

eIVP-WHU-AI-D0000

8th Generation Intel® Core™ i3 AI Box

User's Manual



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EVERFOCUS ELECTRONICS CORPORATION

eIVP-WHU-AI-D0000

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Safety Precautions

Please read the following safety instructions carefully. It is advised that you keep this manual for future references.

- All cautions and warnings on the device should be noted.
- All cables and adapters supplied by EverFocus are certified and in accordance with the material safety laws and regulations of the country of sale. Do not use any cables or adapters not supplied by EverFocus to prevent system malfunction or fires.
- Make sure the power source matches the power rating of the device.
- Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- Always completely disconnect the power before working on the system's hardware.
- No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
- If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
- Always disconnect this device from any AC supply before cleaning.
- While cleaning, use a damp cloth instead of liquid or spray detergents.
- Make sure the device is installed near a power outlet and is easily accessible.
- Keep this device away from humidity.
- Place the device on a solid surface during installation to prevent falls.
- Do not cover the openings on the device to ensure optimal heat dissipation.
- Watch out for high temperatures when the system is running.
- Do not touch the heat sink or heat spreader when the system is running.
- Never pour any liquid into the openings. This could cause fire or electric shock.
- As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers.
- If any of the following situations arises, please contact our service personnel (ts@everfocus.com.tw):
 - Damaged power cord or plug
 - Liquid intrusion to the device
 - Exposure to moisture
 - Device is not working as expected or in a manner as described in this manual
 - The device is dropped or damaged
 - Any obvious signs of damage displayed on the device
- DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE SPECIFICATION) TO PREVENT DAMAGE.

FCC Statement

Warning!



This device complies with Part 15 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.

Caution:

There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.

Attention:

Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte.

Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur. Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.

RoHS Requirements

設備名稱 (Equipment): AI Box · 型號 (型式) / Type designation (Type): eIVP-WHU-AI-D0000						
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(VI))	多溴聯苯 Polybrominated biphenyls (PBBS)	多溴二苯醚 Polybrominated diphenyl ethers (PBDEs)
印刷電路板及電子零組件 PCB & Other Components	X	○	○	○	○	○
外部訊號連接器及線材 Wires & Connectors for Ext. Connections	X	○	○	○	○	○
外殼 Chassis	X	○	○	○	○	○
中央處理器與內存 CPU & RAM	X	○	○	○	○	○
硬碟 HDD Drive	X	○	○	○	○	○
液晶模組 LCD Module	X	×	○	○	○	○
光學驅動 Optical Drive	X	○	○	○	○	○
觸控模組 Touch Control Module	X	○	○	○	○	○
電源 PSU	X	○	○	○	○	○
電池 Battery	X	○	○	○	○	○

本表格依據 SJ/T 11364的規定編制。This form is prepared in compliance with the provisions of SJ/T 11364.

○ : 表示有毒有害物質在該部件所有均質材料中的含量均在GB/T 26572標準規定的限量要求以下。

○ : The level of toxic or hazardous materials present in this component and its parts is below the limit specified by GB/T 26572.

× : 表示該有毒物質的某一均質材料超出了GB/T 26572的限量要求，然而該部件仍符合歐盟指令2011/65/EU的規範。

× : The level of toxic or hazardous materials present in the component exceed the limits specified by GB/T 26572, but is still in compliance with EU Directive 2011/65/EU (RoHS 2).

備註 Notes:

- 此產品所標示之環保使用期限，係指在一般正常使用狀況下。
The Environment Friendly Use Period indicated by labeling on this product is applicable only to use under normal conditions.
- 上述部件物質中央處理器、內存、硬碟、光學驅動、電源為選購品。
Individual components including the CPU, RAM/memory, HDD, optical drive, and PSU are optional.
- 上述部件物質液晶模組、觸控模組僅一體機產品適用。
LCD Module and Touch Control Module only applies to certain products which feature these components.

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Chapter

1

1. Introduction

The eIVP-WHU-AI-D0000 is EverFocus' most compact AI Box featuring a modern design that fits in with any space-oriented environment. Just like a mini superhero, the eIVP-WHU-AI-D0000 combines all the necessary hardware units that an AI Box should have. Except for the high performance Intel® Core™ i3 processor and Movidius™ Myriad™ X VPU that deliver over 1 TOPS of computing performance on deep neural networks inferences, the AI Box also provides various I/O interfaces, including 2 HDMI display outputs, 2 GbE LAN ports, 2 COM ports, 1 SATA storage and a total of 4 USB ports, all together within a palm-size housing.

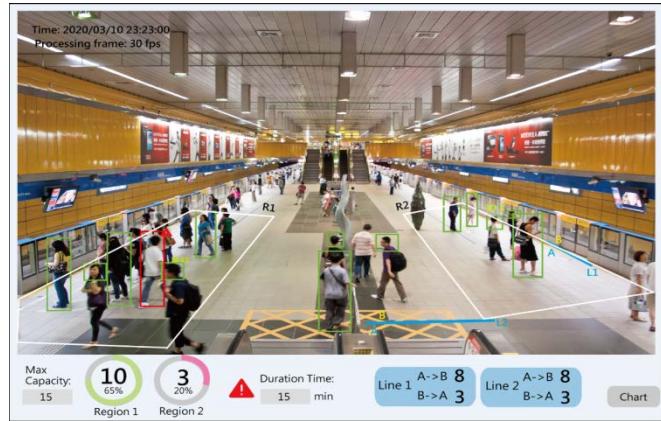
The AI Box features an internal fan and an optimized thermal design on the metal housing. All of this is to ensure effective heat dissipation, enabling the Intel® Movidius™ Myriad™ X to operate at higher temperature of up to 50°C without compromising the computing performance. The thermal design also ensures the AI Box to run for a long time.

In order to fit into applications that are monitor-required, the eIVP-WHU-AI-D0000 comes with a VESA mount design, which allows it to be easily mounted on a monitor or TV.

The eIVP-WHU-AI-D0000 supports Ubuntu operating system that is able to run any Ubuntu-based AI models. Since the Movidius Myriad X VPU is programmable with the Intel® Distribution of the OpenVINO™ toolkit for porting neural network to the edge, over 100 public AI models from the tool suite can be utilized for popular deep learning frameworks like Cafee, TensorFlow, MXNet and ONNX.

Users can also use several AI POC (Proof of Concept) models designed by EverFocus' in-house deep learning software team, including Crowd Density and Heat-Map Analytics, People Counting and Loitering in ROI Regions and Facial Recognition for applications like digital advertising machine.

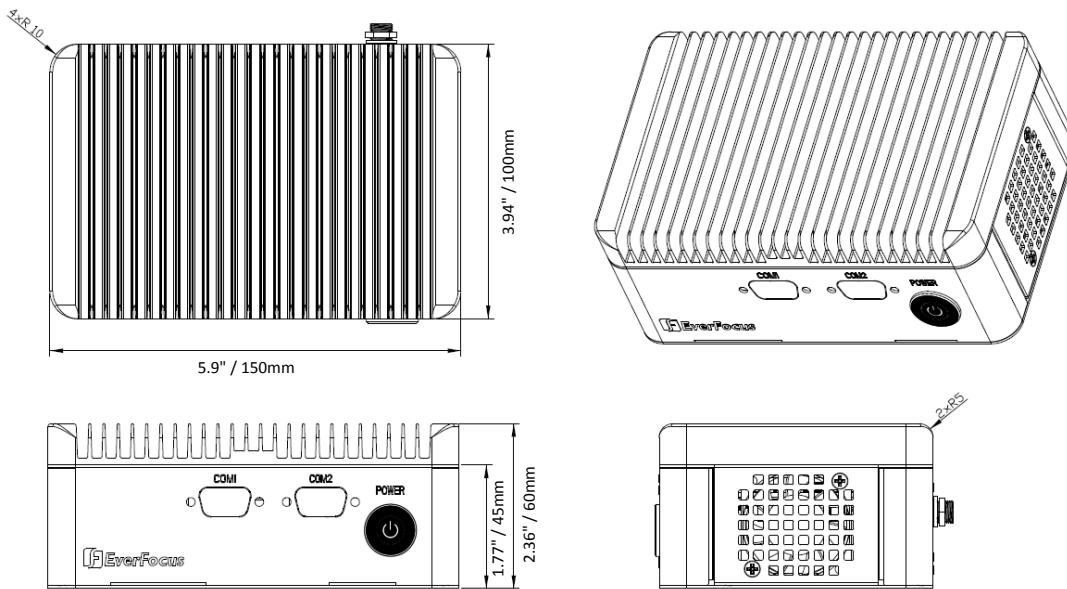
The AI POC models support Ubuntu 18.04, which can be pre-installed in all of EverFocus' industrial PC products.



1.1 Features

- Built-in 8th generation Intel® Core™ i3-8145UE processor
- Built-in Intel® Movidius™ Myriad™ X VPU
- DDR4 2400MHz SO-DIMM x 1 (up to 32GB)
- Industrial-grade Realtek® GbE LAN x 2
- RS-232/422/485 x 2 (Optional)
- HDMI 1.4b display output x 2
- USB 3.2 Gen 2 x 2, USB 2.0 x 2
- SATA 6.0 Gb/s x 1
- Full size mSATA/mPCIe x 1 (Select by BIOS), M.2 2230 (E key) x 1
- CE, FCC Class A

1.2 Dimensions



1.3 Packing List

- | | |
|--|--|
| <ul style="list-style-type: none">• eIVP-WHU-AI-D0000 AI Box x 1• HDD screw x 4 | <ul style="list-style-type: none">• Drivers DVD x 1 (see Note 3) |
|--|--|

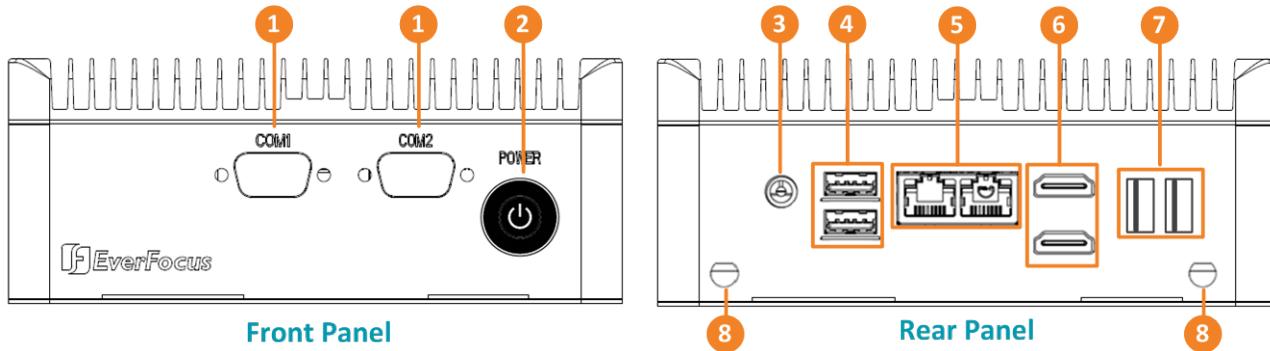
Note:

1. Equipment configurations and supplied accessories vary by country. Please consult your local EverFocus office or agents for more information. Please also keep the shipping carton for possible future use.
2. Contact the shipper if any items appear to have been damaged in the shipping process.
3. The DVD contains the Drivers for the system.

1.4 Optional Accessories

Part Number / Item			
4501DEMSR320801	Innodisk mSATA 32G	4710M4S0AGSAR02	Innodisk DDR4 16G
4501DEMSR640801	Innodisk mSATA 64G	4710M4S0AGSAR01	Innodisk DDR4 16G WT
4501DEMSR010801	Innodisk mSATA 1TB	4B01XUD12060AT2	Adapter,I:100-240V,O:12V/5A,60W

1.5 Physical Description



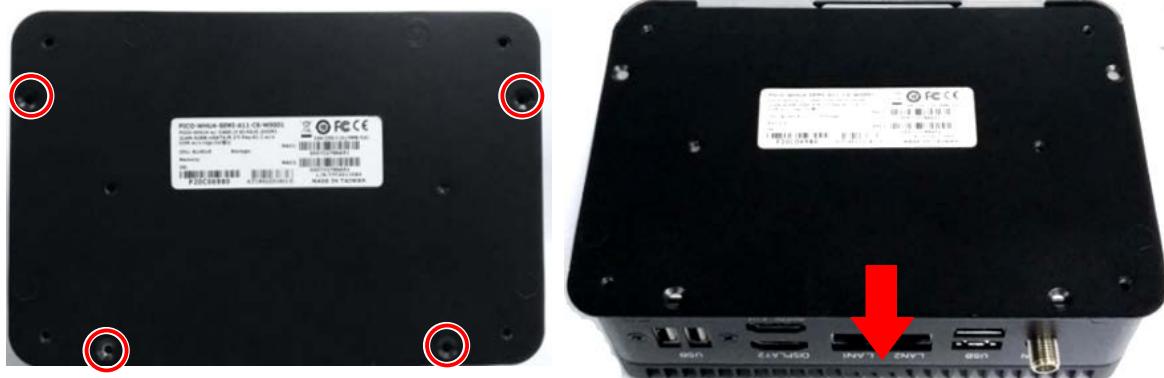
No.	Name	Description
1	Serial Port	Two optional serial ports (RS-232/422/485).
2	Power Button	Press the button to turn on or turn off the system.
3	Power Input	Connect DC 12V power source to the Power Input port.
4	USB 3.2 Gen 2	Two USB 3.2 Gen 2 ports
5	LAN	Two 10/100/1000 Base-Tx Ethernet ports.
6	HDMI	Two HDMI 1.4b video outputs (up to 3840 x 2160).
7	USB2.0	Two USB2.0 ports.
8	Antenna	These ports are currently reserved. Connects the antenna to the Antenna ports.

Chapter 2

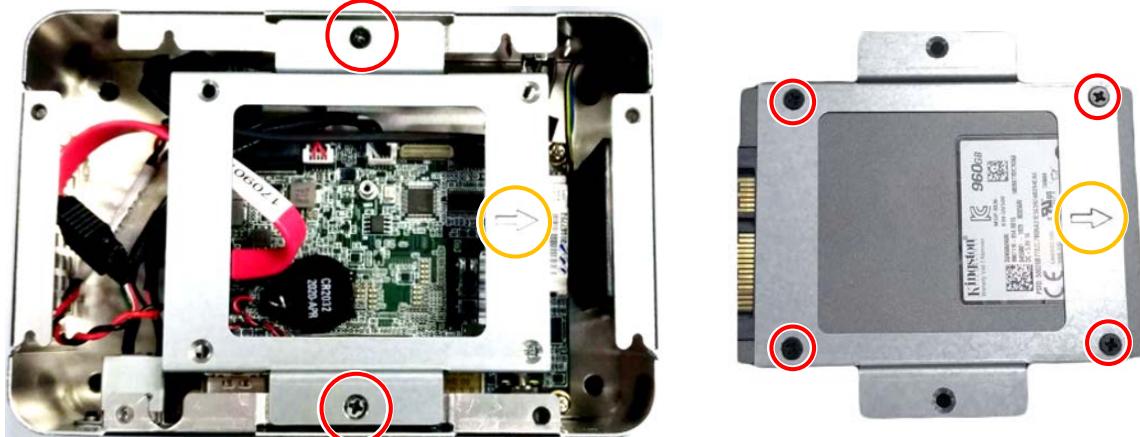
2. SSD/HDD Installation

You can install one 2.5" SATA SSD/HDD into the system.

1. Make sure the AI Box is power-off.
2. Unscrew the four screws on the bottom cover to remove the bottom cover. Slide the bottom cover towards the rear panel side and then lift-up the bottom cover.



3. Remove the 2.5" SATA drive bracket by unscrewing the 2 screws. Screw the 2.5" SATA SSD/HDD to the bracket using the supplied 4 HDD screws. Be noted the orientation of the arrow mark should toward the FAN.



4. Connect the internal SATA and power cables to the 2.5" SSD/HDD. Screw back the 2.5" SATA drive bracket.



5. Slide back the bottom cover and then screw the cover back to the system.

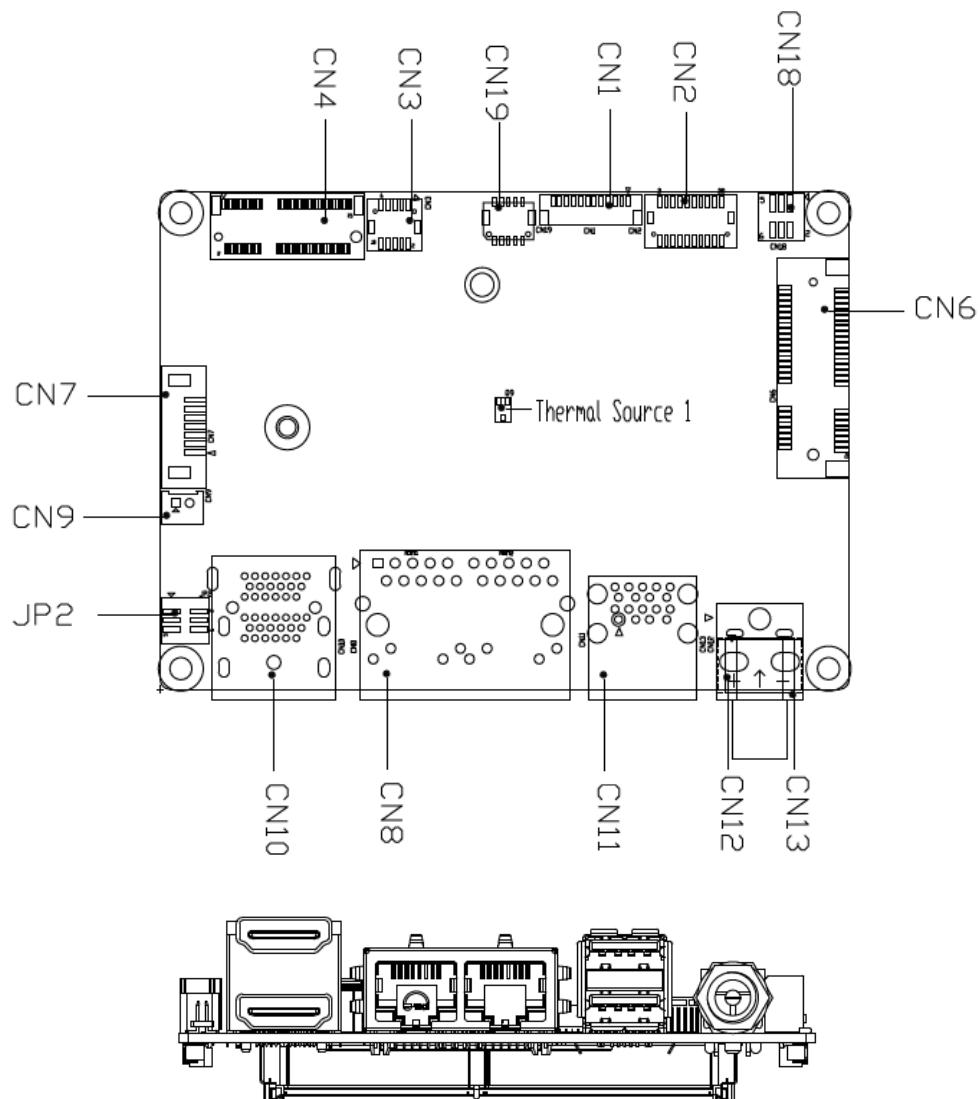


Chapter 3

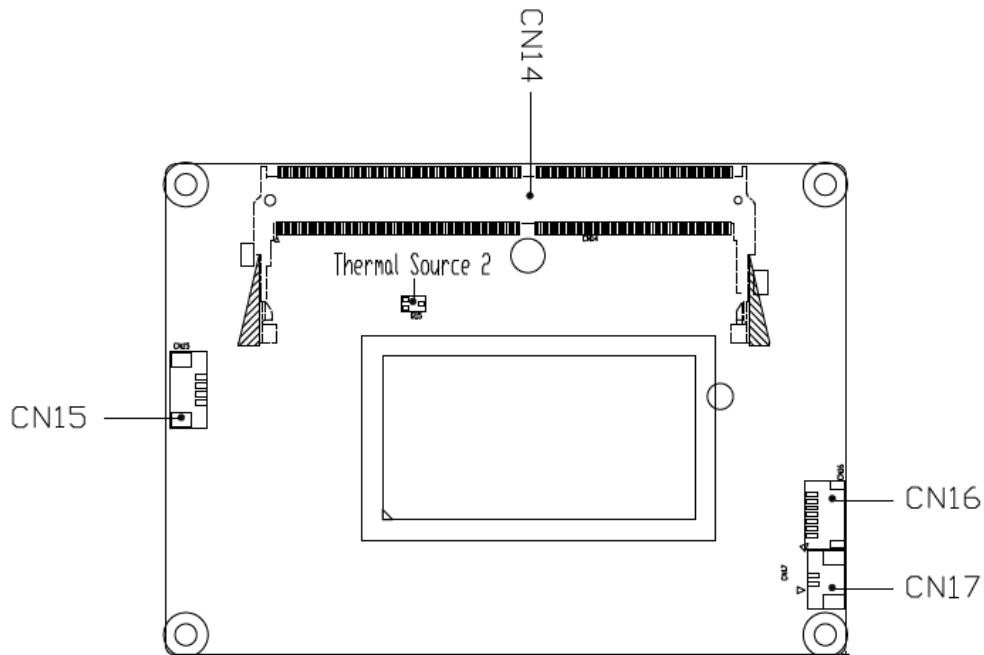
3. Jumpers and Connectors on the Motherboard

Users can use the jumpers and connectors to configure different applications.

Component Side



Solder Side

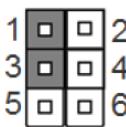
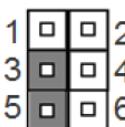
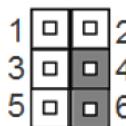
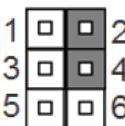


3.1 List of Jumpers

You can refer to the jumpers listed as below to configure your application.

Label	Function
JP2	Clear CMOS Jumper, Auto Power Button Selection

3.1.1 Clear CMOS Jumper, Auto Power Button Selection (JP2)

Clear CMOS Jumper	
 Normal (Default)	 Clear CMOS
Auto Power Button Enable/Disable Selection	
 Enable Auto Power Button (Default)	 Disable Auto Power Button

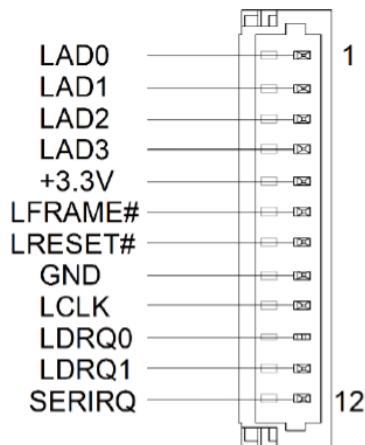
Note: To avoid damage to the system, do not connect pins 1,3,5 with pins 2,4,6.

3.2 List of Connectors

You can refer to the connectors listed as below to configure your application.

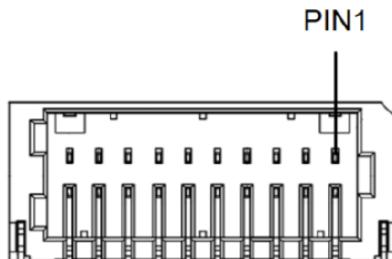
Label	Function
CN1	LCD Port
CN2	COM Port1 / COM Port2
CN3	Front Panel
CN4	M.2 (E-Key) Connector
CN6	Mini-Card Slot (Full Size) / mSATA
CN7	SATA Port
CN8	LAN (R-45) Port1 / Port2
CN9	+5V Output for SATA HDD
CN10	HDMI Port1 / Port2
CN11	Dual USB 3.2 Gen 2 (Port1 / Port2)
CN12	External +12V Input
CN14	DDR4 SO-DIMM Slot
CN15	FAN Connector
CN17	RTC Battery Connector
CN18	Digital IO Port
CN19	USB 2.0 Port (Port1 / Port2)

3.2.1 LPC Port (CN1)



Pin	Pin Name	Signal Type	Signal Level
1	LAD0	IN / OUT	+3.3V
2	LAD1	IN / OUT	+3.3V
3	LAD2	IN / OUT	+3.3V
4	LAD3	IN / OUT	+3.3V
5	+V3.3S	PWR	+3.3V
6	LFRAME#	IN	
7	LRESET#	OUT	+3.3V
8	GND	GND	GND
9	LCLK	OUT	
10	SMB_DATA / 12C_SDA	IN / OUT	
11	SMB_CLK / 12C_CLK	OUT	
12	SMB_ALERT/ INT_SERIRO	IN	+3.3V

3.2.2 COM Port1 / COM Port2 (CN2)



Pin	Pin Name	Signal Type	Signal Level
1	NC	NC	NC
2	NC	NC	NC
3	GND	GND	GND
4	NC	NC	NC
5	DCDA	IN	
6	DCDB	IN	
7	PXA	IN	
8	PXB	IN	
9	TXA	OUT	$\pm 9V$
10	TXB	OUT	$\pm 9V$
11	DTRA	OUT	$\pm 9V$
12	DTRB	OUT	$\pm 9V$
13	DSRA	IN	
14	DSRB	IN	
15	RTSA	OUT	$\pm 9V$
16	RTSB	OUT	$\pm 9V$
17	CTSA	IN	
18	CTSB	IN	
19	RIA / +5V / +12V	IN / PWR	+5V / +12V
20	RIB / +5V / +12V	IN / PWR	+5V / +12V

COM Port1 RS-422

Pin	Pin Name	Signal Type	Signal Level
3	GND	GND	GND
5	RS422_TX-	OUT	±5V
7	RS422_TX+	OUT	±5V
9	RS422_RX+	IN	
11	RS422_RX-	IN	

COM Port1 RS-485

Pin	Pin Name	Signal Type	Signal Level
3	GND	GND	GND
5	RS485_D-	I/O	±5V
7	RS485_D+	I/O	±5V

Note: COM1 RS-232/422/485 can be set by BIOS settings. Default is RS-232.

Note: COM1 RI / +5V / +12V function can be set by BOM (R318: RI / R320: +12V / R319: +5V).

COM Port2 RS-422

Pin	Pin Name	Signal Type	Signal Level
3	GND	GND	GND
6	RS422_TX-	OUT	±5V
8	RS422_TX+	OUT	±5V
10	RS422_RX+	IN	
12	RS422_RX-	IN	

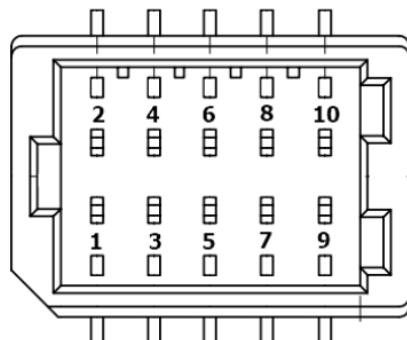
COM Port2 RS-485

Pin	Pin Name	Signal Type	Signal Level
3	GND	GND	GND
6	RS485_D-	I/O	±5V
8	RS485_D+	I/O	±5V

Note: COM2 RS-232/422/485 can be set by BIOS settings. Default is RS-232.

Note: COM2 RI / +5V / +12V function can be set by BOM (R315: RI / R316: +12V / R313: +5V).

3.2.3 Front Panel (CN3)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	GND
2	EXT_PWRBTN#	IN	
3	SATA_LED-	OUT	
4	SATA_LED+	OUT	
5	BUZZER-	OUT	
6	BUZZER+	OUT	
7	GND	GND	GND
8	PWR_LED+	OUT	
9	GND	GND	GND
10	HWRST#	IN	

3.2.4 M.2 E-Key Connector (CN4)

Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	GND
2	+V3.3A	PWR	+3.3V
3	USB2P_5	IN/OUT	
4	+V3.3A	PWR	+3.3V
5	USB2N_5	IN/OUT	
6	NC	NC	
7	GND	GND	GND
8	NC	NC	
9	NC	NC	
10	NC	NC	
11	NC	NC	
12	NC	NC	
13	NC	NC	
14	NC	NC	
15	NC	NC	
16	NC	NC	
17	NC	NC	
18	GND	GND	
19	NC	NC	
20	NC	NC	
21	NC	NC	
22	NC	NC	
23	NC	NC	
32	NC	NC	
33	GND	GND	GND
34	NC	NC	
35	PCIE1_TXN	DIFF	
36	NC	NC	
37	GND	DIFF	
38	NC	NC	
39	GND	GND	GND
40	NC	NC	
41	PCIE1_RXP	DIFF	

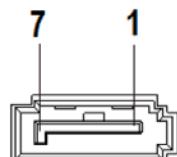
42	NC	NC	
43	PCIE1_RXN	DIFF	
44	NC	NC	
45	GND	GND	GND
46	NC	NC	
47	PCIE1_CLKP	DIFF	
48	NC	NC	
49	PCIE1_CLKN	DIFF	
50	SUSCLK	OUT	
51	GND	GND	GND
52	BUF_PLT_RST#	OUT	
53	PCIE_CLK_REQ1#	IN	
54	W_DISABLE2#	OUT	
55	PCIE_WAKE#	IN	
56	W_DISABLE1#	OUT	
57	GND	GND	GND
58	NC	NC	
59	NC	NC	
60	NC	NC	
61	NC	NC	
62	NC	NC	
63	GND	GND	GND
64	NC	NC	
65	NC	NC	
66	NC	NC	
67	NC	NC	
68	NC	NC	
69	GND	GND	GND
70	NC	NC	
71	NC	NC	
72	+V3.3A	PWR	+3.3V
73	NC	NC	
74	+V3.3A	PWR	+3.3V
75	GND	GND	GND

3.2.5 Mini-Card Slot (Full-Size) / mSATA (CN6)

Pin	Pin Name	Signal Type	Signal Level
1	PCIE_WAKE#	IN	
2	+3.3VSB / +3.3V	PWR	+3.3V
3	NC	NC	
4	GND	GND	
5	NC	NC	
6	+1.5V	PWR	+1.5V
7	PCIE_CLK_REQ#	IN	
8	NC	NC	
9	GND	GND	
10	NC	NC	
11	PCIE_REF_CLK-	DIFF	
12	NC	NC	
13	PCIE_REF_CLK+	DIFF	
14	NC	NC	
15	GND	GND	
16	NC	NC	
17	NC	NC	
18	GND	GND	
19	NC	NC	
20	W_DISABLE#	OUT	+3.3V
21	GND	GND	
22	PCIE_RST#	OUT	+3.3V
23	PCIE_RX+ / mSATARX+	DIFF	
24	+3.3VSB / +3.3V	PWR	+3.3V
25	PCIE_RX- / mSATARX-	DIFF	
26	GND	GND	
27	GND	GND	
28	+1.5V	PWR	+1.5V
29	GND	GND	
30	SMB_CLK	I/O	+3.3V
31	PCIE_TX- / mSATATX-	DIFF	
32	SMB_DATA	I/O	+3.3V
33	PCIE_TX+ / mSATATX+	DIFF	

34	GND	GND	
35	GND	GND	
36	USB_D-	DIFF	
37	GND	GND	
38	USB_D+	DIFF	
39	+3.3VSB / +3.3V	PWR	+3.3V
40	GND	GND	
41	+3.3VSB / +3.3V	PWR	+3.3V
42	NC	NC	
43	SATAXPCL0	GND	
44	NC	NC	
45	NC	NC	
46	NC	NC	
47	NC	NC	
48	+1.5V	PWR	+1.5V
49	NC	NC	
50	GND	GND	
51	NC	NC	
52	+3.3VSB / +3.3V	PWR	+3.3V

3.2.6 SATA Port (CN7)

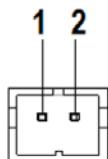


Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	SATA_TX+	DIFF	
3	SATA_TX-	DIFF	
4	GND	GND	
5	SATA_RX-	DIFF	
6	SATA_RX+	DIFF	
7	GND	GND	

3.2.7 LAN (RJ-45) Port1 / Port2 (CN8)

Pin	Pin Name	Signal Type	Signal Level
1P1	LAN1_MDIO_P	DIFF	
1P2	LAN1_MDIO_N	DIFF	
1P3	LAN1_MDI1_P	DIFF	
1P4	LAN1_MDI1_N	DIFF	
1P7	LAN1_MDI2_P	DIFF	
1P8	LAN1_MDI2_N	DIFF	
1P9	LAN1_MDI3_P	DIFF	
1P10	LAN1_MDI3_N	DIFF	
2P1	LAN2_MDIO_P	DIFF	
2P2	LAN2_MDIO_N	DIFF	
2P3	LAN2_MDI1_P	DIFF	
2P4	LAN2_MDI1_N	DIFF	
2P7	LAN2_MDI2_P	DIFF	
2P8	LAN2_MDI2_N	DIFF	
2P9	LAN2_MDI3_P	DIFF	
2P10	LAN2_MDI3_N	DIFF	

3.2.8 +5V Output for SATA HDD (CN9)



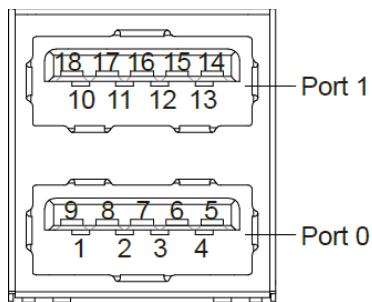
Pin	Pin Name	Signal Type	Signal Level
1	+V5S	PWR	+5V
2	GND	GND	GND

3.2.9 HDMI Port1 / Port2 (CN10)

Pin	Pin Name	Signal Type	Signal Level
1	HDMI1_TX2+	DIFF	
2	GND	GND	GND
3	HDMI1_TX2-	DIFF	
4	HDMI1_TX1+	DIFF	
5	GND	GND	GND
6	HDMI1_TX1-	DIFF	
7	HDMI1_TX0+	DIFF	
8	GND	GND	GND
9	HDMI1_TX0+	DIFF	
10	HDMI1_CLK+	DIFF	
11	GND	GND	GND
12	HDMI1_CLK-	DIFF	
13	NC		
14	NC		
15	DDC1_CLK	I/O	+5V
16	DDC1_DATA	I/O	+5V
17	GND	GND	GND
18	+5V	PWR	+5V
19	HDMI1_HPD		
20	HDMI2_TX2+	DIFF	
21	GND	GND	GND
22	HDMI2_TX2-	DIFF	

23	HDMI2_TX1+	DIFF	
24	GND	GND	GND
25	HDMI2_TX1-	DIFF	
26	HDMI2_TX0+	DIFF	
27	GND	GND	GND
28	HDMI2_TX0-	DIFF	
29	HDMI2_CLK+	DIFF	
30	GND	GND	GND
31	HDMI2_CLK-	DIFF	
32	NC		
33	NC		
34	DDC2_CLK	I/O	+5V
35	DDC_DATA	I/O	+5V
36	GND	GND	GND
37	+5V	PWR	+5V
38	HDMI2_HPD		

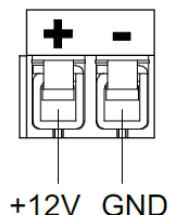
3.2.10 Dual USB 3.2 Gen 2 (Port1 / Port2) (CN11)



Pin	Pin Name	Signal Type	Signal Level
1	+V5SB	PWR	+5V
2	USB2_2_DN	DIFF	
3	USB2_2_DP	DIFF	
4	GND	GND	GND
5	USB3_2_RXN	DIFF	
6	USB3_2_RXP	DIFF	
7	GND	GND	GND
8	USB3_2_TXN	DIFF	

9	USB3_2_TXP	DIFF	
10	+V5SB	PWR	+5V
11	USB2_3_DN	DIFF	
12	USB2_3_DP	DIFF	
13	GND	GND	GND
14	USB3_3_RXN	DIFF	
15	USB3_3_RXP	DIFF	
16	GND	GND	GND
17	USB3_3_TXN	DIFF	
18	USB3_3_TXP	DIFF	

3.2.11 External +12V Input (CN12)

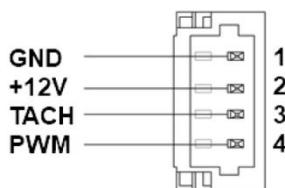


Pin	Pin Name	Signal Type	Signal Level
1	+12V	PWR	+12V
2	GND	GND	GND

3.2.12 DDR4 SO-DIMM Slot (CN14)

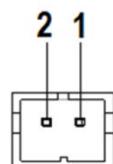
Standard Specification.

3.2.13 FAN Connector (CN15)



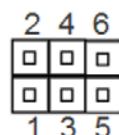
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	GND
2	+VI2C	PWR	+12V
3	TACH	IN	
4	PWM	OUT	

3.2.14 RTC Battery Connector (CN17)



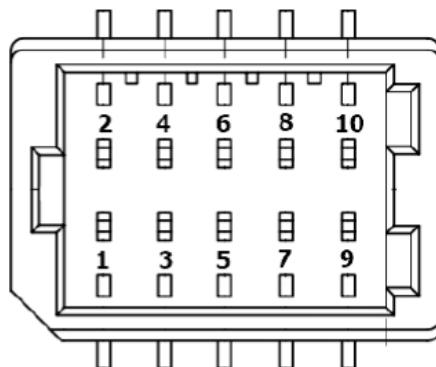
Pin	Pin Name	Signal Type	Signal Level
1	+3.3V	PWR	+3.3V
2	GND	GND	GND

3.2.15 Digital IO Port (CN18)



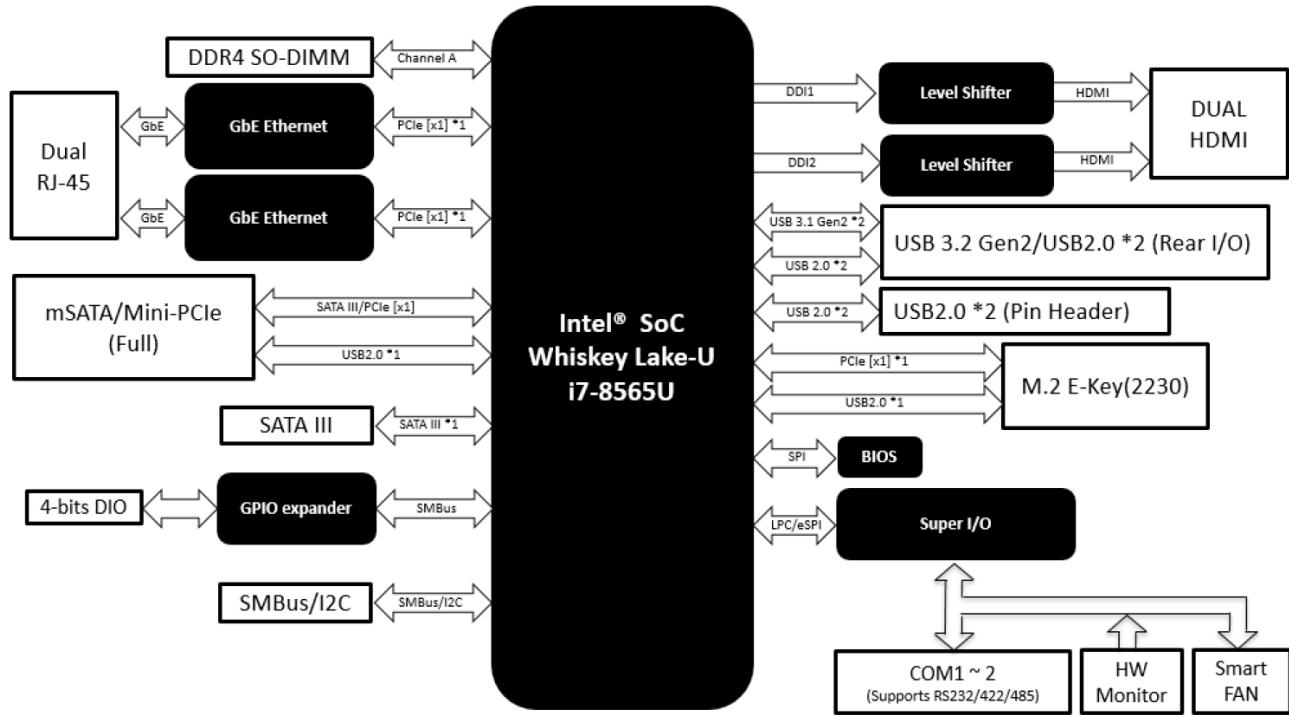
Pin	Pin Name	Signal Type	Signal Level
1	+5V	PWR	+5V
2	DIO_0	IN/OUT	
3	DIO_1	IN/OUT	
4	DIO_2	IN/OUT	
5	DIO_3	IN/OUT	
6	GND	GND	GND

3.2.16 USB 2.0 Port1, 2 (CN19)



Pin	Pin Name	Signal Type	Signal Level
1	+5VSB	PWR	+5V
2	+5VSB	PWR	+5V
3	USB1_D-	DIFF	
4	USB2_D-	DIFF	
5	USB1_D+	DIFF	
6	USB2_D+	DIFF	
7	GND	GND	GND
8	GND	GND	GND
9	GND	GND	GND
10	GND	GND	GND

3.3 Function Block



Chapter 4

4. AMI BIOS Setup

4.1 System Test and Initialization

The system uses certain routines to perform testing and initialization during the boot up sequence. If an error, fatal or non-fatal, is encountered, the system will output a few short beeps or display an error message. The board can usually continue the boot up sequence with non-fatal errors.

The system configuration verification routines check the current system configuration against the values stored in the CMOS memory and BIOS NVRAM. If a system configuration is not found or an error is detected, the system will load the default configuration and reboot automatically.

There are four situations in which you will need to setup system configuration:

- You are starting your system for the first time
- You have changed the hardware attached to your system
- The system configuration was reset by the Clear-CMOS jumper
- The CMOS memory has lost power and the configuration information has been erased

The system's CMOS memory has an integrated lithium battery backup for data retention. The battery must be replaced when it runs down.

4.2 AMI BIOS Setup

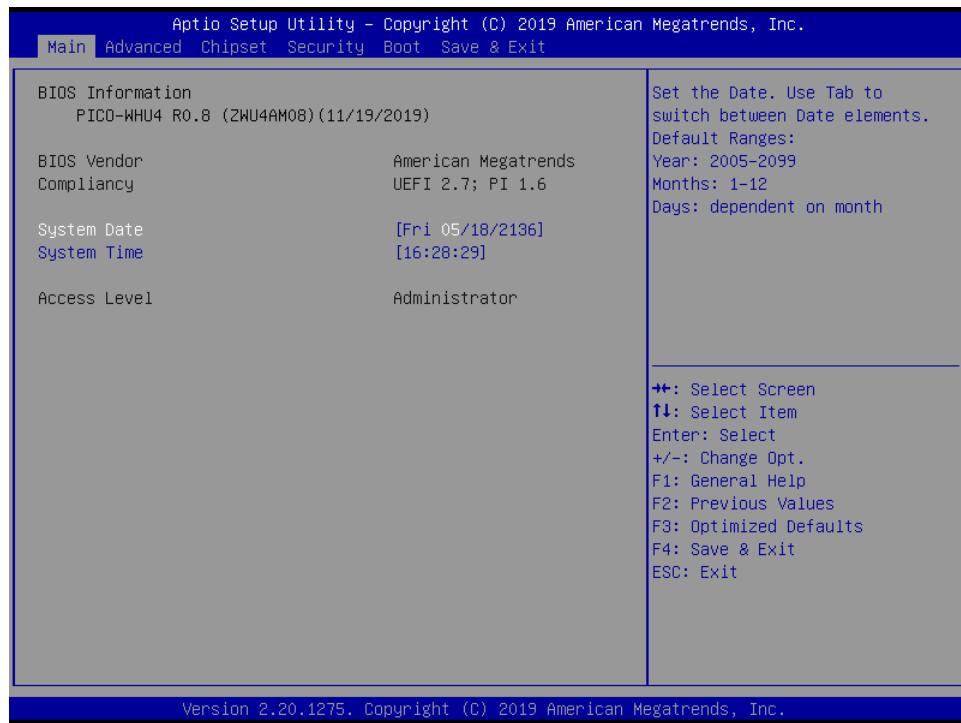
The AMI BIOS ROM has a pre-installed Setup program that allows users to modify basic system configurations, which is stored in the battery-backed CMOS RAM and BIOS NVRAM so that the information is retained when power is turned off.

To enter BIOS Setup, turn on the system and immediately press or <ESC>.

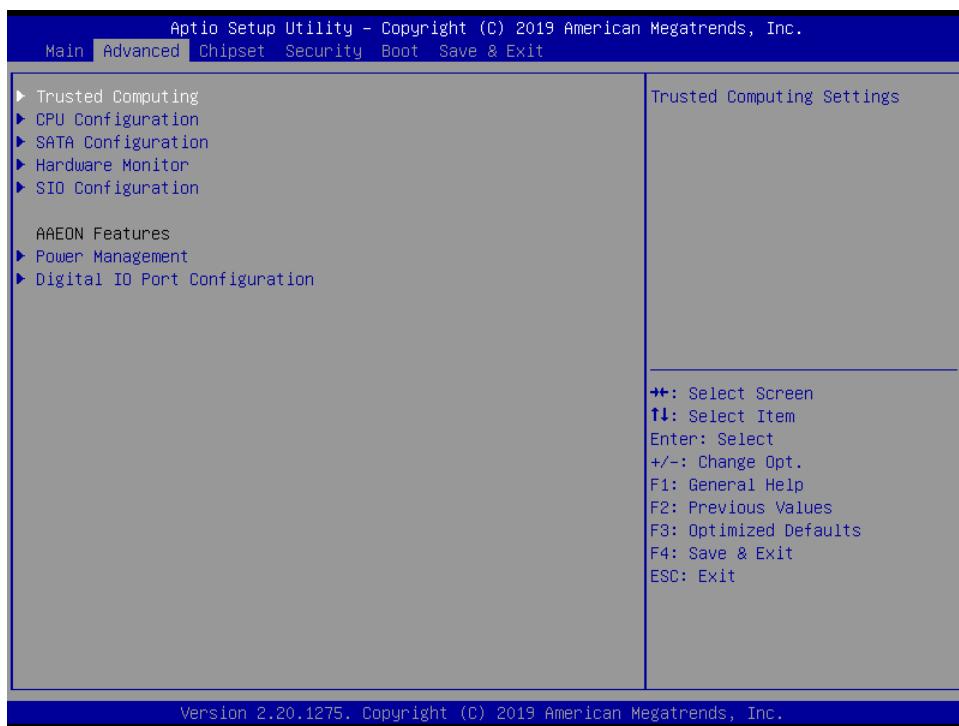
The following BIOS menus and their functions are listed below.

- **Main:** Set the date, use tab to switch between date elements.
- **Advanced:** Enable/disable boot options for legacy network devices.
- **Chipset:** Host bridge parameters.
- **Security:** Set setup administrator password.
- **Boot:** Enable/disable quiet boot option.
- **Save & Exit:** Exit system setup after saving the changes.

4.3 Setup Submenu: Main



4.4 Setup Submenu: Advanced



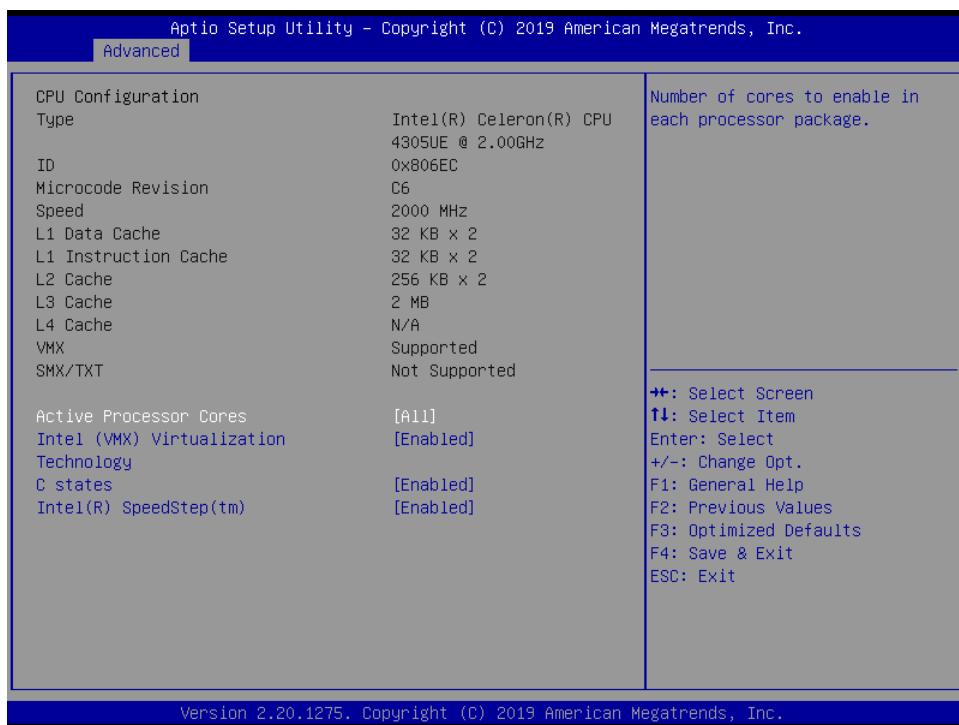
4.4.1 Trusted Computing



Options Summary		
Security Device Support	Disable Enable	Optimal Default, Failsafe Default
Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.		
SHA-1 PCR Bank	Disable Enable	Optimal Default, Failsafe Default
Enable or Disable SHA-1 PCR Bank.		
SHA256 PCR Bank	Disable Enable	Optimal Default, Failsafe Default
Enable or Disable SHA256 PCR Bank.		
Pending Operation	None TPM Clear	Optimal Default, Failsafe Default
Schedule an Operation for the Security Device. Note: Your Computer will reboot during restart in order to change State of Security Device.		
Platform Hierarchy	Disable Enable	Optimal Default, Failsafe Default
Enable or Disable Platform Hierarchy.		

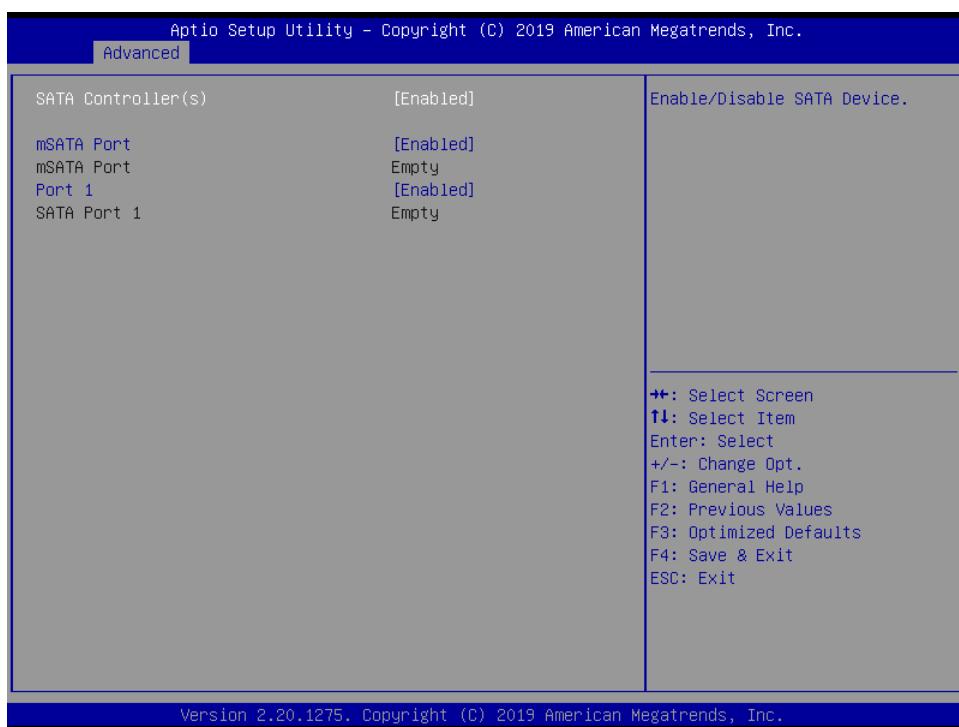
Storage Hierarchy	Disable	Optimal Default, Failsafe Default
	Enable	
Enable or Disable Storage Hierarchy.		
Endorsement Hierarchy	Disable	Optimal Default, Failsafe Default
	Enable	
Enable or Disable Endorsement Hierarchy.		
TPM2.0 UEFI Spec Version	TCG_1_2	Optimal Default, Failsafe Default
	TCG_2	
Select the TCG2 Spec Version Support, TCG_1_2: Compatible mode for Win8/Win10. TCG_2: Support new TCG2 protocol and event format for Win10 or later.		
Physical Presence Spec Version	1.2	Optimal Default, Failsafe Default
	1.3	
Select to Tell O.S. to support PPI Spec Version 1.2 or 1.3. Note some HCK tests might not support 1.3.		

4.4.2 CPU Configuration



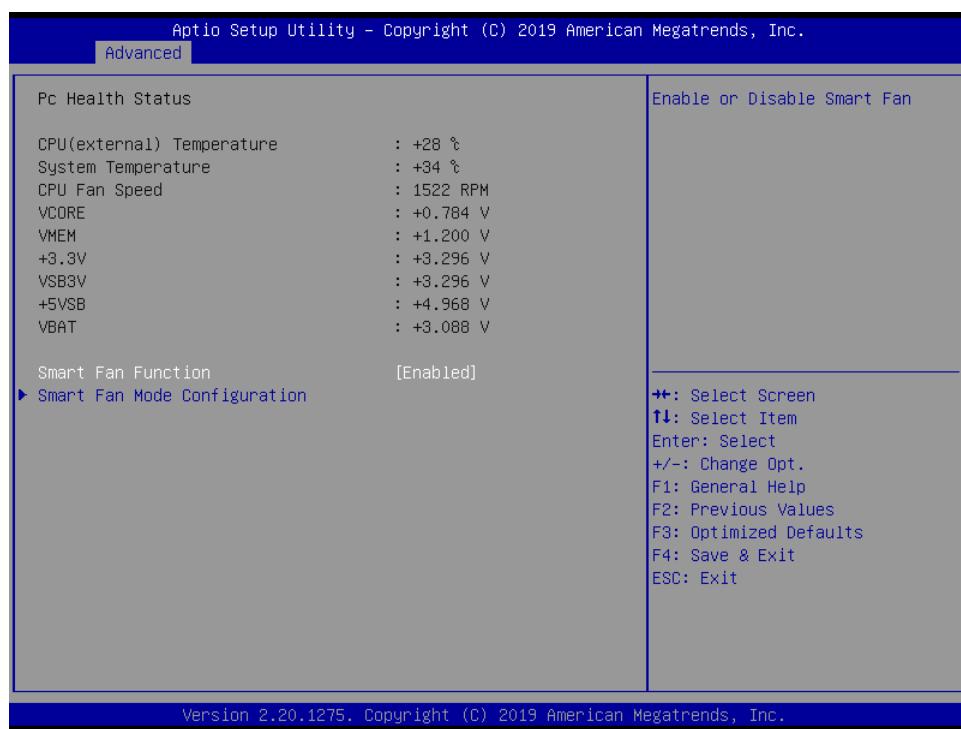
Options Summary		
Active Processor Cores	All 1	Optimal Default, Failsafe Default
Number of cores to enable in each processor package.		
Intel (VMS) Virtualization Technology	Disable Enable	Optimal Default, Failsafe Default
When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.		
C-States.	Disable Enable	Optimal Default, Failsafe Default
Enable or Disable C States.		
EIST™	Disable Enable	Optimal Default, Failsafe Default
Enable or Disable Intel SpeedStep.		
Intel(R) Speedstep(TM)	Disable Enable	Optimal Default, Failsafe Default
Enable or Disable Platform Hierarchy.		

4.4.3 SATA Configuration



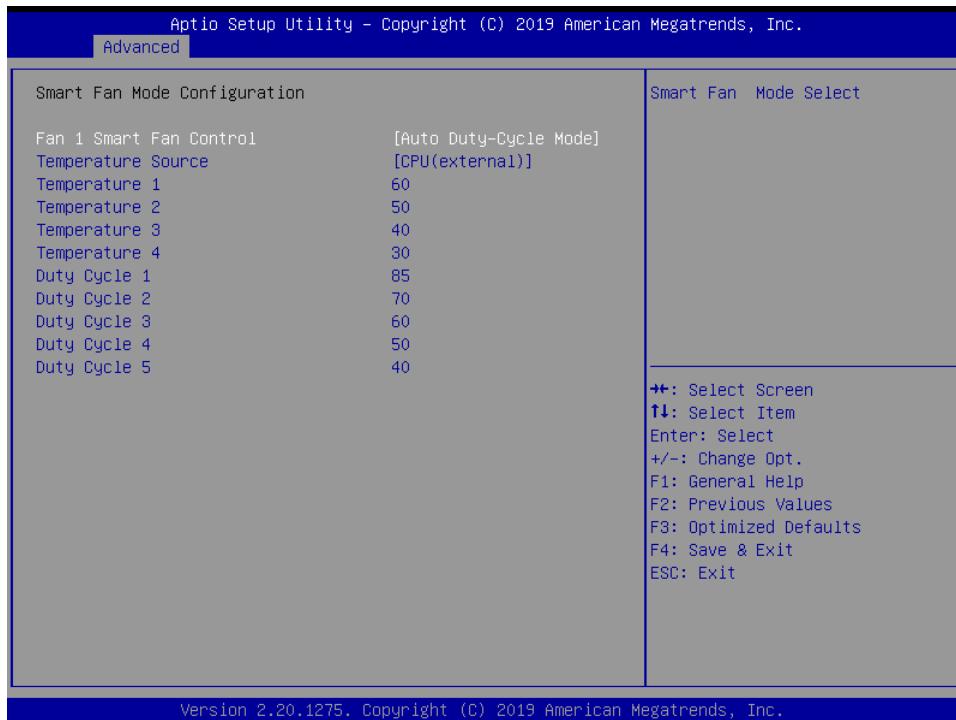
Options Summary		
SATA Controller(s)	Disable	
	Enable	Optimal Default, Failsafe Default
Enable or Disable SATA Device.		
mSATA Port	Disable	
	Enable	Optimal Default, Failsafe Default
Enable or Disable SATA Port.		
Port1	Disable	Optimal Default, Failsafe Default
	Enable	
Enable or Disable SATA Port.		

4.4.4 Hardware Monitor



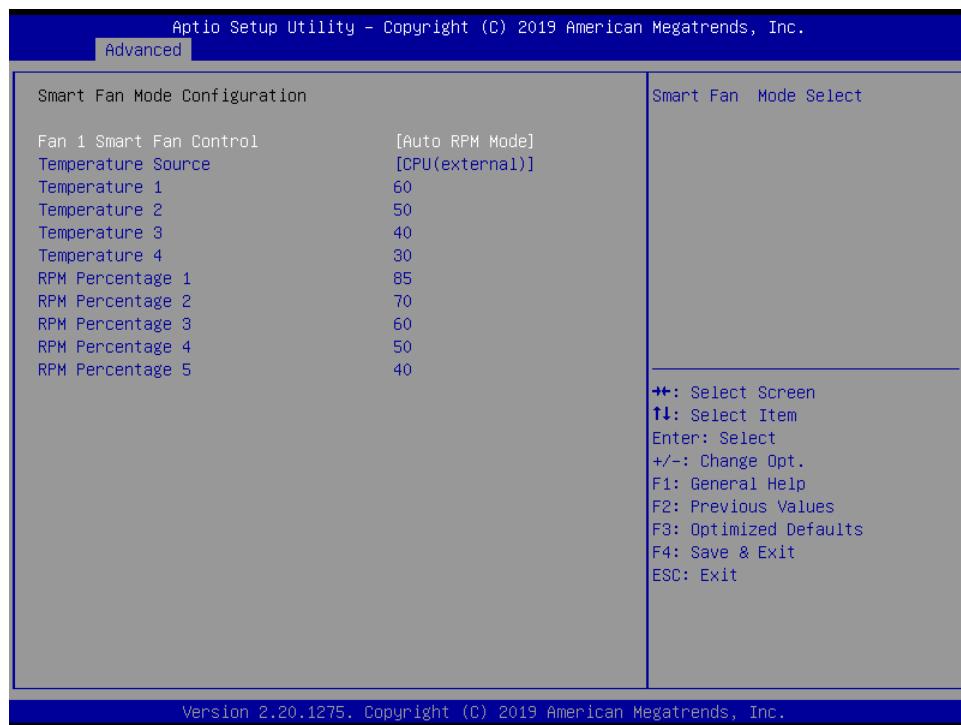
4.4.4.1 Smart Fan Mode Configuration

Auto Duty-Cycle Mode



Options Summary			
Fan Mode	Auto RPM MOde	Optimal Default, Failsafe Default	
	Auto Duty-Cycle Mode		
Smart Fan Mode Select.			
Temperature Source	CPU	Optimal Default, Failsafe Default	
	CPU (external)		
	System		
Select the monitored temperature source for this fan.			
Temperature	Auto fan speed control. Fan speed will follow different temperature by different duty cycle 1-100.		
Duty Cycle			

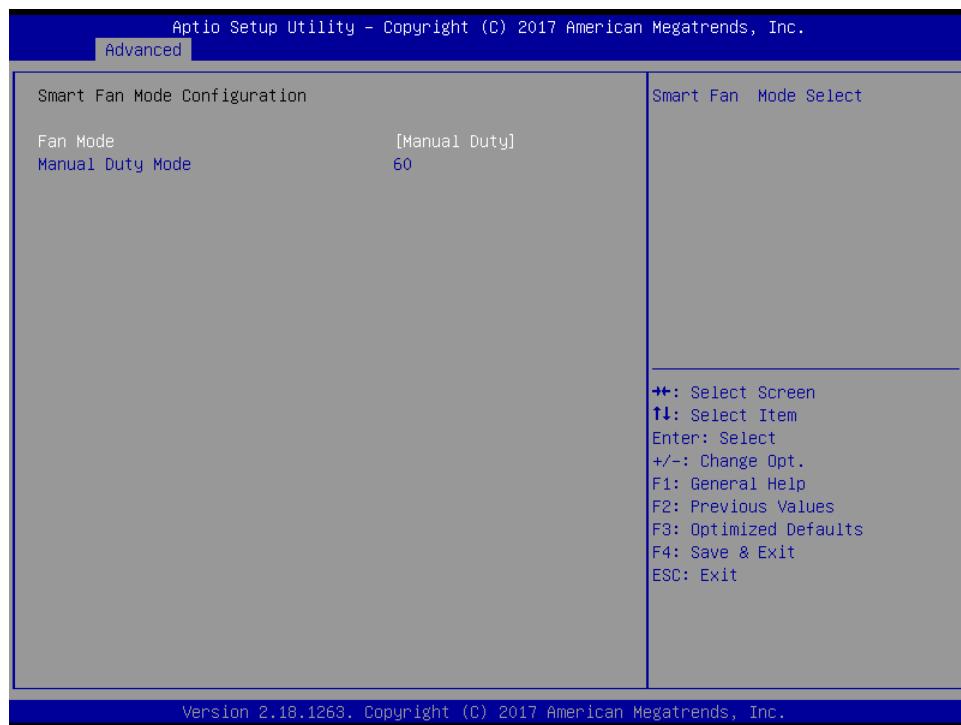
Auto RPM Mode



Options Summary

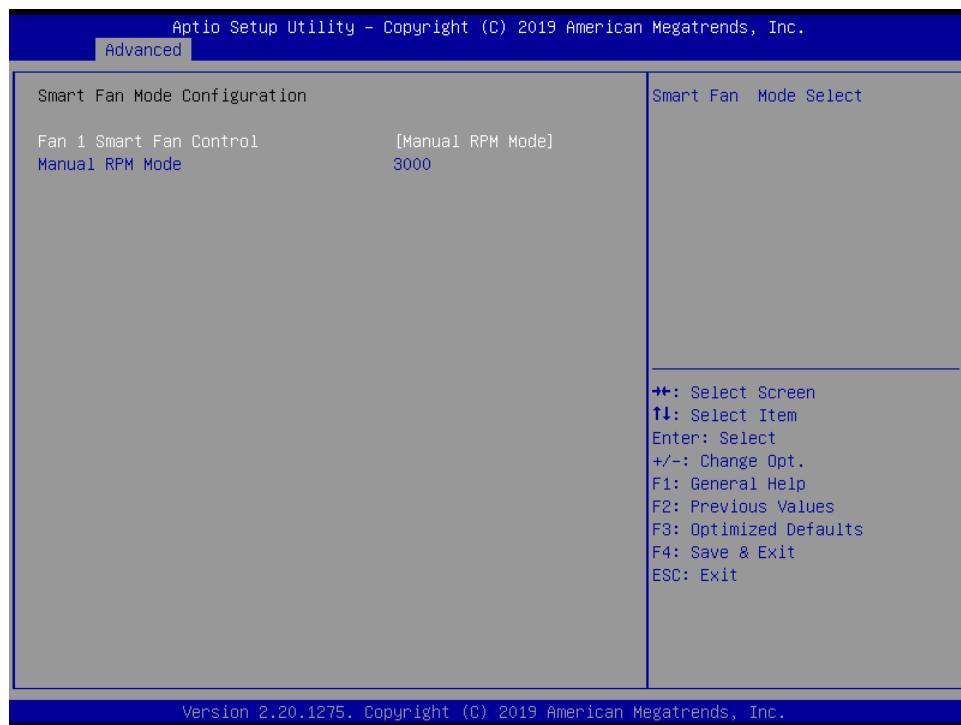
Temperature	Auto fan speed control. Fan speed will follow different temperature by different RPM 1-100.
RPM Percentage	

Manual Duty



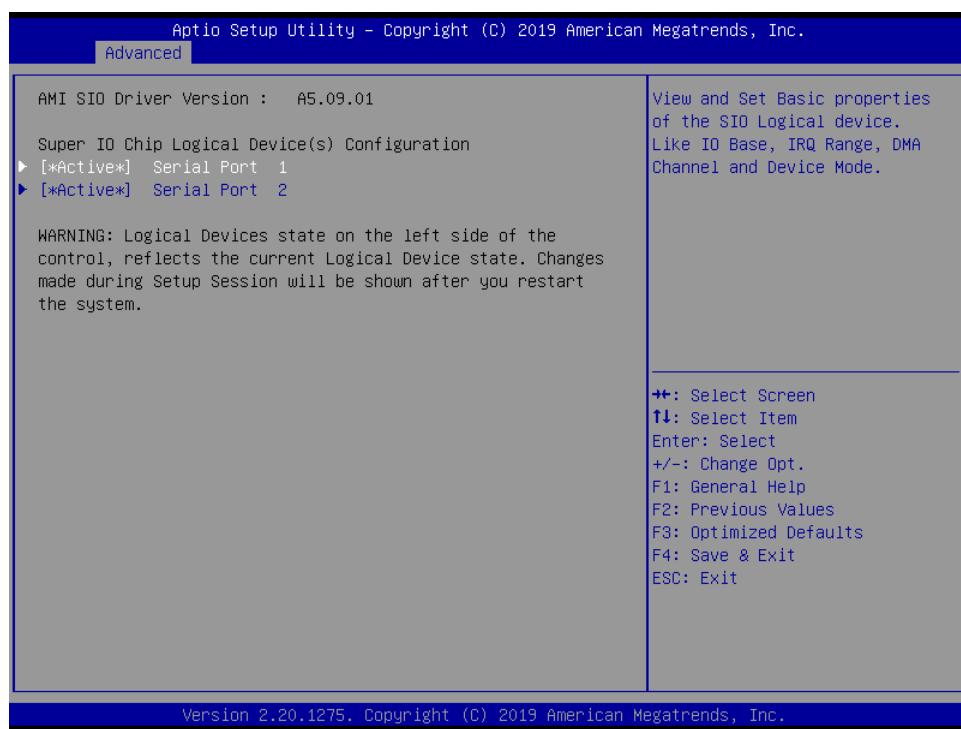
Options Summary		
Manual Duty Mode	60	Optimal Default, Failsafe Default
Manual mode fan control, user can write expected duty cycle (PWM fan type) 1-100.		

Manual RPM Mode

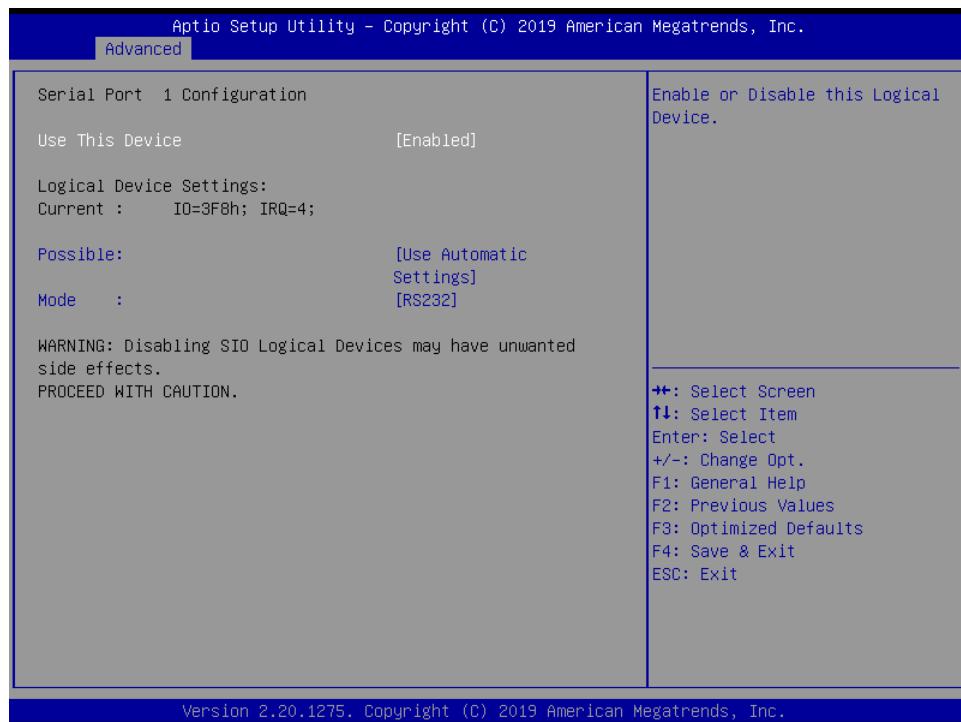


Options Summary		
Manual RPM Mode	3000	Optimal Default, Failsafe Default
Manual mode fan control, user can write expected RPM count 500-1000.		

4.4.5 SIO Configuration

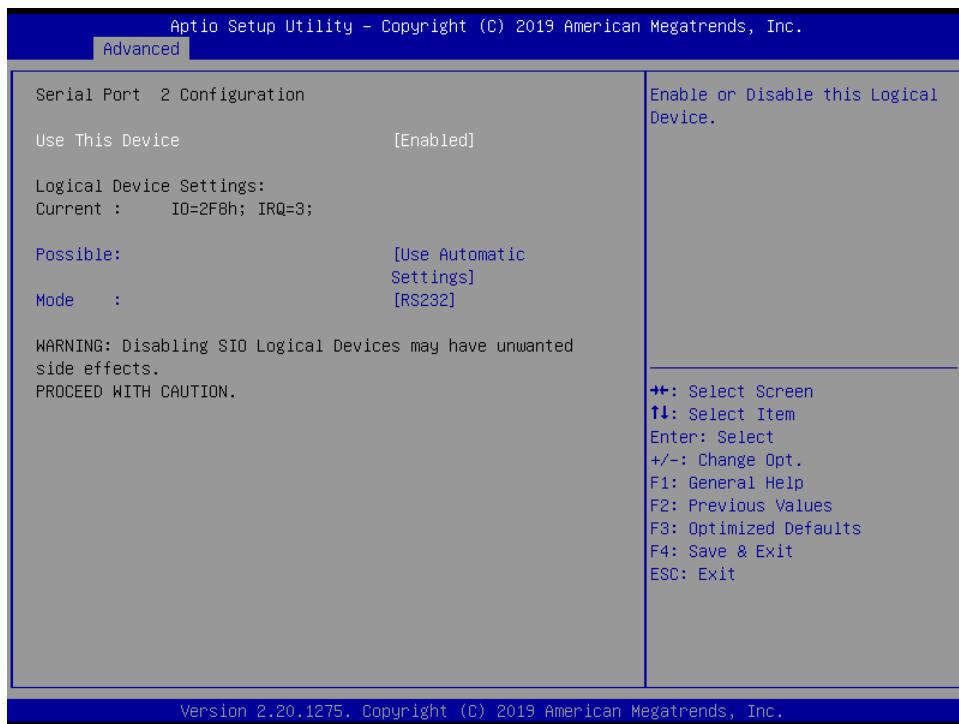


4.4.5.1 Serial Port1 Configuration



Options Summary		
Use This Device	Disable Enable	Optimal Default, Failsafe Default
Enable or Disable this Logical Device.		
Possible:	Use Automatic Settings IO=3F8h; IRQ=4 IO=2F8h; IRQ=3	Optimal Default, Failsafe Default
Allows user to change Device's Resource settings. New settings will be reflected on This Setup Page after System restarts.		
Mode	RS232 RS422 RS485	Optimal Default, Failsafe Default
UART RS232, 422, 485 selection.		

4.4.5.2 Serial Port2 Configuration



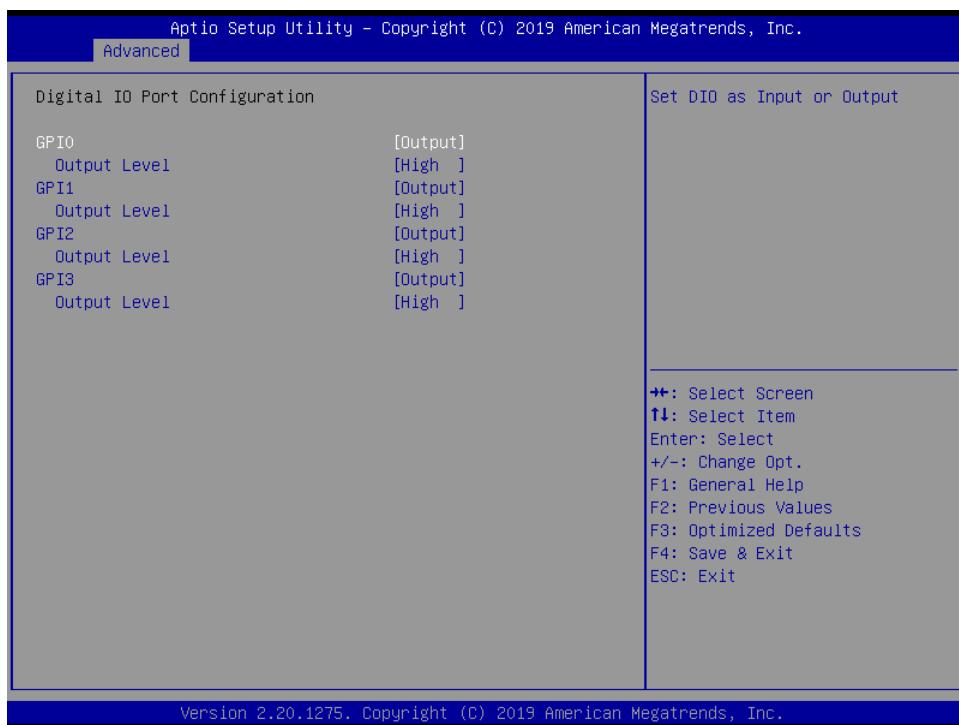
Options Summary		
Use This Device	Disable	
	Enable	Optimal Default, Failsafe Default
Enable or Disable this Logical Device.		
Possible:	Use Automatic Settings IO=3F8h; IRQ=4 IO=2F8h; IRQ=3	Optimal Default, Failsafe Default
Allows user to change Device's Resource settings. New settings will be reflected on This Setup Page after System restarts.		
Mode	RS232 RS422 RS485	Optimal Default, Failsafe Default
UART RS232, 422, 485 selection.		

4.4.6 Power Management



Options Summary		
Power Mode	ATX Type AT Type	Optimal Default, Failsafe Default
Select system power mode.		
Restore AC Power Loss	Last State	Optimal Default, Failsafe Default
	Always On	
	Always Off	
IO Restore AC power loss.		
RTC wake system from S5	Disable	Optimal Default, Failsafe Default
	Fixed Time	
	Dynamic Time	
Fixed Time: System will wake on the hr::min::sec specified./n Dynmic Time: System will wake on the current time + Increase minute(s).		
Wake on LAN Enable	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable/Disable integrated LAN to wake the system.		

4.4.7 Digital IO Port Configuration



Options Summary		
DIO Port*	Output	Optimal Default, Failsafe Default
	Input	
Set DIO as Input or Output.		
Output Level	High	Optimal Default, Failsafe Default
	Low	
Set output level when DIO pin is output.		

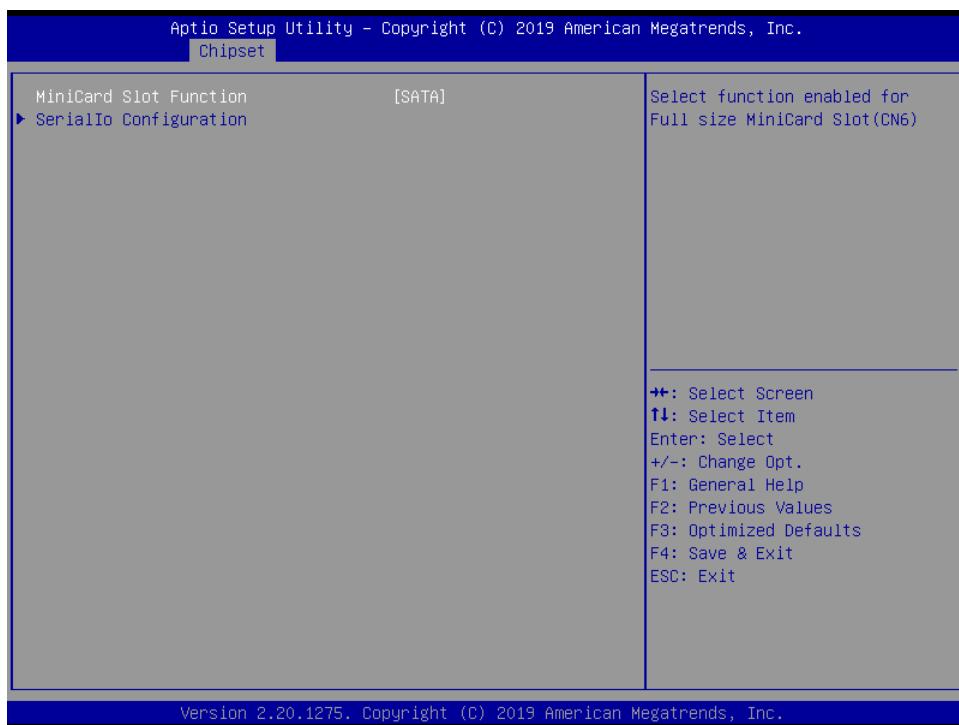
4.5 Setup Submenu: Chipset



4.5.1 System Agent (SA) Configuration

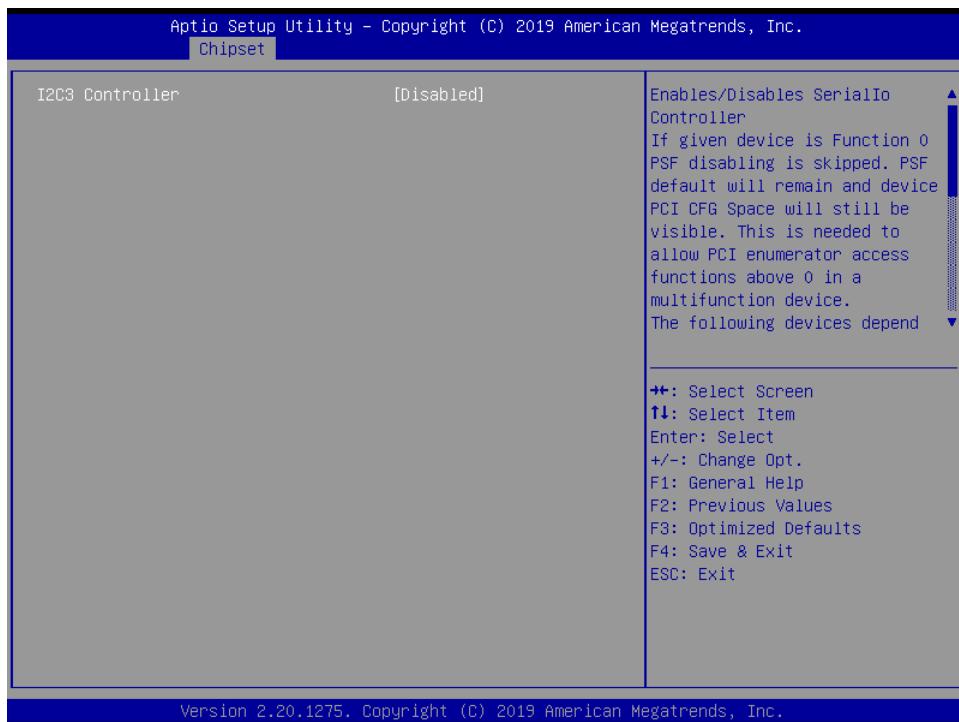


4.5.2 PCH-IO Configuration



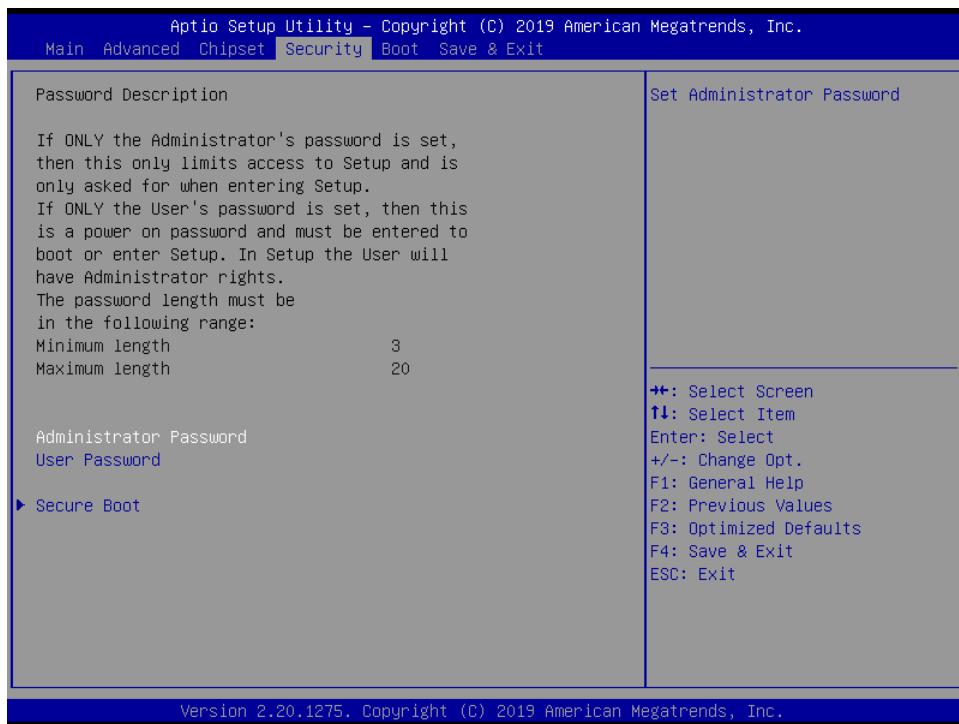
Options Summary		
MiniCard Slot Function	SATA PCle	Optimal Default, Failsafe Default
Select function enabled for Full size MiniCard Slot (CN6)		

4.5.2.1 Serial IO Configuration



Options Summary		
I2C3 Controller	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable/Disable Serial IO Controller.		

4.6 Setup Submenu: Security



Change User/Administrator Password

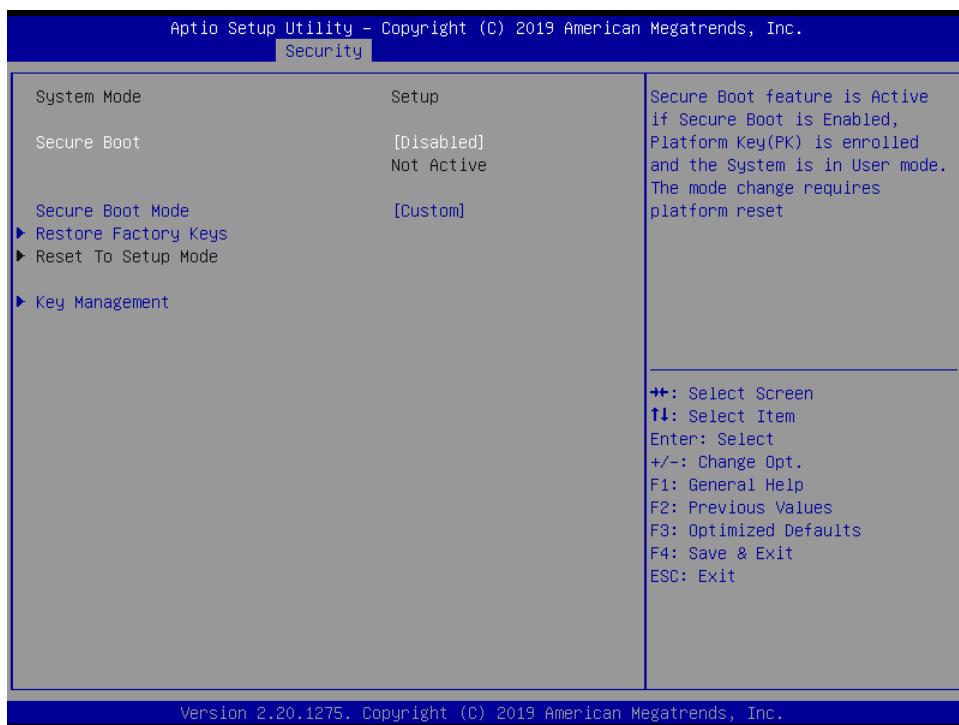
You can set an Administrator Password or User Password. An Administrator Password must be set before you can set a User Password. The password will be required during boot up, or when the user enters the Setup utility. A User Password does not provide access to many of the features in the Setup utility.

Select the password you wish to set, and press Enter. In the dialog box, enter your password (must be between 3 and 20 letters or numbers). Press Enter and retype your password to confirm. Press Enter again to set the password.

Removing the Password

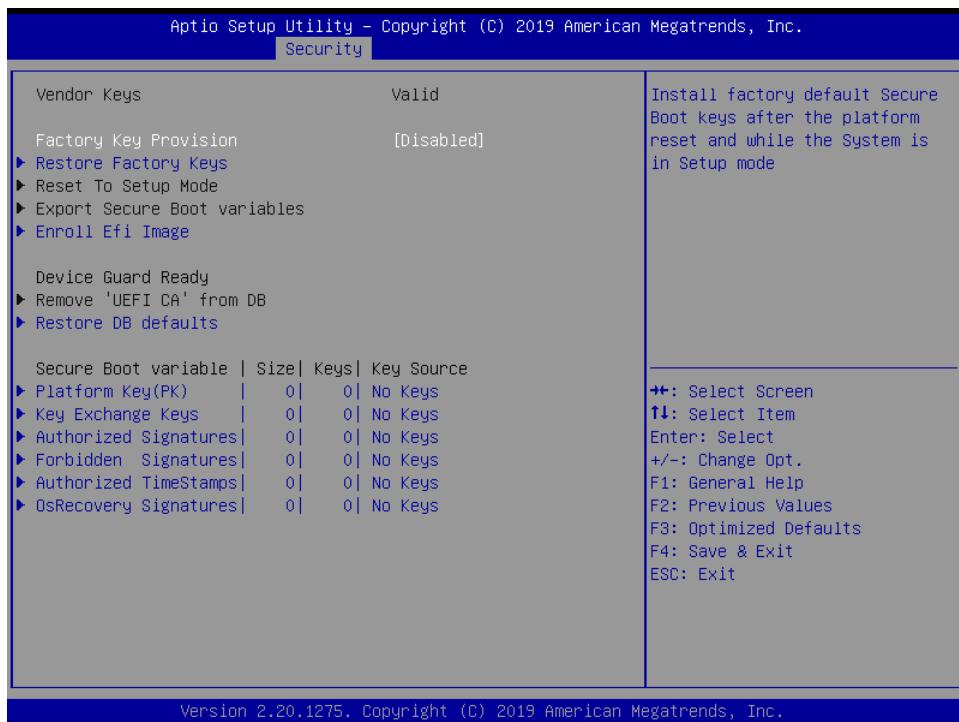
Select the password you want to remove and enter the current password. At the next dialog box press Enter to disable password protection.

4.6.1 Secure Boot



Options Summary		
Secure Boot	Disabled Enabled	Optimal Default, Failsafe Default
Secure Boot feature is Active if Secure Boot is Enabled, Platform Key (PK) is enrolled and the System is in User mode. The mode change requires platform reset.		
Secure Boot Mode	Custom Standard	Optimal Default, Failsafe Default
Secure Boot mode options: Standard or Custom. In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication.		
Restore Factory Keys		
Force System to User Mode. Install factory default Secure Boot key databases.		
Reset To Setup Mode		
Delete all Secure Boot key databases from NVRAM.		

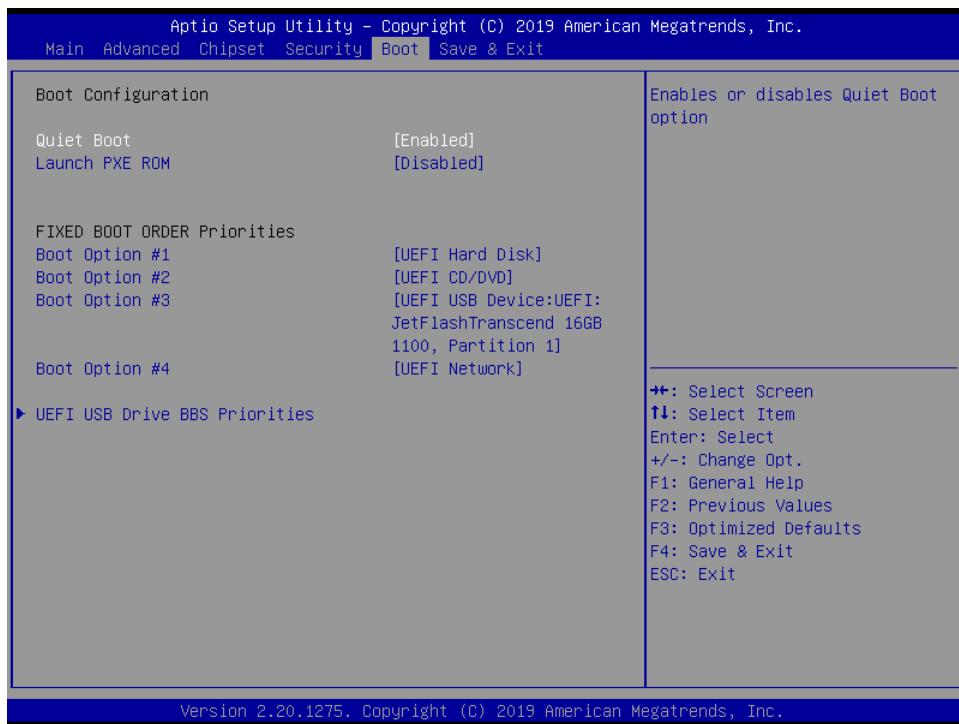
4.6.1.1 Key Management



Options Summary		
Factory Key Provision	Disabled	Optimal Default, Failsafe Default
	Enabled	
Secure Boot feature is Active if Secure Boot is Enabled, Platform Key (PK) is enrolled and the System is in User mode. The mode change requires platform reset.		
Restore Factory Keys		
Force System to User Mode. Install factory default Secure Boot key databases.		
Reset To Setup Mode		
Delete all Secure Boot key databases from NVRAM.		
Export Secure Boot variables		
Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device.		
Enroll Efi Image		
Allow the image to run in Secure Boot mode. Enroll SHA256 Hash certificate of a PE image into Authorized Signature Database (db).		
Remove 'UEFI CA' from DB		
Device Guard ready system must not list 'Microsoft UEFI CA' Certificate in Authorized Signature database (db).		

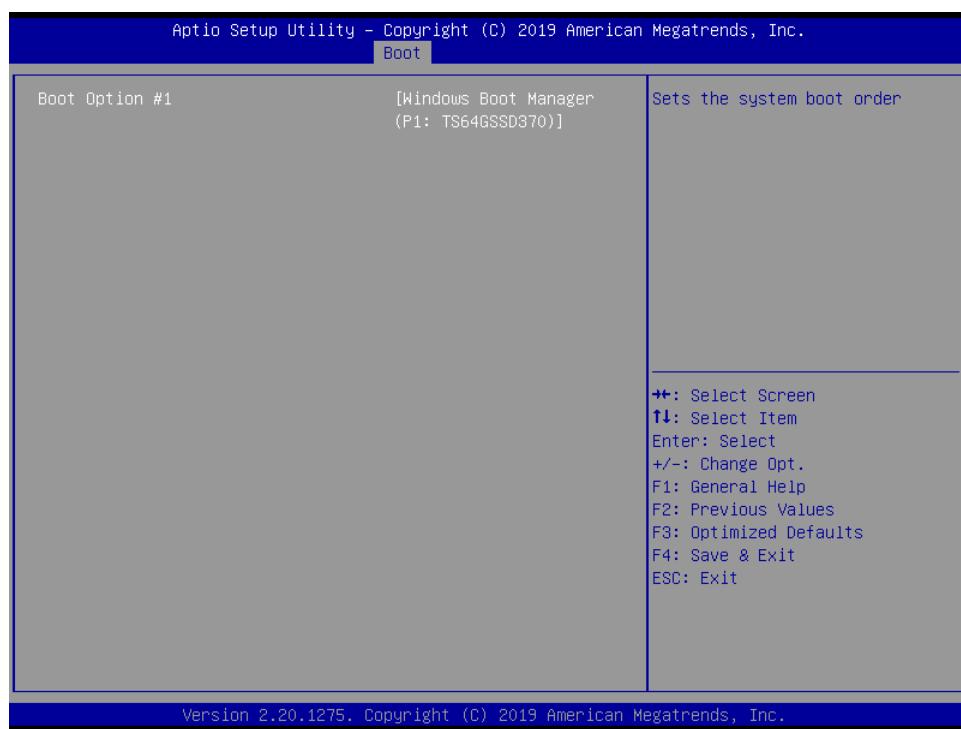
Restore DB defaults			
Restore DB variable to factory defaults.			
Platform Key (PK)	Details		
	Export		
	Update		
	Delete		
Key Exchange Keys	Details		
	Export		
	Update		
	Append		
	Delete		
Authorized Signatures	Details		
	Export		
	Update		
	Append		
	Delete		
Forbidden Signatures	Details		
	Export		
	Update		
	Append		
	Delete		
Authorized TimeStamps	Update		
	Append		
OsRecovery Signatures	Update		
	Append		
Enroll Factory Defaults or load certificates from a file:			
1. Public Key Certificate: a) EFI_SIGNATURE_LIST b) EFI_CERT_X509 (DER) c) EFI_CERT_RSA2048 (bin) d) EFI_CERT_SHAXXX 2. Authenticated UEFI Variable 3. EFI PE/COFF Image (SHA256)			
Key Source: Factory, External, Mixed			

4.7 Setup Submenu: Boot



Options Summary		
Quiet Boot	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable or disable showing boot logo.		
Launch PXE ROM	Disabled	Optimal Default, Failsafe Default
	Enabled	
Controls the execution of UEFI and Legacy Network OpROM.		

4.7.1 BBS Priorities



4.8 Setup Submenu: Exit



Chapter

5

5. Specification

System	
Processor	Intel® 8th Generation Core™ i3 SoC i3-8145UE (2C, 2.2GHz, up to 3.9GHz)
Main Memory	DDR4 2400MHz SO-DIMM x 1 (Max. 32GB)
BIOS	AMI BIOS
Wake on LAN	Supported
Watchdog Timer	255 Levels
Power Input	Lockable DC 12V
Dimension (W x D x H)	5.9" x 3.94" x 2.36" / (150mm x 100mm x 60mm)
Gross Weight	635g / 1.4lb
Operating Temp.	32°F ~ 122°F (0°C ~ 50°C)
Storage Temp.	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
Certification	CE, FCC
Display	
Chipset	Intel® SoC
Video Output	HDMI 1.4b x 2 (up to 3840 x 2160)
I/O	
Storage/SSD	mini-Pcie (Full) x 1 (PCIe[x1] x 1, USB3.2/2.0, SATA) SATA 6.0Gb/s x 1, (5V Power)
Ethernet	Realtek 8111GbE 10/100/1000Mbps x 2
USB Port	USB 3.2 Gen 2 (10Gbps) x 2 USB 2.0 x 2 (Pin header)
Serial Port	RS-232/422/485 x 2 (optional)
Audio	-
DIO	4-bit
Expansion Interface	M.2 2230 E key x 1 (PCIe/USB signal only) SMBUS/I2C/LPC/eSPI x 1
SIM Slot	-

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Your EverFocus product is designed and manufactured with high quality materials and components which can be recycled and reused.
This symbol means that electrical and electronic equipment, at their end-of-life, should be disposed of separately from your household waste.
Please, dispose of this equipment at your local community waste collection/recycling centre.
In the European Union there are separate collection systems for used electrical and electronic product.
Please, help us to conserve the environment we live in!

Ihr EverFocus Produkt wurde entwickelt und hergestellt mit qualitativ hochwertigen Materialien und Komponenten, die recycelt und wieder verwendet werden können.
Dieses Symbol bedeutet, dass elektrische und elektronische Geräte am Ende ihrer Nutzungsdauer vom Haushull getrennt entsorgt werden sollen.
Bitte entsorgen Sie dieses Gerät bei Ihrer örtlichen kommunalen Sammelstelle oder im Recycling Centre.
Helfen Sie uns bitte, die Umwelt zu erhalten, in der wir leben!



EverFocus