de next-TGU8

de next Board

User's Manual 2nd Ed

Last Updated: January 11, 2023

Copyright Notice

Acknowledgement

Packing List

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

Item	Quantity
de next-TGU8	1
Copper Stud.M2.5	4

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.

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 Main Board/ Daughter Board/ Backplane

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	x	x	O	O	O	O
外部信号连接器及线材	x	X	O	O	O	O

O：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 SJ/T 11363-2006 标准规定的限量要求以下。

X：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。

备注：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。

China RoHS Requirement (EN)

Poisonous or Hazardous Substances or Elements in Products

AAEON Main Board/ Daughter Board/ Backplane

Component	Poisonous or Hazardous Substances or Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
PCB & Other Components	x	x	O	O	O	O
Wires & Connectors for External Connections	x	x	O	O	O	O

O：The quantity of poisonous or hazardous substances or elements found in each of the component's parts is below the SJ/T 11363-2006-stipulated requirement.

X: The quantity of poisonous or hazardous substances or elements found in at least one of the component's parts is beyond the SJ/T 11363-2006-stipulated requirement.

Note: The Environment Friendly Use Period as labeled on this product is applicable under normal usage only

Table of Contents

Chapter 1

Product Specifications

1.1 Specifications

System	
Form Factor	86mm x 55mm, Single board computer
CPU	Onboard 11th Gen. Intel® Core™ Processor i7-1185G7E (4C/8T, 1.80GHz, up to 4.40GHz) i5-1145G7E (4C/8T, 1.50GHz, up to 4.10GHz) i3-1115G4E (2C/4T, 2.20GHz, up to 3.90GHz)
CPU TDP	15W (TDP up to 28W)
Chipset	Integrated with Intel® SoC
Memory Type	Onboard LPDDR4x, 3733MT/s, up to 16GB
BIOS	UEFI
Wake on LAN	Yes
Watchdog Timer	255 Levels
Security	fTPM
RTC battery	Lithium Battery 3V/240mAh
Dimension (L x W)	3.38" x 2.17" (86mm x 55mm)

Power	
Power Requirement	+12V DC in
Power Supply Type	AT/ATX (AT mode as default)
Connector	DC Jack
Power Consumption	i7-1185G7E + LPDDR4x 16GB: 12V@ 12V@7A, 84W (Peak during full loading) i7-1185G7E + LPDDR4x 16GB: 12V@4.58A, 55W (steady state during full loading)

Display

Controller	Intel® UHD Graphics for 11th Gen Intel® Processors
LVDS/EDP	eDP only, up to 3840 x 2160 Resolution
Display Interface	eDP x 1
	HDMI 1.4b x 1
Multiple Display	Up to 2 Simultaneous Displays

Audio

Codec	—
Audio Interface	—
Speaker	—

External I/O

Ethernet	Intel® i219LM, 10/100/1000Base, RJ-45 x 1
	Intel® i225LM, 10/100/2500Base, RJ-45 x 1
USB	USB 3.2 Gen 2 x 2 (Type A)
Serial Port	—
Video	HDMI 1.4b x 1

Internal I/O

USB	USB 2.0 x 4 (pin header)
	Note: USB 2.0 x 2 shared with adapter card
Serial Port	COM Port x 2 (RS232/422/485 pin header)
Video	eDP x 1
SATA	SATA III x 1
	+5V SATA Power Connector x 1

Internal I/O

Audio	—
DIO/GPIO	8-Bit (pin header)
SMBus/I2C	Optional
Touch	—
Fan	Smart Fan x 1
SIM	—
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset
Others	—

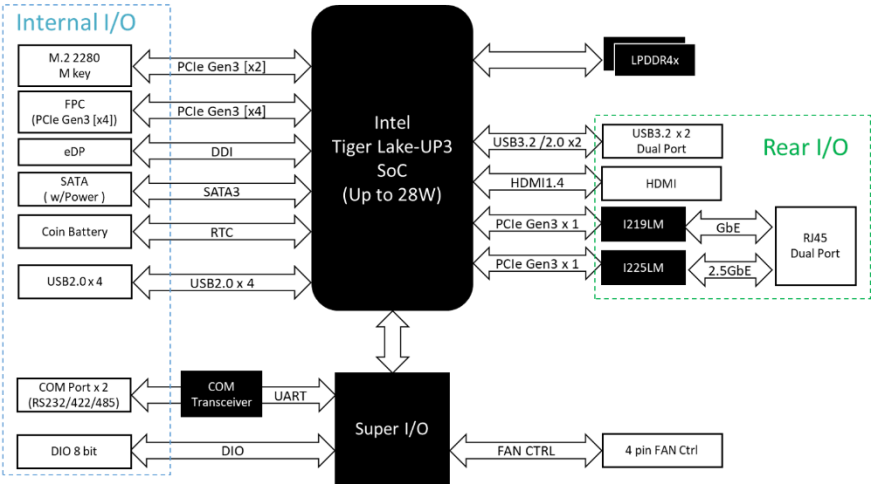
Expansion

Mini PCIe/MSATA	—
M.2	M.2 2280 M-Key x 1 (PCIe [x2])
Others	—

Environment & Certification

Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	594,420
EMC	CE/FCC Class A

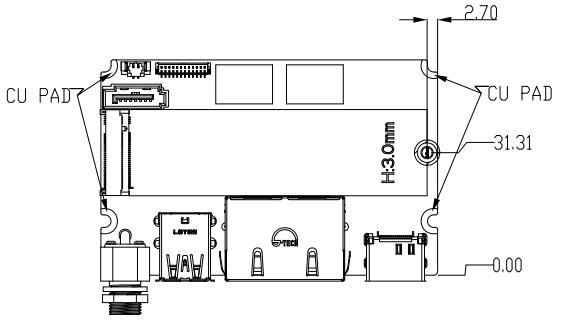
1.2 Block Diagram



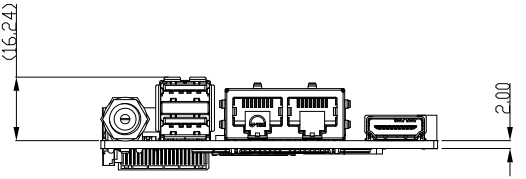
Chapter 2

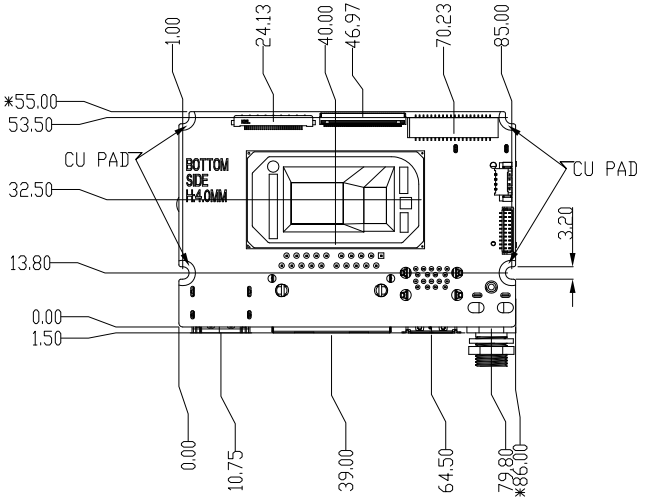
Hardware Information

2.1 Dimensions



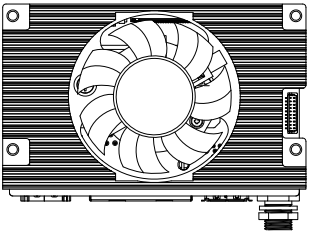
TOP SIDE

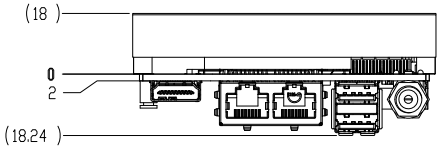


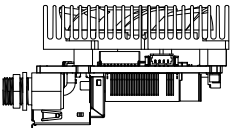


BOTTOM SIDE

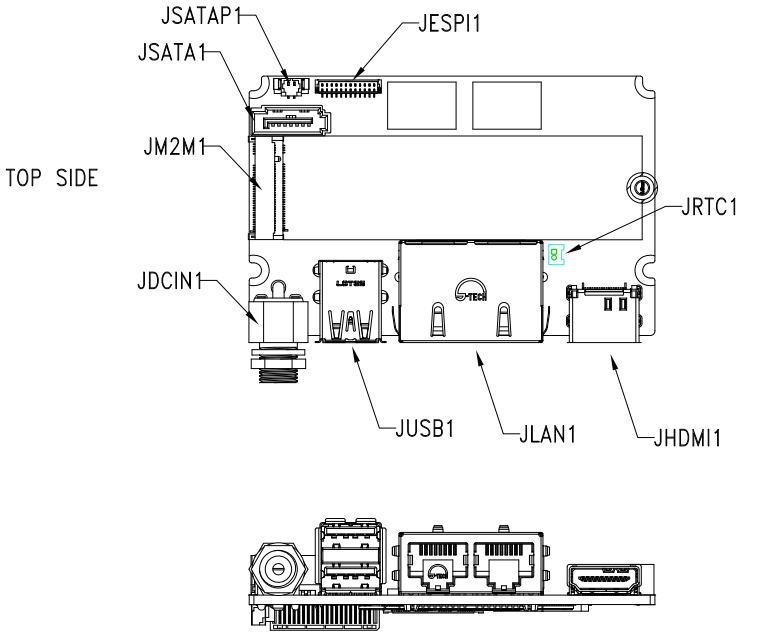
With CPU Cooler:

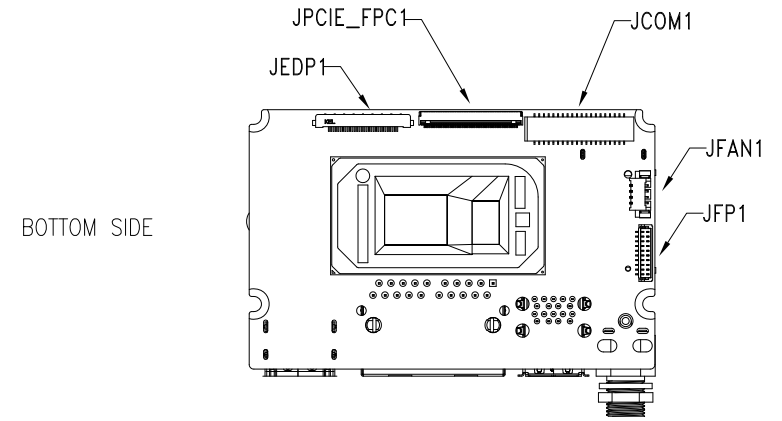






2.2 Jumpers and Connectors



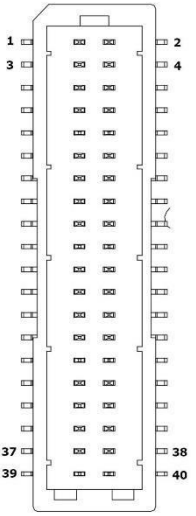


2.3 List of Connectors

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

Label	Function
JCOM1	COM, USB 2.0, DIO
JDCIN1	DC In
JEDP1	eDP
JESPI1	I2C, SMBus
JFAN1	FAN
JFP1	Front Panel
JHDMI1	HDMI
JLAN1	LAN
JM2M1	M.2 2280 M-Key
JPCIE_FPC1	PCIe
JRTC1	RTC Battery
JSATA1	SATA
JSATAP1	SATA Power
JUSB1	USB 3.2 Gen 2

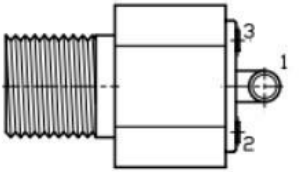
2.3.1 COM, USB 2.0, DIO (JCOM1)



Pin	Pin Name	Signal Type	Signal Level
1	DIO_7	I/O	5V
2	DIO_6	I/O	5V
3	DIO_5	I/O	5V
4	DIO_4	I/O	5V
5	DIO_3	I/O	5V
6	DIO_2	I/O	5V
7	DIO_1	I/O	5V
8	DIO_0	I/O	5V
9	GND	GND	-
10	GND	GND	-
11	USB2_6_DN_CM	I/O	-
12	USB2_5_DN_CM	I/O	-
13	USB2_6_DP_CM	I/O	-
14	USB2_5_DP_CM	I/O	-

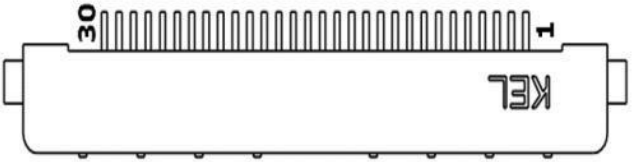
Pin	Pin Name	Signal Type	Signal Level
15	+V5A_USB3456	I/O	-
16	+V5A_USB3456	I/O	-
17	USB2_4_DN_CM	I/O	-
18	USB2_3_DN_CM	I/O	-
19	USB2_4_DP_CM	I/O	-
20	USB2_3_DP_CM	I/O	-
21	GND	GND	-
22	GND	GND	-
23	RI_2_CON	I/O	-
24	RI_1_CON	I/O	-
25	CTS_2_CON	I/O	-
26	CTS_1_CON	I/O	-
27	RTS_2_CON	I/O	-
28	RTS_1_CON	I/O	-
29	DSR_2_CON	I/O	-
30	DSR_1_CON	I/O	-
31	DTR_2_CON	I/O	-
32	DTR_1_CON	I/O	-
33	TX_2_CON	I/O	-
34	TX_1_CON	I/O	-
35	RX_2_CON	I/O	-
36	RX_1_CON	I/O	-
37	DCD_2_CON	I/O	-
38	DCD_1_CON	I/O	-
39	+V5S	PWR	-
40	GND	GND	-

2.3.2 DC In (JDCIN2)



Pin	Pin Name	Signal Type
1	+VIN	PWR
2	GND	GND

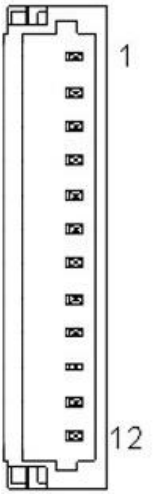
2.3.3 eDP (JEDP1)



Pin	Pin Name	Signal Type
1	+VDD_EDP	PWR
2	+VDD_EDP	PWR
3	GND	GND
4	GND	GND
5	DDI0_LANE2_DN_CH	I/O
6	DDI0_LANE2_DP_CH	I/O
7	GND	GND
8	DDI0_LANE1_DN_CH	I/O
9	DDI0_LANE1_DP_CH	I/O
10	GND	GND

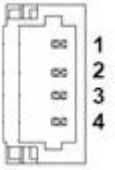
Pin	Pin Name	Signal Type
11	DDI0_LANE0_DN_CH	I/O
12	DDI0_LANE0_DP_CH	I/O
13	GND	GND
14	DDI0_LANE3_DN_CH	I/O
15	DDI0_LANE3_DP_CH	I/O
16	GND	GND
17	DDI0_AUX_DN_CH	I/O
18	DDI0_AUX_DP_CH	I/O
19	GND	GND
20	DDI0_BKLTCTL	I/O
21	NC	-
22	DDI0_BKLTEN	I/O
23	DDI0_HPD	I/O
24	GND	GND
25	GND	GND
26	GND	GND
27	+V12S	PWR
28	+V12S	PWR
29	+V12S	PWR
30	+V12S	PWR

2.3.4 I2C, SMBus (JESPI1)



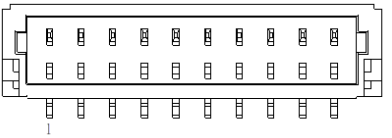
Pin	Pin Name	Signal Type
1	ESPI_IO0_EC_R	I/O
2	ESPI_IO1_EC_R	I/O
3	ESPI_IO2_EC_R	I/O
4	ESPI_IO3_EC_R	I/O
5	+V3P3S	PWR
6	ESPI_CS_EC_R_N	I/O
7	JESP1_I2C_SDA	I/O
8	GND	GND
9	JESP1_I2C_SCL	I/O
10	JESP1_SMB_SDA	I/O
11	JESP1_SMB_SCL	I/O
12	SMBALERT#	I/O

2.3.5 FAN (JFAN1)



Pin	Pin Name	Signal Type
1	GND	GND
2	+V12S	PWR
3	FAN_1_TAC_CON	I/O
4	FAN_1_CTL_CON	I/O

2.3.6 Front Panel (JFP1)



Pin	Pin Name	Signal Type
‘1	GND	GND
2	EXT_PWRBTN#	I/O
3	PCH_SATA_LED_N	I/O
4	V3P3S_FP1	POWER
5	FP_BUZZER	I/O
6	V5S_FP1	POWER

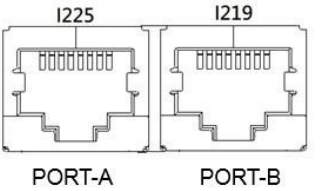
Pin	Pin Name	Signal Type
7	GND	GND
8	V3P3S_FP2	POWER
9	GND	GND
10	HWRST#	I/O

2.3.7 HDMI (JHDMI1)

Pin	Pin Name	Signal Type
1	HDMI1_D2_DP_CM	I/O
2	GND	GND
3	HDMI1_D2_DN_CM	I/O
4	HDMI1_D1_DP_CM	I/O
5	GND	GND
6	HDMI1_D1_DN_CM	I/O
7	HDMI1_D0_DP_CM	I/O
8	GND	GND
9	HDMI1_D0_DN_CM	I/O
10	HDMI1_CLK_DP_CM	I/O
11	GND	GND
12	HDMI1_CLK_DN_CM	I/O
13	NC	-
14	NC	-

Pin	Pin Name	Signal Type
15	HDMI1_SCL	I/O
16	HDMI1_SDA	I/O
17	GND	GND
18	+V5S_HDMI	PWR
19	HDMI1_HPD	I/O

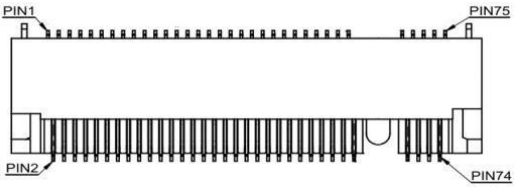
2.3.8 LAN (JLAN1)



Pin	Pin Name	Signal Type
1P1	LAN2_MDI0P	I/O
1P2	LAN2_MDI0N	I/O
1P3	LAN2_MDI1P	I/O
1P4	LAN2_MDI1N	I/O
1P5	LAN2_CT	I/O
1P6	LAN2_CT	I/O
1P7	LAN2_MDI2P	I/O
1P8	LAN2_MDI2N	I/O
1P9	LAN2_MDI3P	I/O
1P10	LAN2_MDI3N	I/O
2P1	LAN1_MDI0P	I/O
2P2	LAN1_MDI0N	I/O
2P3	LAN1_MDI1P	I/O

Pin	Pin Name	Signal Type
2P4	LAN1_MDI1N	I/O
2P5	LAN1_CT	I/O
2P6	LAN1_CT	I/O
2P7	LAN1_MDI2P	I/O
2P8	LAN1_MDI2N	I/O
2P9	LAN1_MDI3P	I/O
2P10	LAN1_MDI3N	I/O

2.3.9 M.2 2280 M-Key (JM2M1)

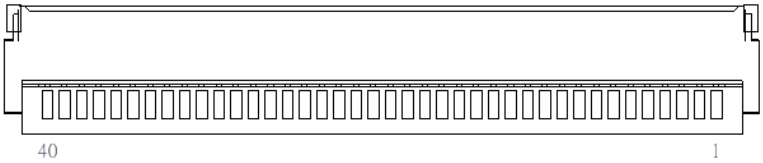


Pin	Pin Name	Signal Type
1	GND	GND
2	+V3P3S	PWR
3	GND	GND
4	+V3P3S	PWR
5	NC	-
6	CARD_PWR_EN_R	I/O
7	NC	-
8	NC	-
9	GND	GND
10	NC	-
11	NC	-
12	+V3P3S	PWR
13	NC	-
14	+V3P3S	PWR
15	GND	GND
16	+V3P3S	PWR
17	NC	-
18	+V3P3S	PWR
19	NC	-

Pin	Pin Name	Signal Type
20	NC	-
21	GND	GND
22	NC	-
23	NC	-
24	NC	-
25	NC	-
26	NC	-
27	GND	GND
28	NC	-
29	PCIE4_1_RXN	I/O
30	NC	-
31	PCIE4_1_RXP	I/O
32	NC	-
33	GND	GND
34	NC	-
35	PCIE4_1_TXN_M2	I/O
36	NC	-
37	PCIE4_1_TXP_M2	I/O
38	NC	-
39	GND	GND
40	M2M_SMB_CLK	I/O
41	PCIE4_0_RXN	I/O
42	M2M_SMB_DATA	I/O
43	PCIE4_0_RXP	I/O
44	NC	-
45	GND	GND

Pin	Pin Name	Signal Type
46	NC	-
47	PCIE4_0_TXN_M2	I/O
48	NC	-
49	PCIE4_0_TXP_M2	I/O
50	BUF_PLT_RST#	I/O
51	GND	GND
52	NC	I/O
53	PCIE_0_CLK_DN	I/O
54	PCIE_WAKE#	I/O
55	PCIE_0_CLK_DP	I/O
56	NC	-
57	GND	GND
58	NC	-
59	NC	-
67	NC	-
68	M2M_SSCLK	I/O
69	NC	-
70	+V3P3S	PWR
71	GND	GND
72	+V3P3S	PWR
73	GND	GND
74	+V3P3S	PWR
75	GND	GND

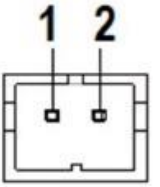
2.3.10 PCIe (JPCIE_FPC1)



Pin	Pin Name	Signal Type	Signal Level
1	+V3P3S	PWR	+3.3V
2	+V3P3S	PWR	+3.3V
3	+V3P3S	PWR	+3.3V
4	SMB_DATA	I/O	+3.3V
5	SMB_CLK	I/O	-
6	BUF_PLT_RST#	I/O	-
7	+V3P3A	PWR	-
8	GND	GND	-
9	PCIE7_RXP	I/O	-
10	PCIE7_RXN	I/O	-
11	GND	GND	-
12	PCIE5_RXP	I/O	-
13	PCIE5_RXN	I/O	-
14	GND	GND	-
15	PCIE6_RXP	I/O	-
16	PCIE6_RXN	I/O	-
17	GND	GND	-
18	PCIE8_RXP	I/O	-
19	PCIE8_RXN	I/O	-
20	GND	GND	-

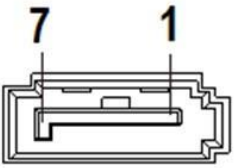
Pin	Pin Name	Signal Type	Signal Level
21	PCIE5_TXN_C	I/O	-
22	PCIE5_TXP_C	I/O	-
23	GND	GND	-
24	PCIE6_TXN_C	I/O	-
25	PCIE6_TXP_C	I/O	-
26	GND	GND	-
27	PCIE7_TXN_C	I/O	-
28	PCIE7_TXP_C	I/O	-
29	GND	GND	-
30	PCIE_5_CLK_DN	I/O	-
31	PCIE_5_CLK_DP	I/O	-
32	GND	GND	-
33	PCIE8_TXN_C	I/O	-
34	PCIE8_TXP_C	I/O	-
35	GND	GND	-
36	+V12S	PWR	-
37	+V12S	PWR	-
38	+V12S	PWR	-
39	+V12S	PWR	-
40	+V12S	PWR	-

2.3.11 RTC Battery (JRTC1)



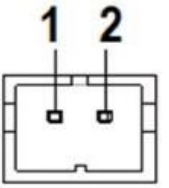
Pin	Pin Name	Signal Type
1	+VRTC_BATT	PWR
1	GND	GND

2.3.12 SATA (JSATA1)



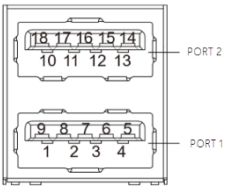
Pin	Pin Name	Signal Type
1	GND	GND
2	SATA_0_TXP	I/O
3	SATA_0_TXN	I/O
4	GND	GND
5	SATA_0_RXN	I/O
6	SATA_0_RXP	I/O
7	GND	GND

2.3.13 SATA Power (JSATAP1)



Pin	Pin Name	Signal Type
1	+V5S	PWR
2	GND	GND

2.3.14 USB 3.2 (JUSB1)



Pin	Pin Name	Signal Type
1	+V5A_USB12	PWR
2	USB2_1_DN_CM	I/O
3	USB2_1_DP_CM	I/O
4	GND	GND
5	USB31_1_RXN_CM	I/O
6	USB31_1_RXP_CM	I/O
7	GND	GND
8	USB31_1_TXN_CM	I/O
9	USB31_1_TXP_CM	I/O

Pin	Pin Name	Signal Type
10	+V5A_USB12	PWR
11	USB2_2_DN_CM	I/O
12	USB2_2_DP_CM	I/O
13	GND	GND
14	USB31_2_RXN_CM	I/O
15	USB31_2_RXP_CM	I/O
16	GND	GND
17	USB31_2_TXN_CM	I/O
18	USB31_2_TXP_CM	I/O

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

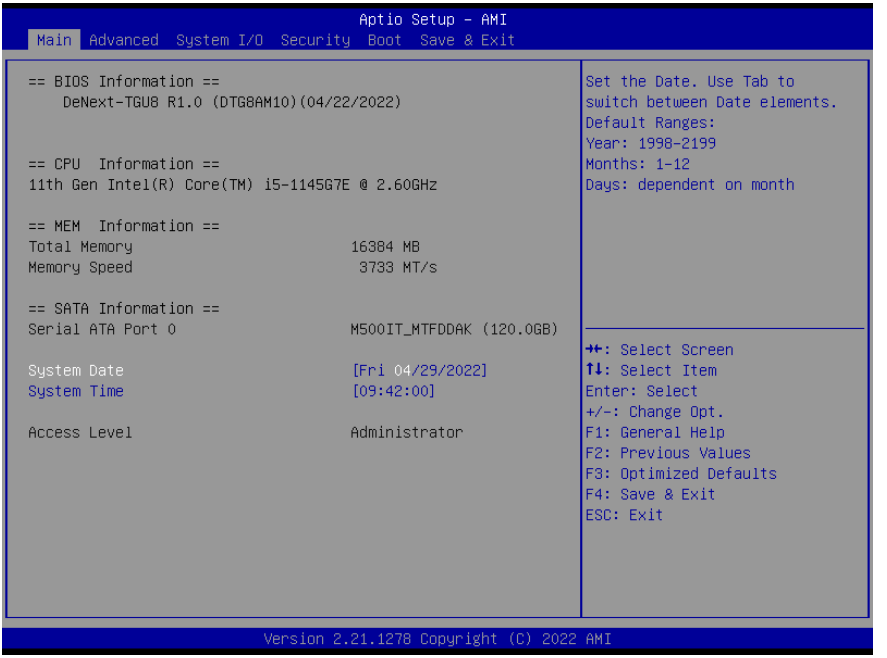
System I/O – Enable/ Disable System input and output port

Boot – Enable/ Disable quiet Boot Option

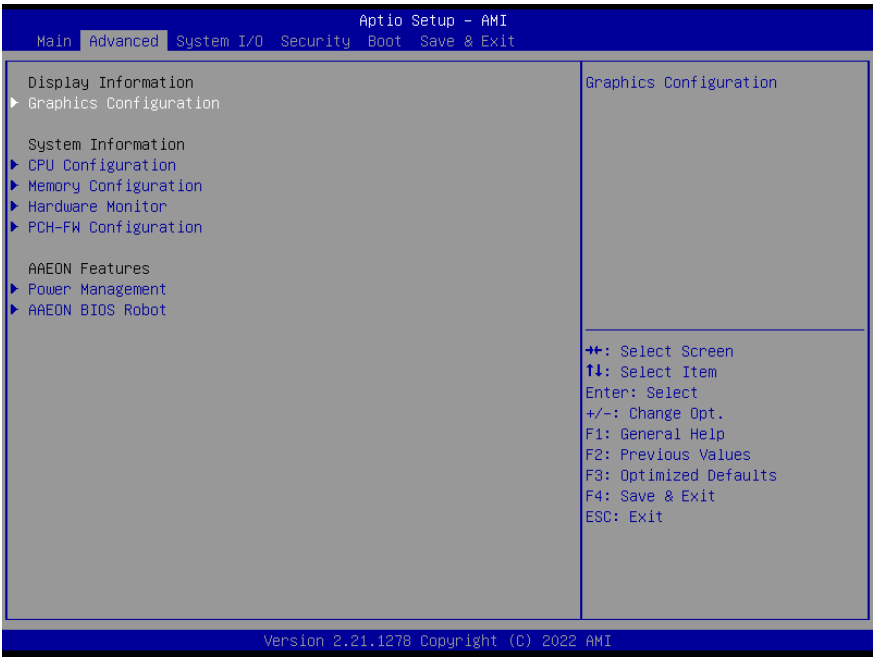
Security – The setup administrator password can be set here

Save & Exit –Save your changes and exit the program

3.3 Setup Submenu: Main



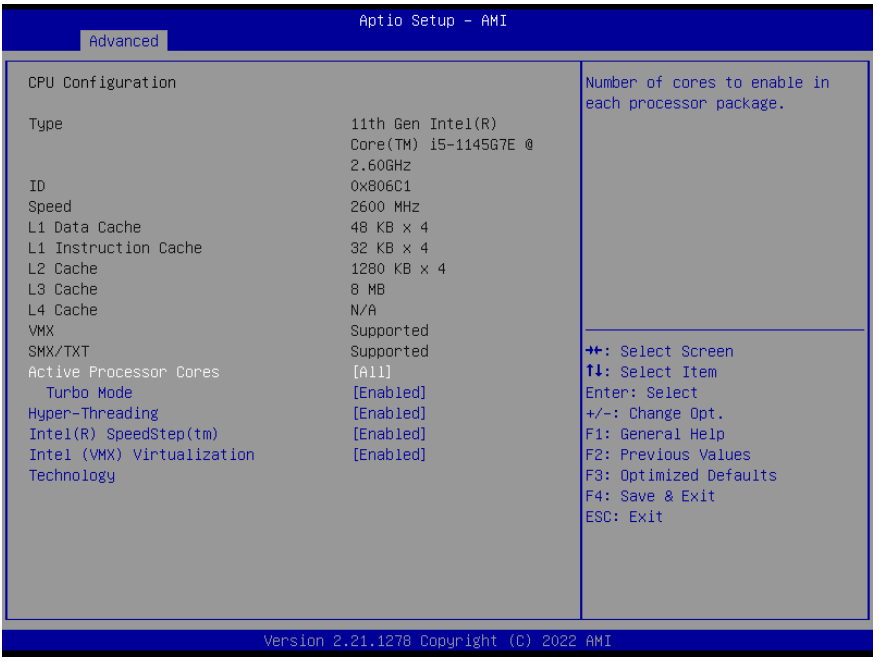
3.4 Setup Submenu: Advanced



3.4.1 Graphics Configuration

Options Summary		
VBT Select	eDP On	Optimal Default, Failsafe Default
	eDP Off	
Select VBT for GOP Driver		

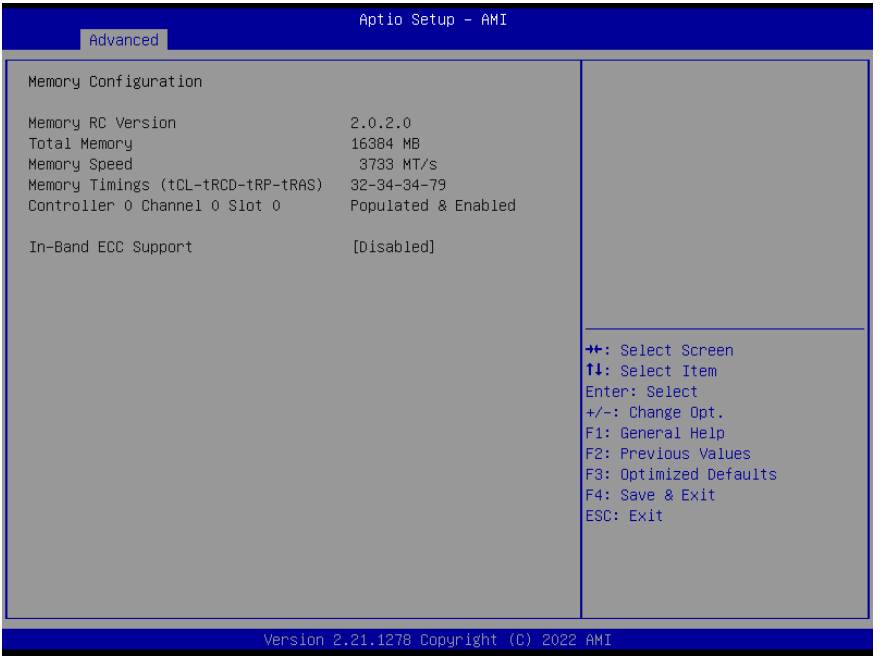
3.4.2 CPU Configuration



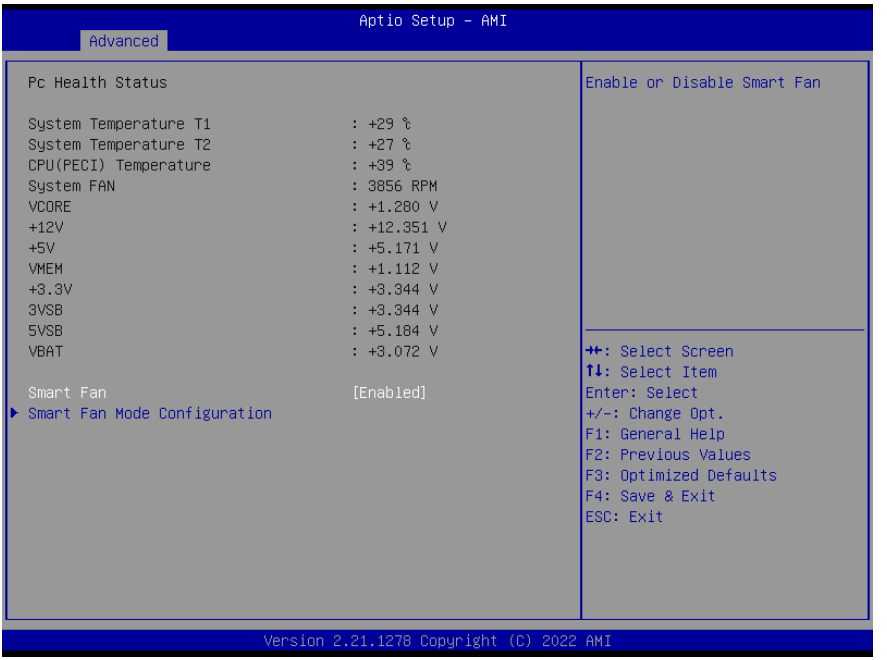
Options Summary		
Active Processor Cores	All	Optimal Default, Failsafe Default
	1	
	2	
	3	
Number of cores to enable in each processor package.		
Turbo Mode	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable/Disable processor Turbo Mode (requires EMTTM enabled too). AUTO means enabled		
Hyper-Threading	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable Hyper-Threading Technology.		
Intel(R) SpeedStep(tm)	Disabled	
	Enabled	Optimal Default, Failsafe Default
Allows more than two frequency ranges to be supported.		

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.		

3.4.3 Memory Configuration

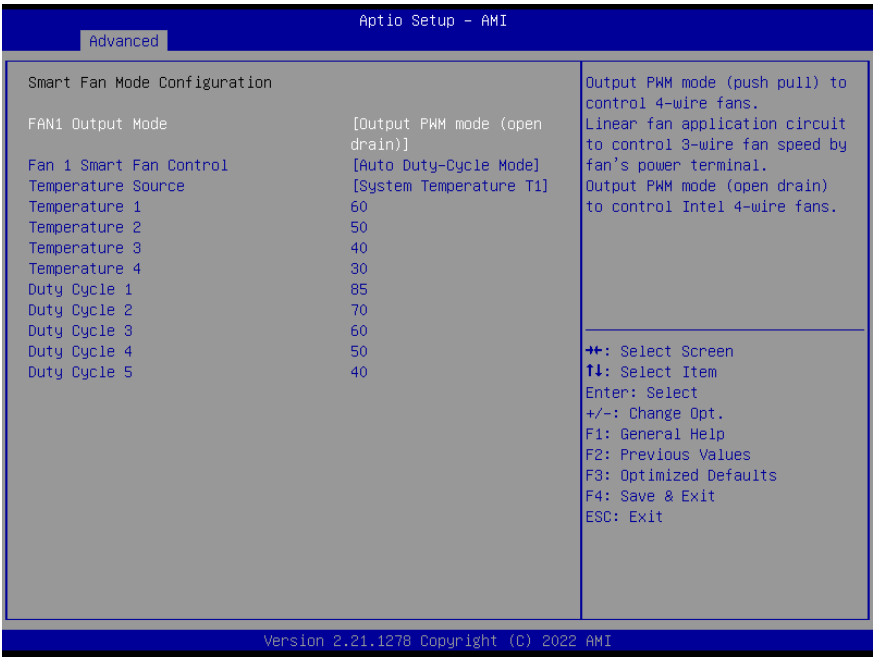


3.4.4 On-Module H/W Monitor



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

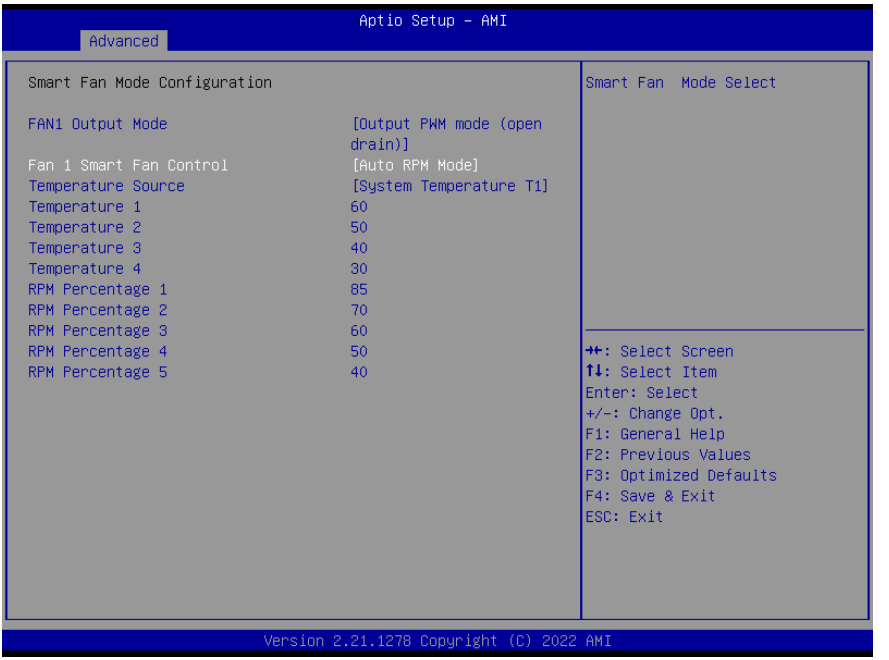
3.4.4.1 Smart Fan Mode Configuration



Options Summary		
FAN 1 Output Mode	Output PWM mode (open drain)	Optimal Default, Failsafe Default
	Linear Fan Application	
	Output PWM mode (push pull)	
Output PWM mode (push pull) to control 4-wires 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.		
Fan 1 Smart Fan Control	Manual RPM Mode	
	Manual Duty Mode	
	Auto RPM Mode	
	Auto Duty-Cycle Mode	Optimal Default, Failsafe Default
Select output PWM of inverting or non-inverting signal.		
Temperature Source	CPU(PECI) Temperature	
	System Temperature T1	Optimal Default, Failsafe Default
	System Temperature T2	
Select the monitored temperature source for this fan.		

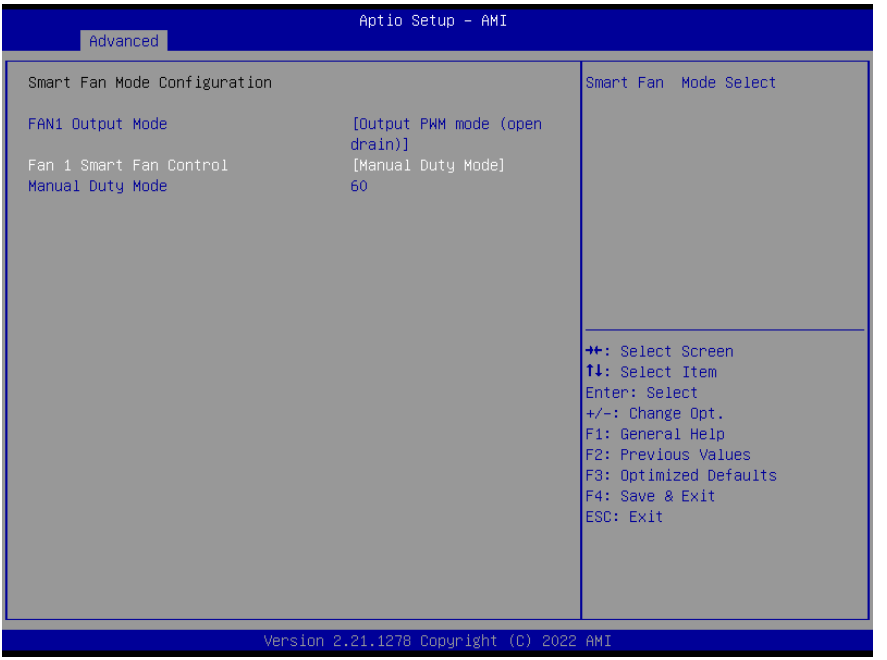
Options Summary		
Temperature 1	60	Optimal Default, Failsafe Default
Temperature 2	50	Optimal Default, Failsafe Default
Temperature 3	40	Optimal Default, Failsafe Default
Temperature 4	30	Optimal Default, Failsafe Default
Duty Cycle 1	85	Optimal Default, Failsafe Default
Duty Cycle 2	70	Optimal Default, Failsafe Default
Duty Cycle 3	60	Optimal Default, Failsafe Default
Duty Cycle 4	50	Optimal Default, Failsafe Default
Duty Cycle 5	40	Optimal Default, Failsafe Default
Auto fan speed control. Fan speed will follow different temperature by different duty cycle 1-100		

3.4.4.2 Auto RPM Mode



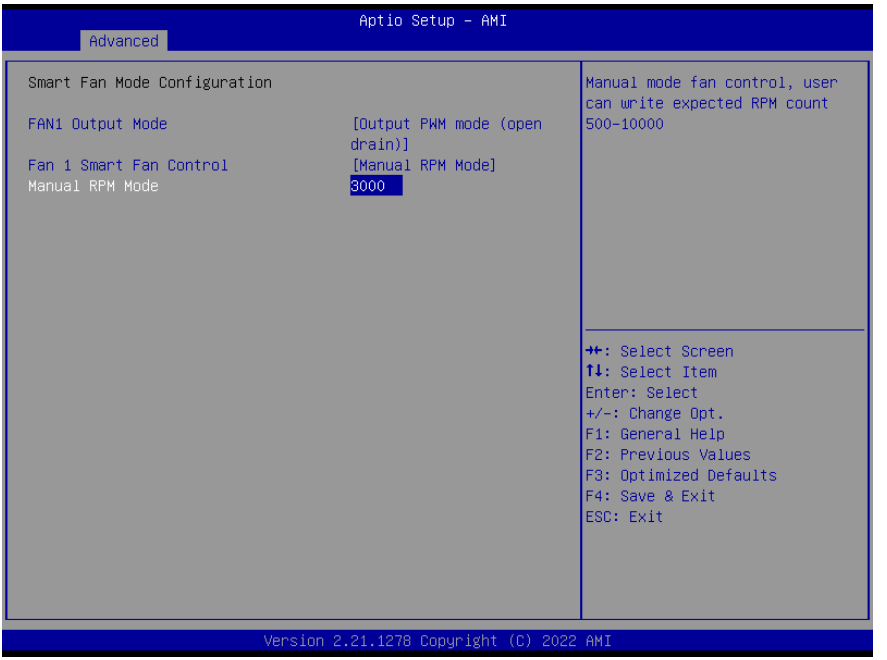
Options Summary		
RPM Percentage 1	85	Optimal Default, Failsafe Default
RPM Percentage 2	70	Optimal Default, Failsafe Default
RPM Percentage 3	60	Optimal Default, Failsafe Default
RPM Percentage 4	50	Optimal Default, Failsafe Default
RPM Percentage 5	40	Optimal Default, Failsafe Default
Auto fan speed control. Fan speed will follow different temperature by different RPM 1-100		

3.4.4.3 Manual Duty Mode



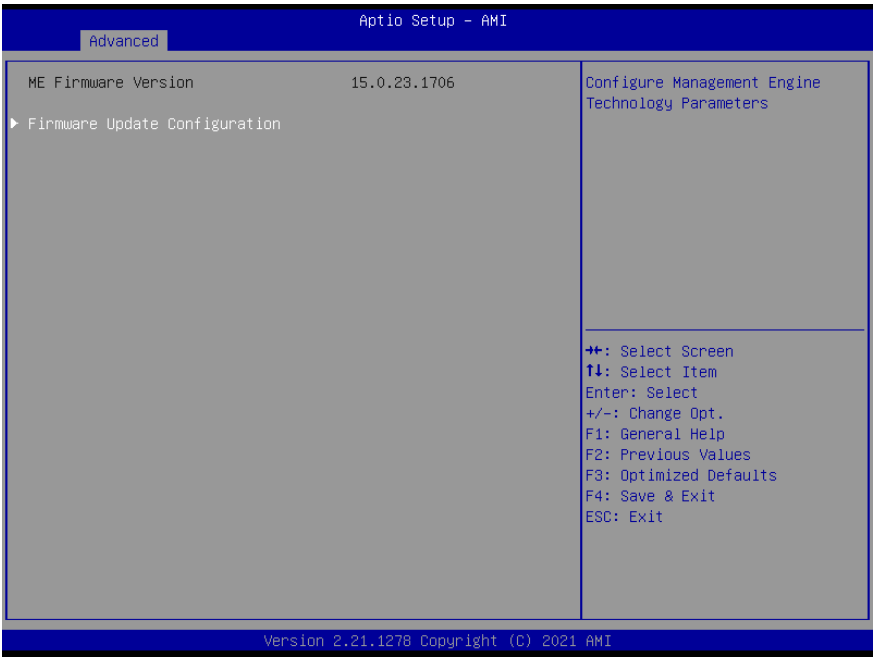
Options Summary		
Manual Duty Mode	60	Optimal Default, Failsafe Default
Manual mode fan control, user can write expected duty cycle (PWM fan type) 1-100		

3.4.4.4 Manual RPM Mode



Options Summary		
Manual RPM Mode	3000	Optimal Default, Failsafe Default
Manual mode fan control, user can write expected RPM count 500-10000		

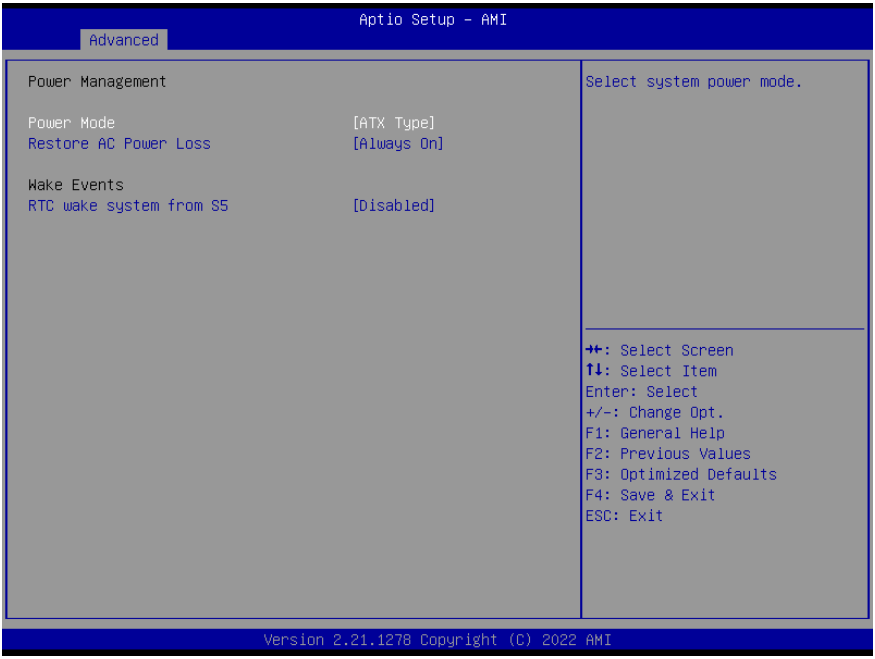
3.4.5 PCH-FW Configuration



3.4.5.1 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.		

3.4.6 Power Management

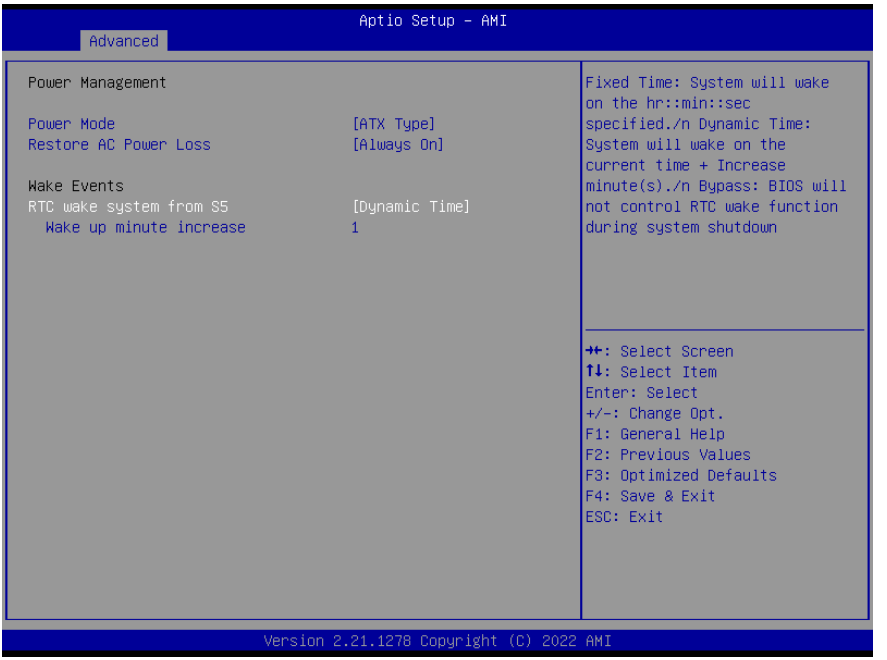


Options Summary		
Power Mode	ATX Type	Optimal Default, Failsafe Default
	AT Type	
Select system power mode.		
Restore AC Power Loss	Last State	
	Always On	Optimal Default, Failsafe Default
	Always Off	
Restore AC Power Loss: To decide the behavior after system power cut then resupply. Note: The COMS battery must present. Note: "Restore AC Power Loss - Last State" only supports ATX Mode.		
RTC wake system from S5	Disabled	Optimal Default, Failsafe Default
	Fixed Time	
	Dynamic Time	
	Bypass	
Fixed Time: System will wake on the hr::min::sec specified. Dynamic Time: System will wake on the current time + Increase minute(s). Bypass: BIOS will not control RTC wake function during system shutdown		

3.4.6.1 RTC Wake System from S5 (Fixed Time)

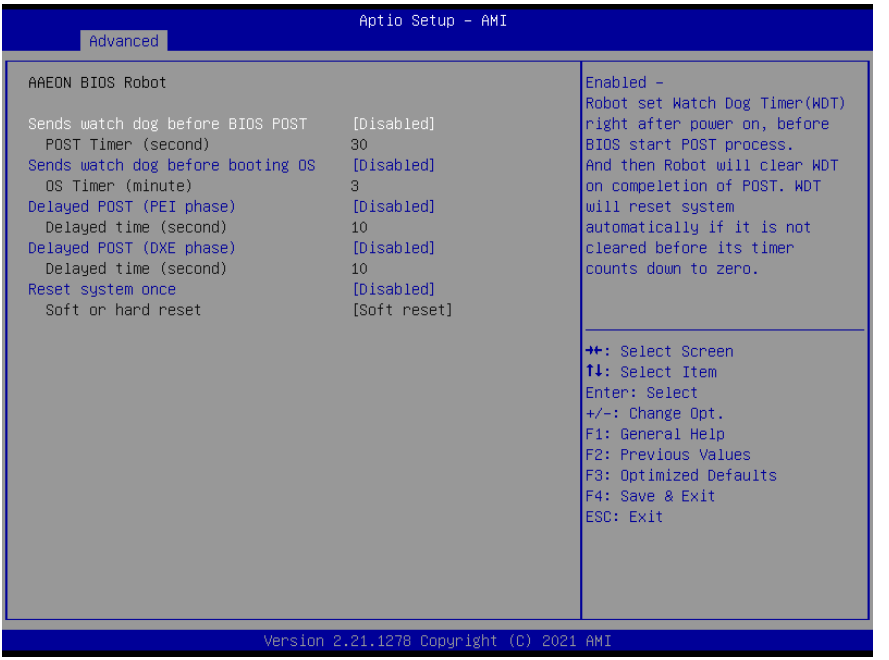
Options Summary		
Wake up day	0	Optimal Default, Failsafe Default
Select 0 for daily system wake up, 1-31 for which day of the month that you would like the system to wake up		
Wake up hour	0	Optimal Default, Failsafe Default
Select 0-23 For example enter 3 for 3am and 15 for 3pm		
Wake up minute	0	Optimal Default, Failsafe Default
0-59		
Wake up second	0	Optimal Default, Failsafe Default
0-59		

3.4.6.2 RTC Wake System from S5 (Dynamic Time)



Options Summary		
Wake up minute increase	1	Optimal Default, Failsafe Default
1-5		

3.4.7 AAEON BIOS Robot

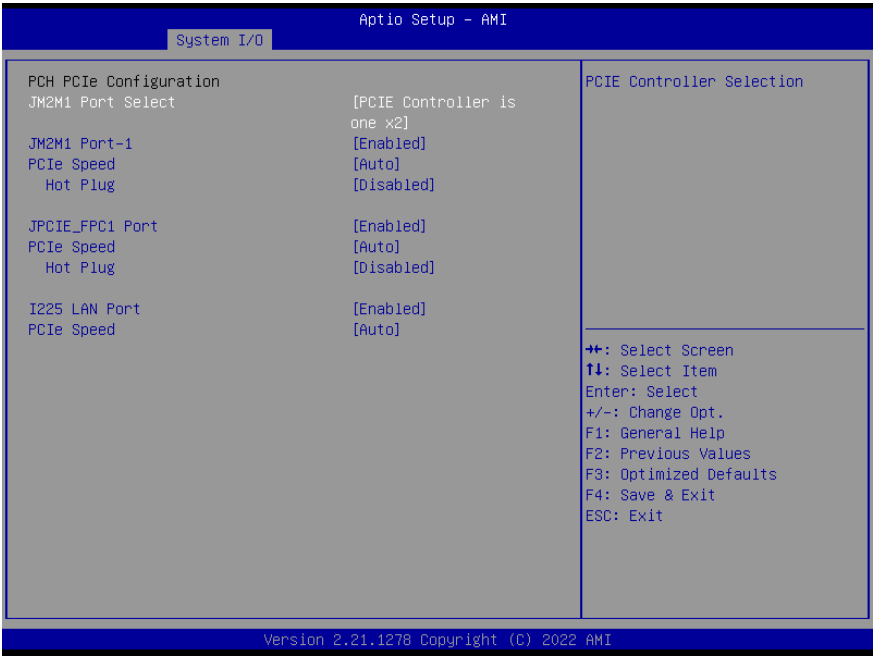


Options Summary		
Sends watch dog before BIOS POST	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled - Robot set Watch Dog Timer (WDT) right after power on, before BIOS start POST process. And then Robot will clear WDT on completion of POST. WDT will reset system automatically if it is not 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 or shorter than normal POST time, otherwise system may never complete POST unless clearing BIOS settings. More than 2x 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 transfer control to OS. Warning: Before enabling this function, a program in OS must be in 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 'Send 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 hand 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.		

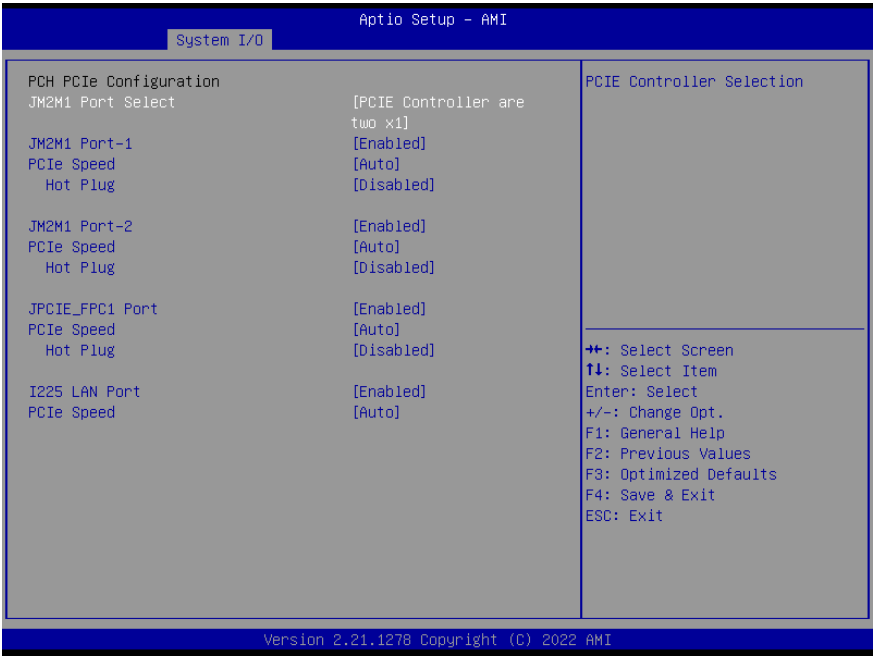
3.5 Setup Submenu: System I/O

3.5.1 PCI Express Configuration



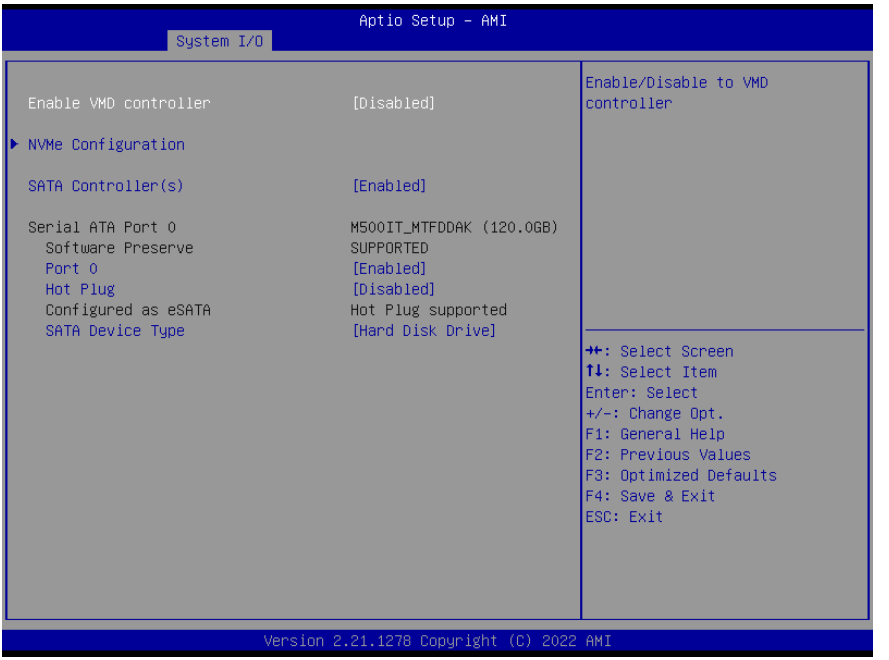
Options Summary		
JM2M1 Port Select	PCIE Controller are two x1	
	PCIE Controller is one x2	Optimal Default, Failsafe Default
PCIE Controller Selection		
JM2M1 Port-1	Disabled	
	Enabled	Optimal Default, Failsafe Default
Control the PCI Express Root Port.		
PCIe Speed	Auto	Optimal Default, Failsafe Default
	Gen1	
	Gen2	
	Gen3	
Configure PCIe Speed		
Hot Plug	Disabled	Optimal Default, Failsafe Default
	Enabled	
PCI Express Hot Plug Enable/Disable		
JPCIE_FPC1 Port	Disabled	Optimal Default, Failsafe Default
	Enabled	

Options Summary		
Control the PCI Express Root Port.		
PCIe Speed	Auto	Optimal Default, Failsafe Default
	Gen1	
	Gen2	
	Gen3	
Configure PCIe Speed		
Hot Plug	Disabled	Optimal Default, Failsafe Default
	Enabled	
PCI Express Hot Plug Enable/Disable		
I225 LAN Port	Disabled	
	Enabled	Optimal Default, Failsafe Default
Control the PCI Express Root Port.		
PCIe Speed	Auto	Optimal Default, Failsafe Default
	Gen1a	
	Gen2	
	Gen3	
Configure PCIe Speed		



Options Summary		
JM2M1 Port-2	Disabled	
	Enabled	Optimal Default, Failsafe Default
Control the PCI Express Root Port.		
PCIe Speed	Auto	Optimal Default, Failsafe Default
	Gen1	
	Gen2	
	Gen3	
Configure PCIe Speed		
Hot Plug	Disabled	Optimal Default, Failsafe Default
	Enabled	
PCI Express Hot Plug Enable/Disable		

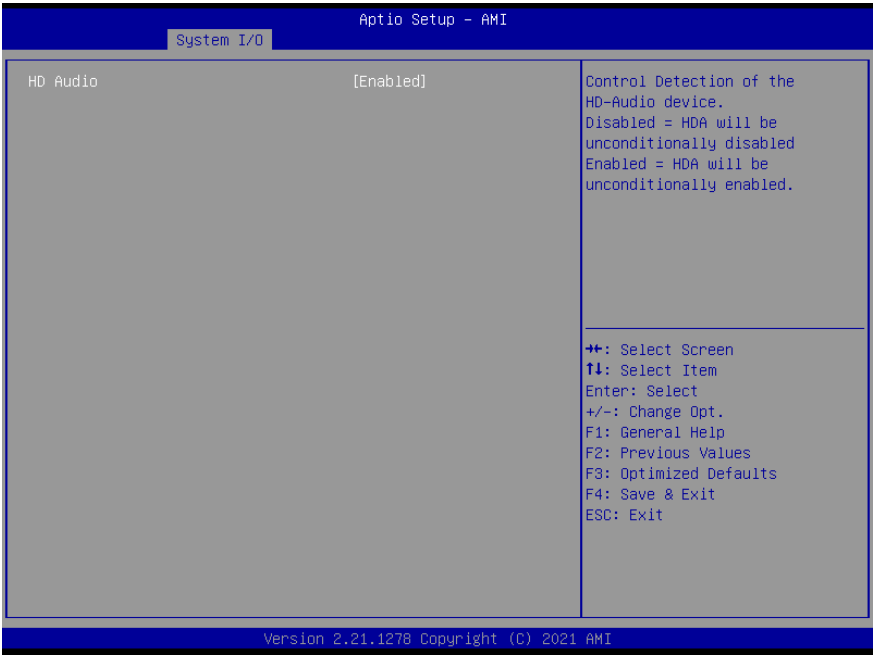
3.5.2 Storage Configuration



Options Summary		
Enable VMD Controller	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable/Disable to VMD controller		
SATA Controller(s)	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable/Disable SATA Device.		
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		
SATA Device Type	Hard Disk Drive	Optimal Default, Failsafe Default
	Solid State Drive	
Identify the SATA port is connected to Solid State Drive or Hard Disk Drive		

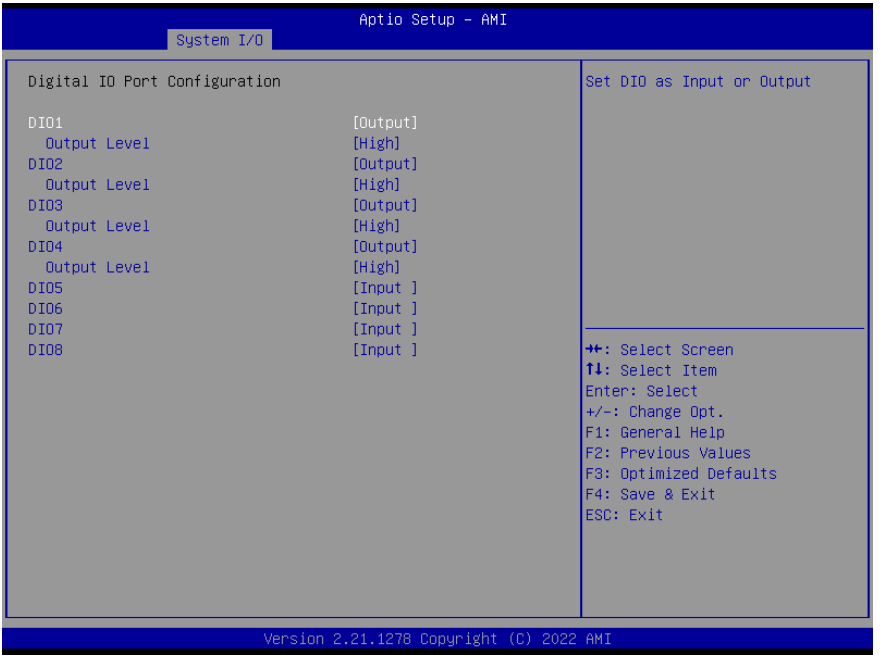
3.5.2.1 NVMe Configuration

3.5.3 HD Audio Configuration



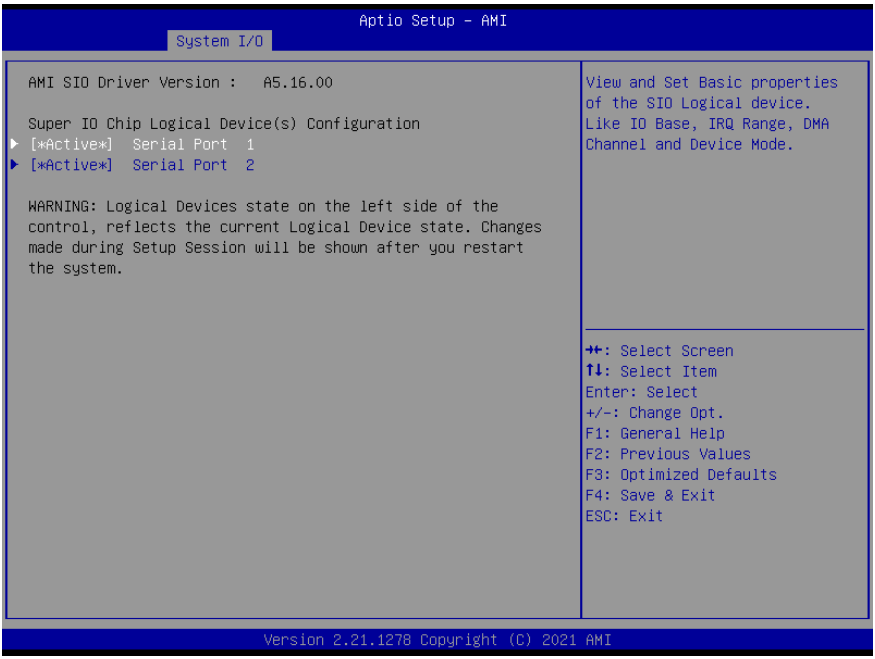
Options Summary		
HD Audio	Disabled	
	Enabled	Optimal Default, Failsafe Default
Control Detection of the HD-Audio device. Disabled = HAD will be unconditionally disabled Enabled = HAD will be unconditionally enabled.		

3.5.4 Digital IO Port Configuration



Options Summary		
DIO 1-4	Output	Optimal Default, Failsafe Default
	Input	
Set DIO as Input or Output		
DIO 5-8	Output	
	Input	Optimal Default, Failsafe Default
Set DIO as Input or Output		
Output Level	High	Optimal Default, Failsafe Default
	Low	
Set output level when DIO pin is output		

3.5.5 Legacy Logical Devices Configuration



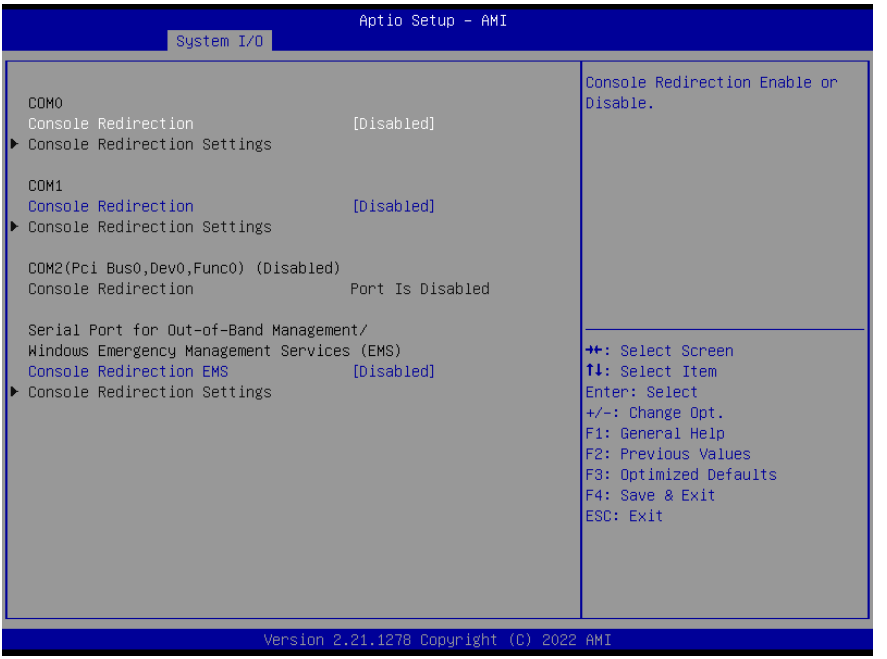
3.5.5.1 Serial Port 1

Options Summary		
Use This Device	Disabled	
	Enabled	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 the user to change the device 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		

3.5.5.2 Serial Port 2

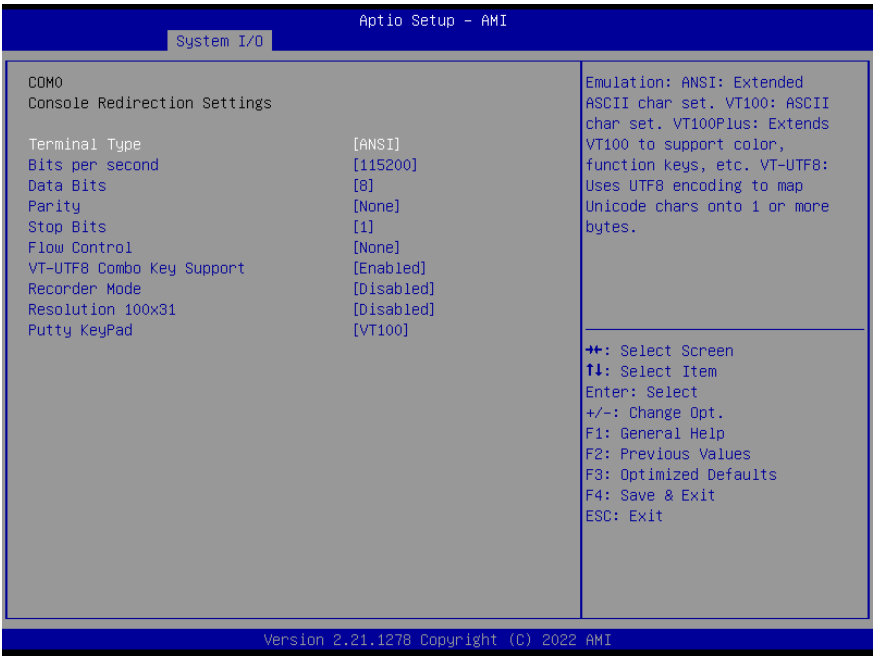
Options Summary		
Use This Device	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable this Logical Device.		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=2F8h; IRQ=3;	
	IO=3F8h; IRQ=4;	
Allows the user to change the device resource settings. New settings will be reflected on this setup page after system restarts.		
Mode:	RS232	Optimal Default, Failsafe Default
	RS422	
	RS485	
UART RS232, 422, 485 selection		

3.5.6 Serial Port Console Redirection



Options Summary		
COM0 Console Redirection	Disabled	Optimal Default, Failsafe Default
	Enabled	
Console Redirection Enable or Disable		
COM1 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		

3.5.6.1 COM0 Console Redirection Settings

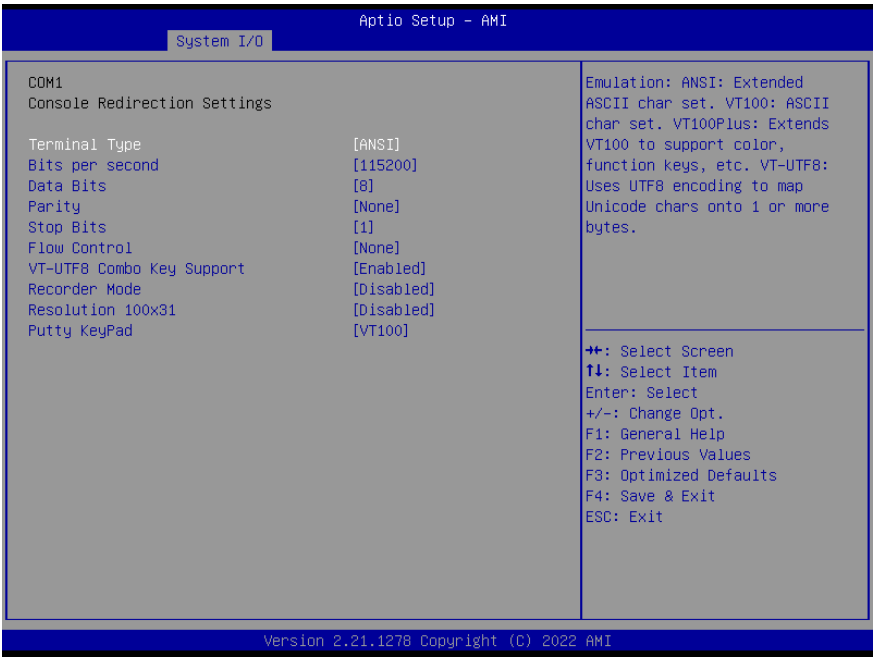


Options Summary		
Terminal Type	VT100	
	VT100+	
	VT-UTF8	Optimal Default, Failsafe Default
	ANSI	
Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100Plus: Extends VT100 to support color, function keys. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.		
Bits per 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.		

Options Summary		
Data Bits	7	
	8	Optimal Default, Failsafe Default
Data Bits		
Parity	None	Optimal Default, Failsafe Default
	Even	
	Odd	
	Mark	
	Space	
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		
Stop Bits	1	Optimal Default, Failsafe Default
	2	
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.		
Flow Control	None	Optimal Default, Failsafe Default
	Hardware RTS/CTS	
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.		
VT-UTF8 Combo Key Support	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals		
Recorder Mode	Disabled	Optimal Default, Failsafe Default
	Enabled	
On this mode enabled only text will be sent. This is to capture Terminal data.		
Resolution 100x31	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enables or disables extended terminal resolution		
Putty KeyPad	VT100	Optimal Default, Failsafe Default
	LINUX	
	XTERMR6	
	SC0	
	ESCN	

Options Summary		
	VT400	
Select FunctionKey and KeyPad on Putty.		

3.5.6.2 COM1 Console Redirection Settings

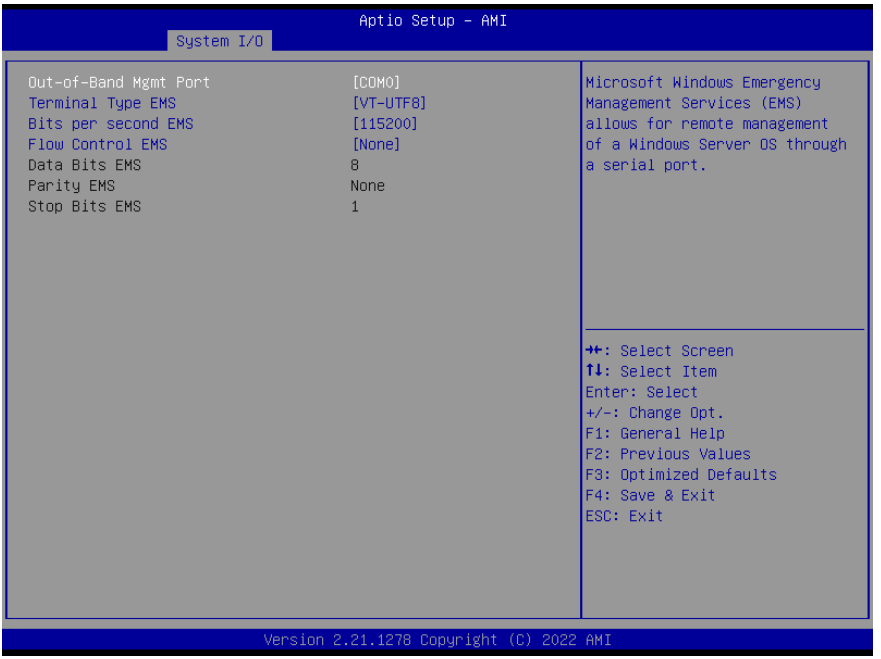


Options Summary		
Terminal Type	VT100	
	VT100+	
	VT-UTF8	Optimal Default, Failsafe Default
	ANSI	
Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100Plus: Extends VT100 to support color, function keys. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.		
Bits per second	9600	
	19200	

Options Summary		
	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
Data Bits		
Parity	None	Optimal Default, Failsafe Default
	Even	
	Odd	
	Mark	
	Space	
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		
Stop Bits	1	Optimal Default, Failsafe Default
	2	
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.		
Flow Control	None	Optimal Default, Failsafe Default
	Hardware RTS/CTS	
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.		
VT-UTF8 Combo Key Support	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals		
Recorder Mode	Disabled	Optimal Default, Failsafe Default
	Enabled	
On this mode enabled only text will be sent. This is to capture Terminal data.		
Resolution 100x31	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enables or disables extended terminal resolution		

Options Summary		
Putty KeyPad	VT100	Optimal Default, Failsafe Default
	LINUX	
	XTERMR6	
	SC0	
	ESCN	
	VT400	
Select FunctionKey and KeyPad on Putty.		

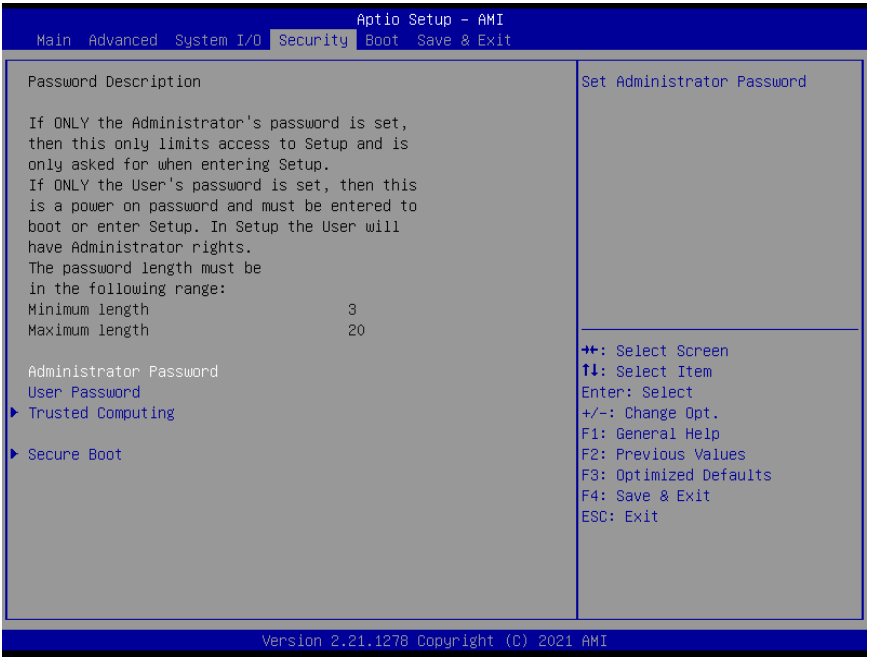
3.5.6.3 Console Redirection Settings



Options Summary		
Out-of-Band Mgmt Port	COM0	Optimal Default, Failsafe Default
	COM1	
	COM2(Pci Bus0, Dev0, Func0) (Disabled)	
Microsoft Windows Emergency Management Services (EMS) allows for remote management of a Windows Server OS through a serial port.		
Terminal Type	VT100	

Options Summary		
EMS	VT100Plus	
	VT-UTF8	Optimal Default, Failsafe Default
	ANSI	
VT-UTF8 is the preferred terminal type for out-of-band management. The next best choice is VT100+ and then VT100. See above, in Console Redirection Settings page, for more Help with Terminal Type/Emulation.		
Bits per second EMS	9600	
	19200	
	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.		
Flow Control EMS	None	Optimal Default, Failsafe Default
	Hardware RTS/CTS	
	Software Xon/Xoff	
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.		

3.6 Setup Submenu: Security



Change User/Supervisor Password

You can install a Supervisor password, and if you install a supervisor password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility.

If you highlight these items and press Enter, a dialog box appears which lets you enter a password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press Enter after you have retyped it correctly. The password is required at boot time, or when the user enters the Setup utility.

Removing the Password

Highlight this item and type in the current password. At the next dialog box press

Enter to disable password protection.

3.6.1 Trusted Computing

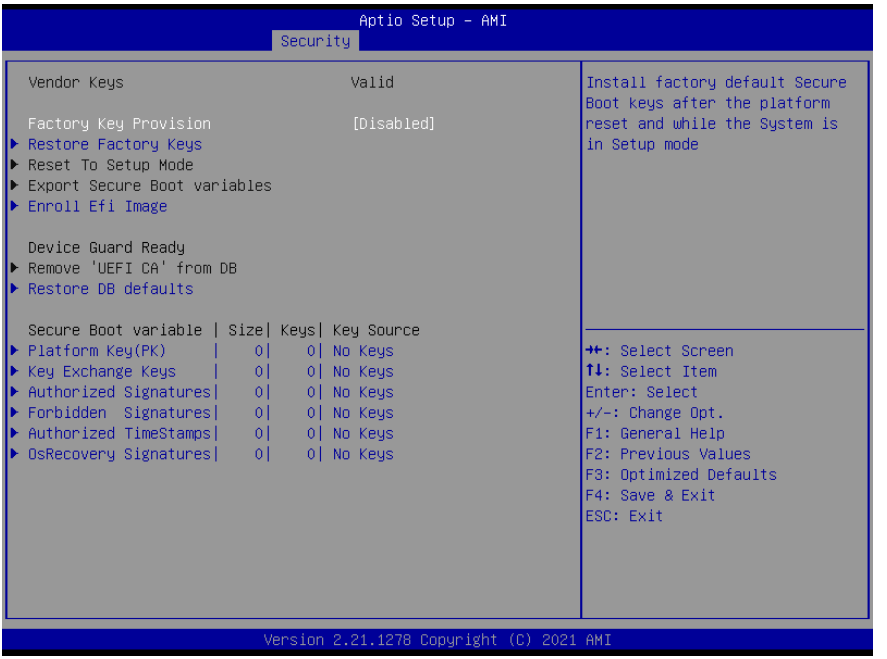
Options Summary		
Security Device Support	Disable	
	Enable	Optimal Default, Failsafe Default
Enables or Disables BIOS support for security device. O.S. will not show Security Device. TGU EFI protocol and INT1A interface will not be available.		
SHA-1 PCR Bank	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable or Disable SHA-1 PCR Bank		
SHA256 PCR Bank	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable SHA256 PCR Bank		
SHA384 PCR Bank	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable or Disable SHA384 PCR Bank		
SM3_256 PCR Bank	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable or Disable SM3-256 PCR Bank		

Options Summary		
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.		
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		
TPM 2.0 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.		
Device Select	TPM 1.2	
	TPM 2.0	
	Auto	Optimal Default, Failsafe Default
TPM 1.2 will restrict support to TPM 1.2 devices, 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 fount, TPM 1.2 devices will be enumerated.		

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	Standard	
	Custom	Optimal Default, Failsafe Default
Secure Boot Mode options: Standard or Custom. In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication.		
Restore Factory Keys	Force system to user mode. Install factory default Secure Boot key databases.	

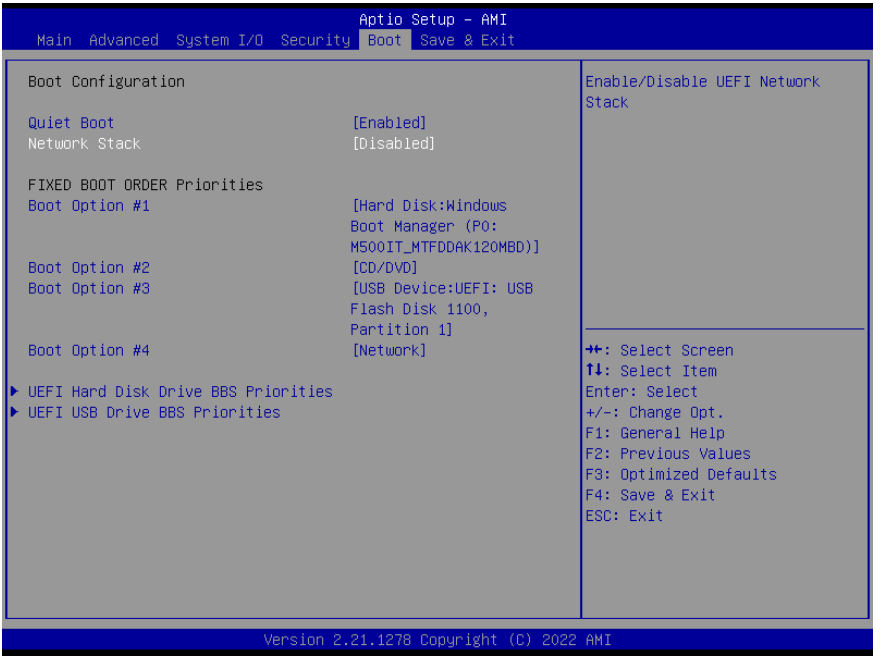
3.6.2.1 Key Management



Options Summary		
Factory Key Provision	Disabled	Optimal Default, Failsafe Default
	Enabled	
Install factory default Secure Boot Keys after the platform reset and while the System is in Setup mode		
Restore Factory Keys	Force system to user mode. Install factory default Secure Boot key databases.	
Enroll EFI Image	Allow the image to run in Secure Boot mode. Enroll SHA256 Hash of a PE image into Authorized Signature Database (db).	
Restore DB defaults	Restore DB variable to factory defaults.	
Platform Key (PK) Key Exchange Keys Authorized Signatures Forbidden Signatures	Enroll Factory Defaults or load certificates from a file: 1. Public Key Certificate: a) EFI_SIGNATURE_LIST b) EFI_CERT_X509 (DER) c) EFI_CERT_RSA2048 (bin) d) EFI_CERT_SHAXXX	

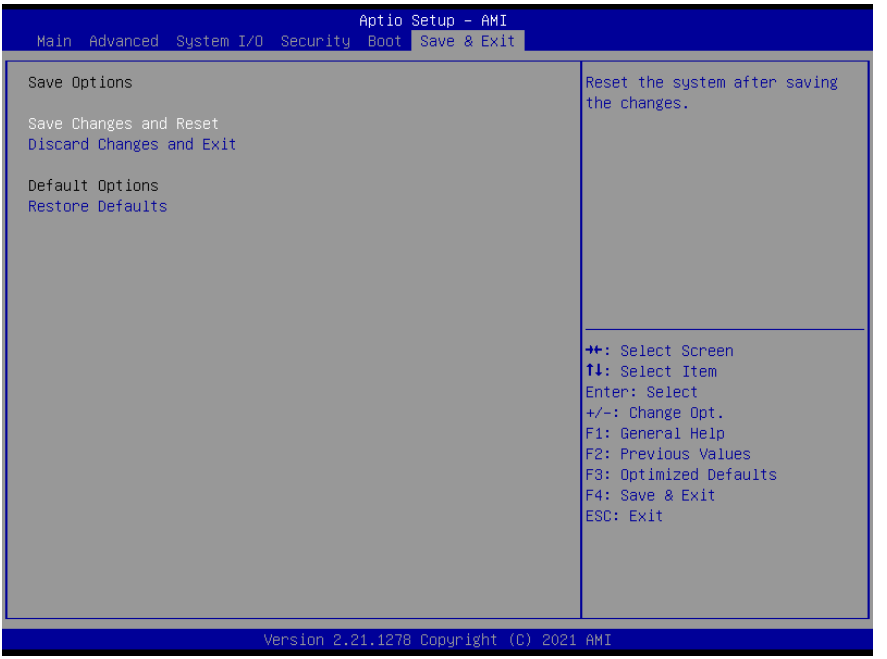
Options Summary	
Authorized TimeStamps	2. Authenticated UEFI Variable 3. EFI PE/COFF Image (SHA256)
OSRecovery Signatures	KEY Source: Factory, External, Mixed

3.7 Setup Submenu: Boot



Options Summary		
Quiet Boot	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enables or Disables Quiet Boot option.		
Network Stack	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable/Disable UEFI Network Stack		

3.8 Setup Submenu: Save & Exit



Chapter 4

Driver Installation

4.1 Driver Download/Installation

Drivers for the de next-TGU8 can be downloaded from the product page on the AAEON website by following this link:

https://www.aaeon.com/en/p/embedded-single-board-computers-denext-tgu8

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

Step 1 – Install Chipset Drivers

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

Step 2 – Install Graphics Drivers

1. Open the **Intel Graphics** folder
2. Run the **igxpin.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 3 – Install LAN Driver

Note: You must install Intel Ethernet device drivers before you can install Intel® PROSet.

Step 3.1 Intel Ethernet Device Drivers

1. Open the **Intel LAN** folder
2. Run the **Wired_driver_26.3_x64.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 3.2 Intel® PROSet Drivers

1. Open the **Intel LAN** folder
2. Run the **Wired_PROSet_26.3_x64.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 4 – Install Linux Peripheral Drivers

1. Open the **Linux Driver-Peripheral** folder
2. Follow the instructions given for I2C, SMBus, and WMI Linux driver packages.
3. Follow the instructions to install the drivers manually.

Step 5 – Install ME & TXE Driver Drivers

1. Open the **ME & TXE** folder

1. in the **Management Engine Interface** and **Active Management Technology** subfolders to install the drivers manually.

Step 6 – Install Windows 10 Peripheral Drivers

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

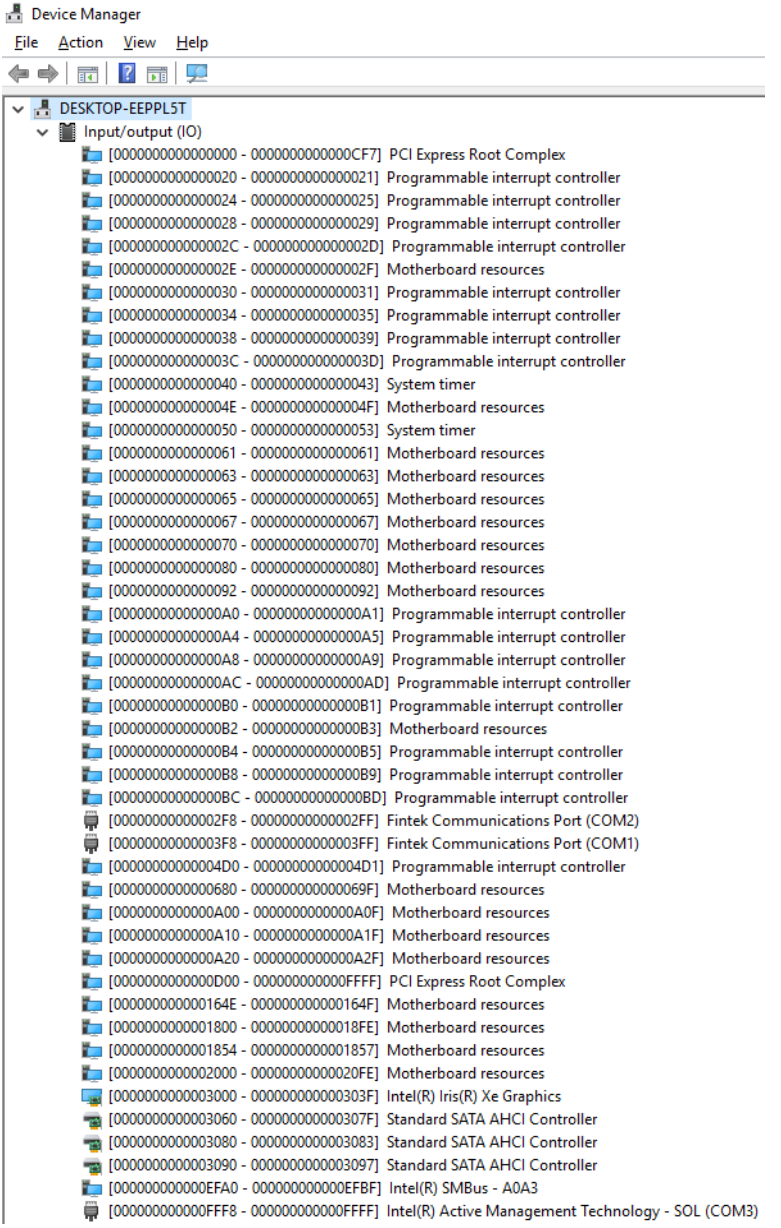
Step 7 – Install RAID Drivers

1. Open the **RAID Driver** folder
2. Follow the instructions given in the **InstallStep.txt** file to install the drivers manually.

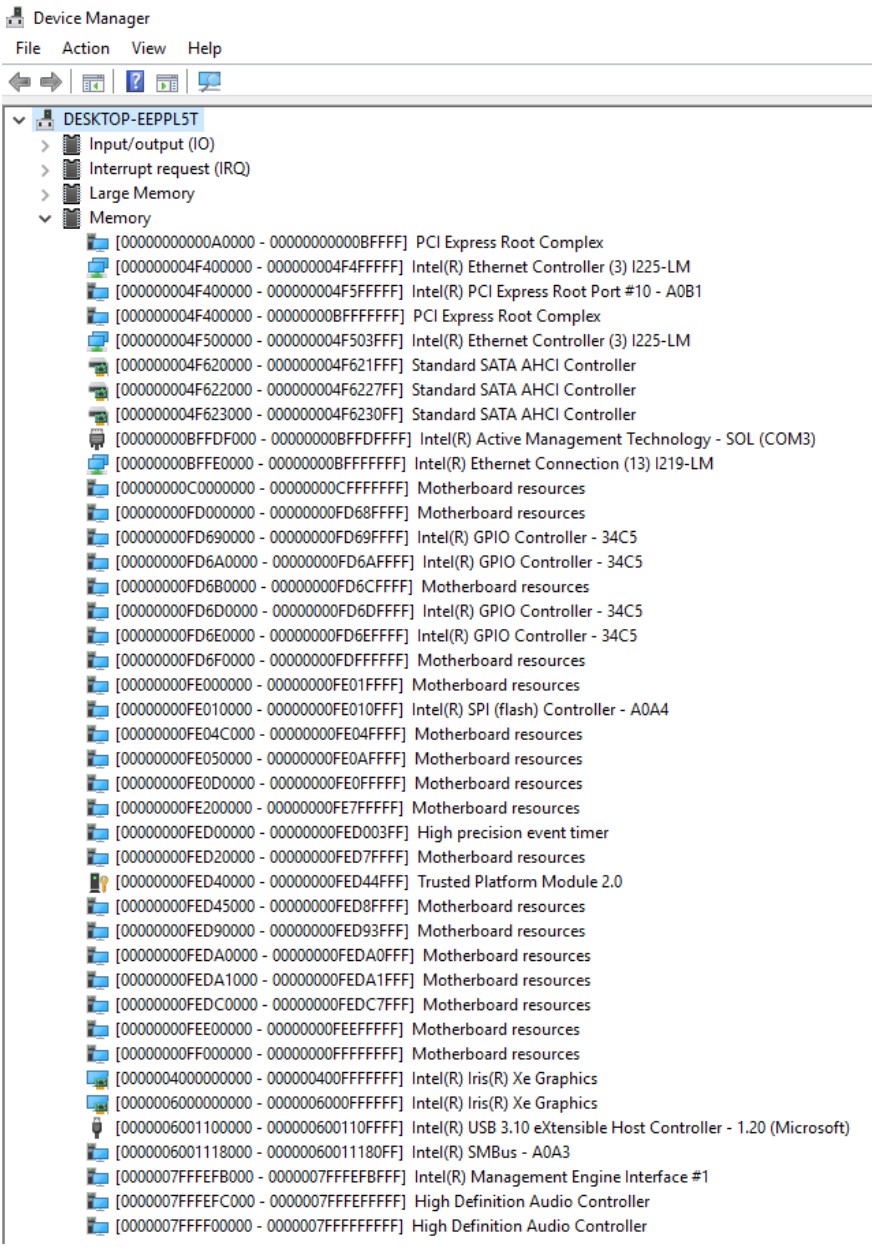
Appendix A

I/O Information

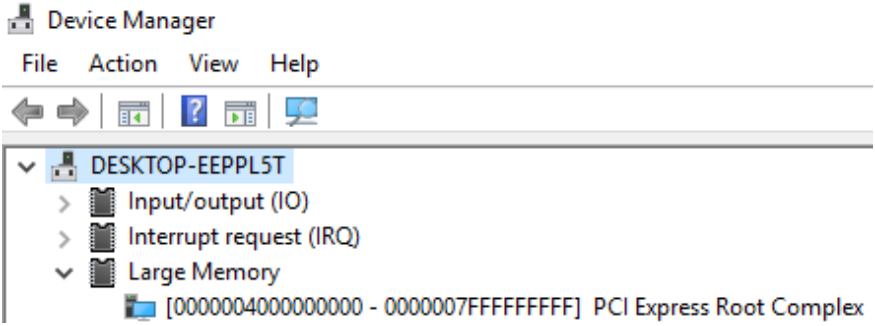
A.1 I/O Address Map



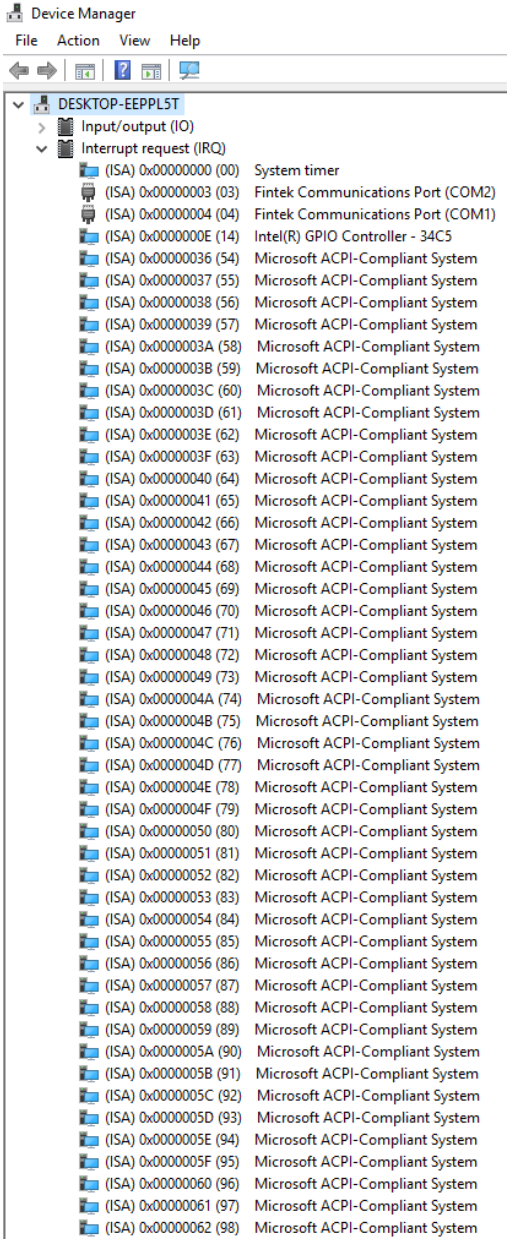
A.2 Memory Address Map

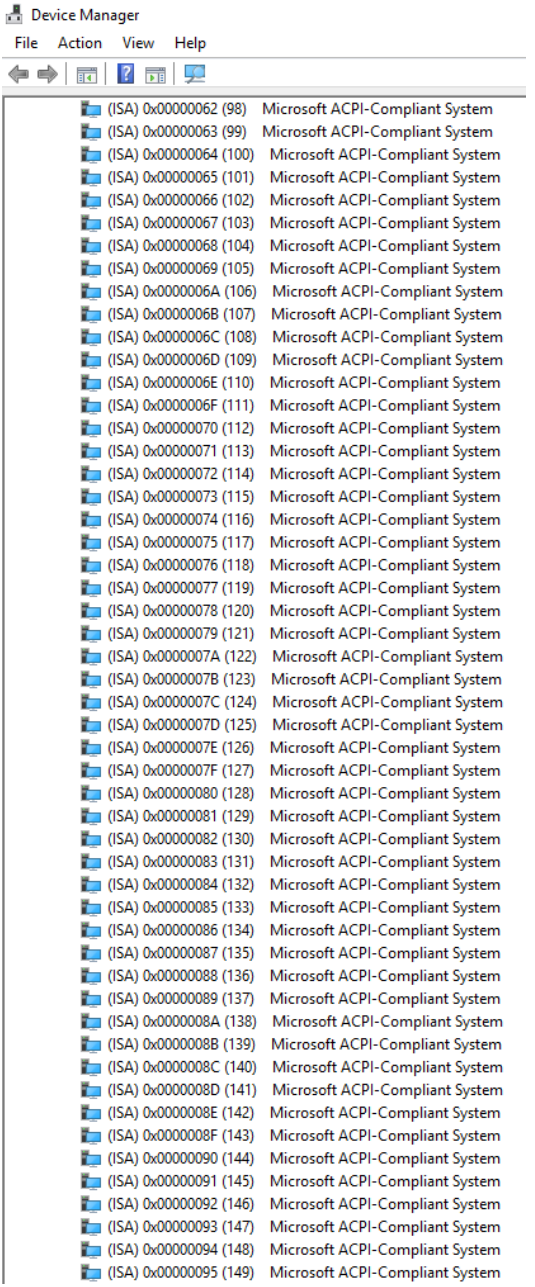


A.3 Large Memory Address Map



A.4 IRQ Mapping Chart




Device Manager
File Action View Help
(ISA) 0x00000062 (98) Microsoft ACPI-Compliant System
(ISA) 0x00000063 (99) Microsoft ACPI-Compliant System
(ISA) 0x00000064 (100) Microsoft ACPI-Compliant System
(ISA) 0x00000065 (101) Microsoft ACPI-Compliant System
(ISA) 0x00000066 (102) Microsoft ACPI-Compliant System
(ISA) 0x00000067 (103) Microsoft ACPI-Compliant System
(ISA) 0x00000068 (104) Microsoft ACPI-Compliant System
(ISA) 0x00000069 (105) Microsoft ACPI-Compliant System
(ISA) 0x0000006A (106) Microsoft ACPI-Compliant System
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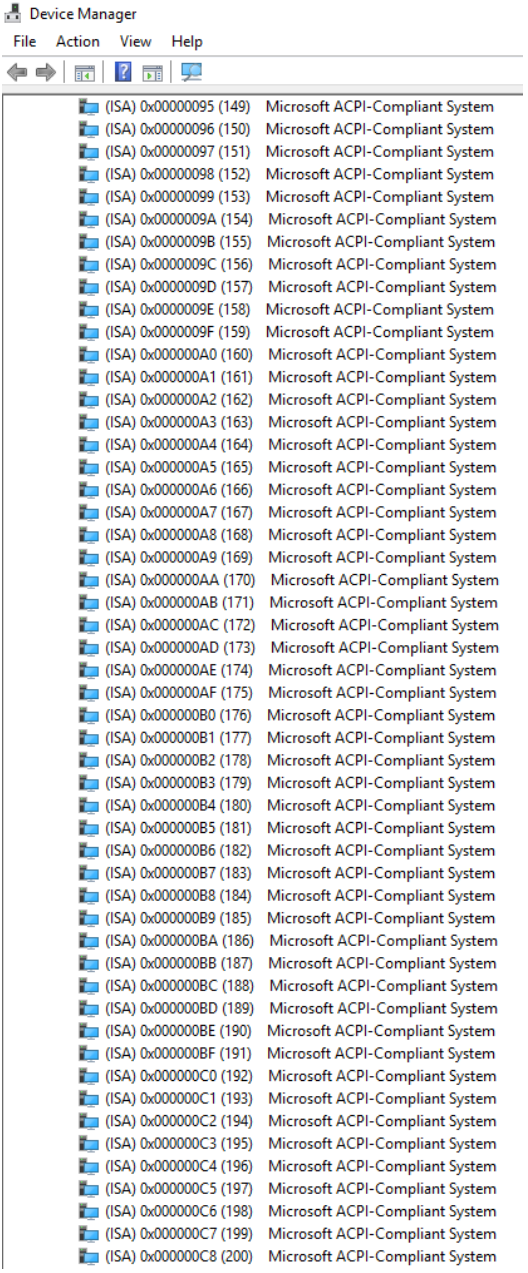
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File Action View Help
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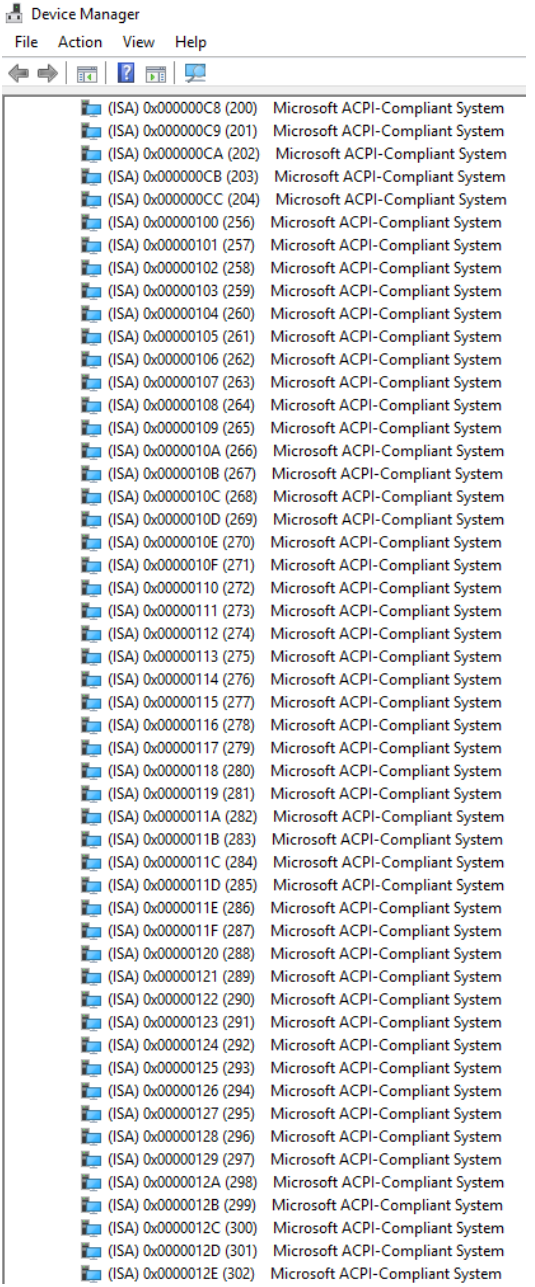
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File Action View Help
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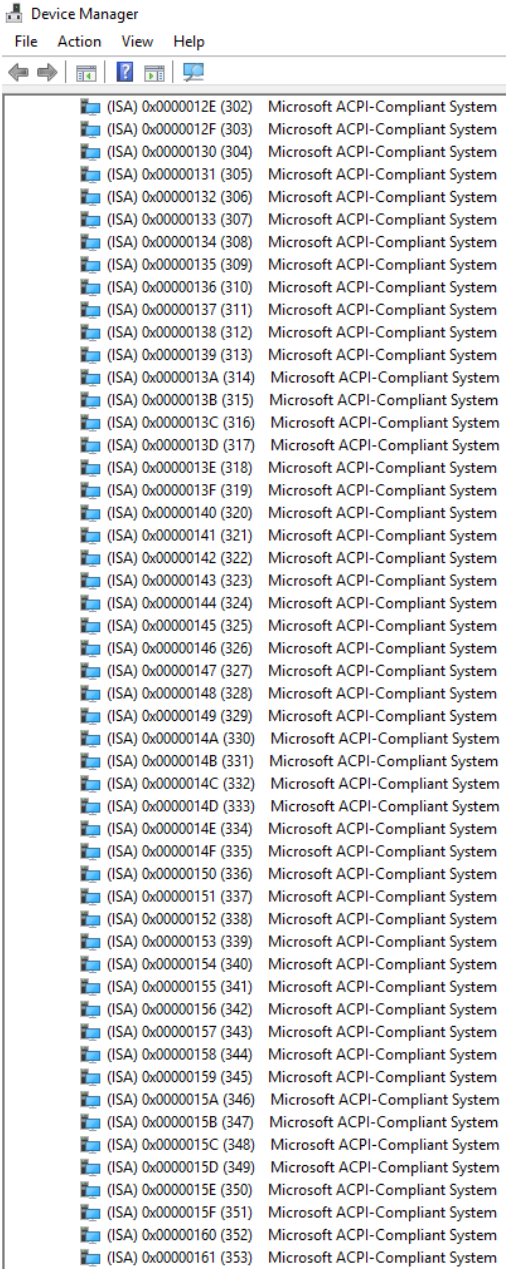
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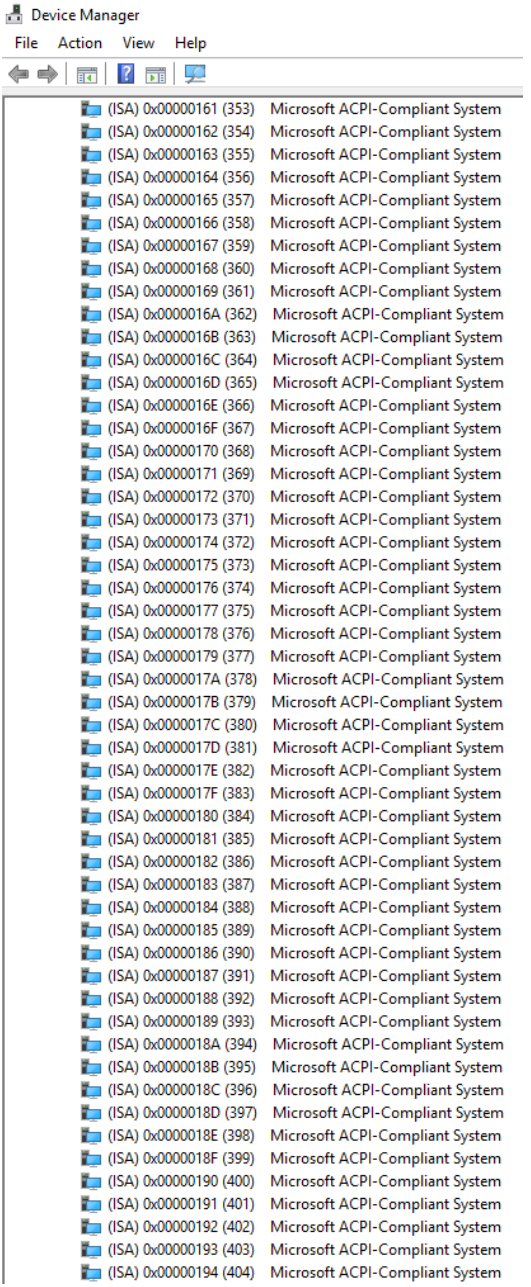
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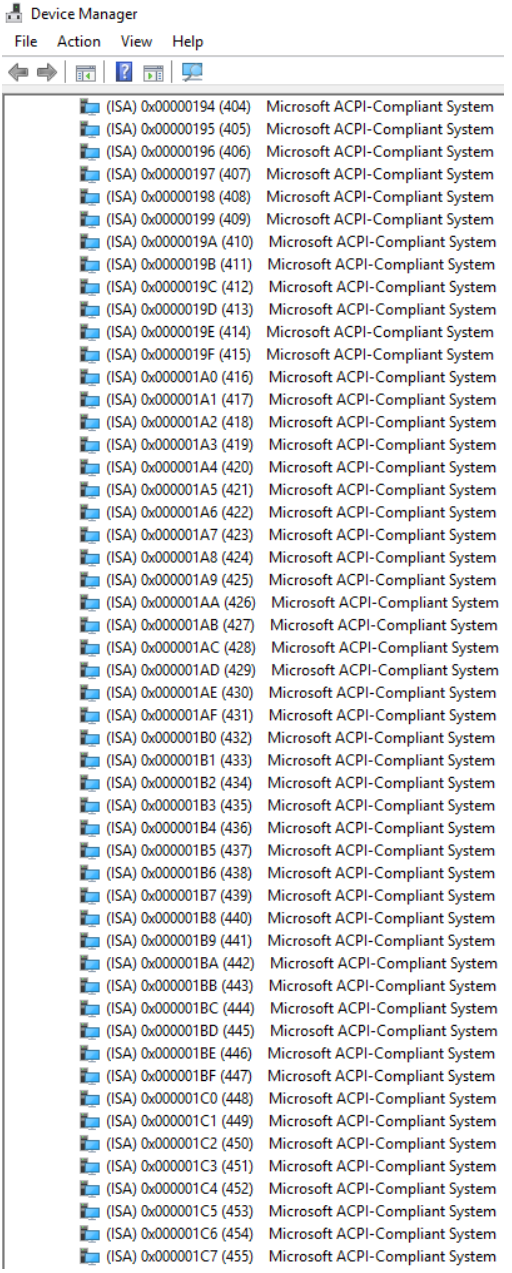
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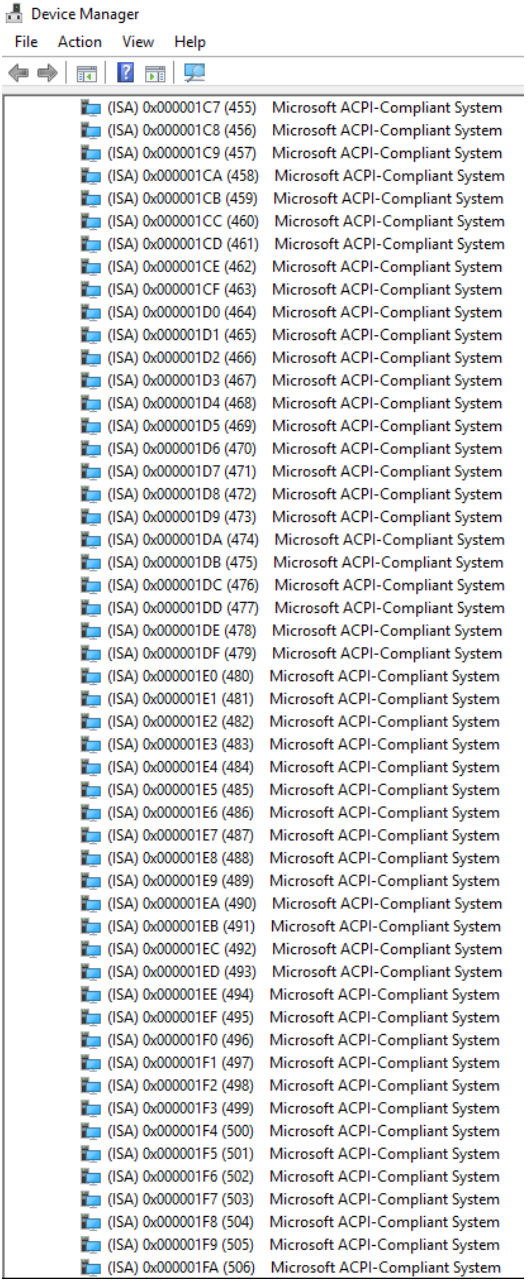
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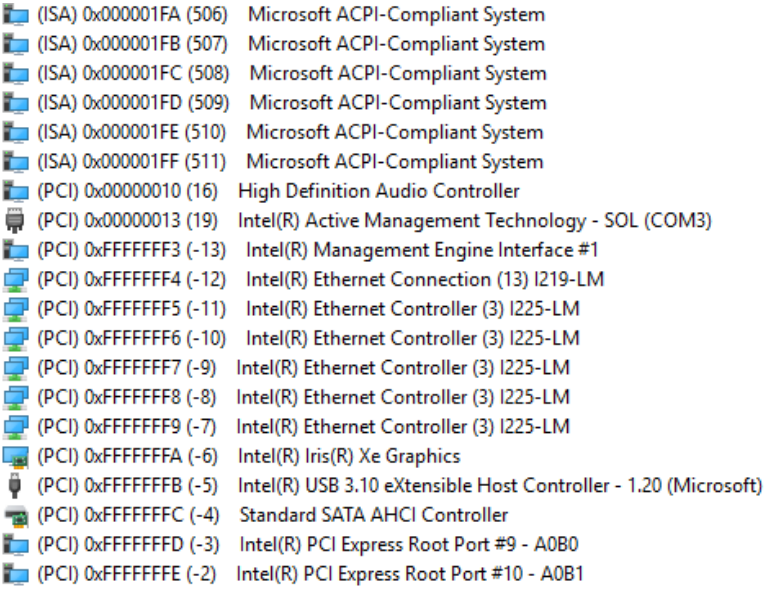
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(PCI) 0x00000013 (19) Intel(R) Active Management Technology - SOL (COM3)
(PCI) 0xFFFFFFF3 (-13) Intel(R) Management Engine Interface #1
(PCI) 0xFFFFFFF4 (-12) Intel(R) Ethernet Connection (13) I219-LM
(PCI) 0xFFFFFFF5 (-11) Intel(R) Ethernet Controller (3) I225-LM
(PCI) 0xFFFFFFF6 (-10) Intel(R) Ethernet Controller (3) I225-LM
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(PCI) 0xFFFFFFF9 (-7) Intel(R) Ethernet Controller (3) I225-LM
(PCI) 0xFFFFFFFA (-6) Intel(R) Iris(R) Xe Graphics
(PCI) 0xFFFFFFFB (-5) Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)
(PCI) 0xFFFFFFFC (-4) Standard SATA AHCI Controller
(PCI) 0xFFFFFFFD (-3) Intel(R) PCI Express Root Port #9 - A0B0
(PCI) 0xFFFFFFFE (-2) Intel(R) PCI Express Root Port #10 - A0B1

Appendix B

List of Mating Connectors

B.1 List of Mating Connectors and Cables

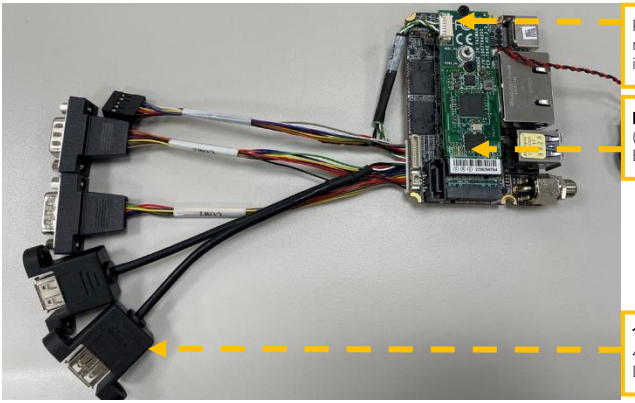
Con. Label	Function	Mating Connector		Available Cable	Cable P/N
		Vendor	Model no		
JCOM1	Connector: USB2.0 x 4 DIO 8 bit COM x 2	Aces	50246-04001-001	Cable 40Pin, de next cable for USB2.0 x 4, COM Port x 2, DIO 8 bit	170X000512
JCOM1	Connector: USB2.0 x 4 DIO 8 bit COM x 2	Aces	50246-04001-001	Cable 40Pin, de next cable for USB 2.0 x 2, COM Port x 2, DIO 8-bit, adaptor card connector	170X000577
JFP1	Front Panel Connector	CATCH	1204-700-10SMR	Front Panel Cable	170X000603
JSATA1	SATA Connector	Molex	887505318	SATA Cable, 180D.Length 20cm	1709070200
JSATAP1	SATA Power Connector	Molex	51021-0200	SATA Power Cable	170X000322

Appendix C

Peripheral Device Installation

C.1 PER-T642 Installation (M.2 2280 M-Key to 2242 B-Key & 2230 E-Key)

Step 1: Cable & Adapter Card Installation.



Step 2: Check the BIOS setup option as "M2M1 Port as "**PCIE Controller is two x1**".

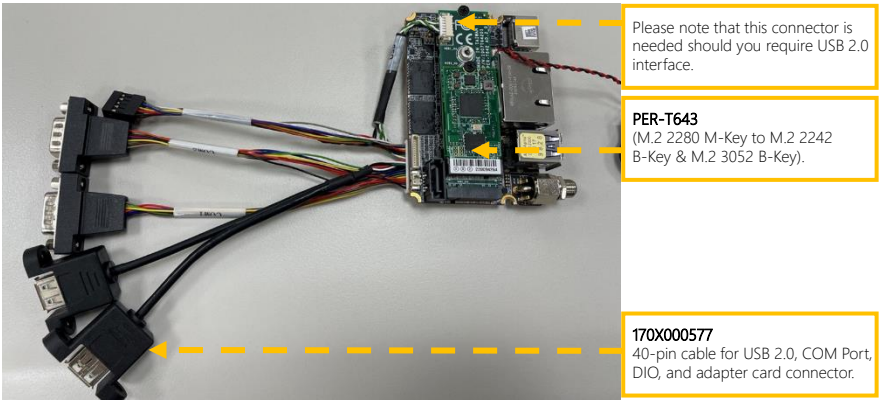
JM2M1 Port Select	PCIE Controller are two x1	
	PCIE Controller is one x2	Optimal Default, Failsafe Default


Aptio Setup – AMI
Main Advanced System I/O Security Boot Save & Exit
System I/O
PCI Express Configuration
Storage Configuration
HD Audio Configuration
Digital IO Port Configuration
Legacy Logical Devices Configuration
Serial Port Console Redirection
PCI Express Configuration settings
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.21.1278 Copyright (C) 2021 AMI


Aptio Setup – AMI
System I/O
PCH PCIe Configuration
JM2M1 Port Select [PCIE Controller is one x2]
JM2M1 Port-1 [Enabled]
PCIe Speed [Auto]
Hot Plug [Disabled]
JPCIE_FPC1 Port [Enabled]
PCIe Speed [Auto]
Hot Plug [Disabled]
I225 LAN Port [Enabled]
PCIe Speed [Auto]
PCIE Controller Selection
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.21.1278 Copyright (C) 2022 AMI

C.2 PER-T643 Installation (M.2 2280 M-Key to 2242 B-Key/3052 B-Key)

Step 1: Cable & Adapter Card Installation



Step 2: Check the BIOS setup option as "M2M1 Port as "**PCIE Controller is two x1**"

JM2M1 Port Select	PCIE Controller are two x1	
	PCIE Controller is one x2	Optimal Default, Failsafe Default

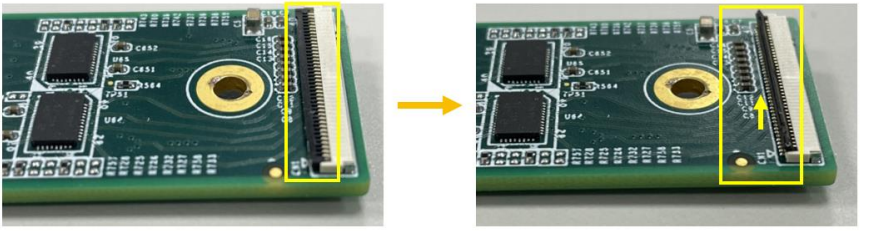

Aptio Setup – AMI
Main Advanced System I/O Security Boot Save & Exit
System I/O
PCI Express Configuration
Storage Configuration
HD Audio Configuration
Digital IO Port Configuration
Legacy Logical Devices Configuration
Serial Port Console Redirection
PCI Express Configuration settings
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.21.1278 Copyright (C) 2021 AMI


Aptio Setup – AMI
System I/O
PCH PCIe Configuration
JM2M1 Port Select [PCIE Controller is one x2]
JM2M1 Port-1 [Enabled]
PCIe Speed [Auto]
Hot Plug [Disabled]
JPCIE_FPC1 Port [Enabled]
PCIe Speed [Auto]
Hot Plug [Disabled]
I225 LAN Port [Enabled]
PCIe Speed [Auto]
PCIE Controller Selection
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.21.1278 Copyright (C) 2022 AMI

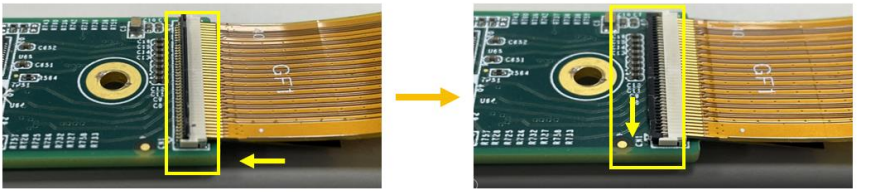
C.3 PER-R41P Installation (PER-R41P.PCIe[x4] Adapter Kit)

Note: Please follow the directions and ensure the direction of the adaptor kit corresponds to the pictures below prior to powering up your de next-TGU8 board. Any installation error will cause critical damage to both the board and adapter kit.

Step 1: Flip up the black plastic on the right-hand edge of the PER-R41P adapter card.

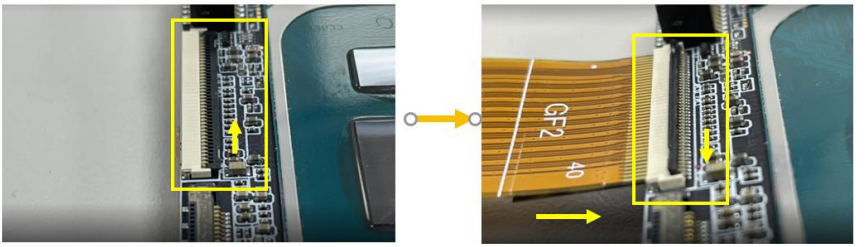


Step 2: Plug the FPC cable (GF1) into the connector, and return the black plastic to its original position.



Step 3: First, flip up the black plastic on your de next-TGU8 board.

Next, plug the FPC cable (GF2) into the connector on your de next-TGU8 board and return the black plastic to its original position on the board to affix the FPC cable.



Step 4: Ensure the FPC cable installation outcome resembles the picture below, then power up the board.

Top Side:

Bottom Side: