

GENESYSM-TGU6

GENESYSM Compact Embedded System

User's Manual 1st Ed

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Packing List

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

Item	Quantity
GENESYSM-TGU6	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 at 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.**

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.

产品中有毒有害物质或元素名称及含量

AAEON System

QO4-381 Rev.A0

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。

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)

Hazardous and Toxic Materials List

AAEON System

QQ4-381 Rev.A0

Component Name	Hazardous or Toxic Materials or Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated biphenyls (PBBS)	Polybrominated ethers (PBDES)
PCB and Components	X	○	○	○	○	○
Wires & Connectors for Ext.Connections	X	○	○	○	○	○
Chassis	○	○	○	○	○	○
CPU & RAM	X	○	○	○	○	○
HDD Drive	X	○	○	○	○	○
LCD Module	X	○	○	○	○	○
Optical Drive	X	○	○	○	○	○
Touch Control Module	X	○	○	○	○	○
PSU	X	○	○	○	○	○
Battery	X	○	○	○	○	○

This form is prepared in compliance with the provisions of SJ/T 11364.
 ○: The level of toxic or hazardous materials present in this component and its parts is below the limit specified by GB/T 26572.
 X: 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).

Notes:

1. The Environment Friendly Use Period indicated by labelling on this product is applicable only to use under normal conditions.
2. Individual components including the CPU, RAM/memory, HDD, optical drive, and PSU are optional.
3. LCD Module and Touch Control Module only applies to certain products which feature these components.

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Chapter 1

Product Specifications

1.1 Specifications

System

Form Factor	3.5" SubCompact Board System
CPU	Intel® 11th Generation Core™/Celeron CPU i7-1185G7E (4C/8T, 1.80GHz, up to 4.40GHz, TDP-up 28W) i5-1145G7E (4C/8T, 1.50GHz, up to 4.10GHz, TDP-up 28W) i3-1115G4E (2C/4T, 2.20GHz, up to 3.90GHz, TDP-up 28W) Celeron® 6305E (2C/2T, 1.80GHz, TDP 15W)
Chipset	Integrated with Intel® SoC
Memory Type	DDR4 up to 3200MHz, Dual Channel SODIMM x 2, up to 64GB, supports IBECC (selected SKUs)
BIOS	UEFI
Wake on LAN	Yes
Watchdog Timer	255 Levels
Security	TPM 2.0
RTC Battery	Lithium Battery 3V/240mAh
Dimension	7.00" x 5.28" x 1.97" (178.0mm x 134.1mm x 50.0mm)
OS Support	Windows 10 (64bit) Linux Ubuntu 20.04.3(IOT)/Kernel 5.13

Power

Power Requirement	+9-36V (Optional +12V)
Power Supply Type	ATX
Connector	DC Jack Connector
Power Consumption	Intel® i7-1185G7E, DDR4 3200MHz 32GB x 2, 4.96A@ +12V (typical) Intel® i7-1185G7E, DDR4 3200MHz 32GB x 2, 7.32A@ +12V (max)

Display

Controller	Intel® Iris® Xe Graphics Intel® UHD Graphics
Display Interface	HDMI 2.0b x 1 DP 1.4 x 2 Type-C DP 1.4 x 1
Multiple Display	Up to 4 Simultaneous Displays

Audio

Codec	Realtek ALC897/892
Audio Interface	Line-in/Line-out/MIC (optional)
Speaker	-

External I/O

Ethernet	Intel® i219, 10/100/1000Base, RJ-45 x 1
	Intel® i225/i226, 10/100/2500Base, RJ-45 x 1
USB	USB 3.2 Gen 2 x 4
	USB 3.2 Gen 2 Type C x 1 (PD 5V/3A)
	USB 2.0 x 2
Serial Port	COM1 (RS232/422/485)
	COM2 (RS232/422/485, supports 5V/12V/RI)
Video	HDMI 2.0b x 1
	DP 1.4 x 2
	Type-C DP 1.4 x 1

Internal I/O

USB	-
Serial Port	-
Video	-
SATA	SATA III x 1
	+5V SATA Power Connector x 1
Audio	Audio Header x 1
DIO/GPIO	-
SMBus/I2C	SMBus/I2C x 1 (Default: SMBus)
Touch	-
Fan	4-Pin Smart Fan x 1
SIM	Nano SIM x 1
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset
Others	-

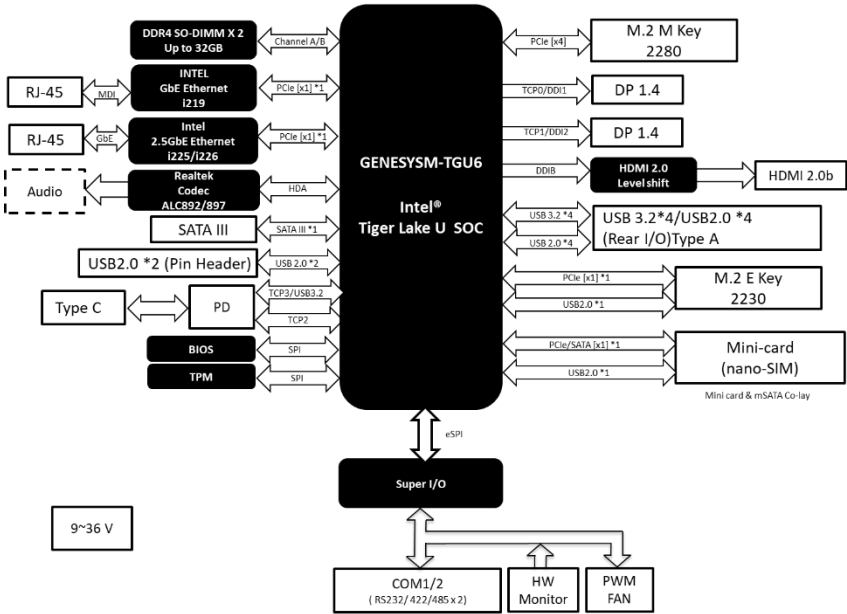
Expansion

Mini PCI-E/mSATA	Full-Sized mSATA/mPCIe x 1 (default: mSATA, select with BIOS)
M.2	M-Key 2280 x 1 (PCIex4) E-Key 2230 x 1 (PCIe, USB 2.0)
Others	-

Environment

Operating Temperature	32°F ~ 122°F (0°C ~ 50°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (HOURS)	329,884
EMC	CE/FCC Class A

1.2 Block Diagram

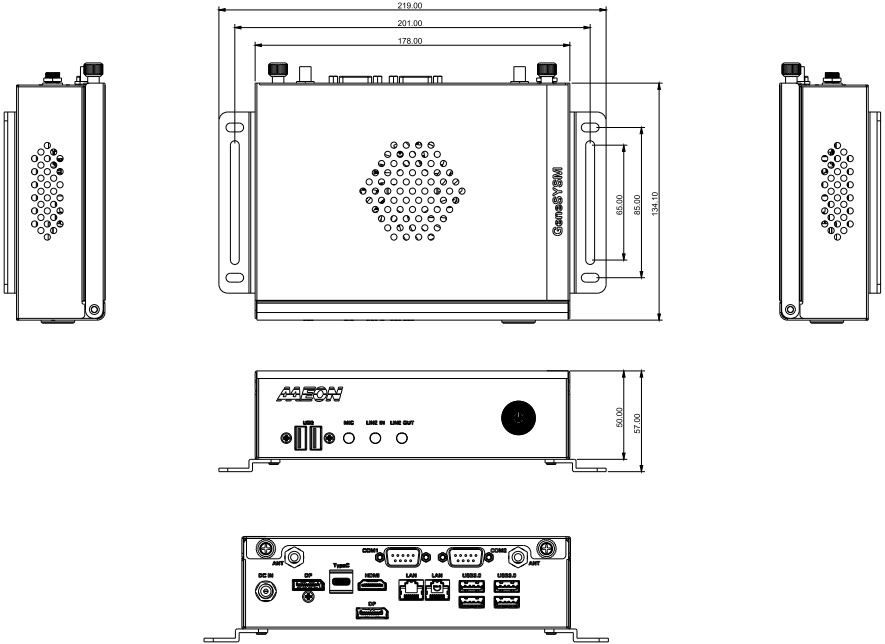


Chapter 2

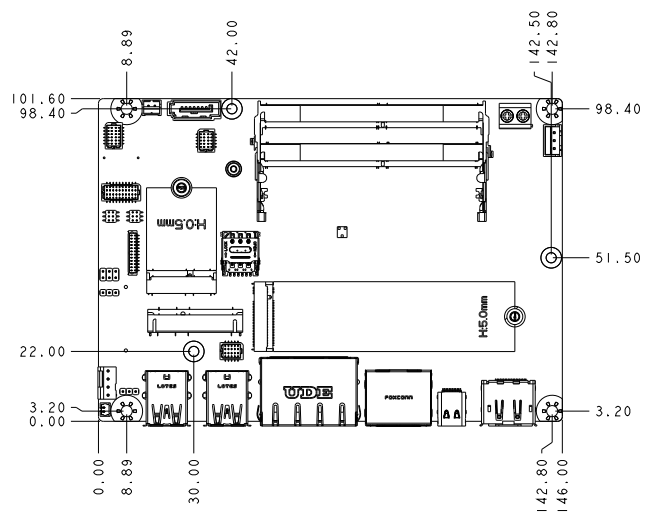
Hardware Information

2.1 Dimensions

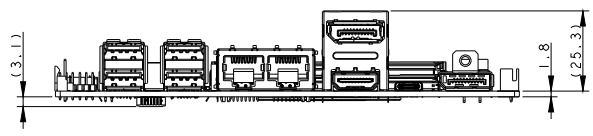
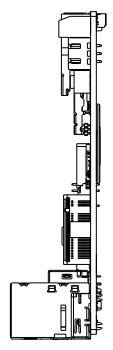
System



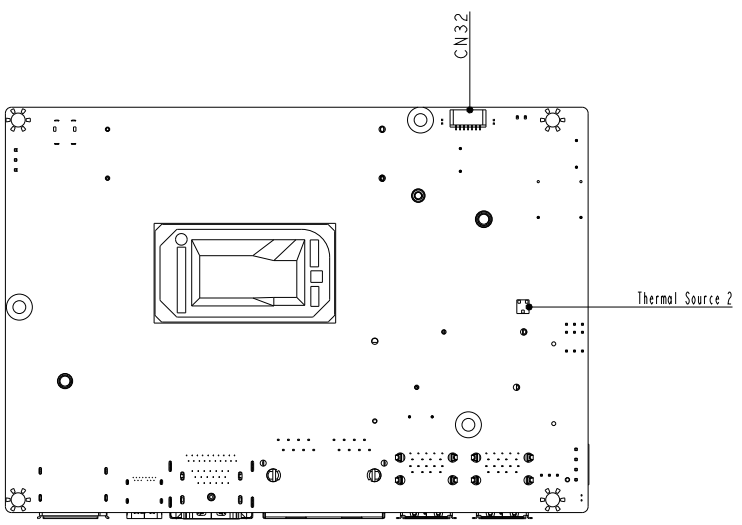
Board



Component Side



Solder Side:

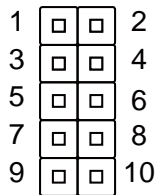


2.3 List of Jumpers

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

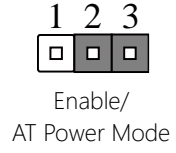
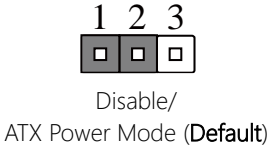
Label	Function
JP1	Front Panel Connector
JP3	Auto Power Button Enable/ Disable Selection
JP4	COM2 Pin 8 Function Selection
JP7	Clear CMOS Jumper

2.3.1 Front Panel Connector (JP1)

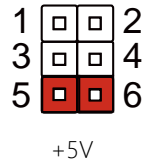
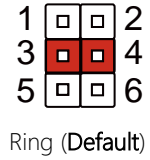
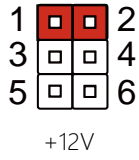


Pin	Function	Pin	Function
Pin 1	PWR_BTN-	Pin 2	PWR_BTN+
Pin 3	HDD_LED-	Pin 4	HDD_LED+
Pin 5	SPEAKER-	Pin 6	SPEAKER+
Pin 7	PWR_LED-	Pin 8	PWR_LED+
Pin 9	H/W RESET-	Pin 10	H/W RESET+

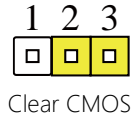
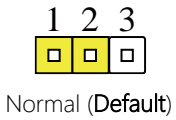
2.3.2 Auto Power Button Enable/Disable Selection (JP3)



2.3.3 COM2 Pin8 Function Selection (JP4)



2.3.4 Clear CMOS Jumper (JP7)



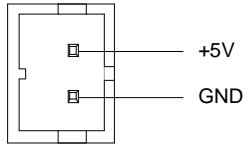
2.4 List of Connectors

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

Label	Function
CN1	+5V Output for SATA HDD
CN2	SATA Port
CN3	External Power Input
CN5	Audio I/O Port
CN6	External +5VSB Input
CN7	DDR4 SO-DIMM Slot
CN10	Mini Card Slot (Full-Size)
CN11	DDR4 SO-DIMM Slot
CN12	M.2 E-Key 2230
CN13	COM Port 1, Port 2; RS232/422/485 Dual Port Header
CN16	eSPI Debug Port
CN19	Nano SIM Card Socket
CN21	USB2.0 Port 5, Port 6; Dual Port Header
CN23	CPU Fan
CN26	USB3.2 Gen 2 Port 1, Port 2, Dual Port Connector
CN27	LAN (RJ-45) Dual Port Connector; i225/i226 (left), i219 (right)
CN28	DP Connector
CN29	DP and HDMI Connector
CN30	Type C Connector
CN31	Battery Connector
CN32	SPI BIOS Debug Port

Label	Function
CN33	M.2 M-Key 2280
CN35	USB3.2 Gen 2 Port 3, Port 4, Dual Port Connector
CN36	i219 LED Connector
CN37	i225/i226 LED Connector

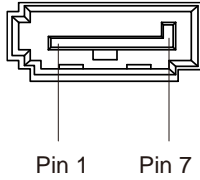
2.4.1 +5V Output for SATA HDD (CN1)



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

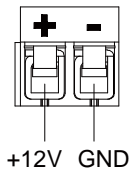
Note: Max current for Pin 1 is 1 Amp.

2.4.2 SATA Port (CN2)



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	-

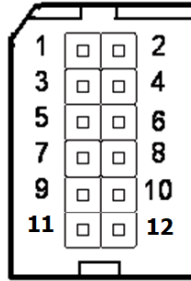
2.4.3 External Power Input (CN3)



Pin	Pin Name	Signal Type	Signal Level
1	+12V	PWR	+9~+36V (or +12V) at 8A
2	GND	GND	-

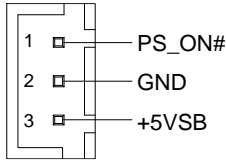
Note: There are two types of power input, 9~36V or 12V (by BOM option).

2.4.4 Audio I/O Port (CN5)



Pin	Pin Name	Signal Type
1	LOUT_R	OUT
2	MIC_R	IN
3	LOUT_L	OUT
4	MIC_L	IN
5	JD_LOUT	IN
6	JD_MIC	IN
7	AUD_GND	GND
8	AUD_GND	GND
9	JD_LIN	IN
10	LIN_R	IN
11	+VDD_AUD	PWR
12	LIN_L	IN

2.4.5 External +5VSB Input (CN6)



Pin	Pin Name	Signal Type	Signal Level
1	PS_ON#	OUT	+5V
2	GND	GND	-
3	+5VSB	PWR	+5V at 2A

2.4.6 DDR SO-DIMM Slot (CN7)

Standard Specifications.

2.4.7 Mini Card Slot (Full-Size) (CN10)

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

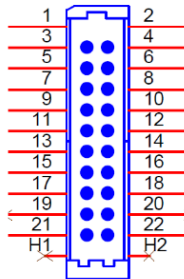
2.4.8 DDR SO-DIMM Slot (CN11)

Standard Specifications.

2.4.9 M.2 E-Key 2230 (CN12)

Standard Specifications.

2.4.10 COM Port 1, Port 2 Dual Header (CN13)



RS-232

Pin	Pin	Pin Name	Signal Type	Signal Level
1	2	DCD	IN	-
3	4	RX	IN	-
5	6	TX	OUT	±5V
7	8	DTR	OUT	±5V
9	10	GND	GND	-
11	12	DSR	IN	-

Pin	Pin	Pin Name	Signal Type	Signal Level
13	14	RTS	OUT	±5V
15	16	CTS	IN	-
17	18	RI/+5V/+12V	IN	-
19	20	NC	-	-

Note: RI/+5V/+12V for COM2 only.

RS-485				
Pin	Pin	Pin Name	Signal Type	Signal Level
1	2	RS485_D-	I/O	±5V
3	4	RS485_D+	I/O	±5V
5	6	NC	-	-
7	8	NC	-	-
9	10	GND	GND	-
11	12	NC	-	-
13	14	NC	-	-
15	16	NC	-	-
17	18	NC	-	-
19	20	NC	-	-

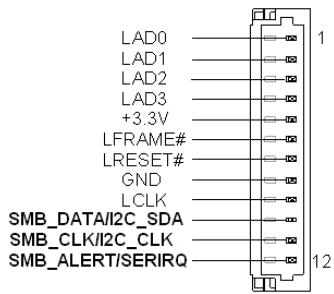
RS-422				
Pin	Pin	Pin Name	Signal Type	Signal Level
1	2	RS422_TX-	OUT	+5V
3	4	RS422_TX+	OUT	±5V
5	6	RS422_RX+	IN	-
7	8	RS422_RX-	IN	-

Pin	Pin	Pin Name	Signal Type	Signal Level
9	10	GND	GND	-
11	12	NC	-	-
13	14	NC	-	-
15	16	NC	-	-
17	18	NC	-	-
19	20	NC	-	-

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 JP4 (See Ch 2.3.4).

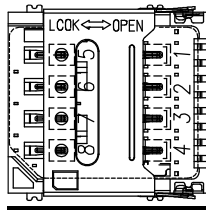
2.4.11 eSPI Debug Port (CN16)



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

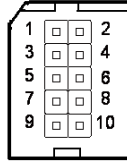
Pin	Pin Name	Signal Type	Signal Level
8	GND	GND	-
9	LCLK	OUT	-
10	SMB_DATA/I2C_SDA	I/O	-
11	SMB_CLK/I2C_CLK	OUT	-
12	SMB_ALERT/SERIRQ	IN	+3.3V

2.4.12 Nano SIM Card Socket (CN19)



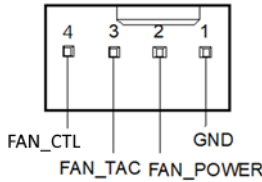
Pin	Pin Name	Signal Type	Signal Level
1	UIM_PWR	PWR	-
2	UIM_RST	IN	-
3	UIM_CLK	IN	-
4	NC	-	-
5	GND	GND	-
6	UIM_VPP	PWR	-
7	UIM_DATA	I/O	-
8	NC	-	-

2.4.13 USB 2.0 Port 5, Port 6 Dual Header (CN21)



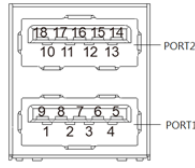
USB Port 5		USB Port 6	
Pin	Pin Name	Pin	Pin Name
1	+5VSB (0.5A)	2	+5VSB (0.5A)
3	USB5_D-	4	USB6_D-
5	USB5_D+	6	USB6_D+
7	GND	8	GND
9	GND	10	GND

2.4.14 CPU Fan (CN23)



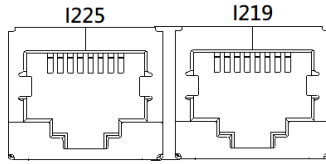
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	-
2	FAN_POWER	PWR	+12V at 1A
3	FAN_TAC	IN	-
4	FAN_CTL	-	-

2.4.15 USB 3.2 Gen 2 Ports 1 & 2 Dual Connector (CN26)



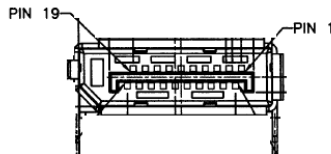
Pin	Pin Name	Signal Type	Signal Level
1	+5VSB	PWR	+5V at 0.9A
2	USB0_D-	DIFF	-
3	USB0_D+	DIFF	-
4	GND	GND	-
5	USB0_SSRX-	DIFF	-
6	USB0_SSRX+	DIFF	-
7	GND	GND	-
8	USB0_SSTX-	DIFF	-
9	USB0_SSTX+	DIFF	-
10	+5VSB	PWR	+5V at 0.9A
11	USB1_D-	DIFF	-
12	USB1_D+	DIFF	-
13	GND	GND	-
14	USB1_SSRX-	DIFF	-
15	USB1_SSRX+	DIFF	-
16	GND	GND	-
17	USB1_SSTX-	DIFF	-
18	USB1_SSTX+	DIFF	-

2.4.16 LAN (RJ-45) Dual Port i225/i226 and i219 (CN27)



i225/i226		i219	
Pin	Pin Name	Pin	Pin Name
1P1	LAN2_MDI0_P	2P1	LAN1_MDI0_P
1P2	LAN2_MDI0_N	2P2	LAN1_MDI0_N
1P3	LAN2_MDI1_P	2P3	LAN1_MDI1_P
1P4	LAN2_MDI1_N	2P4	LAN1_MDI1_N
1P7	LAN2_MDI2_P	2P7	LAN1_MDI2_P
1P8	LAN2_MDI2_N	2P8	LAN1_MDI2_N
1P9	LAN2_MDI3_P	2P9	LAN1_MDI3_P
1P10	LAN2_MDI3_N	2P10	LAN1_MDI3_N

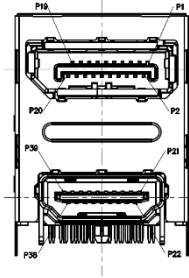
2.4.17 DP Connector (CN28)



Pin	Pin Name	Signal Type	Signal Level
1	DP1_TX0_DP	DIFF	-
2	GND	GND	-

Pin	Pin Name	Signal Type	Signal Level
3	DP1_TX0_DN	DIFF	-
4	DP1_TX1_DP	DIFF	-
5	GND	GND	-
6	DP1_TX1_DN	DIFF	-
7	DP1_TX2_DP	DIFF	-
8	GND	GND	-
9	DP1_TX2_DN	DIFF	-
10	DP1_TX3_DP	DIFF	-
11	GND	GND	-
12	DP1_TX3_DN	DIFF	-
13	GND	GND	-
14	GND	GND	-
15	DP1_AUX_DP	I/O	-
16	GND	GND	-
17	DP1_AUX_DN	I/O	-
18	DP1_HPDP	I/O	-
19	GND	GND	-
20	+V3P3S	PWR	+3.3V

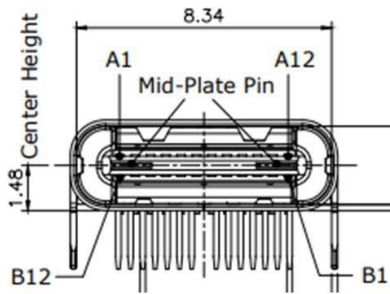
2.4.18 DP + HDMI Connector (CN29)



Pin	Pin Name	Signal Type	Signal Level
DP Port			
1	DP2_TX0_DP	DIFF	-
2	GND	GND	-
3	DP2_TX0_DN	DIFF	-
4	DP2_TX1_DP	DIFF	-
5	GND	GND	-
6	DP2_TX1_DN	DIFF	-
7	DP2_TX2_DP	DIFF	-
8	GND	GND	-
9	DP2_TX2_DN	DIFF	-
10	DP2_TX3_DP	DIFF	-
11	GND	GND	-
12	DP2_TX3_DN	DIFF	-
13	GND	GND	-
14	GND	GND	-
15	DP2_AUX_DP	I/O	-
16	GND	GND	-

Pin	Pin Name	Signal Type	Signal Level
17	DP2_AUX_DN	I/O	-
18	DP2_HPDP	I/O	-
19	GND	GND	-
20	+V3P3S	PWR	+3.3V
HDMI Port			
21	HDMI_TX2+	DIFF	-
22	GND	GND	-
23	HDMI_TX2-	DIFF	-
24	HDMI_TX1+	DIFF	-
25	GND	GND	-
26	HDMI_TX1-	DIFF	-
27	HDMI_TX0+	DIFF	-
28	GND	GND	-
29	HDMI_TX0-	DIFF	-
30	HDMI_CLK+	DIFF	-
31	GND	GND	-
32	HDMI_CLK-	DIFF	-
33	NC	-	-
34	NC	-	-
35	DDC_CLK	I/O	+5V
36	DDC_DATA	I/O	+5V
37	GND	GND	-
38	+5V	PWR	+5V
39	HDMI_HPDP	-	-

2.4.19 USB Type C (CN30)

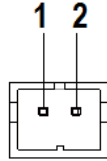


Pin	Pin Name	Signal Type	Signal Level
A1	GND	GND	GND
A2	TCP2_TX0_DP	DIFF	-
A3	TCP2_TX0_DN	DIFF	-
A4	+5VSB	PWR	+5V
A5	CONN_CC1	IN	-
A6	USB2_8_DP	DIFF	-
A7	USB2_8_DN	DIFF	-
A8	CONN_TYPEC1_SBU1	DIFF	-
A9	+5VSB	PWR	+5V
A10	TCP2_TXRX1_DN	DIFF	-
A11	TCP2_TXRX1_DP	DIFF	-
A12	GND	GND	GND
B1	GND	GND	GND
B2	TCP2_TX1_DP	DIFF	-
B3	TCP2_TX1_DN	DIFF	-
B4	+5VSB	PWR	+5V
B5	CONN_TYPEC1_CC2	IN	-

Pin	Pin Name	Signal Type	Signal Level
B6	USB2_8_DP	DIFF	-
B7	USB2_8_DN	DIFF	-
B8	CONN_TYPEC1_SBU2	DIFF	-
B9	+5VSB	PWR	+5V
B10	TCP2_TXRX0_DN	DIFF	-
B11	TCP2_TXRX0_DP	DIFF	-
B12	GND	GND	GND

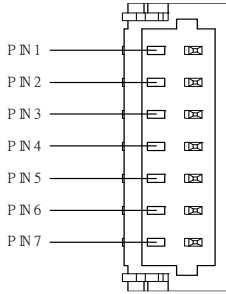
Note: Type C Power current support => 5V/3A

2.4.20 Battery Connector (CN31)



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

2.4.21 SPI BIOS Debug Port (CN32)

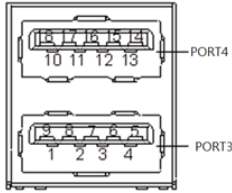


Pin	Pin Name	Signal Type	Signal Level
1	SPI_MISO	OUT	-
2	GND	GND	-
3	SPI_CLK	IN	-
4	+3.3VSB	PWR	+3.3V
5	SPI_MOSI	IN	-
6	SPI_CS	IN	-
7	NC	-	-

2.4.22 M.2 M-Key 2280 Slot (CN33)

Standard specifications.

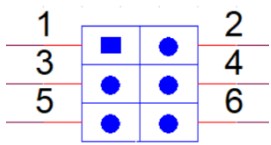
2.4.23 USB3.2 Gen 2 Ports 3 & 4 Dual Connector (CN35)



Pin	Pin Name	Signal Type	Signal Level
1	+5VSB	PWR	+5V at 0.9A
2	USB2_D-	DIFF	-
3	USB2_D+	DIFF	-
4	GND	GND	-
5	USB2_SSRX-	DIFF	-
6	USB2_SSRX+	DIFF	-
7	GND	GND	-
8	USB2_SSTX-	DIFF	-
9	USB2_SSTX+	DIFF	-
10	+5VSB	PWR	+5V at 0.9A
11	USB3_D-	DIFF	-
12	USB3_D+	DIFF	-
13	GND	GND	-
14	USB3_SSRX-	DIFF	-
15	USB3_SSRX+	DIFF	-

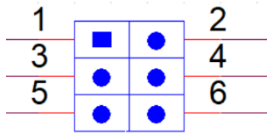
Pin	Pin Name	Signal Type	Signal Level
16	GND	GND	-
17	USB3_SSTX-	DIFF	-
18	USB3_SSTX+	DIFF	-

2.4.24 i219 LED Connector (CN36)



Pin	Pin Name	Signal Type	Signal Level
1	LINK_ACT#	IO	-
2	+V3P3A	PWR	+3.3V
3	LAN_1000#	IO	-
4	LAN_100#	IO	-
5	LAN_100#	IO	-
6	LAN_1000#	IO	-

2.4.25 i225/i226 LED Connector (CN37)



Pin	Pin Name	Signal Type	Signal Level
1	LINK_ACT#	IO	-
2	+V3P3A	PWR	+3.3V
3	LAN_2500#	IO	-
4	LAN_1000#	IO	-
5	LAN_1000#	IO	-
6	LAN_2500#	IO	-

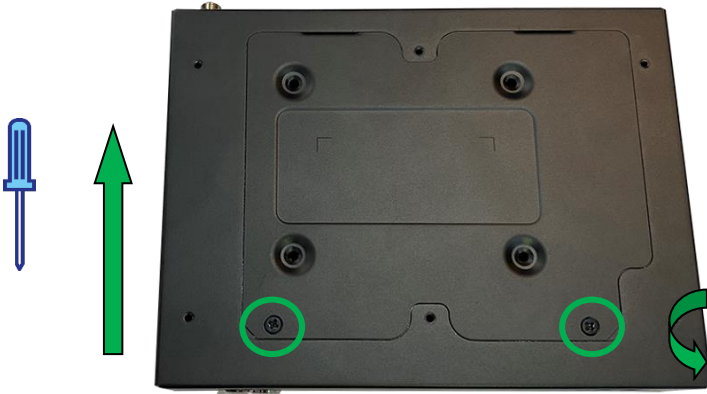
2.5 Hardware Installation

This section details the steps needed to install various hardware components for the GENESYSM-TGU6. It is recommended that you read through each step before beginning installation and to make sure you have all necessary tools and components.

2.5.1 Accessing the Bottom Panel

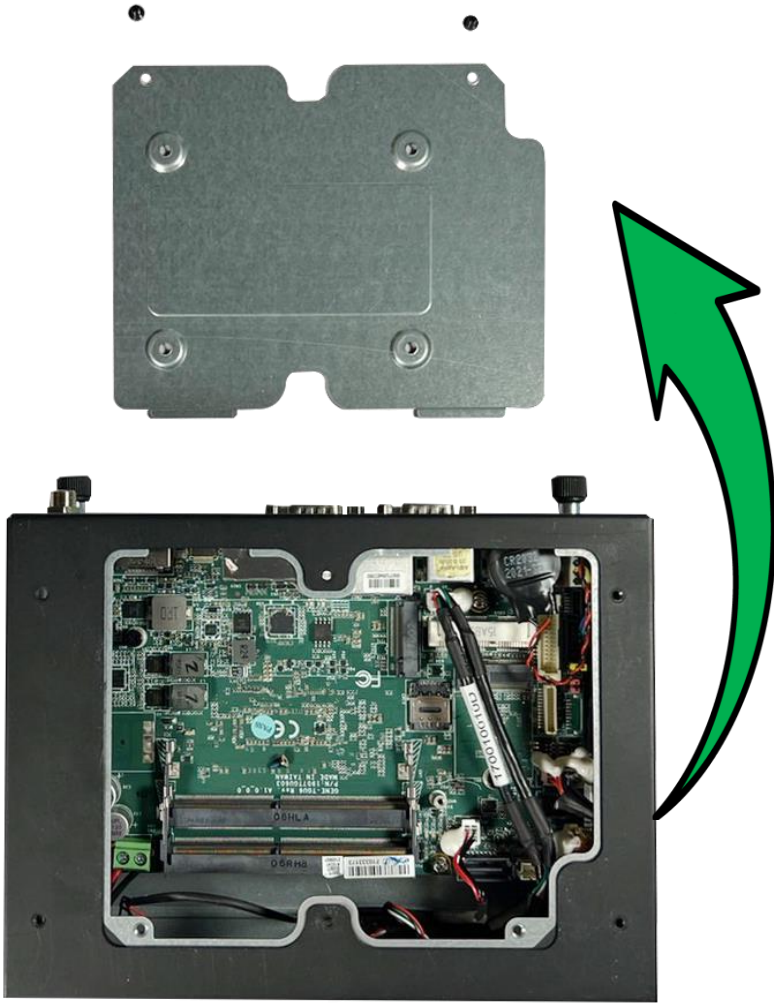
For this process you will need a Phillips head screwdriver.

Step 1: Remove the two black screws securing the bottom panel.



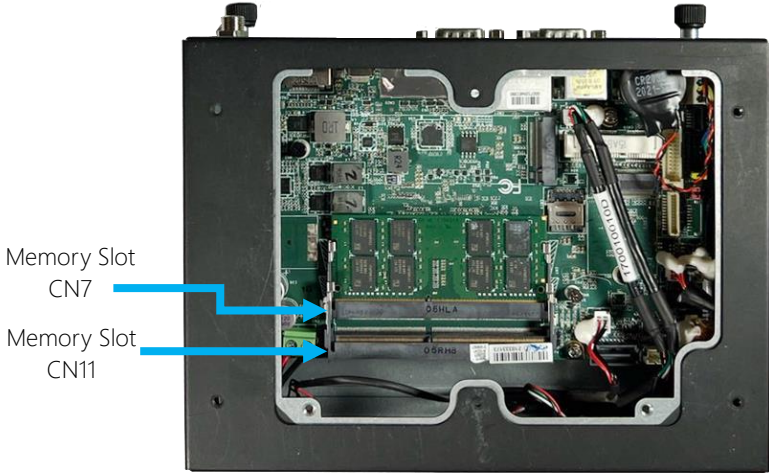
Step 2: The bottom panel will lift up and swing toward the rear panel of the system, then can be removed.

Note: Be careful when opening if you have previously installed a 2.5" SATA Drive.



2.5.2 RAM Module Installation

Before you begin, make sure you have the RAM module(s) you wish to install ready.



Step 1: Insert the RAM module in the DDR SO-DIMM Slot (CN7) at about 45° angle, then gently press down until it is secured by the tabs.



Step 2: Repeat for the second DDR module in Slot CN11.

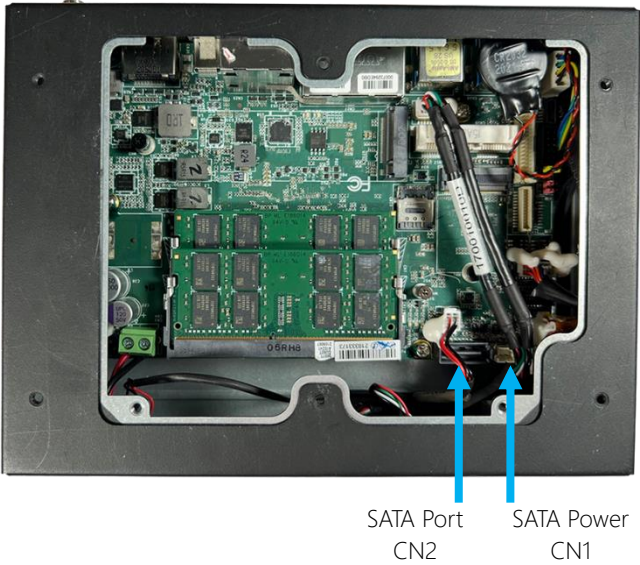


2.5.3 2.5" SATA Drive Installation

Before beginning, make sure you have the following prepared:

- SATA Drive x 1
- Black Screws x 4 (to mount 2.5" drive)
- SATA Cable x 1
- SATA Power Cable x 1
- Phillips head screwdriver

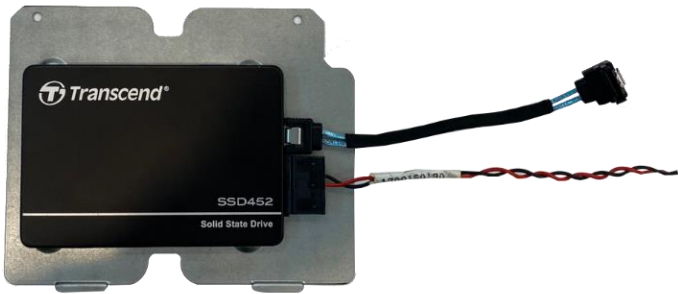
Please note the location of the SATA Port (CN2) and SATA Power connector (CN1)



Step 1: Connect the SATA and SATA Power cables to the 2.5" drive.



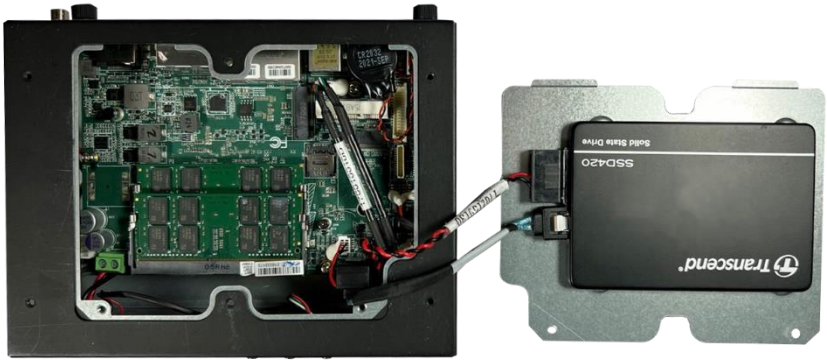
Step 2: Line up the mounting holes on the SATA drive with the four mounting points on the bottom panel. Note the orientation of the cables.



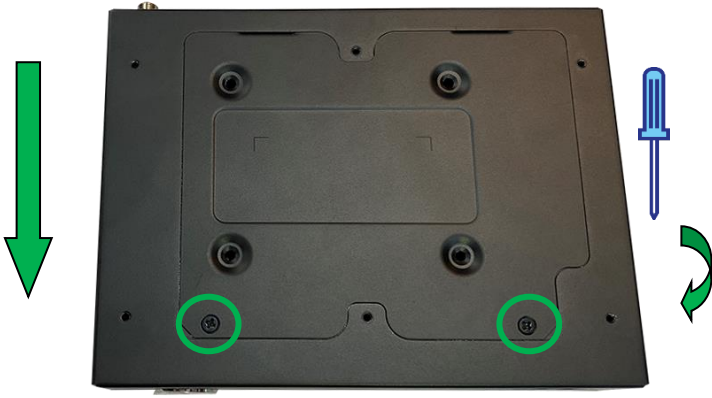
Step 3: Secure the drive with four black mounting screws.



Step 4: Insert the SATA Cable into CN2 and SATA Power Cable into CN1.



If you are finished with hardware installation, replace the back panel and secure with two black screws. Otherwise, continue to the next section for COM Port installation.



2.5.4 COM Port Installation

Before beginning installation, please ensure you have the following:

- COM Port Connector with cables x 1
- Jack standoffs x 4 (two included with each COM Port Connector)
- Phillips head screwdriver

Note: This procedure will require opening both the top and bottom panels. Take care if you have already installed the 2.5" SATA drive.

Please note the location of the COM Port 1, Port 2 , Dual Port Header (CN13) connector and knockouts.

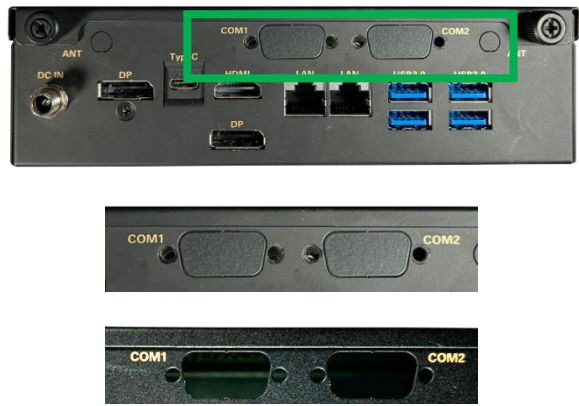


COM Port 1,
Port 2
(Dual Port
Header)
CN13

Step 1: Hand loosen the spring mounted case screws securing the top panel to the rear panel of the system. The top panel will swing open towards the front panel.



Step 2: Remove the COM Port knockouts by pushing with a finger or tool.



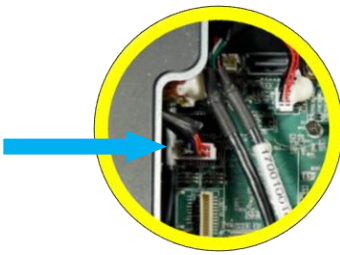
Step 3: Fasten the COM Port Connectors to the appropriate knockouts using the four jack standoffs. Then, feed the cables around the side of the heatsink and board as shown.



Step 4: Access the bottom side of the board. Carefully route the cables around the board and connect to the appropriate board connector. It may help to do each cable one at a time to ensure the ports are connected correctly.



COM Port Connector



Step 5: Reattach the bottom panel and secure with two black screws. Then, close and secure the top panel with the spring attached thumb screws.



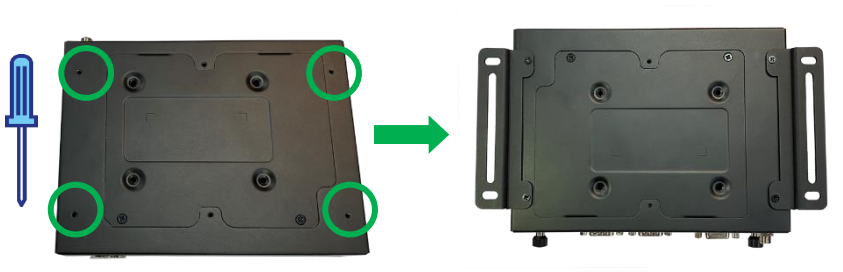
2.5.5 Wallmount Assembly

Before beginning, ensure all panels on the system are secured. Then make sure you have to following components ready:

- Wallmount brackets x 2
- Black screws x 4 (two for each bracket)
- Phillips head screwdriver



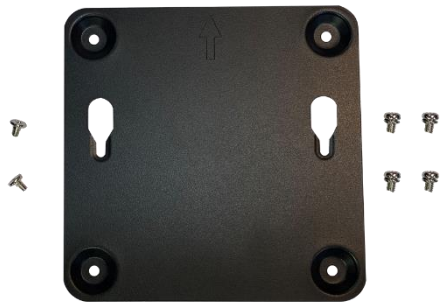
Line up the brackets with the four open holes on the bottom panel of the system as shown, then secure brackets with the four screws.



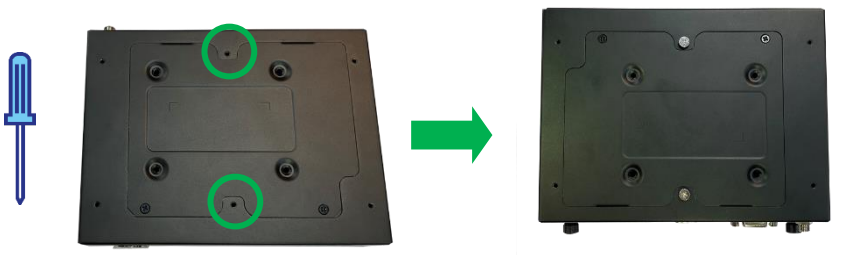
2.5.6 VESA Mount Installation

Before beginning, ensure all panels on the system are secured. Then make sure you have to following components ready:

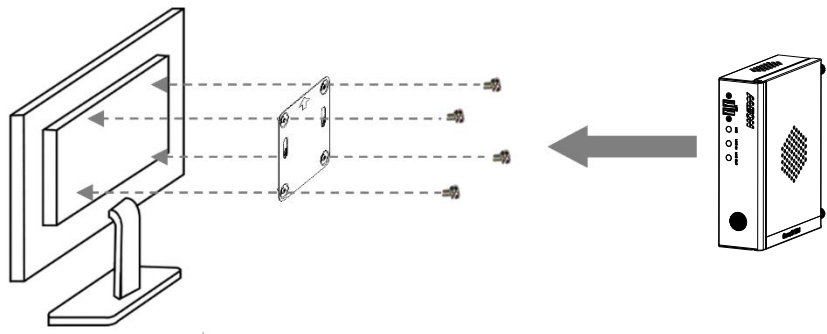
- Silver screws with washers x 4 (rounded head)
- VESA Mount screws x 2 (head is flat)
- VESA Mount x 1
- Phillips head screwdriver



Insert VESA mount 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. Mount the bracket to a surface or the back of a display/monitor with VESA attachment points. Use the four silver screws with washers to secure the bracket to the back of the monitor with the arrow pointing up. Then, attach the system to the VESA mount.



Chapter 3

AMI BIOS Setup

3.1 System Test and Initialization

The GENESYSM-TGU6 uses certain routines to perform testing and initialization during the boot up sequence. If an error, fatal or non-fatal, is encountered, the module will output a few short beeps or display an error message. The module 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 module will load the default configuration and reboot automatically.

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

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

The system CMOS memory has an integral lithium battery backup for data retention. You will need to replace the battery unit when it runs down.

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 or <ESC> 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 – Access advanced hardware settings and Hardware Monitor

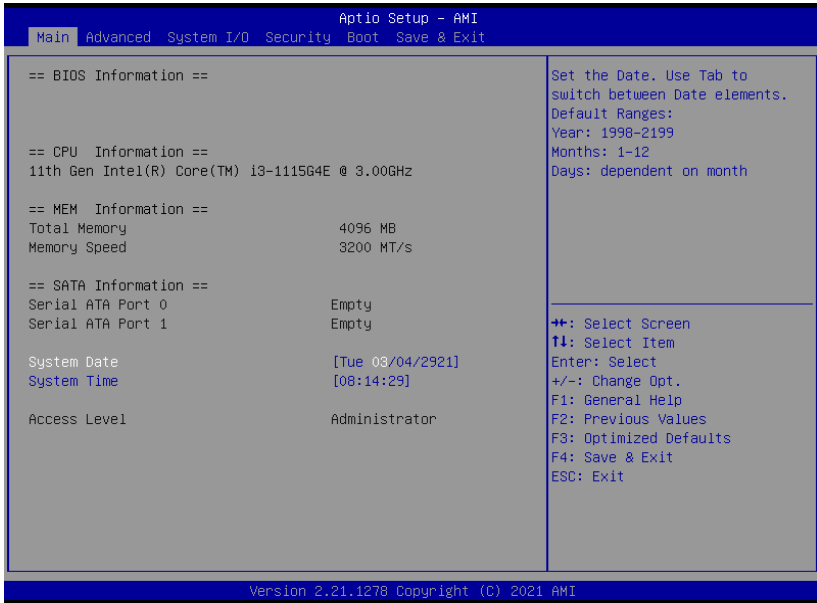
System I/O – Configure I/O settings including PCI Express and storage options

Security – Set admin and user passwords, access secure boot options

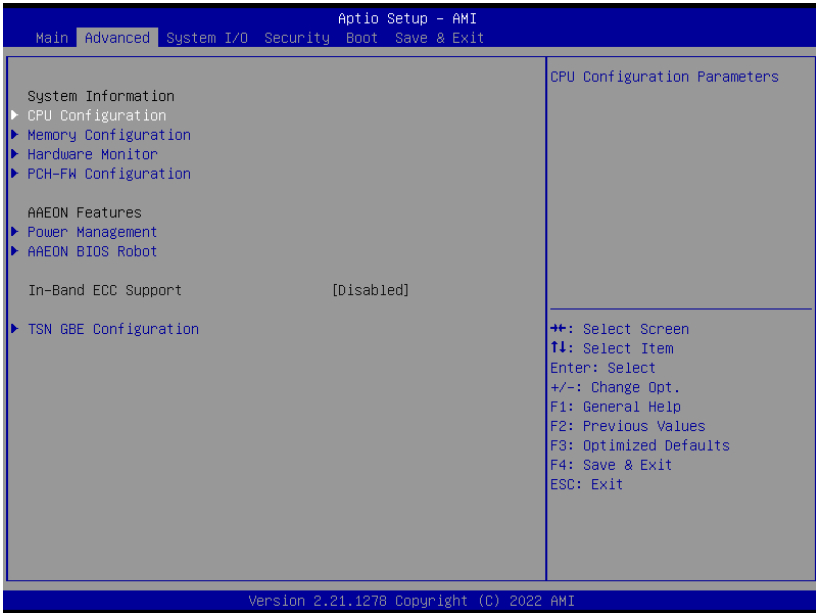
Boot – Boot options including BBS priority and Quiet Boot options

Save & Exit – Save your changes and exit the program

3.3 Setup Submenu: Main



3.4 Setup Submenu: Advanced



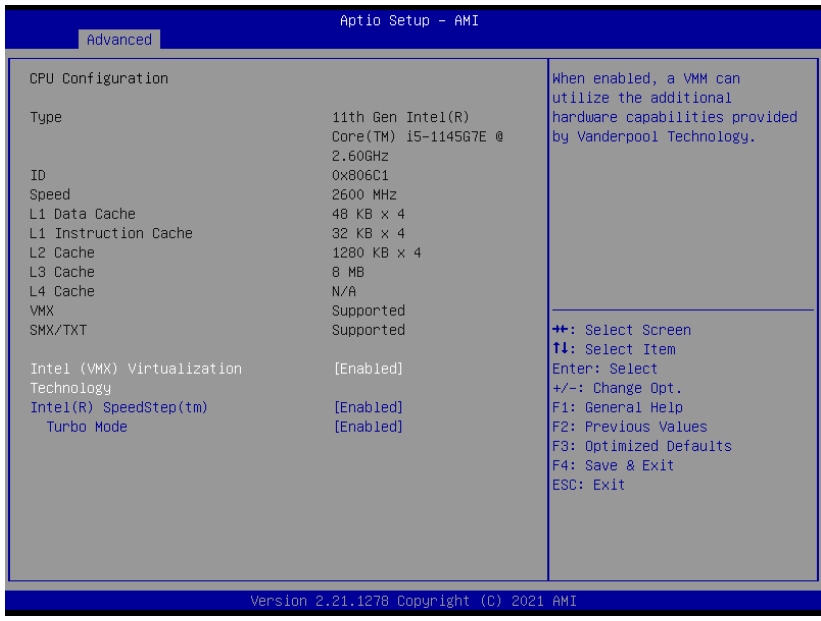
Options Summary

In-Band ECC Support	Disabled	
	Enabled	Optimal Default; Failsafe Default
Enable/Disabled In-Band ECC Support		
In-Band ECC Error Injection	Enabled	
	Disabled	Optimal Default, Failsafe Default
By enabling this Error Injection feature, the user acknowledges the security risks. Enabling Error Injection allows attackers who have access to the Host Operating System to inject IBECC errors that can cause unintended memory corruption and enable the leak of security data in the BIOS stolen memory regions.		
In-Band ECC Operation Mode	0	
	1	
	2	Optimal Default, Failsafe Default
0: Functional Mode protects requests based on the address range. 1: Makes all requests non-protected and ignore range checks. 2: Makes all requests protected and ignore range checks.		

Options Summary		
IBECC Protect Region 0-7	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable/Disabled In-Band ECC for Region 0-7.		

Note: In-Band ECC Support availability depends on CPU.

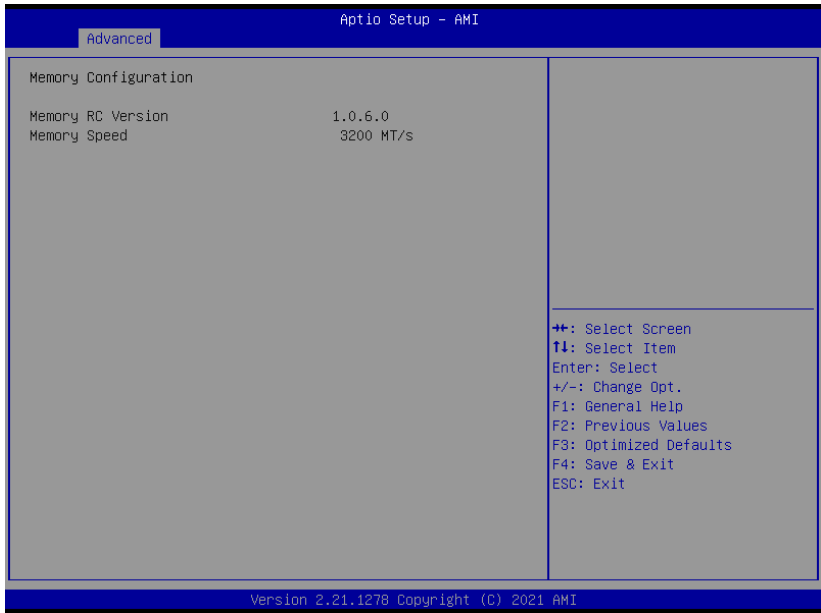
3.4.1 CPU Configuration



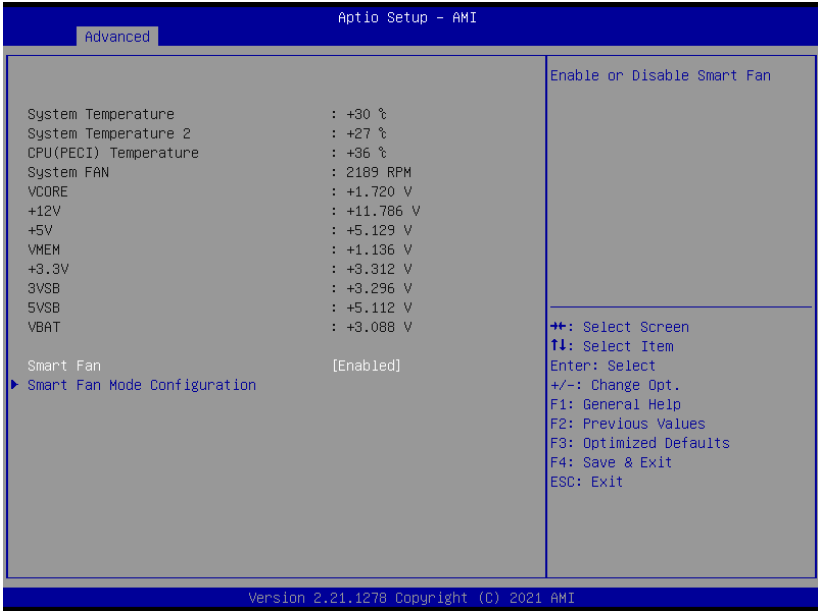
Options Summary		
Intel (VMX) Virtualization Technology	Disabled	
	Enabled	Optimal Default, Failsafe Default
When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.		
Intel(R) SpeedStep(tm)	Disabled	
	Enabled	Optimal Default, Failsafe Default
Allows more than two frequency ranges to be supported.		

Options Summary		
Turbo Mode	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable/Disable processor Turbo Mode (requires EMTTM enabled too). AUTO means enabled.		

3.4.2 Memory Configuration



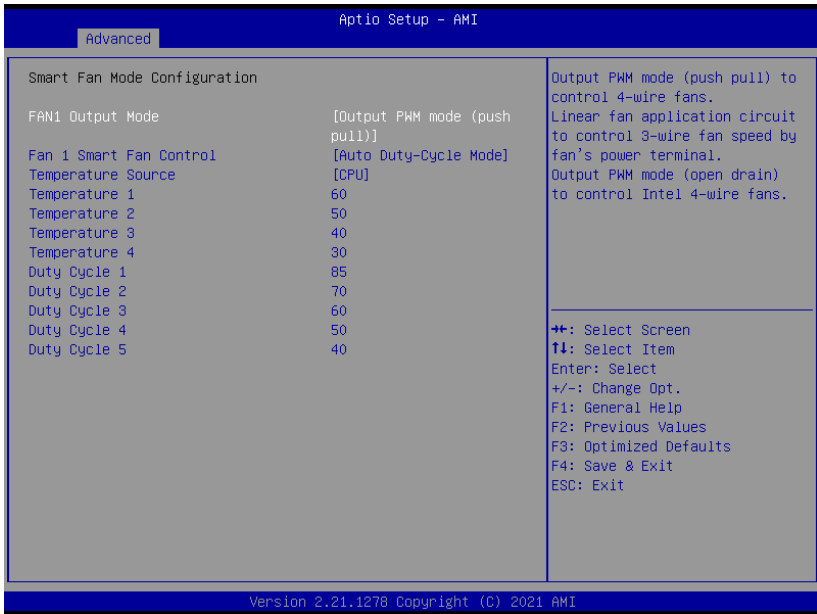
3.4.3 Hardware Monitor



Options Summary		
Smart Fan	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable Smart Fan.		

3.4.3.1 Smart Fan Mode Configuration

Auto Duty Cycle Mode



Options Summary

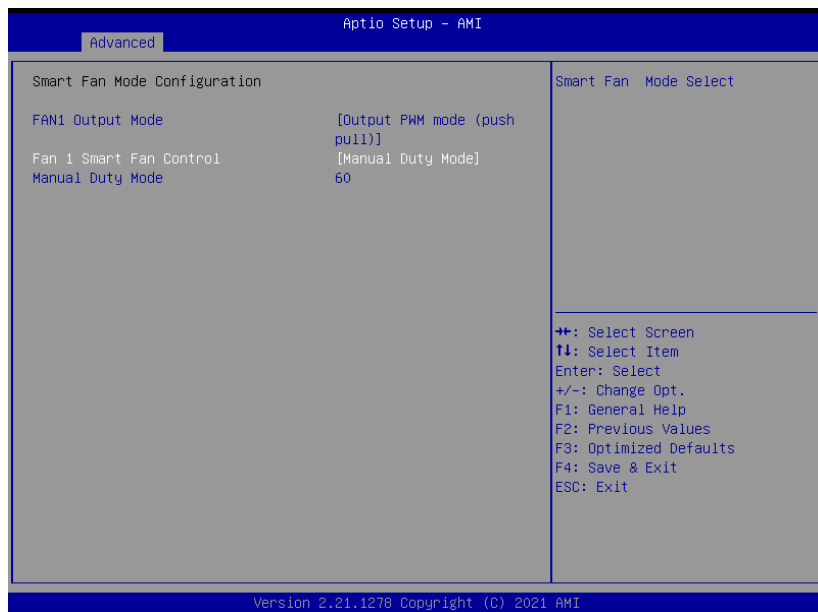
FAN1 Output Mode	Output PWM mode (push pull)	
	Linear Fan Application	
	Output PWM mode (open drain)	Optimal Default, Failsafe Default
Output PWM mode (push pull) to control 4-wire fans.\nLinear fan application circuit to control 3-wire fan speed by fan's power terminal.\nOutput PWM mode (open drain) to control Intel 4-wire fans.		
Fan 1 Smart Fan Control	Manual Duty Mode	
	Auto Duty-Cycle Mode	Optimal Default, Failsafe Default
Smart Fan Mode Select		
Temperature Source	CPU	Optimal Default, Failsafe Default
	System Temperature 2	
	System Temperature	
Select the monitored temperature source for this fan.		

Table Continues on Next Page...

Options Summary

Duty Cycle	Auto fan speed control. Fan speed will follow different temperature by different duty cycle 1-100.
Temperature	

Manual Duty Mode



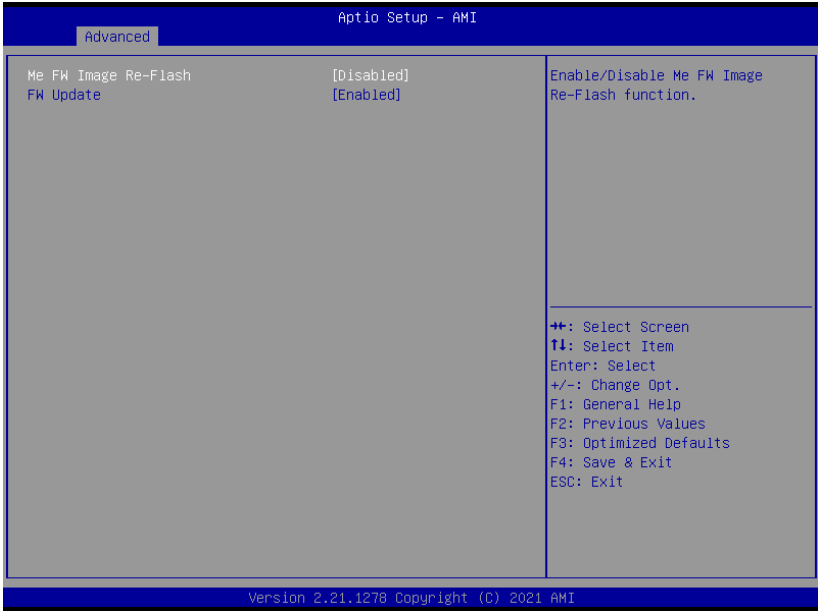
Options Summary

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

3.4.4 PCH-FW Configuration

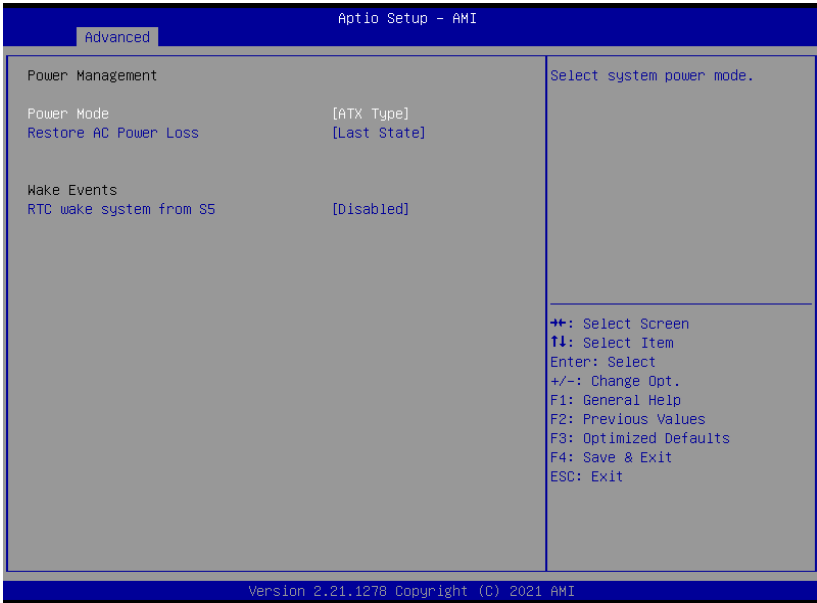


3.4.4.1 Firmware Update Configuration



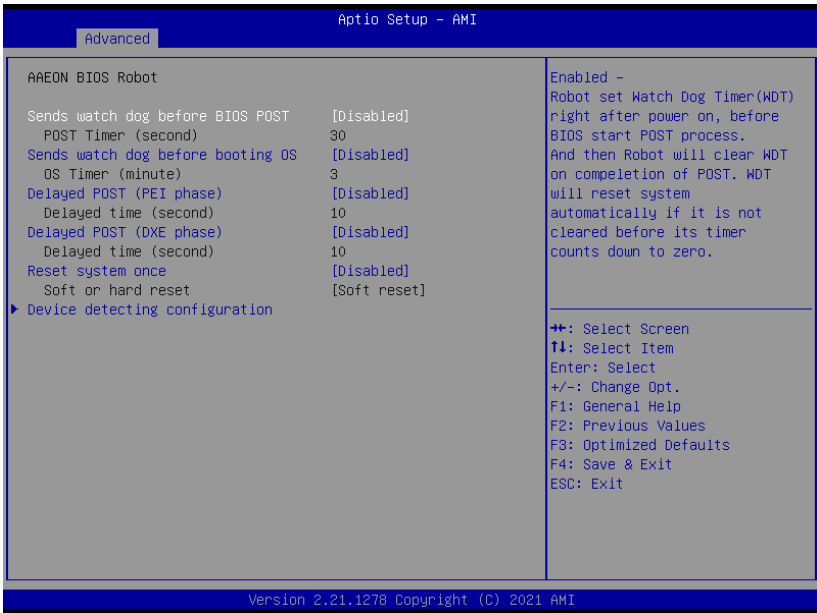
Options Summary		
Me FW Image Re-Flash	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable/Disable Me FW Image Re-Flash function.		
FW Update	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable/Disable ME FW Update function.		

3.4.5 Power Management



Options Summary		
Power Mode	ATX Type	Optimal Default, Failsafe Default
	AT Type	
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	
	Bypass	
Fixed Time: System will wake on the hr::min::sec specified./n Dynamic Time: System will wake on the current time + Increase minute(s)./n Bypass: BIOS will not control RTC wake function during system shutdown.		

3.4.6 AAEON BIOS Robot



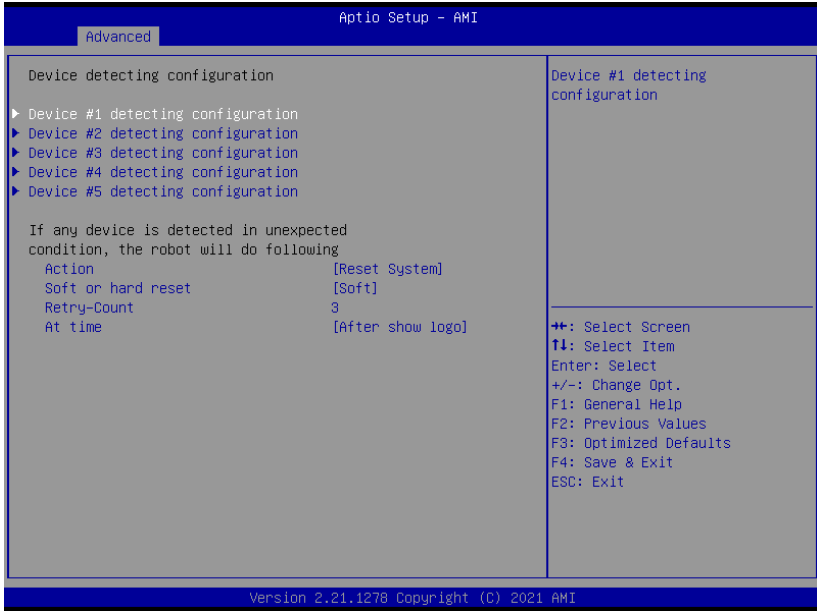
Options Summary

Sends watch dog before BIOS POST	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled - Robot set Watch Dog Time (WDT) right after power on, before BIOS start POST process. Robot will clear WDT on completion of POST. WDT will reset system automatically if it is not cleared before its timer counts down to zero.		
POST Timer (second)	30	Optimal Default, Failsafe Default
Timer count set to Watch Dog Timer for POST. WARNING: Do not set to a value equal to or shorter than normal POST time, otherwise system may never complete POST unless clearing BIOS settings. More than twice the normal POST time is suggested.		
Sends watch dog before booting OS	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled - Robot set Watch Dog Timer (WDT) after POST completion, before BIOS transfers control to OS. WARNING: Before enabling this function, a program in OS must be responsible for clearing WDT. Also, this function should be disabled if OS is going to update itself.		

Options Summary		
OS Timer (minute)	3	Optimal Default, Failsafe Default
Timer count set to Watch Dog Timer for OS loading.		
Delayed POST (PEI phase)	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled - Robot holds BIOS from starting POST, right after power on. This allows BIOS POST to start with stable power or start after system is physically warmed-up. Note: Robot does this before 'Sends watch dog'.		
Delayed time (second)	10	Optimal Default, Failsafe Default
Period of time for Robot to hold BIOS from POST.		
Delayed POST (DXE phase)	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled - Robot holds BIOS before POST completion. This allows BIOS POST to start with stable power or start after system is physically warmed-up. Note: Robot does this after 'Sends watch dog before BIOS POST'.		
Delayed time (second)	10	Optimal Default, Failsafe Default
Period of time for Robot to hold BIOS from POST.		
Reset system once	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled - Robot resets system for one time on each boot. This will send a soft or hard reset to onboard devices, thus puts devices to more stable state.		
Soft or hard reset	Soft reset	Optimal Default, Failsafe Default
	Hard reset	
Select reset type robot should send on each boot.		

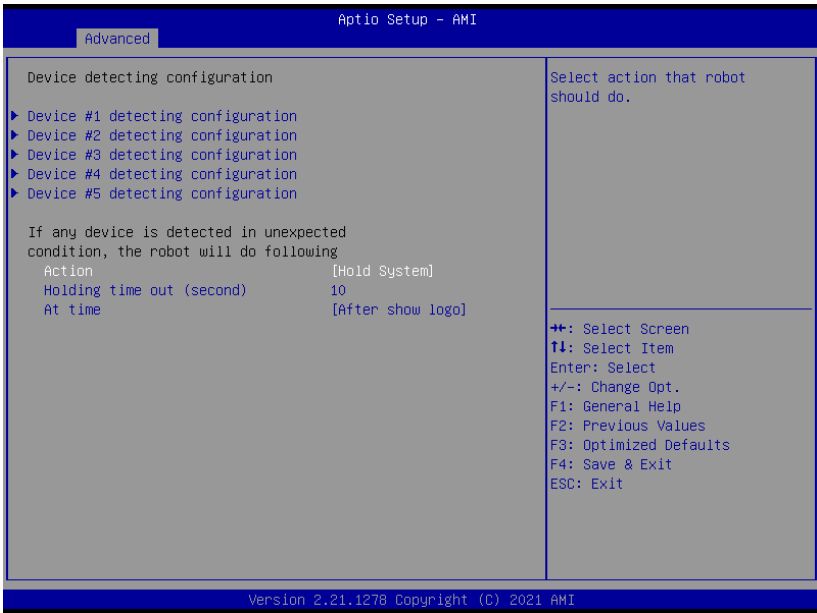
3.4.6.1 Device Detecting Configuration

Action: Rest System



Options Summary		
Action	Reset System	Optimal Default, Failsafe Default
	Hold System	
Select action that robot should do.		
Soft or hard reset	Soft	Optimal Default, Failsafe Default
	Hard	
Select reset type robot should send on each boot.		
Retry-Count	3	Optimal Default, Failsafe Default
Fill retry counter here. Robot will reset system at most counter times, and then let system continue its POST.		
At time	After show logo	Optimal Default, Failsafe Default
	Before show logo	
<p>Select robot action time:</p> <p>After show logo – Robot will do action after logo is displayed. System devices are almost ready.</p> <p>Before show logo – Robot will do action earlier before logo, but some devices may not be ready.</p>		

Action: Hold System

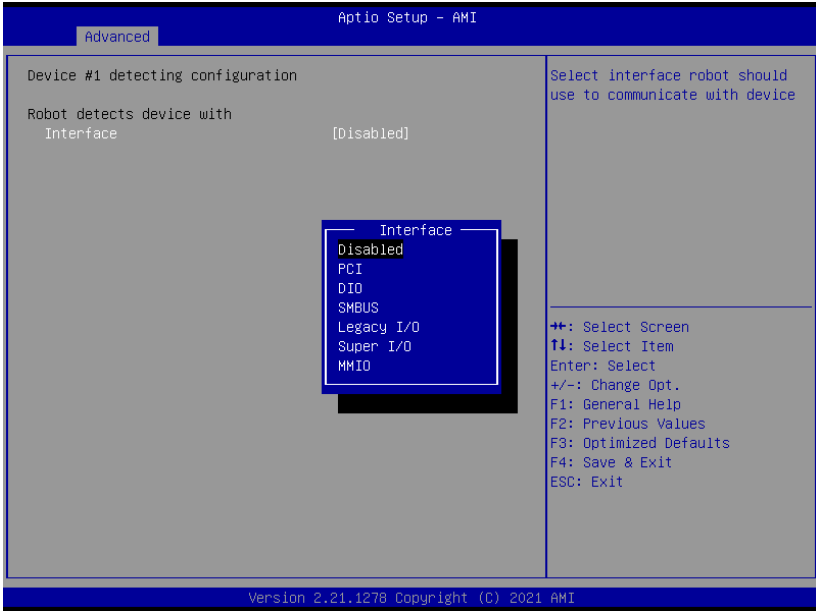


Options Summary

Action	Reset System	Optimal Default, Failsafe Default
	Hold System	
Select action that robot should do.		
Holding time out (second)	10	Optimal Default, Failsafe Default
Fill hold time out here. Robot will hold system no longer then time-out value, and then let system continue its POST.		
At time	After show logo	Optimal Default, Failsafe Default
	Before show logo	
Select robot action time: After show logo - Robot will do action after logo is displayed. System devices are almost ready. Before show logo - Robot will do action earlier before logo, but some devices may not be ready.		

3.4.6.1.1 Device # Detecting Configuration

Interface: Disabled

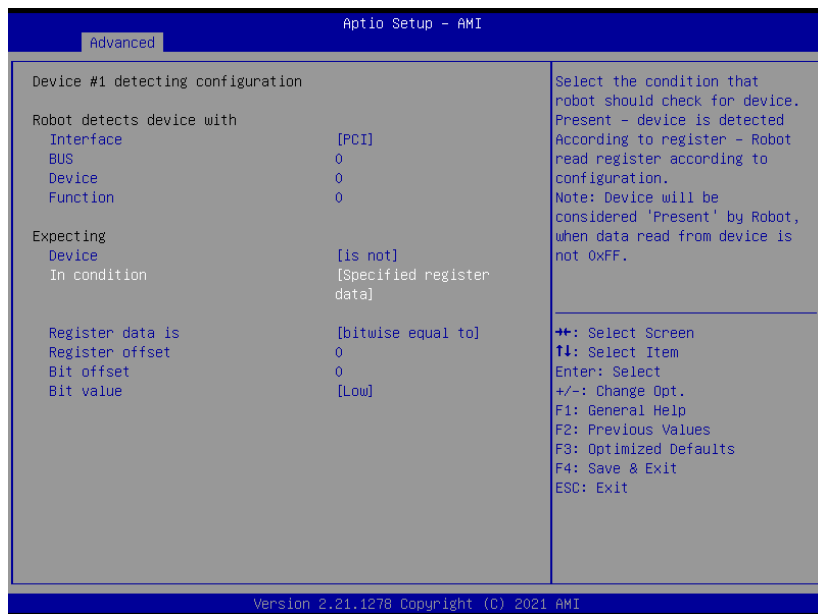


Options Summary

Interface	Disabled	Optimal Default, Failsafe Default
	PCI	
	DIO	
	SMBUS	
	Legacy I/O	
	Super I/O	
	MMIO	

Select interface robot should use to communicate with device.

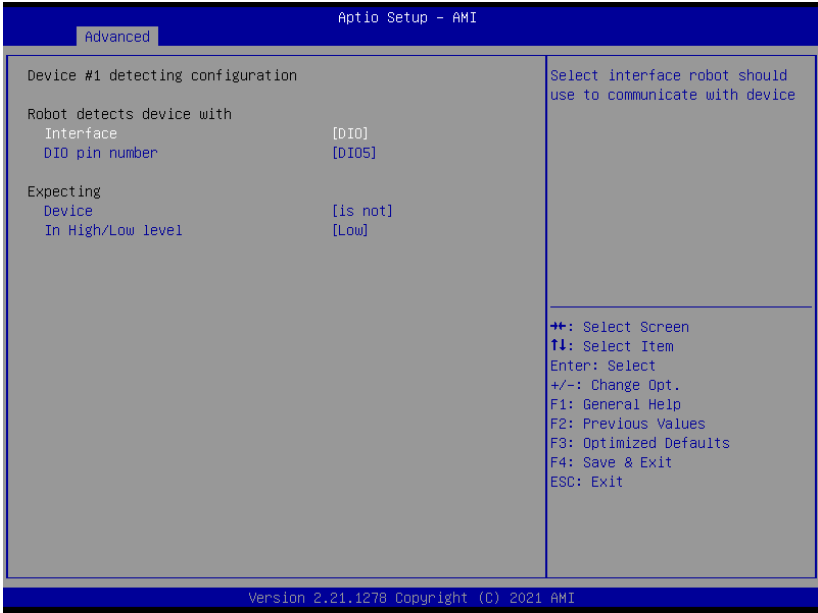
Interface: PCI



Options Summary		
BUS	0	Optimal Default, Failsafe Default
Fill BUS number to a PCI device, in hexadecimal. Range: 0 – FF.		
Device	0	Optimal Default, Failsafe Default
Fill DEVICE number to a PCI device, in hexadecimal. Range: 0 – FF.		
Function	0	Optimal Default, Failsafe Default
Fill FUNCTION number to a PCI device, in hexadecimal. Range: 0 – FF.		
Device	is	
	Is not	Optimal Default, Failsafe Default
Select that robot should or should not do action if condition met.		
In condition	Present	Optimal Default, Failsafe Default
	Specified register data	
<p>Select the condition that robot should check for device. Present - device is detected. According to register - Robot read register according to configuration. Note: Device will be considered 'Present' by Robot, when data read from device is not 0xFF.</p>		

Options Summary		
Register data is	bitwise equal to	Optimal Default, Failsafe Default
	bytewise equal to	
	bytewise lesser than	
	bytewise larger than	
Select how robot should compare data read from register, to a value configured below.		
Register offset	0	Optimal Default, Failsafe Default
Fill register offset (or index) for robot to read, in hexadecimal. Range: 0 – FF.		
Bit offset	0	Optimal Default, Failsafe Default
Fill bit offset for register, for robot to compare with bit value.		
Bit value	Low	Optimal Default, Failsafe Default
	High	
Fill bit value for robot to compare register-bit with specified offset.		
Byte value	0	Optimal Default, Failsafe Default
Fill a byte value for robot to compare register data with, in hexadecimal. Range: 0 – FF.		

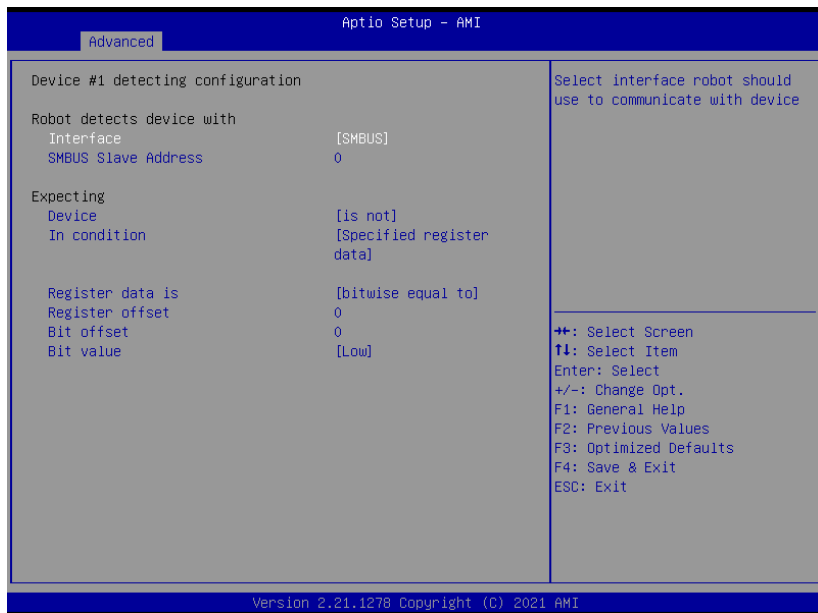
Interface: DIO



Options Summary

Device	is	
	Is not	Optimal Default, Failsafe Default
Select that robot should or should not do action if condition met.		
DIO pin number	DIO1	Optimal Default, Failsafe Default
	DIO*	
Fill DIO pin number. 0 - DIO0, 1 - DIO1, and so on. For COM express product: 0-3 - GPIO-3, 4-7 - GPO0-3.		
Device	is	
	Is not	Optimal Default, Failsafe Default
Select that robot should or should not do action if condition met.		
In High/Low level	Low	Optimal Default, Failsafe Default
	High	
Select High/Low level of the DIO pin that robot should do action.		

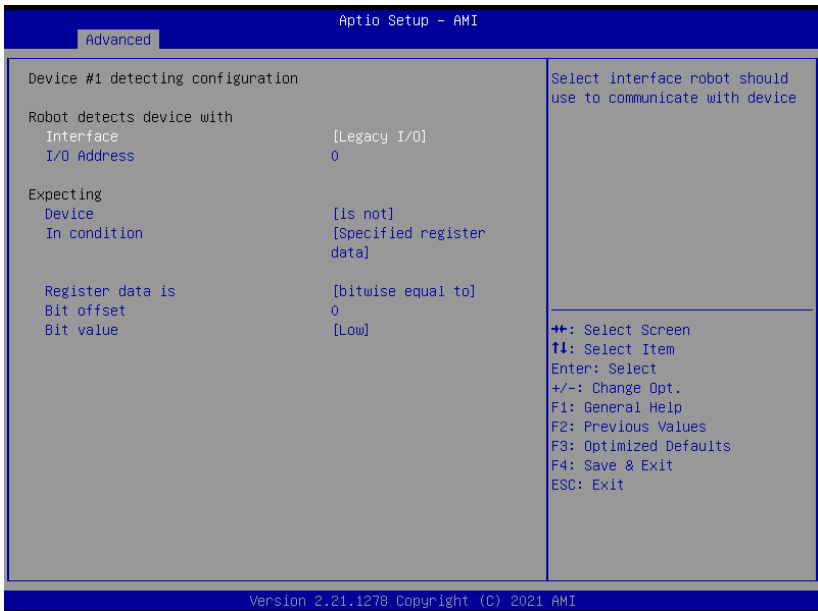
Interface: SMBUS



Options Summary		
SMBUS Slave Address	0	Optimal Default, Failsafe Default
Fill slave address to a SMBUS device, in hexadecimal. Range: 0 – FF.		
Device	is	
	Is not	Optimal Default, Failsafe Default
Select that robot should or should not do action if condition met.		
In condition	Present	Optimal Default, Failsafe Default
	Specified register data	
Select the condition that robot should check for device. Present - device is detected. According to register - Robot read register according to configuration. Note: Device will be considered 'Present' by Robot, when data read from device is not 0xFF.		
Register data is	bitwise equal to	Optimal Default, Failsafe Default
	bytewise equal to	
	bytewise lesser than	
	bytewise larger than	
Select how robot should compare data read from register, to a value configured below.		

Options Summary		
Register offset	0	Optimal Default, Failsafe Default
Fill register offset (or index) for robot to read, in hexadecimal. Range: 0 – FF.		
Bit offset	0	Optimal Default, Failsafe Default
Fill bit offset for register, for robot to compare with bit value.		
Bit value	Low	Optimal Default, Failsafe Default
	High	
Fill bit value for robot to compare register-bit with specified offset.		
Byte value	0	Optimal Default, Failsafe Default
Fill a byte value for robot to compare register data with, in hexadecimal. Range: 0 – FF.		

Interface: Legacy I/O

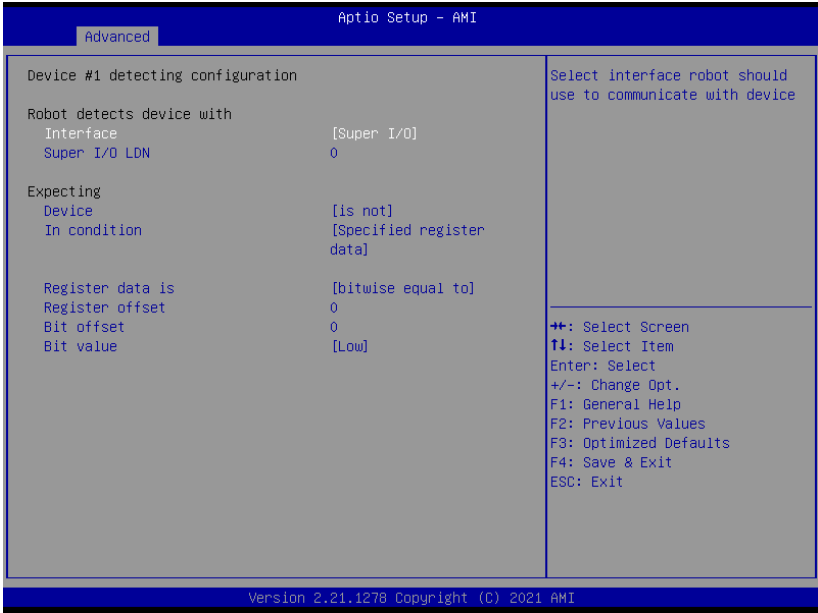


Options Summary		
I/O Address	0	Optimal Default, Failsafe Default
Fill I/O address device is responding to. Range: 0~FFFF.		
Device	is	
	Is not	Optimal Default, Failsafe Default
Select that robot should or should not do action if condition met.		

Options Summary

In condition	Present	Optimal Default, Failsafe Default
	Specified register data	
<p>Select the condition that robot should check for device. Present - device is detected. According to register - Robot read register according to configuration. Note: Device will be considered 'Present' by Robot, when data read from device is not 0xFF.</p>		
Register data is	bitwise equal to	Optimal Default, Failsafe Default
	bitwise equal to	
	bitwise lesser than	
	bitwise larger than	
<p>Select how robot should compare data read from register, to a value configured below.</p>		
Bit offset	0	Optimal Default, Failsafe Default
<p>Fill bit offset for register, for robot to compare with bit value.</p>		
Bit value	Low	Optimal Default, Failsafe Default
	High	
<p>Fill bit value for robot to compare register-bit with specified offset.</p>		
Byte value	0	Optimal Default, Failsafe Default
<p>Fill a byte value for robot to compare register data with, in hexadecimal. Range: 0 – FF.</p>		

Interface: Super I/O

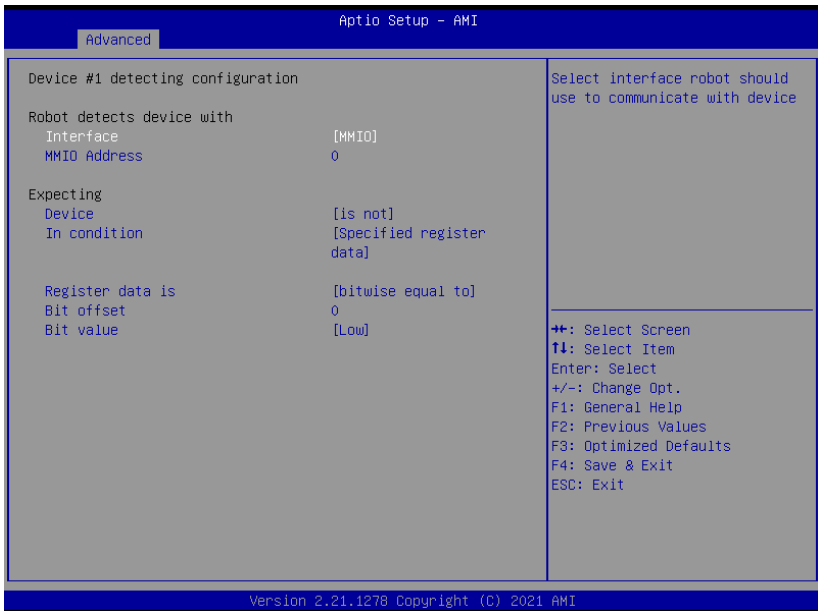


Options Summary

Super I/O LDN	0	Optimal Default, Failsafe Default
Fill LDN number to a Super I/O device. Range: 0~FF		
Device	is	
	Is not	Optimal Default, Failsafe Default
Select that robot should or should not do action if condition met.		
In condition	Present	Optimal Default, Failsafe Default
	Specified register data	
Select the condition that robot should check for device. Present - device is detected. According to register - Robot read register according to configuration. Note: Device will be considered 'Present' by Robot, when data read from device is not 0xFF.		
Register data is	bitwise equal to	Optimal Default, Failsafe Default
	bytewise equal to	
	bytewise lesser than	
	bytewise larger than	
Select how robot should compare data read from register, to a value configured below.		

Options Summary		
Register offset	0	Optimal Default, Failsafe Default
Fill register offset (or index) for robot to read, in hexadecimal. Range: 0 – FF.		
Bit offset	0	Optimal Default, Failsafe Default
Fill bit offset for register, for robot to compare with bit value.		
Bit value	Low	Optimal Default, Failsafe Default
	High	
Fill bit value for robot to compare register-bit with specified offset.		
Byte value	0	Optimal Default, Failsafe Default
Fill a byte value for robot to compare register data with, in hexadecimal. Range: 0 - FF		

Interface: MMIO

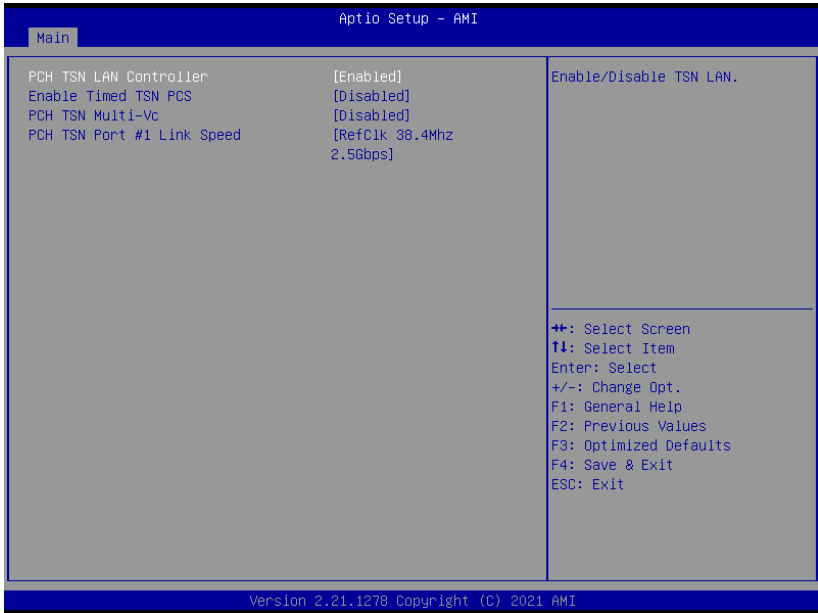


Options Summary		
MMIO Address	0	Optimal Default, Failsafe Default
Fill Memory Mapped I/O address device is responding to. Range: 0~FFFFFFFF.		
Device	is	
	Is not	Optimal Default, Failsafe Default
Select that robot should or should not do action if condition met.		

Options Summary

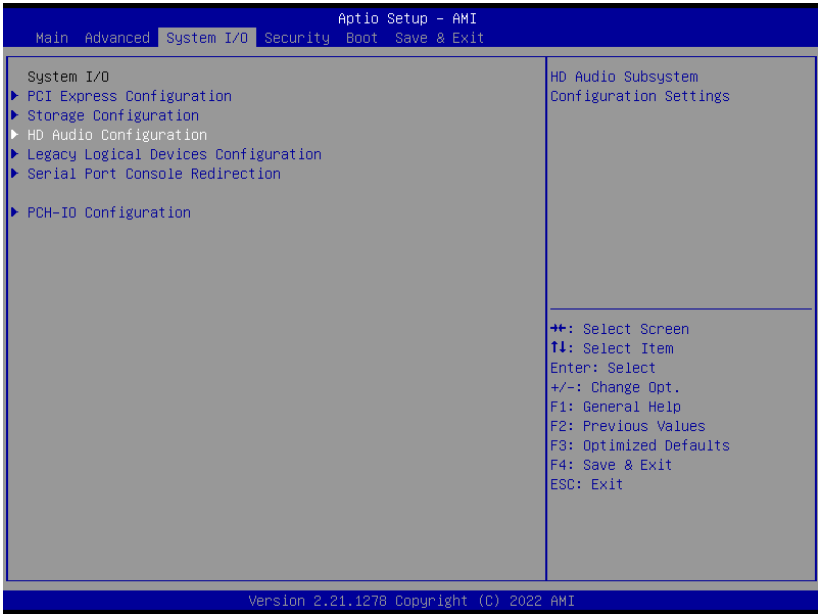
In condition	Present	Optimal Default, Failsafe Default
	Specified register data	
<p>Select the condition that robot should check for device. Present - device is detected. According to register - Robot read register according to configuration. Note: Device will be considered 'Present' by Robot, when data read from device is not 0xFF.</p>		
Register data is	bitwise equal to	Optimal Default, Failsafe Default
	bytewise equal to	
	bytewise lesser than	
	bytewise larger than	
<p>Select how robot should compare data read from register, to a value configured below.</p>		
Bit offset	0	Optimal Default, Failsafe Default
<p>Fill bit offset for register, for robot to compare with bit value.</p>		
Bit value	Low	Optimal Default, Failsafe Default
	High	
<p>Fill bit value for robot to compare register-bit with specified offset.</p>		
Byte value	0	Optimal Default, Failsafe Default
<p>Fill a byte value for robot to compare register data with, in hexadecimal. Range: 0 – FF.</p>		

3.4.7 TSN GBE Configuration

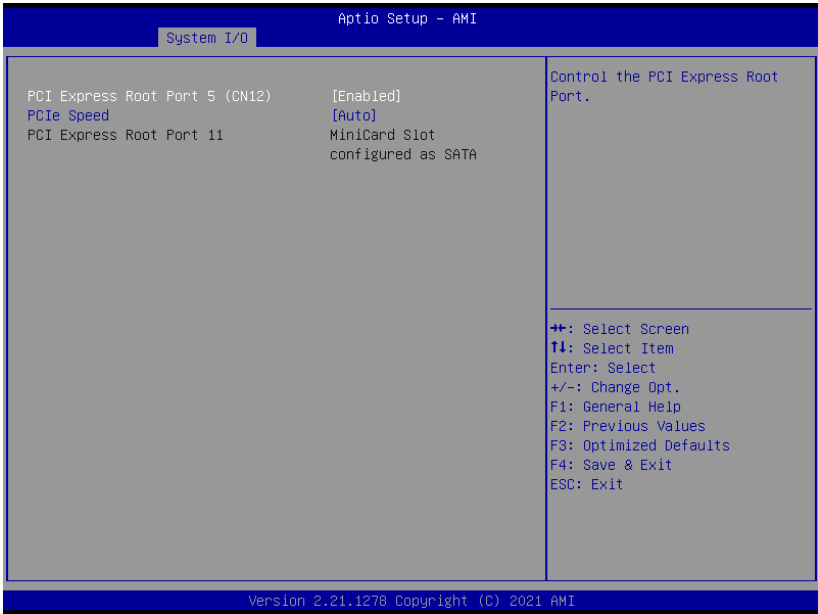


Options Summary		
PCH TSN LAN Controller	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable/Disable TSN LAN.		
Enable Timed TSN PCS	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable/Disable TSN PCS. When enabled, TSN PCS device will appear in ACPI table		
PCH TSN Multi-Vc	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable/Disable PCH TSN Multi Virtual Channels.		
PCH TSN Port #1 Link Speed	RefClk 24Mhz 2.5Gbps	Optimal Default, Failsafe Default
	RefClk 24Mhz 1Gbps	
	RefClk 38.4Mhz 2.5Gbps	
	RefClk 38.4Mhz 1Gbps	
PCH TSN Link Speed config.		

3.5 Setup Submenu: System I/O

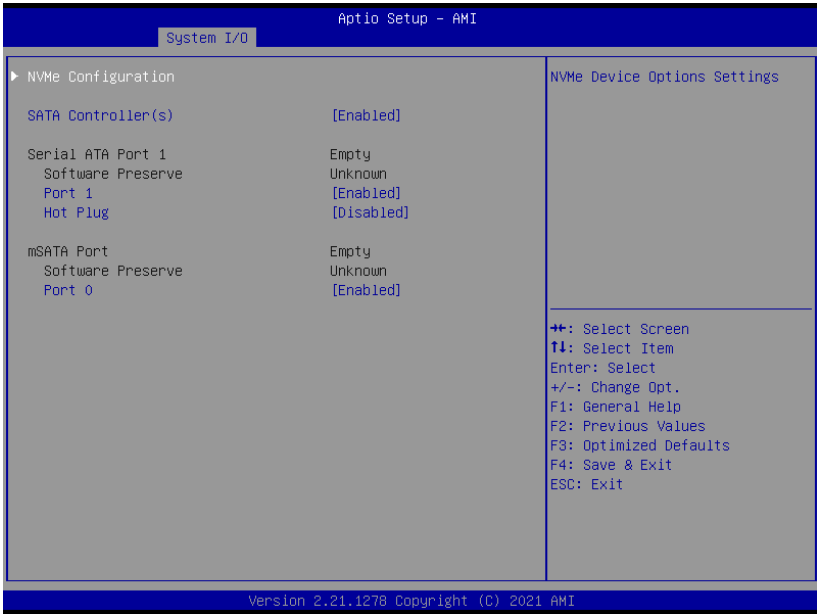


3.5.1 PCI Express Configuration



Options Summary		
PCI Express Root Port 5 (CN12) / Port11	Enabled	Optimal Default, Failsafe Default
	Disabled	
Control the PCI Express Root Port.		
PCIe Speed	Auto	Optimal Default, Failsafe Default
	Gen1	
	Gen2	
	Gen3	
Control the PCI Express Speed.		

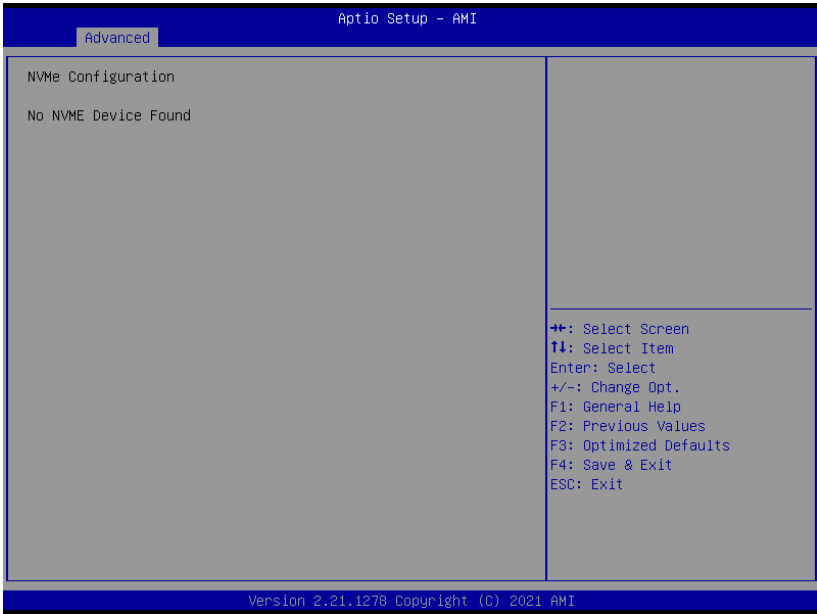
3.5.2 Storage Configuration



Options Summary

SATA Controller(s)	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable/Disable SATA Device.		
Port 0 / 1	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.		

3.5.2.1 NVMe Configuration



3.5.3 HD Audio Subsystem Configuration Settings



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.		

3.5.4 Legacy Logical Devices Configuration



3.5.4.1 Serial Port 1 Configuration



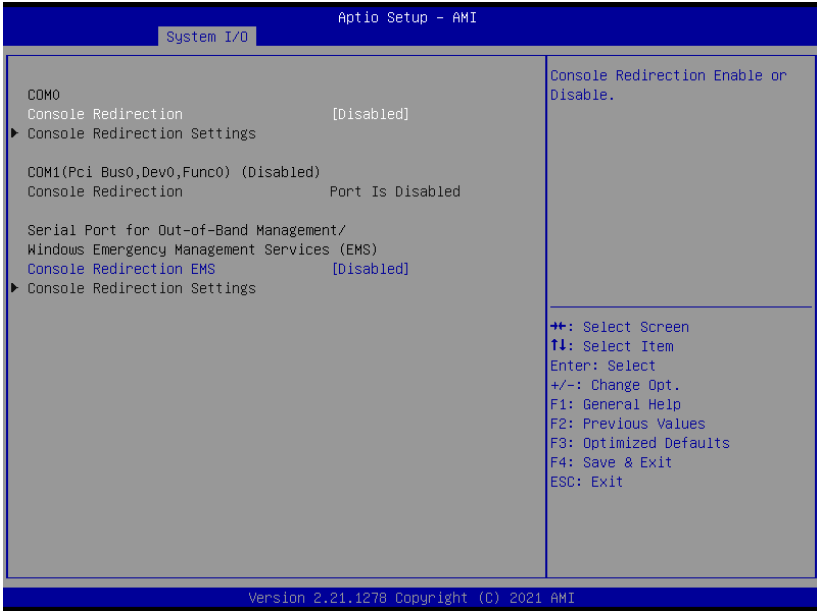
Options Summary		
Use This Device	Disable	
	Enable	Optimal Default, Failsafe Default
Enable or Disable this Logical Device.		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=3F8h; IRQ=4	
	IO=2F8h; IRQ=3	
Allows user to change Device's Resource settings. New settings will be reflected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

3.5.4.2 Serial Port 2 Configuration



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

3.5.5 Serial Port Console Redirection



Options Summary		
Console Redirection	Disabled	Optimal Default, Failsafe Default
	Enabled	
Console Redirection Enable or Disable.		
Console Redirection EMS	Disabled	Optimal Default, Failsafe Default
	Enabled	
Console Redirection Enable or Disable.		

3.5.5.1 Console Redirection Settings



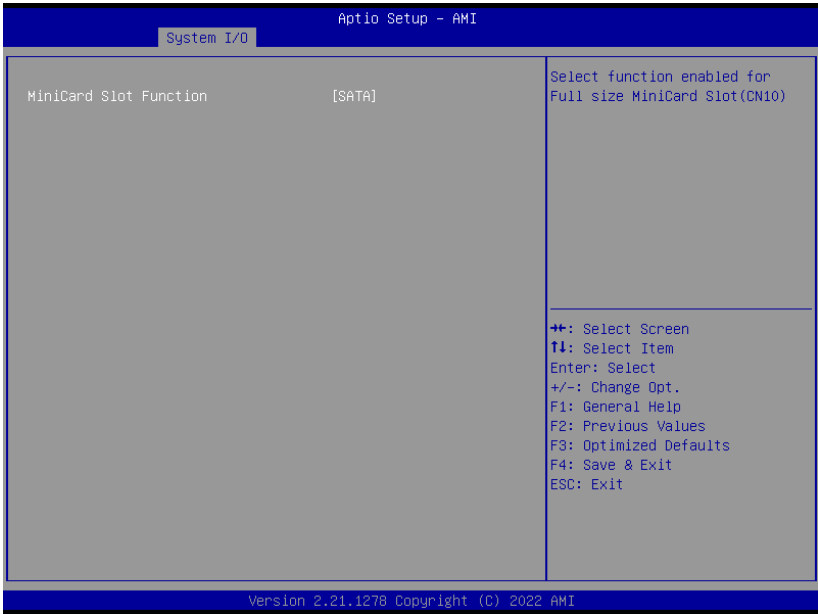
Options Summary

Terminal Type	VT100	
	VT100+	
	VT-UTF8	
	ANSI	Optimal Default, Failsafe Default
Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.		
Bits Per second	9600	
	19200	
	38400	
	57600	
	115200	Optimal Default, Failsafe Default
Selects serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.		
Data Bits	7	
	8	Optimal Default, Failsafe Default

Options Summary

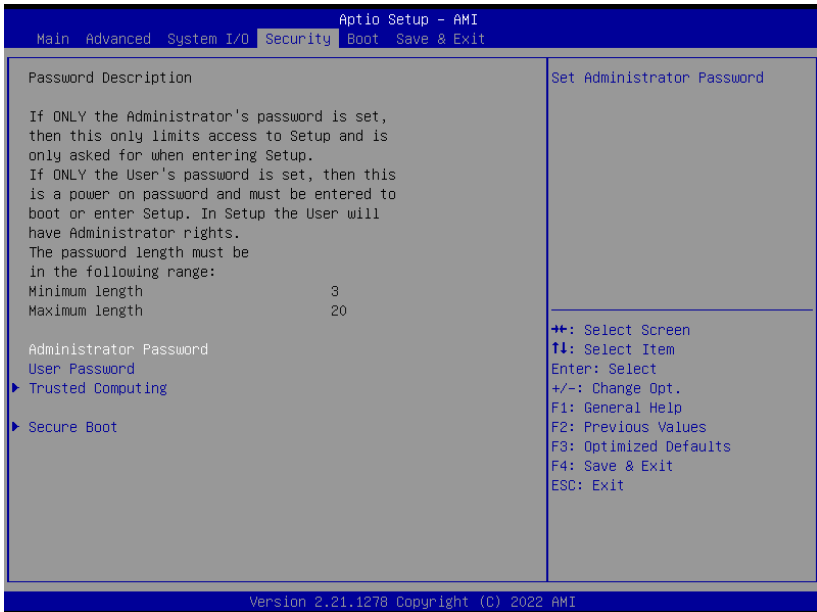
Data Bits.		
Parity	None	Optimal Default, Failsafe Default
	Even	
	Odd	
	Mark	
	Space	
<p>A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 if the num of 1's in the data bits is even. Odd: parity bit is 0 if num of 1's in the data bits is odd. Mark: parity bit is always 1. Space: Parity bit is always 0. Mark and Space Parity do not allow for error detection. They can be used as an additional data bit.</p>		
Stop Bits	1	Optimal Default, Failsafe Default
	2	
<p>Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.</p>		
Flow Control	None	Optimal Default, Failsafe Default
	Hardware RTS/CTS	
<p>Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.</p>		
VT-UTF8 Combo Key Support	Disabled	
	Enabled	Optimal Default, Failsafe Default
<p>Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals</p>		
Recorder Mode	Disabled	Optimal Default, Failsafe Default
	Enabled	
<p>With this mode enabled only text will be sent. This is to capture Terminal data.</p>		
Resolution 100x31	Disabled	Optimal Default, Failsafe Default
	Enabled	
<p>Enables or disables extended terminal resolution.</p>		
Putty KeyPad	VT100	Optimal Default, Failsafe Default
	LINUX	
	XTERMR6	
	SCO	
	ESCN	
	VT400	
<p>Select FunctionKey and KeyPad on Putty.</p>		

3.5.6 PCH-IO Configuration



Options Summary		
MiniCard Slot Function	SATA	Optimal Default, Failsafe Default
	PCIe	
Select function enabled for Full size MiniCard Slot (CN10).		

3.6 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.

3.6.1 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	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	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or disable Platform Hierarchy.		
Storage Hierarchy	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable Storage Hierarchy.		
Endorsement Hierarchy	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable Endorsement Hierarchy.		
TPM2.0 UEFI Spec Version	TCG_1_2	
	TCG_2	Optimal Default, Failsafe Default
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.		

3.6.2 Secure Boot



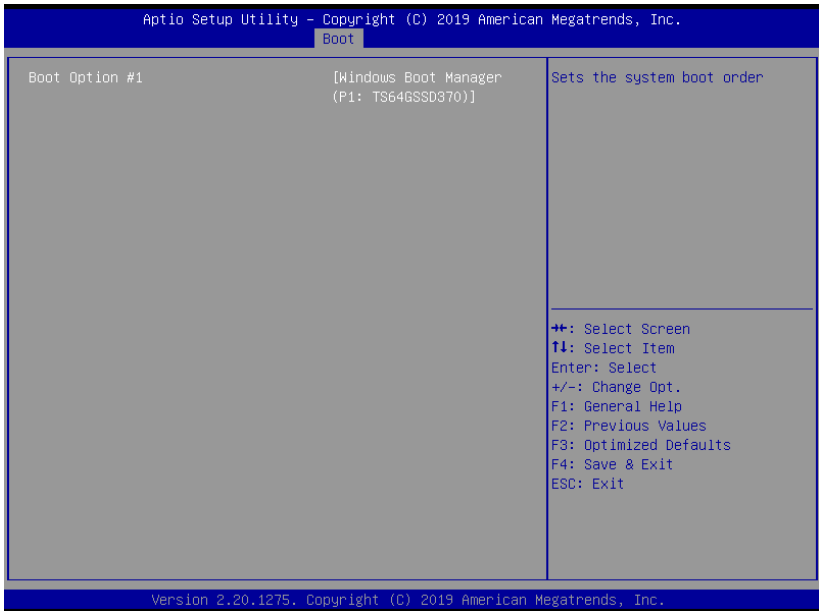
Options Summary		
Secure Boot	Disabled	Optimal Default, Failsafe Default
	Enabled	
Secure Boot feature is Active if Secure Boot is Enabled, Platform Key (PK) is enrolled and the System is in User mode. The mode change requires platform reset.		
Secure Boot Mode	Custom	Optimal Default, Failsafe Default
	Standard	
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.		

3.7 Setup Submenu: Boot

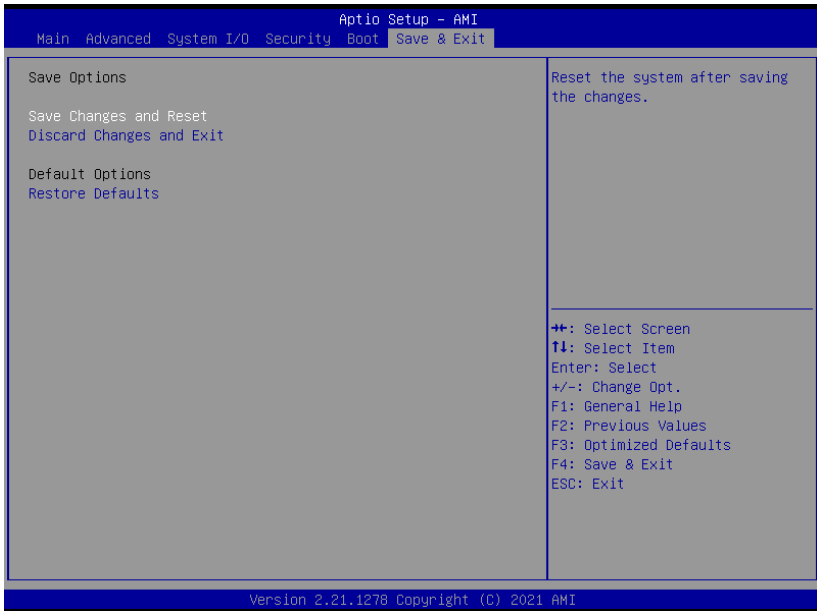


Options Summary		
Quiet Boot	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enables or disables showing boot logo.		
Network Stack	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable/Disable UEFI Network Stack.		

3.7.1 BBS Priorities



3.8 Setup Submenu: Save & Exit



Chapter 4

Driver Installation

4.1 Driver Download/Installation

Drivers for the GENESYSM-TGU6 can be downloaded from the product page on the AAEON website by following this link:

<https://www.aaeon.com/en/p/3-and-half-inch-sbc-genesysm-tgu6>

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

Audio Driver (Windows 10)

1. Open the folder where you unzipped the **Audio Drivers**
2. Run the **Setup.exe** in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Chipset Driver (Windows 10)

1. Open the folder where you unzipped the **Chipset Drivers**
2. Run the **SetupChipset.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Graphics Driver (Windows 10)

1. Open the folder where you unzipped the **Graphics Drivers**
2. Run the **igxpin.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically
5. Refer to the ReadMe.txt for any assistance.

LAN Drivers (Windows 10)

1. Open the folder where you unzipped the **LAN Drivers**
2. Read the ReadMe.txt file before proceeding. **Caution:** Be sure to install the driver package before installing the Intel® PROSet package.
3. Open the **Wired_driver_26.3_x64** folder
4. Run the **Wired_driver_26.3_x64.exe** file in the folder
5. Follow the instructions, drivers will be installed automatically.
6. After installing the LAN driver, install Intel® PROSet package (optional)
7. Open the **Wired_PROSet_26.3_x64** folder
8. Run the **Wired_PROSet_26.3_x64.exe** file in the folder
9. Follow the instructions
10. Drivers will be installed automatically

ME & TXE Drivers (Windows 10)

1. Open the folder where you unzipped the **ME & TXE Drivers**
2. Run the **SetupME.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Peripheral Driver (Windows 10)

1. Open the folder where you unzipped the **Peripheral Drivers**
2. Run the **SetupSerialIO.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Touch Drivers (Windows 10)

1. Open the folder where you unzipped the **Peripheral Drivers**
2. Run the **Setup.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Peripheral Driver (Linux)

1. Open the folder where you unzipped the **Peripheral Drivers**
2. Follow the instructions contained within the user guides











































Touch Drivers (Linux)

1. Touch Drivers can be installed via terminal, or through the graphical UI if you have one installed.











































Appendix A











































I/O Information

A.1 I/O Address Map











































- ▼  Input/output (IO)
 - ▼  [0000000000000000 - 000000000000CF7] PCI Express Root Complex
 - >  [000000000000020 - 000000000000021] Programmable interrupt controller
 - >  [000000000000024 - 000000000000025] Programmable interrupt controller
 - >  [000000000000028 - 000000000000029] Programmable interrupt controller
 - >  [00000000000002C - 00000000000002D] Programmable interrupt controller
 -  [00000000000002E - 00000000000002F] Motherboard resources
 - >  [000000000000030 - 000000000000031] Programmable interrupt controller
 - >  [000000000000034 - 000000000000035] Programmable interrupt controller
 - >  [000000000000038 - 000000000000039] Programmable interrupt controller
 - >  [00000000000003C - 00000000000003D] Programmable interrupt controller
 - >  [000000000000040 - 000000000000043] System timer
 -  [00000000000004E - 00000000000004F] Motherboard resources
 - >  [000000000000050 - 000000000000053] System timer
 -  [000000000000060 - 000000000000060] Standard PS/2 Keyboard
 -  [000000000000061 - 000000000000061] Motherboard resources
 -  [000000000000063 - 000000000000063] Motherboard resources
 -  [000000000000064 - 000000000000064] Standard PS/2 Keyboard
 -  [000000000000065 - 000000000000065] Motherboard resources
 -  [000000000000067 - 000000000000067] Motherboard resources
 -  [000000000000070 - 000000000000070] Motherboard resources
 -  [000000000000080 - 000000000000080] Motherboard resources
 -  [000000000000092 - 000000000000092] Motherboard resources
 - >  [0000000000000A0 - 0000000000000A1] Programmable interrupt controller
 - >  [0000000000000A4 - 0000000000000A5] Programmable interrupt controller
 - >  [0000000000000A8 - 0000000000000A9] Programmable interrupt controller
 - >  [0000000000000AC - 0000000000000AD] Programmable interrupt controller
 - >  [0000000000000B0 - 0000000000000B1] Programmable interrupt controller
 -  [0000000000000B2 - 0000000000000B3] Motherboard resources
 - >  [0000000000000B4 - 0000000000000B5] Programmable interrupt controller
 - >  [0000000000000B8 - 0000000000000B9] Programmable interrupt controller
 - >  [0000000000000BC - 0000000000000BD] Programmable interrupt controller
 -  [0000000000002E8 - 0000000000002EF] Communications Port (COM4)
 -  [0000000000002F8 - 0000000000002FF] Communications Port (COM2)
 -  [0000000000003E8 - 0000000000003EF] Communications Port (COM3)
 -  [0000000000003F8 - 0000000000003FF] Communications Port (COM1)
 - >  [0000000000004D0 - 0000000000004D1] Programmable interrupt controller
 -  [000000000000680 - 00000000000069F] Motherboard resources
 -  [000000000000A00 - 000000000000A0F] Motherboard resources
 -  [000000000000A10 - 000000000000A1F] Motherboard resources
 -  [000000000000A20 - 000000000000A2F] Motherboard resources
 - >  [000000000000D00 - 000000000000FFF] PCI Express Root Complex










































A.2 Memory Address Map

▼	 Large Memory	
	 [0000004000000000 - 0000007FFFFFFF] PCI Express Root Complex	
▼	 Memory	
	 [0000000000A0000 - 0000000000BFFFF] PCI Express Root Complex	
>	 [00000004F400000 - 0000000BFFFFFF] PCI Express Root Complex	
	 [0000000C0000000 - 0000000CFFFFFF] Motherboard resources	
	 [0000000FD000000 - 0000000FD68FFFF] Motherboard resources	
	 [0000000FD690000 - 0000000FD69FFFF] Intel(R) Serial IO GPIO Host Controller - INT34C5	
	 [0000000FD6A0000 - 0000000FD6AFFFF] Intel(R) Serial IO GPIO Host Controller - INT34C5	
	 [0000000FD6B0000 - 0000000FD6CFFFF] Motherboard resources	
	 [0000000FD6D0000 - 0000000FD6DFFFF] Intel(R) Serial IO GPIO Host Controller - INT34C5	
	 [0000000FD6E0000 - 0000000FD6EFFFF] Intel(R) Serial IO GPIO Host Controller - INT34C5	
	 [0000000FD6F0000 - 0000000FD6FFFF] Motherboard resources	
>	 [0000000FE000000 - 0000000FE01FFFF] Motherboard resources	
	 [0000000FE04C000 - 0000000FE04FFFF] Motherboard resources	
	 [0000000FE050000 - 0000000FE0AFFFF] Motherboard resources	
	 [0000000FE0D0000 - 0000000FE0FFFF] Motherboard resources	
	 [0000000FE200000 - 0000000FE7FFFF] Motherboard resources	
	 [0000000FED00000 - 0000000FED003FF] High precision event timer	
>	 [0000000FED20000 - 0000000FED7FFFF] Motherboard resources	
	 [0000000FED45000 - 0000000FED8FFFF] Motherboard resources	
	 [0000000FED90000 - 0000000FED93FFF] Motherboard resources	
	 [0000000FEDA0000 - 0000000FEDA0AFFF] Motherboard resources	
	 [0000000FEDA1000 - 0000000FEDA1FFF] Motherboard resources	
	 [0000000FEDC0000 - 0000000FEDC7FFF] Motherboard resources	
	 [0000000FEE00000 - 0000000FEEFFFFFF] Motherboard resources	
	 [0000000FF000000 - 0000000FFFFFFFF] Motherboard resources	
>	 [0000004000000000 - 000000400FFFFFF] Intel(R) Iris(R) Xe Graphics	
>	 [0000006000000000 - 000000600FFFFFF] Intel(R) Iris(R) Xe Graphics	
	 [0000006001100000 - 000000600110FFFF] Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)	
	 [0000006001110000 - 000000600111FFFF] Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)	
	 [0000006001128000 - 00000060011280FF] Intel(R) SMBus - A0A3	
	 [0000006001420000 - 000000600142FFFF] Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)	
	 [0000006001430000 - 000000600143FFFF] Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)	
	 [0000006001440000 - 0000006001447FFF] PCI Data Acquisition and Signal Processing Controller	
	 [0000007FFFEF4000 - 0000007FFFEF4FFF] Intel(R) Serial IO I2C Host Controller - A0C6	
	 [0000007FFFEF5000 - 0000007FFFEF5FFF] Intel(R) Serial IO I2C Host Controller - A0C5	
	 [0000007FFFEF6000 - 0000007FFFEF6FFF] Intel(R) Serial IO I2C Host Controller - A0E8	
	 [0000007FFFEF7000 - 0000007FFFEF7FFF] Intel(R) Serial IO I2C Host Controller - A0EA	
	 [0000007FFFEF8000 - 0000007FFFEF8FFF] Intel(R) Serial IO I2C Host Controller - A0E8	
	 [0000007FFFEF9000 - 0000007FFFEF9FFF] Intel(R) Serial IO UART Host Controller - A0A8	
	 [0000007FFFEFA000 - 0000007FFFEFAFFF] Intel(R) Serial IO I2C Host Controller - A0D8	

-  [0000000000A0000 - 0000000000BFFFF] PCI Express Root Complex
- >  [00000004F400000 - 0000000BFFFFFFF] PCI Express Root Complex
-  [0000000C0000000 - 0000000CFFFFFFF] Motherboard resources
-  [0000000FD000000 - 0000000FD68FFFF] Motherboard resources
-  [0000000FD690000 - 0000000FD69FFFF] Intel(R) Serial IO GPIO Host Controller - INT34C5
-  [0000000FD6A0000 - 0000000FD6AFFFF] Intel(R) Serial IO GPIO Host Controller - INT34C5
-  [0000000FD6B0000 - 0000000FD6CFFFF] Motherboard resources
-  [0000000FD6D0000 - 0000000FD6DFFFF] Intel(R) Serial IO GPIO Host Controller - INT34C5
-  [0000000FD6E0000 - 0000000FD6EFFFF] Intel(R) Serial IO GPIO Host Controller - INT34C5
-  [0000000FD6F0000 - 0000000FD6FFFFF] Motherboard resources
- >  [0000000FE000000 - 0000000FE01FFFF] Motherboard resources
-  [0000000FE04C000 - 0000000FE04FFFF] Motherboard resources
-  [0000000FE050000 - 0000000FE0AFFFF] Motherboard resources
-  [0000000FE0D0000 - 0000000FE0FFFFF] Motherboard resources
-  [0000000FE200000 - 0000000FE7FFFFF] Motherboard resources
-  [0000000FED00000 - 0000000FED003FF] High precision event timer
- >  [0000000FED20000 - 0000000FED7FFFF] Motherboard resources
-  [0000000FED45000 - 0000000FED8FFFF] Motherboard resources
-  [0000000FED90000 - 0000000FED93FFF] Motherboard resources
-  [0000000FEDA0000 - 0000000FEDA0FFF] Motherboard resources
-  [0000000FEDA1000 - 0000000FEDA1FFF] Motherboard resources
-  [0000000FEDC0000 - 0000000FEDC7FFF] Motherboard resources
-  [0000000FEE00000 - 0000000FEEFFFFF] Motherboard resources
-  [0000000FF000000 - 0000000FFFFFFFF] Motherboard resources
- >  [00000040000000000 - 000000400FFFFFFF] Intel(R) Iris(R) Xe Graphics
- >  [00000060000000000 - 000000600FFFFFFF] Intel(R) Iris(R) Xe Graphics
-  [00000060011000000 - 000000600110FFFFF] Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)
-  [00000060011100000 - 000000600111FFFFF] Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)
-  [00000060011280000 - 00000060011280FFF] Intel(R) SMBus - A0A3
-  [00000060014200000 - 000000600142FFFFF] Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)
-  [00000060014300000 - 000000600143FFFFF] Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)
-  [00000060014400000 - 0000006001447FFFF] PCI Data Acquisition and Signal Processing Controller
-  [0000007FFFEF40000 - 0000007FFFEF4FFFF] Intel(R) Serial IO I2C Host Controller - A0C6
-  [0000007FFFEF50000 - 0000007FFFEF5FFFF] Intel(R) Serial IO I2C Host Controller - A0C5
-  [0000007FFFEF60000 - 0000007FFFEF6FFFF] Intel(R) Serial IO I2C Host Controller - A0EB
-  [0000007FFFEF70000 - 0000007FFFEF7FFF] Intel(R) Serial IO I2C Host Controller - A0EA
-  [0000007FFFEF80000 - 0000007FFFEF8FFF] Intel(R) Serial IO I2C Host Controller - A0E8
-  [0000007FFFEF90000 - 0000007FFFEF9FFF] Intel(R) Serial IO UART Host Controller - A0A8
-  [0000007FFFEFA0000 - 0000007FFFEFAFFF] Intel(R) Serial IO I2C Host Controller - A0D8
-  [0000007FFFEFB0000 - 0000007FFFEFBFFF] Intel(R) Serial IO SPI Host Controller - A0AB
-  [0000007FFFEFC0000 - 0000007FFFEFCFFF] High Definition Audio Controller
-  [0000007FFFEFD0000 - 0000007FFFEFDFFF] High Definition Audio Controller

A.3 IRQ Mapping Chart

▼		Interrupt request (IRQ)
		(ISA) 0x00000000 (00) System timer
		(ISA) 0x00000000 (00) System timer
		(ISA) 0x00000001 (01) Standard PS/2 Keyboard
		(ISA) 0x00000003 (03) Communications Port (COM2)
		(ISA) 0x00000004 (04) Communications Port (COM1)
		(ISA) 0x0000000B (11) Communications Port (COM3)
		(ISA) 0x0000000B (11) Communications Port (COM4)
		(ISA) 0x0000000C (12) PS/2 Compatible Mouse
		(ISA) 0x0000000E (14) Intel(R) Serial IO GPIO Host Controller - INT34C5
		(ISA) 0x0000001C (28) Trusted Platform Module 2.0
		(ISA) 0x00000036 (54) Microsoft ACPI-Compliant System
		(ISA) 0x00000037 (55) Microsoft ACPI-Compliant System
		(ISA) 0x00000038 (56) Microsoft ACPI-Compliant System
		(ISA) 0x00000039 (57) Microsoft ACPI-Compliant System
		(ISA) 0x0000003A (58) Microsoft ACPI-Compliant System
		(ISA) 0x0000003B (59) Microsoft ACPI-Compliant System
		(ISA) 0x0000003C (60) Microsoft ACPI-Compliant System
		(ISA) 0x0000003D (61) Microsoft ACPI-Compliant System
		(ISA) 0x0000003E (62) Microsoft ACPI-Compliant System
		(ISA) 0x0000003F (63) Microsoft ACPI-Compliant System
		(ISA) 0x00000040 (64) Microsoft ACPI-Compliant System
		(ISA) 0x00000041 (65) Microsoft ACPI-Compliant System
		(ISA) 0x00000042 (66) Microsoft ACPI-Compliant System
		(ISA) 0x00000043 (67) Microsoft ACPI-Compliant System
		(ISA) 0x00000044 (68) Microsoft ACPI-Compliant System
		(ISA) 0x00000045 (69) Microsoft ACPI-Compliant System
		(ISA) 0x00000046 (70) Microsoft ACPI-Compliant System
		(ISA) 0x00000047 (71) Microsoft ACPI-Compliant System
		(ISA) 0x00000048 (72) Microsoft ACPI-Compliant System
		(ISA) 0x00000049 (73) Microsoft ACPI-Compliant System
		(ISA) 0x0000004A (74) Microsoft ACPI-Compliant System
		(ISA) 0x0000004B (75) Microsoft ACPI-Compliant System
		(ISA) 0x0000004C (76) Microsoft ACPI-Compliant System
		(ISA) 0x0000004D (77) Microsoft ACPI-Compliant System
		(ISA) 0x0000004E (78) Microsoft ACPI-Compliant System
		(ISA) 0x0000004F (79) Microsoft ACPI-Compliant System
		(ISA) 0x00000050 (80) Microsoft ACPI-Compliant System
		(ISA) 0x00000051 (81) Microsoft ACPI-Compliant System
		(ISA) 0x00000052 (82) Microsoft ACPI-Compliant System
		(ISA) 0x00000053 (83) Microsoft ACPI-Compliant System
		(ISA) 0x00000054 (84) Microsoft ACPI-Compliant System

 (ISA) 0x000001E7 (487)	Microsoft ACPI-Compliant System
 (ISA) 0x000001E8 (488)	Microsoft ACPI-Compliant System
 (ISA) 0x000001E9 (489)	Microsoft ACPI-Compliant System
 (ISA) 0x000001EA (490)	Microsoft ACPI-Compliant System
 (ISA) 0x000001EB (491)	Microsoft ACPI-Compliant System
 (ISA) 0x000001EC (492)	Microsoft ACPI-Compliant System
 (ISA) 0x000001ED (493)	Microsoft ACPI-Compliant System
 (ISA) 0x000001EE (494)	Microsoft ACPI-Compliant System
 (ISA) 0x000001EF (495)	Microsoft ACPI-Compliant System
 (ISA) 0x000001F0 (496)	Microsoft ACPI-Compliant System
 (ISA) 0x000001F1 (497)	Microsoft ACPI-Compliant System
 (ISA) 0x000001F2 (498)	Microsoft ACPI-Compliant System
 (ISA) 0x000001F3 (499)	Microsoft ACPI-Compliant System
 (ISA) 0x000001F4 (500)	Microsoft ACPI-Compliant System
 (ISA) 0x000001F5 (501)	Microsoft ACPI-Compliant System
 (ISA) 0x000001F6 (502)	Microsoft ACPI-Compliant System
 (ISA) 0x000001F7 (503)	Microsoft ACPI-Compliant System
 (ISA) 0x000001F8 (504)	Microsoft ACPI-Compliant System
 (ISA) 0x000001F9 (505)	Microsoft ACPI-Compliant System
 (ISA) 0x000001FA (506)	Microsoft ACPI-Compliant System
 (ISA) 0x000001FB (507)	Microsoft ACPI-Compliant System
 (ISA) 0x000001FC (508)	Microsoft ACPI-Compliant System
 (ISA) 0x000001FD (509)	Microsoft ACPI-Compliant System
 (ISA) 0x000001FE (510)	Microsoft ACPI-Compliant System
 (ISA) 0x000001FF (511)	Microsoft ACPI-Compliant System
 (PCI) 0x00000010 (16)	High Definition Audio Controller
 (PCI) 0x00000010 (16)	Intel(R) Serial IO UART Host Controller - A0A8
 (PCI) 0x00000012 (18)	Intel(R) Serial IO I2C Host Controller - A0D8
 (PCI) 0x0000001B (27)	Intel(R) Serial IO I2C Host Controller - A0E8
 (PCI) 0x0000001D (29)	Intel(R) Serial IO I2C Host Controller - A0EA
 (PCI) 0x0000001E (30)	Intel(R) Serial IO I2C Host Controller - A0EB
 (PCI) 0x0000001F (31)	Intel(R) Serial IO I2C Host Controller - A0C5
 (PCI) 0x00000020 (32)	Intel(R) Serial IO I2C Host Controller - A0C6
 (PCI) 0x00000025 (37)	Intel(R) Serial IO SPI Host Controller - A0AB
 (PCI) 0xFFFFFFFF8 (-8)	Intel(R) Ethernet Connection (13) I219-LM
 (PCI) 0xFFFFFFFF9 (-7)	Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)
 (PCI) 0xFFFFFFFFA (-6)	Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)
 (PCI) 0xFFFFFFFFB (-5)	Intel(R) Iris(R) Xe Graphics
 (PCI) 0xFFFFFFFFC (-4)	Standard SATA AHCI Controller
 (PCI) 0xFFFFFFFFD (-3)	Intel(R) PCI Express Root Port #1 - A0B8
 (PCI) 0xFFFFFFFFE (-2)	Intel(R) PCI Express Root Port #8 - A0BF

Appendix B

Mating Connectors and Cables

B.1 Mating Connectors and Cables

Connector Label	Function	Mating Connector		Available Cable	Cable P/N
		Vendor	Model no		
JP1	Front Panel Connector	Flyingway	FWAA-1049	LED cable	1709100108
CN1	+5Vout Connector	PINREX	PHR-2	2 Pins for HDD Power	1702150155
CN2	SATA Connector	Molex	887505318	SATA Cable	1709070460
CN3	+9~36V Vin Connector	N/A	N/A	Power Cable	170204010R
CN5	Audio Connector	ACES	50247-012H0 H0-001	Audio Cable	170X000517
CN6	External +5VSB Power Input and PS_ON#	JST	PHR-3	ATX Cable	170220020B
CN13	COM Port 1/2 Connector	ACES	50247-020H0 H0-001	Serial Port Cable	170X000508
CN16	I2C/SM BUS/Debug Connector	Molex	51021-1200	I2C/SM BUS Cable	1703120130
CN21	USB Port Connector	Aces	50238-01041-003	USB Wafer Cable	170010010D
CN23	CPU Fan Connector	Molex	22-01-2035	N/A	N/A
CN31	External RTC Connector	Molex	51021-0200	Battery Cable	175011901C