

# Lanner

## Network Appliance Platforms

Hardware Platforms for Network Computing

### NCA-4030 User Manual

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## About this Document



This manual describes the overview of the various functionalities of this product, and the information you need to get it ready for operation. It is intended for those who are:

- responsible for installing, administering and troubleshooting this system or Information Technology professionals.
- assumed to be qualified in the servicing of computer equipment, such as professional system integrators, or service personnel and technicians.

The latest version of this document can be found on Lanner’s official website, available either through the product page or through the [Lanner Download Center](#) page with a login account and password.

## Icon Descriptions

The icons are used in the manual to serve as an indication of interest topics or important messages. Below is a description of these icons:

Icon	Usage
 <b>Note or Information</b>	This mark indicates that there is something you should pay special attention to while using the product.
 <b>Warning or Important</b>	This mark indicates that there is a caution or warning and it is something that could damage your property or product.

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## Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

### FCC Caution

- ▶ Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
- ▶ This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.



#### Note

1. An unshielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used.
2. Use only shielded cables to connect I/O devices to this equipment.
3. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



#### Important

1. Operations in the 5.15-5.25GHz band are restricted to indoor usage only.
2. This device meets all the other requirements specified in Part 15E, Section 15.407 of the FCC Rules.

## Safety Guidelines

Follow these guidelines to ensure general safety:

- ▶ Keep the chassis area clear and dust-free during and after installation.
- ▶ Do not wear loose clothing or jewelry that could get caught in the chassis. Fasten your tie or scarf and roll up your sleeves.
- ▶ Wear safety glasses if you are working under any conditions that might be hazardous to your eyes.
- ▶ Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- ▶ Disconnect all power by turning off the power and unplugging the power cord before installing or removing a chassis or working near power supplies
- ▶ Do not work alone if potentially hazardous conditions exist.
- ▶ Never assume that power is disconnected from a circuit; always check the circuit.

## Consignes de sécurité

Suivez ces consignes pour assurer la sécurité générale :

- ▶ Laissez la zone du châssis propre et sans poussière pendant et après l'installation.

- ▶ Ne portez pas de vêtements amples ou de bijoux qui pourraient être pris dans le châssis. Attachez votre cravate ou écharpe et remontez vos manches.
- ▶ Portez des lunettes de sécurité pour protéger vos yeux.
- ▶ N'effectuez aucune action qui pourrait créer un danger pour d'autres ou rendre l'équipement dangereux.
- ▶ Coupez complètement l'alimentation en éteignant l'alimentation et en débranchant le cordon d'alimentation avant d'installer ou de retirer un châssis ou de travailler à proximité de sources d'alimentation.
- ▶ Ne travaillez pas seul si des conditions dangereuses sont présentes.
- ▶ Ne considérez jamais que l'alimentation est coupée d'un circuit, vérifiez toujours le circuit. Cet appareil génère, utilise et émet une énergie radiofréquence et, s'il n'est pas installé et utilisé conformément aux instructions des fournisseurs de composants sans fil, il risque de provoquer des interférences dans les communications radio.

## Lithium Battery Caution

- ▶ There is risk of explosion if the battery is replaced by an incorrect type.
- ▶ Dispose of used batteries according to the instructions.
- ▶ Installation should be conducted only by a trained electrician or only by an electrically trained person who knows all installation procedures and device specifications which are to be applied.
- ▶ Do not carry the handle of power supplies when moving to another place.
- ▶ Please conform to your local laws and regulations regarding safe disposal of lithium battery.
- ▶ Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery can result in an explosion.
- ▶ Leaving a battery in an extremely high temperature environment can result in an explosion or the leakage of flammable liquid or gas.
- ▶ A battery subjected to extremely low air pressure may result in an explosion or the leakage of flammable liquid or gas.

## Avertissement concernant la pile au lithium

- ▶ Risque d'explosion si la pile est remplacée par une autre d'un mauvais type.
- ▶ Jetez les piles usagées conformément aux instructions.
- ▶ L'installation doit être effectuée par un électricien formé ou une personne formée à l'électricité connaissant toutes les spécifications d'installation et d'appareil du produit.
- ▶ Ne transportez pas l'unité en la tenant par le câble d'alimentation lorsque vous déplacez l'appareil.

## Operating Safety

- ▶ Electrical equipment generates heat. Ambient air temperature may not be adequate to cool equipment to acceptable operating temperatures without adequate circulation. Be sure that the room in which you choose to operate your system has adequate air circulation.
- ▶ Ensure that the chassis cover is secure. The chassis design allows cooling air to circulate effectively. An open chassis permits air leaks, which may interrupt and redirect the flow of cooling air from internal components.
- ▶ Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. ESD damage occurs when electronic components are improperly handled and can result in complete or intermittent failures. Be sure to follow ESD-prevention procedures when removing and replacing components to avoid these problems.
- ▶ Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. If no wrist strap is available, ground yourself by touching the metal part of the chassis.
- ▶ Periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms (Mohms).

## Sécurité de fonctionnement

- ▶ L'équipement électrique génère de la chaleur. La température ambiante peut ne pas être adéquate pour refroidir l'équipement à une température de fonctionnement acceptable sans circulation adaptée. Vérifiez que votre site propose une circulation d'air adéquate.
- ▶ Vérifiez que le couvercle du châssis est bien fixé. La conception du châssis permet à l'air de refroidissement de bien circuler. Un châssis ouvert laisse l'air s'échapper, ce qui peut interrompre et rediriger le flux d'air frais destiné aux composants internes.
- ▶ Les décharges électrostatiques (ESD) peuvent endommager l'équipement et gêner les circuits électriques. Des dégâts d'ESD surviennent lorsque des composants électroniques sont mal manipulés et peuvent causer des pannes totales ou intermittentes. Suivez les procédures de prévention d'ESD lors du retrait et du remplacement de composants.

- ▶ Portez un bracelet anti-ESD et veillez à ce qu'il soit bien au contact de la peau. Si aucun bracelet n'est disponible, reliez votre corps à la terre en touchant la partie métallique du châssis.
- ▶ Vérifiez régulièrement la valeur de résistance du bracelet antistatique, qui doit être comprise entre 1 et 10 mégohms (Mohms).

### Mounting Installation Precautions

The following should be put into consideration for rack-mount or similar mounting installations:

- ▶ Do not install and/or operate this unit in any place that flammable objects are stored or used in.
- ▶ The installation of this product must be performed by trained specialists; otherwise, a non-specialist might create the risk of the system's falling to the ground or other damages.
- ▶ Lanner Electronics Inc. shall not be held liable for any losses resulting from insufficient strength for supporting the system or use of inappropriate installation components.
- ▶ Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (T<sub>ma</sub>) specified by the manufacturer.
- ▶ Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.
- ▶ Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- ▶ Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- ▶ Reliable Grounding - Reliable grounding of rack mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

### Installation & Operation

- ▶ This equipment must be grounded. The power cord for product should be connected to a socket-outlet with earthing connection.  
Cet équipement doit être mis à la terre. La fiche d'alimentation doit être connectée à une prise de terre correctement câblée
- ▶ Suitable for installation in Information Technology Rooms in accordance with Article 645 of the National Electrical Code and NFPA 75.  
Peut être installé dans des salles de matériel de traitement de l'information conformément à l'article 645 du National Electrical Code et à la NFPA 75.
- ▶ The machine can only be used in a restricted access location and must be installed by a skilled person.  
Les matériels sont destinés à être installés dans des EMPLACEMENTS À ACCÈS RESTREINT.

### Warning

Class I Equipment. This equipment must be earthed. The power plug must be connected to a properly wired earth ground socket outlet. An improperly wired socket outlet could place hazardous voltages on accessible metal parts.

"Product shall be used with Class 1 laser device modules."

### Avertissement

Équipement de classe I. Ce matériel doit être relié à la terre. La fiche d'alimentation doit être raccordée à une prise de terre correctement câblée. Une prise de courant mal câblée pourrait induire des tensions dangereuses sur des parties métalliques accessibles.

"Le produit doit être utilisé avec des modules de dispositifs laser de classe 1."



**CAUTION:** TO DISCONNECT POWER, REMOVE ALL POWER CORDS FROM UNIT.

注意：要断开电源，请将所有电源线从本机上拔下。

**WARNING:** Wenn Sie das Gerät zwecks Wartungsarbeiten vom Netz trennen müssen, müssen Sie beide Netzteile abnehmen.

**ATTENTION:** DÉBRANCHER LES TOUT CORDONS D'ALIMENTATION POUR DÉCONNECTER L'UNITÉ DU SECTEUR.

## Electrical Safety Instructions

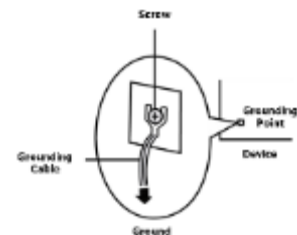
Before turning on the device, ground the grounding cable of the equipment. Proper grounding (grounding) is very important to protect the equipment against the harmful effects of external noise and to reduce the risk of electrocution in the event of a lightning strike. To uninstall the equipment, disconnect the ground wire after turning off the power. A ground wire (green-and-yellow) is required and the part connecting the conductor must be greater than 4 mm<sup>2</sup> or 10 AWG.

## Consignes de sécurité électrique

- ▶ Avant d'allumer l'appareil, reliez le câble de mise à la terre de l'équipement à la terre.
- ▶ Une bonne mise à la terre (connexion à la terre) est très importante pour protéger l'équipement contre les effets néfastes du bruit externe et réduire les risques d'électrocution en cas de foudre.
- ▶ Pour désinstaller l'équipement, débranchez le câble de mise à la terre après avoir éteint l'appareil.
- ▶ Un câble de mise à la terre est requis et la zone reliant les sections du conducteur doit faire plus de 4 mm<sup>2</sup> ou 10 AWG.

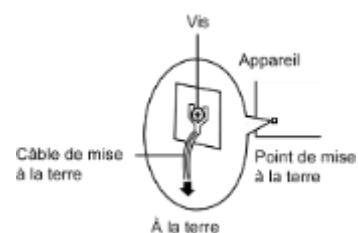
## Grounding Procedure for DC Power Source

- ▶ Connect the grounding cable to the ground.
- ▶ The protection device for the DC power source must provide 30 A current.
- ▶ This protection device must be connected to the power source before DC power.



## Procédure de mise à la terre pour source d'alimentation CC

- ▶ Branchez le câble de mise à la terre à la terre.
- ▶ L'appareil de protection pour la source d'alimentation CC doit fournir 30 A de courant.
- ▶ Cet appareil de protection doit être branché à la source d'alimentation avant l'alimentation CC.



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# CHAPTER 1: PRODUCT OVERVIEW

The NCA-4030 is based on Intel Xeon D, a branch of Xeon processors optimized for delivering ultra-low power consumption and robust performance. This appliance comes with the most innovative System-on-a-Chip built for the edge and is ideal for applications in networking, 5G and IoT/IIoT Edge computing, delivering improvement in packet processing performance, virtualized Customer Premise Equipment (vCPE) usages.

## Main Features

- ▶ Intel® Xeon D-1700 4~10 Cores
- ▶ 4x DDR4 2933MHz, Max. 128GB
- ▶ 4x 1G RJ45, 1x 2.5G RJ45, 1x 1G RJ45 (LOM), 4x 10G SFP+
- ▶ 2x NIC Slots, 1x RJ45 Console, 2x USB 3.0
- ▶ 2x 2.5" Internal HDD/SSD Bays, 1x M.2 2242
- ▶ 3x Fans, 450W 1+1 Redundant PSUs

## Package Content

Your package contains the following items:

- ▶ 1x NCA-4030 Network Security Platform
- ▶ 1x Power Cable
- ▶ 2x Console Cable
- ▶ 2x SATA Cable
- ▶ Nameplate
- ▶ 1x Short Ear Rackmount Kit (with screws)

## Ordering Information

SKU No.	Main Features
NCA-4030A	Intel Ice Lake D, 10C, 5x 1G RJ45, 1x 1G RJ45(LOM), 4x 10G SFP+, 2x NIC Module Slots
NCA-4030B	Intel Ice Lake D, 8C, 4x 1G RJ45, 1x 2.5G RJ45, 1x 1G RJ45 (LOM), 4x 10G SFP+, 2x NIC Slots
NCA-4030C	Intel Ice Lake D, 4C, 4x 1G RJ45, 1x 2.5G RJ45, 1x 1G RJ45 (LOM), 4x 10G SFP+, 2x NIC Slots

## Optional Accessories

Model	Description
PCIe Cable	PCIe cable for rear side PCIe expansion (By Project)
IAC-TPM04A	TPM 2.0 Module Card
PGN-300	4G LTE Radio Modem with LTE Cat-6 Embedded Module
PGN-600	4G LTE Radio Modem with LTE Cat-12 Embedded Module
1U Rackmount Kit	1U Slide Rackmount Rail Kit with screw pack

## System Specifications

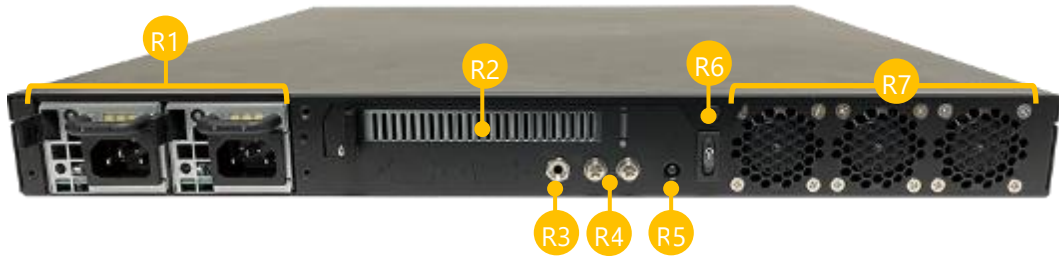
<b>Form Factor</b>		1U 19" Rackmount
<b>Platform</b>	Processor Options	Intel® Xeon® D-1700
	CPU Cores/TDP	SKU A: 10C, 85W; SKU B: 8C, 67W; SKU C: 4C, 45W
	CPU Socket	1x Onboard LGA1150
	Security Acceleration	Intel® QuickAssist Technology (By SKU)
<b>BIOS</b>		AMI SPI Flash BIOS
<b>System Memory</b>	Technology	DDR4 2933MHz REG or ECC/Non-ECC RDIMM
	Max. Capacity	128GB
	Socket	4x 288-pin DIMM
<b>Networking</b>	Ethernet Ports	1x 2.5G RJ45 Intel® i226-AT (MGMT Port); 5x 1G RJ45 LAN Ports 4x 10G SFP+ Ports
	NIC Module Slot	2x NIC slots
<b>LOM</b>	I/O Interface	1x 1G RJ45 LOM Port (via BMC)
	OPMA Slot	Yes
<b>I/O Interface</b>	Reset Button	1x Reset Button
	LED Indicator	Power/Status/Storage, refer to <a href="#">Appendix A</a>
	Power Button	1x ATX Power Button
	Console Port	1x 2.5G RJ45 Console Management Port
	USB Port	2x USB 3.0 Ports
	LAN Port	4x 1G RJ45 Ethernet Ports; 4x 10G SFP+ Ports;
	LOM Port	1x 1G RJ45 LOM Port
<b>Storage</b>	HDD/SSD Support	2x 2.5" Internal HDD/SSD Storage bays
	Onboard Slots	1x M.2 (SATA) 2242 B-Key
<b>Expansion</b>	PCIe	1x PCI-E*8 FH/HL (Optional), 1x PGN LTE Module (Optional)
<b>Miscellaneous</b>	Watchdog	Yes
	Internal RTC with Li Battery	Yes
	TPM	Yes (Optional)
<b>Cooling</b>	Processor System	Passive CPU Heatsink 3x Individual Cooling Smart Fans
<b>Environmental Parameters</b>	Temperature	0~40°C Operating, -20~70°C Non-Operating
	Humidity (RH)	5~90% Operating, 5~95% Non-Operating
<b>System Dimensions</b>	Size (WxDxH)	438 x 44 x 510mm
	Weight	9.4 kg
<b>Package Dimensions</b>	(WxDxH)	739 x 215 x 582 mm
	Weight	13 kg
<b>Power</b>	Type/Watts	450W 1+1 Redundant PSU
	Input	AC 90~264V @47~63 Hz
<b>OS Support</b>		Linux
<b>Approvals and Compliance</b>		CE/FCC Class A, UL, RoHS

## Front Panel



No.	Description	
F1	LED Indicators	Power/Status/Storage, pls refer to <a href="#">Appendix A</a>
F2	Reset Button	1x Reset Button
F3	Console Port	1x 2.5G RJ45 Console Management Port
F4	USB Port	2x USB 3.0 Ports
F5	SFP Port	4x 10G SFP+ Ports
F6	LAN Port	5x 1G RJ45 Ethernet Ports
F7	LOM Port	1x 1G RJ45 LOM Port (for remote management)
F8	PGN Module	1x Removable PGN Module Slot (Optional)
F9	NIC Module	2x NCS2 Slim Type NIC Module (Optional)

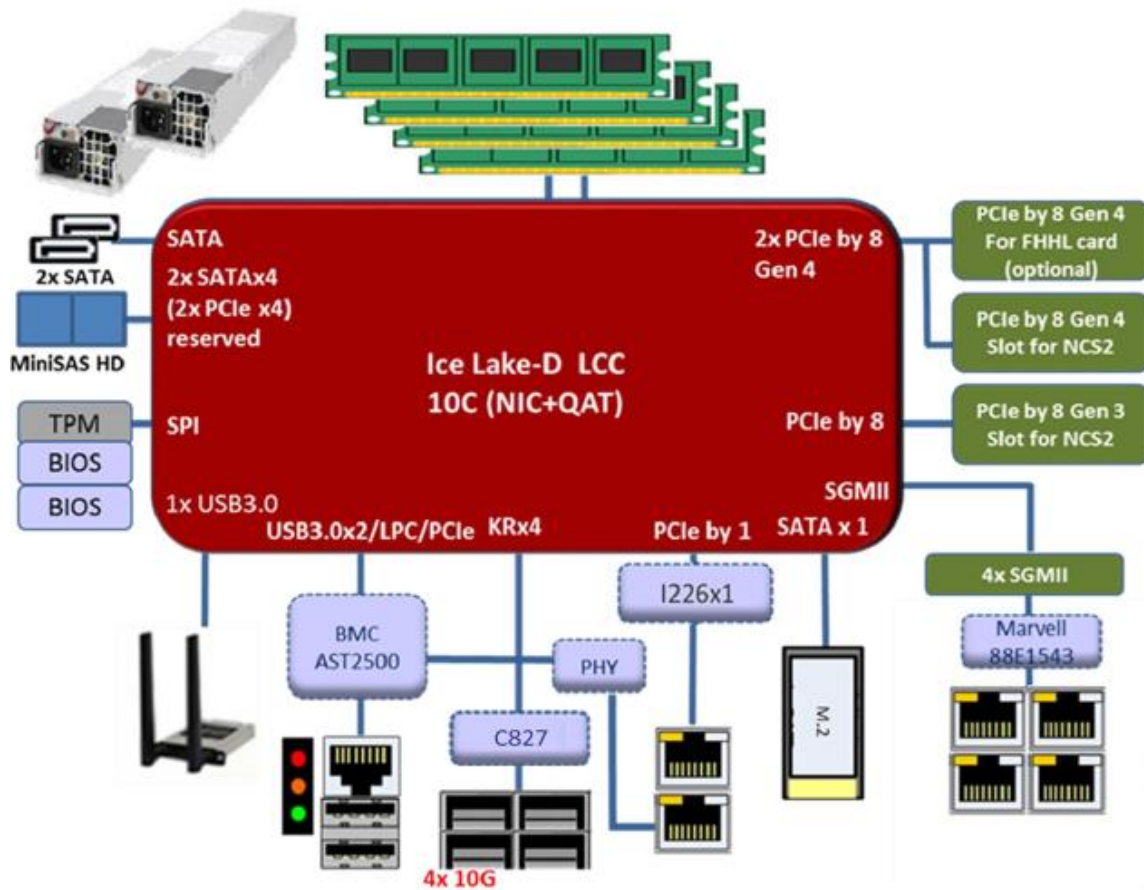
## Rear Panel



No.	Description	
R1	Power Supply	450W 1+1 Redundant PSU
R2	Rear PCIe Expansion	1x PCIe*8 FH/HL (Optional)
R3	ESD Jack	1x ESD Jack
R4	Ground Hole	2x Grounding Holes
R5	Reset Button	1x Reset Button
R6	Power Switch	1x Slim Type ATX ON/OFF Button
R7	Smart Fans	3x Independent Swappable Smart Fans

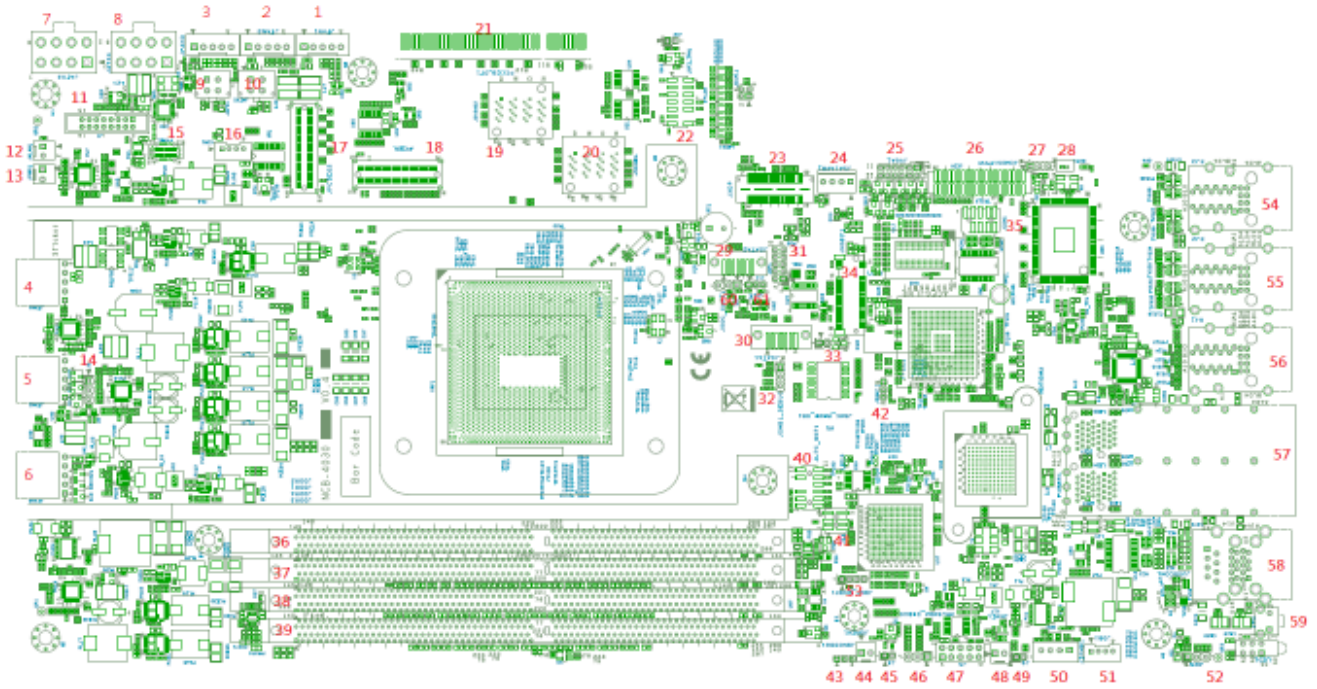
# CHAPTER 2: MOTHERBOARD INFORMATION

## Block Diagram

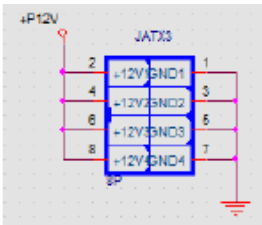


# Jumpers and Connectors

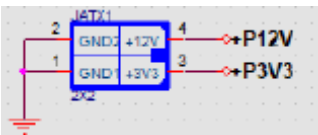
The following displays the connectors and jumpers on the motherboard layout.



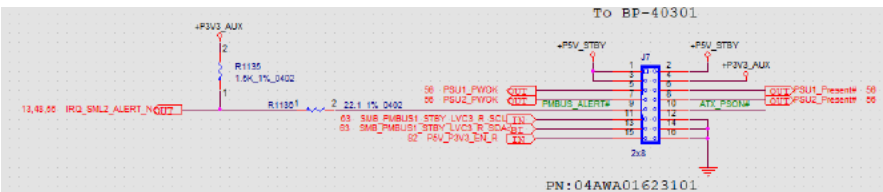
- 1~3 (JFAN1 ~ JFAN3): Fan Connector M-180°
- 4~6 (JFAN4~JFAN6): Fan Connector M-RA
- 7~8 (JATX3~JATX4): To Power Board 12V Power Connector



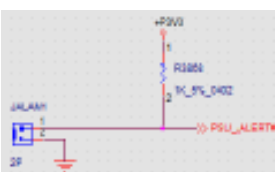
- 9~10 (JATX1~JATX2): To PCIe Card Power Connector



- 11 (J7): To Power Board

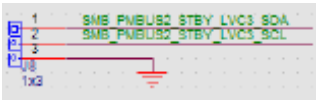


- 12 (JALAM1): Buzzer Alert



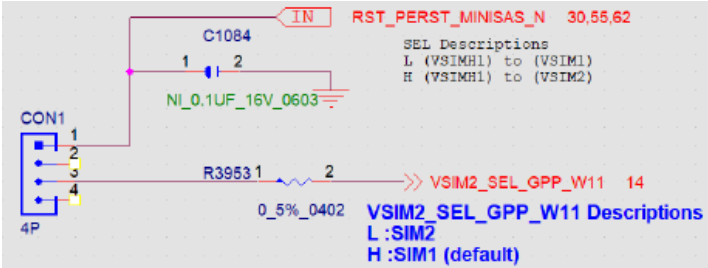
**13 (JPWR1):** PWRBTN

**14 (J8):** Power PMBUS



**15 (Type C):** USB 3.0 Port1 (Type C) PGN Module CONN

**16 (CON1):** SIM Select Control Pin

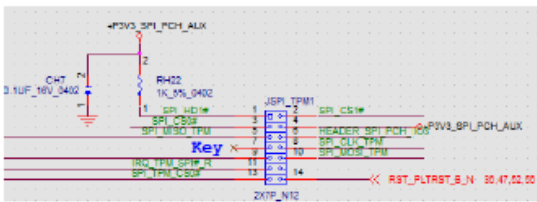


**17~18 (JPCIEG1~JPCIEG2):** PCIe Gen4 Connector

**19~20 (JSASHD1~JSASHD2):** MiniSAS Connector (SATA)

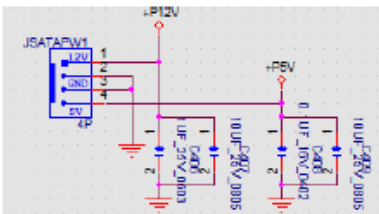
**21 (PCIESLOT1):** PCIe Gen3 Slot

**22 (JSPI\_TPM1):** SPI & JSPI\_TPM1 Pin Connector

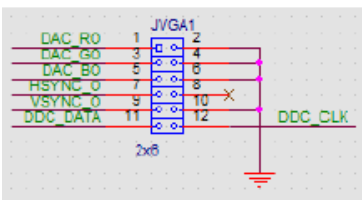


**23 (JXDP):** XDP Connector (Debug only)

**24 (JSATAPW1):** SATA HDD Power Connector



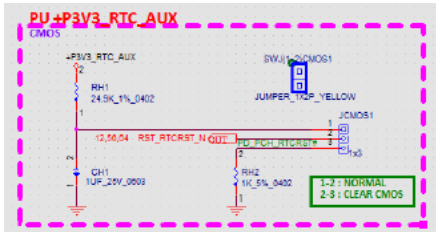
**25 (JVGA1):** VGA Connector



**26 (JIDV):** IDV Connector (Debug Only)



**27 (JCMOS1):** CMOS Control Pin

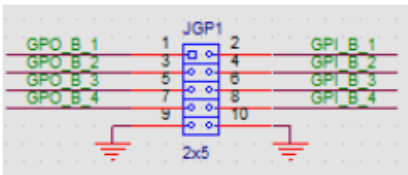


**28 (BAT1):** To BAT Connector

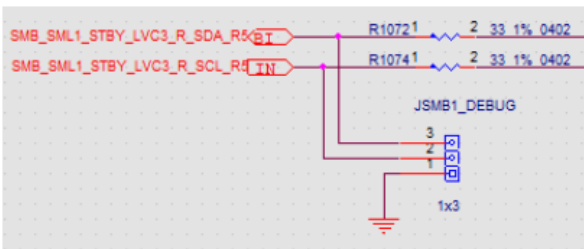


**29~30 (JSATA1~JSATA2):** SATA Connector

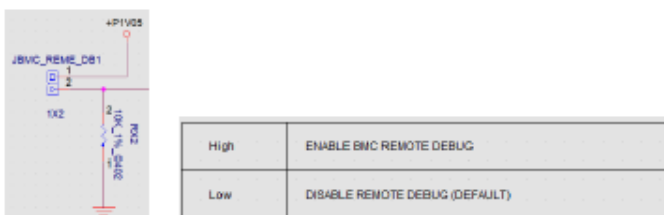
**31 (JGP1):** GPIO Connector



**32 (JSMB1\_DEBUG):** SMB1 Connector (debug only)



**33 (JBMC\_REME\_DB1):** BMC Remote Debug Select Connector

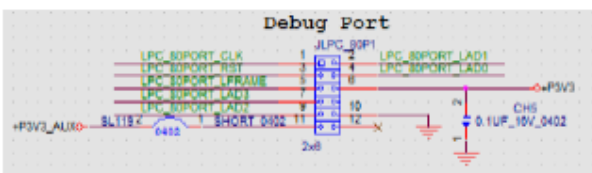


**34 (JNGFF1):** M.2 Connector

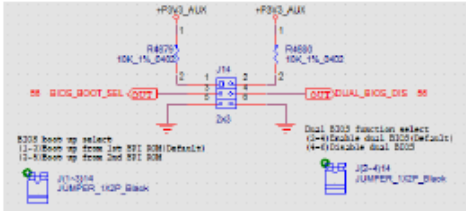
**35 (JCOM1):** COM Console Port Connector

**36~39 (JDDR1~JDDR4):** DDR4 DIMM Connector

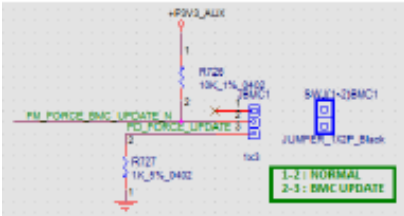
**40 (JLPC\_80P1):** Debug Port Connector (LPC & ESPI)



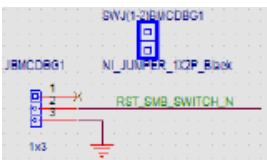
**41 (J14): BIOS Boot Up Select & Dual BIOS Function Select Connector**



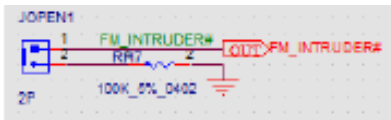
**42 (JBMC1): BMC Update Select Connector**



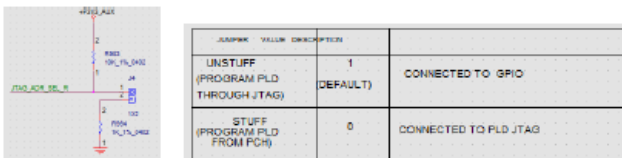
**43 (JBMCBG1): RST\_SMB\_SWITCH Select Connector**



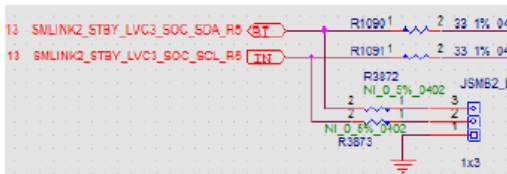
**44 (JOPEN1): Case Open Connector**



**45 (J4): JTAG Select Connector**



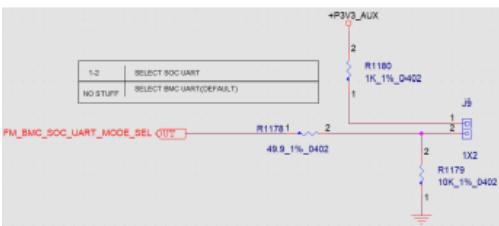
**46 (JSMB2\_DEBUG): SMB1 Connector (Debug only)**



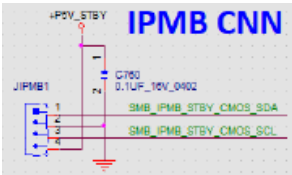
**47 (J5): JTAG Connector (CPLD Burn File)**

**48 (JNMI1): NMI Connector**

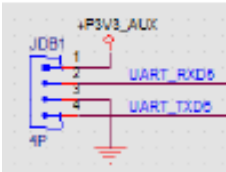
**49 (J9): UART Select Connector**



**50 (JIPMB1): IPMB Connector**



**51 (JDB1): BMC UART5 Connector (BMC debug)**



**52 (JRST1): RESET Connector (Do not use)**

**53 (JBMC\_HSBP1): SMB\_HSBP\_PFR Connector (Do not use)**

**54~55 (RJ3\_RJ2): IG Copper LAN Port (Marvell 88E1543)**

**56 (RJ1):** Up: 2.5G Copper LAN Port (I226);  
Down: 1G Copper LAN Port (AST2500 MAC1)

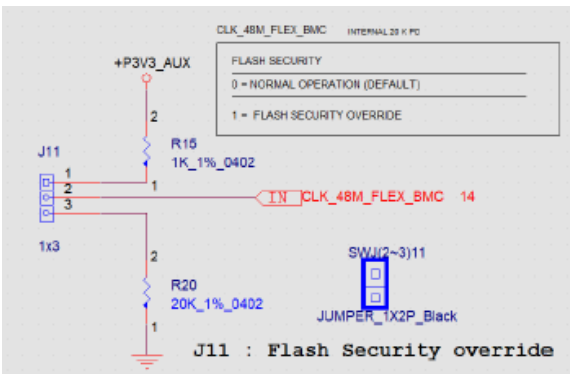
**57 (FIBER1): 10G Fiber Port (PHY C827)**

**58 (JUSBCOM1): RJ45 COM Console Port; USB 3.0 x2**

**59 (SW2): Reset Button**

**60 (JSOC\_UART1): SOC UART Connector**

**1 (J11): Flash Security Override**

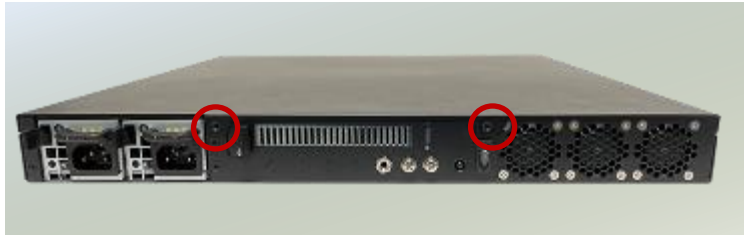


## CHAPTER 3: HARDWARE SETUP

To reduce the risk of personal injury, electric shock, or damage to the system, please remove all power connections to shut down the device completely and wear ESD protection gloves when handling the installation steps.

### Opening the Chassis

1. Power off the system and remove all power connections.
2. Remove the two (2) screws on the rear panel.
3. Gently pull the top cover backwards and lift the chassis cover up to remove.

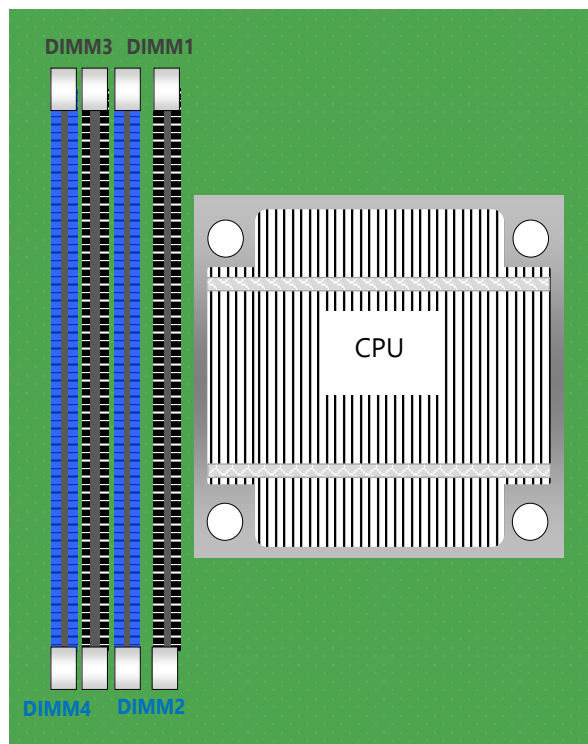


## Installing the System Memory

The motherboard supports 4x memory slots for DDR4 RDIMM with speeds of up to 2933MHz. Please follow the steps below to install the DIMM memory module properly.

### Supported System Memory Summary

Total Slots	4
Number of Channels	2 (2 DIMMs per channel)
Supported DIMM Capacity	4GB, 8GB, 16GB, 32GB
Memory Size	Maximum 128GB (32GB*4)
Memory Type	DDR4 ECC, Non-ECC RDIMM 2933MHZ
Minimum DIMM Installed	At least 1 memory modules to boot and run

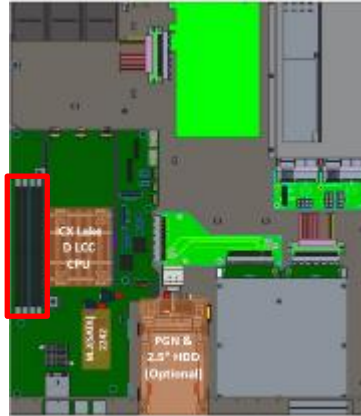


### DIMM Population Guidelines

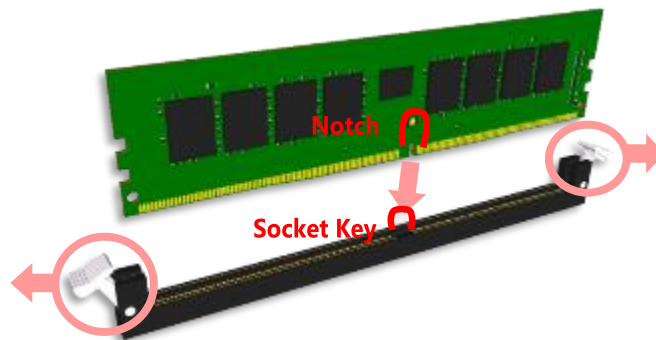
- The CPU requires at least 1 memory module to boot and run from, always insert memory module starting with the blue DIMMs for optimal performance.
- Use memory modules of the same capacity, speed, and from the same manufacturer to avoid compatibility issues and to achieve optimal CPU performance.

## Memory Module Installation Instructions

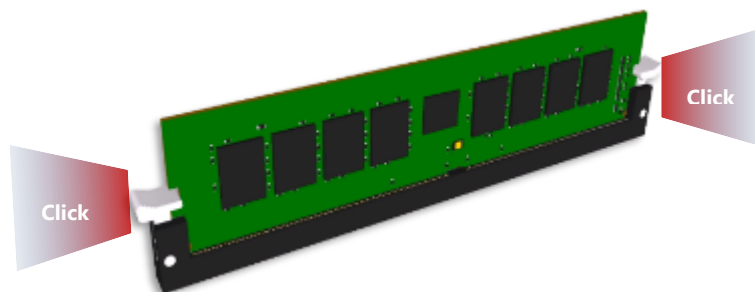
1. Power off the system, open the chassis cover.
2. Locate the DIMM memory slots.



3. Pull open the white DIMM slot latches.
4. Align the notch of the module with the socket key in the slot and carefully insert the card into the slot.



5. Push the module down into the slot until it is firmly seated. Press vertically on both corners of the card until it clicks into place.



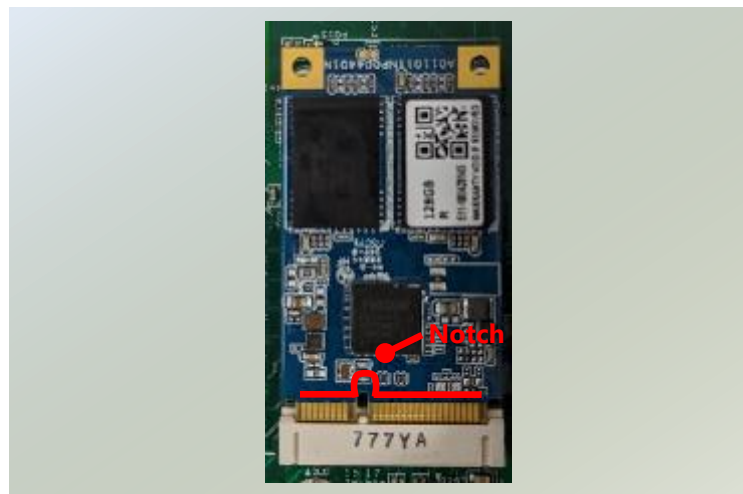
## Installing M.2 Memory Card (Optional)

The system supports one M.2 slot for additional data storage. Please follow the steps for installation.

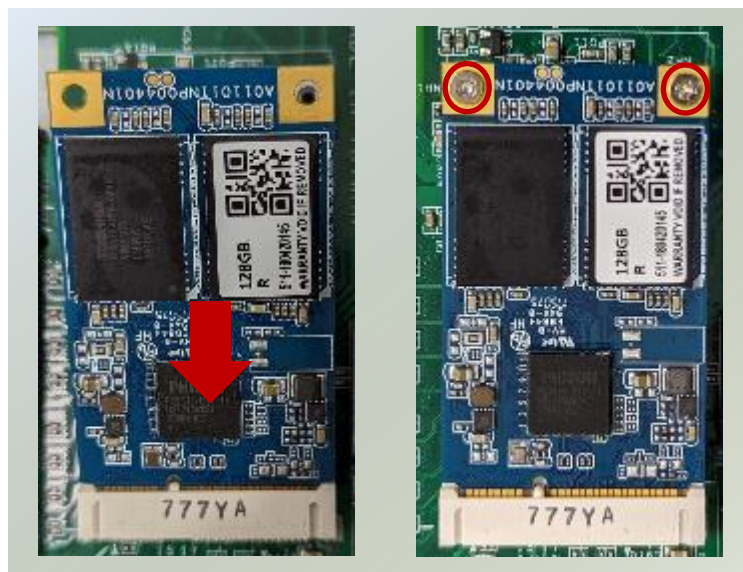
1. Power off the system and open the chassis cover.
2. Locate the M.2 slot on the motherboard.



3. Align the notch of the M.2 memory card with the socket key in the pin slot.



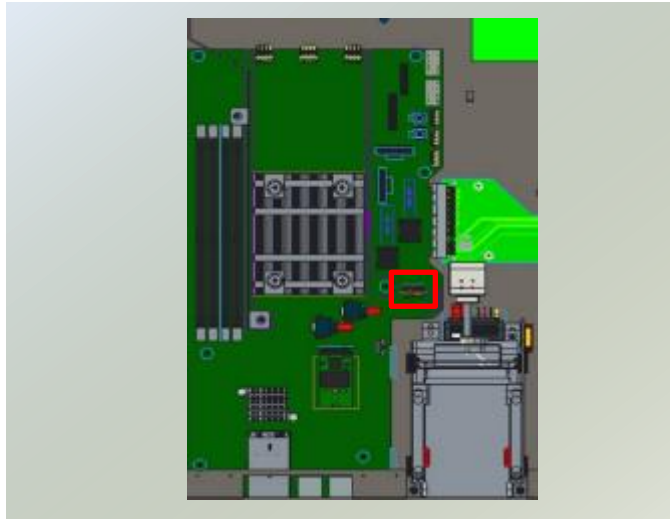
4. Insert the M.2 memory card pins at 30 degrees into the socket until it is fully seated.
5. Push down on the module card and secure it with two (2) screws.



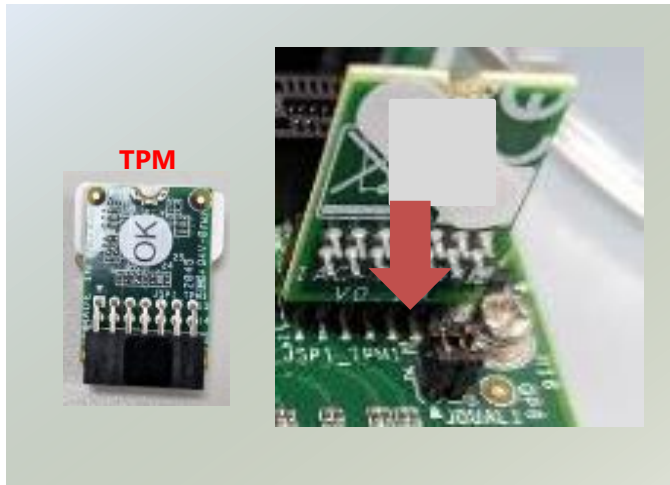
## Installing TPM Module (Optional)

The system provides one slot of a TPM module card to provide hardware-based security related functions. Follow the steps below for installation.

1. Power off the system and open the cover.
2. Locate the TPM connector pins on the motherboard.



3. Insert the module card pins with the connector pins, until the module card is firmly seated.



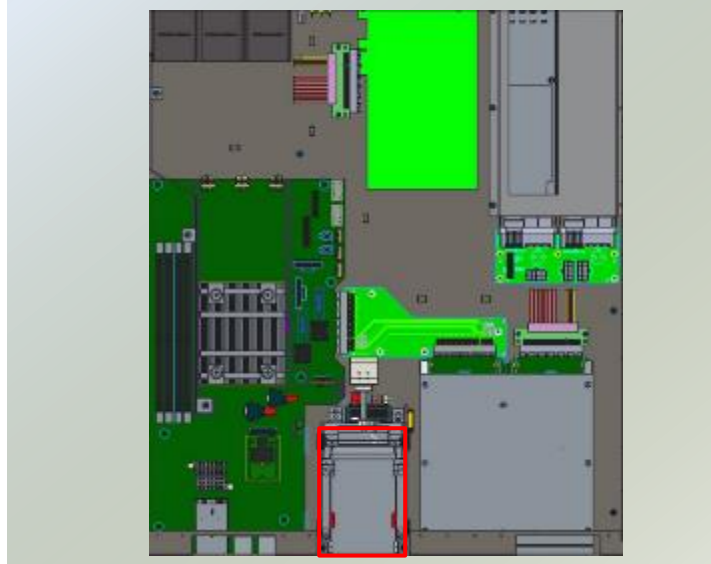


## Installing Disk Drive(s) (Optional)

The HDD/SSD bay supports two 2.5" SATA HDDs or SSD for additional data storage. Follow the steps below for installation.

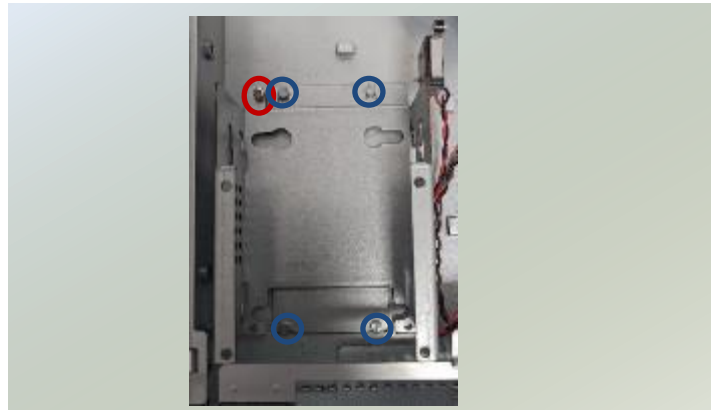
After you have installed the drives on the disk bay, make sure the SATA data cables and SATA power cables are connected to the designated connectors on the motherboard.

1. Power off the system and open the cover.
2. Locate the 2.5" disk trays inside the system.



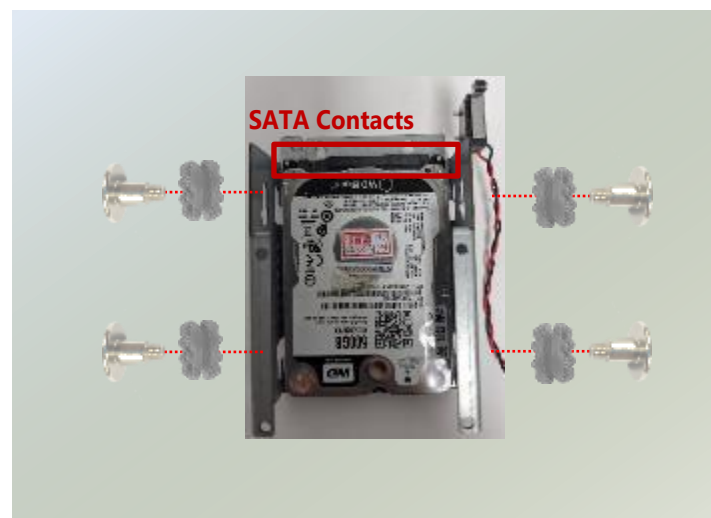
3. Loosen the one (1) screw that secures the tray. Remove the screw, take the tray out and prepare to install the disk drives.

Note: Make sure to watch out for the notches (circled in blue) on the sides of the tray, especially when placing the tray back in the system.



4. Mount the disk drives in the tray, make sure the SATA Contacts (SATA data cables and power cable connectors) are facing outwards. Apply two (2) disk screws with rubber washers on each side of the disk drive.

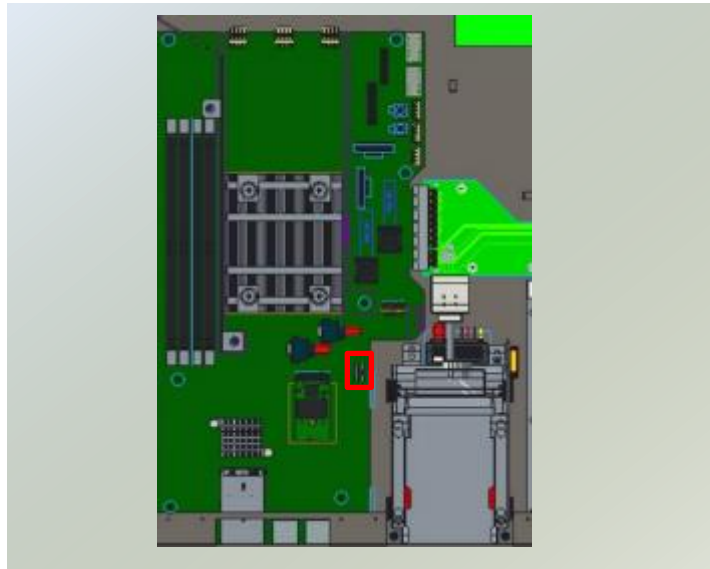
NOTE: If you are going to install two disk drives, always start by installing the disk in the lower (bottom) slot.



5. Attach the SATA data cable and power cable to the HDD/SSD disk.
6. Place the tray (with the disk drives now installed) back to its original place inside the system. Secure with the original one (1) screw.



7. Then, insert the other end of the SATA data cable into the corresponding connector on the motherboard.



## Installing NIC Modules

NCA-4030 comes with two NIC module slot for expansion. Follow the steps for installation.

1. Locate the NIC module slot on the front panel of the system.



2. Rotate clockwise and loosen the two lock-screws, and remove the NIC module slot door.



3. Insert your NIC module. (The module shown here is for reference only.)



4. Once the module is firmly seated, rotate counter-clockwise and tighten the two lock screws.

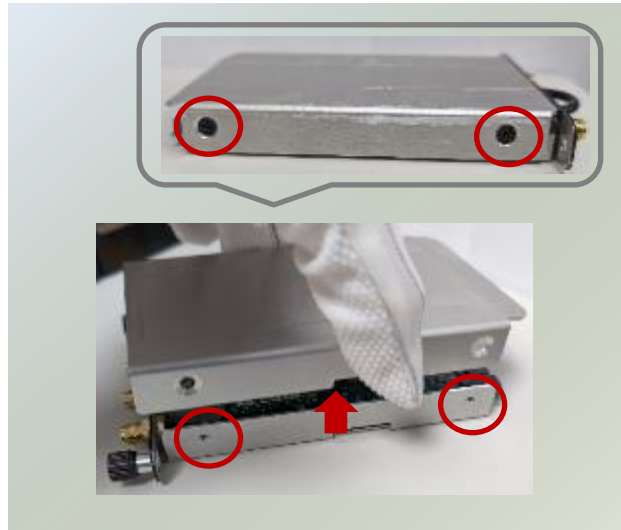


## Installing PGN Module (Optional)

NCA-4030 comes with one optional PGN module slot for 4G/LTE add-on. Follow the steps for installation.

### Setting up the PGN Module

1. Loosen the two (2) screws on each side of the PGN module and lift up the cover.

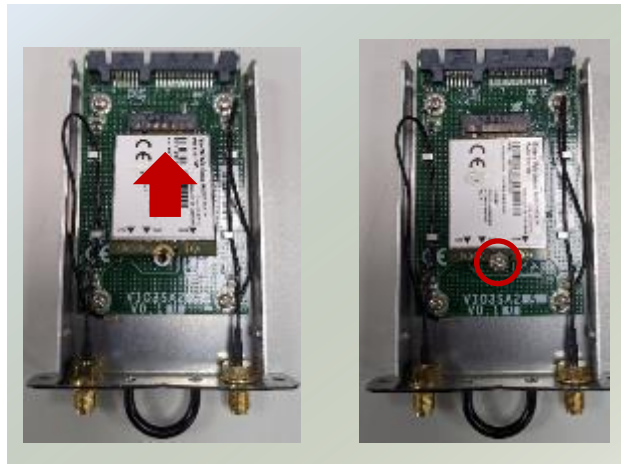


2. Locate the LTE module card slot on the board. Align the notch of the LTE module card with the socket key in the slot.



3. Insert at 30 degrees into the socket until it is fully seated in the connector.

4. Vertically push down on the LTE module card and secure it with one (1) screw.



### Installing LTE Antennas

1. Locate the IPEX connectors (A1, A2) on the LTE module card.



2. Connect the cables to the LTE module card IPEX connectors.

3. Place the top cover back on and secure with two (2) screws on each side.

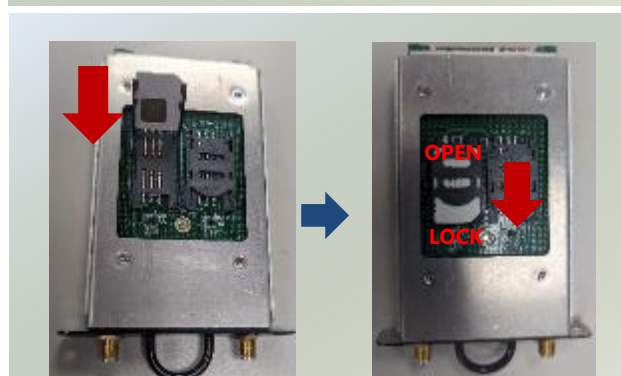


### Installing SIM Cards

1. Locate the SIM card holder on the bottom side of the PGN module.

2. Slide the SIM card holder to the open position, and then carefully lift the cover on its hinges.

3. Insert the SIM card into the slot, fold down the SIM card holder and slide the socket cover to the Lock position.



## Installing PGN Module

1. Locate the PGN module slot on the front panel of the system.



2. Insert a PGN module. (The module shown here is for reference only.)



3. Once the module is firmly seated, secure with the two (2) original screws.



4. Secure the two (2) antennas on the front side of the PGN module.

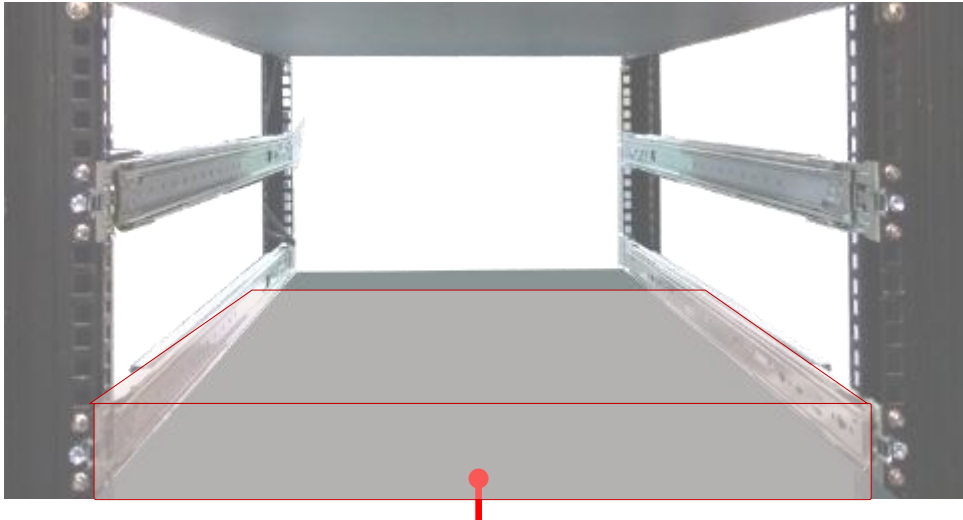


## Mounting the System

There are two methods for installing this system into a rack:

► With **Mounting Ear Brackets** only

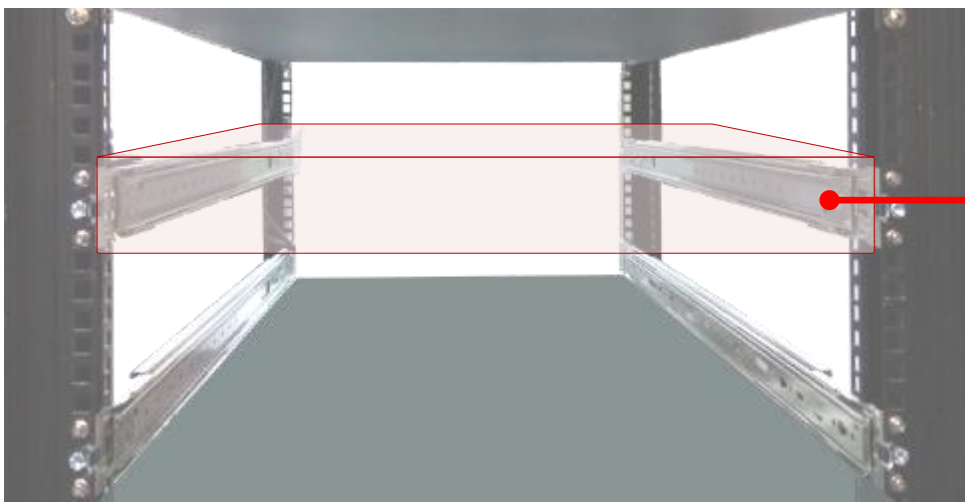
This method is quick and easy by fixing this system to the front posts of the rack, but it also makes servicing the system more difficult. Please note that the use of these brackets must go with a rack shelf or slide rails to prevent the chassis from falling over, for the bracket assembly alone cannot provide sufficiently support to the chassis.



The system shall be installed on the rack along with a shelf or slide rails, for the "Mounting Ears" are meant to secure the system, not to support it.

► With **Slide Rail Kit + Mounting Ear Brackets**

This method is rather complicated, but the slidable rails allow you to access the system easily while securing it in the rack solidly.



The Slide Rail Kit can secure the system while providing sufficient weight support for the device.

## Installing the System Using Mounting Ear Brackets Only

1. Check the accessory pack for the following items:

- ▶ 1x Screw Pack
- ▶ 2x Ear Brackets



Screw Pack



Ear Brackets

2. Align the bracket to the side of the chassis and make sure the screw-holes are matched, and then secure the bracket onto the chassis with three provided screws.



3. Repeat Step 2 to attach the bracket to the other side of the chassis.



4. Install the chassis into the rack with the brackets fixed onto the posts using the provided screws. The actual approach you adopt and the needed parts for assembly will depend on the supporting accessory (shelf or rail kit) you use.





### Installing the System Using the Slide Rail Kit (with Mounting Ear Brackets)

1. Check the package contents of the Slide Rail Kit. The kit shall include the following items:

- ▶ 1x pack of M4X4L screws (for securing the Rail Brackets on the system)
- ▶ 1x pack of 7.1 Round Hole screws (for securing the system on the rail posts)
- ▶ 2x Slide Rails



M4X4L Screws



7.1 Round Hole Screws



Slide Rails

A rail consists of the following parts:



2. Unpack a slide rail and slide the Inner Rail all the way to the end.

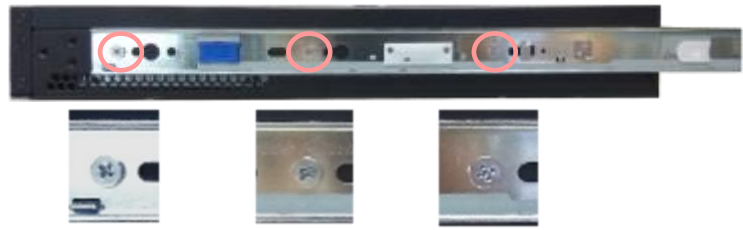


3. Stretch the Rail Bracket to the fullest.

4. Remove the Rail Bracket from the Inner Rail by pushing the Release Tab on the bracket outwards while sliding it out.



5. Align the bracket to the side of the chassis and make sure the screw-holes are matched, and then secure the bracket onto the chassis with three provided M4X4L screws.



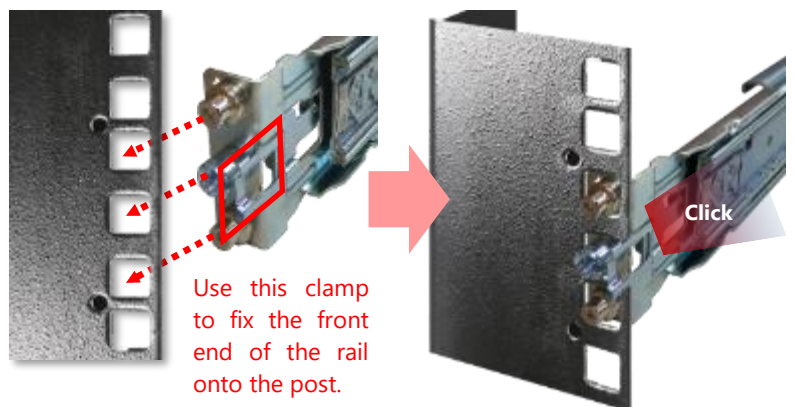
Align the screws with the holes indicated on the brackets and the screw holes on the side of the chassis.

6. Repeat Steps 2~5 to attach the bracket to the other side of the chassis.
7. Follow the instructions in Installing the System Using Mounting Ear Brackets Only to attach the Mounting Ear Brackets.

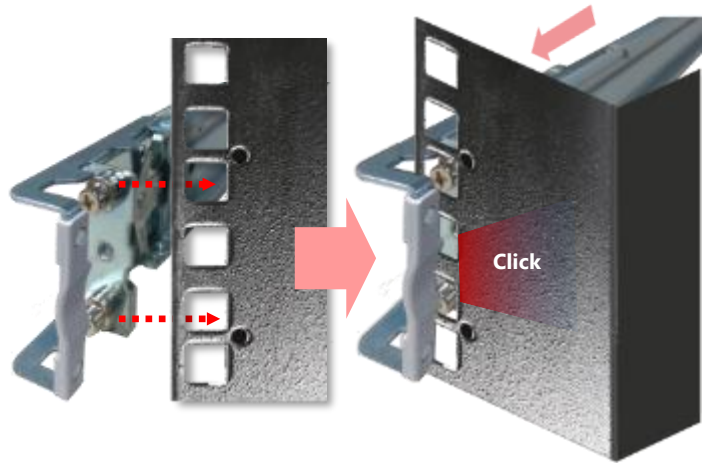


Now, you shall install the slide rail assemblies onto the rack.

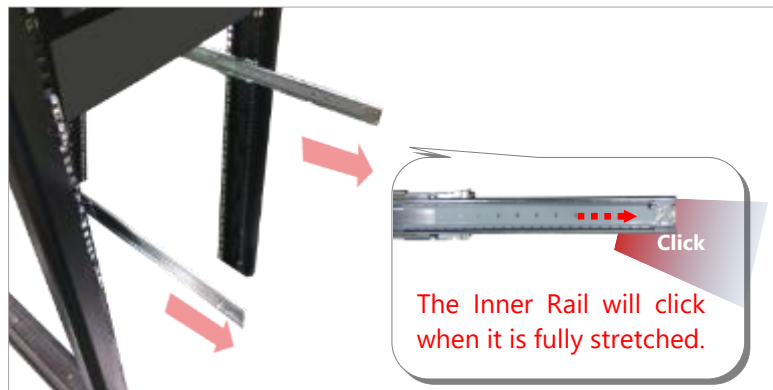
8. This slide rail kit does NOT require screw-fixing. Simply aim at three available screw holes on the rack front and snap the rail front into the rack post as shown in the image. You should hear a “click” sound once it is firmly attached.



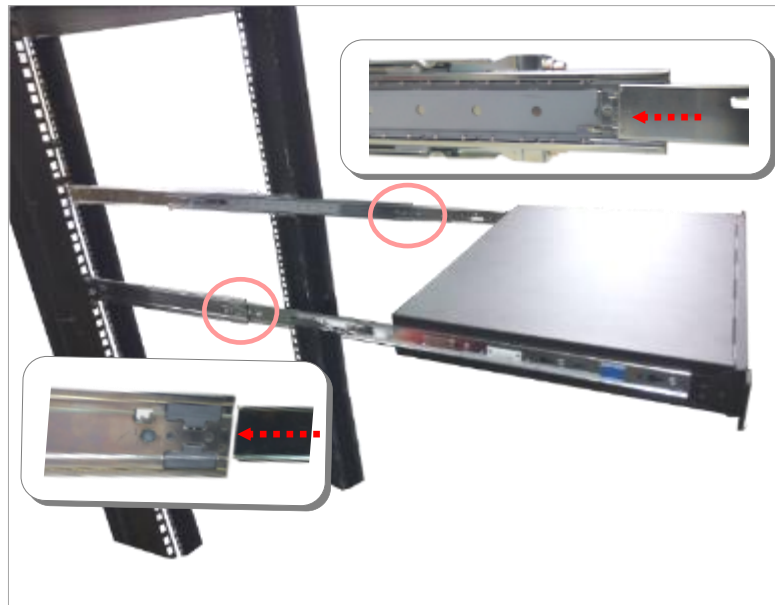
9. For the rear rack installation, slide the rail to aim and engage the bolts on the rail's rear end with the two available holes on the post, and the rail assembly will click into place.



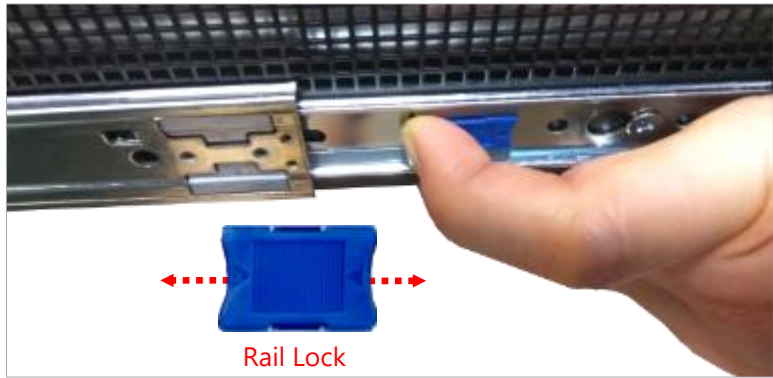
10. Stretch both of the Inner Rails out to their fullest extent. You will hear a click sound when they are fully stretched and locked.



11. Hold the system with its front facing you, lift the chassis and gently engage the brackets on the system while aligning them with the Inner Rails as shown in the image, and then push the system into the cabinet.



- 12. While pushing in the system, also push and hold the Rail Lock tab on both brackets.



Push the system all the way in until it stops.



To remove the system from the rack, gently pull it outwards, towards you, while pushing the Release Tab on both sides of the brackets.



## CHAPTER 4: BIOS SETUP

BIOS (Basic Input / Output System) is the program that controls the computer boot process.

### Entering Setup

BIOS is a firmware embedded on an exclusive chip on the system's motherboard. Lanner's BIOS firmware offering including market-proven technologies such as Secure Boot and Intel Boot Guard technology deliver solid commitments for the shield protection against malware, uncertified sequences and other named cyber threats.

To enter the BIOS setup utility, simply follow the steps below:

1. Boot up the system.
2. Pressing the **<Tab>** or **<Del>** key immediately allows you to enter the Setup utility, and then you will be directed to the BIOS main screen. The instructions for BIOS navigations are as below:

Control Keys	Description
→←	select a setup screen
↑↓	select an item/option on a setup screen
<Enter>	select an item/option or enter a sub-menu
+/-	adjust values for the selected setup item/option
F1	display General Help screen
F2	retrieve previous values, such as the last configured parameters during the last time you entered BIOS
F3	load optimized default values
F4	save configurations and exit BIOS
<Esc>	exit the current screen



**Note:** The images in the following section are for reference only.

## Main Page

Setup main page contains BIOS information and project version information.



Feature	Description
BIOS Information	BIOS Vendor: American Megatrends Core Version: AMI Kernel version, CRB code base, X64 Compliancy: UEFI version, PI version BIOS Version: BIOS release version Build Date and Time: MM/DD/YYYY Access Level: Administrator / User
Memory Information	Total Memory: By Case
System Date	To set the Date, use <Tab> to switch between Date elements. Default Range of Year: 2005-2099 Default Range of Month: 1-12 Days: dependent on Month
System Time	To set the Date, use <Tab> to switch between Date elements.

## Advanced Page

Select the **Advanced** menu item from the BIOS setup screen to enter the "Advanced" setup screen. Users can select any of the items in the left frame of the screen.



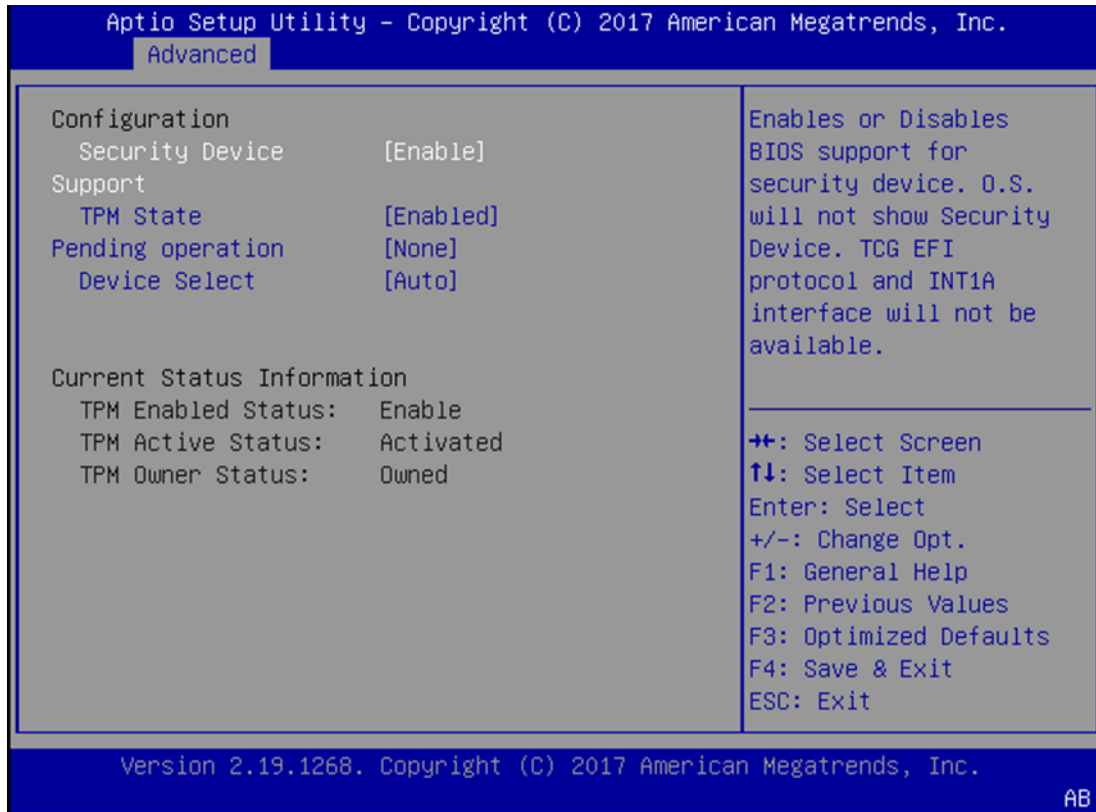
## Trusted Computing



Feature	Options	Description
Security Device Support	<p><b>Enabled</b></p> <p>Disabled</p>	Enables or disables BIOS support for security device. By disabling this function, OS will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

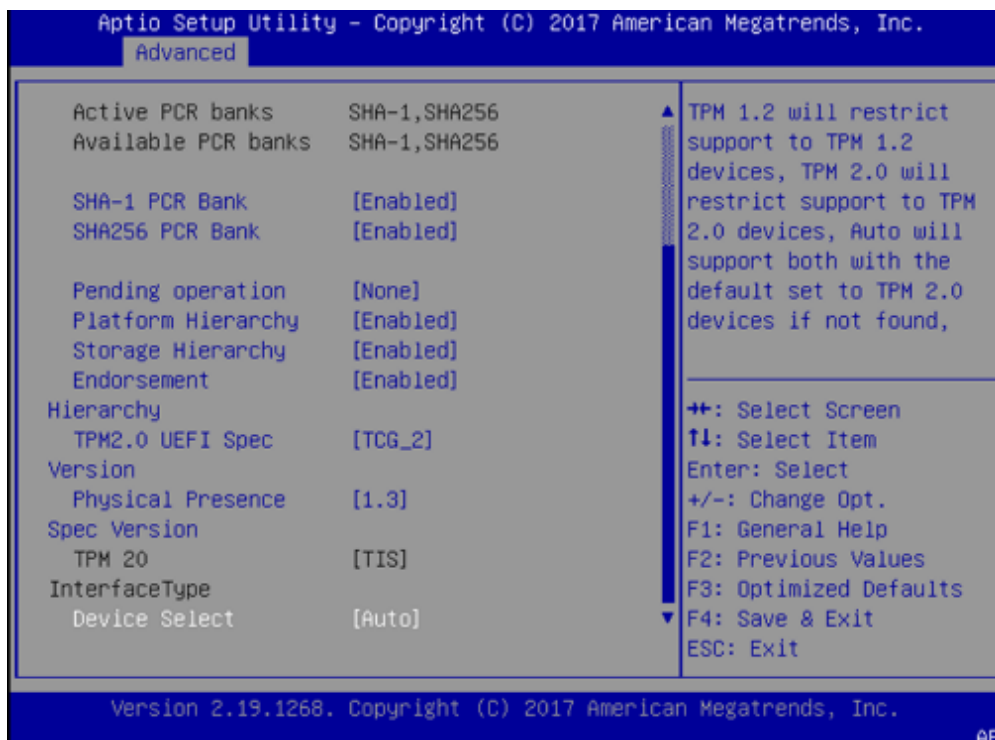


## Trusted Computing (TPM1.2)



Feature	Options	Description
Security Device Support	Enabled Disabled	Enables or disables BIOS support for security device. By disabling this function, OS will not show Security Device. TCG EFI protocol and INT1A interface will not be available.
TPM State	Enabled Disabled	Enables or disables Security Device. NOTE: Your computer will reboot during restart to change State of the Device.
Pending Operation	None TPM Clear	Schedules an Operation for the Security Device. NOTE: Your computer will reboot during restart to change State of Security Device.
Device Select	TPM 1.2 TPM 2.0 Auto	TPM 1.2 will restrict support to TPM 1.2 devices; while TPM 2.0 will restrict support to TPM 2.0 devices; Auto will support both with the default set to TPM 2.0 devices. If not found, TPM 1.2 devices will be enumerated.

## Trusted Computing (TPM 2.0)



Feature	Options	Description
Security Device Support	Enabled Disabled	Enables or disables BIOS support for security device. By disabling this function, OS will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

SHA-1 PCR Bank	Enabled Disabled	Enables or disables SHA-1 PCR Bank.
SHA256 PCR Bank	Enabled Disabled	Enables or disables SHA256 PCR Bank.
Pending Operation	None TPM Clear	Schedules an Operation for the Security Device. <b>NOTE:</b> Your computer will reboot during restart to change State of Security Device.
Platform Hierarchy	Enabled Disabled	Enables or disables Platform Hierarchy.
Storage Hierarchy	Enabled Disabled	Enables or disables Storage Hierarchy.
Endorsement Hierarchy	Enabled Disabled	Enables or disables Endorsement Hierarchy.
TPM 2.0 UEFI Spec Version	TCG_1_2 TCG_2	Select the TCG2 Spec Version, <b>TCG_1_2:</b> Supports the Compatible mode for Win8/Win10 <b>TCG_2:</b> Supports new TCG2 protocol and event format for Win10 or later.
Physical Presence Spec Version	1.2 1.3	Select to tell OS to support PPI Spec Version 1.2 or 1.3. <b>NOTE:</b> Some HCK tests might not support 1.3.
TPM 20 Interface Type	TIS	Select <b>TPM 20 Device</b> for the Communication Interface.
Device Select	TPM 1.2 TPM 2.0 Auto	<b>TPM 1.2</b> will restrict support to TPM 1.2 devices; while <b>TPM 2.0</b> will restrict support to TPM 2.0 devices; <b>Auto</b> will support both with the default set to TPM 2.0 devices. If not found, TPM 1.2 devices will be enumerated.

## Super IO Configuration



## Serial Port 3 Configuration



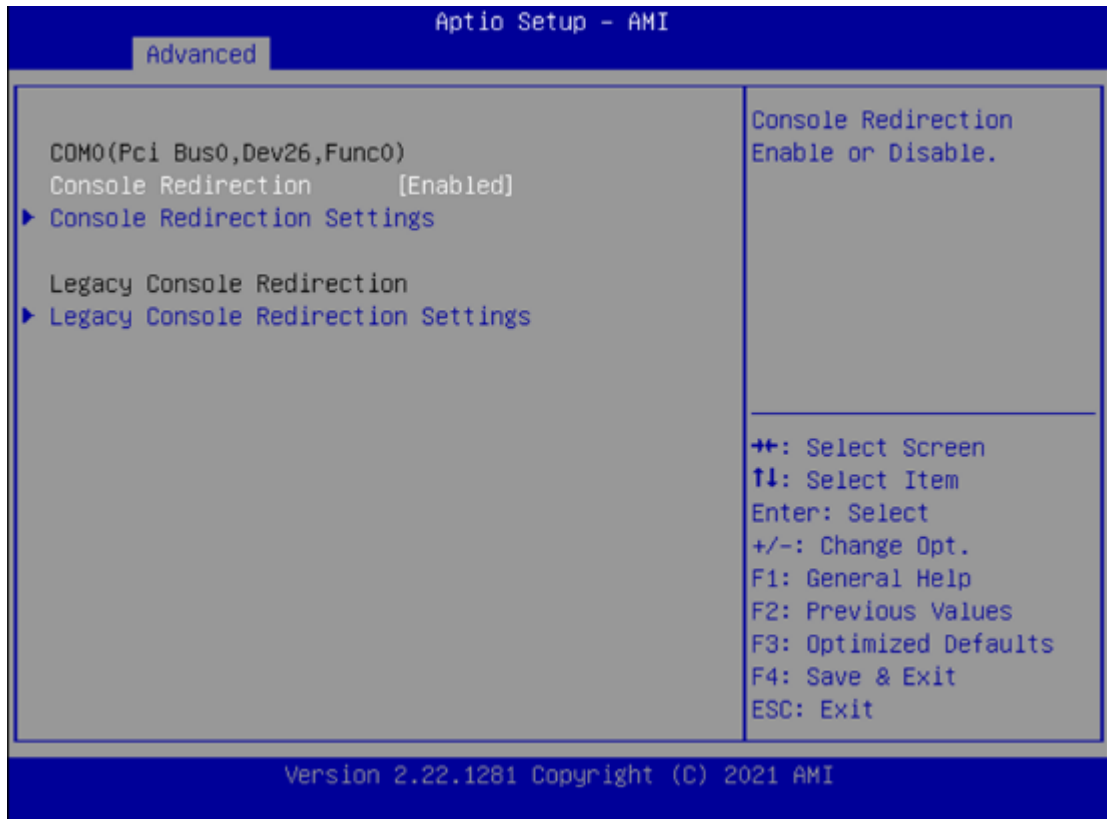
Feature	Options	Description
Serial Port	Enabled Disabled	Enables or disables Serial Port 1.
Device Settings	NA	IO=3E8h; IRQ=7

## Serial Port 4 Configuration



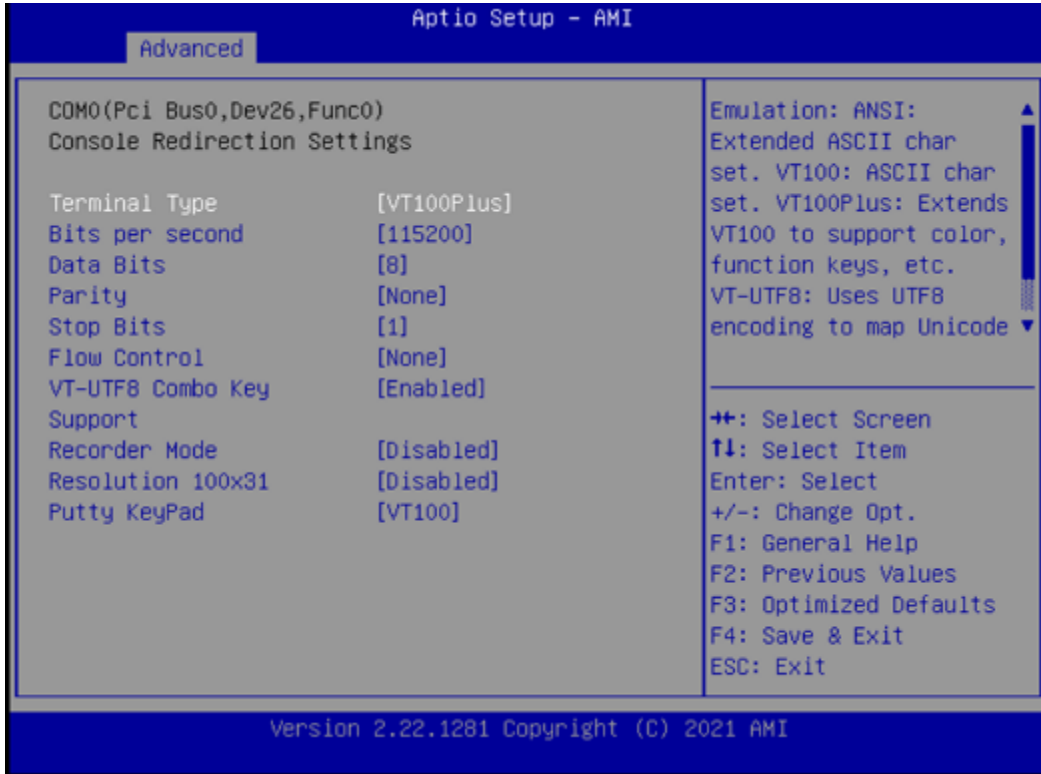
Feature	Options	Description
Serial Port	Enabled Disabled	Enables or Disables Serial Port 2
Device Settings	NA	IO=2E8h; IRQ=7

## Serial Port Console Redirection



Feature	Options	Description
COM0 Console Redirection	Enabled Disabled	Enables or disables console redirection

## Console Redirection Settings

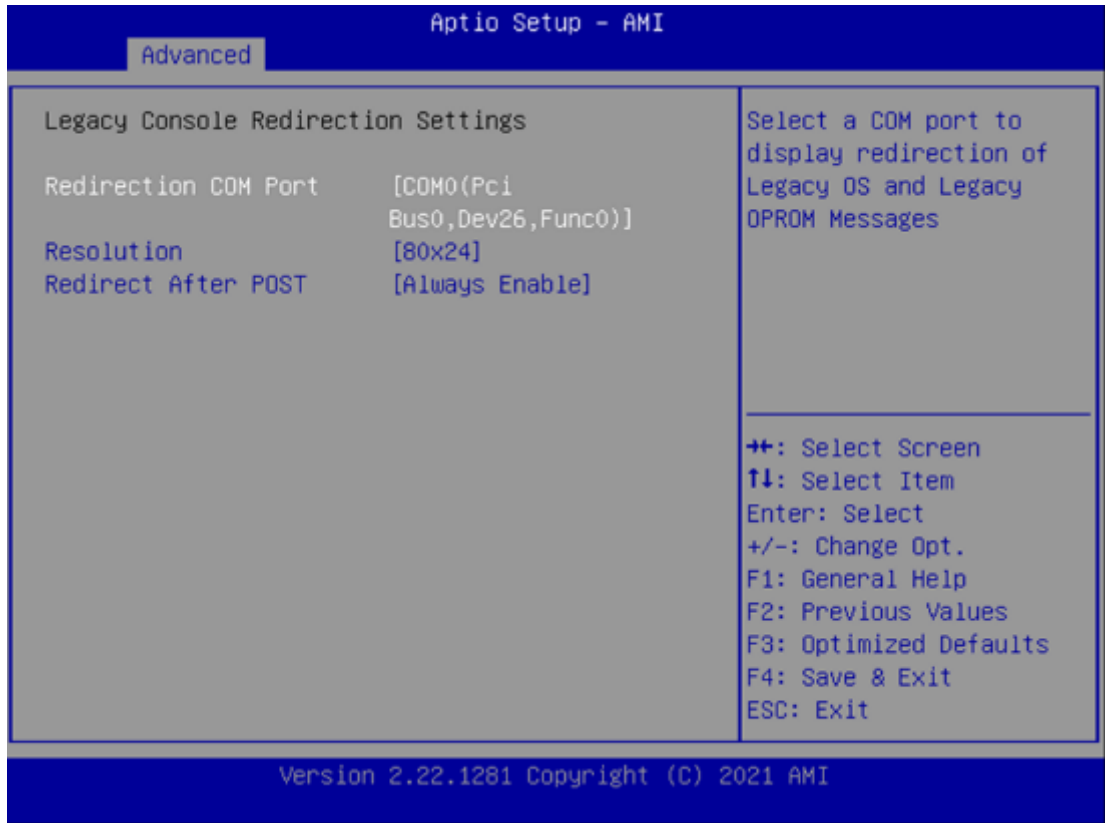


Feature	Options	Description
Terminal Type	VT100 <b>VT100+</b> VT-UTF8 ANSI	VT100: ASCII char set VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes ANSI: Extended SCII char set
Bits per second	9600 19200 38400 57600 <b>115200</b>	Selects serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.
Data Bits	7 <b>8</b>	Data Bits
Parity	<b>None</b> Even Odd Mark Space	A parity bit can be sent with the data bits to detect some transmission errors.
Stop Bits	<b>1</b> 2	Indicates the end of a serial data packet.



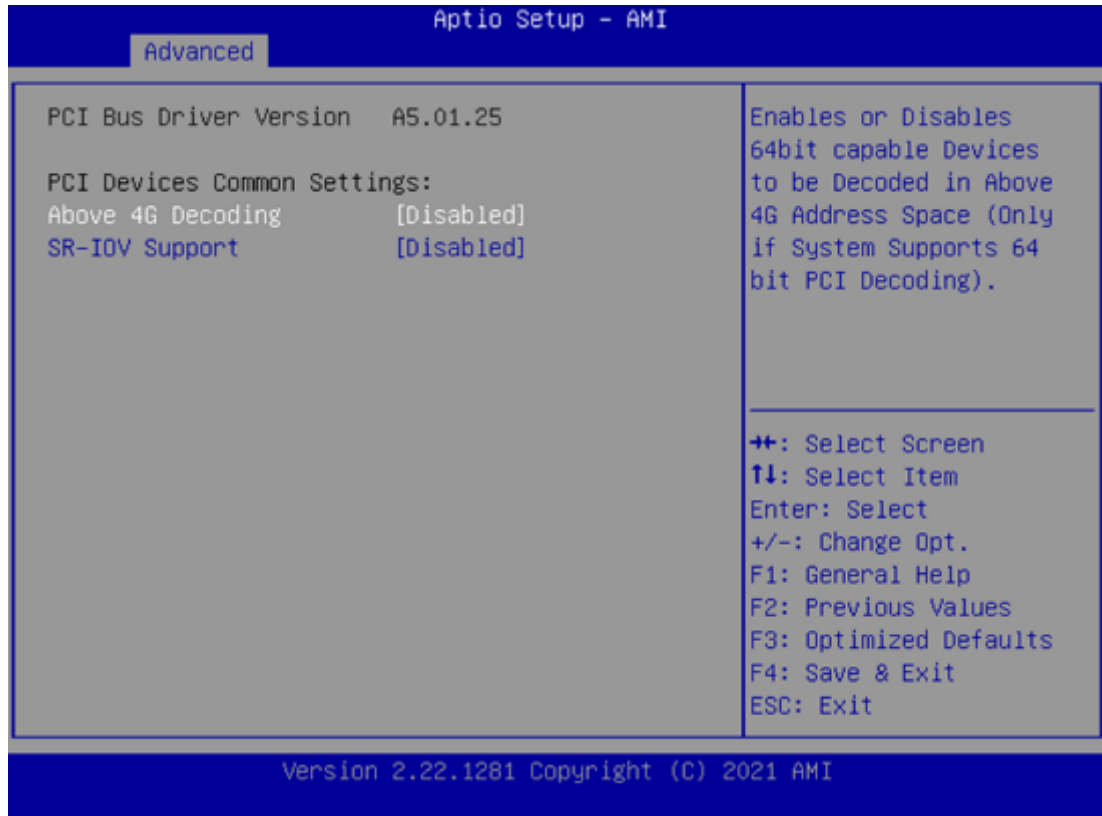
Flow Control	None Hardware RTS/CTS	Flow Control can prevent data loss from buffer overflow.
VT-UTF8 Combo Key Support	Disabled Enabled	Enables VT-UTF8 Combination Key Support for ANSI/VT100 terminals.
Recorder Mode	Disabled Enabled	With this mode enabled, only text will be sent. This is to capture Terminal data.
Resolution 100x31	Disabled Enabled	Enables or disables extended terminal resolution
Putty KeyPad	VT100 LINUX XTERM86 SCO ESCN VT400	Selects FunctionKey and KeyPad on Putty.

## Legacy Console Redirection Settings



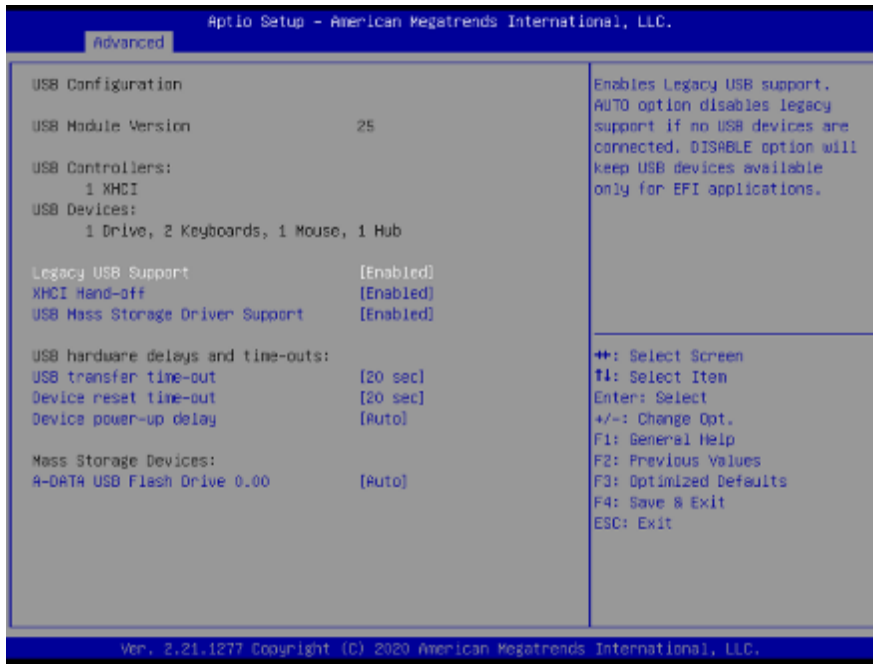
Feature	Options	Description
Legacy Serial Redirection Port	COM0	Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages
Legacy OS Redirection Resolution	80x24 80x25	On Legacy OS, the Number of Rows and Columns supported redirection.
Redirection After BIOS Post	Always Enable Bootloader	When <b>Bootloader</b> is selected, Legacy Console Redirection is disabled before booting to legacy OS. When <b>Always Enable</b> is selected, then Legacy Console Redirection is enabled for legacy OS. Default setting for this option is set to <b>Always Enabled</b> .

## PCI Subsystem Settings



Feature	Options	Description
Above 4G Decoding	Disabled Enabled	Enables or disables 64bit capable devices to be decoded in above 4G address space (only if system supports 64bit PCI decoding).
SR-IOV Support	Disabled Enabled	If the system has SR-IOV capable PCIe Devices, this option enables or disables Single Root IO Virtualization Support.

## USB Configuration



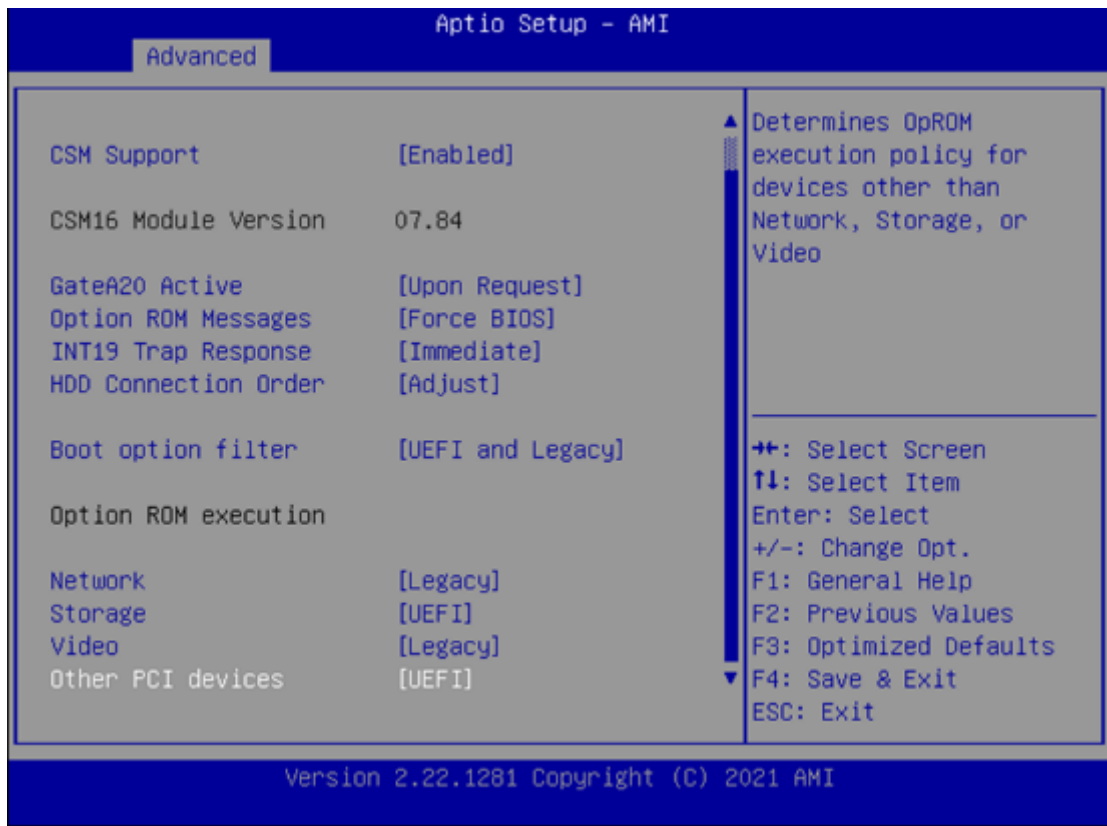
Feature	Options	Description
Legacy USB Support	Enabled Disabled Auto	Enables Legacy USB support. <b>Auto</b> option disables legacy support if no USB devices are connected; <b>Disabled</b> option will keep USB devices available only for EFI applications
XHCI Hand-off	Enabled Disabled	This is a workaround for Oses without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
USB Mass Storage Driver Support	Enabled Disabled	Enables or disables USB Mass Storage Driver Support
USB transfer time-out	1 sec 5 sec 10 sec 20 sec	The time-out value for Control, Bulk, and Interrupt transfers
Device reset time-out	1 sec 5 sec 10 sec 20 sec	USB mass storage device Start Unit command time-out
Device power-up delay	Auto Manual	Maximum time the device will take before it properly reports itself to the Host Controller. <b>Auto</b> uses default value: for a Root port, it is 100ms, for a Hub port the delay is taken from Hub descriptor.

## Network Stack Configuration



Feature	Options	Description
Network Stack	Disabled Enabled	Enables or disables UEFI Network Stack
IPv4 PXE Support	Disabled Enabled	Enables IPv4 PXE Boot Support. If IPv4 is disabled, PXE boot option will not be created.
IPv4 HTTP Support	Disabled Enabled	Enables IPv4 HTTP Boot Support. If IPv4 is disabled, HTTP boot option will not be created.
IPv6 PXE Support	Disabled Enabled	Enables IPv6 PXE Boot Support. If IPv6 is disabled, PXE boot option will not be created.
IPv6 HTTP Support	Disabled Enabled	Enables IPv6 HTTP Boot Support. If IPv6 is disabled, HTTP boot option will not be created.
PXE boot wait time	0	Wait time to press <ESC> key to abort the PXE boot
Media detect count	1	Number of times the presence of media will be checked.

## CSM Configuration

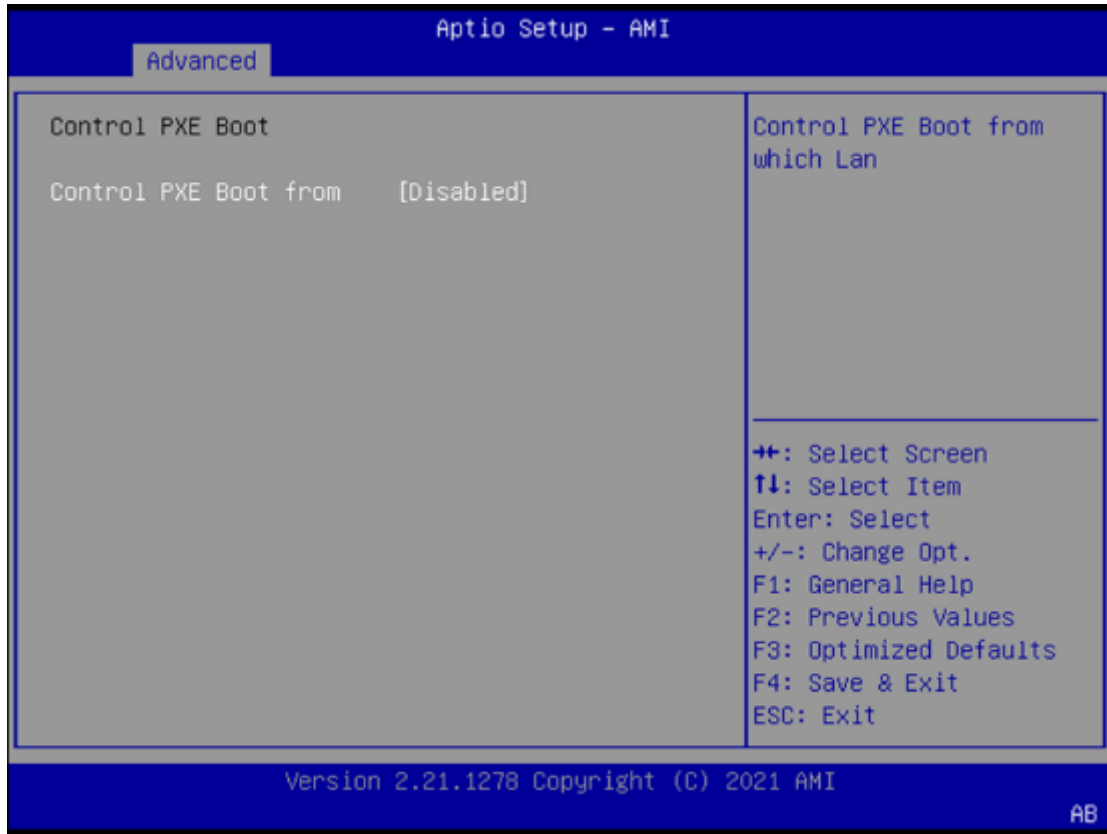


Feature	Options	Description
CSM Support	Disabled <b>Enabled</b>	Enables or disables CSM Support
Network	Do Not Launch UEFI <b>Legacy</b>	Controls the execution of UEFI and Legacy PXE OpROM.
Storage	Do Not Launch <b>UEFI</b> Legacy	Controls the execution of UEFI and Legacy Storage OpROM.
Video	Do Not Launch UEFI <b>Legacy</b>	Controls the execution of UEFI and Legacy Video OpROM.
Other PCI device	Do Not Launch <b>UEFI</b> Legacy	Determines OpROM execution policy for devices other than Network, Storage, or Video.

## NVMe Configuration



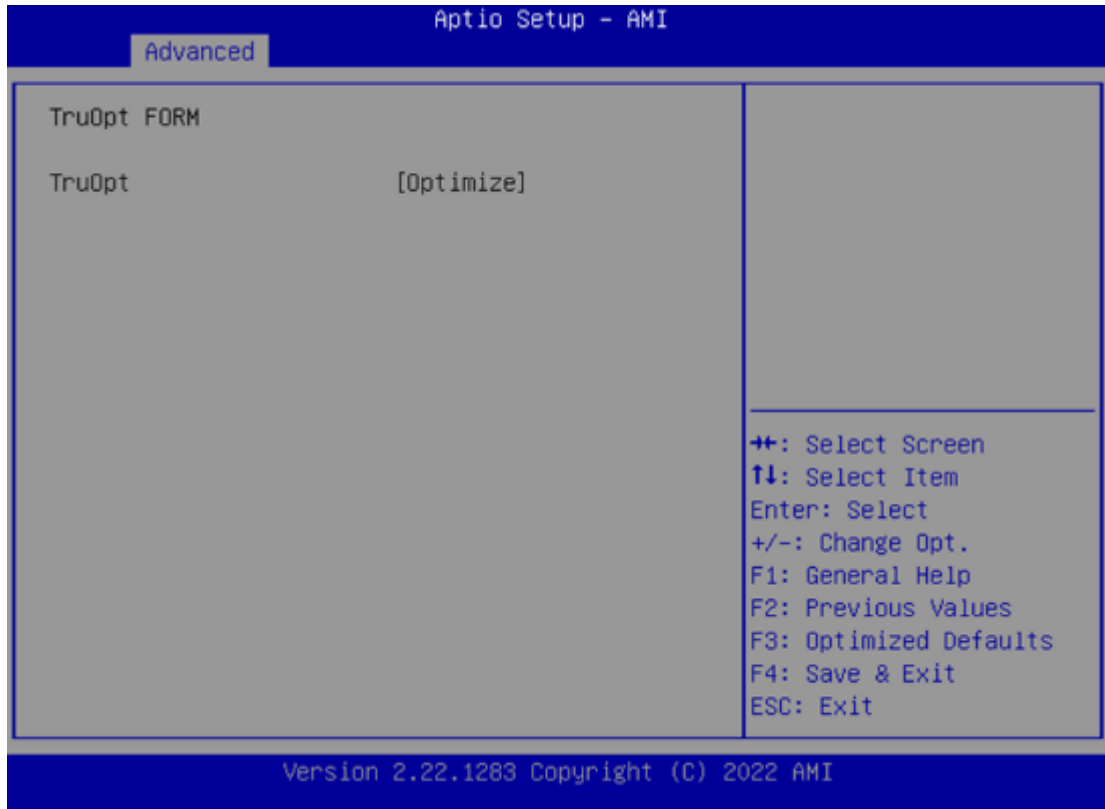
## Control PXE Boot



Feature	Options	Description
Control PXE Boot from	<b>Disabled</b> LAN	Select On Board LAN# Boot



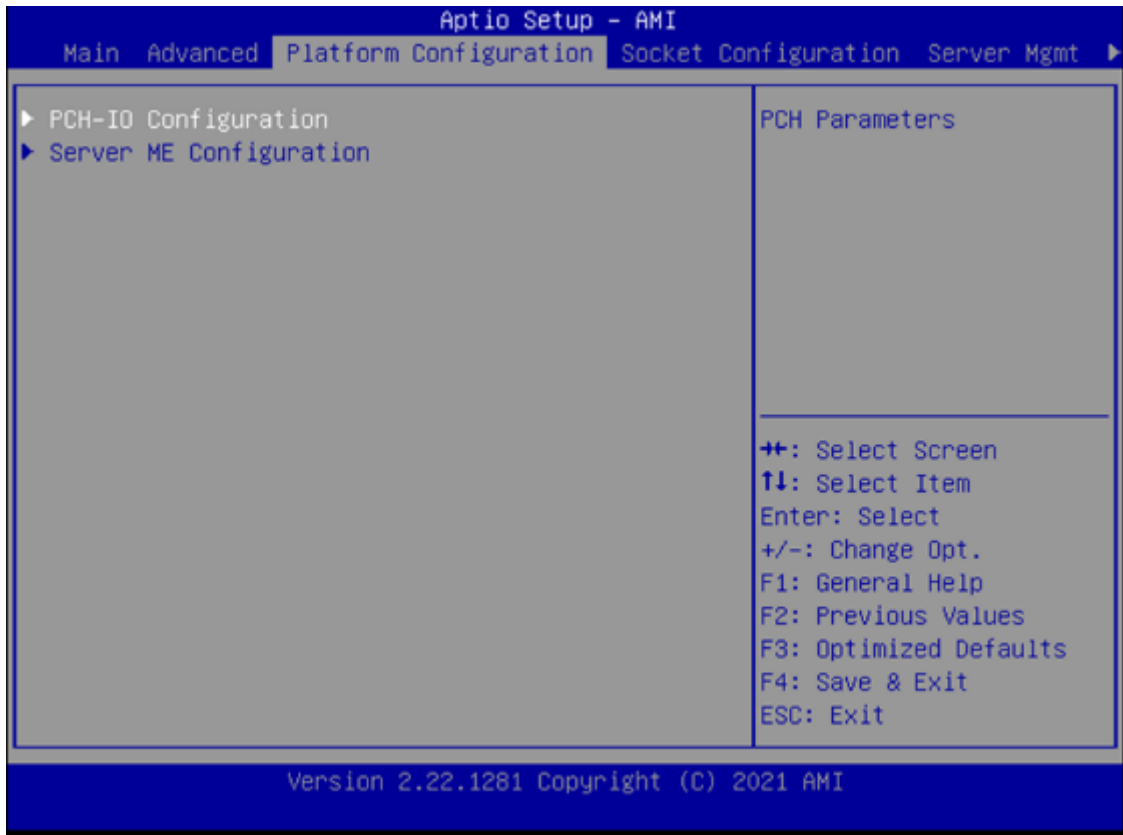
## TruOpt



Feature	Options	Description
TruOpt	Optimize	DPDK Optimize setting

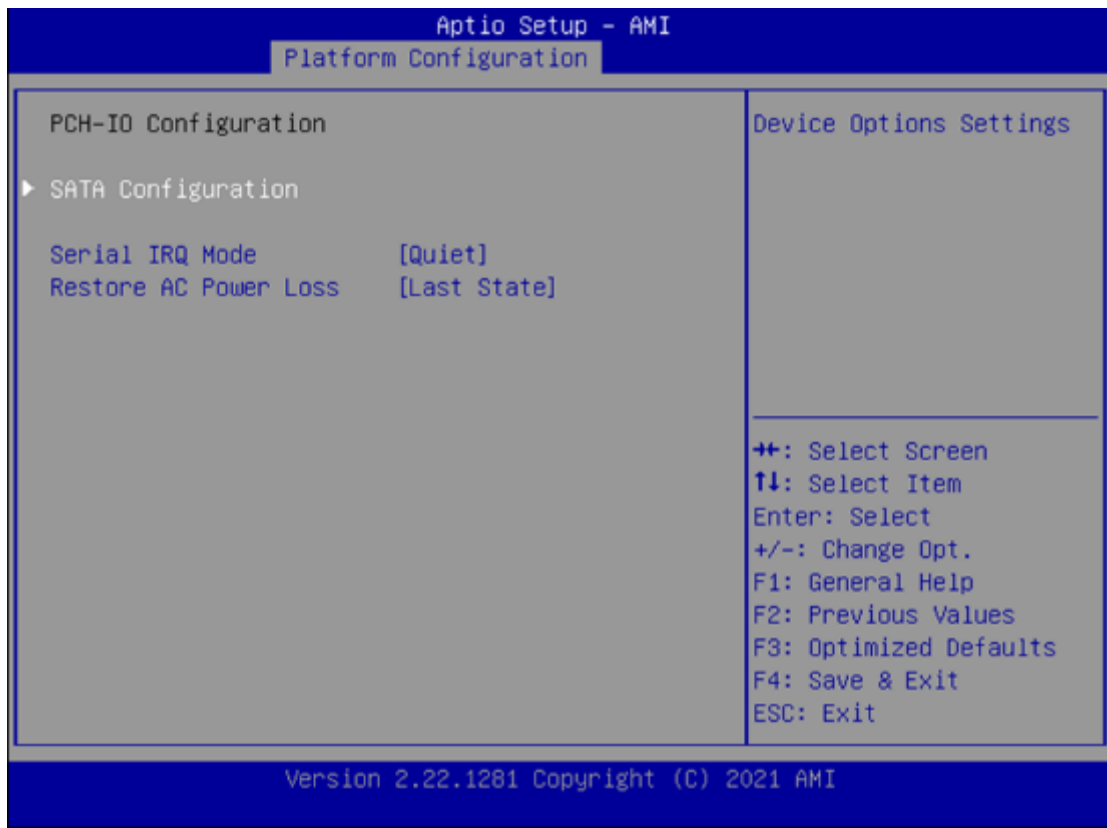
## Platform

Select the Platform menu item from the BIOS setup screen to enter the Platform Setup screen. Users can select any of the items in the left frame of the screen.



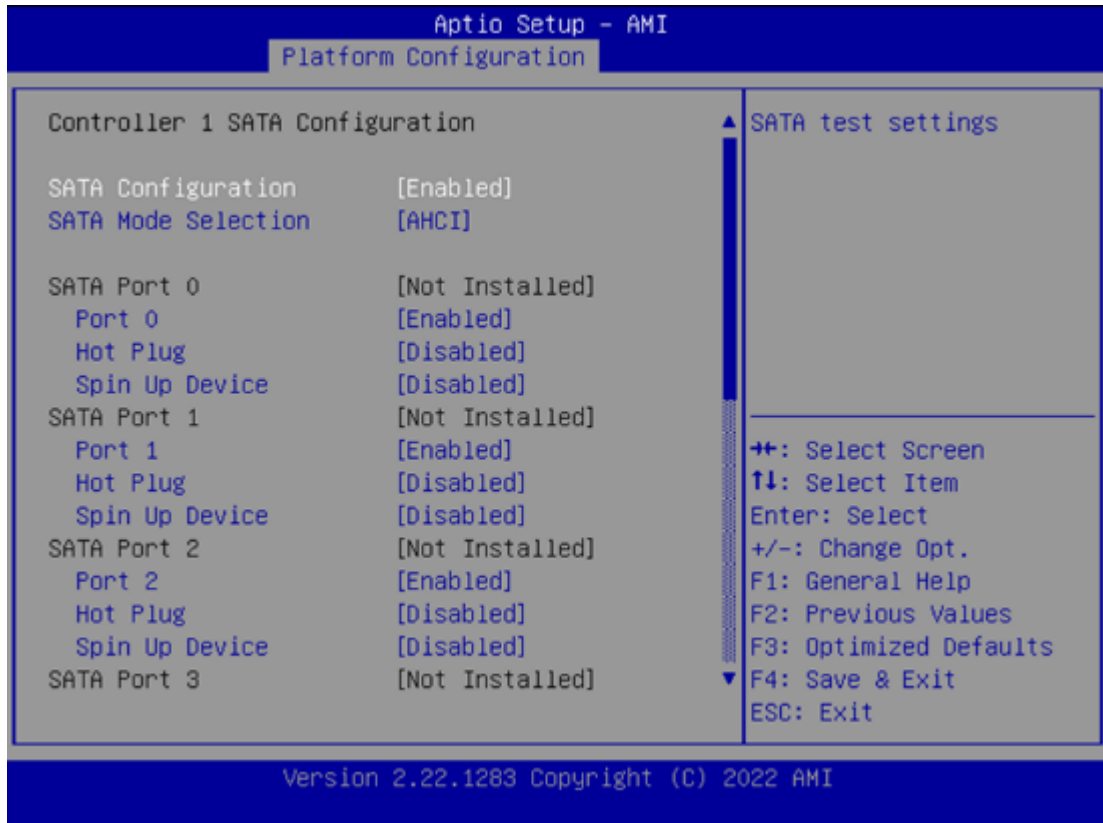
Feature	Options	Description
PCH-IO Configuration	None	Displays and provides option to change the PCH Settings.
Server ME Configuration	None	Configure Sever ME Technology Parameters

## PCH Configuration



Feature	Options	Description
SATA Configuration	None	SATA devices and settings
Restore AC Power Loss	Power ON Power OFF Last State	Select S0/S5 for CPI state after a G3
Serial IRQ Mode	Quiet Continuous	Configure Serial IRQ Mode

## PCH SATA Configuration

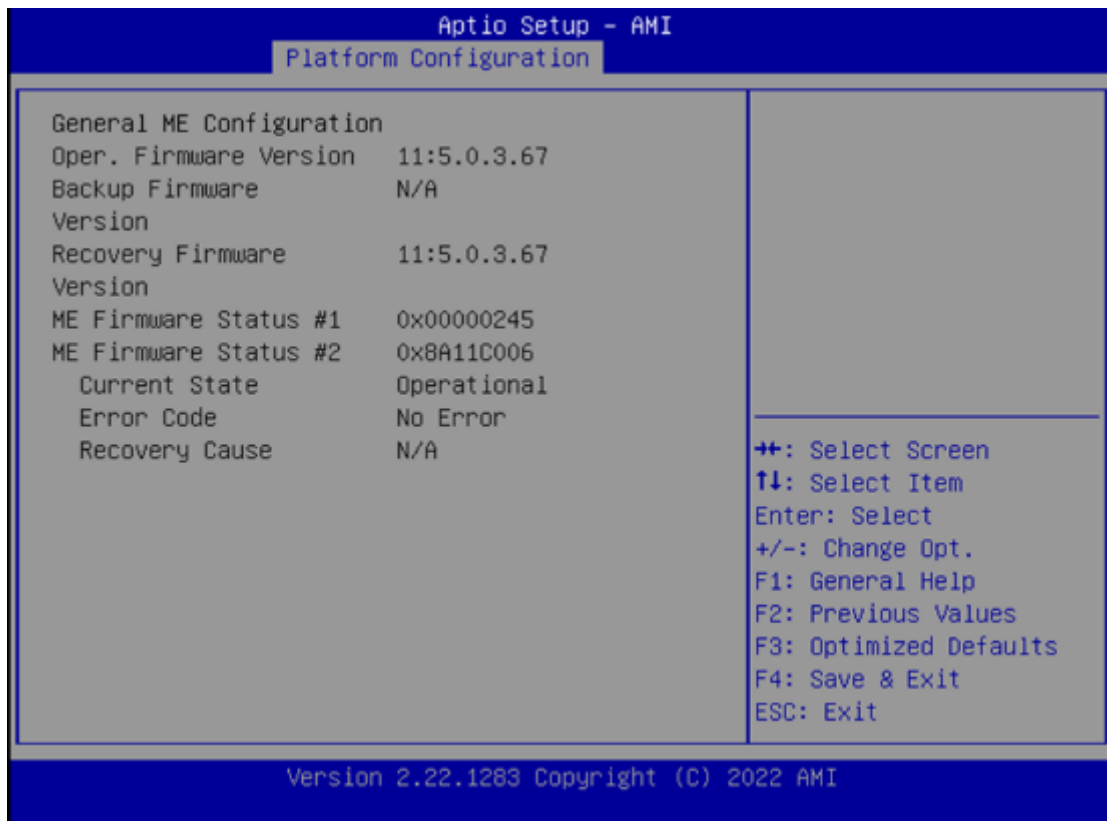


Feature	Options	Description
SATA Controller	Disabled Enabled	Enables/Disables SATA controller
Configure SATA as	AHCI RAID	This will configure SATA as RAID or AHCI.
Port 0/1/2/3/4/5/6/7	Disabled Enabled	Enable or Disable SATA Port
Hot Plug	Disabled Enabled	Designates this port as Hot Pluggable.
Spin Up Device	Disabled Enabled	If enabled for any of ports Staggered Spin Up will be performed and only the drives which have this option enabled will spin up at boot. Otherwise all drives spin up at boot.



Feature	Options	Description
SATA Controller	Disabled Enabled	Enables/Disables SATA controller
Port 1/2/3	Disabled Enabled	Enable or Disable SATA Port
Hot Plug	Disabled Enabled	Designates this port as Hot Pluggable.
Spin Up Device	Disabled Enabled	If enabled for any of ports Staggered Spin Up will be performed and only the drives which have this option enabled will spin up at boot. Otherwise all drives spin up at boot.

## Server ME Configuration



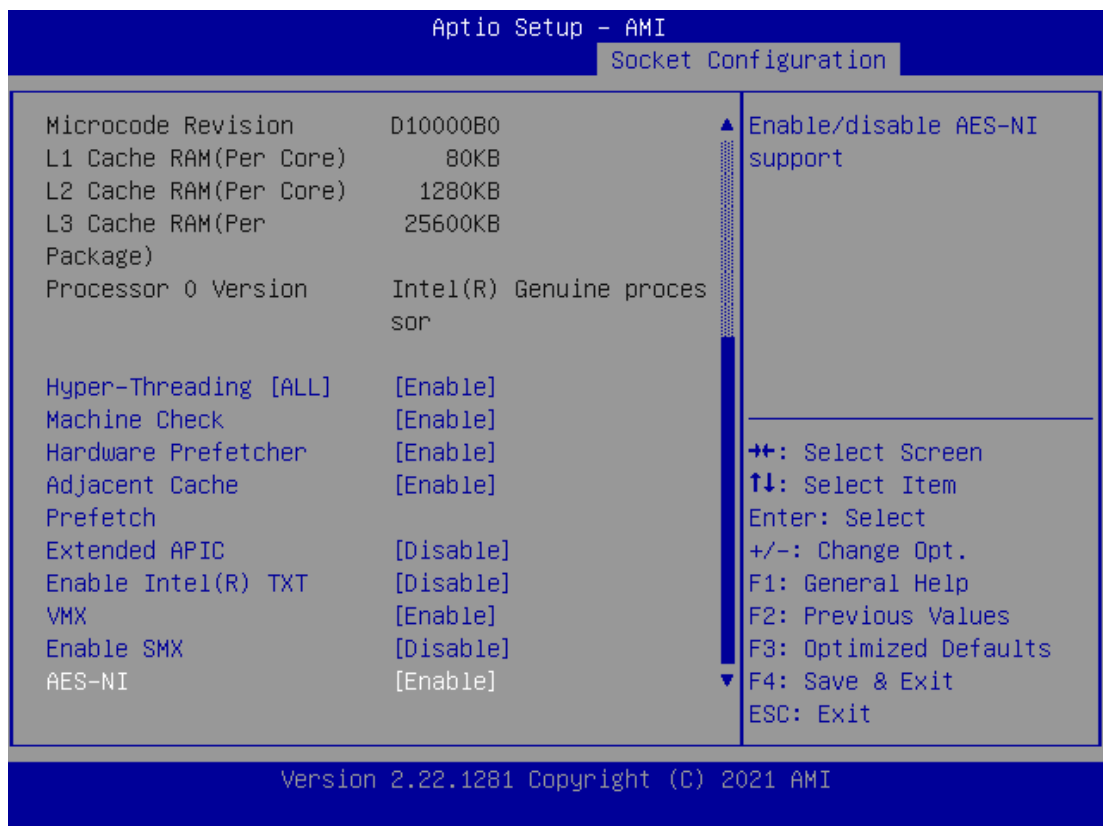
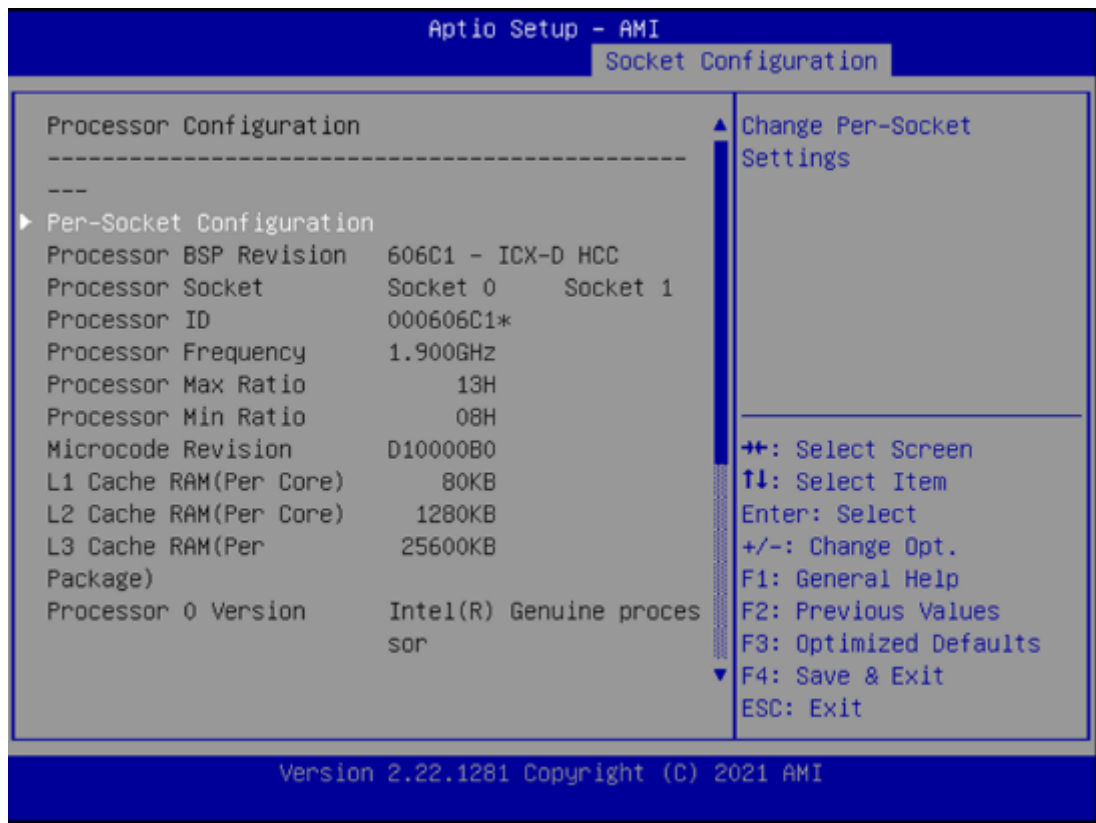
## Socket

Select the Socket menu item from the BIOS setup screen to enter the Socket Setup screen. Users can select any of the items in the left frame of the screen.



Feature	Options	Description
Processor Configuration	None	Displays and provides option to change the Processor Settings
Memory Configuration	None	Displays and provides option to change the Memory Settings
IIO Configuration	None	Displays and provides option to change the IIO Settings
Advanced Power Management Configuration	None	Displays and provides option to change the Power Management Settings
Numa	Disabled Enabled	Displays and provides option to change the Power Management Settings

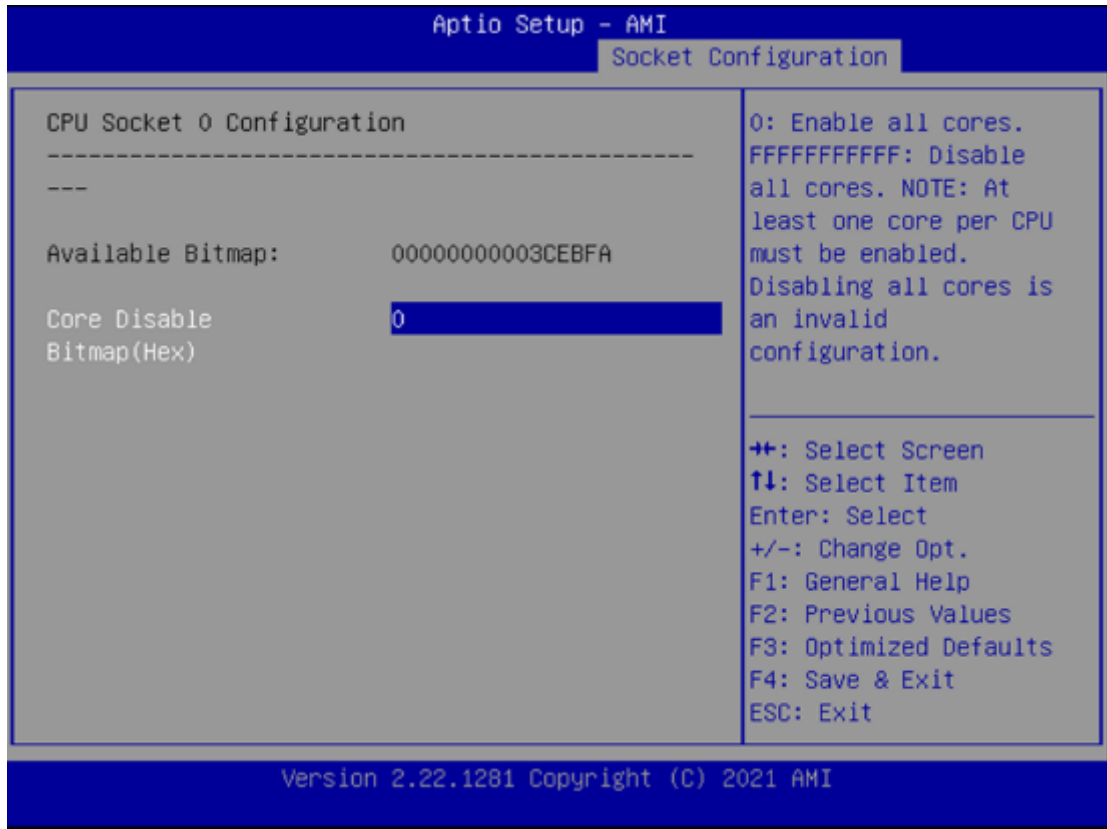
## Processor Configuration





Feature	Options	Description
Hyper-Threading [ALL]	Disabled Enabled	Enables Hyper Threading (Software Method
Machine Check	Disabled Enabled	to Enable/Disable Logical Processor threads.
Hardware Prefetcher	Disabled Enabled	Enable or Disable the Machine Check
Adjacent Cache Prefetchers	Disabled Enabled	= MLC Streamer Prefetcher (MSR 1A4h Bit[0])
Extended APIC	Disabled Enabled	= MLC Spatial Prefetcher (MSR 1A4h Bit[1])
Enable Intel® TXT	Disabled Enabled	Enables or disables extended APIC support
VMX	Disabled Enabled	Enables Intel(R) TXT
Enable SMX	Disabled Enabled	Enables the Vanderpool Technology, which
AES-NI	Disabled Enabled	takes effect after reboot.

## CPU Socket0 Configuration



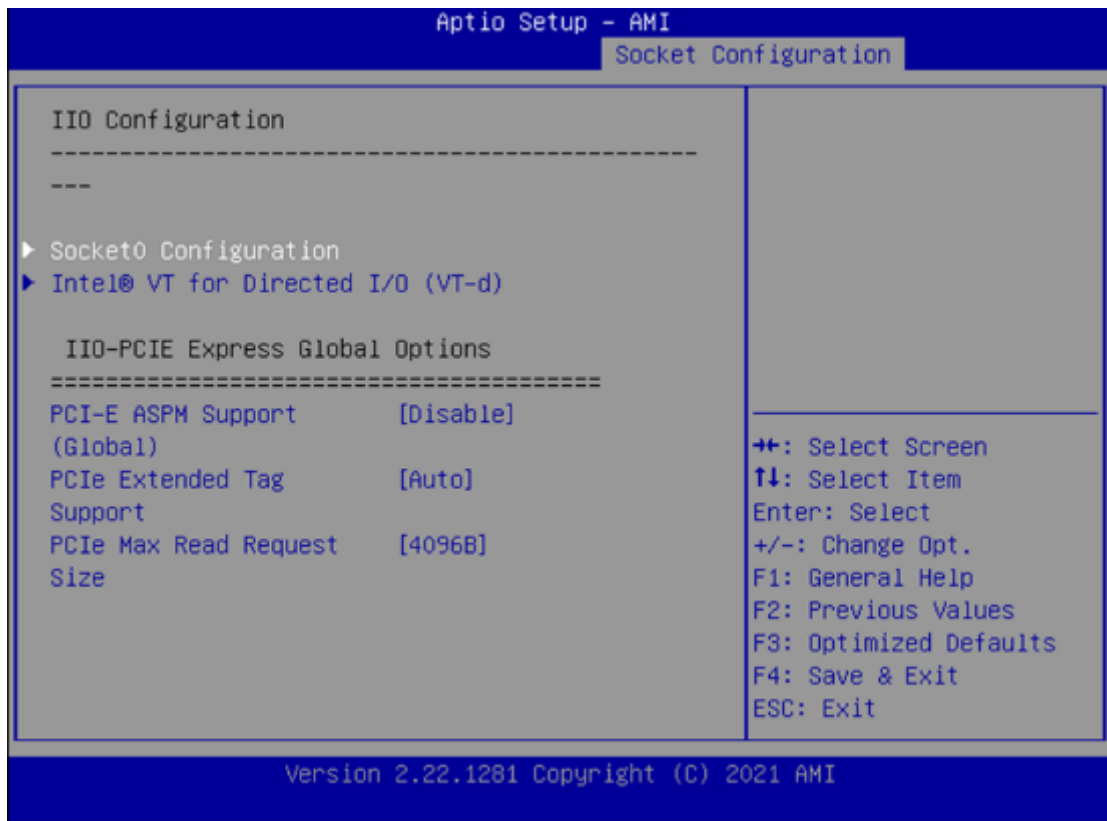
Feature	Options	Description
Core Disable Bitmap (Hex)	0	0: Enable all cores. FFFFFFFF: Disable all cores last one core per CPU must be enabled. Disabling all cores is an invalid configuration.

## Memory Configuration



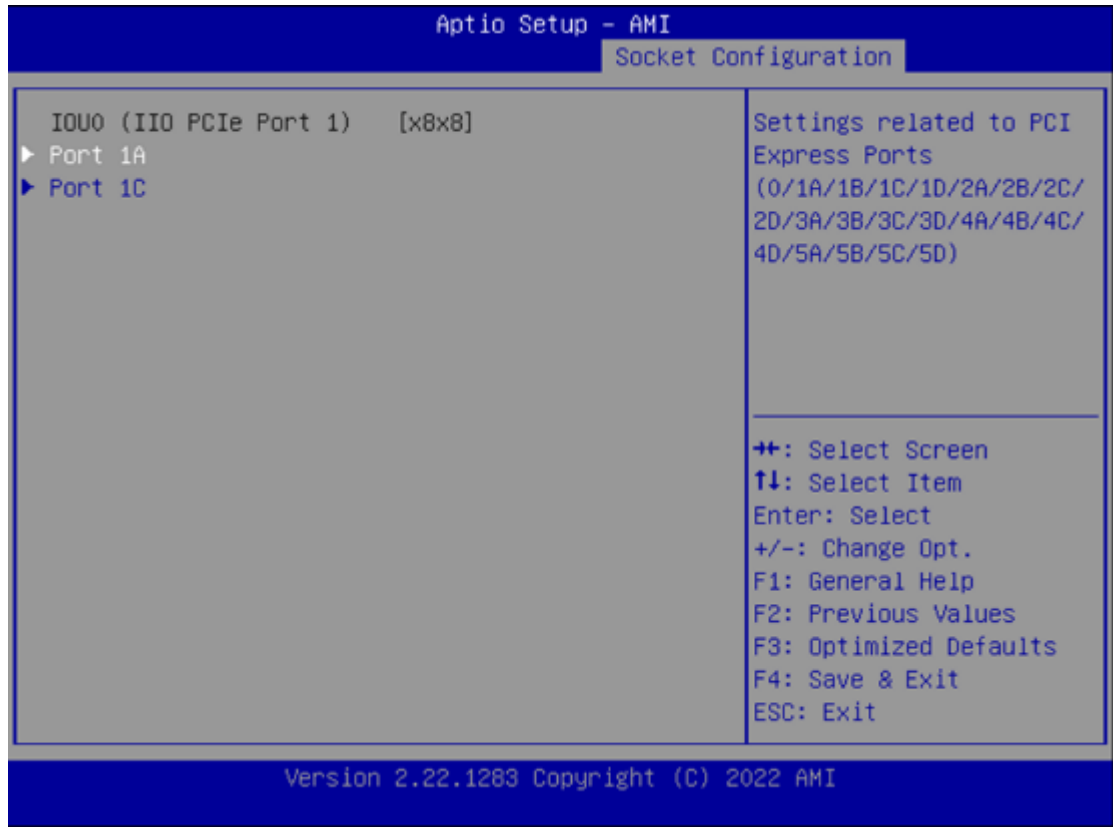
Feature	Options	Description
Memory Frequency	Auto	Maximum Memory Frequency Selections in Mhz. Do not select Reserved
	1200	
	1333	
	1400	
	1600	
	1800	
	1866	
	2000	
	2133	
	2200	
2400		
2600		
Memory Topology	None	Displays memory topology with Dimm population information

## I/O Configuration



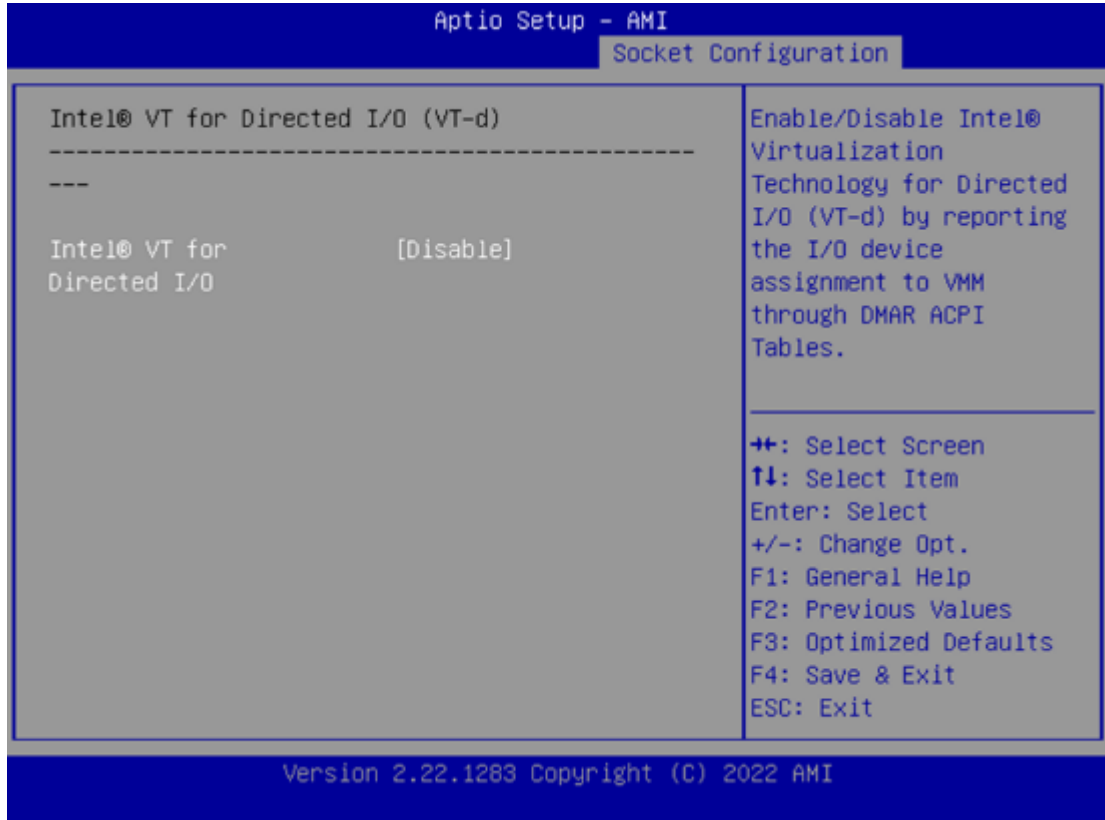
Feature	Options	Description
Socket0 Configuration	None	None
Intel® VT for Directed I/O (VT-d)	None	Press <Enter> to bring up the Intel®VT for Directed I/O (VT-d) Configuration menu
PCI-E ASPM Support (Global)	No Per-Port L1 Only	This option enables / disables the ASPM support for all downstream devices.
PCIe Extended Tag Enable	Auto No Yes	Auto/Enable – BIOS sets 8-bit Tag Field for PCIe Root Port / EndPoint. Disable – BIOS sets 5-bit Tag Field for PCIe Root Port/EndPoint
PCIe Max Read Request Size	Auto 128B 256B 512B 1024B 2048B 4096B	Set Max Read Request Size in EndPoints

## Socket0 Configuration



Feature	Options	Description
Socket0 Port 1A	None	Settings elated to PCI Express Port 1A
Socket 0 Port 1C	None	Settings related to PCI Express Port 2A

**Intel® VT for Directed I/O (VT-d)**



Feature	Options	Description
Intel® VT for Directed I/O (VT-d)	Enable <b>Disable</b>	Press <Enter> to bring up the Intel®VT for Directed I/O (VT-d) Configuration menu.

## Advanced Power Management Configuration



Feature	Options	Description
CPU P State Control	None	P State Control Configuration Sub Menu, include Turbo, XE, etc.
CPU C State Control	None	CPU C State Setting

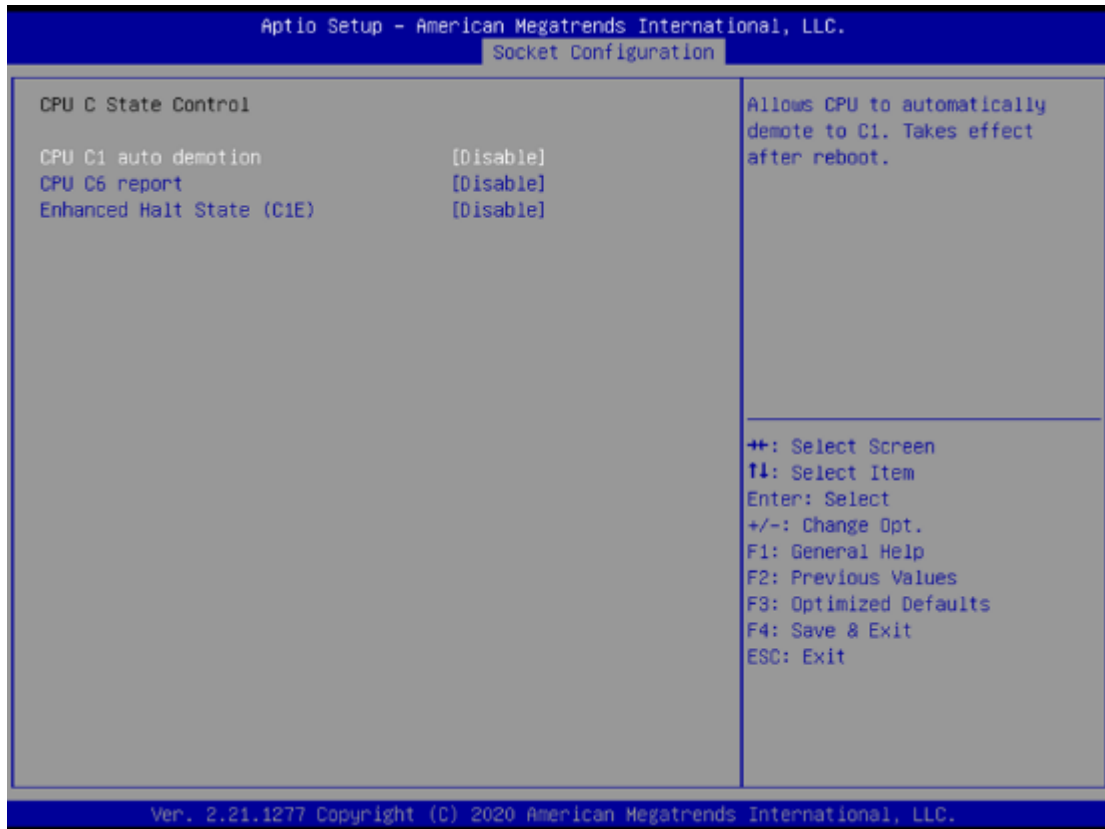
## CPU P State Control



Feature	Options	Description
SpeedStep (Pstates)	Disabled Enabled	Enables or disables EIST (P-States)
Boot Performance Mode	Max Performance Max Efficient Set by Intel Node Manager	Select the performance state that the BIOS will set before OS hand off.
CPU Flex Ratio Override	Disabled Enabled	Enable/Disable CPU Flex Ratio Programming
CPU Core Flex Ratio	23	Non-Turbo Mode Processor Core Ratio Multiplier



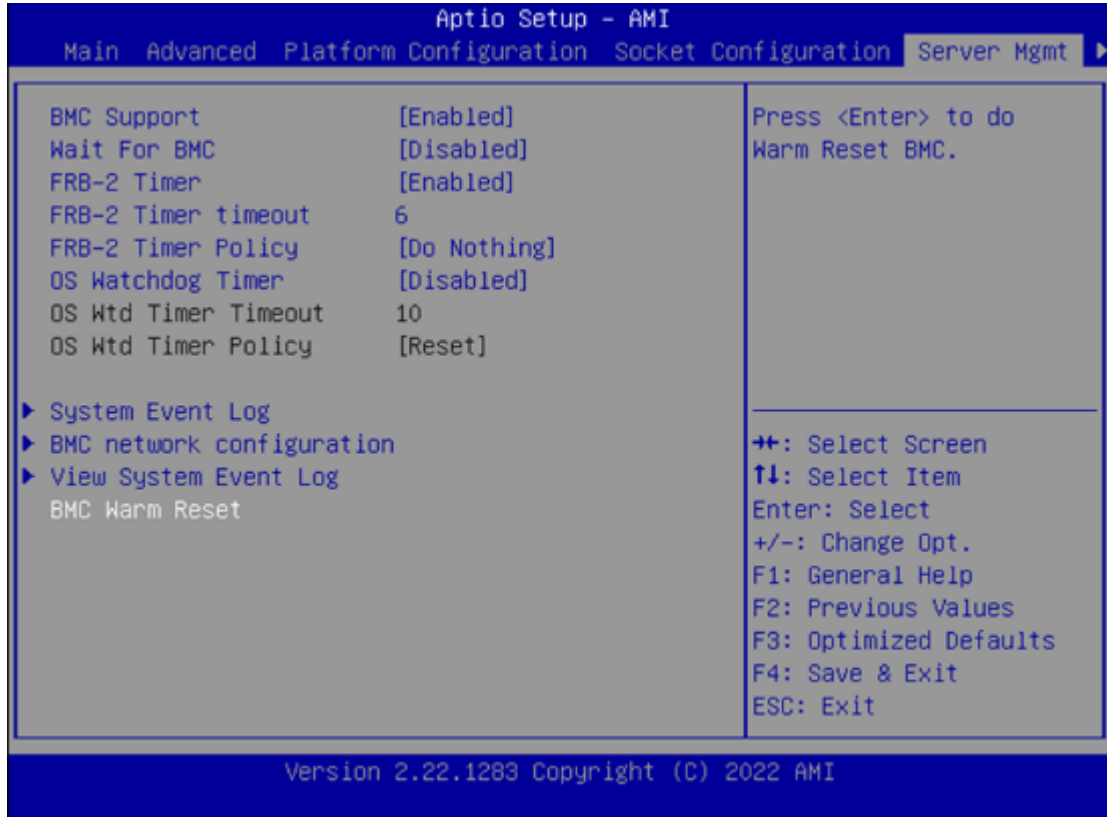
## CPU C State Control



Feature	Options	Description
CPU C1 auto demotion	Disabled Enabled	Autonomous Core C-State Control
CPU C6 report	Disabled Enabled	Enables or disables CPU C6 (ACPI C3) report to OS
Enhanced Halt State (C1E)	Disabled Enabled	Core C1E auto promotion control. Takes effect after reboot.

## Server Mgmt

Select the Server Mgmt menu item from the BIOS setup screen to enter the Server Mgmt Setup screen. Users can select any of the items in the left frame of the screen.



Feature	Options	Description
BMC Support	Enabled Disabled	Enable or disable interfaces to communicate with BMC.
Wait for BMC	Enabled Disabled	Wait for BMC response for specified time out. In PILOTII, BMC starts at the same time when BIOS starts during AC power ON. It takes around 30 seconds to initialize Host to BMC interfaces.
FRB-2 Timer	Enabled Disabled	Enables or disables FRB-2 timer (POST timer)
FRB-2 Timer Timeout	3 minutes 4 minutes 5 minutes 6 minutes	Enter value between 3 to 6 min for FRB-2 Timer Expiration value.
FRB-2 Timer Policy	Do Nothing Reset Power Down Power Cycle	Configure how the system should respond if the FRB-2 Timer expires. Not available if FRB-2 Timer is disabled.
OS Watchdog Timer	Enabled Disabled	If enabled, it starts a BIOS timer which can only be shut off by Management Software after the OS loads. It also

		helps verify that the OS is successfully loaded or follows the OS Boot Watchdog Timer policy.
OS Wtd Timer Timeout	5 minutes <b>10 minutes</b> 15 minutes 20 minutes	Configure the length of the OS Boot Watchdog Timer. Not available if OS Boot Watchdog Timer is disabled.
OS Wtd Timer Policy	Do Nothing <b>Reset</b> Power Down Power Cycle	Configure how the system should respond if the OS Boot Watchdog Timer expires. Not available if OS Boot Watchdog Timer disabled.
System Event Log	NA	Press <Enter> to change the SEL event log configuration.
Reset BMC to Default	NA	Press <Enter> to do Reset BMC to Default.
BMC Network Configuration	NA	Configure BMC network parameters.
View System Event Log	NA	Press <Enter> to view the System Event Log Records.

## System Event Log



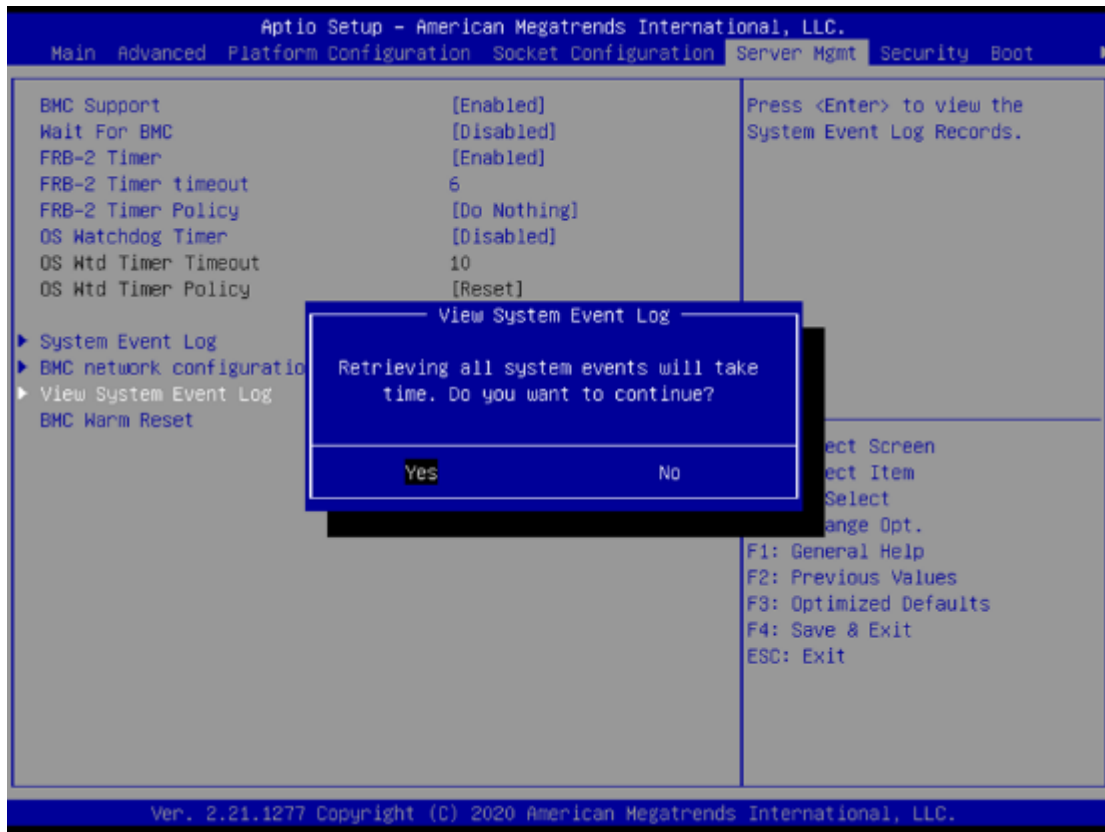
Feature	Options	Description
SEL Components	Disabled Enabled	Enables or disables all features of System Event Logging during boot.
Erase SEL	NO Yes, On next reset Yes, On every reset	Choose options for erasing SEL
When SEL is Full	Do Nothing Erase immediately Delete Oldest Record	Choose options for reactions to a full SEL

## BMC Network Configuration



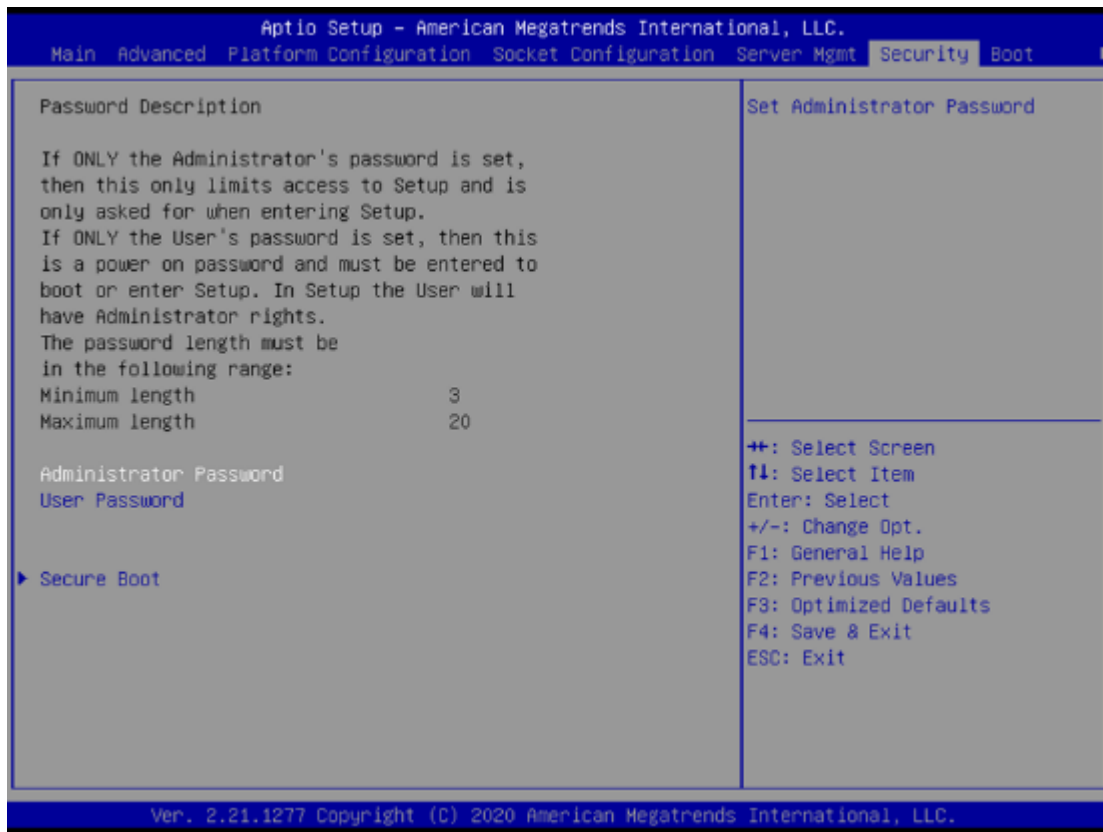
Feature	Options	Description
Configuration Address Source	<p><b>Unspecified</b></p> <p>Static</p> <p>DynamicBmcDhcp</p>	Select to configure LAN channel parameters statically or dynamically (by BIOS or BMC). The unspecified option will not modify any BMC network parameters during BIOS phase.

## View System Event Log



## Security

Select the Security menu item from the BIOS setup screen to enter the Security Setup screen. Users can select any of the items in the left frame of the screen.



Feature	Description
Administrator Password	If ONLY the Administrator’s password is set, it only limits access to Setup and is only asked for when entering Setup.
User Password	If ONLY the User’s password is set, it serves as a power-on password and must be entered to boot or enter Setup. In setup, the User will have Administrator rights.

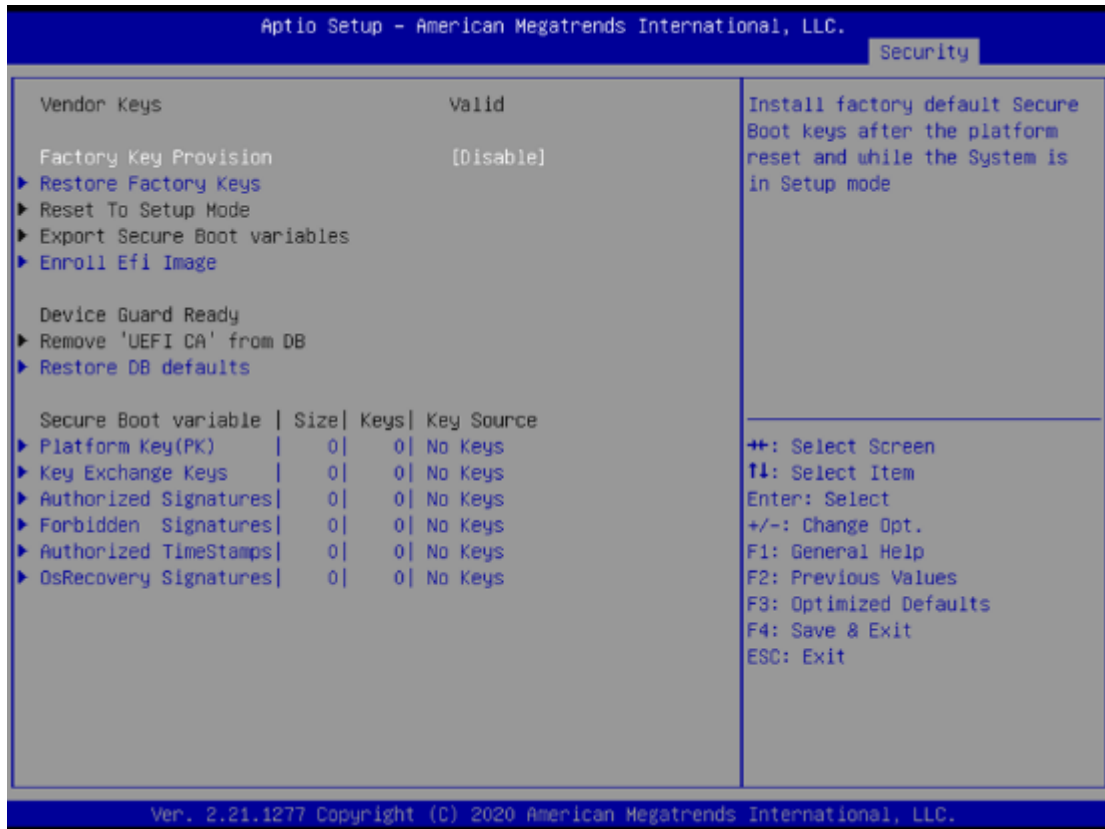
## Secure Boot



Feature	Options	Description
Secure Boot	Disabled Enabled	Secure Boot is activated when Platform Key (PK) is enrolled, System mode is User/Deployed, and CSM function is disabled.
Secure Boot Mode	Standard Custom	Secure Boot mode selector: In Custom mode, Secure Boot Variables can be configured without authentication



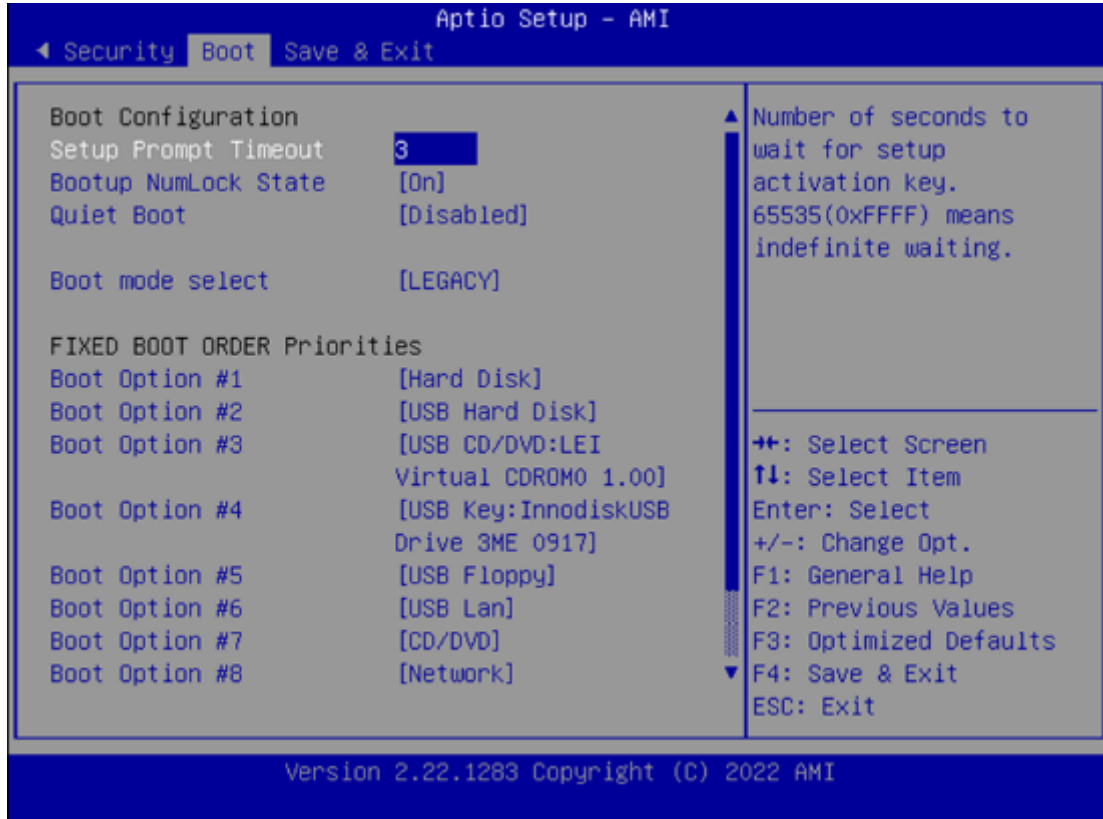
## Key Management



Feature	Options	Description
Factory Key Provision	Disabled Enabled	Provision factory default keys on next re-boot only when System in Setup Mode.
Restore Factory Keys	None	Force System to User Mode. Configure NVRAM to contain OEM-defined factory default Secure Boot keys.
Enroll Efi Image	None	Allows the image to run in Secure Boot mode. Enroll SHA256 hash of the binary into Authorized Signature Database (db).

## Boot Menu

Select the Boot menu item from the BIOS setup screen to enter the Boot Setup screen. Users can select any of the items in the left frame of the screen.



Feature	Options	Description
Setup Prompt Timeout	5	The Number of seconds to wait for setup activation key. 65535 means indefinite waiting.
BootupNumLock State	On OFF	Select the keyboard NumLock state
Quiet Boot	Disabled Enabled	Enabled or disables Quiet Boot option.
Boot Mode Select	Legacy UEFI DUAL	Select boot mode for Legacy or UEFI

- Choose boot priority from boot option group.
- Choose specific boot device priority sequence from available group device.

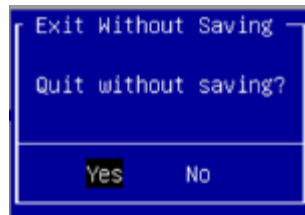
## Save and Exit Menu

Select the Save and Exit menu item from the BIOS setup screen to enter the Save and Exit Setup screen. Users can select any of the items in the left frame of the screen.



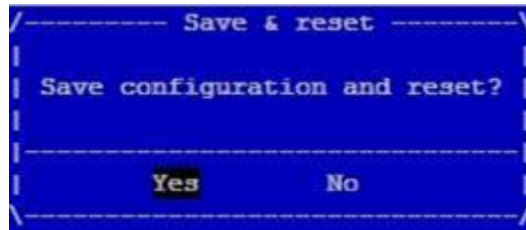
### ■ Discard Changes and Exit

Select this option to quit Setup without saving any modifications to the system configuration. The following window will appear after the “Discard Changes and Exit” option is selected. Select “Yes” to Discard changes and Exit Setup.



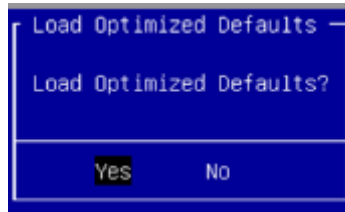
### ■ Save Changes and Reset

When Users have completed the system configuration changes, select this option to save the changes and reset from BIOS Setup for the new system configuration parameters to take effect. The following window will appear after selecting the “Save Changes and Reset” option is selected. Select “Yes” to Save Changes and Reset.



■ **Restore Defaults**

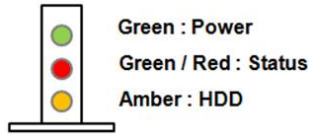
Restore default values for all setup options. Select **"Yes"** to load Optimized defaults.



NOTE: The items under Boot Override may not be the same as the images, as it will depend on devices connected on system.

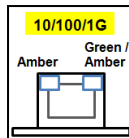
# APPENDIX A: LED INDICATOR EXPLANATIONS

## ► Power / Status / Storage



LED	COLOR	LED ACTION	DESCRIPTION
Power	Green	Steady	System is powered ON
	OFF	N/A	System is powered OFF
Status	Green	Steady	System is Active
	Red	Steady	System Error
	OFF	N/A	System is powered OFF
Note: Status bi-color LED controlled by GPIO			
Storage	Amber	Blinking	Storage (HDD) Active
	OFF	N/A	No Data Access

## ► RJ-45 LAN LED

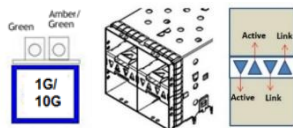


### 1Gb RJ-45 Define:

Speed	Amber (Active)	Green/Amber (Link)
10M	Blinking / Data access	OFF
100M	Blinking / Data access	ON (Green)
1G	Blinking / Data access	ON (Amber)

1. When cable is plug-in and network is linked. Both LED will be bright. The behavior is as defined.
2. Without the Cable plug-in, the LED should be off
3. If LAN Driver controls the LED, the behavior will follow the driver

### (10Gb) SFP+ Light pipe LED (top location)



Speed	Amber (Active)	Amber / Green (Link)
1G	Blinking / Data access	ON (Amber)
10G	Blinking / Steady	ON (Green)
Non-Link	OFF	OFF

1. When cable is plug-in and network is linked. Both LED will be bright. The behavior is as defined.
2. Without the Cable plug-in, the LED should be off
3. If LAN Driver controls the LED, the behavior will follow the driver

## APPENDIX B: TERMS AND CONDITIONS

### Warranty Policy

1. All products are under warranty against defects in materials and workmanship for a period of one year from the date of purchase.
2. The buyer will bear the return freight charges for goods returned for repair within the warranty period; whereas the manufacturer will bear the after-service freight charges for goods returned to the user.
3. The buyer will pay for repair (for replaced components plus service time) and transportation charges (both ways) for items after the expiration of the warranty period.
4. If the RMA Service Request Form does not meet the stated requirement as listed on "RMA Service, "RMA goods will be returned at customer's expense.
5. The following conditions are excluded from this warranty:
  - ▶ Improper or inadequate maintenance by the customer
  - ▶ Unauthorized modification, misuse, or reversed engineering of the product
  - ▶ Operation outside of the environmental specifications for the product.

### RMA Service

#### Requesting an RMA#

1. To obtain an RMA number, simply fill out and fax the "RMA Request Form" to your supplier.
2. The customer is required to fill out the problem code as listed. If your problem is not among the codes listed, please write the symptom description in the remarks box.
3. Ship the defective unit(s) on freight prepaid terms. Use the original packing materials when possible.
4. Mark the RMA# clearly on the box.



**Note:** Customer is responsible for shipping damage(s) resulting from inadequate/loose packing of the defective unit(s). All RMA# are valid for 30 days only; RMA goods received after the effective RMA# period will be rejected.

## RMA Service Request Form

When requesting RMA service, please fill out the following form. Without this form enclosed, your RMA cannot be processed.

<b>RMA No:</b>	Reasons to Return: <input type="checkbox"/> Repair(Please include failure details) <input type="checkbox"/> Testing Purpose
Company:	Contact Person:
Phone No.	Purchased Date:
Fax No.:	Applied Date:
Return Shipping Address: _____	
Shipping by: <input type="checkbox"/> Air Freight <input type="checkbox"/> Sea <input type="checkbox"/> Express _____	
<input type="checkbox"/> Others: _____	

Item	Model Name	Serial Number	Configuration

Item	Problem Code	Failure Status

**\*Problem Code:**

- |                      |                              |                    |                          |
|----------------------|------------------------------|--------------------|--------------------------|
| 01: D.O.A.<br>R.M.A. | 07: BIOS Problem             | 13: SCSI           | 19: DIO                  |
| 02: Second Time      | 08: Keyboard Controller Fail | 14: LPT Port       | 20: Buzzer               |
| 03: CMOS Data Lost   | 09: Cache RMA Problem        | 15: PS2            | 21: Shut Down            |
| 04: FDC Fail         | 10: Memory Socket Bad        | 16: LAN            | 22: Panel Fail           |
| 05: HDC Fail         | 11: Hang Up Software         | 17: COM Port       | 23: CRT Fail             |
| 06: Bad Slot         | 12: Out Look Damage          | 18: Watchdog Timer | 24: Others (Pls specify) |

**Request Party**

**Confirmed By Supplier**

\_\_\_\_\_  
Authorized Signature / Date

\_\_\_\_\_  
Authorized Signature / Date