EmNANO-i2408

COM Express® Mini Type 10
CPU Module

User's Manual

Version 1.0

2021.09

This page is intentionally left blank.

Revision History

Version	Release Time	Description
1.0	2021.09	Initial release

This page is intentionally left blank.

Revision History ..... **i**
Table of Contents ..... **iii**
Preface ..... **v**
Copyright Notice v
Declaration of Conformity v
CE v
FCC Class B vi
RoHS vi
SVHC / REACH vii
Warning vii
Replacing Lithium Battery vii
Technical Support vii
Warranty viii
Chapter 1 - Introduction **1**
1.1. The Product 2
1.2. About this Manual 2
1.3. Specifications 3
1.4. Inside the Package 3
1.5. Ordering Information 4
1.6. Optional Accessories 4
Chapter 2 - Getting Started **5**
2.1. The Ultra-small COM Express® Mini Module 6
2.2. Block Diagram 7
2.3 Board Dimensions 8
2.4 COM Express® Mini Type 10 AB Connector 9
2.5 Connectors Quick Reference 11
2.6. Driver (6.7A) Installation Notes 12
Chapter 3 - BIOS **13**
5.1. Main 16
5.2. Advanced 17
5.2.1. Trusted Computing 18
5.2.2. CPU Configuration 19
5.2.3. Subsystem Setting 20
5.2.4. ACPI Settings 21
5.2.5. USB Configuration 22
5.2.6. Super IO Configuration 23
5.2.7. Hardware Monitor 24
5.2.8. S5 RTC Wake Settings 25

5.2.9. Serial Port Console Redirection....26
5.2.10. Network Stack Configuration....27
5.2.11. CSM Configuration....28
5.3. Chipset....29
5.4 Security....31
5.5. Boot....32
5.6. Save & Exit....33

Copyright Notice

The information in this document is subject to change without prior notice in order to improve the reliability, design and function. It does not represent a commitment on the part of the manufacturer.

Under no circumstances will the manufacturer be liable for any direct, indirect, special, incidental, or consequential damages arising from the use or inability to use the product or documentation, even if advised of the possibility of such damages.

Declaration of Conformity

CE

The CE symbol on your product indicates that it is in compliance with the directives of the Union European (EU). A Certificate of Compliance is available by contacting Technical Support.

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 kind of cable is available from ARBOR. Please contact your local supplier for ordering information.

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

Warning

This is a class B product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC Class B

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.

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 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 which case the user will be required to correct the interference at his own expense.

RoHS

ARBOR Technology Corp. certifies that all components in its products are in compliance and conform to the European Union's Restriction of Use of Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive 2002/95/EC.

The above mentioned directive was published on 2/13/2003. The main purpose of the directive is to prohibit the use of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE) in electrical and electronic products. Member states of the EU are to enforce by 7/1/2006.

ARBOR Technology Corp. hereby states that the listed products do not contain unintentional additions of lead, mercury, hex chrome, PBB or PBDB that exceed a maximum concentration value of 0.1% by weight or for cadmium exceed 0.01% by weight, per homogenous material. Homogenous material is defined as a substance or mixture of substances with uniform composition (such as solders, resins, plating, etc.). Lead-free solder is used for all terminations (Sn(96-96.5%), Ag(3.0-3.5%) and Cu(0.5%)).

SVHC / REACH

To minimize the environmental impact and take more responsibility to the earth we live, Arbor hereby confirms all products comply with the restriction of SVHC (Substances of Very High Concern) in (EC) 1907/2006 (REACH --Registration, Evaluation, Authorization, and Restriction of Chemicals) regulated by the European Union.

All substances listed in SVHC < 0.1 % by weight (1000 ppm)

Warning

Single Board Computers and their components contain very delicate Integrated Circuits (IC). To protect the Single Board Computer and its components against damage from static electricity, you should always follow the following precautions when handling it :

1. Disconnect your Single Board Computer from the power source when you want to work on the inside.
2. Hold the board by the edges and try not to touch the IC chips, leads or circuitry.
3. Use a grounded wrist strap when handling computer components.
4. Place components on a grounded antistatic pad or on the bag that comes with the Single Board Computer, whenever components are separated from the system.

Replacing Lithium Battery

Incorrect replacement of the lithium battery may lead to a risk of explosion.

The lithium battery must be replaced with an identical battery or a battery type recommended by the manufacturer.

Do not throw lithium batteries into the trash-can. It must be disposed of in accordance with local regulations concerning special waste.

Technical Support

If you have any technical difficulties, please do not hesitate to call or e-mail our customer service.

http://www.arbor-technology.com

E-mail:info@arbor.com.tw

Warranty

This product is warranted to be in good working order for a period of two years from the date of purchase. Should this product fail to be in good working order at any time during this period, we will, at our option, replace or repair it at no additional charge except as set forth in the following terms. This warranty does not apply to products damaged by misuse, modifications, accident or disaster.

Vendor assumes no liability for any damages, lost profits, lost savings or any other incidental or consequential damage resulting from the use, misuse of, or inability to use this product. Vendor will not be liable for any claim made by any other related party.

Vendors disclaim all other warranties, either expressed or implied, including but not limited to implied warranties of merchantability and fitness for a particular purpose, with respect to the hardware, the accompanying product's manual(s) and written materials, and any accompanying hardware. This limited warranty gives you specific legal rights.

Return authorization must be obtained from the vendor before returned merchandise will be accepted. Authorization can be obtained by calling or faxing the vendor and requesting a Return Merchandise Authorization (RMA) number. Returned goods should always be accompanied by a clear problem description.

Chapter 1

Introduction

1.1. The Product

- Soldered onboard Intel Apollo Lake SoC Processor
- Intel I210IT PCIe GbE conntroller
- Single Channel 24-bit LVDS and 1 x DDI port

1.2. About this Manual

This manual is intended for experienced users and integrators with hardware knowledge of computers. If you are not sure about the description in this manual, consult your vendor before further handling.

We recommend that you keep one copy of this manual for the quick reference for any necessary maintenance in the future. Thank you for choosing ARBOR products.

1.3. Specifications

Form Factor	COM Express® Mini Type 10 CPU Module
CPU	Soldered onboard Intel® Atom™ x7-E3950 1.6GHz/ x5-E3940 1.6GHz/ x5-E3930 1.3GHz processor
Memory	Soldered onboard 4GB DDR3L SDRAM, upgratable to 8GB
BIOS	AMI UEFI BIOS
I/O	
USB Port	10 x USB ports: - 8 x USB 2.0 ports(Support USB2.0 only) - 2 x USB 3.0 SuperSpeed ports
Expansion Bus	4 x PCIex1 lanes up to 3 devices, I2C Interface, SDIO
Storage	2 x Serial ATA ports Soldered onboard eMMC 5.0 up to 32GB (OEM Request)
Ethernet Chipset	1 x Intel® i210IT PCIe GbE controller
Audio	HD audio link
TPM	INFINEON SLB 9665XT2.0
Graphic Chipset	Intergrated in Intel® HD graphic
Graphic Interface	LCD: Single Channel 24-bit via eDP to LVDS NXP PTN3460
	1 x DDI port
Windows 10 64-bit Linux: Ubuntu	
Power Requirement	5V/12V Auto detect
Power Consumption	0.8A@12V with E3940(Typical with PBN-9007)
Operating Temp.	-40°C ~ 85°C (-40°F ~ 185°F)
Operating Humidity	10 ~ 95% @ 85°C (non-condensing)
Dimensions (L x W)	84 x 55 mm (3.3" x 2.17")

1.4. Inside the Package

Before starting to install the single board, make sure the following items are shipped:

1 x EmNANO-i2408 COM Express® Mini CPU Module

1 x Quick Installation Guide

If any of the aforelisted items is damaged or missing, contact your vendor immediately.

1.5. Ordering Information

EmNANO-i2408-WT-E3940-4G	Intel Atom x5-E3940 COM express Type 10 CPU module w/ 4GB memory soldered on module, -40°C~85°C
EmNANO-i2408-WT-E3950-4G (OEM request)	Intel Atom x7-E3950 COM express Type 10 CPU module w/ 4GB memory soldered on module, -40°C~85°C
EmNANO-i2408-WT-E3930-4G (OEM request)	Intel Atom x5-E3930 COM express Type 10 CPU module w/ 4GB memory soldered on module, -40°C~85°C

1.6. Optional Accessories

PBN-9007	PBN-9007 COM Express Mini Type 10 carrier board
HS-2402-F1-T (E Series)	Heat Spreader,AL,84*55*11mm,W/THREADED,W/PAD,ACE (for EmNANO-i2408-E39x0)
HS-2402-F1-NT (E Series)	Heat Spreader,AL,84*55*11mm,THROUGH HOLE,W/PAD,ACE (for EmNANO-i2408-E39x0)
CBK-05-9007-00	PBN-9007 cable kit 1 x USB cable 1 x Serial port cable 1 x SATA cable 1 x SATA Power cable 1 x PS/2 cable

Chapter 2

Getting Started

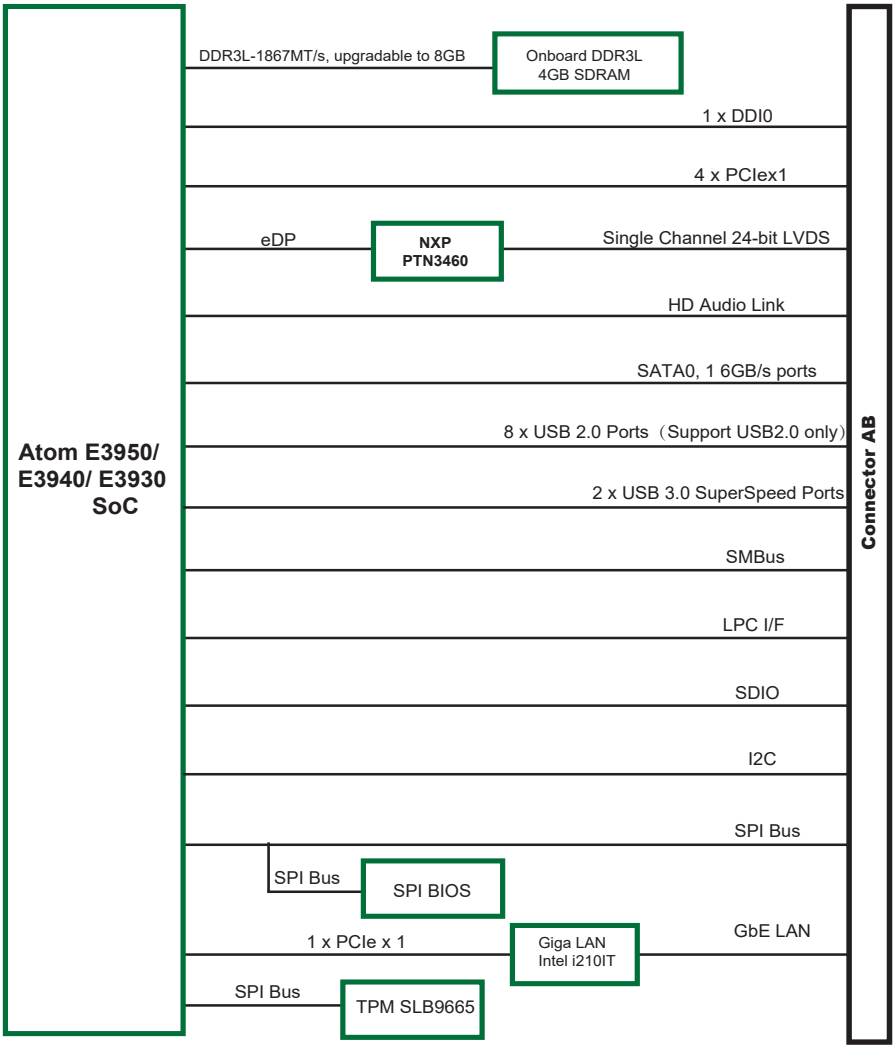
2.1. The Ultra-small COM Express® Mini Module

EmNANO-i2408 is a COM Express® Mini Type 10 module. 55 mm x 84 mm is the smallest in ARBOR's COM Express® product lineup, next to the Basic size (125 mm x 95 mm) and Compact size (95mm x 95mm) form factors.

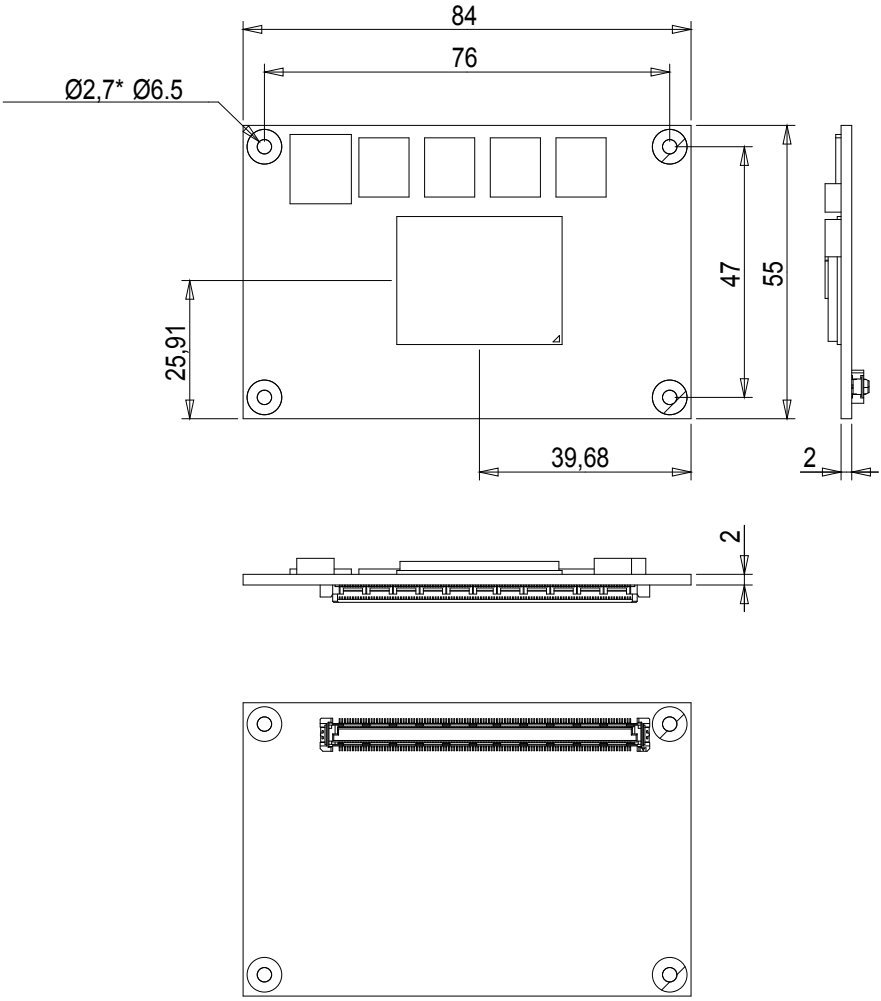
The connector difference between Standard COM Express Mini type 10 and EmNANO-i2408 is tabulated as below:

Module Type	Type 10	EmNANO-i2408
Connectors	1	1
Connector Rows	A, B	A, B
PCIe Lanes (max)	4	3
LAN (Max)	1	1
Serial Ports (Max)	2	1
DDI0 (Max)	1	1
LVDS Channel A	1	1
USB 2.0 Ports (Max)	8	8
USB 3.0 Ports (Max)	2	1

2.2. Block Diagram



2.3 Board Dimensions



Unit：mm

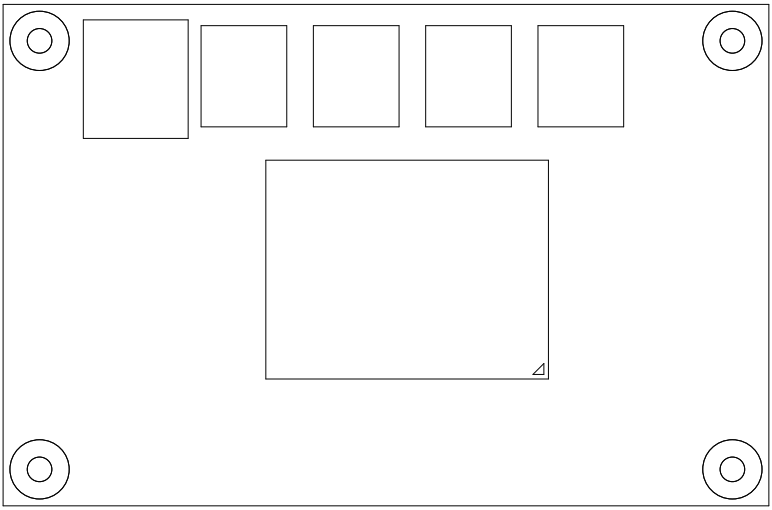
2.4 COM Express® Mini Type 10 AB Connector

Note: A pin with a remark "(N/C)" is a pin that the signal isn't available on this board while the remark beyond the bracket delivers the consortium-specified definition.

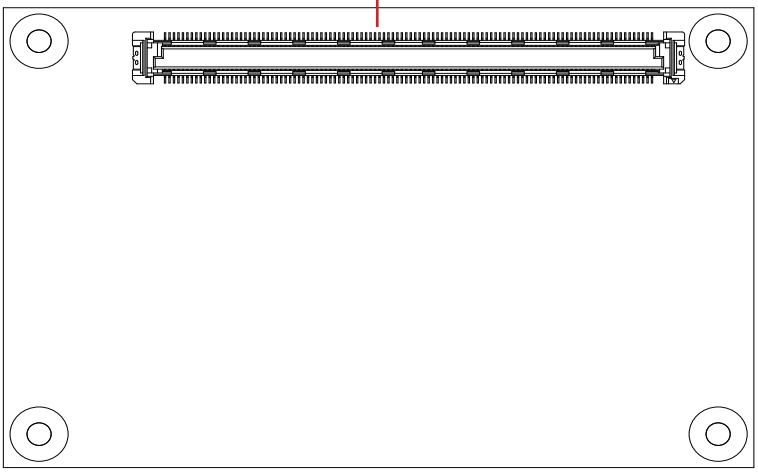
B1	GND	GND	A1
B2	GBE0_ACT#	GBE0_MDI3-	A2
B3	LPC_FRAME#	GBE0_MDI3+	A3
B4	LPC_AD0	GBE0_LINK100#	A4
B5	LPC_AD1	GBE0_LINK1000#	A5
B6	LPC_AD2	GBE0_MDI2-	A6
B7	LPC_AD3	GBE0_MDI2+	A7
B8	LPC_DRQ0#(N/C)	GBE0_LINK#	A8
B9	LPC_DRQ1# (N/C)	GBE0_MDI1-	A9
B10	LPC_CLK	GBE0_MDI1+	A10
B11	GND	GND	A11
B12	COME_PWR_BTN#	GBE0_MDI0-	A12
B13	SMB_CLK_RESUME	GBE0_MDI0+	A13
B14	SMB_DATA_RESUME	GBE0_CTREF (N/C)	A14
B15	SMB_ALERT#	SLP_S3#	A15
B16	SATA1_TX+	SATA0_TX+	A16
B17	SATA1_TX-	SATA0_TX-	A17
B18	SUS_STAT#	SLP_S4#	A18
B19	SATA1_RX+	SATA0_RX+	A19
B20	SATA1_RX-	SATA0_RX-	A20
B21	GND	GND	A21
B22	USB_SSTX0-	USB_SSRX0-	A22
B23	USB_SSTX0+	USB_SSRX0+	A23
B24	COME_PWRGD	SLP_S4#	A24
B25	USB_SSTX1-	USB_SSRX1-	A25
B26	USB_SSTX1+	USB_SSRX1+	A26
B27	WDT	BATLOW#	A27
B28	AC_SDIN2 (N/C)	ATA_ACT#	A28
B29	AC_SDIN1(N/C)	COME_AZ_SYNC	A29
B30	COME_AC_SDATA_IN0	COME_AZ_RST#	A30
B31	GND	GND	A31
B32	COME_SPKR	COME_AZ_BIT_CLK	A32
B33	I2C_CLK0	COME_AZ_SDATA_OUT	A33
B34	I2C_DATA0	BIOS_DISABLE#_0	A34
B35	THRM#	THRMTRIP#	A35
B36	USB7-	USB6-	A36
B37	USB7+	USB6+	A37
B38	USB_4_5_OC# (N/C)	USB_6_7_OC# (N/C)	A38
B39	USB5-	USB4-	A39
B40	USB5+	USB4+	A40
B41	GND	GND	A41
B42	USB3-	USB2-	A42
B43	USB3+	USB2+	A43
B44	USB_0_1_OC# (N/C)	USB_2_3_OC# (N/C)	A44
B45	USB1-	USB0-	A45
B46	USB1+	USB0+	A46
B47	PLTRST#_BUFF	VCC_RTC	A47
B48	EXCD1_CPPE#	PLTRST#_BUFF	A48
B49	COME_RSTBTN#	EXCD0_CPPE#	A49
B50	PLTRST#_BUFF	LPC_SERIRQ	A50
B51	GND	GND	A51
B52	RSVD (N/C)	RSVD (N/C)	A52
B53	RSVD (N/C)	RSVD (N/C)	A53
B54	SD_CMD	SD_DATA0	A54
B55	RSVD (N/C)	RSVD (N/C)	A55

B56	RSVD (N/C)	RSVD (N/C)	A56
B57	SD_WP	GND	A57
B58	PCIE_RXP3	COME_PCIE_TXP3+	A58
B59	PCIE_RXN3	COME_PCIE_TXN3-	A59
B60	GND	GND	A60
B61	PCIE_RXP2	COME_PCIE_TXP2	A61
B62	PCIE_RXN2	COME_PCIE_TXN2	A62
B63	SD_CD#	SD_DATA1	A63
B64	PCIE_RXP1	COME_PCIE_TXP1	A64
B65	PCIE_RXN1	COME_PCIE_TXN1	A65
B66	PCIE_WAKE#	GND	A66
B67	WAKE1#	SD_DATA2	A67
B68	PCIE_RXP0	COME_PCIE_TXP0	A68
B69	PCIE_RXN0	COME_PCIE_TXN0	A69
B70	GND	GND	A70
B71	COME_DDI0_TXP0	LVDS_A0+	A71
B72	COME_DDI0_TXN0	LVDS_A0-	A72
B73	COME_DDI0_TXP1	LVDS_A1+	A73
B74	COME_DDI0_TXN1	LVDS_A1-	A74
B75	COME_DDI0_TXP2	LVDS_A2+	A75
B76	COME_DDI0_TXN2	LVDS_A2-	A76
B77	DDI0_PAIR4+ (N/C)	COME_LCD_VDDEN	A77
B78	DDI0_PAIR4- (N/C)	LVDS_A3+	A78
B79	COME_LCD_BKLT_EN_R	LVDS_A3-	A79
B80	GND	GND	A80
B81	COME_DDI0_TXP3	LVDS_A_CLK+	A81
B82	COME_DDI0_TXN3	LVDS_A_CLK-	A82
B83	COME_LCD_BKLT_CTRL	LVDS_I2C_CLK	A83
B84	VCC_5V_SBY	LVDS_I2C_DAT	A84
B85	VCC_5V_SBY	SD_DATA3	A85
B86	VCC_5V_SBY	RSVD (N/C)	A86
B87	VCC_5V_SBY	RSVD / eDP_HPD(NC)	A87
B88	BIOS_DISABLE#_1	COME_PCIE_CLKP1	A88
B89	COME_DDI_HPD	COME_PCIE_CLKN1	A89
B90	GND	GND	A90
B91	DDIO_PAIR5+ (N/C)	SPI_POWER	A91
B92	DDIO_PAIR5- (N/C)	COME_SPI_MISO	A92
B93	DDIO_PAIR6+ (N/C)	SD_CLK	A93
B94	DDIO_PAIR6- (N/C)	COME_SPI_CKL	A94
B95	COME_DDI_DDC_AUX_SEL	COME_SPI_MOSI	A95
B96	USB_HOST_PRSNT (N/C)	TPM_PP	A96
B97	COME_SPI_CS#0	TYPE10#	A97
B98	COME_DDCCLK_AUX	COME_UART1_TXD	A98
B99	COME_DDCDATA_AUX#	COME_UART1_RXD	A99
B100	GND	GND	A100
B101	FAN_PWMOUT	COME_UART2_TXD	A101
B102	FAN_TACHIN(N/C)	COME_UART2_RXD	A102
B103	COME_SLEEP#	COME_LID#	A103
B104	VCC_12V	VCC_12V	A104
B105	VCC_12V	VCC_12V	A105
B106	VCC_12V	VCC_12V	A106
B107	VCC_12V	VCC_12V	A107
B108	VCC_12V	VCC_12V	A108
B109	VCC_12V	VCC_12V	A109
B110	GND	GND	A110

2.5 Connectors Quick Reference



COM Express Connector



2.6. Driver (6.7A) Installation Notes

The CPU module supports Windows 10. To install the drivers, please go to our website at **www.arbor-technology.com** and download the driver pack from the product page. If you need driver DVD, please contact your ARBOR sales representative.

Windows 10 64-bit

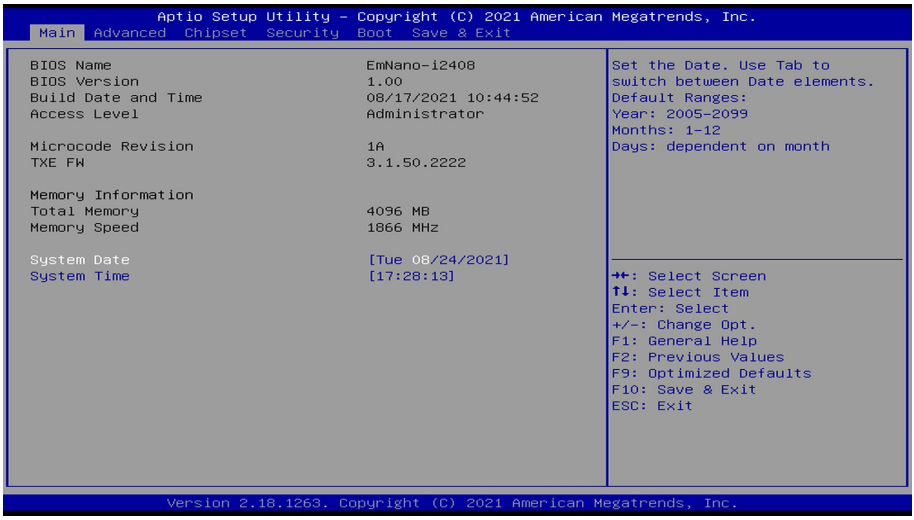
Device	Driver Path
Audio	\Apollolake-i240x\Audio\7687_PG436_Win10_Win8.1_Win8_Win7_WHQLx64
Chipset	\Apollolake-i240x\Chipset
Ethernet	\Apollolake-i240x\LAN
Graphic	\Apollolake-i240x\Graphic
Serial IO	\Apollolake-i240x\Serial IO\SerialIO_30.100.1620.02_APL_PV_Win10\x64
TXE	\Apollolake-i240x\TXE

Chapter 3

BIOS

The BIOS Setup utility is featured by American Megatrends Inc to configure the system settings stored in the system's BIOS ROM. The BIOS is activated once the computer powers on. When the computer is off, the battery on the main board supplies power to BIOS RAM.

To enter the BIOS Setup utility, keep hitting the "Delete" key upon powering on the computer.



Menu	Description
Main	See 5.1. Main on page 16
Advanced	See 5.2. Advanced on page 17
Chipset	See 5.3. Chipset on page 29
Security	See 5.4 Security on page 31
Boot	See 5.5. Boot on page 32
Save & Exit	See 5.6. Save & Exit on page 33

Key Commands

The BIOS Setup utility relies on a keyboard to receive user's instructions. Hit the following keys to navigate within the utility and use the utility.

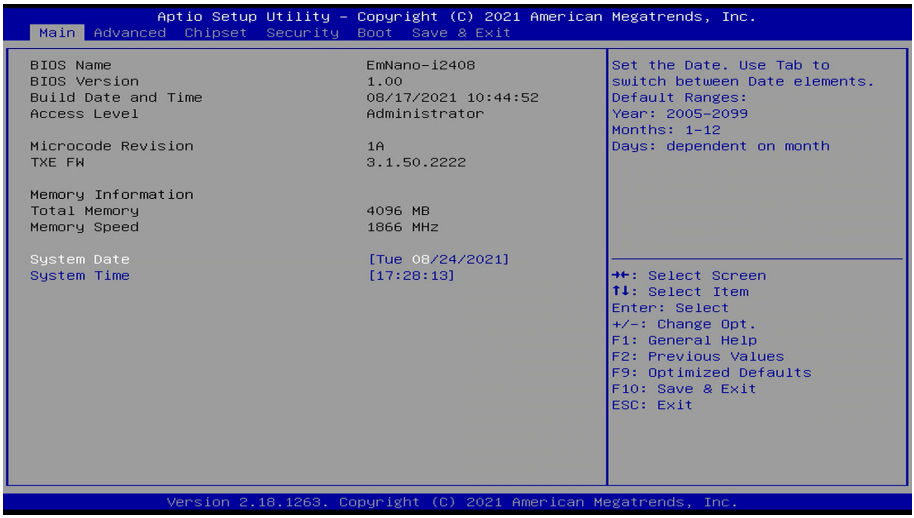
Keystroke	Function
← →	Moves left/right between the top menus.
↓ ↑	Moves up/down between highlight items.
Enter	Selects an highlighted item/field.
Esc	► On the top menus: Use **Esc** to quit the utility without saving changes to CMOS. (The screen will prompt a message asking you to select **OK** or **Cancel** to exit discarding changes. ► On the submenus: Use **Esc** to quit current screen and return to the top menu.
Page Up / +	Increases current value to the next higher value or switches between available options.
Page Down / -	Decreases current value to the next lower value or switches between available options.
F1	Opens the **Help** of the BIOS Setup utility.
F10	Exits the utility saving the changes that have been made. (The screen then prompts a message asking you to select **OK** or **Cancel** to exit saving changes.)

Note: Pay attention to the "WARNING" that shows at the left pane onscreen when making any change to the BIOS settings.

This BIOS Setup utility is updated from time to time to improve system performance and hence the screenshots hereinafter may not fully comply with what you actually have onscreen.

5.1. Main

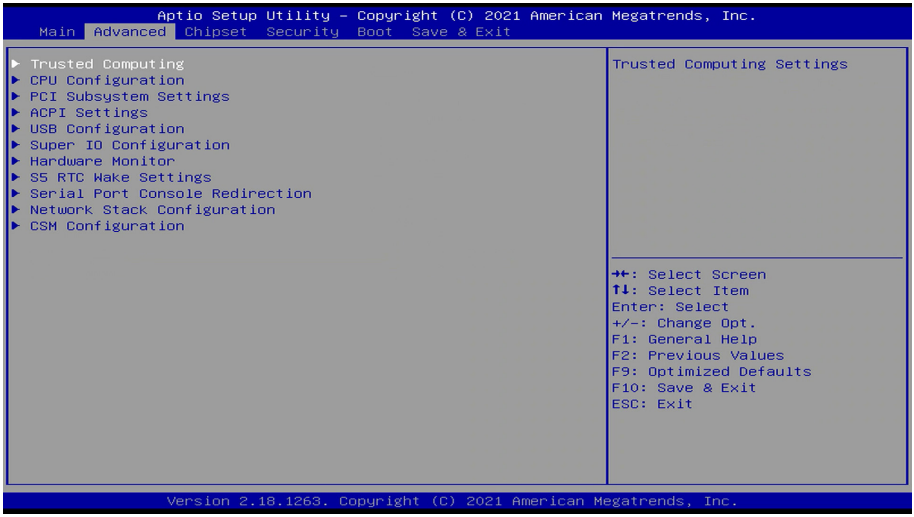
The **Main** menu features the settings of **System Date** and **System Time** and displays some BIOS info.



The features settings are:

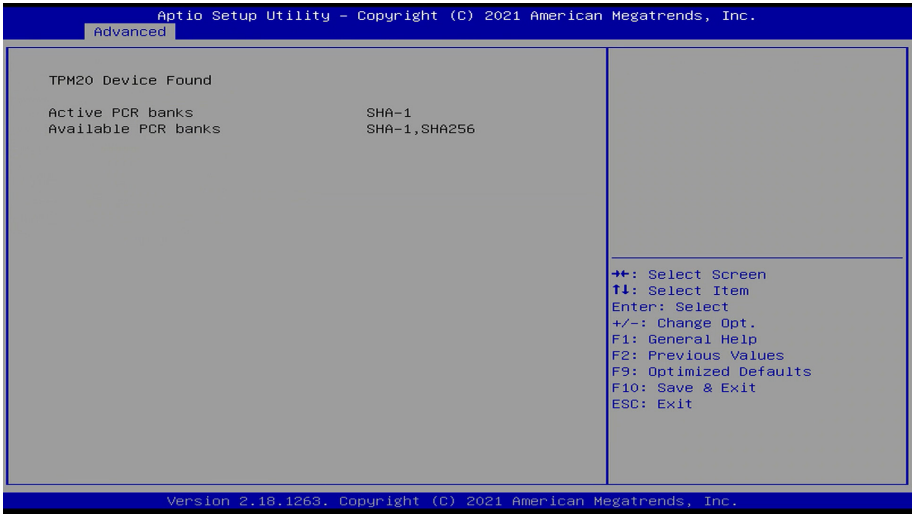
Setting	Description
BIOS Name	Delivers the model name of the computer.
BIOS Version	Delivers the computer's BIOS version.
Build Date and Time	Delivers the date and time when the BIOS Setup utility was made/ updated.
Access Level	Delivers the level that the BIOS is being accessed at the moment.
Memory Information	Delivers the total memory and memory speed.
System Date	Sets system date.
System Time	Sets system time.

5.2. Advanced



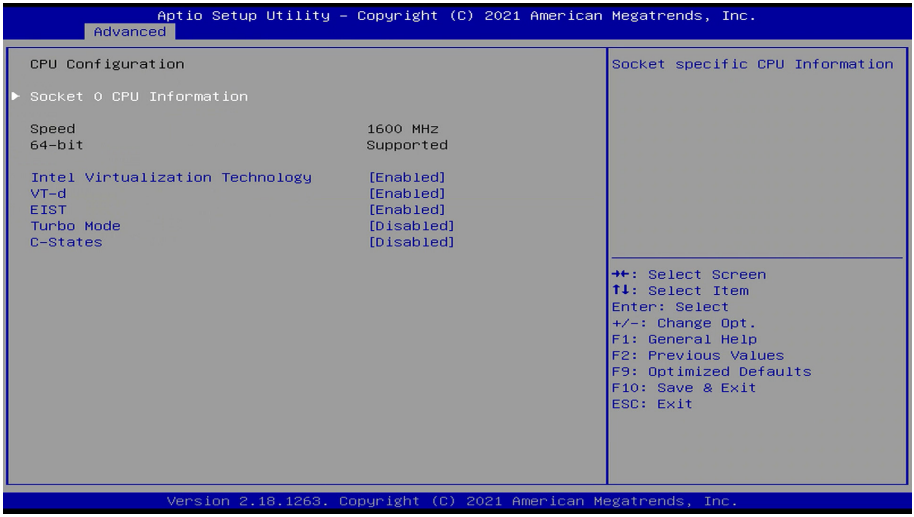
Setting	Description
Trusted Computing	See 5.2.1. Trusted Computing on page 18
CPU Configuration	See 5.2.2. CPU Configuration on page 19
PCI Subsystem Setting	See 5.2.3. PCI Subsystem Setting on page 20
ACPI Settings	See 5.2.4. ACPI Settings on page 21
USB Configuration	See 5.2.5. USB Configuration on page 22
Super IO Configuration	See 5.2.6. Super IO Configuration on page 23
Hardware Monitor	See 5.2.7. Hardware Monitor on page 24
S5 RTC Wake Settings	See 5.2.8. S5 RTC Wake Settings on page 25
Serial Port Console Redirection	See 5.2.9. Serial Port Console Redirection on page 26
Network Stack Configuration	See 5.2.10. Network Stack Configuration on page 27
CSM Configuration	See 5.2.11. CSM Configuration on page 28

5.2.1. Trusted Computing



A trusted platform module is a technology designed to provide hardware-based security functions.

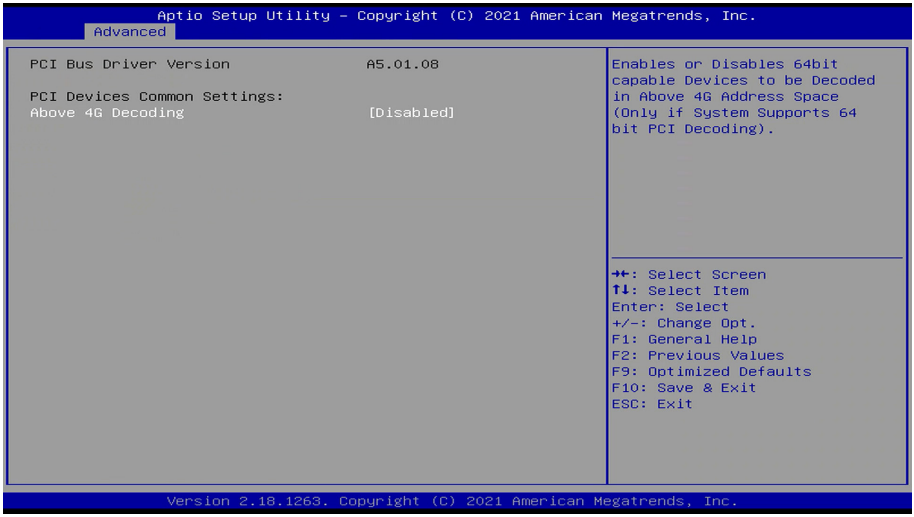
5.2.2. CPU Configuration



The features settings are:

Setting	Description
Socket 0 CPU Information	Delivers socket specific CPU information.
EIST	**Enable** (default) / **Disable** Intel SpeedStep.
Turbo Mode	**Enable** / **Disable** (default) Turbo Mode. Only available when EIST (Intel Speed Step) is enabled.
C-States	**Enable** (default) /**Disable** CPU power management. Allows CPU to go to C state when it's not 100% utilized.

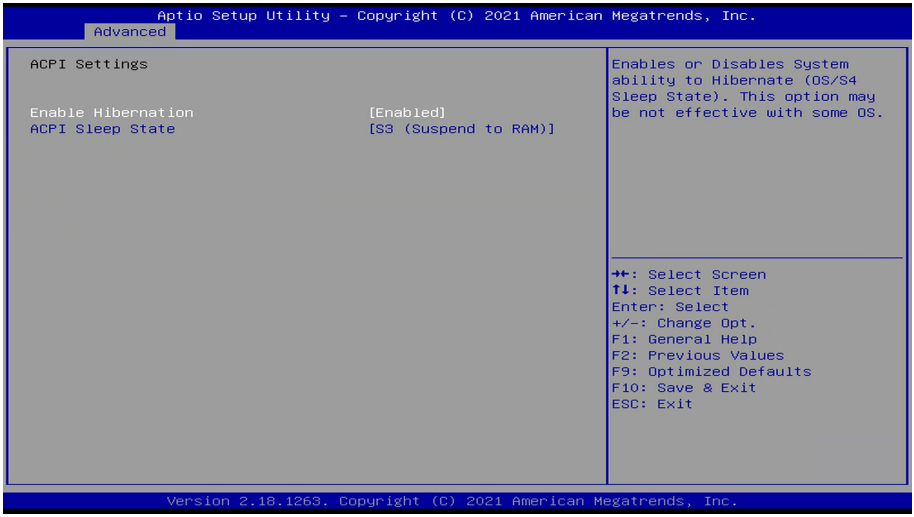
5.2.3. Subsystem Setting



The features settings are:

Setting	Description
Above 4G Decoding	**Enable** / **Disable** (default) Turbo Mode.

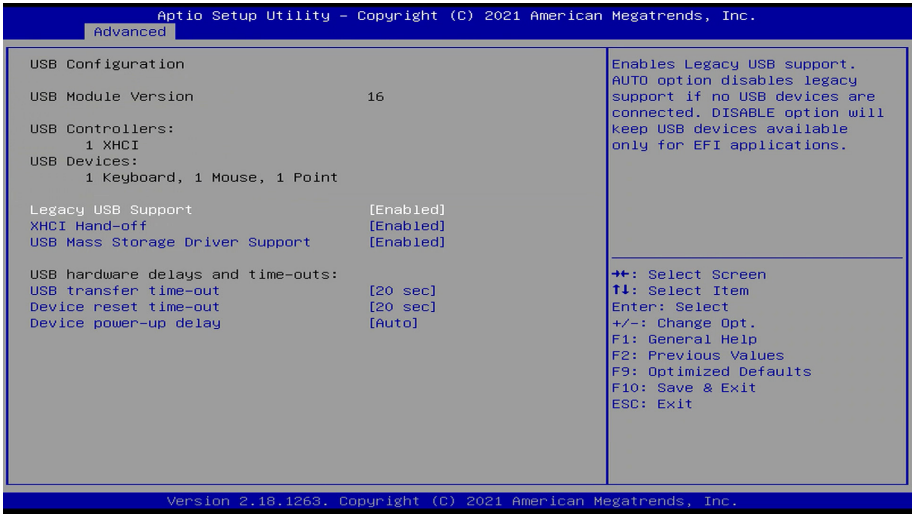
5.2.4. ACPI Settings



The features settings are:

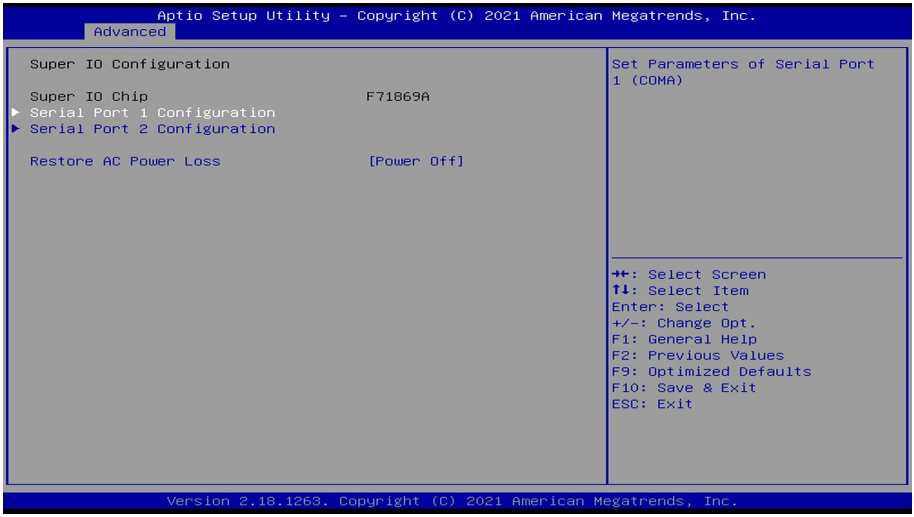
Setting	Description
Enable Hibernation	**Enable** (default) or **Disable** system ability to hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
ACPI Sleep State	Select ACPI sleep state the system will enter when the SUSPEND button is pressed. ► **Options: Suspend Disabled** and **S3 (Suspend to RAM)** (default)

5.2.5. USB Configuration



Setting	Description
Legacy USB Support	Enables/disables legacy USB support. ► Options available are **Enabled** (default), **Disabled** and **Auto**. ► Select **Auto** to disable legacy support if no USB device are connected. ► Select **Disabled** to keep USB devices available only for EFI applications.
XHCI Hand-off	This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver. ► The optional settings are: **Enabled** (default) **/ Disabled**.
USB Mass Storage Driver Support	Enables/disables USB Mass Storage Driver Support. ► The optional settings are: **Enabled** (default) / **Disabled**.
USB hardware delay and time-out	
USB Transfer time-out	Use this item to set the time-out value for control, bulk, and interrupt transfers. ► Options: **1 sec, 5 sec, 10 sec, 20 sec** (default)
Device reset time-out	Use this item to set USB mass storage device start unit command time-out. ► Options available are: **10 sec, 20 sec** (default)., **30 sec, 40 sec**
Device power-up Delay	Use this item to set maximum time the device will take before it properly reports itself to the host controller. ► Options available are: **Auto**: Default **Manual**: Select **Manual** you can set value for the following sub-item: 'Device Power-up delay in seconds', the delay range in from 1 to 40 seconds, in one second increments.

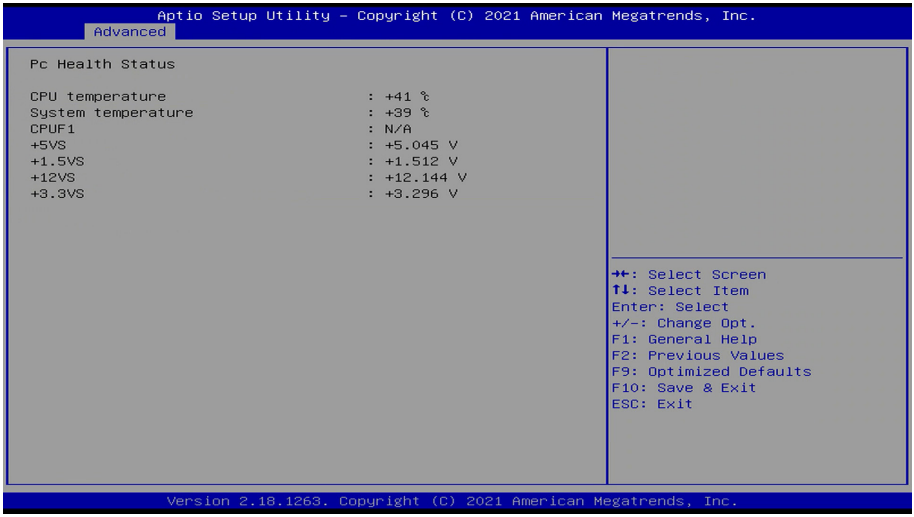
5.2.6. Super IO Configuration



The features settings are:

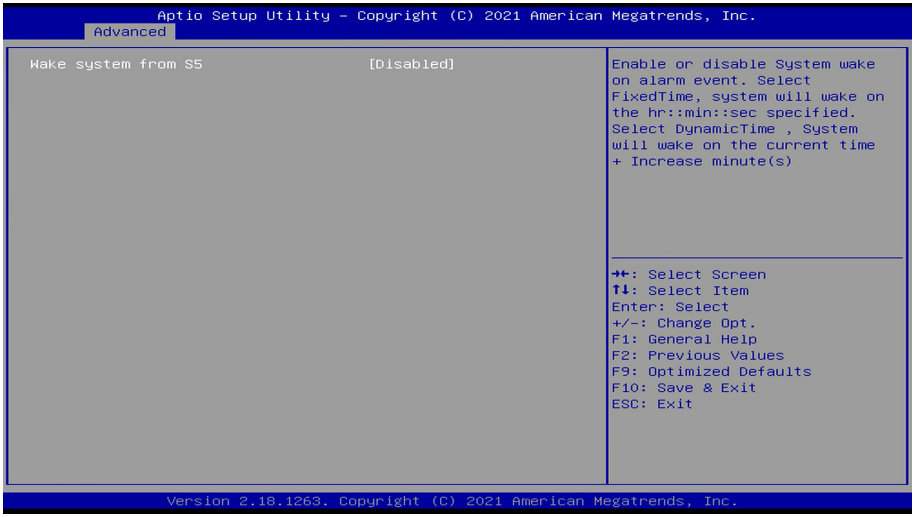
Setting	Description
Serial Port 1 configuration	**Enable** (default) or **Disable** Serial Port (COM).
Change Settings	Select an optimal setting for Super IO device. ► Options for Serial Port 1: **Auto**; **IO=3F8h; IRQ=4** (default) ; **IO=2F8h; IRQ=3, 4, 7, 10, 11**; **IO=3E8h; IRQ=3, 4, 7, 10, 11**; **IO=2E8h; IRQ=3, 4, 7, 10, 11**; ► Options for Serial Port 2: **Auto** **IO=2F8h; IRQ=3** (default) **IO=3F8h; IRQ=3, 4, 7, 10, 11**; **IO=2F8h; IRQ=3, 4, 7, 10, 11**; **IO=3E8h; IRQ=3, 4, 7, 10, 11**; **IO=2E8h; IRQ=3, 4, 7, 10, 11**;
RS485 AutoFlow	Only available for Serial Port 2. **Enable** or **Disable** (default) RS485 autoflow.
Restore AC Power Loss	Specify what state to go to when power is re-applied after a power failure. ► Options: **Power On** (default) and **Power Off**

5.2.7. Hardware Monitor



Select this submenu to view the main board's hardware status. Select it to run a report of various info as depicted below:

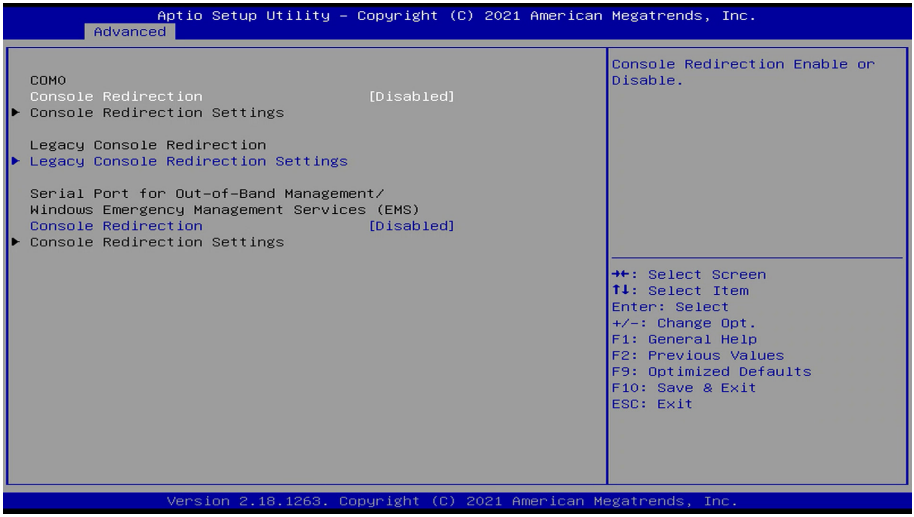
5.2.8. S5 RTC Wake Settings



The features settings are:

Setting	Description
Wake System from S5	**Enable** or **Disable** (default) system wake on alarm event. ► Options available are: **Disabled** (default): **Fixed Time:** System will wake on the hr::min::sec specifiedc. **DynamicTime:** If selected, you need to set **Wake up minute increase** from 1 - 5. System will wake on the current time + increase minute(s).

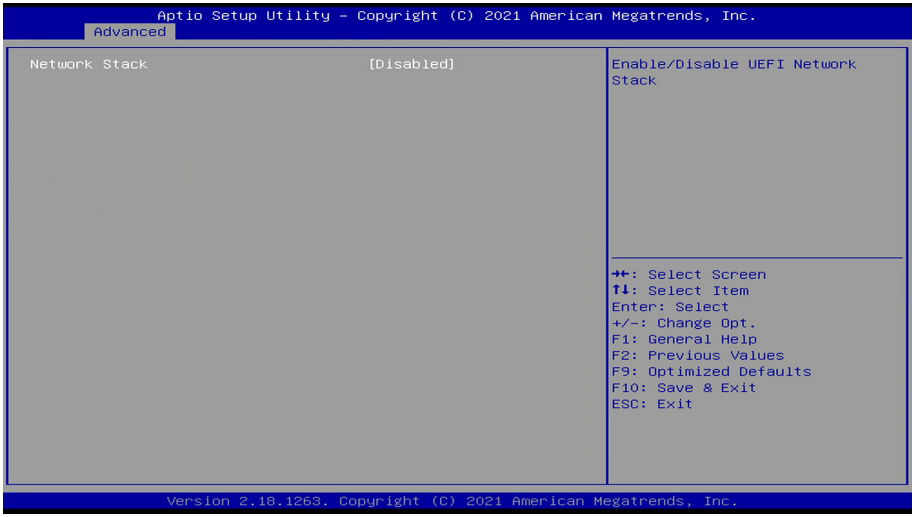
5.2.9. Serial Port Console Redirection



The features settings are:

Setting	Description
Console Redirection	**Enable** or **Disable** (default) console redirection. Following submenu is available only when **Console Redirection** is set to **Enabled**.
Legacy Console Redirection Settings	
Redirection COM Port	Select a COM port to display redirectino of Legacey OS and Legacy OPROM message. ► **COM0** is the default.
Resolution	On legacy OS, the Number of Rows and Columns supported redirection. ► **80x24** is the default.

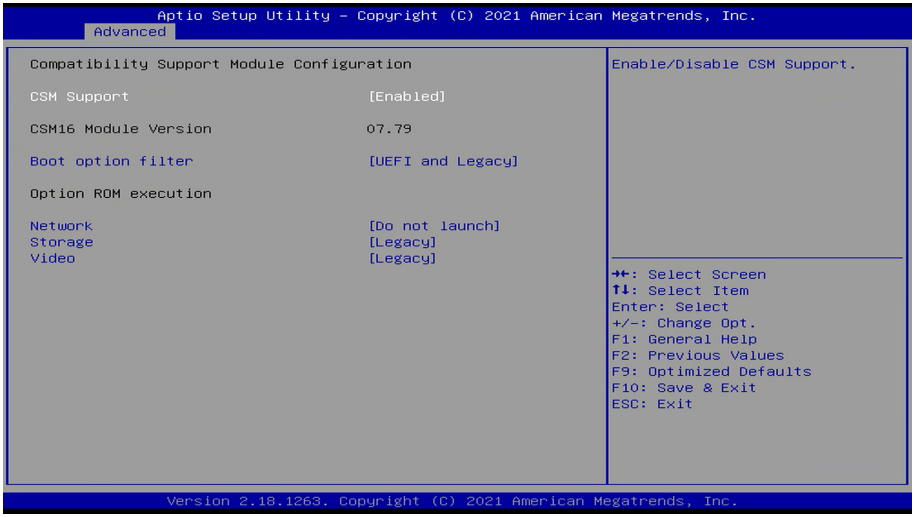
5.2.10. Network Stack Configuration



The features settings are:

Setting	Description
Network Stack	Enables/disables UEFI network stack. ► **Disabled** is the default.

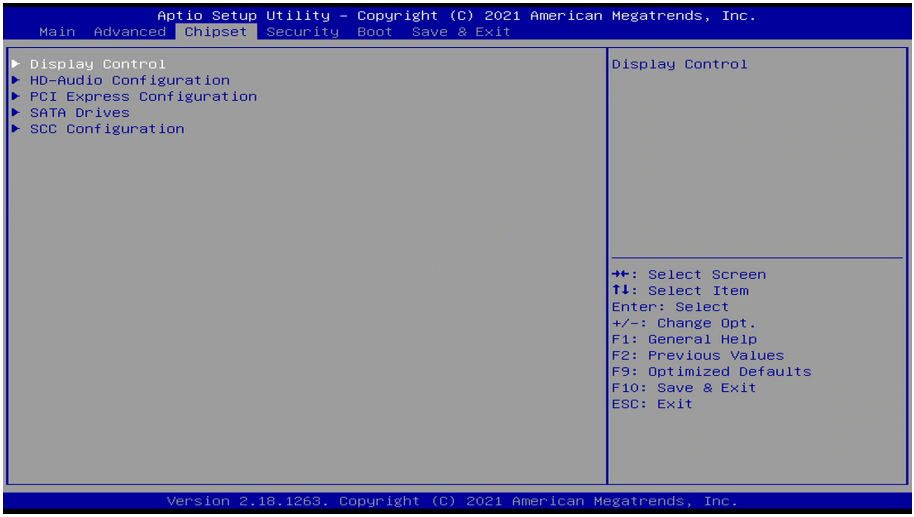
5.2.11. CSM Configuration



The features settings are:

Setting	Description
CSM Support	**Enable** (default) or **Disable** CSM Support.
Boot option filter	Control the Legacy/UEFI ROMs priority. ► Options: **UEFI and Legacy** (default), **Legacy only**, **UEFI only**
Network	Control the execution of UEFI and Legacy PXE OpROM ► Options: **Do not launch** (default), **UEFI** and **Legacy**
Storage	Control the execution of UEFI and Legacy Storage OpROM ► Options: **Do not launch** and **Legacy** (default)
Video	Control the execution of UEFI and Legacy Video OpROM ► Options: **Do not launch** and **Legacy** (default)

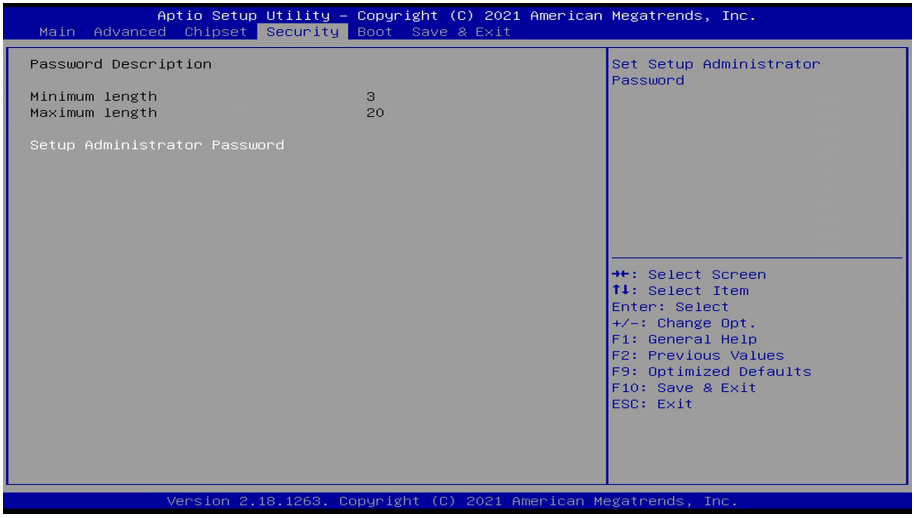
5.3. Chipset



Setting	Description
Display Control	
Boot Display	Select the Video Device which will be activated during POST. ► Options: **Auto (default)**, **EFP** and **LFP**
Active LFP	Select the Active LFP Configuration. ► Options: **No LVDS** (default) and **eDP Port-A**
HD Audio Configuration	**Enable**(default) / **Disable** HD-Audio support.
PCI Express Configuration (Port 1 - Port 5)	
PCI Express Root Port1	**Enable**(default) / **Disable** and **Auto**.
ASPM	**Disable**(default) / **L0S** / **L1** / **L0sL1** and **Auto**.
PCI Speed	**Auto**(default) / **Gen1** / **Gen2**
SATA Drives	
Chipset SATA	**Enable** (default) / **Disable** the Chipset SATA Controller
Port 0/1	**Enable** (default) / **Disable** SATA port
SATA Device Type	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive. ► Options: **Hard Disk Drive** (default) and **Solid State Drive**

SCC Configuration	
SCC SD Card Support	**Enable** (default) / **Disable** SCC SD Card Support
SCC eMMC Support	**Enable** / **Disable** (default) eMMC Support

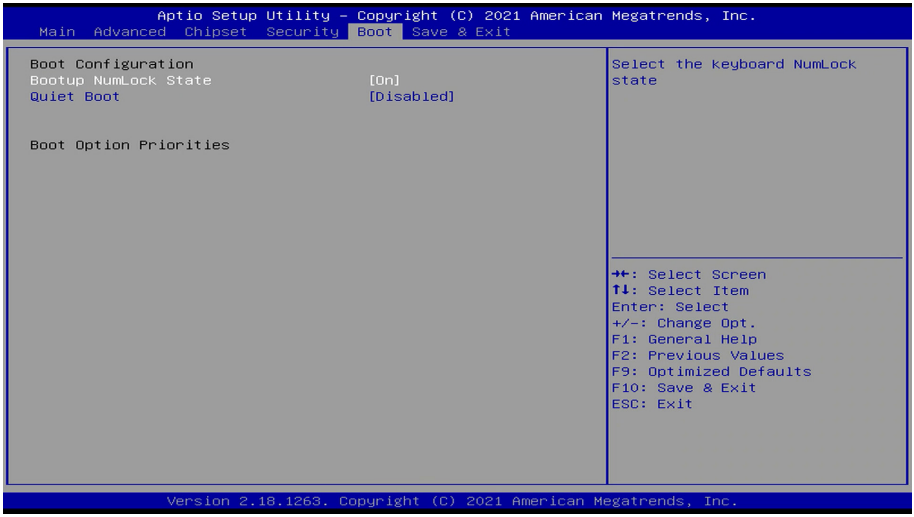
5.4 Security



The features settings are:

Setting	Description
Setup Administrator Password	To set up an administrator password: 1. Select **Administrator Password**. 2. An **Create New Password** dialog then pops up onscreen. 3. Enter your desired password that is no less than 3 characters and no more than 20 characters. 4. Hit [Enter] key to submit.

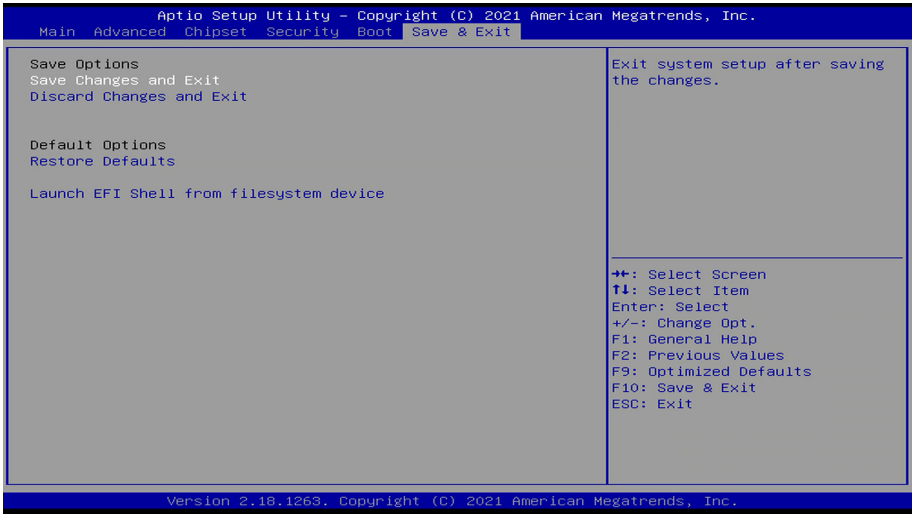
5.5. Boot



The features settings are:

Setting	Description
Bootup NumLock State	Sets whether to enable or disable the keyboard's NumLock state when the system starts up. ► Options available are **On** (default) and **Off**.
Quiet Boot	Sets whether to **enable** or **disable** (default) display the POST (Power-on Self Tests) messages or the system manufacturer's full screen logo during booting.

5.6. Save & Exit



The features settings are:

Setting	Description
Save Changes and Reset	Saves the changes and quits the BIOS Setup utility.
Discard Changes and Exit	Quits the BIOS Setup utility without saving the change(s).
Restore Defaults	Restore/Load Default values for all the setup options. ► Enter the item and then a dialog box pops up: **Load Optimized Defaults? (Yes/ No)** ► Select **Yes** or **No** as required.
Launch EFI Shell from filesystem device	Attempts to launch EFI ShelRestore/Load Default values for all the setup options. ► Enter the item and then a dialog box pops up: **Save configuration and reset? (Yes/ No)** ► Select **Yes** or **No** as required.