

COM-R2KC6

COM Express Module

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
● COM-R2KC6	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.**

FCC Statement

Warning!



This device complies with Part 15 FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

Caution:

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

Attention:

Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte. Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur. Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.

China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量

AAEON 主板/子板/背板

QQ4-381 Rev.A2

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板 及其电子组件	×	○	○	○	○	○
外部信号 连接器及线材	×	○	○	○	○	○
本表格依据 SJ/T 11364 的规定编制。 ○：表示该有毒有害物质在该部件所有均质材料中的含量均在GB/T 26572标准规定的限量要求以下。 ×：表示该有害物质的某一均质材料超出了GB/T 26572的限量要求，然而该部件仍符合欧盟指令2011/65/EU 的规范。 环保使用期限(EFUP (Environmental Friendly Use Period))：10年 备注：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)

Name and content of hazardous substances in product

AAEON Main Board/Daughter Board/Backplane

QO4-381 Rev.A2

Part Name	Hazardous Substances					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
PCB Assemblies	×	○	○	○	○	○
Connector and Cable	×	○	○	○	○	○
The table is prepared in accordance with the provisions of SJ/T 11364. ○: Indicates that said hazardous substance contained in all of the homogenous materials for this product is below the limit requirement of GB/T 26572. ×: Indicates that said hazardous substance contained in at least one of the homogenous materials used for this part is above the limit requirement of GB/T 26572. But this product still be compliance with 2011/65/EU Directive (allowed with 2011/65/EU Annex III of RoHS exemption with number 6(c),7(a),7(c)-1). EFUP (Environment Friendly Use Period) value: 10 years Notes: This product defined period of use is under normal condition.						

Table of Contents

Chapter 1 - Product Specifications.....	1
1.1 Specifications	2
1.2 Block Diagram	4
Chapter 2 – Hardware Information	5
2.1 Dimensions	6
2.2 Jumpers and Connectors.....	9
2.3 List of Connectors.....	11
2.3.1 COM Express Row C/D Connector (COMCD1).....	12
2.3.2 COM Express Row A/B Connector (COMAB1).....	16
Chapter 3 - AMI BIOS Setup	21
3.1 System Test and Initialization	22
3.2 AMI BIOS Setup	23
3.3 Setup Submenu: Main.....	24
3.4 Setup Submenu: Advanced.....	25
3.4.1 Graphics Configuration	26
3.4.1.1 Output Select.....	27
3.4.2 CPU Configuration	28
3.4.3 Memory Configuration.....	29
3.4.4 On-Module H/W Monitor.....	30
3.4.5 AMD Firmware Version.....	31
3.4.6 On-Module Configuration.....	32
3.4.7 Power Management.....	33
3.4.8 AAEON BIOS Robot.....	34
3.4.8.1 Device Detecting Configuration	36
3.5 Setup Submenu: System I/O	38
3.5.1 PCI Express Configuration.....	39

3.5.2	Storage Configuration	40
3.5.3	NVMe Configuration.....	41
3.5.4	Digital IO Port Configuration	42
3.5.5	Legacy Logical Devices Configuration	43
3.5.5.1	Serial Port 1 Configuration	44
3.5.5.2	Serial Port 2 Configuration	45
3.6	Setup Submenu: Security.....	46
3.6.1	Trusted Computing.....	47
3.6.2	Secure Boot.....	49
3.6.2.1	Key Management.....	50
3.7	Setup Submenu: Boot	51
3.8	Setup Submenu: Save & Exit.....	52
Chapter 4 – Drivers Installation.....		53
4.1	Drivers Download and Installation.....	54
Appendix A - I/O Information.....		56
A.1	DMA	57
A.2	I/O Address Map	58
A.3	Memory Address Map	60
A.4	Large Memory Address Map	61
A.5	IRQ Mapping Chart.....	62

Chapter 1

Product Specifications

1.1 Specifications

System

Form Factor	COM Express Compact Size, Type 6
CPU	AMD Ryzen™ Embedded R2000 Series Processors: AMD Ryzen™ Embedded R2544 (4C/8T, 3.35 GHz, 45W) AMD Ryzen™ Embedded R2514 (4C/8T, 2.10 GHz, 15W) AMD Ryzen™ Embedded R2314 (4C/4T, 2.10 GHz, 15W)
Chipset	SoC
Memory	DDR4 3200MHz SODIMM x 2, up to 32GB
Onboard Storage	—
BIOS	AMI UEFI
Wake on LAN	Yes
Watchdog Timer	255 Levels
Dimension	3.74" x 3.74" (95mm x 95mm)
Security	TPM 2.0

Power

Power Requirement	+12V and +5VSB for ATX, +12V for AT
Power Type	AT/ATX
Power Consumption	AMD Ryzen™ R2544, 4.8A @+12V (Typical)

Display

Graphics Controller	AMD Radeon™ Vega 8 Graphics/AMD Radeon™ Vega 6 Graphics
Video Output	4 Simultaneous Displays: eDP x 1, up to 3840 x 2160 DDI x 3, up to 3840 x 2160

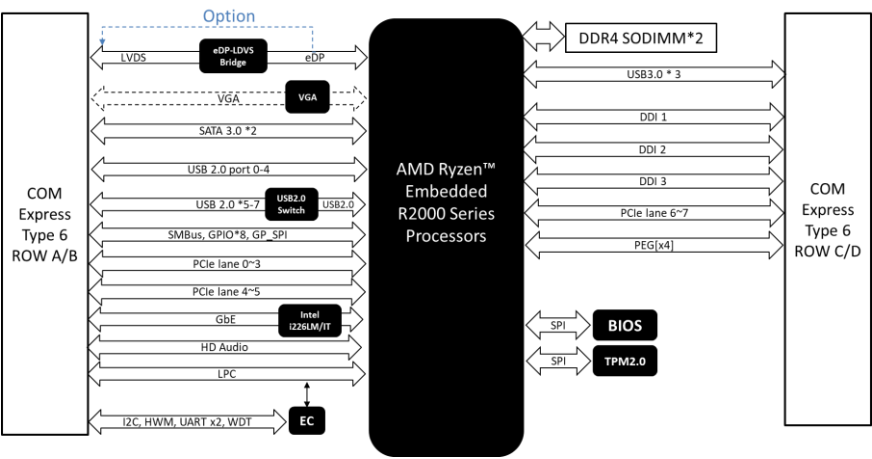
I/O

Ethernet	Intel® I226-LM/IT 2.5GbE x 1
Audio	High Definition Audio Interface
USB Port	USB 2.0 x 8, USB 3.2 (10Gbps) x 2, USB 3.2 (5Gbps) x 1
Serial Port	2-Wire UART x 2 (Tx/Rx)
HDD Interface	SATA 6Gb/s x 2
Expansion	PEG [x4]
	PCIe Gen 3 [x1] x 4 (0~3)
	PCIe Gen 3 [x4] x 1 (4~7)
	LPC
GPIO	8-bit
SMBus/I2C	I2C x 1, SMBus x 1

Environmental

Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
EMC	CE/FCC Class A
OS Support	Windows® 10 (64-bit)
	Linux Ubuntu 22.04.2/Kernel 5.19.0-32
Weight	0.44 lb. (0.20Kg)

1.2 Block Diagram

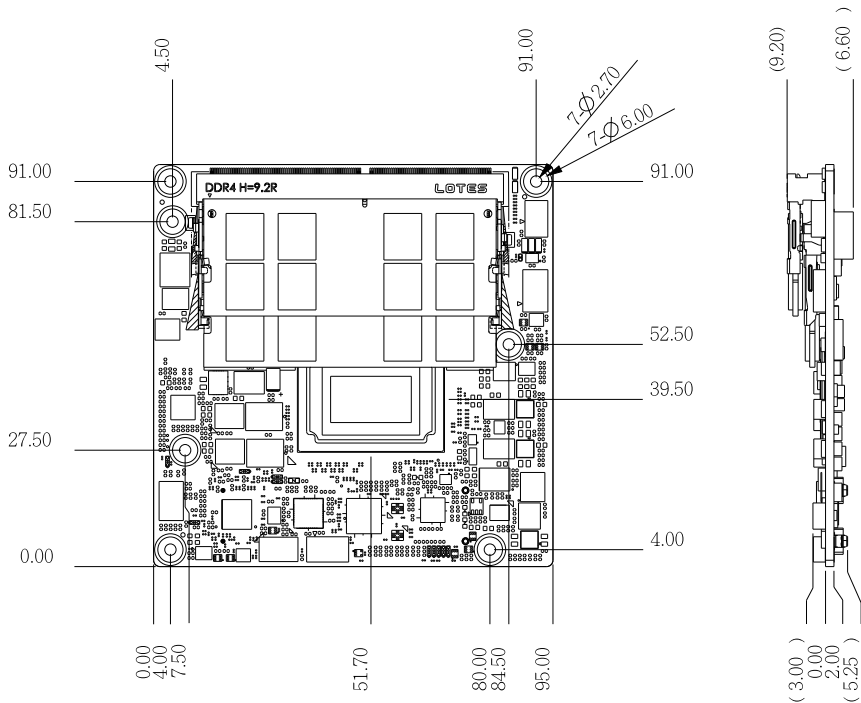


Chapter 2

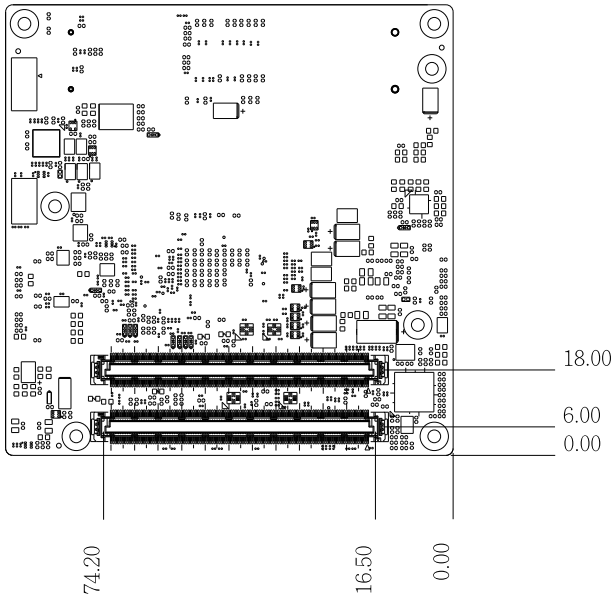
Hardware Information

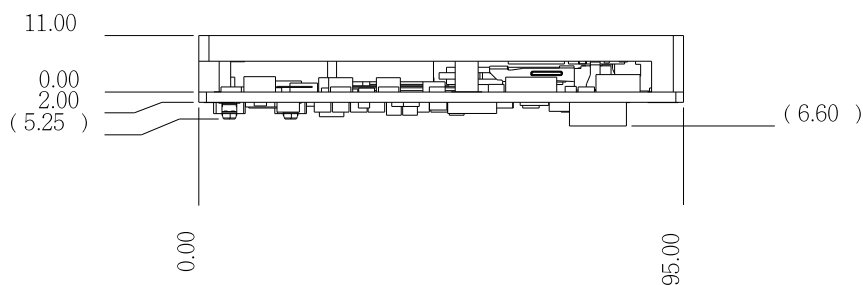
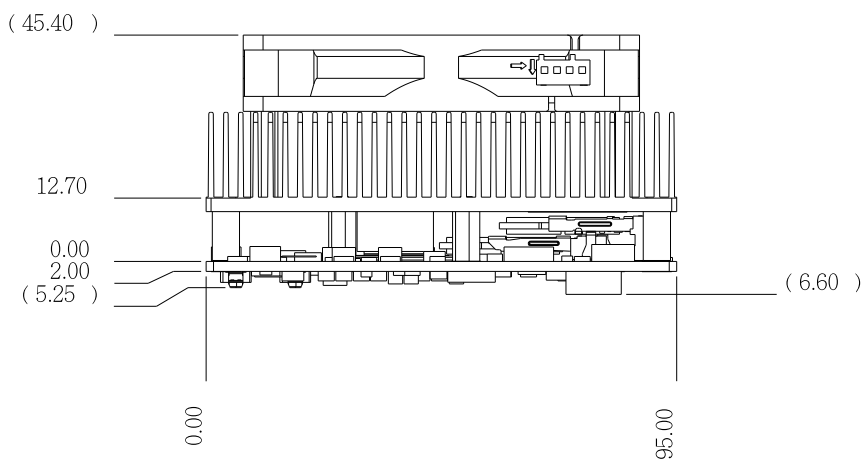
2.1 Dimensions

Component Side



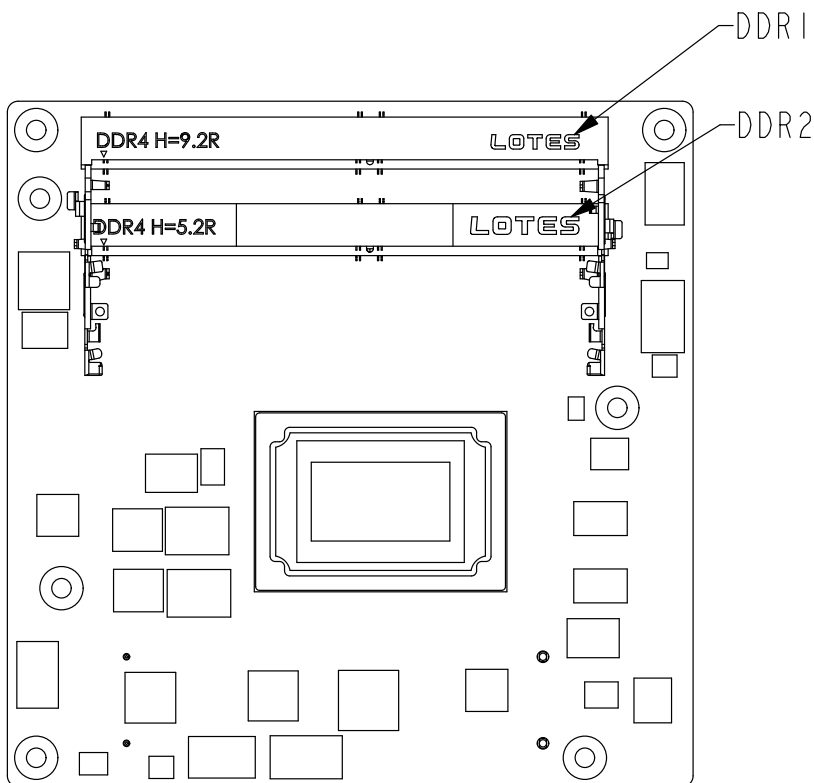
Solder Side



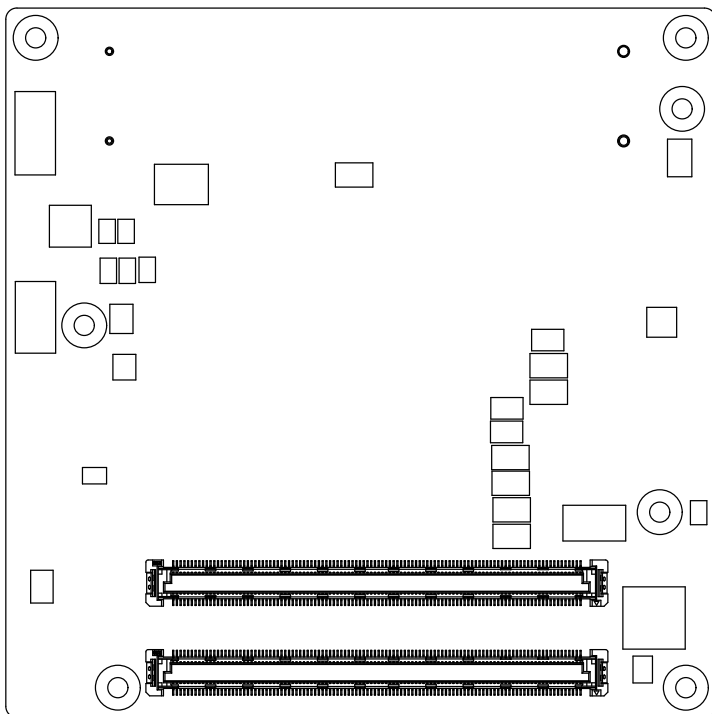
With Carrier Board (Part No: ECB-920A-A11-0001)**With Active Cooling (Part No: COM-R2KC6-FAN01)**

2.2 Jumpers and Connectors

Top Side



Bottom Side



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
COMAB1	Express Row A/B Connector
COMCD1	Express Row C/D Connector
CN1	BIOS SPI Flash Programming Connector
JECSP1	EC SPI Flash Programming Connector
DDR1	SODIMM Connector
DDR2	SODIMM Connector

2.3.1 COM Express Row C/D Connector (COMCD1)

Row C		Row D	
Pin	Signal	Pin	Signal
C1	GND (FIXED)	D1	GND (FIXED)
C2	GND (FIXED)	D2	GND (FIXED)
C3	USB_SSRX0-	D3	USB_SSTX0-
C4	USB_SSRX0+	D4	USB_SSTX0+
C5	GND (FIXED)	D5	GND (FIXED)
C6	USB_SSRX1-	D6	USB_SSTX1-
C7	USB_SSRX1+	D7	USB_SSTX1+
C8	GND (FIXED)	D8	GND (FIXED)
C9	USB_SSRX2-	D9	USB_SSTX2-
C10	USB_SSRX2+	D10	USB_SSTX2+
C11	GND (FIXED)	D11	GND (FIXED)
C12	USB_SSRX3-(NC)	D12	USB_SSTX3-(NC)
C13	USB_SSRX3+(NC)	D13	USB_SSTX3+(NC)
C14	GND (FIXED)	D14	GND (FIXED)
C15	DDI1_PAIR6+(NC)	D15	DDI1_CTRLCLK_AUX+
C16	DDI1_PAIR6-(NC)	D16	DDI1_CTRLDATA_AUX-
C17	RSVD	D17	RSVD
C18	RSVD	D18	RSVD
C19	PCIE_RX6+	D19	PCIE_TX6+
C20	PCIE_RX6-	D20	PCIE_TX6-
C21	GND (FIXED)	D21	GND (FIXED)
C22	PCIE_RX7+	D22	PCIE_TX7+
C23	PCIE_RX7-	D23	PCIE_TX7-
C24	DDI1_HPD	D24	RSVD

Row C		Row D	
Pin	Signal	Pin	Signal
C25	DDI1_PAIR4+(NC)	D25	RSVD
C26	DDI1_PAIR4-(NC)	D26	DDI1_PAIR0+
C27	RSVD	D27	DDI1_PAIR0-
C28	RSVD	D28	RSVD
C29	DDI1_PAIR5+(NC)	D29	DDI1_PAIR1+
C30	DDI1_PAIR5-(NC)	D30	DDI1_PAIR1-
C31	GND (FIXED)	D31	GND (FIXED)
C32	DDI2_CTRLCLK_AUX+	D32	DDI1_PAIR2+
C33	DDI2_CTRLDATA_AUX-	D33	DDI1_PAIR2-
C34	DDI2_DDC_AUX_SEL	D34	DDI1_DDC_AUX_SEL
C35	RSVD	D35	RSVD
C36	DDI3_CTRLCLK_AUX+	D36	DDI1_PAIR3+
C37	DDI3_CTRLDATA_AUX-	D37	DDI1_PAIR3-
C38	DDI3_DDC_AUX_SEL	D38	RSVD
C39	DDI3_PAIR0+	D39	DDI2_PAIR0+
C40	DDI3_PAIR0-	D40	DDI2_PAIR0-
C41	GND (FIXED)	D41	GND (FIXED)
C42	DDI3_PAIR1+	D42	DDI2_PAIR1+
C43	DDI3_PAIR1-	D43	DDI2_PAIR1-
C44	DDI3_HPD	D44	DDI2_HPD
C45	RSVD	D45	RSVD
C46	DDI3_PAIR2+	D46	DDI2_PAIR2+
C47	DDI3_PAIR2-	D47	DDI2_PAIR2-
C48	RSVD	D48	RSVD
C49	DDI3_PAIR3+	D49	DDI2_PAIR3+
C50	DDI3_PAIR3-	D50	DDI2_PAIR3-

Row C		Row D	
Pin	Signal	Pin	Signal
C51	GND (FIXED)	D51	GND (FIXED)
C52	PEG_RX0+	D52	PEG_TX0+
C53	PEG_RX0-	D53	PEG_TX0-
C54	TYPE0#(NC)	D54	PEG_LAN_RV#
C55	PEG_RX1+	D55	PEG_TX1+
C56	PEG_RX1-	D56	PEG_TX1-
C57	TYPE1#(NC)	D57	TYPE2#(GND)
C58	PEG_RX2+	D58	PEG_TX2+
C59	PEG_RX2-	D59	PEG_TX2-
C60	GND (FIXED)	D60	GND (FIXED)
C61	PEG_RX3+	D61	PEG_TX3+
C62	PEG_RX3-	D62	PEG_TX3-
C63	RSVD	D63	RSVD
C64	RSVD	D64	RSVD
C65	PEG_RX4+(NC)	D65	PEG_TX4+(NC)
C66	PEG_RX4-(NC)	D66	PEG_TX4-(NC)
C67	RSVD	D67	GND (FIXED)
C68	PEG_RX5+(NC)	D68	PEG_TX5+(NC)
C69	PEG_RX5-(NC)	D69	PEG_TX5-(NC)
C70	GND (FIXED)	D70	GND (FIXED)
C71	PEG_RX6+(NC)	D71	PEG_TX6+(NC)
C72	PEG_RX6-(NC)	D72	PEG_TX6-(NC)
C73	GND (FIXED)	D73	GND (FIXED)
C74	PEG_RX7+(NC)	D74	PEG_TX7+(NC)
C75	PEG_RX7-(NC)	D75	PEG_TX7-(NC)
C76	GND (FIXED)	D76	GND (FIXED)

Row C		Row D	
Pin	Signal	Pin	Signal
C77	RSVD	D77	RSVD
C78	PEG_RX8+(NC)	D78	PEG_TX8+(NC)
C79	PEG_RX8-(NC)	D79	PEG_TX8-(NC)
C80	GND (FIXED)	D80	GND (FIXED)
C81	PEG_RX9+(NC)	D81	PEG_TX9+(NC)
C82	PEG_RX9-(NC)	D82	PEG_TX9-(NC)
C83	RSVD	D83	RSVD
C84	GND (FIXED)	D84	GND (FIXED)
C85	PEG_RX10+(NC)	D85	PEG_TX10+(NC)
C86	PEG_RX10-(NC)	D86	PEG_TX10-(NC)
C87	GND (FIXED)	D87	GND (FIXED)
C88	PEG_RX11+(NC)	D88	PEG_TX11+(NC)
C89	PEG_RX11-(NC)	D89	PEG_TX11-(NC)
C90	GND (FIXED)	D90	GND (FIXED)
C91	PEG_RX12+(NC)	D91	PEG_TX12+(NC)
C92	PEG_RX12-(NC)	D92	PEG_TX12-(NC)
C93	GND	D93	GND
C94	PEG_RX13+(NC)	D94	PEG_TX13+(NC)
C95	PEG_RX13-(NC)	D95	PEG_TX13-(NC)
C96	GND (FIXED)	D96	GND (FIXED)
C97	RSVD	D97	RSVD
C98	PEG_RX14+(NC)	D98	PEG_TX14+(NC)
C99	PEG_RX14-(NC)	D99	PEG_TX14-(NC)
C100	GND (FIXED)	D100	GND (FIXED)
C101	PEG_RX15+(NC)	D101	PEG_TX15+(NC)
C102	PEG_RX15-(NC)	D102	PEG_TX15-(NC)

Row C		Row D	
Pin	Signal	Pin	Signal
C103	GND (FIXED)	D103	GND
C104	VCC_12V	D104	VCC_12V
C105	VCC_12V	D105	VCC_12V
C106	VCC_12V	D106	VCC_12V
C107	VCC_12V	D107	VCC_12V
C108	VCC_12V	D108	VCC_12V
C109	VCC_12V	D109	VCC_12V
C110	GND (FIXED)	D110	GND (FIXED)

2.3.2 COM Express Row A/B Connector (COMAB1)

Row A		Row B	
Pin	Signal	Pin	Signal
A1	GND (FIXED)	B1	GND (FIXED)
A2	GBE0_MDI3-	B2	GBE0_ACT#
A3	GBE0_MDI3+	B3	LPC_FRAME#
A4	GBE0_LINK100#	B4	LPC_AD0
A5	GBE0_LINK1000#	B5	LPC_AD1
A6	GBE0_MDI2-	B6	LPC_AD2
A7	GBE0_MDI2+	B7	LPC_AD3
A8	GBE0_LINK	B8	LPC_DRQ0#(NC)
A9	GBE0_MDI1-	B9	LPC_DRQ1#(NC)
A10	GBE0_MDI1+	B10	LPC_CLK
A11	GND (FIXED)	B11	GND (FIXED)
A12	GBE0_MDI0-	B12	PWRBTN#
A13	GBE0_MDI0+	B13	SMB_CK

Row A		Row B	
Pin	Signal	Pin	Signal
A14	GBE0_CTREF(NC)	B14	SMB_DAT
A15	SUS_S3#	B15	SMB_ALERT#
A16	SATA0_TX+	B16	SATA1_TX+
A17	SATA0_TX-	B17	SATA1_TX-
A18	SUS_S4#	B18	SUS_STAT#
A19	SATA0_RX+	B19	SATA1_RX+
A20	SATA0_RX-	B20	SATA1_RX-
A21	GND (FIXED)	B21	GND (FIXED)
A22	SATA2_TX+(NC)	B22	SATA3_TX+(NC)
A23	SATA2_TX-(NC)	B23	SATA3_TX-(NC)
A24	SUS_S5#	B24	PWR_OK
A25	SATA2_RX+(NC)	B25	SATA3_RX+(NC)
A26	SATA2_RX-(NC)	B26	SATA3_RX-(NC)
A27	BATLOW#	B27	WDT
A28	ATA_ACT#	B28	HDA_SDIN2(NC)
A29	HDA_SYNC	B29	HDA_SDIN1
A30	HDA_RST#	B30	HDA_SDIN0
A31	GND (FIXED)	B31	GND (FIXED)
A32	HDA_BITCLK	B32	SPKR
A33	HDA_SDOUT	B33	I2C_CK
A34	BIOS_DIS0#	B34	I2C_DAT
A35	THRMTRIP#	B35	THRM#
A36	USB6-	B36	USB7-
A37	USB6+	B37	USB7+
A38	USB_6_7_OC#	B38	USB_4_5_OC#
A39	USB4-	B39	USB5-

Row A		Row B	
Pin	Signal	Pin	Signal
A40	USB4+	B40	USB5+
A41	GND (FIXED)	B41	GND (FIXED)
A42	USB2-	B42	USB3-
A43	USB2+	B43	USB3+
A44	USB_2_3_OC#	B44	USB_0_1_OC#
A45	USB0-	B45	USB1-
A46	USB0+	B46	USB1+
A47	VCC_RTC	B47	EXCD1_PERST#
A48	EXCD0_PERST#	B48	EXCD1_CPPE#
A49	EXCD0_CPPE#	B49	SYS_RESET#
A50	LPC_SERIRQ	B50	CB_RESET#
A51	GND (FIXED)	B51	GND (FIXED)
A52	PCIE_TX5+	B52	PCIE_RX5+
A53	PCIE_TX5-	B53	PCIE_RX5-
A54	GPIO	B54	GPO1
A55	PCIE_TX4+	B55	PCIE_RX4+
A56	PCIE_TX4-	B56	PCIE_RX4-
A57	GND	B57	GPO2
A58	PCIE_TX3+	B58	PCIE_RX3+
A59	PCIE_TX3-	B59	PCIE_RX3-
A60	GND (FIXED)	B60	GND (FIXED)
A61	PCIE_TX2+	B61	PCIE_RX2+
A62	PCIE_TX2-	B62	PCIE_RX2-
A63	GPIO1	B63	GPO3
A64	PCIE_TX1+	B64	PCIE_RX1+
A65	PCIE_TX1-	B65	PCIE_RX1-

Row A		Row B	
Pin	Signal	Pin	Signal
A66	GND	B66	WAKE0#
A67	GPI2	B67	WAKE1#
A68	PCIE_TX0+	B68	PCIE_RX0+
A69	PCIE_TX0-	B69	PCIE_RX0-
A70	GND (FIXED)	B70	GND (FIXED)
A71	LVDS_A0+	B71	LVDS_B0+
A72	LVDS_A0-	B72	LVDS_B0-
A73	LVDS_A1+	B73	LVDS_B1+
A74	LVDS_A1-	B74	LVDS_B1-
A75	LVDS_A2+	B75	LVDS_B2+
A76	LVDS_A2-	B76	LVDS_B2-
A77	LVDS_VDD_EN	B77	LVDS_B3+
A78	LVDS_A3+	B78	LVDS_B3-
A79	LVDS_A3-	B79	LVDS_BKLT_EN
A80	GND (FIXED)	B80	GND (FIXED)
A81	LVDS_A_CK+	B81	LVDS_B_CK+
A82	LVDS_A_CK-	B82	LVDS_B_CK-
A83	LVDS_I2C_CK	B83	LVDS_BKLT_CTRL
A84	LVDS_I2C_DAT	B84	VCC_5V_SBY
A85	GPI3	B85	VCC_5V_SBY
A86	RSVD	B86	VCC_5V_SBY
A87	RSVD	B87	VCC_5V_SBY
A88	PCIE0_CK_REF+	B88	BISO_DIS1#
A89	PCIE0_CK_REF-	B89	VGA_RED
A90	GND (FIXED)	B90	GND (FIXED)
A91	SPI_POWER	B91	VGA_GRN

Row A		Row B	
Pin	Signal	Pin	Signal
A92	SPL_MISO	B92	VGA_BLU
A93	GPO0	B93	VGA_HSYNC
A94	SPL_CLK	B94	VGA_VSYNC
A95	SPL_MOSI	B95	VGA_I2C_CK
A96	GND	B96	VGA_I2C_DAT
A97	TYPE10#(NC)	B97	SPL_CS#
A98	TX0	B98	RSVD
A99	RX0	B99	RSVD
A100	GND (FIXED)	B100	GND (FIXED)
A101	TX1	B101	FAN_PWM
A102	RX1	B102	FAN_TACH_IN
A103	RSVD	B103	SLEEP#
A104	VCC_12V	B104	VCC_12V
A105	VCC_12V	B105	VCC_12V
A106	VCC_12V	B106	VCC_12V
A107	VCC_12V	B107	VCC_12V
A108	VCC_12V	B108	VCC_12V
A109	VCC_12V	B109	VCC_12V
A110	GND (FIXED)	B110	GND (FIXED)

Chapter 3

AMI BIOS Setup

3.1 System Test and Initialization

The board uses certain routines to test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors.

System configuration verification routines check the current system configuration stored in the CMOS memory and BIOS NVRAM. If a system configuration is not found or a system configuration data error is detected, the system will load the optimized default and re-boot with this default system configuration automatically.

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

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

The COM-R2KC6 CMOS memory uses a backup battery for data retention. The battery must be replaced if it runs out of power.

3.2 AMI BIOS Setup

The AMI BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This information is stored in the battery-backed CMOS RAM and BIOS NVRAM so it retains the Setup information when the power is turned off.

To enter Setup, power on the computer and press immediately.

The function of each menu is as follows:

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

Advanced – Enable/disable boot option for legacy network devices.

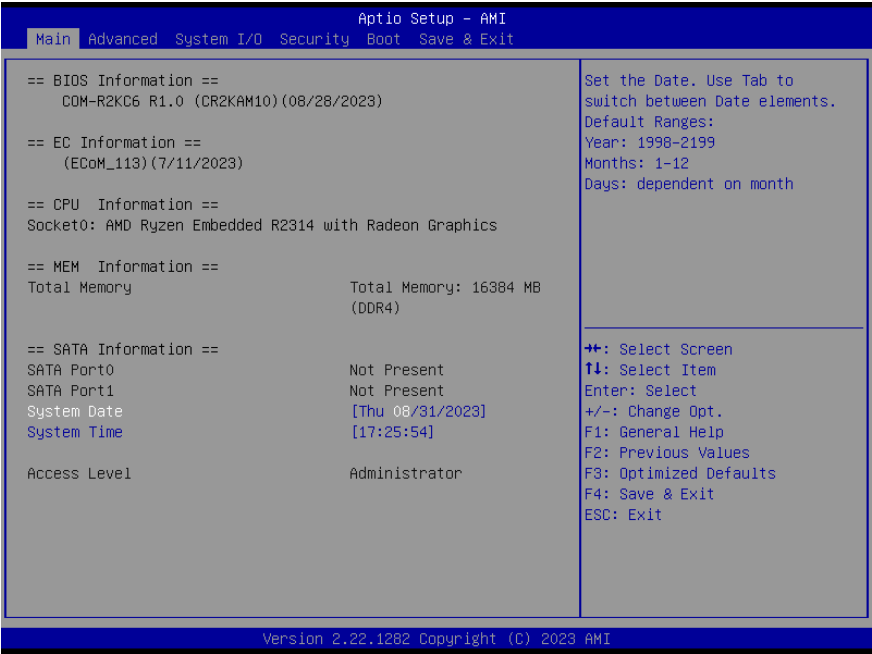
System I/O – System I/O information and configuration.

Security – Password for setup administrator can be set here.

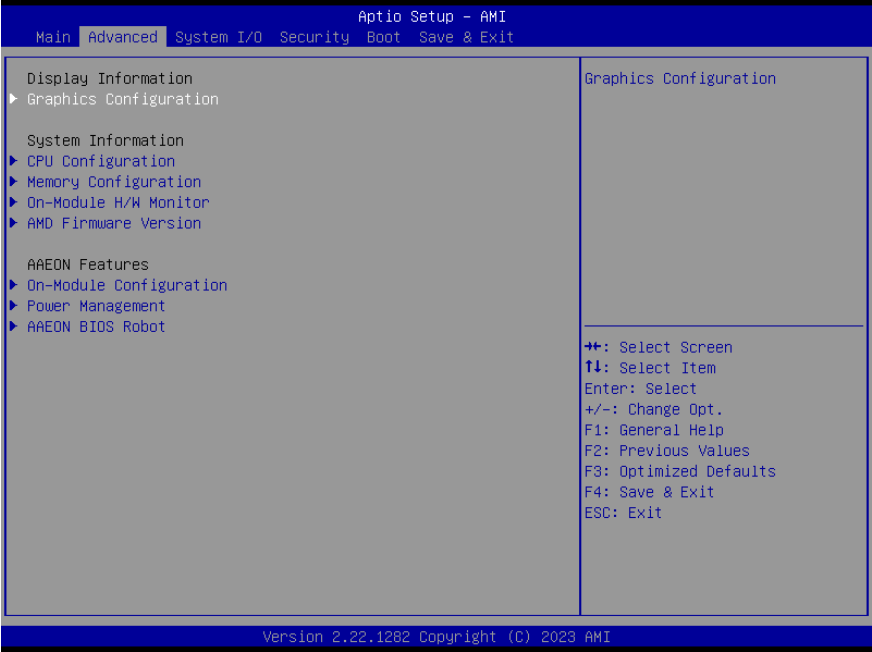
Boot – Enable/disable Quiet Boot option.

Save & Exit – Save changes and exit Setup.

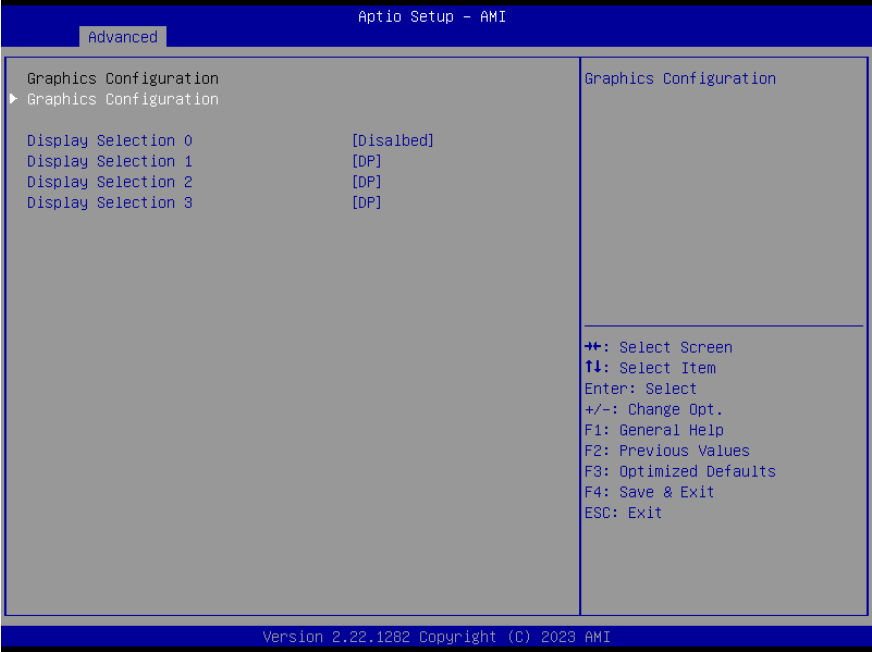
3.3 Setup Submenu: Main



3.4 Setup Submenu: Advanced

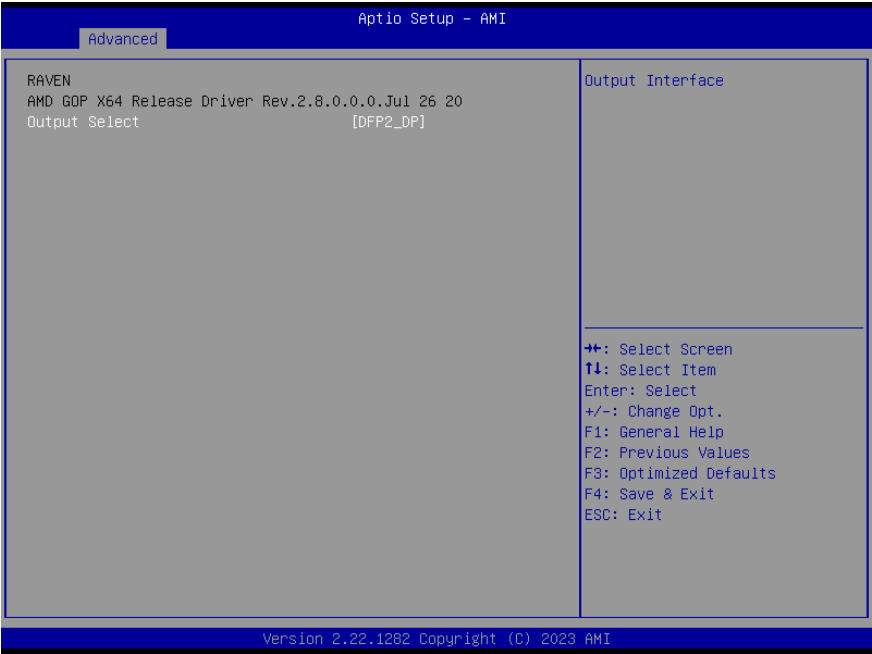


3.4.1 Graphics Configuration



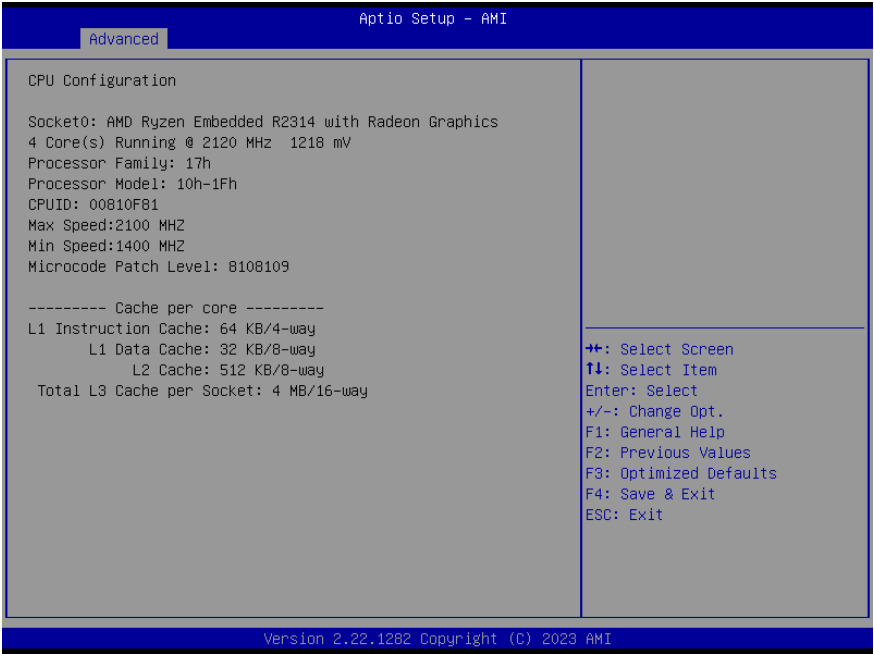
Options Summary		
Display Selection 0	EDP	
	Disabled	Optimal Default, Failsafe Default
Select DP0 or HDMI0 as Display		
Display Selection 1	DP	Optimal Default, Failsafe Default
	HDMI	
	Disabled	
Select DP1 or HDMI1 as Display		
Display Selection 2	DP	Optimal Default, Failsafe Default
	HDMI	
	Disabled	
Select DP2 or HDMI2 as Display		
Display Selection 3	DP	Optimal Default, Failsafe Default
	HDMI	
	Disabled	
Select DP3 or HDMI3 as Display		

3.4.1.1 Output Select

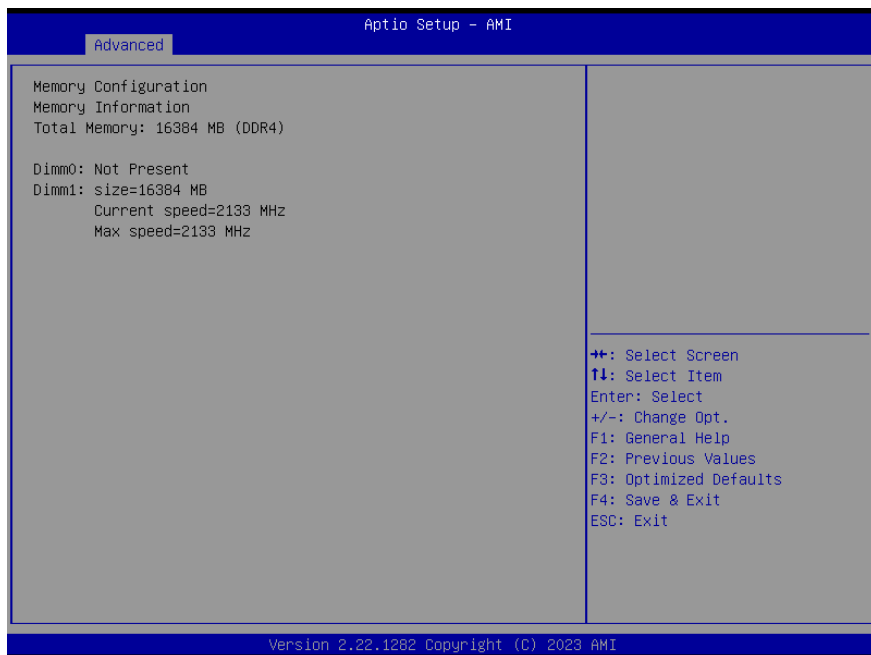


Options Summary	
Output Select	Depends on display connected
Output Interface.	

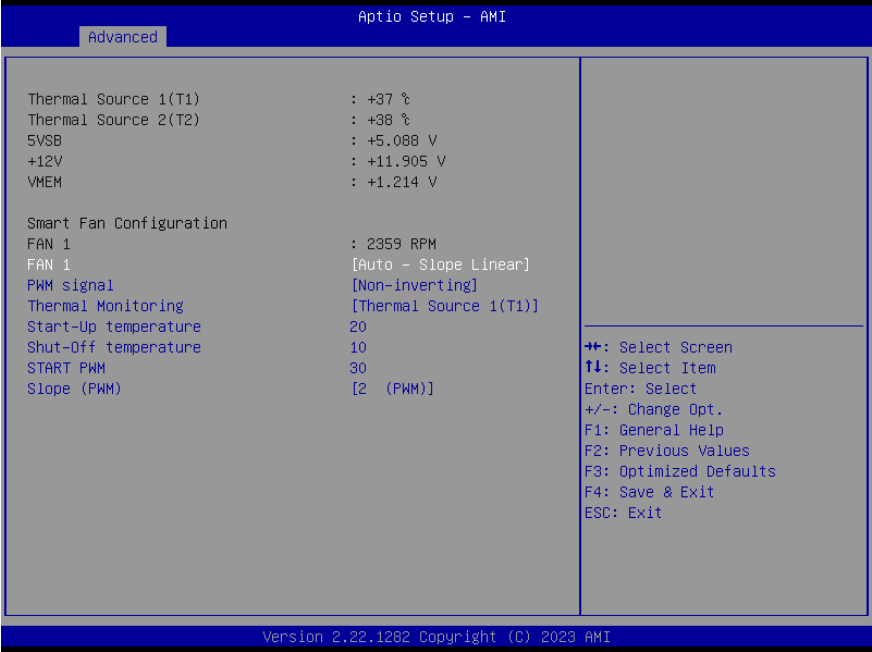
3.4.2 CPU Configuration



3.4.3 Memory Configuration



3.4.4 On-Module H/W Monitor



Options Summary		
FAN 1	Full Mode	
	Manual Mode	
	Auto – Slope Linear	Optimal Default, Failsafe Default
PWM signal	Non-inverting	Optimal Default, Failsafe Default
	Inverting	
Select output PWM of inverting or non-inverting signal.		
Thermal Monitoring	Thermal Source 1 (T1)	Optimal Default, Failsafe Default
	Thermal Source 2 (T2)	
Monitoring thermal sensor select.		
Start-Up temperature	20	
PWM output when monitoring thermal sensor is exceeded. Range: 0 – 100.		
Start-Off temperature	10	

Options Summary

PWM turns off when monitored thermal sensor is less or equal to.

Range: 0 – 100.

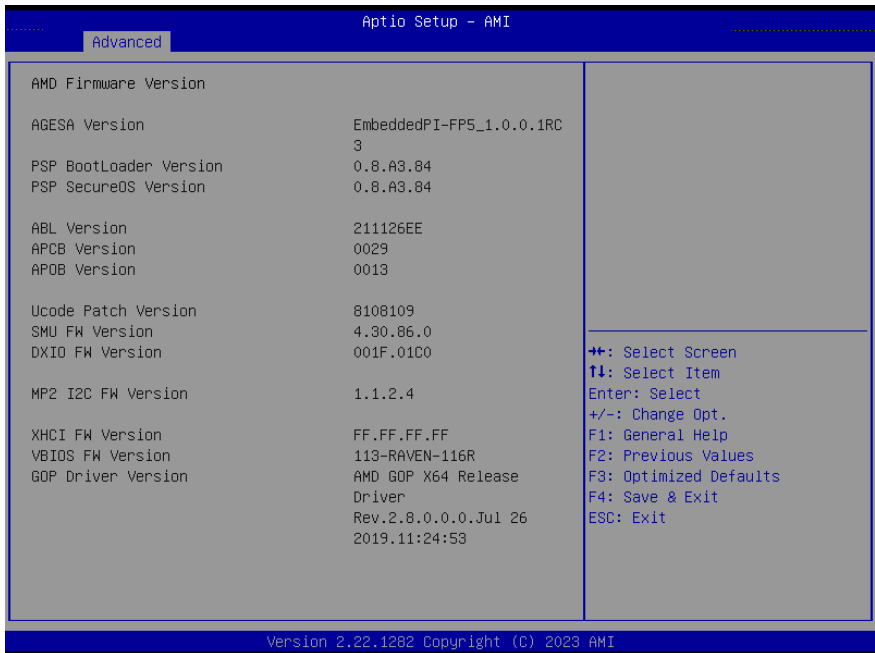
Start PWM 30

The beginning PWM output value when Start-Up temperature is triggered.

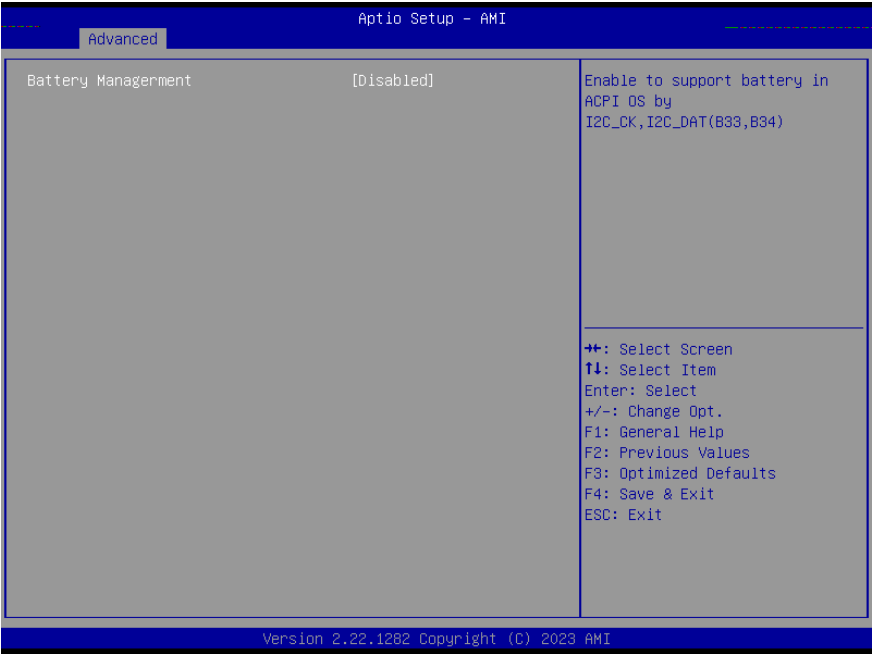
Slope (PWM)	0 (PWM)	
	1 (PWM)	
	2 (PWM)	Optimal Default, Failsafe Default
	4 (PWM)	
	8 (PWM)	
	16 (PWM)	
	32 (PWM)	
	64 (PWM)	

When the monitored temperature is higher than the Start-Up temperature, the PWM output increases per degree.

3.4.5 AMD Firmware Version

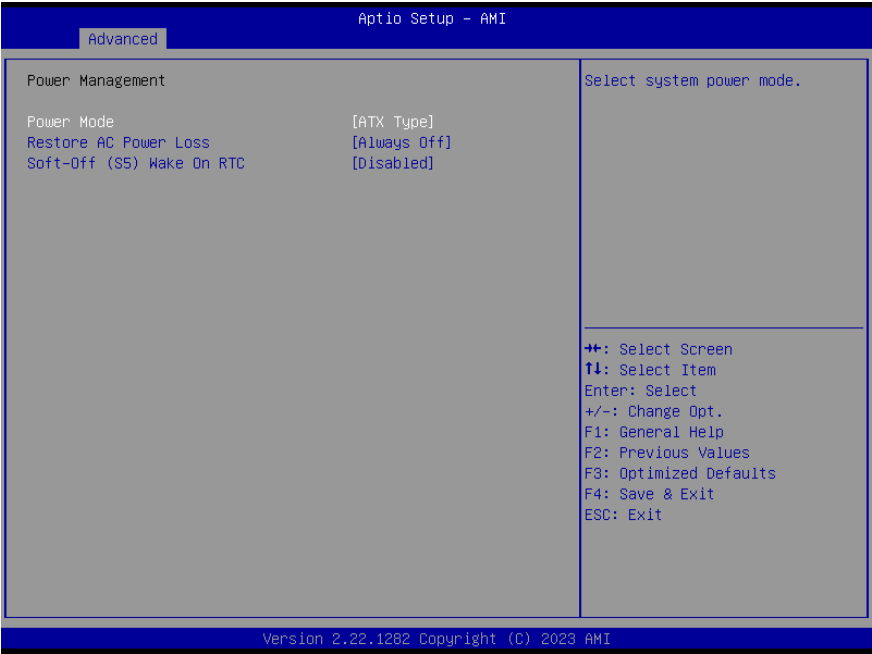


3.4.6 On-Module Configuration



Options Summary		
Battery Management	Disabled	Optimal Default, Failsafe Default
	One Battery	
Enable to support battery in ACPI OS by I2C_CK, I2C_DAT(B33, B34).		

3.4.7 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	
	Always Off	Optimal Default, Failsafe Default
SIO Restore AC Power Loss: To decide the behavior after system power cut then resupply Note: The CMOS battery must present.		
Soft-Off (S5) Wake On RTC	Disabled	Optimal Default, Failsafe Default
	By Date	
	By Weekday	
	Bypass	

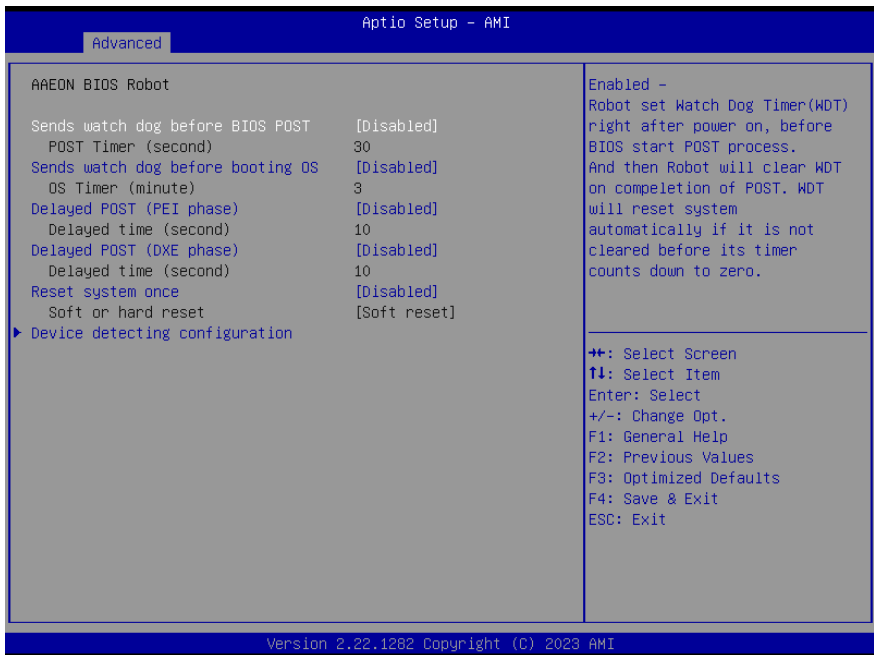
Options Summary

By Date: System will wake on the day with hr::min::sec specified.

By Weekday: System will wake on the enabled weekday with hr::min::sec specified.

Bypass: BIOS will not control RTC wake function.

3.4.8 AAEON BIOS Robot

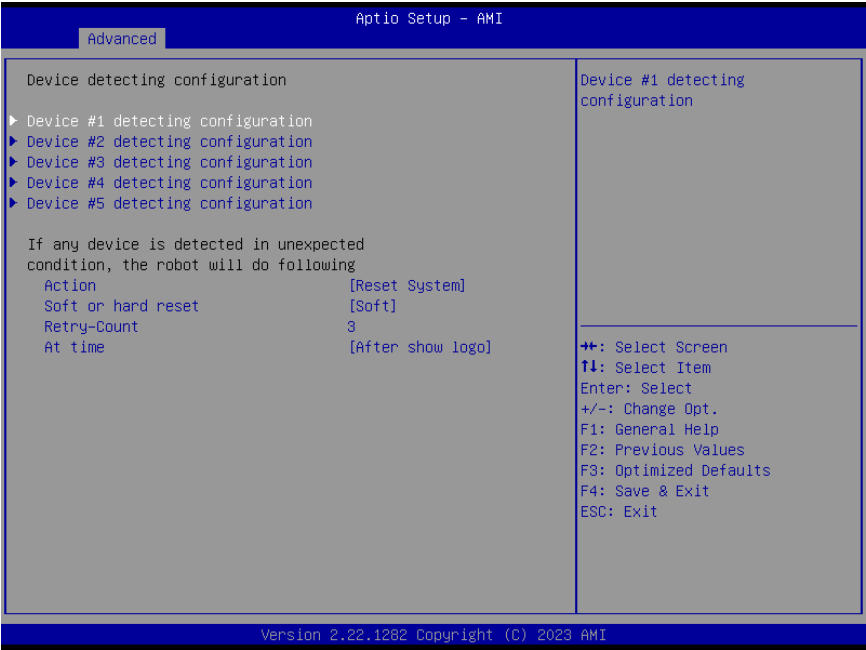


Options Summary

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.		
Sends watch dog before booting OS	Disabled	Optimal Default, Failsafe Default
	Enabled	

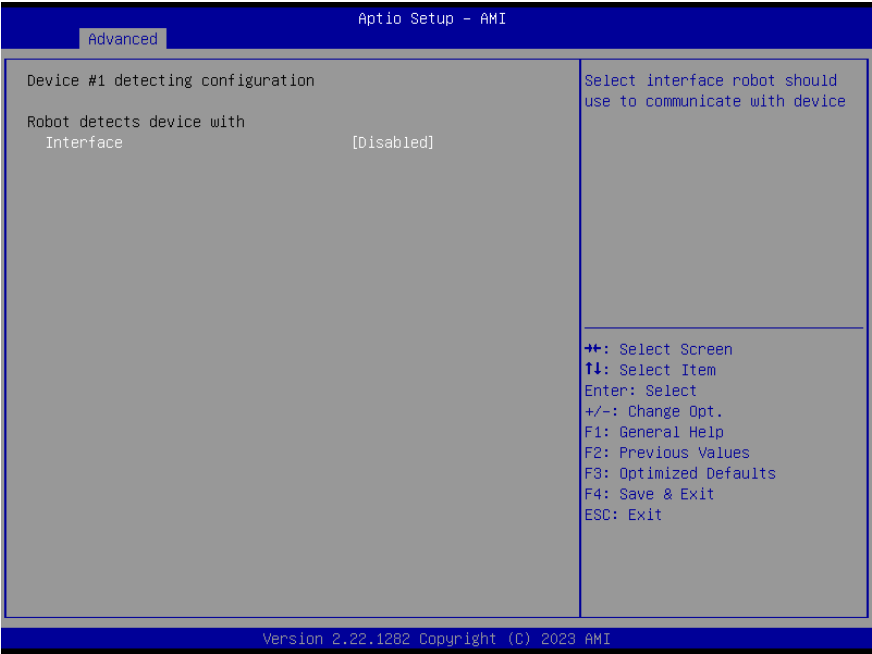
Options Summary		
Enabled - Robot set Watch Dog Timer (WDT) after POST completion before BIOS transfer control to OS. Warning: Before enabling this function, a program in OS must be in responsible for clearing WDT. Also, this function should be disabled if OS is going to update itself.		
Delayed POST (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 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 'Send watch dog before BIOS 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.		

3.4.8.1 Device Detecting Configuration



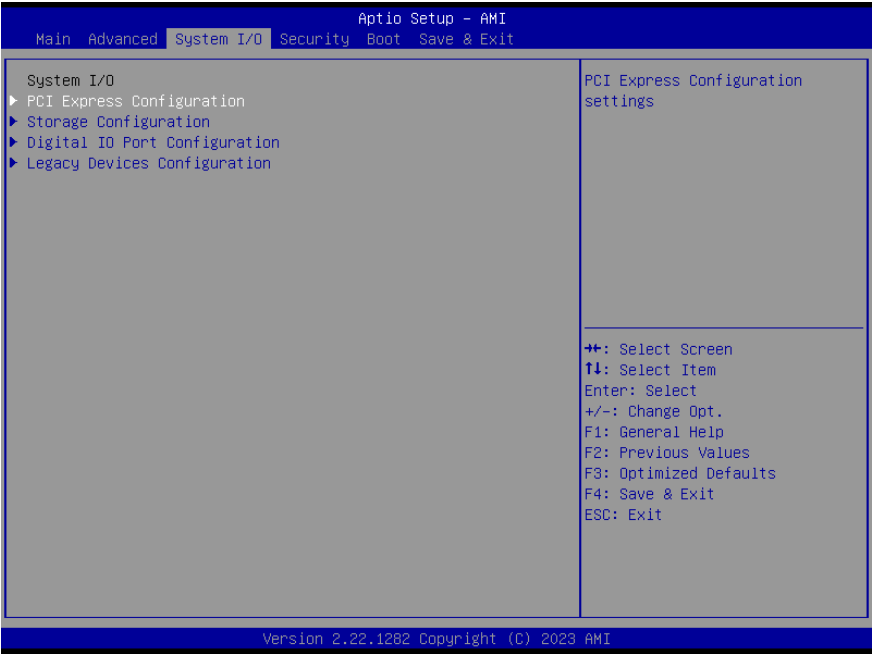
Options Summary		
Action	Reset System	Optimal Default, Failsafe Default
	Hold System	
Select action that robot should do.		
Soft or hard reset	Soft	Optimal Default, Failsafe Default
	Hard	
Select reset type robot should send on each boot.		
Retry-Count		
Fill retry counter here. Robot will reset system at most counter times, and then let system continue its POST.		
At time	After show logo	Optimal Default, Failsafe Default
	Before show logo	
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.		

3.4.8.1.1 Device #1~5

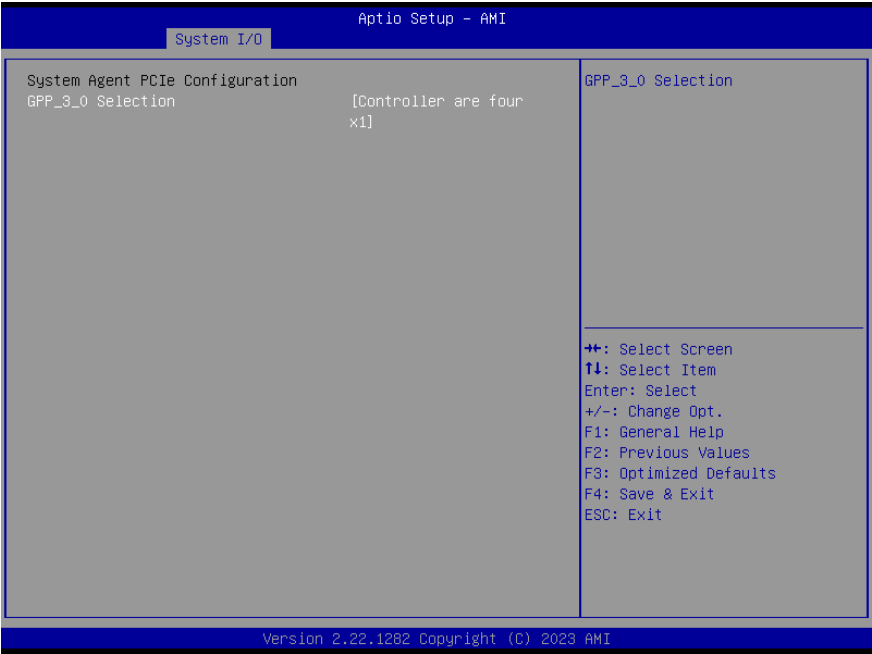


Options Summary		
Interface	Disabled	Optimal Default, Failsafe Default
	PCI	
	DIO	
	SMBUS	
	Legacy I/O	
	Super I/O	
	MMIO	
Select interface robot should use to communicate with device.		

3.5 Setup Submenu: System I/O

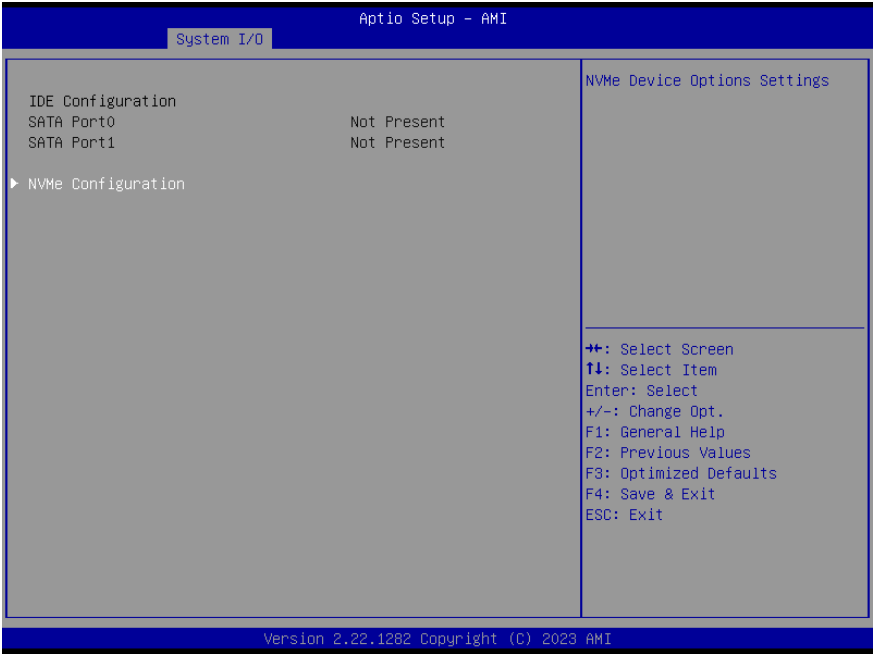


3.5.1 PCI Express Configuration

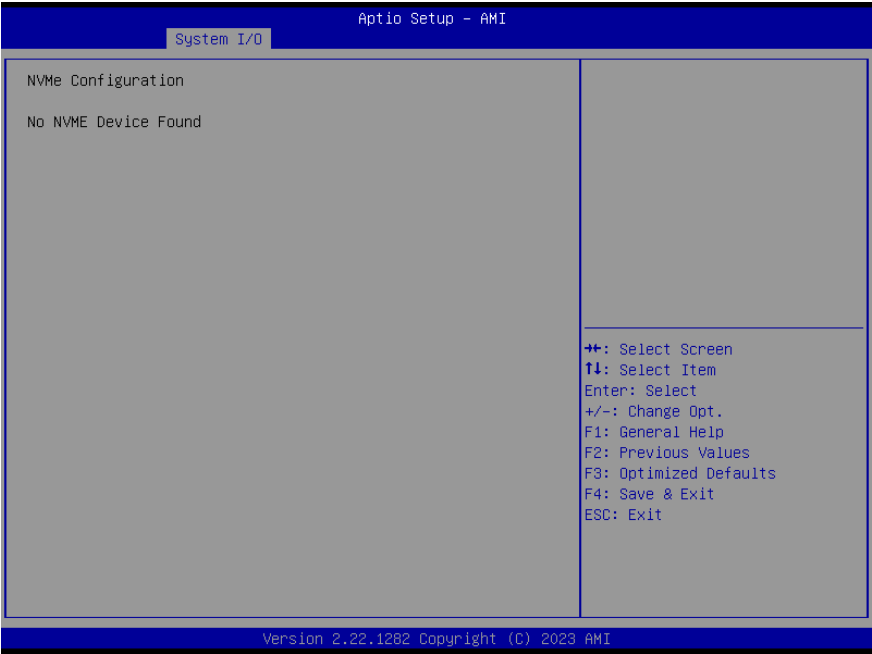


Options Summary		
GPP_3_0 Selection	Controller are four x1	Optimal Default, Failsafe Default
	Controller are one x2 and two x1	
	Controller are two x2	
	Controller are two x1 and one x2	
	Controller is one x4	
GPP_3_0 Selection.		

3.5.2 Storage Configuration

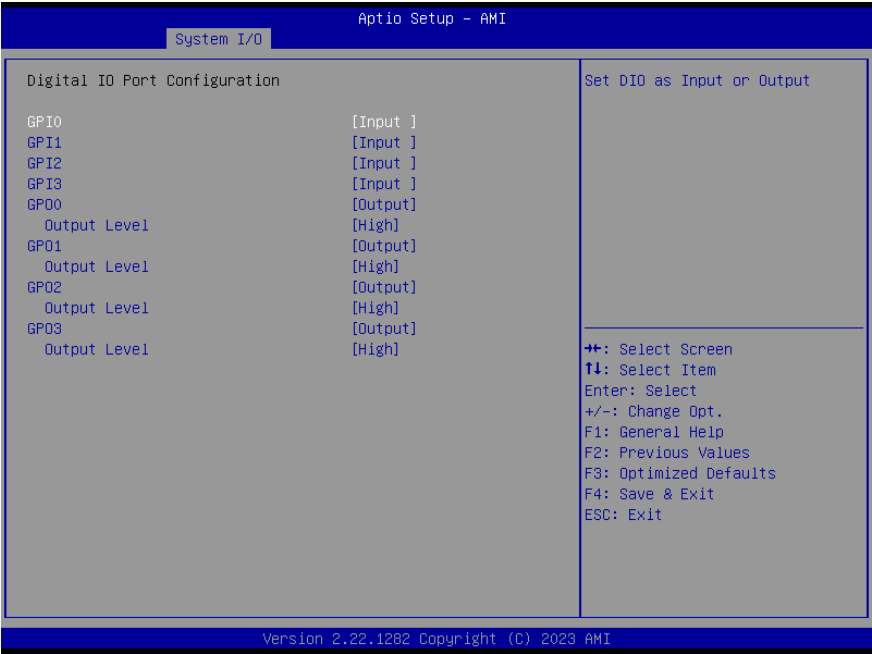


3.5.3 NVMe Configuration



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

3.5.4 Digital IO Port Configuration

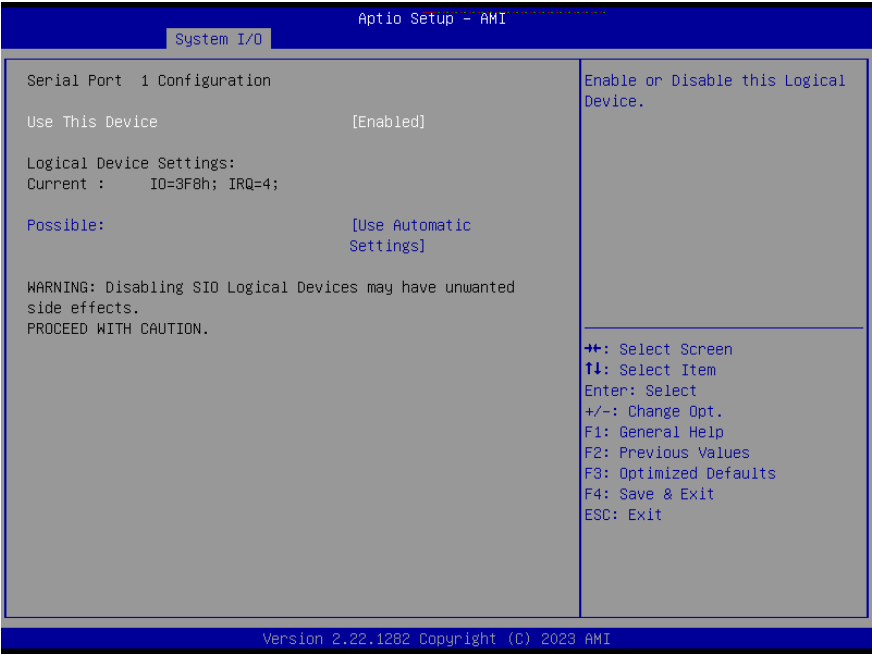


Options Summary		
GPIO~3	Input	Optimal Default, Failsafe Default
	Output	
Set DIO as Input or Output.		
GPO0~3	Input	
	Output	Optimal Default, Failsafe Default
Set DIO as Input or Output.		
Output Level	Low	
	High	Optimal Default, Failsafe Default
Set output level when DIO pin is output.		

3.5.5 Legacy Logical Devices Configuration

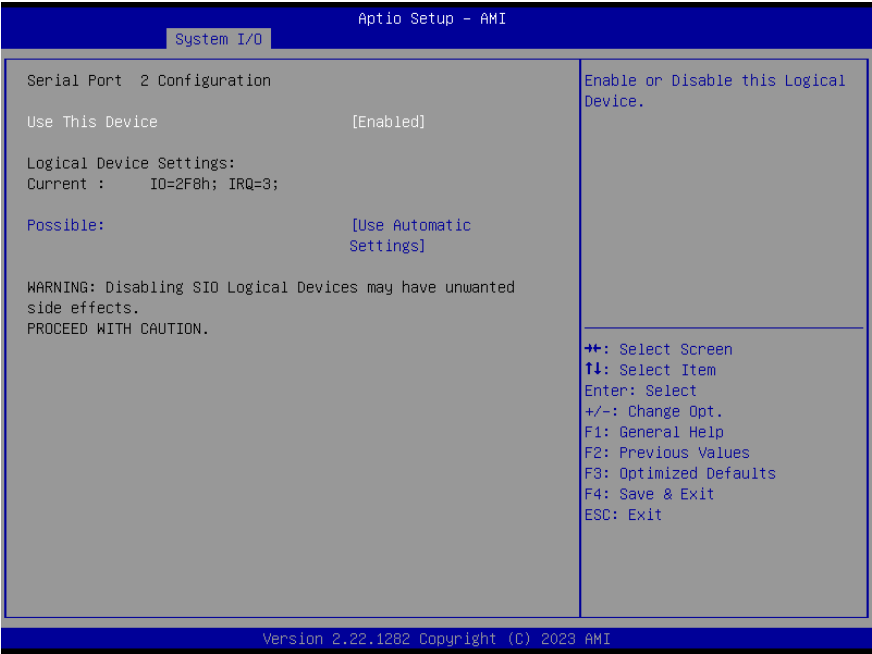


3.5.5.1 Serial Port 1 Configuration



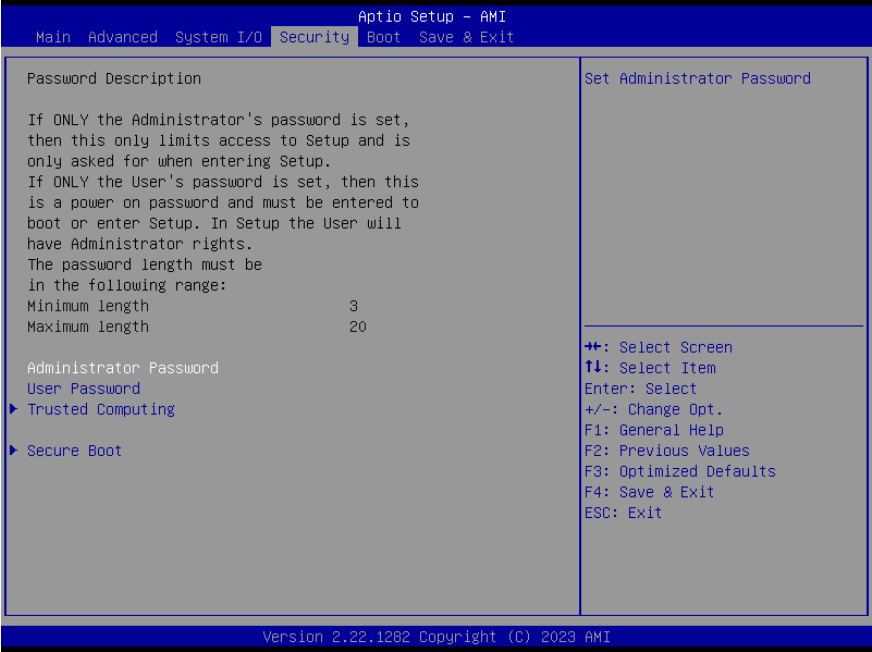
Options Summary		
Use This Device	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable this Logical Device.		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=3F8h; IRQ=4; DMA;	
	IO=2C8h; IRQ=11; DMA;	
Allows the user to change the device resource settings. New settings will be reflected on this setup page after system restarts.		

3.5.5.2 Serial Port 2 Configuration



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; DMA;	
	IO=2D8h; IRQ=10; DMA;	
Allows the user to change the device resource settings. New settings will be reflected on this setup page after system restarts.		

3.6 Setup Submenu: Security



Change Administrator/User Password

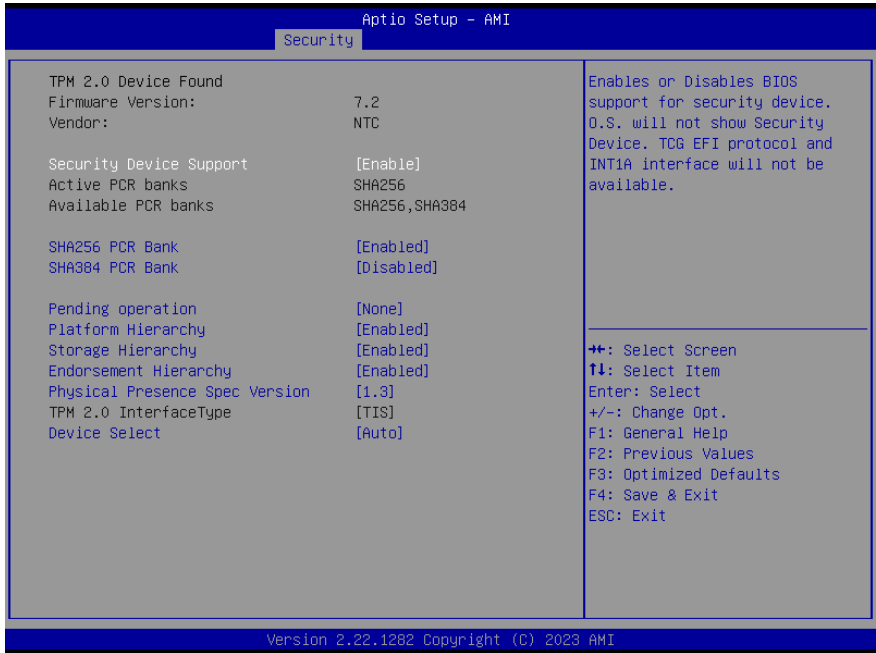
You can set an Administrator password. If you set an Administrator password, you can then set a User password. User passwords do not have access to many of the features in the Setup utility.

Select the password you want to set and press <Enter>. A dialog box will appear which lets you set the password. Passwords must be between 3 and 20 letters or numbers. Press <Enter> and re-enter the password into the next dialog box that appears. Press <Enter> after you have retyped it correctly. The password is required at boot time, or when the user enters the Setup utility.

Remove 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. TCG EFI protocol and INT1A interface will not be available.		
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.		
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.		

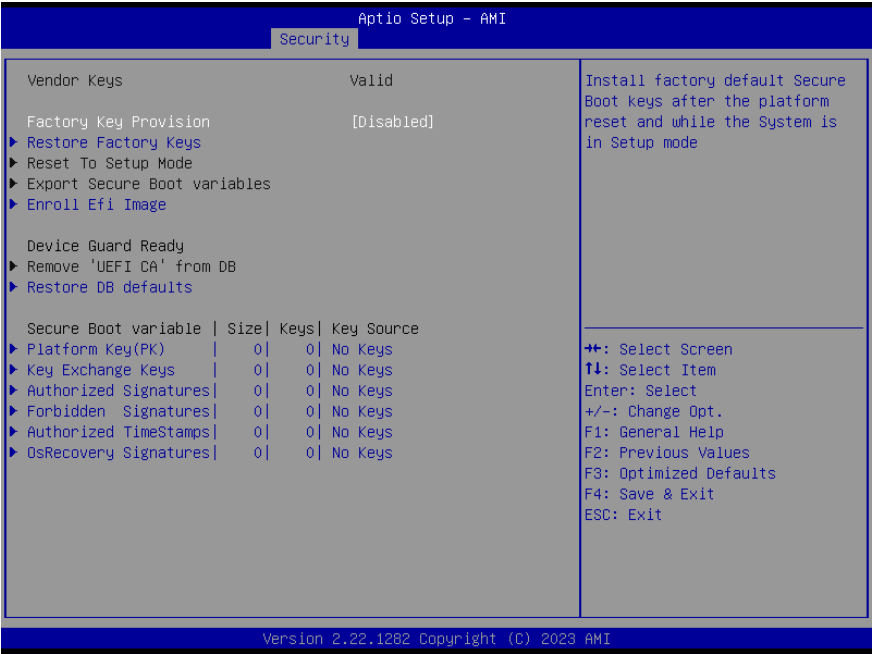
Options Summary		
Platform Hierarchy	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable Platform Hierarchy.		
Storage Hierarchy	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable Storage Hierarchy.		
Endorsement Hierarchy	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable Endorsement Hierarchy.		
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 found. TPM 1.2 devices will be enumerated.		

3.6.2 Secure Boot



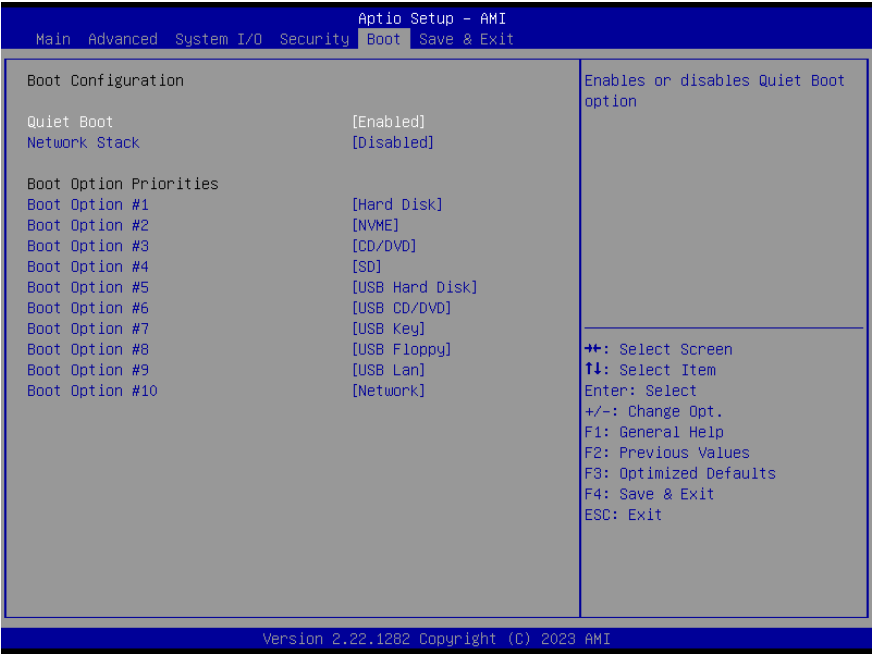
Options Summary		
Secure Boot	Disabled	Optimal Default, Failsafe Default
	Enabled	
Secure Boot feature is Active if Secure Boot is Enabled, Platform Key (PK) is enrolled and the System is in User mode. The mode change requires platform reset.		
Secure Boot Mode	Standard	
	Custom	Optimal Default, Failsafe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

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.		

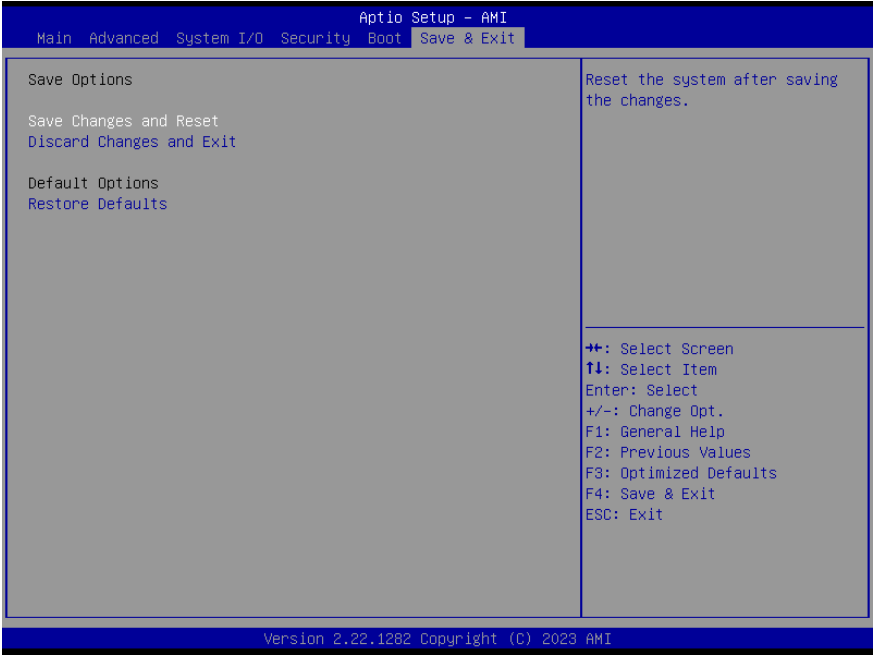
3.7 Setup Submenu: Boot



Options Summary		
Quiet Boot	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enables or Disables Quite Boot option.		
Network Stack	Disabled	Optimal Default, Failsafe Default
	UEFI	
Enable/Disable UEFI Network Stack.		
Boot Option #1	Hard Disk	Default
Boot Option #2	NVME	Default
Boot Option #3	CD/DVD	Default
Boot Option #4	SD	Default
Boot Option #5	USB Hard Disk	Default
Boot Option #6	USB CD/DVD	Default
Boot Option #7	USB Key	Default
Boot Option #8	USB Floppy	Default
Boot Option #9	USB Lan	Default

Options Summary		
Boot Option #10	Network	Default
Sets the system boot order.		

3.8 Setup Submenu: Save & Exit



Chapter 4

Drivers Installation

4.1 Drivers Download and Installation

Drivers for the COM-R2KC6 can be downloaded from the product page on the AAEON website by following this link:

<https://www.aaeon.com/en/>

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

Chipset Driver

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

Graphics Driver

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

LAN Drivers

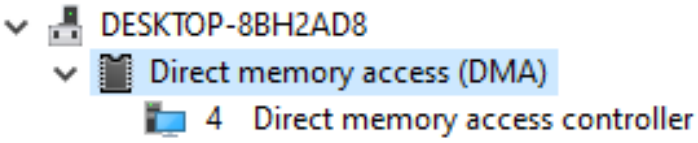
1. Open the folder where you unzipped the **LAN Drivers**
2. Run the **Autorun.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Audio Driver

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

Appendix A

I/O Information



A.2 I/O Address Map

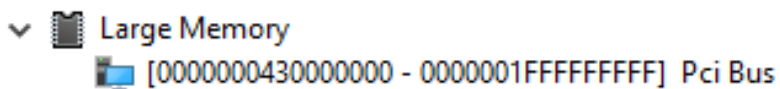
- ▼  Input/output (I/O)
 - ▼  [0000000000000000 - 0000000000003AF] PCI Bus
 -  [0000000000000000 - 00000000000000F] Direct memory access controller
 -  [0000000000000010 - 00000000000001F] Motherboard resources
 - >  [0000000000000020 - 000000000000021] Programmable interrupt controller
 - >  [0000000000000022 - 00000000000003F] Motherboard resources
 - >  [0000000000000040 - 000000000000043] System timer
 -  [000000000000004E - 00000000000004F] Motherboard resources
 - >  [0000000000000050 - 000000000000053] System timer
 - >  [0000000000000061 - 000000000000061] System speaker
 -  [0000000000000062 - 000000000000062] Microsoft ACPI-Compliant Embedded Controller
 - >  [0000000000000063 - 000000000000063] Motherboard resources
 - >  [0000000000000065 - 000000000000065] Motherboard resources
 -  [0000000000000066 - 000000000000066] Microsoft ACPI-Compliant Embedded Controller
 - >  [0000000000000067 - 00000000000006F] Motherboard resources
 - >  [0000000000000070 - 000000000000071] System CMOS/real time clock
 - >  [0000000000000072 - 00000000000007F] Motherboard resources
 - >  [0000000000000080 - 000000000000080] Motherboard resources
 -  [0000000000000081 - 000000000000083] Direct memory access controller
 -  [0000000000000084 - 000000000000086] Motherboard resources
 -  [0000000000000087 - 000000000000087] Direct memory access controller
 -  [0000000000000088 - 000000000000088] Motherboard resources
 -  [0000000000000089 - 00000000000008B] Direct memory access controller
 -  [000000000000008C - 00000000000008E] Motherboard resources
 -  [000000000000008F - 00000000000008F] Direct memory access controller
 - >  [0000000000000090 - 00000000000009F] Motherboard resources
 - >  [00000000000000A0 - 0000000000000A1] Programmable interrupt controller
 - >  [00000000000000A2 - 0000000000000BF] Motherboard resources
 -  [00000000000000C0 - 0000000000000DF] Direct memory access controller
 -  [00000000000000E0 - 00000000000000EF] Motherboard resources
 -  [00000000000000F8 - 00000000000002FF] Communications Port (COM2)
 -  [0000000000003B0 - 0000000000003DF] PCI Bus
 - ▼  [0000000000003E0 - 000000000000CF7] PCI Bus
 -  [0000000000003F8 - 0000000000003FF] Communications Port (COM1)
 -  [00000000000040B - 00000000000040B] Motherboard resources
 - >  [0000000000004D0 - 0000000000004D1] Motherboard resources
 -  [0000000000004D6 - 0000000000004D6] Motherboard resources
 -  [000000000000680 - 00000000000069F] Motherboard resources
 -  [000000000000800 - 00000000000089F] Motherboard resources
 -  [000000000000900 - 00000000000090F] Motherboard resources
 -  [000000000000910 - 00000000000091F] Motherboard resources
 -  [000000000000B00 - 000000000000B0F] Motherboard resources
 -  [000000000000B20 - 000000000000B3F] Motherboard resources
 -  [000000000000C00 - 000000000000C01] Motherboard resources
 -  [000000000000C14 - 000000000000C14] Motherboard resources
 -  [000000000000C50 - 000000000000C51] Motherboard resources
 -  [000000000000C52 - 000000000000C52] Motherboard resources
 -  [000000000000C6C - 000000000000C6C] Motherboard resources
 -  [000000000000C6F - 000000000000C6F] Motherboard resources
 -  [000000000000CD0 - 000000000000CD1] Motherboard resources
 -  [000000000000CD2 - 000000000000CD3] Motherboard resources
 -  [000000000000CD4 - 000000000000CD5] Motherboard resources

-  [000000000000CD6 - 000000000000CD7] Motherboard resources
 -  [000000000000CD8 - 000000000000CDF] Motherboard resources
 - ▼  [000000000000D00 - 000000000000FFFF] Pci Bus
 -  [000000000000164E - 000000000000164F] Motherboard resources
 - >  [0000000000001800 - 00000000000018FE] Motherboard resources
 -  [0000000000002000 - 00000000000020FE] Motherboard resources
 - >  [0000000000003000 - 000000000000303F] Intel(R) UHD Graphics
 - >  [0000000000003060 - 000000000000307F] Standard SATA AHCI Controller
 - >  [0000000000003080 - 0000000000003083] Standard SATA AHCI Controller
 - >  [0000000000003090 - 0000000000003097] Standard SATA AHCI Controller
 - >  [000000000000EFA0 - 000000000000EFBF] Intel(R) SMBus - 51A3
 - >  [000000000000F000 - 000000000000FFFF] PCI Express Root Port

A.3 Memory Address Map

▼	Memory
	[0000000000A0000 - 0000000000BFFFF] Pci Bus
	[0000000000C0000 - 0000000000DFFFF] Pci Bus
>	[000000007FC0000 - 000000007FDFFFF] PCI Express Root Port
	[000000007FE0000 - 000000007FE1FFF] Standard SATA AHCI Controller
	[000000007FE2000 - 000000007FE27FF] Standard SATA AHCI Controller
	[000000007FE3000 - 000000007FE30FF] Standard SATA AHCI Controller
	[000000008040000 - 00000000805FFFF] PCI Express Root Port
	[000000008060000 - 000000008061FFF] Standard SATA AHCI Controller
	[000000008062000 - 0000000080627FF] Standard SATA AHCI Controller
	[000000008063000 - 0000000080630FF] Standard SATA AHCI Controller
	[00000000C000000 - 00000000CFFFFFF] Motherboard resources
>	[00000000D000000 - 00000000DFFFFFF] Pci Bus
>	[00000000FD00000 - 00000000DFFFFFF] Motherboard resources
>	[00000000FE00000 - 00000000FE01FFF] Motherboard resources
	[00000000FE03200 - 00000000FE032FF] Motherboard resources
	[00000000FE03300 - 00000000FE033FF] Motherboard resources
	[00000000FE20000 - 00000000FE7FFFF] Motherboard resources
	[00000000FEB8000 - 00000000FEBFFFF] Motherboard resources
	[00000000FEC0000 - 00000000FEC00FF] Motherboard resources
	[00000000FEC0100 - 00000000FEC01FF] Motherboard resources
>	[00000000FEC1000 - 00000000FEC10FF] Motherboard resources
	[00000000FEC8000 - 00000000FECFFFF] Motherboard resources
>	[00000000FED0000 - 00000000FED003FF] High precision event timer
>	[00000000FED2000 - 00000000FED7FFF] Motherboard resources
>	[00000000FED4500 - 00000000FED8FFF] Motherboard resources
	[00000000FED9000 - 00000000FED93FF] Motherboard resources
	[00000000FEDA000 - 00000000FEDA0FF] Motherboard resources
	[00000000FEDA100 - 00000000FEDA1FF] Motherboard resources
	[00000000FEDC000 - 00000000FEDC0FF] Motherboard resources
	[00000000FEDC500 - 00000000FEDC5FF] AMD I2C Controller
>	[00000000FEE0000 - 00000000FEEFFFF] Motherboard resources
>	[00000000FF00000 - 00000000FFFFFFF] Motherboard resources
>	[0000001F8000000 - 0000001FCFFFFFF] PCI Express Root Port
>	[000000400000000 - 000000400FFFFFF] Intel(R) UHD Graphics
>	[000000600000000 - 000000600FFFFFF] Intel(R) UHD Graphics
>	[000000600110000 - 000000600110FFF] Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)
	[000000600111800 - 00000060011180FF] SM Bus Controller
	[000000600111B00 - 000000600111BFFF] Intel SD Host Controller
	[000000600112800 - 00000060011280FF] Intel(R) SMBus - 51A3
	[000000600112A00 - 000000600112AFFF] PCI Device
	[000000600112B00 - 000000600112BFFF] PCI Device

A.4 Large Memory Address Map



A.5 IRQ Mapping Chart

Interrupt request (IRQ)		
	(ISA) 0x00000000 (00)	High precision event timer
	(ISA) 0x00000000 (00)	System timer
	(ISA) 0x00000000 (00)	System timer
	(ISA) 0x00000000 (00)	System timer
	(ISA) 0x00000003 (03)	Communications Port (COM2)
	(ISA) 0x00000004 (04)	Communications Port (COM1)
	(ISA) 0x00000006 (06)	AMD I2C Controller
	(ISA) 0x00000007 (07)	AMD GPIO Controller
	(ISA) 0x00000008 (08)	High precision event timer
	(ISA) 0x0000000E (14)	Unknown device
	(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) 0x00000055 (85)	Microsoft ACPI-Compliant System
	(ISA) 0x00000056 (86)	Microsoft ACPI-Compliant System
	(ISA) 0x00000057 (87)	Microsoft ACPI-Compliant System
	(ISA) 0x00000058 (88)	Microsoft ACPI-Compliant System
	(ISA) 0x00000059 (89)	Microsoft ACPI-Compliant System
	(ISA) 0x0000005A (90)	Microsoft ACPI-Compliant System
	(ISA) 0x0000005B (91)	Microsoft ACPI-Compliant System
	(ISA) 0x0000005C (92)	Microsoft ACPI-Compliant System
	(ISA) 0x0000005D (93)	Microsoft ACPI-Compliant System
	(ISA) 0x0000005E (94)	Microsoft ACPI-Compliant System
	(ISA) 0x0000005F (95)	Microsoft ACPI-Compliant System

	(ISA) 0x00000060 (96)	Microsoft ACPI-Compliant System
	(ISA) 0x00000061 (97)	Microsoft ACPI-Compliant System
	(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
	(ISA) 0x0000006B (107)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006C (108)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006D (109)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006E (110)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006F (111)	Microsoft ACPI-Compliant System
	(ISA) 0x00000070 (112)	Microsoft ACPI-Compliant System
	(ISA) 0x00000071 (113)	Microsoft ACPI-Compliant System
	(ISA) 0x00000072 (114)	Microsoft ACPI-Compliant System
	(ISA) 0x00000073 (115)	Microsoft ACPI-Compliant System
	(ISA) 0x00000074 (116)	Microsoft ACPI-Compliant System
	(ISA) 0x00000075 (117)	Microsoft ACPI-Compliant System
	(ISA) 0x00000076 (118)	Microsoft ACPI-Compliant System
	(ISA) 0x00000077 (119)	Microsoft ACPI-Compliant System
	(ISA) 0x00000078 (120)	Microsoft ACPI-Compliant System
	(ISA) 0x00000079 (121)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007A (122)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007B (123)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007C (124)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007D (125)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007E (126)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007F (127)	Microsoft ACPI-Compliant System
	(ISA) 0x00000080 (128)	Microsoft ACPI-Compliant System
	(ISA) 0x00000081 (129)	Microsoft ACPI-Compliant System
	(ISA) 0x00000082 (130)	Microsoft ACPI-Compliant System
	(ISA) 0x00000083 (131)	Microsoft ACPI-Compliant System
	(ISA) 0x00000084 (132)	Microsoft ACPI-Compliant System
	(ISA) 0x00000085 (133)	Microsoft ACPI-Compliant System
	(ISA) 0x00000086 (134)	Microsoft ACPI-Compliant System
	(ISA) 0x00000087 (135)	Microsoft ACPI-Compliant System
	(ISA) 0x00000088 (136)	Microsoft ACPI-Compliant System
	(ISA) 0x00000089 (137)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008A (138)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008B (139)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008C (140)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008D (141)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008E (142)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008F (143)	Microsoft ACPI-Compliant System
	(ISA) 0x00000090 (144)	Microsoft ACPI-Compliant System
	(ISA) 0x00000091 (145)	Microsoft ACPI-Compliant System
	(ISA) 0x00000092 (146)	Microsoft ACPI-Compliant System
	(ISA) 0x00000093 (147)	Microsoft ACPI-Compliant System

 (ISA) 0x00000094 (148)	Microsoft ACPI-Compliant System
 (ISA) 0x00000095 (149)	Microsoft ACPI-Compliant System
 (ISA) 0x00000096 (150)	Microsoft ACPI-Compliant System
 (ISA) 0x00000097 (151)	Microsoft ACPI-Compliant System
 (ISA) 0x00000098 (152)	Microsoft ACPI-Compliant System
 (ISA) 0x00000099 (153)	Microsoft ACPI-Compliant System
 (ISA) 0x0000009A (154)	Microsoft ACPI-Compliant System
 (ISA) 0x0000009B (155)	Microsoft ACPI-Compliant System
 (ISA) 0x0000009C (156)	Microsoft ACPI-Compliant System
 (ISA) 0x0000009D (157)	Microsoft ACPI-Compliant System
 (ISA) 0x0000009E (158)	Microsoft ACPI-Compliant System
 (ISA) 0x0000009F (159)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A0 (160)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A1 (161)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A2 (162)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A3 (163)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A4 (164)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A5 (165)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A6 (166)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A7 (167)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A8 (168)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A9 (169)	Microsoft ACPI-Compliant System
 (ISA) 0x000000AA (170)	Microsoft ACPI-Compliant System
 (ISA) 0x000000AB (171)	Microsoft ACPI-Compliant System
 (ISA) 0x000000AC (172)	Microsoft ACPI-Compliant System
 (ISA) 0x000000AD (173)	Microsoft ACPI-Compliant System
 (ISA) 0x000000AE (174)	Microsoft ACPI-Compliant System
 (ISA) 0x000000AF (175)	Microsoft ACPI-Compliant System
 (ISA) 0x000000B0 (176)	Microsoft ACPI-Compliant System
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 (ISA) 0x000000B2 (178)	Microsoft ACPI-Compliant System
 (ISA) 0x000000B3 (179)	Microsoft ACPI-Compliant System
 (ISA) 0x000000B4 (180)	Microsoft ACPI-Compliant System
 (ISA) 0x000000B5 (181)	Microsoft ACPI-Compliant System
 (ISA) 0x000000B6 (182)	Microsoft ACPI-Compliant System
 (ISA) 0x000000B7 (183)	Microsoft ACPI-Compliant System
 (ISA) 0x000000B8 (184)	Microsoft ACPI-Compliant System
 (ISA) 0x000000B9 (185)	Microsoft ACPI-Compliant System
 (ISA) 0x000000BA (186)	Microsoft ACPI-Compliant System
 (ISA) 0x000000BB (187)	Microsoft ACPI-Compliant System
 (ISA) 0x000000BC (188)	Microsoft ACPI-Compliant System
 (ISA) 0x000000BD (189)	Microsoft ACPI-Compliant System
 (ISA) 0x000000BE (190)	Microsoft ACPI-Compliant System
 (ISA) 0x000000BF (191)	Microsoft ACPI-Compliant System
 (ISA) 0x000000C0 (192)	Microsoft ACPI-Compliant System
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 (ISA) 0x000000C8 (200)	Microsoft ACPI-Compliant System
 (ISA) 0x000000C9 (201)	Microsoft ACPI-Compliant System
 (ISA) 0x000000CA (202)	Microsoft ACPI-Compliant System
 (ISA) 0x000000CB (203)	Microsoft ACPI-Compliant System
 (ISA) 0x000000CC (204)	Microsoft ACPI-Compliant System
 (ISA) 0x00000100 (256)	Microsoft ACPI-Compliant System
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 (ISA) 0x00000130 (304)	Microsoft ACPI-Compliant System
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 (ISA) 0x0000016C (364)	Microsoft ACPI-Compliant System
 (ISA) 0x0000016D (365)	Microsoft ACPI-Compliant System
 (ISA) 0x0000016E (366)	Microsoft ACPI-Compliant System
 (ISA) 0x0000016F (367)	Microsoft ACPI-Compliant System
 (ISA) 0x00000170 (368)	Microsoft ACPI-Compliant System
 (ISA) 0x00000171 (369)	Microsoft ACPI-Compliant System
 (ISA) 0x00000172 (370)	Microsoft ACPI-Compliant System
 (ISA) 0x00000173 (371)	Microsoft ACPI-Compliant System
 (ISA) 0x00000174 (372)	Microsoft ACPI-Compliant System
 (ISA) 0x00000175 (373)	Microsoft ACPI-Compliant System
 (ISA) 0x00000176 (374)	Microsoft ACPI-Compliant System
 (ISA) 0x00000177 (375)	Microsoft ACPI-Compliant System
 (ISA) 0x00000178 (376)	Microsoft ACPI-Compliant System
 (ISA) 0x00000179 (377)	Microsoft ACPI-Compliant System
 (ISA) 0x0000017A (378)	Microsoft ACPI-Compliant System
 (ISA) 0x0000017B (379)	Microsoft ACPI-Compliant System
 (ISA) 0x0000017C (380)	Microsoft ACPI-Compliant System
 (ISA) 0x0000017D (381)	Microsoft ACPI-Compliant System
 (ISA) 0x0000017E (382)	Microsoft ACPI-Compliant System
 (ISA) 0x0000017F (383)	Microsoft ACPI-Compliant System
 (ISA) 0x00000180 (384)	Microsoft ACPI-Compliant System
 (ISA) 0x00000181 (385)	Microsoft ACPI-Compliant System
 (ISA) 0x00000182 (386)	Microsoft ACPI-Compliant System
 (ISA) 0x00000183 (387)	Microsoft ACPI-Compliant System
 (ISA) 0x00000184 (388)	Microsoft ACPI-Compliant System
 (ISA) 0x00000185 (389)	Microsoft ACPI-Compliant System
 (ISA) 0x00000186 (390)	Microsoft ACPI-Compliant System
 (ISA) 0x00000187 (391)	Microsoft ACPI-Compliant System
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 (ISA) 0x0000018C (396)	Microsoft ACPI-Compliant System
 (ISA) 0x0000018D (397)	Microsoft ACPI-Compliant System
 (ISA) 0x0000018E (398)	Microsoft ACPI-Compliant System
 (ISA) 0x0000018F (399)	Microsoft ACPI-Compliant System
 (ISA) 0x00000190 (400)	Microsoft ACPI-Compliant System
 (ISA) 0x00000191 (401)	Microsoft ACPI-Compliant System
 (ISA) 0x00000192 (402)	Microsoft ACPI-Compliant System
 (ISA) 0x00000193 (403)	Microsoft ACPI-Compliant System
 (ISA) 0x00000194 (404)	Microsoft ACPI-Compliant System
 (ISA) 0x00000195 (405)	Microsoft ACPI-Compliant System
 (ISA) 0x00000196 (406)	Microsoft ACPI-Compliant System

 (ISA) 0x00000197 (407)	Microsoft ACPI-Compliant System
 (ISA) 0x00000198 (408)	Microsoft ACPI-Compliant System
 (ISA) 0x00000199 (409)	Microsoft ACPI-Compliant System
 (ISA) 0x0000019A (410)	Microsoft ACPI-Compliant System
 (ISA) 0x0000019B (411)	Microsoft ACPI-Compliant System
 (ISA) 0x0000019C (412)	Microsoft ACPI-Compliant System
 (ISA) 0x0000019D (413)	Microsoft ACPI-Compliant System
 (ISA) 0x0000019E (414)	Microsoft ACPI-Compliant System
 (ISA) 0x0000019F (415)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A0 (416)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A1 (417)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A2 (418)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A3 (419)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A4 (420)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A5 (421)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A6 (422)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A7 (423)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A8 (424)	Microsoft ACPI-Compliant System
 (ISA) 0x000001A9 (425)	Microsoft ACPI-Compliant System
 (ISA) 0x000001AA (426)	Microsoft ACPI-Compliant System
 (ISA) 0x000001AB (427)	Microsoft ACPI-Compliant System
 (ISA) 0x000001AC (428)	Microsoft ACPI-Compliant System
 (ISA) 0x000001AD (429)	Microsoft ACPI-Compliant System
 (ISA) 0x000001AE (430)	Microsoft ACPI-Compliant System
 (ISA) 0x000001AF (431)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B0 (432)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B1 (433)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B2 (434)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B3 (435)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B4 (436)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B5 (437)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B6 (438)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B7 (439)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B8 (440)	Microsoft ACPI-Compliant System
 (ISA) 0x000001B9 (441)	Microsoft ACPI-Compliant System
 (ISA) 0x000001BA (442)	Microsoft ACPI-Compliant System
 (ISA) 0x000001BB (443)	Microsoft ACPI-Compliant System
 (ISA) 0x000001BC (444)	Microsoft ACPI-Compliant System
 (ISA) 0x000001BD (445)	Microsoft ACPI-Compliant System
 (ISA) 0x000001BE (446)	Microsoft ACPI-Compliant System
 (ISA) 0x000001BF (447)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C0 (448)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C1 (449)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C2 (450)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C3 (451)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C4 (452)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C5 (453)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C6 (454)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C7 (455)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C8 (456)	Microsoft ACPI-Compliant System
 (ISA) 0x000001C9 (457)	Microsoft ACPI-Compliant System
 (ISA) 0x000001CA (458)	Microsoft ACPI-Compliant System

 (ISA) 0x000001CB (459)	Microsoft ACPI-Compliant System
 (ISA) 0x000001CC (460)	Microsoft ACPI-Compliant System
 (ISA) 0x000001CD (461)	Microsoft ACPI-Compliant System
 (ISA) 0x000001CE (462)	Microsoft ACPI-Compliant System
 (ISA) 0x000001CF (463)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D0 (464)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D1 (465)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D2 (466)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D3 (467)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D4 (468)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D5 (469)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D6 (470)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D7 (471)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D8 (472)	Microsoft ACPI-Compliant System
 (ISA) 0x000001D9 (473)	Microsoft ACPI-Compliant System
 (ISA) 0x000001DA (474)	Microsoft ACPI-Compliant System
 (ISA) 0x000001DB (475)	Microsoft ACPI-Compliant System
 (ISA) 0x000001DC (476)	Microsoft ACPI-Compliant System
 (ISA) 0x000001DD (477)	Microsoft ACPI-Compliant System
 (ISA) 0x000001DE (478)	Microsoft ACPI-Compliant System
 (ISA) 0x000001DF (479)	Microsoft ACPI-Compliant System
 (ISA) 0x000001E0 (480)	Microsoft ACPI-Compliant System
 (ISA) 0x000001E1 (481)	Microsoft ACPI-Compliant System
 (ISA) 0x000001E2 (482)	Microsoft ACPI-Compliant System
 (ISA) 0x000001E3 (483)	Microsoft ACPI-Compliant System
 (ISA) 0x000001E4 (484)	Microsoft ACPI-Compliant System
 (ISA) 0x000001E5 (485)	Microsoft ACPI-Compliant System
 (ISA) 0x000001E6 (486)	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) 0x00001FF (-511)	Microsoft ACPI-Compliant System
	(ISA) 0x00000400 (1024)	Trusted Platform Module 2.0
	(PCI) 0x00000035 (53)	AMD Audio CoProcessor
	(PCI) 0x00000035 (53)	High Definition Audio Controller
	(PCI) 0x00000036 (54)	High Definition Audio Controller
	(PCI) 0xFFFFFEE1 (-31)	AMD PSP 10.0 Device
	(PCI) 0xFFFFFEE2 (-30)	AMD PSP 10.0 Device
	(PCI) 0xFFFFFEE3 (-29)	Intel(R) Ethernet Controller I226-LM
	(PCI) 0xFFFFFEE4 (-28)	Intel(R) Ethernet Controller I226-LM
	(PCI) 0xFFFFFEE5 (-27)	Intel(R) Ethernet Controller I226-LM
	(PCI) 0xFFFFFEE6 (-26)	Intel(R) Ethernet Controller I226-LM
	(PCI) 0xFFFFFEE7 (-25)	Intel(R) Ethernet Controller I226-LM
	(PCI) 0xFFFFFEE8 (-24)	AMD Radeon(TM) Graphics
	(PCI) 0xFFFFFEE9 (-23)	AMD Radeon(TM) Graphics
	(PCI) 0xFFFFFEEA (-22)	AMD Radeon(TM) Graphics
	(PCI) 0xFFFFFEEB (-21)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFEEC (-20)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFEED (-19)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFEEF (-18)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFEFF (-17)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFFF0 (-16)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFFF1 (-15)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFFF2 (-14)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFFF3 (-13)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFFF4 (-12)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFFF5 (-11)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFFF6 (-10)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFFF7 (-9)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFFF8 (-8)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFFF9 (-7)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFFFA (-6)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFFF8 (-5)	Standard SATA AHCI Controller
	(PCI) 0xFFFFFFFC (-4)	PCI Express Root Port
	(PCI) 0xFFFFFFFD (-3)	PCI Express Root Port
	(PCI) 0xFFFFFFF0 (-2)	PCI Express Root Port