



# User Manual

## UTX-3117

**ADVANTECH**

*Enabling an Intelligent Planet*

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## Acknowledgements

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All other product names or trademarks are properties of their respective owners.

## Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandise authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

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# Declaration of Conformity

## FCC Class B

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, 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.

**Warning!** *Any changes or modifications made to the equipment which are not expressly approved by the relevant standards authority could void your authority to operate the equipment.*



**Caution!** *Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.*



This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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## Technical Support and Assistance

1. Visit the Advantech website at <http://support.advantech.com> where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
  - Product name and serial number
  - Description of your peripheral attachments
  - Description of your software (operating system, version, application software, etc.)
  - A complete description of the problem
  - The exact wording of any error messages

**Warning!** 1. *Input voltage rated 12~24 VDC, 3 ~ 5 A (DC Mode).*



2. *Packing: please carry the unit with both hands, handle with care.*

3. *Maintenance: to properly maintain and clean the surfaces, use only approved products or clean with a dry applicator.*

## Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
  - a. The power cord or plug is damaged.
  - b. Liquid has penetrated into the equipment.
  - c. The equipment has been exposed to moisture.
  - d. The equipment does not work well, or you cannot get it to work according to the user's manual.
  - e. The equipment has been dropped and damaged.

- f. The equipment has obvious signs of breakage.
15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
16. If your computer is losing dramatic time or the BIOS configuration reset to default, the battery has no power.

**Caution!** 1. Do not replace power adaptor yourself. Please contact a qualified technician or your retail.



2. The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacture. Discard used batteries according to the manufacturer's instructions.

17. CLASSIFICATION:
- Supply by Class I
  - adapter – No applied part
  - Continuous Operation
  - Not AP or APG category
18. Follow the national requirement to dispose unit.
19. Maintenance: to properly maintain and clean the surfaces, use only the approved products or clean with a dry cloth.
20. Contact information:  
No.1, Alley 20, Lane 26, Rueiguang Road Neihu District, Taipei, Taiwan 114,  
R.O.C  
TEL: (02)27927818

## Industry Canada Statement

This device complies with RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## French User Manual Statements for RSS Warnings

### FCC/Industry Canada Two-Part Statement:

#### English Version

This device complies with FCC Part 15 and Industry Canada license exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

#### Version française

Cet appareil est conforme à FCC Partie15 d'Industrie Canada RSS standard exempts de licence (s). Son utilisation est soumise à Les deux conditions suivantes: (1) cet appareil ne peut pas provoquer d'interférences et (2) cet appareil doit accepter Toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement du dispositif.

### Version française

"Les changements ou modifications non expressément approuvés par la partie responsable de la conformité pourraient annuler l'autorité de l'utilisateur à utiliser cet équipement."

## European Union Declaration of Conformity Statement

We, Advantech, declare under our sole responsibility that the product, model, is in conformity with all applicable essential requirements Necessary for CE marking, following the provisions of the European Council Directives 2004/108/EC (EMC Directive), 2006/95/EC (Low Voltage Directive), 1999/5/EC (Radio and Telecommunications Terminal Equipment Directive) and 2011/65/EU (ROHS Directive).

The product is properly CE marked demonstrating this conformity and is for distribution within all member states of the EU with no restrictions.

This product follows the provisions of the European Directives 2004/108/EC, 2006/95/EC, 1999/5/EC and 2011/65/EU.

**Čeština** Tento výrobek odpovídá požadavkům evropských směrnic 2004/108/EC, 2006/95/EC, 1999/5/EC a 2011/65/EU.

**Dansk** Dette produkt er i overensstemmelse med det europæiske direktiv 2004/108/EC, 1999/5/EC, 2006/95/EC & 2011/65/EU.

**Dutch** Dit product is in navolging van de bepalingen van Europees Directief 2004/108/EC, 1999/5/EC, 2006/95/EC & 2011/65/EU.

**Eesti** Antud toode vastab Euroopa direktiivides 2004/108/EC, ja 2006/95/EC ja 1999/5/EC ja 2011/65/EU kehtestatud nõuetele.

**Suomi** Tämä tuote noudattaa EU-direktiivin 2004/108/EC, 1999/5/EC, 2006/95/EC & 2011/65/EU määräyksiä.

**Français** Ce produit est conforme aux exigences de la Directive Européenne 2004/108/EC, 1999/5/EC, 2006/95/EC & 2011/65/EU.

**Deutsch** Dieses Produkt entspricht den Bestimmungen der Europäischen Richtlinie 2004/108/EC, 1999/5/EC 2006/95/EC & 2011/65/EU.

**Ελληνικά** Το παρόν προϊόν ακολουθεί τις διατάξεις των Ευρωπαϊκών Οδηγιών 2004/108/EC, 1999/5/EC, 2006/95/EC και 2011/65/EU.

**Magyar** E termék megfelel a 2004/108/EC, 1999/5/EC, 2006/95/EC és 2011/65/EU Európai Irányelv előírásainak.

**Icelandic** Þessi vara stendur reglugerð Evrópska Efnahags Bandalagsins númer 2004/108/EC, 2006/95/EC, & 2011/65/EU.

**Italiano** Questo prodotto è conforme alla Direttiva Europea 2004/108/EC, 1999/5/EC, 2006/95/EC & 2011/65/EU.

**Latviešu** Šis produkts atbilst Eiropas Direktīvu 2004/108/EC, 1999/5/EC, 2006/95/EC un 2011/65/EU noteikumiem.

**Lietuvi** ū Šis produktas atitinka Europos direktyvų 2004/108/EC, 1999/5/EC, 2006/95/EC, ir 2011/65/EU nuostatas.

**Malti** Dan il-prodott hu konformi mal-provvedimenti tad-Direttivi Ewropej 2004/108/EC, 1999/5/EC, 2006/95/EC u 2011/65/EU.

**Norsk** Dette produktet er i henhold til bestemmelsene i det europeiske direktivet 2004/108/EC, 1999/5/EC, 2006/95/EC & 2011/65/EU.

**Polski** Niniejszy produkt jest zgodny z postanowieniami Dyrektyw Unii Europejskiej 2004/108/EC, 1999/5/EC, 2006/95/EC i 2011/65/EU.

**Portuguese** Este produto cumpre com as normas da Diretiva Europeia 2004/108/EC, 1999/5/EC, 2006/95/EC & 2011/65/EU.

**Español** Este producto cumple con las normas del Directivo Europeo 2004/108/EC, 1999/5/EC, 2006/95/EC & 2011/65/EU.

**Slovensky** Tento produkt je v súlade s ustanoveniami európskych direktív 2004/108/EC, 1999/5/EC, 2006/95/EC a 2011/65/EU.

**Slovenščina** Izdelek je skladen z določbami evropskih direktiv 2004/108/EC, 1999/5/EC, 2006/95/EC in 2011/65/EU.

**Svenska** Denna produkt har tillverkats i enlighet med EG-direktiv 2004/108/EC, 1999/5/EC 2006/95/EC & 2011/65/EU.

**Türkçe** Bu ürün, Avrupa Birliği'nin 2004/108/EC, 1999/5/EC, 2006/95/EC ve 2011/65/EU yönergelerine uyar.



This symbol on the product indicates compliance with Directive 2002/96/EC (WEEE). Do not dispose of product in unsorted municipal waste.

Please recycle this product in a responsible manner. Refer to local environmental regulations for proper recycling; do not dispose of product in unsorted municipal waste.

## Packing List

Before installation, please ensure the following items have been shipped:

- 1 x UTX-3117 unit
- 1 x DC 12 V 36W power adaptor
- 1 x China RoHS
- 1 x Warranty card
- 1 x Chinese user manual

## Ordering Information

P/N	CPU	SSD	Memory	WiFi	3G/LTE	Other RF	Antenna	OS
UTX-3117FS-S6A1N	PENTIUM N4200, 4C 2M 1.1GHz	32GB	4GB X 1	NA	NA	NA	4	NA
UTX-3117FS-S6A2N	CELERON N3350 2C 2M 1.1GHz	32GB	4GB X 1	NA	NA	NA	4	NA
UTX-3117FS-S6A2E	Atom X5-E3940 4C 2M 1.6GHz	32GB	4GB X 1	NA	NA	NA	4	NA
UTX-3117FSW-S6A1N	PENTIUM N4200, 4C 2M 1.1GHz	32GB	4GB X 1	NA	NA	NA	4	WIN 10
UTX-3117FSP-S6A2N	CELERON N3350 2C 2M 1.1GHz	32GB	4GB X 1	NA	NA	NA	4	Pulsar 8
UTX-3117C-S6A2N	CELERON N3350 2C 2M 1.1GHz	NA	NA	NA	NA	NA	NA	NA
UTX-3117C-S6A2E	Atom X5-E3940 4C 2M 1.6GHz	NA	NA	NA	NA	NA	NA	NA
UTX-3117C-S6A1N	PENTIUM N4200, 4C 2M 1.1GHz	NA	NA	NA	NA	NA	NA	NA
UTX-3117SA4-S6A1N	PENTIUM N4200, 4C 2M 1.1GHz	NA	4GB X 1	NA	NA	NA	4	NA
UTX-3117SA4-S6A2N	CELERON N3350 2C 2M 1.1GHz	NA	4GB X 1	NA	NA	NA	4	NA
UTX-3117SA4-S6A2E	Atom X5-E3940 4C 2M 1.6GHz	NA	4GB X 1	NA	NA	NA	4	NA



# Compatibility List

## Power Cord

Part Number	Description
1700001524	Power Cable 3-pin 180cm, USA type (For power adapter 1757004096-01)
170203183C	Power Cable 3-pin 180cm, Europe type (For power adapter 1757004096-01)
170203180A	Power Cable 3-pin 180cm, UK type (For power adapter 1757004096-01)
1700008921	Power Cable 3-pin 183cm, PSE Mark type (For power adapter 1757004096-01)

## Optional Items

Part Number	Description
1750008401-01	Antenna SMA(F)/MHF 12cm IP65 A9703219 for 3G/LTE
1750008402-01	Antenna R/P SMA(M) to MHF 14cm IP65 A97 for WSN
1750008403-01	NGFF R/P SMA (M) to MHF 12cm IP65 A9703
1750008424-01	LTE Antenna Dipole L=148.5mm 4dBi A9703 for LTE
1750008671-01	Dipole Ant.SMA/M-R 2.4/5G 2.5/4dBi BLK for WiFi
AIMB-0BRK-VM05E	UTX-3117 VESA Mount bracket kit
AIMB-0BRK-WM03E	UTX-3117 Wallmount bracket kit
AIMB-0BRK-DR05E	UTX-3117 DIN rail bracket kit



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# Chapter 1

## Introduction

This Chapter briefly introduces the UTX-3117 product.

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## 1.1 Overview

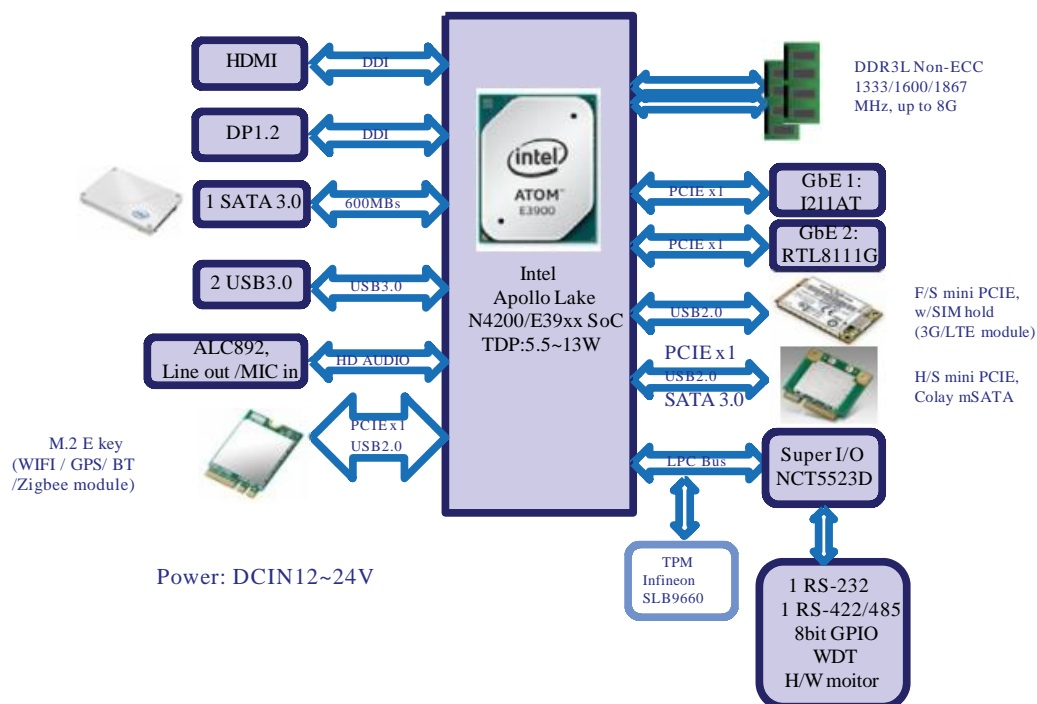
The Advantech UTX-3117 system is fanless & extended-temp embedded box. The solution uses the latest Intel® Atom® E3900, Celeron® N3350, and Pentium® N4200 series processor technology to provide a real-time IoT computing, power-efficient, plug & play gateway which is ideal for smart city street lighting, smart metering, smart parking, smart agriculture, HVAC, healthcare, industrial automation and more. UTX-3117 is compatible with Microsoft Windows 10 IoT Enterprise, Yocto Linux, and Wind River Pulsar OS. Furthermore, UTX-3117 has Advantech intelligent software WISE-PaaS integrated and is certificated with AWS Greengrass IoT solution to offer a total solution for bridging connectivity from edge sensors to the cloud.

Benefits:

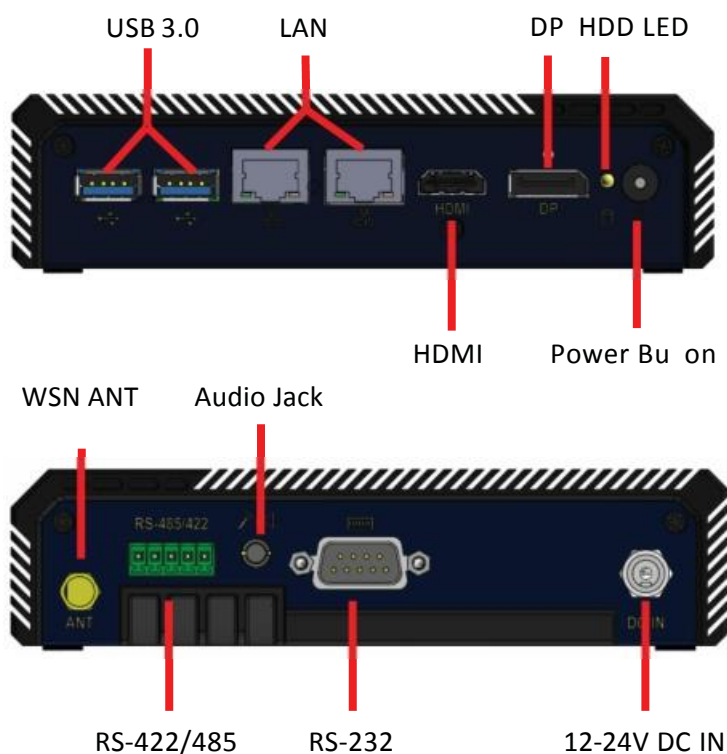
- Ultra Thin ITX embedded system with CE/FCC certification
- Fanless, wide-temperature operation with high performance and flexibility
- Design in 3 extension slot for RF module, mSATA, or other I/O dongle.
- Support 12V ~ 24V wide voltage DC input.
- One-Stop Integrated Solution: Integrated ultra compact motherboard, chassis, peripherals and software
- Dimensions: 152 x 128 x 37.1 mm

## 1.2 System Configuration

The following diagram is a block drawing of the UTX-3117.



Button I/O arrangement:



## 1.3 General Specifications

### 1.3.1 Standard PC Functions

- **CPU:** Intel® Atom™ E3900 series, Pentium N4200, Celeron N3350 SoC.
- **BIOS:** AMI EFI 16bit
- **Memory:** DDR3L SODIMM 1333/1866 MHz up to 8GB
- **Audio:** HD audio codec ALC892
- **LAN:** PCI-E gIGABIT Ethernet controllers x2  
LAN1: Intel i210AT; LAN2: RTL8111G
- **Universal serial bus (USB) port:** 2 USB3.0
- **Mini PCI-E bus expansion slot:** 1 F/S miniPCIE support 3G/LTE card; 1 H/S miniPCIE support mSATA/WIFI card, 1 M.2 E-key support WiFi card.
- **Storage housing:** 1 2.5" slim SSD
- **Audio output:** Combo Audio Jack
- **Video output:** 1 HDMI, 1 Display port

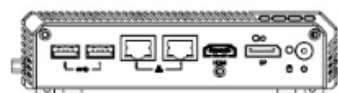
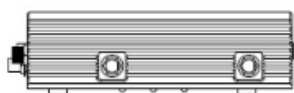
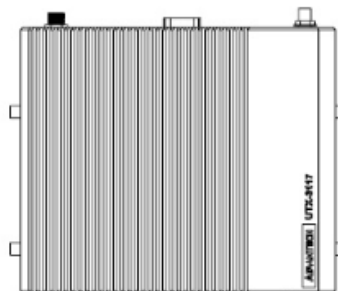
### 1.3.2 Power Environmental

- **Power adaptor:** AC/DC
  - Input voltage: 100 Vac ~ 240 Vac @ 50 - 60 Hz, 1.5 A
  - Output voltage: 12 V @ 3 A ~ 24V @ 3A

## 1.4 Mechanical Specifications

### 1.4.1 Mechanical Specifications (Terminal)

- **System Dimensions:** 152 X 128 X 37.1 mm (5.98" X 5.2" X 1.46")



- **Carton Dimensions:** 255 (L) X 235 (W) X 160 (H) mm
- **Gross Weight:** 2.0 kg
- **Net Weight:** 1.8 kg



## 1.5 Environmental Specifications

### Temperature & Humidity

- **Operating Temperature:** -20 ~ 60 °C (with RF module)
- **Storage Temperature:** -40 ~ 60° C
- **Relative Humidity:** 40 ~ 95% RH (Non-condensed)

### Safety

- CE / UL/CB/CCC/BSMI

### EMI

- FCC class B approved for USA, Canada, and EU

### Vibration:

- With SSD: 3Grms, 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis



# Chapter 2

## Jumper and Connector List

## 2.1 Connectors & Jumpers

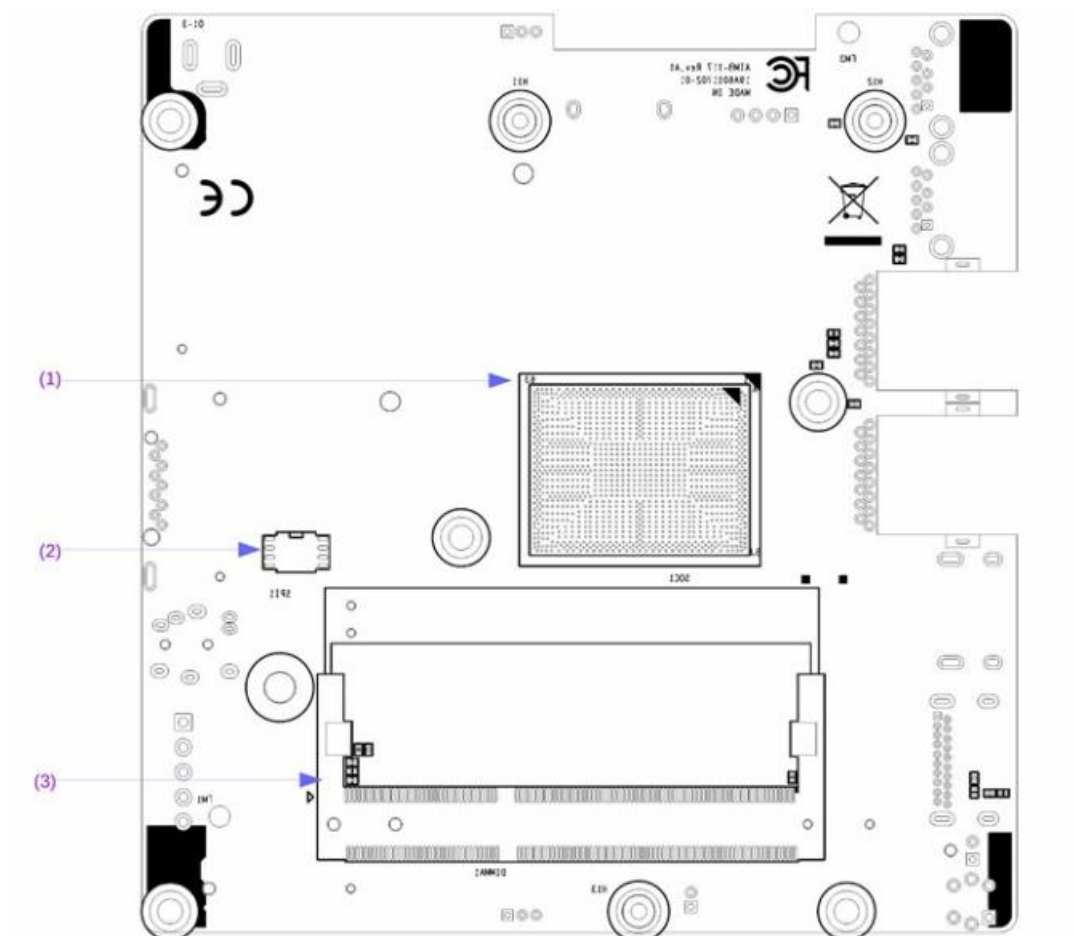
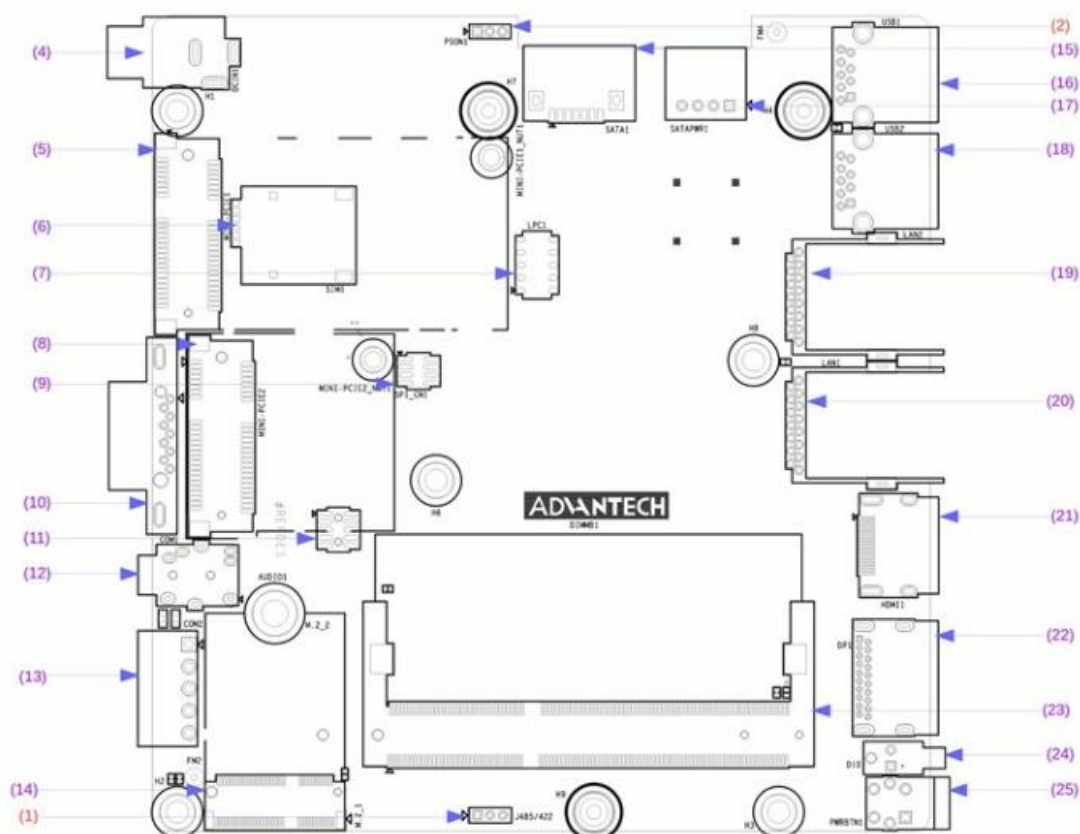


Figure 2.1 Top View



**Figure 2.2 Bottom View**

**Connector and Header List:**

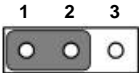
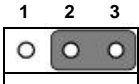
- (1) CPU-System on chip(SOC1)
- (2) BIOS Flash(SPI1)
- (3) DDR3LSO-DIMM Socket (DIMMA1)
- (4) DC input Connector (DCIN1)
- (5) MINIPCI Connector (MINI-PCIE1)
- (6) SIM Card Socket (SIM1)
- (7) Low Pin Count Header (LPC1)
- (8) MINIPCI and mSATA Connector (MINI-PCIE2)
- (9) SPI Programming Pin Header(SPI\_CN1)
- (10) COM Port(COM1)
- (11) General Purpose I/O Pin Header (GPIO1)
- (12) HDAnalog Audio Interface(AUDIO1)
- (13) COM Port(COM2)
- (14) Next Generation Form Factor (M.2\_1)
- (15) SATA Signal Connector (SATA1)
- (16) USB 3.0 Connector(USB1)
- (17) SATA Power Connector (SATA\_PWR1)
- (18) USB 3.0 Connector(USB2)
- (19) RJ45 Connector(LAN2)
- (20) RJ45 Connector(LAN1)
- (21) High Definition Multimedia Interface(HDMI1)
- (22) DisplayPort(DP1)
- (23) DDR3LSO-DIMM Socket (DIMMB1)

- (24) SATA LED(D10)
- (25) Power Button(PWRBTN1)

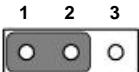
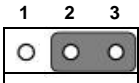
**Jumper List:**

- (1) RS485/RS422selection pin header (J485/422)

**Table 2.1: RS485/RS422selection pin header (J485/422)**

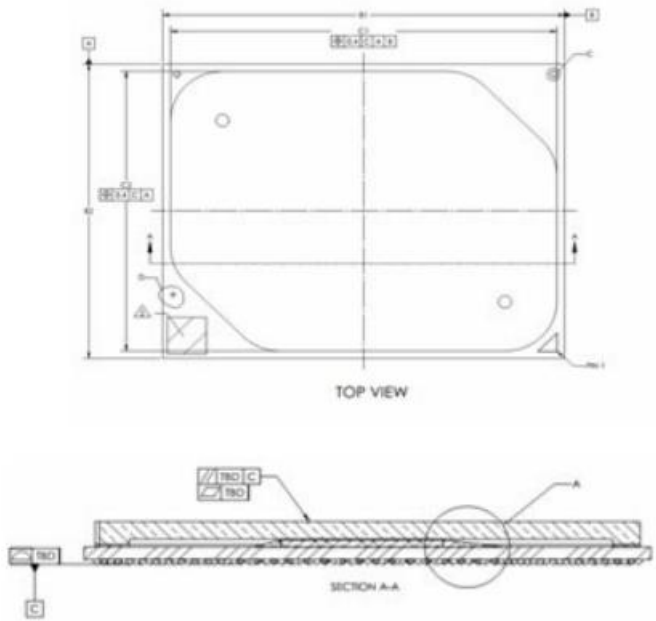
Function	Setting
RS485 (Default)	 1 and 2
RS232	 2 and 3

**Table 2.2: AT/ATX Mode Selection (PSON1)**

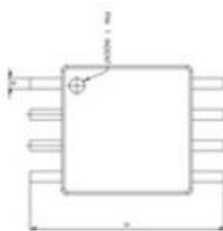
Function	Setting
AT Mode	 1 and 2
ATX Mode (Default)	 2 and 3

**2.2 Connectors**

**2.2.1 CPU-System on chip(SOC1)**

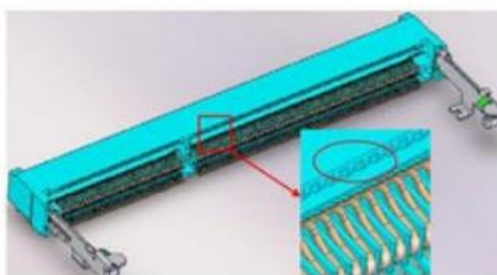


### 2.2.2 BIOS Flash(SPI1)

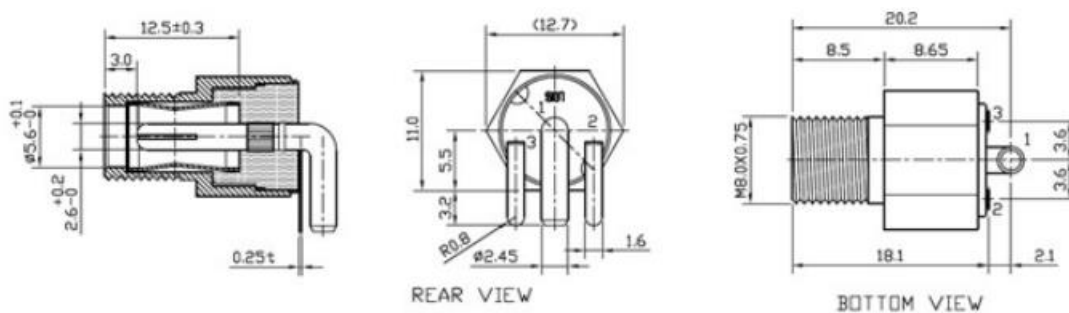


Pin	Signal	Pin	Signal
1	SPI_Z_CS0	6	SPI_Z_CLK
2	SPI_Z_MISO	7	SPI_Z_IO3
3	SPI_Z_IO2	8	+V1.8SB_SPI
4	GND		
5	SPI_Z_MOSI		

### 2.2.3 DDR3L SO-DIMM Socket (DIMMA1)

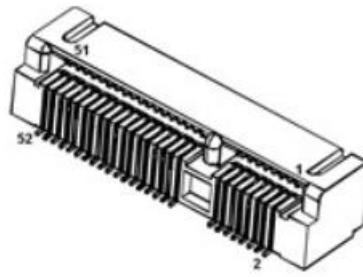


### 2.2.4 DC input Connector(DCIN1)



Pin	Signal
1	Power input
2	GND
3	GND

## 2.2.5 MINIPCIE Connector (MINI-PCIE1)



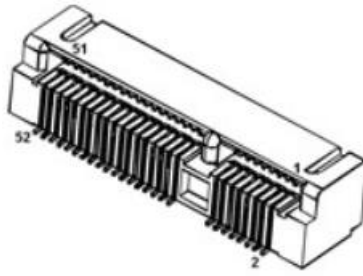
MINIPCIE:

Pin	Signal	Pin	Signal
1	WAKE#	2	+3.3Vaux
3	Reserved	4	GND
5	Reserved	6	+1.5V
7	Reserved	8	SIM_VCC1
9	GND	10	SIM_IO1
11	Reserved	12	SIM_CLK1
13	Reserved	14	SIM_RST1
15	GND	16	SIM_SPU1
17	Reserved	18	GND
19	Reserved	20	DISABLE#
21	GND	22	RESET#
23	Reserved	24	+3.3Vaux
25	Reserved	26	GND
27	GND	28	+1.5V
29	GND	30	Reserved
31	Reserved	32	Reserved
33	MINI-PCIE1 _RESET#	34	GND
35	GND	36	USB_D-
37	GND	38	USB_D+
39	+3.3Vaux	40	GND
41	+3.3Vaux	42	Reserved
43	Reserved	44	Reserved
45	Reserved	46	Reserved
47	Reserved	48	+1.5V
49	Reserved	50	GND
51	Reserved	52	+3.3Vaux





## 2.2.8 MINIPCIE and mSATA Connector (MINI-PCIE2)



MINIPCIE:

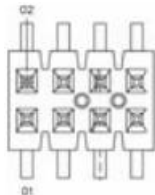
Pin	Signal	Pin	Signal
1	WAKE#	2	+3.3Vaux
3	Reserved	4	GND
5	Reserved	6	+1.5V
7	CLKREQ#	8	Reserved
9	GND	10	Reserved
11	REFCLK-	12	Reserved
13	REFCLK+	14	Reserved
15	GND	16	Reserved
17	Reserved	18	GND
19	Reserved	20	DISABLE#
21	DETECT#	22	RESET#
23	PCIE_RX+	24	+3.3Vaux
25	PCIE_RX-	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	PCIE_TX-	32	SMB_DATA
33	PCIE_TX+	34	GND
35	GND	36	USB_D-
37	GND	38	USB_D+
39	+3.3Vaux	40	GND
41	+3.3Vaux	42	Reserved
43	V1.2_DETECT#	44	LED_WLAN#
45	Reserved	46	Reserved
47	Reserved	48	+1.5V
49	Reserved	50	GND
51	MSATA_DETECT#	52	+3.3Vaux

mSATA:

Pin	Signal	Pin	Signal
1	Reserved	2	+3.3V
3	Reserved	4	GND
5	Reserved	6	+1.5V
7	Reserved	8	Reserved
9	GND	10	Reserved

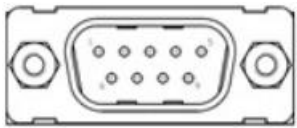
11	Reserved	12	Reserved
13	Reserved	14	Reserved
15	GND	16	Reserved
17	Reserved	18	GND
19	Reserved	20	Reserved
21	DETECT#	22	Reserved
23	RX+	24	+3.3V
25	RX-	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	TX-	32	SMB_DATA
33	TX+	34	GND
35	GND	36	Reserved
37	GND	38	Reserved
39	+3.3V	40	GND
41	+3.3V	42	Reserved
43	Reserved	44	Reserved
45	Reserved	46	Reserved
47	Reserved	48	+1.5V
49	Reserved	50	GND
51	MSATA_DETECT#	52	+3.3V

### 2.2.9 SPI Programming Pin Header (SPI\_CN1)



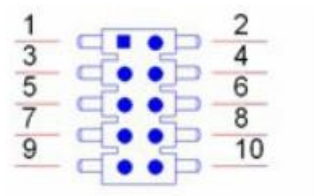
Pin	Signal	Pin	Signal
1	CS#	2	+3.3V
3	MISO	4	X
5	X	6	SCK
7	GND	8	MOSI

### 2.2.10 COM Port (COM1)



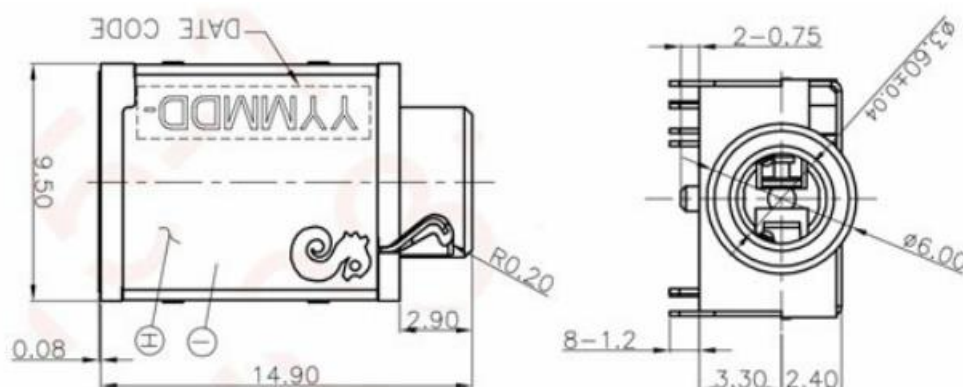
Pin	Signal	Pin	Signal
1	DCD#	6	DSR#
2	RXD	7	RTS#
3	TXD	8	CTS#
4	DTR#	9	RI#
5	GND		

### 2.2.11 General Purpose I/O Pin Header (GPIO1)



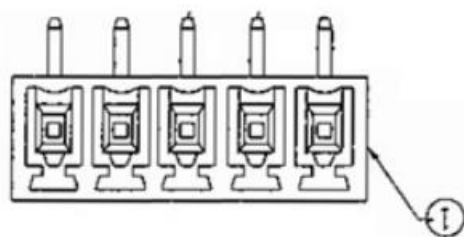
Pin	Signal	Pin	Signal
1	GPIO0	2	GPIO4
3	GPIO1	4	GPIO5
5	GPIO2	6	GPIO6
7	GPIO3	8	GPIO7
9	+3.3V	10	GND

### 2.2.12 HD Analog Audio Interface (AUDIO1)



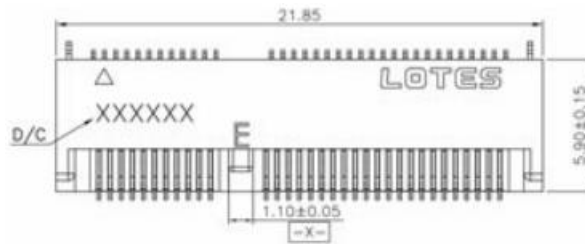
Pin	Signal	Pin	Signal
1	CONN_FRONT_L	6	GND_A
2	CONN_FRONT_R	MS1	GND_A
3	GND_A	MS2	GND_A
4	CONN_MIC1_L	H1	x
5	FRONT_SENSE_A	H2	x

### 2.2.13 COM Port (COM2)



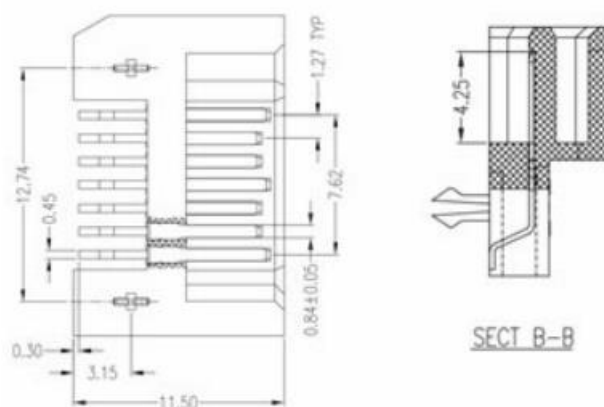
Pin	Signal
1	COM2_422_485_TX-
2	COM2_422_485_TX+
3	GND
4	COM2_422_RX-
5	COM2_422_RX+

## 2.2.14 Next Generation Form Factor (M.2\_1)



Pin	Signal	Pin	Signal
1	GND	43	PCIE_RX3-
2	+V3.3SB_M.2	44	x
3	USB_D4+	45	GND
4	+V3.3SB_M.2	46	x
5	USB_D4-	47	CK100M_NGFF+
6	x	48	x
7	GND	49	CK100M_NGFF-
8	NGFF_I2S3_Z_BCLK	50	NGFF_PMU_SUSCLK
9	SDIO_WIFI_CLK	51	GND
10	NGFF_I2S3_Z_SYNC	52	NGFF_PLTRST#
11	SDIO_WIFI_CMD	53	PCIE_REQ2_NGFF#
12	NGFF_I2S3_Z_SDI	54	NGFF_BT_DISABLE#
13	SDIO_WIFI_D0	55	PCIE_NGFF_WAKE2#
14	NGFF_I2S3_Z_SDO	56	NGFF_WIFI_DISABLE#
15	SDIO_WIFI_D1	57	GND
16	x	58	x
17	SDIO_WIFI_D2	59	x
18	GND	60	x
19	SDIO_WIFI_D3	61	x
20	NGFF_CONN_UART_WAKE#	62	x
21	SDIO_WIFI_WAKE#	63	GND
22	NGFF_UART0_Z_RXD	64	x
23	SDIO_WIFI_RST	65	x
32	NGFF_UART0_Z_TXD	66	x
33	GND	67	x
34	NGFF_UART0_Z_CTS#	68	x
35	NGFF_PCIE_TX3+	69	GND
36	NGFF_UART0_Z_RTS#	70	x
37	NGFF_PCIE_TX3-	71	x
38	x	72	+V3.3SB_M.2
39	GND	73	x
40	x	74	+V3.3SB_M.2
41	PCIE_RX3+	75	GND
42	x		

### 2.2.15 SATA Signal Connector (SATA1)



Pin	Signal	Pin	Signal
1	GND	6	SATA0_Z_RX+
2	SATA0_Z_TX+	7	GND
3	SATA0_Z_TX-	8	x
4	GND	9	x
5	SATA0_Z_RX-	6	SATA0_Z_RX+

### 2.2.16 USB 3.0 Connector(USB1)

### 2.2.17 USB 3.0 Connector(USB2)



Pin	Signal	Pin	Signal
1	+USBV1	7	GND
2	USB_D0-	8	USB3X0_Z_TX-
3	USB_D0+	9	USB3X0_Z_TX+
4	GND	H1	GND_F1
5	USB3X0_Z_RX-	H2	GND_F1
6	USB3X0_Z_RX+		x

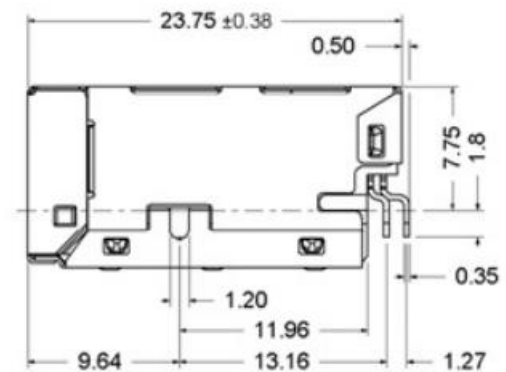
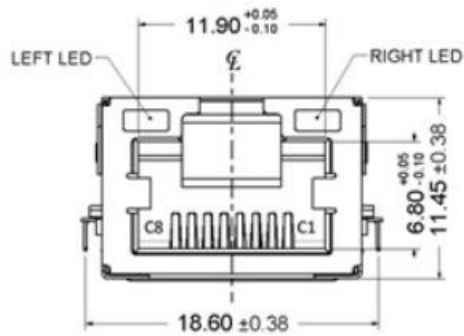
## 2.2.18 SATA Power Connector (SATA\_PWR1)



Pin	Signal	Pin	Signal
1	+V5	3	GND
2	GND	4	x

## 2.2.19 RJ45 Connector(LAN1)

## 2.2.20 RJ45 Connector(LAN1)

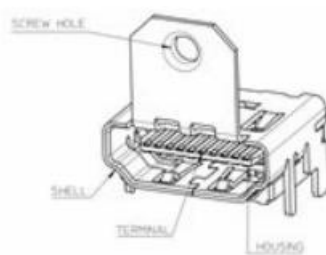


### RJ45

Pin	Signal	Pin	Signal
R1	LAN2_TCT	R10	LAN2_MDI3-
R2	LAN2_MDI0+	R11	LAN1_TCT
R3	LAN2_MDI0-	H1	GND_LAN
R4	LAN2_MDI1+	H2	GND_F1
R5	LAN2_MDI1-	L1	LAN2_LED1_Z_ACT#
R6	LAN2_TCTG	L2	+V3.3_LAN2
R7	LAN2_MDI2+	L3	LAN2_LED2_Z_1G#
R8	LAN2_MDI2-	L4	LAN2_LED0_Z_100M#

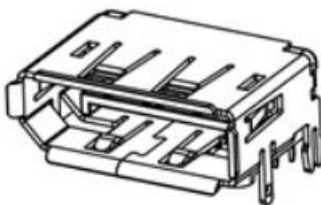


### 2.2.21 High Definition Multimedia Interface(HDMI1)



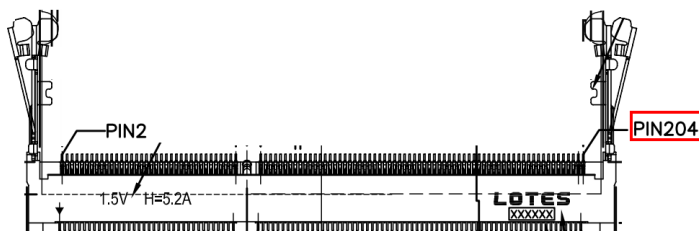
Pin	Signal	Pin	Signal
1	HDMI1_Z_D2+	11	GND
2	GND	12	HDMI1_Z_CLK-
3	HDMI1_Z_D2-	13	x
4	HDMI1_Z_D1+	14	x
5	GND	15	HDMI1_SCL
6	HDMI1_Z_D1-	16	HDMI1_SDA
7	HDMI1_Z_D0+	17	GND
8	GND	18	+V5_HDMI
9	HDMI1_Z_D0-	19	HDMI1_HPD
10	HDMI1_Z_CLK+		

### 2.2.22 DisplayPort (DP1)

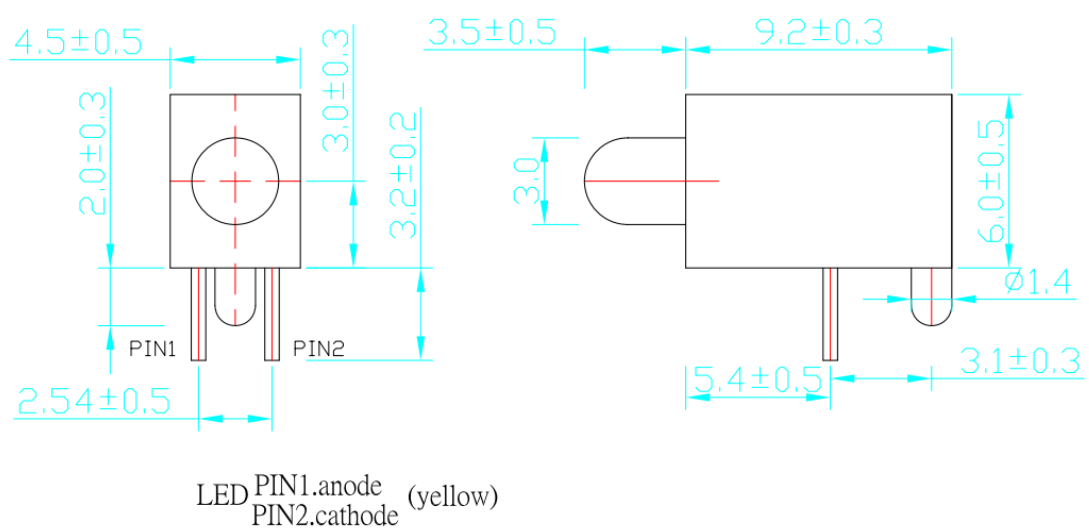


Pin	Signal	Pin	Signal
1	DP1_0+	11	GND
2	GND	12	DP1_3-
3	DP1_0-	13	DP1_AUX_EN#
4	DP1_1+	14	GND
5	GND	15	DP1_AUX+
6	DP1_1-	16	GND
7	DP1_2+	17	DP1_AUX-
8	GND	18	DP1_DP_HPD
9	DP1_2-	19	GND
10	DP1_3+	20	+V3.3_DP1

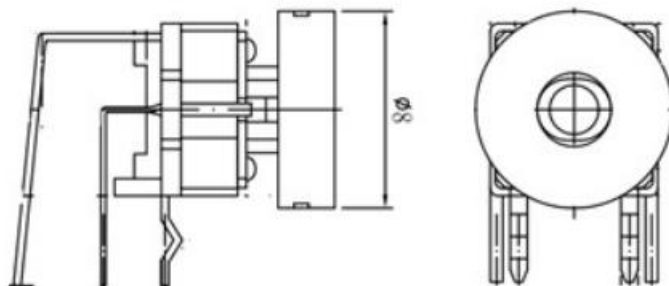
### 2.2.23 DDR3L SO-DIMM Socket (DIMMB1)



### 2.2.24 SATA LED(D10)



### 2.2.25 Power Button(PWRBTN1)



# Chapter 3

## Peripheral Installation

## 3.1 HDD Installation

1. Unscrew the bottom cover screws.



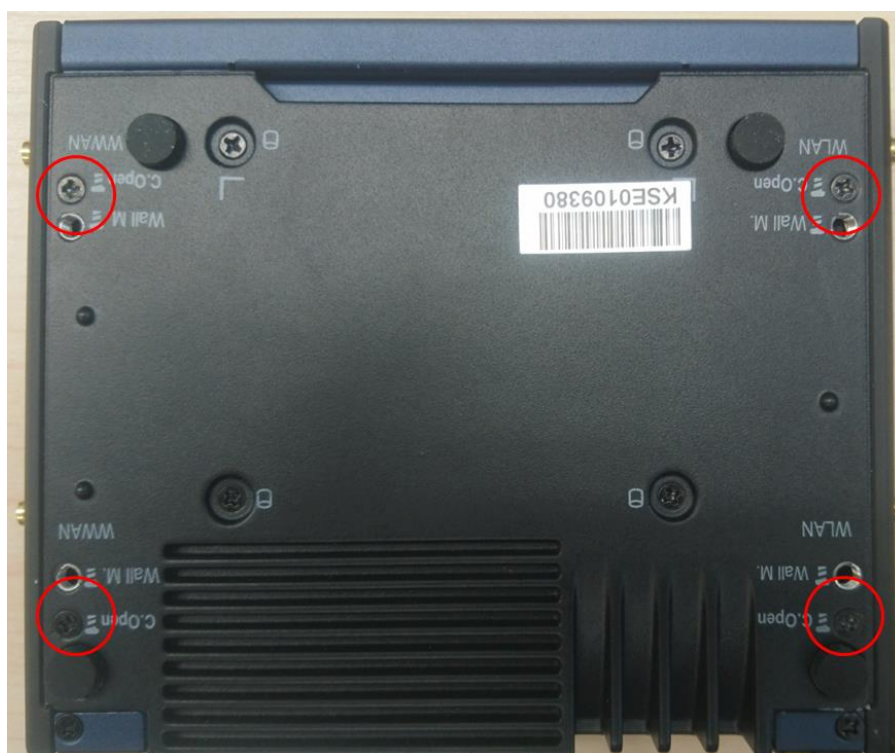
2. Secure 2.5" SATA HDD onto the bottom cover. The screws are in the accessory box.



3. Connect SATA signal and power cable to the 2.5" SATA HDD.



4. Secure the bottom cover in its original position.

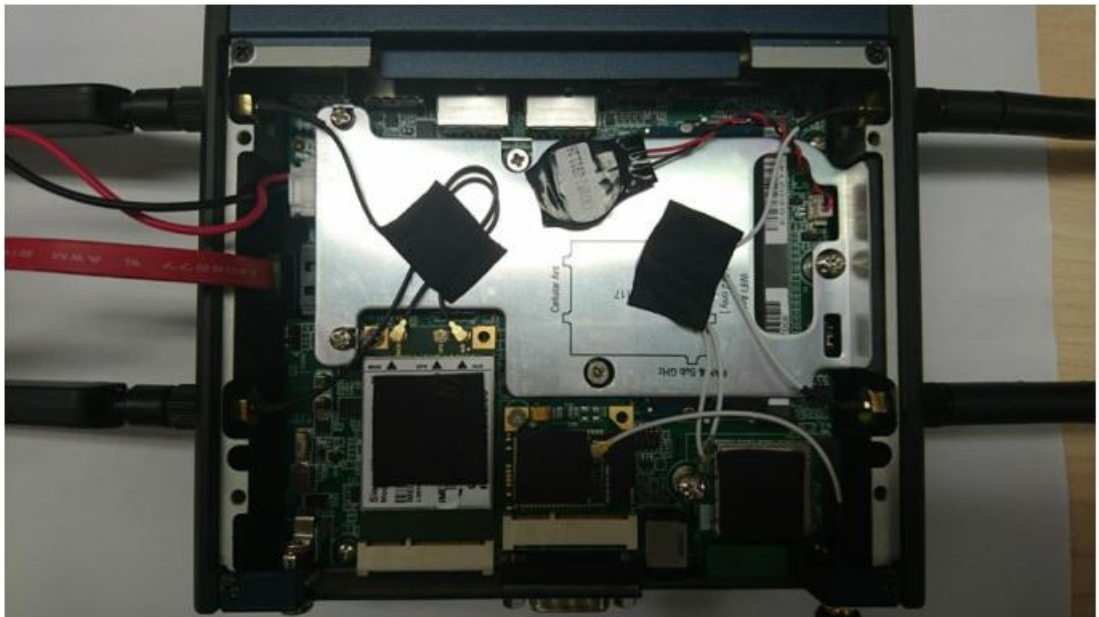


## 3.2 Mini PCIe Module Installation

1. Unscrew the bottom cover screws.

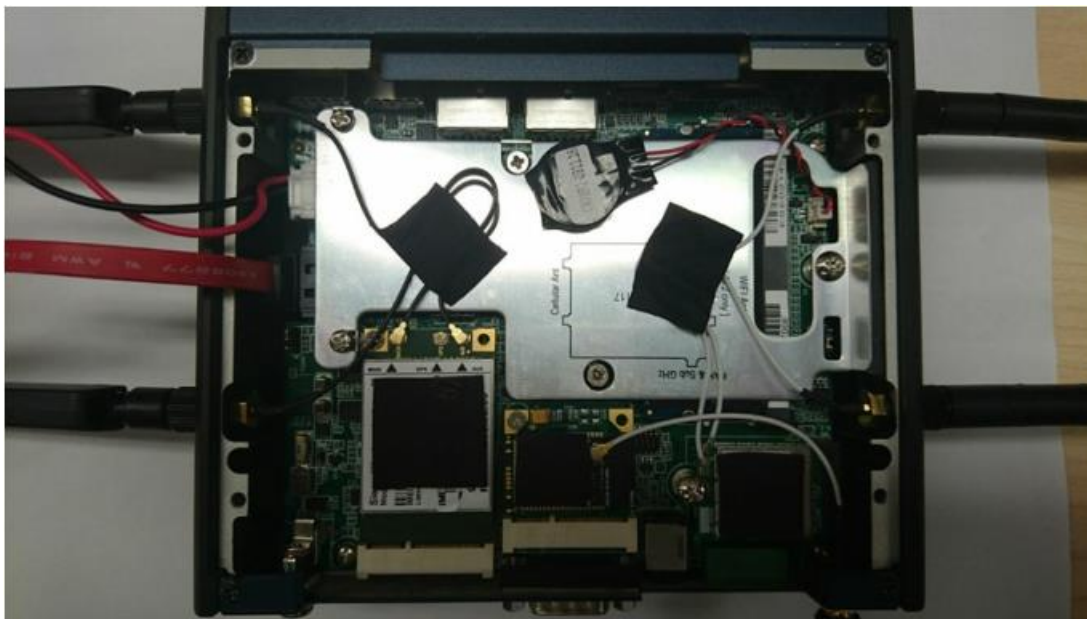


2. Insert Mini PCIe module into the slot and secure the screw to fix the module.

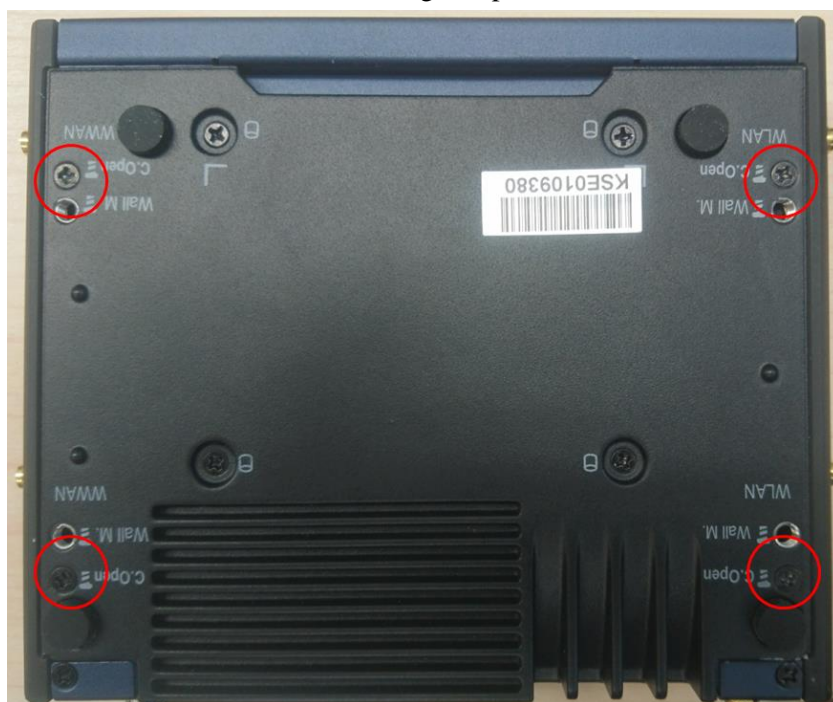




3. Connect the antenna cable to module.



4. Secure the bottom cover in its original position.








# Chapter 4

## BIOS Setup

## 4.1 Introduction

AMI BIOS has been integrated into many, many motherboards for decades. With the AMI BIOS Setup program, users can modify BIOS settings and control various system features. This chapter describes the basic navigation of the UTX-3117 BIOS setup screens.

AMI's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This information is stored in flash ROM so it retains the Setup information when the power is turned off.

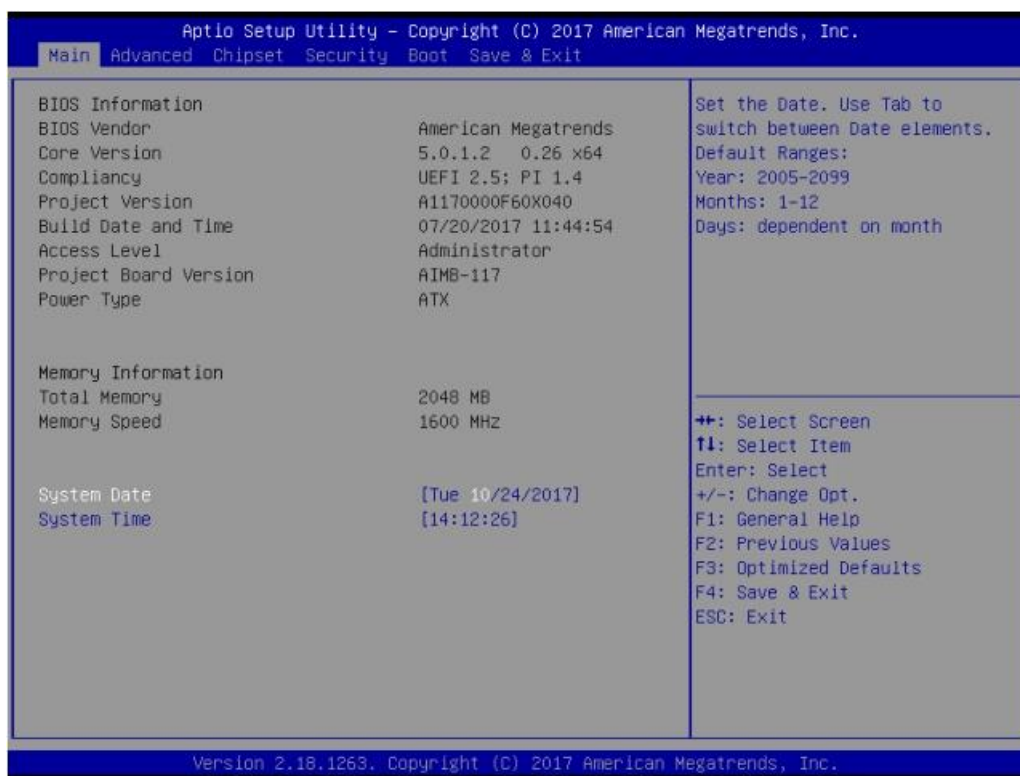
**Note!**  *Default BIOS is supported for 64-bit OS installation, if you have any BIOS setting requirement, please contact with sales representative for details.*

Control Keys	
< ↑ > < ↓ > < ← > < → >	Move select item
<Enter>	Select item
<Esc>	Main Menu - Quit without saving changes to the CMOS Sub Menu - Exit current page and return to the Main Menu
<Page Up/>	Increase the numeric value or make changes
<Page Down/->	Decrease the numeric value or make changes
<F1>	General help, for Setup Sub Menu
<F2>	Item help
<F5>	Load previous values
<F7>	Load setup defaults
<F10>	Save all CMOS changes

## 4.2 Entering Setup

### 4.2.1 Main Menu

Press <Del> to enter AMI BIOS CMOS Setup Utility, the Main Menu will appear on the screen. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.



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

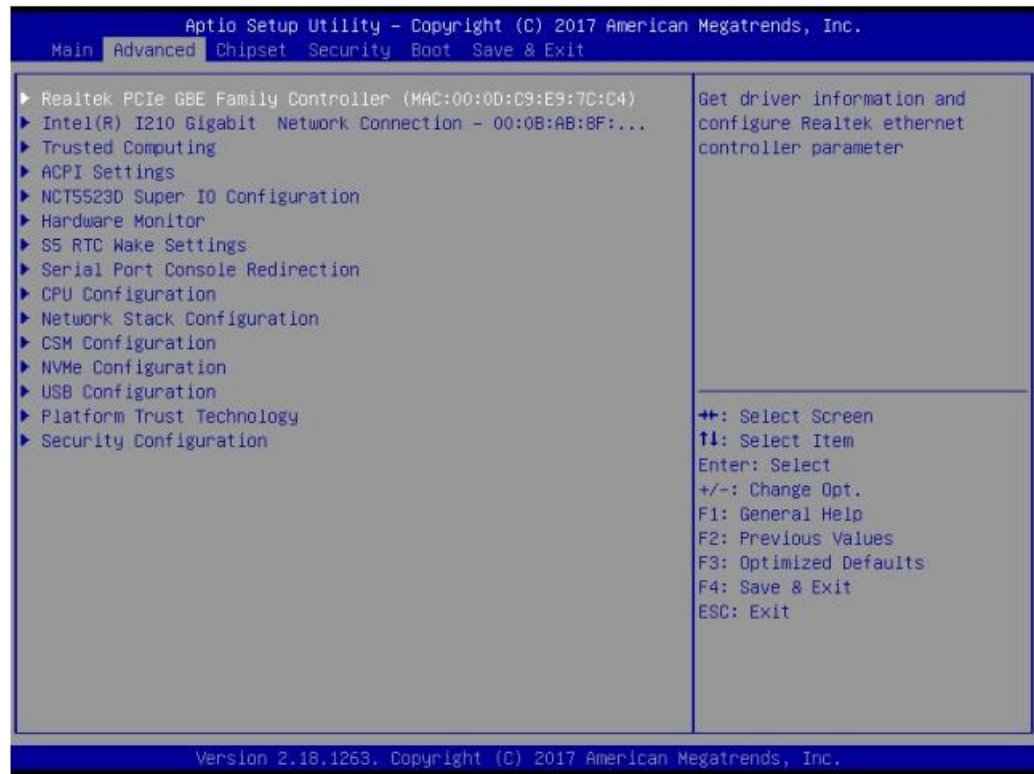
Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

#### ■ System time / System date

Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time must be entered in HH:MM:SS format.

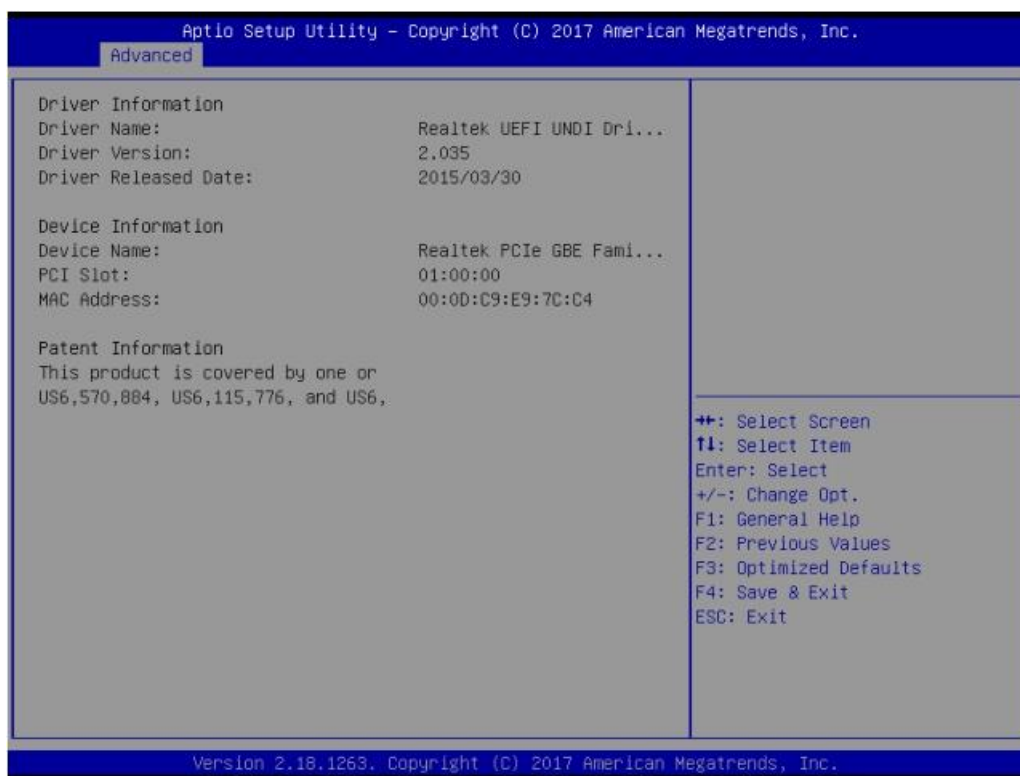
## 4.2.2 Advanced BIOS Features

Select the Advanced tab from the UTX-3117 setup screen to enter the Advanced BIOS Setup screen. You can select any of the items in the left frame of the screen, such as CPU Configuration, to go to the sub menu for that item. You can display an Advanced BIOS Setup option by highlighting it using the <Arrow> keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screen is shown below. The sub menus are described on the following pages.

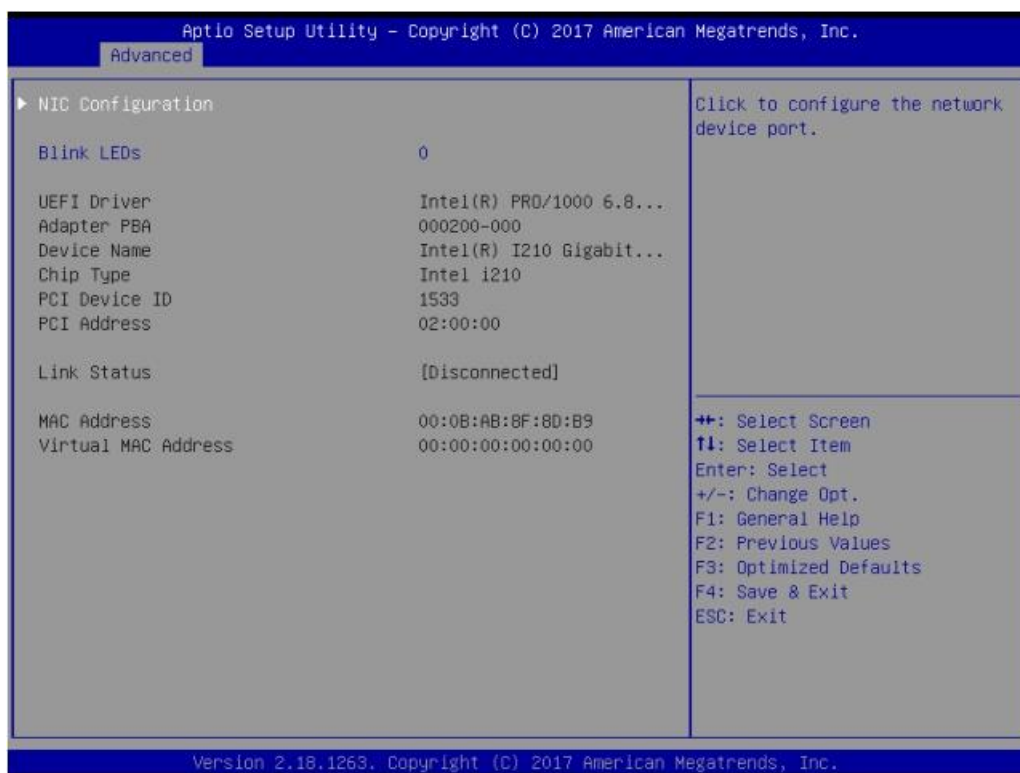


#### 4.2.2.1 Realtek PCIe GBE Family Controller Status

Check the status of Realtek LAN port.

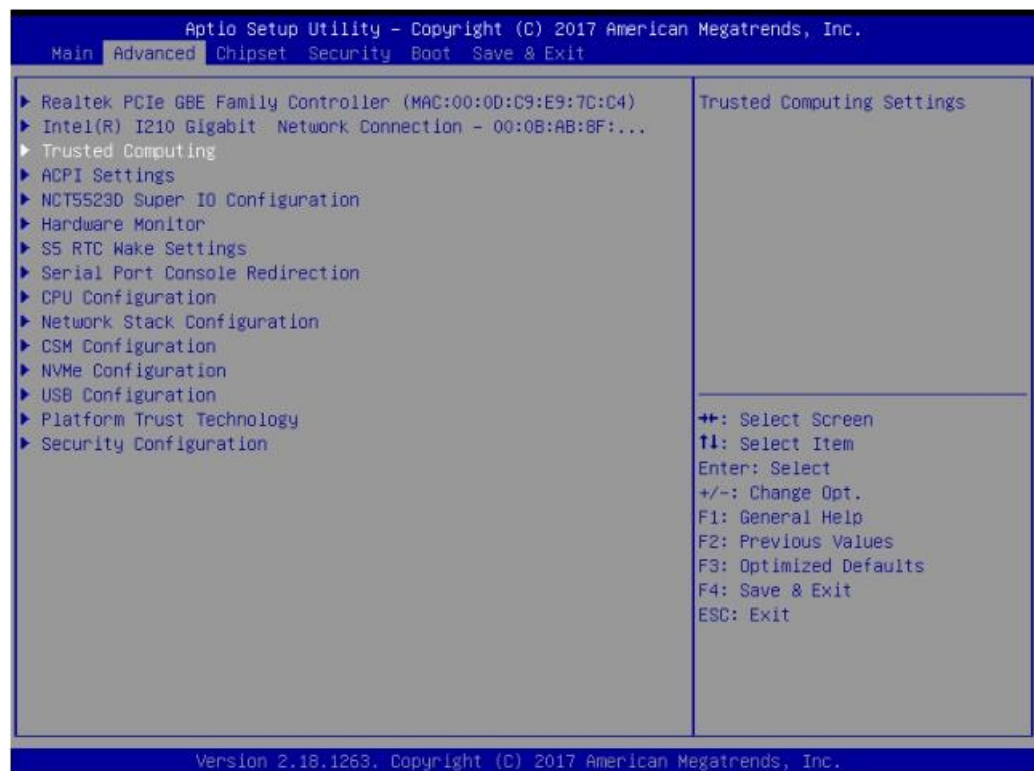


#### 4.2.2.2 Check Intel® I201 Gigabit Network connection Status



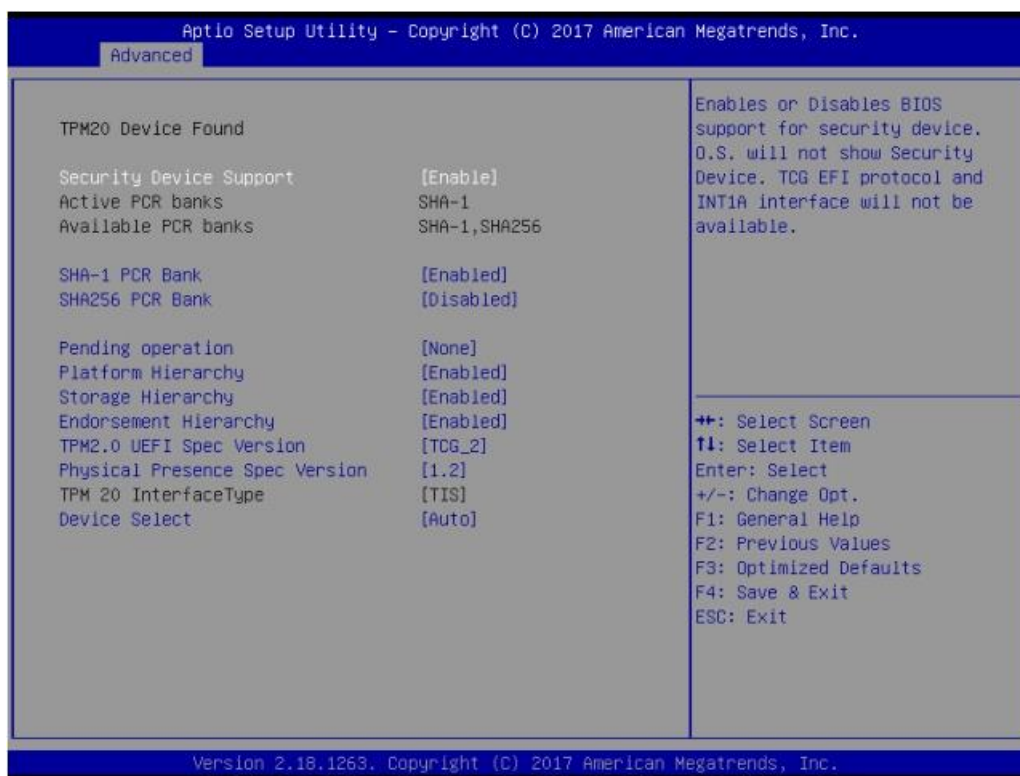


#### 4.2.2.3 Trusted Computing

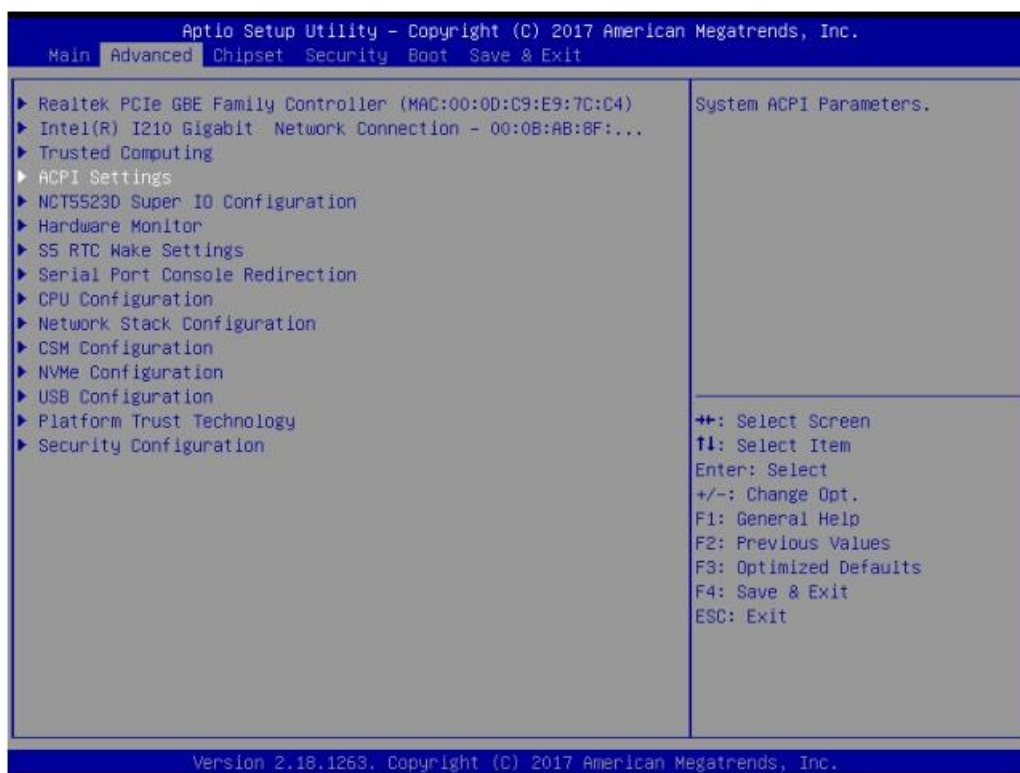


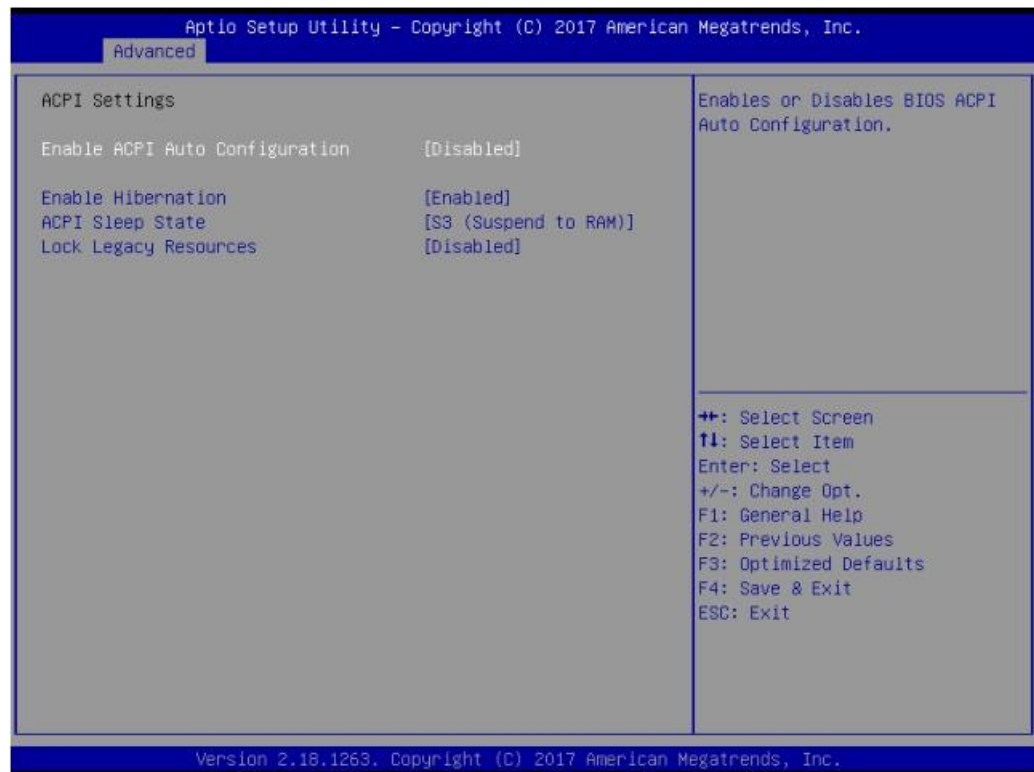
### ■ Security Device Support

Enable or disable BIOS support for security device.



#### 4.2.2.4 APCI Settings

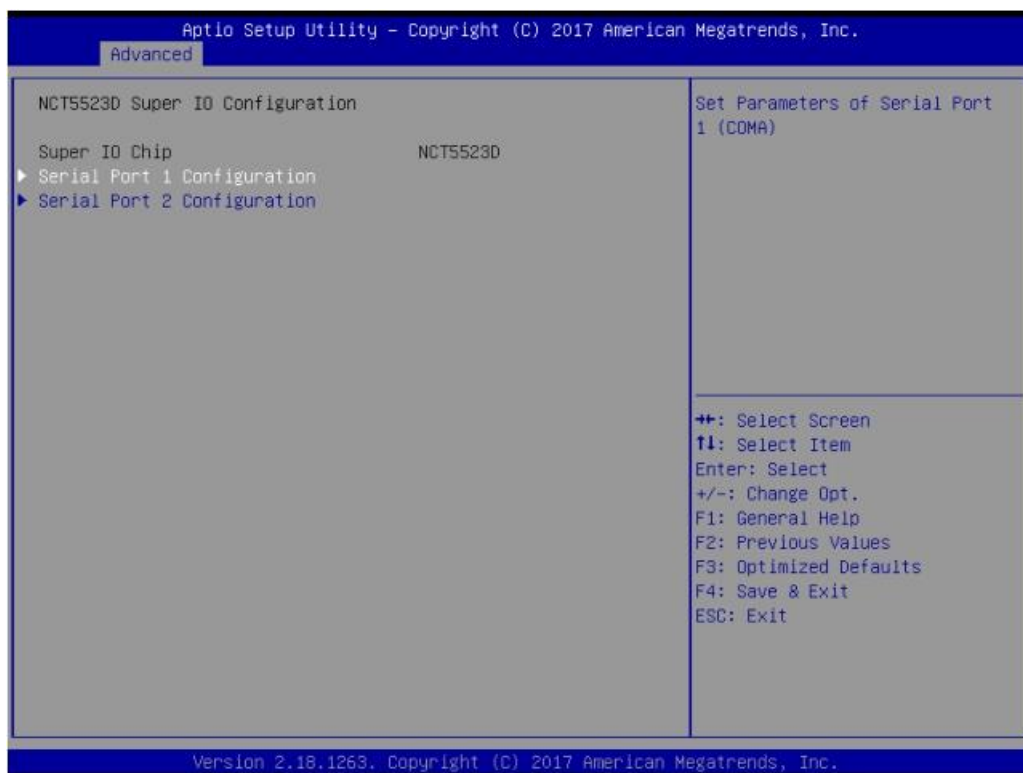
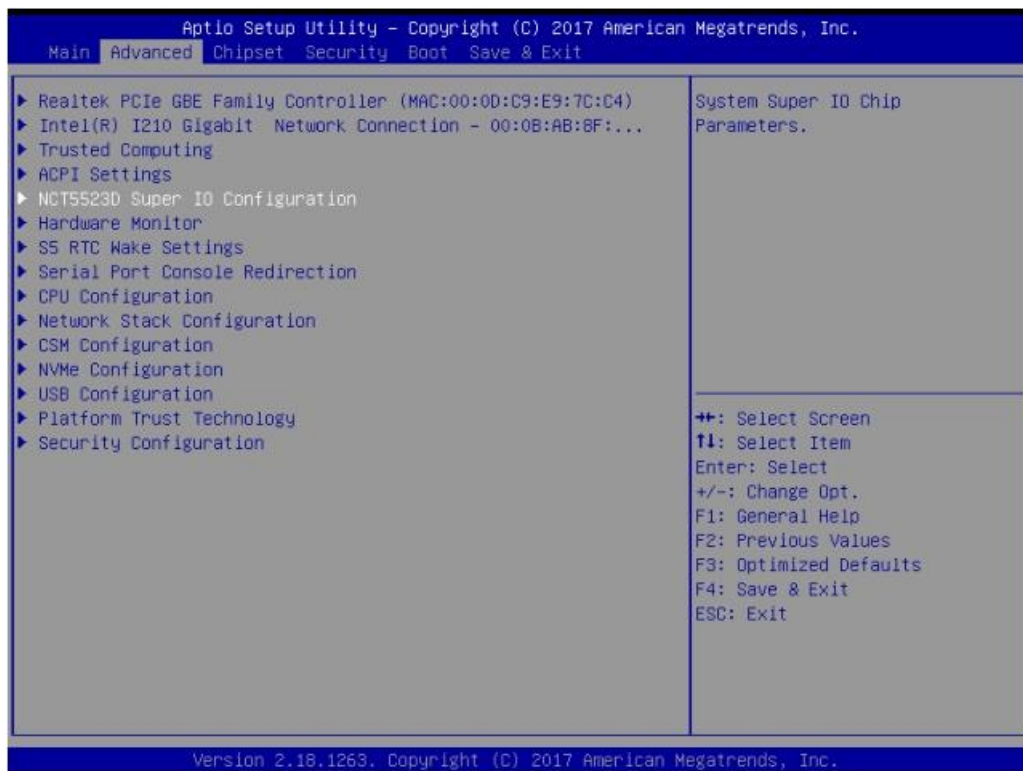


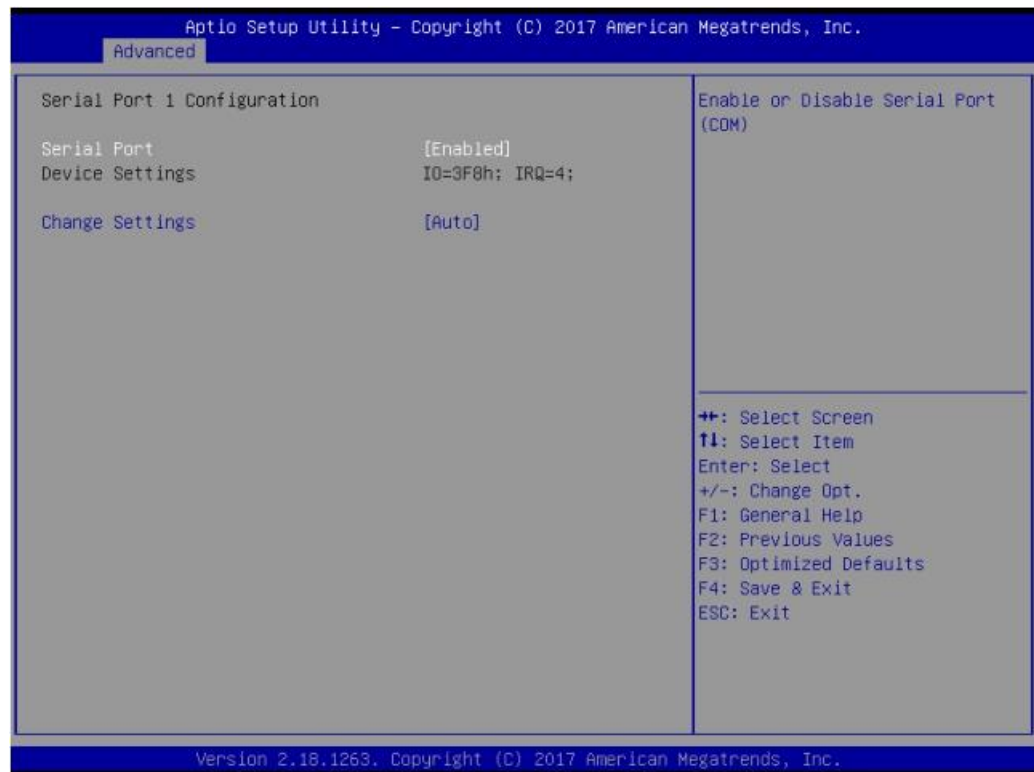


- **Enable ACPI Auto Configuration**  
Enable or disable BIOS ACPI auto configuration.
- **Enable Hibernation**  
This item allows users to enable or disable hibernation.
- **ACPI Sleep State**  
This item allows users to set the ACPI sleep state.
- **Lock Legacy Resource**  
This item allows users to lock legacy device resources.



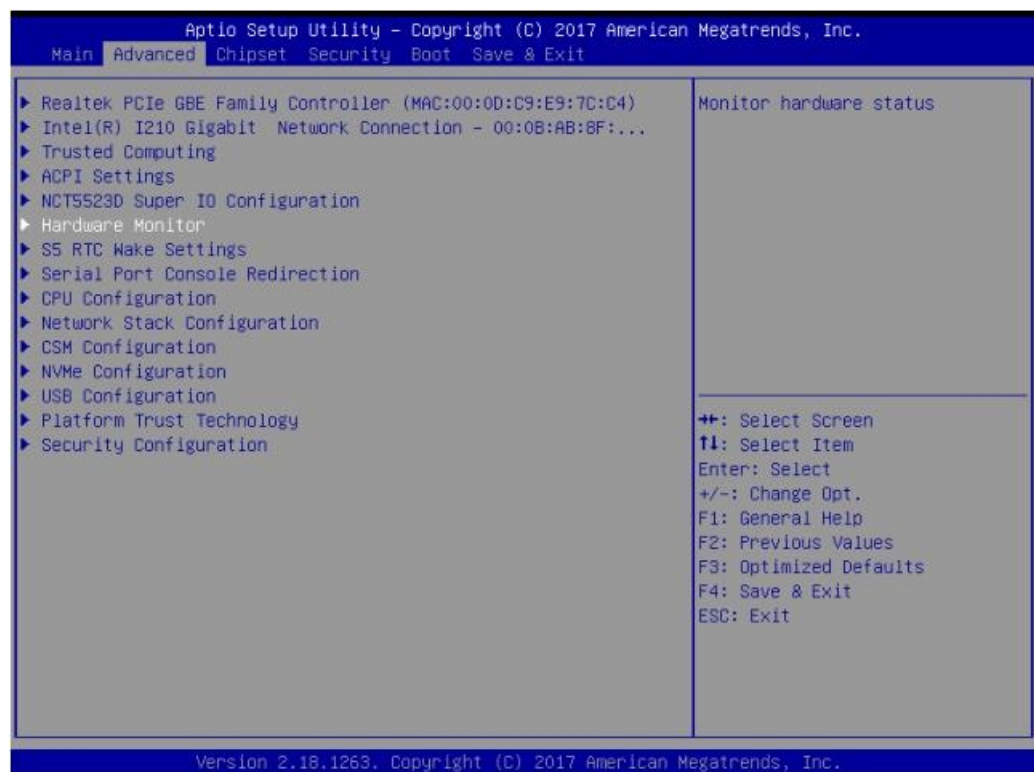
#### 4.2.2.5 NCT5523D Super IO Configuration

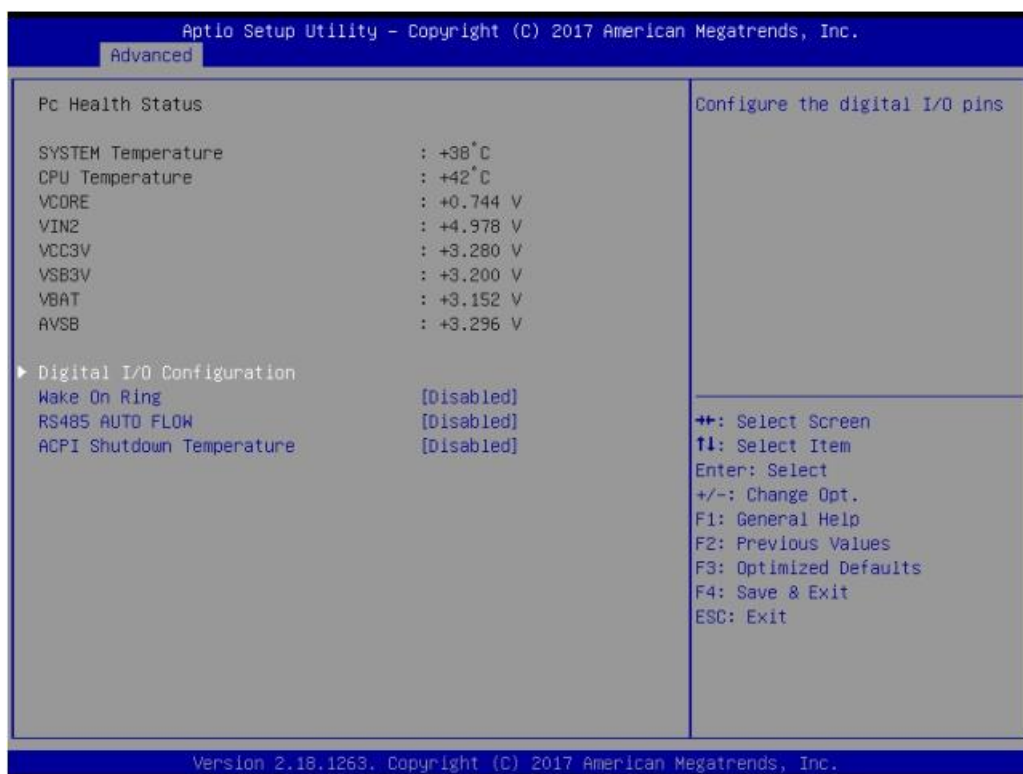




- **Serial Port 1&2 Configuration**  
This item allows users to enable or disable serial Ports 1/2
- **Change Settings**  
This item allows users to change the serial port 1/2

#### 4.2.2.6 Hardware Monitor





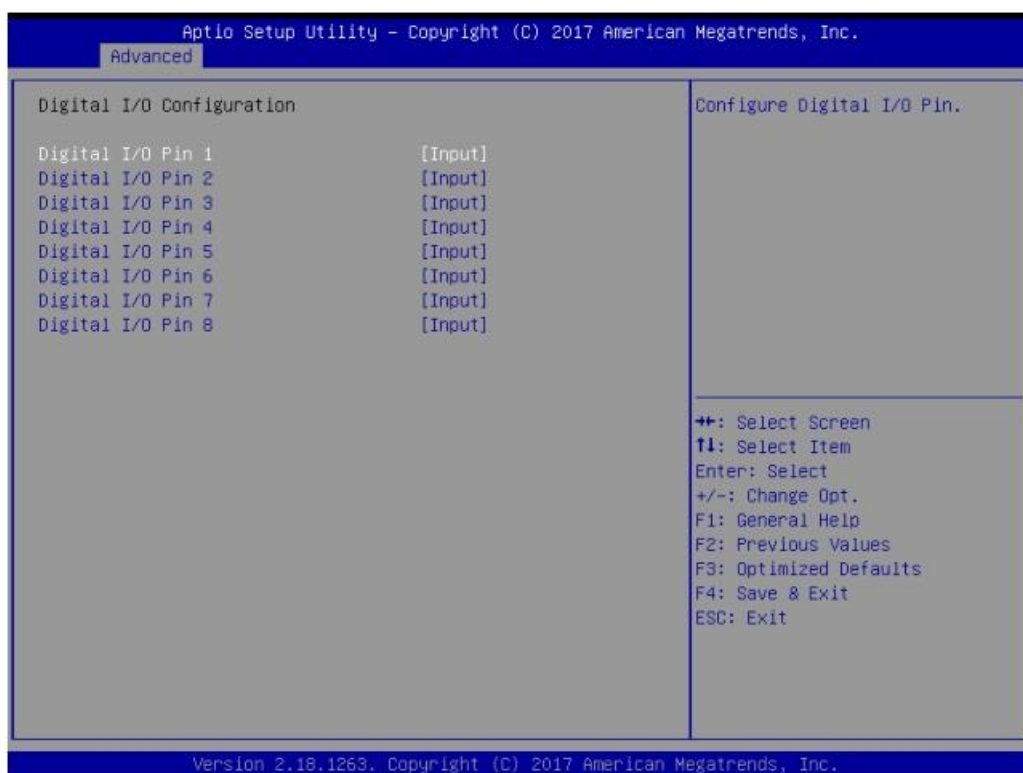
This item allows you to monitor HW status

- **Execute Disable Bit**

This item allows users to enable or disable the No-Execution page protection.

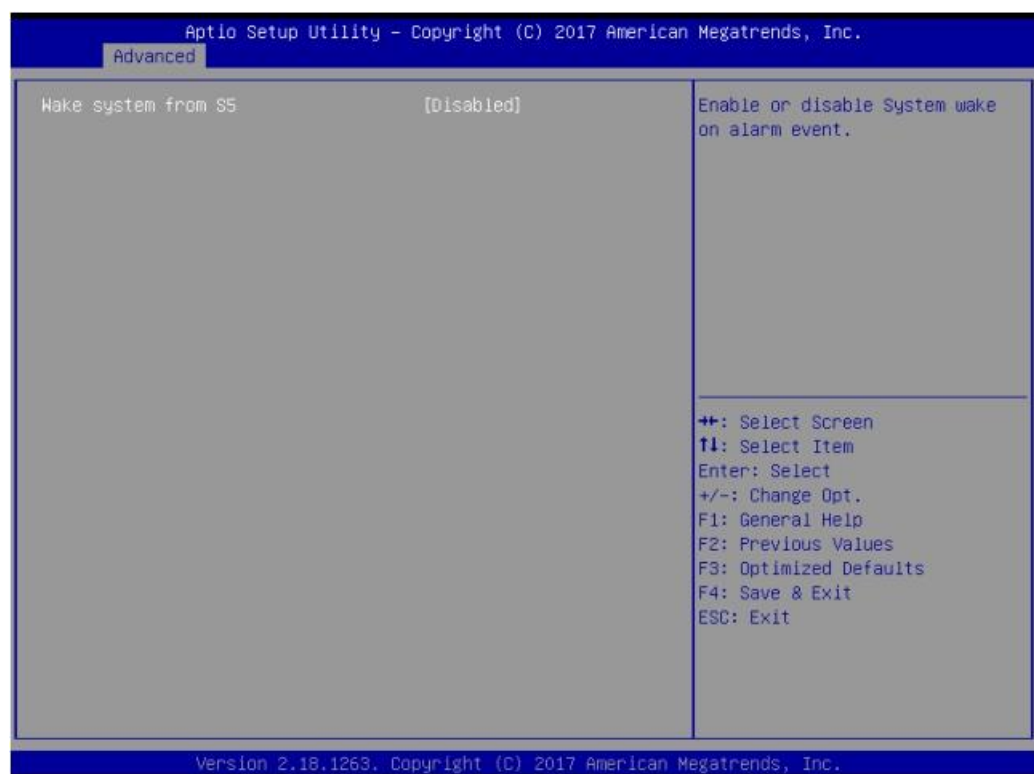
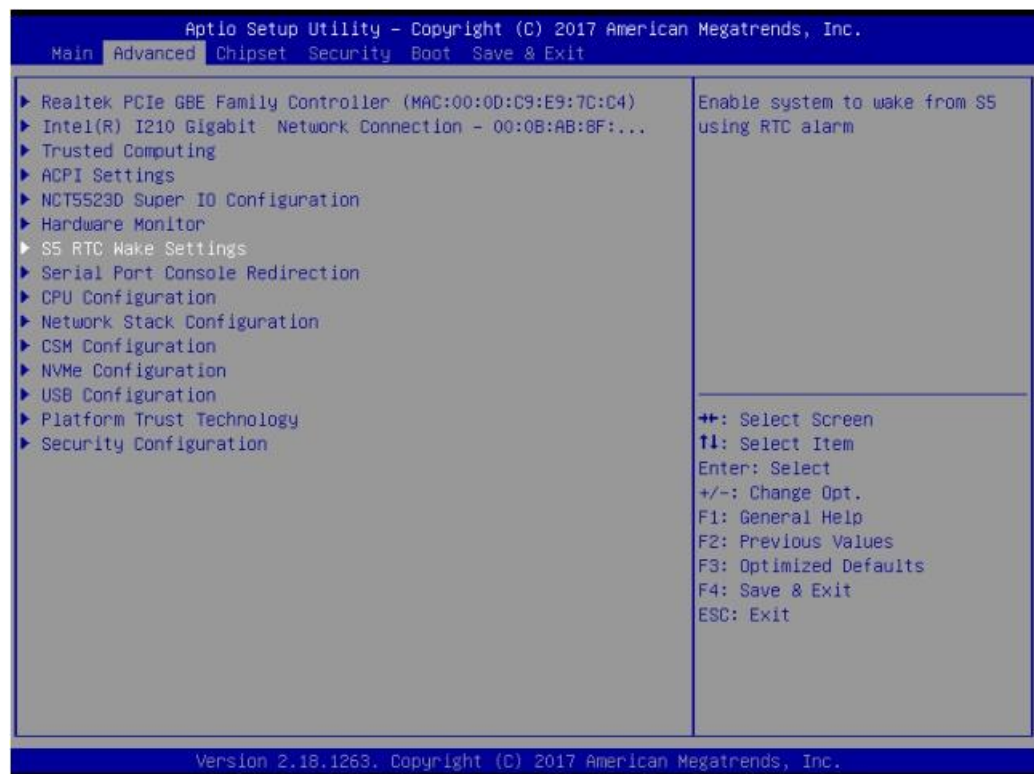
- **Intel Virtualization Technology**

When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.



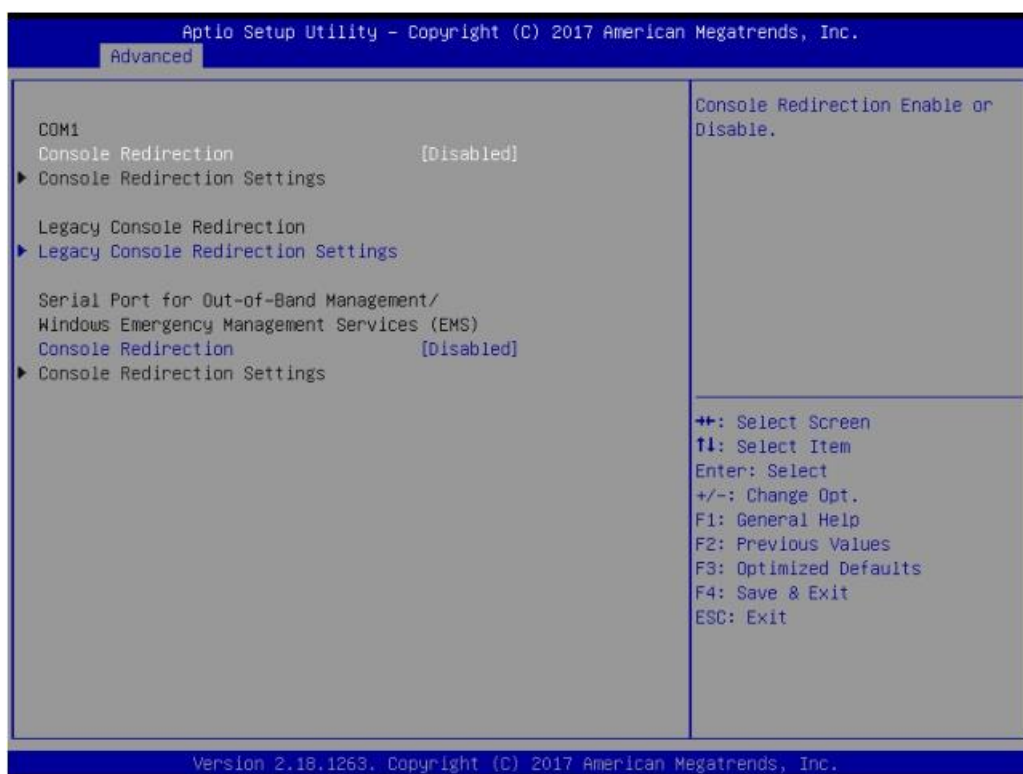
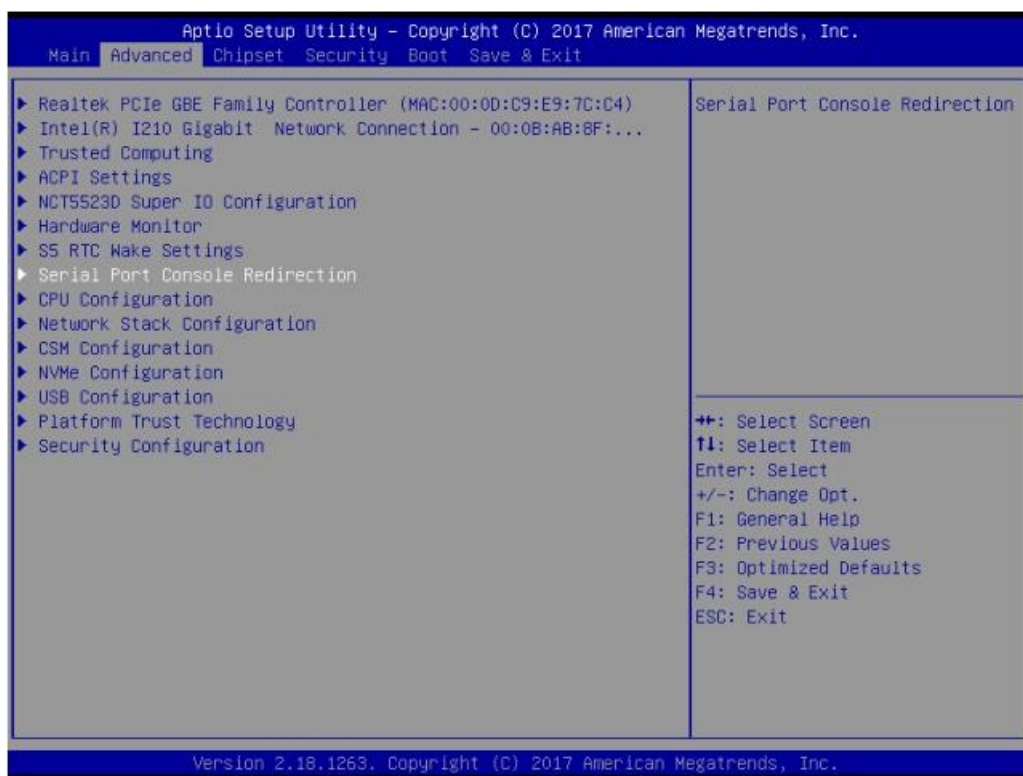
## ■ Digital I/O Configuration

This item will allow users to set up Digital I/O 1~8 to "input" or "output".

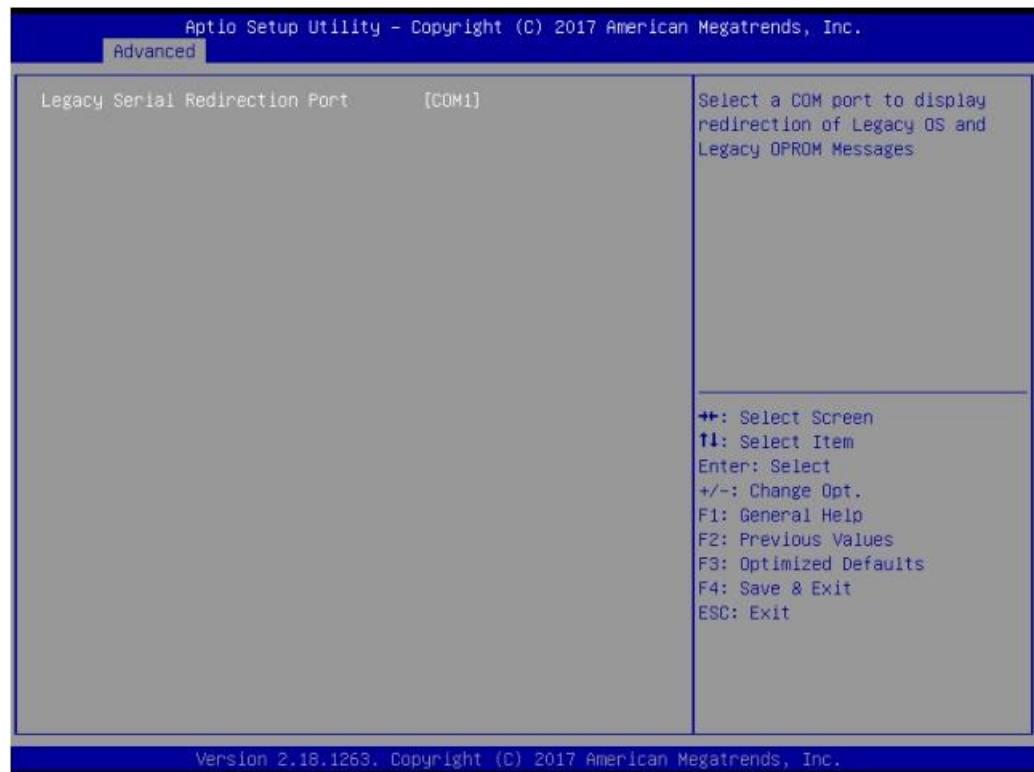


## ■ Wake System From S5

Enable or disable system wake on alarm event.





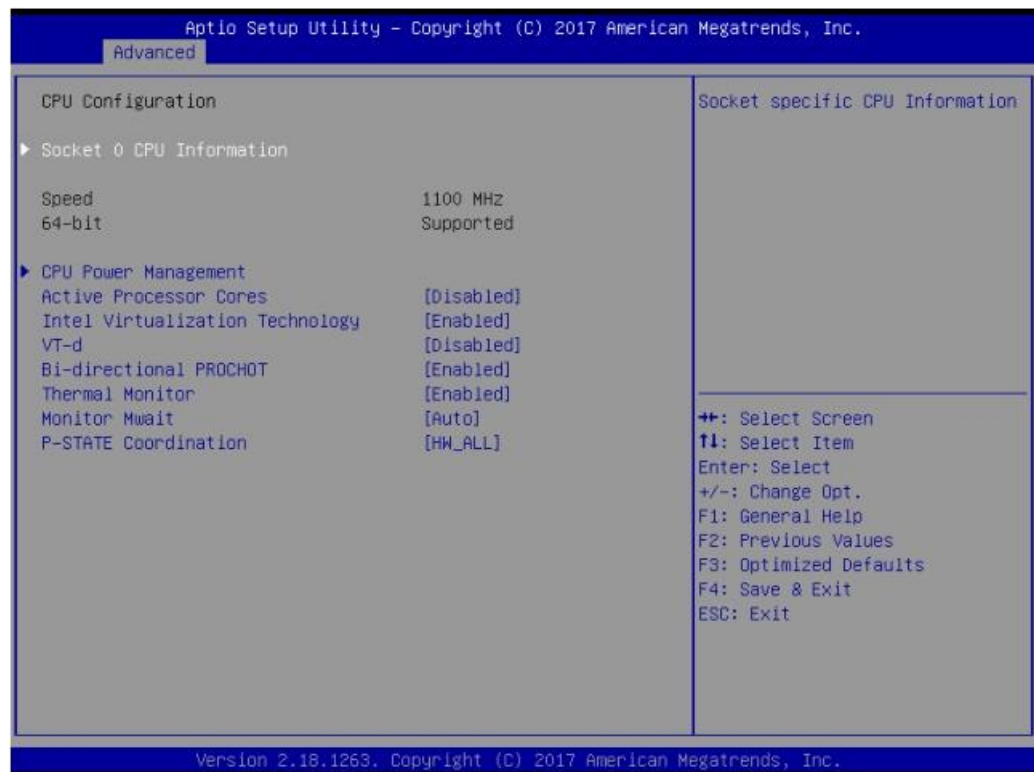


#### ■ Console Redirection

This item allows users to enable or disable console redirection.

#### 4.2.2.7 CPU Configuration

This page shows CPU Information.



#### ■ Active Power Cores

Number of cores to enable in each processor package

- **Intel Virtualization Technology**

When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

- **VT-d**

Enable or disable VT-d

- **Bi-directional PROCHOT**

When a processor thermal sensor trips (either core), the PROCHOT# will be driven. If bi-direction is enabled, external agents can drive PROCHOT# to throttle the processor.

- **Thermal Monitor**

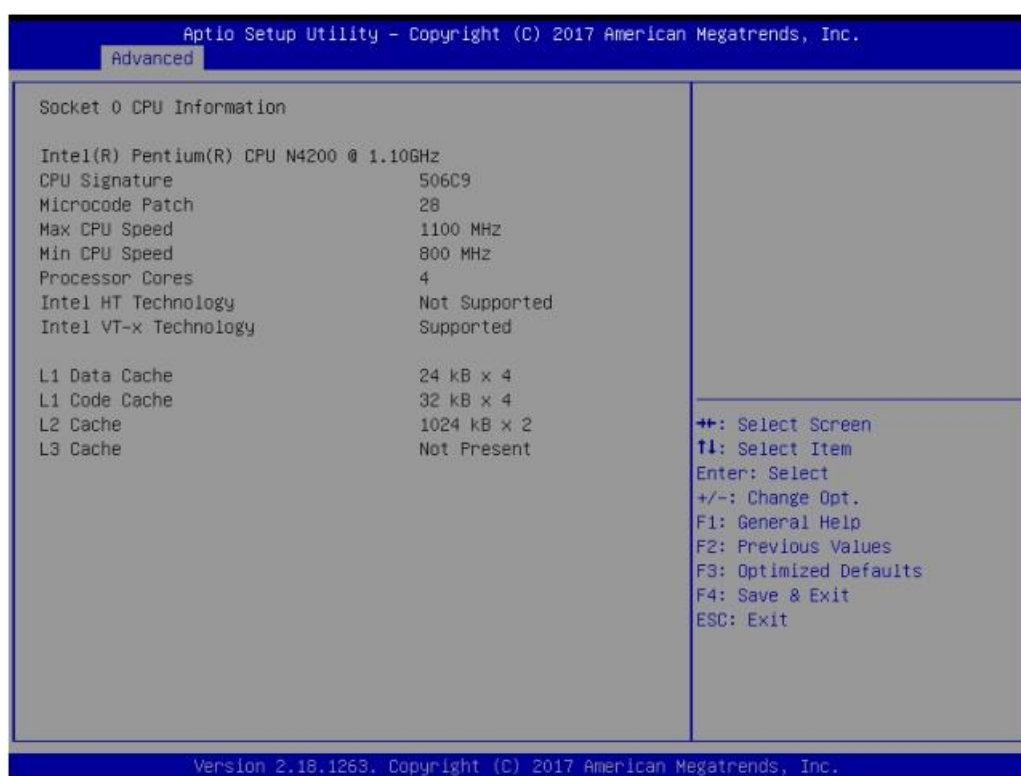
Enable or disable Thermal Monitor

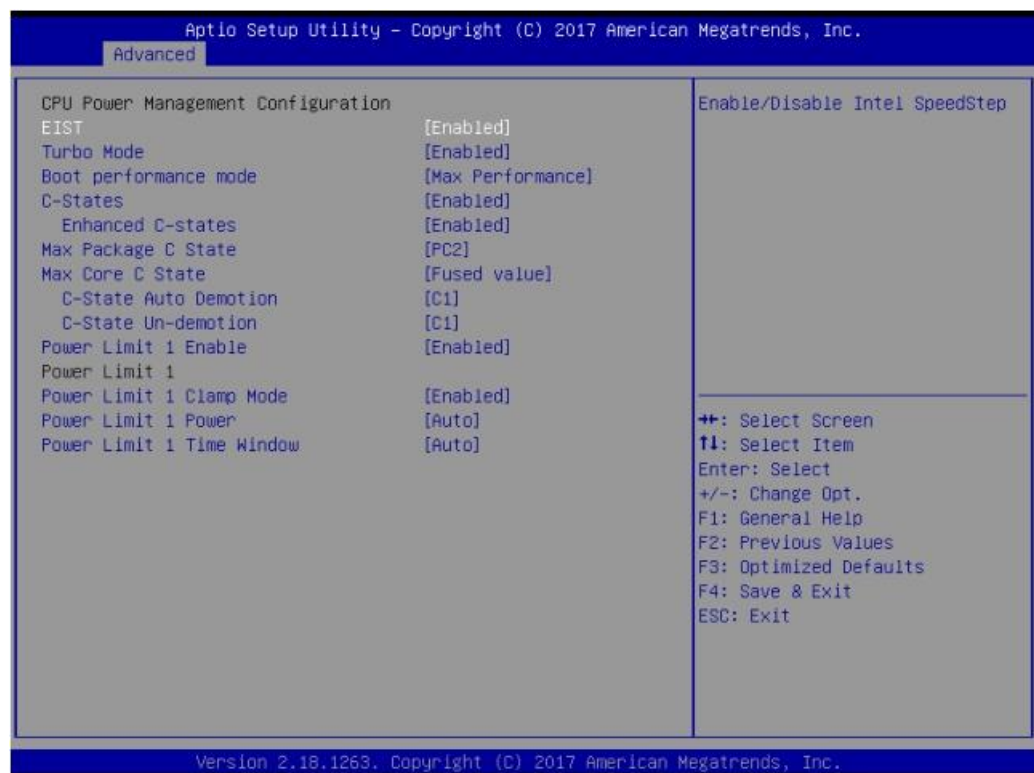
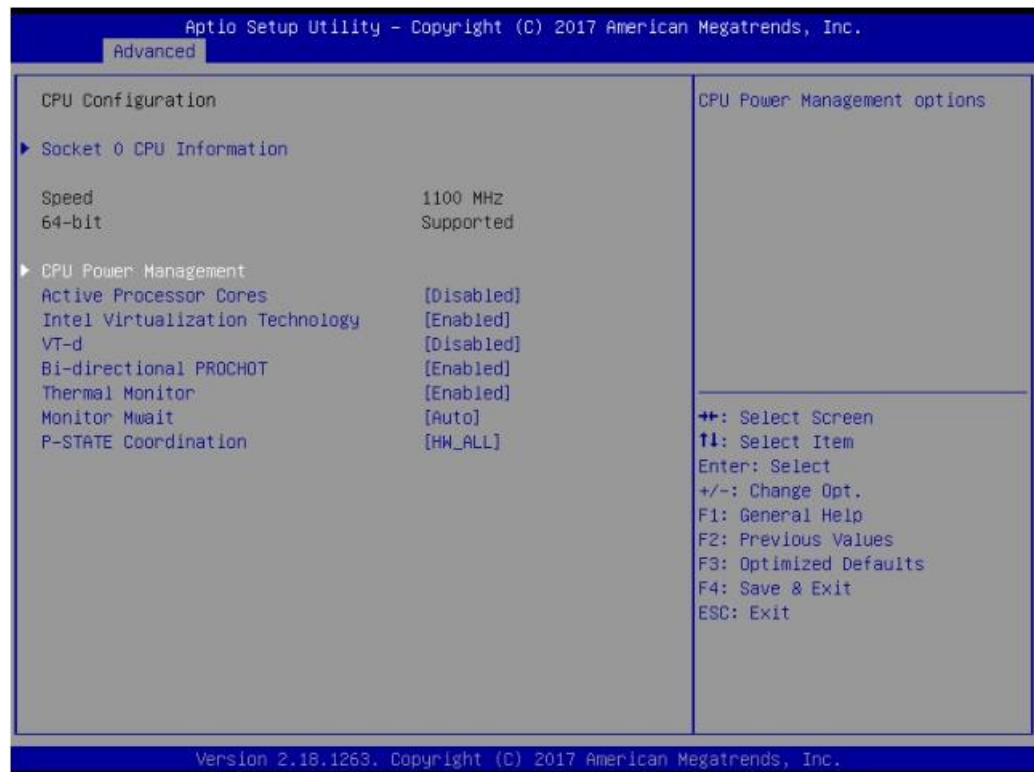
- **Monitor Mwait**

Enable/disable Monitor Mwait.

- **P-STATE Coordination**

Change P-STATE Coordination type.

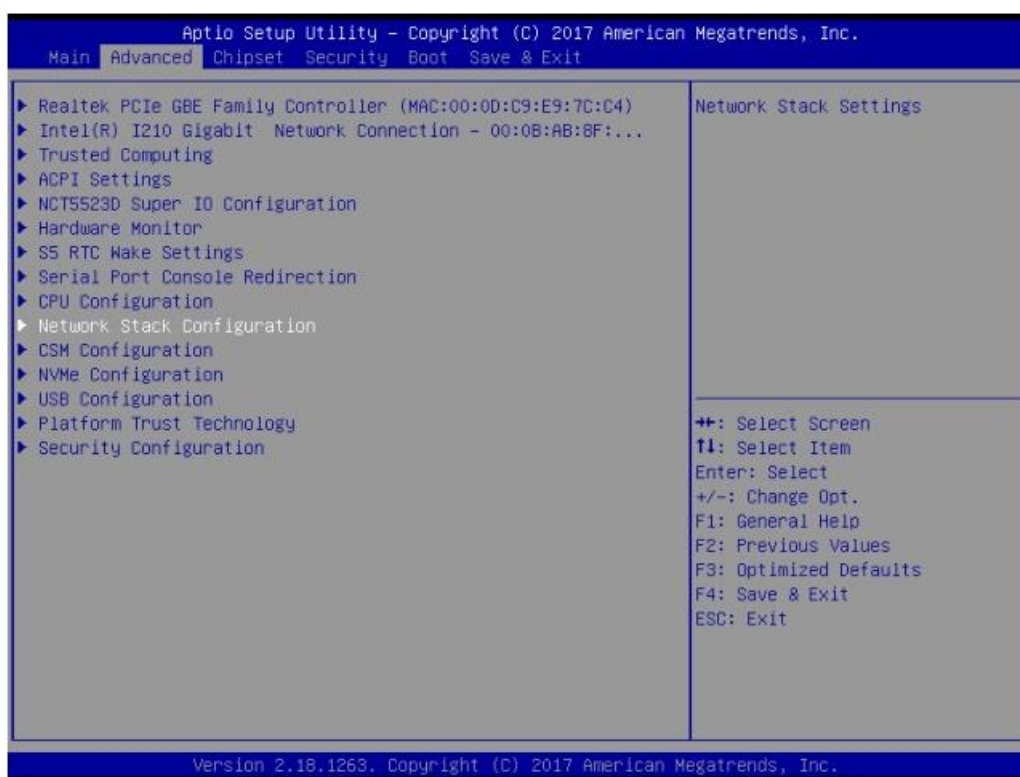




- **EIST**  
Enabled or disabled Intel Speed Step function.
- **Turbo Mode**  
Enabled or disabled Turbo Mode
- **Boot performance mode**  
Select the performance state that the BIOS will set before OS handoff.

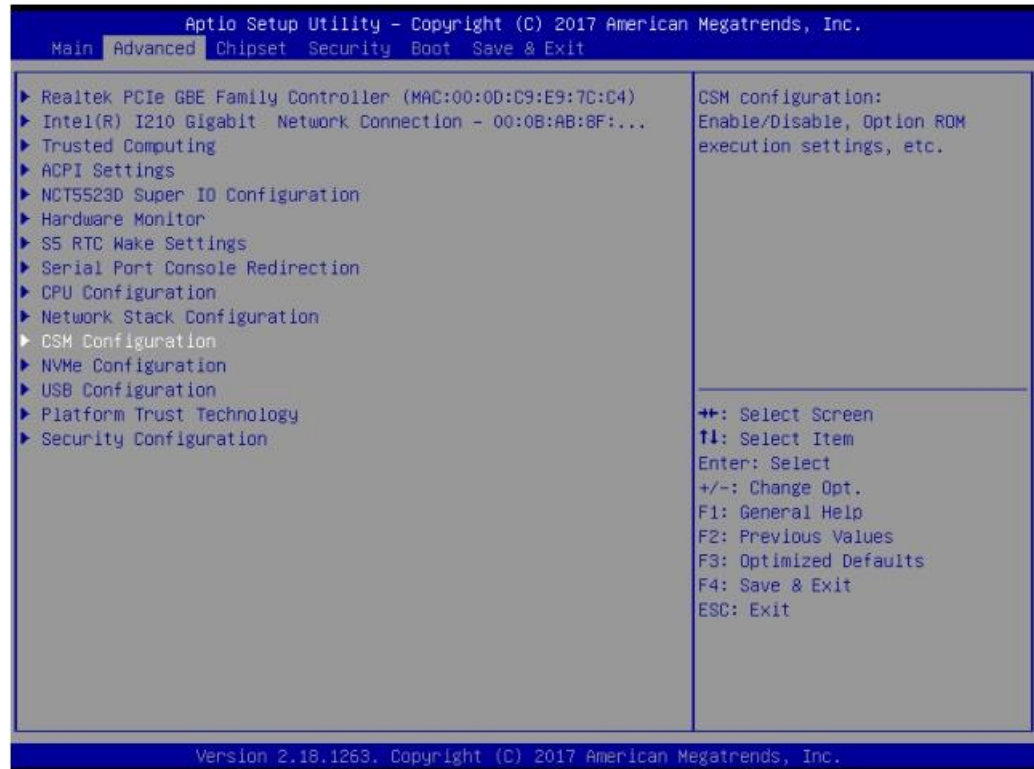


- **C-States**  
Enabled or disabled C-States
- **Enhanced C-States**  
Enabled or disabled C1E. When enabled, CPU will switch to minimum speed when all cores enter C-State.
- **Max Package C State**  
Controls the max package C state that the processor will support.
- **Max Core C State**  
This option controls the Max Core C State that cores will support.
- **C-State Auto Demotion**  
Configure C-State Auto Demotion.
- **C-State Un-Demotion**  
Configure C-State Un-demotion.
- **Power Limit 1 Enable**  
Enable/Disable Power Limit 1.
- **Power Limit 1 Clamp Mode**  
Enable/Disable Power Limit 1 Clamp Mode.
- **Power Limit 1 Power**  
Power Limit 1 in Watts. Auto will program Power Limit 1 based on silicon default support value.
- **Power Limit 1 Time Window**  
Power Limit 1 Time Window Value in seconds. Auto will program Power Limit 1 Time Window based on silicon default support value.





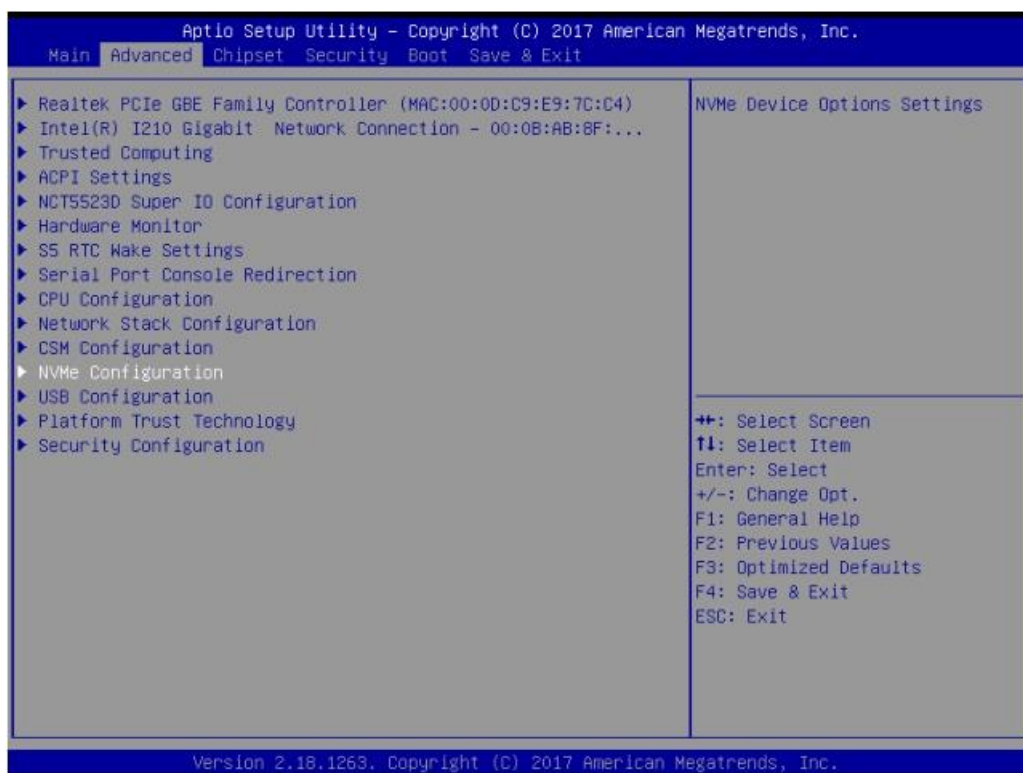
- **Network Stack**  
Enable or disable UEFI Network Stack.

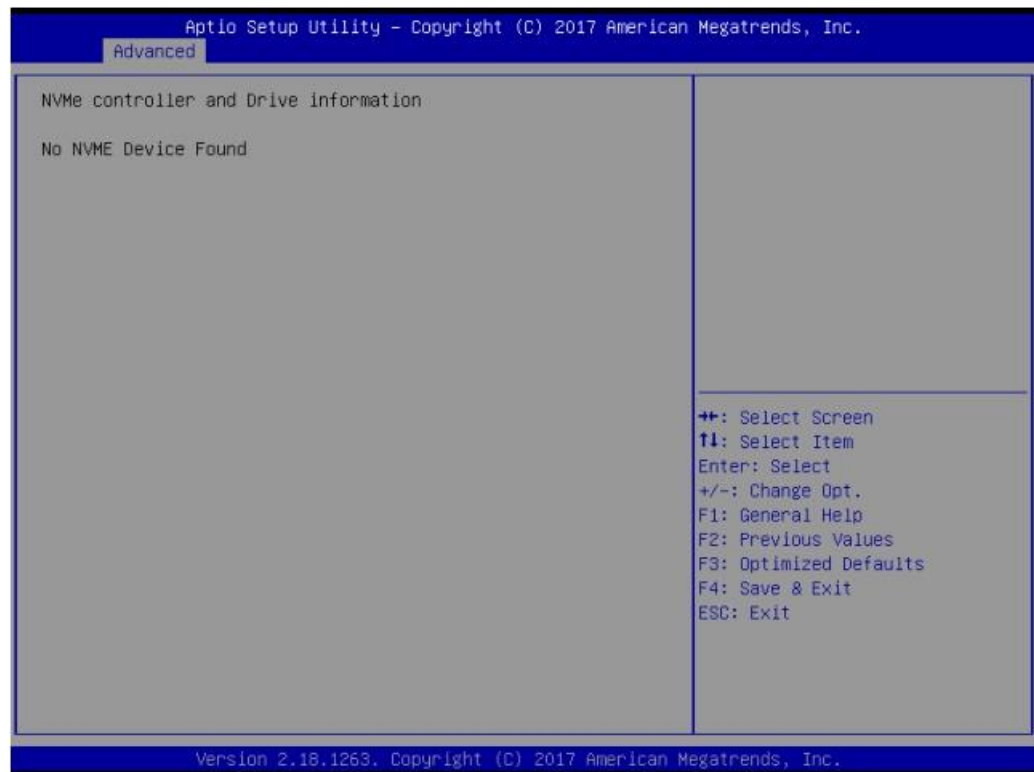




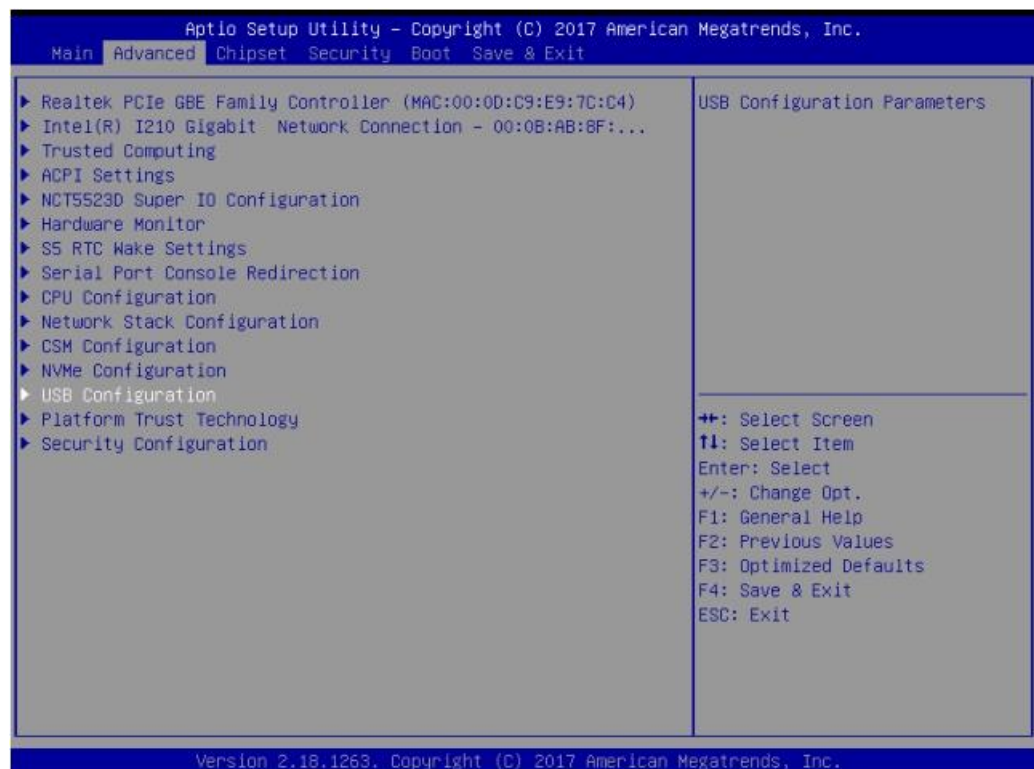
- **CSM Support**  
Enable or disable CSM Support..

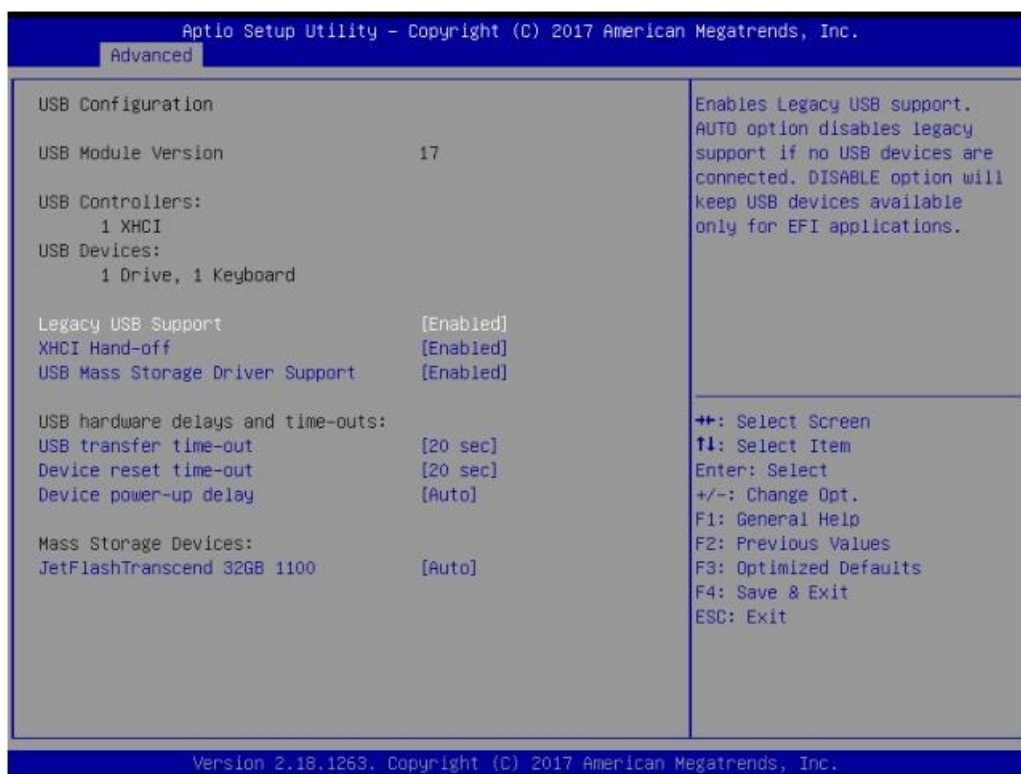
#### 4.2.2.8 NVMe Configuration





#### 4.2.2.9 USB Configuration





- **Legacy USB Support**

Enables support for legacy USB. 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**

This is a workaround for OS without XHCI hand-off support. The XHCI ownership change should claim by XHCI driver.

- **USB Mass Storage Driver Support**

This item allows you to enable or disable the USB mass storage device support.

- **USB transmit time-out**

USB mass storage device transmit command time-out.

- **Device reset time-out**

USB mass storage device start unit command time-out.

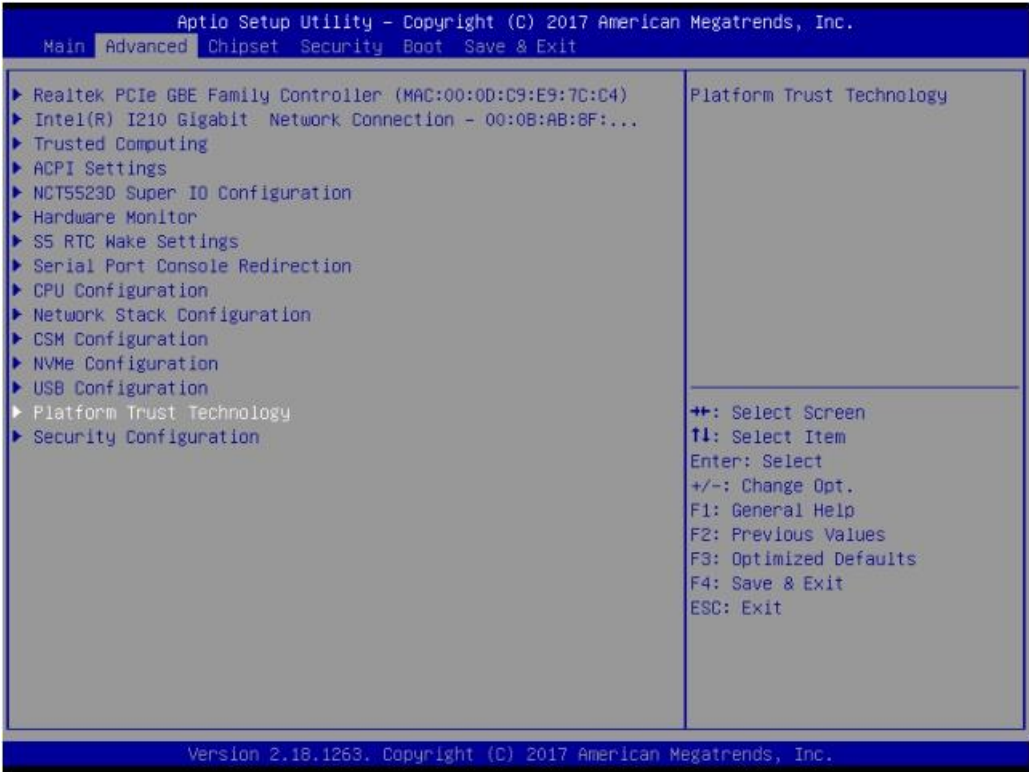
- **Device power-up delay**

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 100ms, for a Hub port the delay is taken from Hub descriptor.

- **Mass storage device**

Mass storage device emulation type. 'AUTO' enumerates devices according to their media format. Optical drives are emulated as 'CDROM', drives with no media will be emulated according to a drive type.

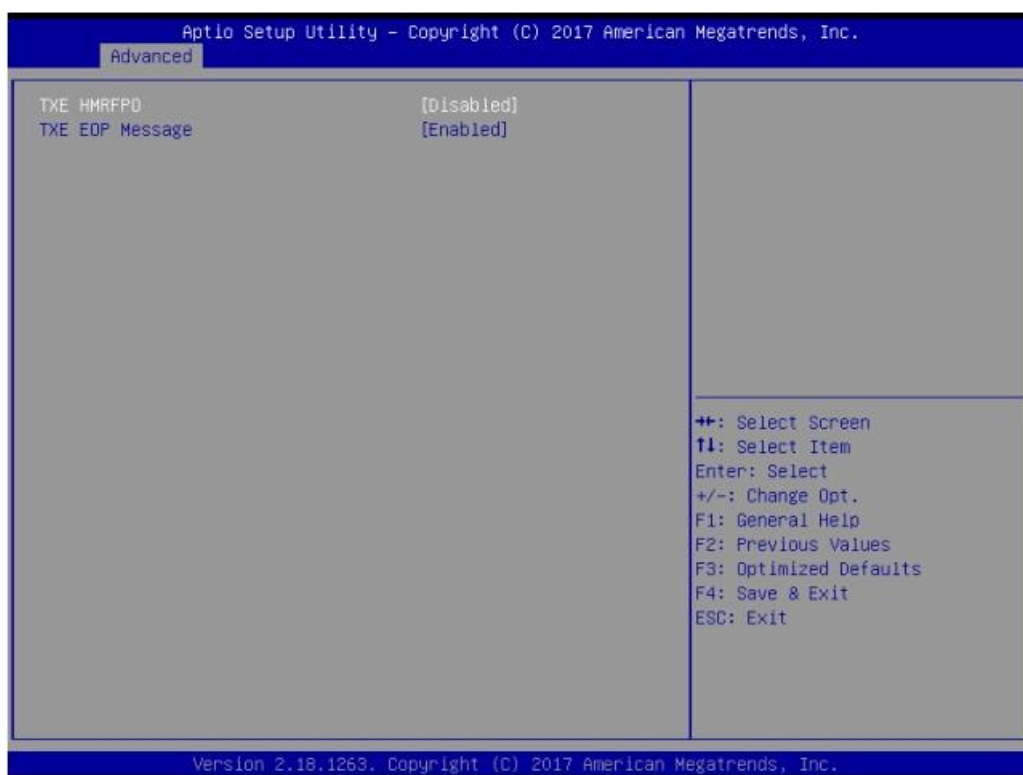
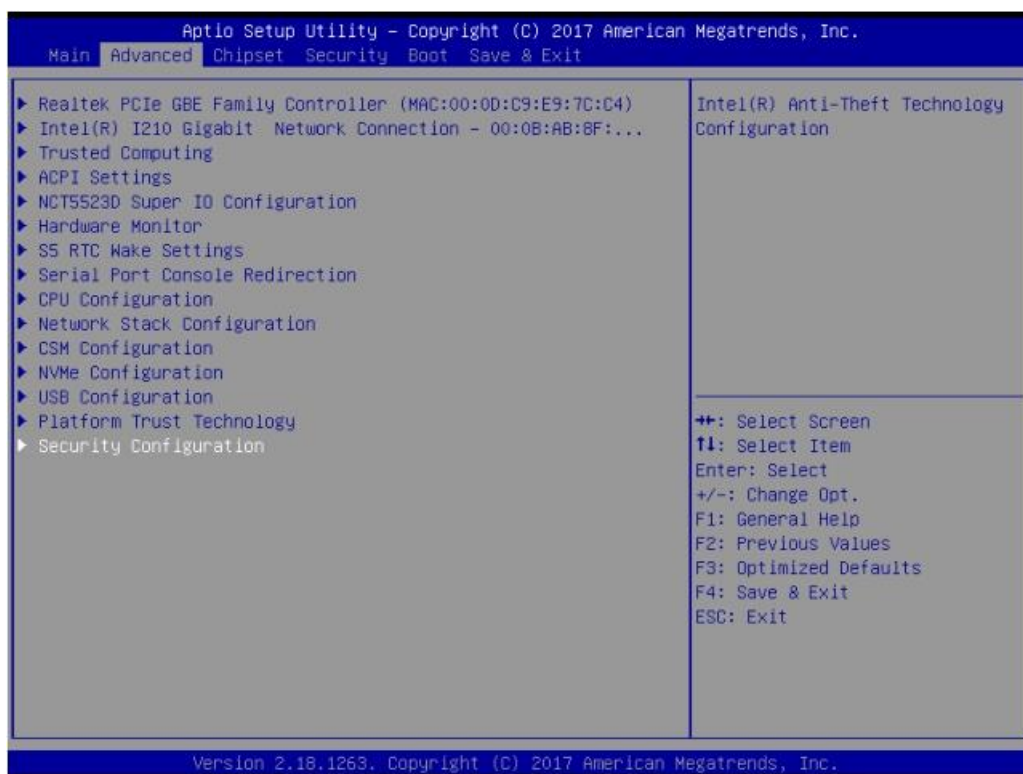
4.2.2.10 Platform Trust Technology



- **fTPM**  
 Enabled or disabled fTPM.

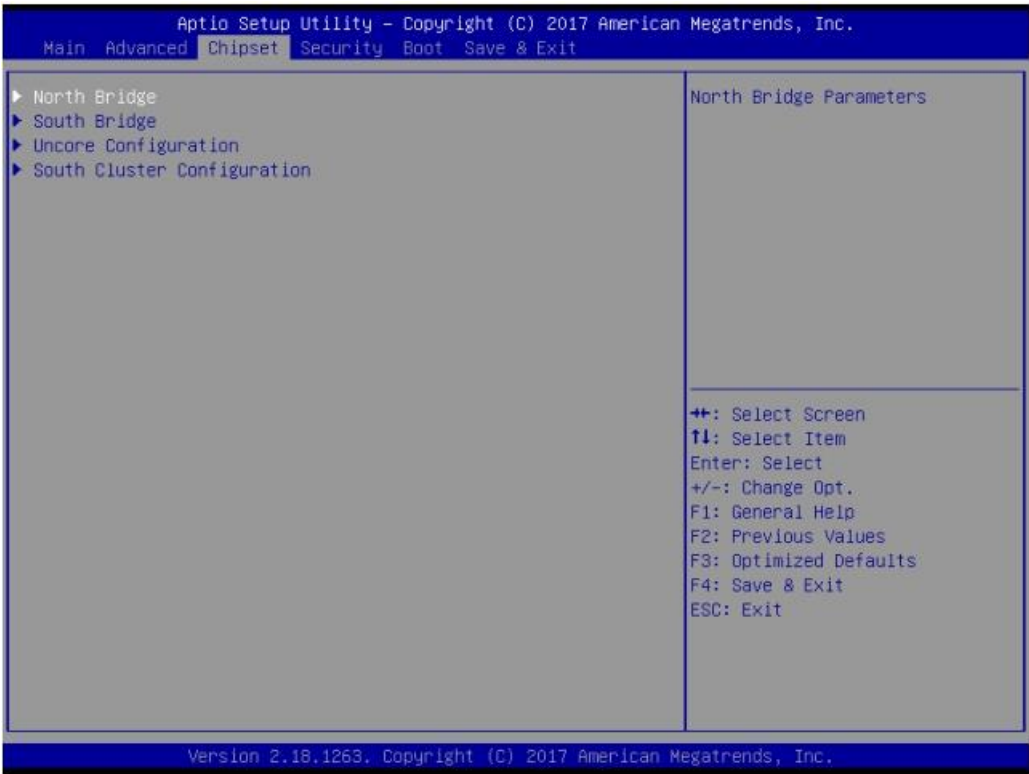


### 4.2.2.11 Security Configuration

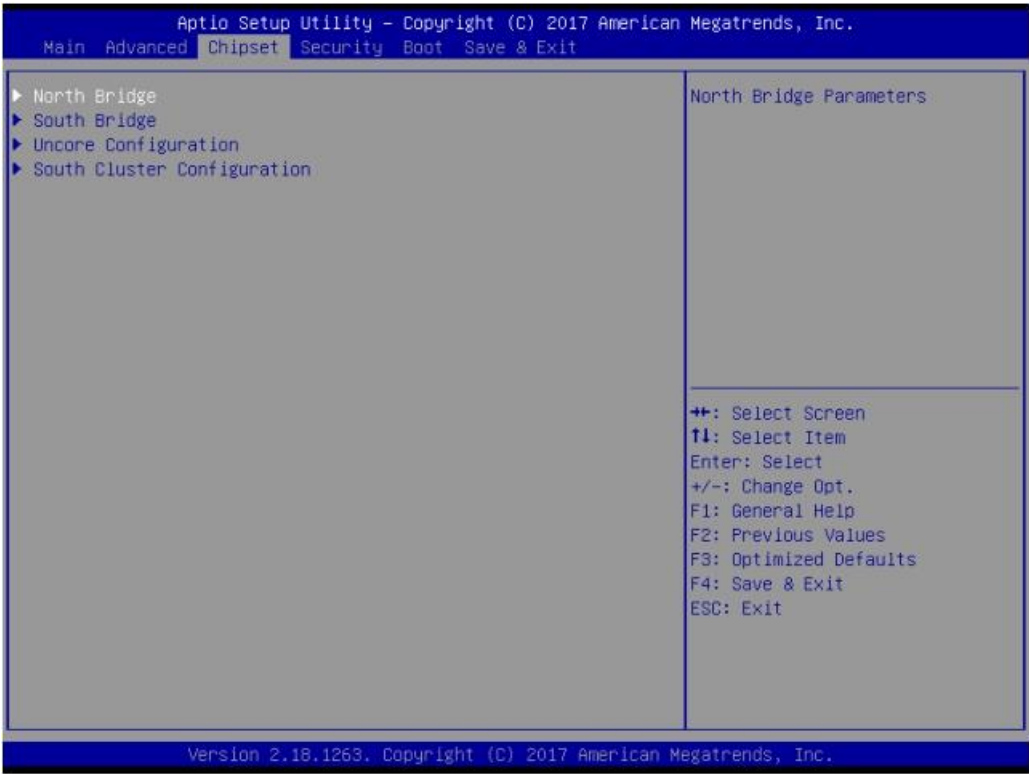


- **TXE HMRFPD**  
This item allows users to enable or disable TXE HMRFPD.
- **TXE EOP Message**  
Send EOP Message before Enter OS.

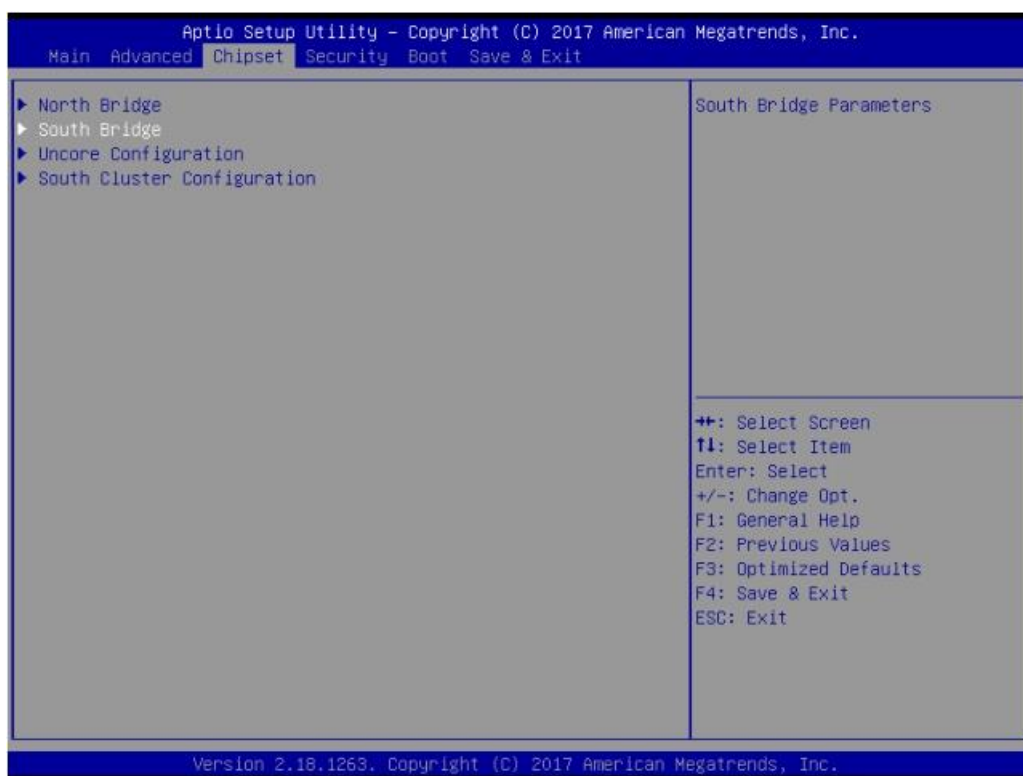
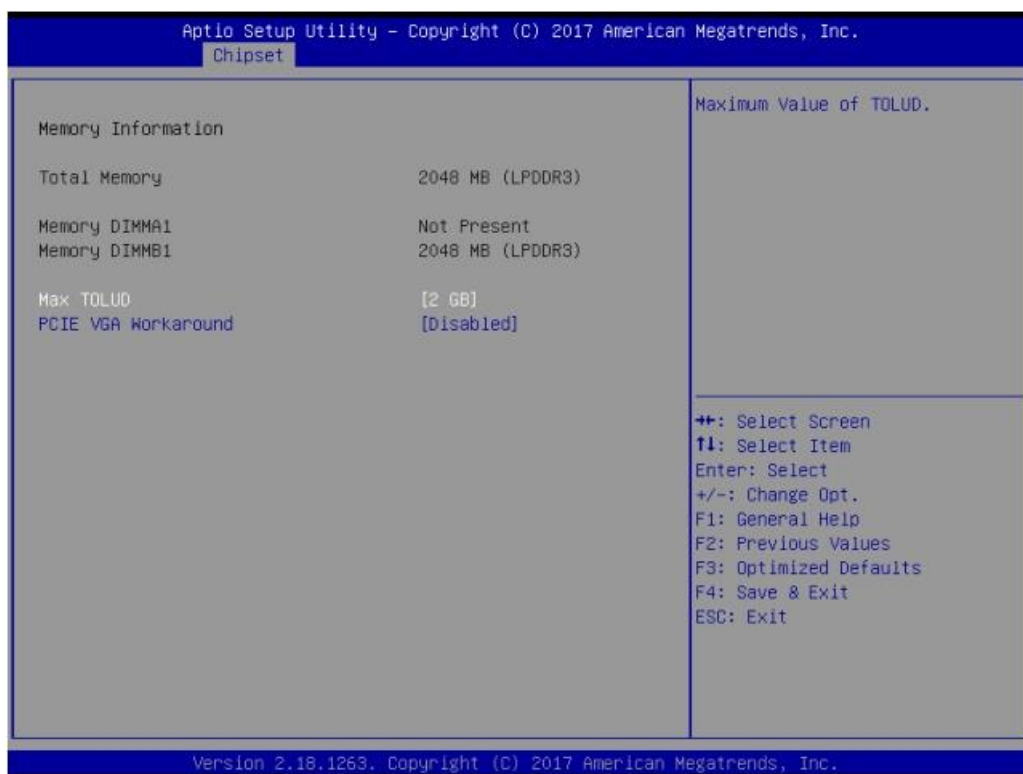
### 4.2.3 Chipset

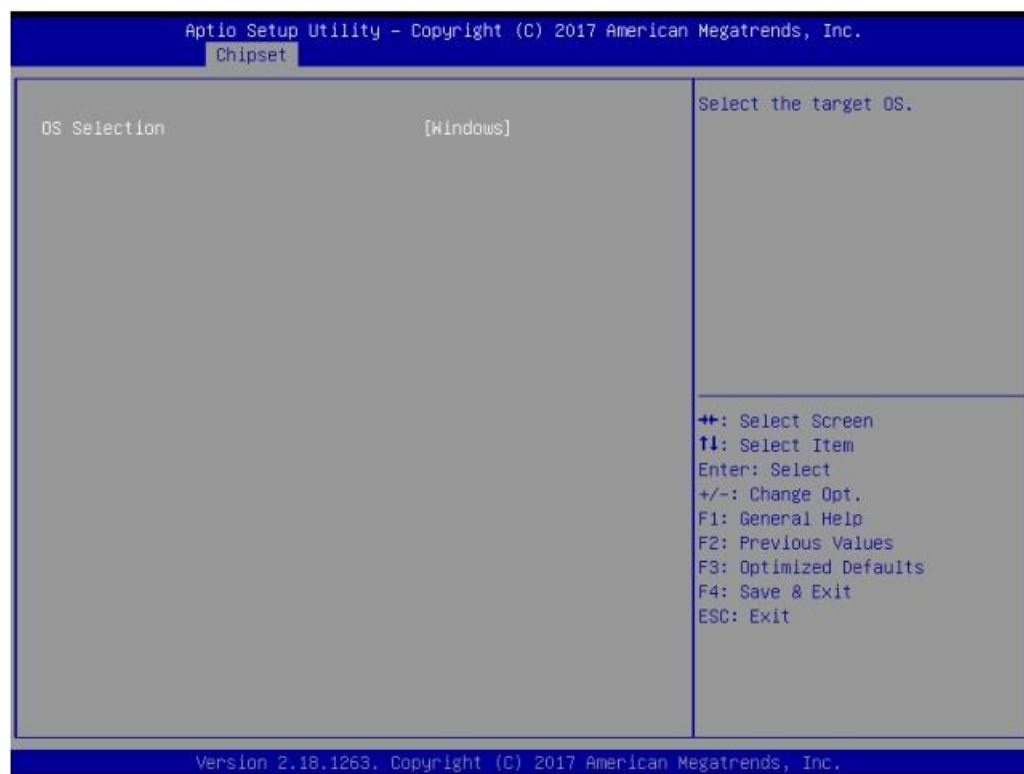


#### 4.2.3.1 North Bridge



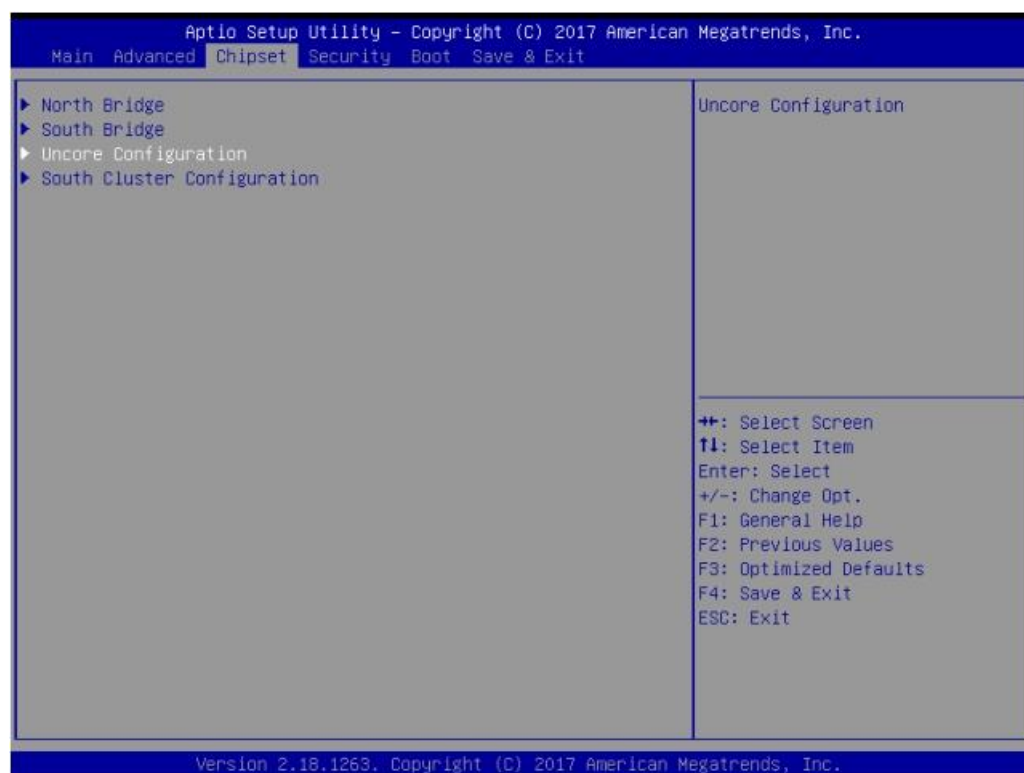


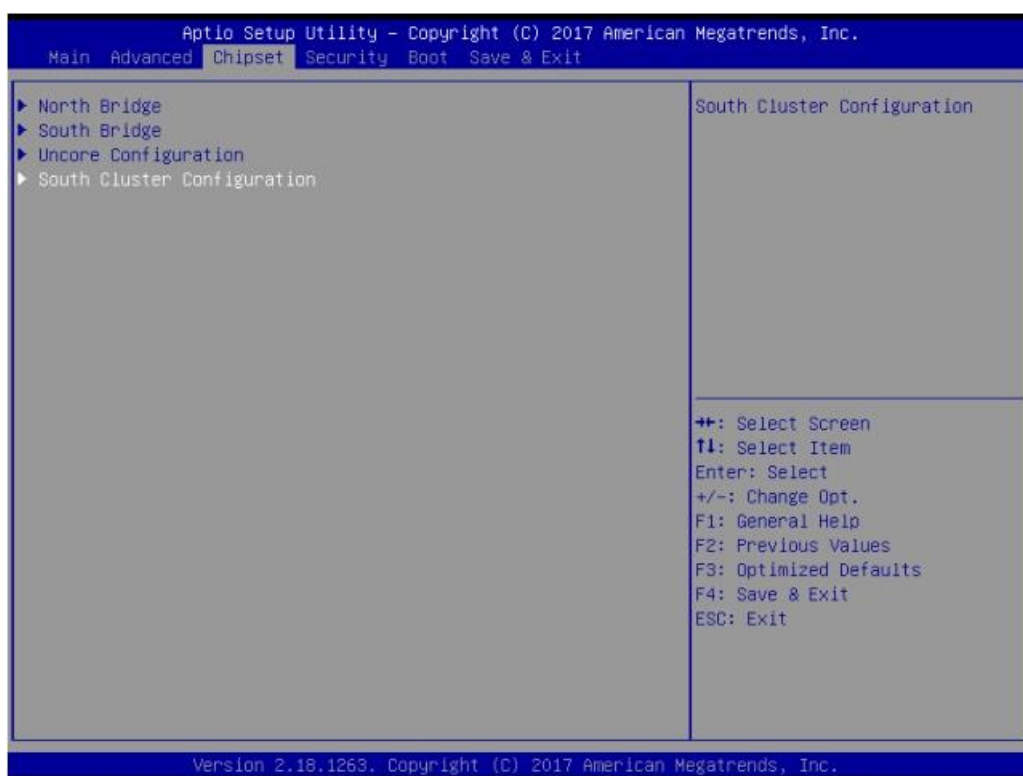
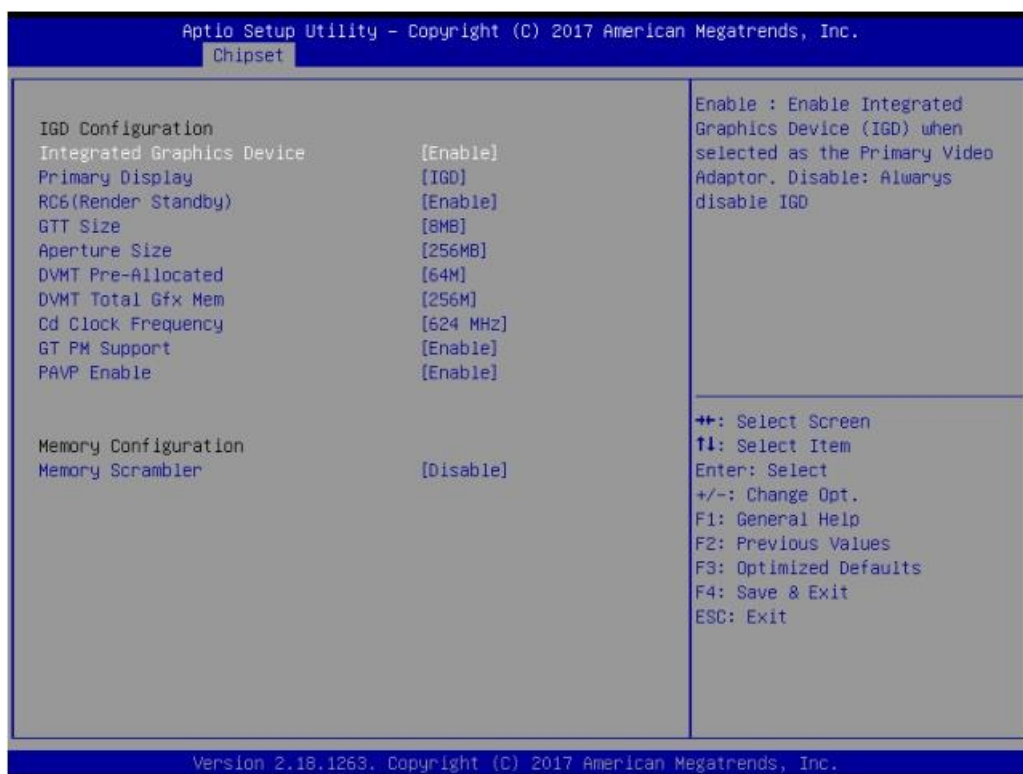


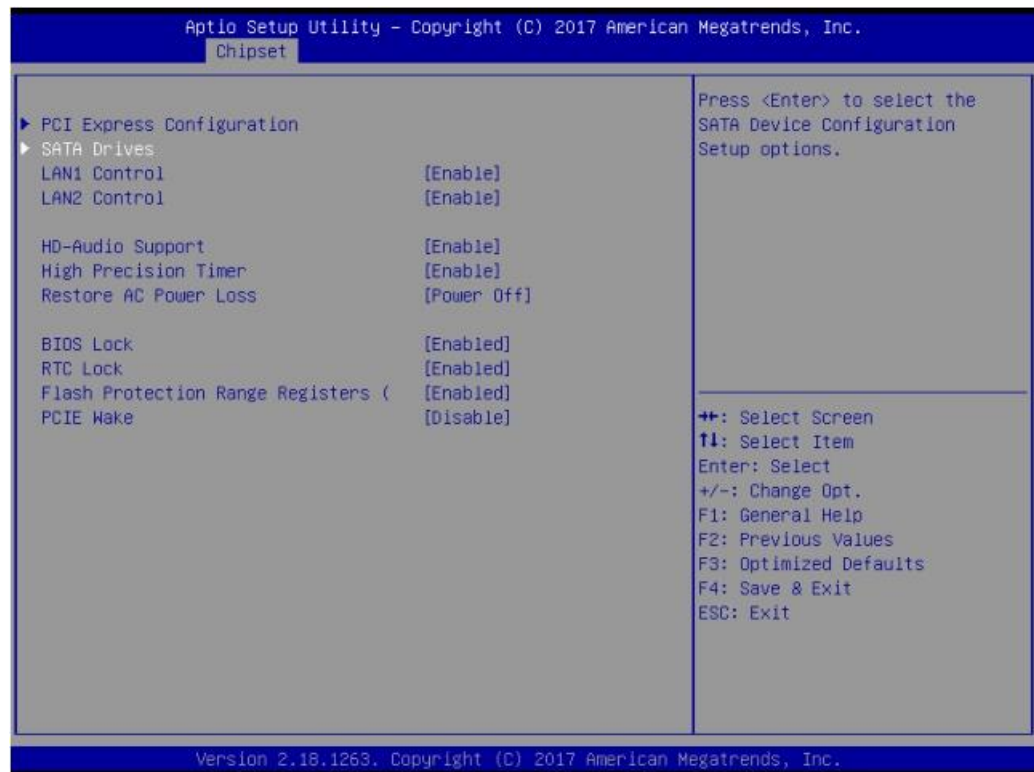


- **OS Selection**  
Select the target OS.

#### 4.2.3.2 Uncore Configuration







#### ■ **Chipset SATA**

Enables or disables the chipset SATA controller. The chipset SATA controller supports the 2 black internal SATA ports (up to 3Gb/s supported per port).

#### ■ **SATA Mode Selection**

This item allows users to select mode of SATA controller(s).

#### ■ **Aggressive LPM Support**

This item allows users to enable or disable Aggressive LPM Support.

#### ■ **Port 1**

This item allows users to enable or disable the Serial-ATA Port 1 device.

#### ■ **Spin Up Device**

This item allows users to enable or disable the Spin Up Device.

#### ■ **SATA Device Type**

Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.

#### ■ **Port 2**

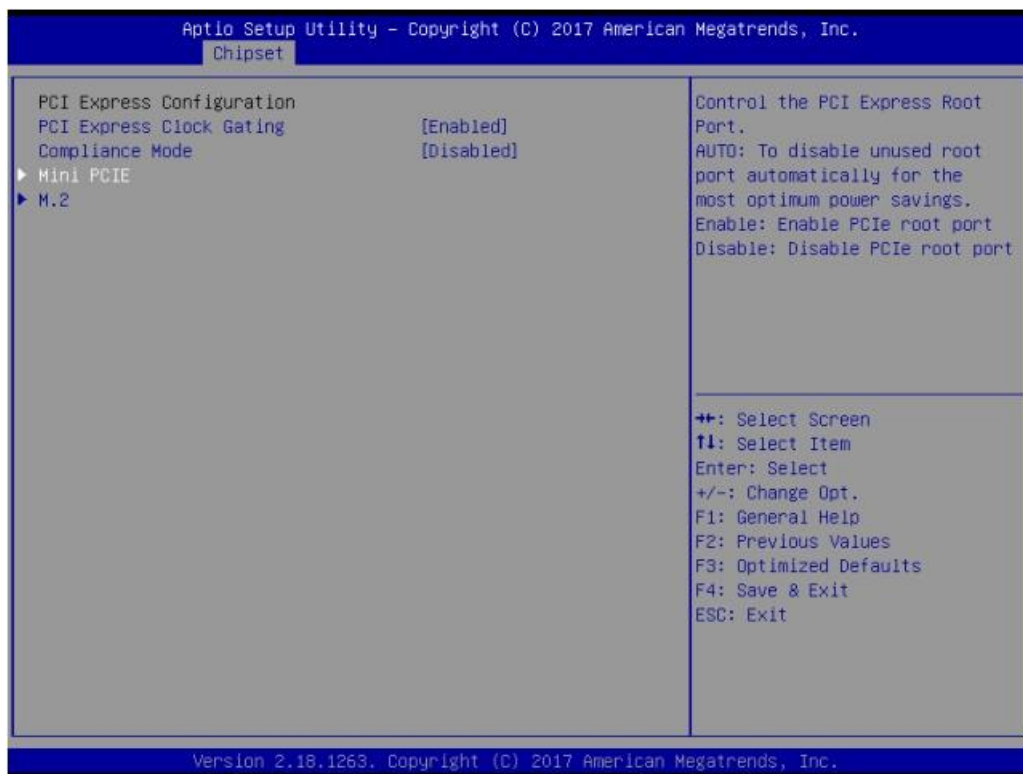
This item allows users to enable or disable the Serial-ATA Port 2 device

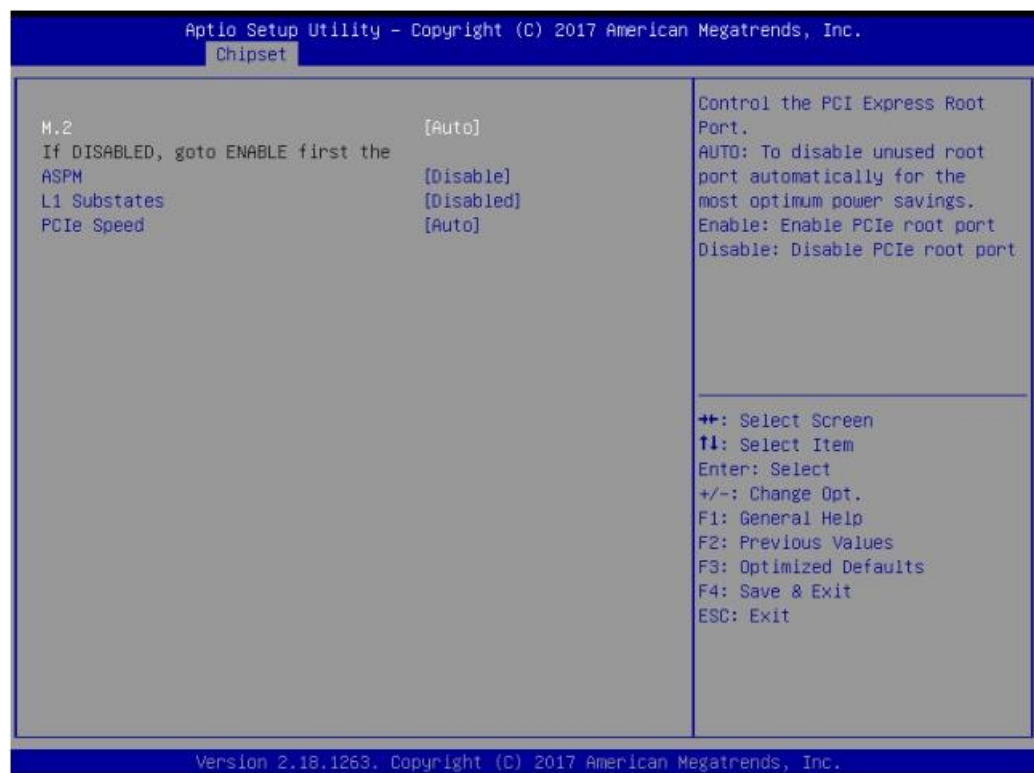
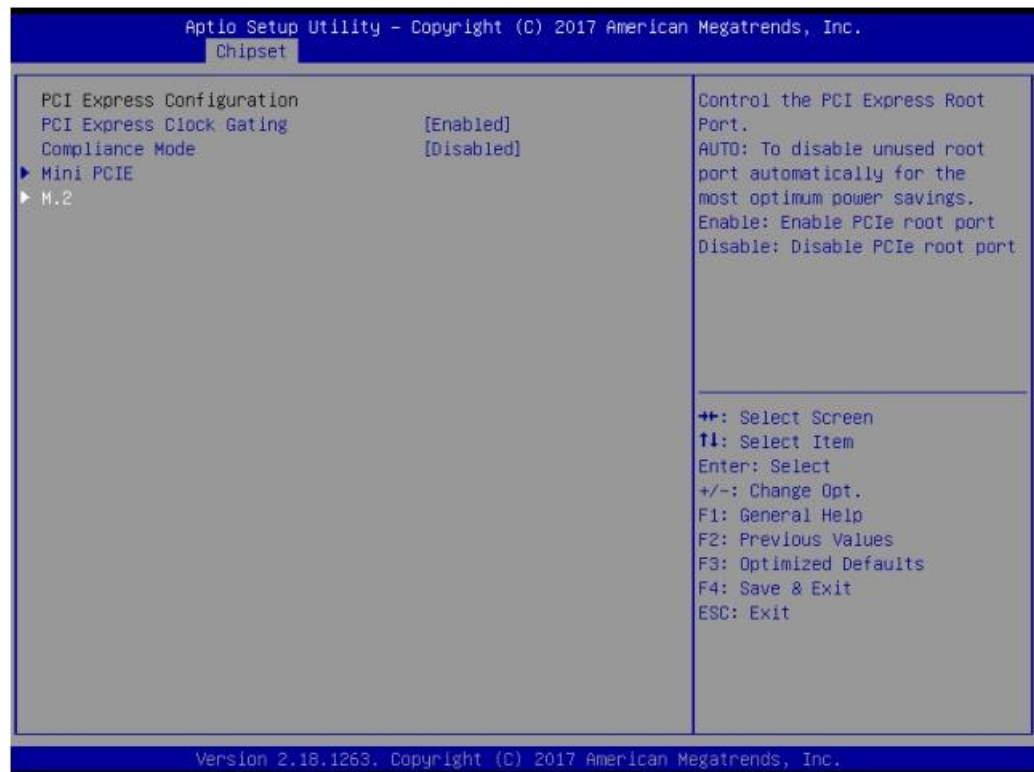
#### ■ **Spin Up Device**

This item allows users to enable or disable the Spin Up Device.

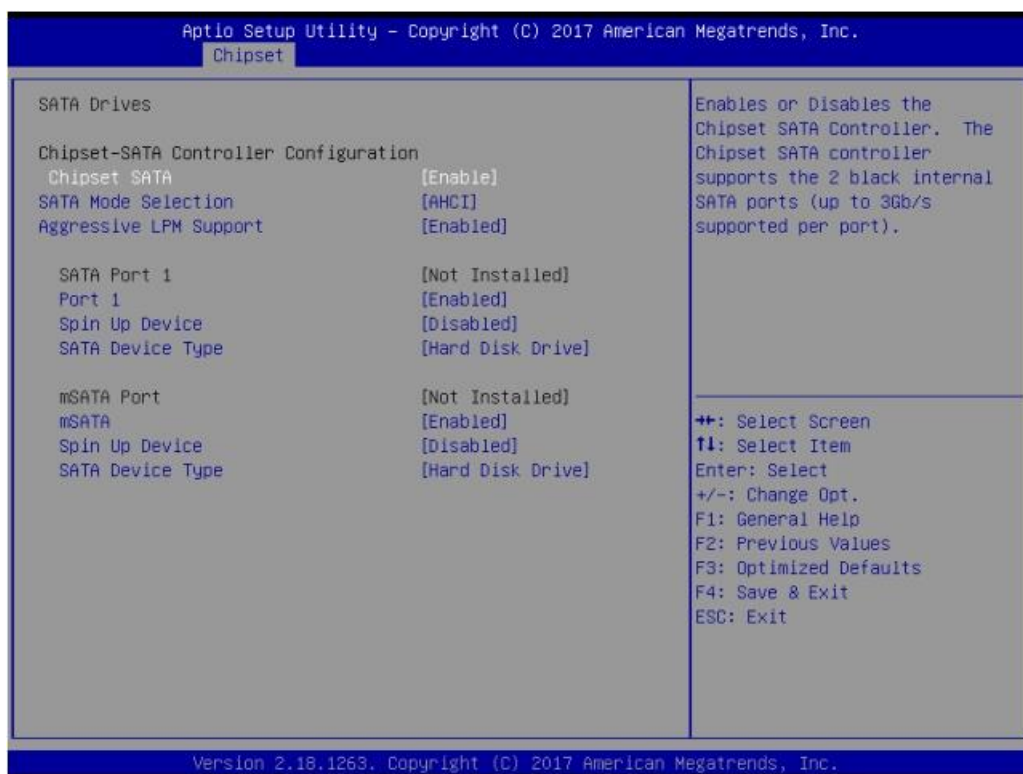
#### ■ **SATA Device Type**

Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.

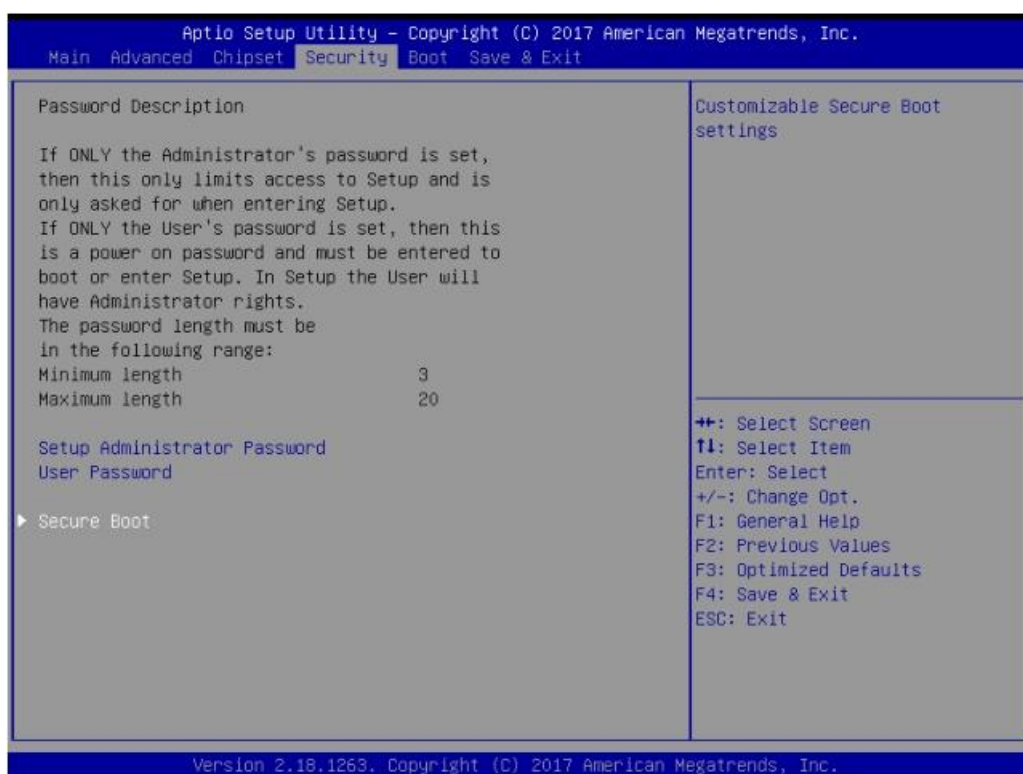


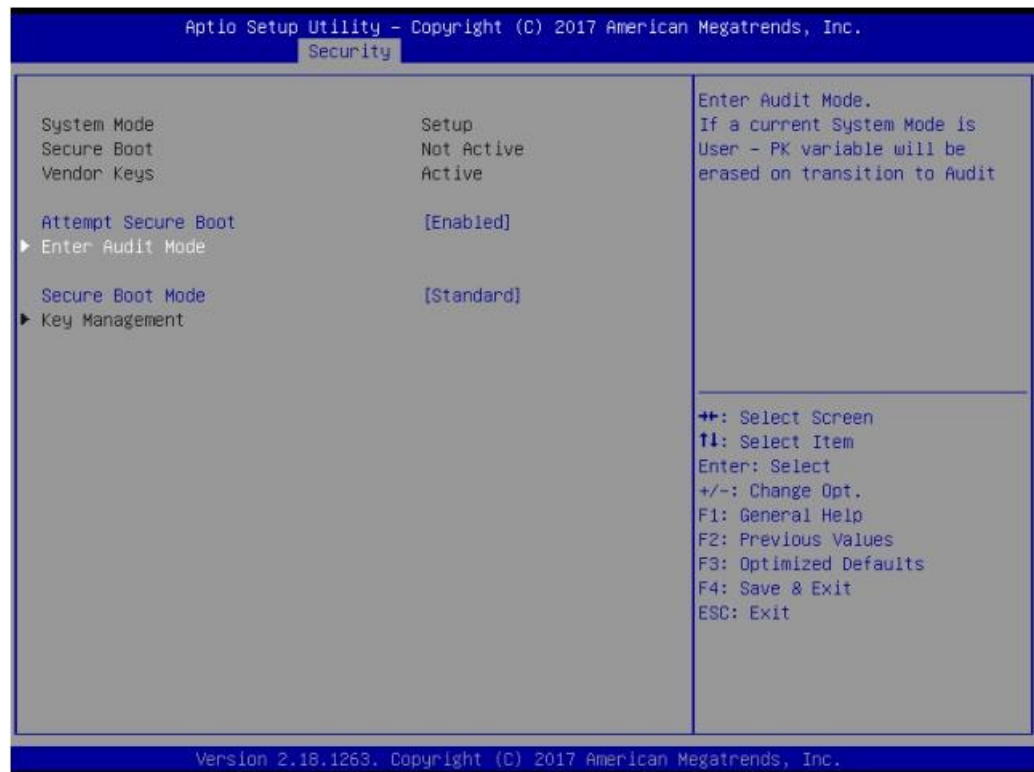




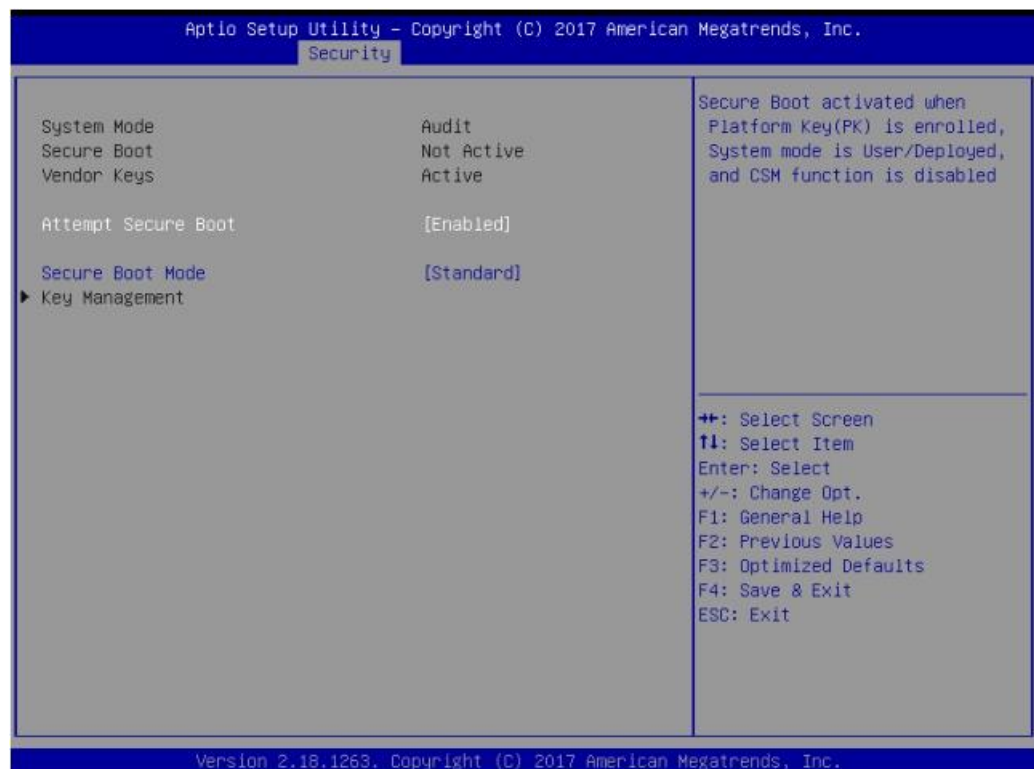


## 4.2.4 Security Boot





#### 4.2.4.1 Security Boot



- **Attempt Secure Boot**

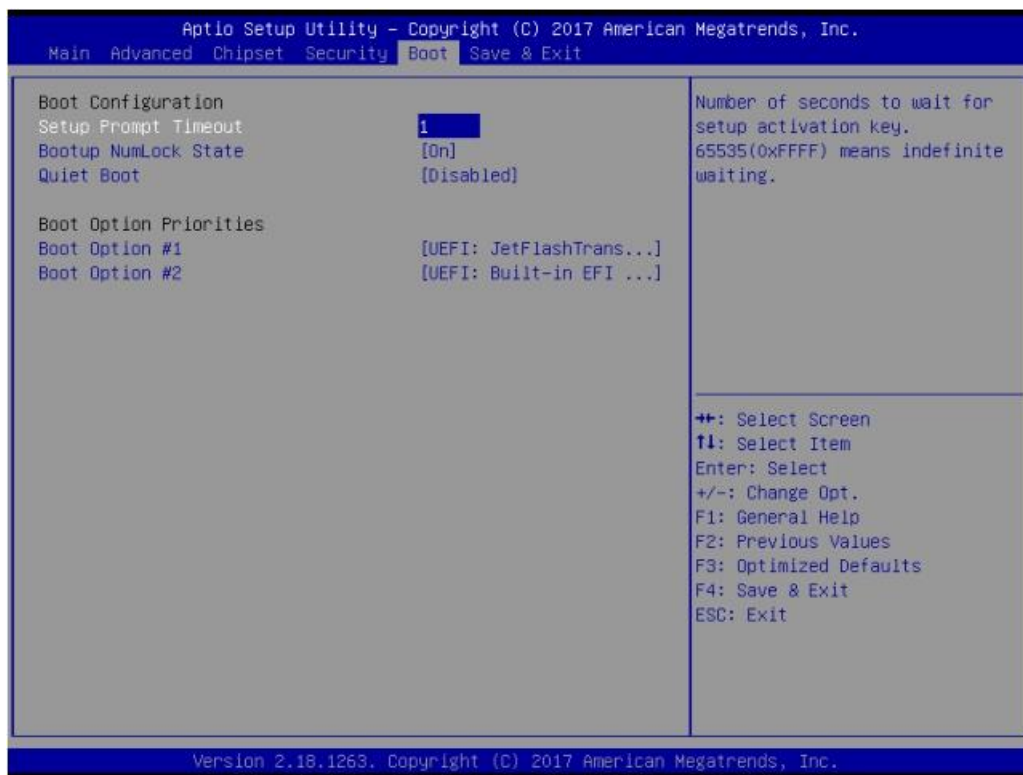
Secure Boot activated when platform key(PK) is enrolled, system mode is user/ deployed, and CSM function is disabled.

- **Secure Boot Mode**



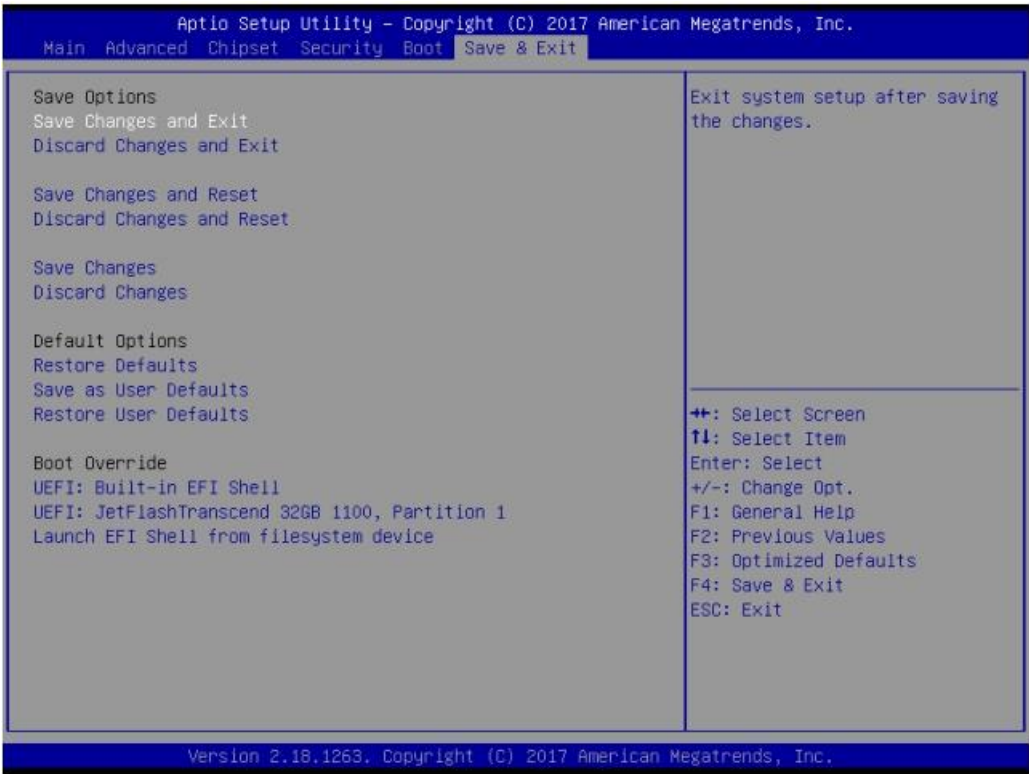
Secure Boot mode - Custom & Standard, Set UEFI Secure Boot Mode to STANDARD mode or CUSTOM mode, this change is effect after save. And after eset, the mode will return to STANDARD mode.

### 4.2.5 Boot



- **Bootup NumLock State**  
Select the keyboard NumLock state.
- **Quiet Boot**  
Enables or disables Quiet Boot option.

## 4.2.6 Save & Exit







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