Lanner

Network Computing

Hardware Platforms for Network Computing

NCA-1611 User Manual

Version: 1.1

Date of Release: 2018-06-26

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:

Note: This mark indicates that there is a note of interest and is something that you should pay special attention to while using the product.

Warning: This mark indicates that there is a caution or warning and it is something that could damage your property or product.

Online Resources

The listed websites are links to the on-line product information and technical support.

Resources	URL
Lanner	http://www.lannerinc.com
Product Resource	http://www.lannerinc.com/download-center
RMA	http://eRMA.lannerinc.com

Copyright and Trademarks

Acknowledgement

Compliances and Certification

CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. The operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

EMC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. The operation of this equipment in a residential area is likely to cause harmful interference in which case users will be required to correct the interference at their own expense.

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.

Lithium Battery Caution

- Risk of Explosion if Battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.
- Installation only by a trained electrician or only by an electrically trained person who knows all English Installation and Device Specifications which are to be applied.
- Do not carry the handle of power supplies when moving to another place.
- The machine can only be used in a fixed location such as labs or computer facilities.

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).

Mounting Installation Precaution

Environment:

- Do not install and/or operate this unit in any place that flammable objects are stored or used in.
- 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 (Tma) specified by the manufacturer.
- Installation of the equipment (especially in a rack) should consider the ventilation of the system's intake (for taking chilled air) and exhaust (for emitting hot air) openings so that the amount of air flow required for safe operation of the equipment is not compromised.
- To avoid a hazardous load condition, be sure the mechanical loading is even when mounting.
- 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 over-current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

- Reliable earthing 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).
- Lanner Electronics Inc. shall not be held liable for any losses resulting from insufficient strength for supporting the unit or use of inappropriate installation components.

Installation & Operation:

- 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.

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.

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.
- La machine ne peut être utilisée qu'à un lieu fixe comme en laboratoire, salle d'ordinateurs ou salle de classe.

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.

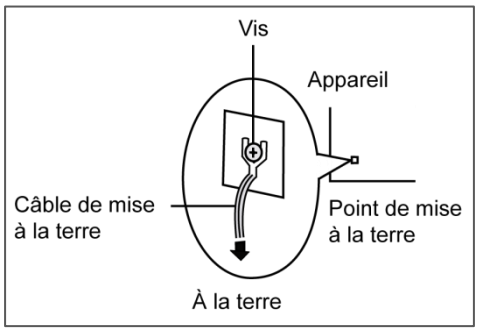
- Vérifiez que le couvercle du châssis est bien fixé. La conception du châssis permet à l'air de refroidissement de bien circuler. Un châssis ouvert laisse l'air s'échapper, ce qui peut interrompre et rediriger le flux d'air frais destiné aux composants internes.
- Les décharges électrostatiques (ESD) 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).

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 mm2 ou 10 AWG.

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

- Desserrez la vis du terminal de mise à la terre.
- 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.



Revision History

Version	Date	Descriptions
1.0	2018/02/13	1st Official Release
1.1	2018/06/26	Modified Approvals and Compliance

Table of Contents

CHAPTER 1: PRODUCT OVERVIEW

The NCA-1611 is a NEBS-compliant desktop network appliance built with Intel® Xeon® D-1500 Series CPU (codenamed Broadwell-DE NS). It is virtualization-ready, features 8x LAN ports, 2x 10G SFP+, up to 128GB (RDIMM) system memory, and is optimized with SR-IOV, allowing a device, such as a network adapter, to separate access to its resources among various PCIe Virtual Functions.

In addition to being NEBS-compliant, the NCA-1611 is also K.21 compliant. Its carrier-grade design comes with Intel® QuickAssist Technology at 40G, ideal for SD-VPN and SD-Security deployment scenarios. For wireless connectivity, the NCA-1611 offers dual mini-PCIe (one with SIM reader) supporting Wi-Fi and LTE, as well as IPMI, altogether simplifying service deployment at remote sites and most SME office branches.

Package Content

Your package contains the following items:

- 1x NCA-1611 Network Appliance
- 1x 90W Power Adapter
- 1x Power Cable (the provided plug type will vary by region)
- 1x Console Cable
- 1x SATA Cable
- 1x SATA Power Cable

Note: If any component is missing or damaged, please contact your dealer immediately for assistance.

Ordering Information

SKU No.	Specification
NCA-1611A	D1543 8C, 6 x GbE RJ45 + 2x SFP + 2x 10G SFP+ w/BMC
NCA-1611B	D1543 8C, 6 x GbE RJ45 + 2x SFP + 2x 10G SFP+
NCA-1611C	D1533 6C, 6 x GbE RJ45 + 2x SFP + 2x 10G SFP+ w/BMC
NCA-1611D	D1513 4C, 6 x GbE RJ45 + 2x SFP + 2x 10G SFP+
NCA-1611E	D1513 4C, 6 x GbE RJ45 + 2x SFP

Optional Accessories

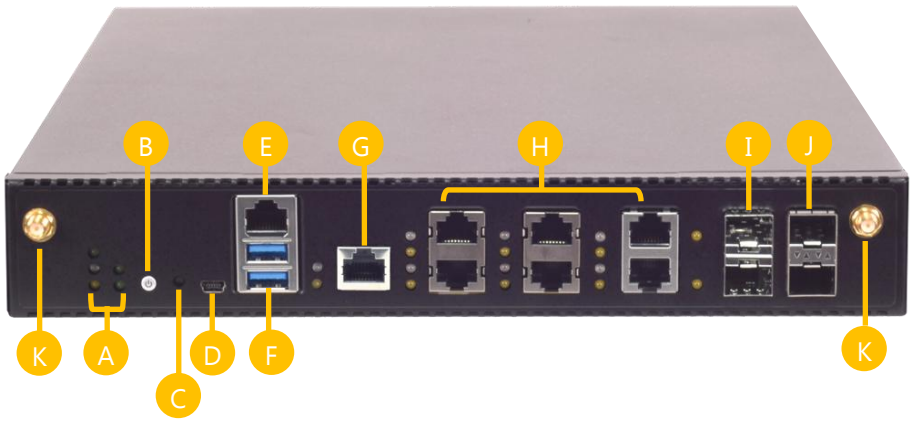
Model No.	Description
Power Adapter	90W, 12V 7.5A, C14 W/Lock, 150cm, 180°
VGA Cable	VGA (DB15) to 12-pin flat cable, 2.0mm Pitch, 30cm
USB Cable (for Main board)	USB (Type A) to 5-pin flat cable, 2.54mm Pitch, 18cm
RJ45 Cable	A standard Category 5E cable supporting UTP, gray, 180cm
Rackmount kit with PSU Bracket	A set of Rackmount kit along with PSU Bracket
Wall-mount kit	A set of Wallmount kit
Wi-Fi/LTE module w/ Antenna	Wi-Fi/LTE module card with Antenna and cable

System Specifications

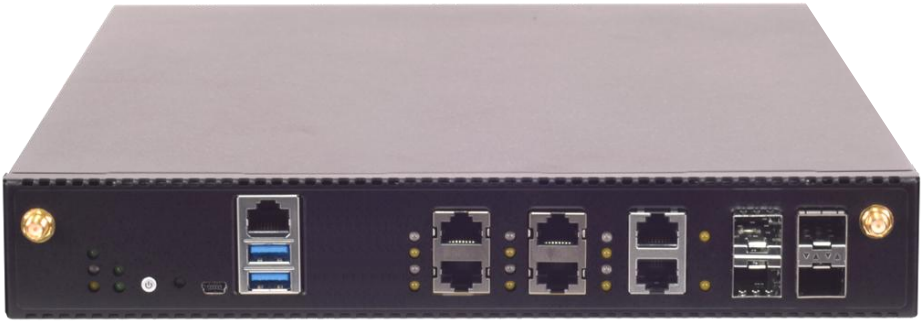
Form Factor		Desktop
Platform	Processor Options	Intel® Xeon® D-1500 (Broadwell-DE NS)
	CPU Socket	Onboard
	Chipset	SoC
	Security Acceleration	Intel® QuickAssist Technology
BIOS		AMI SPI Flash BIOS
System Memory	Technology	DDR4 2133MHz ECC/Non-ECC/RDIMM
	Max. Capacity	128GB
	Socket	4 x 288pin DIMM
Networking	Ethernet Ports	6 x GbE RJ45 Intel® i350-AM4 2x SFP Intel® i350-AM4 (By SKU) 2x SFP+ SoC integrated MAC (By SKU)
	Bypass	1 pair Gen3 (By SKU)
	NIC Module Slot	N/A
LOM	IO Interface	1x GbE RJ45 (By SKU)
	OPMA slot	IPMI on board (By SKU)
I/O Interface	Reset Button	1
	LED	Power/Status/Storage
	Power Button	1
	Console	1 x RJ45
	USB	2 x USB 3.0
	LCD Module	N/A
	Display	N/A
	Power input	2 x DC Jack
Storage	HDD/SSD Support	1 x 2.5" Bay (Optional)
	Onboard Slots	1 x SATADOM (Optional)
Expansion	PCIe	N/A
	mini-PCIe	2x Mini-PCIe Half Size (PCIe/USB2.0)
	SIM card slot	1x Nano-SIM
Miscellaneous	Watchdog	YES
	Internal RTC with Li Battery	YES
	TPM	YES (Optional)
Cooling	Processor	Passive CPU heatsink
	System	3 x cooling fan
Environmental Parameters	Temperature	0 to 50°C Operating -20 to 70°C Non-Operating
	Humidity (RH)	5 to 90% Operating 5 to 95% Non-Operating
System Dimensions	(WxDxH)	275 x 44 x 310 mm
	Weight	3 kg
Package Dimensions	(WxDxH)	478 x 359 x 163mm
	Weight	5kg
Power	Type/Watts	90W power adapter (Optional 1+1) DC: 12V/7.5A, 90W Max.
	Input	AC: 100-240V~, 50-60 Hz
Approvals and Compliance		RoHS, CE/FCC Class A, UL, CB

Front Panel

NCA-1611A
NCA-1611C



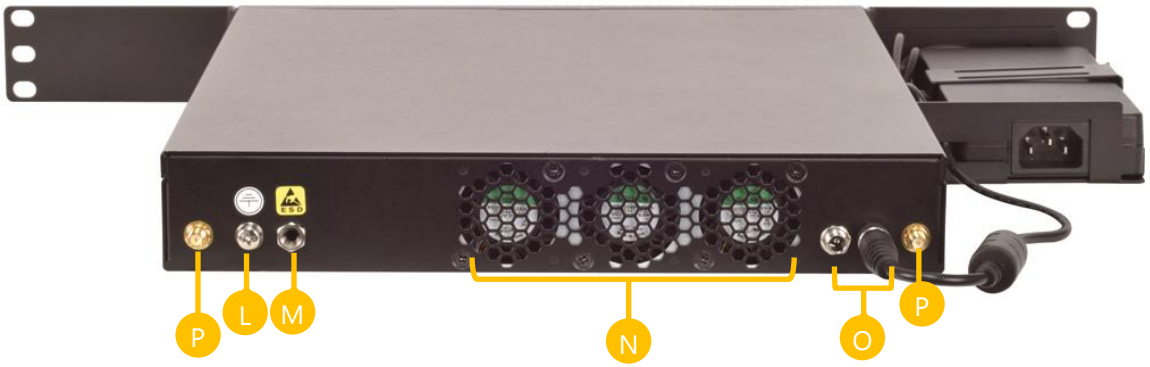
NCA-1611B
NCA-1611D



NCA-1611E

No.	Description	
A	LED Indicators (System)	 Please refer to Appendix A: LED Indicator Explanations for the description of the LED Indicators.
B	Power Button	Push to power on this device.
C	Reset Button	Software reset
D	Mini USB Port	1x Console Port (Priority)
E	RJ45 Console Port	1x RJ-45 Console Port
F	USB Port	2x USB 3.0 ports
G	IPMI Port	1x Serial/Ethernet management port (By SKU)
H	GbE Port	6x GbE RJ45
I	SFP Port	2x SFP ports
J	SFP+ Port	2x SFP+ ports (By SKU)
K	Front Antenna Port	2x SMA connector for Aux connector of Wi-Fi and LTE module

Rear Panel

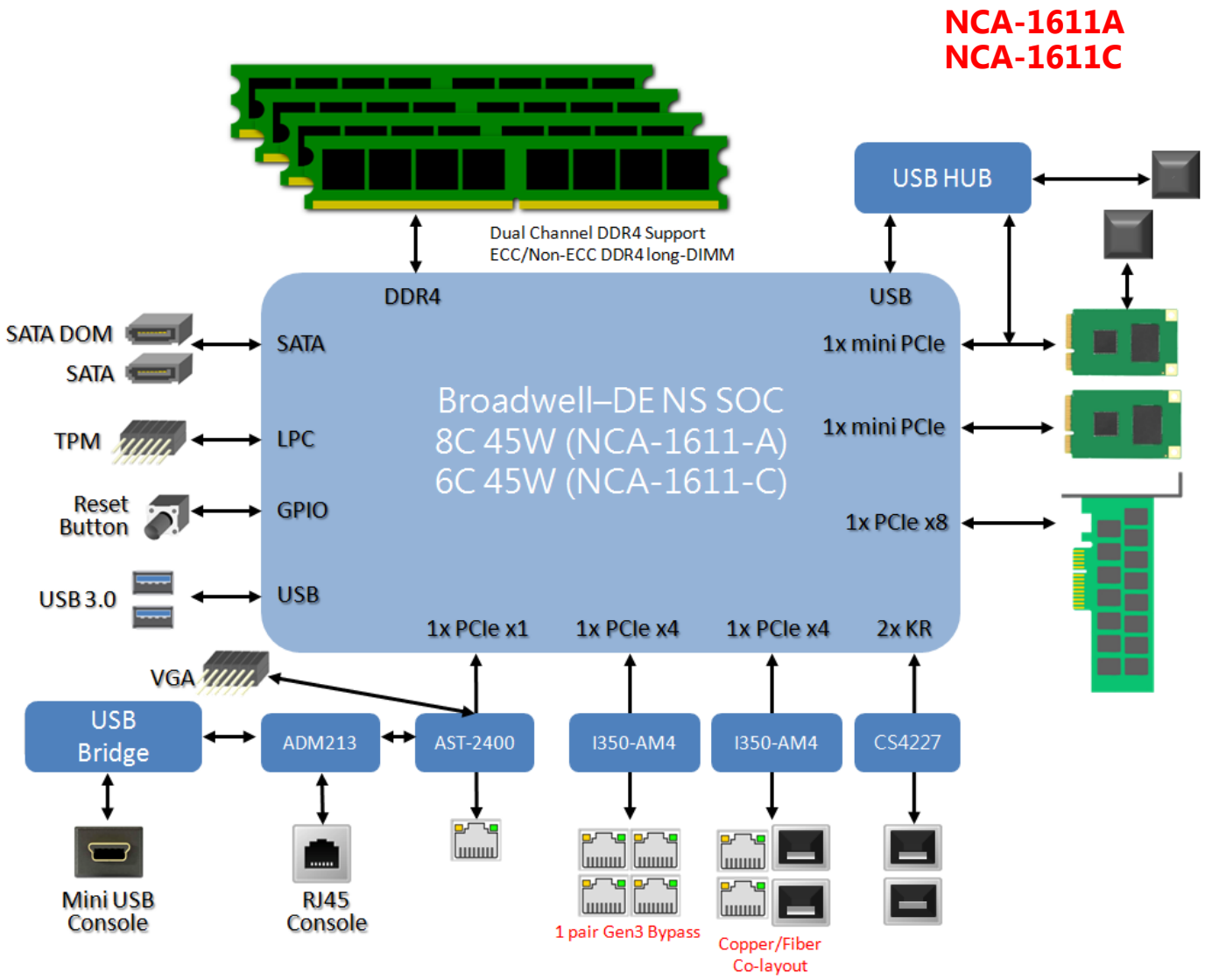


No.	Description	
L	Grounding Point	For safety measures to help prevent people from accidentally coming in contact with electrical hazards
M	ESD Protection Screw Hole	For safety measures to help prevent people from accidentally coming in contact with electrical hazards
N	Fan	3x Quiet Fan
O	Power Supply	2x 12V DC in
P	Rear Antenna Port	2x SMA connector for the Main connector of Wi-Fi and LTE module

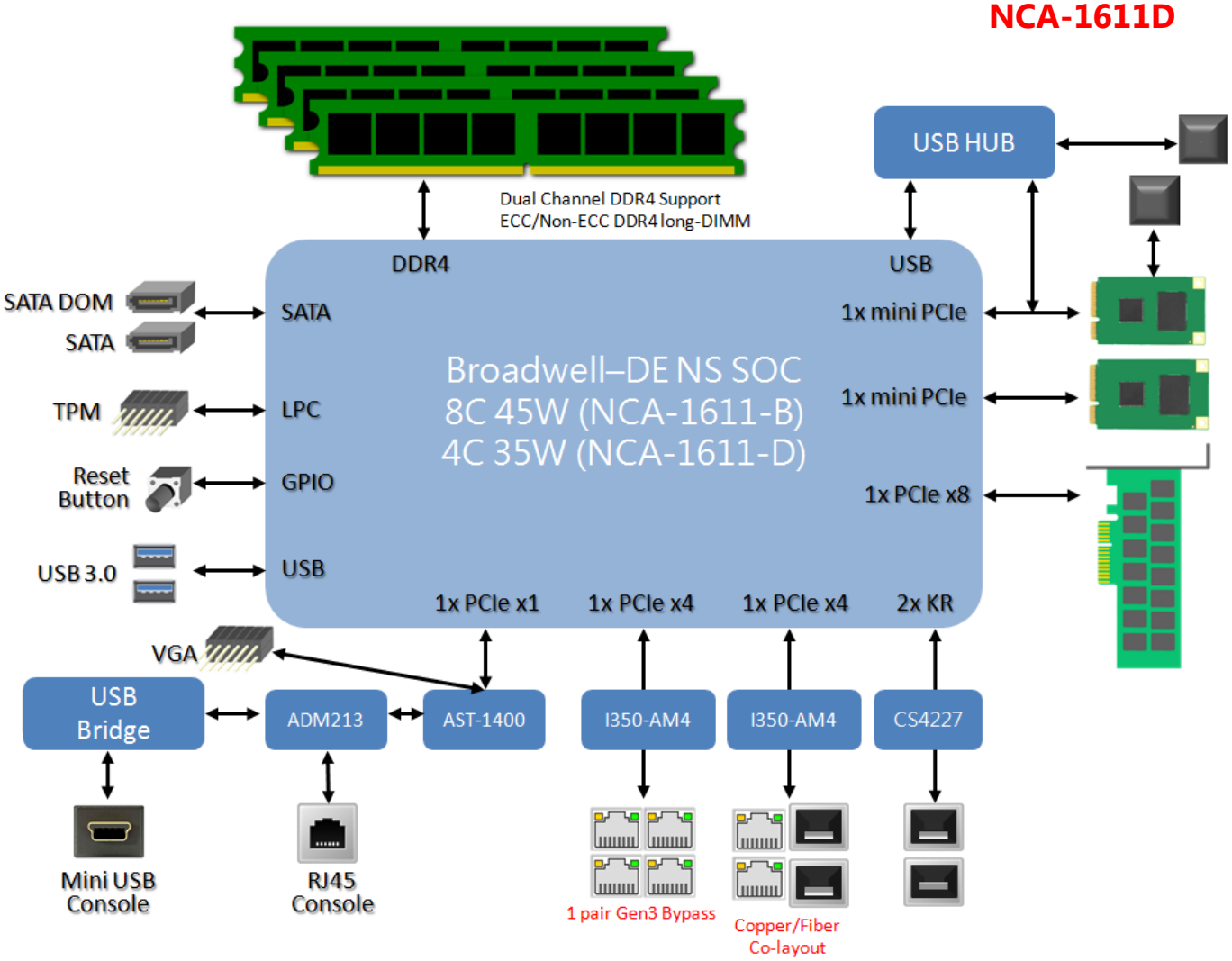
CHAPTER 2: MOTHERBOARD INFORMATION

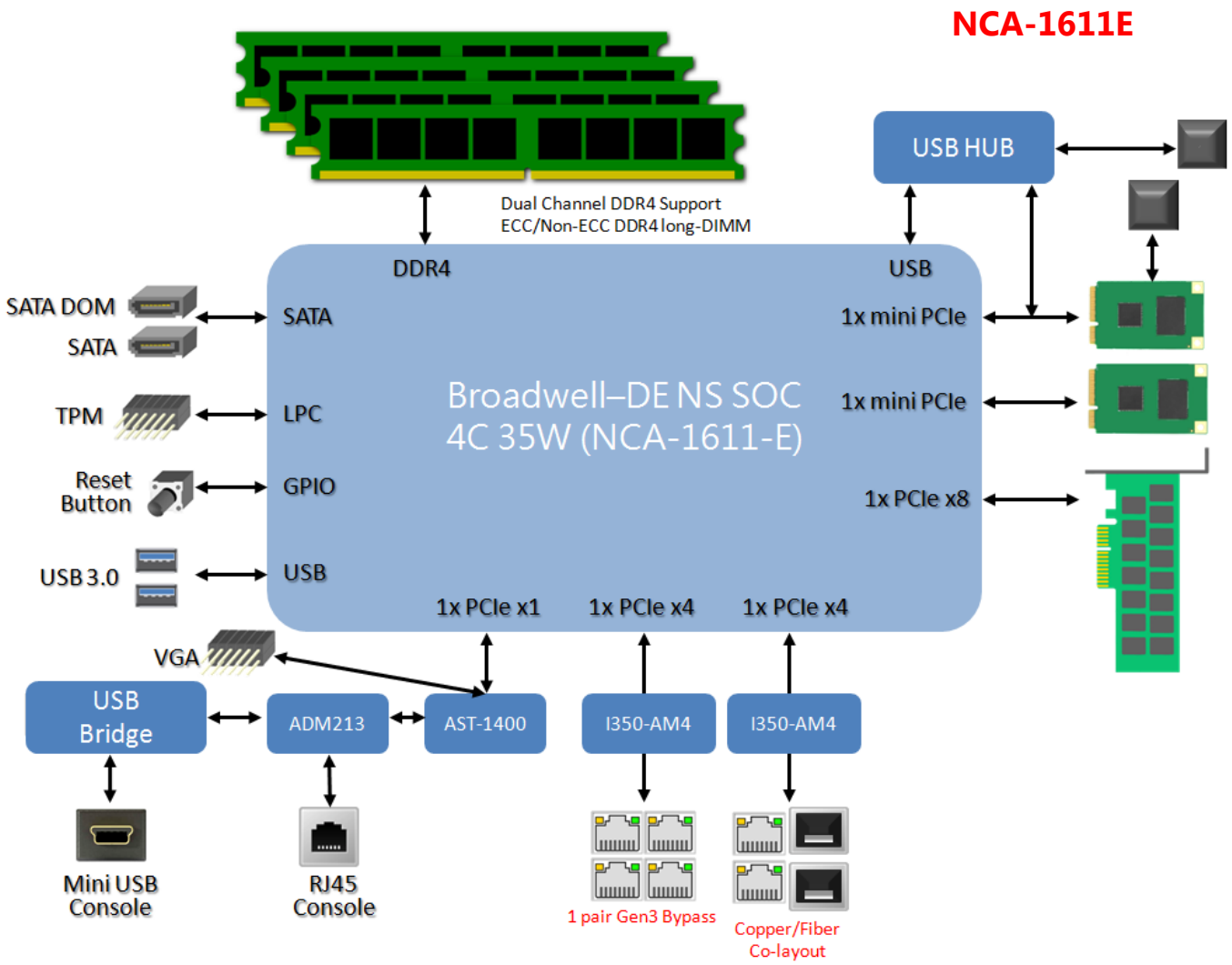
Block Diagram

The block diagram indicates how data flows among components on the motherboard. Please refer to the following figure for your motherboard's layout design.



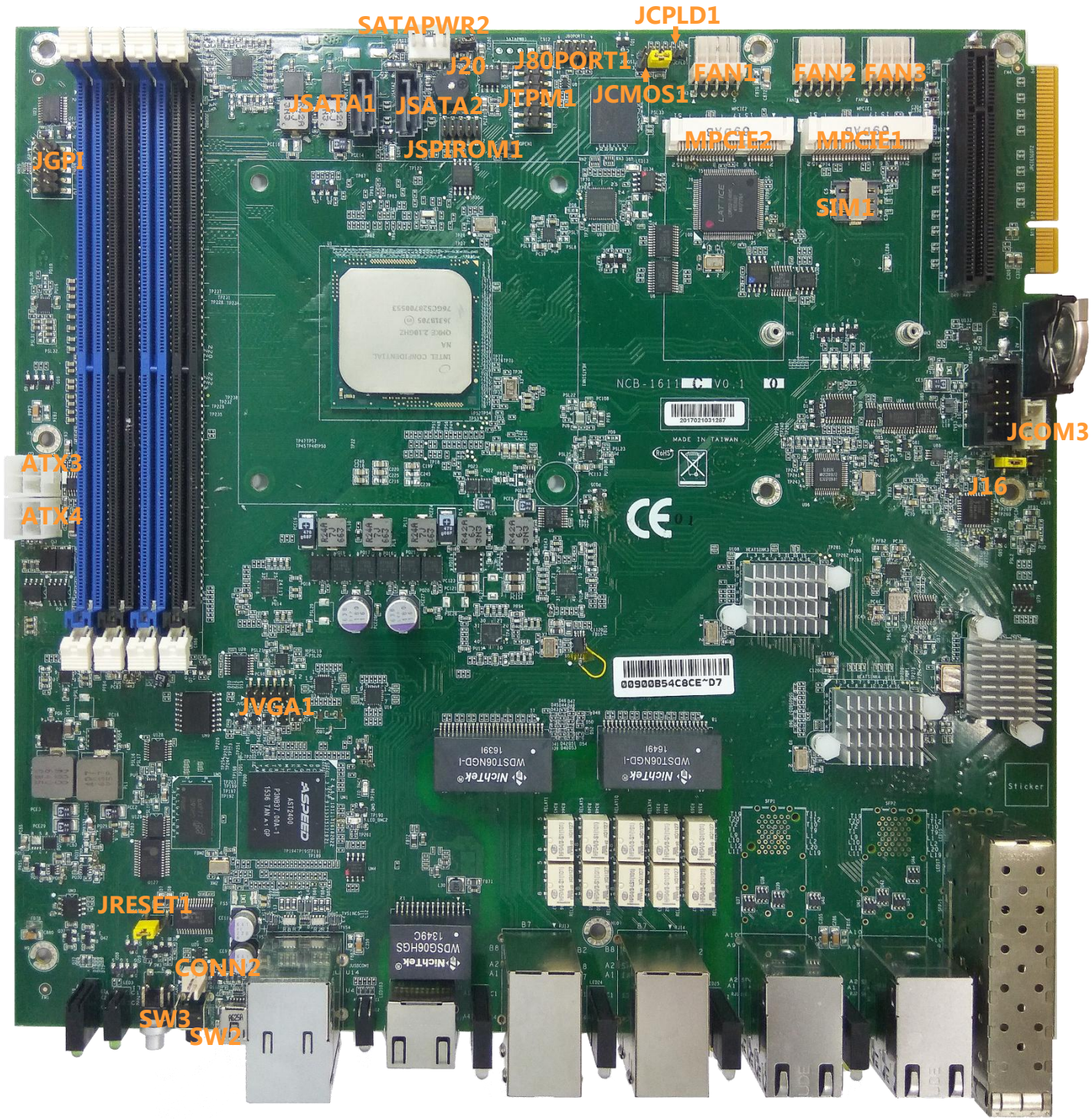
NCA-1611B
NCA-1611D




NCA-1611E
USB HUB
Dual Channel DDR4 Support
ECC/Non-ECC DDR4 long-DIMM
DDR4
USB
SATA DOM
SATA
SATA
1x mini PCIe
TPM
LPC
Broadwell–DE NS SOC
4C 35W (NCA-1611-E)
1x mini PCIe
Reset
Button
GPIO
1x PCIe x8
USB 3.0
USB
1x PCIe x1
1x PCIe x4
1x PCIe x4
VGA
USB
Bridge
ADM213
AST-1400
I350-AM4
I350-AM4
Mini USB
Console
RJ45
Console
1 pair Gen3 Bypass
Copper/Fiber
Co-layout

Motherboard Layout

The motherboard layout shows the connectors and jumpers on the board. Refer to the following picture as a reference of the pin assignments and the internal connectors.

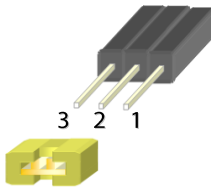


Internal Jumpers & Connectors

JCOMS1: Clear CMOS pin header

Use the jumper setting to clear CMOS

Pin	Description	Pin	Description
1	VCC_RTC	**2**	PCH_RTCRST#
3	GND		

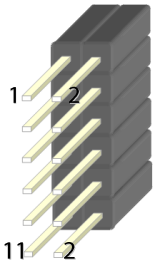


Setting	Mode
1-2	Normal (Default)
2-3	Clear CMOS

JTPM1: TPM module pin header

Supports a Trusted Platform Module (TPM) system

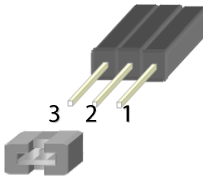
Pin	Description	Pin	Description
1	LPC_SERIRQ	**2**	LPC_FRAME#
3	LPC_LAD0	**4**	CLK_33M_PORT80
5	LPC_LAD1	**6**	P3V3_SB
7	LPC_LAD2	**8**	NC
9	LPC_LAD3	**10**	P3V3
11	PLT_RST#	**12**	GND



J20: SATADOM/SATA pin header

User jumper setting to switch between the two supported disk types on JSATA1: *SATA HDD/SSD* or *SATADOM*.

Pin	Description
1	GND
2	PWR_SATA_DOM
3	P5V



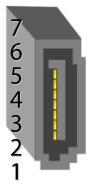
Setting	Mode
1-2	For JSATA1 to connect with a SATA HDD/SSD (Default Setting)
2-3	For JSATA1 to connect with a SATADOM

Warning: By adjusting the jumper to SATADOM mode, please make sure you connect a SATADOM to JSATA1; attaching a SATA cable to JSATA1 under SATADOM mode will result in short circuit.

JSATA1

180° SATA Connector

Pin	Description	Pin	Description
1	GND	**2**	SATA_CTX_C_DRX_P
3	SATA_CTX_C_DRX_N	**4**	GND
5	SATA_DTX_CRX_N	**6**	SATA_DTX_CRX_P
7	PWR_SATA_DOM		

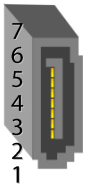


JSATA1

JSATA2

180° SATA Connector

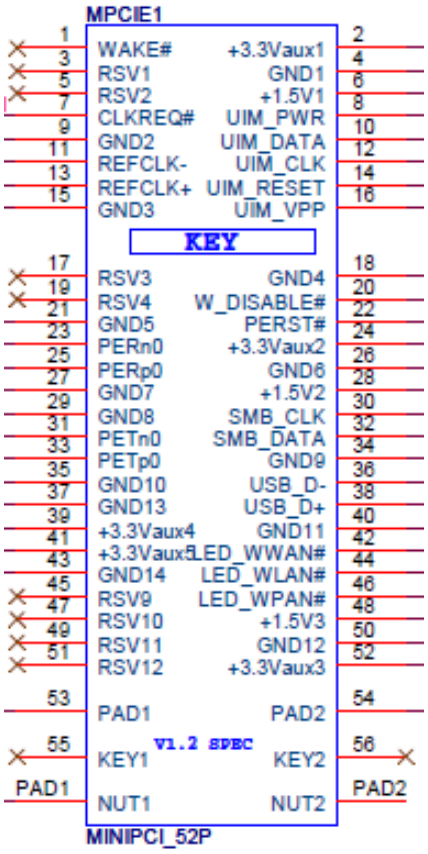
Pin	Description	Pin	Description
1	GND	**2**	SATA_CTX_C_DRX_P
3	SATA_CTX_C_DRX_N	**4**	GND
5	SATA_DTX_CRX_N	**6**	SATA_DTX_CRX_P
7	GND		

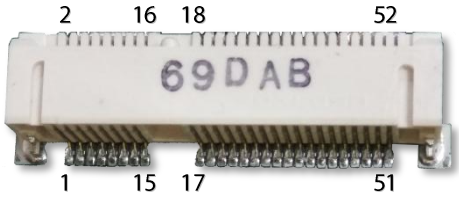


JSATA2

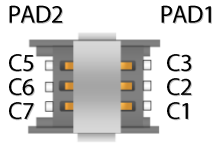
MPCIE1: Mini-PCIe connector

Supports both 3G/4G and USB/PCIe interface adapter





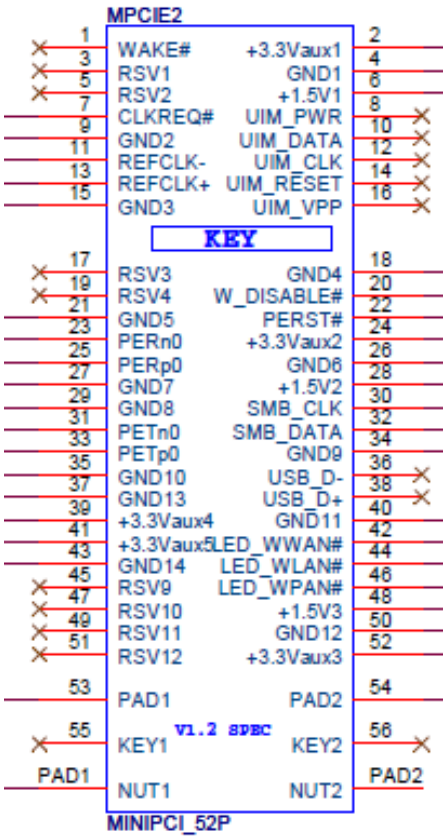
SIM Card Connector

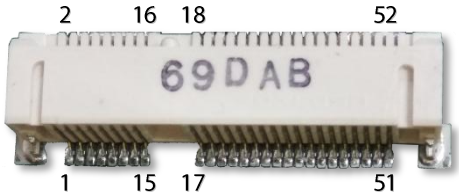


Pin	Description	Pin	Description	Pin	Description	Pin	Description
C1	VCC	**C2**	RST	**C3**	CLK	**PAD1**	PAD1
C5	GND	**C6**	VPP	**C7**	DATA	**PAD2**	PAD2

MPCIE2: Mini-PCIe connector

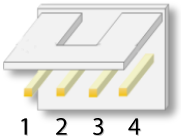
Supports Wi-Fi PCIe interface adapter





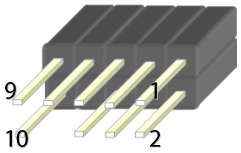
SATAPWR2: SATA Power Connector

Pin	Description
1	P12V
2	GND
3	GND
4	P5V



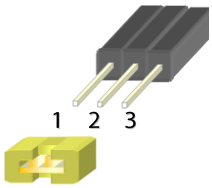
J80PORT1:80 Debug port pin header

Pin	Description	Pin	Description
1	CLK_33M_PORT80	**2**	LPC_LAD1_R
3	80PORT_RST#	**4**	LPC_LAD0_R
5	LPC_FRAME#_P80	**6**	P3V3
7	LPC_LAD3_P80		
9	LPC_LAD2_P80	**10**	GND



J16: Bypass flash jump setting pin header

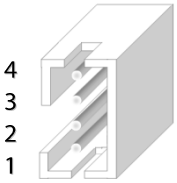
Pin	Description
1	P3V3_SB
2	CPLD_LED3
3	GND



ARM Programming Selection	Mode
0(1-2)	Enabled (Default)
1(2-3)	Disabled (default)

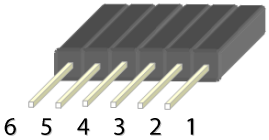
JCOM3: Bypass flash connector

Pin	Description
1	P3V3_SB
2	NXP_RXD
3	GND
4	NXP_TXD



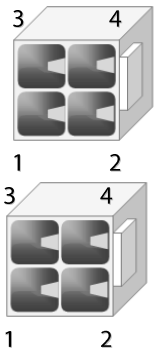
JCPLD1: CPLD Flash pin header

Pin	Description	Pin	Description
1	P3V3_SB	**2**	CPLD_TDO
3	CPLD_TD	**4**	CPLD_TMS
5	GND	**6**	CPLD_TCK



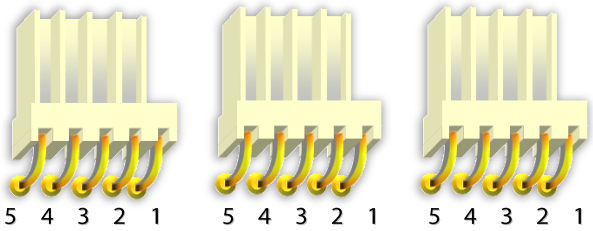
ATX3/ATX4: ATX Power connector 4P

Pin	Description	Pin	Description
1	GND	**2**	V12A_DC_A/ V12A_DC_B
3	GND	**4**	V12A_DC_A/ V12A_DC_B



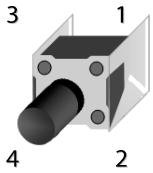
FAN3/FAN2/FAN1: CPU Fan

Pin	Description
1	CPUFANOUT
2	NC
3	BMC_FAN_TACH0/1/2
4	P12V
5	GND



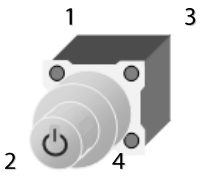
SW2: Reset button

Pin	Description
1	GND
2	GND
3	GND
4	FP_RST_SEL



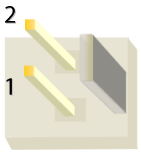
SW5: Power button

Pin	Description	Pin	Description
1	GND	**2**	GND
3	PWRON#	**4**	PWRON#
L1	SUSLED	**L2**	SPRLED-



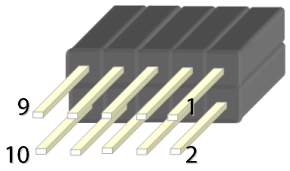
CONN2: Power pin header

Pin	Description
1	GND
2	PWRON#



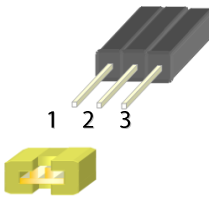
JSPIROM1: SPI ROM flash pin header

Pin	Description	Pin	Description
1	NC	**2**	NC
3	SPI1_CS0#_DUAL	**4**	P3V3_SB_SPI
5	SPI_MISO_DUAL	**6**	SPI_HOLD0_L
7	NC	**8**	SPI_CLK_DUAL
9	GND	**10**	SPI_MOSI_DUAL



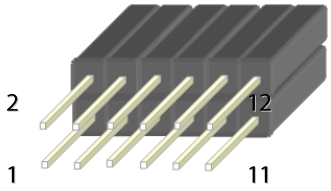
JRESET1: JRESET pin header for mode selection of Reset button on Front Panel

Setting	Mode
1-2	Hardware Reset
2-3	Software Reset (Default)

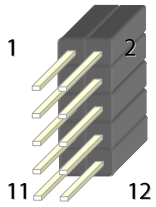


JVGA1: VGA pin header

Pin	Description	Pin	Description
1	DAC_RO	**2**	GND
3	DAC_GO	**4**	GND
5	DAC_BO	**6**	GND
7	HSYNC_O	**8**	NC
9	VSYNC_O	**10**	GND
11	DDC_DATA	**12**	DDC_CLK



JGP1: GPIO pin Header



Pin	Description	Pin	Description
1	R	**2**	GND
3	G	**4**	GND
5	B	**6**	GND
7	H-SYNC	**8**	GND
9	V-SYNC	**10**	GND

CHAPTER 3: HARDWARE SETUP

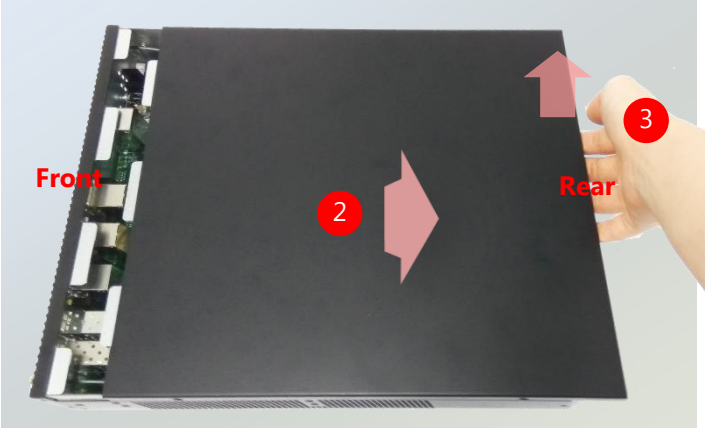
To reduce the risk of personal injury, electric shock, or damage to the unit, please remove all power connections to completely shut down the device. Also, please wear ESD protection gloves when conducting the steps in this chapter.

Opening the Chassis

1. On both sides of the system, loosen the 2 screws as shown in the photos.

2. Gently pull the cover backward a bit.

3. Lift the cover up to remove it.

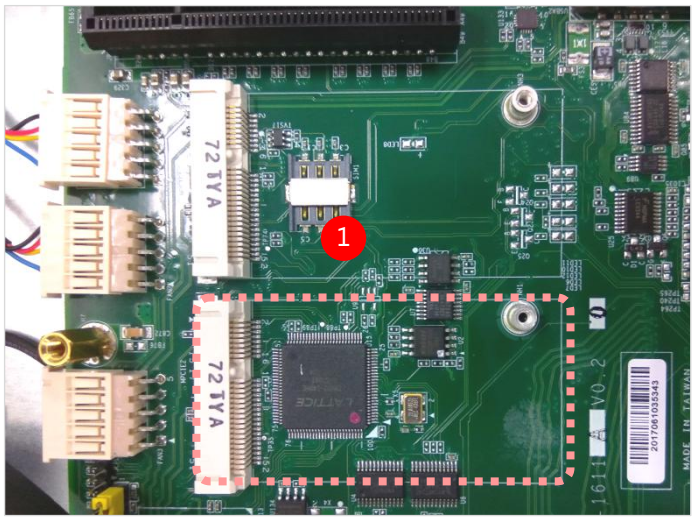


Installing the Wireless Module

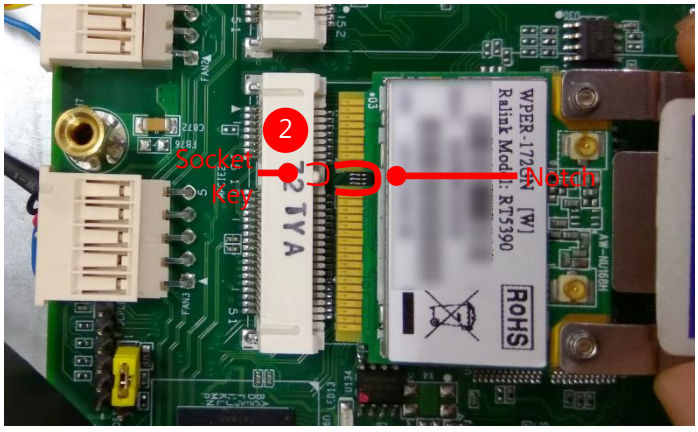
The motherboard provides two mini-PCIe slots, with one supporting 3G/4G data transmission module and the other one supporting Wi-Fi module.

Installing Wi-Fi Supported Module

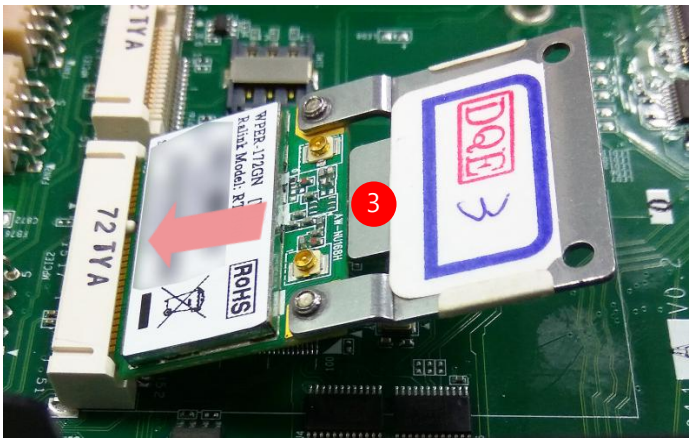
1. Locate MPCIE1 slot.



2. Align the notch of the module with the socket key in the slot.



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



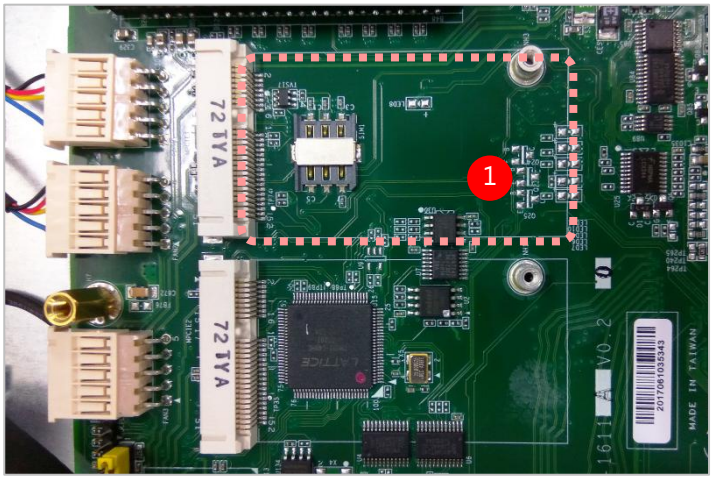
4. Push down on the module and secure it with screws that come with it.

5. Snap the end of the antenna cable onto the connector on the module. Press down the golden end of the cable until it clicks into place.

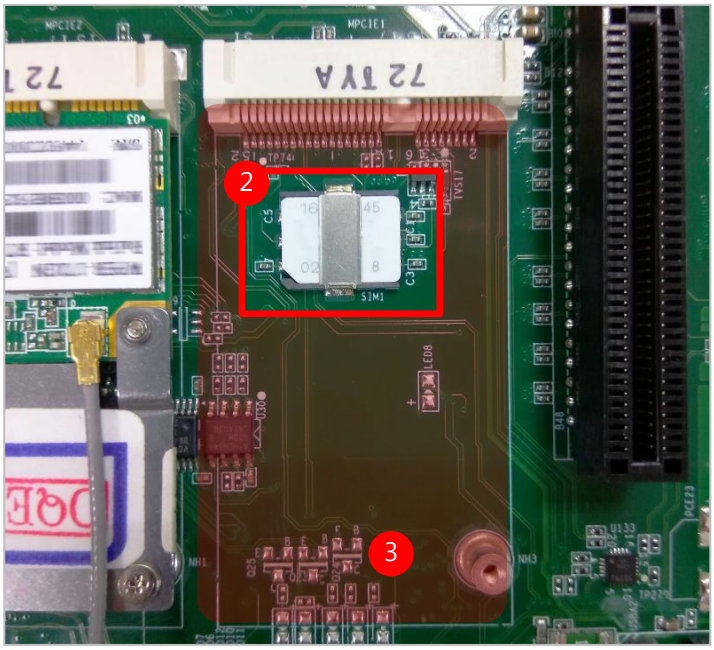
6. After you replace the system's cover, attach the antenna to the corresponding connector on the panel.

Installing the 3G/4G Supported Module

1. Locate MPCIE2 slot.



2. Insert the Nano-SIM card. Make sure the card's gold contacts face downwards and the angled corner of the card is positioned correctly as shown in the picture.



3. Follow the procedures for installing a Wi-Fi supported module in the previous section to install your 3G/4G supported module.

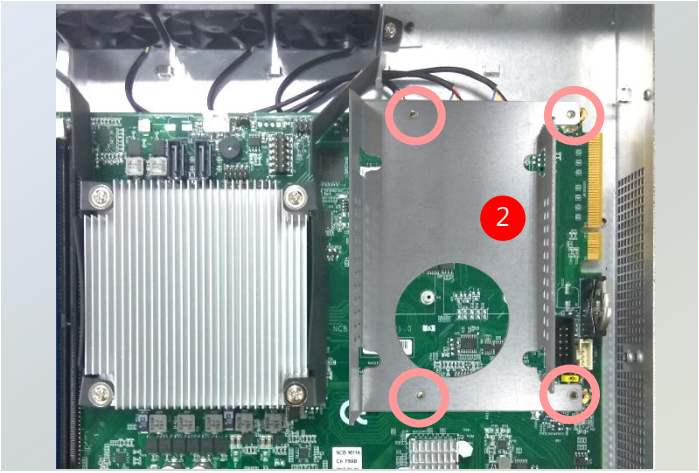
Installing the Disk Drive

NCA-1611 is built with one 2.5" HDD/SSD slot drive bay as well as the support for SATADOM. The following will discuss disk drive installation procedures based on their designs.

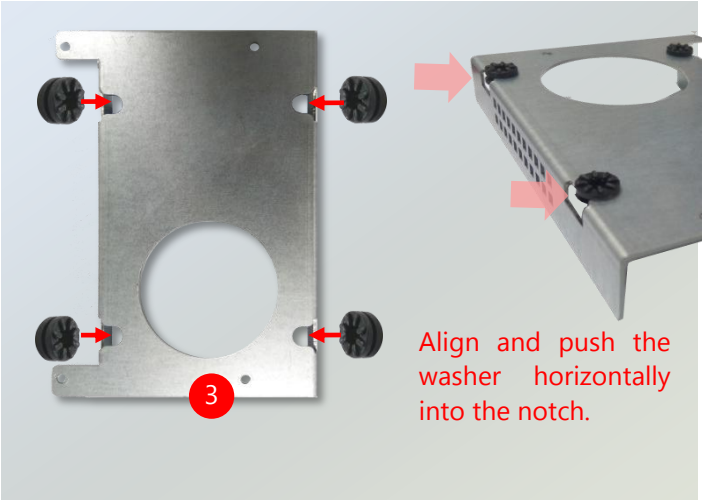
2.5" HDD/SSD Installation

1. Locate the 2.5" disk bay area in the chassis.

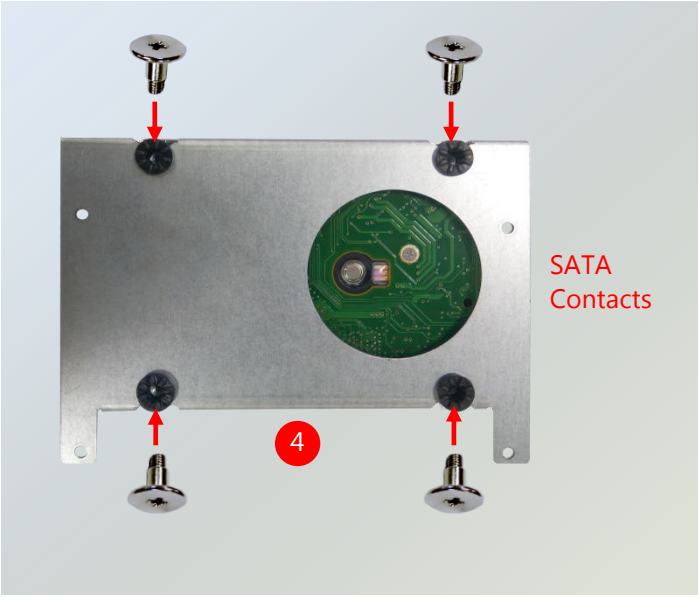
2. Loosen the screws that secure the empty HDD tray.



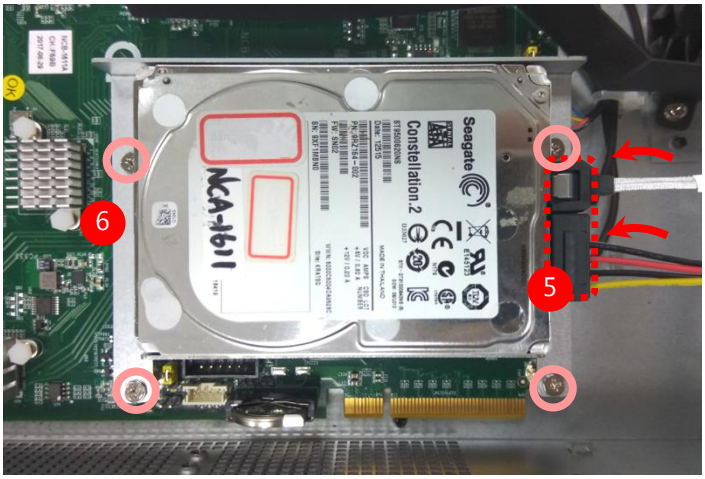
3. Insert the four rubber washers into the four notches of the tray.



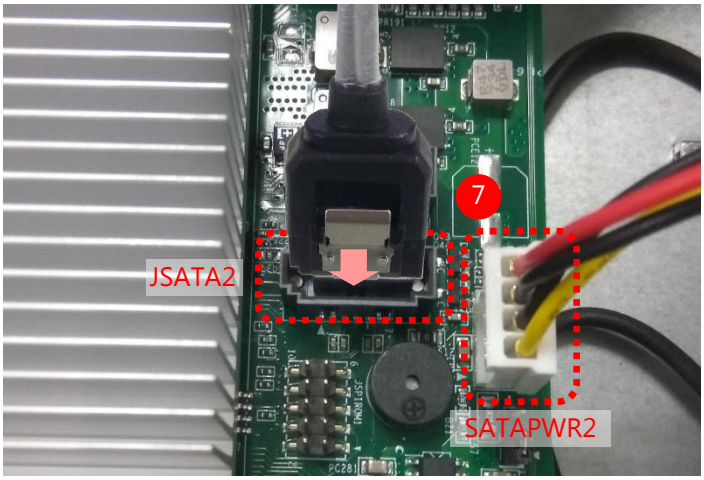
4. Install the disk into the tray and secure it with the provided disk screws. Make sure the SATA connector faces outwards as shown in the picture.



5. Insert one end of the SATA data cable to the SATA contacts on the disk. Do the same to the SATA power cable. Make the two cables' ends go under and pass through the CPU dusk cover
6. Secure the tray on the motherboard with four provided screws.



7. Insert the other end of the SATA data cable to the SATA2 port on the motherboard, and the end of the SATA power cable to the SATA Power port. Arrange the cables and route them neatly to avoid them from getting tangled.

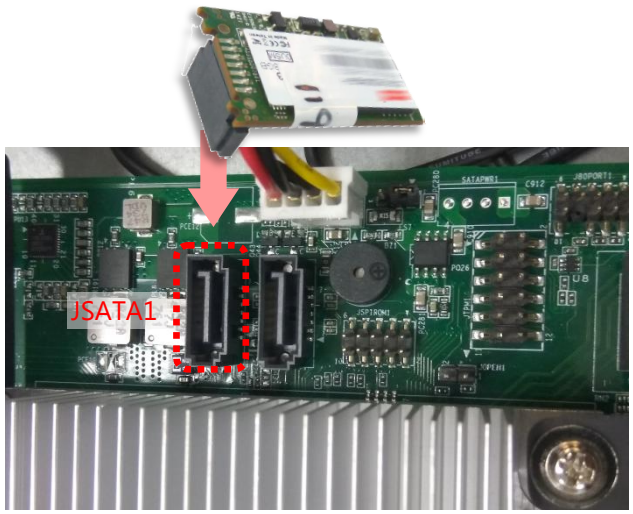


SATADOM Installation

To install and enable SATA DOM, please:

1. Adjust the jumper on SATADOM/SATA pin header to SATADOM mode following the instructions in Internal Jumpers & Connectors.

2. Insert the SATADOM into JSATA1 port.



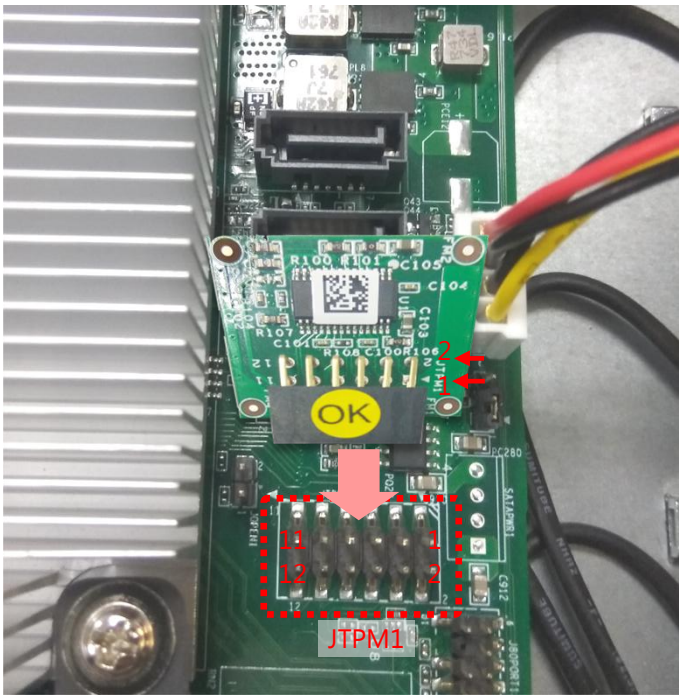
Warning: By adjusting the jumper to SATADOM mode, please connect only a SATADOM to JSATA1.

Installing the TPM Module

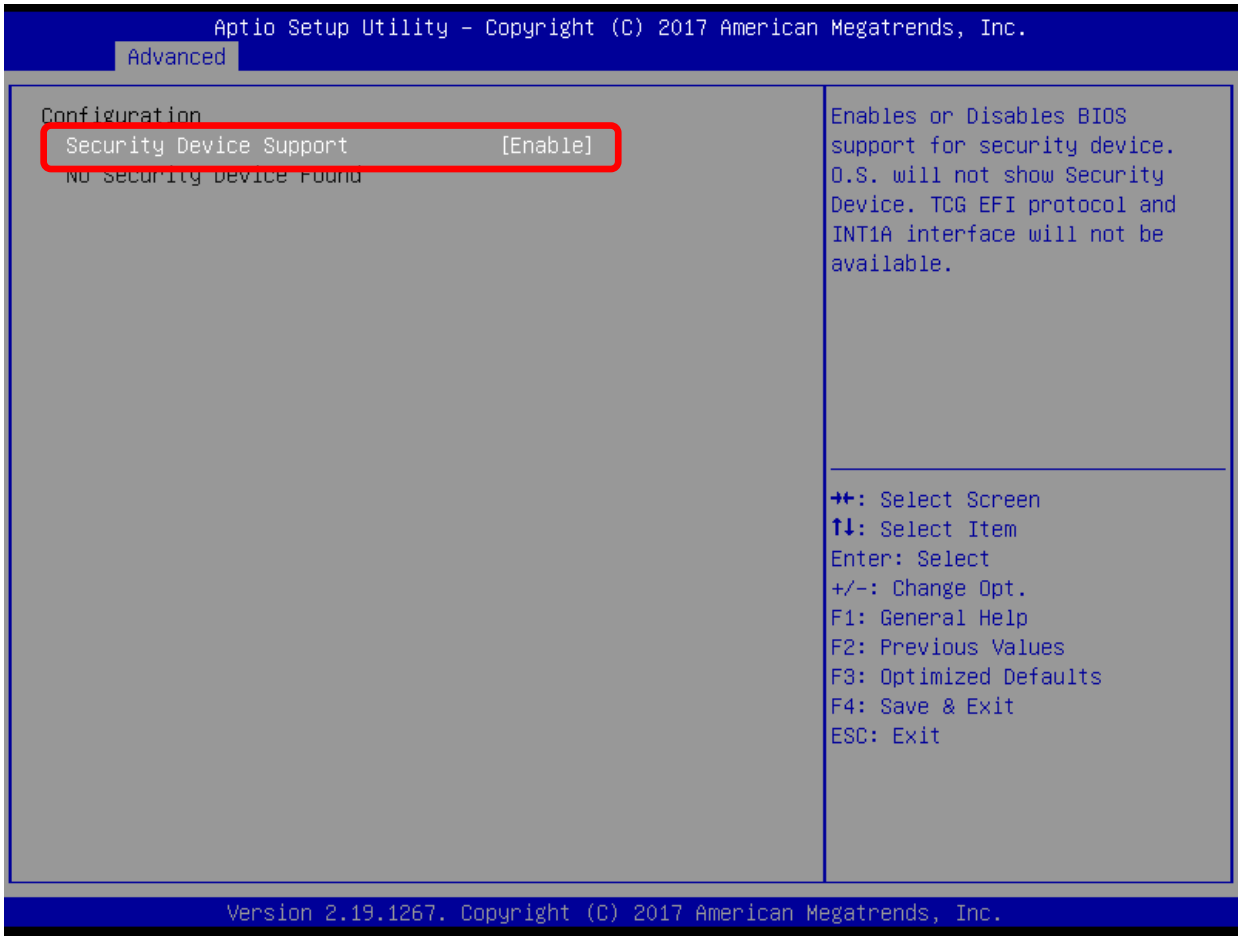
1. Locate **JTPM1** pin header.

2. Align the pins on the module with the corresponding ones on the pin header; Pin 1 is illustrated as a triangle shape.

3. Insert the module into the pin header until it is totally seated.



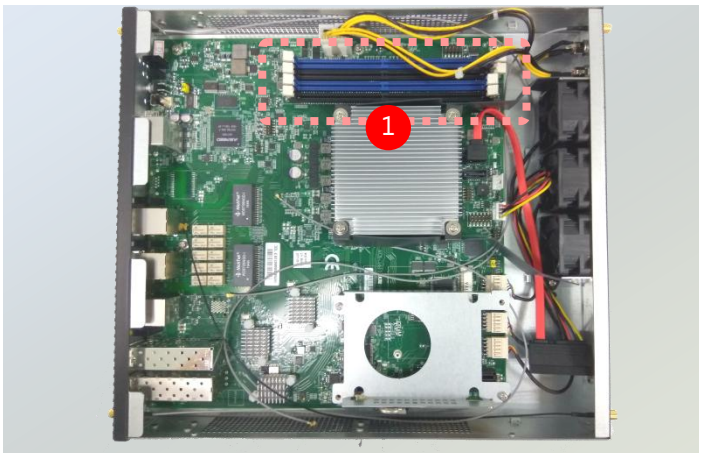
4. Enter BIOS Setup screen to enable this function. Go to **Advanced**→ T**rusted Computing** → **Security Device Support** → select "Enable"



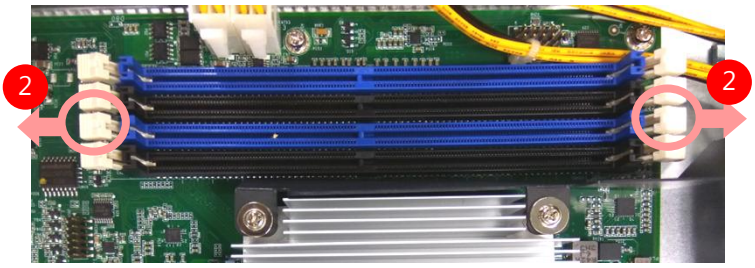
Installing the System Memory

The motherboard supports DDR4 registered DIMM memory for heavy-duty operations. Please follow the steps below to install the DIMM memory modules.

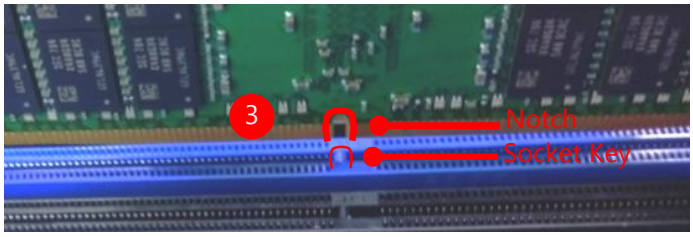
1. Locate the DIMM slot.



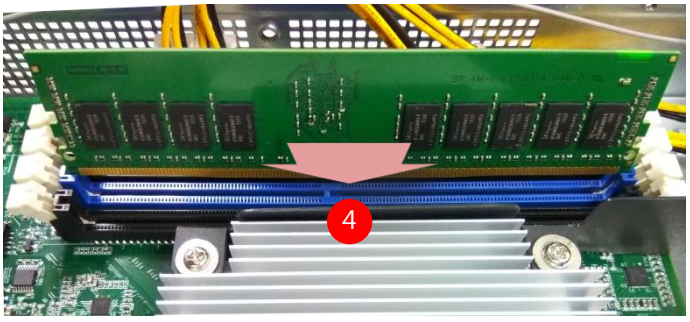
2. Pull open the DIMM slot latches.

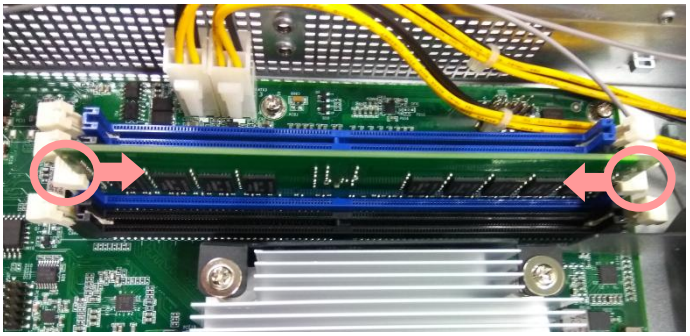


3. Align the notch of the DIMM module with the socket key in the slot.



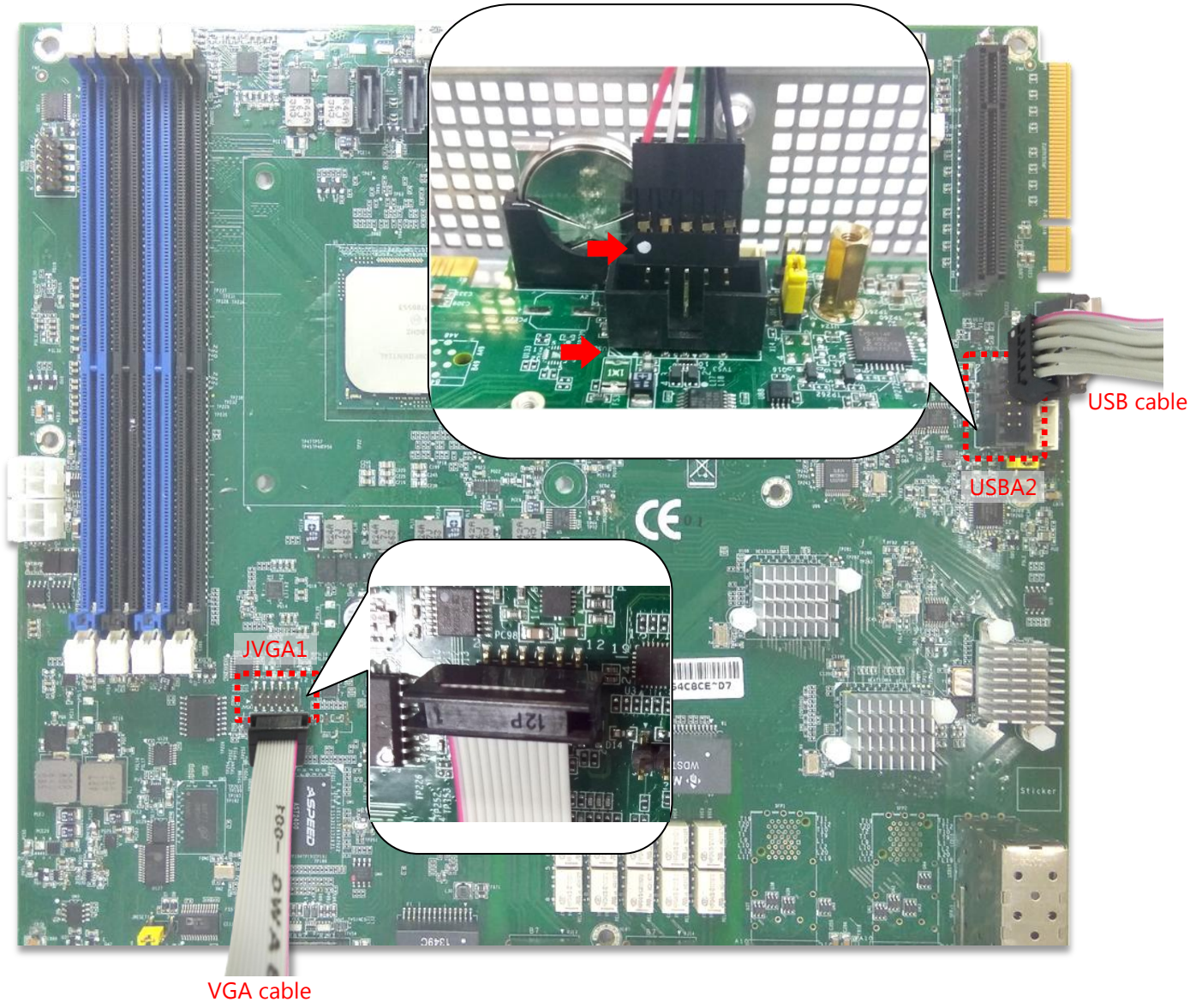
4. Push the module on its both corners into the slot until it is firmly seated. The latches will automatically snap locked.





Connecting the USB Cable & VGA Cable to Mainboard

To connect the internal 10-pin header to USB cable or 12-pin header to VGA (DB15) cable to Motherboard, make sure the pins on the cable's head matches the corresponding ones on the header.



Mounting the System

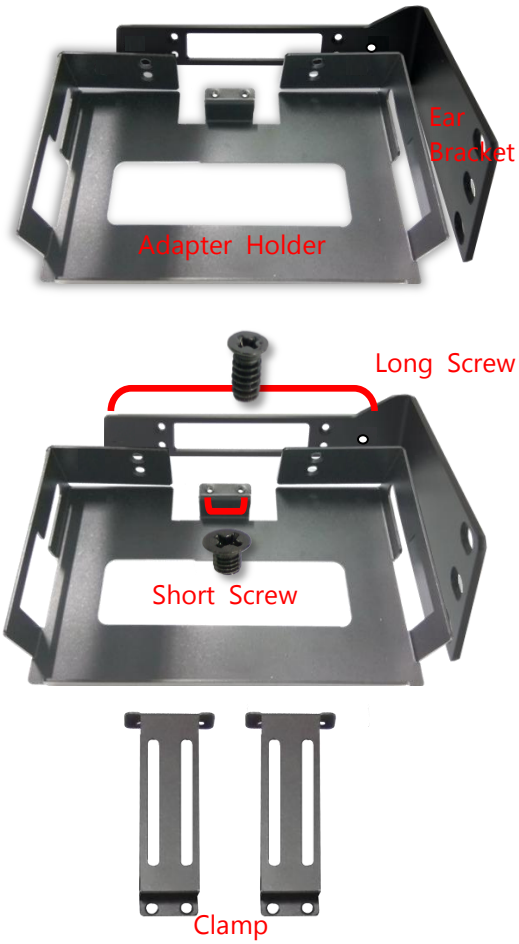
Rackmounting the System

With the Rackmount Kit, NCA-1611 can be fixed onto rack post along with the system's power adapter(s). Please contact Lanner's sales representative for purchasing this kit.

What's in the Rackmount Kit

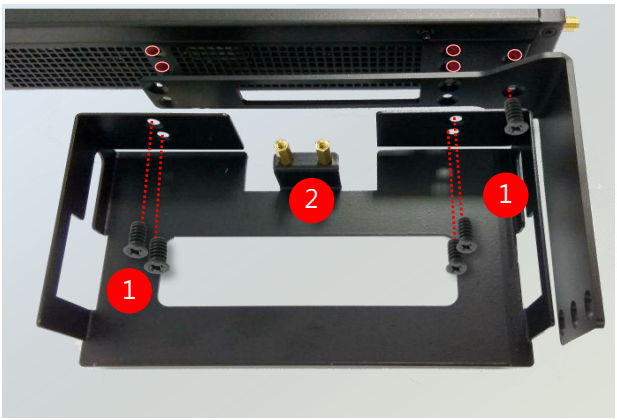
Check the kit contents for the following items:

- 1x pair of Ear Brackets
- 1x pair of Adapter Holders
- 1x pair of Clamps
- 1x Accessory Pack including long screws for the fixture of the ear brackets and short screws for the fixture of the adapter.



Attaching the Rackmount Assembly to the Chassis

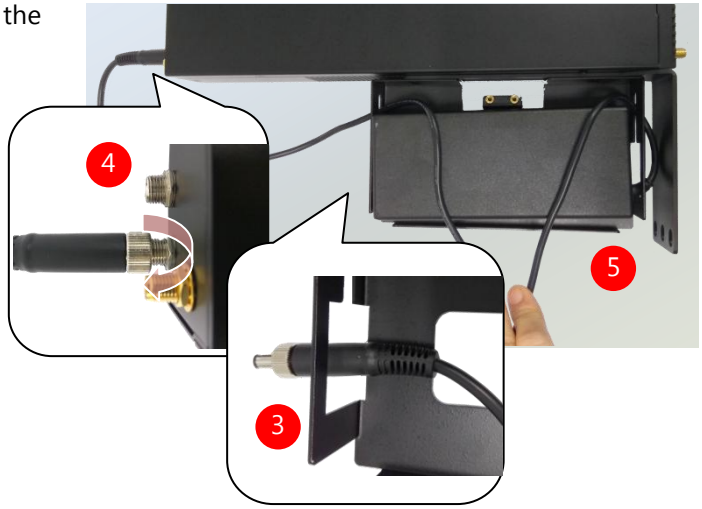
1. On one side of the system, align the ear bracket and the adapter holder to the screw holes on the side panel and then assemble them using five long screws.
2. Secure the two standoffs onto the holder.



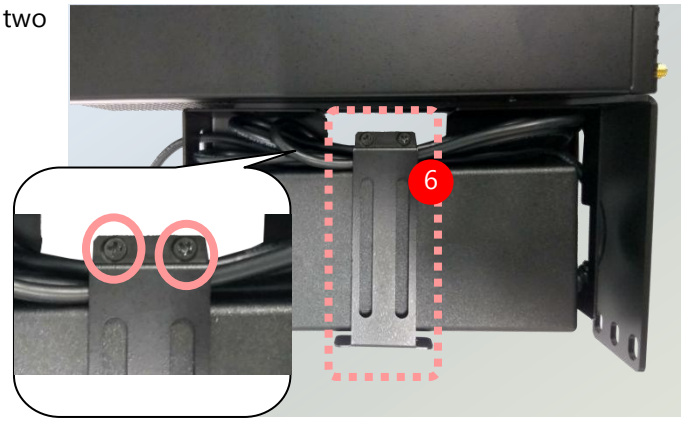
3. Get the power adapter's connector through the back of the holder.

4. Attach the power adapter's connector to the power supply slot and fasten the screw lock.

5. Insert the battery into the holder.

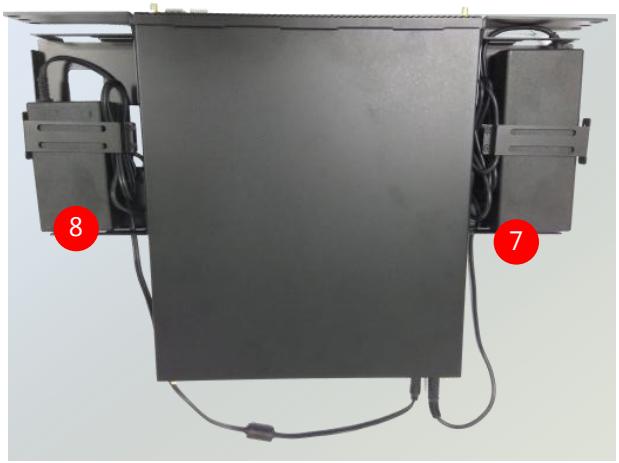


6. Secure the adapter with the clamp using two short screws.



7. Arrange the cables and route them neatly to avoid them from getting tangled.

8. Depending on your demand, a redundant power adapter can be installed on the other side of the system, ensuring continuous operation of the whole system if the main power supply should fail.



Installing the System to the Rack

9. In the rack, install a shelf to support the system.

10. Hold the system with its front facing you, lift and carefully insert the system into the rack.

11. Attach the brackets to the rail rack using screws and appropriate round-hole/square-hole retainer nuts.

CHAPTER 4: BIOS SETUP

Enter BIOS Setup

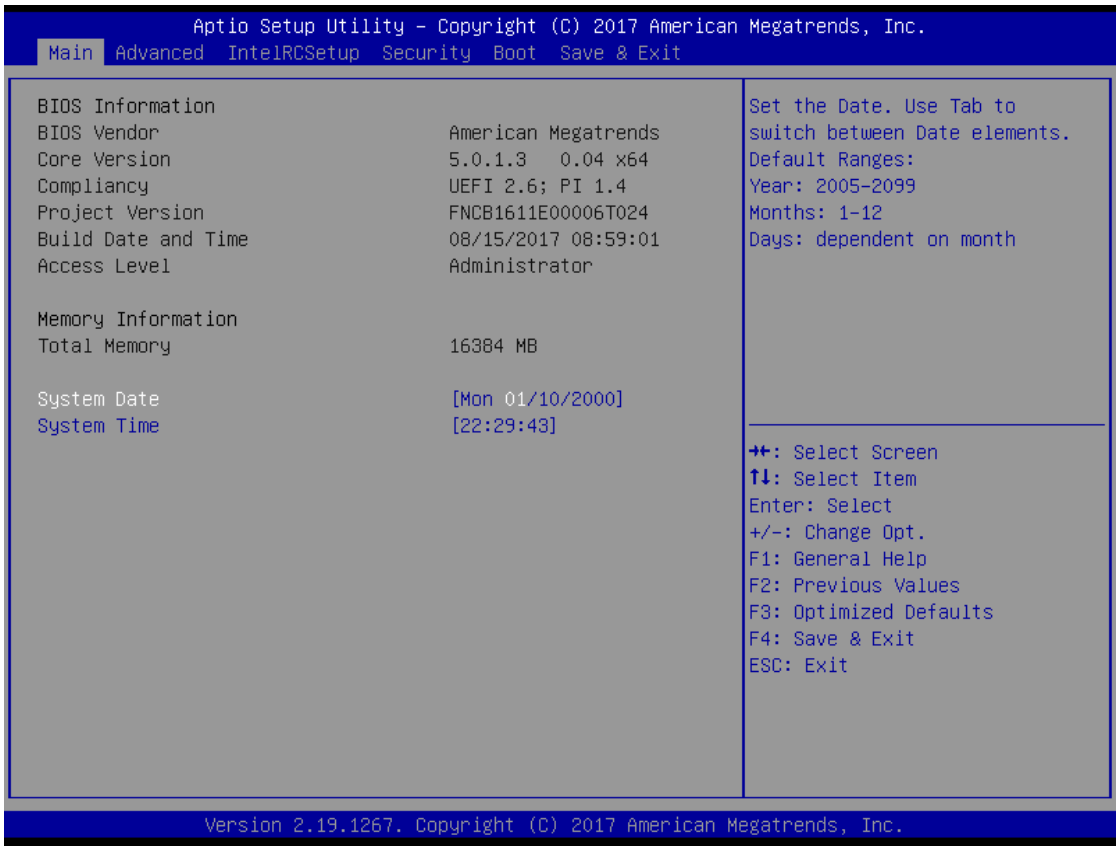
To enter the BIOS setup utility, simply follow the steps below:

1. Boot up the system.
2. Press <Delete> during the boot-up if you connect a keyboard to this unit. But if you connect a PC to this unit through console USB/Serial connection, then press <Tab>. Your system should be running POST (Power-On-Self-Test) upon booting up.
3. Then you will be directed to the BIOS main screen.
4. Instructions of BIOS navigations:

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

Main Setup

Setup main page displays a description of BIOS information and project version information. You can also setup the System Time and System Date here.

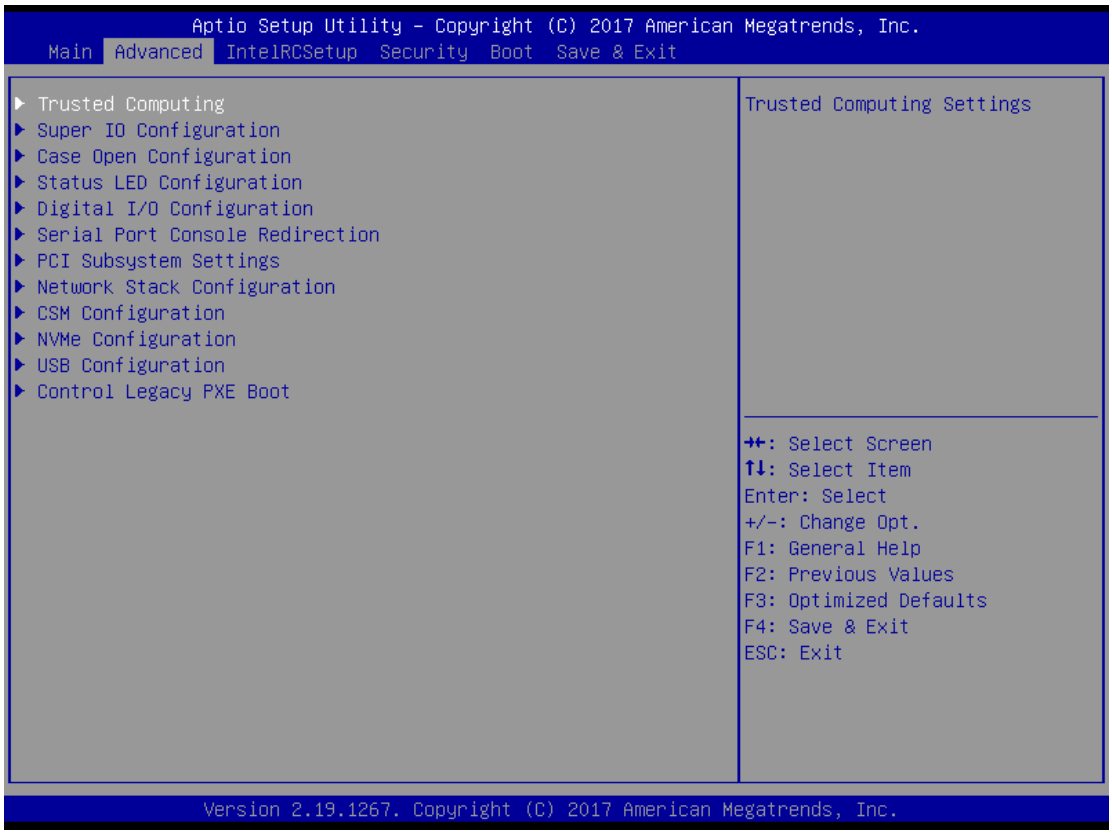


(The screenshots presented in section are for reference only)

Item	Description
System Date	Set the Date. Use Tab to switch between Date elements. Default Ranges: Year: 2005-2099 Months: 1-12 Days: dependent on month.
System Time	Set the Time. Use Tab to switch between Time elements.

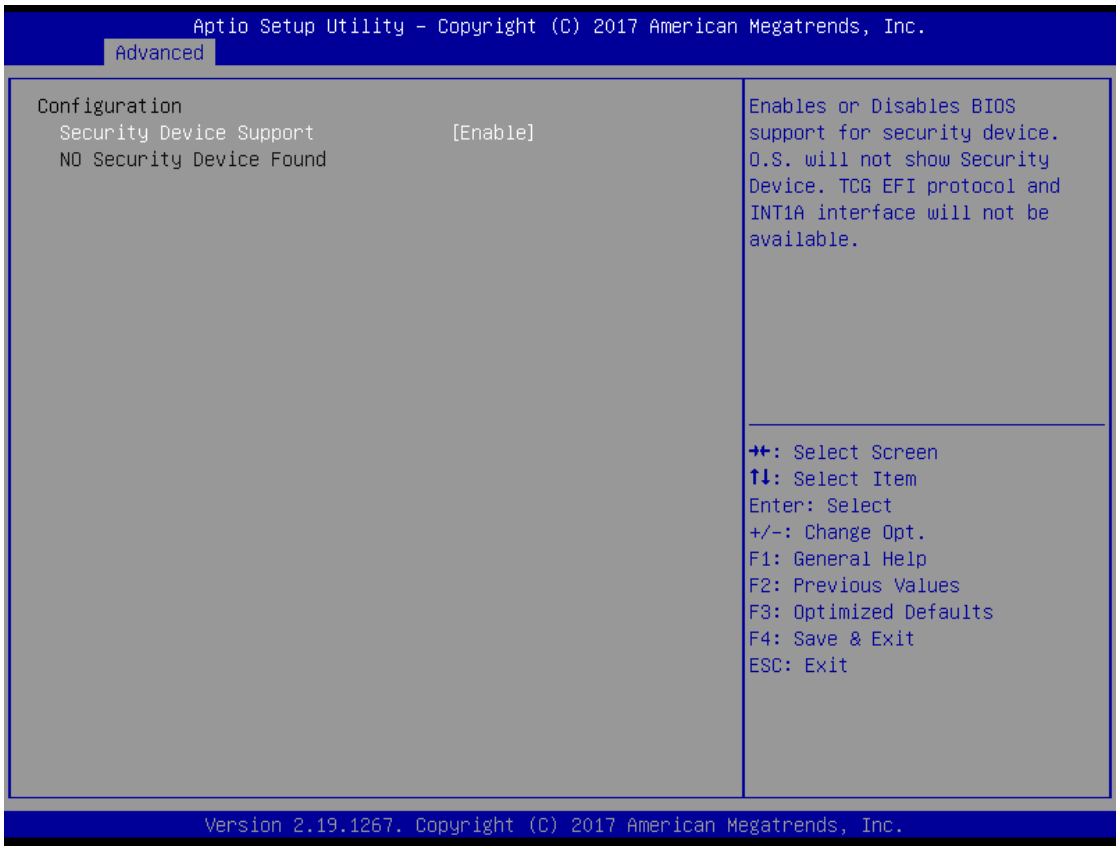
Advanced Setup

Use [←] / [→] to select [Advanced] setup screen. Under this screen, you may use [↑] [↓] to select an item you want to configure.



Trusted Computing

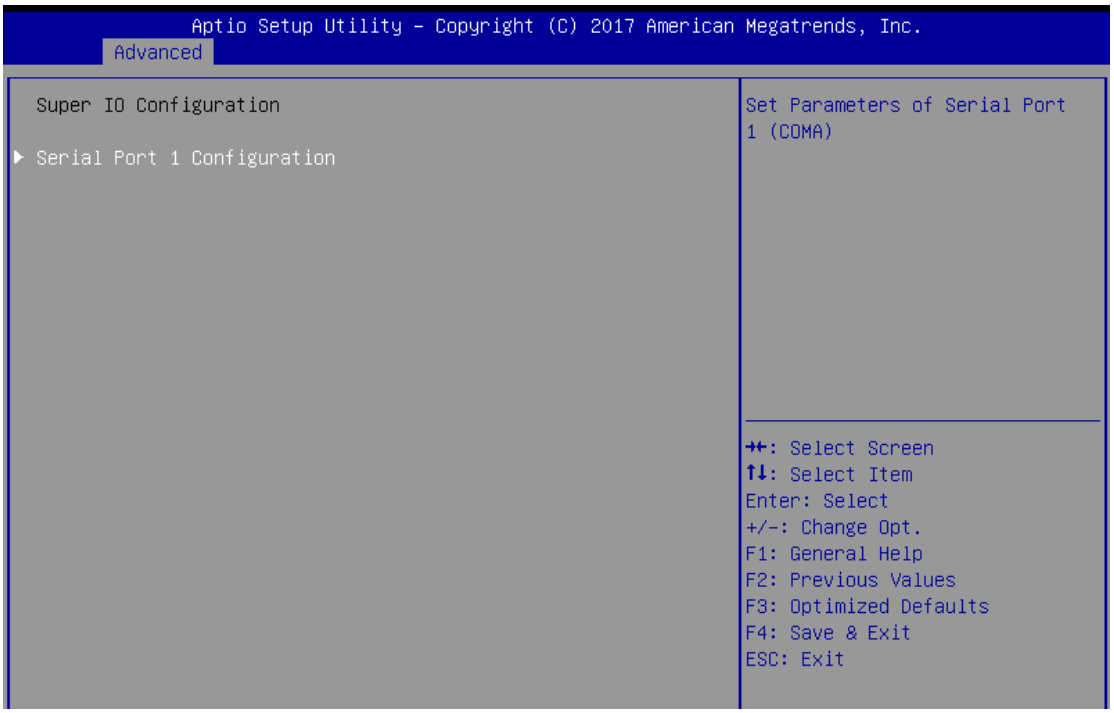
This option allows you to configure parameters regarding security device. Press "Enter" to access the submenu.



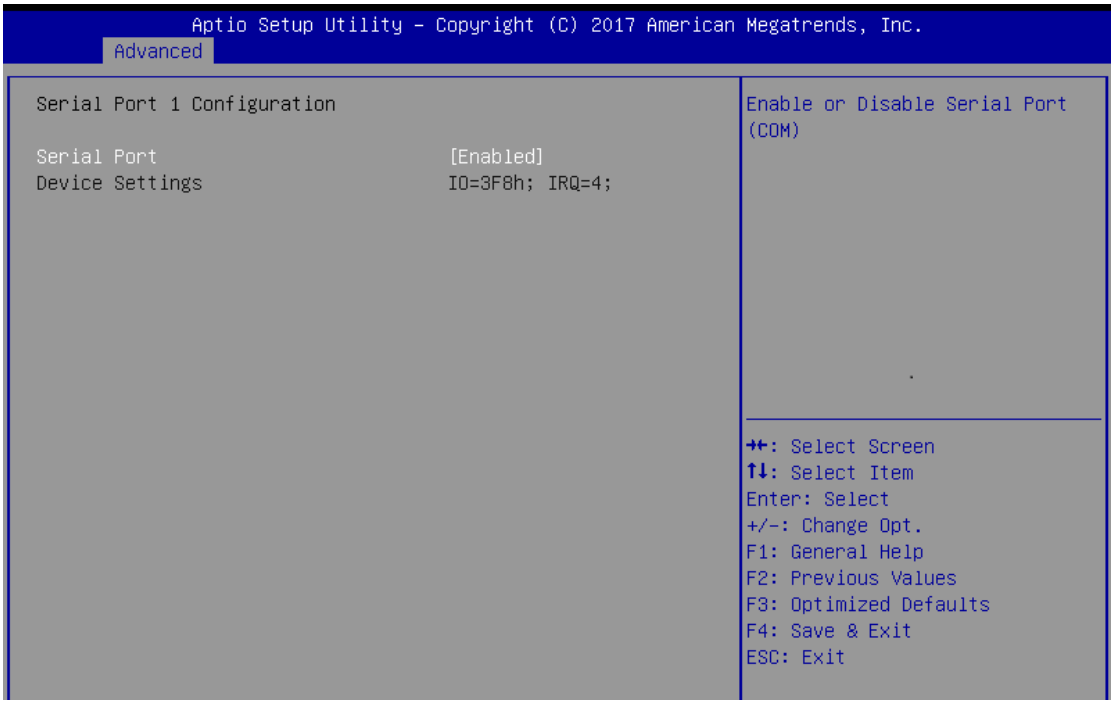
Item	Value	Description
Security Device Support	Enabled Disabled	Enables or Disables BIOS support for the security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

Super IO Configuration

This option allows you to configure parameters about Super IO Chip. Press "Enter" to access the submenu.



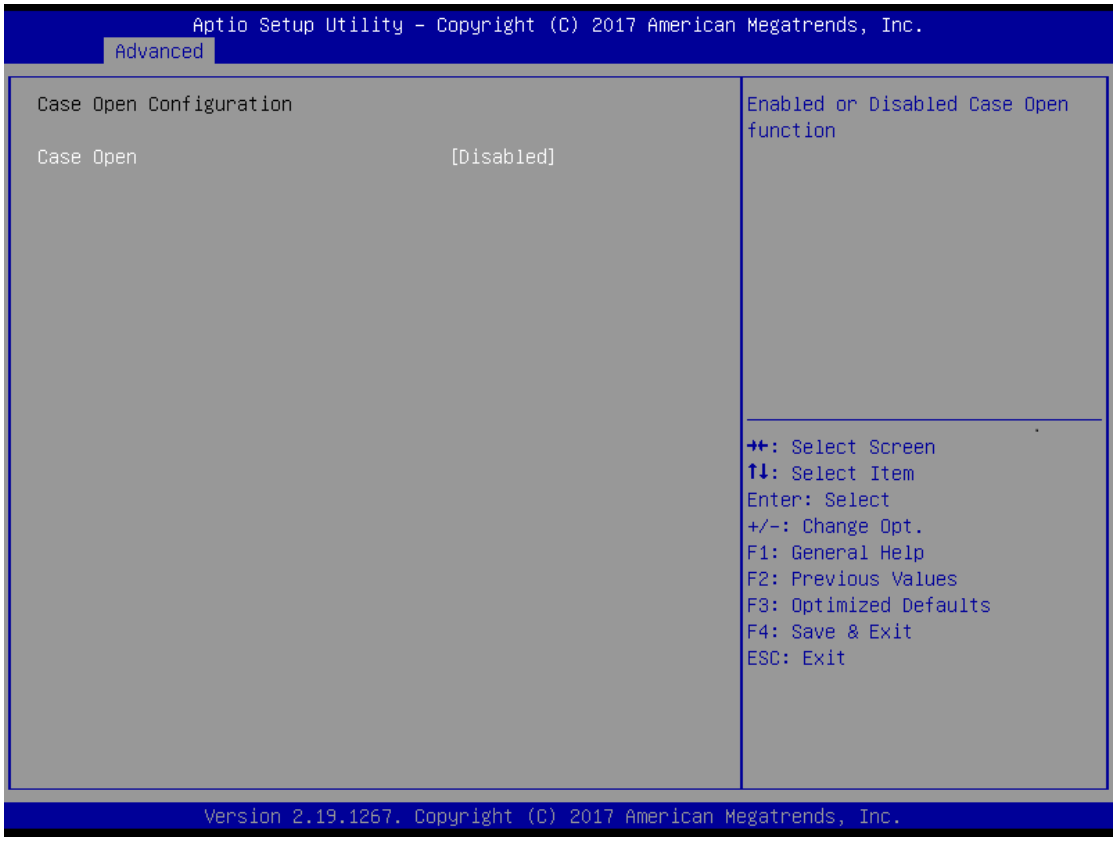
Serial port 1 Configuration



Item	Value	Description
Serial Port	Enabled Disabled	Enable or Disable Serial Port 1.
Device Settings	NA	IO=3F8h; IRQ = 4

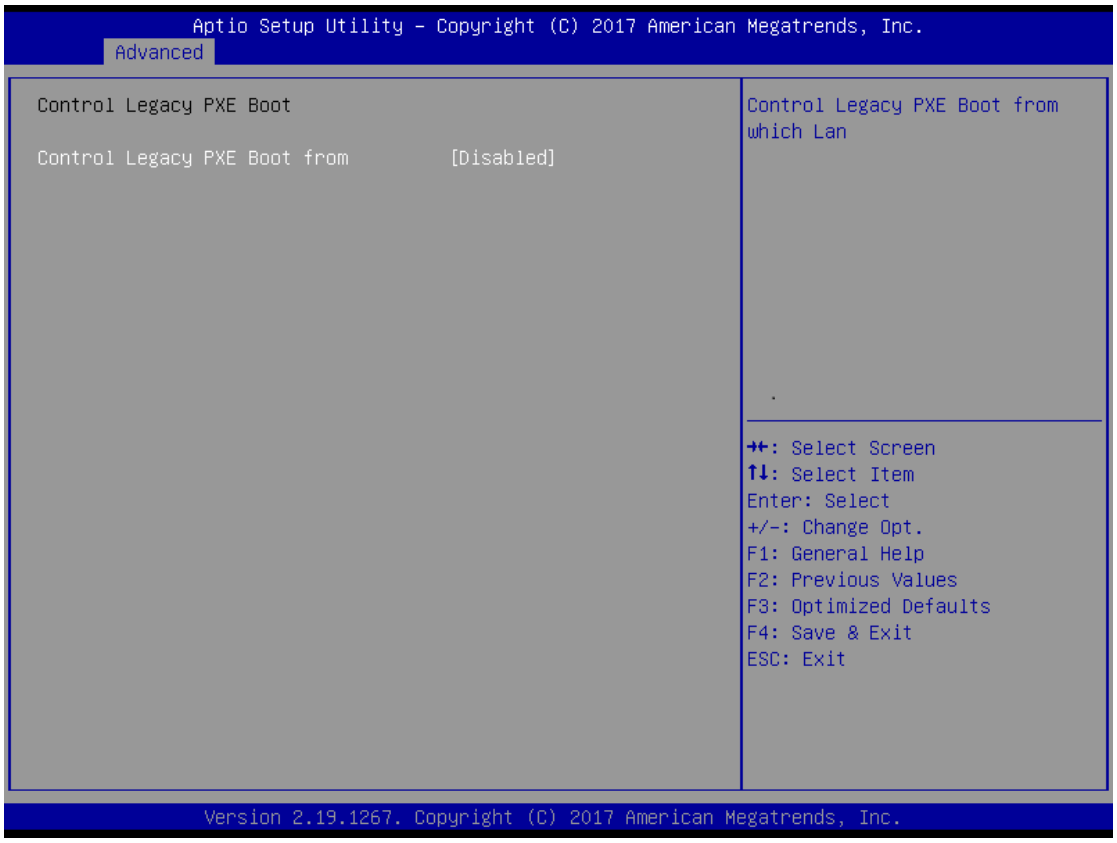
Case Open Configuration

If with the case's support, enabling this option will have the unit sound when someone opens the case of this unit, which is considered against your organization's policy. The default is "Disabled".



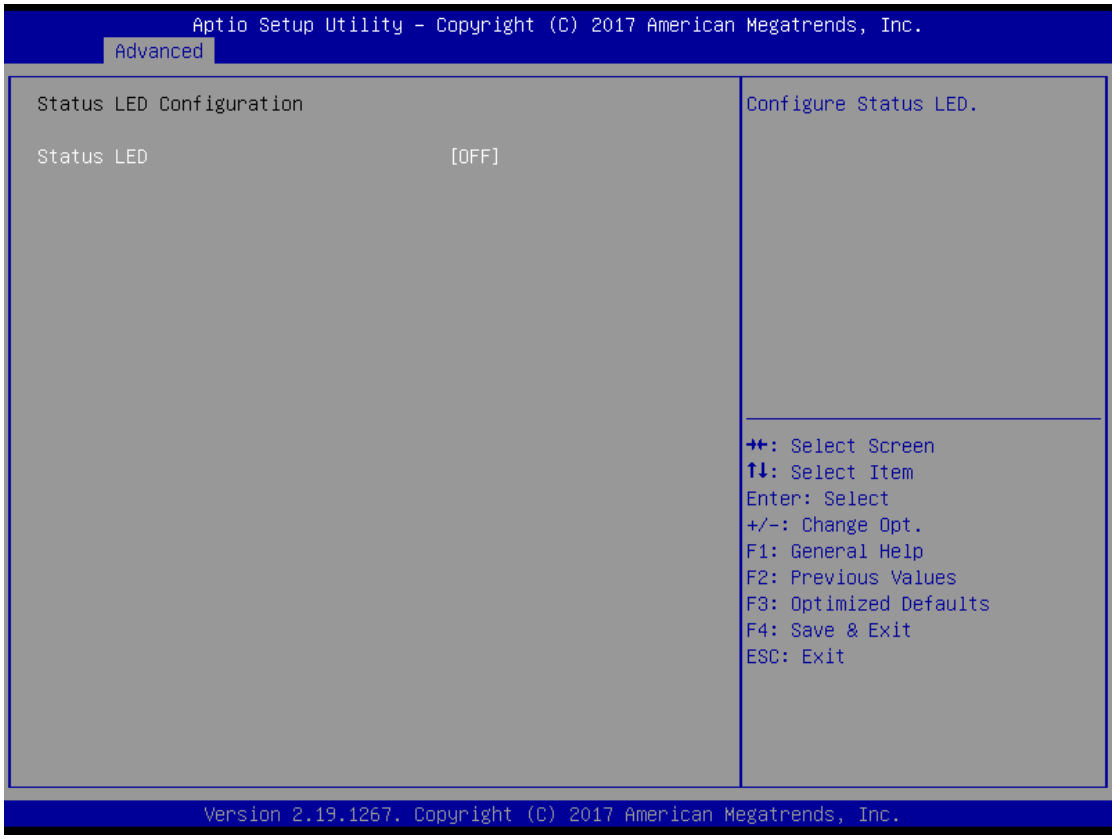
Item	Value	Description
Case Open	Enabled Disabled	Enable or Disable Case Open function.

Control Legacy PXE Boot



Item	Value	Description
Control Legacy PXE Boot from	Disabled LAN1 LAN2 LAN3 LAN4 LAN5 LAN6 LAN7 LAN8 LAN9 LAN10	Control which LAN the Legacy PXE boots from.

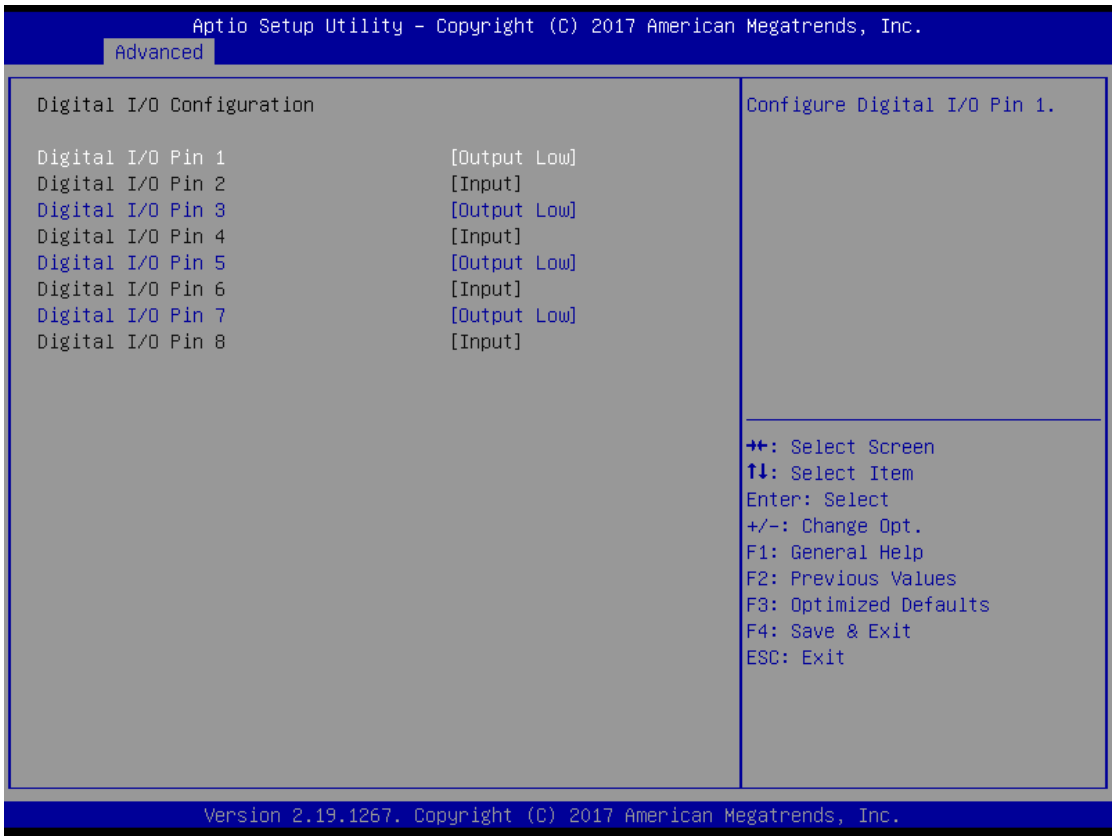
Status LED Configuration



Item	Value	Description
Status LED	OFF GREEN RED	Configure Status LED.

Digital I/O Configuration

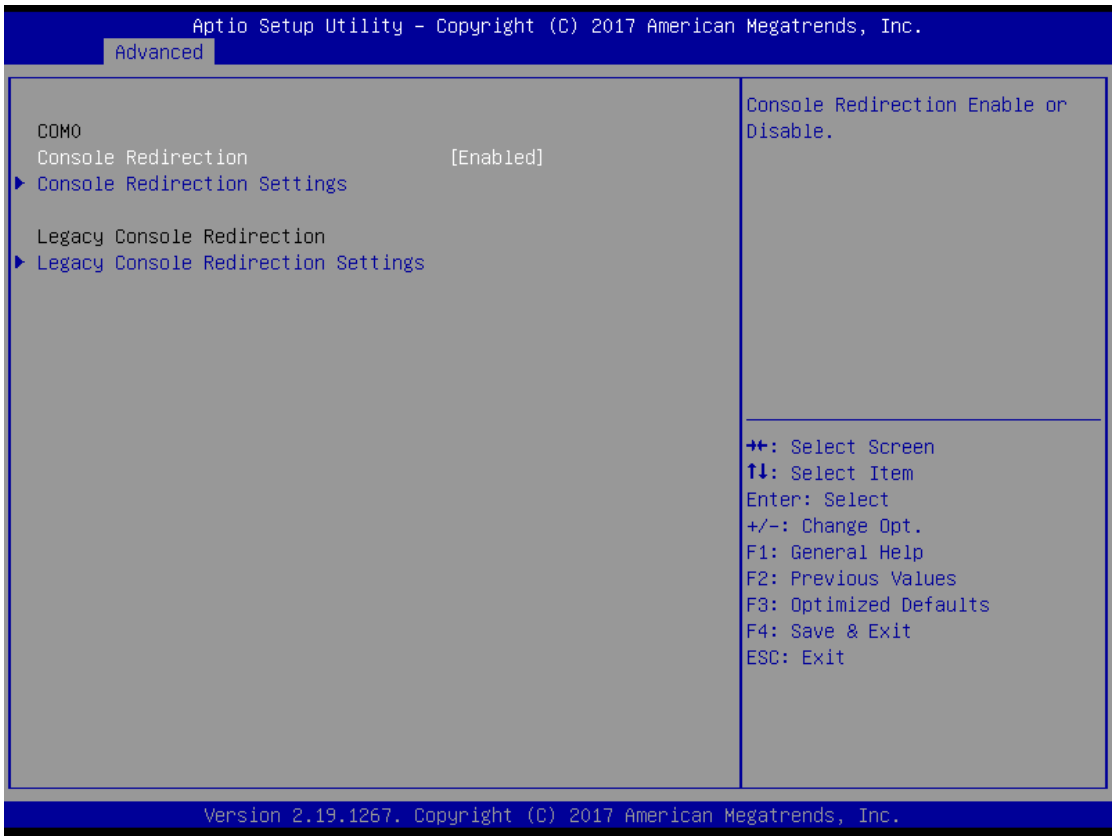
This option allows you to configure Digital I/O pin properties. Select the desired pin and press <Enter> to modify. The default is “Output Low”.



Item	Value	Description
Digital I/O Output 1	Output Low Output High	Configure Digital I/O Pin1.
Digital I/O Output 3	Output Low Output High	Configure Digital I/O Pin3.
Digital I/O Output 5	Output Low Output High	Configure Digital I/O Pin5.
Digital I/O Output 7	Output Low Output High	Configure Digital I/O Pin7

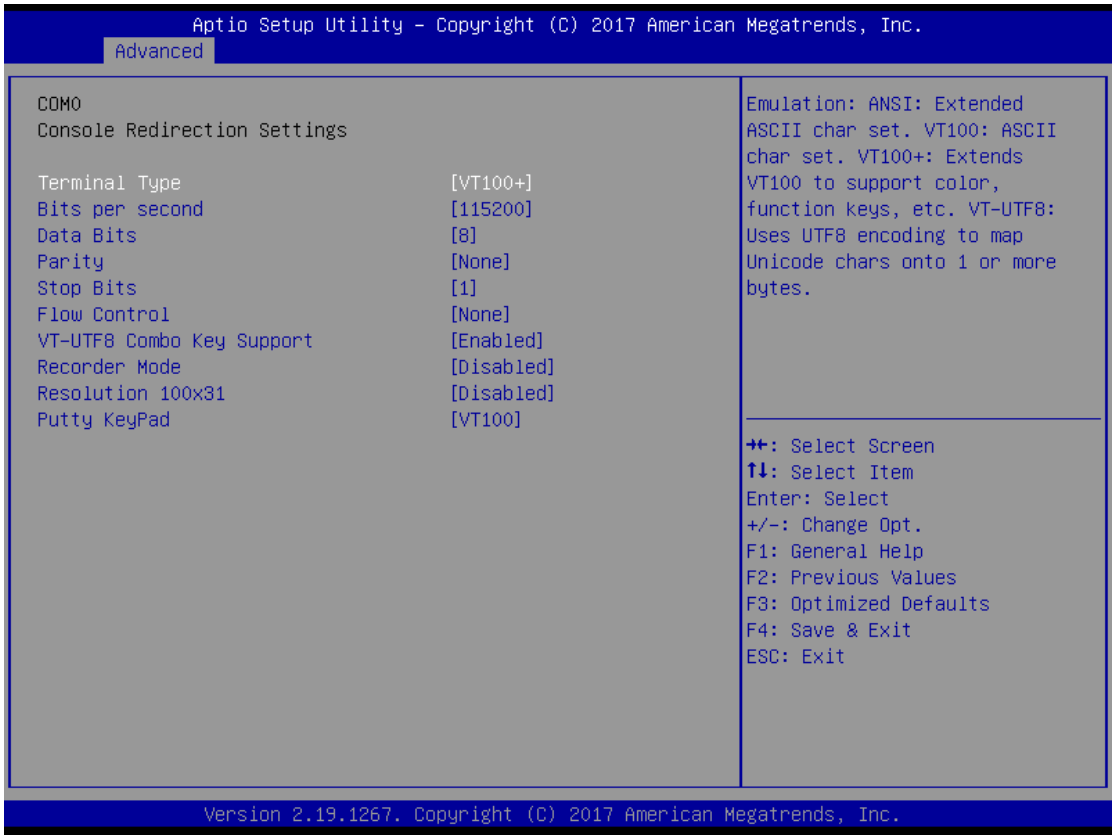
Serial Port Console Redirection

This option allows you to configure parameters about serial port console redirection. Press "Enter "to access the submenu. The default is "Enabled".



Item	Value	Description
COM0 Console Redirection	Enabled Disabled	Console Redirection Enable or Disable.

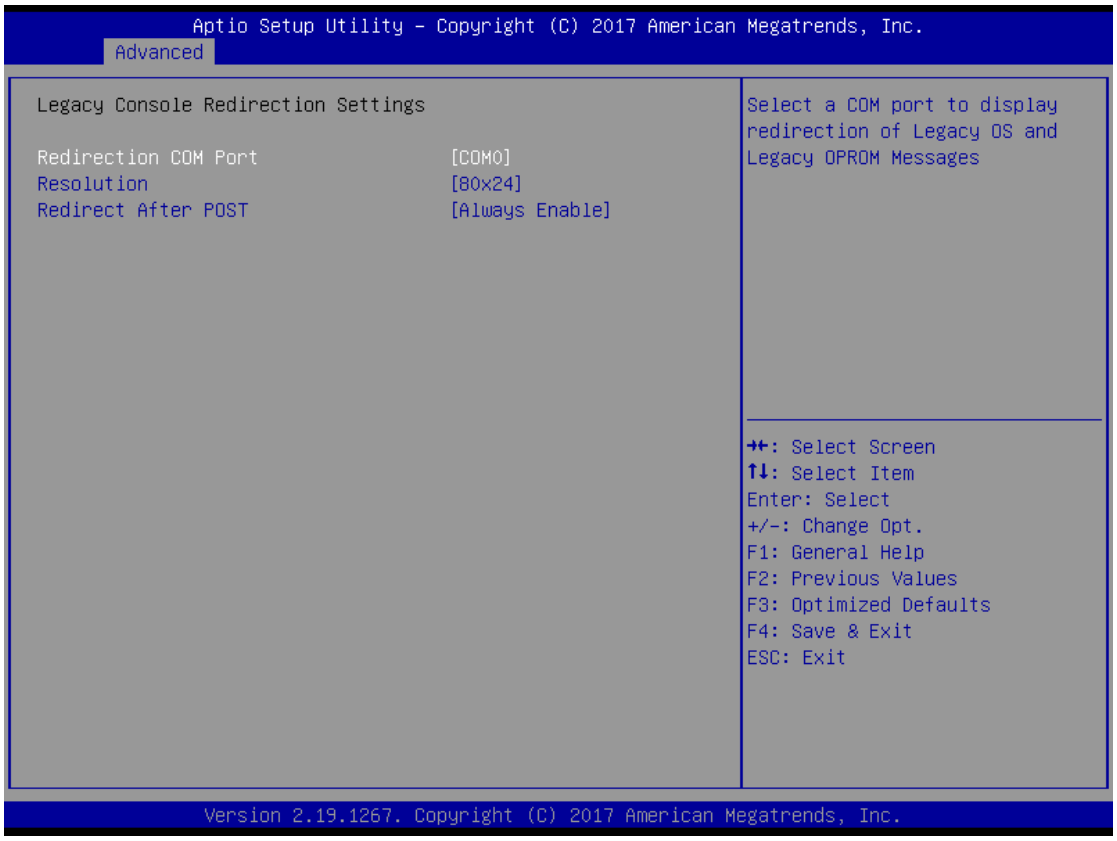
Console Redirection Settings: select this item to enter the setting sub-menu. These settings specify how the host computer and the remote computer will exchange data. Both computers should have the same or compatible settings.



Item	Value	Description
Terminal Type	VT100 VT100+ VT-UTF8 ANSI	ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.
Bits per second	9600 19200 38400 57600 115200	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 8	Data Bits
Parity	None Even Odd	A parity bit can be sent with the data bits to detect some transmission errors.

	Mark Space	
Stop Bits	1 2	Stop bits indicate 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	Enable 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	Select FunctionKey and KeyPad on Putty.

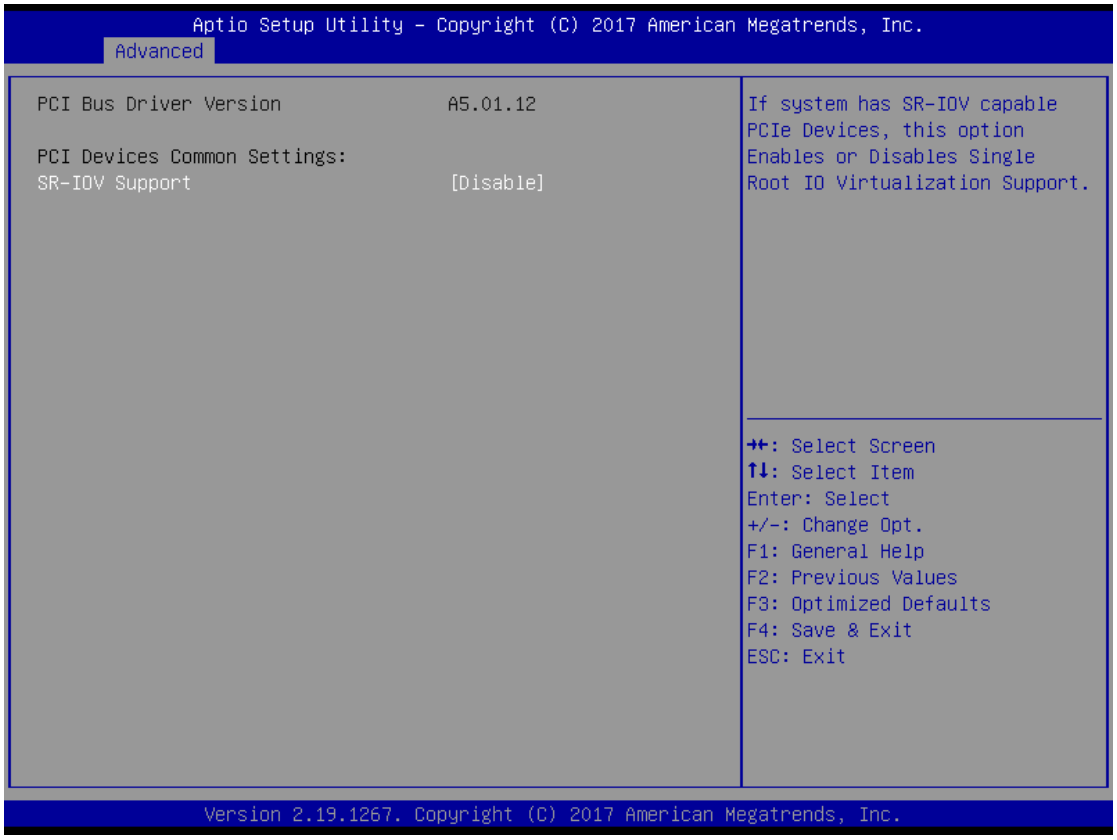
Legacy Console Redirection Setting



Item	Value	Description
Redirection COM Port	COM0 COM1	Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages
Resolution	80x24 80x25	On Legacy OS, the Number of Rows and Columns supported redirection
Redirect After POST	Always Enable BootLoader	When Bootloader is selected, then Legacy Console Redirection is disabled before booting to legacy OS. When Always Enable is selected, then Legacy Console Redirection is enabled for legacy OS. The default setting for this option is set to Always Enable.

PCI Subsystem Setting

This option allows you to configure parameters to be programmed into PCI Latency Timer Register.



Item	Value	Description
SR-IOV Support	Disabled Enabled	If the system has SR-IOV capable PCIe Devices, this option Enables or Disables Single Root IO Virtualization Support.

CSM Configuration

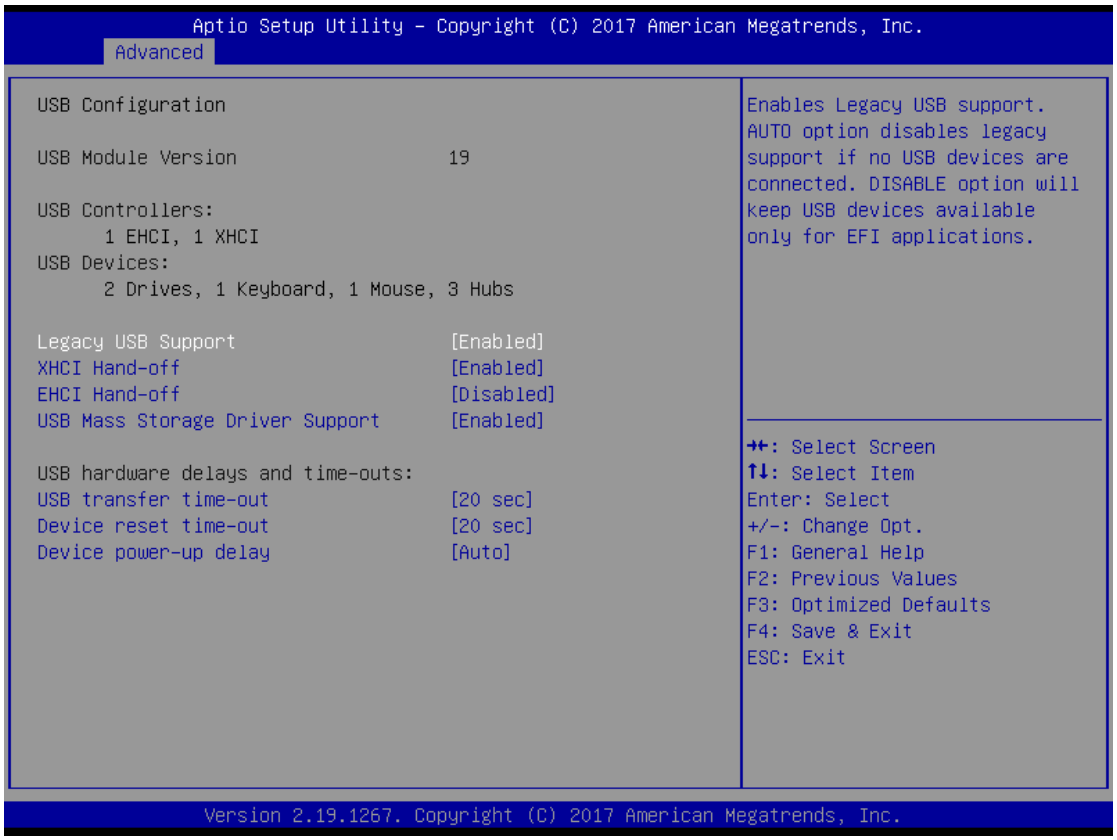
This option allows you to enable or disable ROM execution settings.

Item	Value	Description
CSM Support	Disabled Enabled	Enable/Disable CSM Support
Network	Do Not Launch UEFI Legacy	Controls the execution of UEFI and Legacy PXE OpROM
Storage	Do Not Launch UEFI Legacy	Controls the execution of UEFI and Legacy Storage OpROM
Video	Do Not Launch UEFI Legacy	Controls the execution of UEFI and Legacy Video OpROM
Other PCI device	Do Not Launch UEFI Legacy	Determines OpROM execution policy for devices other than Network, Storage, or Video

USB Configuration

This option allows you to change USB configuration parameters.

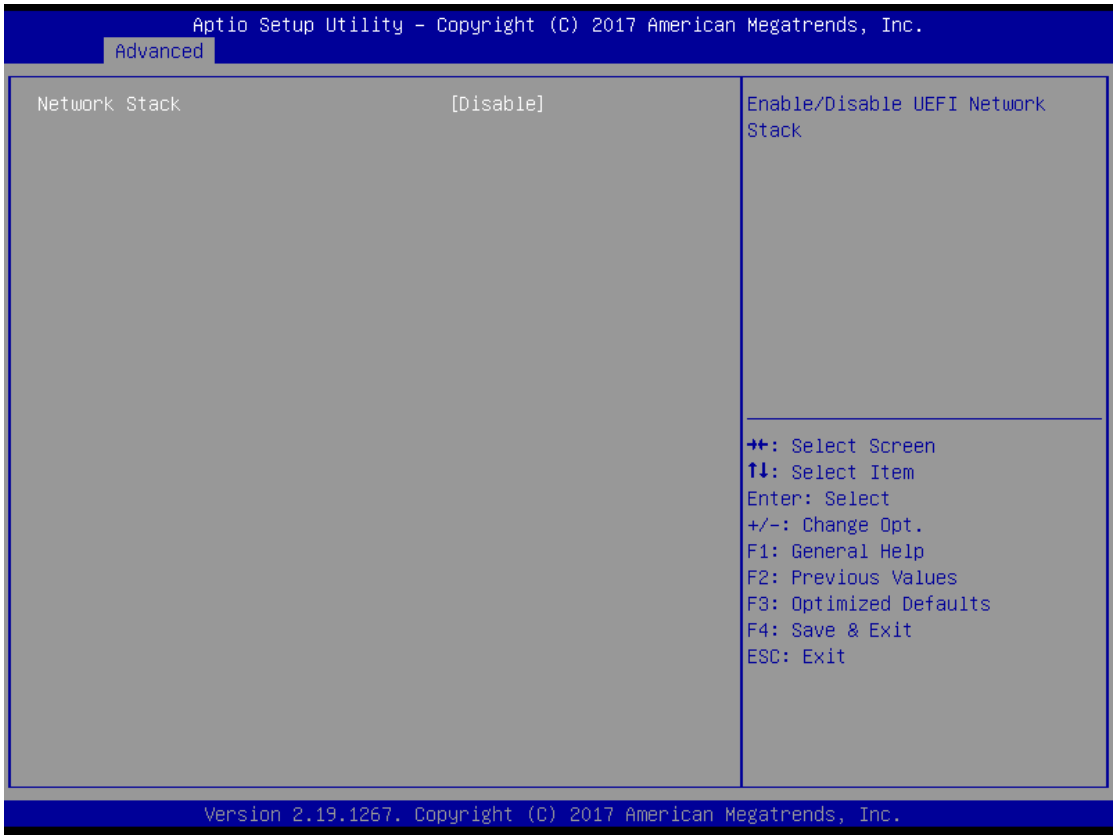
Legacy USB Support:



Item	Value	Description
Legacy USB Support	Enabled Disabled Auto	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE 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.
EHCI Hand-off	Enabled Disabled	This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.
USB Mass Storage Driver Support	Enabled Disabled	Enable/Disable 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. 'Auto' uses default value: for a Root port, it is 100 ms, for a Hub port the delay is taken from Hub descriptor.

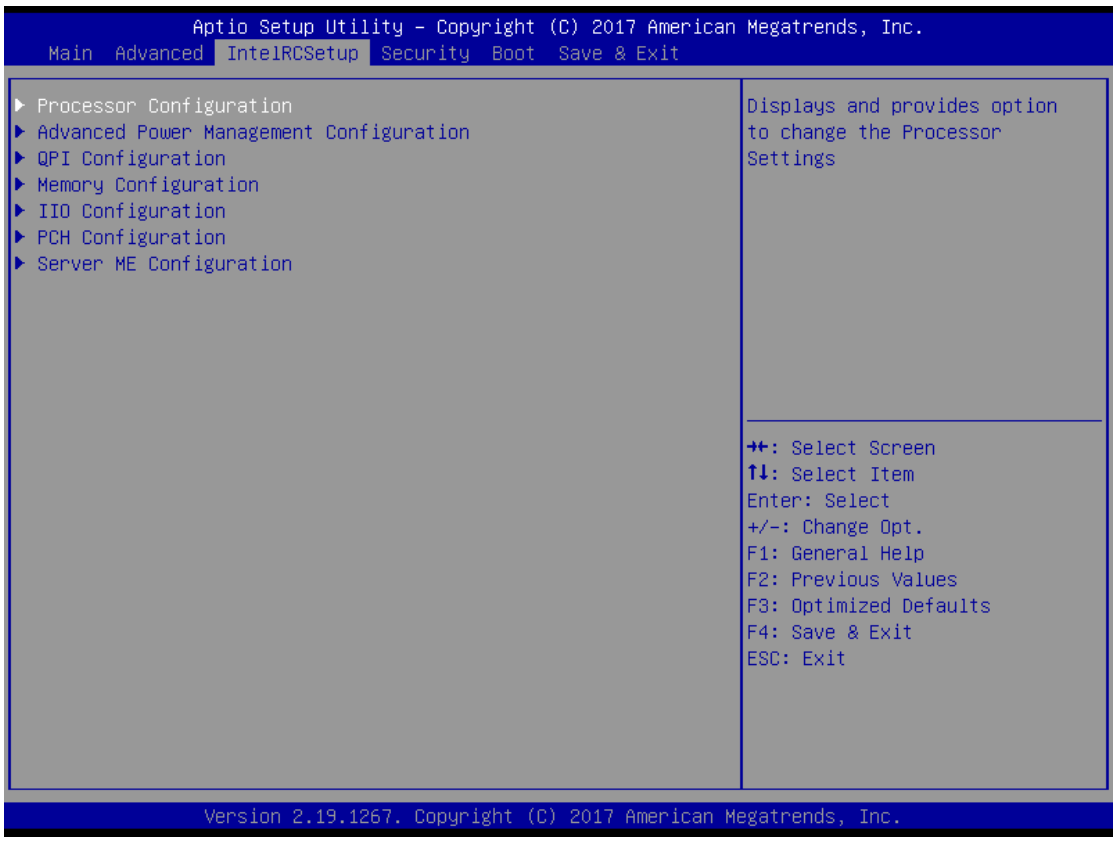
Network Stack Configuration



Item	Value	Description
Network Stack	Disabled Enabled	Enable/Disable UEFI Network Stack

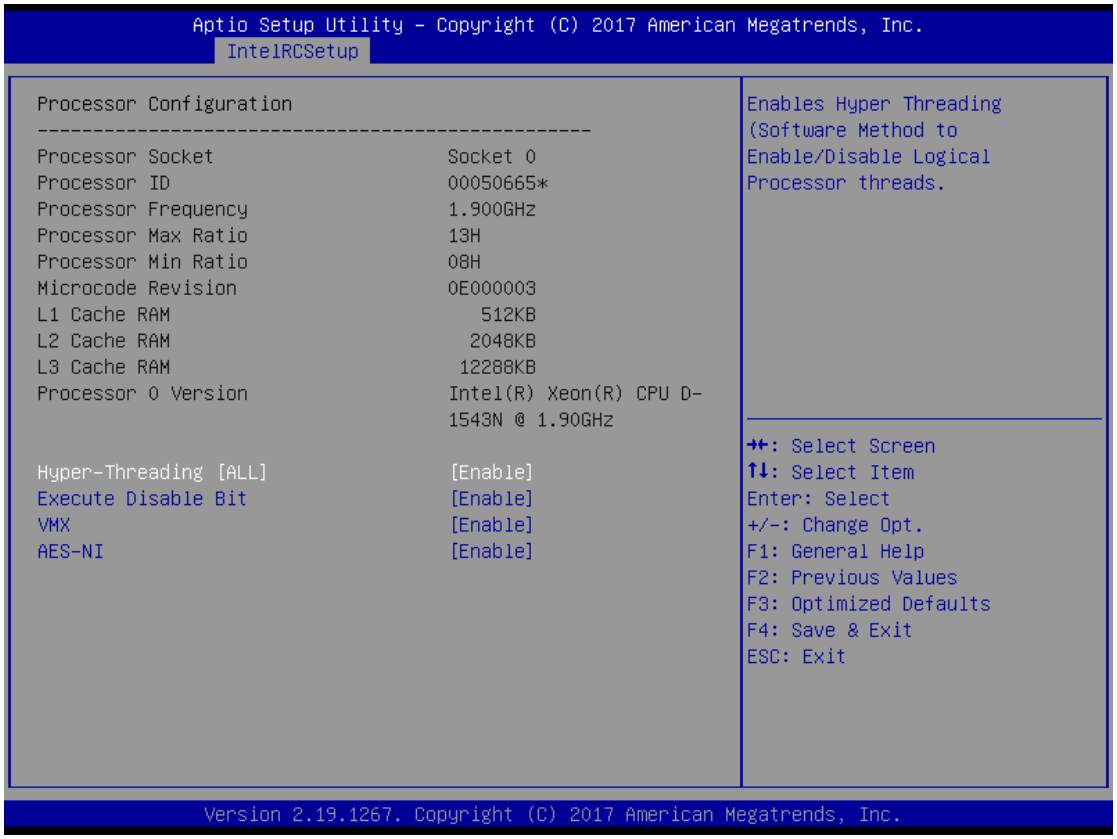
IntelRCSetup

Use [←] / [→] to select the Chipset menu item from the BIOS setup screen to enter the IntelRCSetup Setup screen. Users can select any of the items in the left frame of the screen.



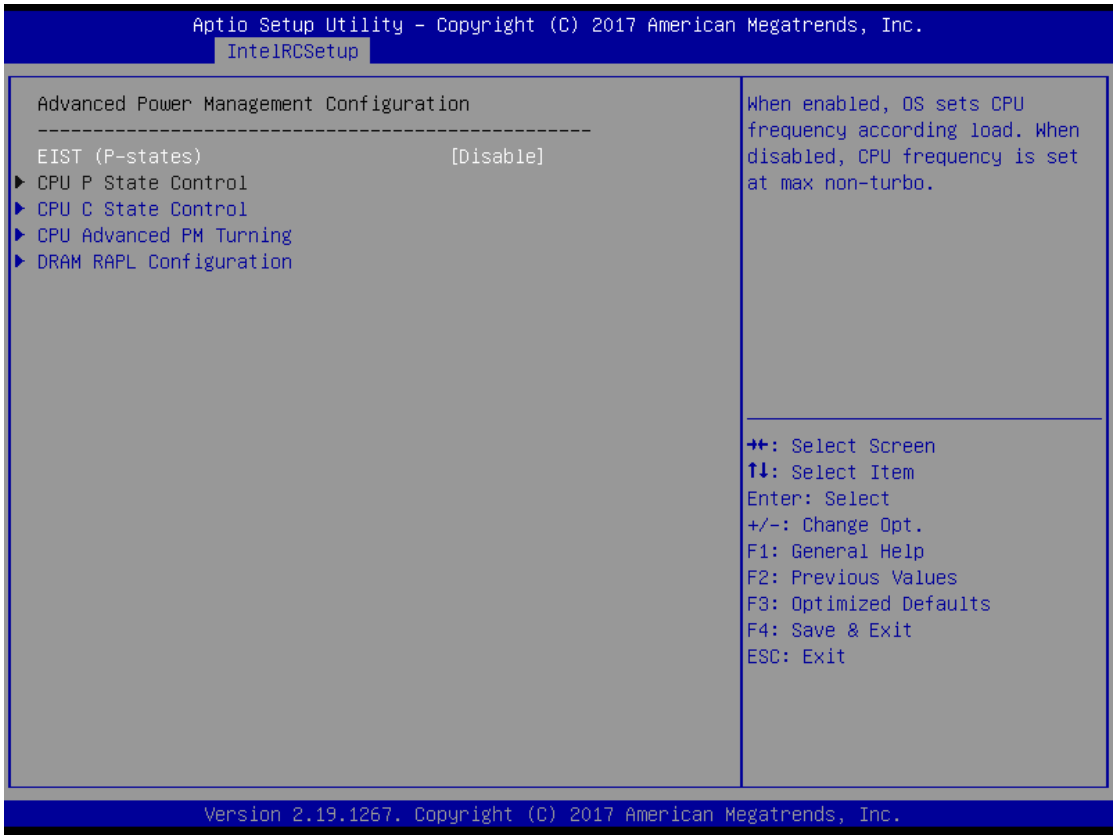
Item	Value	Description
Processor Configuration	None	Displays and provides option to change the Processor Settings
Advanced Power Management Configuration	None	Displays and provides option to change the Power Management Settings
QPI Configuration	None	Displays and provides option to change the QPI Settings
Memory Configuration	None	Displays and provides option to change the Memory Settings
IIO Configuration	None	Displays and provides option to change the IIO Settings
PCH Configuration	None	Displays and provides option to change the PCH Settings
Server ME Configuration	None	Configure Server ME Technology Parameters

Processor Configuration



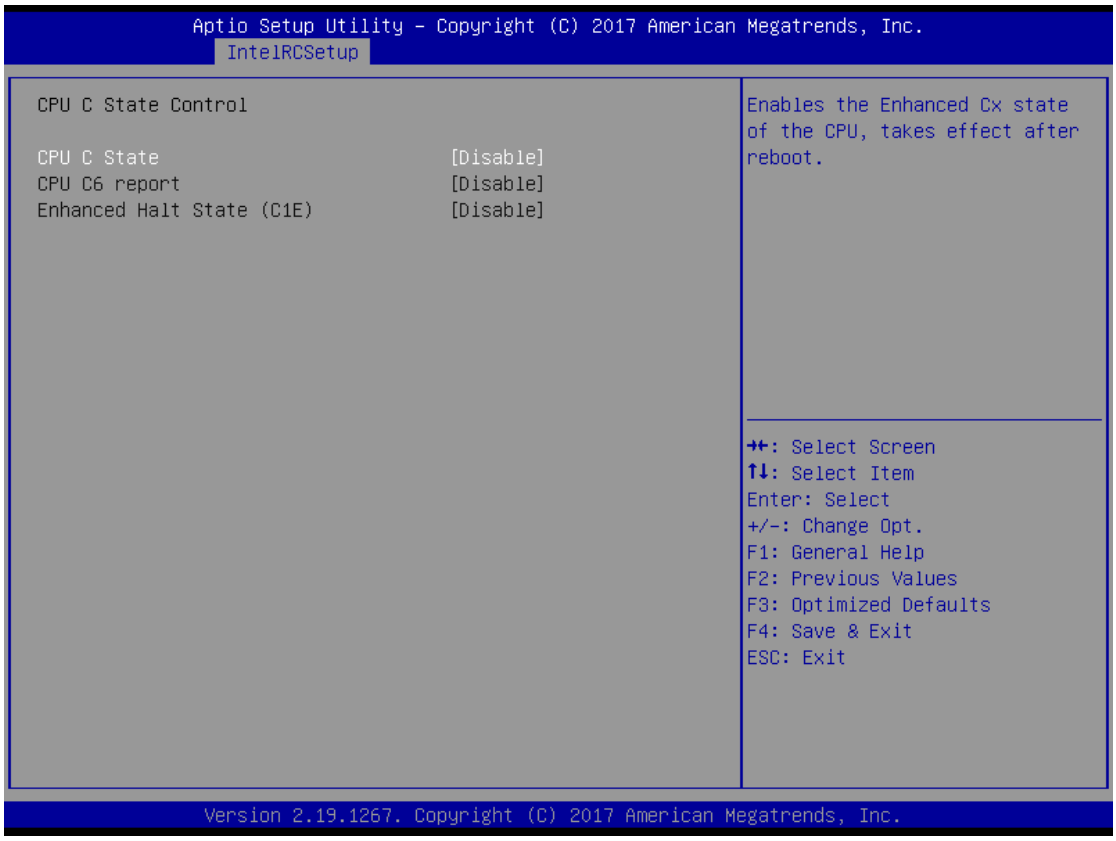
Item	Value	Description
Hyper-Threading [ALL]	Disabled Enabled	Enables Hyper Threading (Software Method to Enable/Disable Logical Processor threads.
Execute Disable Bit	Disabled Enabled	When disabled, forces the XD feature flag to always return 0.
VMX	Disabled Enabled	Enables the Vanderpool Technology, takes effect after a reboot.
AES-NI	Disabled Enabled	Enable/disable AES-NI support
Hyper-Threading [ALL]	Disabled Enabled	Enables Hyper Threading (Software Method to Enable/Disable Logical Processor threads.

Advanced Power Management Configuration



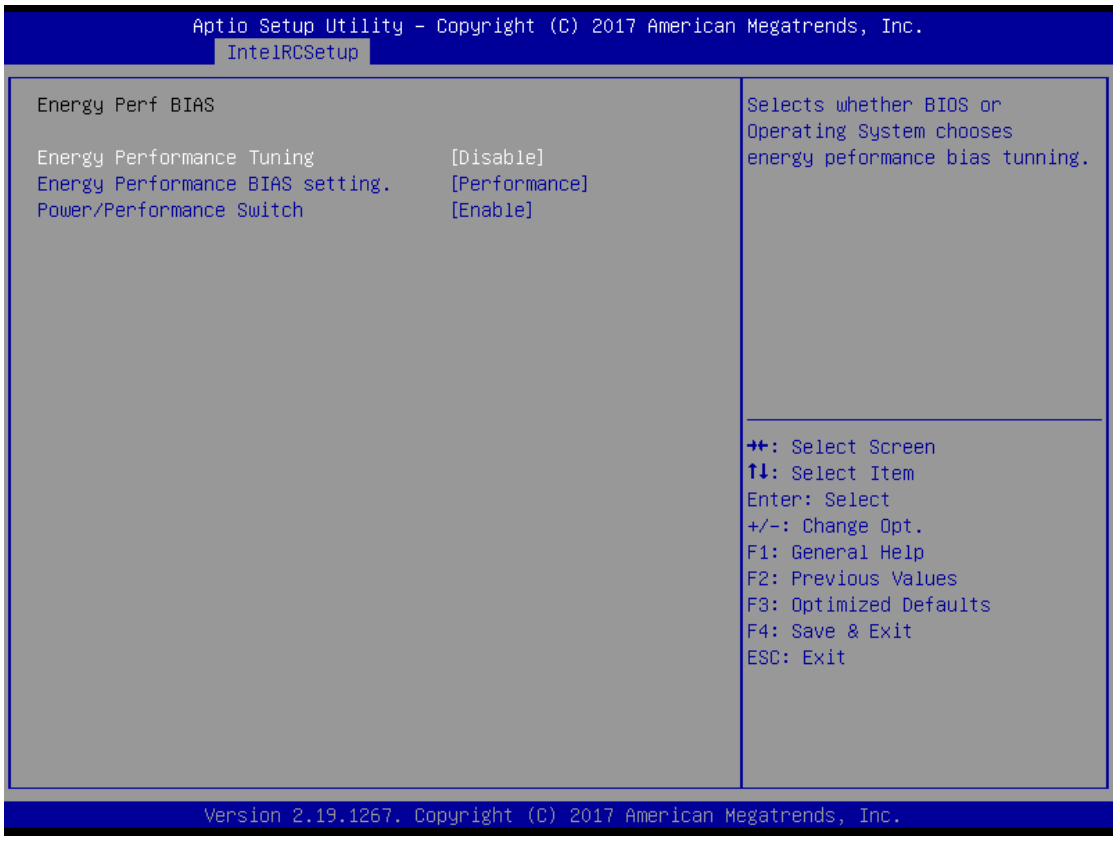
Item	Value	Description
EIST (P-states)	Disabled Enabled	When enabled, OS sets CPU frequency according load. When disabled, CPU frequency is set at max non-turbo.
CPU P State Control	None	Controls CPU frequency.
CPU C State Control	None	Control CPU idle states
CPU Advanced PM Turning	None	Additional CPU Power Management settings.
DRAM RAPL Configuration	None	DRAM RAPL Control Sub Menu

CPU C State Control



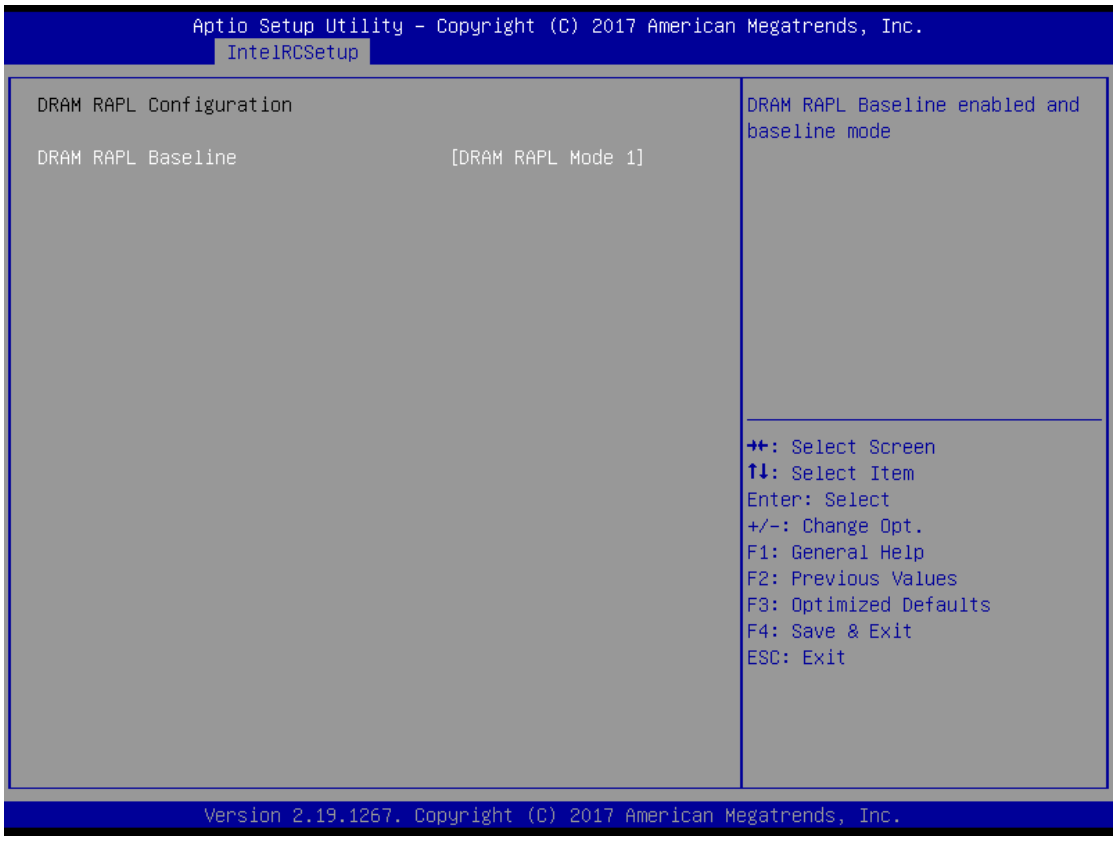
Item	Value	Description
CPU C State	Disabled Enabled	Enables the Enhanced Cx state of the CPU, takes effect after a reboot.
CPU C6 report	Disabled Enabled	Enable/Disable CPU C6 (ACPI C2) report to OS Recommended to be enabled.
Enhanced Halt State (C1E)	Disabled Enabled	Enables the Enhanced C1E state of the CPU, takes effect after a reboot.

Energy Perf BIAS



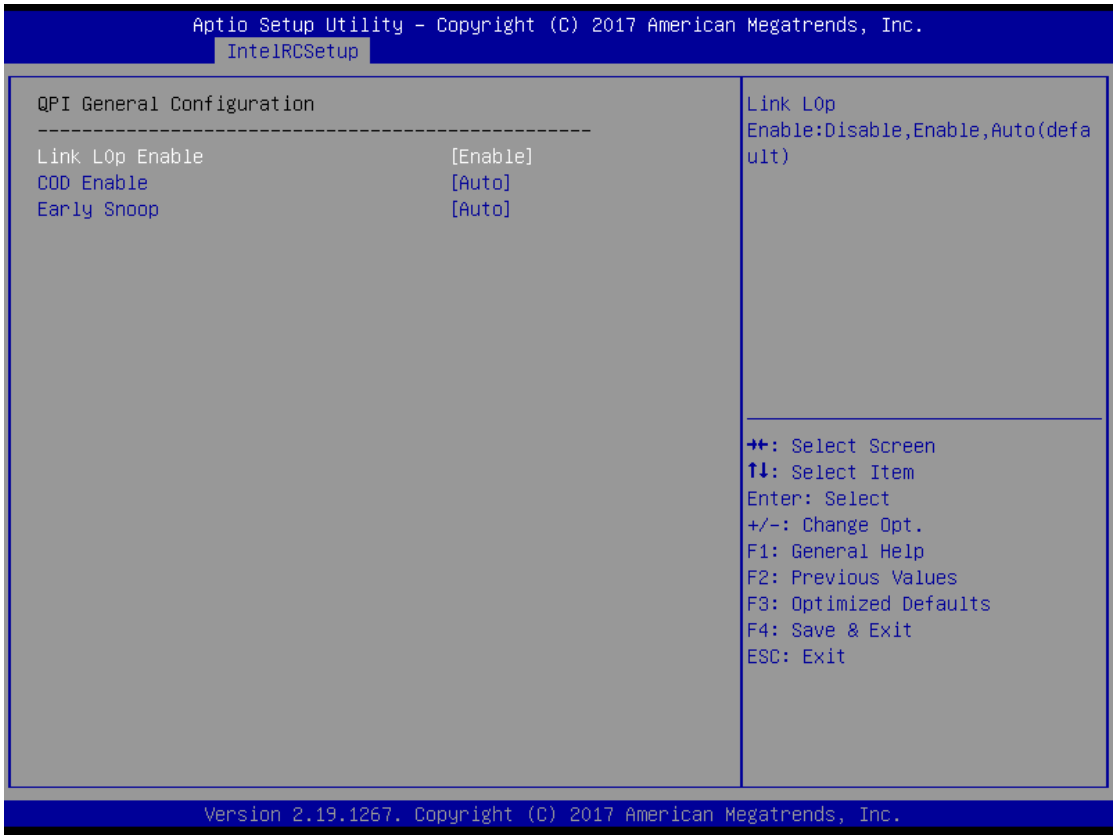
Item	Value	Description
Energy Performance Tuning	Disabled Enabled	Selects whether BIOS or Operating System chooses energy performance bias tuning.
Energy Performance BIAS setting.	Performance Balanced Performance Balanced Power Power	Set Energy Performance BIAS, which overrides OS setting.
Power/Performance Switch	Disabled Enabled	MSR 1FCh Bit[24] = PWR_PERF_TUNING_ENABLE_DYN_SWITCHING

DRAM RARL Configuration



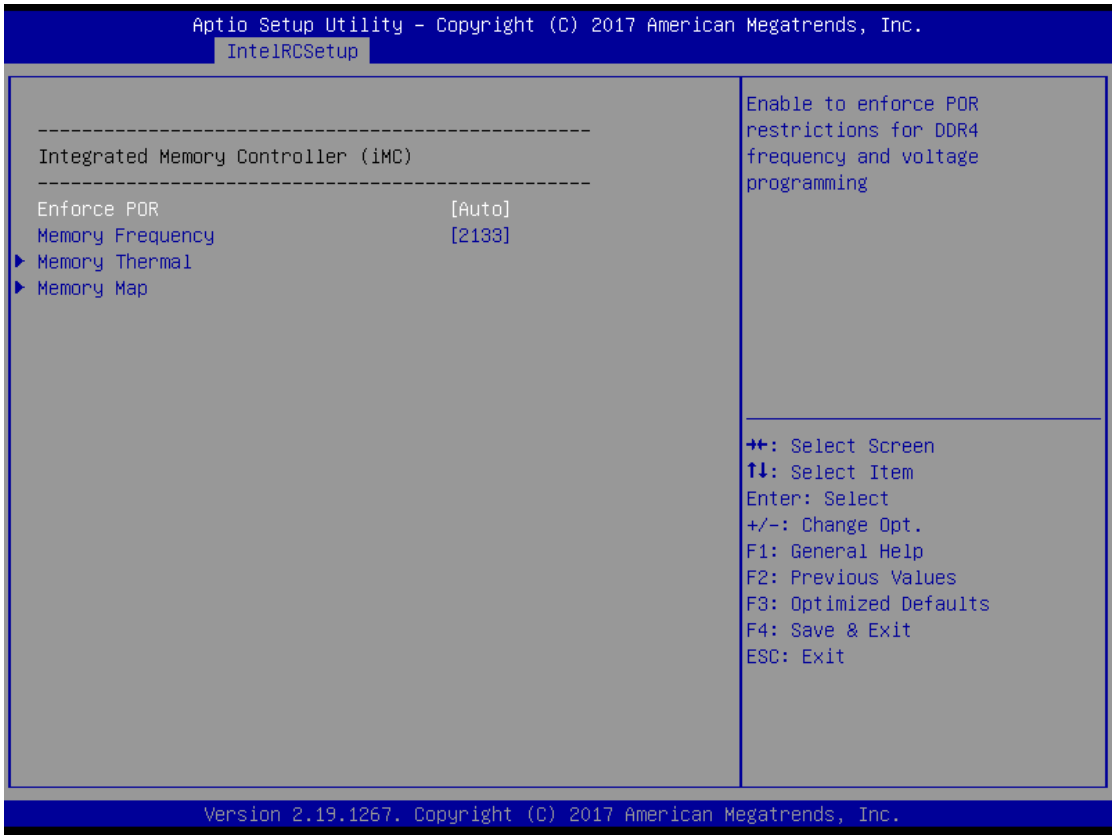
Item	Value	Description
DRAM RAPL Baseline	Disabled DRAM RAPL Mode 0 DRAM RAPL Mode 1	DRAM RAPL Baseline enabled and baseline mode

QPI Configuration



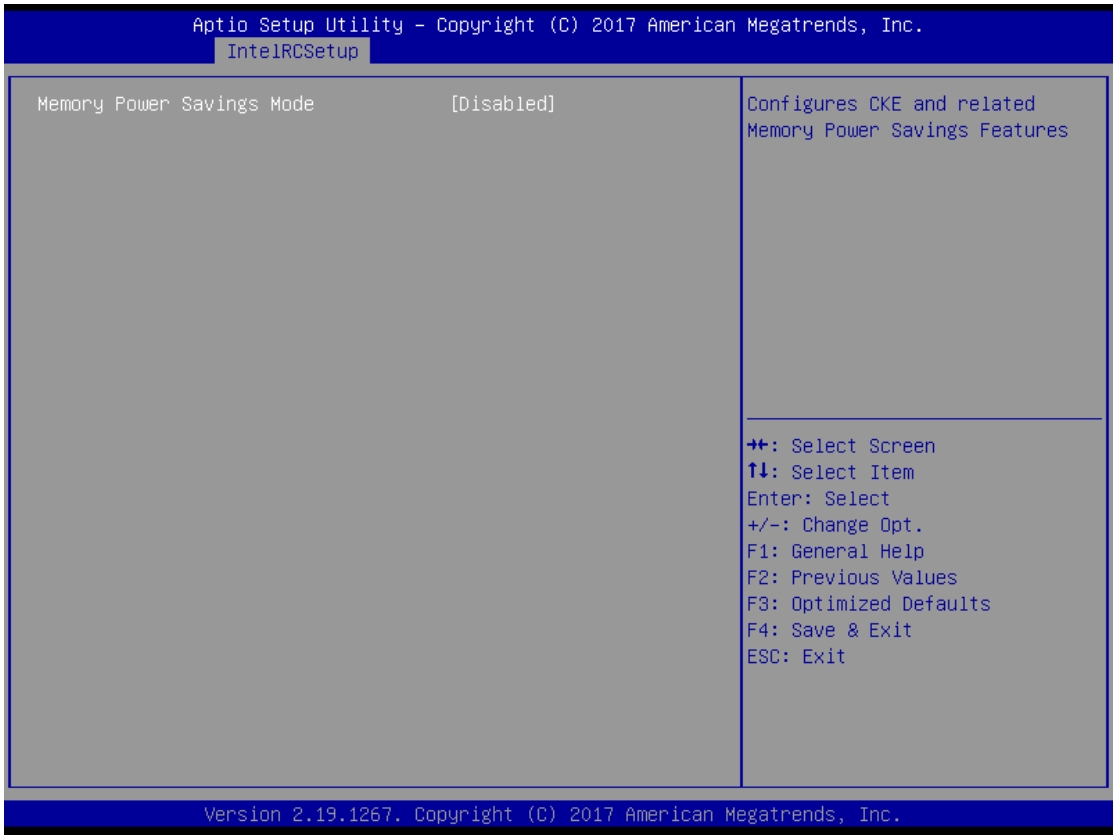
Item	Value	Description
Link L0s Enable	Disable Enable	Link L0s Enable:Disable,Enable,Auto(default)
COD Enable	Disable Enable Auto	Enable/disable Cluster on Die.
Early Snoop	Disable Enable Auto	

Memory Configuration



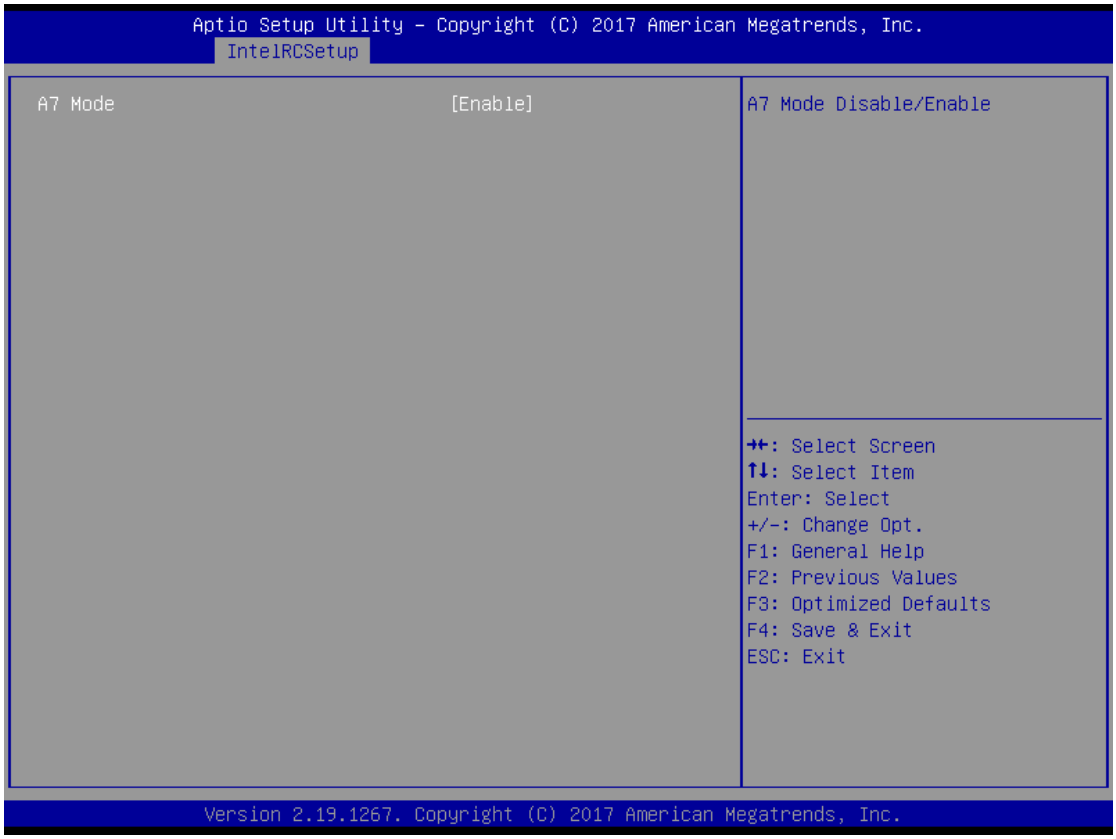
Item	Value	Description
Enforce POR	Auto Enforce POR Disabled Enforce Stretch Goals	Enable to enforce POR restrictions for DDR3 frequency and voltage programming
Memory Frequency	1333 1400 1600 1800 1867 2000 2133	Maximum Memory Frequency Selections in Mhz. Do not select Reserved
Memory Thermal	None	Set memory thermal settings
Memory Map	None	Set memory mapping settings

Memory Thermal



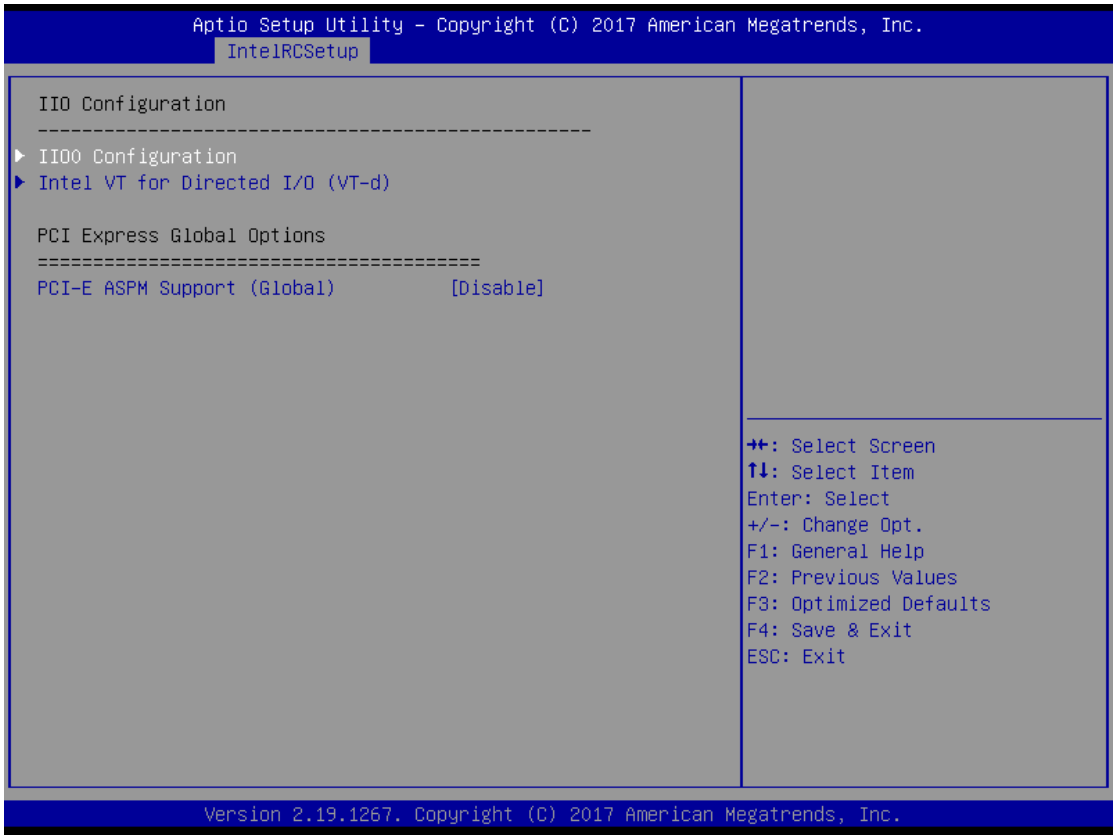
Item	Value	Description
Memory Power Savings Mode	Auto Disabled APD On User Defined	Configures CKE and related Memory Power Savings Features

Memory Map



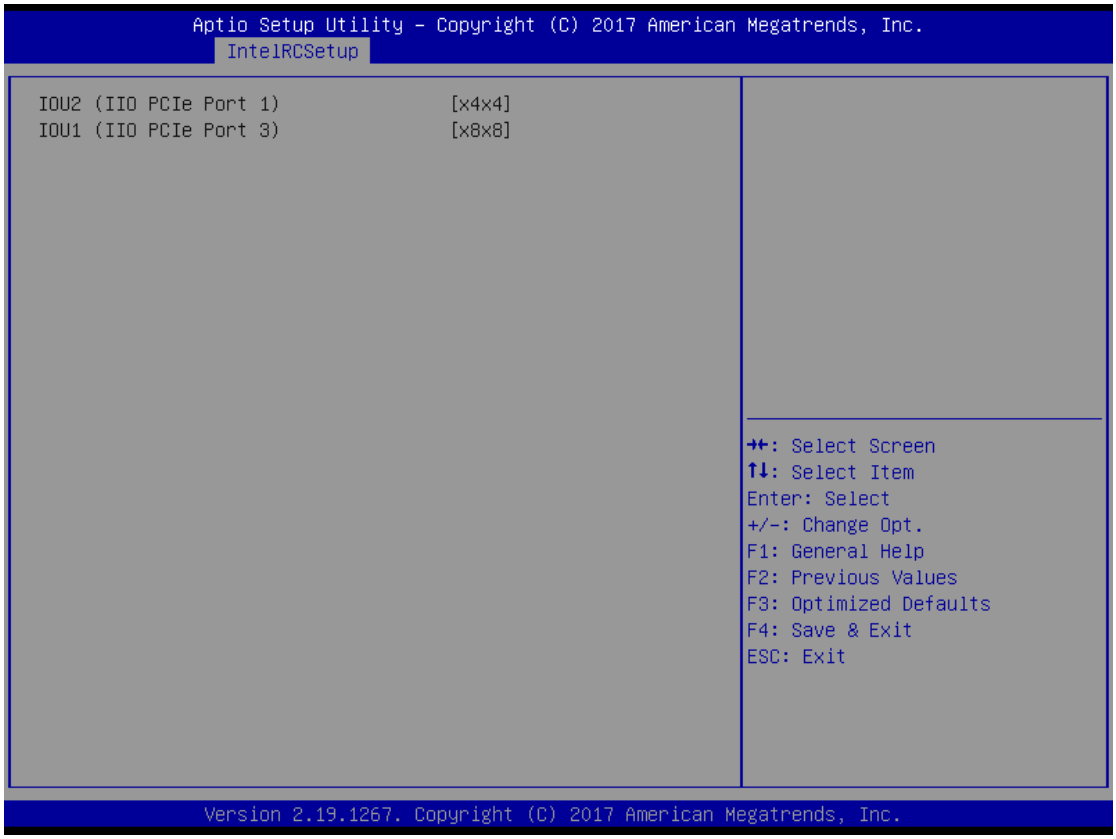
Item	Value	Description
A7 Mode	Disable Enable	A7 Mode Disable/Enable

IIO Configuration

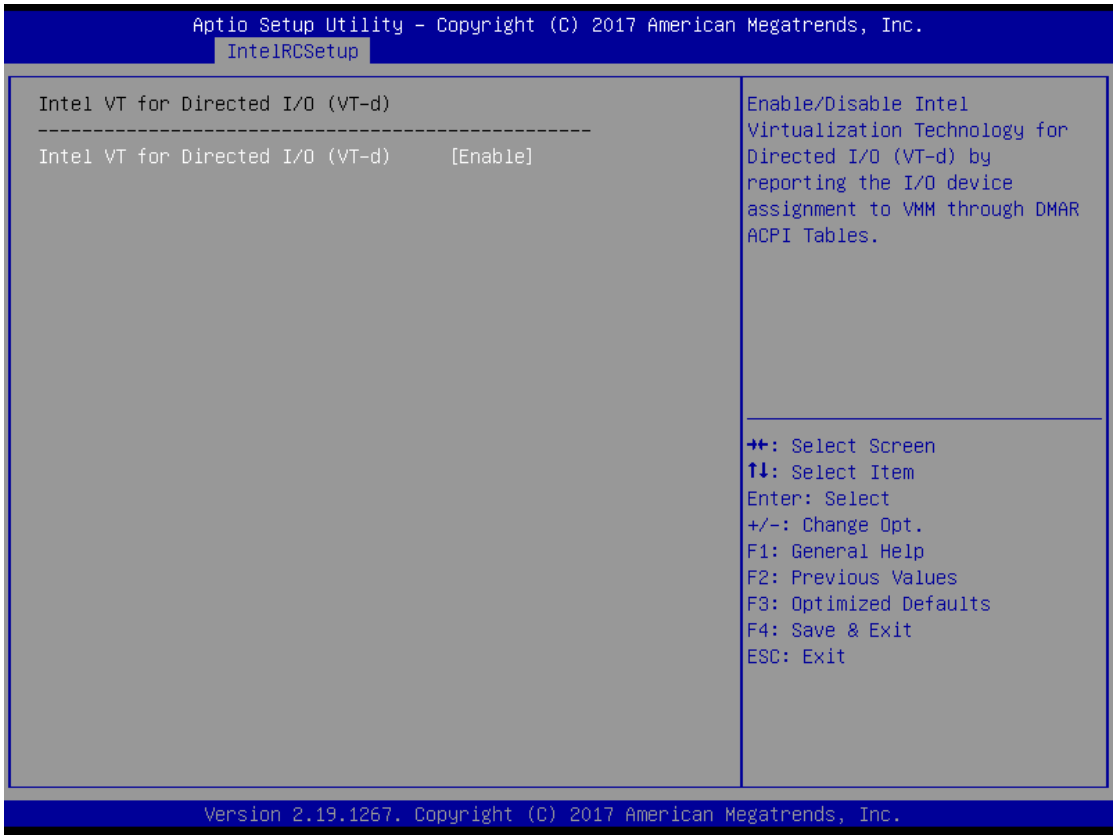


Item	Value	Description
IIO0 Configuration	None	
Intel VT for Directed I/O (VT-d)	None	Press <Enter> to bring up the Intel VT for Directed I/O (VT-d) Configuration menu.
PCI-E ASPM Support (Global)	Disable L1 Only	This option enables/disables the ASPM support for all downstream devices.

IIO0 Configuration

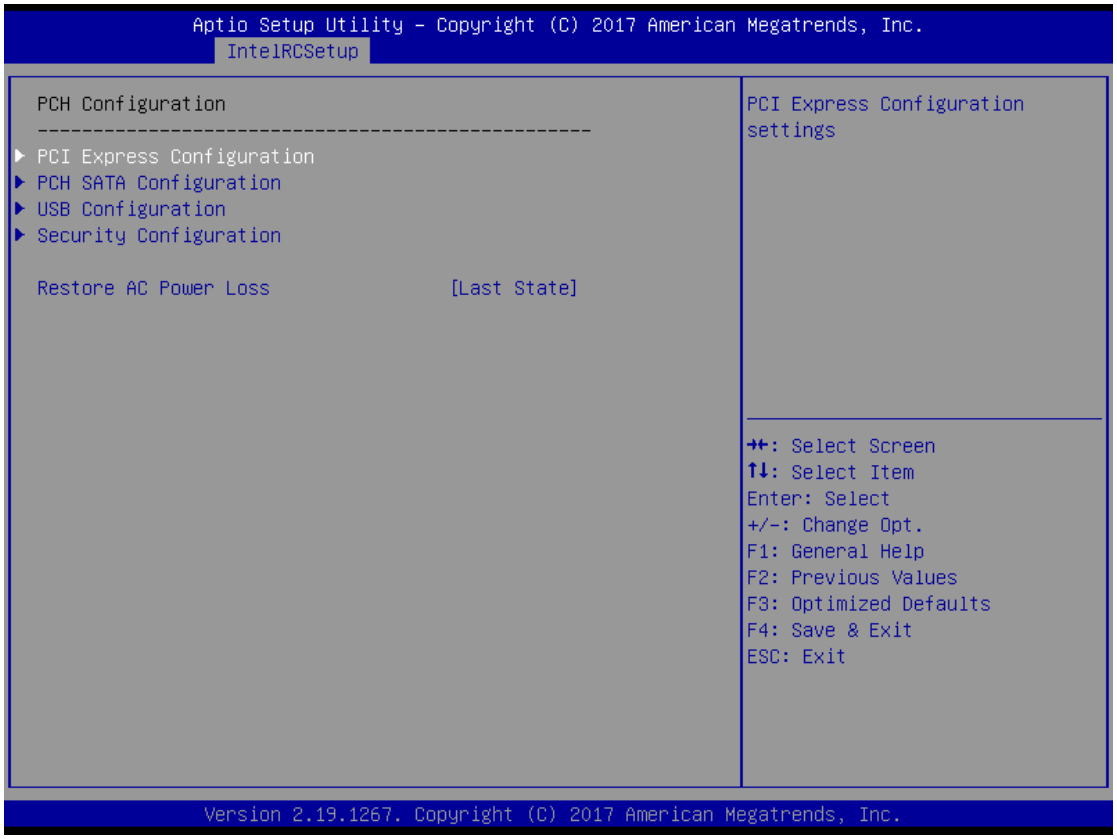


Intel VT for Directed I/O (VT-d)



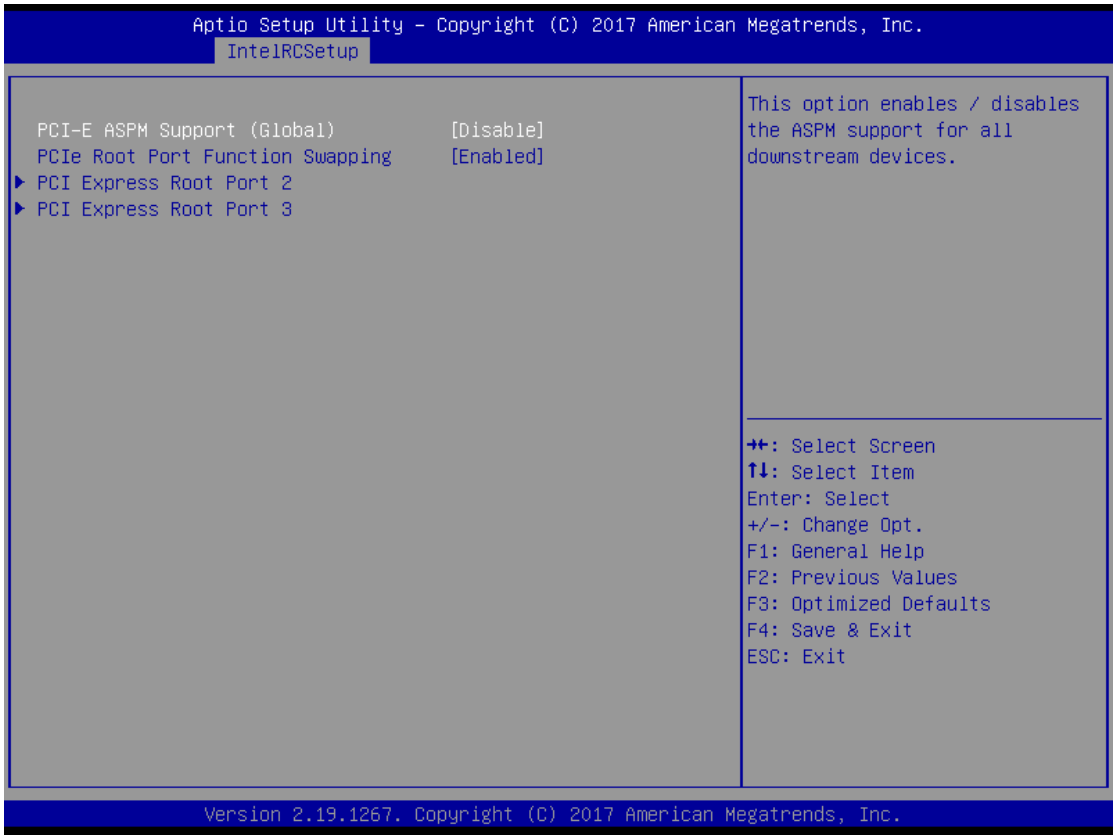
Item	Value	Description
Intel VT for Directed I/O (VT-d)	Disable Enable	Enable/Disable Intel Virtualization Technology for Directed I/O (VT-d) by reporting the I/O device assignment to VMM through DMAR ACPI Tables.

PCH Configuration



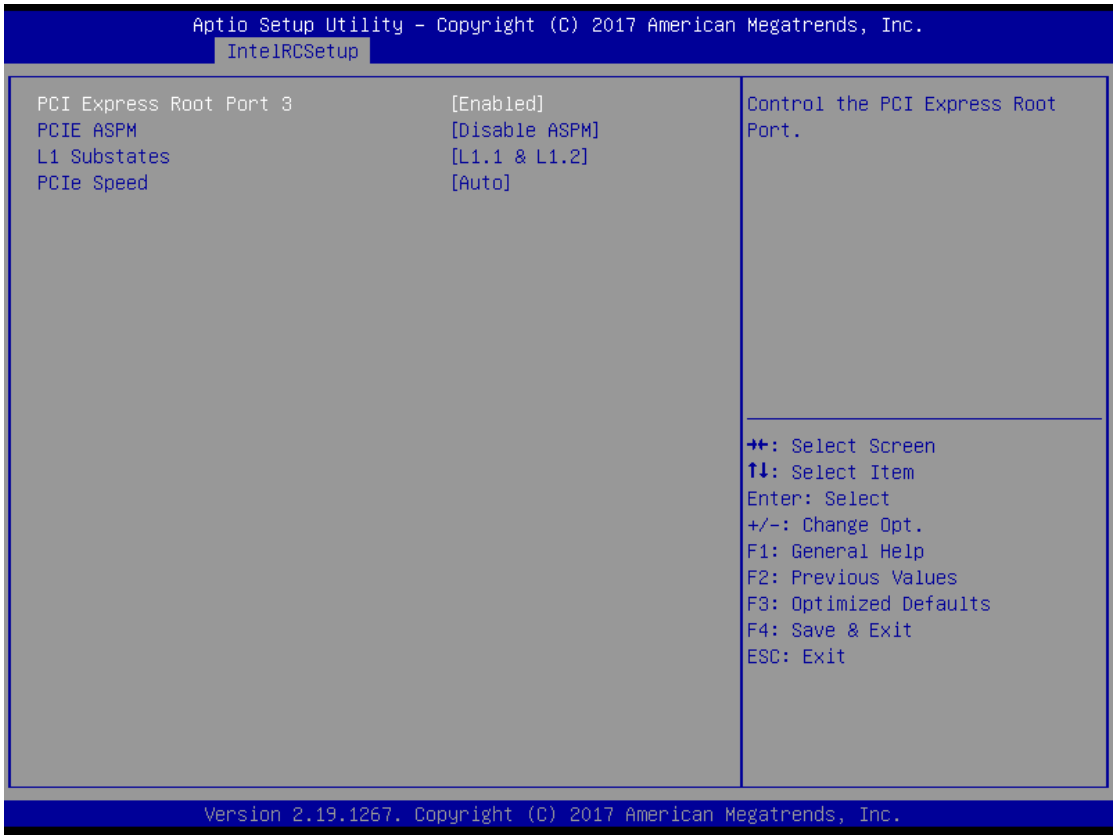
Item	Value	Description
PCI Express Configuration	None	PCI Express Configuration settings
PCH SATA Configuration	None	SATA devices and settings
USB Configuration	None	USB Configuration Settings
Security Configuration	None	Security Configuration
Restore AC Power Loss	Power On Power Off Last State	Select S0/S5 for ACPI state after a G3

PCI Express Configuration



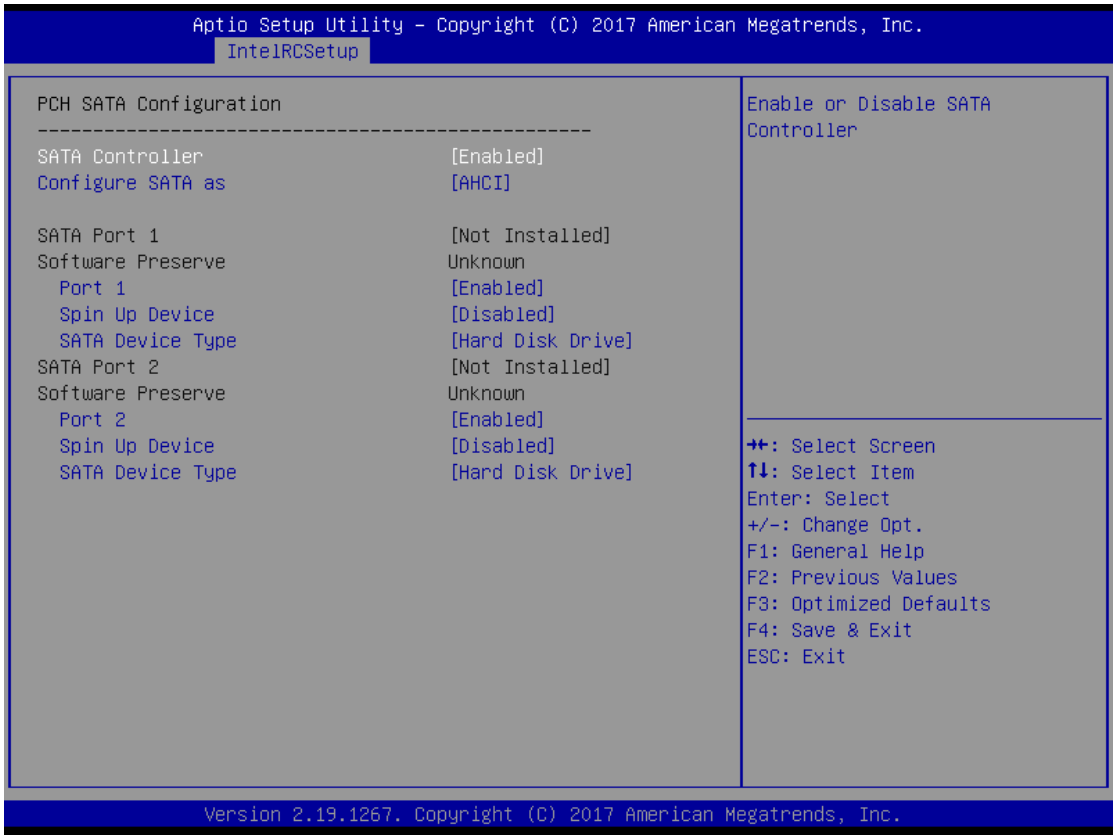
Item	Value	Description
PCI-E ASPM Support (Global)	Disable L1 Only	This option enables/disables the ASPM support for all downstream devices.
PCIe Root Port Function Swapping	Disabled Enabled	Enable PCIe root port function swapping feature to dynamically assign function 0 to the enabled root port.
PCI Express Root Port 2	None	PCI Express Root Port 2 Settings
PCI Express Root Port 3	None	PCI Express Root Port 3 Settings

PCI Express Root Port



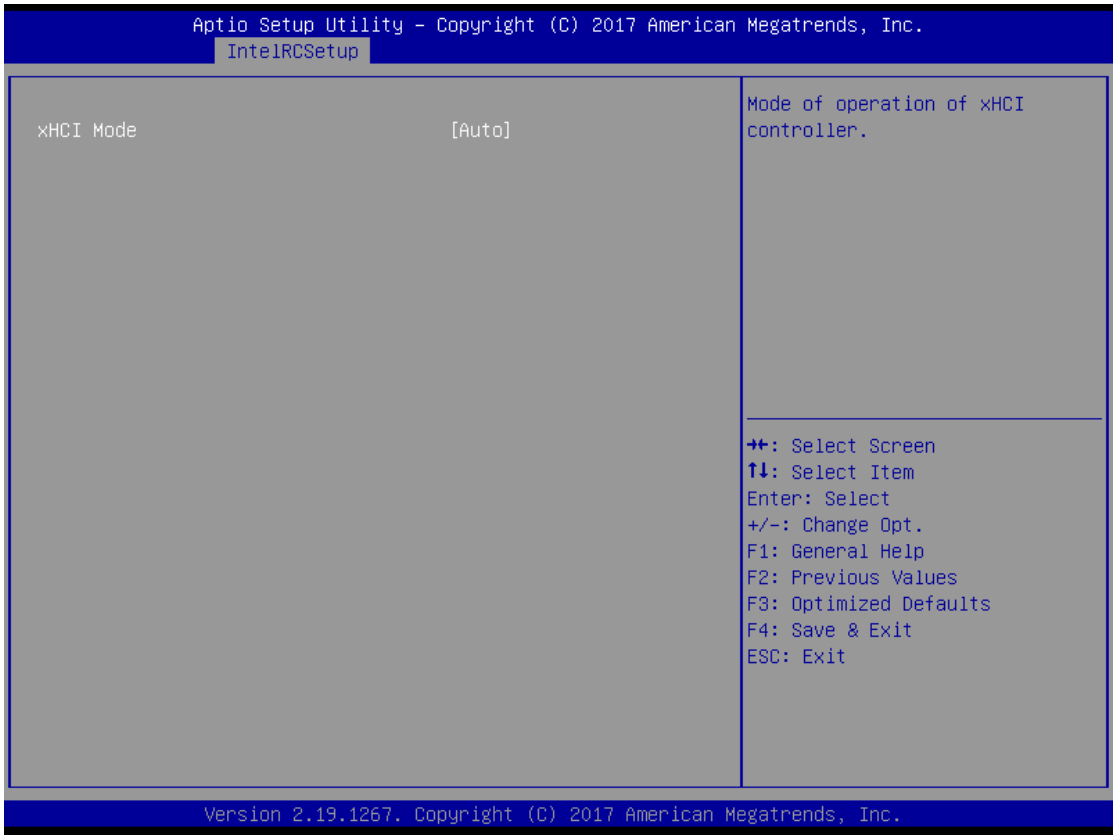
Item	Value	Description
PCI-E ASPM Support (Global)	Disable L1 Only	This option enables/disables the ASPM support for all downstream devices.
PCIe Root Port Function Swapping	Disabled Enabled	Enable PCIe root port function swapping feature to dynamically assign function 0 to the enabled root port.
PCI Express Root Port 2	None	PCI Express Root Port 2 Settings
PCI Express Root Port 3	None	PCI Express Root Port 3 Settings

PCH SATA Configuration



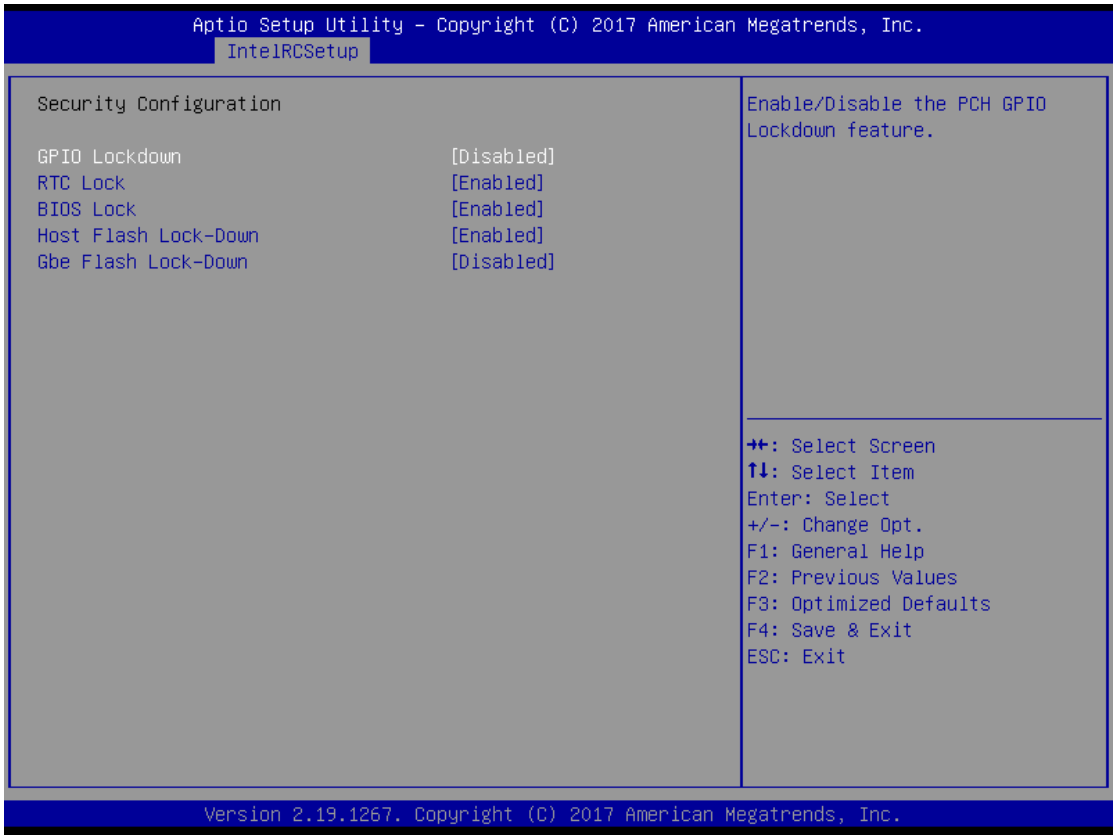
Item	Value	Description
SATA Controller	Disabled Enabled	Enable or Disable SATA Controller
Configure SATA as	IDE AHCI	This will configure SATA as IDE, RAID or AHCI.
Port 1	Disabled Enabled	Enable or Disable SATA Controller
Spin Up Device	Disabled Enabled	PCI Express Root Port 3 Settings
SATA Device Type	Hard Disk Drive Solid State Drive	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive

USB Configuration



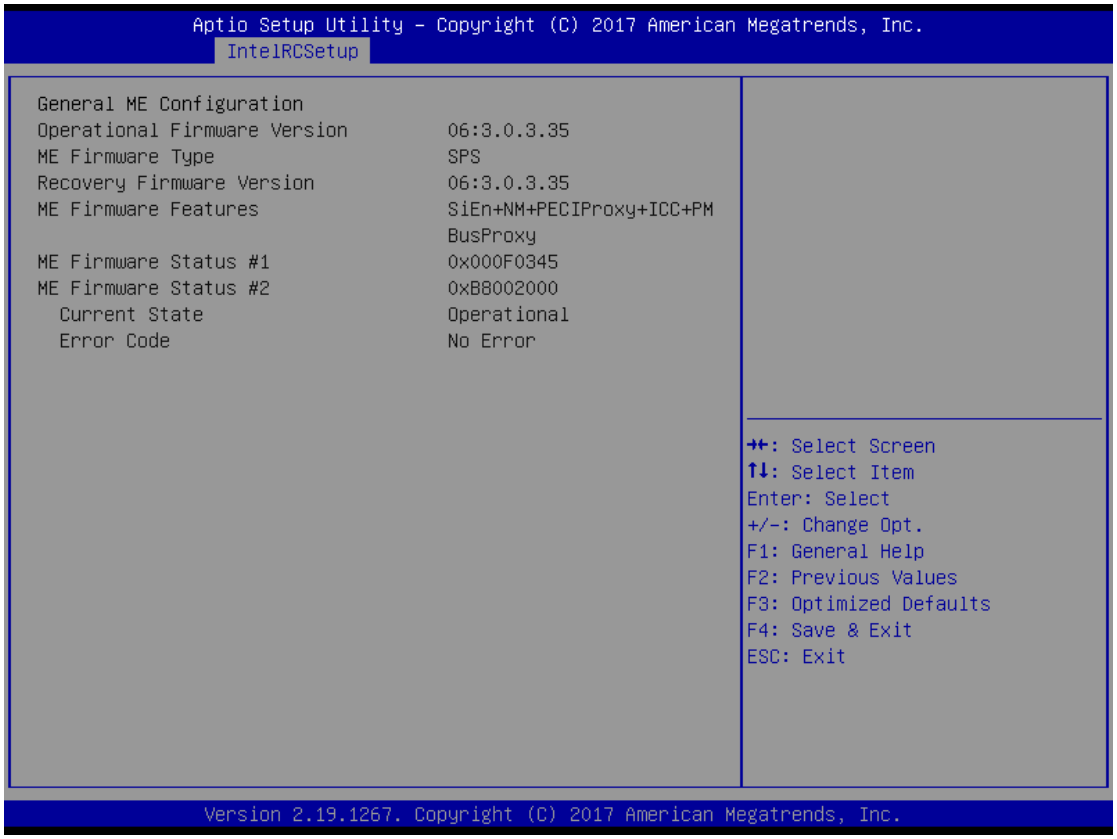
Item	Value	Description
xHCI Mode	Smart Auto Auto Enabled Disabled Manual	Mode of operation of xHCI controller.

Security Configuration



Item	Value	Description
GPIO Lockdown	Disabled Enabled	Enable/Disable the PCH GPIO Lockdown feature.
RTC Lock	Disabled Enabled	Enable will lock bytes 38h-3Fh in the lower/upper 128-byte bank of RTC RAM
BIOS Lock	Disabled Enabled	Enable/Disable the PCH BIOS Lock Enable feature.
Host Flash Lock-Down	Disabled Enabled	Enable/Disable Host Flash Lock-Down
Gbe Flash Lock-Down	Disabled Enabled	Enable/Disable Gbe Flash Lock-Down

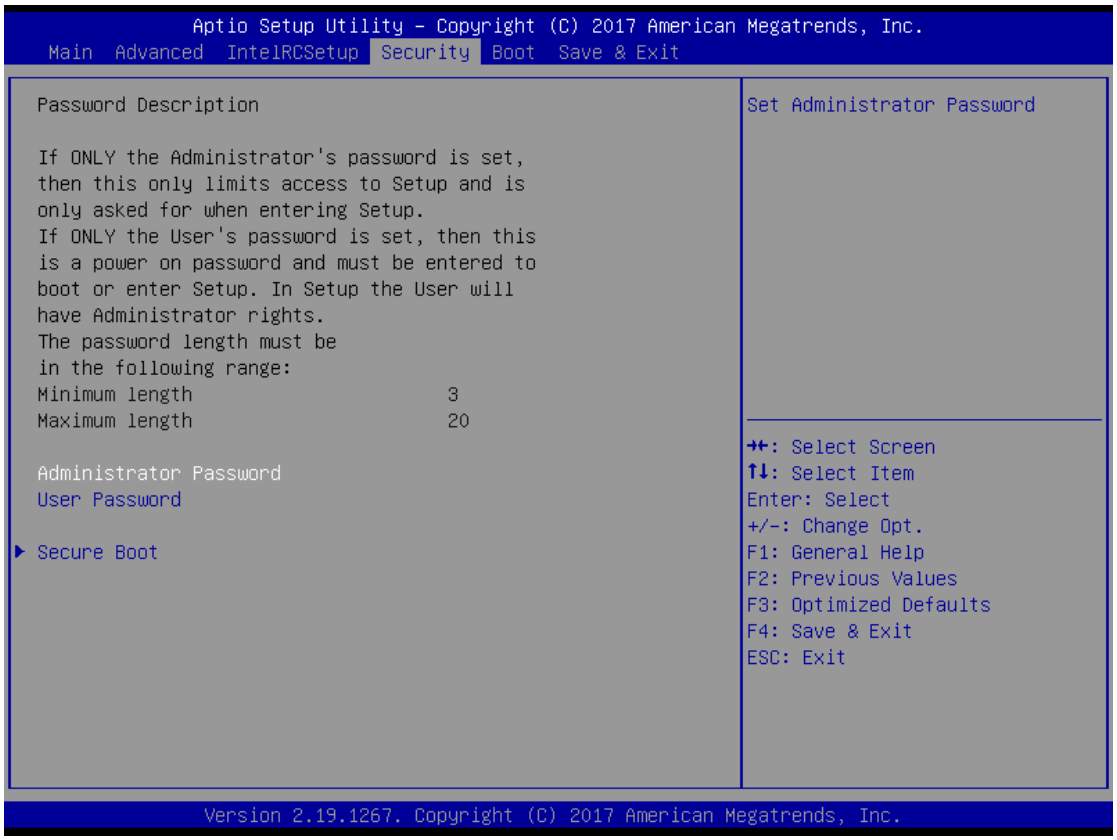
Server ME Configuration



Security

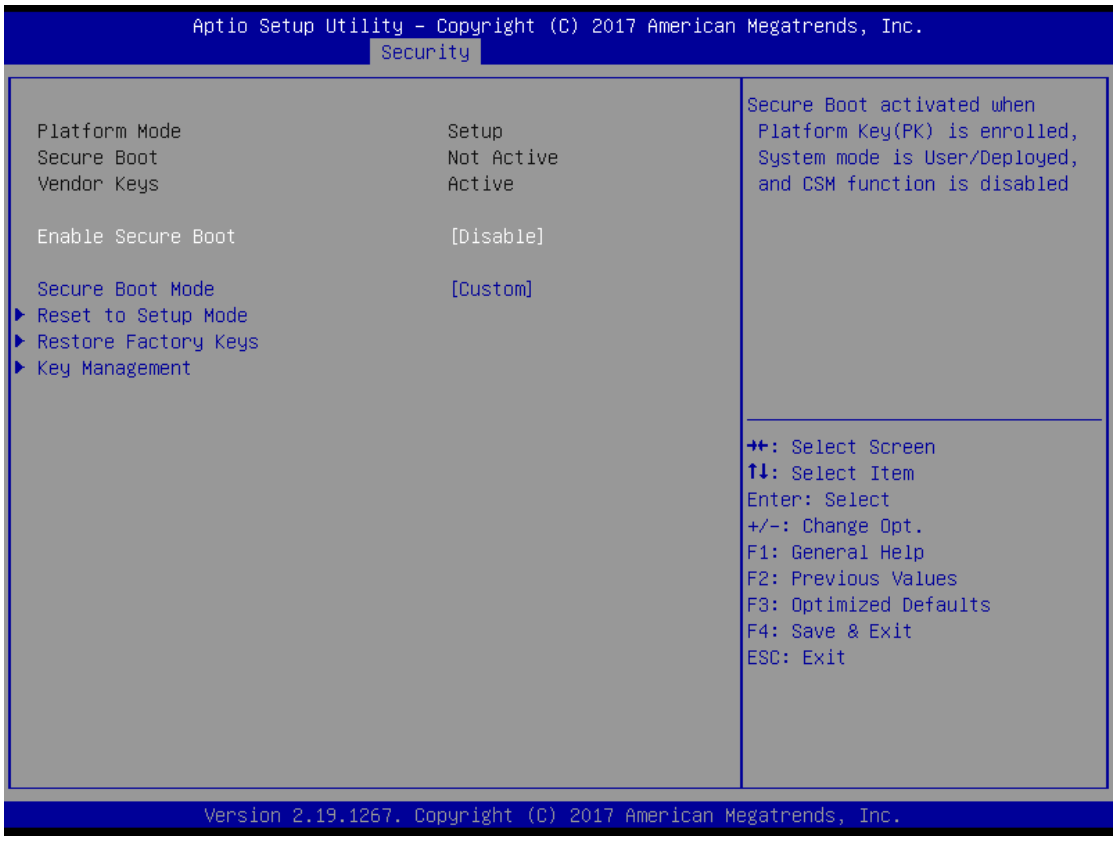
Use [←] / [→] to select [Security] setup screen. Under this screen, you may use [↑] [↓] to select an item you would like to configure.

Administrator Password & User Password:



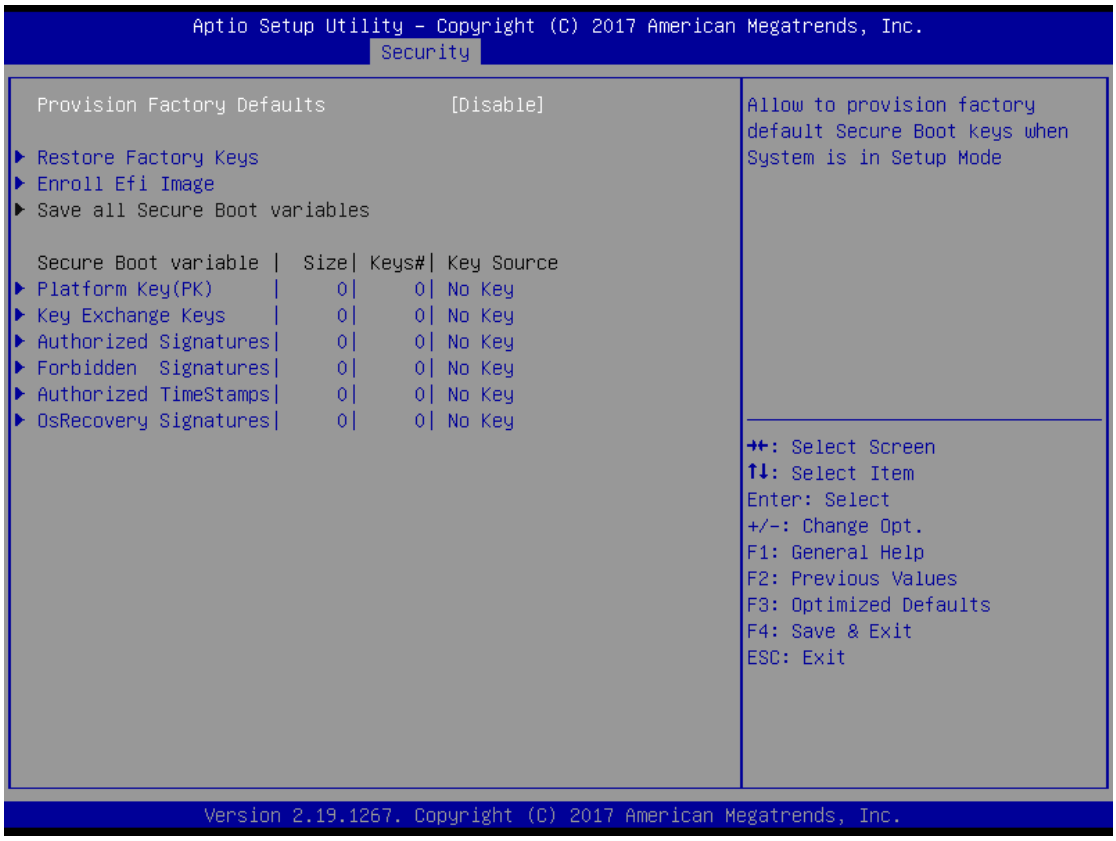
Item	Description
Administrator Password	If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.
User Password	If ONLY the User's password is set, then this is a power-on password and must be entered to boot or enter Setup. In Setup, the User will have Administrator rights.

Secure Boot: enter Secure Boot page for more related settings.



Item	Value	Description
Enable Secure Boot	Disabled Enabled	Secure Boot 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

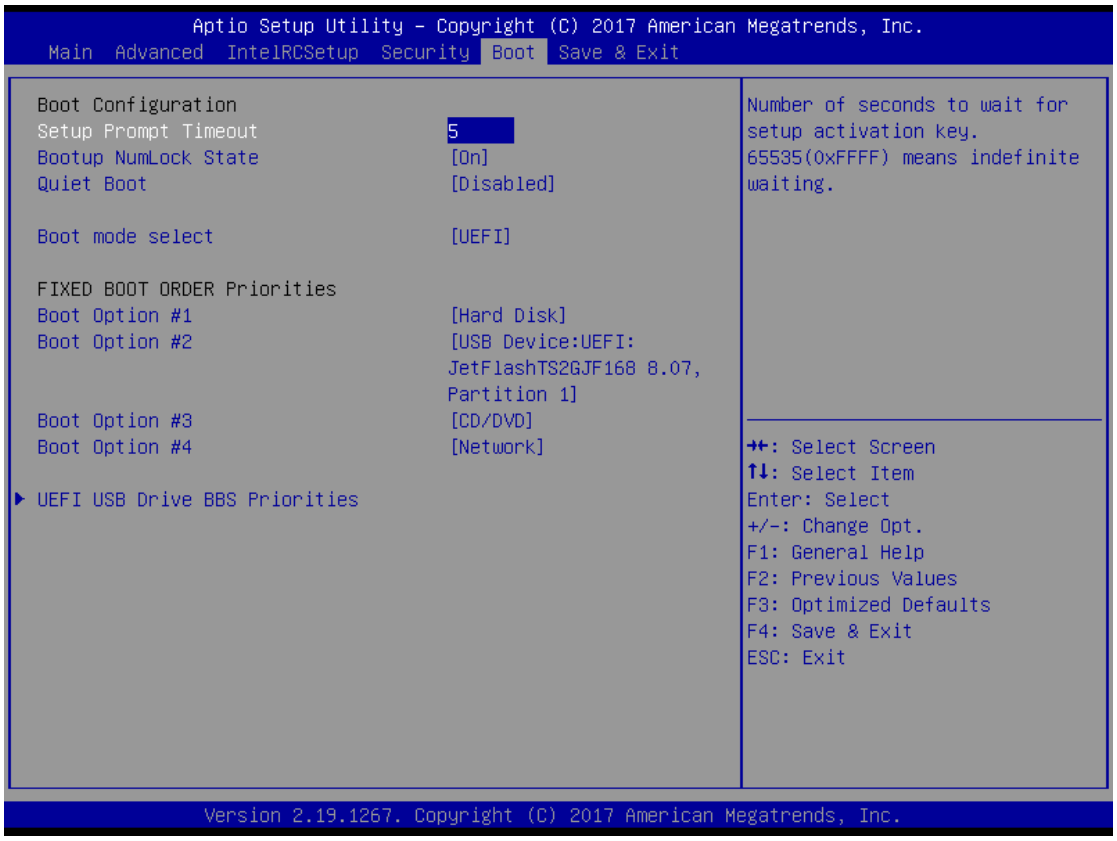
Key Management



Item	Value	Description
Provision Factory Defaults	Disabled Enabled	Allow for provision factory default Secure Boot keys when System is in Setup Mode.
Restore Factory Default keys	None	Force System to User mode – restore factory default Secure Boot Key databases
Enroll Efi Image	None	Allow 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.



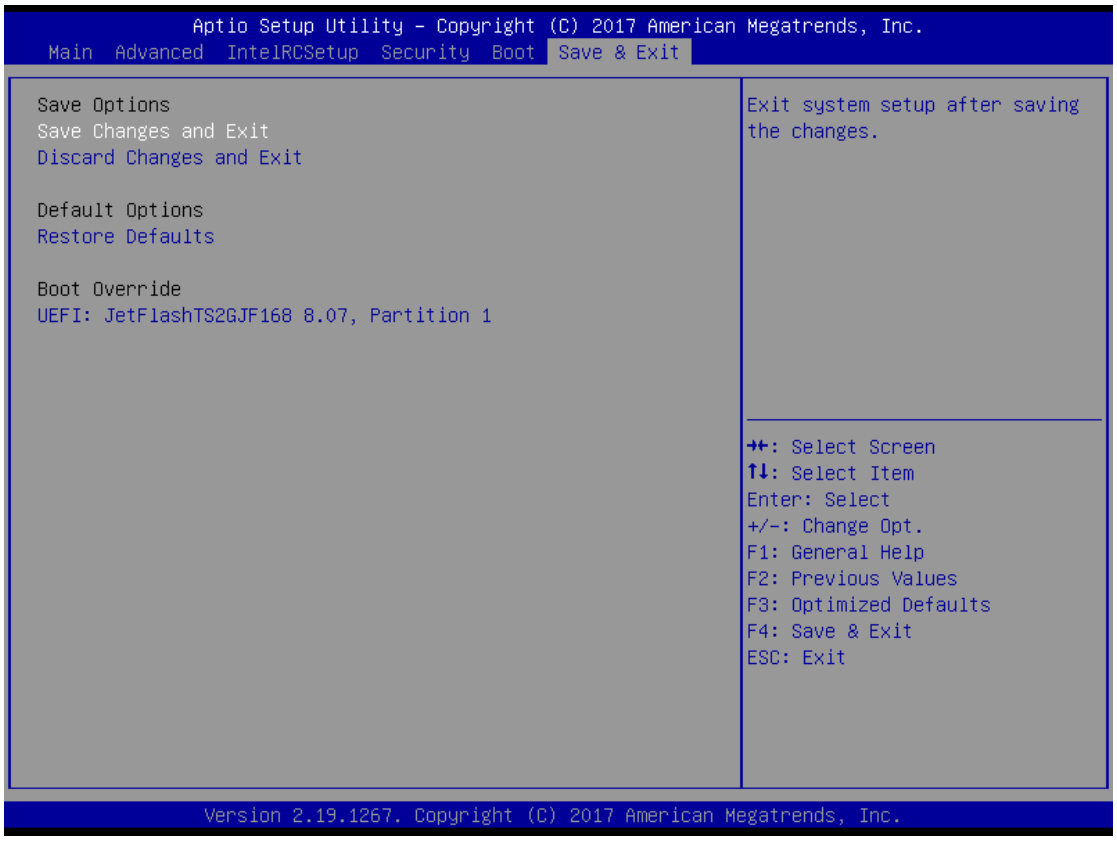
Item	Value	Description
Setup Prompt Timeout	5	Number of seconds to wait for setup activation key. 65535 means indefinite waiting.
Bootup NumLock State	On Off	Select the keyboard NumLock state
Quiet Boot	Disabled Enabled	Enables or disables Quiet Boot option.
Boot mode select	LEGACY UEFI	Select boot mode for LEGACY or UEFI.

■ Choose boot priority from boot option group.

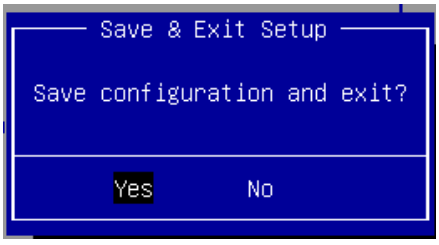
■ Choose specifies boot device priority sequence from available Group device.

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.

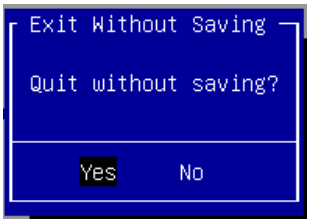


Save Changes and Exit



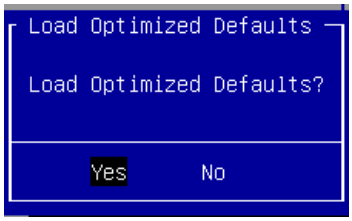
When you have completed the system configuration, select this option to save the changes and Exit from BIOS Setup, so the new system configuration parameters can take effect. This window will appear after the 'Save Changes and Exit' option is selected. Select **YES** to save changes and exit Setup.

Discard Changes and Exit



Select this option to quit Setup without saving any modifications to the system configuration. This window will appear after the 'Discard Changes and Exit' option is selected. Select **YES** to discard changes and exit Setup.

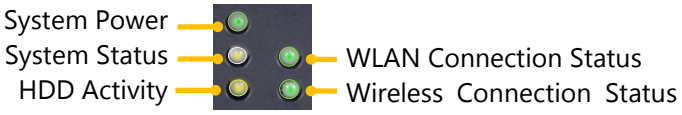
Restore Defaults



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

APPENDIX A: LED INDICATOR EXPLANATIONS

The status explanations of LED indicators on Front Panel are as follows:



- **System Power**

Solid Green	*The system is powered on*
Off	*The system is powered off*

- **System Status**

This LED indicator is programmable. You could program it to display the operating status with the behaviors described below:

Solid Green	*The system is at normal operational state*
Solid Red	*The system is malfunctioning*

- **HDD Activity Status**

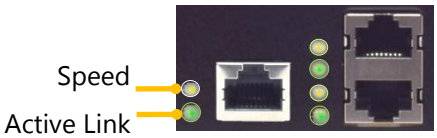
Blinking Amber	*Data access activities*
Off	*No data access activities*

- **WLAN Connection Status**

Solid Green	*The system is connected with WLAN network.*
Blinking Green	*The system is transmitting/receiving data via WLAN connection.*
Off	*The system is currently not connected with WLAN network.*

- **Wireless Connection Status**

Solid Green	*The system is connected to wireless network.*
Blinking Green	*The system is transmitting/receiving data via a wireless connection.*
Off	*The system is currently not connected to any network.*



- **RJ45 LAN Status**

Speed	(Active/Link)	(Speed)
10M	*Blinking / Solid Amber*	*Off*
100M	*Blinking / Solid Amber*	*Solid Green*
1G	*Blinking / Solid Amber*	*Solid Amber*

APPENDIX B: SETTING UP CONSOLE REDIRECTIONS

Console redirection lets you monitor and configure a system from a remote terminal computer by re-directing keyboard input and text output through the serial port. The following steps illustrate how to use this feature. The BIOS of the system allows the redirection of the console I/O to a serial port. With this configured, you can remotely access the entire boot sequence through a console port.

1. Connect one end of the console cable to console port of the system and the other end to the serial port of the Remote Client System.
2. Configure the following settings in the BIOS Setup menu:
   BIOS > **Advanced** > **Serial Port Console Redirection** > **Console Redirection Settings**, select **115200** for the Baud Rate, **None**. for Flow control, **8** for the Data Bit, **None** for Parity Check, and **1** for the Stop Bit.
3. Configure console redirection related settings on the client system. You can use a terminal emulation program that features communication with serial COM ports such as *TeraTerm* or *Putty*. Make sure the serial connection properties of the client conform to those for the server.

APPENDIX C: PROGRAMMING GENERATION 3 LAN BYPASS

The bypass function is used to link two independent Ethernet ports when the system crashes or powers off. This means if your system is equipped with a LAN Bypass function, a condition in your system will not interrupt your network traffic. Different from the previous two generations (Gen1 and Gen2), the Lanner Bypass Gen 3 employs a programming method to control the bypass function by software. There are typically two types of communication status for the bypass function, one is "**Normal** " and another is "Bypass " status. Furthermore, the Lanner Bypass software is capable of controlling the bypass status in the following 3 instances.

- When the system powers off, it can be forced to enable the LAN Bypass function.
- When the system is in the just-on state which is a brief moment when it powers up.

The Lanner bypass possesses the following features:

1. Communication through SMBUS (I2C)
2. Independent bypass status control for each pair up to a total of 4 pairs
3. Lanner Bypass Modules can bypass systems Ethernet ports on a host system during three instances: Just-on (Just-on is the brief moment when the internal power supply turns on and booting process starts), system off, or upon software request (during run-time).
4. Software programmable bypass or normal mode
5. Software programmable timer interval:

   - **JUST-ON** watchdog timer, used during JUST-ON, has timer setting of 5~1275 seconds of timer interval.

   - **Run-Time** watchdog timer, used during run-time, with of 1~255 seconds of timer interval.
6. Multiple Watchdog Timers:

   -**Two for run-time**: It is designed to give you a more variety of controls of the bypass on port basis. By using dedicated watchdogs for different pairs of the bypass, you have the flexibility to manage the bypass status for them differently.

   -**One for just-on**: It is designed to give you the precise control of the bypass during this phase. You can use this timer to delay enabling the bypass in just-on state.

- For a reference utility that contains sample code for LAN Bypass function programming, please visit http://www.lannerinc.com/support/download-center/drivers, enter the product category and download the utility package.

APPENDIX D: INSTALLING INTEL® LAN CONTROLLER DRIVER FOR LINUX

To install the Intel® LAN controller base driver for the Red Hat® and Linux operating system, please visit http://www.lannerinc.com/support/download-center/drivers, enter the product category and download the utility package.

For the latest driver update, please visit Intel® download center at https://downloadcenter.intel.com/, use the keyword search or the filter to access the driver's product page, and then download the latest controller driver as well as the ReadMe document.

Product Name Keyword	I350-AM4
Download Type	Drivers
Operating System	Linux*
Product page	https://downloadcenter.intel.com/product/52966/Intel-Ethernet-Controller-I350-AM4

APPENDIX E: 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 the 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.

RMA No:	Reasons to Return: ▫ Repair(Please include failure details) ▫ Testing Purpose
Company:	Contact Person:
Phone No.	Purchased Date:
Fax No.:	Applied Date:
Return Shipping Address: _____	
Shipping by: ▫ Air Freight ▫ Sea ▫ Express_____ ▫ Others:_____	

Item	Model Name	Serial Number	Configuration

Item	Problem Code	Failure Status

*Problem Code:

01:D.O.A.	07: BIOS Problem	13: SCSI	19: DIO
02: Second Time R.M.A.	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

Authorized Signature / Date

Confirmed By Supplier

Authorized Signature / Date