confirmation Prompt

This setting enables/ disables the Hide Unconfigure ME Confirmation Prompt.

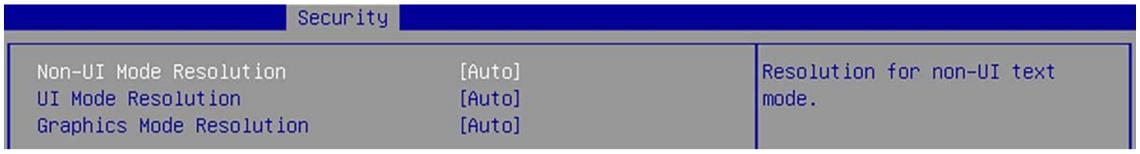
» MEBx OEM Debug Menu Enable

This setting enables/ disables the MEBx OEM Debug Menu.

» Unconfigure ME

This setting enables/ disables the Unconfigure ME.

3.6.2.5 MEBx Resolution Setting



» Non-UI Mode Resolution

Resolution for non-UI text mode.

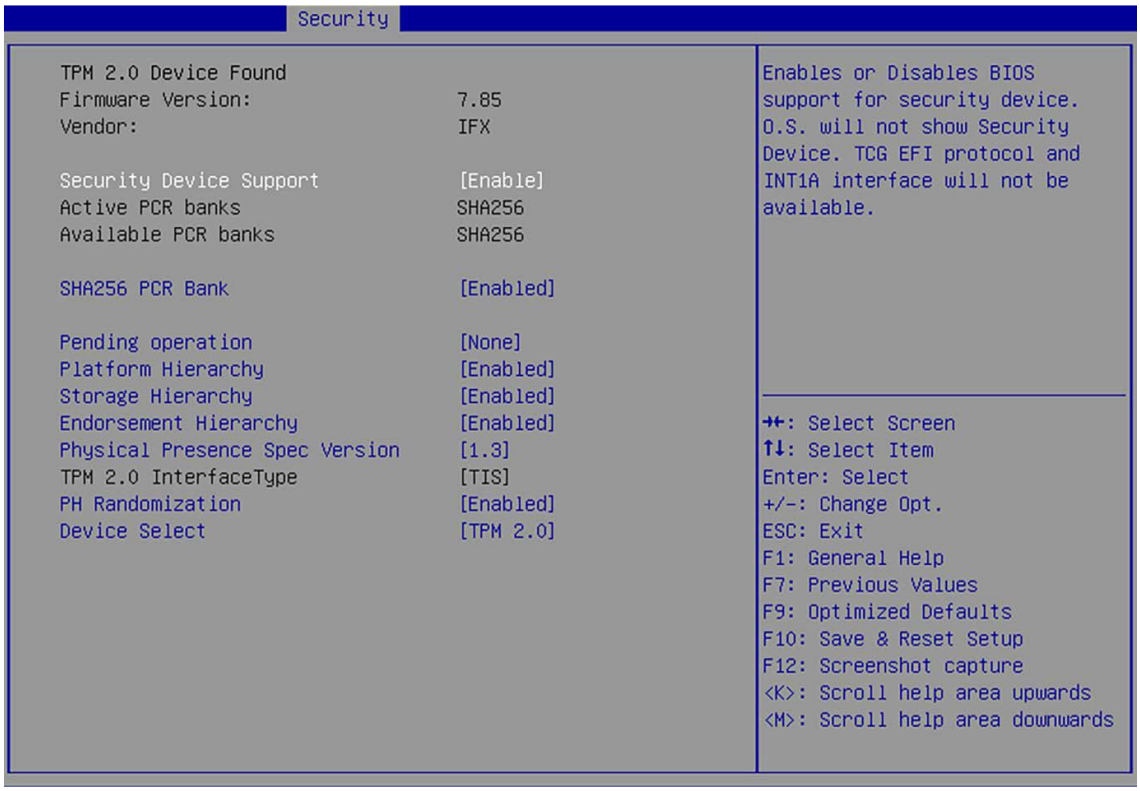
» UI Mode Resolution

Resolution for UI text mode.

» Graphic Mode Resolution

Resolution for graphics mode.

3.6.3 Trusted Computing



» Security Device Support

This setting enables/disables BIOS support for security device. When set to [Disable], the OS will not show security device. TCG EFI protocol and INT1A interface will not be available.

» SHA256 PCR Bank

These settings enable/disable the SHA-1 PCR Bank and SHA256 PCR Bank.

» Pending Operation

When Security Device Support is set to [Enable], Pending Operation will appear. Set this item to [TPM Clear] to clear all data secured by TPM or [None] to discard the selection. It is advised that users should routinely back up their TPM secured data.

» Platform Hierarchy, Storage Hierarchy, Endorsement Hierarchy

These settings enable/disable the Platform Hierarchy, Storage Hierarchy and Endorsement Hierarchy.

» Physical Presence Spec Version

This setting show the Physical Presence Spec Version.

» TPM 2.0 Interface Type

This setting shows the TPM 2.0 Interface Type.

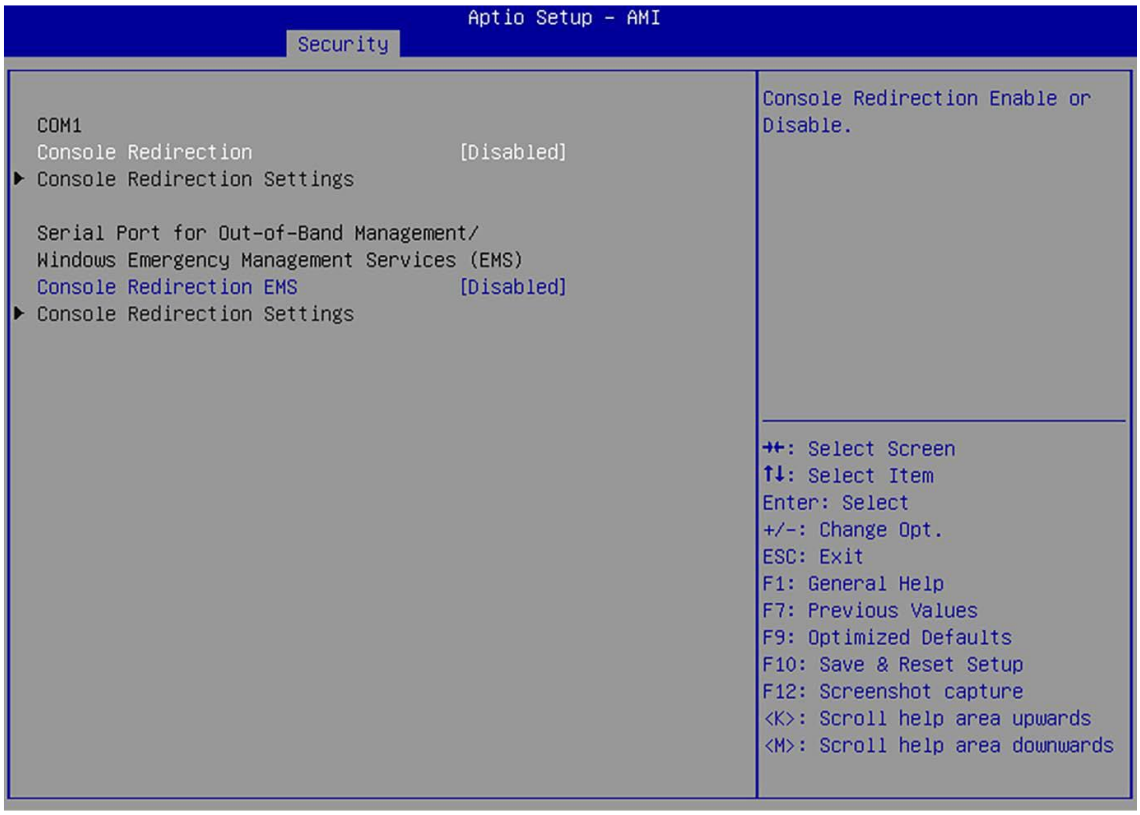
» PH Randomization

This setting enables/disables PH Randomization.

» Device Select

Select your TPM device through this setting.

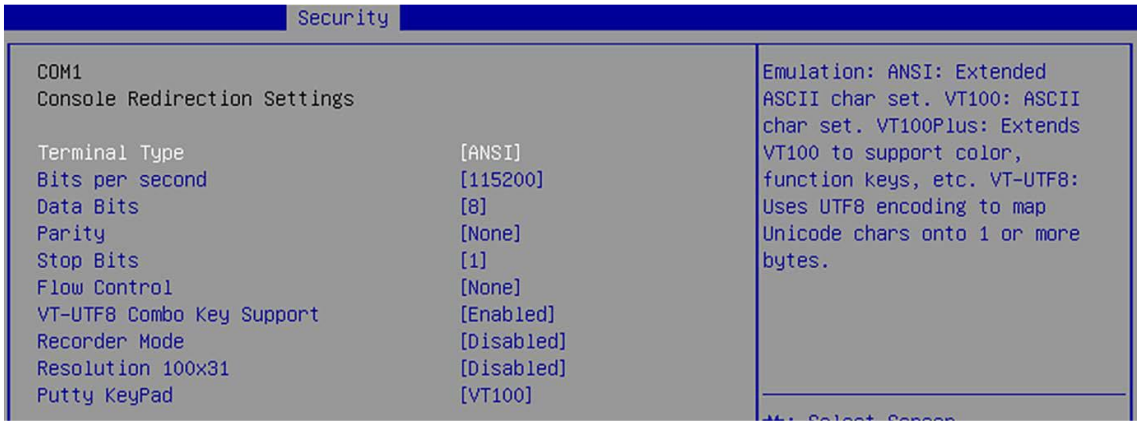
3.6.4 Serial Port Console Redirection



» Console Redirection

Console Redirection operates in host systems that do not have a monitor and keyboard attached. This setting enables/disables the operation of console redirection. When set to [Enabled], BIOS redirects and sends all contents that should be displayed on the screen to the serial COM port for display on the terminal screen. Besides, all data received from the serial port is interpreted as keystrokes from a local keyboard.

3.6.4.1 Console Redirection Settings (COM1)



» Terminal Type

To operate the system's console redirection, you need a terminal supporting ANSI terminal protocol and a RS-232 null modem cable connected between the host system and terminal(s). You can select emulation for the terminal from this setting.

[ANSI]	Extended ASCII character set.
[VT100]	ASCII character set.
[VT100Plus]	Extends VT100 to support color, function keys, etc.
[VT-UTF8]	Uses UTF8 encoding to map Unicode characters onto one or more bytes.

» Bits per second, Data Bits, Parity, Stop Bits

This setting specifies the transfer rate (bits per second, data bits, parity, stop bits) of Console Redirection.

» Flow Control

Flow control is the process of managing the rate of data transmission between two nodes. It's the process of adjusting the flow of data from one device to another to ensure that the receiving device can handle all the incoming data. This is particularly important where the sending device can send data much faster than the receiving device can receive it.

» VT-UTF8 Combo Key Support

This setting enables/disables the VT-UTF8 combination key support for ANSI/VT100 terminals.

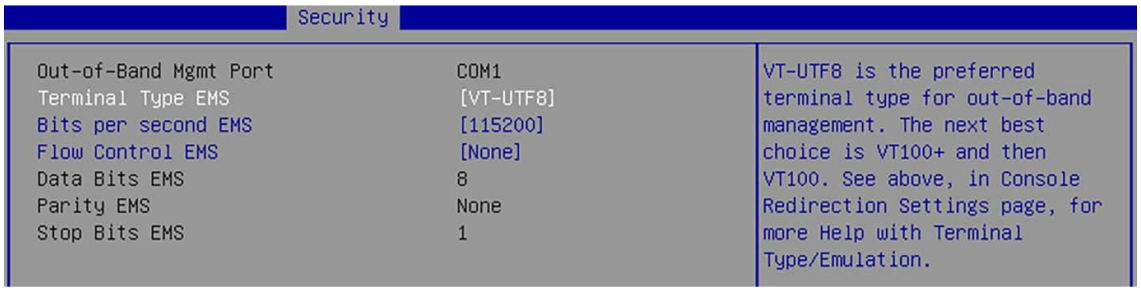
» Recorder Mode, Resolution 100x31

These settings enable/disable the recorder mode and the resolution 100x31.

» Putty Keypad

PuTTY is a terminal emulator for Windows. This setting controls the numeric keypad for use in PuTTY.

3.6.4.2 Console Redirection Settings (Out-of-Band Management)



» Out-of-Band Mgmt Port

This setting specifies the Out-of-Band Management Port.

» Terminal Type EMS (Windows Emergency Management Service)

You can select the type of terminal device for console redirection from this setting.

[VT-UTF8] is the preferred terminal type for the out-of-band management. The next best choice is **[VT100+]** and then **[VT100]**. See above in **Console Redirection Setting** page for more help with Terminal Type/ Emulation.

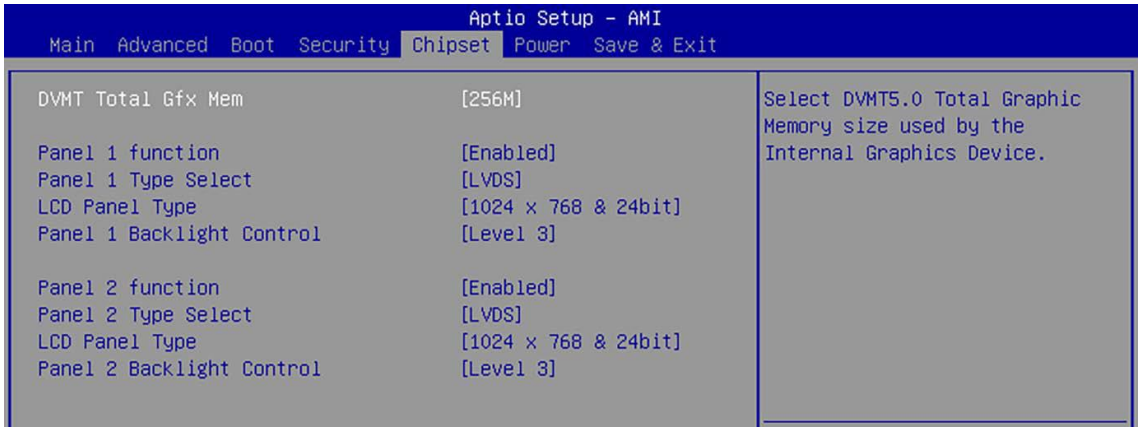
Flow Control EMS (Windows Emergency Management Service)

Flow control is the process of managing the rate of data transmission between two nodes. It's the process of adjusting the flow of data from one device to another to ensure that the receiving device can handle all of the incoming data. This is particularly important where the sending device is capable of sending data much faster than the receiving device can receive it.

» Bits per second EMS, Data Bits EMS, Parity EMS, Stop Bits EMS

This setting specifies the transfer rate of Console Redirection.

3.7 Chipset



» DVMT Total Gfx Mem

This setting specifies the memory size for DVMT.

» Panel 1/ 2 Function

This setting enables/disables Panel 1 Function.

Type Select

Set your video signal interface as LVDs or eDP. This item will display when Panel 1 Function is enabled.

LCD Panel Type

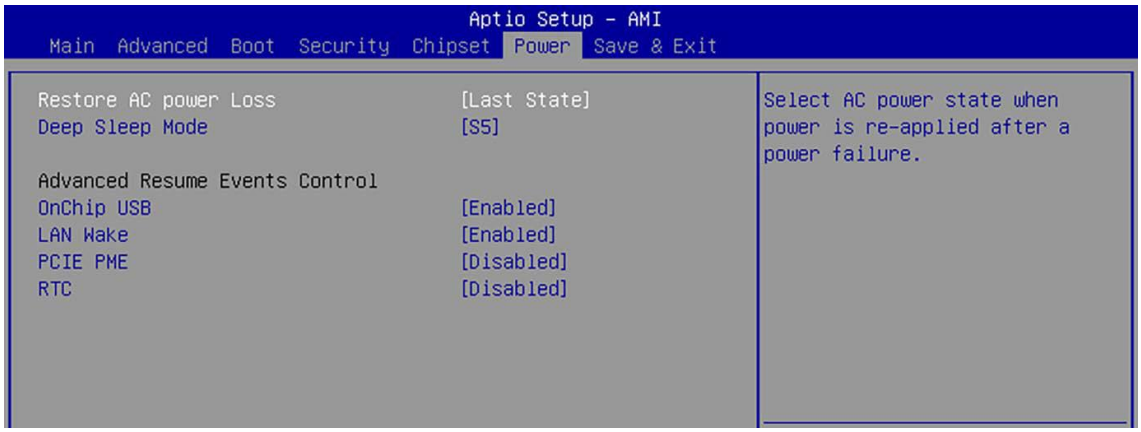
This setting specifies the LCD Panel's resolution and distribution formats. The item will display when Panel 1 Type is set to LVDs.

» Panel 1/ 2 Backlight Control

This setting controls the intensity of the LED's backlight output. When lighting conditions are brighter, set it high for a clearer image and low when it is darker.

LED's backlight output	
[Level 1]	20%
[Level 2]	40%
[Level 3]	60%
[Level 4]	80%
[Level 5]	100%

3.8 Power



» Restore AC Power Loss

This setting specifies whether your system will reboot after a power failure or interrupt occurs. Available settings are:

[Power Off]	Leaves the computer in the power off state.
[Power On]	Leaves the computer in the power on state.
[Last State]	Restores the system to the previous status before power failure or interrupt occurred.

» Deep Sleep Mode

The setting enables/disables the Deep S5 power saving mode. S5 is almost the same as G3 Mechanical Off, except that the PSU still supplies power, at a minimum, to the power button to allow return to S0. A full reboot is required. No previous content is retained. Other components may remain powered so the computer can “wake” on input from the keyboard, clock, modem, LAN, or USB device.

**** Advanced Resume Events Control ****

» Onchip GbE / USB

The item allows the activity of the OnChip GbE/USB device to wake up the system from S3/S4 sleep state.

» PCIE PME

This field specifies whether the system will be awakened from power saving modes when activity or input signal of onboard PCIE PME is detected.

» RTC

When [Enabled], you can set the date and time at which the RTC (real-time clock) alarm awakens the system from suspend mode.

3.9 Save & Exit

» Save Changes and Reset

Save changes to CMOS and reset the system.

» Discard Changes and Exit

Abandon all changes and exit the Setup Utility.

» Discard Changes

Abandon all changes.

» Load Optimized Defaults

Use this menu to load the default values set by the motherboard manufacturer specifically for optimal performance of the motherboard.

» Save as User Defaults

Save changes as the user's default profile.

» Restore User Defaults

Restore the user's default profile.

» Launch EFI Shell from filesystem device

This setting helps to launch the EFI Shell application from one of the available file system devices.

History

Revision	Date	Modification	Note