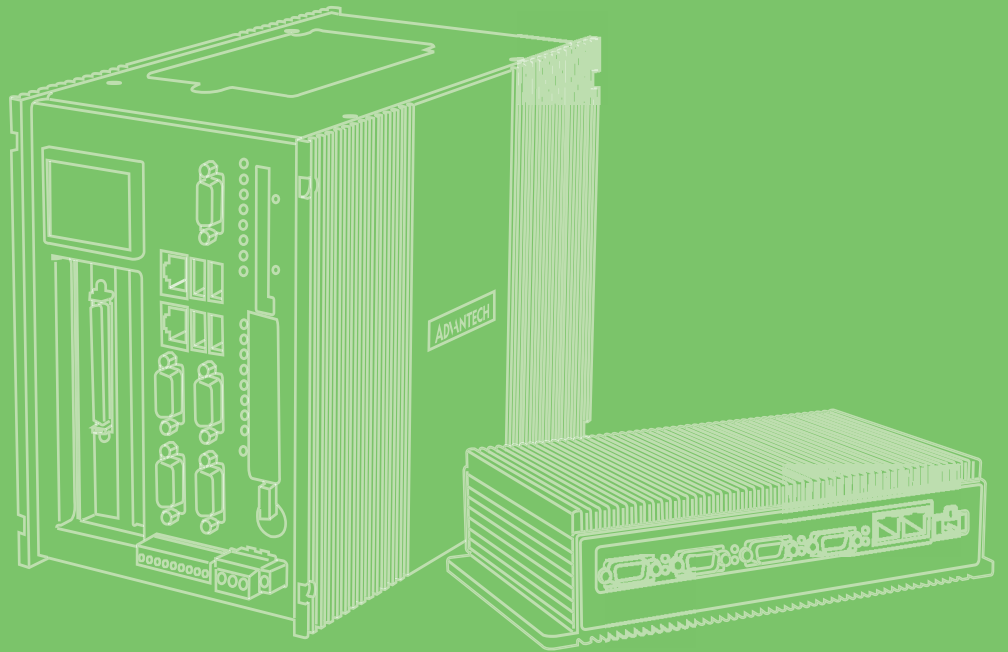


User Manual



UNO-247 電腦

Intel® Celeron J3455E processor
Automation Computer, with 2x
LAN, 6x COM, 4x USB, 1x HDMI,
1x VGA

ADVANTECH

Enabling an Intelligent Planet

Copyright

The documentation and the software included with this product are copyrighted 2019 by Advantech Co., Ltd. All rights are reserved. Advantech Co., Ltd. reserves the right to make improvements in the products described in this manual at any time without notice. No part of this manual may be reproduced, copied, translated or transmitted in any form or by any means without the prior written permission of Advantech Co., Ltd. Information provided in this manual is intended to be accurate and reliable. However, Advantech Co., Ltd. assumes no responsibility for its use, nor for any infringements of the rights of third parties, which may result from its use.

Acknowledgements

IBM, PC/AT, PS/2 and VGA are trademarks of International Business Machines Corporation.

Intel and Core are trademarks of Intel Corporation

Microsoft Windows and MS-DOS are registered trademarks of Microsoft Corp.

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

Support

For more information on this and other Advantech products, please visit our websites at: <http://www.advantech.com>

For technical support and service, please visit our support website at: <http://support.advantech.com/>

This manual applies to the below model which is abbreviated as UNO-1483G series products in this article.

*Model number:

UNO-247

UNO-247-J1N1AE,

UNO-247-J1N1B

UNO247J1N11901-T,
UNO247J1N12001-T,
UNO247J1N12004-T,
UNO247J1N12101-T,
UNO247J1N12104-T,
UNO247J1N12201-T,
UNO247J1N12204-T,
UNO247J1N12301-T,
UNO247J1N12304-T,
UNO247J1N12401-T,
UNO247J1N12404-T,
UNO247J1N12501-T,
UNO247J1N12504-T,

UNO247J1N11902-T,
UNO247J1N12002-T,
UNO247J1N12005-T,
UNO247J1N12102-T,
UNO247J1N12105-T,
UNO247J1N12202-T,
UNO247J1N12205-T,
UNO247J1N12302-T,
UNO247J1N12305-T,
UNO247J1N12402-T,
UNO247J1N12405-T,
UNO247J1N12502-T,
UNO247J1N12505-T,

UNO247J1N11903-T,
UNO247J1N12003-T,
UNO247J1N12006-T,
UNO247J1N12103-T,
UNO247J1N12106-T,
UNO247J1N12203-T,
UNO247J1N12206-T,
UNO247J1N12303-T,
UNO247J1N12306-T,
UNO247J1N12403-T,
UNO247J1N12406-T,
UNO247J1N12503-T,
UNO247J1N12506-T,

P/N: 2003024700

Printed in China

Edition 1

November 2019

Product Warranty (2 years)

Advantech warrants the original purchaser that all 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 that have been repaired or altered by persons other than repair personnel authorized by Advantech, or products that 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 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, customers are billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details.

If you suspect that your product is defective product, follow the steps outlined below.

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 displayed 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 a return merchandise authorization (RMA) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a completed Repair and Replacement Order Card, and a proof of purchase date (such as a photocopy of your sales receipt) into a shippable container. Products returned without a proof of purchase date are not eligible for warranty service.
5. Write the RMA number clearly on the outside of the packaging, and ship the package prepaid to your dealer.

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This type of cable is available from Advantech. Please contact your local supplier for ordering information.

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. Operation of this equipment in a residential area is likely to cause harmful interference. In such cases, users are required to correct the interference at their own expense.

警告使用者：這是甲類資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當對策。

Technical Support and Assistance

1. Visit the Advantech web site at 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

Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

- To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
- Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.

Safety Instructions

1. Read these safety instructions carefully.
2. Retain this user manual for future reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth for cleaning. Do not use liquid or spray detergents.
4. For plug-gable equipment, the power outlet socket should be located near the equipment and easily accessible.
5. Protect the equipment from humidity.
6. Place the equipment on a reliable surface during installation. Dropping or letting the equipment 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. Ensure that the voltage of the power source is correct before connecting the equipment to a power outlet.
9. Position the power cord away from high-traffic areas. 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 from transient overvoltage.
12. Never pour 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 occurs, have the equipment checked by service personnel:
 - The power cord or plug is damaged.
 - Liquid has penetrated into the equipment.
 - The equipment has been exposed to moisture.
 - The equipment does not work well, or you cannot get it to work according to the user's manual.
 - The equipment has been dropped and damaged.
 - The equipment has obvious signs of breakage.
15. Do not leave this equipment in an environment with a storage temperature of below -20 °C (-4 °F) or above 60 °C (140 °F).
16. Batteries that are incorrectly replaced are at risk of exploding. Replace only with the same or equivalent type recommend by the manufacturer. Discard used batteries according to the manufacturer's instructions.
17. Danger d'explosion si la batterie est mal remplacée. Remplacer uniquement par le même type ou équivalent recommandé par le fabricant. Jeter les piles usagées selon les instructions du fabricant.
18. In accordance with IEC 704-1:1982 specifications, the sound pressure level at the operator's position does not exceed 70 dB (A).
19. This product is intended to be supplied by an UL certified power supply or dc source suitable for use at minimum Tma 40 degree °C whose output meets SELV or ES1, LPS or PS2 and is rated 12Vdc, 3A min. If you need further assistance, please contact Advantech for further information.
20. Ensure that the voltage of the power source is correct before connecting the equipment to a power outlet. The power outlet socket should have a grounded connection.
21. The wire of the protective bonding conductor should be green-and-yellow, 22 AWG/0.3(mm²) min.

22. There is danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer, discard used batteries according to the manufacturer's instructions.

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Consignes de sécurité

1. Lire attentivement les instructions de sécurité.
2. Conserver ce manuel pour utilisation ultérieure,
3. Débranchez cet équipement de toute prise secteur avant de le nettoyer. Utilisez seulement un chiffon humide. N'utilisez pas de détergent liquide ou pulvérisé pour le nettoyage.
4. Gardez cet équipement à l'abri de l'humidité.
5. Placez cet équipement sur une surface fiable pendant l'installation. Le faire ou bien le laisser tomber peut causer des dégâts.
6. Les ouvertures sur l'enceinte servent à la convection de l'air. Protégez l'équipement contre la surchauffe. **NE COUVREZ PAS LES OUVERTURES.**
7. Assurez-vous que la tension de la source d'alimentation est correcte avant de connecter l'équipement à l'alimentation.
8. Placez le câble d'alimentation de manière à ce que personne ne puisse marcher dessus. Ne placez rien sur le câble d'alimentation.
9. Toutes les mises en garde et tous les avertissements sur l'équipement doivent être notés.
10. Si l'équipement n'est pas utilisé pendant une longue période, débranchez-le de la source d'alimentation pour éviter tout endommagement dû à une surtension transitoire.
11. Ne jamais verser de liquide dans une ouverture. Cela pourrait provoquer un incendie ou un choc électrique.
12. N'ouvrez jamais l'équipement. Pour des raisons de sécurité, l'équipement doit être ouvert uniquement par du personnel qualifié.
13. Si l'une des situations suivantes se présente, faites vérifier l'équipement par le personnel de service:
 - Un liquide a pénétré dans l'équipement.
 - L'équipement a été exposé à l'humidité.
 - L'équipement ne fonctionne pas bien, ou vous ne pouvez pas le faire fonctionner selon le manuel de l'utilisateur.
 - L'équipement est tombé et endommagé.
 - L'équipement présente des signes évidents de rupture.
14. **NE LAISSEZ PAS CET ÉQUIPEMENT DANS UN ENVIRONNEMENT OU LA TEMPÉRATURE DE STOCKAGE PEUT ÊTRE INFÉRIEURE À -20 ° C (-4 ° F) OU BIEN SUPÉRIEURE À 60 ° C (140 ° F). CECI POURRAIT ENDOMMAGER L'EQUIPEMENT. L'ÉQUIPEMENT DEVRAIT ÊTRE DANS UN ENVIRONNEMENT CONTRÔLÉ.**
15. Ce produit est destiné à être alimenté par une source d'alimentation certifiée UL ou par une source cc convenant à une utilisation à une température minimale de 40 degrés Celsius, dont la sortie est conforme à la norme SELV ou ES1, LPS ou PS2 et dont la puissance nominale est de 12 Vcc, 3 A, en cas de besoin. contactez Advantech pour plus d'informations.
16. Assurez-vous que la tension de la source d'alimentation est correcte avant de connecter l'équipement à une prise de courant. La prise de courant doit avoir une connexion à la terre.

17. Le fil du conducteur de protection doit être vert et jaune, 22 AWG / 0,3 (mm2) min.
18. Danger d'explosion si la batterie est inexactement remplacée. Remplacez seulement avec la même chose ou le type équivalent recommandé par le fabricant, jettent les batteries utilisées instructions de s selon fabricant des'
19. Mural, 4 unités fournies pour la fixation de l'ordinateur, Diamètre de la vis = M4 min. Longueur de la vis = 4.0 min.

安全指示

1. 請仔細閱讀此安全操作說明。
2. 請妥善保存此用戶手冊供日後參考。
3. 用濕抹布清洗設備前，請確認拔除電源線。請勿使用液體或去污噴霧劑清洗設備。
4. 對於使用電源線的設備，設備周圍必須有容易接觸到的電源插座。
5. 請勿在潮濕環境中使用設備。
6. 請在安裝前確保設備放置在可靠的平面上，意外摔落可能會導致設備損壞。
7. 設備機殼的開孔適用於空氣對，從而防止設備過熱。請勿覆蓋開孔。
8. 當您連接設備到電源插座前，請確認電源插座的電壓符合要求。
9. 請將電源線佈置在人們不易絆倒的位置，請勿在電源線上覆蓋任何雜物。
10. 請注意設備上所有的警告標示。
11. 如果長時間不使用設備，請拔除與電源插座的連結，避免設備被超標的電壓波動損壞。
12. 請勿讓任何液體流入通風口，以免引起火災或短路。
13. 請勿自行打開設備。為了確保您的安全，請透過經認證的工程師來打開設備。
14. 如遇下列情況，請由專業人員來維修：
 - 電源線或者插頭損壞；
 - 設備內部有液體流入；
 - 設備曾暴露在過於潮濕的環境中使用；
 - 設備無法正常工作，或您無法通過用戶手冊來使其正常工作；
 - 設備跌落或者損壞；
 - 設備有明顯的外觀破損。
15. 請不要把設備放置在超出我們建議的溫度範圍的環境，即不要低於 -20 °C (-4 °F) 或高於 60 °C (140 °F)，否則可能會損壞設備。
16. 注意：若電池更換不正確，將有爆炸危險。因此，只可以使用製造商推薦的同一種或者同等型號的電池進行替換。請按照製造商的指示處理舊電池
17. 根據 IEC 704 - 1:1982 規定，操作員所在位置音量不可高於 70 分貝。
18. 限制區域：請勿將設備安裝於限制區域使用。
19. 免責聲明：請安全訓示符合 IEC 704 - 1 要求。研華公司對其內容之準確性不承擔任何法律責任。

限用物質含有情況標示聲明書

Declaration of the Presence Condition of the Restricted Substances Marking

設備名稱：電腦 Equipment name		型號（型式）： UNO-247 Type designation (Type)				
單元 Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛Lead (Pb)	汞Mercury (Hg)	鎘Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr ⁺⁶)	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
電路板	—	○	○	○	○	○
內外殼	○	○	○	○	○	○
其它固定組件 (螺絲, 螺柱)	—	○	○	○	○	○
電源供應器	—	○	○	○	○	○
線材	○	○	○	○	○	○
<p>備考1. “超出0.1 wt %”及“超出0.01 wt %”係指限用物質之百分比含量超出百分比含量基準值。 Note 1 : “Exceeding 0.1 wt %” and “exceeding 0.01 wt %” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.</p> <p>備考2. “○”係指該項限用物質之百分比含量未超出百分比含量基準值。 Note 2 : “○” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.</p> <p>備考3. “—”係指該項限用物質為排除項目。 Note 3 : The “—” indicates that the restricted substance corresponds to the exemption.</p>						

申請商: 研華股份有限公司

地址: 台北市內湖區瑞光路26巷20弄1號

電話: 02-27927818

Contents

Chapter 1	Overview	1
1.1	Introduction	2
1.2	Safety Precautions	2
1.3	Accessories	2
1.4	Hardware Specifications	3
1.4.1	General	3
1.4.2	Display	3
1.4.3	Ethernet	3
1.5	Chipset	4
1.5.1	Functional specification	4
1.6	Mechanical Specifications	5
1.6.1	Dimensions	5
	Figure 1.1 Dimensions	5
1.6.2	Weight	5
1.7	Power Requirements	5
1.7.1	System power	5
1.7.2	RTC battery	5
1.8	Environment Specification	5
1.8.1	Operating temperature	5
1.8.2	Relative humidity	5
1.8.3	Storage temperature	5
1.8.4	Vibration during operation	5
1.8.5	Shock during operation	6
1.8.6	Safety	6
1.8.7	EMC	6
1.8.8	Mounting	6
Chapter 2	Hardware Functionality	7
2.1	Introduction	8
	Figure 2.1 Connector and jumper locations (Top side)	8
	Table 2.1: Connectors and Jumpers	8
2.2	Jumpers	9
2.2.1	Jumper list	9
	Table 2.2: Connectors and Jumpers	9
2.3	Connector	10
2.3.1	External I/O Connectors	10
	Figure 2.2 UNO-247 Front View	10
	Figure 2.3 UNO-247 Rear View	10
	Figure 2.4 COM Connector	10
	Table 2.3: COM1~6 Connector Pin Assignments	10
	Figure 2.5 LAN Connector	11
	Table 2.4: Ethernet Connector Pin Assignments	11
	Table 2.5: LED Indicators	11
	Figure 2.6 USB 3.0 Connector	12
	Table 2.6: USB 3.0 Connector Pin Assignments	12
	Figure 2.7 USB 2.0 Connector	12
	Table 2.7: USB 2.0 Connector Pin Assignments	12
	Figure 2.8 HDMI Connector	13
	Table 2.8: HDMI Connector Pin Assignments	13
	Figure 2.9 VGA Connector	13
	Table 2.9: VGA Connector Pin Assignments	13
2.3.2	Internal I/O Connectors	14
	Figure 2.10 Internal USB Connector	14

	Table 2.10: Internal USB Connector	14
2.4	Installation	14
2.4.1	HDD/SSD installation.....	14
2.4.2	RAM installation.....	16
2.4.3	mSATA/ mPCIe card installation	17
2.4.4	M.2 Installation.....	18

Chapter 3 **AMI BIOS Setup..... 21**

3.1	Introduction	22
3.2	Entering Setup	22
3.2.1	Main Setup.....	22
3.2.2	Advanced BIOS Features Setup.....	23
3.2.3	Chipset.....	34
3.2.4	Security.....	37
3.2.5	Boot	39
3.2.6	Save & Exit	40

Chapter 1

Overview

This chapter provides an overview of the UNO-247 specifications.

Sections include:

- Introduction
- Safety precautions
- Accessories
- Hardware Specifications

1.1 Introduction

Advantech Embedded Automation Computer UNO-247 model is configured with an Intel® Celeron J3455E 1.5GHz processor. It supports 1 x Full-size Mini PCIe slot, 1 x mSATA, 1 x M.2 and 1 x Micro SIM card slot, which can fulfill extensive requirements in various applications.

New UNO-247 has an optimized mechanical design to make it easier to change the RAM and threaded DC Jack design can support DC lockable function to make it more stable power supply. Also UNO-247 provide a rich I/O interfaces, including 4x RS-232, 2x RS-485, 2x USB3.0, 2x USB2.0, 2x Giga LAN ports as well as VGA and HDMI display interfaces.

1.2 Safety Precautions

Below are a few safety precautions for preventing injury when making connections. In most cases, users can use a standard cable for connection.

Warning! *Always disconnect the power cord from the chassis before manual handling. Do not connect the chassis while the system power is on. A sudden rush of power can damage sensitive electronic components. Only experienced electronics personnel should open the chassis.*



Warning! *Toujours à la terre pour éliminer toute charge d'électricité statique avant toucher UNO-247. Appareils électroniques modernes sont très sensibles à charges d'électricité statique. Utilisez un bracelet antistatique à tout moment. Placez tous composants électroniques sur une surface antistatique ou dans un statique-sac blindé.*



Caution! *Always ground yourself to remove any static electric charge before touching UNO-247. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static shielded bag.*



Caution! *Toujours débrancher le cordon d'alimentation de votre boîtier lorsque vous êtes travailler. Ne branchez pas lorsque l'appareil est allumé. Un afflux soudain de puissance peut endommager les composants électroniques sensibles. Seulement connu personnel de l'électronique devraient ouvrir le châssis.*



1.3 Accessories

The accessory list is as follows:

- 1 x 12V power adapter
- 1 x Warranty card
- 1 x User manual
- 1 x Simplified Chinese user manual
- 1 x China RoHS

If any of the above items are missing or damaged, contact your distributor or sales representative immediately.

1.4 Hardware Specifications

1.4.1 General

- **CPU:** Intel® Celeron J3455E (1.5 GHz)
- **Memory:** Supports up to 8GB DDR3L 1333/ 1600/ 1867 MHz
- **Storage:**
 - Supports 1 drive bay space for SATA 2.5" HDD/SSD
 - Support 1 x mSATA
- **Ethernet Port:** 2 x RJ45 (RTL8111G-CG)
- **Hardware Security:** TPM2.0 (supported by project)
- **Watchdog Timer:** Single chip Watchdog 255-level interval timer, setup by software
- **I/O Interface:**
 - **COM:** 4 x RS232 (Baud Rate: 50bps to 115.2 kbps)
2 x RS485 (Baud Rate: 50bps to 115.2 kbps)
 - **USB:** 4 x USB (2 x USB 2.0, 2 x USB 3.0)
 - **Expansion:**
 - 1 x full-size mPCIe slot
 - 1 x mSATA
 - 1 x M.2 2230
 - 1 x Micro SIM Card Slot

1.4.2 Display

- **Resolution**
 - VGA: Supports up to 1920 x 1080 @ 60 Hz 24bpp
 - HDMI: Supports up to 1920 x 1080 @ 60 Hz 24bpp

1.4.3 Ethernet

- **Chipset:**
 - 2 x Realtek 8111G-CG
 - Speed: 10/100/1000 Mbps
- **Interface:** 2 x RJ45

1.5 Chipset

1.5.1 Functional specification

Processor	Intel® Celeron J3455E 1.5 GHz Processor
Memory	<ul style="list-style-type: none">■ Supports DDR3L 1333/ 1600/ 1867 MHz■ SODIMM Socket x 1 (up to 8 GB)
Processor Graphics	<ul style="list-style-type: none">■ Intel® HD Graphics 500■ IO interface– VGA: Supports resolutions up to 1920 x 1080 @ 60 Hz (VGA connector: On-board D-SUB 15P)– HDMI: Supports resolution up to 1920 x 1080 @ 60 Hz (HDMI Connector: On-board HDMI 19P)
SATA Interface	<ul style="list-style-type: none">■ 1x SATA Revision 3.0 ports 2.5" HDD/SSD■ Supports OS storage and boot
USB Interface	■ USB host interface for 2 x USB2.0 port /2 x USB3.0 port
Power Management	12VDC input from DC Jack (2.5mm)
BIOS	AMI Flash BIOS via SPI
Serial Ports	COM 1~4: Support for RS-232 and auto flow control (The data rate of each serial port up to 115.2 kbps) COM 5/6: Support for RS-485 (The data rate of each serial port up to 115.2 kbps) Serial ports connector: D-SUB CON.9P
LAN	LANA/B: RTL8111G-CG Supports 10/100/1000 Mbps Supports Wake on LAN
Battery backup	BR2032 3V/190mAh

1.6 Mechanical Specifications

1.6.1 Dimensions

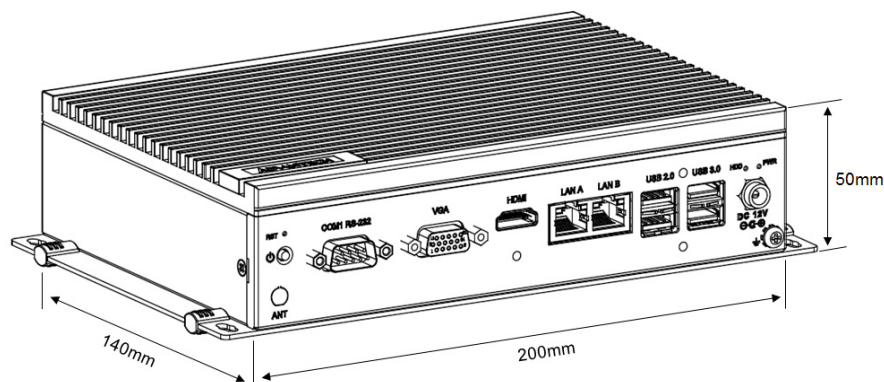


Figure 1.1 Dimensions

1.6.2 Weight

1 kg

1.7 Power Requirements

1.7.1 System power

12VDC

1.7.2 RTC battery

BR2032 3 V/190 mAh

1.8 Environment Specification

1.8.1 Operating temperature

-20 ~ 60 °C with 0.7m/sec air flow
(System safety certification test temperature: 40 °C)

1.8.2 Relative humidity

95% @ 40 °C (non-condensing)

1.8.3 Storage temperature

-40 ~ 85 °C (-40 ~ 185 °F)

1.8.4 Vibration during operation

When system is equipped with SSD: 3 Grms, IEC 60068-2-64, random, 5 ~500 Hz, 1 Oct/min., 1 hr/axis, x,y,z 3 axes.

When system is equipped with 2.5-inch HDD: 0.5 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 Oct/min., 1 hr/axis, x,y,z 3 axes.

1.8.5 Shock during operation

When system is equipped with SSD: 50 G, IEC 60068-2-27, half sine, 11 ms duration.

1.8.6 Safety

UL/CB, CCC, BSMI

1.8.7 EMC

CE, FCC, CCC, BSMI

1.8.8 Mounting

Wall-mounting and stand mounting (four screws needed for attaching).

> Diameter of screw = M4 min. (Wall-mounted)

> Length of screw = 4.0 min.

Chapter 2

Hardware Functionality

This chapter explains how to setup the UNO-247's hardware functions, including connecting peripherals and setting switches and indicators.

Sections include:

- Introduction
- UNO-247 Interface
- LAN/Ethernet Connector
- Power Connector
- USB Connector
- RTC Battery
- Power Button/Power Management
- Reset Button
- PCI Express Mini Card Socket

2.1 Introduction

The following sections show the internal jumper settings and the external connectors and pin assignments.

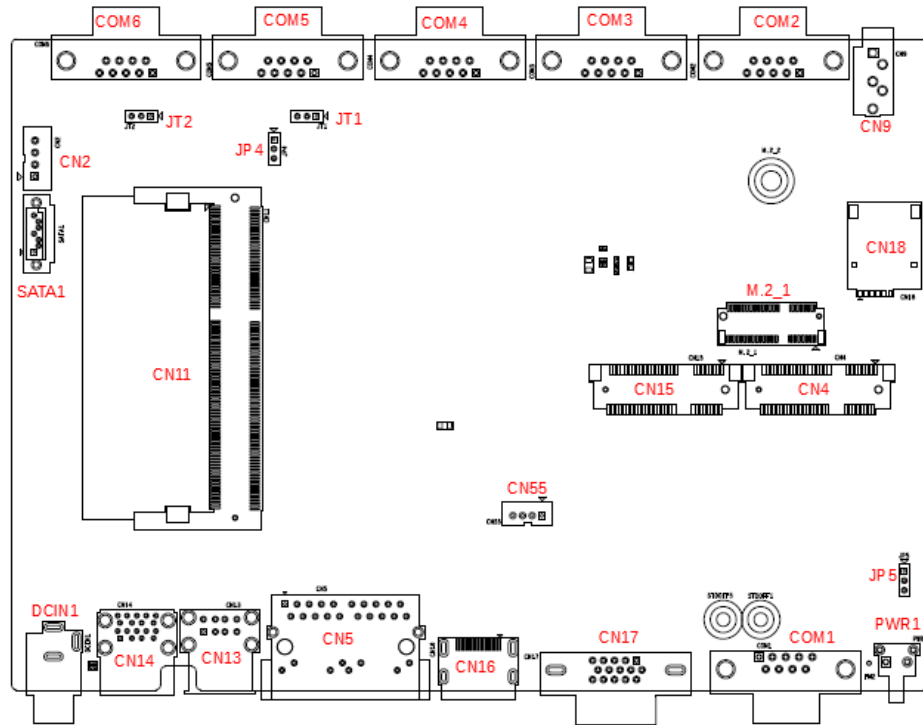


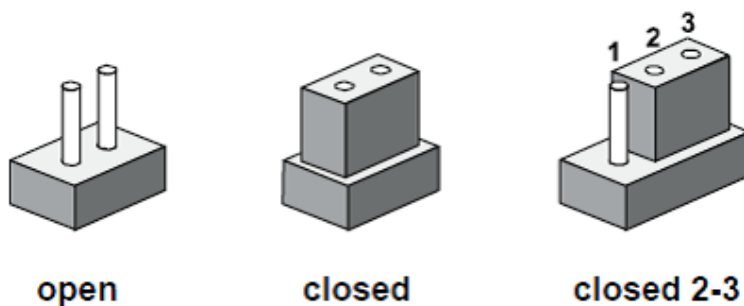
Figure 2.1 Connector and jumper locations (Top side)

Table 2.1: Connectors and Jumpers

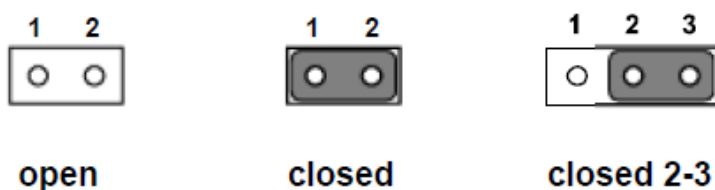
Label	Function
DCIN1	Power-in connector / 12V
CN14	USB 3.0 connector
CN13	USB 2.0 connector
CN5	RJ45 connector
CN16	HDMI connector
CN17	VGA connector
PWR1	Power button
COM1/COM2/COM3/COM4	COM port connector / RS232
COM5/COM6	COM port connector / RS485
CN9	Audio line-out
CN11	DIMM slot
CN4	PCI Express mini card socket /mPCIe
CN15	mSATA
CN18	Micro SIM card socket
CN2	SATA power connector
CN55	Internal USB 2.0 pin header
M.2_1	M.2 card socket
SATA1	SATA connector
JP4	Clear COMS pin header
JP5	AT/ATX mode switch
JT1	COM5 RS485 Termination Resistor pin header
JT2	COM6 RS485 Termination Resistor pin header

2.2 Jumpers

Configure the UNO-247 to match the needs of your application by setting jumpers. To close a jumper, you connect the pins with the clip. To open a jumper, you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2, or 2 and 3.



The jumper settings are schematically depicted in this manual as follows.



A pair of needle-nose pliers may be helpful when working with jumpers. If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes. Generally, you simply need a standard cable to make most connections.

2.2.1 Jumper list

Table 2.2: Connectors and Jumpers	
JP4	Clear CMOS pin header. Pin (2-3) -> Normal, Pin (1-2) -> Clear
JP5	AT/ATX mode switch. Pin (2-3) -> ATX mode, Pin (1-2)-> AT mode
JT1	COM5 RS485 Termination Resistor pin header. Pin (2-3) -> ON, Pin (1-2) -> OFF
JT2	COM6 RS485 Termination Resistor pin header. Pin (2-3) -> ON, Pin (1-2) -> OFF

2.3 Connector

2.3.1 External I/O Connectors

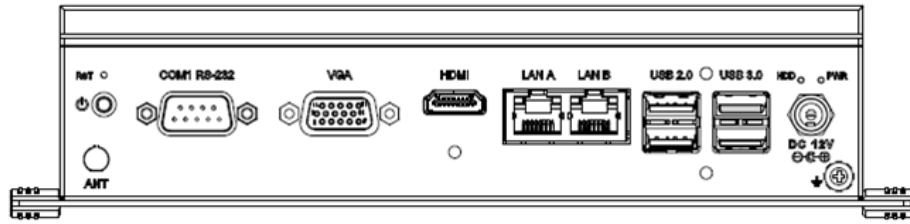


Figure 2.2 UNO-247 Front View

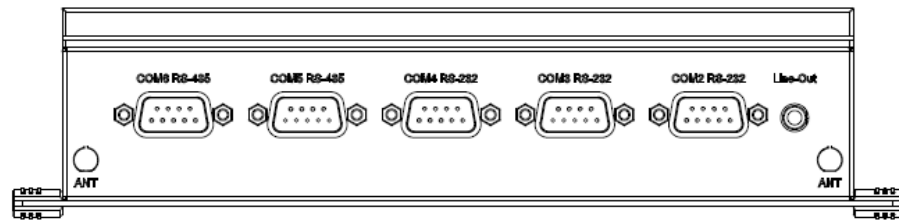


Figure 2.3 UNO-247 Rear View

2.3.1.1 COM connectors

UNO-247 provides six 9-pin D-sub connectors, four of which offer RS-232 and the other two offer RS-485 serial communication interface ports.

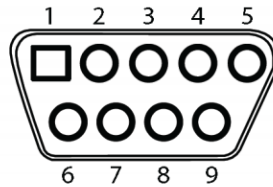


Figure 2.4 COM Connector

Table 2.3: COM1~6 Connector Pin Assignments

Pin	RS-232	RS-485
1	DCD	D-
2	RX	D+
3	TX	-
4	DTR	-
5	GND	GND
6	DSR	-
7	RTS	-
8	CTS	-
9	RI	-

2.3.1.2 LAN: Ethernet Connector

UNO-247 is equipped with two Gigabit LAN controllers. An RTL8111G-CG Ethernet controller is used as the controller chip. The Ethernet port is a standard RJ-45 jack. Additionally, LED indicators are provided on the front of the device to indicate the system's Link (off/green/orange) and Active (green) status.

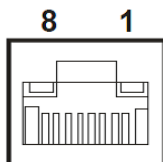


Figure 2.5 LAN Connector

Table 2.4: Ethernet Connector Pin Assignments

RJ45 Pin	Signal	Description
1	MDI0+	<ul style="list-style-type: none"> In BASE-T: Media Dependent Interface[0]: 1000BASE-T: In MDI configuration, MDI[0] +/- corresponds to BI_DA +/- and in MDI-X configuration MDI[0] +/- corresponds to BI_DB +/-.
2	MDI0-	<ul style="list-style-type: none"> 10BASE-T and 100BASE-TX: In MDI configuration, MDI[0] +/- is used for the transmit pair and in MDIX configuration MDI[0] +/- is used for the receive pair.
3	MDI1+	<ul style="list-style-type: none"> In BASE-T: Media Dependent Interface[1]: 1000BASE-T: In MDI configuration, MDI[1] +/- corresponds to BI_DB +/- and in MDI-X configuration MDI[1] +/- corresponds to BI_DA +/-.
6	MDI1-	<ul style="list-style-type: none"> 10BASE-T and 100BASE-TX: In MDI configuration MDI[1] +/- is used for the receive pair and in MDI-X configuration MDI[1] +/- is used for the transmit pair.
4	MDI2+	<ul style="list-style-type: none"> In BASE-T: Media Dependent Interface[3:2]: 1000BASE-T: In MDI and in MDI-X configuration, MDI[2] +/- corresponds to BI_DC +/- and MDI[3] +/- corresponds to BI_DD +/-.
5	MDI2-	
7	MDI3+	
8	MDI3-	<ul style="list-style-type: none"> 100BASE-TX: Unused. 10BASE-T: Unused.

Table 2.5: LED Indicators

Left LED		Right LED	
10 Link	100 Link	1000 Link	Active
Off	Orange	Green	Green

2.3.1.3 USB Connector

The USB interface supports plug-and-play functionality, which enables users to connect or disconnect a device without turning off the computer. The UNO-247 also features four USB connectors that support plug-and-play and hot-swapping functionality for external devices. The USB interface can be enabled/disabled in the BIOS menu. Furthermore, the UNO-247 also features four USB ports that comply with USB EHCI, Rev. 3.0, specifications. (Refer to Appendix A.5 for pin assignments.)

USB 3.0

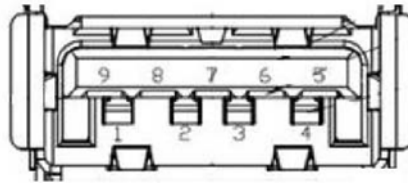


Figure 2.6 USB 3.0 Connector

Table 2.6: USB 3.0 Connector Pin Assignments

Pin	Signal Name	Description
1	VBUS	Power
2	D-	USB2.0 differential pair
3	D+	
4	GND	Ground for power return
5	StdA_SSRX-	SuperSpeed receiver differential pair
6	StdA_SSRX+	
7	GND_DR1AN	Ground for signal return
8	StdA_SSTX-	SuperSpeed transmitter differential pair
9	StdA_SSTX+	

USB 2.0

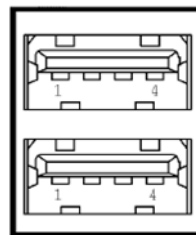


Figure 2.7 USB 2.0 Connector

Table 2.7: USB 2.0 Connector Pin Assignments

Pin	Signal Name	Description
1	VBUS	Power
2	D-	USB2.0 differential pair
3	D+	
4	GND	Ground for power return

2.3.1.4 HDMI Connector

UNO-247 provides a high resolution HDMI, it supports display resolution of up to 1920 x 1080 @ 60 Hz.

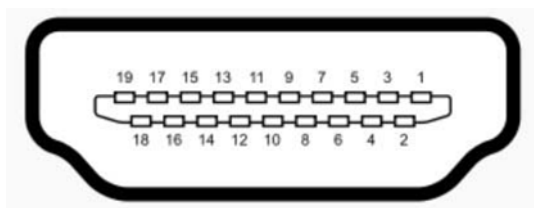


Figure 2.8 HDMI Connector

Table 2.8: HDMI Connector Pin Assignments

Pin	Signal Name	Pin	Signal Name
1	TMDS Data2+	2	TMDS Data2 Shield
3	TMDS Data2-	4	TMDS Data1+
5	TMDS Data1 Shield	6	TMND Data1-
7	TMDS Data0+	8	TMDS Data0 Shield
9	TMDS Data0-	10	TMDS Clock+
11	TMDS Clock Shield	12	TMDS Clock-
13	NL	14	Reserved
15	SCL	16	SDA
17	DDC/CEC/HEC Gound	18	+5V Power (max 50mA)
19	Hot Plug Detect		

2.3.1.5 VGA connector

The UNO-247 provides a high resolution VGA interface with a 15-pin D-sub connector to support a VGA CRT monitor. It supports display resolution of up to 1920 x 1080 @ 60 Hz.

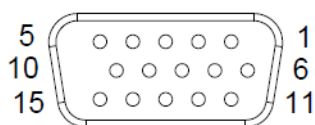


Figure 2.9 VGA Connector

Table 2.9: VGA Connector Pin Assignments

Pin	Signal Name	Pin	Signal Name
1	Red	2	Green
3	Blue	4	NC
5	GND	6	GND
7	GND	8	GND
9	+5V	10	GND
11	NC	12	DDC_DAT
13	H-SYNC	14	V-SYNC
15	DDC_CLK		

2.3.2 Internal I/O Connectors

2.3.2.1 Internal USB 2.0

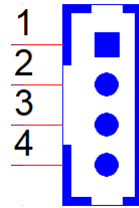


Figure 2.10 Internal USB Connector

Table 2.10: Internal USB Connector

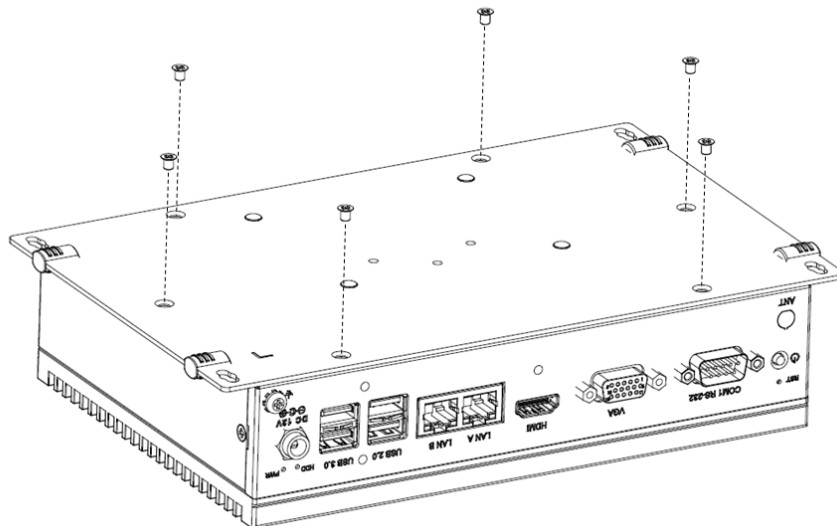
Pin	Signal
1	VBUS
2	D-
3	D+
4	GND

2.4 Installation

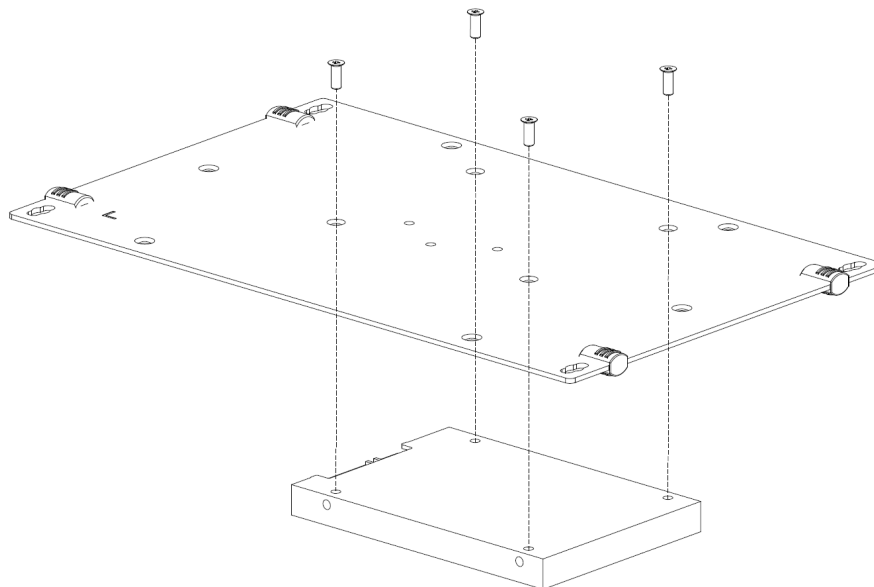
2.4.1 HDD/SSD installation

UNO-247 supports 1 HDD/ SDD installation. The following steps demonstrate how to install 2.5" storage.

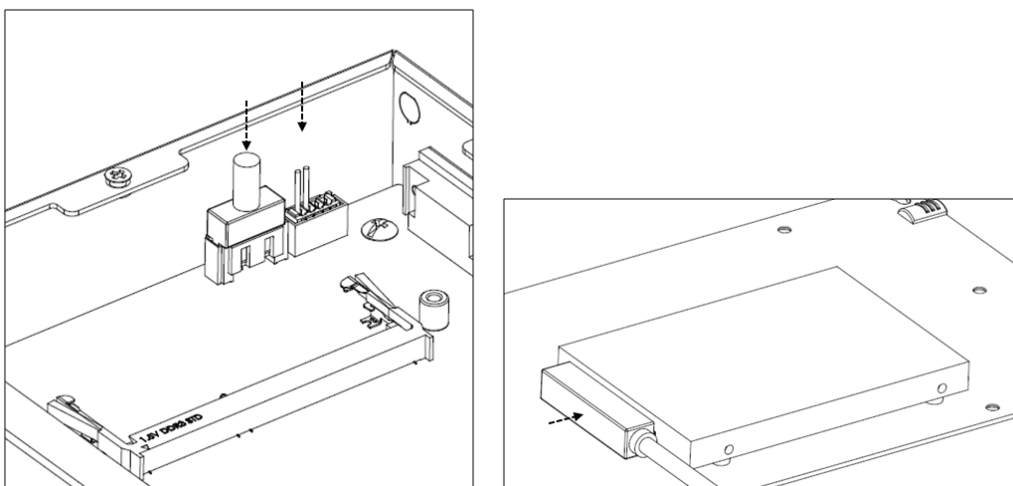
1. Remove 6 screws from bottom cover of UNO.



2. Secure the HDD/SSD with the 4 screws.

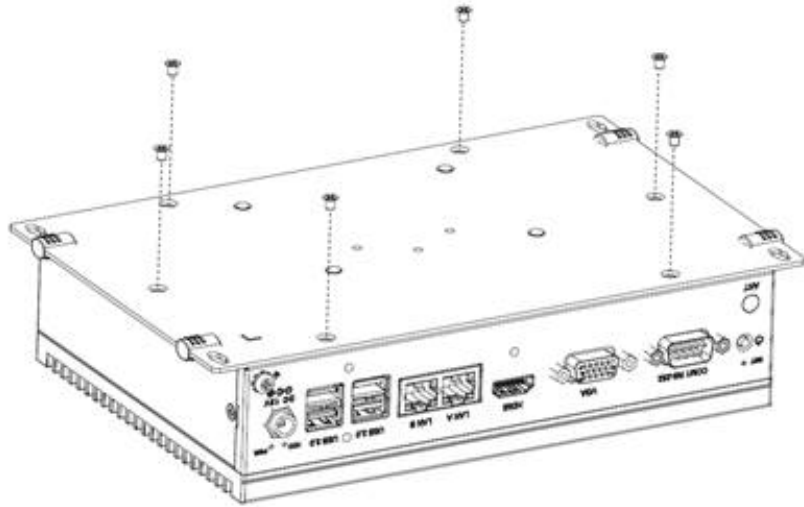


3. Plug in SATA cable

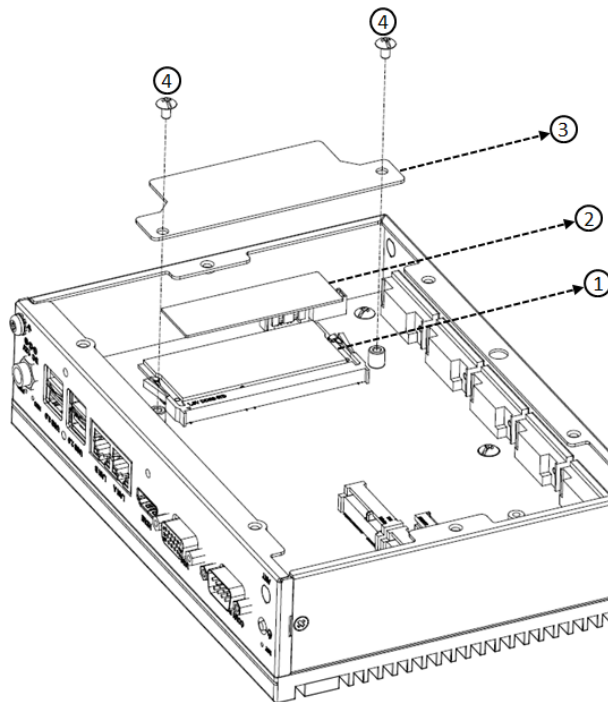


2.4.2 RAM installation

1. Remove 6 screws from bottom cover.

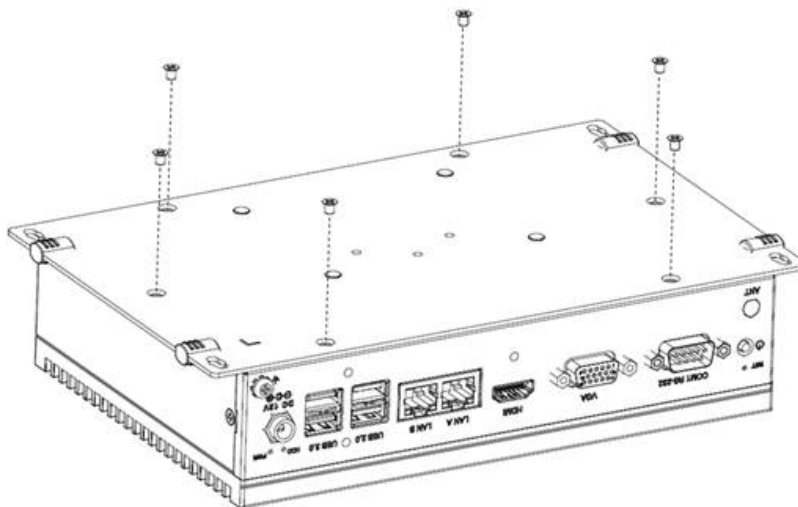


2. Install RAM(1) cover with thermal pad (2), and fix the bracket (3) with 4 screws (4).

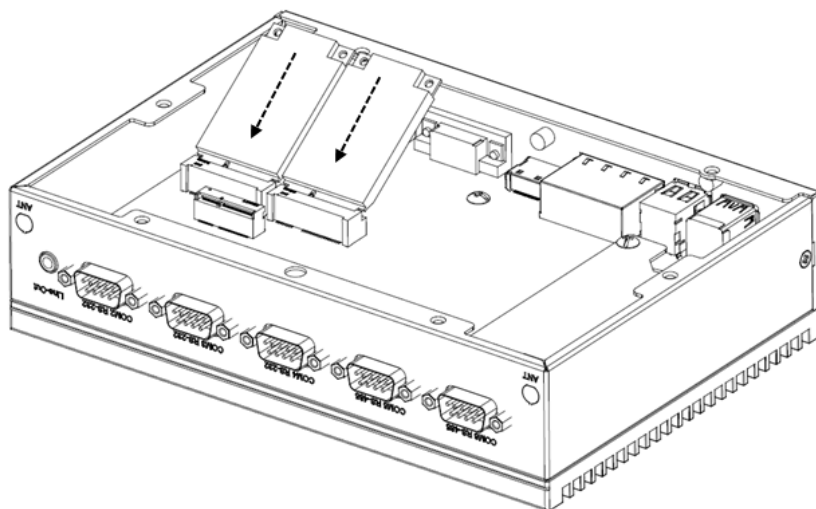


2.4.3 mSATA/ mPCIe card installation

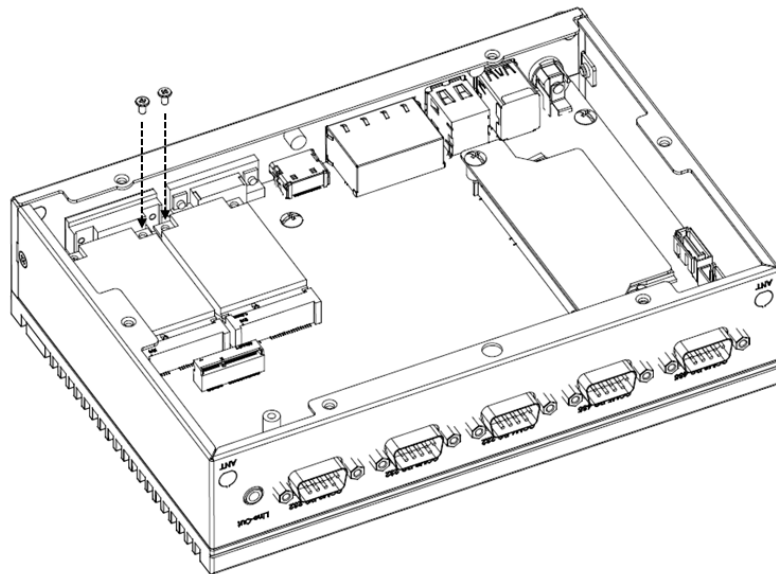
1. Remove 6 screws from bottom cover.



2. Insert the mSATA/ mPCIe card.

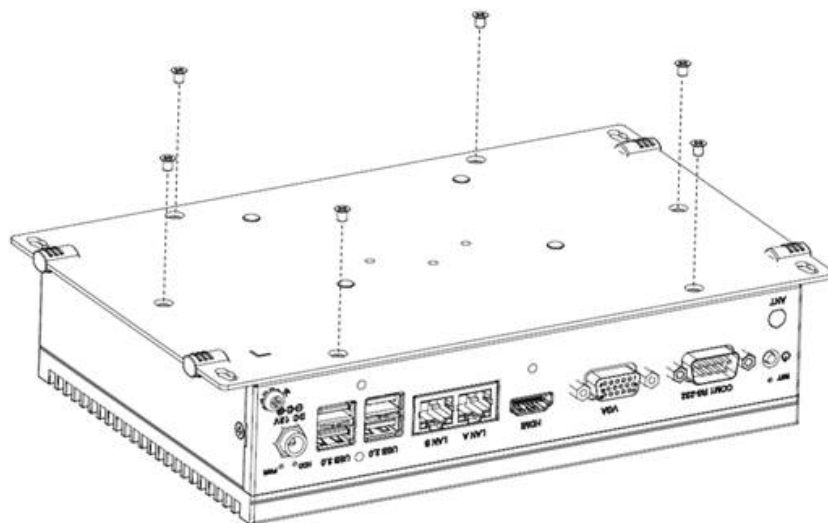


3. Fix the mSATA/ mPCIe card with the screws in the accessory package.

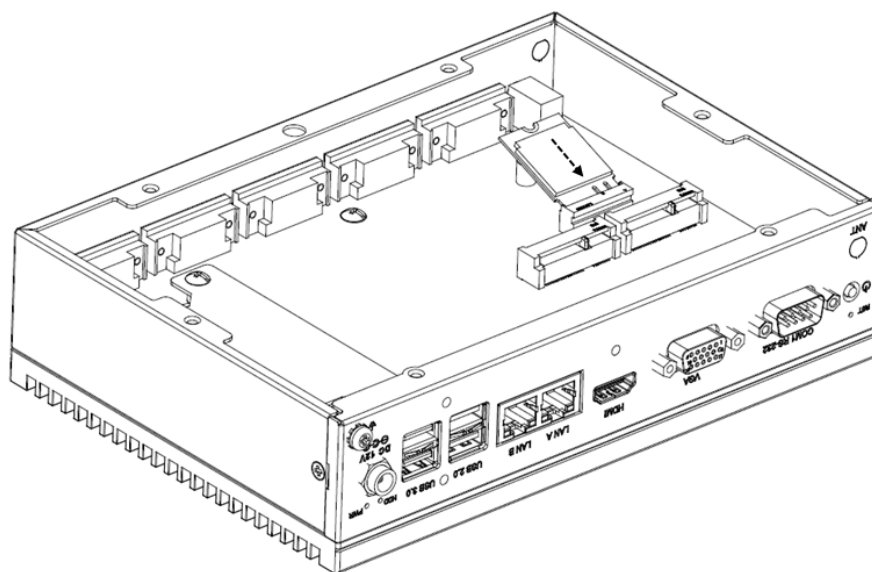


2.4.4 M.2 Installation

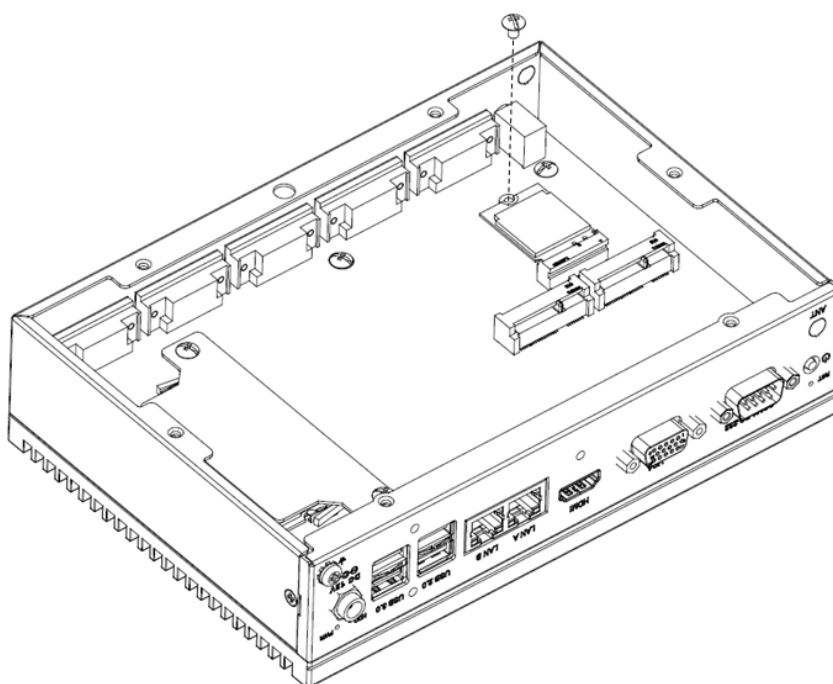
1. Remove 6 screws from bottom cover of UNO.



2. Insert the M.2 card.



3. Fix the M.2 card using screws from the accessory package.



Chapter 3

AMI BIOS Setup

This chapter introduces how to set BIOS configuration data.

3.1 Introduction

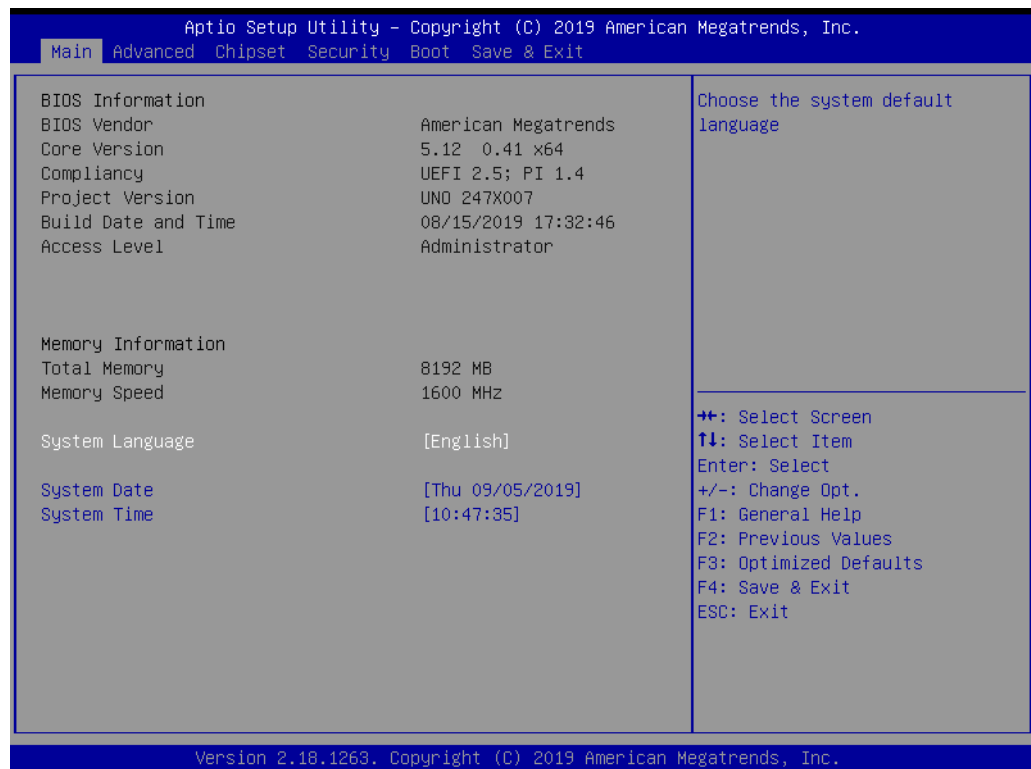
With the AMI BIOS Setup program, you can modify BIOS settings and control the special features of your computer. The Setup program uses a number of menus for making changes and turning special features on or off. This chapter describes the basic navigation of the UNO-247 setup screens.

3.2 Entering Setup

Press the "Del" or "Esc." key during the Power On Self Test (POST) process to enter the BIOS setup screen, otherwise the system will continue the POST process.

3.2.1 Main Setup

When you first enter the BIOS Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.



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.

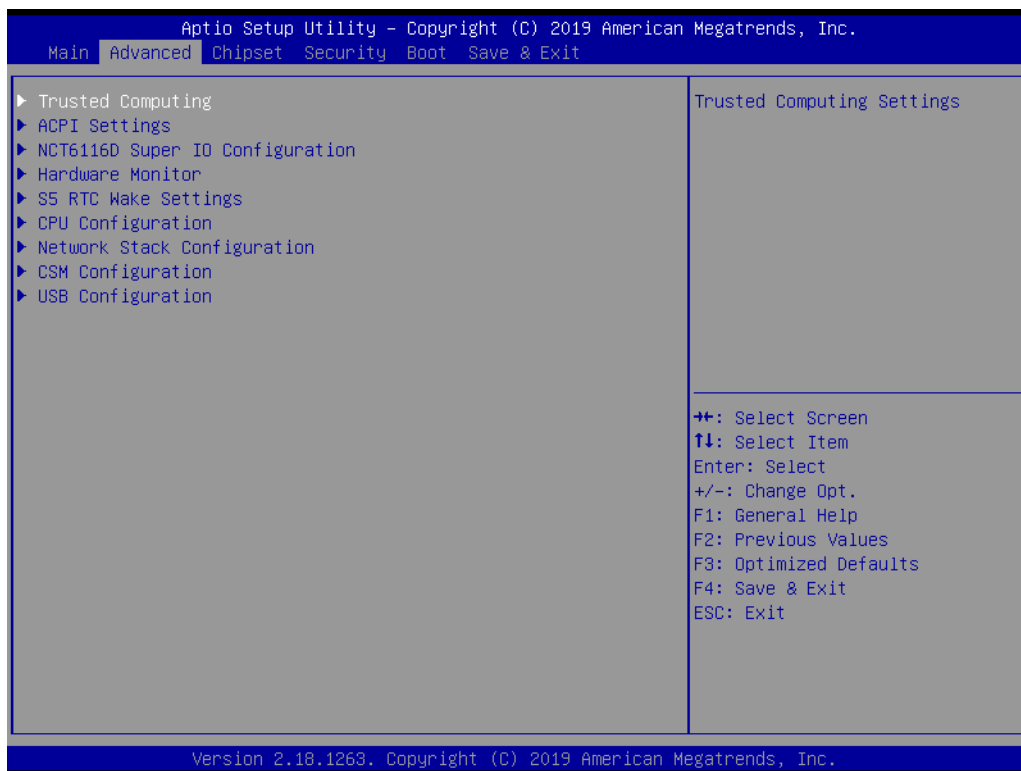
■ System Time / System Date

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.

3.2.2 Advanced BIOS Features Setup

Select the Advanced tab from the UNO-247 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 ACPI Settings and hit <enter> 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.



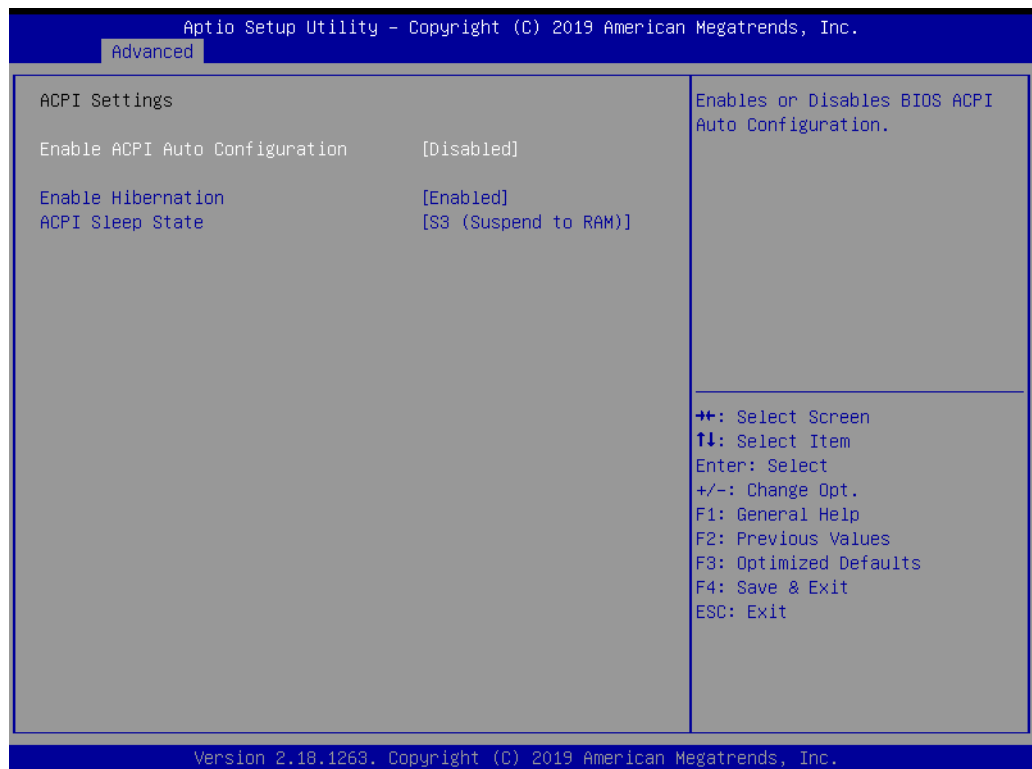
3.2.2.1 Trusted Computing



■ Security Device Support

This item allows users to enable or disable "Security Device Support".

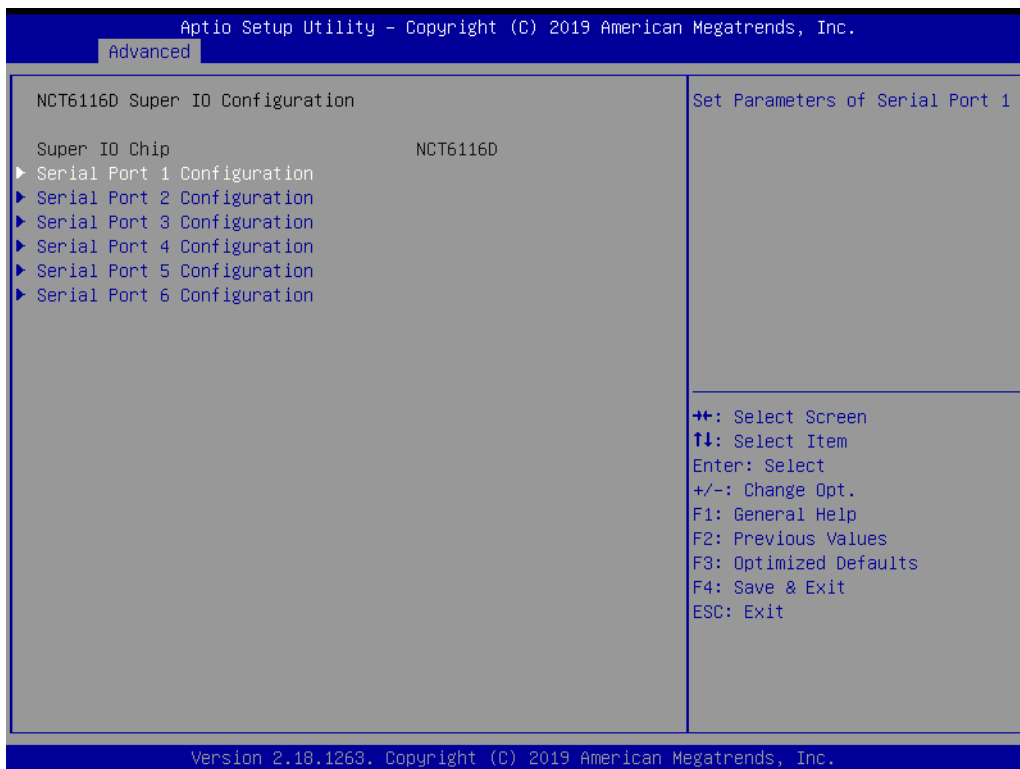
3.2.2.2 ACPI Settings

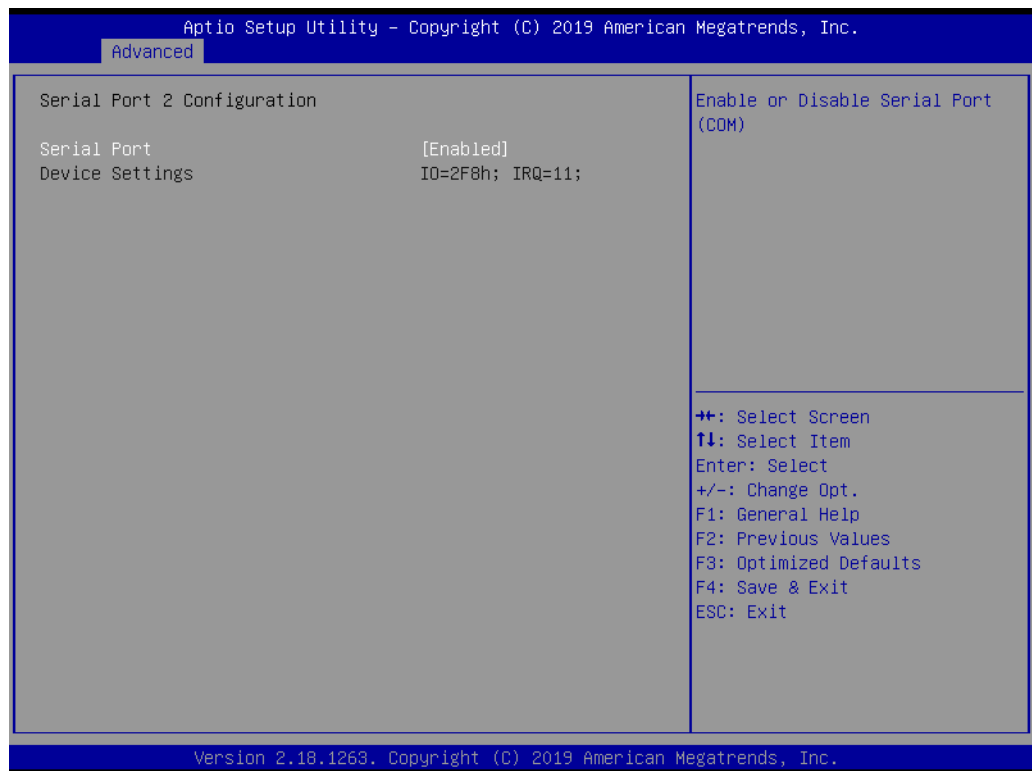
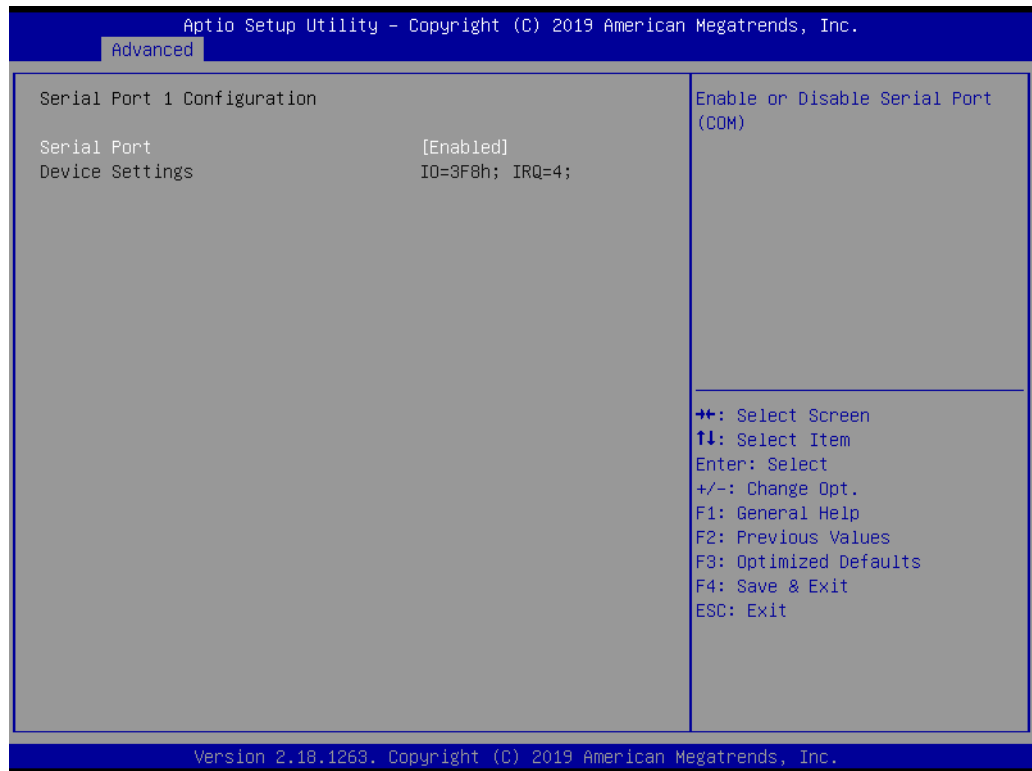


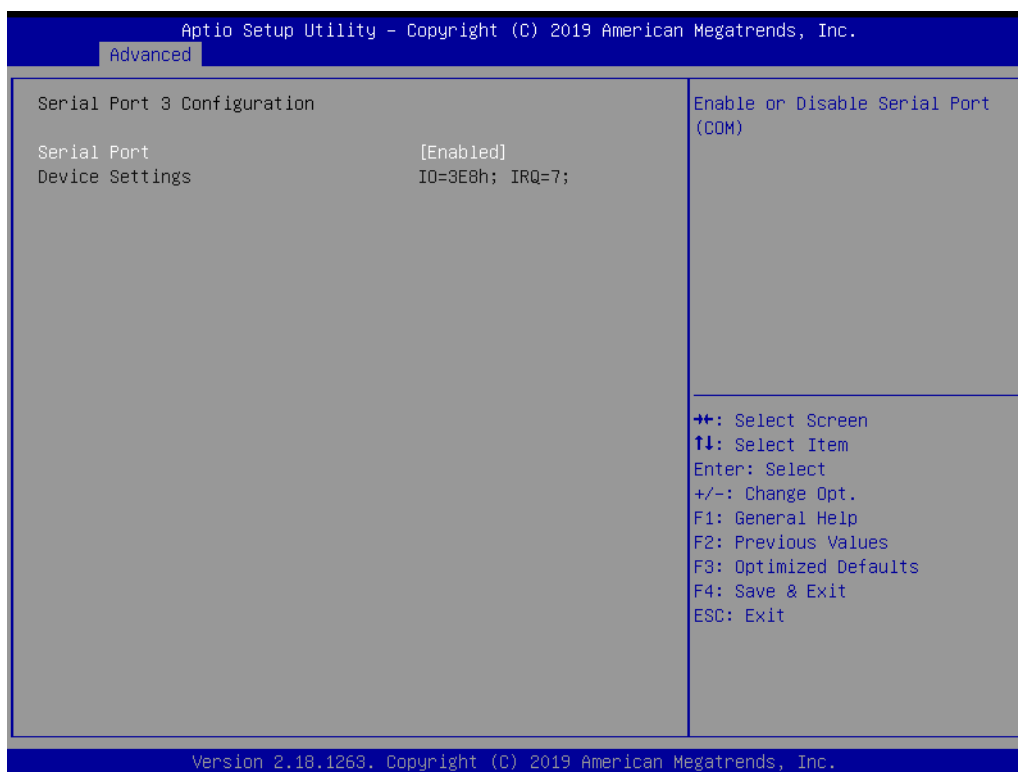
- **Enable ACPI Auto Configuration**
This item allows users to enable or disable "ACPI Auto Configuration".
- **Enable Hibernation**
This item allows users to enable or disable "Hibernation".
- **ACPI Sleep State**
This item allows users to set ACPI mode S3 (Suspend to RAM) or to Disable "ACPI Sleep State".

3.2.2.3 NCT6116D Super IO Configuration

UNO-247 supports 4xRS-232 & 2-RS-485.





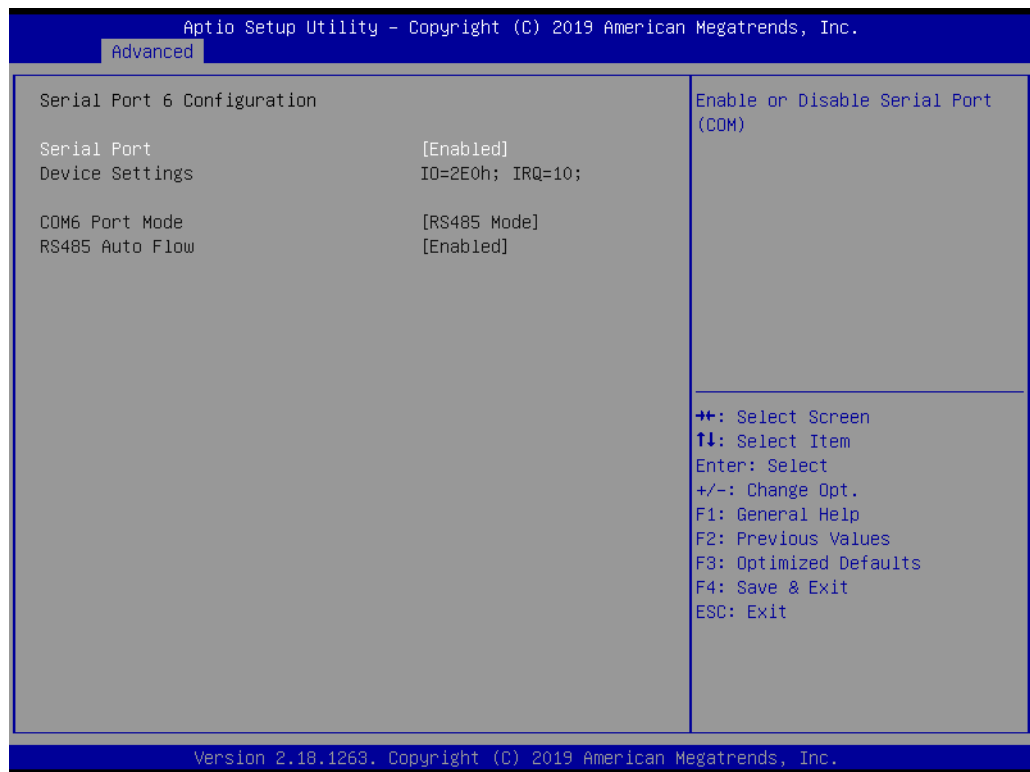
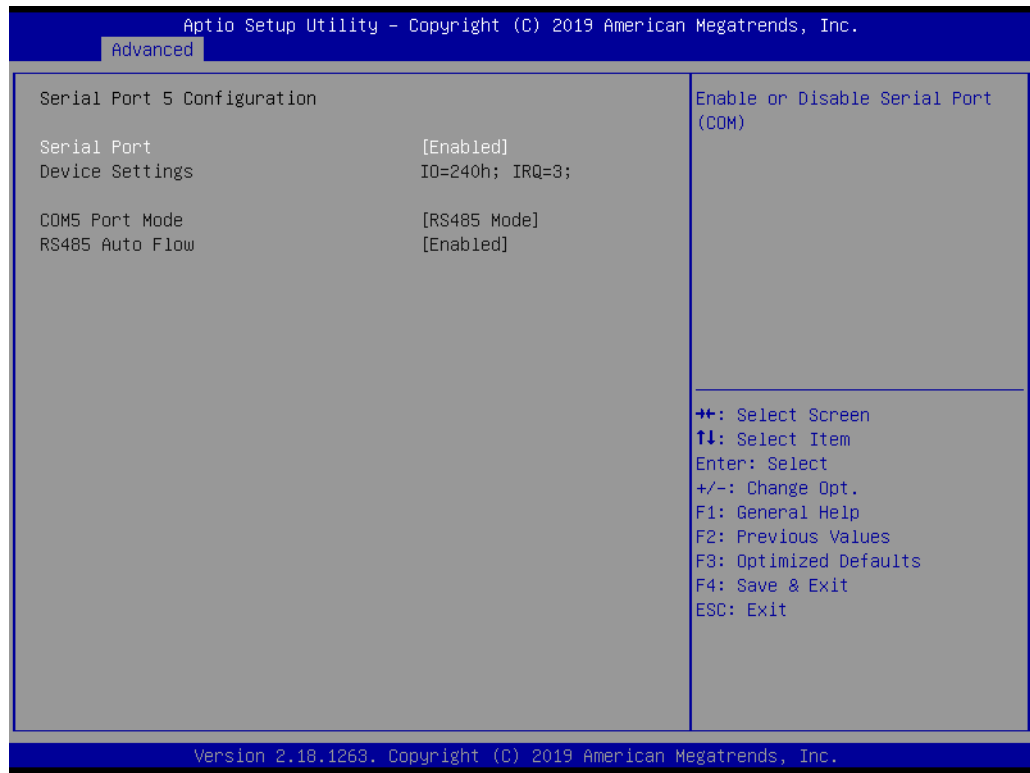


- **Serial Port 1 Configuration**
 - Serial Port
 - This item allows users to enable or disable for "Serial Port".
- **Serial Port 2 Configuration**
 - Serial Port
 - This item allows users to enable or disable for "Serial Port".
- **Serial Port 3 Configuration**

- Serial Port
This item allows users to enable or disable for "Serial Port".

■ **Serial Port 4 Configuration**

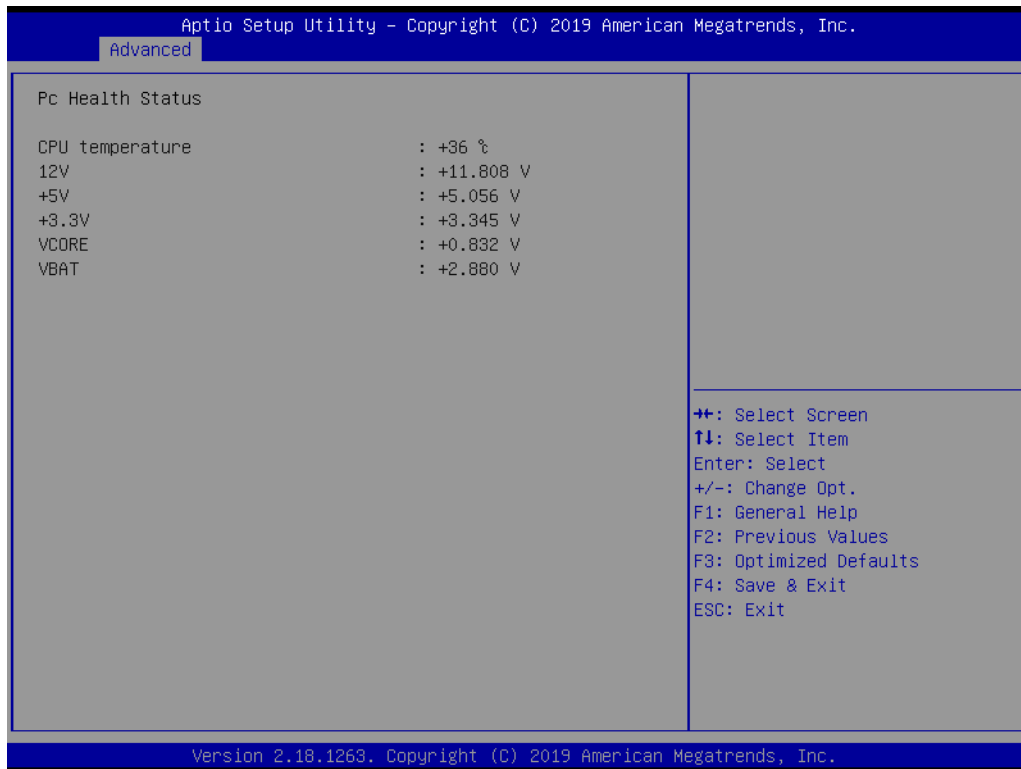
- Serial Port
This item allows users to enable or disable for "Serial Port".



■ **Serial Port 5 Configuration**

- Serial Port
This item allows users to enable or disable for "Serial Port".
- **Serial Port 6 Configuration**
 - Serial Port
This item allows users to enable or disable for "Serial Port".

3.2.2.4 Advanced Hardware Monitor

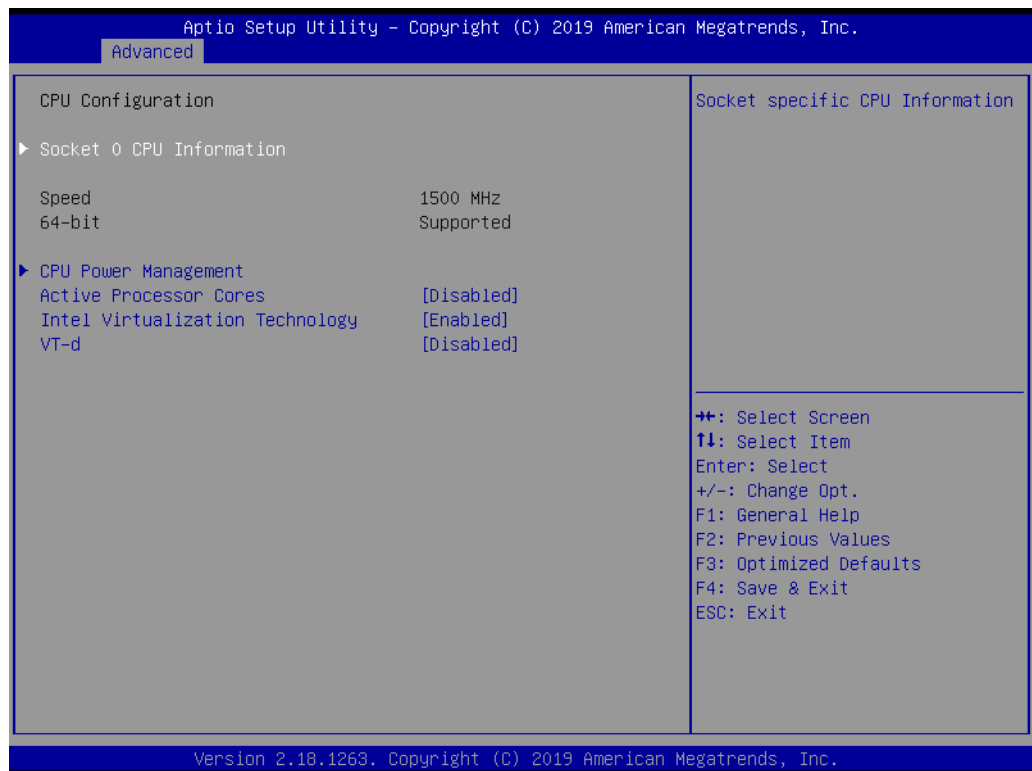


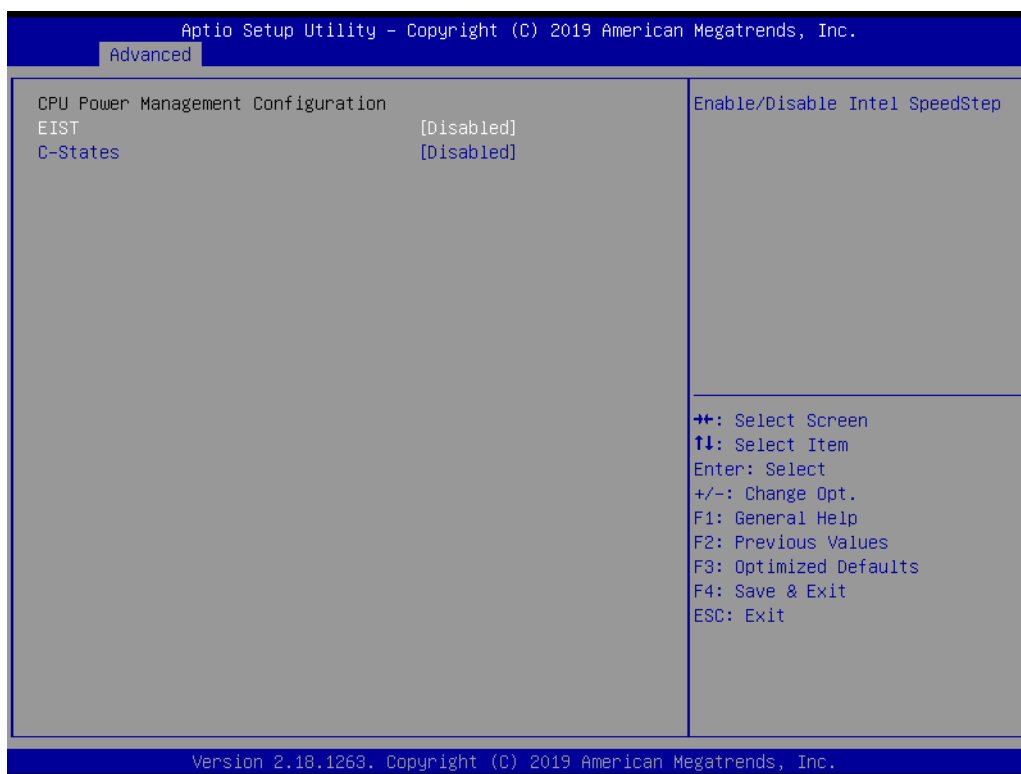
3.2.2.5 S5 RTC Wake Settings



- **Wake system from S5**
This item allows users to enable or disable for "Wake system from S5"

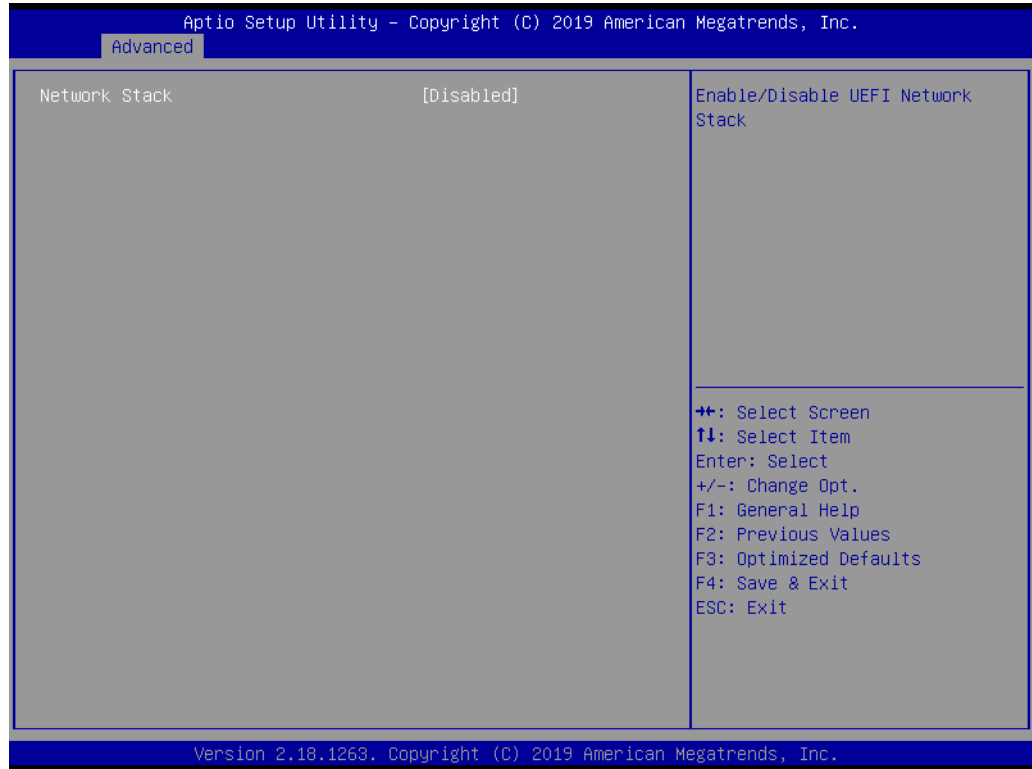
3.2.2.6 CPU Configuration





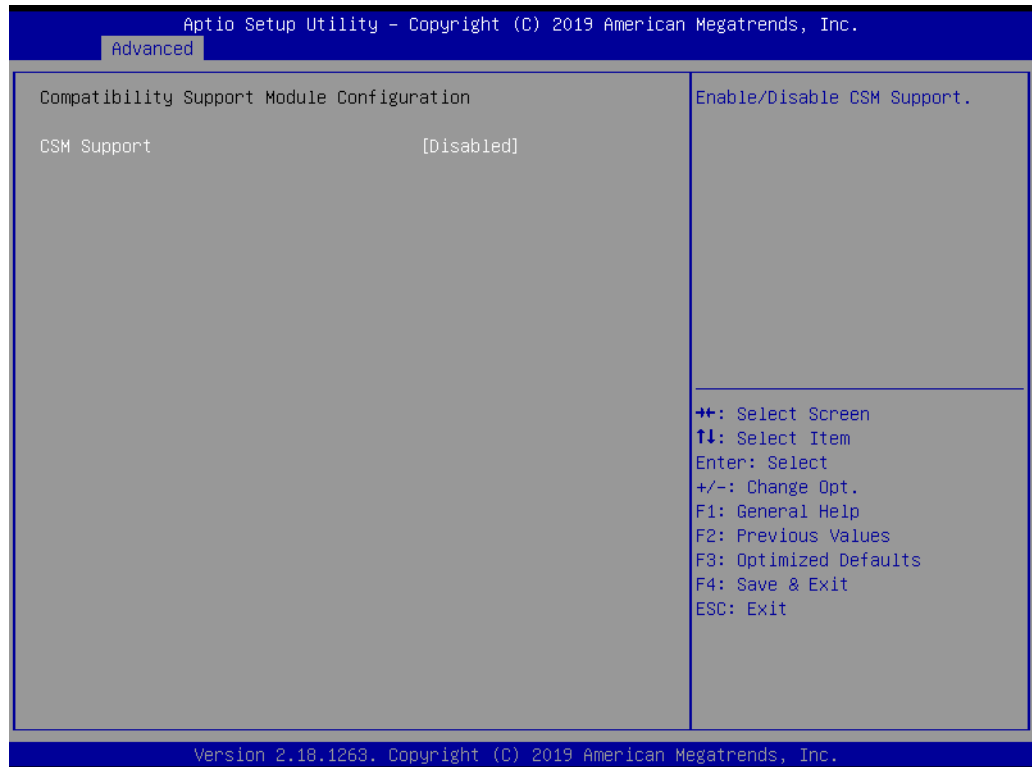
- **CPU Management**
This item allows users to setting CPU management including EIST and C-States.
- **EIST**
This item allows users to enable or disable "EIST"
- **C-States**
This item allows users to enable or disable "C-States"

3.2.2.7 Network Stack



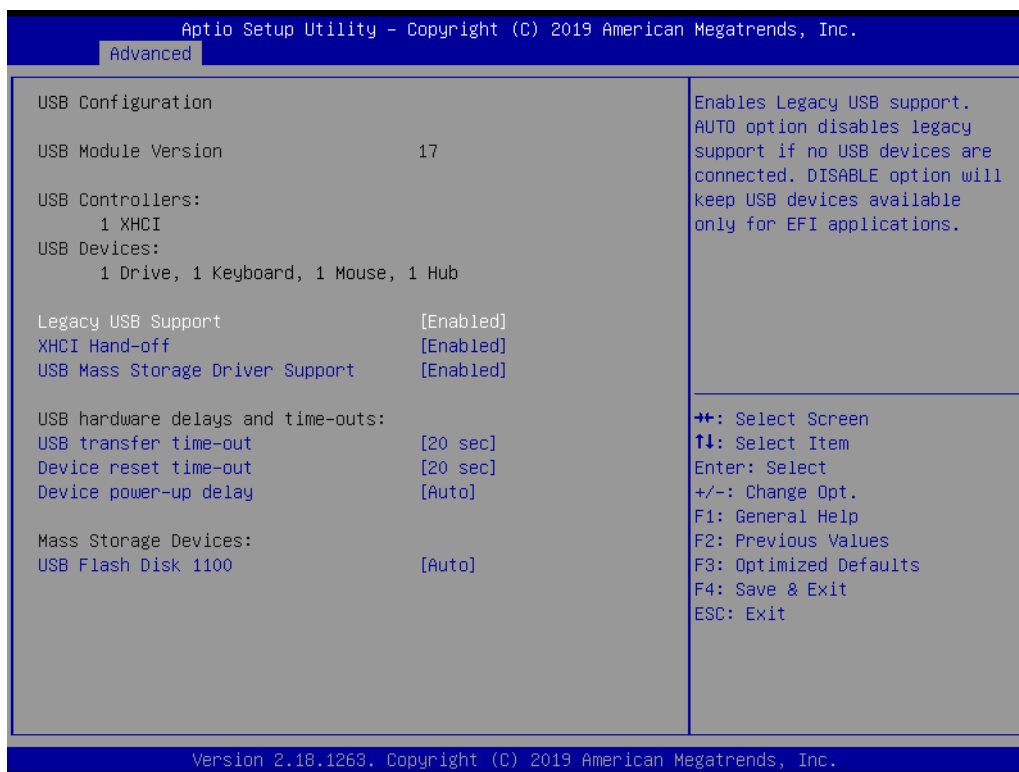
- **Network Stack**
This item allows users to enable or disable for "Network Stack" (For using UEFI PXE function, please enable this item).

3.2.2.8 CSM Configuration



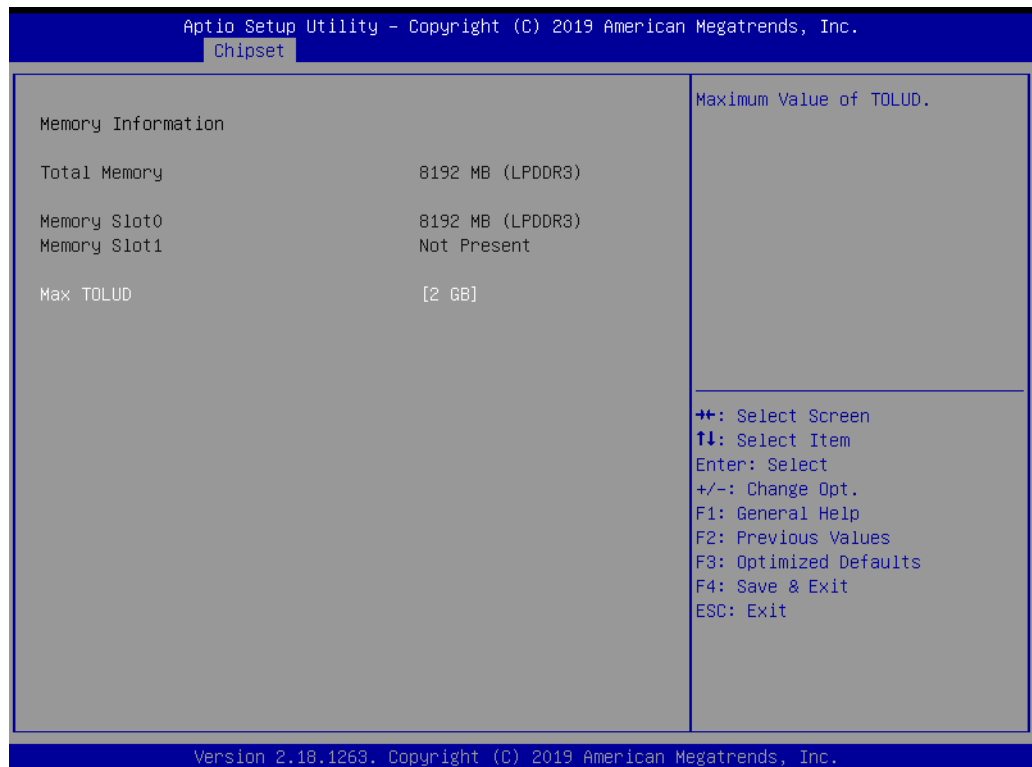
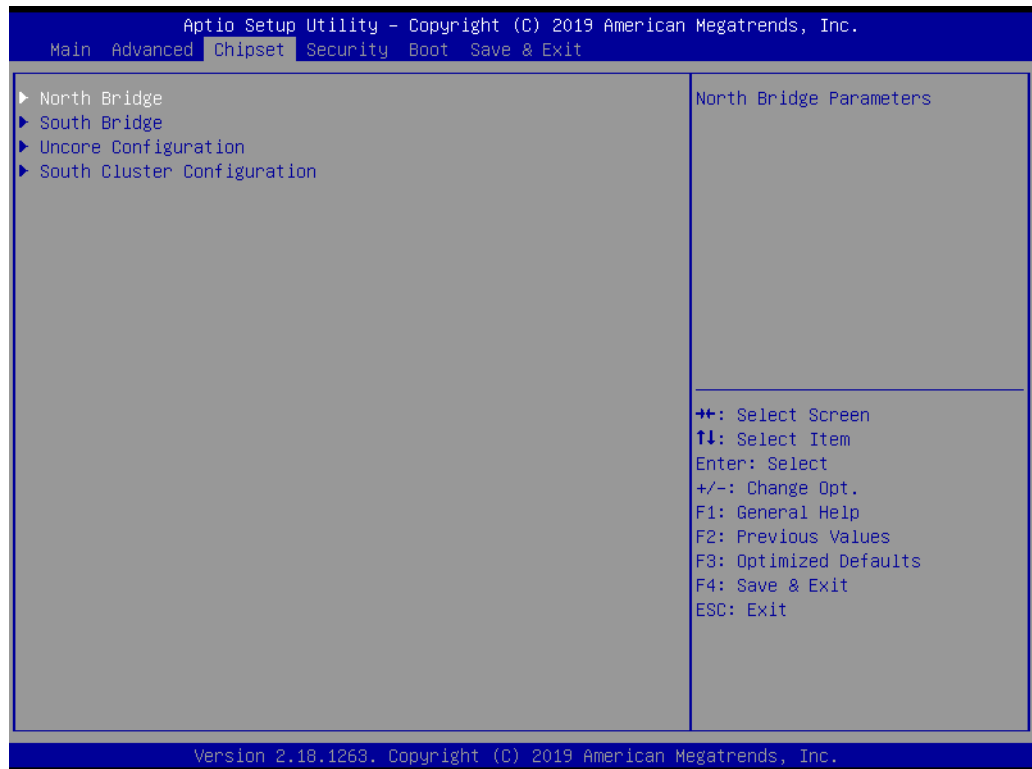
- **CSM Support**
This item allows users to enable or disable for "CSM Support".

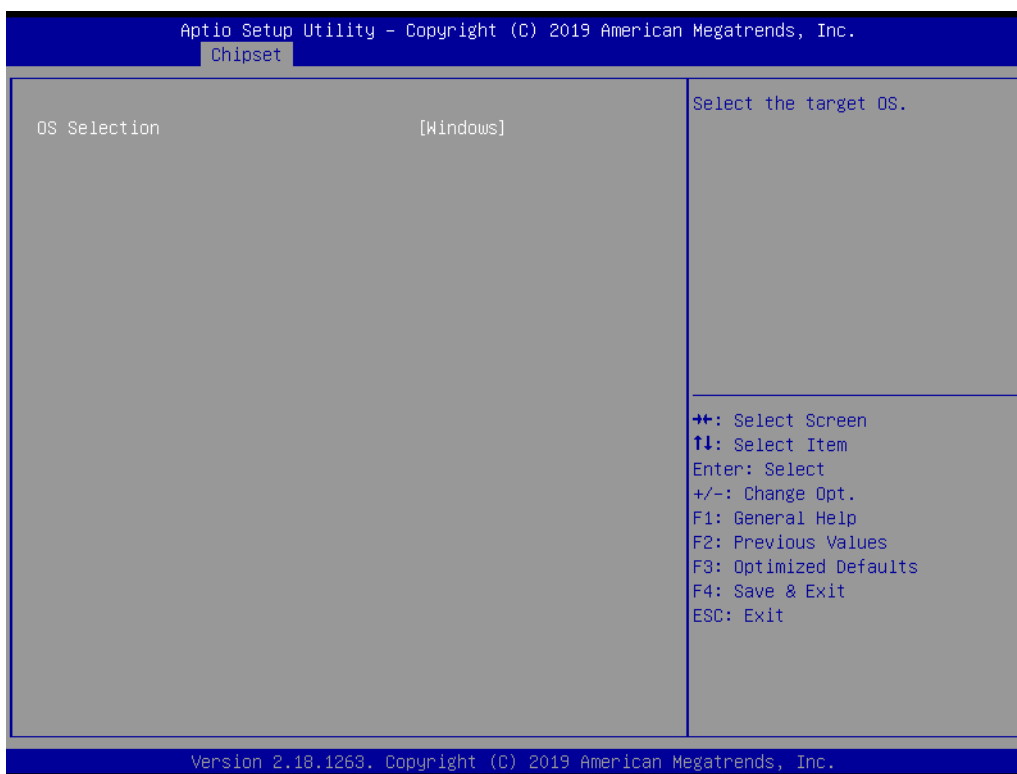
3.2.2.9 USB Configuration



- **Legacy USB Support**
This item allows users to enable or disable or set Auto for "Legacy USB Support".
- **XHCI Hand-off**
This item allows users to enable or disable "XHCI Hand-off".
- **USB Mass Storage Driver Support**
This item allows users to enable or disable "USB Mass Storage Driver Support".
- **USB transfer Time-out**
This item allows users to set different time mode for "USB transfer Time-out".
- **Device reset Time-out**
This item allows users to set different time modes for "Device reset Time-out".
- **Device power-up delay**
This item allows users to set different time mode for "Device power-up delay".
- **USB Flash Disk 1110**
This item allows users to set different time mode for "USB Flash Disk 1110".

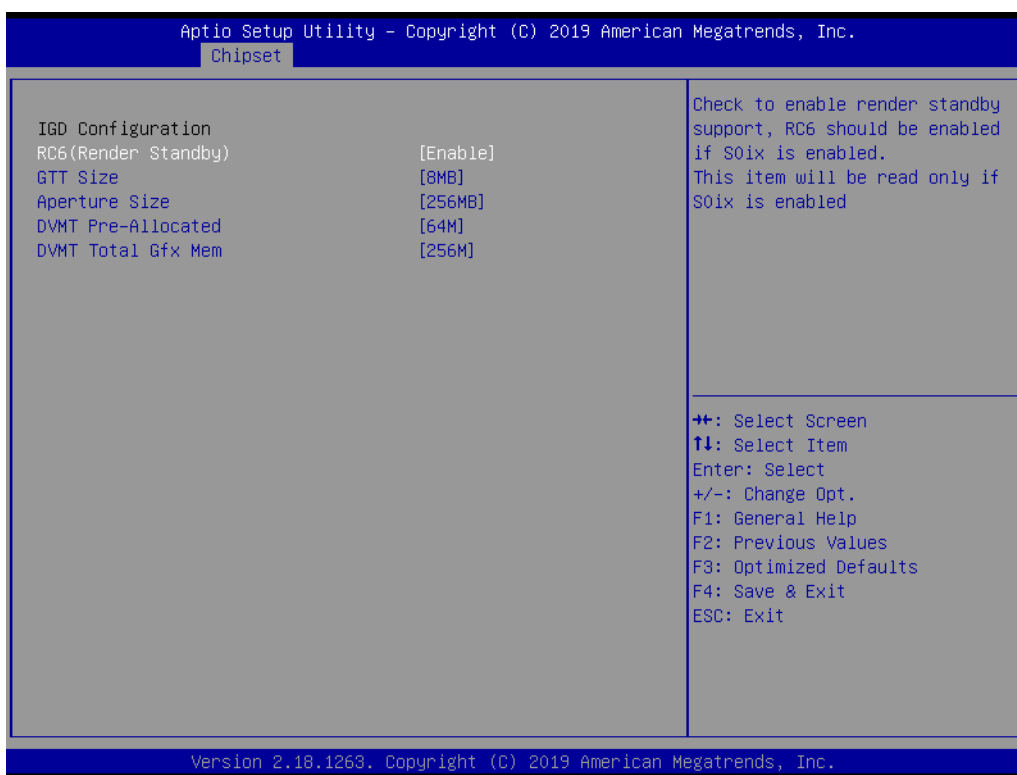
3.2.3 Chipset

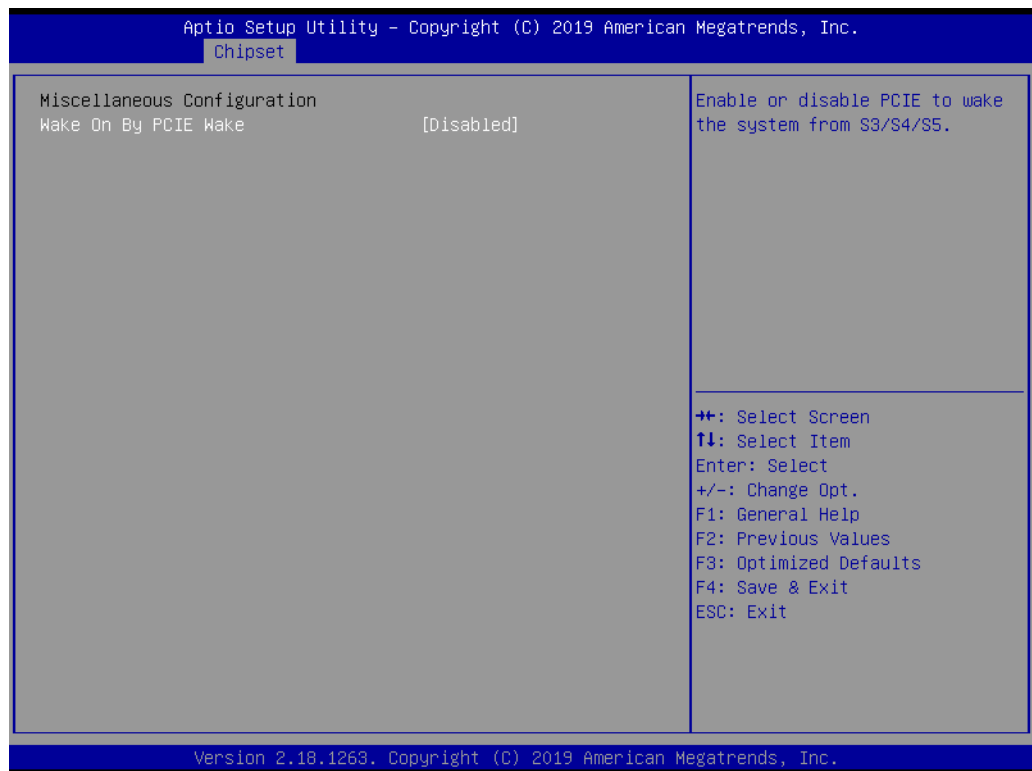
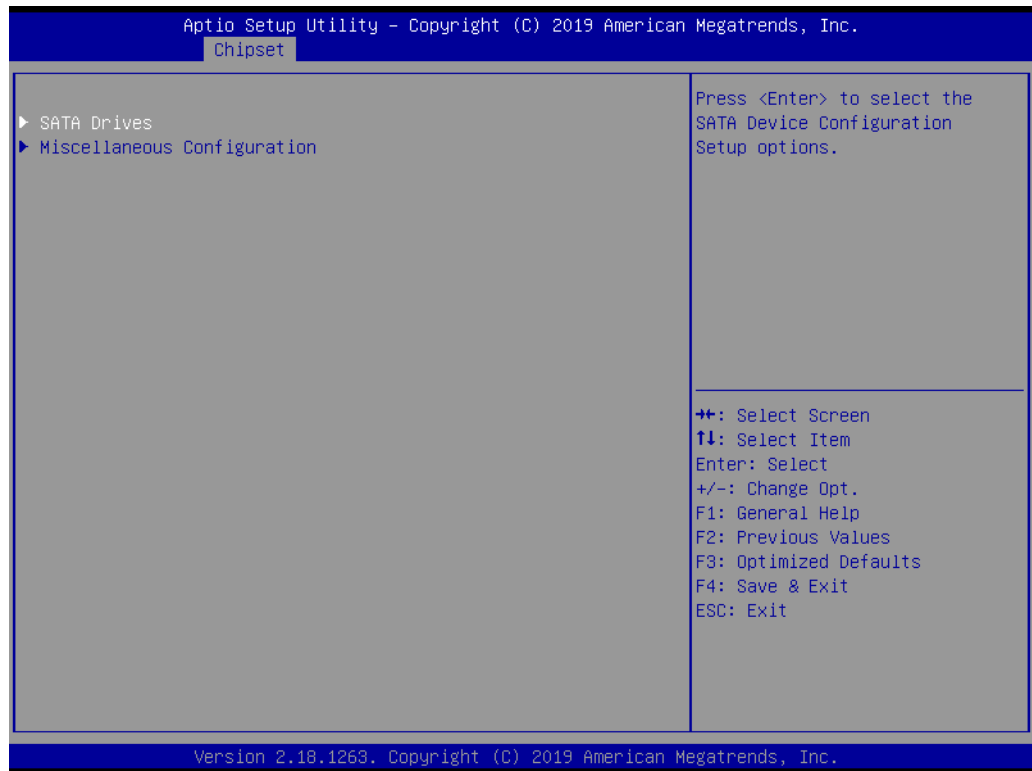


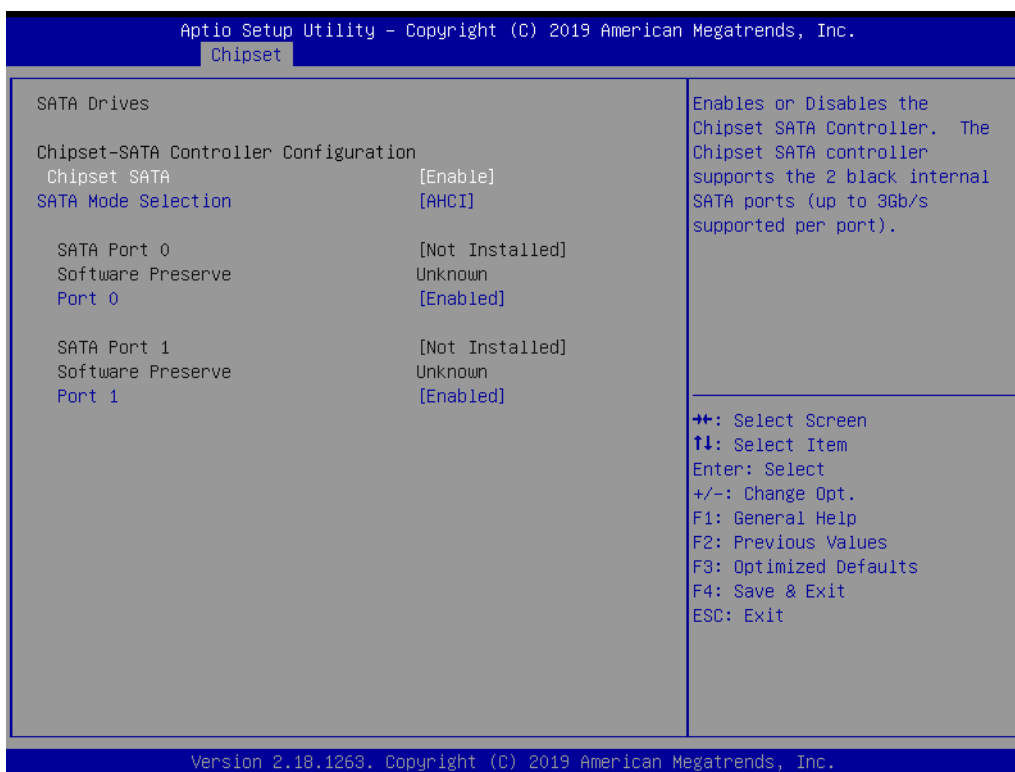


■ **OS Selection**

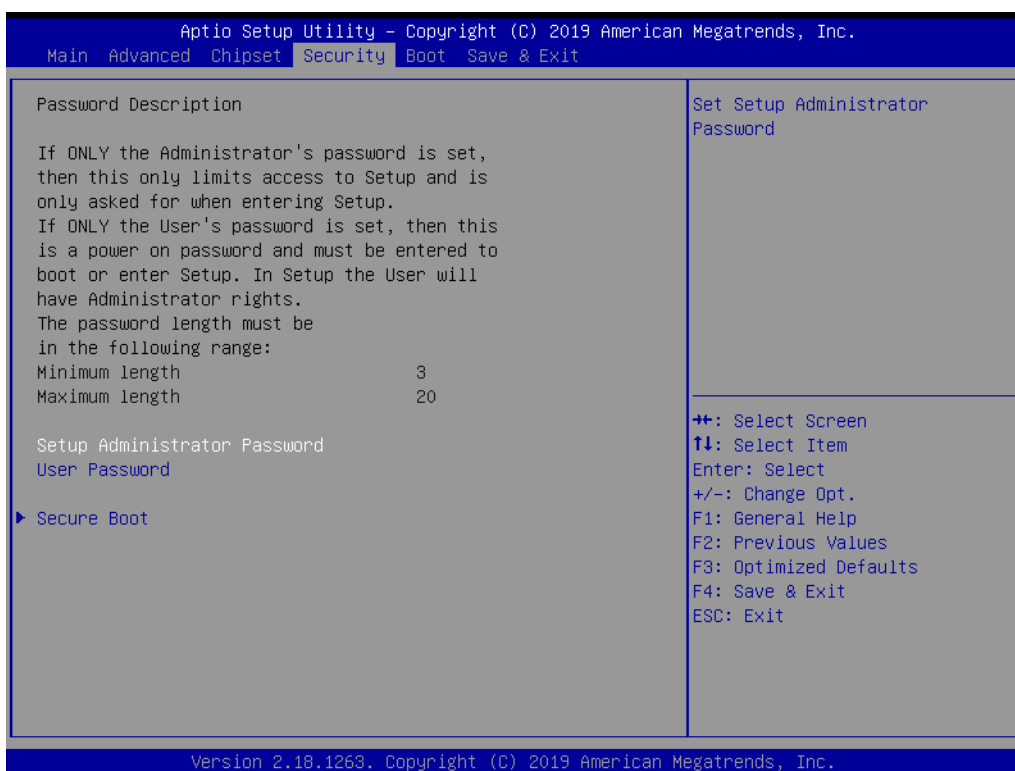
This item allows users to change OS type to "Linux" or "Windows" before installing the OS.



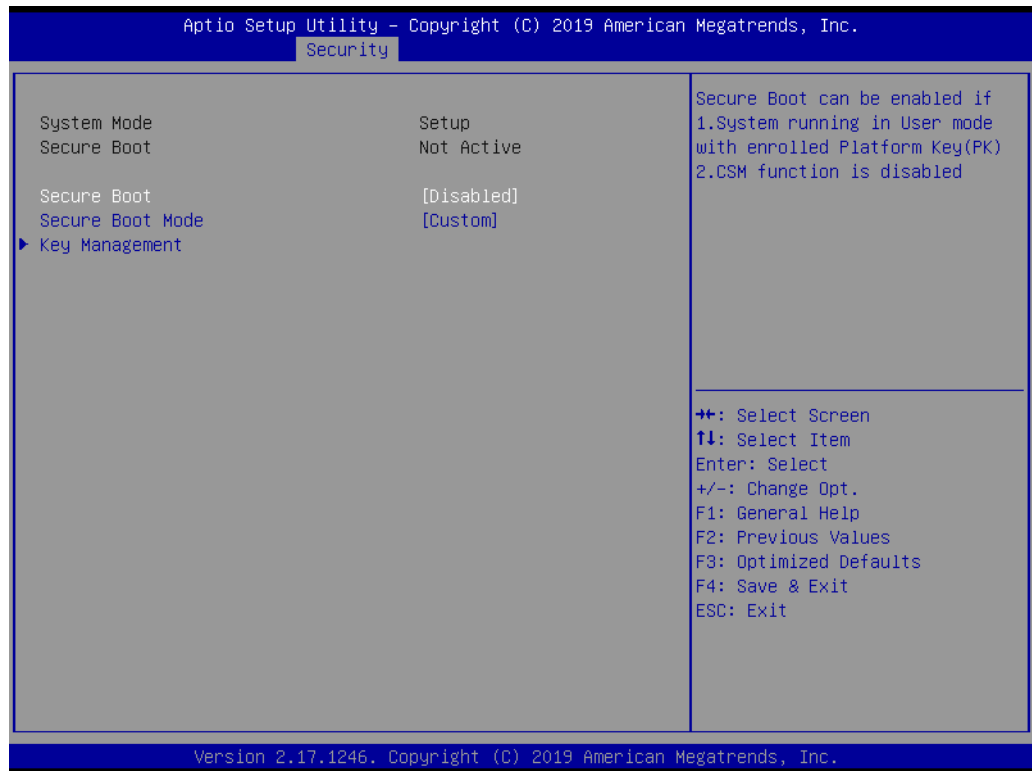




3.2.4 Security



- **Set Admin Password**
 This item allows users to set "Administrator Password" if desired.



- **Secure Boot**
This item allows users to enable or disable or set Auto for "Secure Boot".

3.2.5 Boot



- **Setup Prompt Timeout**
Number of Seconds to wait for showing period of Power On Self Test (POST).
- **Bootup NumLock State**
This item allows users to set "Bootup NumLock State" either On or Off.
- **Quiet Boot**
This item allows users to disable or enable "Quiet Boot".
- **Boot Option Priorities**
These items will display based on how many devices are attached

3.2.6 Save & Exit



- **Save Changes and Exit**
This item allows users to Save Changes and Exit.
- **Discard Changes and Exit**
This item allows users to Discard Changes and Exit.
- **Save Changes and Reset**
This item allows users to Save Changes and Reset.
- **Discard Changes and Reset**
This item allows users to Discard Changes and Reset.
- **Save Changes**
This item allows users to Save Changes.
- **Discard Changes**
This item allows users to Discard Changes.
- **Restore Defaults**
This item allows users to restore factory defaults.
- **Save as User Defaults**
This item allows users to Save as User Defaults.
- **Restore User Defaults**
This item allows users to Restore User Defaults.

www.advantech.com

Please verify specifications before quoting. This guide is intended for reference purposes only.

All product specifications are subject to change without notice.

No part of this publication may be reproduced in any form or by any means, electronic, photocopying, recording or otherwise, without prior written permission of the publisher.

All brand and product names are trademarks or registered trademarks of their respective companies.

© Advantech Co., Ltd. 2019