



User Manual

AIR-100

Signage AI Inference System

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. also reserves the right to improve 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 on the rights of third parties that may result from its use.

Acknowledgements

VGA are trademarks of International Business Machines Corporation.

Intel® and Celeron® are trademarks of Intel Corporation.

NVIDIA® is trademark of NVIDIA Corporation

Microsoft Windows® is a registered trademark of Microsoft Corp.

AMI is a registered trademark of American Megatrends Inc.

ESS is a trademark of ESS Technology, Inc.

All other product names or trademarks are properties of their respective owners. For more information about this and other Advantech products, please visit our web-site at: <http://www.advantech.com/>

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

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 of the 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.

Declaration of Conformity

FCC Class B

Note: This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to part 15 of the FCC Regulations. 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 the equipment does cause harmful interference to radio or television reception, as determined by turning the equipment off and on again, users are encouraged to try to correct the interference by performing one or more of the following actions:

- 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 assistance.

Technical Support and Assistance

1. Visit the Advantech website at www.advantech.com/support 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

Warnings, Cautions, and Notes

Warning! *Warnings indicate conditions, which if not observed, can cause personal injury!*



Les avertissements indiquent des conditions qui, si elles ne sont pas observées, peuvent causer des blessures!

Caution! *Cautions are included to help you avoid damaging hardware or losing data e.g.*



There is a danger of a new battery exploding if it is incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer.

Discard used batteries according to the manufacturer's instructions.

Des précautions sont incluses pour vous aider à éviter d'endommager le matériel ou à perdre des données par exemple.

Une pile neuve risque d'exploser si elle n'est pas installée correctement.

N'essayez pas de recharger, d'ouvrir de force ou de chauffer la batterie. Remplacez la pile uniquement par le même type ou un type équivalent recommandé par le fabricant.

Jetez les piles usagées conformément aux instructions du fabricant.

Note! *Notes provide optional additional information.*



Les notes fournissent des informations supplémentaires facultatives

Packing List

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

- 1 x AIR-100 Unit
- 1 x accessory box include:
 - 1 x Power Adaptor
 - 1 x Bracket set for fixing power adapter plug
 - 2 x Mounting Brackets
 - 1 x China RoHS
 - 1 x User Manual
 - 1 x Content Management Software
 - 4 x Foot rubbers and screws

Optional Accessory

Part Number	Description
1700001524	3-pin power cord (US)
170203183C	3-pin power cord (EU)
170203180A	3-pin power cord (UK)
1702031836	3-pin power cord (AU)
1700008921	3-pin power cord with PSE (Japan)
1700019146	3-pin power cord with CCC(China)

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:
 - The power cord or plug is damaged.
 - Liquid has penetrated 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 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. **CAUTION: DANGER OF EXPLOSION IF 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.**

ATTENTION: Risque d'explosion si la batterie est remplacée de manière incorrecte. Remplacer uniquement avec un modèle recommandé par le fabricant, et éliminer les piles usagées selon les instructions du fabricant.

DISCLAIMER: This set of instructions is given according to IEC 60950-1(ed.2).

Advantech disclaims all responsibility for the accuracy of any statements contained herein.

This product is intended to be supplied by an UL certified power supply or dc source suitable for use at minimum T_{ma} 50 degree C whose output meets SELV, LPS and is rated 19Vdc, 3.42A min., if need further assistance, please contact Advantech for further information.

By means of a power cord connected to a socket-outlet with earthing connection

Consignes de sécurité

1. Lisez attentivement ces instructions de sécurité.
2. Conservez ce manuel pour référence ultérieure.
3. Débranchez cet appareil de toute prise secteur avant le nettoyage. Utilisez un chiffon humide. Ne pas utiliser de détergents liquides ou en aérosol pour le nettoyage
4. Pour les équipements enfichables, la prise de courant doit être située près de l'équipement et doit être facilement accessible.
5. Gardez cet équipement à l'abri de l'humidité.
6. Placez cet équipement sur une surface fiable lors de l'installation. Le laisser tomber ou le laisser tomber peut causer des dommages.
7. Les ouvertures sur l'enceinte sont destinées à la convection de l'air. Protégez l'équipement de la surchauffe. **NE COUVREZ PAS LES OUVERTURES.**
8. Assurez-vous que la tension de la source d'alimentation est correcte avant de connecter l'équipement à la prise de courant.
9. Positionnez le cordon d'alimentation de sorte que personne ne puisse marcher dessus. Ne placez rien sur le cordon d'alimentation.
10. Toutes les mises en garde et avertissements sur l'équipement doivent être notés.
11. Si l'appareil n'est pas utilisé pendant une longue période, débranchez-le de la source d'alimentation pour éviter tout dommage dû à une surtension transitoire.
12. Ne jamais verser de liquide dans une ouverture. Cela pourrait provoquer un incendie ou un choc électrique.
13. N'ouvrez jamais l'équipement. Pour des raisons de sécurité, l'équipement ne doit être ouvert que par du personnel qualifié.
14. Si l'une des situations suivantes se produit, faites vérifier l'équipement par le personnel de service:!
 - Le cordon d'alimentation ou la fiche est endommagé Liquid has penetrated the equipment.
 - L'équipement a été exposé à l'humidité.
 - L'équipement ne fonctionne pas bien ou vous ne pouvez pas le faire fonctionner conformément au manuel d'utilisation.
 - L'équipement est tombé et endommagé.
 - L'équipement présente des signes évidents de rupture.
15. **NE PAS LAISSER CET APPAREIL DANS UN ENVIRONNEMENT O LA TEMPÉRATURE DE STOCKAGE PEUT ÊTRE INFÉRIEURE À -20 ° C (-4 ° F) OU SUPÉRIEURE À 60 ° C (140 ° F). CELA POURRAIT ENDOMMAGER L'ÉQUIPEMENT. L'ÉQUIPEMENT DOIT ÊTRE DANS UN ENVIRONNEMENT CONTRÔLÉ.**
16. **ATTENTION: DANGER D'EXPLOSION EN CAS DE REMPLACEMENT INCORRECT DE LA PILE. REMPLACEZ UNIQUEMENT AVEC LE MÊME TYPE OU LE TYPE ÉQUIVALENT RECOMMANDÉ PAR LE FABRICANT, DÉJETTEZ LES PILES UTILISÉES SELON LES INSTRUCTIONS DU FABRICANT.**

ATTENTION: Risque d'explosion si la batterie est remplacée de manière incorrecte. Remplacer uniquement avec un modèle recommandé par le fabricant, et éliminer les piles usagées selon les instructions du fabricant

AVERTISSEMENT: Cet ensemble d'instructions est donné conformément à CEI 60950-1 (ed.2).

Advantech décline toute responsabilité quant à l'exactitude des déclarations continues dans ce document.

Ce produit est destiné à être alimenté par une source d'alimentation certifiée UL ou une source d'alimentation continue convenant à une utilisation à une température minimale de 50 degrés Celsius, dont la sortie est conforme aux normes SELV, LPS et d'une puissance nominale de 19 Vcc, 3,42A min. informations supplémentaires.

Au moyen d'un cordon d'alimentation connecté à une prise de courant avec mise à la terre

Contents

Chapter 1 General Introduction1

1.1	Introduction	2
1.2	Product Features.....	2
	1.2.1 General	2
	1.2.2 Display	2
	1.2.3 Power Consumption.....	2
1.3	Hardware Specifications	3
1.4	Mechanical Specification.....	4
	1.4.1 Dimension.....	4
	Figure 1.1 AIR-100 Mechanical Dimensions	4
	1.4.2 Weight.....	4
1.5	Power Requirements.....	5
	1.5.1 System Power.....	5
	1.5.2 RTC Battery	5
1.6	Environment Specification.....	5
	1.6.1 Operating Temperature.....	5
	1.6.2 Relative Humidity	5
	1.6.3 Storage Temperature.....	5
	1.6.4 Vibration Loading During Operation.....	5
	1.6.5 Shock During Operation.....	5
	1.6.6 Safety.....	5
	1.6.7 EMC	5

Chapter 2 Hardware Installation7

2.1	AIR-100 Front and Rear Views	8
	Figure 2.1 Front view	8
	Figure 2.2 Rear view.....	8
2.2	AIR-100 Front External I/O Connectors	8
	2.2.1 Power ON/OFF Button.....	8
	Figure 2.3 Power button	8
	2.2.2 COM Connector	9
	Figure 2.4 COM connector	9
	Table 2.1: COM Port Pin Assignments	9
	2.2.3 USB Connectors	9
	Figure 2.5 USB connector	9
	Table 2.2: USB 3.0 Connector Pin Assignments	9
	2.2.4 S/PDIF / Line out.....	10
	Figure 2.6 2.6 S/PDIF / Line out	10
	2.2.5 Mic In	10
	Figure 2.7 Mic-in connector	10
2.3	AIR-100 Rear External I/O Connectors.....	11
	2.3.1 Power Input Connector	11
	Figure 2.8 DC input connector.....	11
	2.3.2 HDMI Connector	11
	Figure 2.9 HDMI connector.....	11
	Table 2.3: HDMI Connector Pin Assignments	11
	2.3.3 USB Connectors	12
	Figure 2.10 USB 2.0 connector	12
	Table 2.4: USB Pin Assignments	12
	2.3.4 Ethernet Connector (LAN)	13
	Figure 2.11 LAN connector	13
	Table 2.5: LAN Connector Pin Assignments	13
2.4	Hardware Installation	14

2.4.1	Memory Installation.....	14
	Figure 2.12Memory module installation.....	14
2.4.2	HDD/SSD Installation	15
	Figure 2.13HDD/SSD installation	15
2.4.3	Mini PCIe card /SIM Card Installation.....	16
	Figure 2.14Mini PCIe / SIM card installation	16
2.4.4	Antenna Installation	17
	Figure 2.15Antenna module installation	17
2.4.5	Mount Brackets Installation.....	18
	Figure 2.16Mount brackets installation.....	18
2.4.6	Rubber Feet Installation.....	19
	Figure 2.17Rubber feet Installation	19

Chapter 3 BIOS settings 21

3.1	BIOS Introduction.....	22
3.2	Enter Setup	22
3.2.1	Main Setup.....	22
	Figure 3.1 Main setup screen	22
3.2.2	Advanced BIOS Setup.....	23
	Figure 3.2 Advanced BIOS setup screen	23
	Figure 3.3 ACPI setup screen	24
	Figure 3.4 SMART Setting screen.....	24
	Figure 3.5 Super I/O configuration setup screen.....	25
	Figure 3.6 Hardware monitoring screen	25
	Figure 3.7 S5 RTC wake setup screen.....	26
	Figure 3.8 Serial port console redirection setup screen	26
	Figure 3.9 CPU configuration setup screen.....	27
	Figure 3.10CPU C-state report setup screen	27
	Figure 3.11Hardware monitor setup screen	28
	Figure 3.12USB configuration setup screen.....	29
	Figure 3.13Platform Trust Technology	29
	Figure 3.14Intel TXE configuration setup screen	30
3.2.3	BIOS Chipset Setup.....	31
	Figure 3.15North Bridge and South Bridge setup scree.....	31
3.2.4	BIOS Security Setup.....	32
	Figure 3.16Security configuration setup screen	32
3.2.5	BIOS Boot Setup	33
	Figure 3.17Boot configuration setup screen.....	33
3.2.6	BIOS Save & Exit Setup	34
	Figure 3.18Save & Exit configuration setup screen.....	34

Chapter 1

General Introduction

This chapter gives background information regarding the AIR-100 series.

1.1 Introduction

Advantech AIR-100 is a Edge AI Inference Systems of Ultra HD signage player. It is powered by an Intel® Atom™ Processor E3950, Intel Movidius Myriad X MA2485 VPU and integrated NVIDIA® GeForce® GT 1030 graphic engine to help accelerate deep learning inference on the edge for a wide range of AI-based vertical applications. This system deliver high performance to empower real-time intelligence compute ability. AIR-100 not only has four HDMI ports to support each independent display in 4K @ 30HZ playback, it can also play single video content in 4K @ 60Hz playback via the HDMI 2.0 port. AIR-100 is the ideal solution for AI-based vertical multi-display applications in stores, stadiums, hotel lobbies, restaurants, and other public spaces.

1.2 Product Features

1.2.1 General

- Intel® Atom™ Processor X Series E3950
- 1 x Intel Movidius Myriad X MA2485 VPU
- Integrated with NVIDIA® GeForce® GT 1030 graphic
- Supports 4 x HDMI ports (2 x HDMI 2.0, 2 x HDMI 1.4*)
- Supports 1 x GbE, 2 x USB 3.0 ,2 x USB 2.0 and 1 x COM(RS-232)
- Supports 2.5-inch SATA HDD/SSD drive bay for storage devices
- Built-in 1 x Audio phone jack for Mic In, 1 x SPDIF/Line Out
- Built-in 1 x Full size of Mini PCIe support mSATA or w/SIM holder, support WWAN module (USB interface)

1.2.2 Display

- **Resolution:**
 - HDMI 2.0: 3840 x 2160 @60Hz
 - HDMI 1.4: 3840 x 2160 @30Hz (HDMI port4 support CEC)

1.2.3 Power Consumption

- **Idle:** 13.7 W
- **Max.:** 26.4 W

1.3 Hardware Specifications

- **CPU:** Intel® Atom™ Processor X-7 E3950
- **VPU:** 1x Intel Movidius Myriad X MA2485
- **GPU:** NVIDIA GeForce GT 1030
- **System Chipset:** SoC solution, built-in Intel® Apollo Lake
- **BIOS:** AMI uEFI 64 Mbit Flash BIOS
- **System Memory:** 1 x 204-pin SO-DIMM DDR3L 4GB memory (-20~85°C) built in (Max. 2 x 8GB DDR3L 204-pin SO-DIMM)
- **CPU Graphics:**
 - Intel® HD Graphics 505 (X-7 E3950)
- **Storage:** 1 x 64GB 2.5" SSD (0~70°C) storage built-in
- **Watchdog Timer:** Supported by Advantech SUSI API
- **I/O Interface:**
 - COM: 1 x RS-232
 - USB: 2 x USB 3.0, 2 X USB 2.0
 - Audio: 1 x SPDIF / Line-Out, 1 x Mic-in
- **Ethernet Chipset:** 1 x Intel i211, *1 x Realtek 8111G
 - **Speed:** 10/100/1000 Mbps
 - **Interface:** 1 x RJ-45 jacks with LED
 - **Standard:** IEEE 802.3 (10 / 1000 Base-T, 100 Base-TX) or IEEE 802.3u (Auto-Negotiation)
- **Module**
 - TPM 2.0
- **Expansion**
 - Mini PCIe: 1 socket internal (Full size), support mSATA or w/SIM holder, support WWAN module (USB interface)

1.4 Mechanical Specification

1.4.1 Dimension

220 x 150 x 40 mm (8.66" x 5.91" x 1.57") (W x D x H)

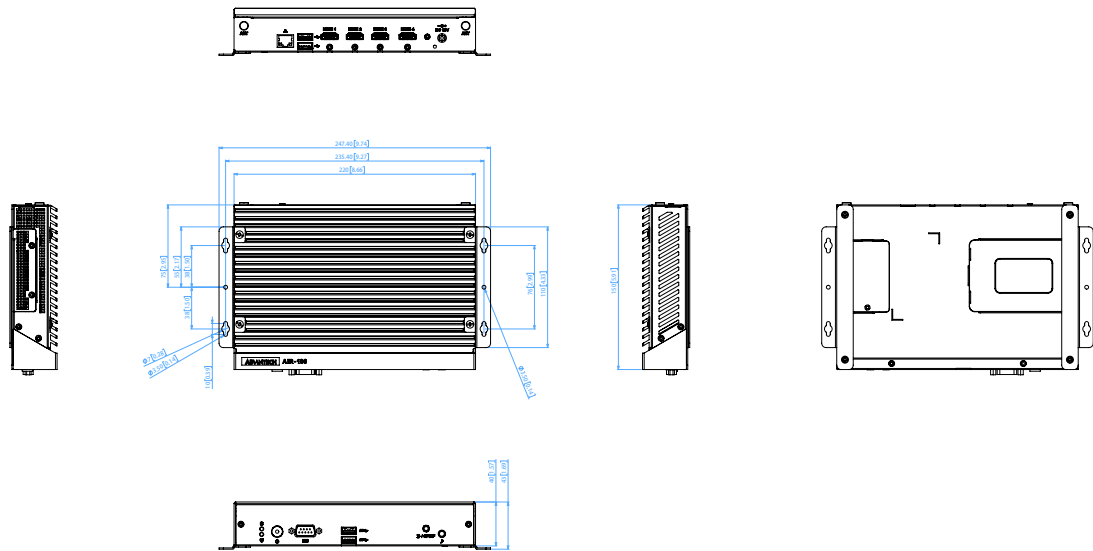


Figure 1.1 AIR-100 Mechanical Dimensions

1.4.2 Weight

1.7 kg (3.7 lb)

1.5 Power Requirements

1.5.1 System Power

Minimum power input: DC 19V, 3.42A

1.5.2 RTC Battery

3V/200 mAh BR2032

1.6 Environment Specification

1.6.1 Operating Temperature

0 ~ 50 °C (w/ SSD) ,with 0.7m/s air flow

1.6.2 Relative Humidity

95% @ 40° C (non-condensing)

1.6.3 Storage Temperature

-20° C -60° C (-4-140° F)

1.6.4 Vibration Loading During Operation

0.5 Grms(HDD), IEC 60068-2-64, random, 5 ~ 500 Hz , 3 axes,1 hr/axis

3.0 Grms(HDD), IEC 60068-2-64, random, 5 ~ 500 Hz , 3 axes,1 hr/axis

1.6.5 Shock During Operation

10 G(HDD), IEC 60068-2-27, half sine, 11 ms duration

30 G(SSD), IEC 60068-2-27, half sine, 11 ms duration

1.6.6 Safety

UL,CB, BSMI, CCC

1.6.7 EMC

CE/FCC Class B, BSMI, CCC

Chapter 2

Hardware Installation

This chapter describes AIR-100 external I/O and explains the hardware installation processes.

2.1 AIR-100 Front and Rear Views

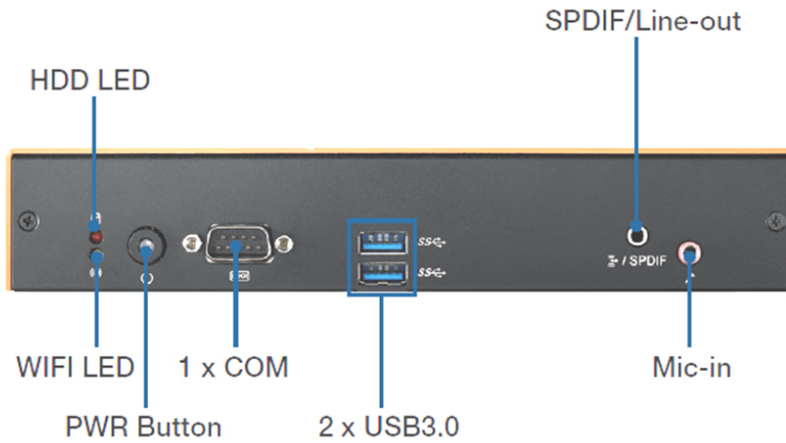


Figure 2.1 Front view

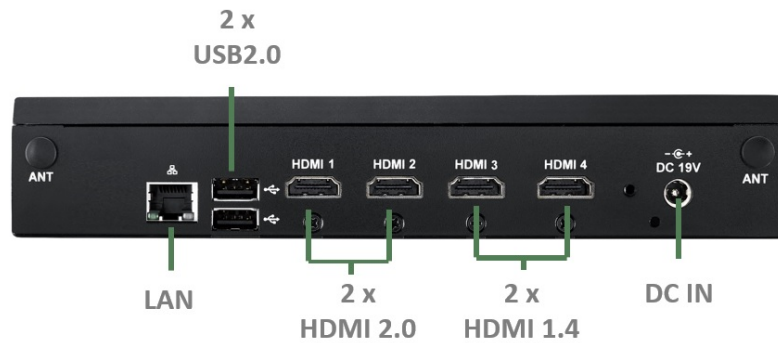


Figure 2.2 Rear view

2.2 AIR-100 Front External I/O Connectors

2.2.1 Power ON/OFF Button

AIR-100 has a power ON/OFF button on front side. Push this button to turn the system ON and OFF.

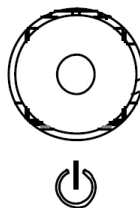


Figure 2.3 Power button

2.2.2 COM Connector

AIR-100 provides 1 x D-sub 9-pin connectors serial communication interface port. The port can support RS-232 mode communication.

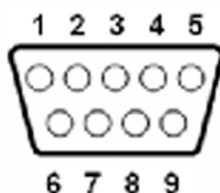


Figure 2.4 COM connector

Table 2.1: COM Port Pin Assignments

Pin	Signal Name
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

2.2.3 USB Connectors

AIR-100 front side provides 2 x USB3.0 interface connectors, which give complete Plug & Play and hot swapping capability for up to 127 external devices. The two USB 3.0 interface are compliant with USB UHCI, Rev. 3.0. (Refer to Table 2.2 for pin definitions)

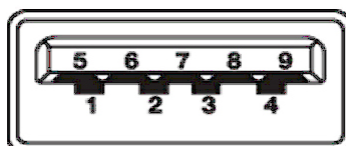


Figure 2.5 USB connector

Table 2.2: USB 3.0 Connector Pin Assignments

Pin	Signal Name
1	VBUS
2	USB Data-
3	USB Data+
4	GND
5	StdA_SSRX-
6	StdA_SSRX+
7	GND_DRAIN
8	StdA_SSTX-
9	StdA_SSTX+

2.2.4 S/PDIF / Line out

The connector port is a combo connector. It not only allows you to transfer digital sound to an amplifier or television but also can be the Line out It supports Jacks sensing and configuration can be conducted via the driver UI.



Figure 2.6 2.6 S/PDIF / Line out

2.2.5 Mic In

The connector port have Microphone (Input) functions.



Figure 2.7 Mic-in connector

2.3 AIR-100 Rear External I/O Connectors

2.3.1 Power Input Connector

AIR-100 comes with a DC-Jack header that takes 19 VDC external power input.



Figure 2.8 DC input connector

2.3.2 HDMI Connector

AIR-100 HDMI (High-Definition Multimedia Interface) connectors provide all-digital audio/video interface to transmit the uncompressed audio/video signals and are HDCP compliant. Connect the HDMI audio/video device to this port. HDMI technology can support a maximum resolution of 3840 x 2160p (Ultra HD 4K) but the actual resolutions supported depend on the monitor being used.

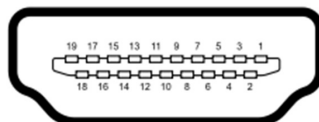


Figure 2.9 HDMI connector

Table 2.3: HDMI Connector Pin Assignments

Pin	Signal Name
1	TMDS Data2+
2	GND
3	TMDS Data2-
4	TMDS Data1+
5	GND
6	TMDS Data1-
7	TMDS Data0+
8	GND
9	TMDS Data0-
10	TMDS Clock+
11	GND
12	TMDS Clock-
13	NC
14	NC
15	SCL
16	SDA
17	GND
18	+5 V Power
19	Detect

2.3.3 USB Connectors

AIR-100 rear side provides 2 x USB2.0 interface connectors, which give complete Plug & Play and hot swapping capability for up to 127 external devices. (Pin definition refer Table 2.4)

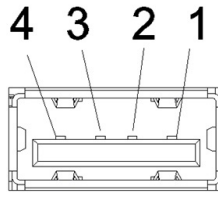


Figure 2.10 USB 2.0 connector

Table 2.4: USB Pin Assignments

Pin	Signal Name
1	VCC
2	USB Data-
3	USB Data+
4	GND

2.3.4 Ethernet Connector (LAN)

AIR-100 provides one RJ45 LAN interface connectors, they are fully compliant with IEEE 802.3u 10/100/1000 Base-T standards. The Ethernet port provides a standard RJ-45 jack connector with LED indicators on the front side to show its Active/Link status and speed status.

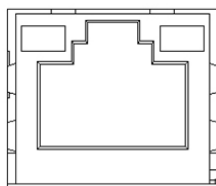


Figure 2.11 LAN connector

Table 2.5: LAN Connector Pin Assignments

Pin	Signal Name
1	MDI0+
2	MDI0-
3	MDI1+
4	MDI1-
5	GND
6	GND
7	MDI2+
8	MDI2-
9	MDI3+
10	MDI3-
11	VCC
12	ACT
13	Link100#
14	Link1000#

2.4 Hardware Installation

2.4.1 Memory Installation

1. Loosening the 4 fixing screws ① on the top cover ② .
2. Remove the top cover ② .
3. Insert the memory module into memory socket ④⑤ .
4. Assemble back the heatsink cover with the 4 screws.

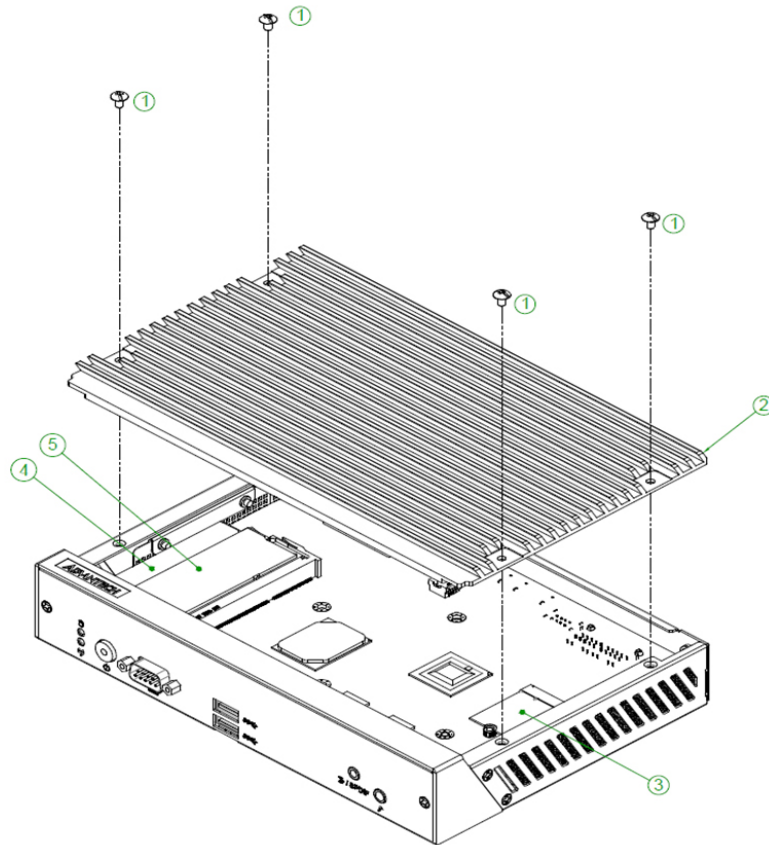


Figure 2.12 Memory module installation

2.4.2 HDD/SSD Installation

1. Loosening the 2 screws ② on the side view and move out the drive bay.
2. Fixing the 4 screws ① with HDD/SSD and storage bracket.
3. Insert the storage bracket into chassis.
4. Fixing the screw back.

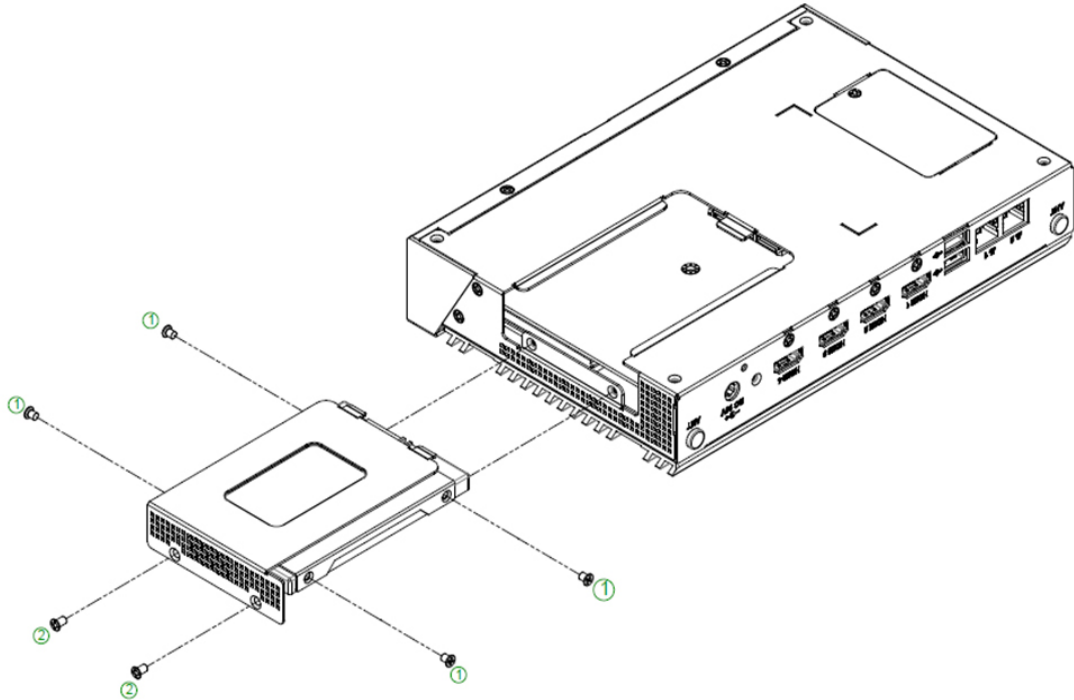


Figure 2.13 HDD/SSD installation

2.4.3 Mini PCIe card /SIM Card Installation

1. Loosening the fixing screw ① on the bottom side.
2. Insert the mini PCIe module /SIM card into the sockets and fix it with screws.

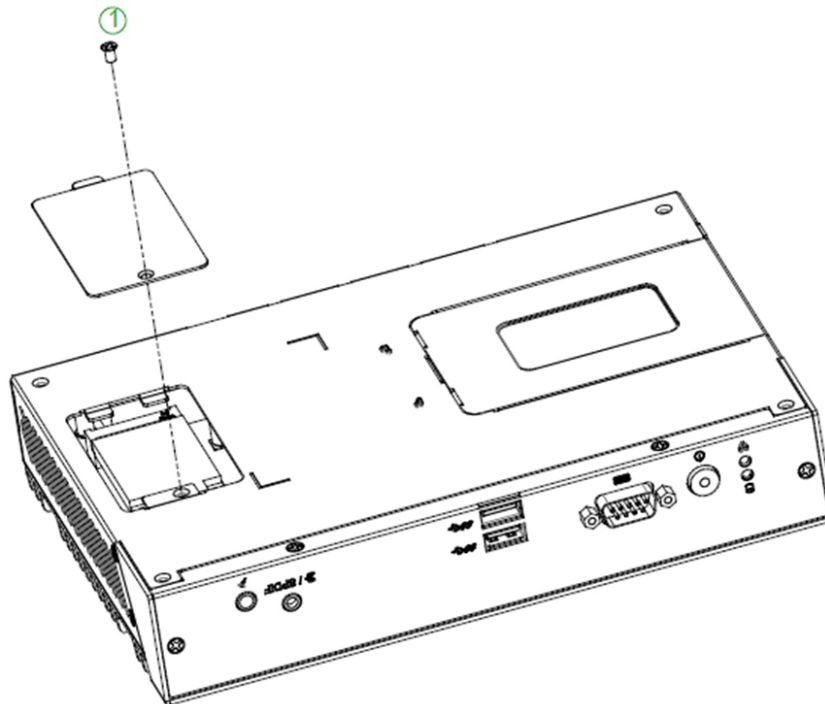


Figure 2.14 Mini PCIe / SIM card installation

2.4.4 Antenna Installation

1. Loosening the 4 fixing screws ① on the side of top cover.
2. Attach the antenna module to the ant holes ② of chassis.
3. Assemble back the top cover with the screws.

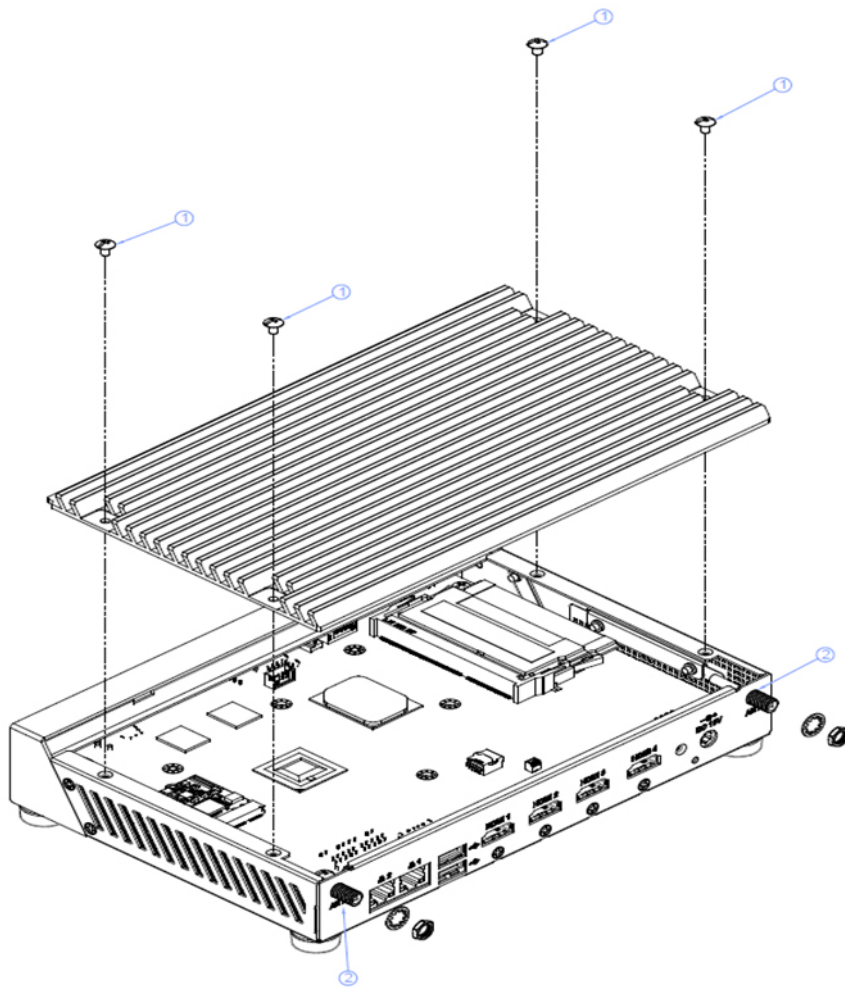


Figure 2.15 Antenna module installation

2.4.5 Mount Brackets Installation

1. Fixing the two mount brackets with 4 screws M3x5L ① directly.

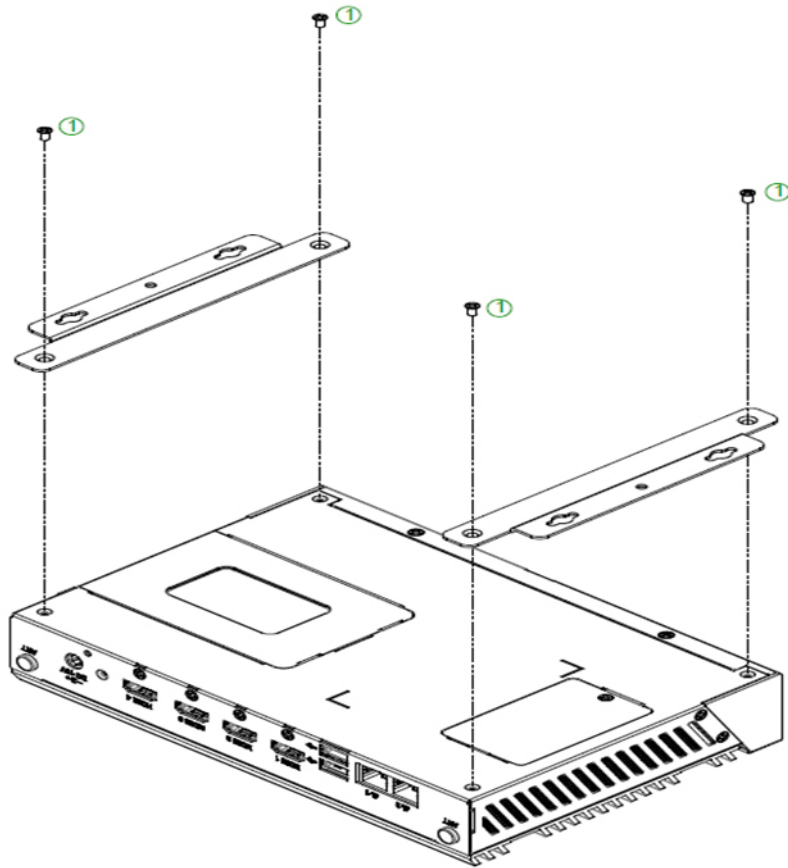


Figure 2.16 Mount brackets installation

2.4.6 Rubber Feet Installation

1. Retrieve the four rubber feet from the accessory box.
2. Attach the rubber feet to the four corners and fix them by four screws ① directly.

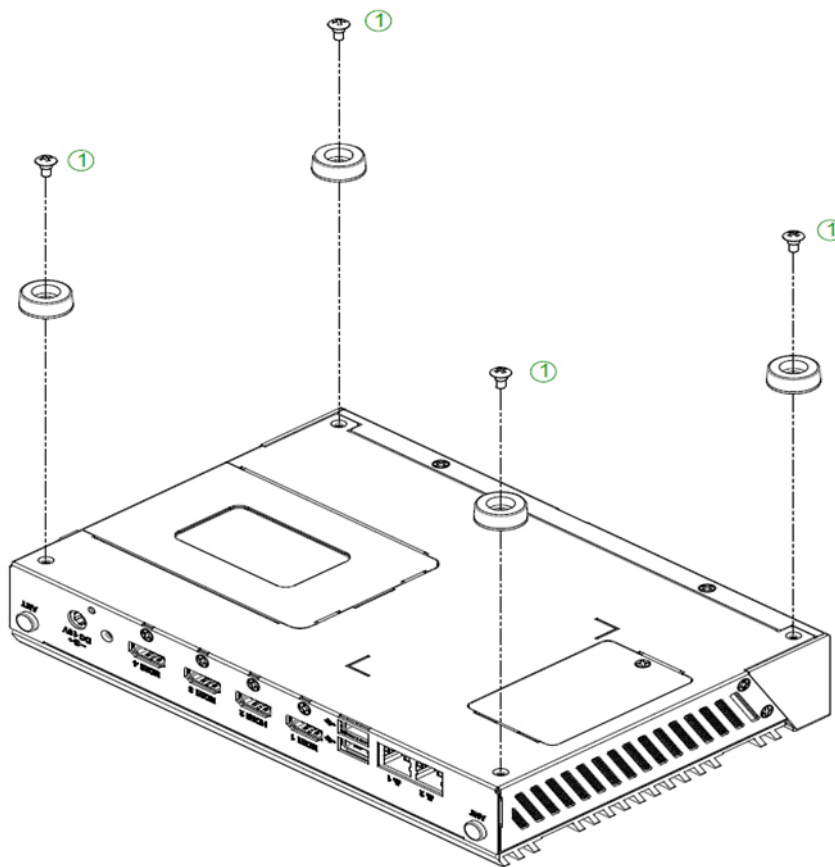


Figure 2.17 Rubber feet Installation

Chapter 3

BIOS settings

This chapter explains the BIOS configuration process.

3.1 BIOS Introduction

Using the AMI BIOS Setup program, users can modify the BIOS settings and control various system features. This chapter describes the basic navigation of the BIOS setup screens for the AIR-100 series.

The AMI BIOS's ROM features a built-in setup program that allows users to modify the basic system configuration. This information is stored in the flash portion of the CMOS to ensure the setup information is retained even when the system is powered off.

3.2 Enter Setup

3.2.1 Main Setup

When first entering the BIOS Setup Utility, users will land on the Main setup screen. Users can always return to the Main setup screen by selecting the Main tab.

The Main BIOS setup screen features two main frames. The left frame displays all configurable options. The blue options can be configured, whereas the gray options cannot. The right frame displays the key legend, above which is an area reserved for text messages. When an option is selected in the left frame, the text becomes white and is often accompanied by a text message.

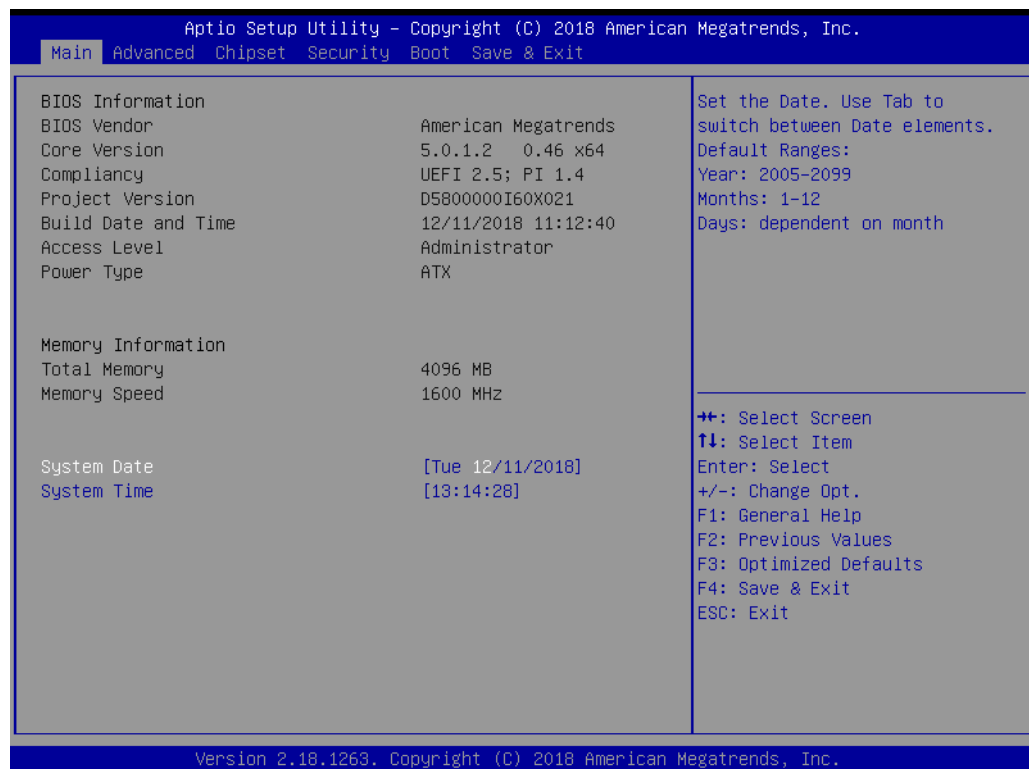


Figure 3.1 Main setup screen

- **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 via 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 Setup

Select the Advanced tab from the AIR-100 setup screen to enter the Advanced BIOS setup screen. Users can select any item in the left frame of the screen, such as CPU configuration, to access the sub menu for that item. Use the <Arrow> keys to scroll through the Advanced BIOS Setup options. All Advanced BIOS Setup options are described in this section. The Advanced BIOS setup screens are shown below, and each sub menu is described in the following pages.

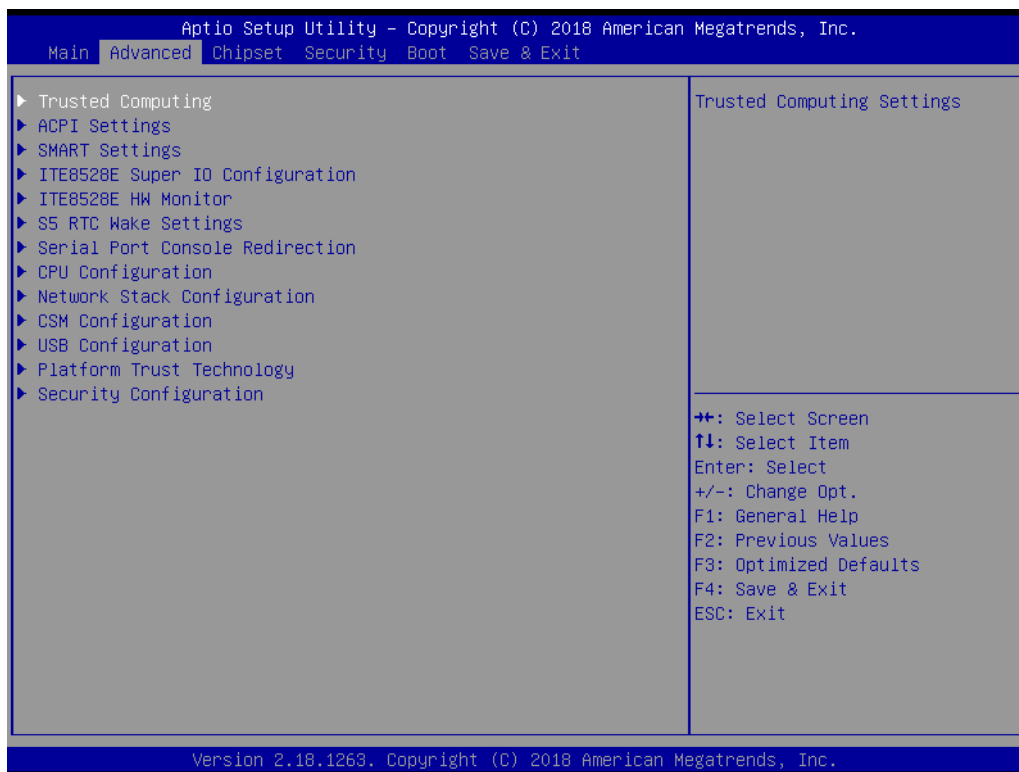


Figure 3.2 Advanced BIOS setup screen

- **ACPI Settings**
 - System ACPI Parameters
 - **Enable ACPI Auto Configuration**
 - **Enable Hibernation**
 - **ACPI Sleep State**
 - **Lock Legacy Resources**

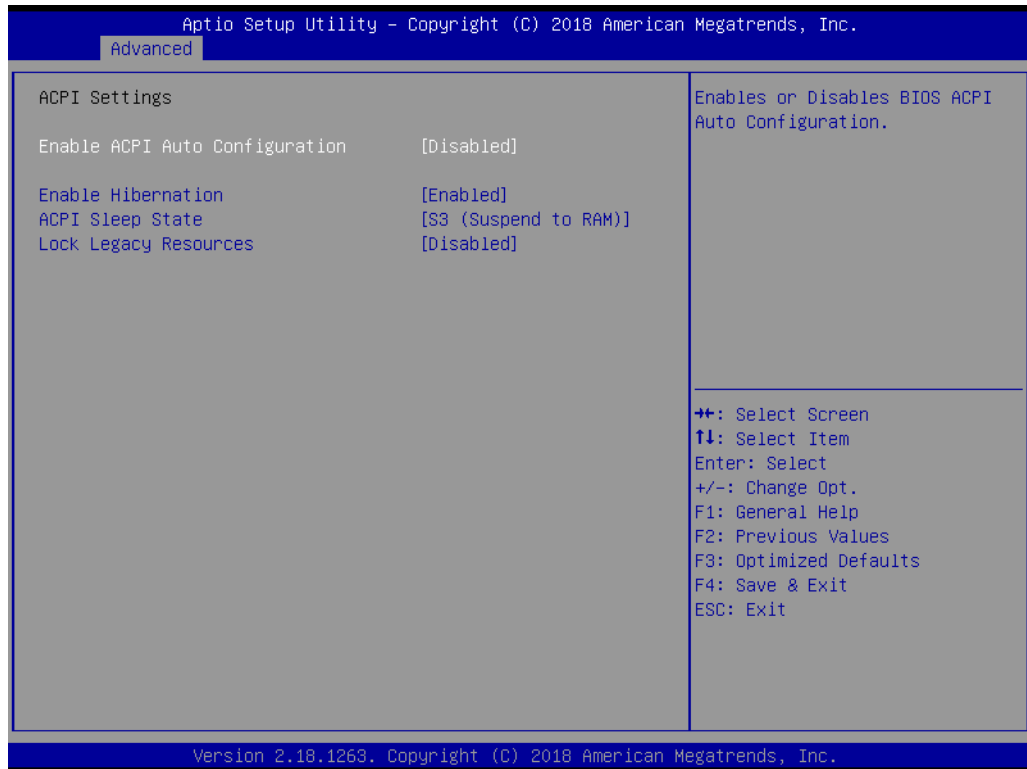


Figure 3.3 ACPI setup screen

- **SMART Settings**
 - System SMART Settings
 - **SMART Self Test**
 - Run SMART Self test on all HDDs during POST

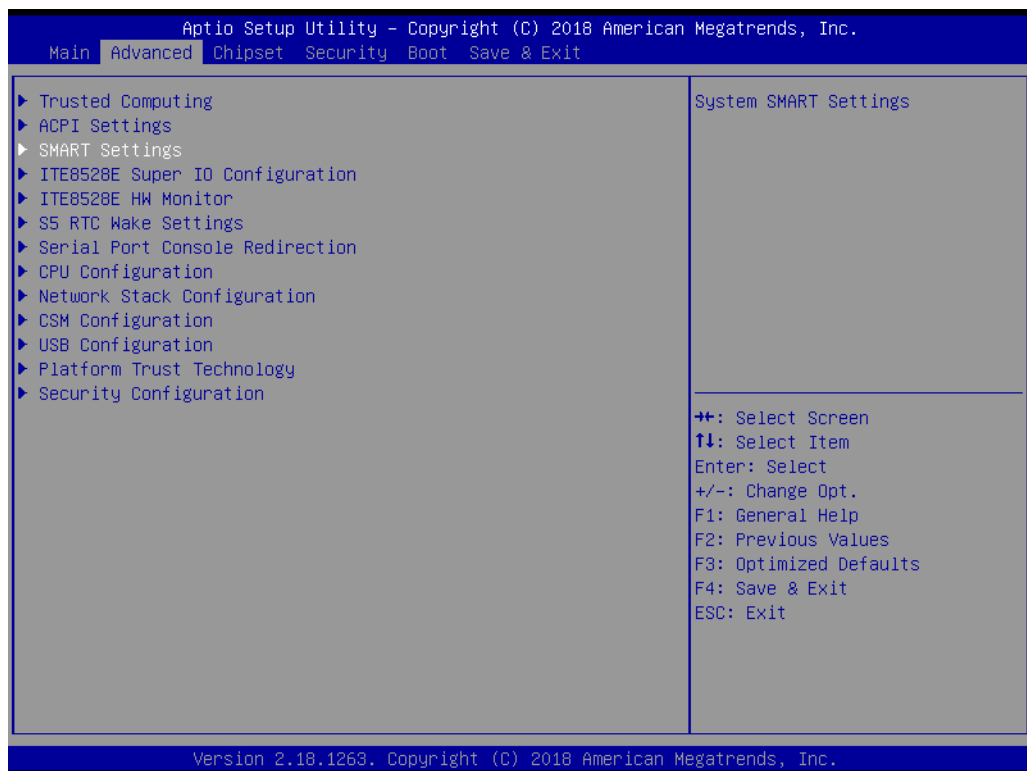


Figure 3.4 SMART Setting screen

- **ITE8528E Super I/O Configuration**
System super I/O chip parameters

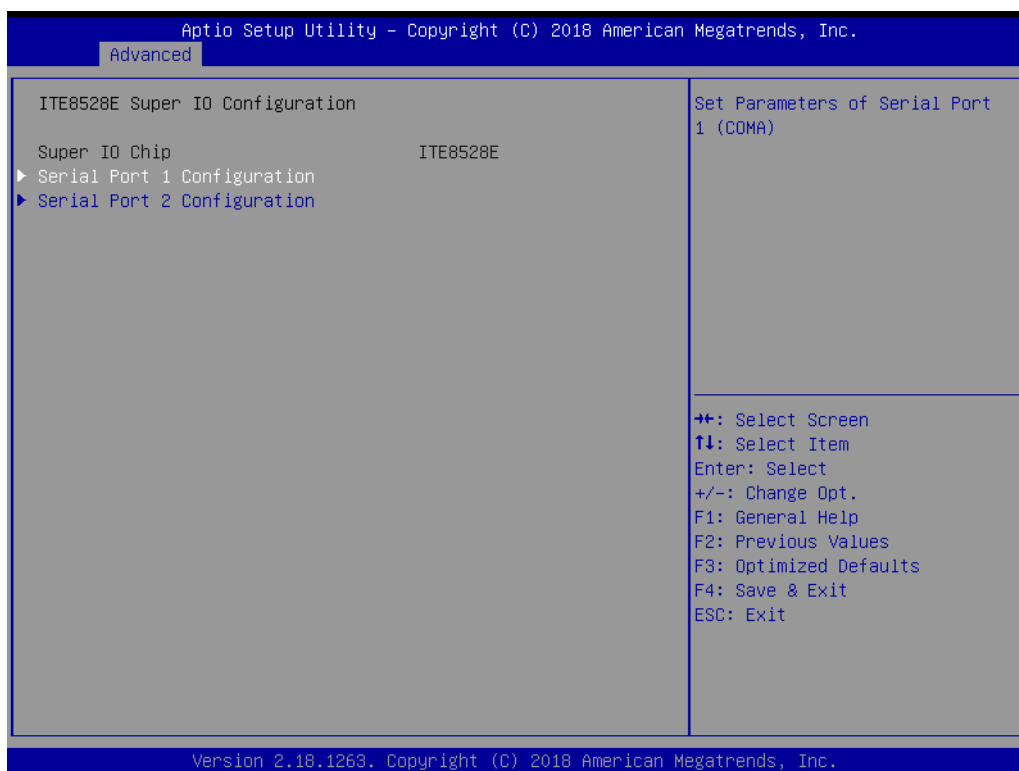


Figure 3.5 Super I/O configuration setup screen

- **ITE8528E HW Monitor**
Hardware status (PC health) monitoring

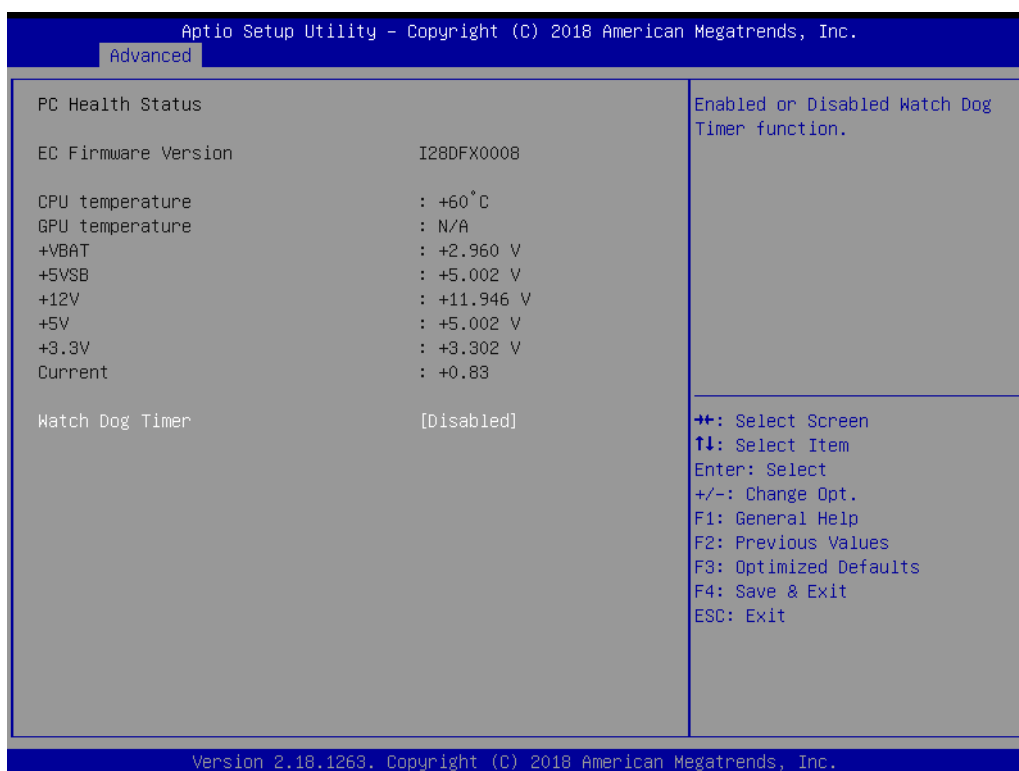


Figure 3.6 Hardware monitoring screen

- **S5 RTC Wake Settings**
Enable the system to wake from S5 using a real-time clock (RTC) alarm

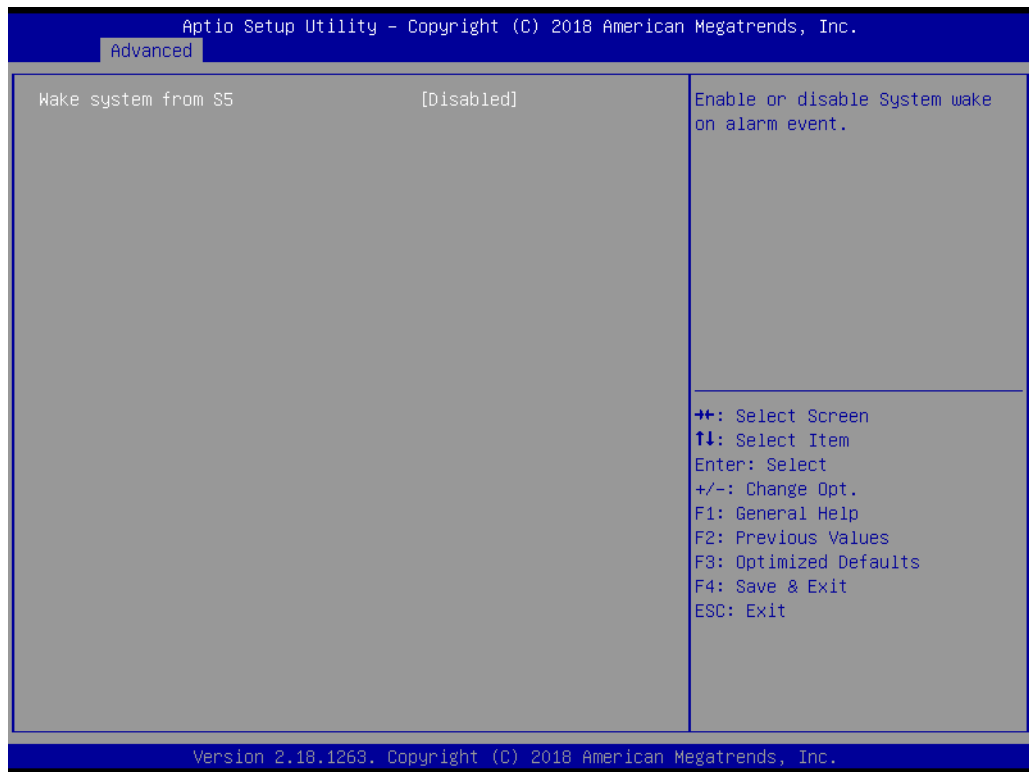


Figure 3.7 S5 RTC wake setup screen

- **Serial Port Console Redirection**

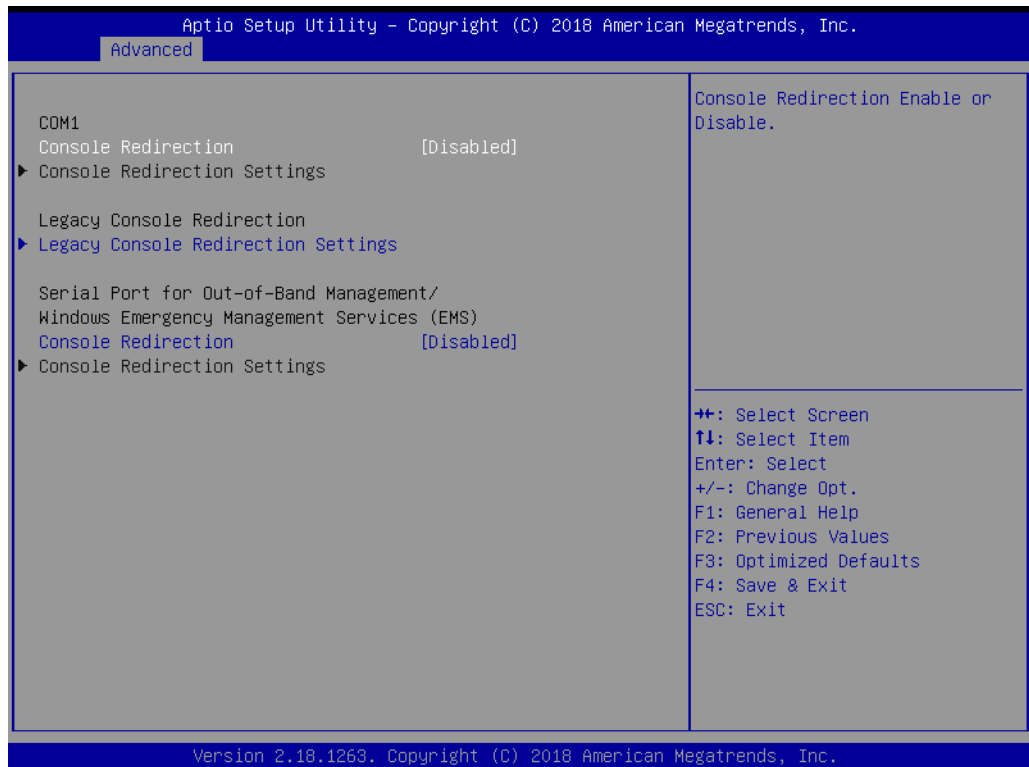


Figure 3.8 Serial port console redirection setup screen

- **CPU Configuration**
CPU configuration parameters

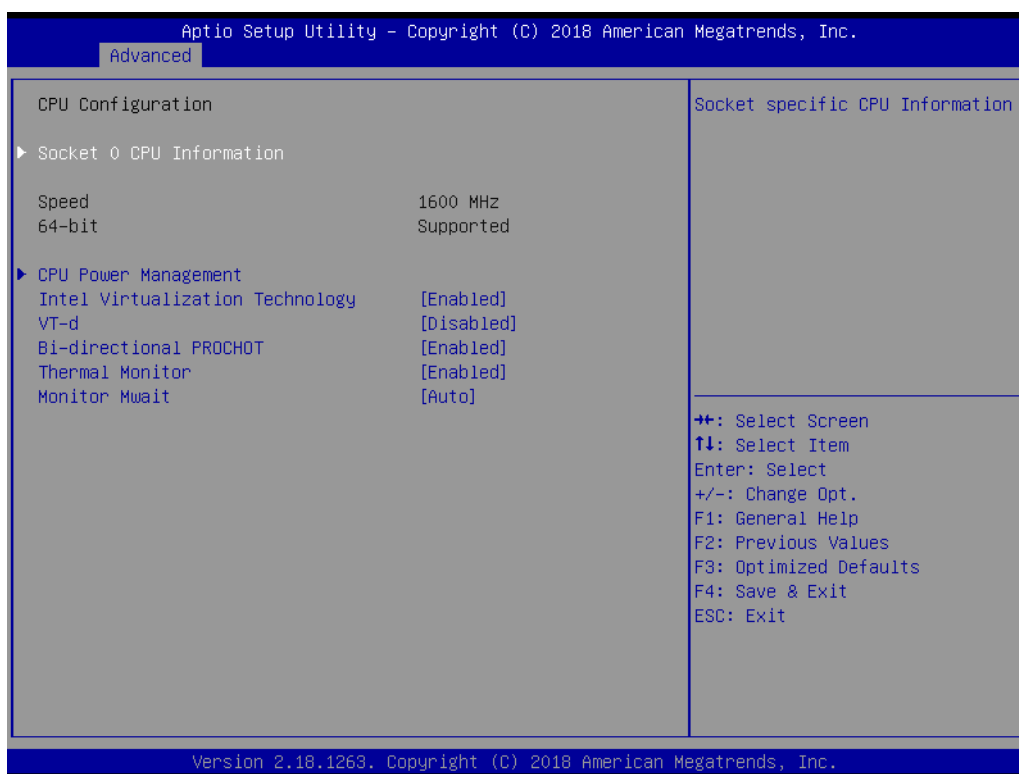


Figure 3.9 CPU configuration setup screen

- **PPM Configuration**
Enable/disable CPU C-state report to OS

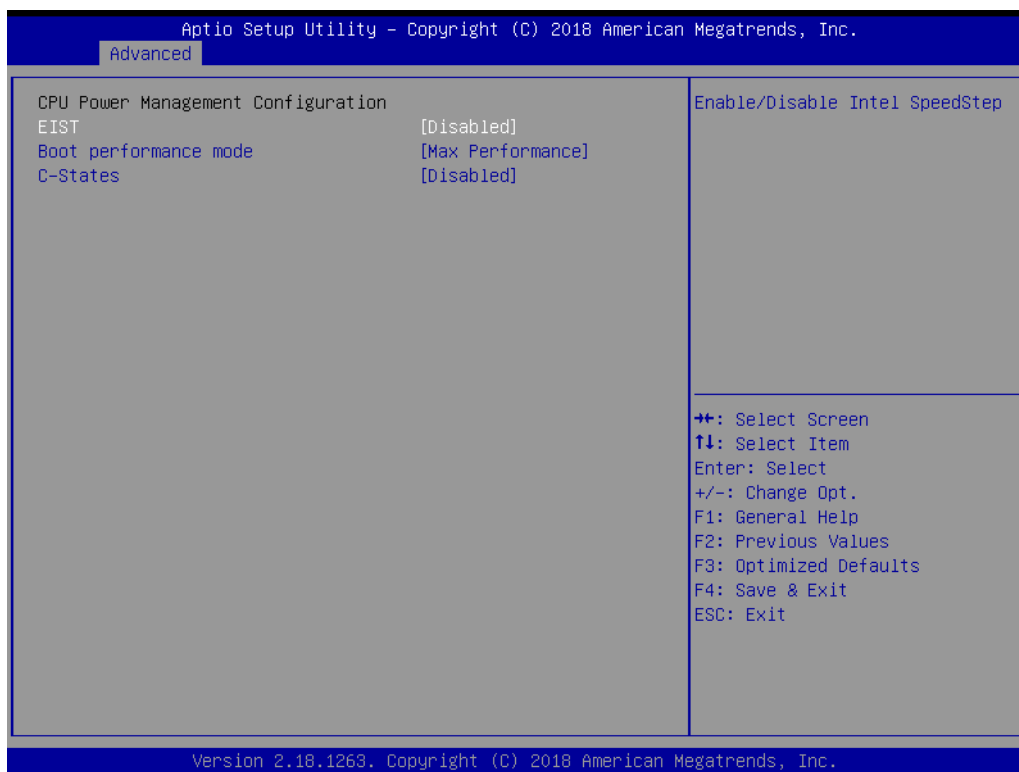


Figure 3.10 CPU C-state report setup screen

- **CSM Configuration**
Enable/disable option ROM execution

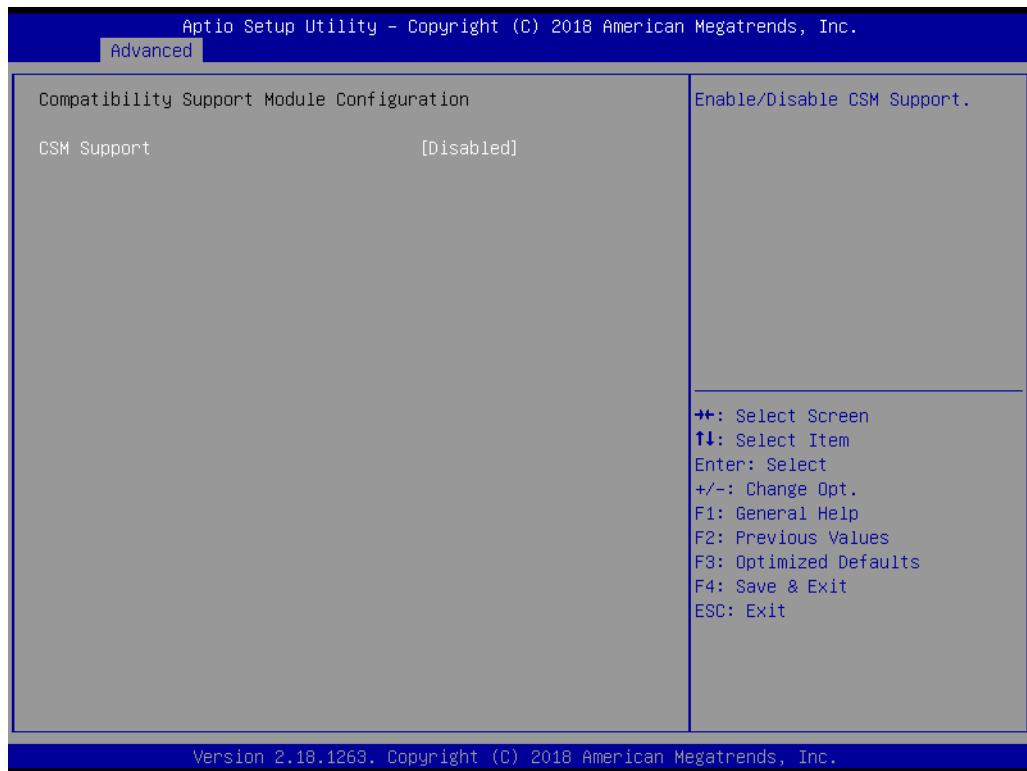


Figure 3.11 Hardware monitor setup screen

- **USB Configuration**
USB configuration parameters
 - **Legacy USB Support**
Enable/disable legacy USB support. The Auto option disables legacy support if no USB devices are connected. The Disable option renders USB devices available for EFI applications only.
 - **XHCI Hand-Off**
This provides a workaround for OS without XHCI hand-off support. The XHCI ownership change should be claimed by the XHCI driver.
 - **USB Mass Storage Driver Support**
Enable/disable USB mass storage driver support
 - **USB Transfer Timeout**
Allows users to set the timeout value for control, bulk, and interrupt transfers; options include 1, 5, 10, and 20 seconds.
 - **Device Reset Timeout**
Allows users to set the USB mass storage device start unit command timeout time; options include 10, 20, 30, and 40 seconds.
 - **Device Power-Up Delay**
Enable/disable Auto or Manual USB mass storage device start unit command timeout.

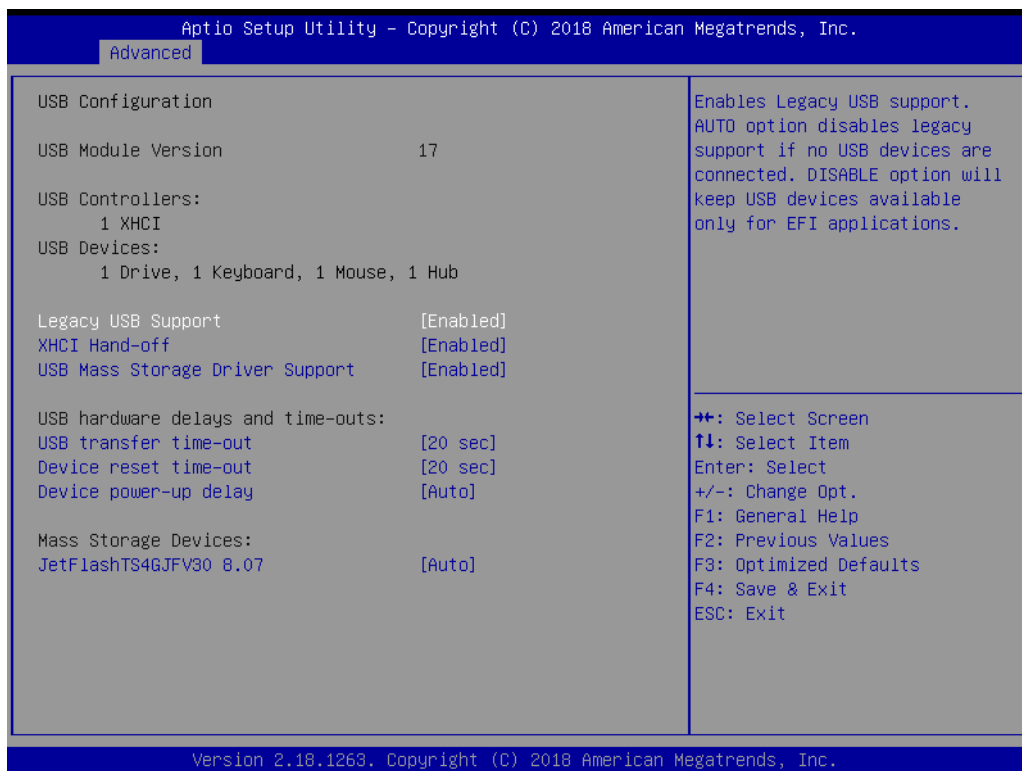


Figure 3.12 USB configuration setup screen

■ Platform Trust Technology

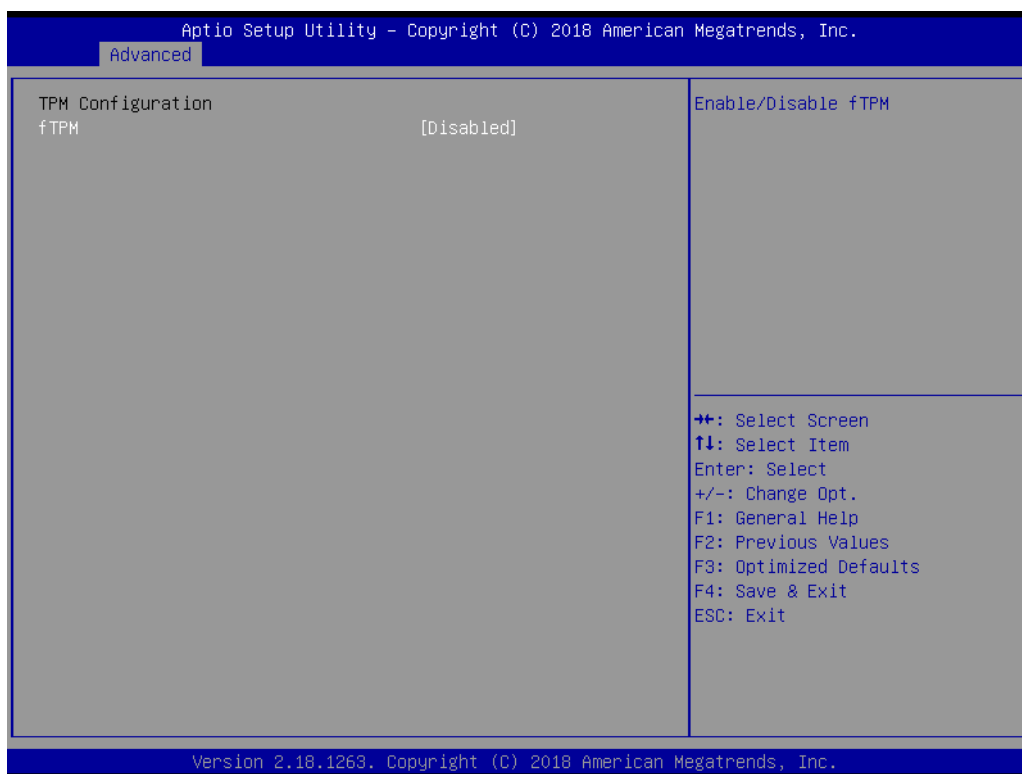


Figure 3.13 Platform Trust Technology

- **Security Configuration**
Intel® Anti-Theft Technology configuration

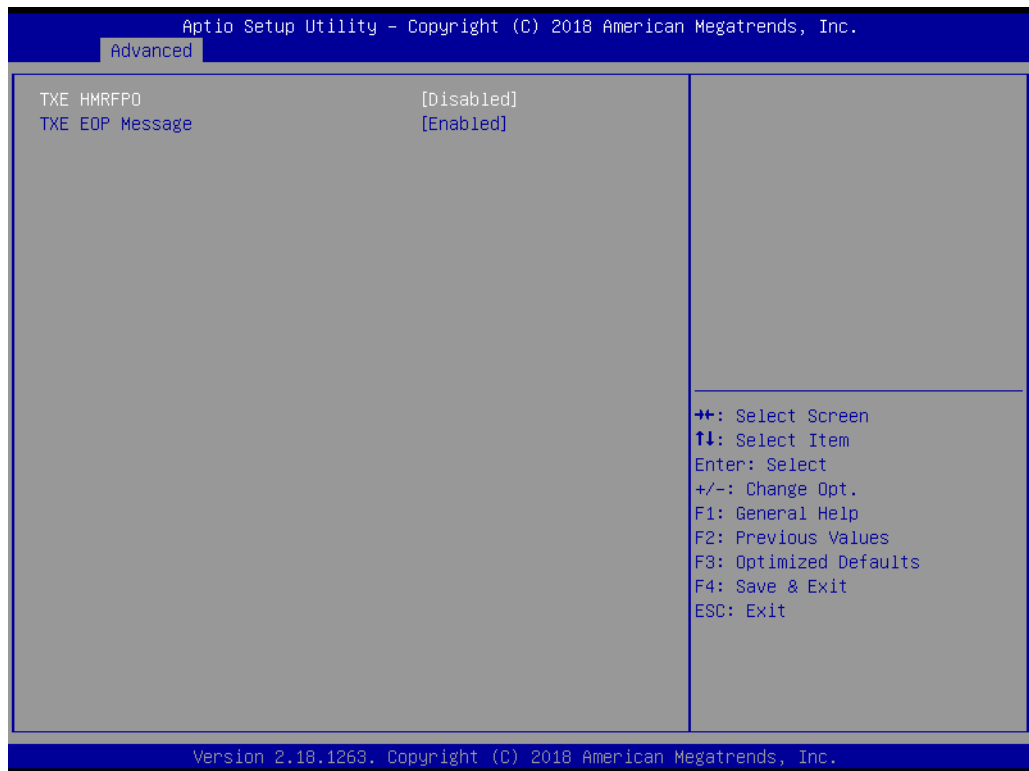


Figure 3.14 Intel TXE configuration setup screen

3.2.3 BIOS Chipset Setup

Select the Chipset tab in the AIR-100 BIOS Setup Utility to enter the BIOS Chipset setup screen. Users can select any item displayed in the left frame of the screen.

- **North Bridge**
North Bridge parameters
- **Memory Information**
Max TOLUD: Maximum value of TOLUD
- **South Bridge**
South Bridge parameters
 - **OS Selection**
- **Uncore Configuration**
- **South cluster Configuration**

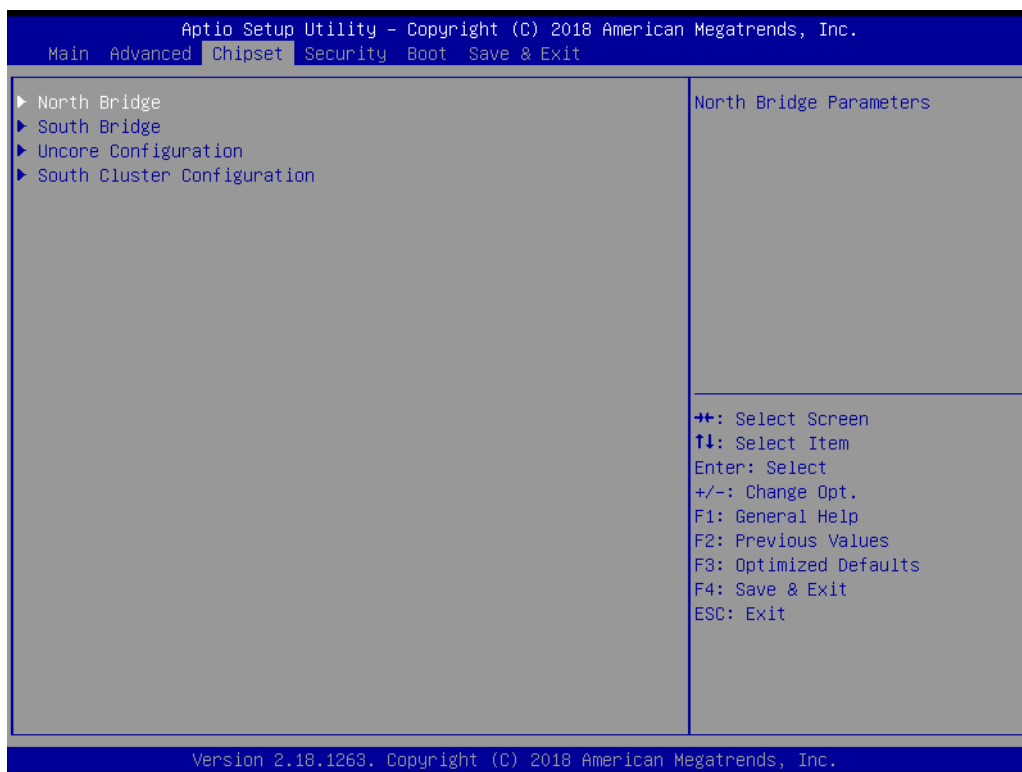


Figure 3.15 North Bridge and South Bridge setup scree

3.2.4 BIOS Security Setup

Select the Security tab from the setup screen to enter the BIOS Security setup screen

- **Administrator Password**
Set an administrator password
- **User Password**
Set a user password

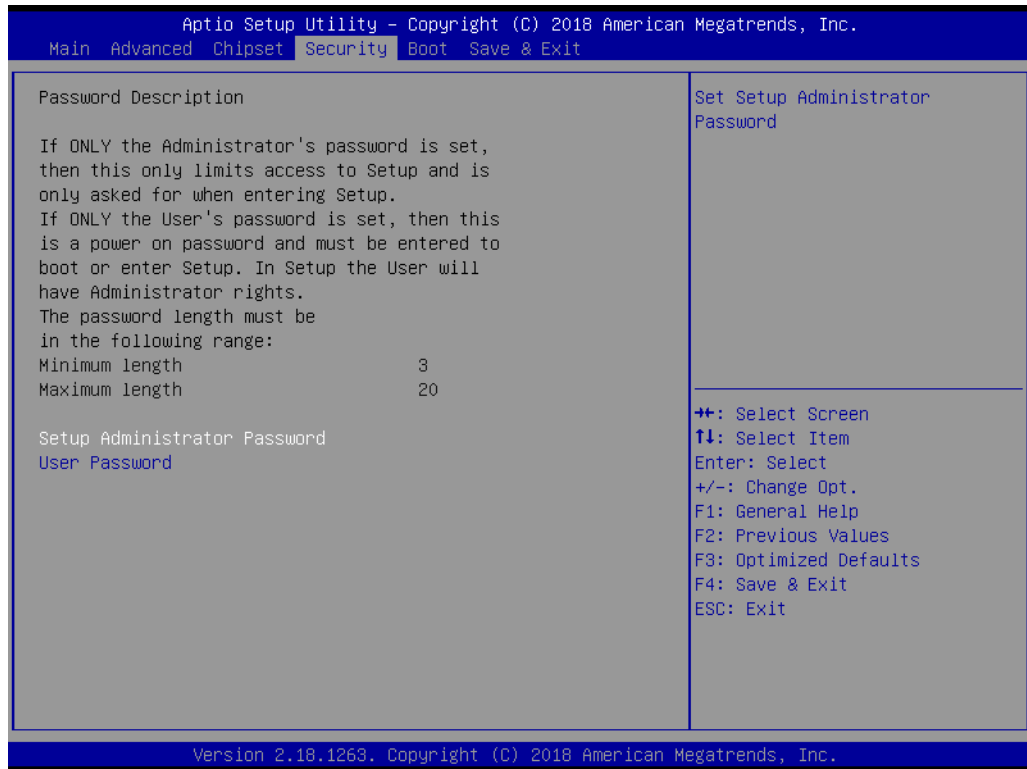


Figure 3.16 Security configuration setup screen

3.2.5 BIOS Boot Setup

Select the Boot tab from the AIR-100 setup screen to enter the BIOS Boot setup screen. Users can select any item in the left frame of the screen.



Figure 3.17 Boot configuration setup screen

- **Setup Prompt Timeout**
Allows users to set the number of seconds to wait for a setup activation key. A value of 65535 (0xFFFF) means wait indefinitely.
- **Bootup NumLock State**
Allows users to select the keyboard NumLock state
- **Quiet Boot**
Enable/disable quiet booting
- **Fast Boot**
Enable/disable rapid booting by initializing the minimum number of devices necessary for launching the active boot option.
- **Boot Option #1**
Set the system boot order

3.2.6 BIOS Save & Exit Setup

Select the Save & Exit tab from the setup screen to enter the BIOS Save & Exit setup screen.

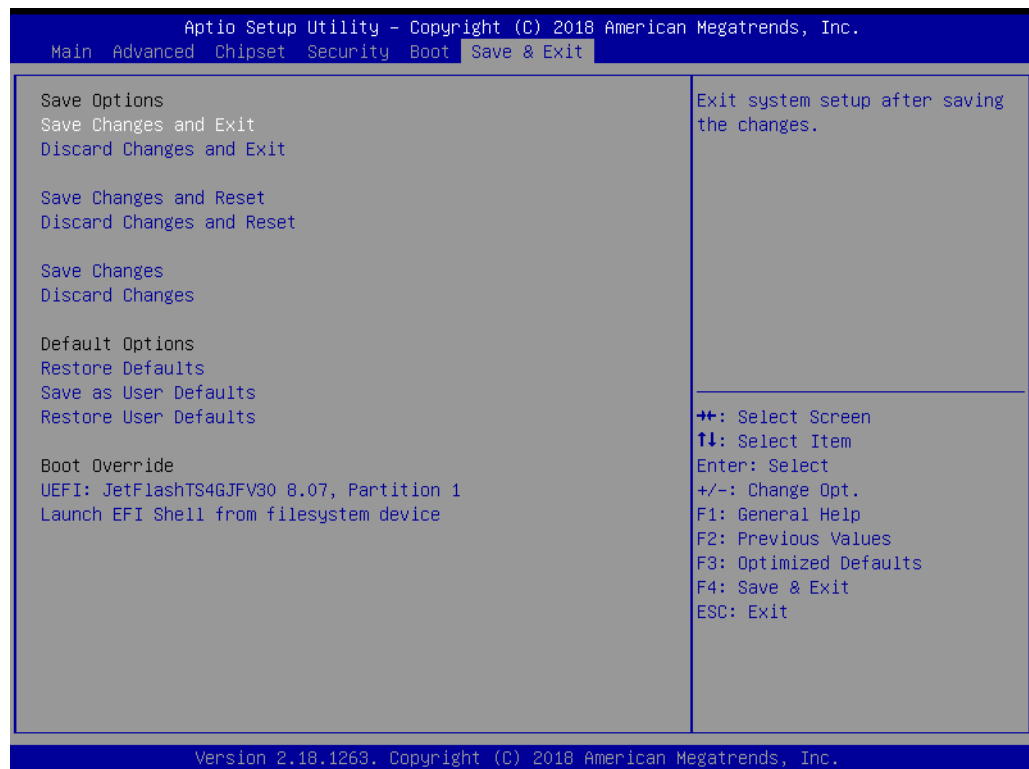


Figure 3.18 Save & Exit configuration setup screen

- **Save Changes and Exit**
Exit system setup after saving changes
- **Discard Changes and Exit**
Exit system setup without saving changes
- **Save Changes and Reset**
Reset the system after saving changes
- **Discard Changes and Reset**
Reset the system without saving changes
- **Save Changes**
Save changes to all setup options
- **Discard Changes**
Discard changes to all setup options
- **Restore Defaults**
Restore/load the default values for all setup options
- **Save as User Defaults**
Save changes as User Defaults
- **Restore User Defaults**
Restore the User Defaults to all setup options
- **Boot Override**
 - **UEFI**
Built-in EFI Shell
 - **Launch EFI Shell From File System Device**
Allows users to launch the EFI Shell application (Shell.efi) from an available file system device

ADVANTECH

Enabling an Intelligent Planet

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, such as electronically, by photocopying, recording, or otherwise, without the prior written permission of the publisher.

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

© Advantech Co., Ltd. 2020