GENESYS-KBU6

3.5" Subcompact Board

User's Manual 1st Ed

Last Updated: February 10, 2025

Copyright Notice

Acknowledgement

Packing List

Before setting up your product, please make sure the following items have been shipped:

Item	Quantity
● GENESYS-KBU6	1

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

About this Document

This User's Manual contains all the essential information, such as detailed descriptions and explanations on the product's hardware and software features (if any), its specifications, dimensions, jumper/connector settings/definitions, and driver installation instructions (if any), to facilitate users in setting up their product.

Users may refer to the product page on AAEON.com for the latest version of this document.

Safety Precautions

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

1. All cautions and warnings on the device should be noted.
2. Make sure the power source matches the power rating of the device.
3. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
4. Always completely disconnect the power before working on the system's hardware.
5. No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
6. 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.
7. Always disconnect this device from any AC supply before cleaning.
8. While cleaning, use a damp cloth instead of liquid or spray detergents.
9. Make sure the device is installed near a power outlet and is easily accessible.
10. Keep this device away from humidity.
11. Place the device on a solid surface during installation to prevent falls
12. Do not cover the openings on the device to ensure optimal heat dissipation.
13. Watch out for high temperatures when the system is running.
14. Do not touch the heat sink or heat spreader when the system is running
15. Never pour any liquid into the openings. This could cause fire or electric shock.
16. 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.

17. If any of the following situations arises, please the contact our service personnel:
    i. Damaged power cord or plug
    ii. Liquid intrusion to the device
    iii. Exposure to moisture
    iv. Device is not working as expected or in a manner as described in this manual
    v. The device is dropped or damaged
    vi. Any obvious signs of damage displayed on the device
18. DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE CHAPTER 1) TO PREVENT DAMAGE.

FCC Statement

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.

China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量

AAEON System QO4-381 Rev.A2

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板及其电子组件	×	○	○	○	○	○
外部信号连接器及线材	×	○	○	○	○	○
外壳	○	○	○	○	○	○
中央处理器与内存	×	○	○	○	○	○
硬盘	×	○	○	○	○	○
液晶模块	×	○	○	○	○	○
光驱	×	○	○	○	○	○
触控模块	×	○	○	○	○	○
电源	×	○	○	○	○	○
电池	×	○	○	○	○	○

本表格依据 SJ/T 11364 的规定编制。

○：表示该有毒有害物质在该部件所有均质材料中的含量均在 GB/T 26572 标准规定的限量要求以下。

×：表示该有害物质的某一均质材料超出了 GB/T 26572 的限量要求，然而该部件仍符合欧盟指令 2011/65/EU 的规范。

环保使用期限(EFUP (Environmental Friendly Use Period)) : 10 年

备注：

一、此产品所标示之环保使用期限，系指在一般正常使用状况下。

二、上述部件物质中央处理器、内存、硬盘、光驱、电源为选购品。

三、上述部件物质液晶模块、触控模块仅一体机产品适用。

China RoHS Requirement (EN)

Name and content of hazardous substances in product

AAEON System QO4-381 Rev.A2

Part Name	Hazardous Substances					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
PCB Assemblies	×	O	O	O	O	O
Connector and Cable	×	O	O	O	O	O
Chassis	O	O	O	O	O	O
CPU and Memory	×	O	O	O	O	O
Hard Disk	×	O	O	O	O	O
LCD Modules	×	O	O	O	O	O
CD-ROM/DVD-ROM	×	O	O	O	O	O
Touch Modules	×	O	O	O	O	O
Power	×	O	O	O	O	O
Battery	×	O	O	O	O	O

The table is prepared in accordance with the provisions of SJ/T 11364.

O：Indicates that said hazardous substance contained in all of the homogenous materials for this product is below the limit requirement of GB/T 26572.

×：Indicates that said hazardous substance contained in at least one of the homogenous materials used for this part is above the limit requirement of GB/T 26572. But this product still be compliance with 2011/65/EU Directive (allowed with 2011/65/EU Annex III of RoHS exemption with number 6(c),7(a),7(c)-1).

EFUP (Environment Friendly Use Period) value: 10 years.

Notes：

1. This product defined period of use is under normal condition.
2. In above part, CPU/Memory/ Hard Disk/CD-ROM/DVD-ROM/ Power are optional.
3. In above part, LCD Modules/ Touch Modules are for all-in-one product model.

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Chapter 1

Product Specifications

1.1 Specifications

System	
CPU	7th Generation Intel® Core™ i7/i5/i3/Celeron® Processor SoC
Chipset	7th Generation Intel® Processor SoC
System Memory	DDR4 1866/2133, SODIMM x 1
Display Interface	DVI-D, DP (default) DVI-I
Ethernet	Intel® i210/i211, 10/100/1000Base-TX, RJ-45 x 2
I/O	USB 3.2 Gen 1 x 4 (rear I/O) USB 2.0 x 2 (internal option) RS-232 x 1 RS-232/422/485 x 3 (optional)
Expansion	BIO x 1 Mini-Card (half-size) x 2, default mSATA x 1 Mini-Card (full size) x 1
Indicator	Power LED on power button
OS Support	Windows™ 10 Enterprise 64-bit Windows™ 7 Ultimate 32bit, 64-bit Ubuntu 18.04.2 kernel 4.18.0-15-generic

Power Supply	
Power Requirement	12V with lockable DC jack

Mechanical

Mounting	Wall mount kit (optional)
Dimensions (W x H x D)	170mm x 44.5mm x 137mm
Gross Weight	1.1 kg

Environmental

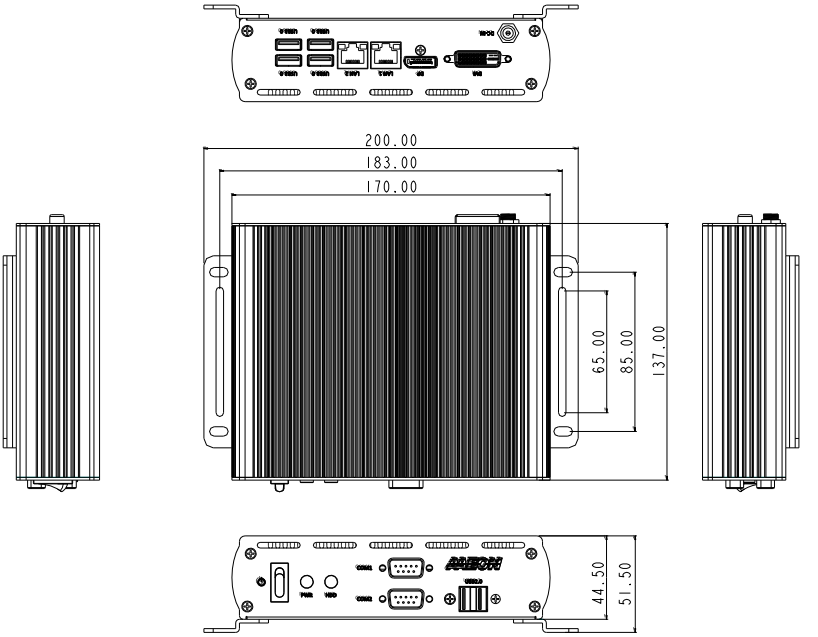
Operating Temperature	32°F~ 122°F (0°C ~ 50°C), 0.5 m/s airflow
Storage Temperature	-40°F ~ 176°F (-40°C ~ 81°C)
Storage Humidity	0% ~ 90% relative humidity, non-condensing
Anti-Vibration	2 Grms/ 5 ~ 500Hz/ operation
Certification	CE/FCC Class A

Chapter 2

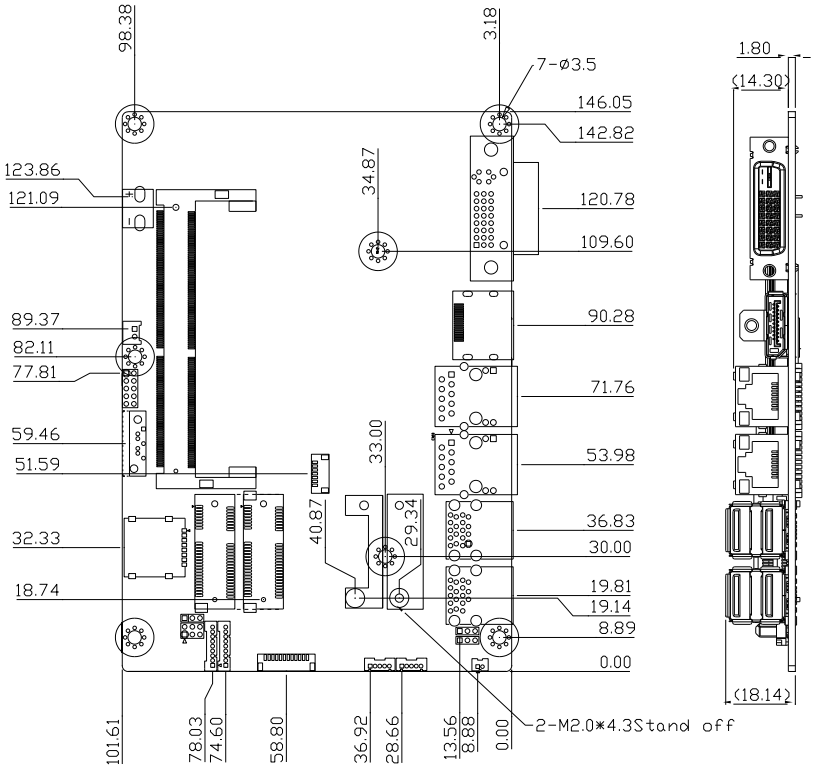
Hardware Information

2.1 Dimensions

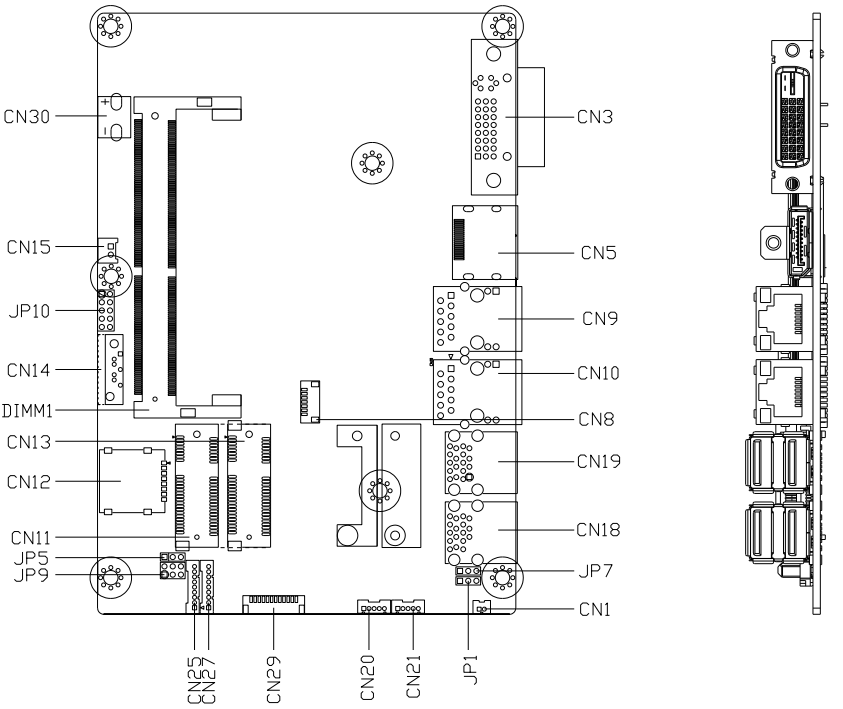
System Dimensions:



Board Component Side



2.2 Jumpers and Connectors

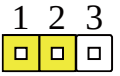


2.3 List of Jumpers

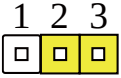
Please refer to the table below for all of the board's jumpers that you can configure for your application

Label	Function
JP1	Clear CMOS Jumper
JP5	mSATA/Mini-Card Operating VCC Selection
JP7	Auto Power Button Enable/Disable Selection
JP9	COM2 Pin8 Function Selection
JP10	Front Panel Connector

2.3.1 Clear CMOS Jumper (JP1)

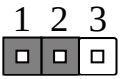


Normal (Default)

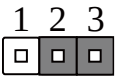


Clear CMOS

2.3.2 mSATA/ Mini-Card Operating VCC Selection (JP5)

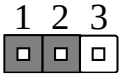


mSATA (Default)

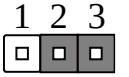


Mini-Card

2.3.3 Auto Power Button Enable/Disable Selection (JP7)



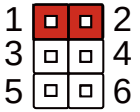
Disable (Default)



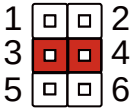
Enable

Note: When disabled, use power button JP10 (1-2) to power on the system.

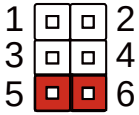
2.3.4 COM2 Pin8 Function Selection (JP9)



+12V

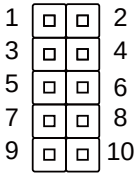


Ring (Default)



+5V

2.3.5 Front Panel Connector (JP10)



Pin	Pin Name	Pin	Pin Name
1	PWR_BTN-	2	PWR_BTN+
3	HDD_LED-	4	HDD_LED+
5	SPEAKER-	6	SPEAKER+
7	PWR_LED-	8	PWR_LED+
9	H/W RESET-	10	H/W RESET+

2.4 List of Connectors

Please refer to the table below for all of the board's connectors that you can configure for your application.

Label	Function
CN1	Battery
CN3	DVI-I (Digital and Analog)
CN5	DP Port
CN8	SPI Debug Port
CN9	LAN (RJ-45) Port1
CN10	LAN (RJ-45) Port2
CN11	Mini-Card Slot (Full-Mini Card)
CN12	Micro SIM Card Socket
CN13	Mini-Card Slot (Half-Mini Card)
CN14	SATA Port
CN15	+5V Output for SATA HDD
CN18	USB 3.0 Ports
CN19	USB 3.0 Ports
CN20	USB 2.0 Port
CN21	USB 2.0 Port
CN25	COM Port 1
CN27	COM Port 2
CN29	LPC Port
CN30	External Power Input

2.4.1 Battery (CN1)

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

2.4.2 DVI-I (Digital and Analog) (CN3)

Pin	Pin Name	Signal Type	Signal Level
1	DVI_D2-	OUT	
2	DVI_D2+	OUT	
3	GND	GND	
4	VGA_DDC_CLK	I/O	
5	VGA_DDC_DAT	I/O	
6	SCL	I/O	
7	SDA	I/O	
8	VGA_VSYNC	OUT	
9	DVI_D1-	OUT	
10	DVI_D1+	OUT	
11	GND	GND	
12	NC		
13	NC		
14	+5V	PWR	+5V
15	GND	GND	
16	HPD	IN	
17	DVI_D0-	OUT	
18	DVI_D0+	OUT	
19	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
20	NC		
21	NC		
22	GND	GND	
23	DVI_CLK+	OUT	
24	DVI_CLK-	OUT	
C1	VGA_RED	OUT	
C2	VGA_GREEN	OUT	
C3	VGA_BLUE	OUT	
C4	VGA_HSYNC	OUT	

2.4.3 DP Port (CN5)

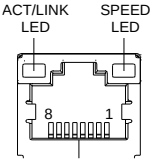
Pin	Pin Name	Signal Type	Signal Level
1	DP_D0+	DIFF	
2	GND	GND	
3	DP_D0-	DIFF	
4	DP_D1+	DIFF	
5	GND	GND	
6	DP_D1-	DIFF	
7	DP_D2+	DIFF	
8	GND	GND	
9	DP_D2-	DIFF	
10	DP_D3+	DIFF	
11	GND	GND	
12	DP_D3-	DIFF	
13	GND	GND	
14	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
15	DP_AUX+	DIFF	
16	GND	GND	
17	DP_AUX-	DIFF	
18	HPLG_DETECT	IN	
19	GND	GND	
20	+5V	I/O	+5V

2.4.4 BIOS Debug Port (CN8)

Pin	Pin Name	Signal Type	Signal Level
1	SPI_MISO	OUT	
2	GND	GND	
3	SPI_CLK	IN	
4	+3.3VSB	PWR	+3.3V
5	SPI_MOSI	IN	
6	SPI_CS	IN	
7	NC		

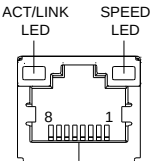
2.4.5 LAN (RJ-45) Port1 (CN9)



Pin	Pin Name	Signal Type	Signal level
1	MDI0+	DIFF	
2	MDI0-	DIFF	
3	MDI1+	DIFF	

Pin	Pin Name	Signal Type	Signal level
4	MDI2+	DIFF	
5	MDI2-	DIFF	
6	MDI1-	DIFF	
7	MDI3+	DIFF	
8	MDI3-	DIFF	

2.4.6 LAN (RJ-45) Port2 (CN10)



Pin	Pin Name	Signal Type	Signal level
1	MDI0+	DIFF	
2	MDI0-	DIFF	
3	MDI1+	DIFF	
4	MDI2+	DIFF	
5	MDI2-	DIFF	
6	MDI1-	DIFF	
7	MDI3+	DIFF	
8	MDI3-	DIFF	

2.4.7 Mini-Card Slot (Full-Mini Card) (CN11)

Pin	Pin Name	Signal Type	Signal level
1	PCIE_WAKE#	IN	
2	+3.3VSB	PWR	+3.3V
3	NC		
4	GND	GND	
5	NC		
6	+1.5V	PWR	+1.5V
7	PCIE_CLK_REQ#	IN	
8	UIM_PWR	PWR	
9	GND	GND	
10	UIM_DATA	I/O	
11	PCIE_REF_CLK-	DIFF	
12	UIM_CLK	IN	
13	PCIE_REF_CLK+	DIFF	
14	UIM_RST	IN	
15	GND	GND	
16	UIM_VPP	PWR	
17	NC		
18	GND	GND	
19	NC		
20	W_DISABLE#	OUT	+3.3V
21	GND	GND	
22	PCIE_RST#	OUT	+3.3V
23	PCIE_RX-	DIFF	
24	+3.3VSB	PWR	+3.3V

Pin	Pin Name	Signal Type	Signal level
25	PCIE_RX+	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-	DIFF	
32	SMB_DATA	I/O	+3.3V
33	PCIE_TX+	DIFF	
34	GND	GND	
35	GND	GND	
36	USB_D-	DIFF	
37	GND	GND	
38	USB_D+	DIFF	
39	+3.3VSB	PWR	+3.3V
40	GND	GND	
41	+3.3VSB	PWR	+3.3V
42	NC		
43	GND	GND	
44	NC		
45	NC		
46	NC		
47	NC		
48	+1.5V	PWR	+1.5V
49	NC		
50	GND	GND	

Pin	Pin Name	Signal Type	Signal level
51	NC		
52	+3.3VSB	PWR	+3.3V

2.4.8 Micro SIM Card Socket (CN12)

Pin	Pin Name	Signal Type	Signal Level
1	UIM_PWR	PWR	
2	UIM_RST	IN	
3	UIM_CLK	IN	
4	NC		
5	GND	GND	
6	UIM_VPP	PWR	
7	UIM_DATA	I/O	
8	NC		

2.4.9 Mini-Card Slot (Half-Mini Card) (CN13)

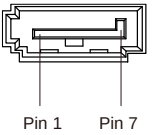
Pin	Pin Name	Signal Type	Signal Level
1	PCIE_WAKE#	IN	
2	+3.3VSB	PWR	+3.3V
3	NC		
4	GND	GND	
5	NC		
6	+1.5V	PWR	+1.5V
7	PCIE_CLK_REQ#	IN	
8	NC		

Pin	Pin Name	Signal Type	Signal Level
9	GND	GND	
10	NC		
11	PCIE_REF_CLK-	DIFF	
12	NC		
13	PCIE_REF_CLK+	DIFF	
14	NC		
15	GND	GND	
16	NC		
17	NC		
18	GND	GND	
19	NC		
20	W_DISABLE#	OUT	+3.3V
21	GND	GND	
22	PCIE_RST#	OUT	+3.3V
23	PCIE_RX-/mSATA_RX+	DIFF	
24	+3.3VSB	PWR	+3.3V
25	PCIE_RX+/mSATA_RX-	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-/mSATA_TX-	DIFF	
32	SMB_DATA	I/O	+3.3V
33	PCIE_TX+/mSATA_TX+	DIFF	
34	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
35	GND	GND	
36	USB_D-	DIFF	
37	GND	GND	
38	USB_D+	DIFF	
39	+3.3VSB	PWR	+3.3V
40	GND	GND	
41	+3.3VSB	PWR	+3.3V
42	NC		
43	GND	GND	
44	NC		
45	NC		
46	NC		
47	NC		
48	+1.5V	PWR	+1.5V
49	NC		
50	GND	GND	
51	NC		
52	+3.3VSB	PWR	+3.3V

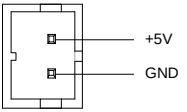
Note: CN13 can be selected for Mini-Card or mSATA by changing BIOS

2.4.10 SATA Port 1 (CN14)



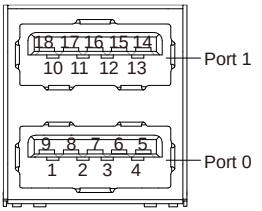
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	SATA_TX+	DIFF	
3	SATA_TX-	DIFF	
4	GND	GND	
5	SATA_RX-	DIFF	
6	SATA_RX+	DIFF	
7	GND	GND	

2.4.11 +5V Output for SATA HDD (CN15)



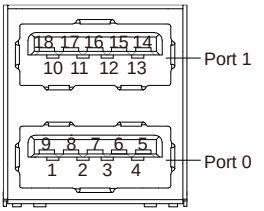
Pin	Pin Name	Signal Type	Signal Level
1	+5V	PWR	+5V
2	GND	GND	

2.4.12 USB 3.0 Ports (CN18)



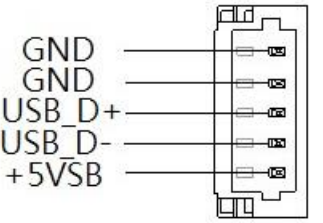
Pin	Pin Name	Signal Type	Signal Level
1	+5VSB	PWR	+5V
2	USB_D-	DIFF	
3	USB_D+	DIFF	
4	GND	GND	
5	USB_SSRX–	DIFF	
6	USB_SSRX+	DIFF	
7	GND	GND	
8	USB_SSTX–	DIFF	
9	USB_SSTX+	DIFF	
10	+5VSB	PWR	+5V
11	USB_D-	DIFF	
12	USB_D+	DIFF	
13	GND	GND	
14	USB_SSRX–	DIFF	
15	USB_SSRX+	DIFF	
16	GND	GND	
17	USB_SSTX–	DIFF	
18	USB_SSTX+	DIFF	

2.4.13 USB 3.0 Ports (CN19)



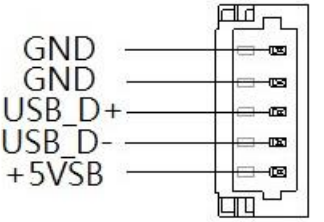
Pin	Pin Name	Signal Type	Signal Level
1	+5VSB	PWR	+5V
2	USB_D-	DIFF	
3	USB_D+	DIFF	
4	GND	GND	
5	USB_SSRX–	DIFF	
6	USB_SSRX+	DIFF	
7	GND	GND	
8	USB_SSTX–	DIFF	
9	USB_SSTX+	DIFF	
10	+5VSB	PWR	+5V
11	USB_D-	DIFF	
12	USB_D+	DIFF	
13	GND	GND	
14	USB_SSRX–	DIFF	
15	USB_SSRX+	DIFF	
16	GND	GND	
17	USB_SSTX–	DIFF	
18	USB_SSTX+	DIFF	

2.4.14 USB 2.0 Port (CN20)



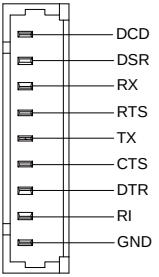
Pin	Pin Name	Signal Type	Signal Level
1	+5VSB	PWR	+5V
2	USB_D-	DIFF	
3	USB_D+	DIFF	
4	GND	GND	
5	GND	GND	

2.4.15 USB 2.0 Port (CN21)



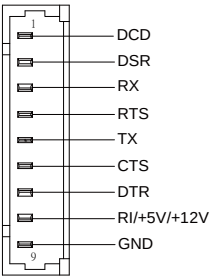
Pin	Pin Name	Signal Type	Signal Level
1	+5VSB	PWR	+5V
2	USB_D-	DIFF	
3	USB_D+	DIFF	
4	GND	GND	
5	G ND	GND	

2.4.16 COM Port 1 (CN25)



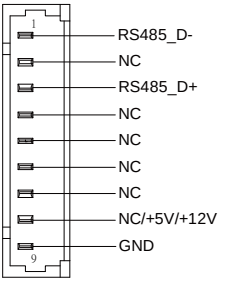
Pin	Pin Name	Signal Type	Signal Level
1	DCD	IN	
2	DSR	IN	
3	RX	IN	
4	RTS	OUT	±9V
5	TX	OUT	±9V
6	CTS	IN	
7	DTR	OUT	±9V
8	RI	IN	
9	GND	GND	

2.4.17 COM Port 2 (CN27)



RS-232

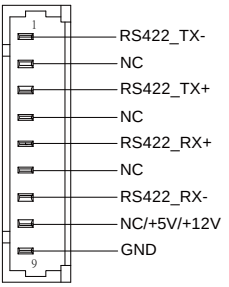
Pin	Pin Name	Signal Type	Signal Level
1	DCD	IN	
2	DSR	IN	
3	RX	IN	
4	RTS	OUT	±5V
5	TX	OUT	±5V
6	CTS	IN	
7	DTR	OUT	±5V
8	RI/+5V/+12V	IN/ PWR	+5V/+12V
9	GND	GND	



RS-485

Pin	Pin Name	Signal Type	Signal Level
1	RS485_D-	I/O	±5V
2	NC		

Pin	Pin Name	Signal Type	Signal Level
3	RS485_D+	I/O	±5V
4	NC		
5	NC		
6	NC		
7	NC		
8	NC/+5V/+12V	PWR	+5V/+12V
9	GND	GND	



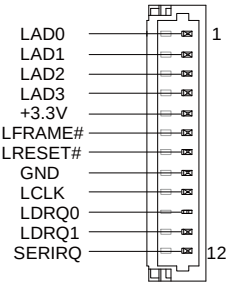
RS-422

Pin	Pin Name	Signal Type	Signal Level
1	RS422_TX-	OUT	±5V
2	NC		
3	RS422_TX+	OUT	±5V
4	NC		
5	RS422_RX+	IN	
6	NC		
7	RS422_RX-	IN	
8	NC/+5V/+12V	PWR	+5V/+12V
9	GND	GND	

Note 1: COM2 RS-232/422/485 can be set by BIOS setting. Default is RS-232.

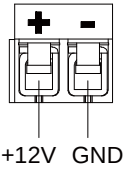
Note 2: Pin 8 function can be set by JP9.

2.4.18 LPC Port (CN29)



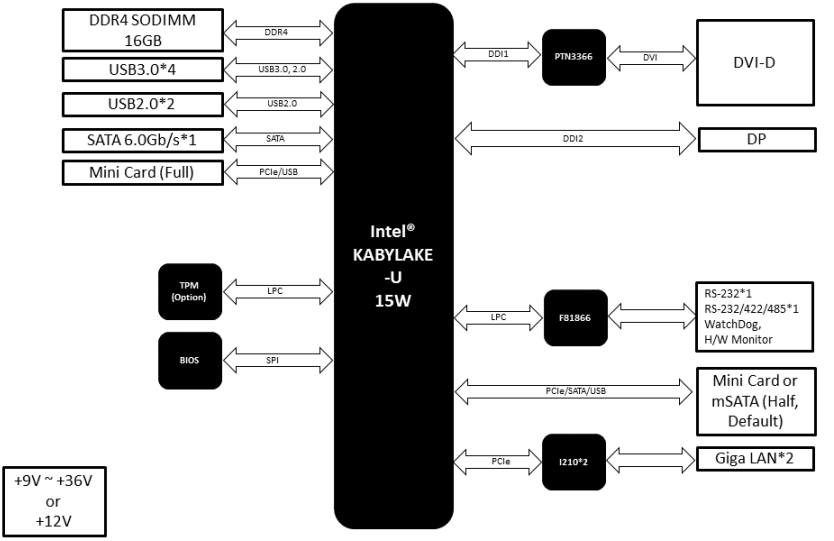
Pin	Pin Name	Signal Type	Signal Level
1	LAD0	I/O	+3.3V
2	LAD1	I/O	+3.3V
3	LAD2	I/O	+3.3V
4	LAD3	I/O	+3.3V
5	+3.3V	PWR	+3.3V
6	LFRAME#	IN	
7	LRESET#	OUT	+3.3V
8	GND	GND	
9	LCLK	OUT	
10	LDRQ0	IN	
11	LDRQ1	IN	
12	SERIRQ	I/O	+3.3V

2.4.19 External Power Input (CN30)



Pin	Pin Name	Signal Type	Signal Level
1	+12V	PWR	+9~+36V (or +12V)
2	GND	GND	

2.5 Block Diagram



2.6 Hardware Assembly Guide

This section details the steps to installing your device's drive (HDD or SSD), RAM module, and Mini-Card modules (Half-Sized and Full-Sized mPCIe/mSATA cards). Be sure to read instructions before assembly and ensure that you have the required parts before proceeding. If you need any support or assistance, please contact your AAEON representative, or visit the support page at AAEON.com to contact our team.

Before You Start

Before starting the assembly steps in this section, ensure the system is powered off (not in sleep or standby mode) and the power cable/adapter is disconnected from the system. Failure to do so can result in damage to the system and/or personal injury.

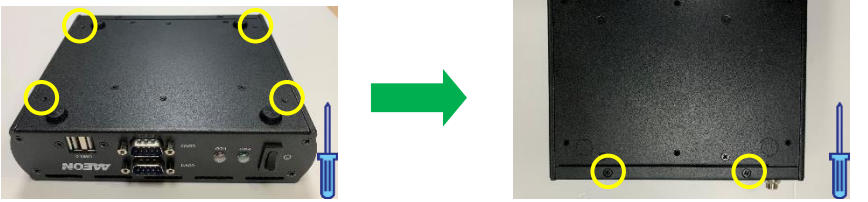
Parts List

Make sure you have the following parts before starting:

Item	Part Number	Quantity
GENESYS-KBU6 System	968MY00013	1
Large Thermal Pad (for HDD/SSD)	TH5GENE010	1
Small Thermal Pad (for RAM)	TH5GENE020	1
SATA Cable	170X000085	1
SATA Power Cable	1702150155	1
HDD Screws	S1D3004031	4
Zip ties	1992666607	3
SODIMM RAM Module DDR4 1866/2133 up to 16GB	-	1
mPCIe mSATA Mini-Card (Half-Size)	-	1
mPCIe Mini-Card (Full Size, AI Module)	-	1
2.5" Hard Drive or Solid-State Drive	-	1

2.6.1 Opening the System

Step 1: Remove the four screws from the front panel (with AAEON Logo) of the system. Then remove the two screws connecting the bottom panel to the rear panel.

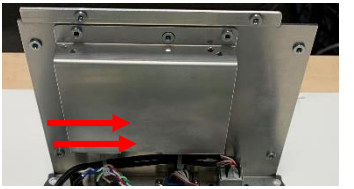


Step 3: Slide the panel back slightly, then lift open from the rear. Note: There are several wires and cables connected to the front panel, be careful when lifting the panel.

2.6.2 RAM Module Installation

Step 1: Install the memory RAM module. Insert at an angle (~30°) and then gently press down until it is secured in place (you will hear a click).

Step 2: Take the small thermal pad and remove the clear backing. Stick the pad to the drive mounting bracket. There are two notches marking where to place the thermal pad.

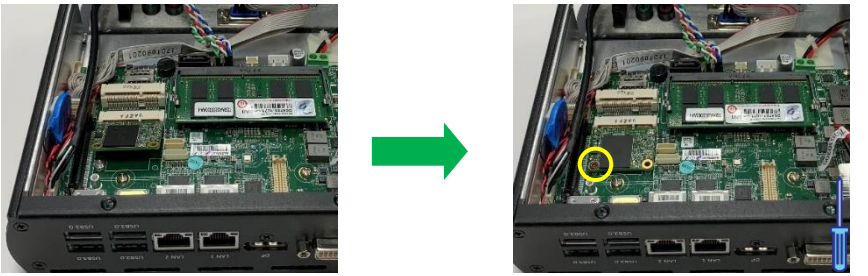


Step 3: Once you have placed the thermal pad, remove the backing from the exposed side.

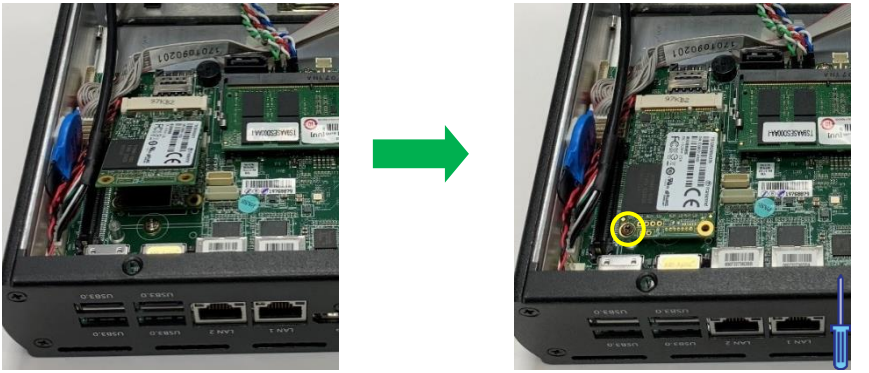
2.6.3 Mini-Card Installation

Step 1: Remove both half-size and full-size mSATA mounting screws from the board.

Step 2: Insert your half-size Mini-Card (mSATA) module into the first mSATA slot. Insert at an angle (~30°) then press down gently and secure with screw.

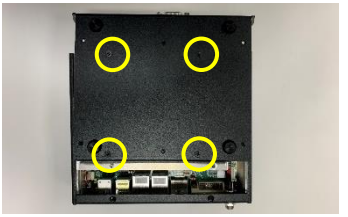


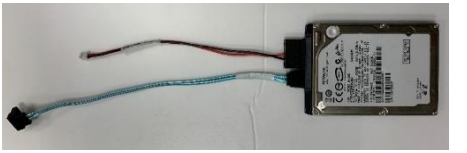
Step 3: Insert your full-size Mini-Card (mSATA) module into the second slot. Insert at an angle (~30°) then press down gently and secure with screw.



2.6.4 Storage Drive Installation

Step 1: Remove the four screws from the bottom panel securing the drive mounting bracket, and remove the bracket from the system. Connect the SATA and SATA Power cables to the 2.5" storage drive. **Note**: Do not connect the cables to the board at this time.

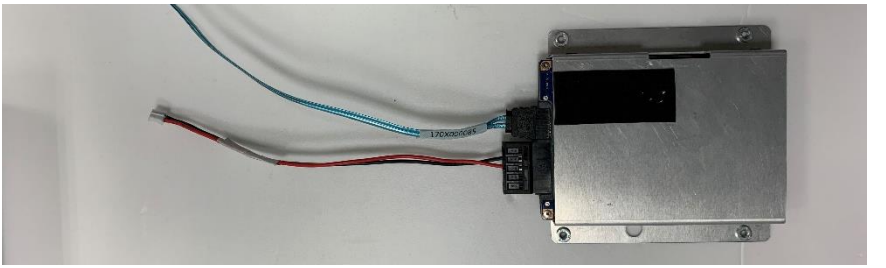




Step 2: Insert the drive into the drive mounting bracket, with the label side out and the SATA cables on the same side as the RAM thermal pad. The drive mounting holes should line up as such: 2.5" SSD with the closest to the angle, 2.5" HDD with the holes further away. Secure the drive onto the mounting bracket with the four HDD screws.

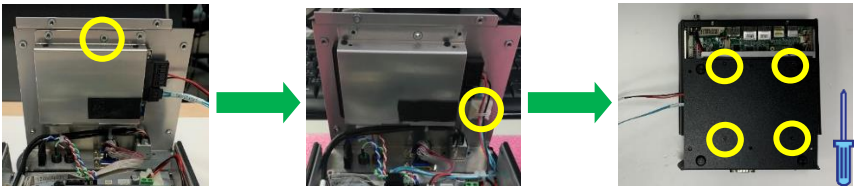
HDD Mount

SSD Mount

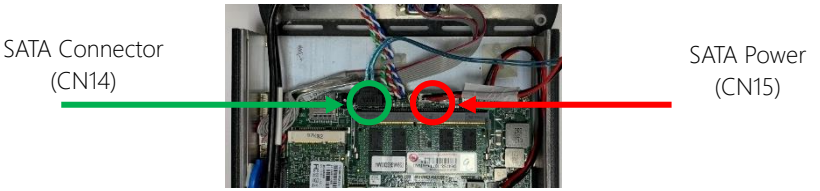


Step 3: Remove the clear backing from the large thermal pad and place onto the drive, gently pushing down to adhere to the drive. Then, remove the backing from the exposed side.

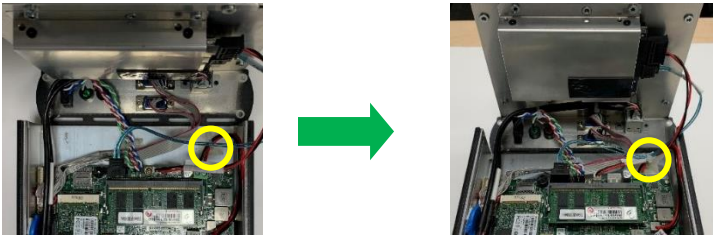
Step 4: Line up the large hole on the drive bracket with the VESA mount post on the bottom panel. Make sure the holes are lined up for the screws. Attach the adhesive backed mount to the bottom panel, then secure cables to the mount with a zip tie. Secure the assembly with screws. **Note**: Screws attach through the bottom panel side.



Step 5: Attach the SATA cable to the board SATA connector (CN14). Then attach the SATA Power cable to the board +5V output connector (CN15). See Chapter 2.2 for connector locations.

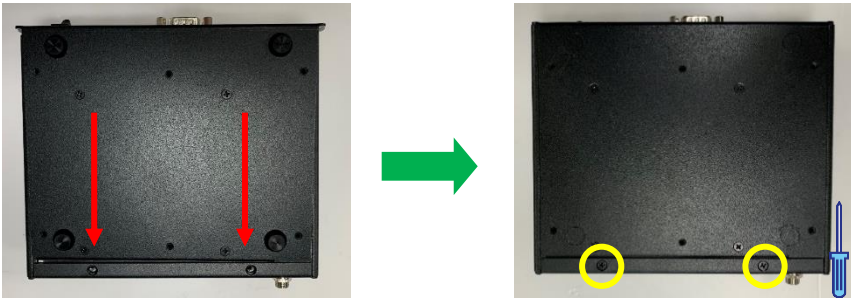


Step 6: For cable management, use a zip tie to attach the SATA and SATA Power cables to the loop on the top panel as shown. Be sure to cut any excess from the zip tie.



2.6.5 Reattach Panel

Step 1: Being careful of cables, slide the tab on the bottom panel under the rear panel, lining up the holes. Press down gently and secure with two screws.

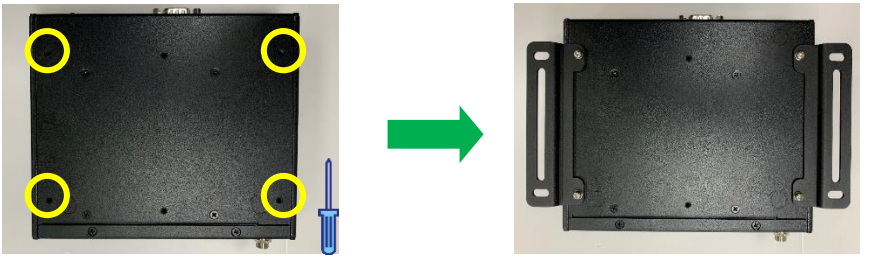


Step 2: Attach the four screws to the front panel.

2.6.6 Install Wall Mount Brackets

For this task, you need two wall mount brackets and four steel screws included in the wall mount kit.

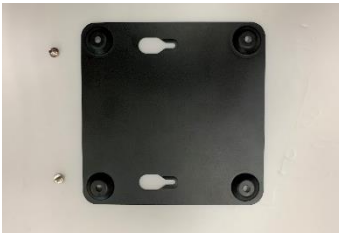
Line up the brackets with the four open holes on the bottom panel of the system as shown, then secure brackets with the four screws.



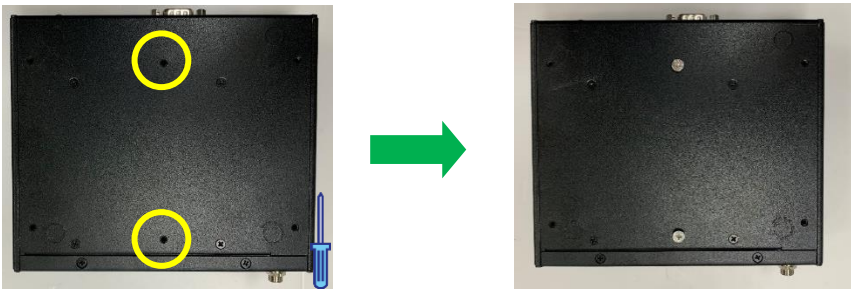
The system is now ready to be mounted to a wall or surface.

2.6.7 VESA Mounting Kit

For this task, you need the VESA bracket and two steel screws included in the VESA mount kit.



Insert screws into the two empty holes on the bottom panel of the system as shown.



The system can now be attached to the VESA bracket.

Note: This image is for illustrative purposes. It is recommended that you install the VESA bracket onto the mounting surface before attaching the system.

Chapter 3

AMI BIOS Setup

3.1 System Test and Initialization

The board uses certain routines to perform testing and initialization. If an error, fatal or non-fatal, is encountered, a few short beeps or an error message will be outputted. 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. If they do not match, an error message will be outputted, in which case you will need to run the BIOS setup program to set the configuration information in memory.

There are three situations in which you will need to change the CMOS settings:

- You are starting your system for the first time
- You have changed your system's hardware
- The CMOS memory has lost power and the configuration information is erased

The system's CMOS memory uses a backup battery for data retention, which is to be replaced once emptied.

3.2 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 the power is turned off.

To enter BIOS Setup, press <Del> or <F2> immediately while your computer is powering up.

The function for each interface can be found below.

Main – Date and time can be set here. Press <Tab> to switch between date elements

Advanced – Enable/ Disable boot option for legacy network devices

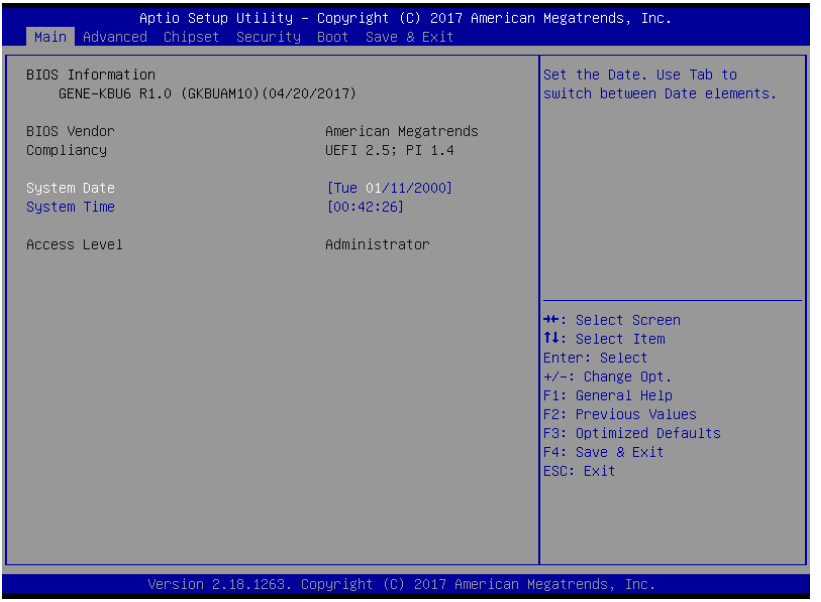
Chipset – For hosting bridge parameters

Boot – Enable/ Disable quiet Boot Option

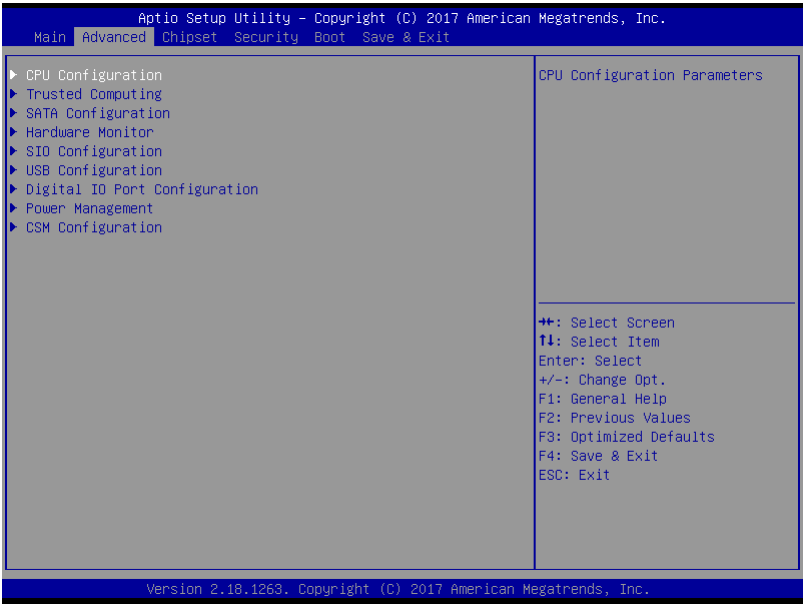
Security – The setup administrator password can be set here

Save & Exit –Save your changes and exit the program

3.3 Setup submenu: Main



3.4 Setup submenu: Advanced

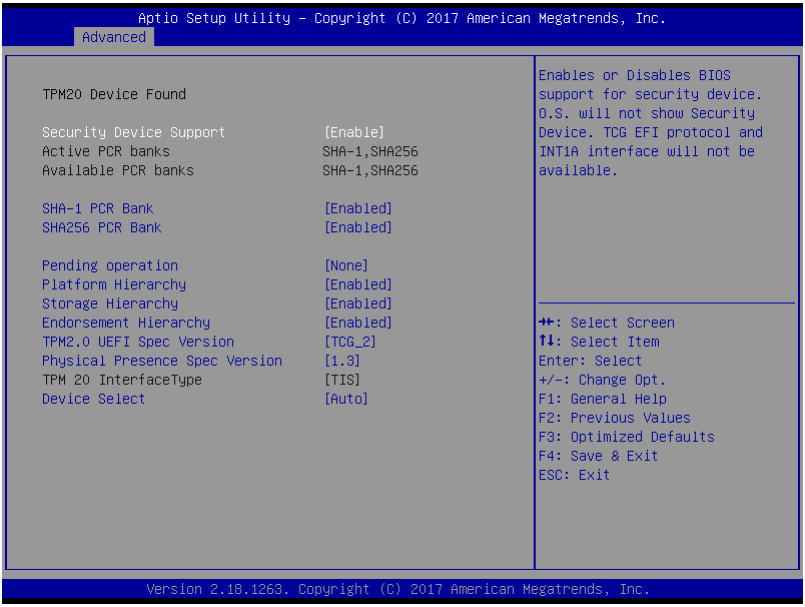


3.4.1 CPU Configuration

Options Summary		
Hyper-Threading	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology).		
Active Processor Cores	All	Optimal Default, Failsafe Default
	1	
Number of cores to enable in each processor package.		
Intel (VMX) Virtualization Technology	Disabled	
	Enabled	Optimal Default, Failsafe Default
When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.		
CPU C states	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable/Disable CPU Power Management. Allows CPU to go to C states when it's not 100% utilized.		

Options Summary		
Intel(R) SpeedStep(tm)	Disabled	
	Enabled	Optimal Default, Failsafe Default
Allows more than two frequency ranges to be supported.		
Turbo Mode	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable/Disable processor Turbo Mode (requires EMTTM enabled too). AUTO means enabled, unless max turbo ratio is bigger than 16 - SKL A0 W/A		

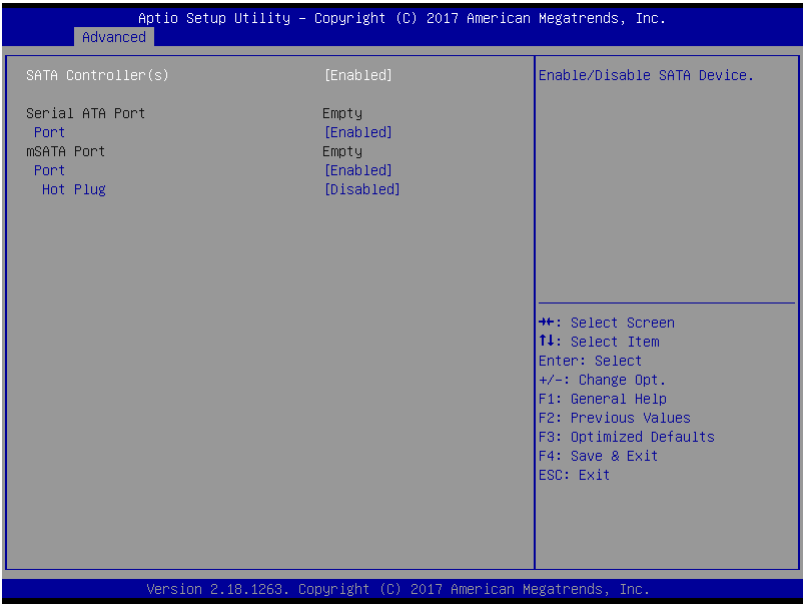
3.4.2 Trusted Computing



Options Summary		
Security Device Support	Disable	Optimal Default, Failsafe Default
	Enable	
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	Optimal Default, Failsafe Default
	Enable	
Enable or Disable SHA-1 PCR Bank		
SHA256 PCR Bank	Disable	Optimal Default, Failsafe Default
	Enable	
Enable or Disable SHA256 PCR Bank		
Pending operation	None	Optimal Default, Failsafe Default
	TPM Clear	
Schedule an Operation for the Security Device. NOTE: Your Computer will reboot during restart in order to change state of Security Device.		

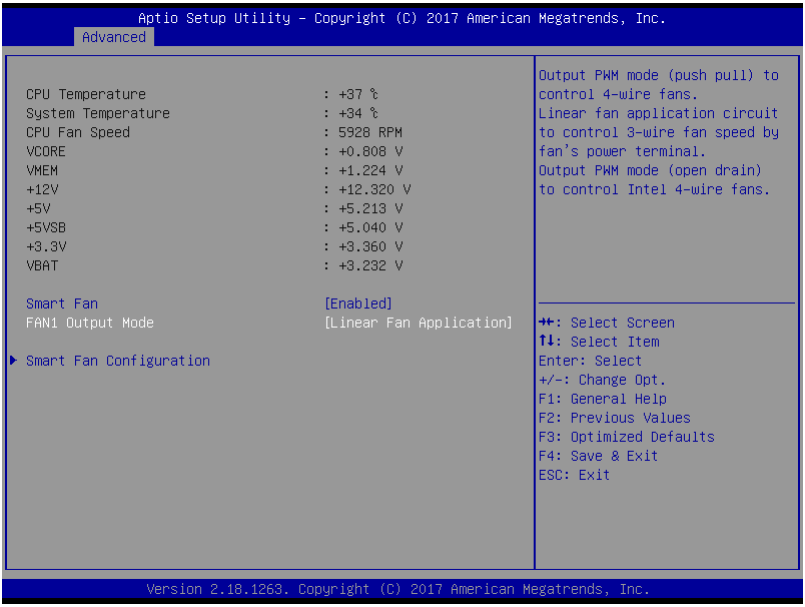
Options Summary		
Platform Hierarchy	Disable	
	Enable	Optimal Default, Failsafe Default
Enable or Disable Platform Hierarchy		
Storage Hierarchy	Disable	
	Enable	Optimal Default, Failsafe Default
Enable or Disable Storage Hierarchy		
Endorsement Hierarchy	Disable	
	Enable	Optimal Default, Failsafe Default
Enable or Disable Endorsement Hierarchy		
TPM2.0 UEFI Spec Version	TCG_2	Optimal Default, Failsafe Default
	TCG_1_2	
Select the TCG2 Spec Version Support, TCG_1_2: The compatible mode for Win8/Win10, TCG_2: Support new TCG2 protocol and event format for Win10 or later		
Physical Presence Spec Version	1.2	
	1.3	Optimal Default, Failsafe Default
Select to Tell O.S. to support PPI Spec Version 1.2 or 1.3. Note some HCK tests might not support 1.3.		
Device Select	TPM 1.2	
	TPM 2.0	
	Auto	Optimal Default, Failsafe Default
TPM 1.2 will restrict support to TPM 1.2 device, TPM 2.0 will restrict support to TPM 2.0 devices, Auto will support both with the default set to TPM 2.0 devices if not found, TPM 1.2 device will be enumerated.		

3.4.3 SATA Configuration



Options Summary		
SATA Controller(s)	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable or disable SATA Device.		
SATA Mode	AHCI Mode	Optimal Default, Failsafe Default
	RAID Mode	
Determines how SATA controller(s) operate.		
Port 0	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable SATA Port.		
Hot Plug	Disabled	Optimal Default, Failsafe Default
	Enabled	
Designates this port as Hot Pluggable.		

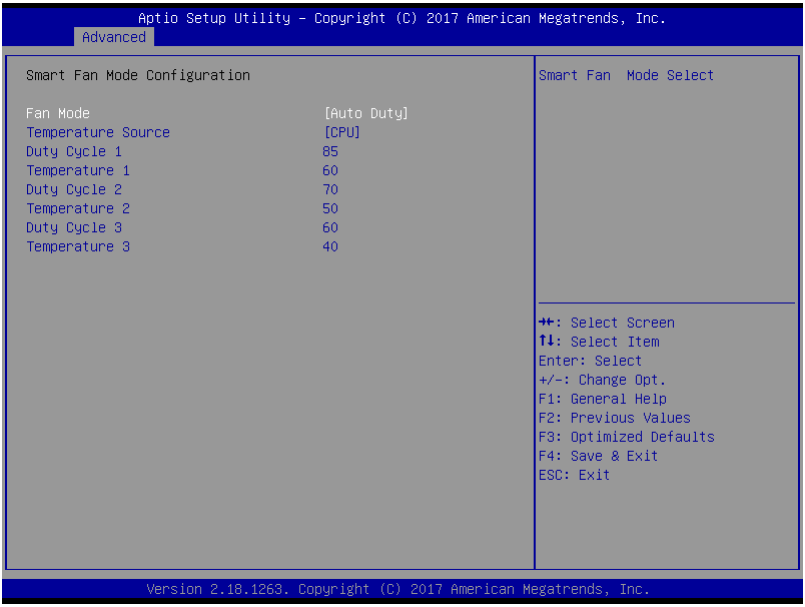
3.4.4 Hardware Monitor



Options Summary		
Smart Fan	Enabled	Enable or Disable Smart Fan
	Disabled	
FAN1 Output Mode	Output PWM mode (push pull)	Optimal Default, Failsafe Default
	Linear Fan Application	
	Output PWM mode (open drain)	
Output PWM mode (push pull) to control 4-wire fans. Linear fan application circuit to control 3-wire fan speed by fan's power terminal. Output PWM mode (open drain) to control Intel 4-wire fans.		

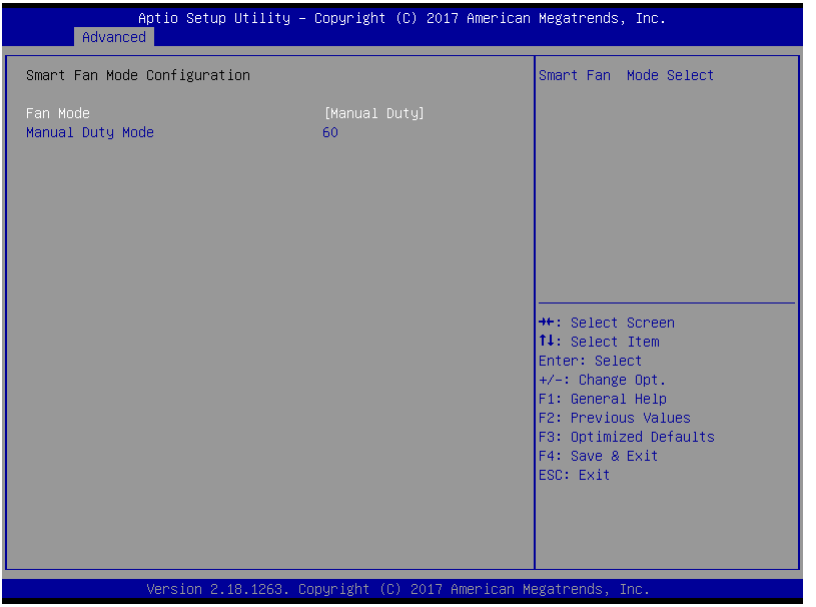
Note: Optional support for PWM mode is available on request.

3.4.4.1 Smart Fan Mode Configuration



Fan Mode: [Auto Duty]

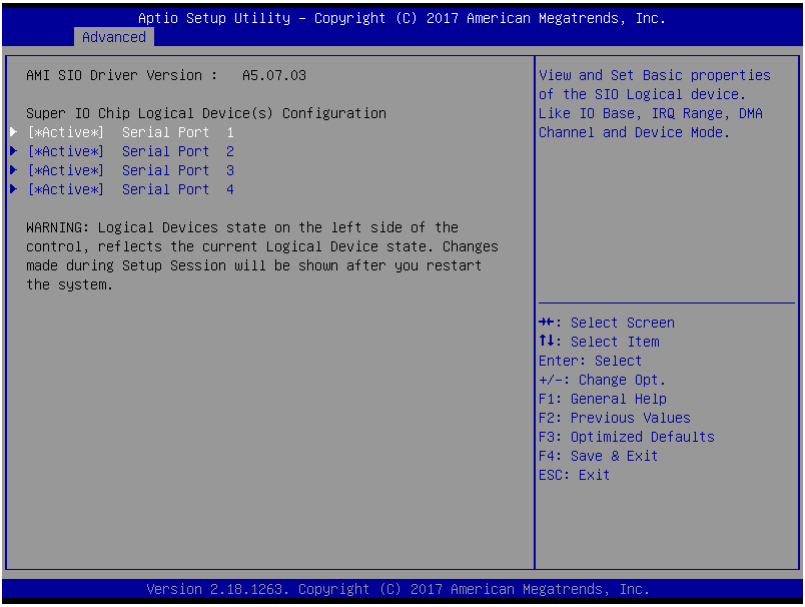
Options Summary		
Fan Mode	Manual Duty	
	Auto Duty	Optimal Default, Failsafe Default
Smart Fan Mode Select		
Duty Cycle	Auto fan speed control. Fan speed will follow different temperature by different duty cycle 60-100	
Temperature		



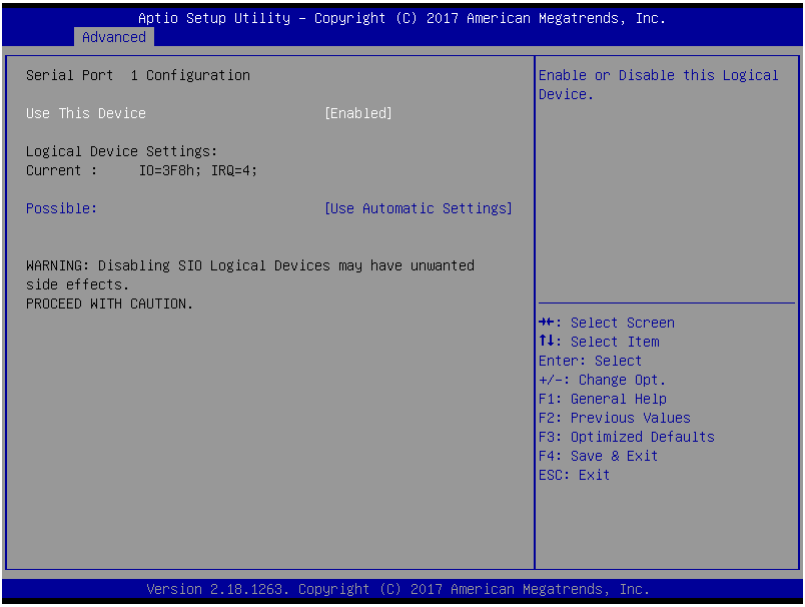
Fan Mode: [Manual Duty]

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

3.4.5 SIO Configuration

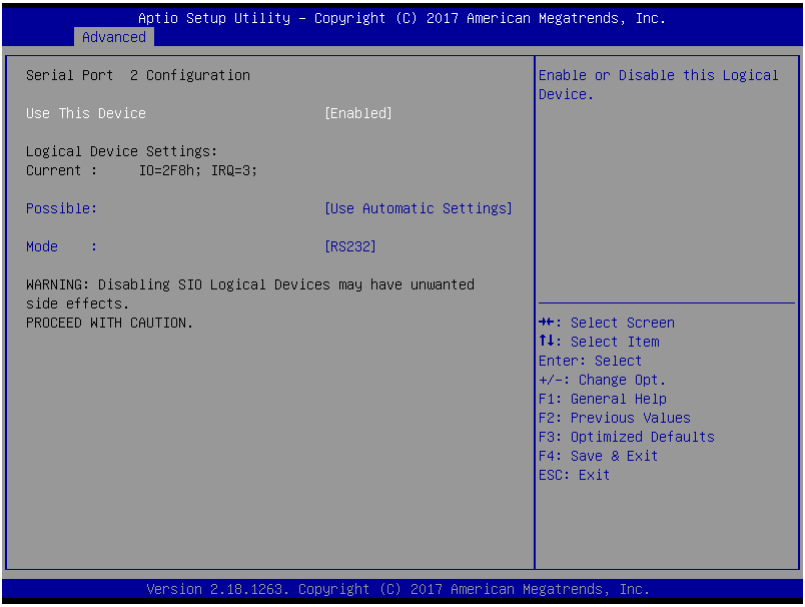


3.4.5.1 Serial Port 1 Configuration



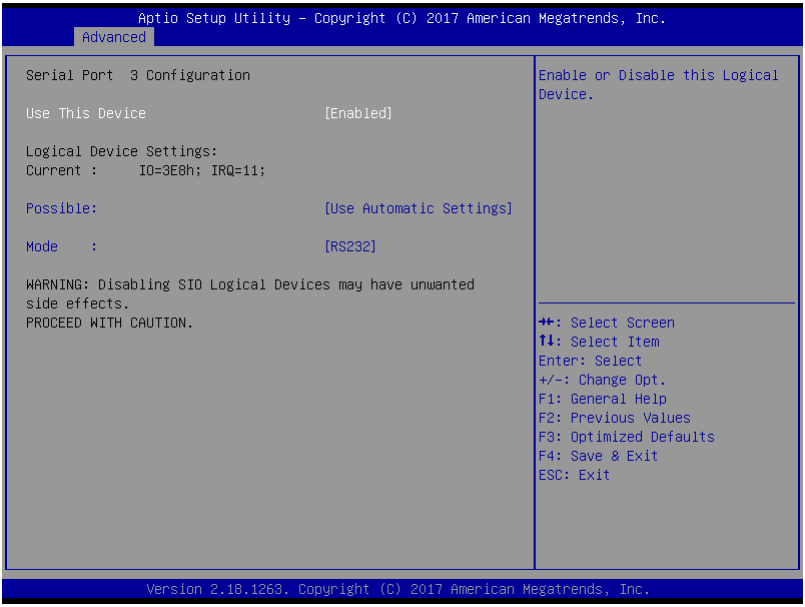
Options Summary		
Use This Device	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable Serial Port (COM)		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=3F8; IRQ=4;	
	IO=2F8; IRQ=3;	
Select an optimal setting for IO device		

3.4.5.2 Serial Port 2 Configuration



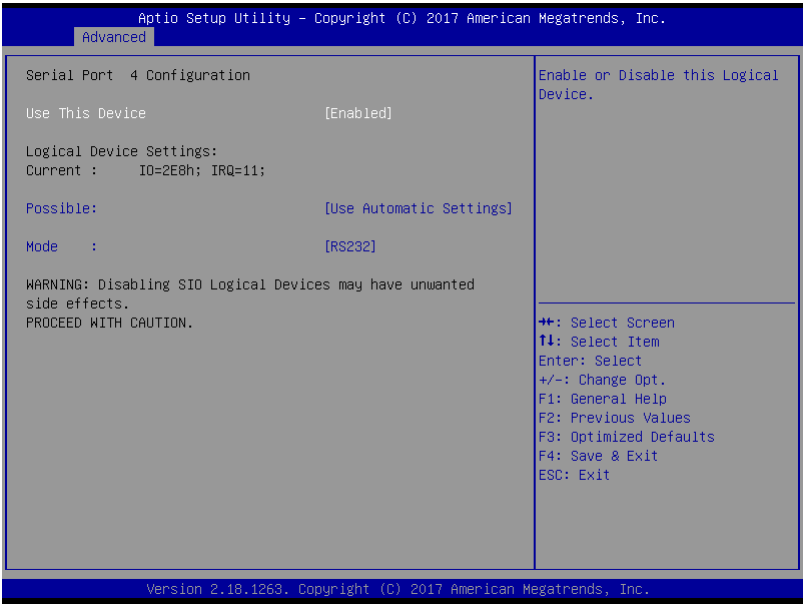
Options Summary		
Use This Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable or Disable Serial Port (COM)		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=2F8; IRQ=3;	
	IO=3F8; IRQ=4;	
Mode:	RS232	UART RS232, 422, 485 selection
	RS422	
	RS485	
Select an optimal setting for IO device		

3.4.5.3 Serial Port 3 Configuration



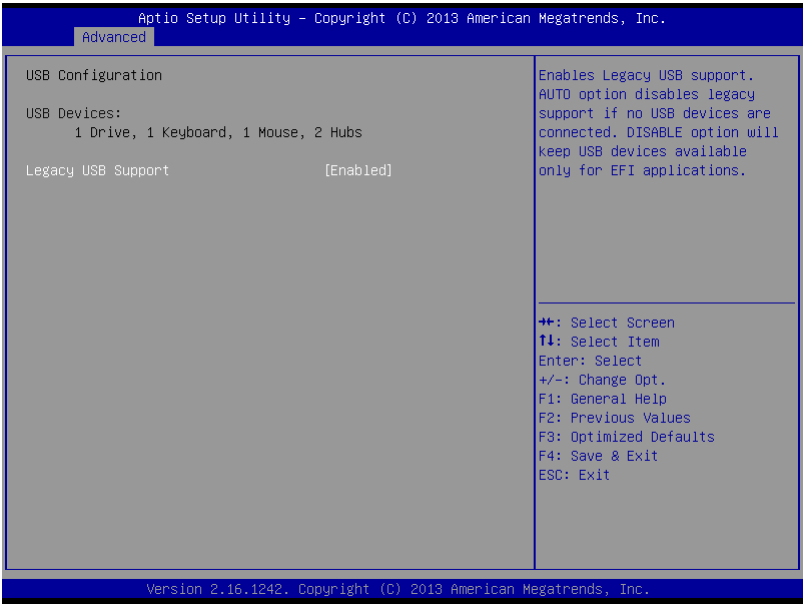
Options Summary		
Use This Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable or Disable Serial Port (COM)		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=3E8; IRQ=11;	
	IO=2E8; IRQ=11;	
Mode:	RS232	UART RS232, 422, 485 selection
	RS422	
	RS485	
Select an optimal setting for IO device		

3.4.5.4 Serial Port 4 Configuration



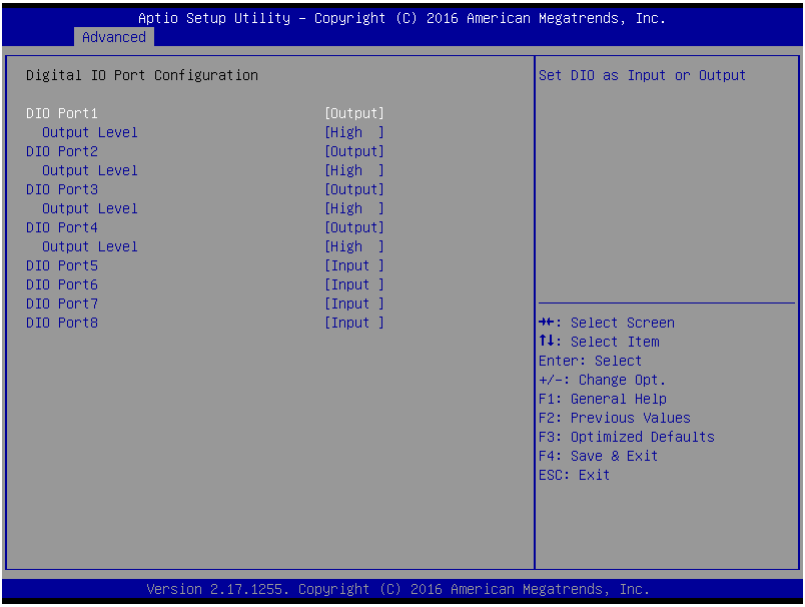
Options Summary		
Use This Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable or Disable Serial Port (COM)		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=2E8; IRQ=11;	
	IO=3E8; IRQ=11;	
Mode:	RS232	UART RS232, 422, 485 selection
	RS422	
	RS485	
Select an optimal setting for IO device		

3.4.6 USB Configuration



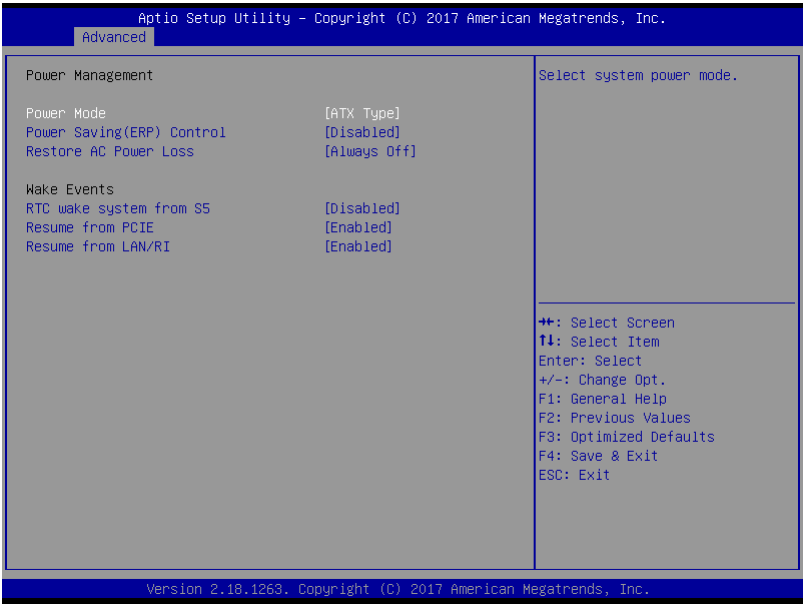
Options Summary		
Legacy USB Support	Enabled	Optimal Default, Failsafe Default
	Disabled	
	Auto	
Enables BIOS Support for Legacy USB Support. When enabled, USB can be functional in legacy environment like DOS. AUTO option disables legacy support if no USB devices are connected		

3.4.7 Digital IO Port Configuration



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

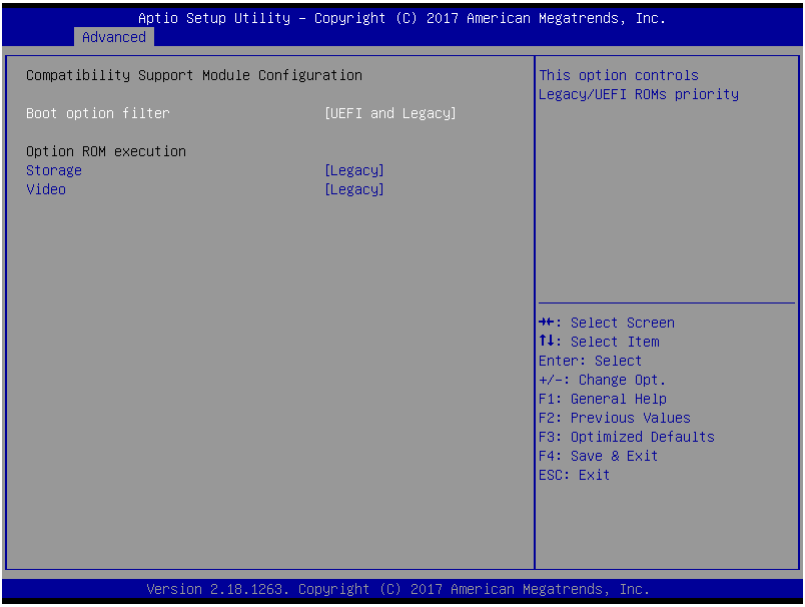
3.4.8 Power Management



Options Summary		
Power Mode	ATX Type	Optimal Default, Failsafe Default
	AT Type	
Select system power mode.		
Power Saving(ERP) Control	Disabled	Optimal Default, Failsafe Default
	Enabled	
Configure power mode for power saving function.		
Restore on Power Loss	Last State	Optimal Default, Failsafe Default
	Power On	
	Power Off	
Select power state when power is re-applied after a power failure.		
RTC wake system from S5	Disabled	Optimal Default, Failsafe Default
	Fixed Time	
Enable or disable System wake on alarm event. When enabled, System will wake on the hr::min::sec specified		
Resume from PCIE	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable/Disable Resume from PCIE		

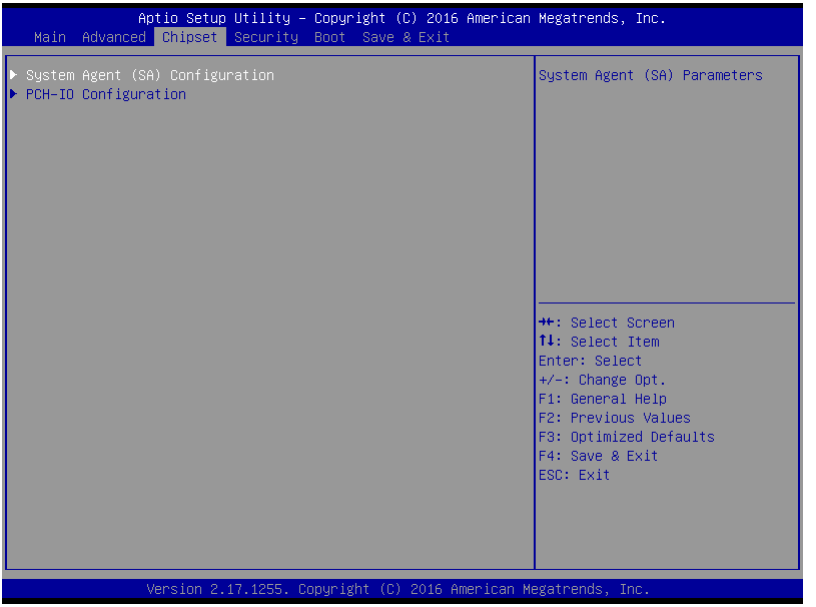
Options Summary		
Resume from LAN/RI	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable/Disable Resume from LAN/RI		

3.4.9 Compatibility Support Module Configuration

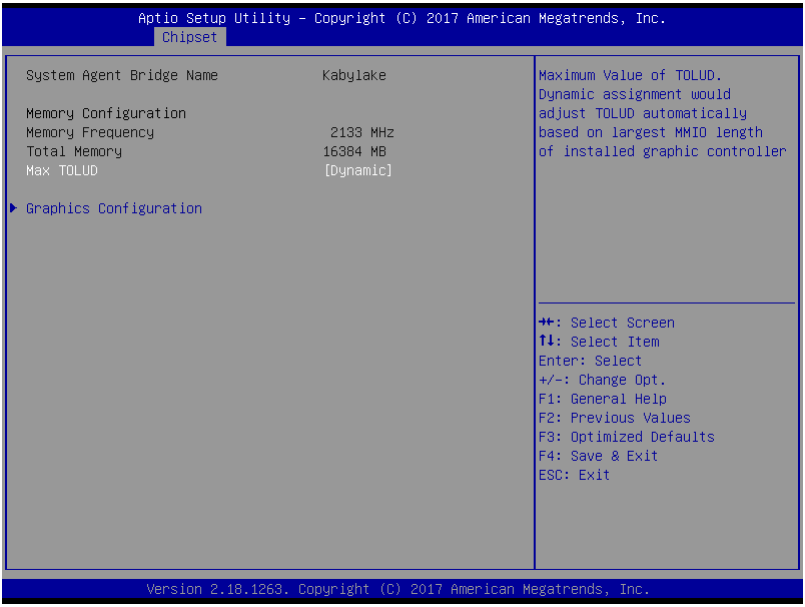


Options Summary		
Boot option filter	UEFI and Legacy	Optimal Default, Failsafe Default
	Legacy only	
	UEFI only	
This option controls Legacy/UEFI ROMs priority		
Storage	Do not launch	
	UEFI	
	Legacy	Optimal Default, Failsafe Default
Controls the execution of UEFI and Legacy Storage OpROM		
Video	Do not launch	
	UEFI	
	Legacy	Optimal Default, Failsafe Default
Controls the execution of UEFI and Legacy Video OpROM		

3.5 Setup submenu: Chipset

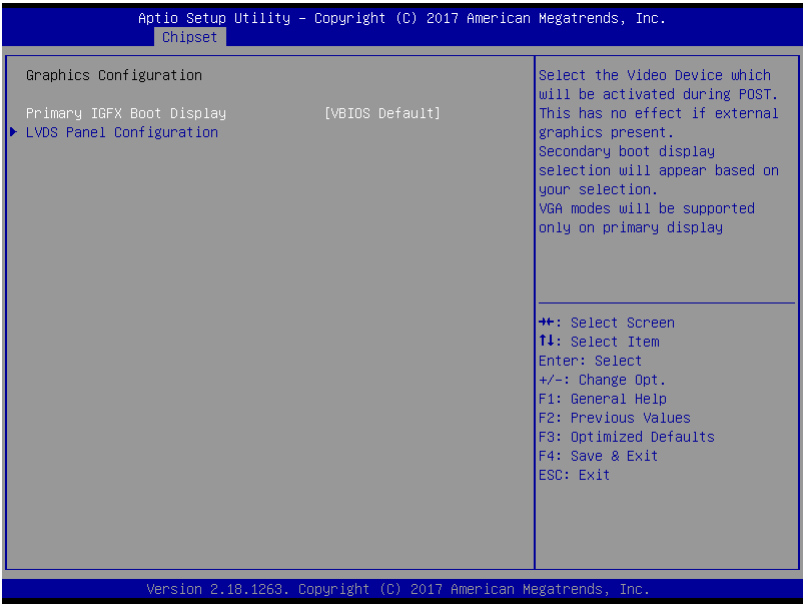


3.5.1 System Agent (SA) Configuration



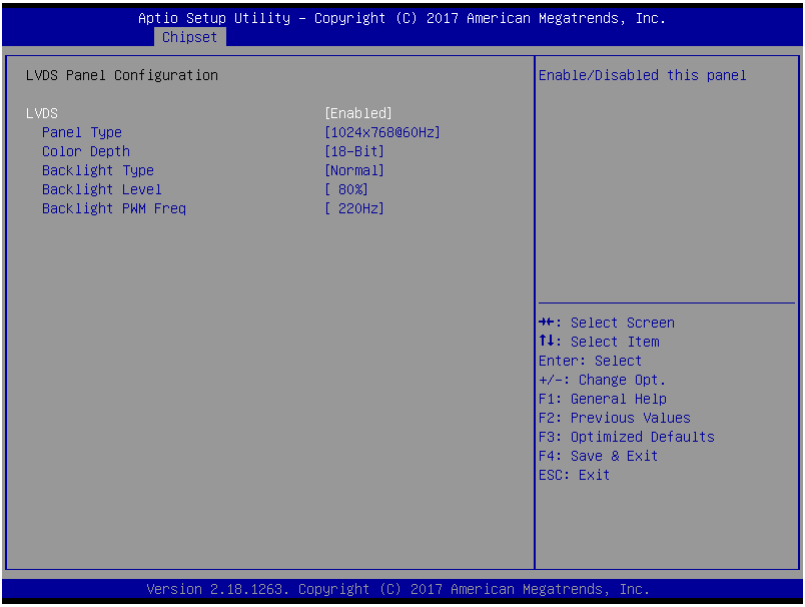
Options Summary		
Max TOLUD	Dynamic	Optimal Default, Failsafe Default
	1 GB	
	1.25 GB	
	1.5 GB	
	1.75 GB	
	2 GB	
	2.25 GB	
	2.5 GB	
	2.75 GB	
	3 GB	
	3.25 GB	
	3.5 GB	
Maximum Value of TOLUD Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.		

3.5.2 Graphics Configuration



Options Summary		
Primary IGFX Boot Display	VBIOS Default	Optimal Default, Failsafe Default
	DVI	
	CRT/DP	
	LVDS	
Select the Video Device which will be activated during POST. This has no effect if external graphic present. Secondary boot display selection will appear based on your selection.		
Secondary IGFX Boot Display	Disabled	Optimal Default, Failsafe Default
	DDI1/DP	
	DDI2/VGA	
	LVDS/eDP	
Select Secondary Display Device		

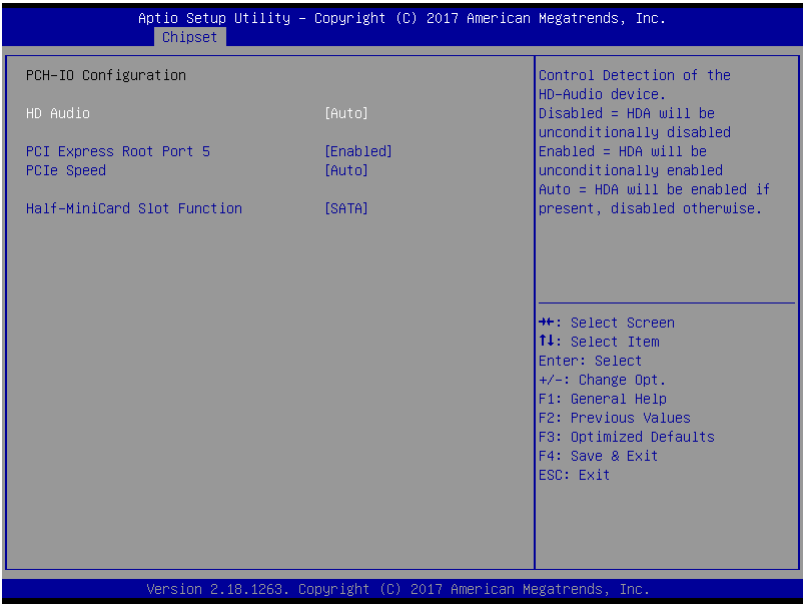
3.5.3 LVDS Panel Configuration



Options Summary		
LVDS	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable/Disabled this panel.		
LVDS Panel Type	640x480,18bit,60Hz	
	800x480,18bit,60Hz	
	800x600,18bit,60Hz	
	1024x600,18bit,60Hz	
	1024x768,18bit,60Hz	Optimal Default, Failsafe Default
	1024x768,24bit,60Hz	
	1280x768,24bit,60Hz	
	1280x1024,48bit,60Hz	
	1366x768,24bit,60Hz	
	1440x900,48bit,60Hz	
	1600x1200,48bit,60Hz	
	1920x1080,48bit,60Hz	
	1920x1200,48bit,60Hz	

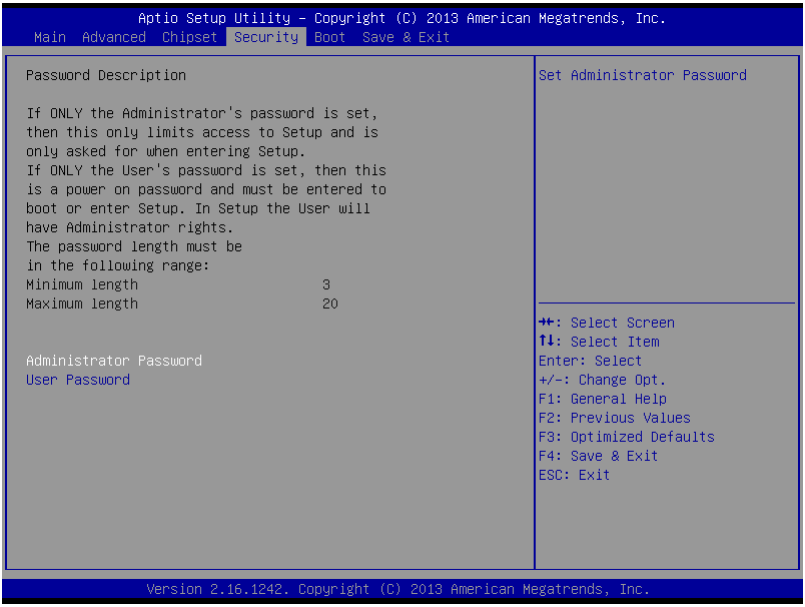
Options Summary		
Select LCD panel used by Internal Graphics Device by selecting the appropriate setup item.		
Color Depth	18-bit	Optimal Default, Failsafe Default
	24-bit	
	36-bit	
	48-bit	
Select panel type		
Backlight Type	Normal	Optimal Default, Failsafe Default
	Inverted	
Select backlight control signal type		
Backlight Level	0%	Optimal Default, Failsafe Default
	10%	
	20%	
	30%	
	40%	
	50%	
	60%	
	70%	
	80%	
	90%	
	100%	
Select backlight control level		
Backlight PWM Freq	100Hz	Optimal Default, Failsafe Default
	200Hz	
	220Hz	
	500Hz	
	1KHz	
	2.2KHz	
	6.5KHz	
Select PWM frequency of backlight control signal		

3.5.4 PCH-IO Configuration



Options Summary		
HD Audio	Disabled	
	Enabled	Optimal Default, Failsafe Default
Control Detection of the HD-Audio device. Disabled = HDA will be unconditionally disabled Enabled = HDA will be unconditionally enabled Auto = HDA will be enabled if present, disabled otherwise.		
PCI Express Root Port 5	Enabled	Optimal Default, Failsafe Default
	Disabled	
Control the PCI Express Root Port.		
PCIe Speed	Auto	Optimal Default, Failsafe Default
	Gen1	
	Gen2	
	Gen3	
Configure PCIe speed.		
Half-MiniCard Slot	SATA	Optimal Default, Failsafe Default
	PCIe	
Select function enabled for Half-MiniCard(CN13) slot		

3.6 Security



Change User/Administrator Password

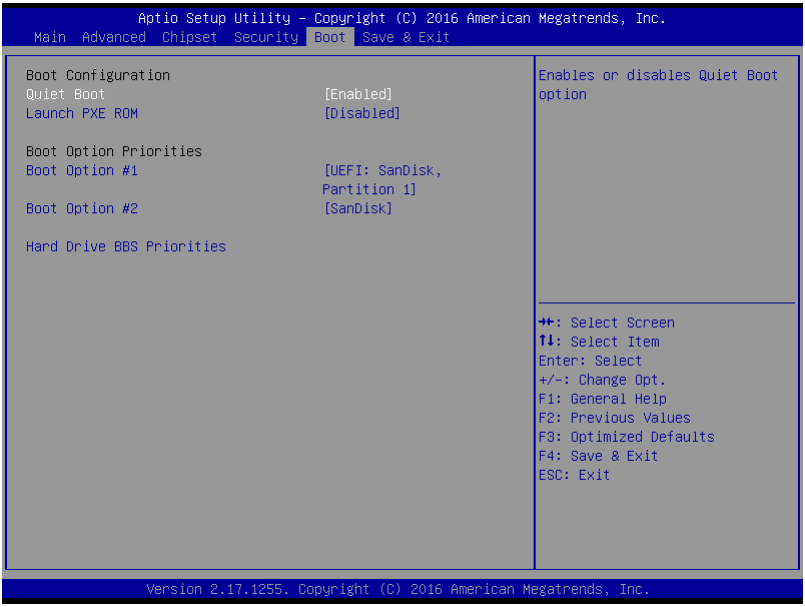
You can set an Administrator Password or User Password. An Administrator Password must be set before you can set a User Password. The password will be required during boot up, or when the user enters the Setup utility. A User Password does not provide access to many of the features in the Setup utility.

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

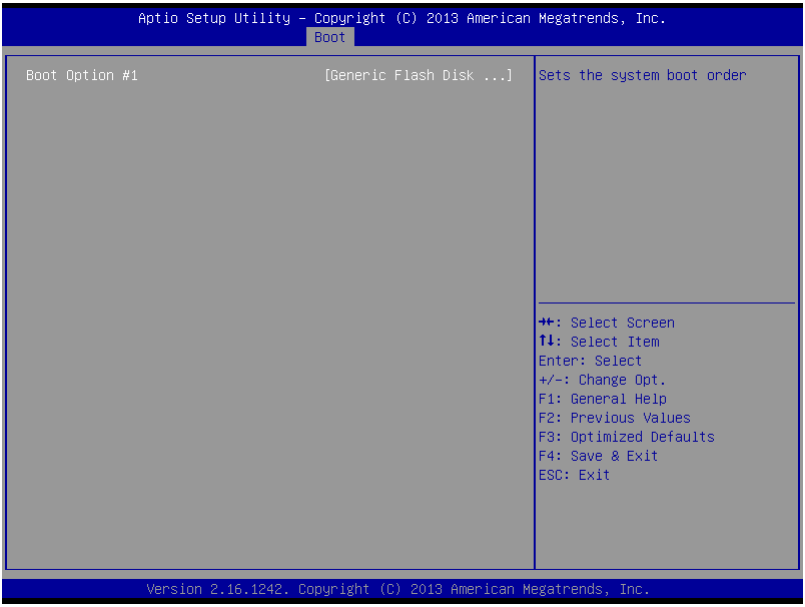
Select the password you want to remove and enter the current password. At the next dialog box press Enter to disable password protection.

3.7 Setup Submenu: Boot

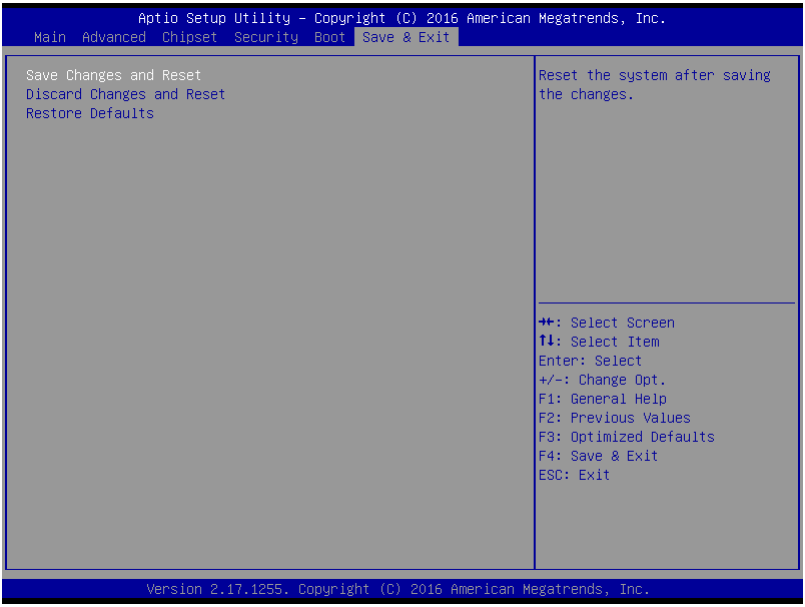


Options Summary		
Quiet Boot	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable showing boot logo.		
Launch PXE OpROM	Disabled	Optimal Default, Failsafe Default
	Enabled	
Controls the execution of UEFI and Legacy PXE OpROm		

3.7.1 BBS Priorities



3.8 Setup Submenu: Save & Exit



Chapter 4

Drivers Installation

4.1 Drivers Download and Installation

Drivers for the GENESYS-KBU6 can be downloaded from the product page on the AAEON website by following this link:

https://www.aaeon.com/en/p/3-and-half-inches-subcompact-boards-GENESYS-kbu6

Download the driver(s) you need and follow the steps below to install them.

Step 1 – Install Chipset Drivers

1. Open the **Step1 - Chipset** folder followed by **SetupChipset.exe**
2. Follow the instructions
3. Drivers will be installed automatically

Step 2 – Install Graphics Drivers

1. Open the **Step2 - Graphic** folder followed by **Setup.exe**
2. Follow the instructions
3. Drivers will be installed automatically

Step 3 – Install LAN Drivers

1. Click on the **Step3 - LAN** folder and select your OS
2. Open the**.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 4 – Install Audio Drivers

1. Open the **Step4 - Audio** folder followed by **Setup.exe**
2. Follow the instructions
3. Drivers will be installed automatically

Step 5 – Install PenMount Touch 6000 Driver

1. Open the **Step 5 - PenMount Touch 6000** folder followed by **Setup.exe**
2. Follow the instructions
3. Drivers will be installed automatically

Step 6 – Install Serial Port Drivers (Optional)

1. Click on the **Step 6 - Serial Port Driver (Optional)** folder followed by **setup.exe**
2. Follow the instructions
3. Drivers will be installed automatically

4.2 Note on EHCI

With the EHCI controller no longer available on the 6th Gen Intel® Core™ platforms or later, it is recommended to install Windows 7 through a SATA bus, i.e. SATA DVD-ROM, or patch the EHCI driver onto an installation media for Windows 7. More information can be found in the links below.

Windows 7 USB 3.0 Creator Utility

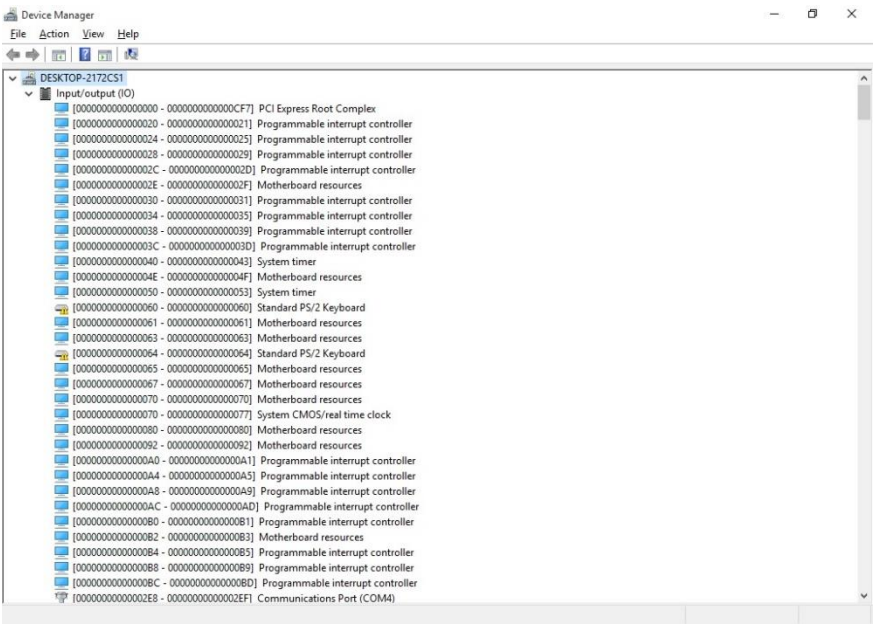
Read me

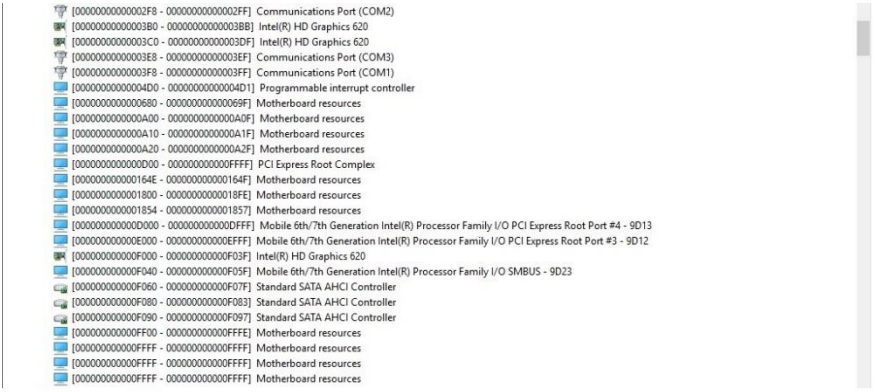
For input devices, please use an add-on standard EHCI controller expansion card, such as PCIe to USB 2.0 conversion card.

Appendix A

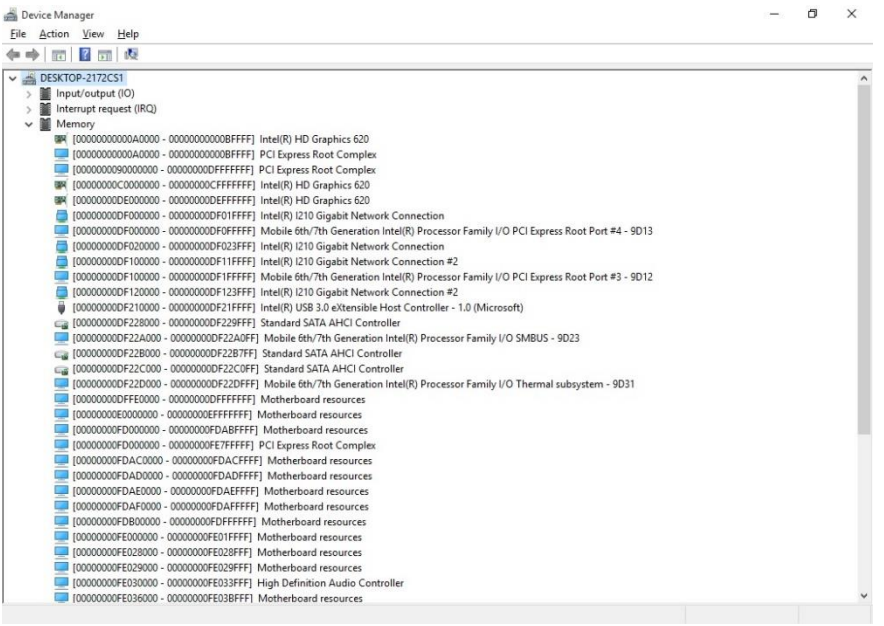
I/O Information

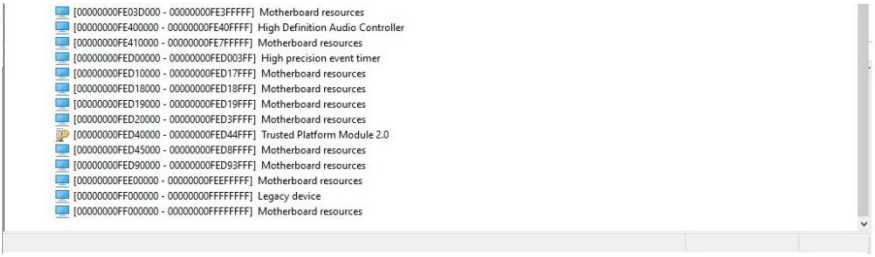
A.1 I/O Address Map



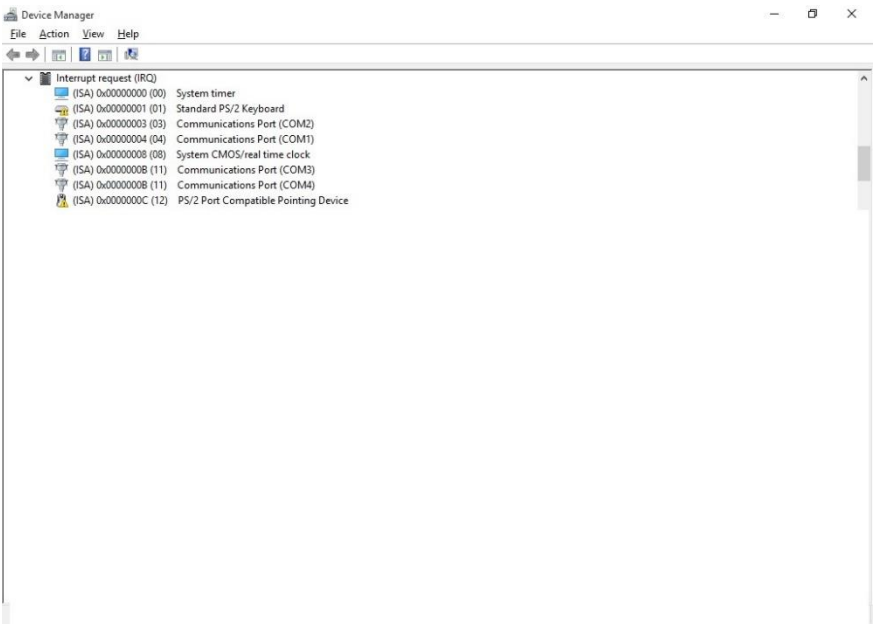

[00000000000002F8 - 00000000000002FF] Communications Port (COM2)
[00000000000003B0 - 00000000000003BB] Intel(R) HD Graphics 620
[00000000000003C0 - 00000000000003DF] Intel(R) HD Graphics 620
[00000000000003E8 - 00000000000003EF] Communications Port (COM3)
[00000000000003F8 - 00000000000003FF] Communications Port (COM1)
[00000000000004D0 - 00000000000004D1] Programmable interrupt controller
[0000000000000680 - 000000000000069F] Motherboard resources
[0000000000000A00 - 0000000000000A0F] Motherboard resources
[0000000000000A10 - 0000000000000A1F] Motherboard resources
[0000000000000A20 - 0000000000000A2F] Motherboard resources
[0000000000000D00 - 000000000000FFFF] PCI Express Root Complex
[000000000000164E - 000000000000164F] Motherboard resources
[0000000000001800 - 000000000000189F] Motherboard resources
[0000000000001854 - 0000000000001857] Motherboard resources
[000000000000D000 - 000000000000DFFF] Mobile 6th/7th Generation Intel(R) Processor Family I/O PCI Express Root Port #4 - 9D13
[000000000000E000 - 000000000000EFFF] Mobile 6th/7th Generation Intel(R) Processor Family I/O PCI Express Root Port #3 - 9D12
[000000000000F000 - 000000000000F03F] Intel(R) HD Graphics 620
[000000000000F040 - 000000000000F05F] Mobile 6th/7th Generation Intel(R) Processor Family I/O SMBUS - 9D23
[000000000000F060 - 000000000000F07F] Standard SATA AHCI Controller
[000000000000F080 - 000000000000F083] Standard SATA AHCI Controller
[000000000000F090 - 000000000000F097] Standard SATA AHCI Controller
[000000000000FF00 - 000000000000FFEF] Motherboard resources
[000000000000FFFF - 000000000000FFFF] Motherboard resources
[000000000000FFFF - 000000000000FFFF] Motherboard resources
[000000000000FFFF - 000000000000FFFF] Motherboard resources

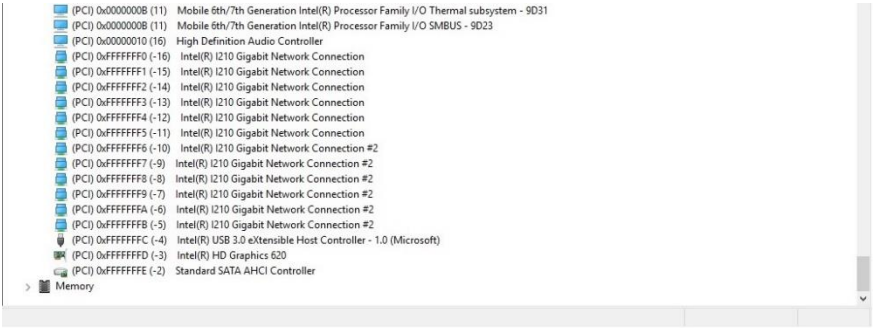
A.2 Memory Address Map




[00000000FE03D000 - 00000000FE3FFFFF] Motherboard resources
[00000000FE400000 - 00000000FE40FFFF] High Definition Audio Controller
[00000000FE410000 - 00000000FE7FFFFF] Motherboard resources
[00000000FED00000 - 00000000FED003FF] High precision event timer
[00000000FED10000 - 00000000FED17FFF] Motherboard resources
[00000000FED18000 - 00000000FED18FFF] Motherboard resources
[00000000FED19000 - 00000000FED19FFF] Motherboard resources
[00000000FED20000 - 00000000FED3FFFF] Motherboard resources
[00000000FED40000 - 00000000FED44FFF] Trusted Platform Module 2.0
[00000000FED45000 - 00000000FED8FFFF] Motherboard resources
[00000000FED90000 - 00000000FED93FFF] Motherboard resources
[00000000FEE00000 - 00000000FEEFFFFF] Motherboard resources
[00000000FF000000 - 00000000FFFFFFFF] Legacy device
[00000000FF000000 - 00000000FFFFFFFF] Motherboard resources

A.3 IRQ Mapping Chart




(PCI) 0x0000000B (11) Mobile 6th/7th Generation Intel(R) Processor Family I/O Thermal subsystem - 9D31
(PCI) 0x0000000B (11) Mobile 6th/7th Generation Intel(R) Processor Family I/O SMBUS - 9D23
(PCI) 0x00000010 (16) High Definition Audio Controller
(PCI) 0xFFFFFFF0 (-16) Intel(R) I210 Gigabit Network Connection
(PCI) 0xFFFFFFF1 (-15) Intel(R) I210 Gigabit Network Connection
(PCI) 0xFFFFFFF2 (-14) Intel(R) I210 Gigabit Network Connection
(PCI) 0xFFFFFFF3 (-13) Intel(R) I210 Gigabit Network Connection
(PCI) 0xFFFFFFF4 (-12) Intel(R) I210 Gigabit Network Connection
(PCI) 0xFFFFFFF5 (-11) Intel(R) I210 Gigabit Network Connection
(PCI) 0xFFFFFFF6 (-10) Intel(R) I210 Gigabit Network Connection #2
(PCI) 0xFFFFFFF7 (-9) Intel(R) I210 Gigabit Network Connection #2
(PCI) 0xFFFFFFF8 (-8) Intel(R) I210 Gigabit Network Connection #2
(PCI) 0xFFFFFFF9 (-7) Intel(R) I210 Gigabit Network Connection #2
(PCI) 0xFFFFFFFA (-6) Intel(R) I210 Gigabit Network Connection #2
(PCI) 0xFFFFFFFB (-5) Intel(R) I210 Gigabit Network Connection #2
(PCI) 0xFFFFFFFC (-4) Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
(PCI) 0xFFFFFFFD (-3) Intel(R) HD Graphics 620
(PCI) 0xFFFFFFFE (-2) Standard SATA AHCI Controller
Memory

Appendix B

Electrical Specifications for I/O Ports

B.1 Electrical Specifications for I/O Ports

I/O Port	Reference	Signal Name	Rate Output
DVI Port	CN3	+5V	+5V/1A (reserved)
DP port	CN5	+3.3V	+3.3V/1A
Mini-Card Slot (Full-Mini Card)	CN11	+3.3VSB +1.5V	+3.3V/1.1A +1.5V/0.375A
Mini-Card Slot (Half-Mini Card)	CN13	+3.3VSB +1.5V	+3.3V/1.1A +1.5V/0.375A
+5V Output for SATA HDD	CN15	+5V	+5V/1A
USB 3.0 Ports	CN18	+5VSB	+5V/1A (per channel)
USB 3.0 Ports	CN19	+5VSB	+5V/1A (per channel)
USB 2.0 Ports	CN20	+5VSB	+5V/0.5A (per channel)
USB 2.0 Ports	CN21	+5VSB	+5V/0.5A (per channel)
Digital IO Port	CN24	+5V	+5V/1A
COM Port 2	CN27	+5V/+12V	+5V/0.5A or +12V/0.5A
LPC Port	CN29	+3.3V	+3.3V/0.5A
CPU FAN	CN36	+12V	+12V/0.5A

Appendix C

List of Mating Connectors and Cables

C.1 Connector and Cable Specifications

Connector Label	Function	Mating Connector		Available Cable	Cable P/N
		Vendor	Model no.		
CN1	External RTC Connector	Molex	51021-0200	Battery Cable	175011901C
CN14	SATA Connector	Molex	88750-5318	SATA Cable	170X000085
CN15	+5Vout Connector	JST	PHR-2	2 Pins for HDD Power	1702150155
CN20	USB Port Connector	Molex	51021-0500	USB Wafer Cable	1709080254
CN21	USB Port Connector	Molex	51021-0500	USB Wafer Cable	1709080254
CN25	COM Port 1 Connector	Molex	51021-0900	Serial Port Cable	1701090201
CN27	COM Port 2 Connector	Molex	51021-0900	Serial Port Cable	1701090201
CN30	+9~24V Vin Connector	N/A	N/A	Power Cable	1702030200