



PICO-V2K4

PICO-ITX Single Board Computer

User's Manual 4th Ed

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Packing List

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

Item	Quantity
● PICO-V2K4	1

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

About this Document

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

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

Safety Precautions

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

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

17. If any of the following situations arises, please the contact our service personnel:
 - i. Damaged power cord or plug
 - ii. Liquid intrusion to the device
 - iii. Exposure to moisture
 - iv. Device is not working as expected or in a manner as described in this manual
 - v. The device is dropped or damaged
 - vi. Any obvious signs of damage displayed on the device
18. **DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -20° C (-4°F) OR ABOVE 60°C (140°F) 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	Pico-ITX
CPU	AMD Ryzen™ V2000 Embedded Processor Family AMD Ryzen™ Embedded V2718 (8C/16T, 1.7~4.15 GHz, TDP 10~25W) AMD Ryzen™ Embedded V2516 (6C/12T, 2.1~3.95 GHz, TDP 10~25W)
Chipset	AMD Ryzen™ V2000 Embedded Processor Family
Memory Type	Onboard LPDDR4x, 3733MHz
BIOS	UEFI
Wake on LAN	Yes
Watchdog Timer	255 Levels
Security	TPM 2.0
RTC Battery	Lithium Battery 3V/240mAh
Dimension	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.18 lb. (0.08 Kg)
OS Support	Windows® 10/11 (64-bit) Linux Ubuntu 20.04.3/Kernel 5.11

Power

Power Requirement	+12V
Power Supply Type	AT/ATX
Connector	2-pin Phoenix Connector (Default) Lockable DC Jack Connector (co-lay)
Power Consumption	AMD Ryzen™ Embedded V2718, LPDDR4x Onboard 32GB, 4.24A @+12V (Typical) AMD Ryzen™ Embedded V2718, LPDDR4x onboard 32GB, 4.82A @+12V (Max)

Display

Controller	AMD Radeon™ 6, 7 Graphics (Renoir)
LVDS/eDP	eDP or LVDS x 1 (eDP 1.4: 3840 x 2160, @60Hz; LVDS: 12V/3.3V, 18-24 bit, Single-Channel)
Display Interface	USB Type-C to DP x 1 HDMI 2.0b x 1, 4K x 2K @60Hz HDMI 1.4 x 1, 4K x 2K @30Hz (3840 x 2160)
Multiple Display	Up to 4 Simultaneous Displays

Audio

Codec	Realtek ALC269 (Optional)
Audio Interface	High Definition Audio Interface, Line-in/Line-out/Mic (Optional)
Speaker	—

External I/O

Ethernet	Intel® Ethernet Controller I226, 2.5GbE x 1 Intel® Ethernet Controller I210, 1GbE x 1
----------	--

External I/O

USB	USB 3.2 Gen 2 (Type-C) x 1 USB 3.2 Gen 2 (Type-A) x 2
Serial Port	—
Video	USB Type-C to DP x 1 HDMI 2.0b x 1, 4K x 2K @60Hz HDMI 1.4 x 1, 4K x 2K @30Hz (3840 x 2160)

Internal I/O

USB	USB 2.0 x 4
Serial Port	COM 1 ~ COM 4 (RS-232/422/485, Supports 5V/12V/RI)
Video	eDP or LVDS x 1 (eDP 1.4: 3840 x 2160, @60Hz; LVDS: 12V/3.3V, 18-24 bit, single channel)
SATA	SATA 6Gb/s x 1 +5V SATA Power Connector x 1 Onboard NVMe SSD (Optional, up to 128GB, PCIe [x2], by BOM)
Audio	Audio Header x 1 (Optional)
DIO/GPIO	8-bit
SMBus/I2C	SMBus/I2C x 1 (SMBus as default, I2C selected by HW BOM)
FAN	4-pin Smart Fan x 1
Front Panel	HDD LED PWR LED Power Button Buzzer Reset

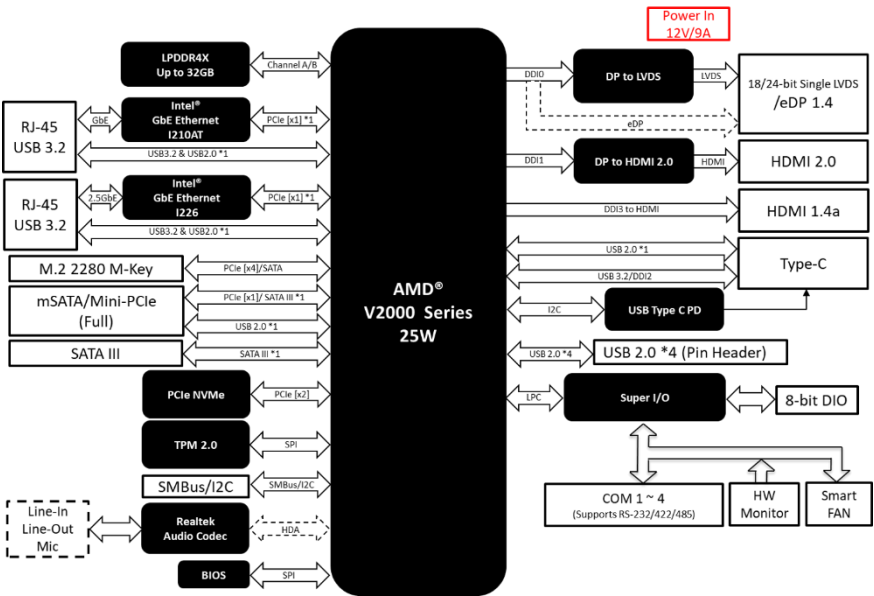
Expansion

Mini PCIe/mSATA	Full-size Mini PCIe x 1 (PCIe [x1] x 1/USB 2.0 as default, mSATA selected by HW BOM)
M.2	M.2 2280 M-Key x 1 (PCIe Gen 3 [x4] as default, SATA selected by BIOS)

Environment

Operating Temperature	32°F – 140°F (0°C – 60°C) WiTAS 2: -40°F – 185°F (-40°C – 85°C)
Storage Temperature	-40°F – 185°F (-40°C – 85°C)
Operating Humidity	0% – 90% relative humidity, non-condensing
MTBF (Hours)	407,784
EMC	CE/FCC Class A

1.2 Function Block

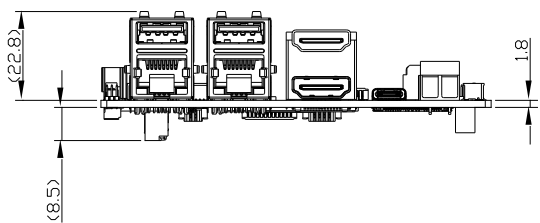
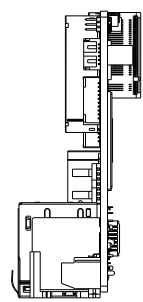
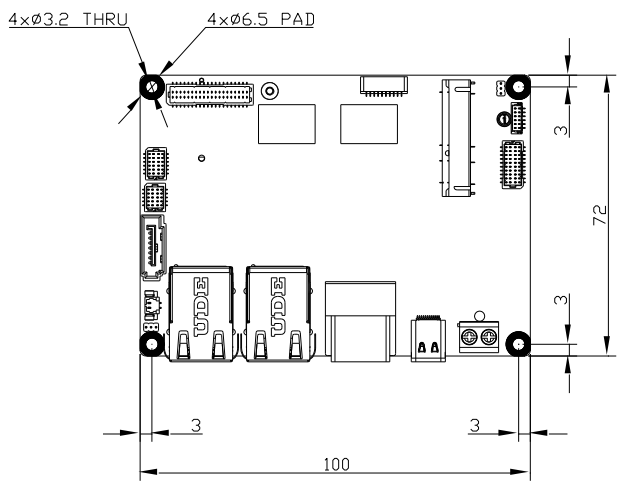


Chapter 2

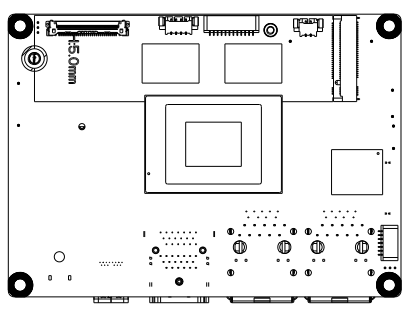
Hardware Information

2.1 Dimensions

Top View

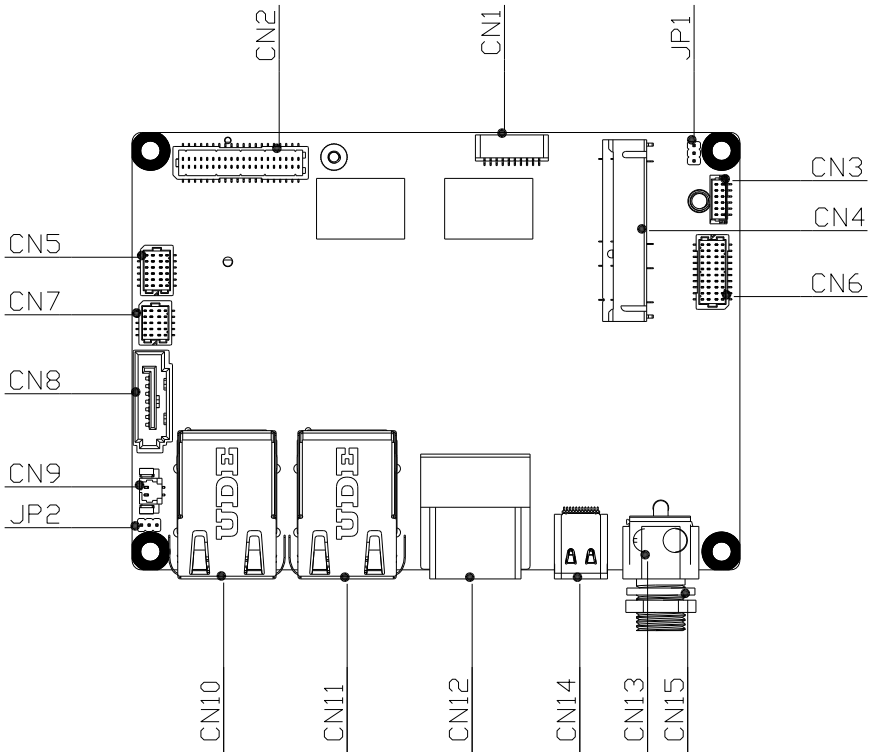


Bottom View

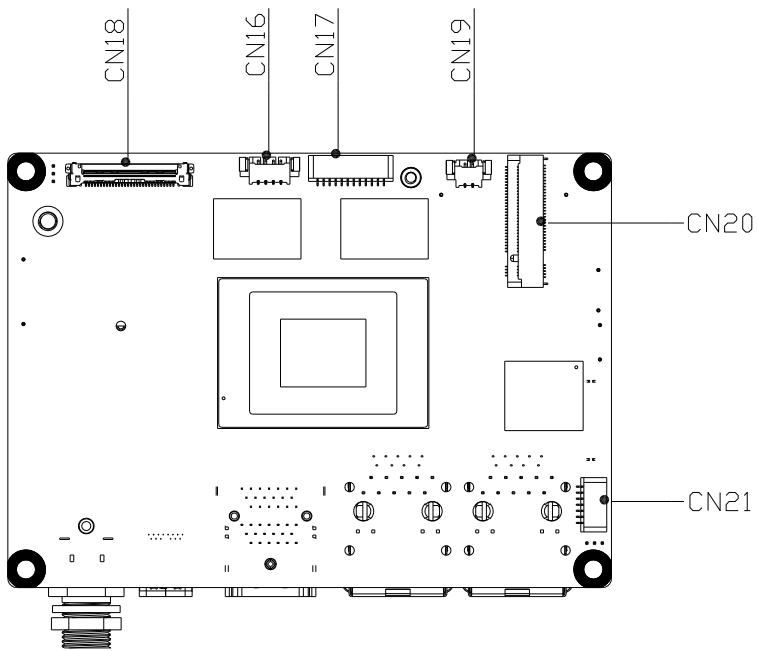


2.2 Jumpers and Connectors

Top View



Bottom View

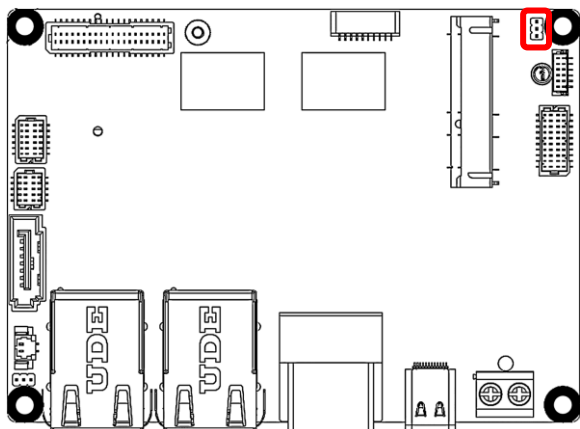


2.3 List of Jumpers

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

Label	Function
JP1	Clear CMOS Jumper
JP2	Auto Power Button Enable/Disable Selection

2.3.1 Clear CMOS Jumper (JP1)

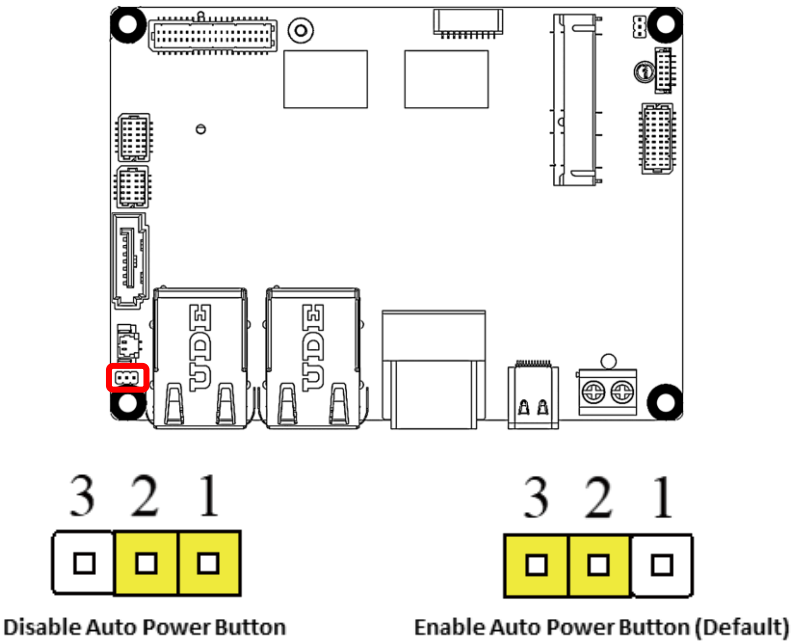


Normal (Default)



Clear CMOS

2.3.2 Auto Power Button Enable/Disable Selection (JP2)

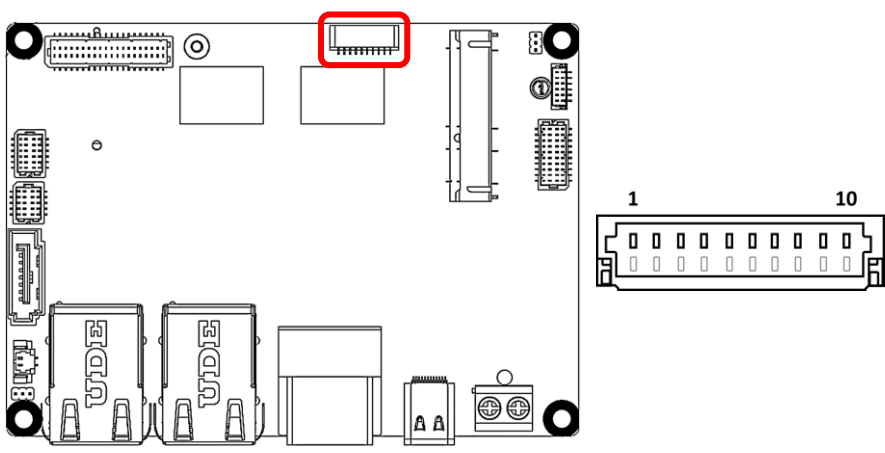


2.4 List of Connectors

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

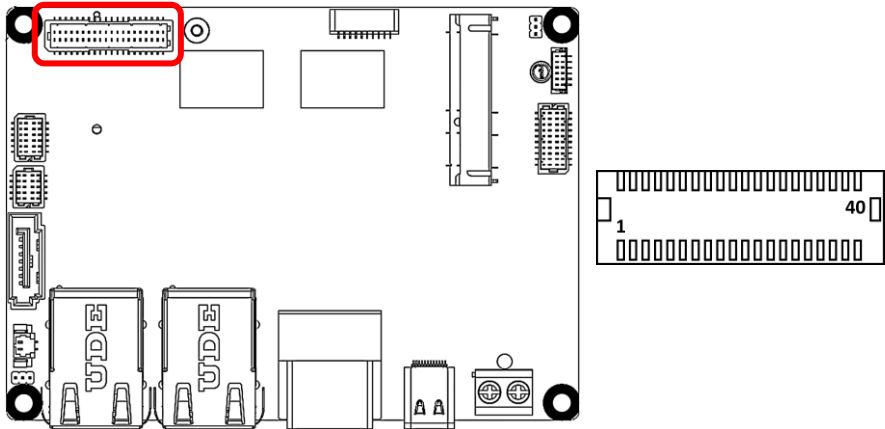
Label	Function
CN1	Front Panel
CN2	COM Port 1/Port 2/Port 3/Port 4
CN3	LVDS Port Inverter/Backlight Connector
CN4	Mini Card Slot (Full-size mSATA/mPCIe)
CN5	Audio I/O Connector
CN6	USB 2.0 Port 1/Port 2/Port 3/Port 4
CN7	Digital IO Connector
CN8	SATA Connector
CN9	+5V Output for SATA HDD
CN10	USB 3.2/USB 2.0 Port 1/LAN (GbE, RJ-45) Port 1
CN11	USB 3.2/USB 2.0 Port 2/LAN (2.5GbE, RJ-45) Port 2
CN12	HDMI Port 1/Port 2
CN13	External +12V Input
CN14	USB Type-C
CN15	DC Jack Connector (Optional)
CN16	Fan Connector
CN17	LPC Connector
CN18	eDP/LVDS Connector
CN19	RTC Battery Connector
CN20	M.2 2280 M-Key Slot
CN21	SPI Flash Programming Port

2.4.1 Front Panel (CN1)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	GND
2	EXT_PWRBTN#	IN	
3	SATA_LED-	OUT	
4	SATA_LED+	OUT	
5	BUZZER-	OUT	
6	BUZZER+	OUT	
7	GND	GND	GND
8	PWR_LED+	OUT	
9	GND	GND	GND
10	HWRST#	IN	

2.4.2 COM Port 1/Port 2/Port 3/Port 4 (CN2)



Pin	Pin Name	Signal Type	Signal Level
1	DCD1	IN	
2	DCD2	IN	
3	RX1	IN	
4	RX2	IN	
5	TX1	OUT	+9V
6	TX2	OUT	+9V
7	DTR1	OUT	+9V
8	DTR2	OUT	+9V
9	GND	GND	GND
10	GND	GND	GND
11	DSR1	IN	
12	DSR2	IN	
13	RTS1	OUT	+9V
14	RTS2	OUT	+9V
15	CTS1	IN	
16	CTS2	IN	
17	RI1/ +5V/ +12V	IN/ PWR	+5V/+12V
18	RI2/ +5V/ +12V	IN/ PWR	+5V/+12V
19	NC	NC	NC
20	NC	NC	NC
21	DCD3	IN	
22	DCD4	IN	
23	RX3	IN	

Pin	Pin Name	Signal Type	Signal Level
24	RX4	IN	
25	TX3	OUT	+9V
26	TX4	OUT	+9V
27	DTR3	OUT	+9V
28	DTR4	OUT	+9V
29	GND	GND	GND
30	GND	GND	GND
31	DSR3	IN	
32	DSR4	IN	
33	RTS3	OUT	+9V
34	RTS4	OUT	+9V
35	CTS3	IN	
36	CTS4	IN	
37	RI3/ +5V/ +12V	IN/ PWR	+5V/+12V
38	RI4/ +5V/ +12V	IN/ PWR	+5V/+12V
39	NC	NC	NC
40	NC	NC	NC

COM Port 1 RS-422

Pin	Pin Name	Signal Type	Signal Level
9	GND	GND	GND
1	RS422_TX-	OUT	+9V
3	RS422_TX+	OUT	+9V
5	RS422_RX+	IN	
7	RS422_RX-	IN	

COM Port 1 RS-485

Pin	Pin Name	Signal Type	Signal Level
9	GND	GND	GND
1	RS485_D-	I/O	+9V
3	RS485_D+	I/O	+9V

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

Note 2: COM 1 RI/+5V/+12V function can be set by BOM (R30-RI/R40-+12V/R38-+5V).

COM Port 2 RS-422

Pin	Pin Name	Signal Type	Signal Level
10	GND	GND	GND
2	RS422_TX-	OUT	+9V
4	RS422_TX+	OUT	+9V
6	RS422_RX+	IN	
8	RS422_RX-	IN	

COM Port 2 RS-485

Pin	Pin Name	Signal Type	Signal Level
10	GND	GND	GND
2	RS485_D-	I/O	+9V
4	RS485_D+	I/O	+9V

Note 1: COM 2 RS-232/422/485 can be set by BIOS setting. Default is RS-232.

Note 2: COM 2 RI/+5V/+12V function can be set by BOM

(R54-RI/R79-+12V/R78-+5V).

COM Port 3 RS-422

Pin	Pin Name	Signal Type	Signal Level
29	GND	GND	GND
21	RS422_TX-	OUT	+9V
23	RS422_TX+	OUT	+9V
25	RS422_RX+	IN	
27	RS422_RX-	IN	

COM Port 3 RS-485

Pin	Pin Name	Signal Type	Signal Level
29	GND	GND	GND
21	RS485_D-	I/O	+9V
23	RS485_D+	I/O	+9V

Note 1: COM 3 RS-232/422/485 can be set by BIOS setting. Default is RS-232.

Note 2: COM 3 RI/+5V/+12V function can be set by BOM (R31-RI/R39-+12V/R42-+5V).

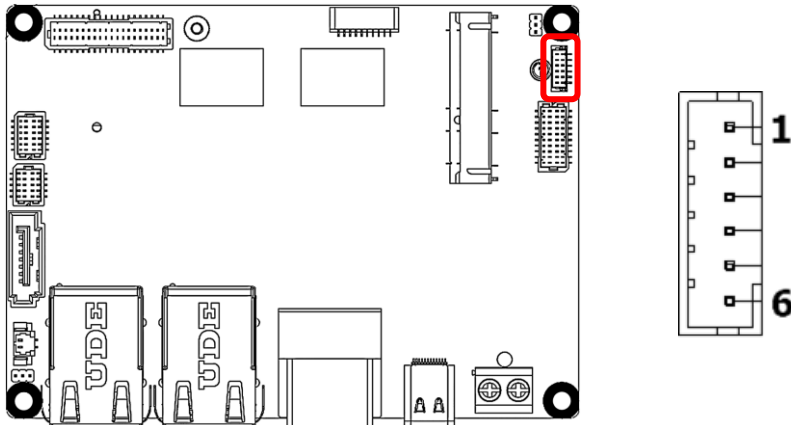
COM Port 4 RS-422			
Pin	Pin Name	Signal Type	Signal Level
30	GND	GND	GND
22	RS422_TX-	OUT	+9V
24	RS422_TX+	OUT	+9V
26	RS422_RX+	IN	
28	RS422_RX-	IN	

COM Port 4 RS-485			
Pin	Pin Name	Signal Type	Signal Level
30	GND	GND	GND
22	RS485_D-	I/O	+9V
24	RS485_D+	I/O	+9V

Note 1: COM 4 RS-232/422/485 can be set by BIOS setting. Default is RS-232.

Note 2: COM 4 RI/+5V/+12V function can be set by BOM
(R50-RI/R58-+12V/R65-+5V).

2.4.3 LVDS Backlight Connector (CN3)



Pin	Pin Name	Signal Type	Signal Level
1	BKL_PWR	PWR	+5V/+12V(Default)
2	BKL_PWR	PWR	+5V/+12V(Default)
3	BKL_CONTROL	OUT	

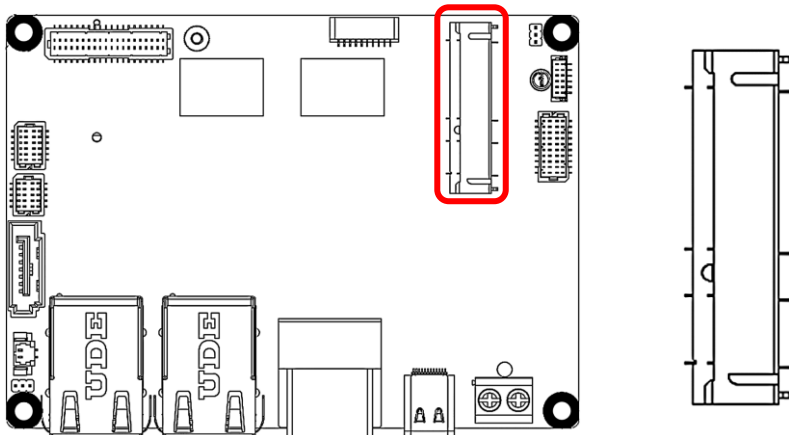
Pin	Pin Name	Signal Type	Signal Level
4	GND	GND	
5	GND	GND	
6	BKL_ENABLE	OUT	+3.3V

Note: LVDS/BKL_PWR can be set to +12V or +5V by R356/R357.

Note: LVDS/BKL_CONTROL can be set by R406/R407.

Note: The driving current supports up to 1A.

2.4.4 Mini-Card Slot Full-Size mSATA/mPCIe (CN4)



Pin	Pin Name	Signal Type	Signal Level
1	PCIE_WAKE#	IN	
2	+3.3V	PWR	+3.3V
3	NC	NC	NC
4	GND	GND	GND
5	NC	NC	NC
6	+1.5V	PWR	+1.5V
7	PCIE_CLK_REQ#	IN	
8	NC	NC	NC
9	GND	GND	GND
10	NC	NC	NC
11	PCIE_REF_CLK-	DIFF	

Pin	Pin Name	Signal Type	Signal Level
12	NC	NC	NC
13	PCIE_REF_CLK+	DIFF	
14	NC	NC	NC
15	GND	GND	GND
16	NC	NC	NC
17	NC	NC	NC
18	GND	GND	GND
19	NC	NC	NC
20	W_DISABLE#	OUT	+3.3V
21	GND	GND	GND
22	PCIE_RST#	OUT	+3.3V
23	PCIE_RX-/SATA_RX+	DIFF	GND
24	+3.3V	PWR	+3.3V
25	PCIE_RX+/SATA_RX-	DIFF	
26	GND	GND	GND
27	GND	GND	GND
28	+1.5V	PWR	+1.5V
29	GND	GND	GND
30	SMB_CLK	I/O	+3.3V
31	PCIE_TX-/SATA_TX-	DIFF	
32	SMB_DATA	I/O	+3.3V
33	PCIE_TX+/SATA_TX+	DIFF	
34	GND	GND	GND
35	GND	GND	GND
36	USB_D-	DIFF	
37	GND	GND	GND
38	USB_D+	DIFF	
39	+3.3V	PWR	+3.3V
40	GND	GND	GND
41	+3.3V	PWR	+3.3V
42	NC	NC	NC
43	GND	GND	GND
44	NC	NC	NC
45	NC	NC	NC
46	NC	NC	NC
47	NC	NC	NC
48	+1.5V	PWR	+1.5V
49	NC		
50	GND	GND	GND

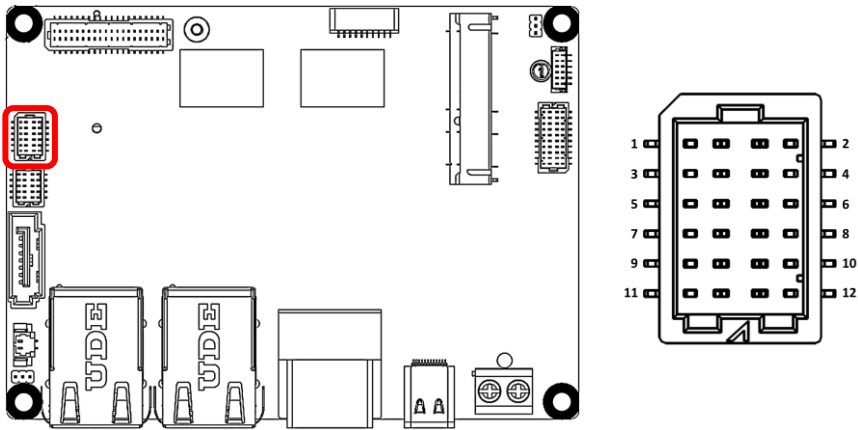
Pin	Pin Name	Signal Type	Signal Level
51	NC	NC	NC
52	+3.3V	PWR	+3.3V

Note: Mini-Card/mSATA function can be set by BOM. Default is Mini PCIe.

Mini PCIe: R8983/R8984/R8985/R8986.

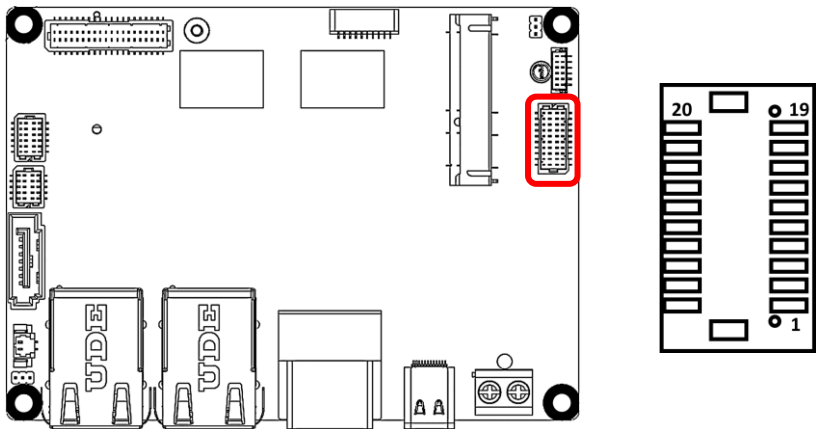
mSATA: C662/C661/C2158/C2159.

2.4.5 Audio I/O Port (CN5)



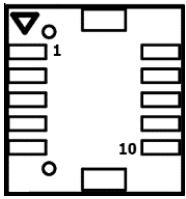
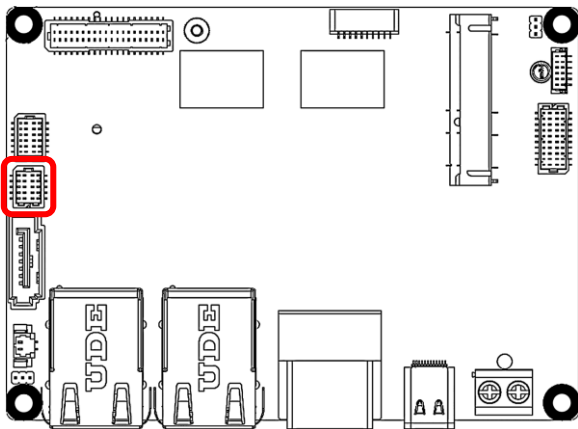
Pin	Pin Name	Signal Type	Signal Level
1	RIGHT_OUT	OUT	
2	MIC_R	IN	
3	LEFT_OUT	OUT	
4	MIC_L	IN	
5	JD_LOUT	IN	
6	JD_MIC	IN	
7	GND_AUDIO	GND	
8	GND_AUDIO	GND	
9	JD_LIN	IN	
10	LINE_R_IN	IN	
11	+5V_AUDIO	PWR	+5V
12	LINE_L_IN	IN	

2.4.6 USB 2.0 Port 1/Port 2/Port 3/Port 4 (CN6)



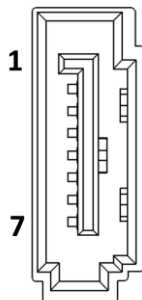
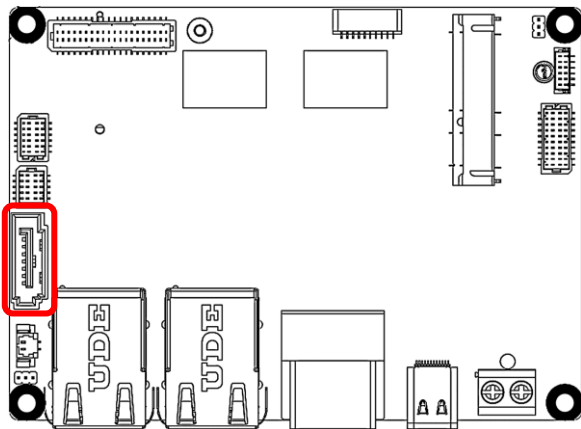
Pin	Pin Name	Signal Type	Signal Level
1	+5VSB	PWR	+5V
2	+5VSB	PWR	+5V
3	USB2_2_DN	DIFF	
4	USB2_3_DN	DIFF	
5	USB2_2_DP	DIFF	
6	USB2_3_DP	DIFF	
7	GND	GND	GND
8	GND	GND	GND
9	GND	GND	GND
10	GND	GND	GND
11	+5VSB	PWR	+5V
12	+5VSB	PWR	+5V
13	USB2_6_DN	DIFF	
14	USB2_7_DN	DIFF	
15	USB2_6_DP	DIFF	
16	USB2_7_DP	DIFF	
17	GND	GND	GND
18	GND	GND	GND
19	GND	GND	GND
20	GND	GND	GND

2.4.7 Digital IO Port (CN7)



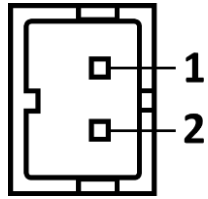
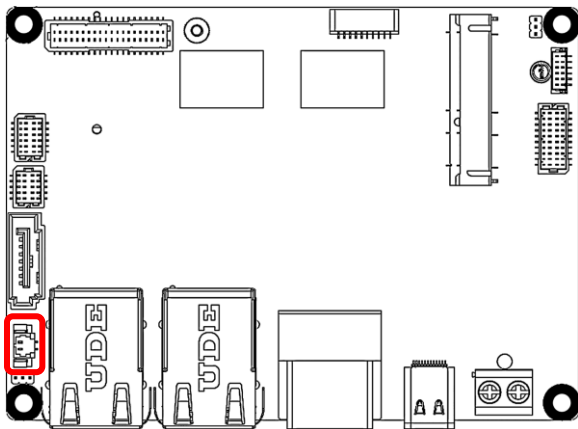
Pin	Pin Name	Signal Type	Signal Level
1	+5V	PWR	+5V
2	DIO_0	IN/OUT	
3	DIO_1	IN/OUT	
4	DIO_2	IN/OUT	
5	DIO_3	IN/OUT	
6	DIO_4	IN/OUT	
7	DIO_5	IN/OUT	
8	DIO_6	IN/OUT	
9	DIO_7	IN/OUT	
10	GND	GND	GND

2.4.8 SATA Port (CN8)



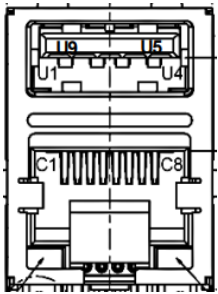
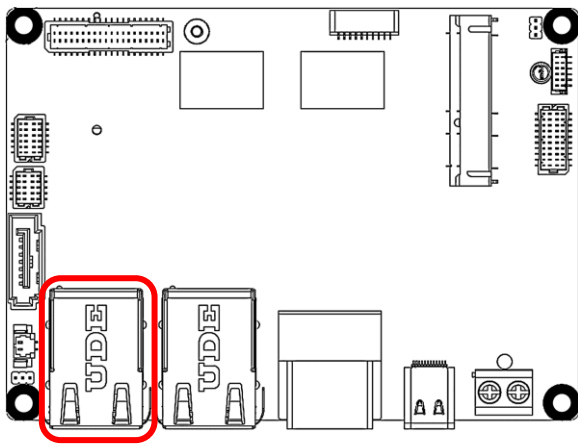
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	GND
2	SATA_TX+	DIFF	
3	SATA_TX-	DIFF	
4	GND	GND	GND
5	SATA_RX-	DIFF	
6	SATA_RX+	DIFF	
7	GND	GND	GND

2.4.9 +5V Output for SATA HDD (CN9)



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

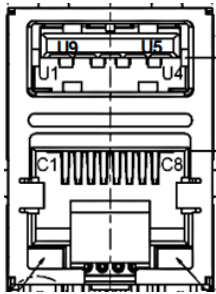
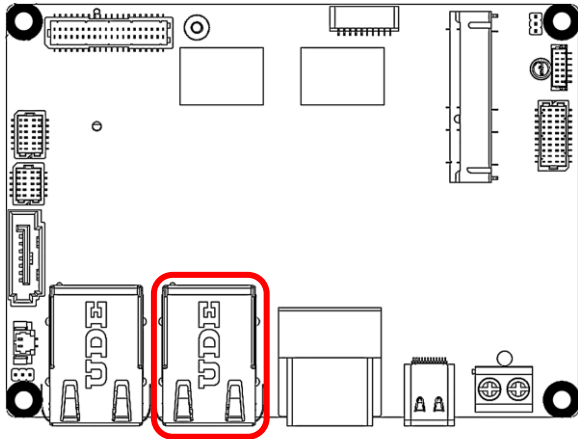
2.4.10 USB 3.2/USB 2.0 Port 1/LAN (GbE, RJ-45) Port 1 (CN10)



Pin	Pin Name	Signal Type	Signal Level
U1	+5VSB	PWR	+5V
U2	USB2_1_DN	DIFF	

Pin	Pin Name	Signal Type	Signal Level
U3	USB2_1_DP	DIFF	
U4	GND	GND	GND
U5	USB3_1_RXN	DIFF	
U6	USB3_1_RXP	DIFF	
U7	GND	GND	GND
U8	USB3_1_TXN	DIFF	
U9	USB3_1_TXP	DIFF	
R2	LAN1_MDIO_P	DIFF	
R3	LAN1_MDIO_N	DIFF	
R4	LAN1_MDI1_P	DIFF	
R5	LAN1_MDI1_N	DIFF	
R6	LAN1_MDI2_P	DIFF	
R7	LAN1_MDI2_N	DIFF	
R8	LAN1_MDI3_P	DIFF	
R9	LAN1_MDI3_N	DIFF	

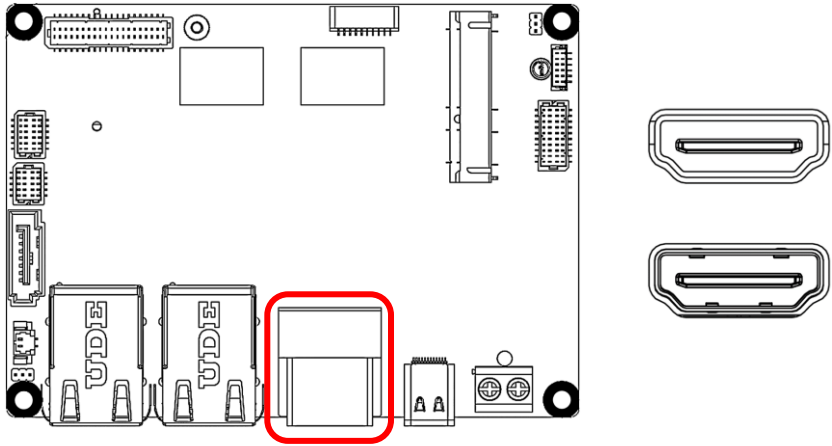
2.4.11 USB 3.2/USB 2.0 Port 2/LAN (2.5GbE, RJ-45) Port 2 (CN11)



Pin	Pin Name	Signal Type	Signal Level
U1	+5VSB	PWR	+5V
U2	USB2_5_DN	DIFF	
U3	USB2_5_DP	DIFF	
U4	GND	GND	GND
U5	USB3_5_RXN	DIFF	

Pin	Pin Name	Signal Type	Signal Level
U6	USB3_5_RXP	DIFF	
U7	GND	GND	GND
U8	USB3_5_TXN	DIFF	
U9	USB3_5_TXP	DIFF	
R2	LAN2_MDI0_P	DIFF	
R3	LAN2_MDI0_N	DIFF	
R4	LAN2_MDI1_P	DIFF	
R5	LAN2_MDI1_N	DIFF	
R6	LAN2_MDI2_P	DIFF	
R7	LAN2_MDI2_N	DIFF	
R8	LAN2_MDI3_P	DIFF	
R9	LAN2_MDI3_N	DIFF	

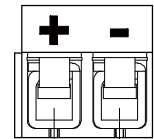
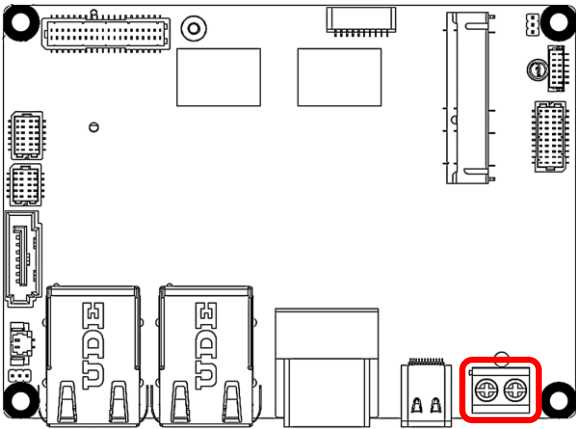
2.4.12 HDMI Port 1/Port 2 (CN12)



Pin	Pin Name	Signal Type	Signal Level
1	HDMI1_TX2+	DIFF	
2	GND	GND	GND
3	HDMI1_TX2-	DIFF	
4	HDMI1_TX1+	DIFF	
5	GND	GND	GND
6	HDMI1_TX1-	DIFF	
7	HDMI1_TX0+	DIFF	
8	GND	GND	GND

Pin	Pin Name	Signal Type	Signal Level
9	HDMI1_TX0-	DIFF	
10	HDMI1_CLK+	DIFF	
11	GND	GND	GND
12	HDMI1_CLK-	DIFF	
13	NC		
14	NC		
15	DDC1_CLK	I/O	+5V
16	DDC1_DATA	I/O	+5V
17	GND	GND	GND
18	+5V	PWR	+5V
19	HDMI1_HPD		
20	HDMI2_TX2+	DIFF	
21	GND	GND	GND
22	HDMI2_TX2-	DIFF	
23	HDMI2_TX1+	DIFF	
24	GND	GND	GND
25	HDMI2_TX1-	DIFF	
26	HDMI2_TX0+	DIFF	
27	GND	GND	GND
28	HDMI2_TX0-	DIFF	
29	HDMI2_CLK+	DIFF	
30	GND	GND	GND
31	HDMI2_CLK-	DIFF	
32	NC		
33	NC		
34	DDC2_CLK	I/O	+5V
35	DDC2_DATA	I/O	+5V
36	GND	GND	GND
37	+5V	PWR	+5V
38	HDMI2_HPD		

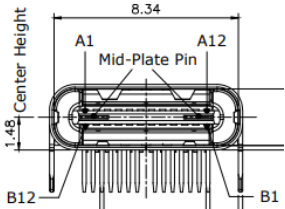
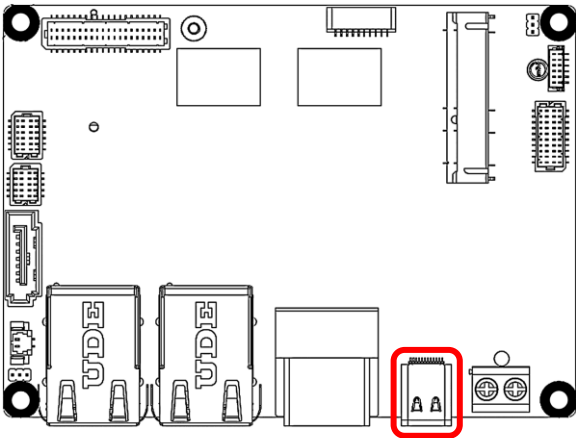
2.4.13 External +12V Input (CN13)



+12V GND

Pin	Pin Name	Signal Type	Signal Level
1	+12V	PWR	+12V
2	GND	GND	GND

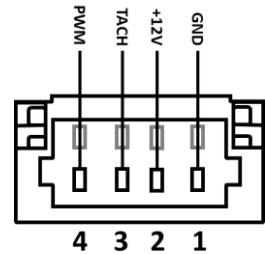
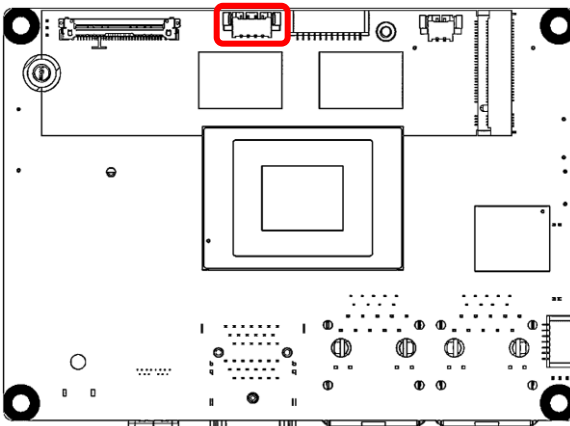
2.4.14 USB Type C Port (CN14)



Pin	Pin Name	Signal Type	Signal Level
A1	GND	GND	GND
A2	SSTXP1	DIFF	

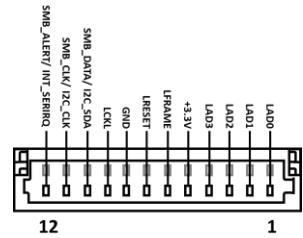
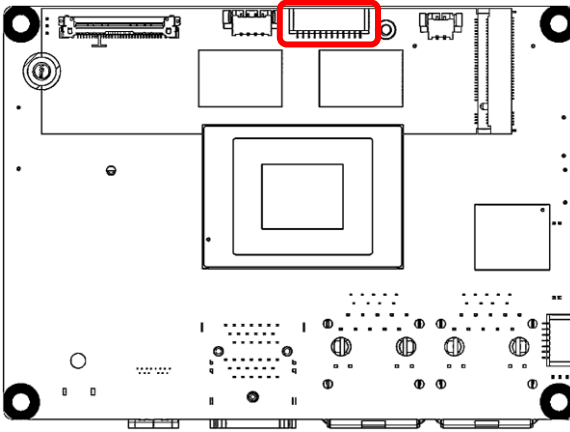
Pin	Pin Name	Signal Type	Signal Level
A3	SSTXN1	DIFF	
A4	+5VSB	PWR	+5V
A5	CON_CC1	IN	
A6	USB_P0_DP_C	DIFF	
A7	USB_P0_DN_C	DIFF	
A8	DP2_AUXP_CON	DIFF	
A9	+5VSB	PWR	+5V
A10	SSRXN2	DIFF	
A11	SSRXP2	DIFF	
A12	GND	GND	GND
B1	GND	GND	GND
B2	SSTXP2	DIFF	
B3	SSTXN2	DIFF	
B4	+5VSB	PWR	+5V
B5	CON_CC2	IN	
B6	USB_P0_DP_C	DIFF	
B7	USB_P0_DN_C	DIFF	
B8	DP2_AUXN_CON	DIFF	
B9	+5VSB	PWR	+5V
B10	SSRXN1	DIFF	
B11	SSRXP1	DIFF	
B12	GND	GND	GND

2.4.15 FAN Connector (CN16)



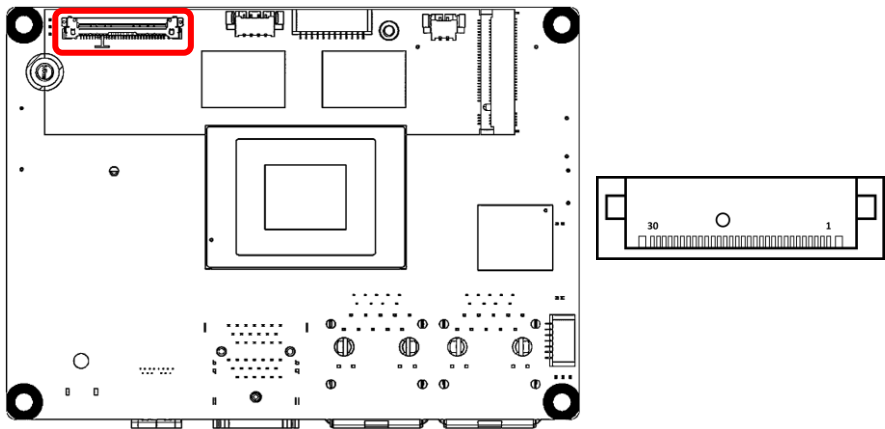
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	GND
2	+V12S	PWR	+12V
3	TACH	IN	
4	PWM	OUT	

2.4.16 LPC Connector (CN17)



Pin	Pin Name	Signal Type	Signal Level
1	LAD0	IN/OUT	+3.3V
2	LAD1	IN/OUT	+3.3V
3	LAD2	IN/OUT	+3.3V
4	LAD3	IN/OUT	+3.3V
5	+V3P3S	PWR	+3.3V
6	LFRAME#	IN	
7	LRESET#	OUT	+3.3V
8	GND	GND	GND
9	LPC_CLK	OUT	
10	SMB_DATA/ I2C_SDA	IN/OUT	
11	SMB_CLK/ I2C_CLK	OUT	
12	SMB_ALERT/ INT_SERIRQ	IN	+3.3V

2.4.17 eDP/LVDS Connector (CN18)



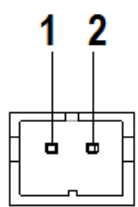
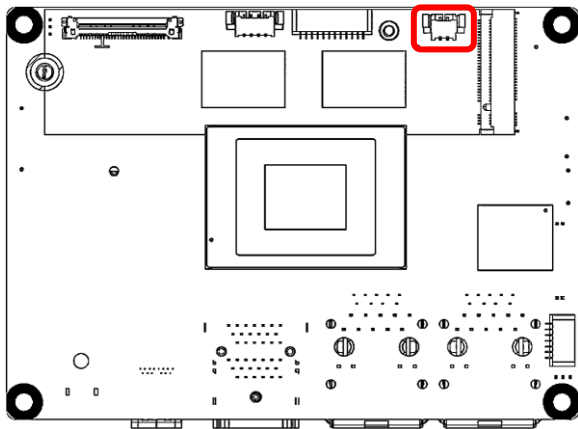
Pin	Pin Name	Signal Type	Signal Level
1	+VCC_EDP_BKLT	PWR	+12V (Default) / +5V
2	+VCC_EDP_BKLT	PWR	+12V (Default) / +5V
3	+VCC_EDP_BKLT	PWR	+12V (Default) / +5V
4	+VCC_EDP_BKLT	PWR	+12V (Default) / +5V
5	GND	GND	
6	GND	GND	
7	GND	GND	
8	LVD1_DDC_CLK/ DDIO_HPD		
9	LVD1_BKLTEN/ DDIO_BKLTEN_R		
10	LVD1_DDC_DATA		
11	LVD1_BKLCTL/ DDIO_BKLCTL_R		
12	GND	GND	
13	LVD1_CA_CLKP/ EDP_AUX_DP	DIFF	
14	LVD1_CA_CLKN/ EDP_AUX_DN	DIFF	
15	GND	GND	
16	LVD1_CA_3_DP/ EDP_LANE3_DP	DIFF	

Pin	Pin Name	Signal Type	Signal Level
17	LVD1_CA_3_DN/ EDP_LANE3_DN	DIFF	
18	GND	GND	
19	LVD1_CA_0_DP/ EDP_LANE0_DP	DIFF	
20	LVD1_CA_0_DN/ EDP_LANE0_DN	DIFF	
21	GND	GND	
22	LVD1_CA_1_DP/ EDP_LANE1_DP	DIFF	
23	LVD1_CA_1_DN/ EDP_LANE1_DN	DIFF	
24	GND	GND	
25	LVD1_CA_2_DP/ EDP_LANE2_DP	DIFF	
26	LVD1_CA_2_DN/ EDP_LANE2_DN	DIFF	
27	GND	GND	
28	+VDD	PWR	+3.3V
29	+VDD	PWR	+3.3V
30	+VDD	PWR	+3.3V

Note: Backlight power can be +12V or +5V by BOM. Stuff R356 for +12V and stuff R357 for +5V. (Default: +12V).

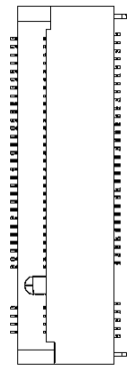
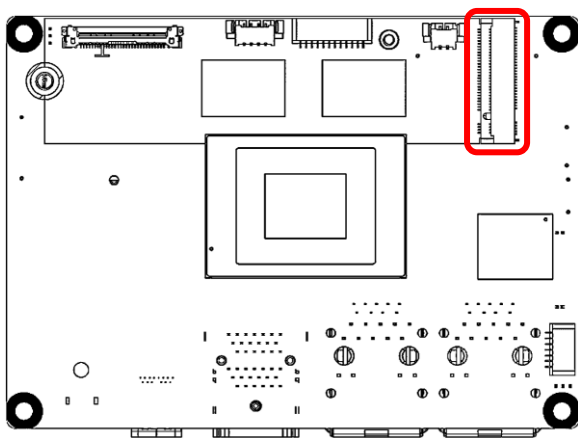
Note: CN18 Backlight power current max: 1.2A and VDD power current max: 1A.

2.4.18 RTC Battery Connector (CN19)



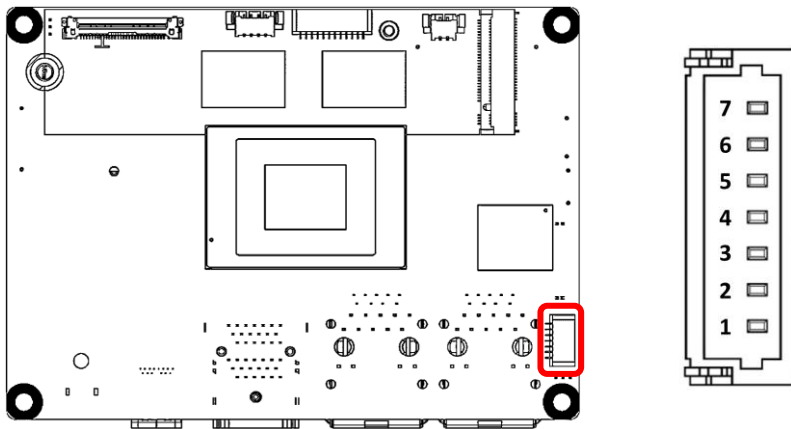
Pin	Pin Name	Signal Type	Signal Level
1	+3.3V	PWR	+3.3V
2	GND	GND	GND

2.4.19 M.2 2280 M-Key Connector (CN20)



Standard specifications.

2.4.20 SPI Flash Programming Port (CN21)

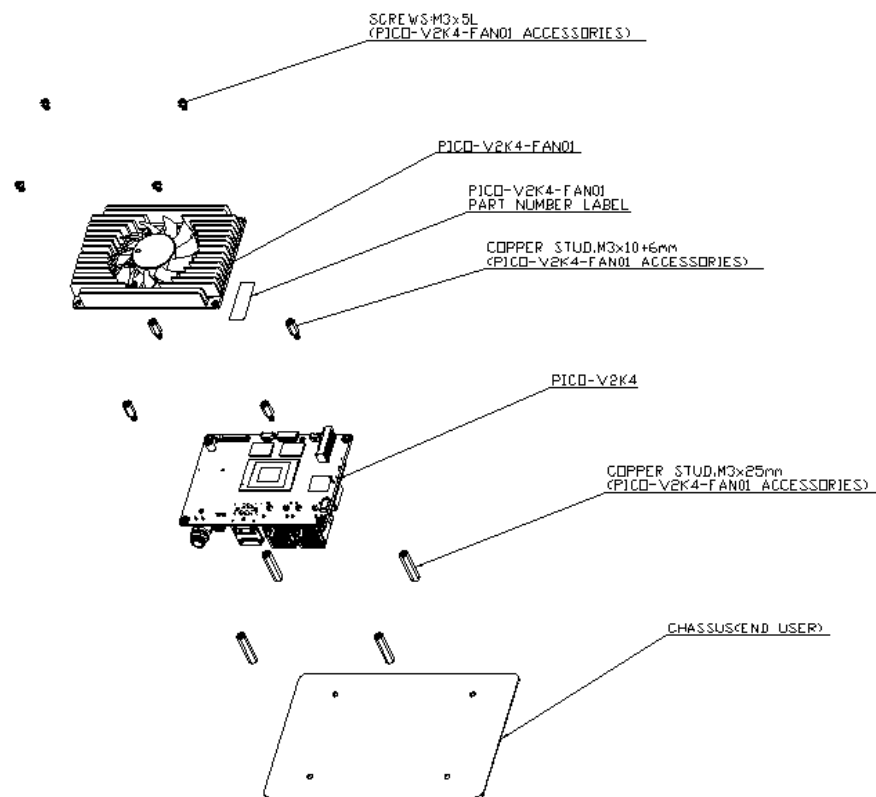


Pin	Pin Name	Signal Type	Signal Level
1	SPI_MISO	OUT	
2	GND	GND	GND
3	SPI_CLK	IN	
4	+1.8VSB	PWR	+1.8V
5	SPI_MOSI	IN	
6	SPI_CS	IN	
7	NC		

2.5 Thermal Assembly Options

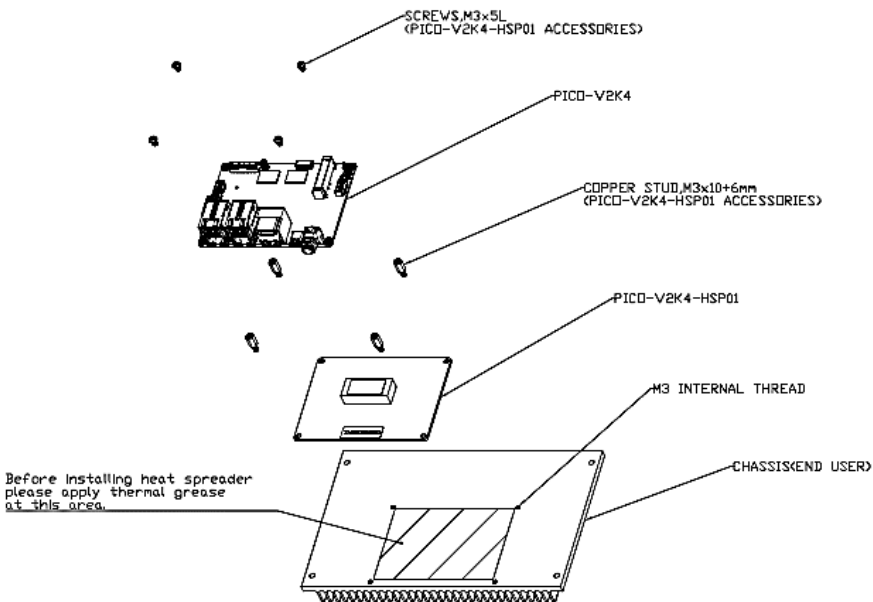
2.5.1 Active Cooling Fan FAN01

Active Cooling Fan, Part Number: PICO-V2K4-FAN01



2.5.2 Fan-less Heatspreader HSP01

Heat spreader/fanless assembly, Part Number: PICO-V2K4-HSP01



Chapter 3

AMI BIOS Setup

3.1 System Test and Initialization

The PICO-V2K4 uses certain routines to perform testing and initialization during the boot up sequence. If an error, fatal or non-fatal, is encountered, the system will output a few short beeps or display an error message. The board can usually continue the boot up sequence with non-fatal errors.

The system configuration verification routines check the current system configuration against the values stored in the CMOS memory and BIOS NVRAM. If a system configuration is not found or an error is detected, the system will load the default configuration and reboot automatically.

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

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

The PICO-V2K4 memory has an integrated lithium battery backup for data retention.

The battery must be replaced when it runs down.

3.2 AMI BIOS Setup

The AMI BIOS ROM has a pre-installed Setup program that allows users to modify basic system configurations. These configurations are stored in the battery-backed CMOS RAM and BIOS NVRAM so the information is retained when power is turned off.

To enter BIOS Setup, turn on the system and immediately press or <ESC>.

The following BIOS menus and their functions are listed below.

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

Advanced: Enable/disable boot options for legacy network devices.

Chipset: Host bridge parameters.

Security: Set setup administrator password.

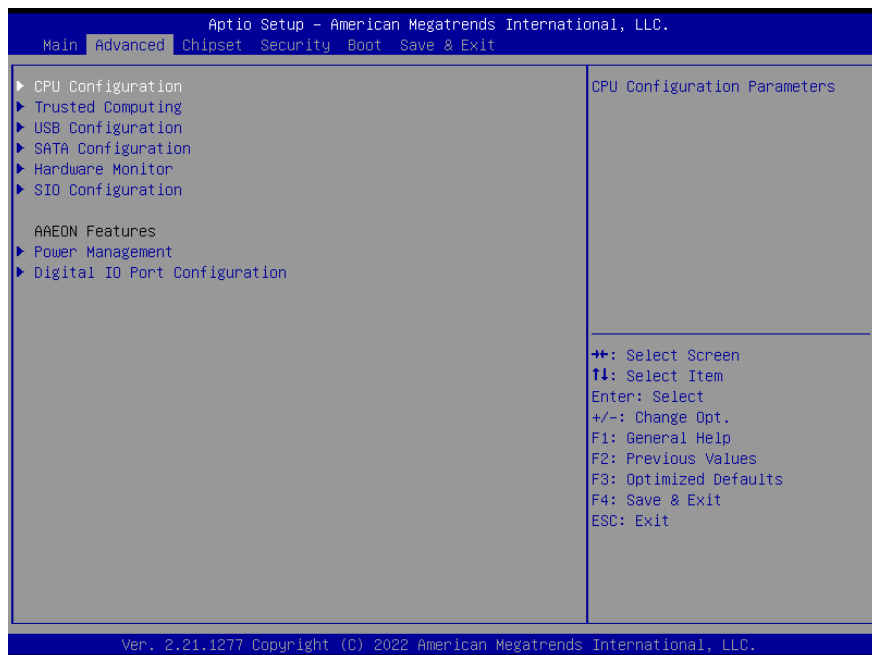
Boot: Enable/disable quiet boot option.

Save & Exit: Save changes to BIOS settings and exit BIOS program. Note: The system may need to restart for some changes to take effect.

3.3 Setup Submenu: Main



3.4 Setup Submenu: Advanced



3.4.1 CPU Configuration



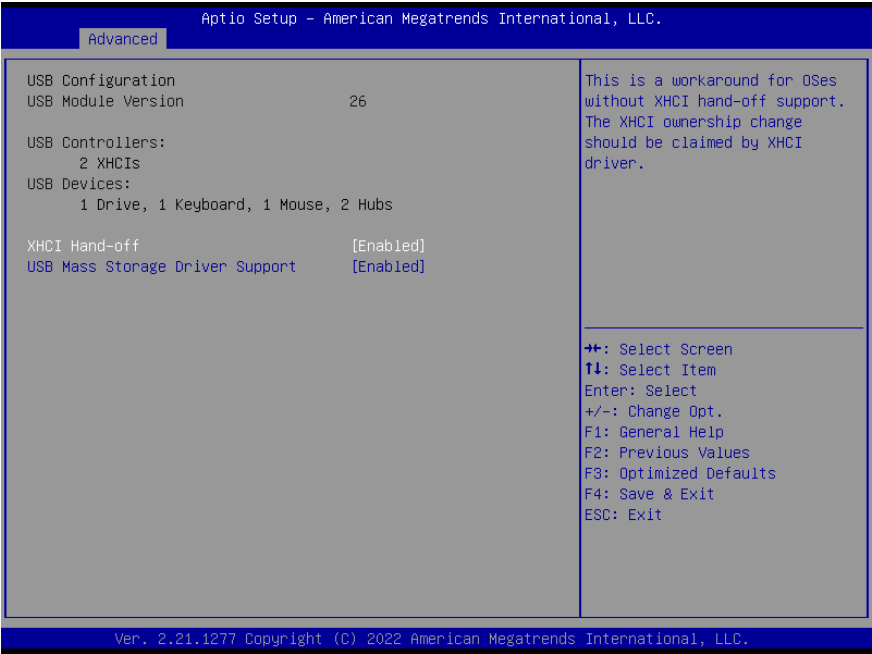
3.4.2 Trusted Computing



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.		
SHA-1 PCR Bank	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable or Disable SHA-1 PCR Bank		
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.		
SM3_256 PCR Bank	Enabled	Optimal Default, Failsafe Default
	Disabled	

Options Summary		
Enable or Disable SM3_256 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.		
Platform Hierarchy	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable or Disable Platform Hierarchy		
Storage Hierarchy	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable or Disable Storage Hierarchy		
Endorsement Hierarchy	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable or Disable Endorsement Hierarchy		
TPM 2.0 UEFI Spec Version	TCG_2	Optimal Default, Failsafe Default
	TCG_1_2	
Select the TCH2 Spec Version Support. TCG_1_2: The Compatible mode for Win8/Win10 TCG_2: Support new TCG2 protocol and event format for Win10 or later		
Physical Presence Spec Version	1.3	Optimal Default, Failsafe Default
	1.2	
Select whether to instruct the operating system to use PPI Specification Version 1.2 or 1.3. Note that some HCK tests may not support Version 1.3.		
Device Select	Auto	Optimal Default, Failsafe Default
	TPM 1.2	
	TPM 2.0	
TPM 1.2 restricts support to TPM 1.2 devices. TPM 2.0 restricts support to TPM 2.0 devices. Auto supports both versions, defaulting to TPM 2.0 if available. TPM 1.2 devices will still be enumerated.		
Disable Block Sid	Disabled	Optimal Default, Failsafe Default
	Enabled	
Override to allow SID authentication in TCG Storage device		

3.4.3 USB Configuration

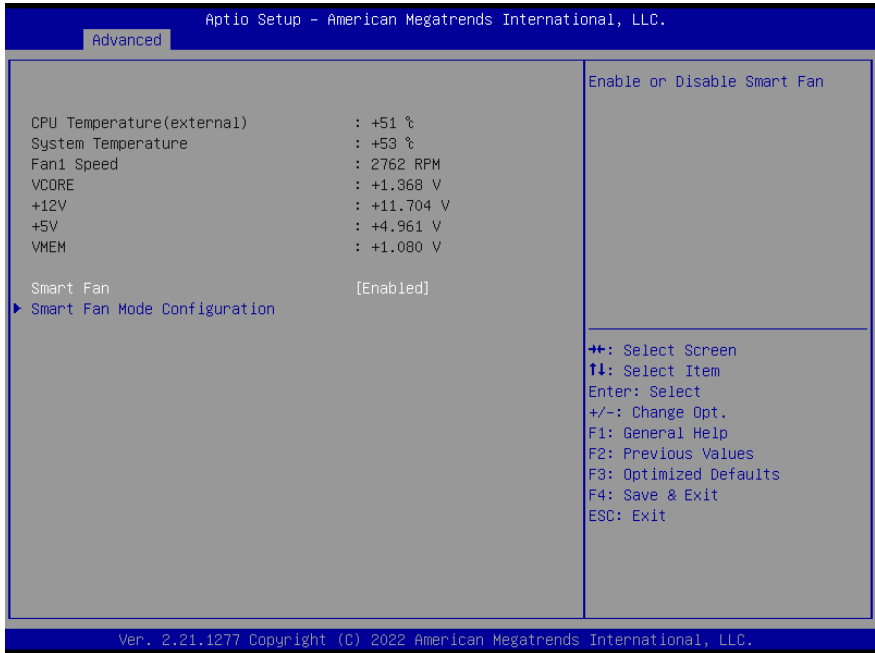


Options Summary:		
XHCI Hand-off	Enabled	Optimal Default, Failsafe Default
	Disabled	
This serves as a workaround for operating systems that lack XHCI hand-off support. The XHCI driver should handle the XHCI ownership change.		
USB Mass Storage Driver Support	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable/Disable USB Mass Storage Driver Support.		

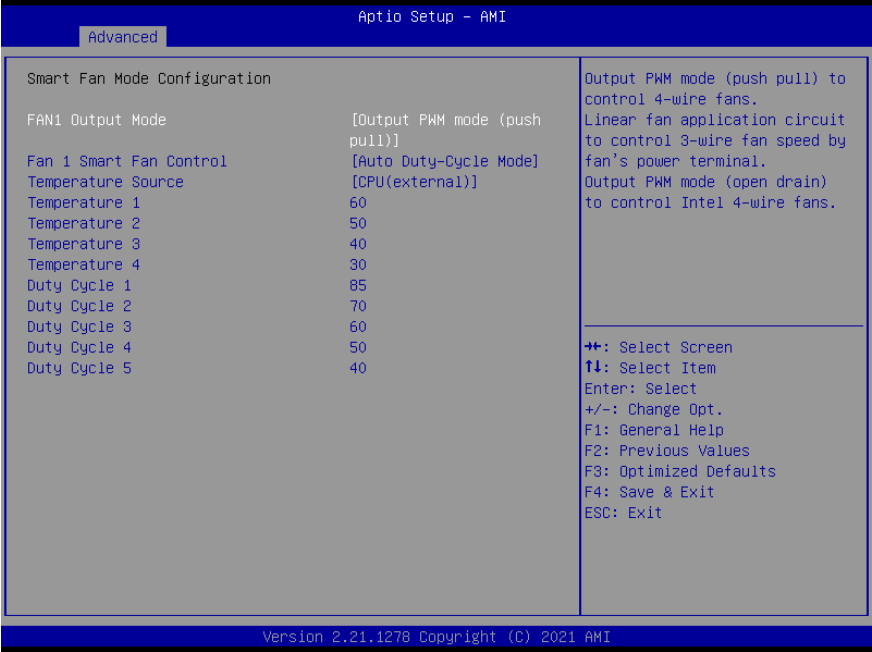
3.4.4 SATA Configuration



3.4.5 Hardware Monitor



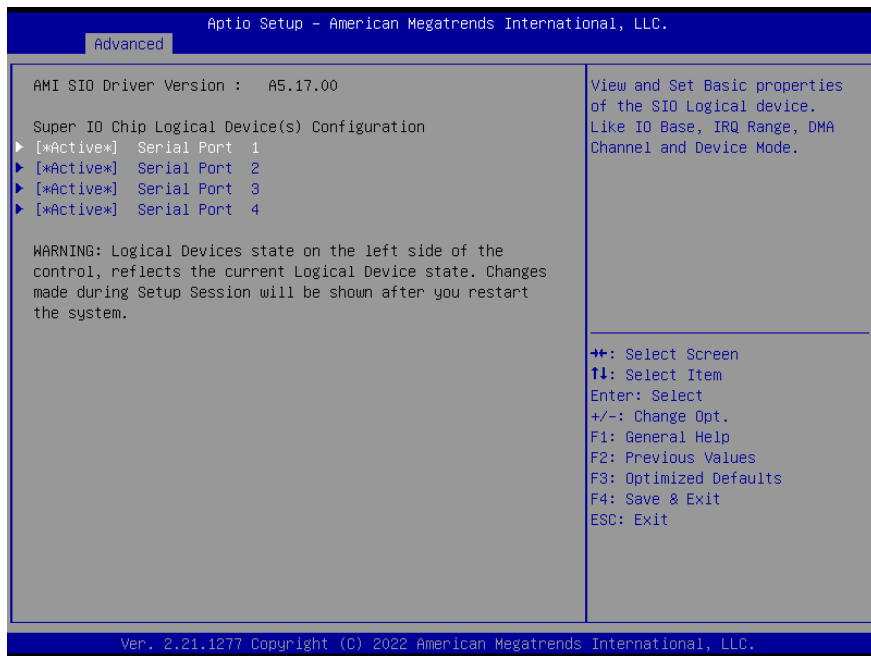
3.4.5.1 Smart Fan Mode Configuration



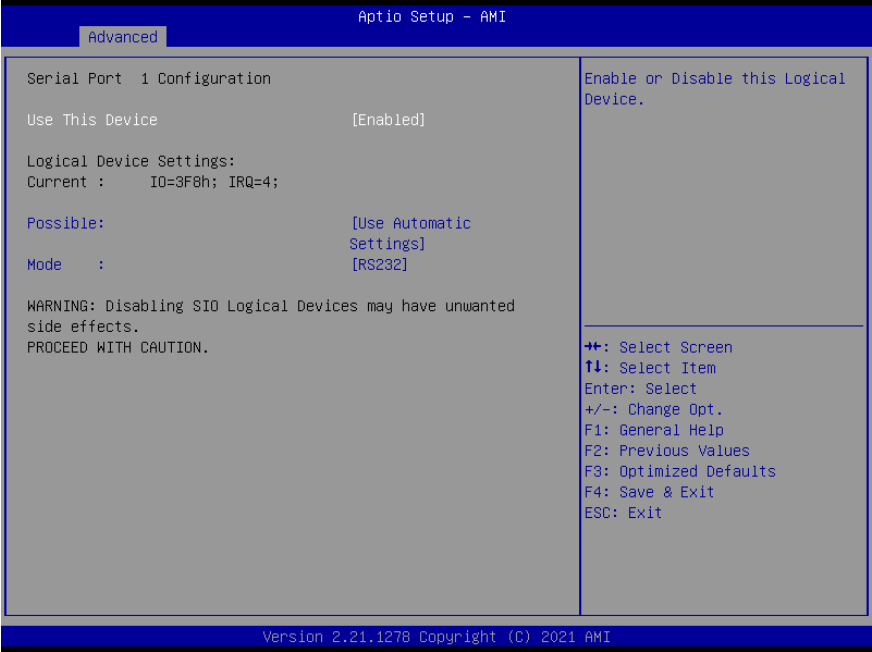
Options Summary:

Fan1 Output Mode	Output PWM mode (push pull)	Optimal Default, Failsafe Default
Outputs PWM signals in push-pull mode to control 4-wire fans. In a linear fan application circuit, this controls 3-wire fan speed via the fan's power terminal.		
Outputs PWM signals in open-drain mode to control Intel 4-wire fans.		
Fan1 Smart Fan control	Manual Duty Mode	
	Auto Duty-Cycle Mode	Optimal Default, Failsafe Default
Smart Fan Mode select		
Manual Duty Mode	60	Optimal Default, Failsafe Default
Manual fan control mode allows the user to set the desired duty cycle for PWM-type fans, ranging from 1% to 100%.		

3.4.6 SIO Configuration



3.4.6.1 Serial Port Configuration



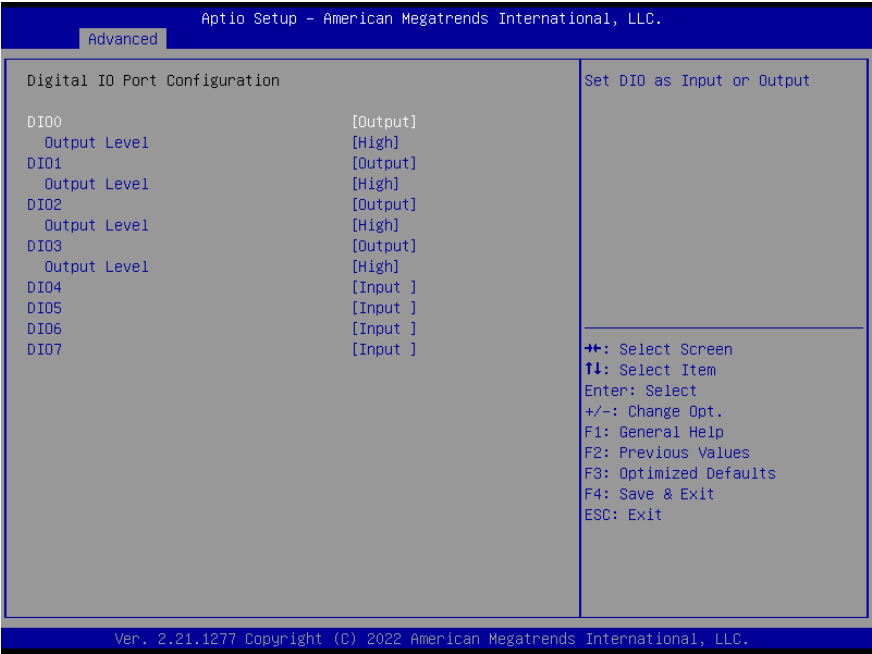
Options Summary:		
Use This Device	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or disable the serial port (COM).		
Possible:	Use Automatic Settings	Optimal Default, Failsafe Default
	IO=2F8; IRQ=3;	
	IO=3F8; IRQ=4;	
Select the optimal setting for the I/O device.		
Mode	RS232	Optimal Default, Failsafe Default
	RS422	
	RS485	
UART: RS232/422/485 selection		

3.4.7 Power Management



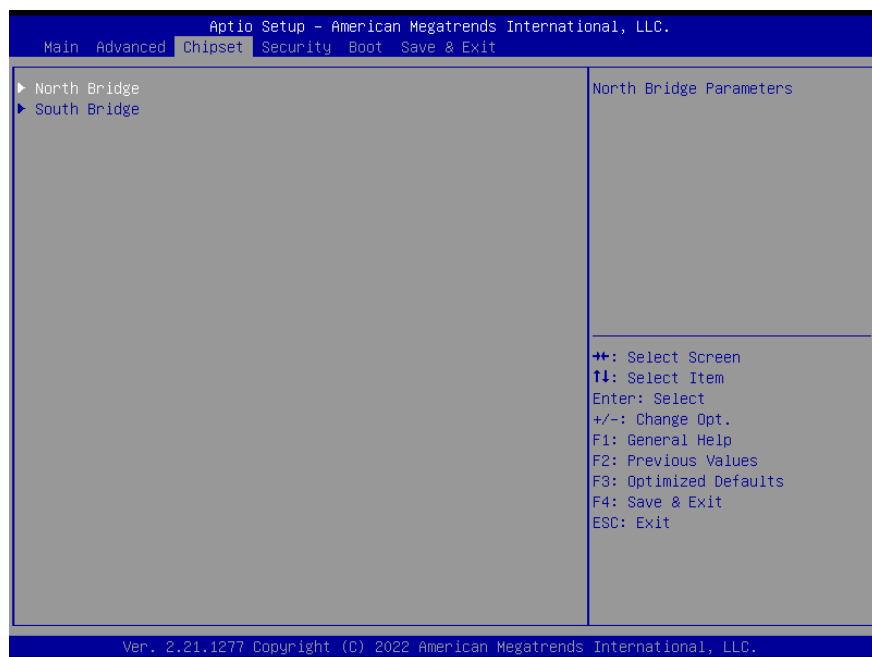
Options Summary:		
Power Mode	ATX Type	Optimal Default, Failsafe Default
	AT Type	
Select power supply mode.		
Restore AC Power Loss	Last State	Optimal Default, Failsafe Default
	Always On	
	Always Off	
Select power state when power is re-applied after a power failure.		
RTC wake system from S5	Disabled	Optimal Default, Failsafe Default
	Fixed Time	
	Dynamic Time	
	Bypass	
Fixed Time: System will wake on the hr :: min :: sec specified		
Dynamic Time : System will wake on the current time + Increase minutes(s).		
Bypass: BIOS will not control RTC wake function during system shutdown		

3.4.8 Digital IO Port Configuration

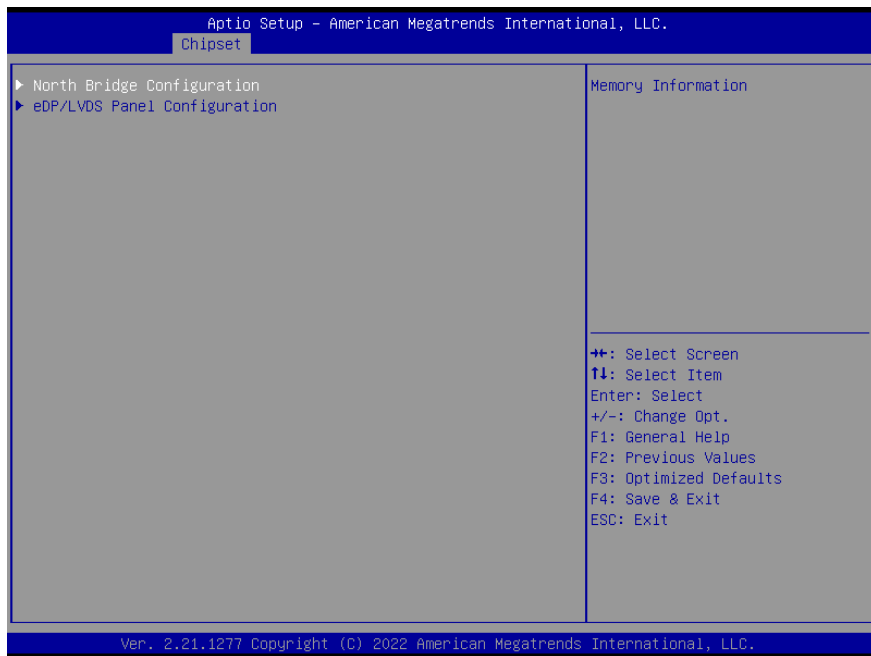


Options Summary:		
DIO Port0~7	Output	Optimal Default, Failsafe Default
	Input	
Set DIO as Input or Output		
Output Level	High	Optimal Default, Failsafe Default
	Low	
Set output level when DIO pin is output		

3.5 Setup Submenu: Chipset



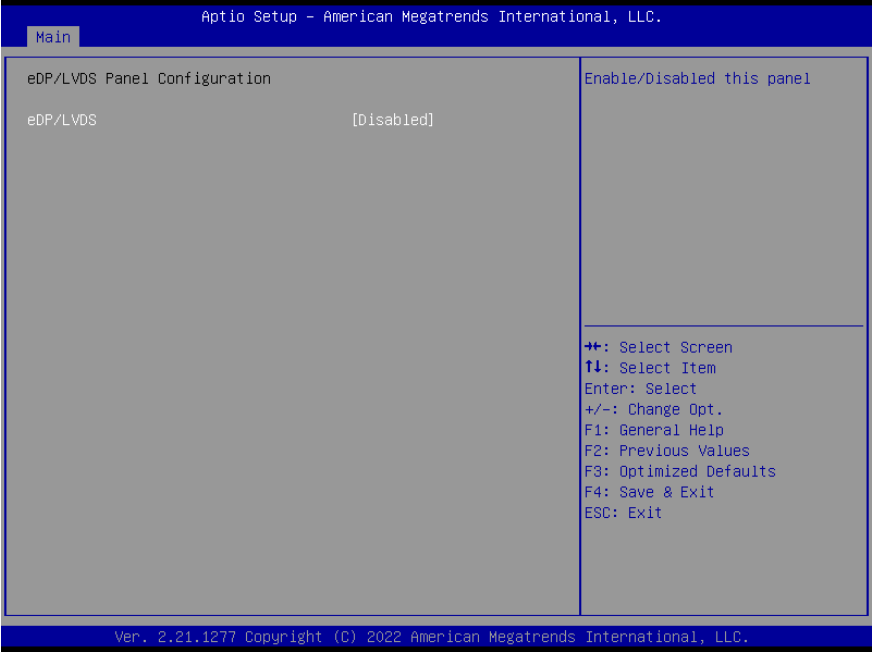
3.5.1 North Bridge



3.5.1.1 North Bridge Configuration

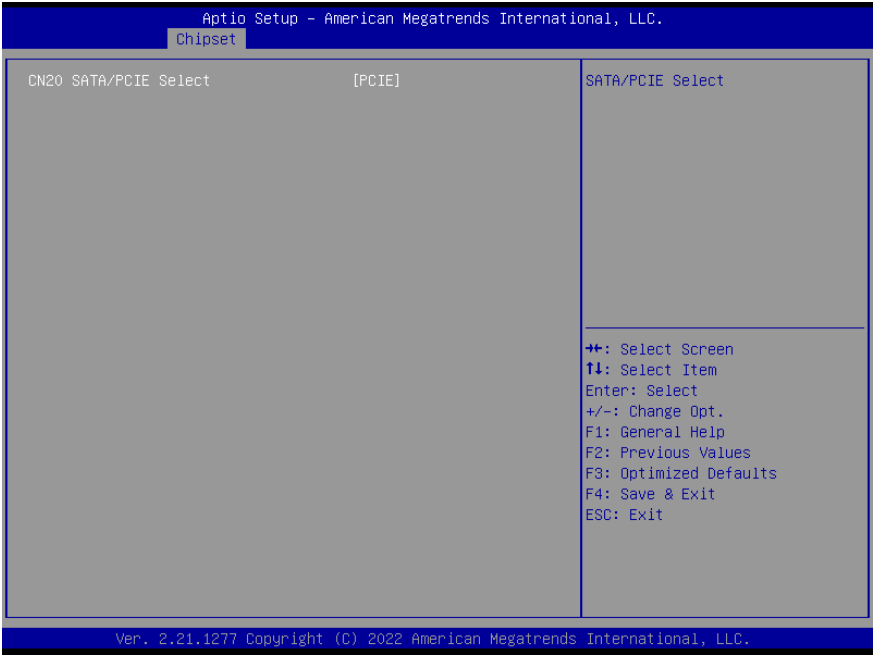


3.5.1.2 eDP/LVDS Panel Configuration



Options Summary:		
LVDS	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable/Disable this panel.		
LVDS 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	
Select panel type		

Options Summary:		
Color Depth	18-bit	Optimal Default, Failsafe Default
	24-bit	
Select Color Depth		
Backlight Mode	Windows Slider	Optimal Default, Failsafe Default
	BIOS & Application	
Select backlight control signal type		
Backlight Type	Normal	Optimal Default, Failsafe Default
	Inverted	
Select backlight control signal type		
Backlight Level	0%	
	10%	
	20%	
	30%	
	40%	
	50%	
	60%	
	70%	
	80%	Optimal Default, Failsafe Default
	90%	
	100%	
Select backlight control level		
Backlight PWM Freq	100Hz	
	200Hz	
	220Hz	Optimal Default, Failsafe Default
	500Hz	
	1KHz	
	2.2KHz	
	6.5KHz	
Select PWM frequency of backlight control signal		



Options Summary:		
CN20 SATA/PCIE Select	PCIE	Optimal Default, Failsafe Default
	SATA	
SATA/PCIE Select		

3.6 Setup Submenu: Security



Change User/Administrator Password

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

Select the password you wish to set, and press Enter. In the dialog box, enter your password (must be between 3 and 20 letters or numbers). Press Enter and retype your password to confirm. Press Enter again to set the password.

Removing the Password

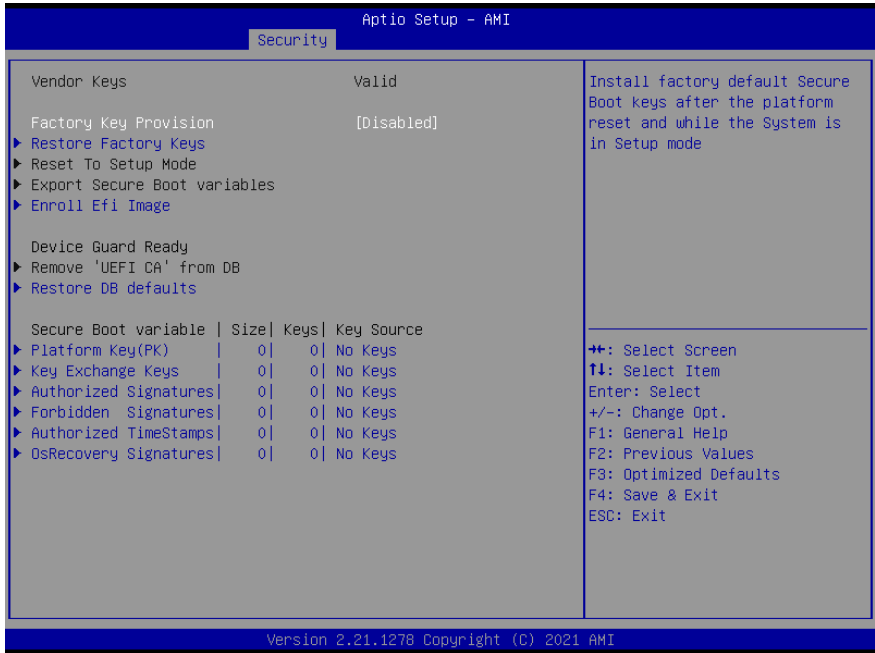
Select the password you want to remove and enter the current password. At the next dialog box press Enter to disable password protection.

3.6.1 Secure Boot



Options Summary:		
Secure Boot	Disabled	Optimal Default, Failsafe Default
	Enabled	
The Secure Boot feature is active when Secure Boot is enabled, the Platform Key (PK) is enrolled, and the system is in User mode. Changing the mode requires a platform reset.		
Secure Boot Mode	Standard	
	Custom	Optimal Default, Failsafe Default
Secure Boot mode options: Standard or Custom. In Custom mode, a physically present user can configure Secure Boot Policy variables without full authentication.		
Restore Factory Keys	Forces the system into User Mode and installs the factory default Secure Boot key databases.	
Reset to Setup Mode	Delete all Secure Boot key databases from NVRAM	

3.6.1.1 Key Management

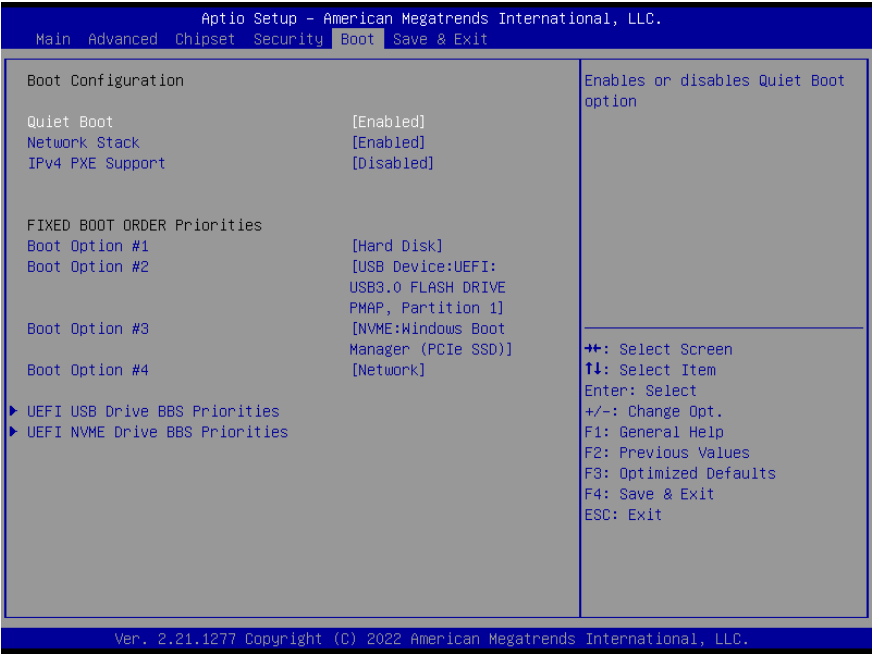


Options Summary:

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	Forces the system into User Mode and installs the factory default Secure Boot key databases.	
Reset to Setup Mode	Delete all Secure Boot key databases from NVRAM	
Export Secure Boot variables	Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device	
Enroll Efi Image	Allows the image to run in Secure Boot mode by enrolling the SHA-256 hash certificate of a PE image into the Authorized Signature Database (db).	
Remove 'UEFI CA' from DB	A Device Guard-ready system must not include the "Microsoft UEFI CA" certificate in the Authorized Signature Database (db).	

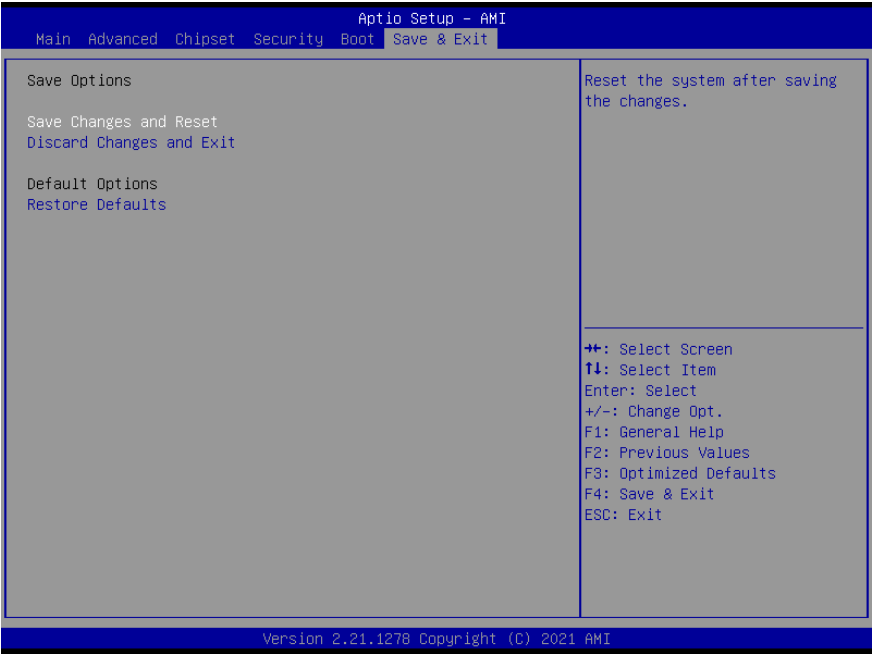
Options Summary:	
Restore DB defaults	Restore DB variable to factory defaults
Secure Boot Variables	
Enroll factory default keys or load certificates from a file, including:	
1. Public Key Certificates in:	
a . EFI_SIGNATURE_LIST	
b . EFI_CERT_X509 (DER-encoded)	
c . EFI_CERT_RSA2048 (binary)	
d . EFI_CERT_SHAxxx	
2. Authenticated UEFI Variables	
3. EFI PE/COFF Images (SHA-256)	
Key Source Options: Default, External, or Mixed.	

3.7 Setup Submenu: Boot



Options Summary:		
Quiet Boot	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable or Disable Quiet Boot option.		
Network Stack	Disabled	
	Enabled	Optimal Default, Failsafe Default
Enable/Disable UEFI Network Stack.		
IPv4 PXE Support	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable/Disable IPv4 PXE boot support. If disabled, IPv4 PXE boot support will not be available.		
FIXED BOOT ORDER Priorities		Sets the system boot order

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 PICO-V2K4 can be downloaded from the product page on the AAEON website by following this link:

<https://www.aaeon.com/en/product/detail/pico-itx-boards-amd-ryzen-v2000-pico-v2k4/download>

Download the driver(s) you need and extract the folder(s) to your local drive or removable storage, then follow the steps below to install them.

Install Chipset Driver

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

Install Graphics Driver

1. Open the **Graphics Driver** folder.
2. Run the **Setup.exe** file.
3. Follow the instructions
4. Driver will be installed automatically

Install LAN Driver

1. Open the **LAN** folder.
2. Run the **PROWinx64.exe** file
3. Follow the instructions
4. Driver will be installed automatically

Install Audio Driver

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

Install Linux Peripheral Drivers

1. Open the **Linux Driver-Peripheral** folder.
2. Follow the instructions provided in the documentation to manually install required drivers.

Appendix A

Mating Connectors

A.1 List of Mating Connectors and Cables

The following table lists mating connectors and available cables.

Function	Description	Mating Connector		Available Cable	Mating Cable P/N
		Vendor	Model no		
CN1	Front Panel	JST	SHR-10V-S-B	Front Panel Cable	170X000287
CN2	COM Port*4	ACES	50247-040H0H0-001	COM Cable	170X000317
CN3	LVDS/eDP backlight	SHR	WL1010H-6P	LVDS inverter cable	170X000152
CN5	Audio with detect	ACES	50247-012H0H0-001	Audio cable	170X000156
CN6	USB2.0 *4	ACES	50247-020H0H0-001	USB2.0 Cable	170X000390
CN7	DIO	ACES	50247-010H0H0-001	N/A	N/A
CN8	SATA	Molex	887505318	N/A	N/A
CN9	SATA Power	JST	PHR-2	SATA Power Cable	170X000322
CN17	eSPI/ LPC Connector	JST	SHR-12V-S-B	LPC debug Cable	1703120130
CN18	LVDS/eDP	I-PEX	20453-030T-01S	eDP Cable LVDS Cable	N/A
CN19	Battery	Molex	51021-0200	Battery Cable	175011301K

Appendix B

I/O Information

B.1 I/O Address Map

>		Direct memory access (DMA)	
▼		Input/output (IO)	
		[0000000000000000 - 000000000000000F]	Direct memory access controller
		[0000000000000000 - 00000000000003AF]	PCI Express Root Complex
		[0000000000000010 - 000000000000001F]	Motherboard resources
		[0000000000000020 - 0000000000000021]	Programmable interrupt controller
		[0000000000000022 - 000000000000003F]	Motherboard resources
		[0000000000000040 - 0000000000000043]	System timer
		[0000000000000061 - 0000000000000061]	System speaker
		[0000000000000063 - 0000000000000063]	Motherboard resources
		[0000000000000065 - 0000000000000065]	Motherboard resources
		[0000000000000067 - 000000000000006F]	Motherboard resources
		[0000000000000070 - 0000000000000071]	System CMOS/real time clock
		[0000000000000072 - 000000000000007F]	Motherboard resources
		[0000000000000080 - 0000000000000080]	Motherboard resources
		[0000000000000081 - 0000000000000083]	Direct memory access controller
		[0000000000000084 - 0000000000000086]	Motherboard resources
		[0000000000000087 - 0000000000000087]	Direct memory access controller
		[0000000000000088 - 0000000000000088]	Motherboard resources
		[0000000000000089 - 000000000000008B]	Direct memory access controller
		[000000000000008C - 000000000000008E]	Motherboard resources
		[000000000000008F - 000000000000008F]	Direct memory access controller
		[0000000000000090 - 000000000000009F]	Motherboard resources
		[00000000000000A0 - 00000000000000A1]	Programmable interrupt controller
		[00000000000000A2 - 00000000000000BF]	Motherboard resources
		[00000000000000B1 - 00000000000000B1]	Motherboard resources
		[00000000000000C0 - 00000000000000DF]	Direct memory access controller
		[00000000000000E0 - 00000000000000EF]	Motherboard resources
		[00000000000002E8 - 00000000000002EF]	Communications Port (COM4)
		[00000000000002F8 - 00000000000002FF]	Communications Port (COM2)
		[00000000000003B0 - 00000000000003DF]	PCI Express Root Complex
		[00000000000003E0 - 0000000000000CF7]	PCI Express Root Complex
		[00000000000003E8 - 00000000000003EF]	Communications Port (COM3)
		[00000000000003F8 - 00000000000003FF]	Communications Port (COM1)
		[000000000000040B - 000000000000040B]	Motherboard resources
		[00000000000004D0 - 00000000000004D1]	Motherboard resources
		[00000000000004D6 - 00000000000004D6]	Motherboard resources
		[0000000000000800 - 000000000000089F]	Motherboard resources
		[0000000000000900 - 000000000000090F]	Motherboard resources
		[0000000000000910 - 000000000000091F]	Motherboard resources
		[0000000000000A00 - 0000000000000A0F]	Motherboard resources
		[0000000000000A10 - 0000000000000A1F]	Motherboard resources

	[00000000000008C - 00000000000008E] Motherboard resources
	[00000000000008F - 00000000000008F] Direct memory access controller
	[000000000000090 - 00000000000009F] Motherboard resources
	[0000000000000A0 - 0000000000000A1] Programmable interrupt controller
	[0000000000000A2 - 0000000000000BF] Motherboard resources
	[0000000000000B1 - 0000000000000B1] Motherboard resources
	[0000000000000C0 - 0000000000000DF] Direct memory access controller
	[0000000000000E0 - 0000000000000EF] Motherboard resources
	[00000000000002E8 - 00000000000002EF] Communications Port (COM4)
	[00000000000002F8 - 00000000000002FF] Communications Port (COM2)
	[00000000000003B0 - 00000000000003DF] PCI Express Root Complex
	[00000000000003E0 - 0000000000000CF7] PCI Express Root Complex
	[00000000000003E8 - 00000000000003EF] Communications Port (COM3)
	[00000000000003F8 - 00000000000003FF] Communications Port (COM1)
	[000000000000040B - 000000000000040B] Motherboard resources
	[00000000000004D0 - 00000000000004D1] Motherboard resources
	[00000000000004D6 - 00000000000004D6] Motherboard resources
	[0000000000000800 - 000000000000089F] Motherboard resources
	[0000000000000900 - 000000000000090F] Motherboard resources
	[0000000000000910 - 000000000000091F] Motherboard resources
	[0000000000000A00 - 0000000000000A0F] Motherboard resources
	[0000000000000A10 - 0000000000000A1F] Motherboard resources
	[0000000000000A20 - 0000000000000A2F] Motherboard resources
	[0000000000000B00 - 0000000000000B0F] Motherboard resources
	[0000000000000B20 - 0000000000000B3F] Motherboard resources
	[0000000000000C00 - 0000000000000C01] Motherboard resources
	[0000000000000C14 - 0000000000000C14] Motherboard resources
	[0000000000000C50 - 0000000000000C51] Motherboard resources
	[0000000000000C52 - 0000000000000C52] Motherboard resources
	[0000000000000C6C - 0000000000000C6C] Motherboard resources
	[0000000000000C6F - 0000000000000C6F] Motherboard resources
	[0000000000000CD0 - 0000000000000CD1] Motherboard resources
	[0000000000000CD2 - 0000000000000CD3] Motherboard resources
	[0000000000000CD4 - 0000000000000CD5] Motherboard resources
	[0000000000000CD6 - 0000000000000CD7] Motherboard resources
	[0000000000000CD8 - 0000000000000CDF] Motherboard resources
	[0000000000000D00 - 000000000000FFFF] PCI Express Root Complex
	[0000000000000E00 - 000000000000EFFF] PCI Express Root Port
	[0000000000000EF00 - 000000000000EFFF] AMD Radeon(TM) Graphics
	[0000000000000F000 - 000000000000FFFF] PCI Express Root Port

>  Interrupt request (IRQ)

>  Memory

B.2 Memory Address Map

>		Input/output (IO)
>		Interrupt request (IRQ)
>		Memory
		[0000000000A0000 - 0000000000BFFFF] PCI Express Root Complex
		[0000000000C0000 - 0000000000DFFFF] PCI Express Root Complex
		[00000000D000000 - 00000000DFFFFFF] AMD Radeon(TM) Graphics
		[00000000D000000 - 00000000E01FFFF] PCI Express Root Port
		[00000000D000000 - 00000000FE8FFFF] PCI Express Root Complex
		[00000000E000000 - 00000000E01FFFF] AMD Radeon(TM) Graphics
		[00000000F000000 - 00000000F7FFFFF] System board
		[00000000FD00000 - 00000000FDFFFFF] Motherboard resources
		[00000000FE40000 - 00000000FE4FFFF] AMD Sensor Fusion Hub
		[00000000FE40000 - 00000000FE8FFFF] PCI Express Root Port
		[00000000FE50000 - 00000000FE5FFFF] AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
		[00000000FE60000 - 00000000FE6FFFF] AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
		[00000000FE70000 - 00000000FE7FFFF] AMD PSP 10.0 Device
		[00000000FE80000 - 00000000FE8FFFF] AMD Radeon(TM) Graphics
		[00000000FE88000 - 00000000FE8BFFF] AMD Audio CoProcessor
		[00000000FE8F000 - 00000000FE8FFFF] High Definition Audio Controller
		[00000000FE8F800 - 00000000FE8BFFF] High Definition Audio Controller
		[00000000FE8FC00 - 00000000FE8DFFF] AMD Sensor Fusion Hub
		[00000000FE8FE00 - 00000000FE8FFFF] AMD PSP 10.0 Device
		[00000000FE90000 - 00000000FE91FFF] Intel(R) I210 Gigabit Network Connection
		[00000000FE90000 - 00000000FE9FFFF] PCI Express Root Port
		[00000000FE92000 - 00000000FE93FFF] Intel(R) I210 Gigabit Network Connection
		[00000000FEA0000 - 00000000FEA03FF] Standard NVM Express Controller
		[00000000FEA0000 - 00000000FEAFFFF] PCI Express Root Port
		[00000000FEB8000 - 00000000FEBFFFF] Motherboard resources
		[00000000FEC0000 - 00000000FEC0FFF] Motherboard resources
		[00000000FEC0100 - 00000000FEC01FFF] Motherboard resources
		[00000000FEC1000 - 00000000FEC10FFF] AMD Embedded SPI Flash
		[00000000FEC1000 - 00000000FEC10FFF] Motherboard resources
		[00000000FED0000 - 00000000FED003FF] High precision event timer
		[00000000FED4000 - 00000000FED44FFF] Trusted Platform Module 2.0
		[00000000FED8000 - 00000000FED8FFFF] Motherboard resources
		[00000000FED81200 - 00000000FED812FF] AMD GPIO Controller
		[00000000FED81500 - 00000000FED818FF] AMD GPIO Controller
		[00000000FEDC000 - 00000000FEDC0FFF] Motherboard resources
		[00000000FEDC2000 - 00000000FEDC2FFF] AMD I2C Controller
		[00000000FEE0000 - 00000000FEE00FFF] Motherboard resources
		[00000000FEE00000 - 00000000FFFFFFF] PCI Express Root Complex
		[00000000FF00000 - 00000000FFFFFFF] Motherboard resources

B.3 IRQ Mapping Chart

>		Direct memory access (DMA)
>		Input/output (IO)
✓		Interrupt request (IRQ)
		(ISA) 0x00000000 (00) High precision event timer
		(ISA) 0x00000000 (00) System timer
		(ISA) 0x00000003 (03) Communications Port (COM2)
		(ISA) 0x00000004 (04) Communications Port (COM1)
		(ISA) 0x00000007 (07) AMD GPIO Controller
		(ISA) 0x00000008 (08) High precision event timer
		(ISA) 0x0000000A (10) AMD I2C Controller
		(ISA) 0x0000000B (11) Communications Port (COM3)
		(ISA) 0x0000000B (11) Communications Port (COM4)
		(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) 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
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	(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
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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
	(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
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	(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
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	(ISA) 0x00000116 (278)	Microsoft ACPI-Compliant System
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	(ISA) 0x00000119 (281)	Microsoft ACPI-Compliant System
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	(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
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	(ISA) 0x00000128 (296)	Microsoft ACPI-Compliant System
	(ISA) 0x00000129 (297)	Microsoft ACPI-Compliant System
	(ISA) 0x0000012A (298)	Microsoft ACPI-Compliant System
	(ISA) 0x0000012B (299)	Microsoft ACPI-Compliant System
	(ISA) 0x0000012C (300)	Microsoft ACPI-Compliant System
	(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
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	(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
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	(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
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	(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
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	(ISA) 0x00000157 (343)	Microsoft ACPI-Compliant System
	(ISA) 0x00000158 (344)	Microsoft ACPI-Compliant System

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	(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
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	(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
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	(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
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	(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
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	(ISA) 0x00000182 (386)	Microsoft ACPI-Compliant System

	(ISA) 0x00000183 (387)	Microsoft ACPI-Compliant System
	(ISA) 0x00000184 (388)	Microsoft ACPI-Compliant System
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	(ISA) 0x00000186 (390)	Microsoft ACPI-Compliant System
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	(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
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	(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
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	(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
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	(ISA) 0x000001AC (428)	Microsoft ACPI-Compliant System

	(ISA) 0x000001AD (429)	Microsoft ACPI-Compliant System
	(ISA) 0x000001AE (430)	Microsoft ACPI-Compliant System
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	(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
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	(ISA) 0x000001C7 (455)	Microsoft ACPI-Compliant System
	(ISA) 0x000001C8 (456)	Microsoft ACPI-Compliant System
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	(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
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	(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) 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
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	(ISA) 0x00001E3 (483)	Microsoft ACPI-Compliant System
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	(ISA) 0x00001E7 (487)	Microsoft ACPI-Compliant System
	(ISA) 0x00001E8 (488)	Microsoft ACPI-Compliant System
	(ISA) 0x00001E9 (489)	Microsoft ACPI-Compliant System
	(ISA) 0x00001EA (490)	Microsoft ACPI-Compliant System
	(ISA) 0x00001EB (491)	Microsoft ACPI-Compliant System
	(ISA) 0x00001EC (492)	Microsoft ACPI-Compliant System
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	(ISA) 0x00001EE (494)	Microsoft ACPI-Compliant System
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	(ISA) 0x00001F0 (496)	Microsoft ACPI-Compliant System
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	(ISA) 0x00001F6 (502)	Microsoft ACPI-Compliant System
	(ISA) 0x00001F7 (503)	Microsoft ACPI-Compliant System
	(ISA) 0x00001F8 (504)	Microsoft ACPI-Compliant System
	(ISA) 0x00001F9 (505)	Microsoft ACPI-Compliant System
	(ISA) 0x00001FA (506)	Microsoft ACPI-Compliant System
	(ISA) 0x00001FB (507)	Microsoft ACPI-Compliant System
	(ISA) 0x00001FC (508)	Microsoft ACPI-Compliant System
	(ISA) 0x00001FD (509)	Microsoft ACPI-Compliant System
	(ISA) 0x00001FE (510)	Microsoft ACPI-Compliant System
	(ISA) 0x00001FF (511)	Microsoft ACPI-Compliant System
	(ISA) 0x0000400 (1024)	Trusted Platform Module 2.0

	(ISA) 0x00000401 (1025)	I2C HID Device
	(PCI) 0x00000024 (36)	High Definition Audio Controller
	(PCI) 0x00000025 (37)	AMD Sensor Fusion Hub
	(PCI) 0x00000027 (39)	AMD Audio CoProcessor
	(PCI) 0x00000027 (39)	High Definition Audio Controller
	(PCI) 0xFFFFFD5 (-43)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFD6 (-42)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFD7 (-41)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFD8 (-40)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFD9 (-39)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFDA (-38)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFDB (-37)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFDC (-36)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFDD (-35)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFDE (-34)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFDF (-33)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFE0 (-32)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFE1 (-31)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFE2 (-30)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFE3 (-29)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFE4 (-28)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFE5 (-27)	AMD Radeon(TM) Graphics
	(PCI) 0xFFFFFE6 (-26)	AMD Radeon(TM) Graphics
	(PCI) 0xFFFFFE7 (-25)	AMD Radeon(TM) Graphics
	(PCI) 0xFFFFFE8 (-24)	AMD Radeon(TM) Graphics
	(PCI) 0xFFFFFE9 (-23)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFEA (-22)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFEB (-21)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFEC (-20)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFED (-19)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFEE (-18)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFEF (-17)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFF0 (-16)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFF1 (-15)	AMD PSP 10.0 Device
	(PCI) 0xFFFFF2 (-14)	AMD PSP 10.0 Device
	(PCI) 0xFFFFF3 (-13)	Standard NVM Express Controller
	(PCI) 0xFFFFF4 (-12)	Standard NVM Express Controller
	(PCI) 0xFFFFF5 (-11)	Standard NVM Express Controller
	(PCI) 0xFFFFF6 (-10)	Standard NVM Express Controller
	(PCI) 0xFFFFF7 (-9)	Standard NVM Express Controller
	(PCI) 0xFFFFF8 (-8)	Standard NVM Express Controller
	(PCI) 0xFFFFF9 (-7)	Standard NVM Express Controller

	(PCI) 0xFFFFFD6 (-42)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFD7 (-41)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFD8 (-40)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFD9 (-39)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFDA (-38)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFDB (-37)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFDC (-36)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFDD (-35)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFDE (-34)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFDF (-33)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFEE (-32)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFE1 (-31)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFE2 (-30)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFE3 (-29)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFE4 (-28)	AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)
	(PCI) 0xFFFFFE5 (-27)	AMD Radeon(TM) Graphics
	(PCI) 0xFFFFFE6 (-26)	AMD Radeon(TM) Graphics
	(PCI) 0xFFFFFE7 (-25)	AMD Radeon(TM) Graphics
	(PCI) 0xFFFFFE8 (-24)	AMD Radeon(TM) Graphics
	(PCI) 0xFFFFFE9 (-23)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFEA (-22)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFEB (-21)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFEC (-20)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFED (-19)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFEE (-18)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFEF (-17)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFFF0 (-16)	Intel(R) I210 Gigabit Network Connection
	(PCI) 0xFFFFFFF1 (-15)	AMD PSP 10.0 Device
	(PCI) 0xFFFFFFF2 (-14)	AMD PSP 10.0 Device
	(PCI) 0xFFFFFFF3 (-13)	Standard NVM Express Controller
	(PCI) 0xFFFFFFF4 (-12)	Standard NVM Express Controller
	(PCI) 0xFFFFFFF5 (-11)	Standard NVM Express Controller
	(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) 0xFFFFFFFC (-4)	PCI Express Root Port
	(PCI) 0xFFFFFFFD (-3)	PCI Express Root Port
	(PCI) 0xFFFFFFFE (-2)	PCI Express Root Port

>  Memory

B.4 Direct Memory Access MAP

