



COM-TWLC6 Rev.B

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-TWLC6 Rev.B		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.

产品中有毒有害物质或元素名称及含量

AAEON 主板/子板/背板

QO4-381 Rev.A2

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板 及其电子组件	×	○	○	○	○	○
外部信号 连接器及线材	×	○	○	○	○	○
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.						

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Chapter 1

Product Specifications

1.1 Specifications

System

Form Factor	COM Express Type 6, Compact Size
CPU	Intel® Processor N-series / Intel® Core™ Processor N-series: Intel® Core™ N355 (8C, up to 3.9 GHz, 15W) Intel® Processor N150 (4C, up to 3.6 GHz, 6W)
Chipset	Integrated with Intel® SoC
Memory	Onboard LPDDR5x up to 4800MHz, up to 16GB
Onboard Storage	eMMC, up to 128GB
BIOS	AMI BIOS (UEFI)
Wake on LAN	Yes
Watchdog Timer	255 Levels
Dimension	3.74" x 3.74" (95mm x 95mm)
Security	dTPM / fTPM

Power

Power Requirement	+12V and +5VSB for ATX, +12V for AT
Power Type	AT/ATX, switch by BIOS
Power Consumption (Typical)	Intel® Core™ i3-N305, 1.8A @+12V

Display

Graphics Controller	Intel® UHD Graphics
Video Output	18/24-bit Single/Dual-Channel LVDS/eDP x 1, up to 1920 x 1080 / 3840 x 2160 DP x 2, up to 3840 x 2160 @60Hz

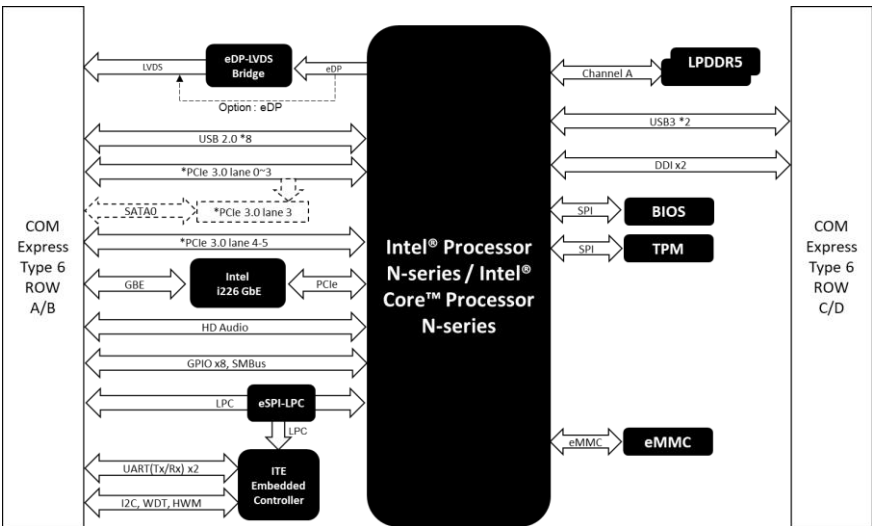
I/O

Ethernet	Intel® Ethernet Controller I226, 2.5GbE x 1
Audio	High Definition Audio Interface
USB Port	USB 2.0 x 8 USB 3.2 Gen 2 x 2
Serial Port	2-Wire UART x 2 (Tx/Rx)
HDD	SATA 6Gb/s x 1, by BOM
Expansion	PCIe [x2] x 1 + PCIE [x2] x 1 + PCIE [x1] x 2 (lane #3 colay SATA, by BOM) LPC, WDT, HWM
GPIO	8-bit
SMBus/I2C	I2C x 1 SMBus x 1

Environmental

Operating Temperature	-4°F – 158°F (-20°C – 70°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® 10/11 (64-bit) Linux Ubuntu 24.04/Kernel 6.11
Weight	0.26 lb (0.12 kg)

1.2 Block Diagram

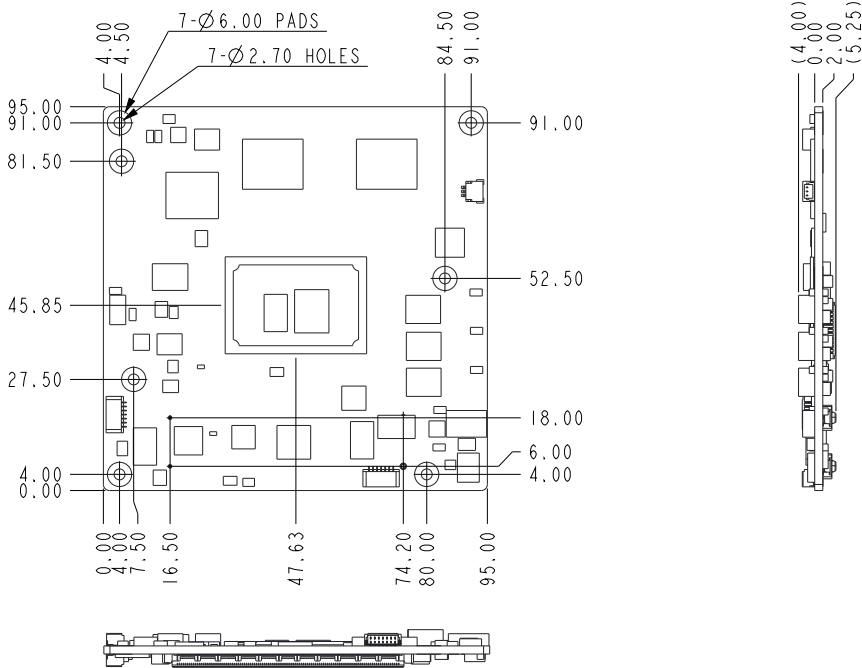


Chapter 2

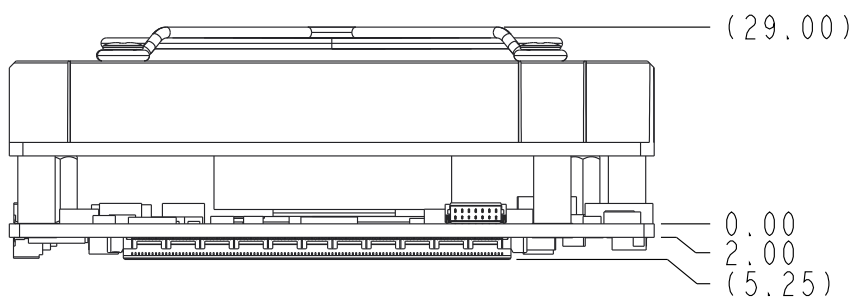
Hardware Information

2.1 Dimensions

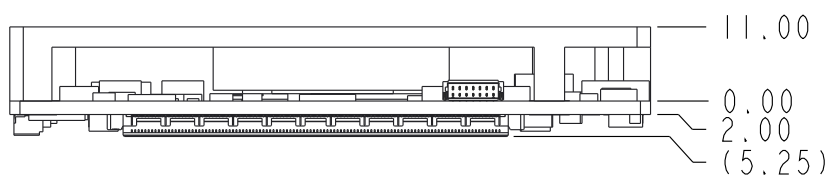
Top View



With Active Cooler

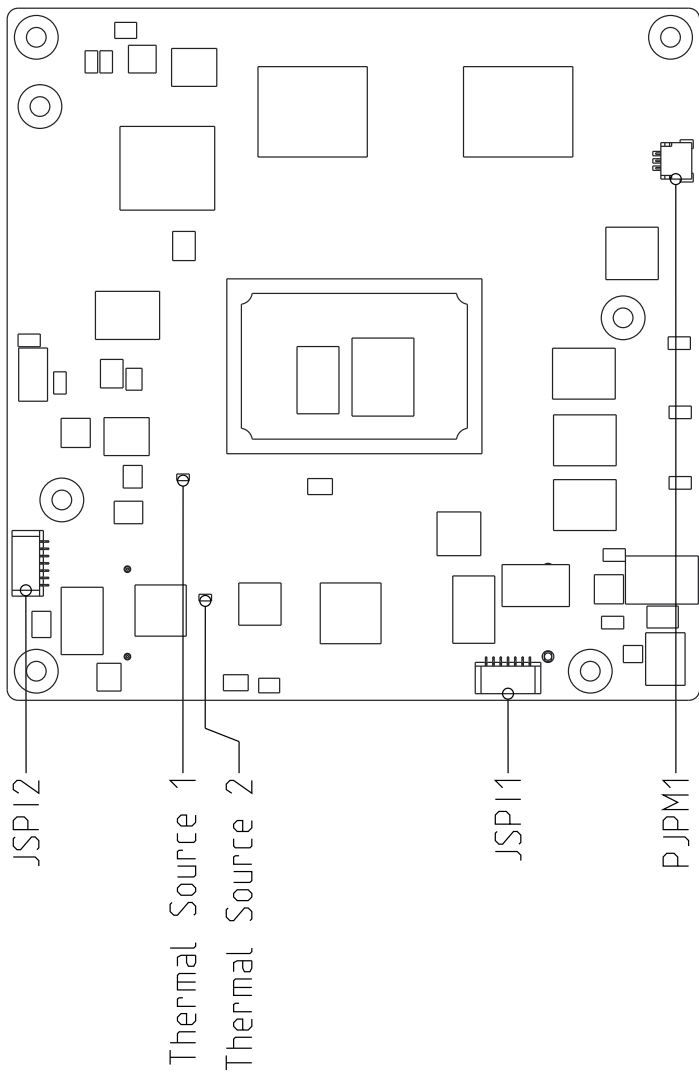


With Heatspreader

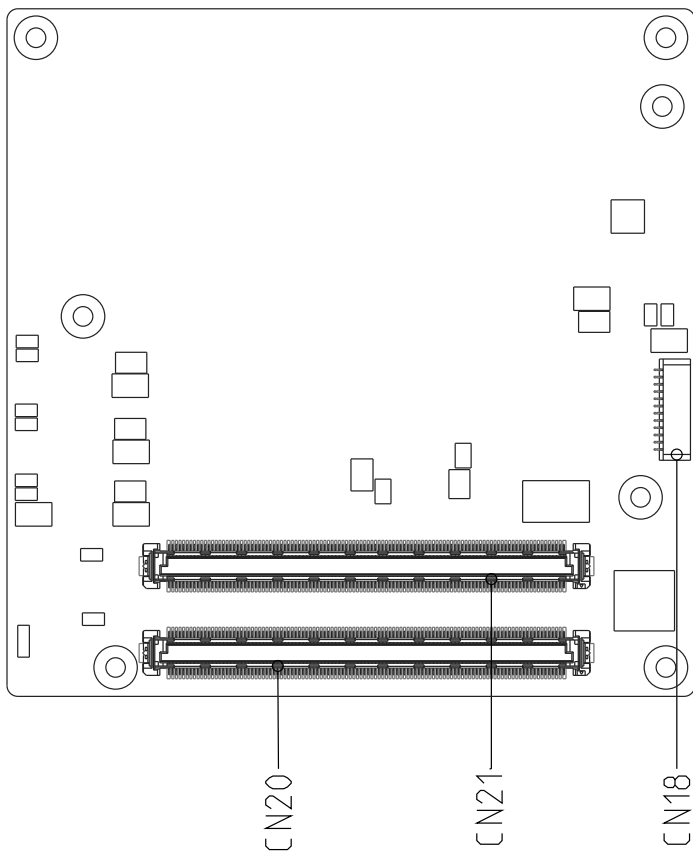


2.2 Jumpers and Connectors

Top Side



Bottom Side

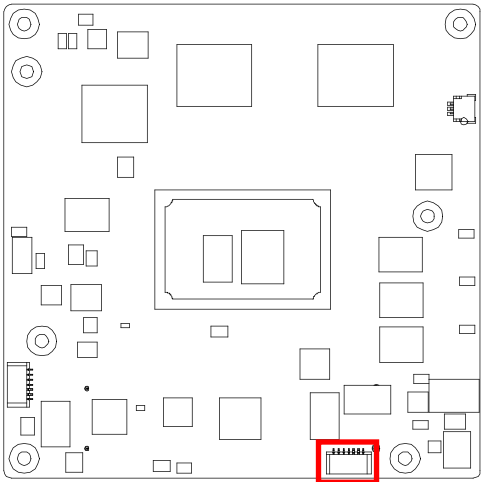


2.3 List of Connectors

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

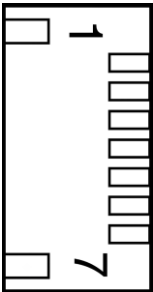
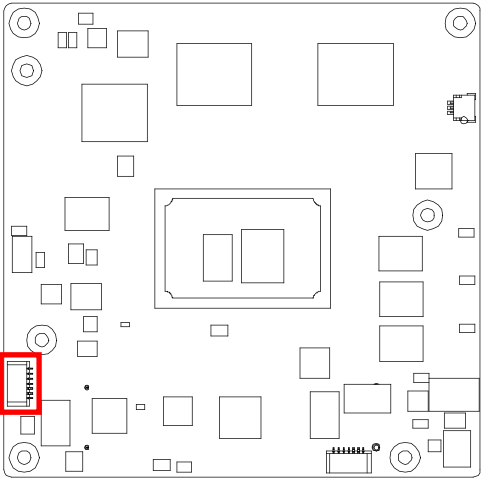
Label	Function
JSPI1	SPI ROM Flash Tool
JSPI2	EC ROM Flash Tool
CN18	LPC Debug Port
PJPM1	IMPV9 Firmware Flash Tool
CN20	Type 6 Row A/B
CN21	Type 6 Row C/D

2.3.1 SPI ROM Flash Tool (JSPI1)



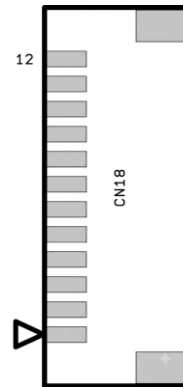
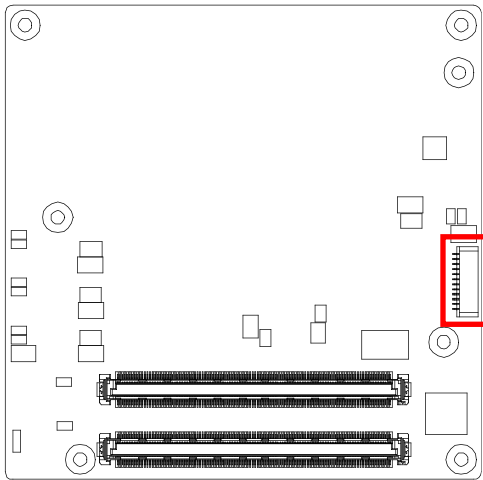
Pin	Signal	Signal Type	Signal Level
1	SPI_MISO	OUT	-
2	GND	GND	GND
3	SPI_CLK	IN	-
4	+V3P3A_SPI	PWR	+3.3V
5	SPI_MOSI	IN	-
6	SPI_CS	IN	-
7	NA	-	-

2.3.2 EC ROM Flash Tool (JSPi2)



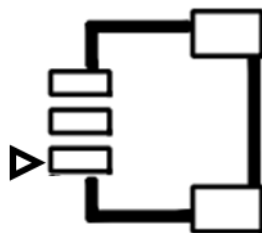
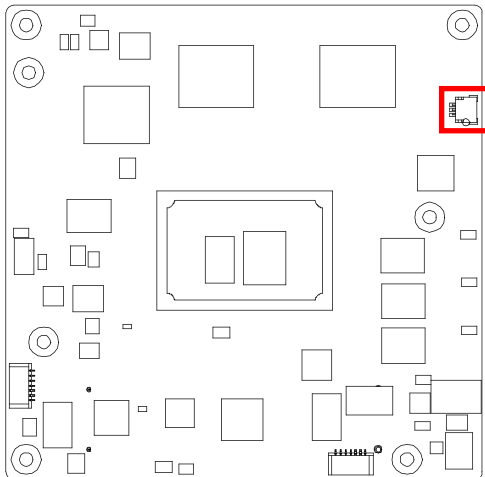
Pin	Signal	Signal Type	Signal Level
1	EC_SPI_MISO	OUT	-
2	GND	GND	GND
3	EC_SPI_CLK	IN	-
4	+V3P3A_SPI	PWR	+3.3V
5	EC_SPI_MOSI	IN	-
6	EC_SPI_CS	IN	-
7	NA	-	-

2.3.3 LPC Debug Port (CN18)



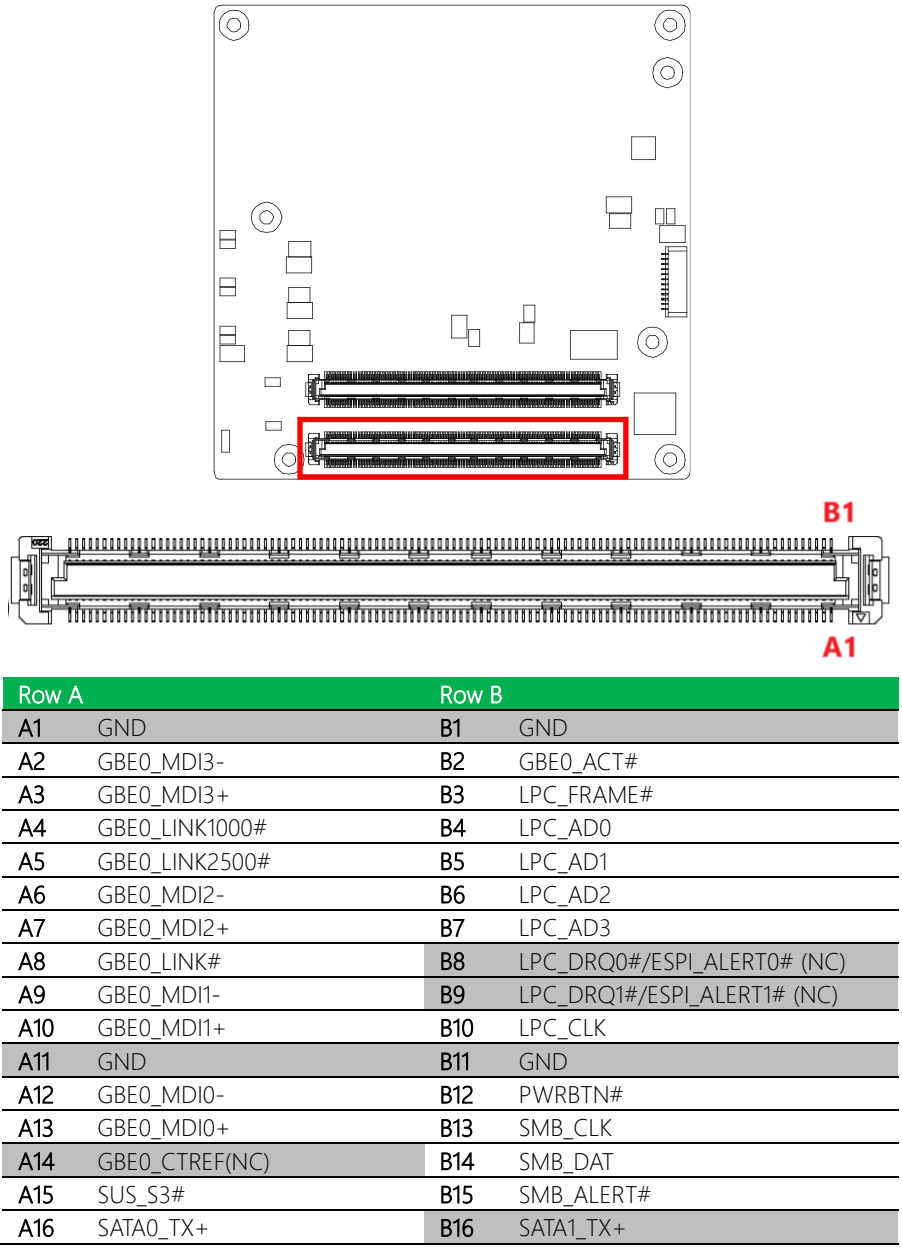
Pin	Signal	Signal Type	Signal Level
1	LPC_AD0	IN/OUT	+3.3V
2	LPC_AD1	IN/OUT	+3.3V
3	LPC_AD2	IN/OUT	+3.3V
4	LPC_AD3	IN/OUT	+3.3V
5	+V3P3A_ESPI	PWR	+3.3V
6	LPC_FRAME#	OUT	-3.3V
7	BUF_PLT_RST#	OUT	+3.3V
8	GND	GND	GND
9	CLK_PCI_DEBUG	OUT	+3.3V
10	NA		
11	NA		
12	NA		

2.3.4 IMPV9 Firmware Flash Tool (PJPM1)



Pin	Signal	Signal Type	Signal Level
1	PM_SDA	IN/OUT	+3.3V
2	PM_CLK	IN	-
3	GND	GND	GND

2.3.5 Type 6 Row A/B (CN20)

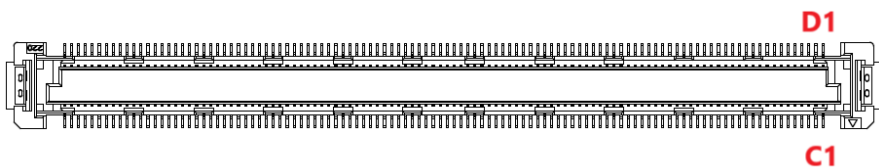
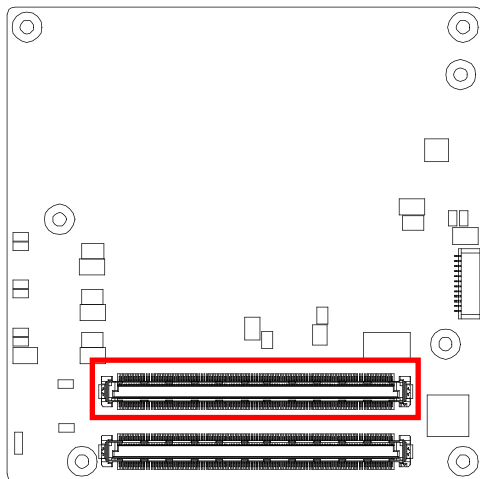


Row A		Row B	
A17	SATA0_TX-	B17	SATA1_TX-
A18	SUS_S4#	B18	SUS_STAT#
A19	SATA0_RX+	B19	SATA1_RX+
A20	SATA0_RX-	B20	SATA1_RX-
A21	GND	B21	GND
A22	SATA2_TX+(NC)	B22	SATA3_TX+(NC)
A23	SATA2_TX-(NC)	B23	SATA3_TX-(NC)
A24	SUS_S5#	B24	PWR_OK
A25	SATA2_RX+(NC)	B25	SATA3_RX+(NC)
A26	SATA2_RX-(NC)	B26	SATA3_RX-(NC)
A27	BATLOW#	B27	WDT
A28	(S)ATA_ACT#	B28	HDA_SDIN2/SNDW0_CLK (NC)
A29	HDA_SYNC	B29	HDA_SDIN1
A30	HDA_RST#	B30	HDA_SDIN0
A31	GND	B31	GND
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-
A40	USB4+	B40	USB5+
A41	GND	B41	GND
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	ESPI_EN#
A48	RSMRST_OUT#	B48	USB0_HOST_PRSENT (NC)
A49	GBE0_SDP	B49	SYS_RESET#
A50	LPC_SERIRQ	B50	CB_RESET#
A51	GND	B51	GND
A52	PCIE_TX5+	B52	PCIE_RX5+
A53	PCIE_TX5-	B53	PCIE_RX5-
A54	GPIO	B54	GPO1
A55	PCIE_TX4+	B55	PCIE_RX4+

Row A		Row B	
A56	PCIE_TX4-	B56	PCIE_RX4-
A57	GND	B57	GPO2
A58	PCIE_TX3+	B58	PCIE_RX3+
A59	PCIE_TX3-	B59	PCIE_RX3-
A60	GND	B60	GND
A61	PCIE_TX2+	B61	PCIE_RX2+
A62	PCIE_TX2-	B62	PCIE_RX2-
A63	GPI1	B63	GPO3
A64	PCIE_TX1+	B64	PCIE_RX1+
A65	PCIE_TX1-	B65	PCIE_RX1-
A66	GND	B66	WAKE0#
A67	GPI2	B67	WAKE1#
A68	PCIE_TX0+	B68	PCIE_RX0+
A69	PCIE_TX0-	B69	PCIE_RX0-
A70	GND	B70	GND
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	B80	GND
A81	LVDS_A_CK+	B81	LVDS_B_CK+
A82	LVDS_A_CK-	B82	LVDS_B_CK-
A83	LVDS_I2C_CK	B83	LVDS_BKLT_CTLR
A84	LVDS_I2C_DAT	B84	VCC_5V_SBY_0
A85	GPI3	B85	VCC_5V_SBY_1
A86	GP_SPI_MOSI	B86	VCC_5V_SBY_2
A87	eDP_HPD	B87	VCC_5V_SBY_3
A88	PCIE0_CK_REF+	B88	BIOS_DIS1#
A89	PCIE0_CK_REF-	B89	VGA_RED (NC)
A90	GND	B90	GND
A91	SPI_POWER	B91	VGA_GRN (NC)
A92	SPI_MISO (NC)	B92	VGA_BLU (NC)
A93	GPO0	B93	VGA_HSYNC (NC)
A94	SPI_CLK (NC)	B94	VGA_VSYNC (NC)

Row A		Row B	
A95	SPI_MOSI (NC)	B95	VGA_I2C_CK (NC)
A96	TPM_PP	B96	VGA_I2C_DAT (NC)
A97	TYPE10# (NC)	B97	SPI_CS# (NC)
A98	RS1_TX	B98	GP_SPI_MISO
A99	RS1_RX	B99	GP_SPI_CK
A100	GND	B100	GND
A101	RS2_TX	B101	FAN_PWMOUT
A102	RS2_RX	B102	FAN_TACHIN
A103	LID#	B103	SLEEP#
A104	VCC_12V_0	B104	VCC_12V_6
A105	VCC_12V_1	B105	VCC_12V_7
A106	VCC_12V_2	B106	VCC_12V_8
A107	VCC_12V_3	B107	VCC_12V_9
A108	VCC_12V_4	B108	VCC_12V_10
A109	VCC_12V_5	B109	VCC_12V_11
A110	GND	B110	GND

2.3.6 Type 6 Row C/D (CN21)



Row C		Row D	
C1	GND	D1	GND
C2	GND	D2	GND
C3	USB_SSRX0-	D3	USB_SSTX0-
C4	USB_SSRX0+	D4	USB_SSTX0+
C5	GND	D5	GND
C6	USB_SSRX1-	D6	USB_SSTX1-
C7	USB_SSRX1+	D7	USB_SSTX1+
C8	GND	D8	GND
C9	USB_SSRX2- (NC)	D9	USB_SSTX2- (NC)
C10	USB_SSRX2+ (NC)	D10	USB_SSTX2+ (NC)
C11	GND	D11	GND
C12	USB_SSRX3- (NC)	D12	USB_SSTX3- (NC)
C13	USB_SSRX3+ (NC)	D13	USB_SSTX3+ (NC)
C14	GND	D14	GND
C15	USB4_1_LSTX (NC)	D15	DDI1_CTRLCLK_AUX+
C16	USB4_1_LSRX (NC)	D16	DDI1_CTRLCLK_AUX-

Row C		Row D	
C17	USB4_RT_ENA (NC)	D17	USB4_PD_I2C_ALERT# (NC)
C18	RSVD (GND)	D18	PMCALERT#
C19	PCIE_RX6+ (NC)	D19	PCIE_TX6+ (NC)
C20	PCIE_RX6- (NC)	D20	PCIE_TX6- (NC)
C21	GND	D21	GND
C22	PCIE_RX7+ (NC)	D22	PCIE_TX7+ (NC)
C23	PCIE_RX7- (NC)	D23	PCIE_TX7- (NC)
C24	DDI1_HPD	D24	RSVD (GND)
C25	SML0_CLK	D25	RSVD (GND)
C26	SML0_DAT	D26	DDI1_PAIR0+
C27	SML1_CLK	D27	DDI1_PAIR0-
C28	SML1_DAT	D28	GND_50 (NC)
C29	USB4_PD_I2C_CLK (NC)	D29	DDI1_PAIR1+
C30	USB4_PD_I2C_DAT (NC)	D30	DDI1_PAIR1-
C31	GND	D31	GND
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	USB4_2_LSTX (NC)	D35	USB4_2_LSRX (NC)
C36	DDI3_CTRLCLK_AUX+ (NC)	D36	DDI1_PAIR3+
C37	DDI3_CTRLDATA_AUX- (NC)	D37	DDI1_PAIR3-
C38	DDI3_DDC_AUX_SEL (NC)	D38	RSVD (GND)
C39	DDI3_PAIR0+ (NC)	D39	DDI2_PAIR0+
C40	DDI3_PAIR0- (NC)	D40	DDI2_PAIR0-
C41	GND	D41	GND
C42	DDI3_PAIR1+ (NC)	D42	DDI2_PAIR1+
C43	DDI3_PAIR1- (NC)	D43	DDI2_PAIR1-
C44	DDI3_HPD (NC)	D44	DDI2_HPD
C45	GP_SPI_CS#	D45	RSVD (GND)
C46	DDI3_PAIR2+ (NC)	D46	DDI2_PAIR2+
C47	DDI3_PAIR2- (NC)	D47	DDI2_PAIR2-
C48	RSVD_6 (NC)	D48	RSVD (GND)
C49	DDI3_PAIR3+ (NC)	D49	DDI2_PAIR3+
C50	DDI3_PAIR3- (NC)	D50	DDI2_PAIR3-
C51	GND	D51	GND
C52	PEG_RX0+ (NC)	D52	PEG_TX0+ (NC)
C53	PEG_RX0- (NC)	D53	PEG_TX0- (NC)
C54	TYPE0# (NC)	D54	PEG_LANE_RV# (NC)
C55	PEG_RX1+ (NC)	D55	PEG_TX1+ (NC)

Row C		Row D	
C56	PEG_RX1- (NC)	D56	PEG_TX1- (NC)
C57	TYPE1# (NC)	D57	TYPE2#
C58	PEG_RX2+ (NC)	D58	PEG_TX2+ (NC)
C59	PEG_RX2- (NC)	D59	PEG_TX2- (NC)
C60	GND	D60	GND
C61	PEG_RX3+ (NC)	D61	PEG_TX3+ (NC)
C62	PEG_RX3- (NC)	D62	PEG_TX3- (NC)
C63	RSVD (GND)	D63	RSVD (GND)
C64	RSVD (GND)	D64	RSVD (GND)
C65	PEG_RX4+ (NC)	D65	PEG_TX4+ (NC)
C66	PEG_RX4- (NC)	D66	PEG_TX4- (NC)
C67	RAPID_SHUTDOWN	D67	GND
C68	PEG_RX5+ (NC)	D68	PEG_TX5+ (NC)
C69	PEG_RX5- (NC)	D69	PEG_TX5- (NC)
C70	GND	D70	GND
C71	PEG_RX6+ (NC)	D71	PEG_TX6+ (NC)
C72	PEG_RX6- (NC)	D72	PEG_TX6- (NC)
C73	GND	D73	GND
C74	PEG_RX7+ (NC)	D74	PEG_TX7+ (NC)
C75	PEG_RX7- (NC)	D75	PEG_TX7- (NC)
C76	GND	D76	GND
C77	RSVD (GND)	D77	RSVD (GND)
C78	PEG_RX8+ (NC)	D78	PEG_TX8+ (NC)
C79	PEG_RX8- (NC)	D79	PEG_TX8- (NC)
C80	GND	D80	GND
C81	PEG_RX9+ (NC)	D81	PEG_TX9+ (NC)
C82	PEG_RX9- (NC)	D82	PEG_TX9- (NC)
C83	RSVD (GND)	D83	RSVD (GND)
C84	GND	D84	GND
C85	PEG_RX10+ (NC)	D85	PEG_TX10+ (NC)
C86	PEG_RX10- (NC)	D86	PEG_TX10- (NC)
C87	GND	D87	GND
C88	PEG_RX11+ (NC)	D88	PEG_TX11+ (NC)
C89	PEG_RX11- (NC)	D89	PEG_TX11- (NC)
C90	GND	D90	GND
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)

Row C		Row D	
C95	PEG_RX13- (NC)	D95	PEG_TX13- (NC)
C96	GND	D96	GND
C97	RSVD (GND)	D97	RSVD (GND)
C98	PEG_RX14+ (NC)	D98	PEG_TX14+ (NC)
C99	PEG_RX14- (NC)	D99	PEG_TX14- (NC)
C100	GND	D100	GND
C101	PEG_RX15+ (NC)	D101	PEG_TX15+ (NC)
C102	PEG_RX15- (NC)	D102	PEG_TX15- (NC)
C103	GND	D103	GND
C104	VCC_12V_0	D104	VCC_12V_6
C105	VCC_12V_1	D105	VCC_12V_7
C106	VCC_12V_2	D106	VCC_12V_8
C107	VCC_12V_3	D107	VCC_12V_9
C108	VCC_12V_4	D108	VCC_12V_10
C109	VCC_12V_5	D109	VCC_12V_11
C110	GND	D110	GND

Chapter 3

AMI BIOS Setup

3.1 System Test and Initialization

These routines 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

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

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

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

The COM-TWLC6 CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the unit when it finally runs down.

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

Set the date, use tab to switch between date elements.

Advanced

Enable/disable boot option for legacy network devices.

System I/O

Host bridge parameters.

Security

Set setup administrator password.

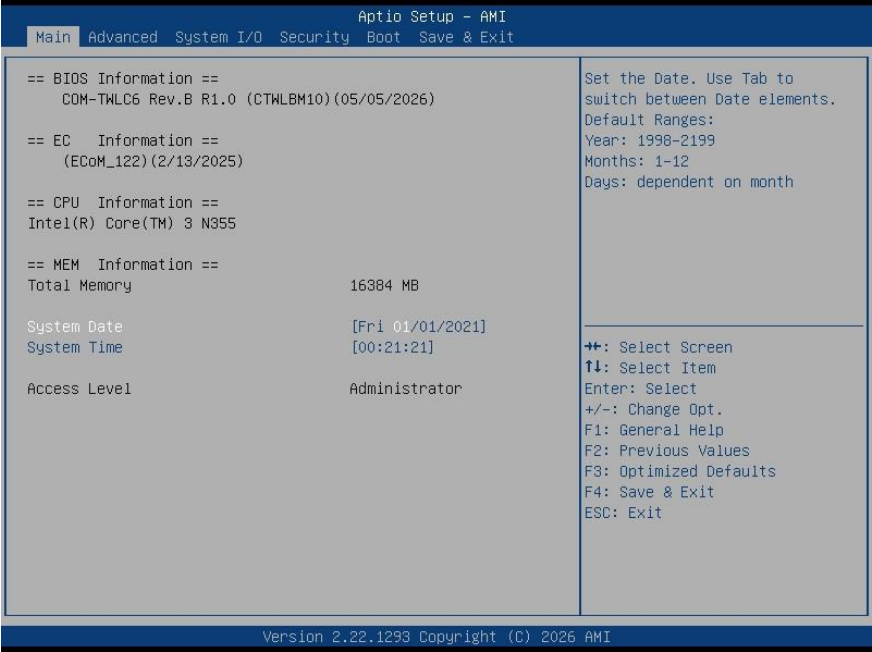
Boot

Enables/disables quiet boot option.

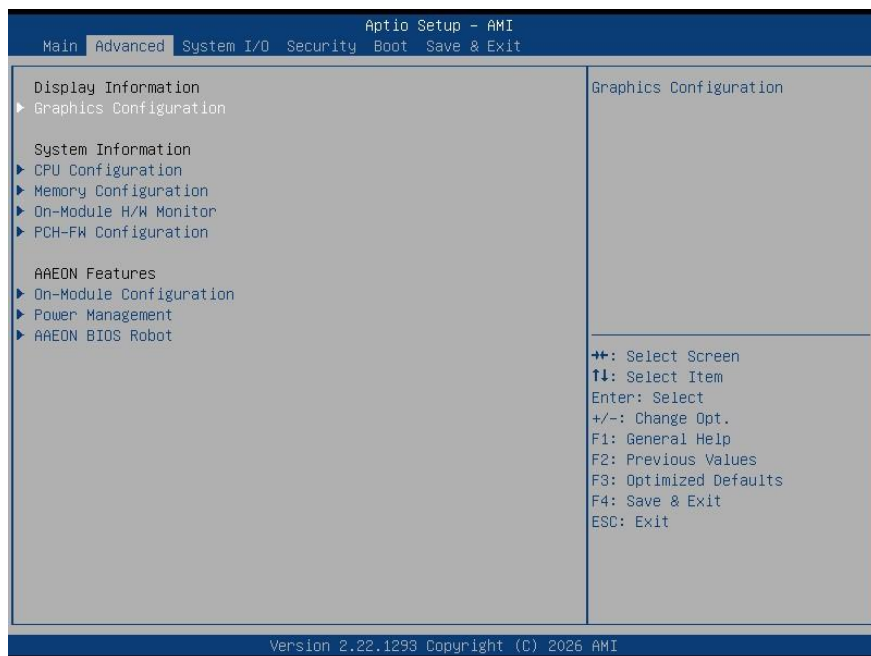
Save & Exit

Exit system setup after saving the changes.

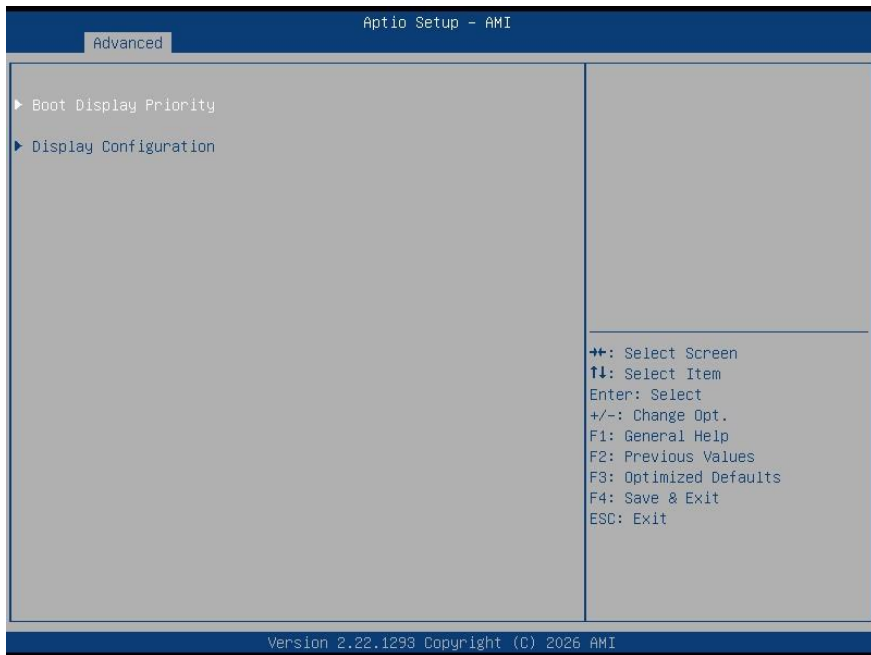
3.3 Setup Submenu: Main



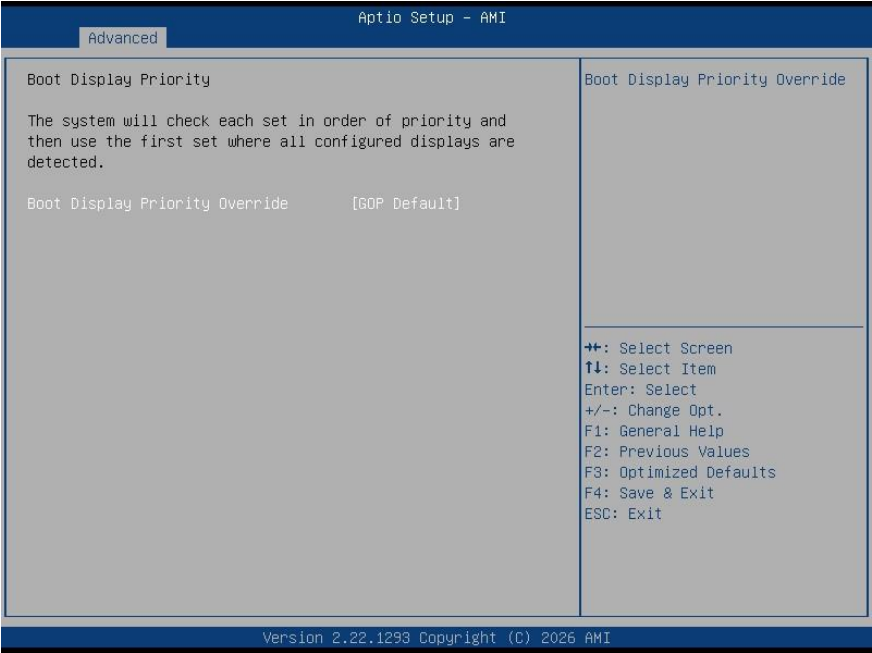
3.4 Setup Submenu: Advanced



3.4.1 Graphics Configuration

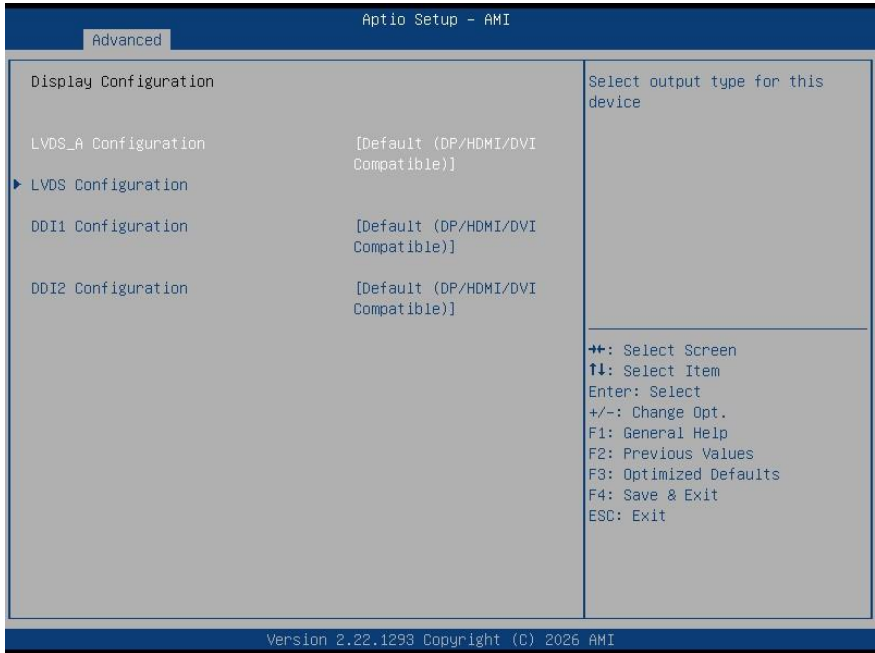


3.4.1.1 Boot Display Priority



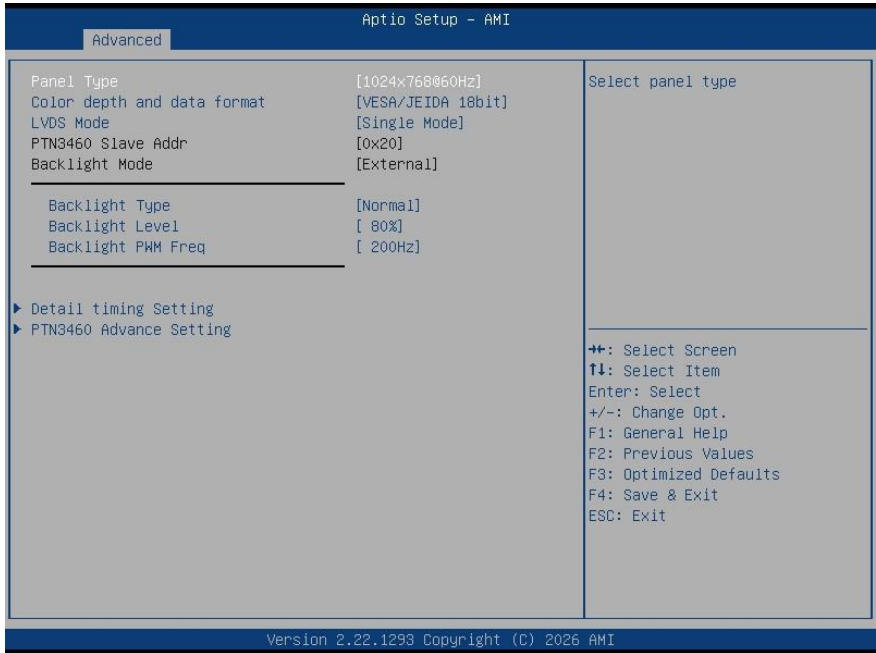
Options Summary		
Boot Display Priority	Enabled	
Override	GDP Default	Optimal Default, Failsafe Default
Boot Display Priority Override.		

3.4.1.2 Display Configuration



Options Summary		
LVDS_A Configuration	No Device (Disable)	
	Default (DP/HDMI/DVI Compatible)	Optimal Default, Failsafe Default
Select output type for this device.		
DDI1 Configuration	DP	
	HDMI/DVI	
	Default (DP/HDMI/DVI Compatible)	Optimal Default, Failsafe Default
Select output type for this device.		
DDI2 Configuration	Disabled	
	Enabled	
	Default (DP/HDMI/DVI Compatible)	Optimal Default, Failsafe Default
Select output type for this device.		

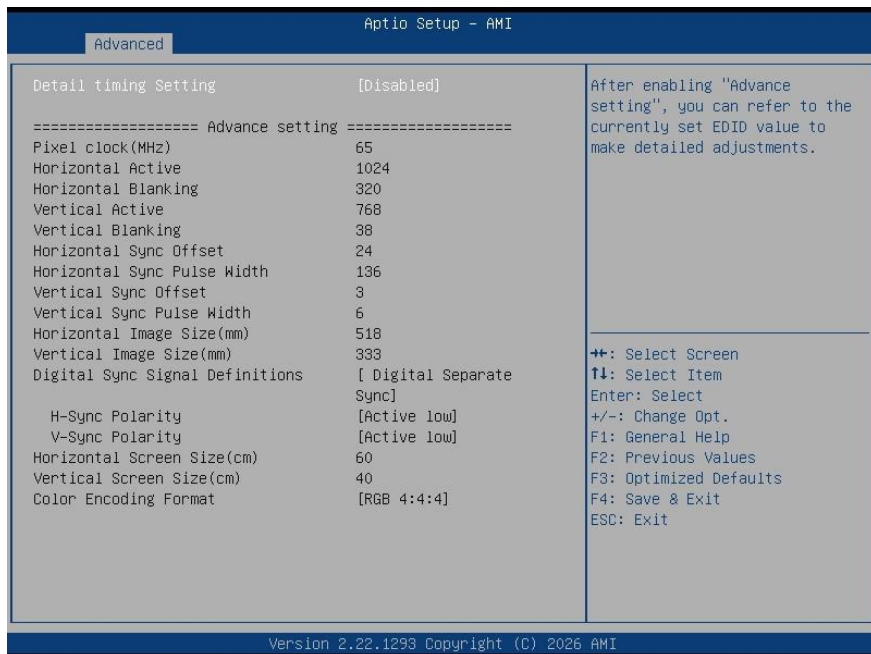
3.4.1.3 LVDS Configuration



Options Summary		
Panel Type	640x480 @60Hz	
	800x480 @60Hz	
	800x600 @60Hz	
	1024x600 @60Hz	
	1024x768 @60Hz	Optimal Default, Failsafe Default
	1280x768 @60Hz	
	1280x800 @60Hz	
	1280x1024 @60hz	
	1366x768 @60Hz	
	1440x900 @60Hz	
	1600x1200 @60Hz	
	1920x1080 @60Hz	
	1920x1200 @60Hz	
Select the panel resolution and refresh rate.		
Default: 1024x768 @60Hz.		

Options Summary		
Color depth and data format	VESA 24bit	
	JEIDA 24bits	
	VEAS/JEIDA 18bits	Optimal Default, Failsafe Default
Color depth and data packing format. To use 36-bit or 48-bit mode, set LVDS Mode to Dual Mode.		
LVDS mode	Single Mode	Optimal Default, Failsafe Default
	Dual Mode	
Single/Dual Mode selection.		
Backlight Type	Normal	Optimal Default, Failsafe Default
	Inverted	
Select backlight control method.		
Backlight Level	0%	
	10%	
	20%	
	30%	
	40%	
	50%	
	60%	
	70%	
	80%	Optimal Default, Failsafe Default
	90%	
	100%	
Select backlight level		
Backlight PWM Freq	100Hz	
	200 Hz	
	220 Hz	Optimal Default, Failsafe Default
	500 Hz	
	1K Hz	
	2.2K Hz	
	6.5K Hz	
Select PWM Frequency of backlight control signal.		

3.4.1.4 Detail Timer Setting



Options Summary		
Detail timing Setting	Disabled	Optimal Default, Failsafe Default
	Enabled	
After enabling Advanced Settings, you can refer to the currently configured EDID values to make detailed adjustments.		

3.4.1.5 PTN3460 Advance Setting

Aptio Setup - AMI		
Advanced		
Swap - Main (P/N)	[Non-Swapping]	Main link P/N swapping
Swap - AUX (P/N)	[Non-Swapping]	
DP lane	[2 Lane]	
DP link rate	[HBR and PBR link rate]	
ASSR Support	[Disabled]	
Enhanced Framing support	[Disabled]	
Clock output for dual LVDS mode	[valid clock output on both buses]	
Data Enable polarity	[Active high]	
LVDS differential output swapping level	[250 mv]	
LVDS clock SSC	[No Spreading]	
Swap - Bus	[Non-Swapping]	++: Select Screen F1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Swap - Channel	[Non-Swapping]	
Swap - Differential pair (P/N)	[Non-Swapping]	
Minimum T3	10	
Minimum T12	20	
Minimum T4	0	
T2 delay	[Enabled]	
T5 delay	[Enabled]	

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Options Summary		
Swap - Main (P/N)	Non-Swapping	Optimal Default, Failsafe Default
	Swapping	
Select main link P/N swapping.		
Swap - AUX (P/N)	Non-Swapping	Optimal Default, Failsafe Default
	Swapping	
Select AUX P/N swapping.		
DP lane	2 Lane	Optimal Default, Failsafe Default
	1 Lane	
DP lane configuration.		
DP link rate	HBR and PBR link rate	Optimal Default, Failsafe Default
	PBR link rate only DP lane	
DP link configuration.		
ASSR Support	Disabled	Optimal Default, Failsafe Default
	Enabled	
Alternative Scrambler Seed Reset.		

Options Summary		
Enhanced Framing support	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enhanced Framing support.		
Clock output for dual LVDS mode	valid clock output on even bus only	
	valid clock output on odd bus only	
	valid clock output on both buses	Optimal Default, Failsafe Default
Clock output for dual LVDS mode.		
Data Enable polarity	Active high	Optimal Default, Failsafe Default
	Active low	
Data Enable polarity.		
LVDS differential output swapping level	150mv	
	200mv	
	250mv	Optimal Default, Failsafe Default
	300mv	
	350mv	
	400mv	
	450mv	
LVDS differential output swapping level.		
LVDS clock SSC	No Spreading	Optimal Default, Failsafe Default
	0.5% Spreading	
	1.0% Spreading	
	1.5% Spreading	
	2.0% Spreading	
	2.5% Spreading	
LVDS clock frequency center spreading depth.		
Swap – Bus	Non-Swapping	Optimal Default, Failsafe Default
	Swapped	
Odd bus <-> Even Bus.		
Swap – Channel	Non-Swapping	Optimal Default, Failsafe Default
	Swapped	
(A ↔ D, B ↔ CLK, C ↔ C)		
Swap - Differential pair (P/N)	Non-Swapping	Optimal Default, Failsafe Default
	Swapped	
Differential pair (P/N) Swapping.		
Minimum T3	10	Optimal Default, Failsafe Default
Minimum T3 timing for the panel power sequence (expressed in units of 50ms).		

Options Summary		
Minimum T12	20	Optimal Default, Failsafe Default
Minimum T12 timing of panel power sequence to enforce (expressed in units of 50ms).		
Minimum T4	0	Optimal Default, Failsafe Default
Minimum T4 timing of panel power sequence to enforce (expressed in units of 50ms).		
T2 delay	Disabled	Optimal Default, Failsafe Default
	Enabled	
T2 is delays by 20ms.		
T5 delay	Disabled	Optimal Default, Failsafe Default
	Enabled	
T5 is delays by 20ms		

3.4.2 CPU Configuration

Aptio Setup - AMI		
Advanced		
CPU Configuration		When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.
Type	Intel(R) Core(TM) 3 N355	
ID	0xB06E0	
Microcode Revision	21	
Speed	1900 MHz	
VMX	Supported	
SMX/TXT	Supported	
L1 Data Cache	32 KB x 8	
L1 Instruction Cache	64 KB x 8	
L2 Cache	2048 KB x 2	
L3 Cache	6 MB	
Intel (VMX) Virtualization Technology	[Enabled]	++: Select Screen f1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Intel(R) SpeedStep(tm)	[Enabled]	
Turbo Mode	[Enabled]	
C states	[Enabled]	
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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.		

Options Summary

Intel(R) SpeedStep(tm)	Disabled	
	Enabled	Optimal Default, Failsafe Default
Allows more than two frequency ranges to be supported.		
Turbo Mode	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable/Disable processor Turbo Mode.		
C states	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or disable CPU power management. When enabled, the CPU can enter C-states when not fully utilized.		

3.4.3 Memory Configuration

Aptio Setup - AMI

Advanced

Memory Configuration

Memory RC Version 1.0.4.75

Memory Frequency 4800 MHz

Total Memory 16384 MB

MC 0 Ch 0 DIMM 0 Populated & Enabled

 Size 4096 MB (LPDDR5)

 Number of Ranks 2

MC 0 Ch 1 DIMM 0 Populated & Enabled

 Size 4096 MB (LPDDR5)

 Number of Ranks 2

MC 0 Ch 2 DIMM 0 Populated & Enabled

 Size 4096 MB (LPDDR5)

 Number of Ranks 2

MC 0 Ch 3 DIMM 0 Populated & Enabled

 Size 4096 MB (LPDDR5)

 Number of Ranks 2

In-Band ECC Support [Disabled]

Enable/Disable In-Band ECC.
Will be enabled if memory has symmetric configuration

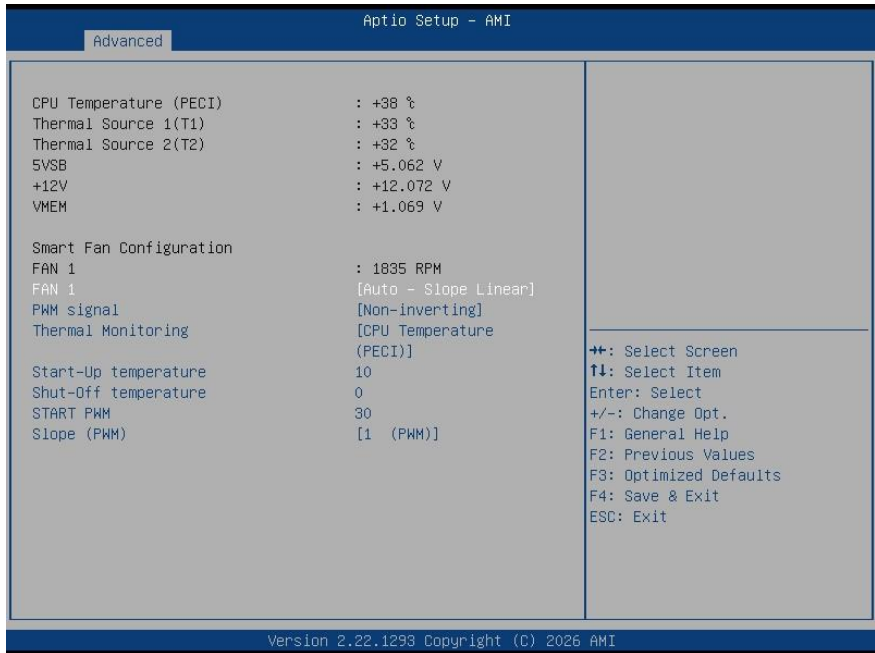
++: Select Screen
 F1: Select Item
 Enter: Select
 +/-: Change Opt.
 F1: General Help
 F2: Previous Values
 F3: Optimized Defaults
 F4: Save & Exit
 ESC: Exit

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Options Summary

In-Band ECC Support	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable/Disable In-Band ECC. Will be enabled if memory has symmetric configuration.		

3.4.4 On-Module H/W Monitor



Options Summary		
FAN 1	Full Mode	
	Manual Mode	
	Auto – Slope Linear	Optimal Default, Failsafe Default
Smart Fan Mode Select.		
PWM signal	Non-inverting	Optimal Default, Failsafe Default
	Inverting	
Select whether the PWM output signal is inverting or non-inverting.		
Thermal Monitoring	CPU Temperature (PECI)	Optimal Default, Failsafe Default
	Thermal Source 1	
	Thermal Source 2	
Thermal Sensor Selection – Choose which thermal sensor to monitor.		
Start-Up temperature	10	
PWM output when monitoring thermal sensor is exceeded Range: 0-100.		
Shut-Off temperature	0	
The beginning PWM output value when Start-Up temperature is triggered.		
START PWM	30	

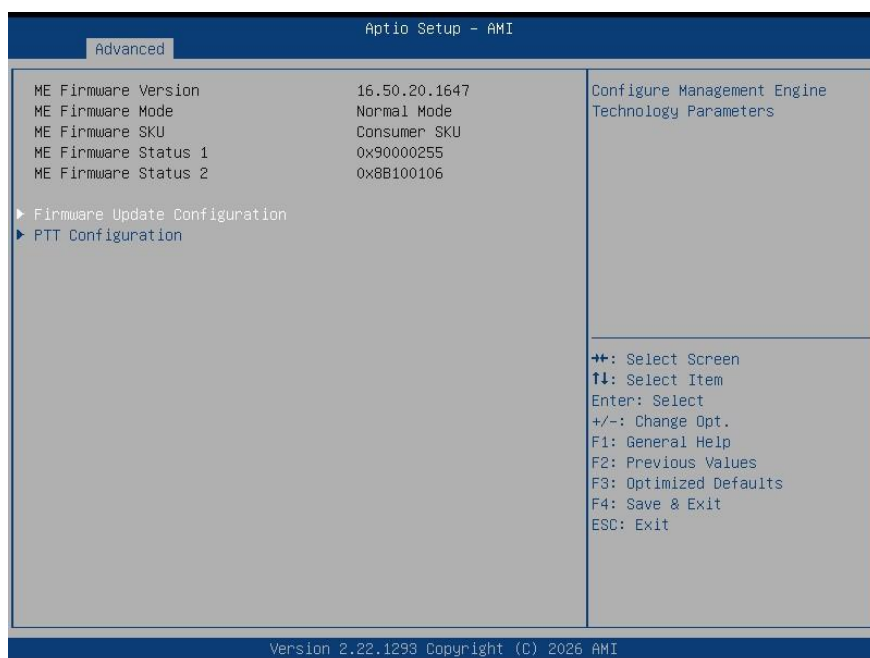
Options Summary

Sets the initial PWM output value when the Start-Up temperature is reached.

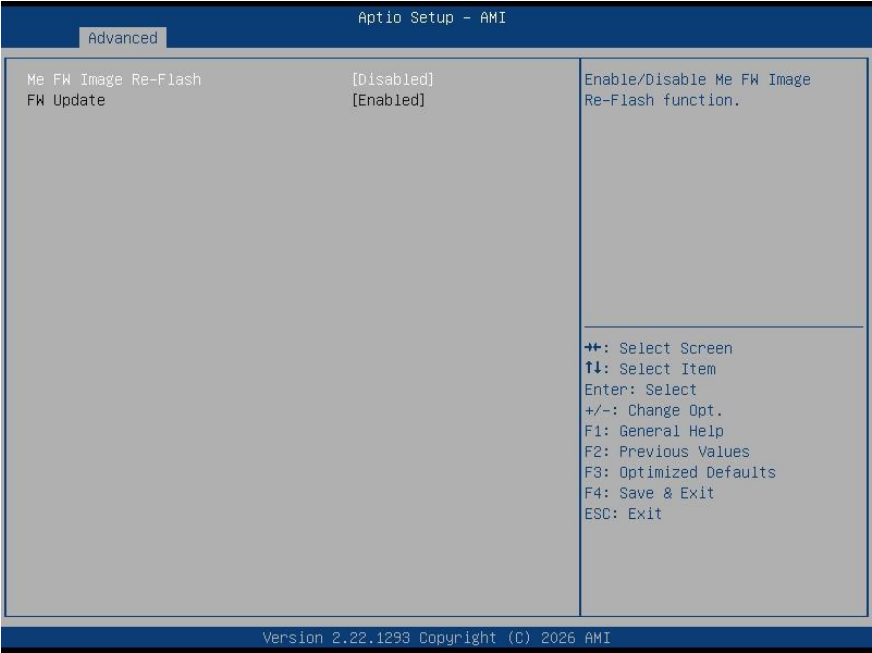
Slope (PWM)	0 (PWM)	
	1 (PWM)	Optimal Default, Failsafe Default
	2 (PWM)	
	4 (PWM)	
	8 (PWM)	
	16 (PWM)	
	32 (PWM)	
	64 (PWM)	

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

3.4.5 PCH-FW Configuration

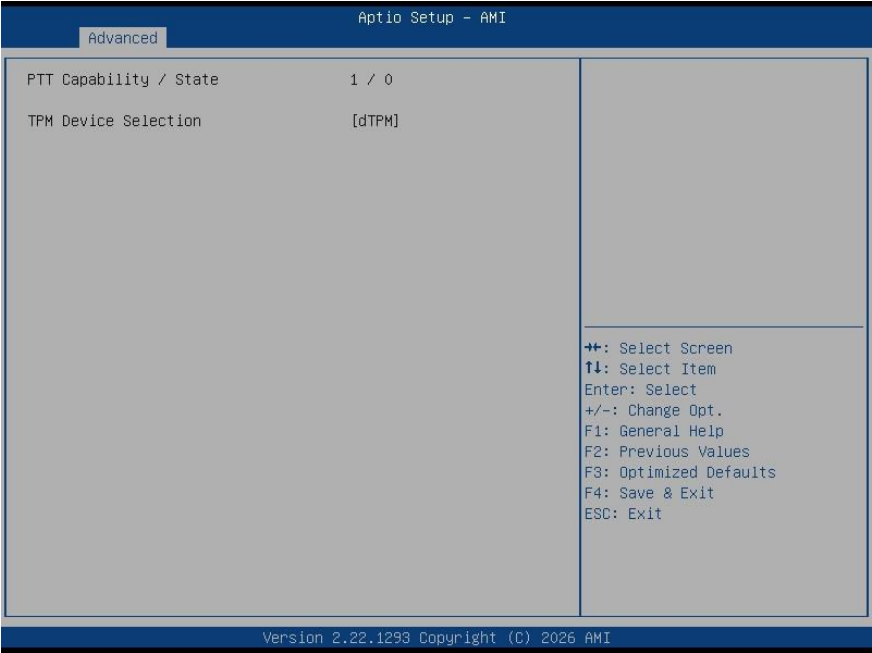


3.5.1.1 Firmware Update Configuration



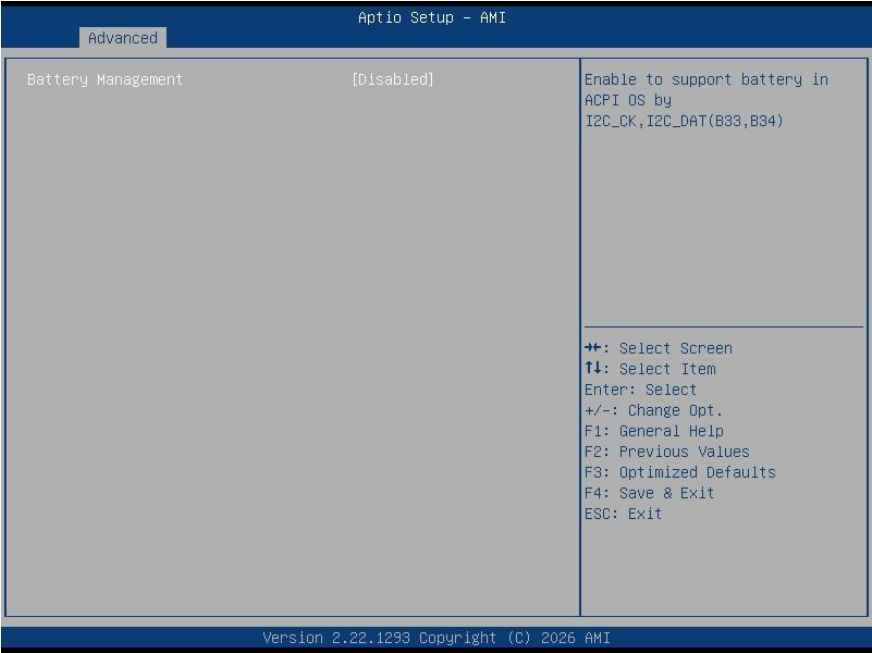
Options Summary		
Me FW Image Re-Flash	Enabled	
	Disabled	Optimal Default, Failsafe Default
Enable/Disable Me FW Image Re-Flash function.		
FW Update	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable/Disable ME FW Update function.		

3.5.1.2 PTT Configuration



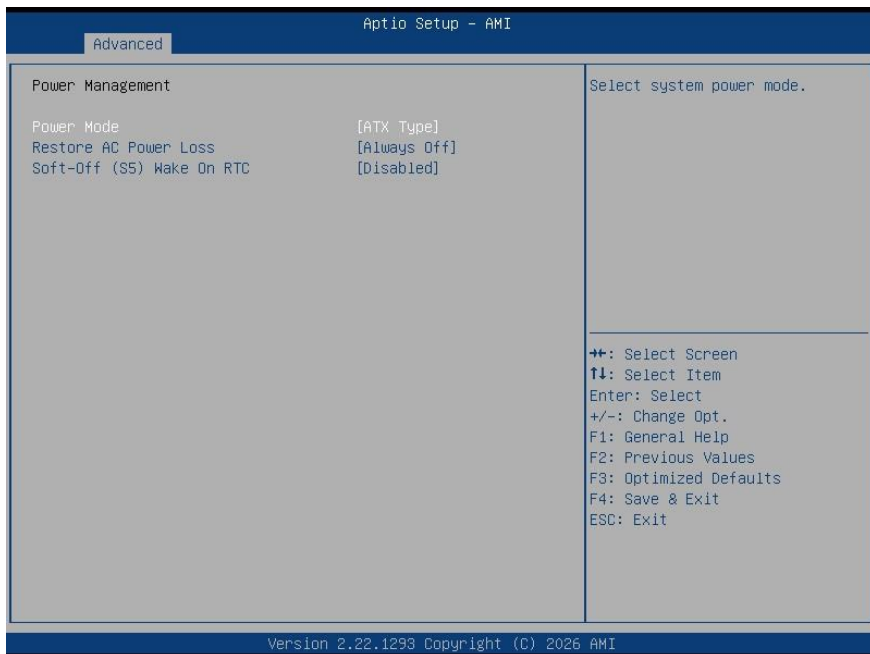
Options Summary		
TPM Device Selection	dTPM	Optimal Default, Failsafe Default
	PTT	
Selects the TPM device: PTT or discrete TPM. PTT – Enables PTT in SkuMgr. dTPM – Disables PTT in SkuMgr. Warning: The selected PTT/dTPM device will be disabled, and all data stored on it will be lost.		

3.4.6 On-Module Configuration



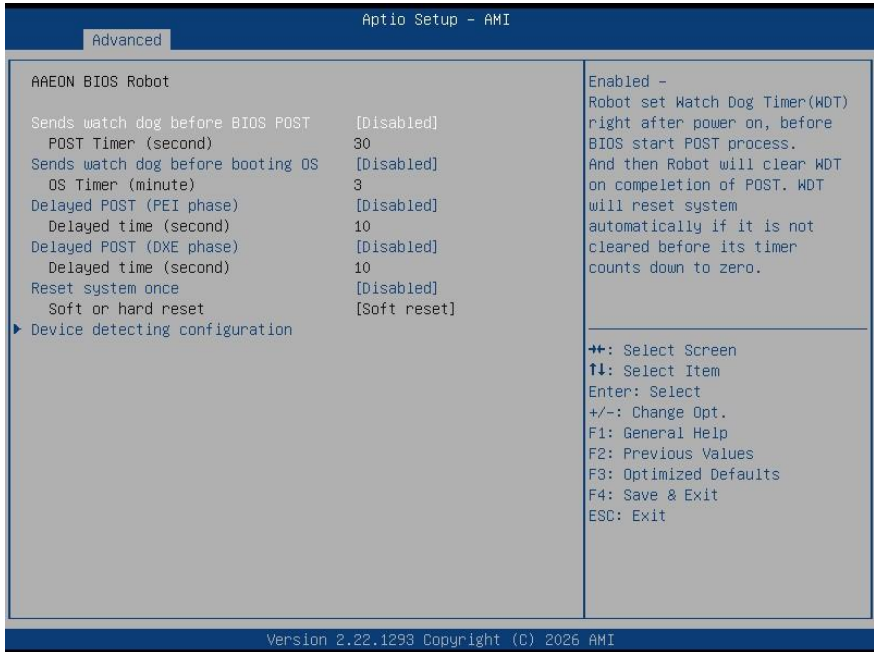
Options Summary		
Battery Management	Disabled	Optimal Default, Failsafe Default
	One Battery	
Enable support for battery in ACPI OS through I2C_CK and I2C_DAT (B33, B34).		

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
IO Restore AC power Loss.		
Soft-Off (S5) Wake On RTC	Disabled	Optimal Default, Failsafe Default
	By Date	
	By Weekday	
	Bypass	
By Date – Wakes on the specified date and time (hr:min:sec).		
By Weekday – Wakes on the selected weekday and time (hr:min:sec).		
Bypass – Disables BIOS control of the RTC wake function.		

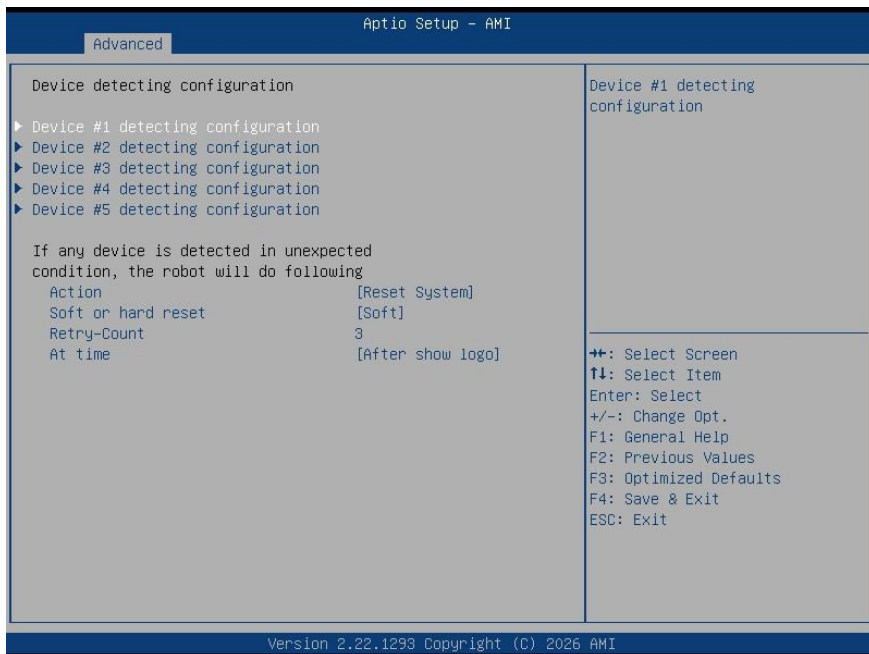
3.4.8 AAeon BIOS Robot



Options Summary		
Sends watch dog before BIOS POST	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled – Robot sets the Watchdog Timer (WDT) immediately after power-on, before BIOS starts the POST process, and clears it upon POST completion. If the WDT is not cleared before the timer expires, the system will automatically reset.		
POST Timer (second)	30	Optimal Default, Failsafe Default
Timer count for the Watchdog Timer during POST. Warning: Do not set this value equal to or shorter than the normal POST time. Otherwise, the system may not complete POST unless BIOS settings are cleared. A value greater than 2× the normal POST time is recommended.		
Sends watch dog before booting OS	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled – Robot sets the Watchdog Timer (WDT) after POST completion and before BIOS transfers control to the OS. Warning: Before enabling this function, ensure that an OS program is responsible for clearing the WDT. This function should be disabled during OS updates.		

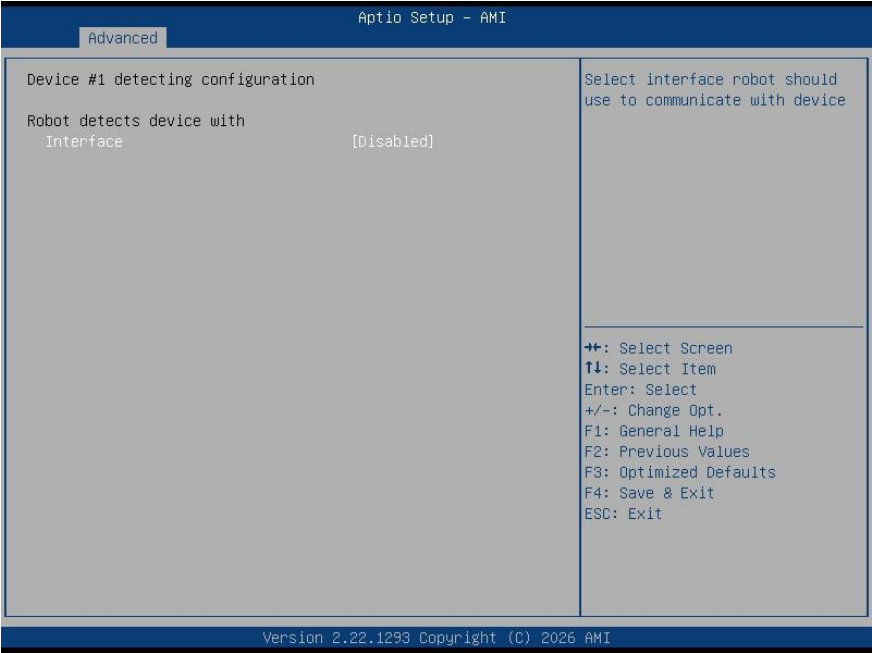
Options Summary		
OS Timer (minute)	3	Optimal Default, Failsafe Default
Sets the Watchdog Timer count for OS loading.		
Delayed POST (PEI phase)	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled – Robot holds BIOS from starting POST immediately after power-on. This allows BIOS POST to start after power stabilizes or the system warms up. Note: Robot performs this action before "Sends Watchdog Timer."		
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 after the system has physically warmed up. Note: Robot performs this action after "Sends Watchdog Timer before BIOS POST."		
Delayed time (second)	10	Optimal Default, Failsafe Default
Period of time for Robot to hold BIOS from POST.		
Reset system once	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled - Robot resets system for one time on each boot. This will send a soft or hard reset to onboard devices, thus puts devices to more stable state.		
Soft or hard reset	Soft reset	Optimal Default, Failsafe Default
	Hard reset"	
Select reset type robot should send on each boot.		
Swap – Bus	Non-Swapping	Optimal Default, Failsafe Default
	Swapped	

3.4.9 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	3	Optimal Default, Failsafe Default
Sets the maximum number of system resets the Robot will perform before allowing POST to continue.		
At time	After show logo	Optimal Default, Failsafe Default
	Before show logo	
Select when the Robot performs its action:		
After Show Logo – Executes after the logo is displayed; most system devices are ready.		
Before Show Logo – Executes before the logo is displayed; some devices may not be ready.		

3.4.9.1 Device #1 Detecting Configuration



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.		

Set to PCI

Aptio Setup - AMI

Advanced

Device #1 detecting configuration

Robot detects device with

Interface	[PCI]
BUS	0
Device	0
Function	0

Expecting

Device	[is not]
In condition	[Present]

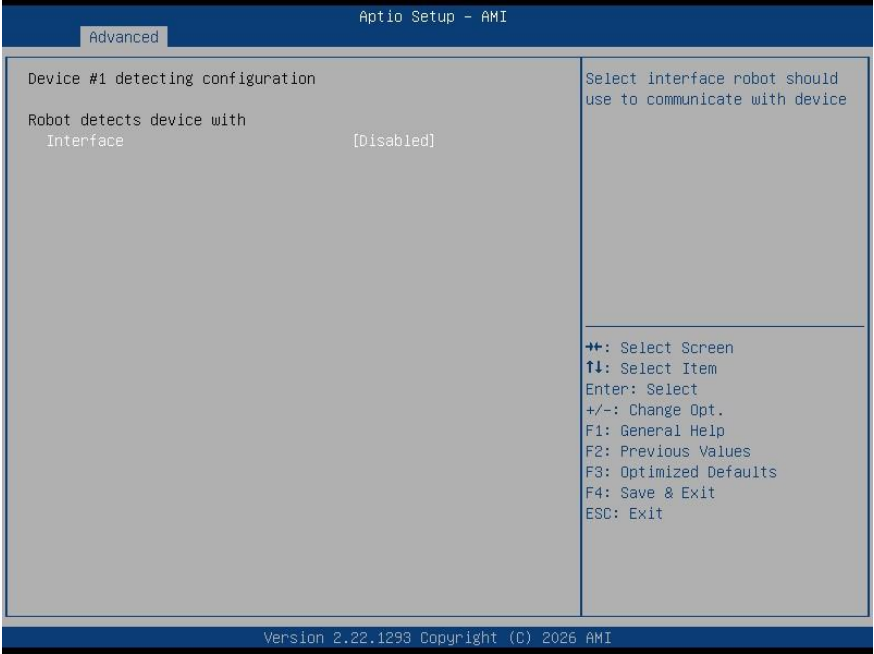
Select interface robot should use to communicate with device

++: Select Screen
 ↑↓: Select Item
 Enter: Select
 +/-: Change Opt.
 F1: General Help
 F2: Previous Values
 F3: Optimized Defaults
 F4: Save & Exit
 ESC: Exit

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Options Summary		
BUS	0	Optimal Default, Failsafe Default
Enter the bus number of the PCI device in hexadecimal. Range: 0–FF.		
Device	0	Optimal Default, Failsafe Default
Enter the device number of the PCI device in hexadecimal. Range: 0–FF.		
Function	0	Optimal Default, Failsafe Default
Enter the function number of the PCI device in hexadecimal. Range: 0–FF.		
Device	is	
	Is not	Optimal Default, Failsafe Default
Select whether the Robot should perform the action when the specified condition is met.		
In condition	Present	Optimal Default, Failsafe Default
	Specified register data	
Select how the Robot verifies a device: Present – Device is detected. According to Register – Robot reads the device register per configuration. Note: A device is considered Present if the data read is not 0xFF.		

Set to DIO



Options Summary		
DIO pin number	GPI 0	Optimal Default, Failsafe Default
	GPI 1	
	GPI 2	
	GPI 3	
	GPO 0	
	GPO 1	
	GPO 2	
	GPO 3	
Fill DIO pin number, DIO, DIO1, and so on. For COM express product: 0-3 - GPI0-3 4-7 - GPO0-3		
Device	is	
	Is not	Optimal Default, Failsafe Default
Select whether the Robot performs the action when the specified condition is met.		
In High/Low level	Low	Optimal Default, Failsafe Default
	High	
Select the signal level (High or Low) of the DIO pin that triggers the Robot action.		

Set to SMBus

Advanced		Aptio Setup - AMI	
Device #1 detecting configuration		Select interface robot should use to communicate with device	
Robot detects device with			
Interface	[SMBUS]		
SMBUS Slave Address	0		
Expecting			
Device	[is not]		
In condition	[Present]		
		++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
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Options Summary

SMBUS Slave Address	0	Optimal Default, Failsafe Default
Enter the SMBus device's slave address in hexadecimal. Range: 0–FF.		
Device	is	
	Is not	Optimal Default, Failsafe Default
Select whether the Robot should perform the action when the specified condition is met.		
In condition	Present	Optimal Default, Failsafe Default
	Specified register data	
Select the condition that Robot should check for the device. Present – Device is detected. According to Register – Robot reads the register according to the configured settings. Note: A device is considered Present when the data read from the device is not 0xFF.		

Set to Legacy I/O

Advanced		Aptio Setup - AMI	
Device #1 detecting configuration		Select interface robot should use to communicate with device	
Robot detects device with			
Interface	[Legacy I/O]		
I/O Address	0		
Expecting			
Device	[is not]		
In condition	[Present]		
		⇄: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
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Options Summary

I/O Address	0	Optimal Default, Failsafe Default
Enter the I/O address the device responds to. Range: 0–FFFF (hexadecimal).		
Device	is	
	Is not	Optimal Default, Failsafe Default
Select whether the Robot performs the action when the specified condition is met.		
In condition	Present	Optimal Default, Failsafe Default
	Specified register data	
Select the condition that Robot should check for the device. Present – Device is detected. According to Register – Robot reads the register according to the configuration. Note: A device is considered “Present” when the data read from it is not 0xFF.		

Set to Super I/O

Aptio Setup - AMI		
Advanced		
Device #1 detecting configuration		Select interface robot should use to communicate with device
Robot detects device with		
Interface	[Super I/O]	
Super I/O LDN	0	
Expecting		
Device	[is not]	
In condition	[Present]	
		++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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Options Summary

Super I/O LDN	0	Optimal Default, Failsafe Default
---------------	---	-----------------------------------

Enter the Logical Device Number (LDN) of the Super I/O device.

Range: 0–FF (hexadecimal).

Device	Is	
	Is not	Optimal Default, Failsafe Default

Select whether the Robot performs the action when the specified condition is met.

In condition	Present	Optimal Default, Failsafe Default
	Specified register data	

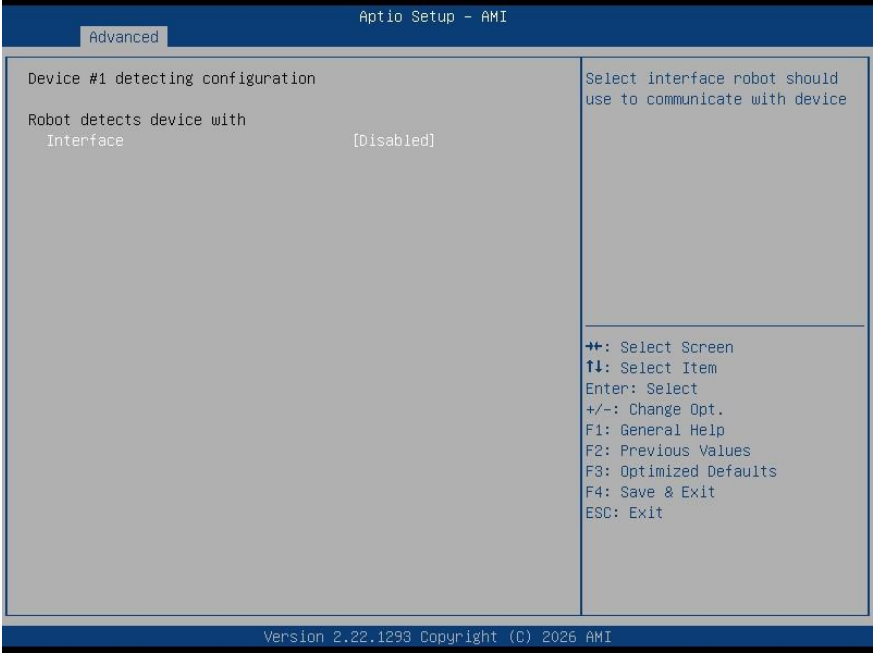
Select the condition that Robot should check for the device.

Present – Device is detected.

According to Register – Robot reads the register according to the configuration.

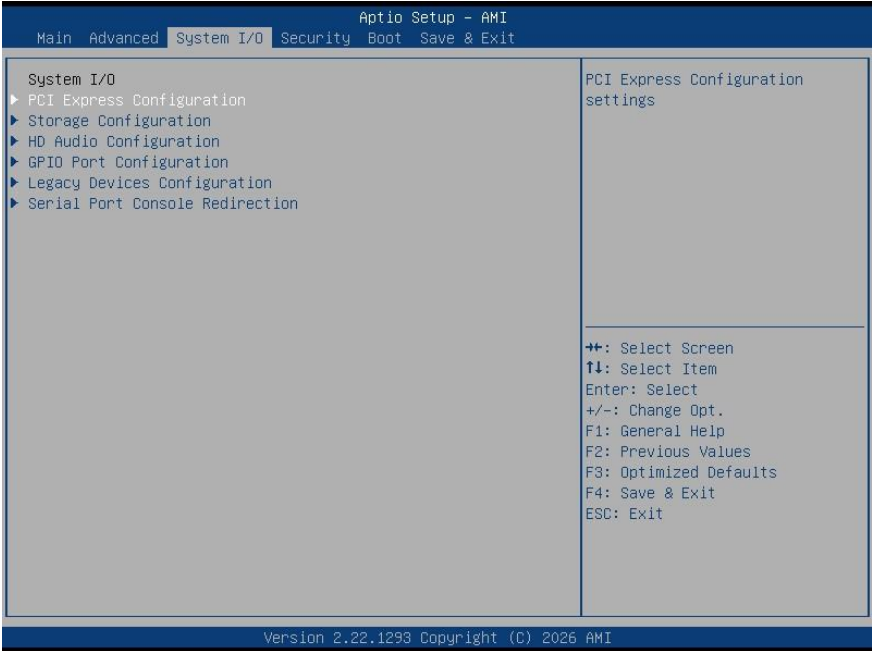
Note: A device is considered “Present” when the data read from the device is not 0xFF.

Set to MMIO



Options Summary		
MMIO Address	0	Optimal Default, Failsafe Default
Enter the Memory-Mapped I/O address that the device responds to. Range: 0–FFFFFFFF (hexadecimal).		
Device	is	
	Is not	Optimal Default, Failsafe Default
Select whether the Robot performs the action when the specified condition is met.		
In condition	Present	Optimal Default, Failsafe Default
	Specified register data	
Select the condition that Robot should check for the device. Present – Device is detected. According to Register – Robot reads the register according to the configuration. Note: A device is considered “Present” when the data read from the device is not 0xFF.		

3.5 Setup Submenu: System I/O



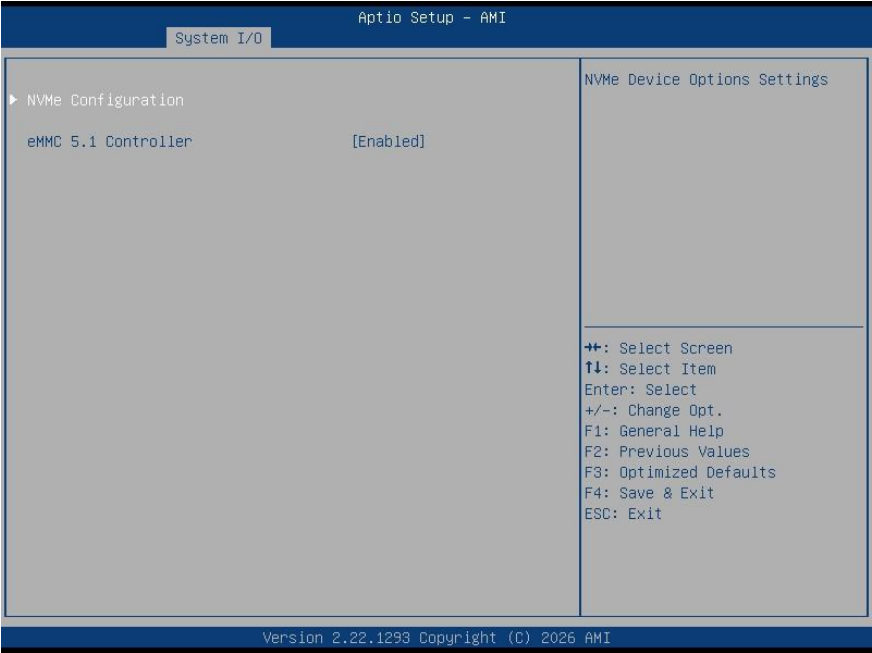
3.5.1 PCIe Configuration



Options Summary		
Pcie Ref Pll SSC	Auto	
	0.0%	
	0.1%	
	0.2%	
	0.3%	
	0.4%	
	0.5%	
	Disable	Optimal Default, Failsafe Default
Pcie Ref PLL SSC Percentage.		
AUTO – Keeps hardware default, no BIOS override		
Range: 0.0% – 0.5%		
PCIe 4	Disabled	
	Enabled	Optimal Default, Failsafe Default
Control the PCI Express Root Port.		

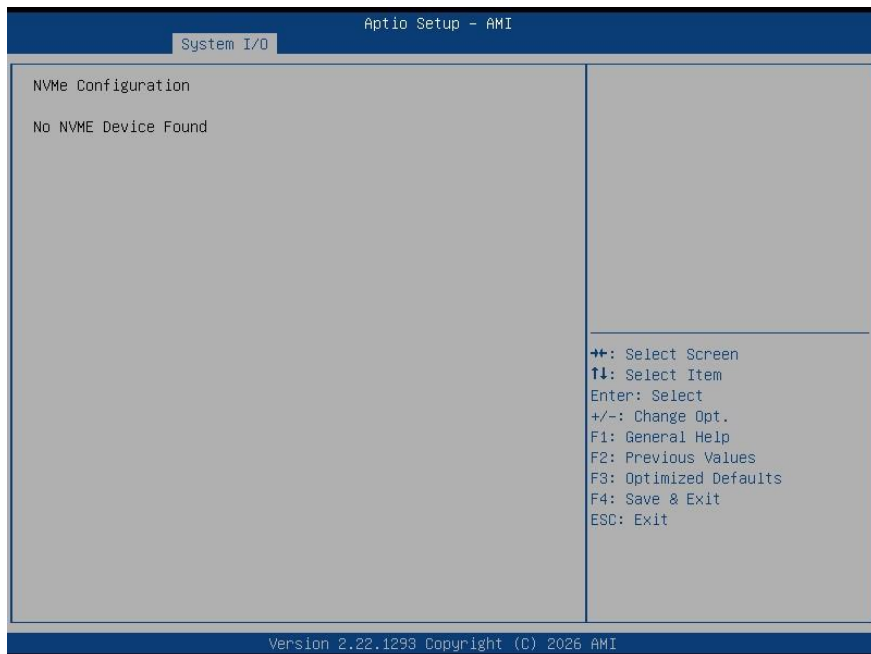
Options Summary		
PCIe Speed	Auto	Optimal Default, Failsafe Default
	Gen1	
	Gen2	
	Gen3	
Configure PCIe Speed.		
Hot Plug	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable/Disable PCI Express Hot Plug.		
PCIe 0_3 Selection	X2 x1 x1	Optimal Default, Failsafe Default
	x4	
PCIe Controller Setting		
PCIe 0~3	Disabled	
	Enabled	Optimal Default, Failsafe Default
Control the PCI Express Root Port.		
PCIe Speed (PCIe 0~3)	Auto	Optimal Default, Failsafe Default
	Gen1	
	Gen2	
	Gen3	
Configure PCIe Speed.		
Hot Plug (PCIe 0~3)	Disabled	Optimal Default, Failsafe Default
	Enabled	
PCI Express Hot Plug Enable/Disable.		

3.5.2 Storage Configuration

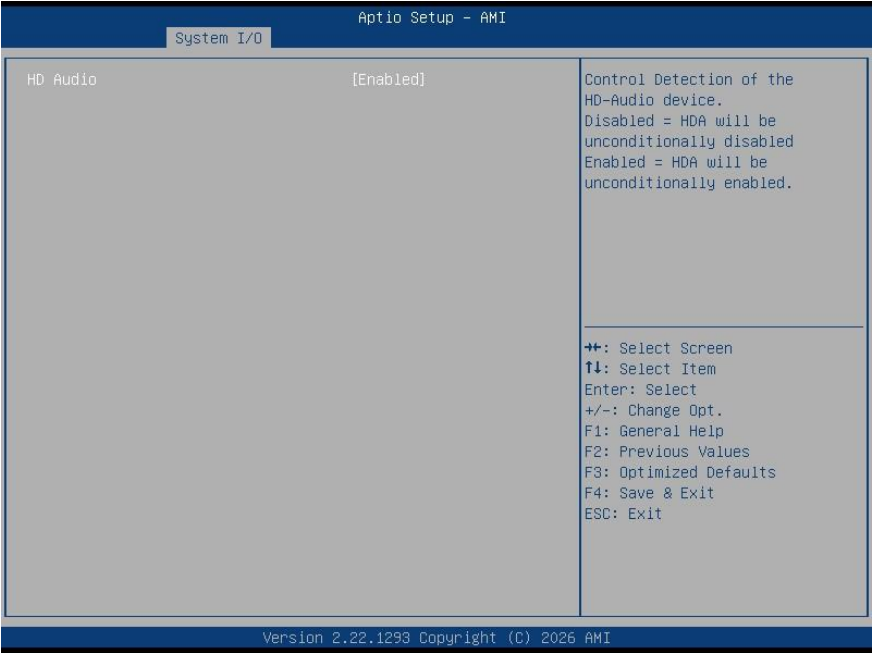


Options Summary		
eMMC 5.1 Controller	Enabled	Optimal Default, Failsafe Default
	Disabled	
NVMe Device Options Settings.		

3.5.2.1 NVMe Configuration

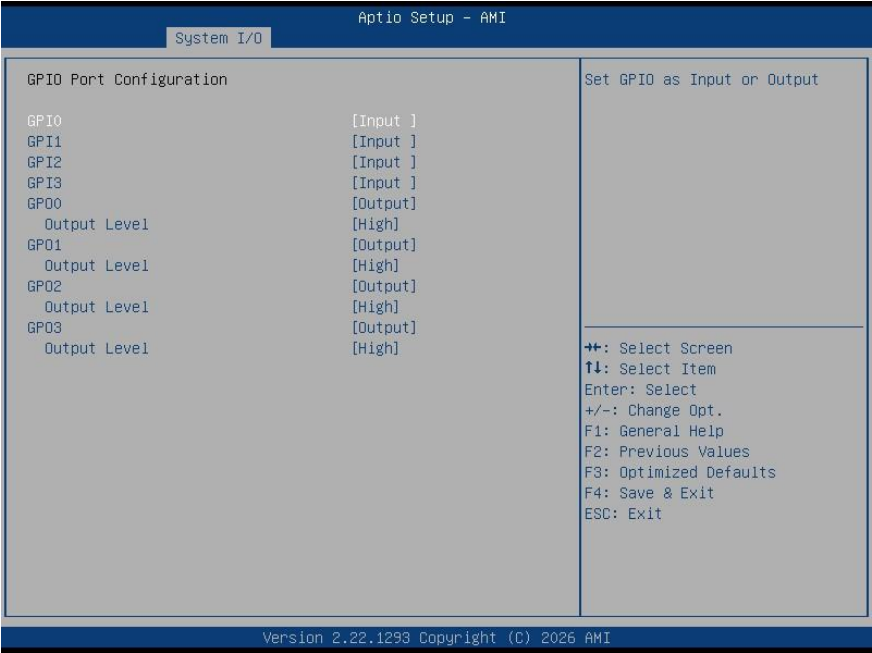


3.5.3 HD Audio Configuration



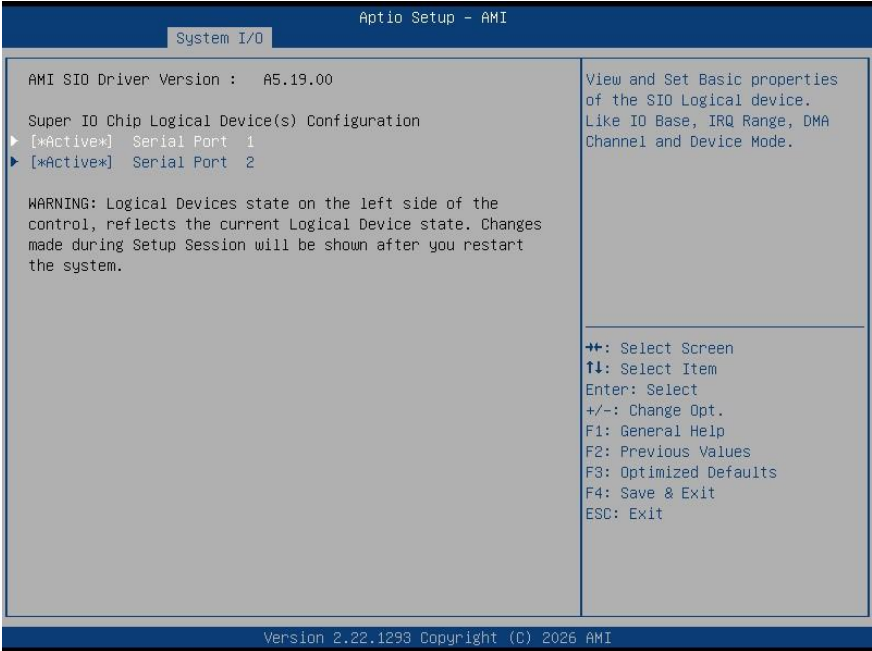
Options Summary		
HD Audio	Enabled	Optimal Default, Failsafe Default
	Disabled	
Control Detection of the HD-Audio device. Disabled = HDA will be unconditionally disabled. Enabled = HDA will be unconditionally enabled.		

3.5.4 GPIO Port Configuration

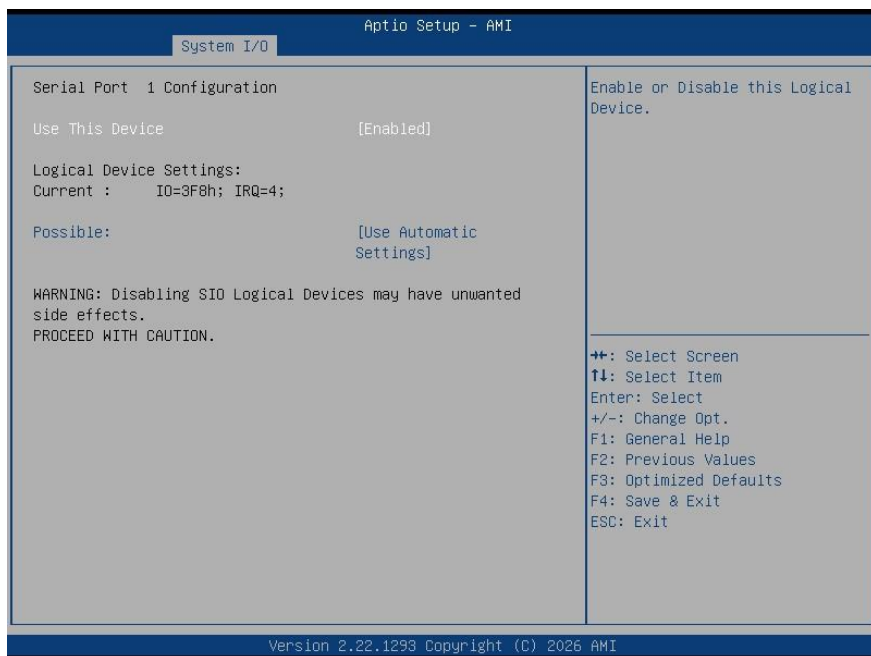


Options Summary		
GPIO Port*	Output	
	Input	
Set GPIO as Input or Output.		
Output Level	High	
	Low	
Set output level when GPIO pin is output.		

3.5.5 Legacy Logical Devices Configuration

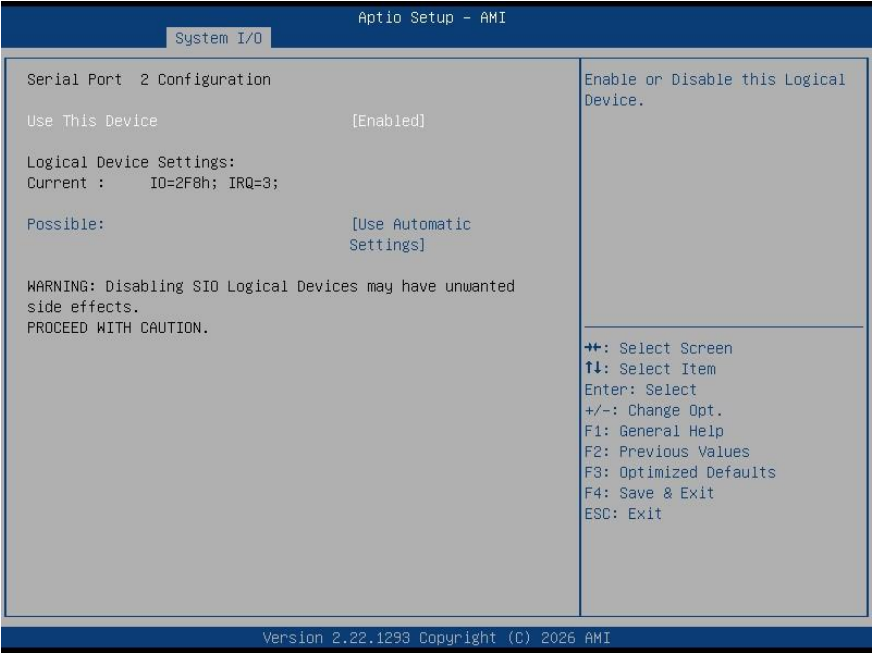


3.5.5.1 Serial Port 1 Configuration



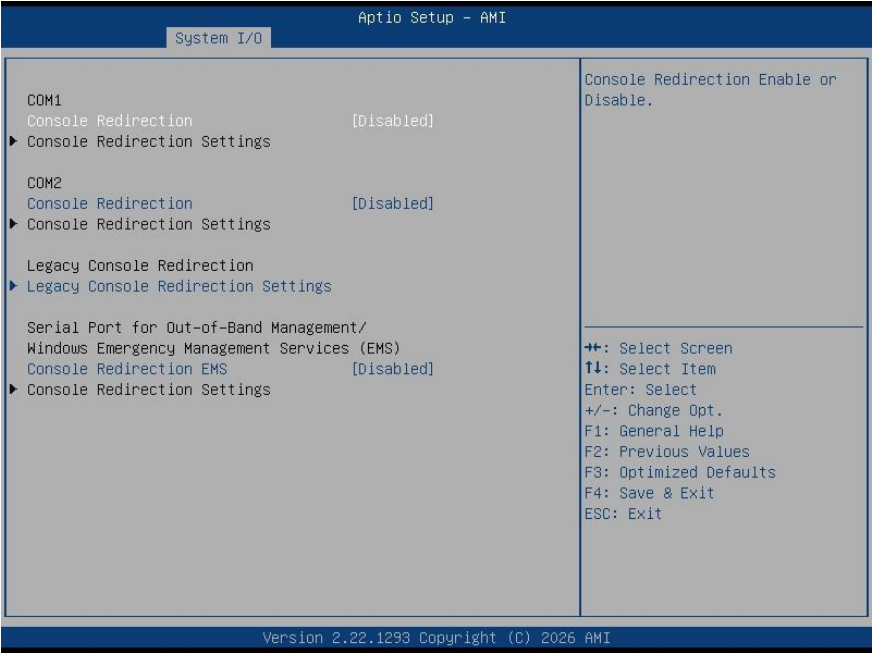
Options Summary		
Use This Device	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable this Logical Device.		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=3F8h; IRQ=4; DMA;	
	IO=2C8h; IRQ=11; DMA;	
Allows the user to change device resource settings. New settings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

3.5.5.2 Serial Port 2 Configuration



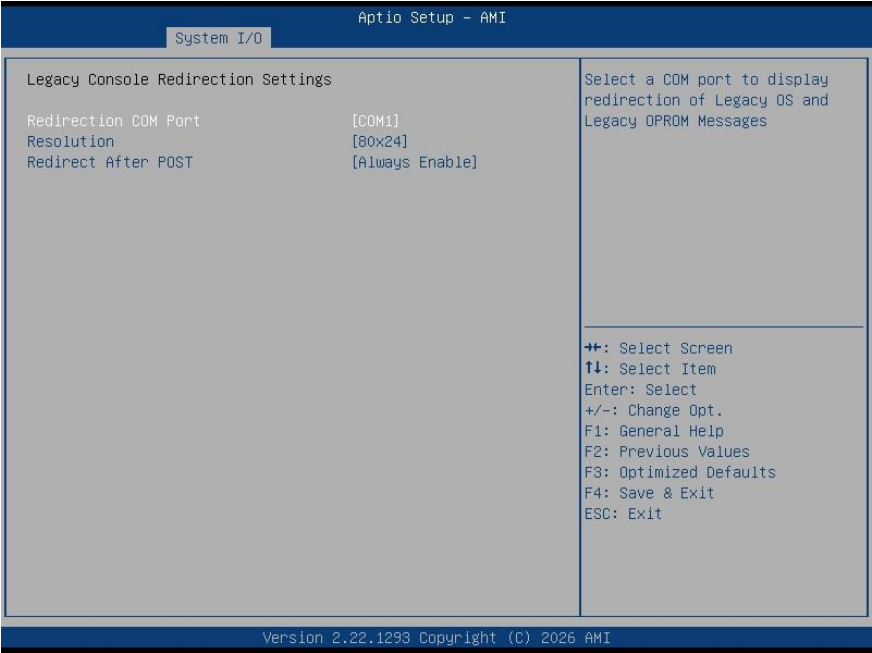
Options Summary		
Use This Device	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable this Logical Device.		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=2F8h; IRQ=3	
	IO=3D8h; IRQ=10	
Allows the user to change device resource settings. New settings take effect and appear on this setup page after a system restart.		

3.5.6 Serial Port Console Redirection



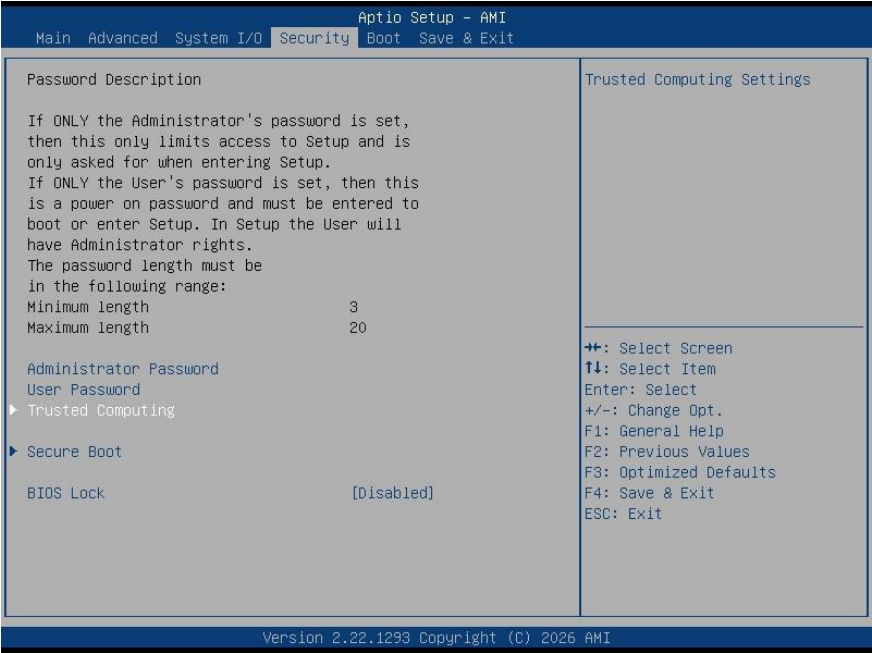
Options Summary		
Console Redirection	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable or Disable Console Redirection.		
Console Redirection EMS	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable or Disable Console Redirection.		

3.5.6.1 Legacy Console Redirection Settings



Options Summary		
Redirection COM port	COM0	Optimal Default, Failsafe Default
	COM1(Pci Bus0, Dev0, Func0) (Disabled)	
Select the COM port used to display Legacy OS and Legacy OPRM messages.		
Resolution	80x24	Optimal Default, Failsafe Default
	80x25	
Number of rows and columns supported for redirection in Legacy OS.		
Redirect After POST	Always Enable	Optimal Default, Failsafe Default
	BootLoader	

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.

Options Summary

BIOS Lock	Disabled	Optimal Default, Failsafe Default
	Enabled	

Enable or disable the PCH BIOS Lock feature. Must be enabled to ensure SMM flash protection.

3.6.1 Trusted Computing

Aprio Setup - AMI

Security

TPM 2.0 Device Found		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.
Firmware Version:	15.24	
Vendor:	IFX	
Security Device Support	[Enable]	
Active PCR banks	SHA256	
Available PCR banks	SHA256,SHA384	
SHA256 PCR Bank	[Enabled]	
SHA384 PCR Bank	[Disabled]	
Pending operation	[None]	
Platform Hierarchy	[Enabled]	
Storage Hierarchy	[Enabled]	
Endorsement Hierarchy	[Enabled]	
Physical Presence Spec Version	[1.3]	
TPM 2.0 InterfaceType	[TIS]	
Device Select	[TPM 2.0]	

++: Select Screen
 ↑↓: Select Item
 Enter: Select
 +/-: Change Opt.
 F1: General Help
 F2: Previous Values
 F3: Optimized Defaults
 F4: Save & Exit
 ESC: Exit

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Options Summary

Security Device Support	Enable	Optimal Default, Failsafe Default
	Disable	

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	Enabled	Optimal Default, Failsafe Default
	Disabled	

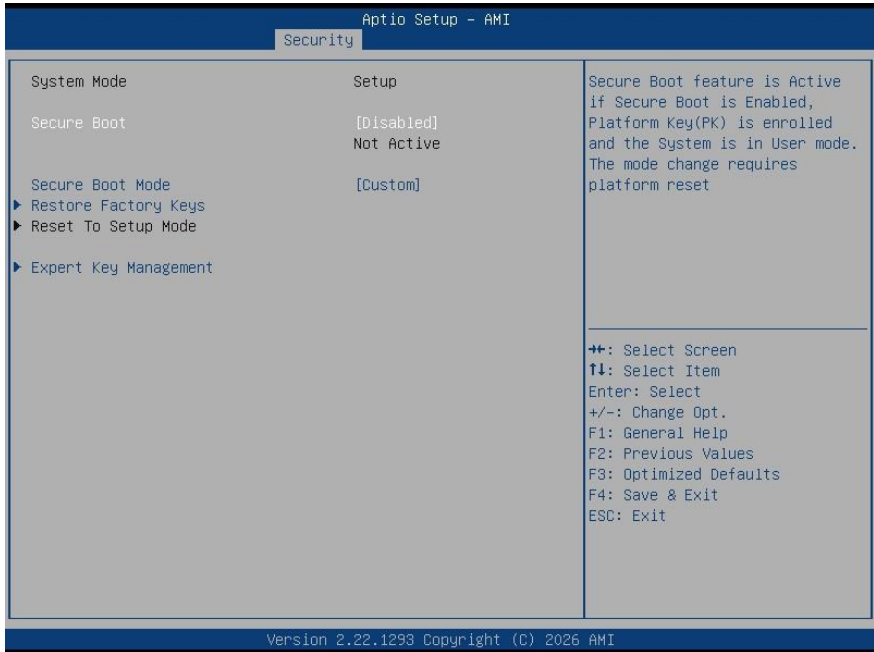
Enable or Disable SHA256 PCR Bank.

SHA384 PCR Bank	Enabled	Optimal Default, Failsafe Default
	Disabled	

Enable or Disable SHA384 PCR Bank.

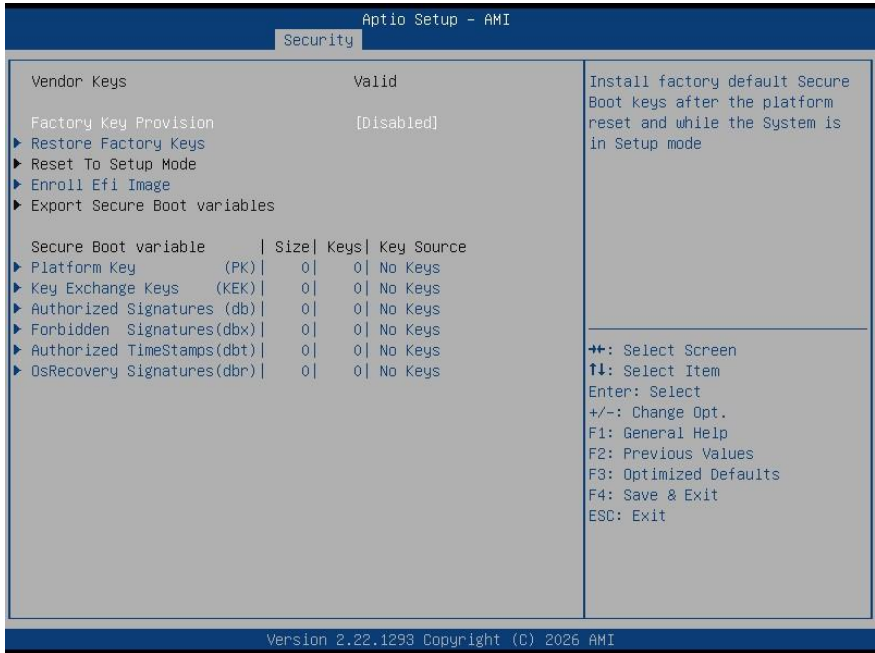
Options Summary		
Pending operation	None	Optimal Default, Failsafe Default
	TPM Clear	
Schedule an Operation for the Security Device. NOTE: Your Computer will reboot during restart in order to change State of Security Device.		
Platform Hierarchy	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable 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.		
Physical Presence Spec Version	1.2	
	1.3	Optimal Default, Failsafe Default
Select the PPI version the OS should support: 1.2 or 1.3. Note: Some HCK tests may not support version 1.3.		
Device Select	TPM 1.2	
	TPM 2.0	
	Auto	Optimal Default, Failsafe Default
Select the TPM version for system support: TPM 1.2 – Supports only TPM 1.2 devices. TPM 2.0 – Supports only TPM 2.0 devices. Auto – Supports both TPM 2.0 and TPM 1.2 devices; defaults to TPM 2.0 if available, otherwise enumerates TPM 1.2.		
Disable Block Sid	Disabled	
	Enabled	Optimal Default, Failsafe Default
Override to allow SID authentication in TCG Storage device		

3.6.2 Secure Boot



Options Summary		
Secure Boot	Disabled	Optimal Default, Failsafe Default
	Enabled	
Secure Boot is active when Secure Boot is enabled, the Platform Key (PK) is enrolled, and the system is in User mode. Changing mode requires a platform reset.		
Secure Boot Mode	Custom	Optimal Default, Failsafe Default
	Standard	
Select the Secure Boot mode: Standard – Uses default Secure Boot policy. Custom – Allows a physically present user to configure Secure Boot Policy variables without full authentication.		
Restore Factory Keys		
Force System to User Mode. Install factory default Secure Boot key databases.		
Reset to Setup Mode		
Delete all Secure Boot key databases from NVRAM.		

3.6.2.1 Expert Key Management

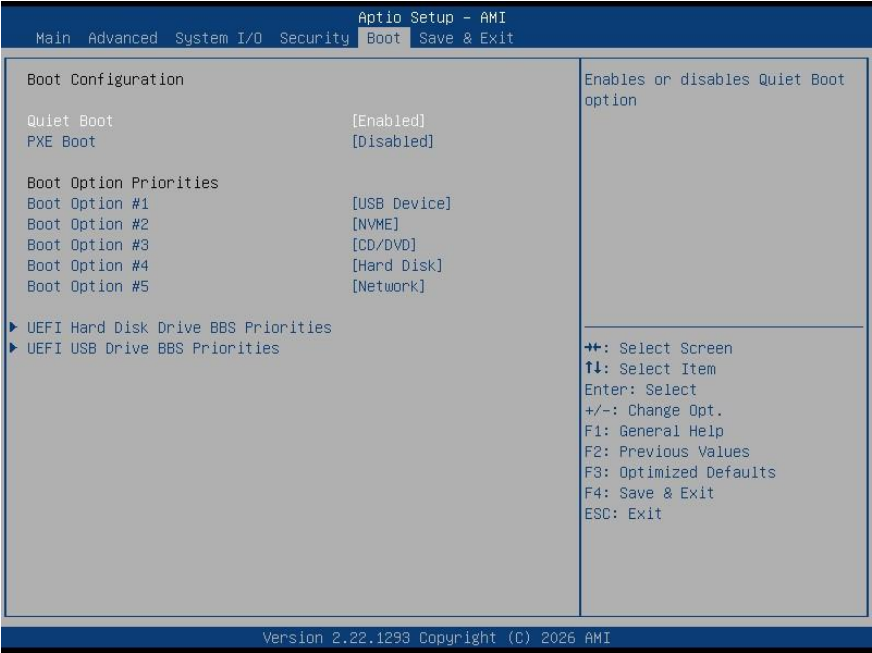


Options Summary		
Factory Key Provision	Disabled	Optimal Default, Failsafe Default
	Enabled	
Installs the factory default Secure Boot keys after a platform reset while the system is in Setup mode.		
Restore Factory Keys		
Switches the system to User Mode and installs the factory default Secure Boot key databases.		
Reset to Setup Mode		
Deletes all Secure Boot key databases from NVRAM, placing the system in Setup Mode.		
Export Secure Boot variables		
Saves the contents of Secure Boot variables from NVRAM to a file.		
Enroll Efi Image		
Allows a PE image to run in Secure Boot mode by enrolling its SHA256 hash certificate into the Authorized Signature Database (db).		
Platform Key (PK)	Details	
	Export	

Options Summary

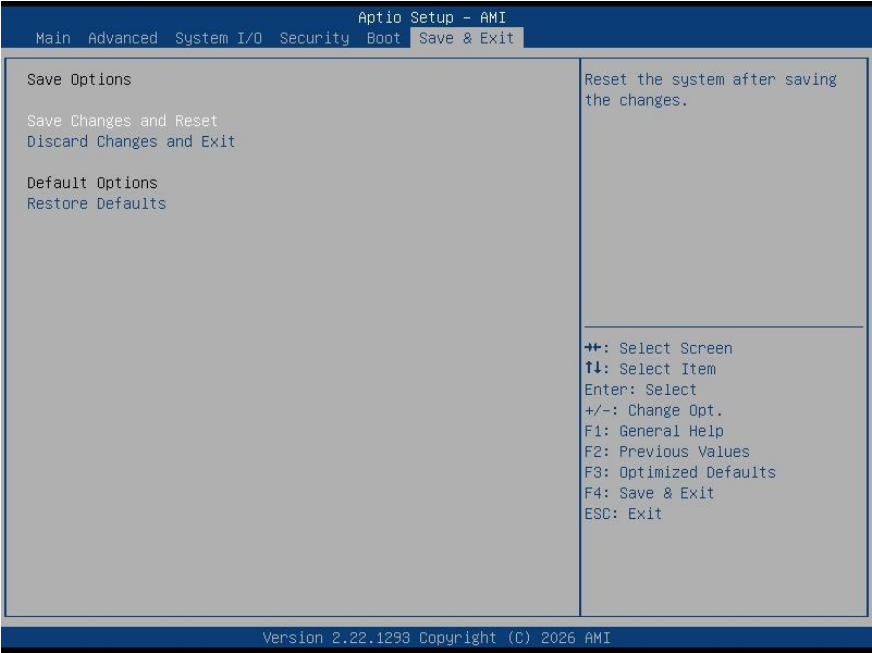
Platform Key (PK) (Cont.)	Update
	Delete
Key Exchange Keys (KEK)	Details
	Export
	Update
	Append
	Delete
Authorized Signatures (db)	Details
	Export
	Update
	Append
	Delete
Forbidden Signatures (dbx)	Details
	Export
	Update
	Append
	Delete
Authorized TimeStamps (dbt)	Update
	Append
OsRecovery Signatures (dbr)	Update
	Append
Device Signatures (devdb)	Update
	Append
Enroll Factory Defaults or load certificates from a file: Public Key Certificate: a) EFI_SIGNATURE_LIST b) EFI_CERT_X509 (DER) c) EFI_CERT_RSA2048 (bin) d) EFI_CERT_SHAXXX Authenticated UEFI Variable EFI PE/COFF Image (SHA256) Key Source: Factory, Modified, Mixed.	

3.7 Setup Submenu: Boot



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

3.8 Setup Submenu: Save & Exit



Options Summary	
Save Changes and Reset	Reset the system after saving the changes.
Discard Changes and Exit	Exit system setup without saving any changes.
Restore Defaults	Restore/Load Default values for all the setup options.

Chapter 4

Drivers Installation

4.1 Drivers Download and Installation

Drivers for the COM-TWLC6 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 **SetupChipset.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 **Installer.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 driver package (for example, **638910-I225-I226-NDIS-Win-x64-1.1.4.42.zip**).
2. Verify the LAN driver files are present:
 - **e2f.inf** – Setup Information
 - **e2f.sys** – System file
 - **e2fmsg.dll** – Application extension
 - **e2f.cat** – Security Catalog
3. Open **Device Manager**, press **Windows + X**, then select **Device Manager** to locate the Ethernet controller. Expand **Network adapters** or **Other devices** (the device may appear as **Ethernet Controller** or **Unknown device**).
4. Right-click the Ethernet controller and select **Update driver**.
 - Choose **Browse my computer for drivers**.
 - Click **Browse**, then navigate to the folder containing **e2f.inf**.
 - Click **Next** to install the driver.
5. Confirm the Intel® Ethernet adapter appears under **Network adapters** with no warning icons.

Install Audio Drivers

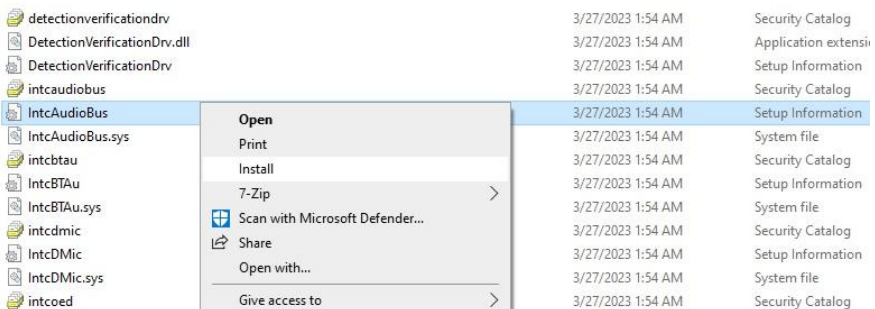
Note: Ensure Intel Smart Sound Driver (Intel_SST_ADL_v10.29.00.8467) is installed before the Realtek Audio driver (Realtek Audio 6.0.9034.2)

Install Intel Smart Sound Driver

1. Open the **Intel Smart Sound** folder
2. Navigate the folder as follows: **Production** > **Drivers**, then follow the below instructions to install the BUS Driver (IntcAudioBus.inf) and OED Driver (IntcOED.inf).

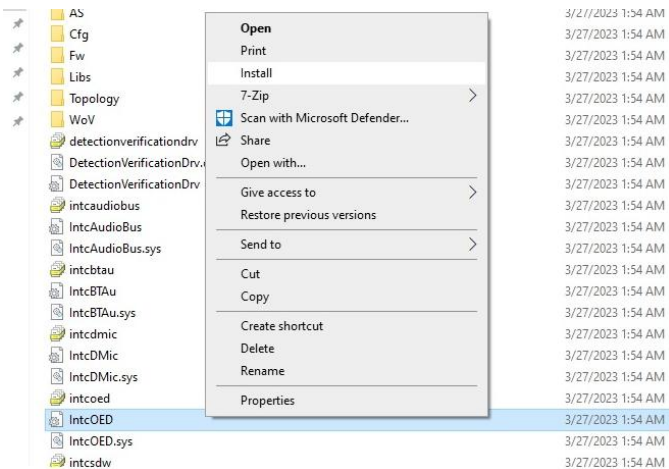
Install BUS driver (IntcAudioBus.inf)

- a. Press Right Key -> Install



Install OED driver (IntcOED.inf)

- b. Press Right Key -> Install



Install Realtek Audio Driver

1. Open the **Audio** folder
2. Open the **Realtek Audio 6.0.9034.2** folder
3. Run the **Setup.exe** file in the folder
4. Follow the instructions
5. Driver will be installed automatically

Install ME & TXE Driver

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

Install Serial IO Driver

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

Appendix A

I/O Information

A.1 I/O Address Map

▼	Input/output (I/O)
📁	[0000000000000000 - 000000000000CF7] PCI Express Root Complex
📁	[000000000000020 - 000000000000021] Programmable interrupt controller
📁	[0000000000000024 - 0000000000000025] Programmable interrupt controller
📁	[0000000000000028 - 0000000000000029] Programmable interrupt controller
📁	[000000000000002C - 000000000000002D] Programmable interrupt controller
📁	[000000000000002E - 000000000000002F] Motherboard resources
📁	[0000000000000030 - 0000000000000031] Programmable interrupt controller
📁	[0000000000000034 - 0000000000000035] Programmable interrupt controller
📁	[0000000000000038 - 0000000000000039] Programmable interrupt controller
📁	[000000000000003C - 000000000000003D] Programmable interrupt controller
📁	[0000000000000040 - 0000000000000043] System timer
📁	[000000000000004E - 000000000000004F] Motherboard resources
📁	[0000000000000050 - 0000000000000053] System timer
📁	[0000000000000061 - 0000000000000061] Motherboard resources
📁	[0000000000000063 - 0000000000000063] Motherboard resources
📁	[0000000000000065 - 0000000000000065] Motherboard resources
📁	[0000000000000067 - 0000000000000067] Motherboard resources
📁	[0000000000000068 - 0000000000000068] Microsoft ACPI-Compliant Embedded Controller
📁	[000000000000006C - 000000000000006C] Microsoft ACPI-Compliant Embedded Controller
📁	[0000000000000070 - 0000000000000070] Motherboard resources
📁	[0000000000000080 - 0000000000000080] Motherboard resources
📁	[0000000000000092 - 0000000000000092] Motherboard resources
📁	[00000000000000A0 - 00000000000000A1] Programmable interrupt controller
📁	[00000000000000A4 - 00000000000000A5] Programmable interrupt controller
📁	[00000000000000A8 - 00000000000000A9] Programmable interrupt controller
📁	[00000000000000AC - 00000000000000AD] Programmable interrupt controller
📁	[00000000000000B0 - 00000000000000B1] Programmable interrupt controller
📁	[00000000000000B2 - 00000000000000B3] Motherboard resources
📁	[00000000000000B4 - 00000000000000B5] Programmable interrupt controller
📁	[00000000000000B8 - 00000000000000B9] Programmable interrupt controller
📁	[00000000000000BC - 00000000000000BD] Programmable interrupt controller
🖨	[00000000000002F8 - 00000000000002FF] Communications Port (COM2)
🖨	[00000000000003F8 - 00000000000003FF] Communications Port (COM1)

	[0000000000000040 - 0000000000000043]	System timer
	[000000000000004E - 000000000000004F]	Motherboard resources
	[0000000000000050 - 0000000000000053]	System timer
	[0000000000000061 - 0000000000000061]	Motherboard resources
	[0000000000000063 - 0000000000000063]	Motherboard resources
	[0000000000000065 - 0000000000000065]	Motherboard resources
	[0000000000000067 - 0000000000000067]	Motherboard resources
	[0000000000000068 - 0000000000000068]	Microsoft ACPI-Compliant Embedded Controller
	[000000000000006C - 000000000000006C]	Microsoft ACPI-Compliant Embedded Controller
	[0000000000000070 - 0000000000000070]	Motherboard resources
	[0000000000000080 - 0000000000000080]	Motherboard resources
	[0000000000000092 - 0000000000000092]	Motherboard resources
	[00000000000000A0 - 00000000000000A1]	Programmable interrupt controller
	[00000000000000A4 - 00000000000000A5]	Programmable interrupt controller
	[00000000000000A8 - 00000000000000A9]	Programmable interrupt controller
	[00000000000000AC - 00000000000000AD]	Programmable interrupt controller
	[00000000000000B0 - 00000000000000B1]	Programmable interrupt controller
	[00000000000000B2 - 00000000000000B3]	Motherboard resources
	[00000000000000B4 - 00000000000000B5]	Programmable interrupt controller
	[00000000000000B8 - 00000000000000B9]	Programmable interrupt controller
	[00000000000000BC - 00000000000000BD]	Programmable interrupt controller
	[00000000000000F8 - 00000000000000FF]	Communications Port (COM2)
	[00000000000000F8 - 00000000000000FF]	Communications Port (COM1)
	[00000000000000D0 - 00000000000000D1]	Programmable interrupt controller
	[00000000000000680 - 0000000000000069F]	Motherboard resources
	[00000000000000D00 - 000000000000FFFF]	PCI Express Root Complex
	[0000000000000164E - 0000000000000164F]	Motherboard resources
	[00000000000001854 - 00000000000001857]	Motherboard resources
	[00000000000002000 - 000000000000020FE]	Motherboard resources
	[000000000000EFA0 - 000000000000EFBF]	SMBus - 54A3
	[000000000000FFC0 - 000000000000FFFF]	Intel(R) Graphics

A.2 Memory Address Map

▼	Large Memory
▼	Memory
	[0000004000000000 - 0000007FFFFFFF] PCI Express Root Complex
	[0000000000A0000 - 0000000000BFFFF] PCI Express Root Complex
	[0000000080400000 - 00000000804FFFF] Intel(R) Ethernet Controller I226-IT
	[0000000080400000 - 00000000805FFFF] PCI Express Root Port #7 - 54BE
	[0000000080400000 - 00000000BFFFFFFF] PCI Express Root Complex
	[0000000080500000 - 0000000080503FFF] Intel(R) Ethernet Controller I226-IT
	[0000000080600000 - 0000000080603FFF] Standard NVM Express Controller
	[0000000080600000 - 0000000080603FFF] Standard NVM Express Controller
	[0000000080600000 - 00000000806FFFF] PCI Express Root Port #3 - 54BA
	[0000000080600000 - 00000000806FFFF] PCI-to-PCI Bridge
	[00000000C0000000 - 00000000CFFFFFFF] Motherboard resources
	[00000000FD690000 - 00000000FD69FFFF] Intel(R) Serial IO GPIO Host Controller - INTC1057
	[00000000FD6A0000 - 00000000FD6AFFFF] Intel(R) Serial IO GPIO Host Controller - INTC1057
	[00000000FD6D0000 - 00000000FD6DFFFF] Intel(R) Serial IO GPIO Host Controller - INTC1057
	[00000000FD6E0000 - 00000000FD6EFFFF] Intel(R) Serial IO GPIO Host Controller - INTC1057
	[00000000FE010000 - 00000000FE010FFF] SPI (flash) Controller - 54A4
	[00000000FED00000 - 00000000FED003FF] High precision event timer
	[00000000FED20000 - 00000000FED7FFFF] Motherboard resources
	[00000000FED40000 - 00000000FED44FFF] Trusted Platform Module 2.0
	[00000000FED45000 - 00000000FED8FFFF] Motherboard resources
	[00000000FED90000 - 00000000FED93FFF] Motherboard resources
	[00000000FEDA0000 - 00000000FEDA0FFF] Motherboard resources
	[00000000FEDA1000 - 00000000FEDA1FFF] Motherboard resources
	[00000000FEDC0000 - 00000000FEDC7FFF] Motherboard resources
	[00000000FEE00000 - 00000000FEEFFFFF] Motherboard resources
	[0000004000000000 - 000000400FFFFFFF] Intel(R) Graphics
	[0000006000000000 - 0000006000FFFFF] Intel(R) Graphics
	[0000006001100000 - 000000600110FFFF] Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)
	[0000006001118000 - 00000060011180FF] SMBus - 54A3
	[0000006001119000 - 00000060011190FF] SDA Standard Compliant SD Host Controller
	[0000007FFFEFA000 - 0000007FFFEFAFFF] Intel(R) Serial IO I2C Host Controller - 54E8
	[0000007FFFEFB000 - 0000007FFFEFBFFF] Intel(R) Management Engine Interface #1
	[0000007FFFEFC000 - 0000007FFFEFCFFF] High Definition Audio Controller
	[0000007FFFEFD0000 - 0000007FFFEFDFFF] High Definition Audio Controller

A.3 IRQ Mapping Chart

Interrupt request (IRQ)	
(ISA) 0x00000000 (00)	System timer
(ISA) 0x00000003 (03)	Communications Port (COM2)
(ISA) 0x00000004 (04)	Communications Port (COM1)
(ISA) 0x0000000E (14)	Intel(R) Serial IO GPIO Host Controller - INT1057
(ISA) 0x00000036 (54)	Microsoft ACPI-Compliant System
(ISA) 0x00000037 (55)	Microsoft ACPI-Compliant System
(ISA) 0x00000038 (56)	Microsoft ACPI-Compliant System
(ISA) 0x00000039 (57)	Microsoft ACPI-Compliant System
(ISA) 0x0000003A (58)	Microsoft ACPI-Compliant System
(ISA) 0x0000003B (59)	Microsoft ACPI-Compliant System
(ISA) 0x0000003C (60)	Microsoft ACPI-Compliant System
(ISA) 0x0000003D (61)	Microsoft ACPI-Compliant System
(ISA) 0x0000003E (62)	Microsoft ACPI-Compliant System
(ISA) 0x0000003F (63)	Microsoft ACPI-Compliant System
(ISA) 0x00000040 (64)	Microsoft ACPI-Compliant System
(ISA) 0x00000041 (65)	Microsoft ACPI-Compliant System
(ISA) 0x00000042 (66)	Microsoft ACPI-Compliant System
(ISA) 0x00000043 (67)	Microsoft ACPI-Compliant System
(ISA) 0x00000044 (68)	Microsoft ACPI-Compliant System
(ISA) 0x00000045 (69)	Microsoft ACPI-Compliant System
(ISA) 0x00000046 (70)	Microsoft ACPI-Compliant System
(ISA) 0x00000047 (71)	Microsoft ACPI-Compliant System
(ISA) 0x00000048 (72)	Microsoft ACPI-Compliant System
(ISA) 0x00000049 (73)	Microsoft ACPI-Compliant System
(ISA) 0x0000004A (74)	Microsoft ACPI-Compliant System
(ISA) 0x0000004B (75)	Microsoft ACPI-Compliant System
(ISA) 0x0000004C (76)	Microsoft ACPI-Compliant System
(ISA) 0x0000004D (77)	Microsoft ACPI-Compliant System
(ISA) 0x0000004E (78)	Microsoft ACPI-Compliant System
(ISA) 0x0000004F (79)	Microsoft ACPI-Compliant System
(ISA) 0x00000050 (80)	Microsoft ACPI-Compliant System
(ISA) 0x00000051 (81)	Microsoft ACPI-Compliant System
(ISA) 0x00000052 (82)	Microsoft ACPI-Compliant System
(ISA) 0x00000053 (83)	Microsoft ACPI-Compliant System
(ISA) 0x00000054 (84)	Microsoft ACPI-Compliant System
(ISA) 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
	(ISA) 0x000000B1 (177)	Microsoft ACPI-Compliant System
	(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
	(ISA) 0x000000C1 (193)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C2 (194)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C3 (195)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C4 (196)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C5 (197)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C6 (198)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C7 (199)	Microsoft ACPI-Compliant System
	(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
	(ISA) 0x00000101 (257)	Microsoft ACPI-Compliant System
	(ISA) 0x00000102 (258)	Microsoft ACPI-Compliant System
	(ISA) 0x00000103 (259)	Microsoft ACPI-Compliant System
	(ISA) 0x00000104 (260)	Microsoft ACPI-Compliant System
	(ISA) 0x00000105 (261)	Microsoft ACPI-Compliant System
	(ISA) 0x00000106 (262)	Microsoft ACPI-Compliant System
	(ISA) 0x00000107 (263)	Microsoft ACPI-Compliant System
	(ISA) 0x00000108 (264)	Microsoft ACPI-Compliant System
	(ISA) 0x00000109 (265)	Microsoft ACPI-Compliant System
	(ISA) 0x0000010A (266)	Microsoft ACPI-Compliant System
	(ISA) 0x0000010B (267)	Microsoft ACPI-Compliant System
	(ISA) 0x0000010C (268)	Microsoft ACPI-Compliant System
	(ISA) 0x0000010D (269)	Microsoft ACPI-Compliant System
	(ISA) 0x0000010E (270)	Microsoft ACPI-Compliant System
	(ISA) 0x0000010F (271)	Microsoft ACPI-Compliant System
	(ISA) 0x00000110 (272)	Microsoft ACPI-Compliant System
	(ISA) 0x00000111 (273)	Microsoft ACPI-Compliant System
	(ISA) 0x00000112 (274)	Microsoft ACPI-Compliant System

	(ISA) 0x00000113 (275)	Microsoft ACPI-Compliant System
	(ISA) 0x00000114 (276)	Microsoft ACPI-Compliant System
	(ISA) 0x00000115 (277)	Microsoft ACPI-Compliant System
	(ISA) 0x00000116 (278)	Microsoft ACPI-Compliant System
	(ISA) 0x00000117 (279)	Microsoft ACPI-Compliant System
	(ISA) 0x00000118 (280)	Microsoft ACPI-Compliant System
	(ISA) 0x00000119 (281)	Microsoft ACPI-Compliant System
	(ISA) 0x0000011A (282)	Microsoft ACPI-Compliant System
	(ISA) 0x0000011B (283)	Microsoft ACPI-Compliant System
	(ISA) 0x0000011C (284)	Microsoft ACPI-Compliant System
	(ISA) 0x0000011D (285)	Microsoft ACPI-Compliant System
	(ISA) 0x0000011E (286)	Microsoft ACPI-Compliant System
	(ISA) 0x0000011F (287)	Microsoft ACPI-Compliant System
	(ISA) 0x00000120 (288)	Microsoft ACPI-Compliant System
	(ISA) 0x00000121 (289)	Microsoft ACPI-Compliant System
	(ISA) 0x00000122 (290)	Microsoft ACPI-Compliant System
	(ISA) 0x00000123 (291)	Microsoft ACPI-Compliant System
	(ISA) 0x00000124 (292)	Microsoft ACPI-Compliant System
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	(ISA) 0x00000126 (294)	Microsoft ACPI-Compliant System
	(ISA) 0x00000127 (295)	Microsoft ACPI-Compliant System
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	(ISA) 0x0000012D (301)	Microsoft ACPI-Compliant System
	(ISA) 0x0000012E (302)	Microsoft ACPI-Compliant System
	(ISA) 0x0000012F (303)	Microsoft ACPI-Compliant System
	(ISA) 0x00000130 (304)	Microsoft ACPI-Compliant System
	(ISA) 0x00000131 (305)	Microsoft ACPI-Compliant System
	(ISA) 0x00000132 (306)	Microsoft ACPI-Compliant System
	(ISA) 0x00000133 (307)	Microsoft ACPI-Compliant System
	(ISA) 0x00000134 (308)	Microsoft ACPI-Compliant System
	(ISA) 0x00000135 (309)	Microsoft ACPI-Compliant System
	(ISA) 0x00000136 (310)	Microsoft ACPI-Compliant System
	(ISA) 0x00000137 (311)	Microsoft ACPI-Compliant System
	(ISA) 0x00000138 (312)	Microsoft ACPI-Compliant System
	(ISA) 0x00000139 (313)	Microsoft ACPI-Compliant System
	(ISA) 0x0000013A (314)	Microsoft ACPI-Compliant System

	(ISA) 0x0000013B (315)	Microsoft ACPI-Compliant System
	(ISA) 0x0000013C (316)	Microsoft ACPI-Compliant System
	(ISA) 0x0000013D (317)	Microsoft ACPI-Compliant System
	(ISA) 0x0000013E (318)	Microsoft ACPI-Compliant System
	(ISA) 0x0000013F (319)	Microsoft ACPI-Compliant System
	(ISA) 0x00000140 (320)	Microsoft ACPI-Compliant System
	(ISA) 0x00000141 (321)	Microsoft ACPI-Compliant System
	(ISA) 0x00000142 (322)	Microsoft ACPI-Compliant System
	(ISA) 0x00000143 (323)	Microsoft ACPI-Compliant System
	(ISA) 0x00000144 (324)	Microsoft ACPI-Compliant System
	(ISA) 0x00000145 (325)	Microsoft ACPI-Compliant System
	(ISA) 0x00000146 (326)	Microsoft ACPI-Compliant System
	(ISA) 0x00000147 (327)	Microsoft ACPI-Compliant System
	(ISA) 0x00000148 (328)	Microsoft ACPI-Compliant System
	(ISA) 0x00000149 (329)	Microsoft ACPI-Compliant System
	(ISA) 0x0000014A (330)	Microsoft ACPI-Compliant System
	(ISA) 0x0000014B (331)	Microsoft ACPI-Compliant System
	(ISA) 0x0000014C (332)	Microsoft ACPI-Compliant System
	(ISA) 0x0000014D (333)	Microsoft ACPI-Compliant System
	(ISA) 0x0000014E (334)	Microsoft ACPI-Compliant System
	(ISA) 0x0000014F (335)	Microsoft ACPI-Compliant System
	(ISA) 0x00000150 (336)	Microsoft ACPI-Compliant System
	(ISA) 0x00000151 (337)	Microsoft ACPI-Compliant System
	(ISA) 0x00000152 (338)	Microsoft ACPI-Compliant System
	(ISA) 0x00000153 (339)	Microsoft ACPI-Compliant System
	(ISA) 0x00000154 (340)	Microsoft ACPI-Compliant System
	(ISA) 0x00000155 (341)	Microsoft ACPI-Compliant System
	(ISA) 0x00000156 (342)	Microsoft ACPI-Compliant System
	(ISA) 0x00000157 (343)	Microsoft ACPI-Compliant System
	(ISA) 0x00000158 (344)	Microsoft ACPI-Compliant System
	(ISA) 0x00000159 (345)	Microsoft ACPI-Compliant System
	(ISA) 0x0000015A (346)	Microsoft ACPI-Compliant System
	(ISA) 0x0000015B (347)	Microsoft ACPI-Compliant System
	(ISA) 0x0000015C (348)	Microsoft ACPI-Compliant System
	(ISA) 0x0000015D (349)	Microsoft ACPI-Compliant System
	(ISA) 0x0000015E (350)	Microsoft ACPI-Compliant System
	(ISA) 0x0000015F (351)	Microsoft ACPI-Compliant System
	(ISA) 0x00000160 (352)	Microsoft ACPI-Compliant System
	(ISA) 0x00000161 (353)	Microsoft ACPI-Compliant System
	(ISA) 0x00000162 (354)	Microsoft ACPI-Compliant System
	(ISA) 0x00000163 (355)	Microsoft ACPI-Compliant System
	(ISA) 0x00000164 (356)	Microsoft ACPI-Compliant System
	(ISA) 0x00000165 (357)	Microsoft ACPI-Compliant System
	(ISA) 0x00000166 (358)	Microsoft ACPI-Compliant System

	(ISA) 0x00000167 (359)	Microsoft ACPI-Compliant System
	(ISA) 0x00000168 (360)	Microsoft ACPI-Compliant System
	(ISA) 0x00000169 (361)	Microsoft ACPI-Compliant System
	(ISA) 0x0000016A (362)	Microsoft ACPI-Compliant System
	(ISA) 0x0000016B (363)	Microsoft ACPI-Compliant System
	(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
	(ISA) 0x00000188 (392)	Microsoft ACPI-Compliant System
	(ISA) 0x00000189 (393)	Microsoft ACPI-Compliant System
	(ISA) 0x0000018A (394)	Microsoft ACPI-Compliant System
	(ISA) 0x0000018B (395)	Microsoft ACPI-Compliant System
	(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) 0x00001BD (445)	Microsoft ACPI-Compliant System
	(ISA) 0x00001BE (446)	Microsoft ACPI-Compliant System
	(ISA) 0x00001BF (447)	Microsoft ACPI-Compliant System
	(ISA) 0x00001C0 (448)	Microsoft ACPI-Compliant System
	(ISA) 0x00001C1 (449)	Microsoft ACPI-Compliant System
	(ISA) 0x00001C2 (450)	Microsoft ACPI-Compliant System
	(ISA) 0x00001C3 (451)	Microsoft ACPI-Compliant System
	(ISA) 0x00001C4 (452)	Microsoft ACPI-Compliant System
	(ISA) 0x00001C5 (453)	Microsoft ACPI-Compliant System
	(ISA) 0x00001C6 (454)	Microsoft ACPI-Compliant System
	(ISA) 0x00001C7 (455)	Microsoft ACPI-Compliant System
	(ISA) 0x00001C8 (456)	Microsoft ACPI-Compliant System
	(ISA) 0x00001C9 (457)	Microsoft ACPI-Compliant System
	(ISA) 0x00001CA (458)	Microsoft ACPI-Compliant System
	(ISA) 0x00001CB (459)	Microsoft ACPI-Compliant System
	(ISA) 0x00001CC (460)	Microsoft ACPI-Compliant System
	(ISA) 0x00001CD (461)	Microsoft ACPI-Compliant System
	(ISA) 0x00001CE (462)	Microsoft ACPI-Compliant System
	(ISA) 0x00001CF (463)	Microsoft ACPI-Compliant System
	(ISA) 0x00001D0 (464)	Microsoft ACPI-Compliant System
	(ISA) 0x00001D1 (465)	Microsoft ACPI-Compliant System
	(ISA) 0x00001D2 (466)	Microsoft ACPI-Compliant System
	(ISA) 0x00001D3 (467)	Microsoft ACPI-Compliant System
	(ISA) 0x00001D4 (468)	Microsoft ACPI-Compliant System
	(ISA) 0x00001D5 (469)	Microsoft ACPI-Compliant System
	(ISA) 0x00001D6 (470)	Microsoft ACPI-Compliant System
	(ISA) 0x00001D7 (471)	Microsoft ACPI-Compliant System
	(ISA) 0x00001D8 (472)	Microsoft ACPI-Compliant System
	(ISA) 0x00001D9 (473)	Microsoft ACPI-Compliant System
	(ISA) 0x00001DA (474)	Microsoft ACPI-Compliant System
	(ISA) 0x00001DB (475)	Microsoft ACPI-Compliant System
	(ISA) 0x00001DC (476)	Microsoft ACPI-Compliant System
	(ISA) 0x00001DD (477)	Microsoft ACPI-Compliant System
	(ISA) 0x00001DE (478)	Microsoft ACPI-Compliant System
	(ISA) 0x00001DF (479)	Microsoft ACPI-Compliant System
	(ISA) 0x00001E0 (480)	Microsoft ACPI-Compliant System
	(ISA) 0x00001E1 (481)	Microsoft ACPI-Compliant System
	(ISA) 0x00001E2 (482)	Microsoft ACPI-Compliant System
	(ISA) 0x00001E3 (483)	Microsoft ACPI-Compliant System
	(ISA) 0x00001E4 (484)	Microsoft ACPI-Compliant System
	(ISA) 0x00001E5 (485)	Microsoft ACPI-Compliant System
	(ISA) 0x00001E6 (486)	Microsoft ACPI-Compliant System
	(ISA) 0x00001E7 (487)	Microsoft ACPI-Compliant System
	(ISA) 0x00001E8 (488)	Microsoft ACPI-Compliant System

	(ISA) 0x000001E9 (489)	Microsoft ACPI-Compliant System
	(ISA) 0x000001EA (490)	Microsoft ACPI-Compliant System
	(ISA) 0x000001EB (491)	Microsoft ACPI-Compliant System
	(ISA) 0x000001EC (492)	Microsoft ACPI-Compliant System
	(ISA) 0x000001ED (493)	Microsoft ACPI-Compliant System
	(ISA) 0x000001EE (494)	Microsoft ACPI-Compliant System
	(ISA) 0x000001EF (495)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F0 (496)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F1 (497)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F2 (498)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F3 (499)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F4 (500)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F5 (501)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F6 (502)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F7 (503)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F8 (504)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F9 (505)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FA (506)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FB (507)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FC (508)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FD (509)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FE (510)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FF (511)	Microsoft ACPI-Compliant System
	(PCI) 0x00000010 (16)	SDA Standard Compliant SD Host Controller
	(PCI) 0x00000013 (19)	High Definition Audio Controller
	(PCI) 0x0000001B (27)	Intel(R) Serial IO I2C Host Controller - 54E8
	(PCI) 0xFFFFFEEA (-22)	Intel(R) Management Engine Interface #1
	(PCI) 0xFFFFFEEB (-21)	Intel(R) Ethernet Controller I226-IT
	(PCI) 0xFFFFFEFC (-20)	Intel(R) Ethernet Controller I226-IT
	(PCI) 0xFFFFFEFD (-19)	Intel(R) Ethernet Controller I226-IT
	(PCI) 0xFFFFFEFE (-18)	Intel(R) Ethernet Controller I226-IT
	(PCI) 0xFFFFFEFF (-17)	Intel(R) Ethernet Controller I226-IT
	(PCI) 0xFFFFFFF0 (-16)	Intel(R) Ethernet Controller I226-IT
	(PCI) 0xFFFFFFF1 (-15)	Intel(R) Ethernet Controller I226-IT
	(PCI) 0xFFFFFFF2 (-14)	Intel(R) Ethernet Controller I226-IT
	(PCI) 0xFFFFFFF3 (-13)	Intel(R) Ethernet Controller I226-IT
	(PCI) 0xFFFFFFF4 (-12)	Intel(R) Graphics
	(PCI) 0xFFFFFFF5 (-11)	Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)
	(PCI) 0xFFFFFFF6 (-10)	Standard NVM Express Controller
	(PCI) 0xFFFFFFF7 (-9)	Standard NVM Express Controller
	(PCI) 0xFFFFFFF8 (-8)	Standard NVM Express Controller
	(PCI) 0xFFFFFFF9 (-7)	Standard NVM Express Controller
	(PCI) 0xFFFFFFFA (-6)	Standard NVM Express Controller
	(PCI) 0xFFFFFFFB (-5)	Standard NVM Express Controller
	(PCI) 0xFFFFFFF4 (-4)	Standard NVM Express Controller
	(PCI) 0xFFFFFFF5 (-3)	Standard NVM Express Controller
	(PCI) 0xFFFFFFF6 (-2)	Standard NVM Express Controller