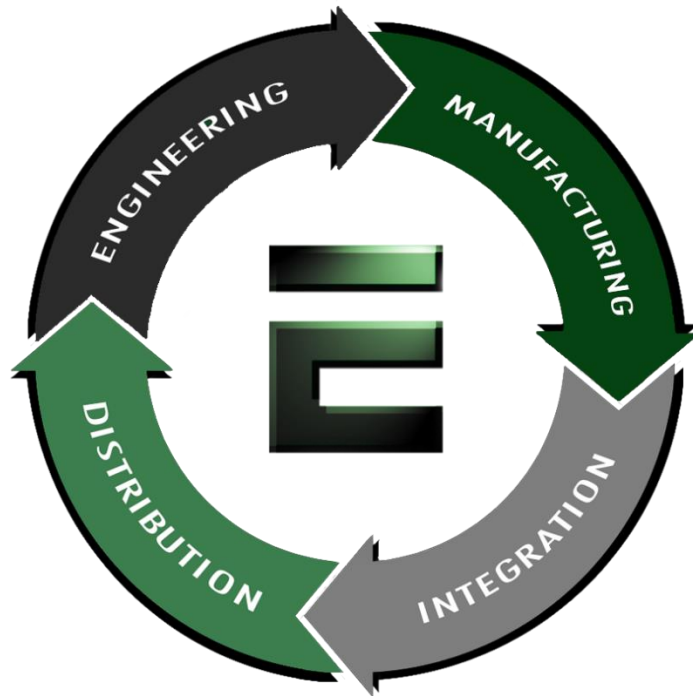


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# PICO-V2K4

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PICO-ITX Single Board Computer  
User's Manual 1<sup>st</sup> 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](http://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.*

China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量

AAEON Main Board/ Daughter Board/ Backplane

| 部件名称                                                                                                                                                                       | 有毒有害物质或元素 |           |           |                 |               |                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|-----------|-----------------|---------------|-----------------|
|                                                                                                                                                                            | 铅<br>(Pb) | 汞<br>(Hg) | 镉<br>(Cd) | 六价铬<br>(Cr(VI)) | 多溴联苯<br>(PBB) | 多溴二苯醚<br>(PBDE) |
| 印刷电路板<br>及其电子组件                                                                                                                                                            | ○         | ○         | ○         | ○               | ○             | ○               |
| 外部信号<br>连接器及线材                                                                                                                                                             | ○         | ○         | ○         | ○               | ○             | ○               |
| <p>O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。</p> <p>X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。</p> <p>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。</p> |           |           |           |                 |               |                 |

## China RoHS Requirement (EN)

Poisonous or Hazardous Substances or Elements in Products

AAEON Main Board/ Daughter Board/ Backplane

| Component                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Poisonous or Hazardous Substances or Elements |              |              |                              |                                |                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--------------|--------------|------------------------------|--------------------------------|---------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Lead (Pb)                                     | Mercury (Hg) | Cadmium (Cd) | Hexavalent Chromium (Cr(VI)) | Polybrominated Biphenyls (PBB) | Polybrominated Diphenyl Ethers (PBDE) |
| PCB & Other Components                                                                                                                                                                                                                                                                                                                                                                                                                                             | O                                             | O            | O            | O                            | O                              | O                                     |
| Wires & Connectors for External Connections                                                                                                                                                                                                                                                                                                                                                                                                                        | O                                             | O            | O            | O                            | O                              | O                                     |
| <p>O: The quantity of poisonous or hazardous substances or elements found in each of the component's parts is below the SJ/T 11363-2006-stipulated requirement.</p> <p>X: The quantity of poisonous or hazardous substances or elements found in at least one of the component's parts is beyond the SJ/T 11363-2006-stipulated requirement.</p> <p>Note: The Environment Friendly Use Period as labeled on this product is applicable under normal usage only</p> |                                               |              |              |                              |                                |                                       |

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# Chapter 1

---

Product Specifications

# 1.1 Specifications

## System

|                             |                                                                                                                               |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Form Factor                 | PICO-ITX                                                                                                                      |
| CPU                         | AMD RYZEN™ V2000 embedded Processor<br>Family<br>V2718 (8C/16T, 1.7~4.15 GHz, 10-25W)<br>V2516 (6C/12T, 2.1~3.95 GHz, 10-25W) |
| CPU Frequency               | Up to 4.15GHz                                                                                                                 |
| Chipset                     | AMD RYZEN™ V2000 embedded Processor<br>Family                                                                                 |
| Memory Type                 | LPDDR4x 3733 MHz on board memory                                                                                              |
| Max. Memory Capacity        | Up to 32GB                                                                                                                    |
| BIOS                        | UEFI                                                                                                                          |
| Wake On LAN                 | Yes                                                                                                                           |
| Watchdog Timer              | 255 Levels                                                                                                                    |
| Power Requirement           | +12V AT/ATX                                                                                                                   |
| Power Supply Type           | Lockable & phoenix Terminal co-lay                                                                                            |
| Power Consumption (Typical) | 4.24A at +12V, V2718, LPDDR4x on board<br>32GB                                                                                |
| System Cooling              | Cooler/Heat-Spreader                                                                                                          |
| Dimension                   | 3.94" x 2.84" (100mm x 72mm)                                                                                                  |
| Gross Weight                | 0.55 lbs. (0.25 kg)                                                                                                           |
| Operating Temperature       | 32°F ~ 140°F (0°C ~ 60°C)                                                                                                     |
| Storage Temperature         | -40°F ~ 176°F (-40°C ~ 80°C)                                                                                                  |
| Operating Humidity          | 0% ~ 90% relative humidity, non-condensing                                                                                    |
| MTBF (Hours)                | 407,784                                                                                                                       |
| Certification               | CE/FCC Class A                                                                                                                |



## System

|            |                                  |
|------------|----------------------------------|
| OS Support | Windows 10 (64-bit)              |
|            | Linux Ubuntu 20.04.3/Kernel 5.11 |

## Display

|               |                                                                                           |
|---------------|-------------------------------------------------------------------------------------------|
| Chipset       | AMD Radeon 6、7 Graphics (Renoir)                                                          |
| Resolution    | 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)                                                  |
|               | eDP or LVDS x 1 (eDP 1.4: 3840x2160, 60Hz ;<br>LVDS: 12V/3.3V, 18-24 bit, single channel) |
| LCD Interface | —                                                                                         |

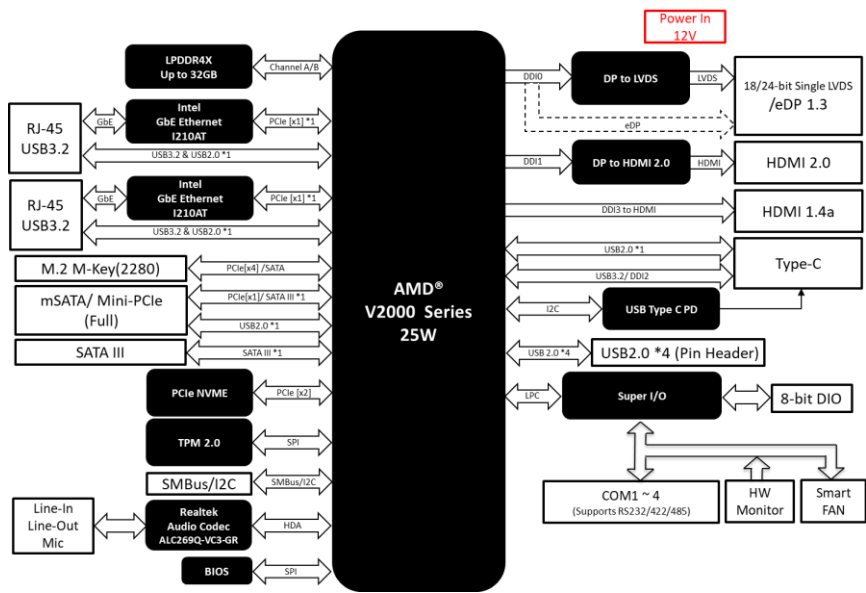
## I/O

|                |                                                                    |
|----------------|--------------------------------------------------------------------|
| Storage/SSD    | On board NVME SSD (up to 64GB, PCIE x2, by BOM))                   |
|                | SATA III x 1                                                       |
|                | +5V SATA Power Connector x 1                                       |
| Ethernet       | Intel® i210, 10/100/1000Base x 2                                   |
| USB Port       | USB3.2 Gen2 Type C x 1 (rear I/O)                                  |
|                | USB3.2 Gen2 x 2 (rear I/O)                                         |
|                | USB2.0 x 4 (pin header)                                            |
| Serial Port    | RS232/422/485 x 4                                                  |
| Audio          | High Definition Audio Interface,<br>Line-in/Line-out/MIC(Optional) |
| DIO            | 8-bit                                                              |
| Expansion Slot | M.2 2280 M-key (PCIe Gen3 x 4 as default,                          |
|                | SATA selected by BIOS) x 1                                         |
|                | mini-PCIe(Full) x 1 (PCIe [x1] x 1/ USB2.0 as                      |

I/O

|       |                                                          |
|-------|----------------------------------------------------------|
|       | default, mSATA selected by HW BOM)                       |
|       | SMBUS/I2C x 1 (SMBUS as default, I2C selected by HW BOM) |
| SIM   | —                                                        |
| TPM   | 2.0                                                      |
| Touch | —                                                        |

## 1.2 Function Block

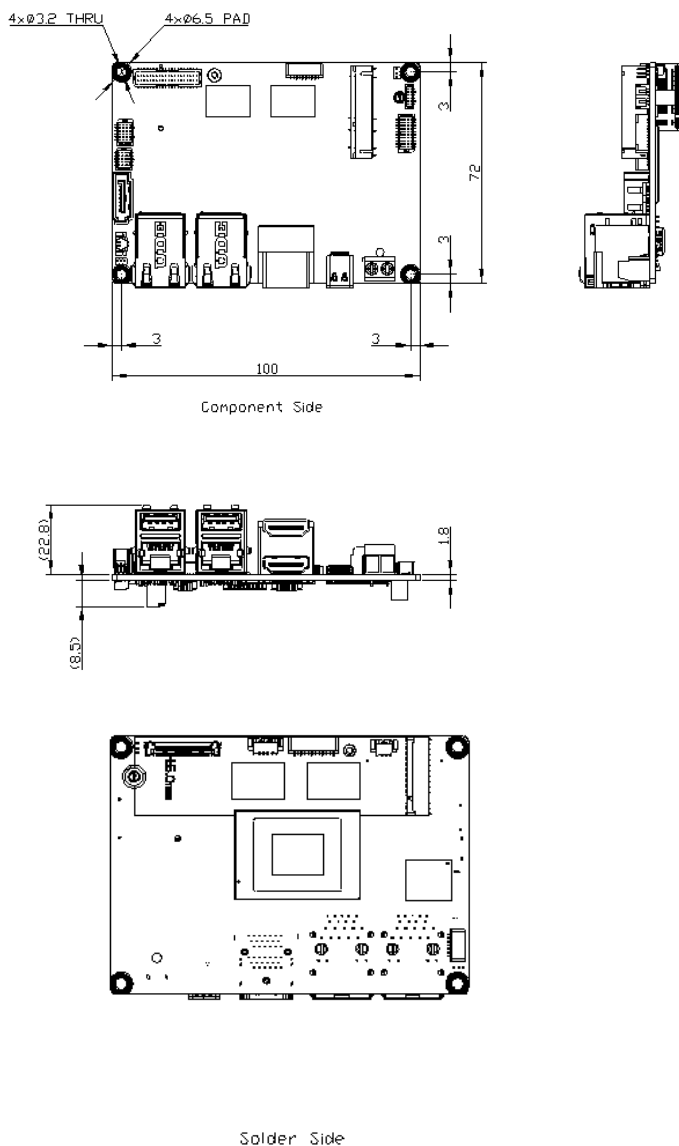


# Chapter 2

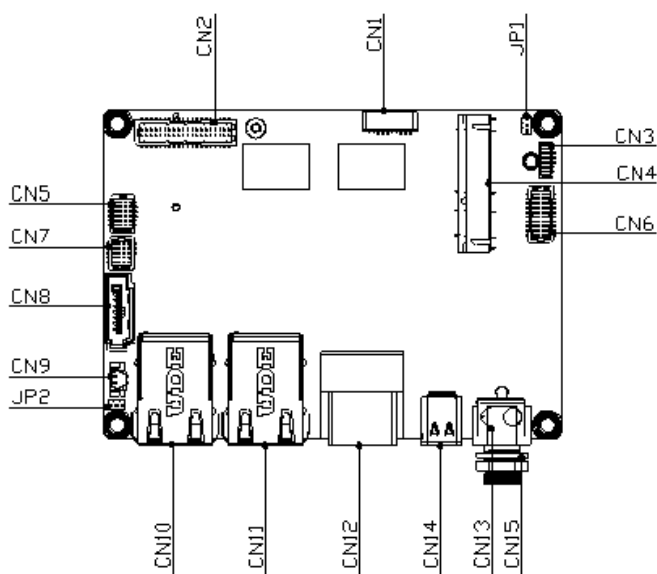
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Hardware Information

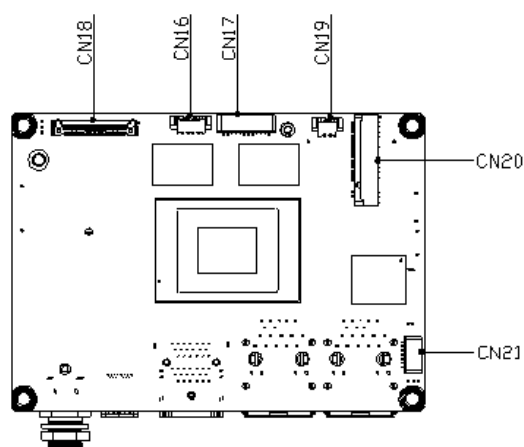
## 2.1 Dimensions



## 2.2 Jumpers and Connectors



Component Side



Solder Side

## 2.3 List of Jumpers

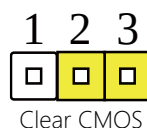
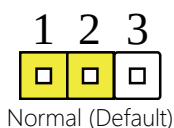
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Please refer to the table below for all of the board's jumpers that you can configure for your application

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

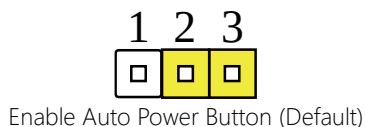
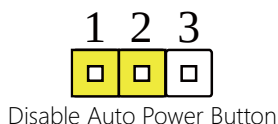
### 2.3.1 Clear CMOS Jumper (JP1)

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### 2.3.2 Auto Power Button Enable/Disable Selection (JP2)

---



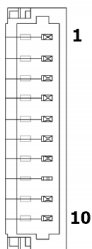
## 2.4 List of Connectors

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 Port1/ Port2/ Port3/ Port4           |
| CN3   | LVDS Port Inverter / Backlight Connector |
| CN4   | Mini-Card Slot (Full Size)/mSATA         |
| CN5   | Audio I/O Port                           |
| CN6   | USB 2.0 Port1/ Port2/ Port3/ Port4       |
| CN7   | Digital IO Port                          |
| CN8   | SATA Port                                |
| CN9   | +5V Output for SATA HDD                  |
| CN10  | USB 3.2/USB2.0 Port1/ LAN (RJ-45) Port1  |
| CN11  | USB 3.2/USB2.0 Port2/ LAN (RJ-45) Port2  |
| CN12  | HDMI Port1/ Port2                        |
| 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 (Key M) Connector                    |
| CN21  | SPI Flash Programming Port               |

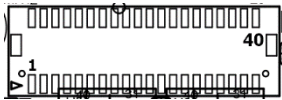


### 2.4.1 Front Panel (CN1)



| 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 Port1/ Port2/ Port3/ Port4 (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          |              |

| Pin | Pin Name       | Signal Type | Signal Level |
|-----|----------------|-------------|--------------|
| 22  | DCD4           | IN          |              |
| 23  | RX3            | IN          |              |
| 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 Port1 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 Port1 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:** COM1 RS-232/422/485 can be set by BIOS setting. Default is RS-232.

**Note 2:** COM1 RI/+5V/+12V function can be set by

BOM(R30-RI/R40-+12V/R38-+5V)

**COM Port2 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 Port2 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:** COM2 RS-232/422/485 can be set by BIOS setting. Default is RS-232.

**Note 2:** COM2 RI/+5V/+12V function can be set by

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

**COM Port3 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 Port3 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:** COM3 RS-232/422/485 can be set by BIOS setting. Default is RS-232.

**Note 2:** COM3 RI/+5V/+12V function can be set by

BOM(R31-RI/R39-+12V/R42-+5V)

## COM Port4 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 Port4 RS-485

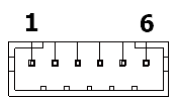
| Pin | Pin Name | Signal Type | Signal Level |
|-----|----------|-------------|--------------|
| 30  | GND      | GND         | GND          |
| 22  | RS485_D- | I/O         | ±9V          |
| 24  | RS485_D+ | I/O         | ±9V          |

**Note 1:** COM4 RS-232/422/485 can be set by BIOS setting. Default is RS-232.

**Note 2:** COM4 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/<br>+12V(Default) |
| 2   | BKL_PWR     | PWR         | +5V/<br>+12V(Default) |
| 3   | BKL_CONTROL | OUT         |                       |
| 4   | GND         | GND         |                       |
| 5   | GND         | GND         |                       |
| 6   | BKL_ENABLE  | OUT         | +3.3V                 |

**Note 1:** LVDS/BKL\_PWR can be set to +12V or +5V by R356/R357

**Note 2:** LVDS/BKL\_CONTROL can be set by R406/R407.

**Note 3:** The driving current supports up to 1A.

### 2.4.4 Mini-Card Slot (Full Size)/mSATA (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        |

| Pin | Pin Name          | Signal Type | Signal Level |
|-----|-------------------|-------------|--------------|
| 7   | PCIE_CLK_REQ#     | IN          |              |
| 8   | NC                | NC          | NC           |
| 9   | GND               | GND         | GND          |
| 10  | NC                | NC          | NC           |
| 11  | PCIE_REF_CLK-     | DIFF        |              |
| 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        |



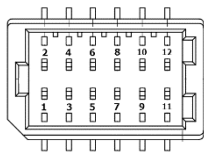
| Pin | Pin Name            | Signal Type | Signal Level |
|-----|---------------------|-------------|--------------|
| 33  | PCIE_TX+ / SATA_TX+ | DIFF        |              |
| 34  | GND                 | GND         | GND          |
| 35  | GND                 | GND         | GND          |
| 36  | 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          |
| 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

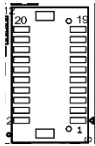
mSATA: C662/C661/C2158/C2159

### 2.4.5 Audio I/O Port (CN5)



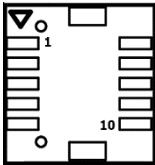
| Pin | Pin Name  | Signal Type | Signal Level |
|-----|-----------|-------------|--------------|
| 1   | RIGHT_OUT | OUT         |              |
| 2   | MIC_R     | IN          |              |
| 3   | LEFT_OUT  | OUT         |              |
| 4   | MIC_L     | IN          |              |
| 5   | 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 Port1/ Port2/ Port3/ Port4 (CN6)



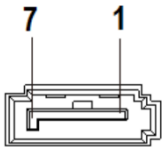
| Pin | Pin Name  | Signal Type | Signal Level |
|-----|-----------|-------------|--------------|
| 1   | +5VSB     | PWR         | +5V          |
| 2   | +5VSB     | PWR         | +5V          |
| 3   | USB2_2_DN | DIFF        |              |
| 4   | USB2_3_DN | DIFF        |              |
| 5   | 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)



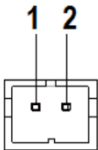
| Pin | Pin Name | Signal Type | Signal Level |
|-----|----------|-------------|--------------|
| 1   | +5V      | PWR         | +5V          |
| 2   | DIO_0    | IN/OUT      |              |
| 3   | DIO_1    | IN/OUT      |              |
| 4   | DIO_2    | IN/OUT      |              |
| 5   | DIO_3    | 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)



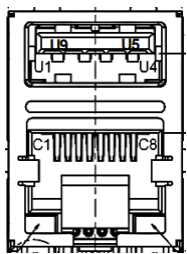
| Pin | Pin Name | Signal Type | Signal Level |
|-----|----------|-------------|--------------|
| 1   | GND      | GND         | GND          |
| 2   | SATA_TX+ | DIFF        |              |
| 3   | SATA_TX- | DIFF        |              |
| 4   | GND      | GND         | GND          |
| 5   | SATA_RX-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

2.4.9 +5V Output for SATA HDD (CN9)



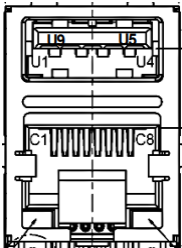
| Pin | Pin Name | Signal Type | Signal Level |
|-----|----------|-------------|--------------|
| 1   | +V5S     | PWR         | +5V          |
| 2   | GND      | GND         |              |

### 2.4.10 USB 3.2/USB2.0 Port1/ LAN (RJ-45) Port1 (CN10)



| Pin | Pin Name    | Signal Type | Signal Level |
|-----|-------------|-------------|--------------|
| U1  | +5VSB       | PWR         | +5V          |
| U2  | USB2_1_DN   | DIFF        |              |
| 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_MDI0_P | DIFF        |              |
| R3  | LAN1_MDI0_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/USB2.0 Port2/ LAN (RJ-45) Port2 (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        |              |
| U6  | USB3_5_RXP  | DIFF        |              |
| U7  | GND         | GND         | GND          |
| U8  | USB3_5_TXN  | DIFF        |              |
| U9  | USB3_5_TXP  | DIFF        |              |
| R2  | LAN2_MDIO_P | DIFF        |              |
| R3  | LAN2_MDIO_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        |              |

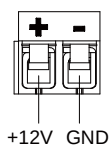
## 2.4.12 (CN12) HDMI Port1/ Port2

| 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          |
| 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          |



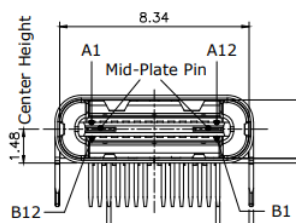
| Pin | Pin Name   | Signal Type | Signal Level |
|-----|------------|-------------|--------------|
| 25  | HDMI2_TX1- | DIFF        |              |
| 26  | HDMI2_TX0+ | DIFF        |              |
| 27  | GND        | GND         | GND          |
| 28  | HDMI2_TX0- | DIFF        |              |
| 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)



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

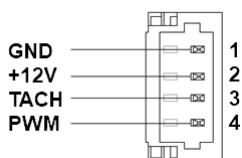
## 2.4.14 (CN14) USB Type C



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

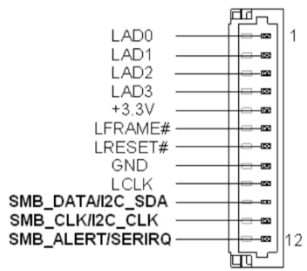
| Pin | Pin Name | Signal Type | Signal Level |
|-----|----------|-------------|--------------|
| B9  | +5VSB    | PWR         | +5V          |
| B10 | SSRXN1   | DIFF        |              |
| B11 | SSRXP1   | DIFF        |              |
| B12 | GND      | GND         | GND          |

## 2.4.15 FAN Connector (CN16)



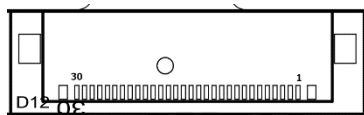
| Pin | Pin Name | Signal Type | Signal Level |
|-----|----------|-------------|--------------|
| 1   | GND      | GND         | GND          |
| 2   | +V12S    | PWR         | +12V         |
| 3   | TACH     | IN          |              |
| 4   | PWM      | OUT         |              |

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/<br>INT_SERIRQ | IN          | +3.3V        |

## 2.4.17 (CN18) eDP/LVDS Connector



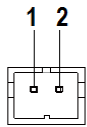
| Pin | Pin Name                      | Signal Type | Signal Level            |
|-----|-------------------------------|-------------|-------------------------|
| 1   | +VCC_EDP_BKLT                 | PWR         | +12V (Default)<br>/ +5V |
| 2   | +VCC_EDP_BKLT                 | PWR         | +12V (Default)<br>/ +5V |
| 3   | +VCC_EDP_BKLT                 | PWR         | +12V (Default)<br>/ +5V |
| 4   | +VCC_EDP_BKLT                 | PWR         | +12V (Default)<br>/ +5V |
| 5   | GND                           | GND         |                         |
| 6   | GND                           | GND         |                         |
| 7   | GND                           | GND         |                         |
| 8   | LVD1_DDC_CLK/<br>DDIO_HPDP    |             |                         |
| 9   | LVD1_BKLTEN/<br>DDIO_BKLTEN_R |             |                         |
| 10  | LVD1_DDC_DATA                 |             |                         |
| 11  | LVD1_BKLCTL/<br>DDIO_BKLCTL_R |             |                         |
| 12  | GND                           | GND         |                         |
| 13  | LVD1_CA_CLKP/<br>EDP_AUX_DP   | DIFF        |                         |
| 14  | LVD1_CA_CLKN/<br>EDP_AUX_DN   | DIFF        |                         |
| 15  | GND                           | GND         |                         |
| 16  | LVD1_CA_3_DP/<br>EDP_LANE3_DP | DIFF        |                         |
| 17  | LVD1_CA_3_DN/<br>EDP_LANE3_DN | DIFF        |                         |

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

**Note 1:** Backlight power can be 12V or 5V by BOM. Stuff R356 for 12V and stuff R357 for 5V. [Default:12V]

**Note 2:** CN18 Backlight power current max: 1.2A and VDD power current max:1A.

2.4.18 (CN19) RTC Battery Connector

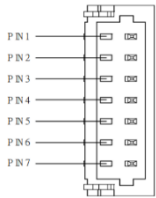


| Pin | Pin Name | Signal Type | Signal Level |
|-----|----------|-------------|--------------|
| 1   | +3.3V    | PWR         | +3.3V        |
| 2   | GND      | GND         | GND          |

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

Standard specifications

2.4.20 SPI Flash Programming Port (CN21)

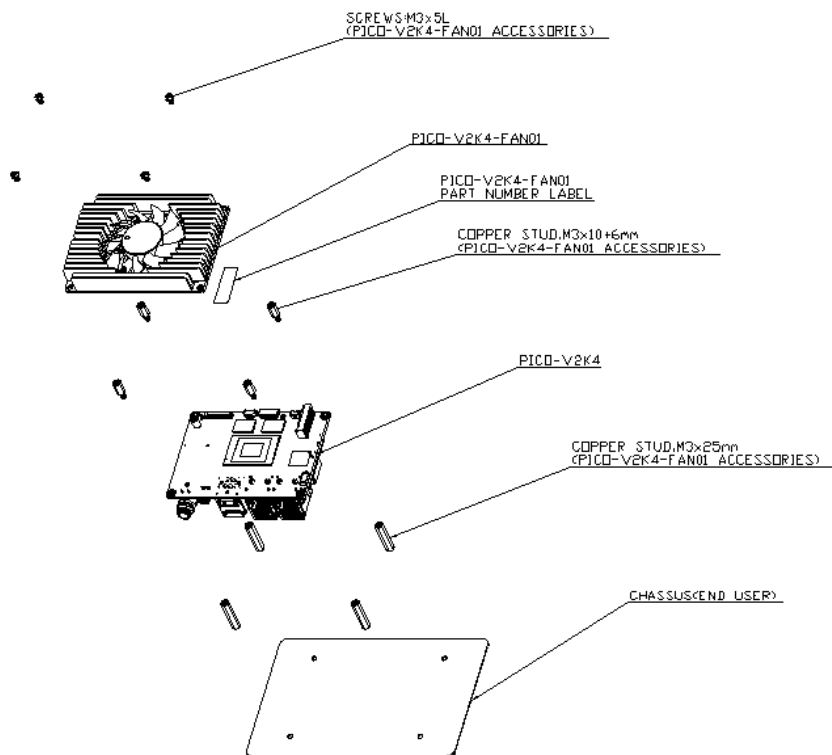


| Pin | Pin Name | Signal Type | Signal Level |
|-----|----------|-------------|--------------|
| 1   | SPI_MISO | OUT         |              |
| 2   | GND      | GND         | GND          |
| 3   | SPI_CLK  | IN          |              |
| 4   | +1.8VSB  | PWR         | +1.8V        |
| 5   | SPI_MOSI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

## 2.5 Thermal Assembly Options

### 2.5.1 Active Cooling Fan FAN01

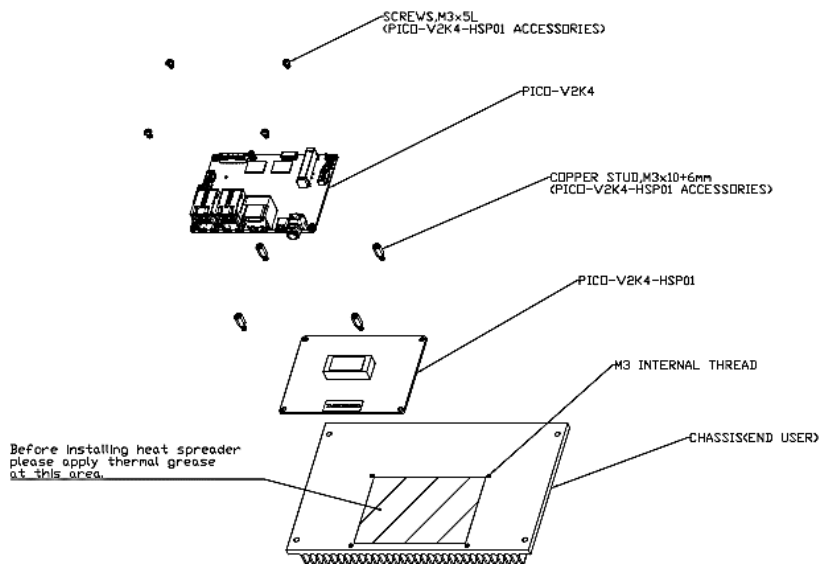
Active Cooling Fan, Part Number: PICO-V2K4-FAN01





## 2.5.2 Fan-less Heatspreader HSP01

Heat spreader/ fan-less 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-TGU4 CMOS 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 <Del> 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.

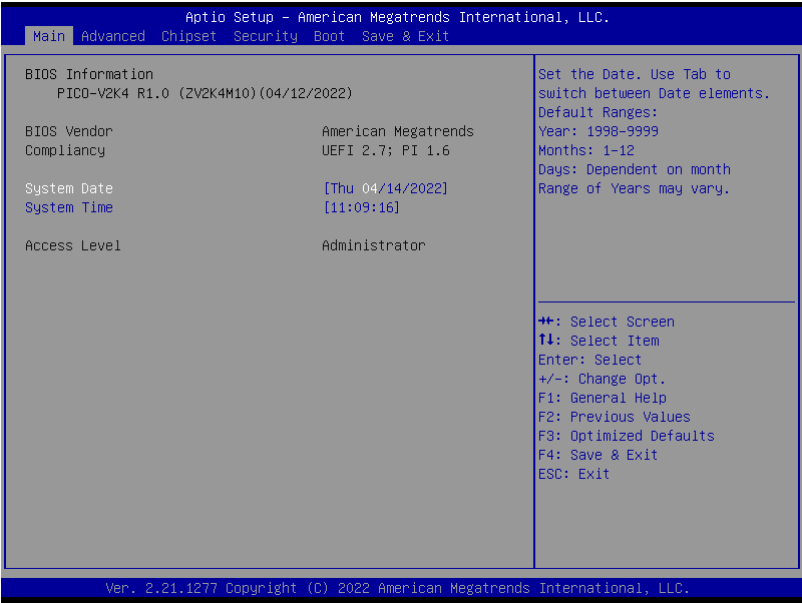
**Chipset:** Host bridge parameters.

**Boot:** Enable/disable quiet boot option.

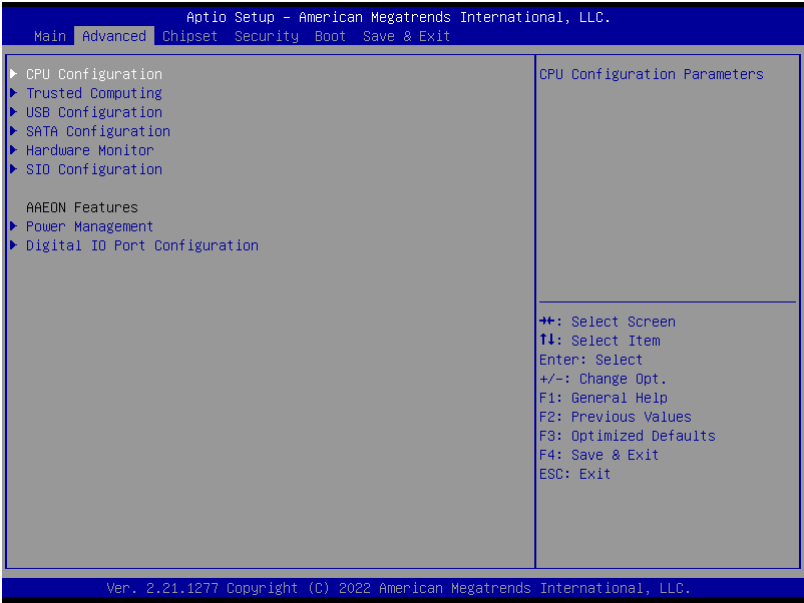
**Security:** Set setup administrator password.

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

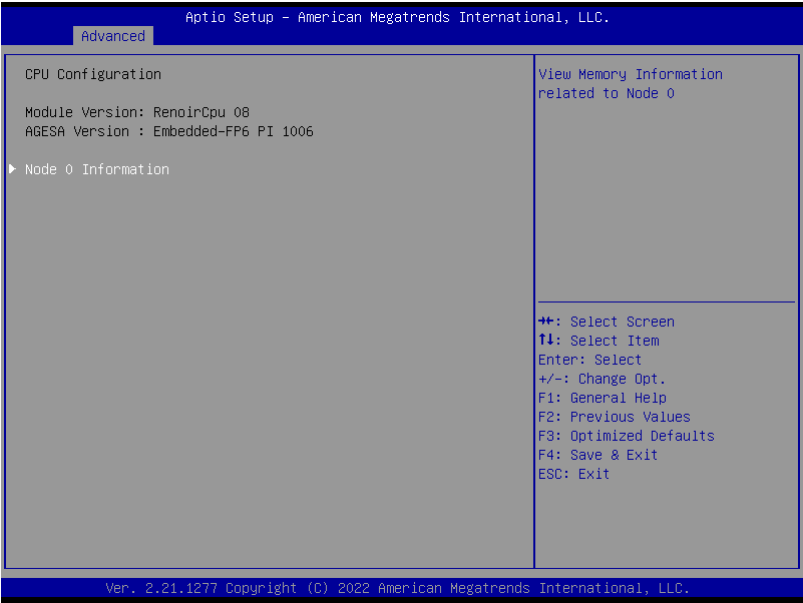
### 3.3 Setup Submenu: Main



### 3.4 Setup Submenu: Advanced



### 3.4.1 CPU Configuration



### 3.4.2 Trusted Computing



#### Options summary:

|                                                                                                                                                       |          |                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------------|
| Security Deice                                                                                                                                        | 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.                                                                                                                    |          |                                   |

Continued on the next page

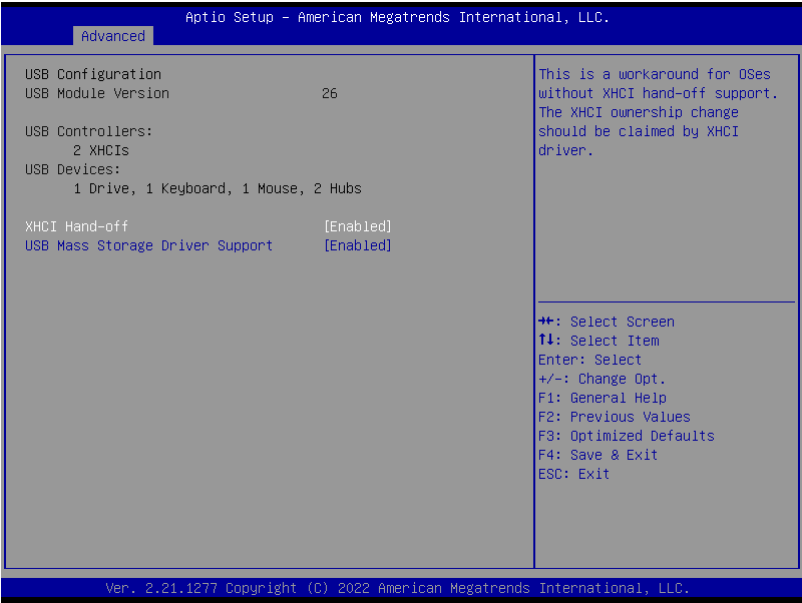


|                                                                                                                                                              |           |                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------------------------|
| <b>SHA384 PCR Bank</b>                                                                                                                                       | Enabled   | Optimal Default, Failsafe Default |
|                                                                                                                                                              | Disabled  |                                   |
| Enable or Disable SHA384 PCR Bank.                                                                                                                           |           |                                   |
| <b>SM3_256 PCR Bank</b>                                                                                                                                      | Enabled   | Optimal Default, Failsafe Default |
|                                                                                                                                                              | Disabled  |                                   |
| Enable or Disable SM3_256 PCR Bank                                                                                                                           |           |                                   |
| <b>Pending operation</b>                                                                                                                                     | 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.                   |           |                                   |
| <b>Platform Hierarchy</b>                                                                                                                                    | Enabled   | Optimal Default, Failsafe Default |
|                                                                                                                                                              | Disabled  |                                   |
| Enable or Disable Platform Hierarchy                                                                                                                         |           |                                   |
| <b>Storage Hierarchy</b>                                                                                                                                     | Enabled   | Optimal Default, Failsafe Default |
|                                                                                                                                                              | Disabled  |                                   |
| Enable or Disable Storage Hierarchy                                                                                                                          |           |                                   |
| <b>Endorsement Hierarchy</b>                                                                                                                                 | Enabled   | Optimal Default, Failsafe Default |
|                                                                                                                                                              | Disabled  |                                   |
| Enable or Disable Endorsement Hierarchy                                                                                                                      |           |                                   |
| <b>TPM 2.0 UEFI Spec Version</b>                                                                                                                             | TCG_2     | Optimal Default, Failsafe Default |
|                                                                                                                                                              | TCG_1_2   |                                   |
| Select the TCH2 Spec Version Support.<br>TCG_1_2: the Compatible mode for Win8/Win10<br>TCG_2: Support new TCG2 protocol and event format for Win10 or later |           |                                   |

*Continued on the next page*

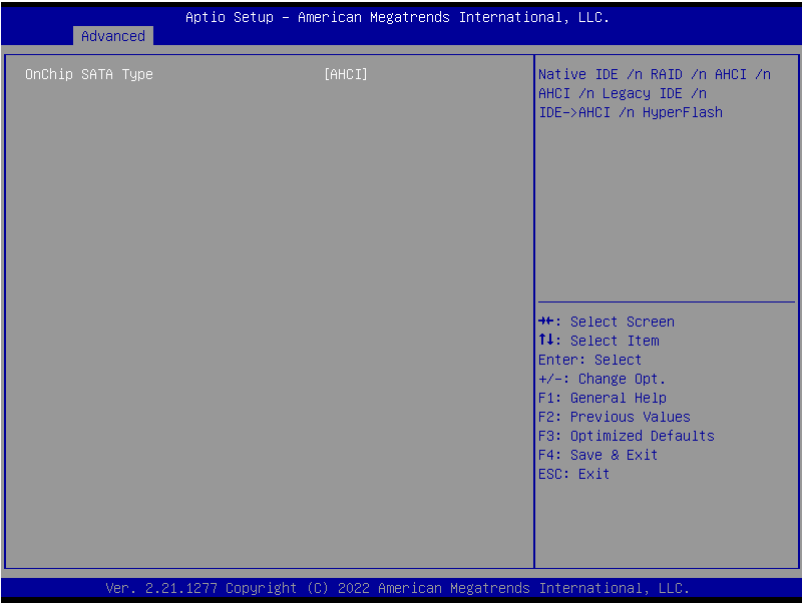
|                                                                                                                                                                                                                      |          |                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------------|
| Physical Presence                                                                                                                                                                                                    | 1.3      | Optimal Default, Failsafe Default |
| Spec Version                                                                                                                                                                                                         | 1.2      |                                   |
| Select to Tell O.S. to support PPI Spec Version 1.2 or 1.3. Note some HCK tests might not support 1.3                                                                                                                |          |                                   |
| Device Select                                                                                                                                                                                                        | Auto     | Optimal Default, Failsafe Default |
|                                                                                                                                                                                                                      | TPM 1.2  |                                   |
|                                                                                                                                                                                                                      | TPM 2.0  |                                   |
| TPM 1.2 will restrict support to TPM 1.2 devices, TPM 2.0 will restrict support to TPM 2.0 devices, Auto will support both with the default set to TPM 2.0 devices if not found, TPM 1.2 devices will be enumerated. |          |                                   |
| Disable Block Sid                                                                                                                                                                                                    | Disabled | Optimal Default, Failsafe Default |
|                                                                                                                                                                                                                      | Enabled  |                                   |
| Override to allow SID authentication in TCG Storage device                                                                                                                                                           |          |                                   |

### 3.4.3 USB Configuration

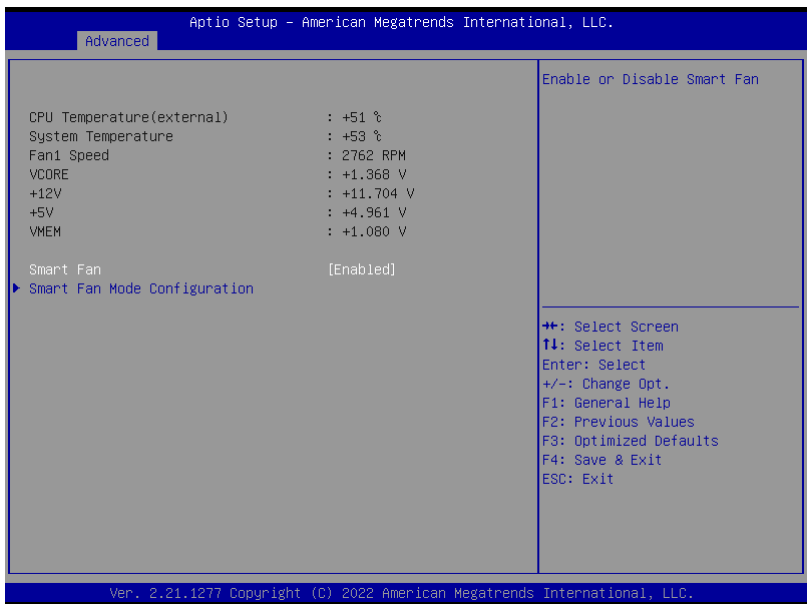


| Options summary:                                                                                                         |          |                                   |
|--------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------------|
| XHCI Hand-off                                                                                                            | Enabled  | Optimal Default, Failsafe Default |
|                                                                                                                          | Disabled |                                   |
| This is a workaround for OSES without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver. |          |                                   |
| USB Mass Storage Driver Support                                                                                          | Enabled  | Optimal Default, Failsafe Default |
|                                                                                                                          | Disabled |                                   |
| Enable/Disable USB Mass Storage Driver Support.                                                                          |          |                                   |

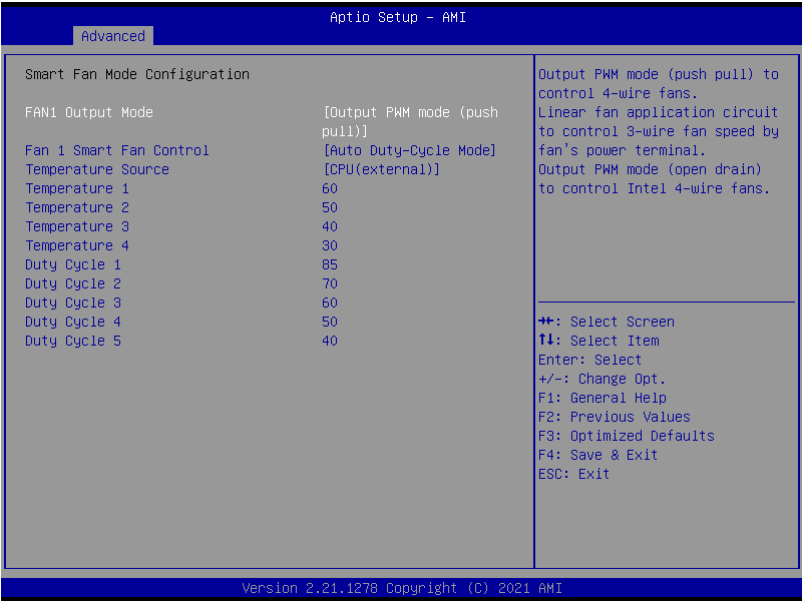
### 3.4.4 SATA Configuration



### 3.4.5 Hardware monitor



### 3.4.5.1 Smart Fan Mode Configuration



#### Options summary:

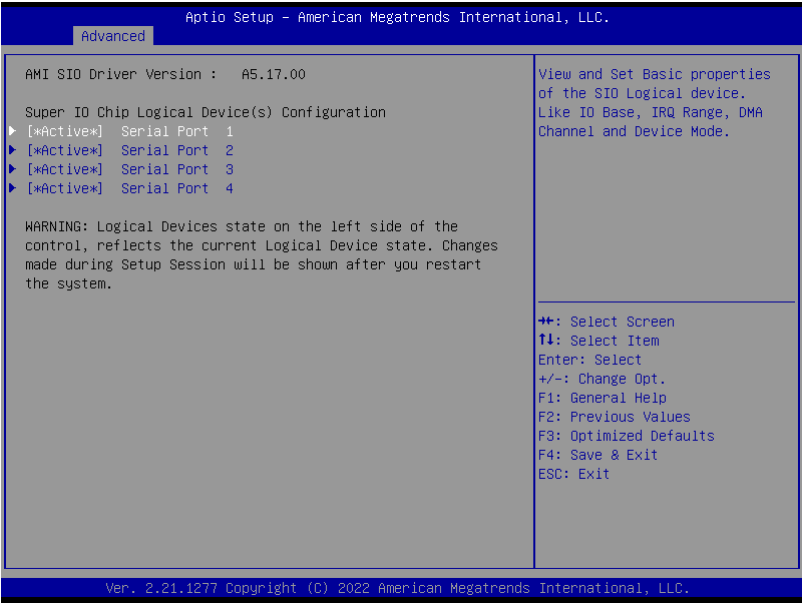
|                        |                                                                                                                                                                                                          |                                   |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Fan1 Output Mode       | Output PWM mode (push pull)                                                                                                                                                                              | Optimal Default, Failsafe Default |
|                        | Output PWM mode (push pull) to control 4-wire fans.<br>Linear fan application circuit to control 3-wire fan speed by fan's power terminal.<br>Output PWM mode (open drain) to control Intel 4-wire fans. |                                   |
| Fan1 Smart Fan control | Manual Duty Mode                                                                                                                                                                                         | Optimal Default, Failsafe Default |
|                        | Auto Duty-Cycle Mode                                                                                                                                                                                     |                                   |

#### Smart Fan Mode select

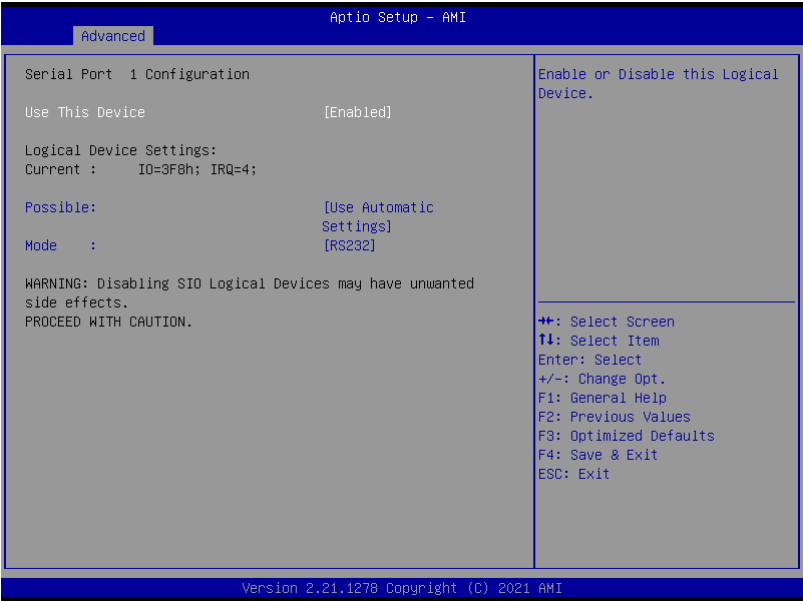
#### Options summary:

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

### 3.4.6 SIO Configuration



### 3.4.6.1 Serial Port Configuration

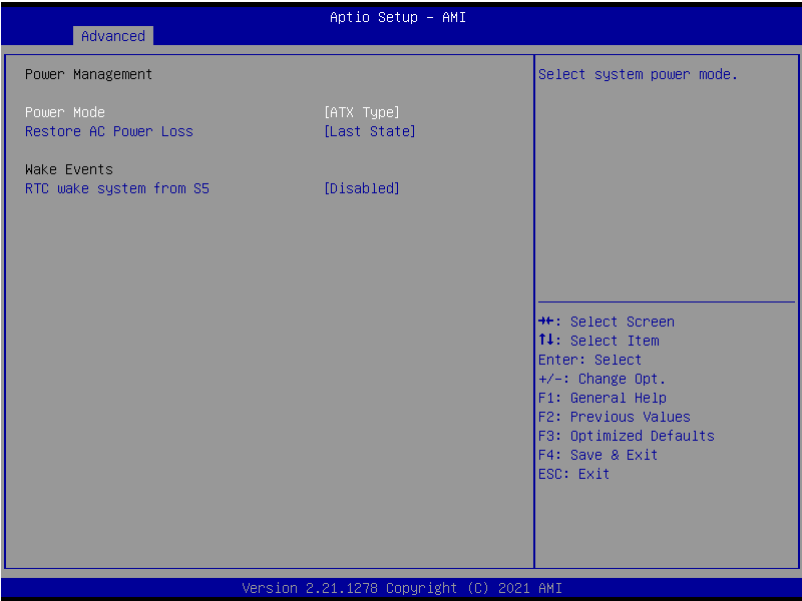


#### Options summary:

|                                         |                        |                                   |
|-----------------------------------------|------------------------|-----------------------------------|
| Use This Device                         | Disabled               | Optimal Default, Failsafe Default |
|                                         | Enabled                |                                   |
| En/Disable Serial Port (COM)            |                        |                                   |
| Possible:                               | Use Automatic Settings | Optimal Default, Failsafe Default |
|                                         | IO=2F8; IRQ=3;         |                                   |
|                                         | IO=3F8; IRQ=4;         |                                   |
| Select an optimal setting for IO device |                        |                                   |
| mode                                    | RS232                  | Optimal Default, Failsafe Default |
|                                         | RS422                  |                                   |
|                                         | RS485                  |                                   |
| Uart RS232/422/485 selection            |                        |                                   |



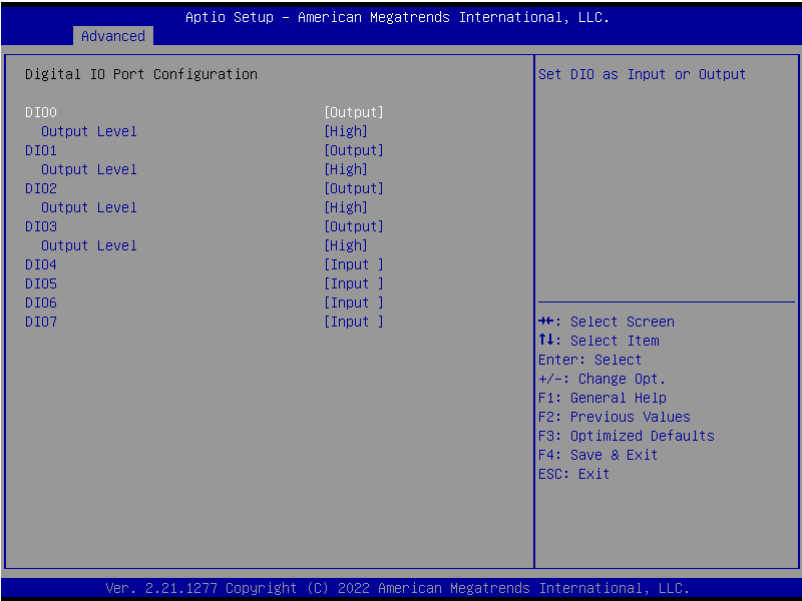
### 3.4.7 Power Management



#### Options summary:

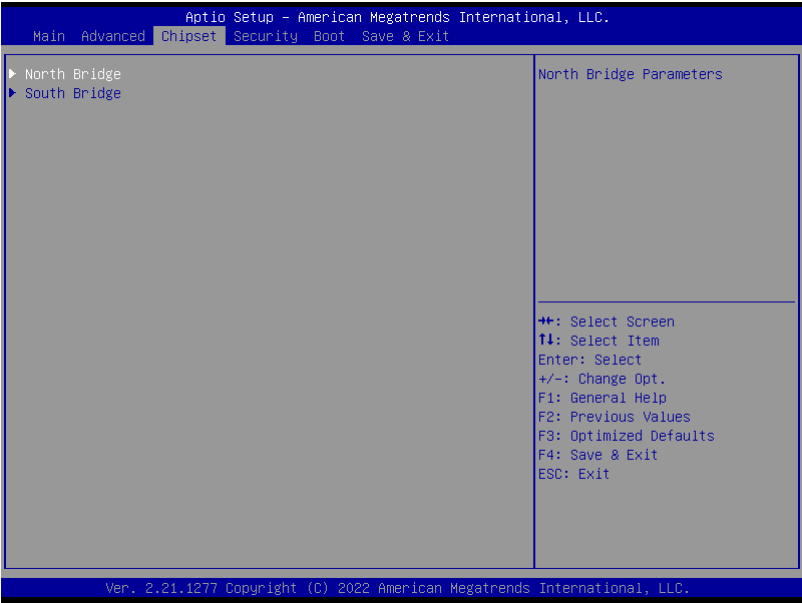
|                                                                            |              |                                   |
|----------------------------------------------------------------------------|--------------|-----------------------------------|
| Power Mode                                                                 | 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

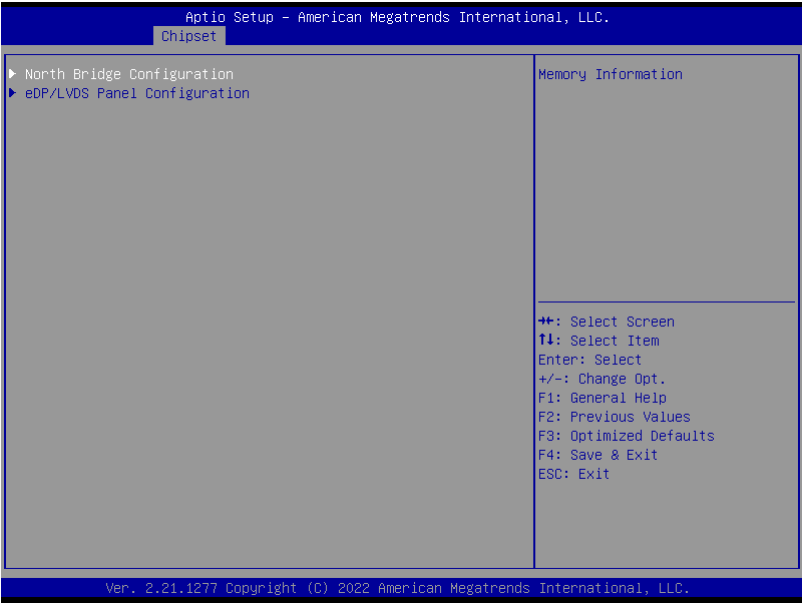


|                                         |        |                                   |
|-----------------------------------------|--------|-----------------------------------|
| Options summary:                        |        |                                   |
| DIO Port0~7                             | 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 |        |                                   |

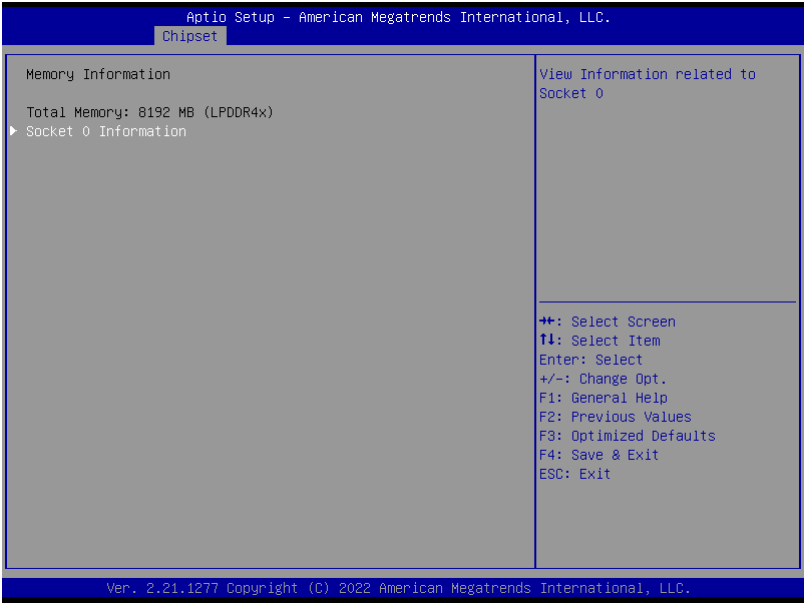
### 3.5 Setup submenu: Chipset



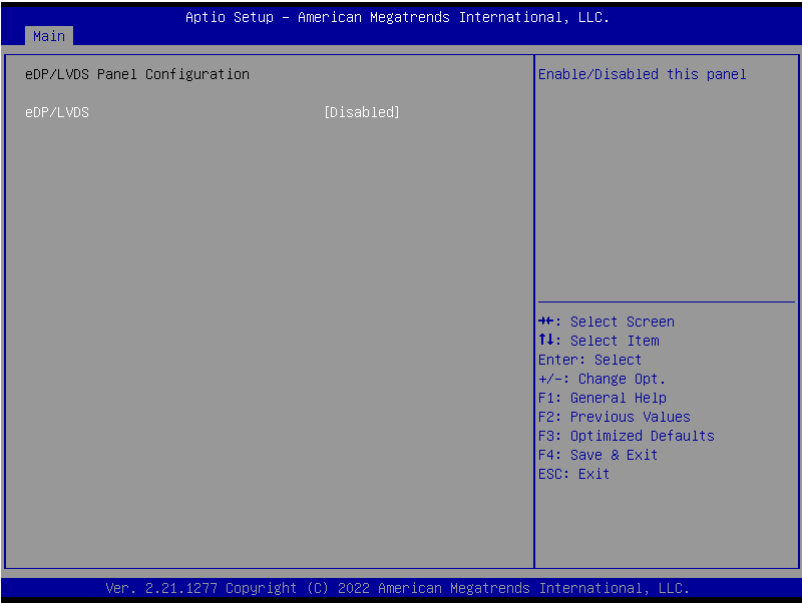
### 3.5.1 North Bridge



### 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. |          |                                   |

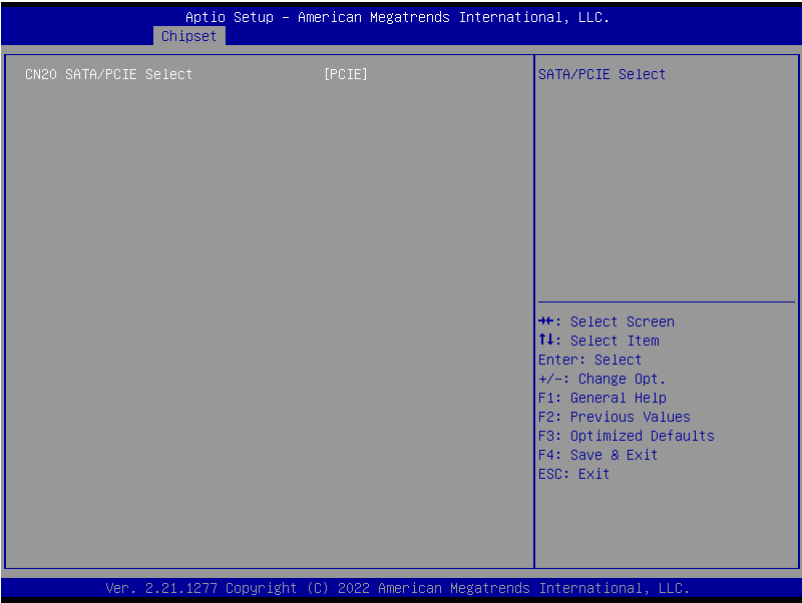
*Continued on the next page*

|                                      |                    |                                   |
|--------------------------------------|--------------------|-----------------------------------|
| LVDS Panel Type                      | 640X480@60HZ       | Optimal Default, Failsafe Default |
|                                      | 800X480@60HZ       |                                   |
|                                      | 800X600@60HZ       |                                   |
|                                      | 1024X600@60HZ      |                                   |
|                                      | 1024X768@60HZ      |                                   |
|                                      | 1280X768@60HZ      |                                   |
|                                      | 1280X800@60HZ      |                                   |
|                                      | 1280X1024@60HZ     |                                   |
|                                      | 1366X768@60HZ      |                                   |
|                                      | 1440X900@60HZ      |                                   |
| Select panel type                    |                    |                                   |
| 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 |                    |                                   |

*Continued on the next page*

|                                                  |        |                                   |
|--------------------------------------------------|--------|-----------------------------------|
| Backlight Level                                  | 0%     | Optimal Default, Failsafe Default |
|                                                  | 10%    |                                   |
|                                                  | 20%    |                                   |
|                                                  | 30%    |                                   |
|                                                  | 40%    |                                   |
|                                                  | 50%    |                                   |
|                                                  | 60%    |                                   |
|                                                  | 70%    |                                   |
|                                                  | 80%    |                                   |
|                                                  | 90%    |                                   |
|                                                  | 100%   |                                   |
| Select backlight control level                   |        |                                   |
| Backlight PWM Freq                               | 100Hz  | Optimal Default, Failsafe Default |
|                                                  | 200Hz  |                                   |
|                                                  | 220Hz  |                                   |
|                                                  | 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

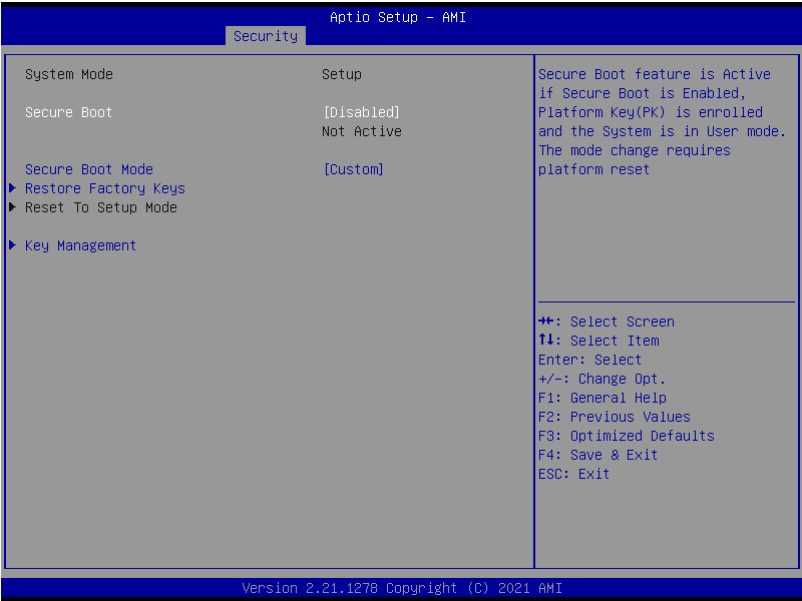
You can set an Administrator Password or User Password. An Administrator Password must be set before you can set a User Password. The password will be required during boot up, or when the user enters the Setup utility. A User Password does not provide access to many of the features in the Setup utility.

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.

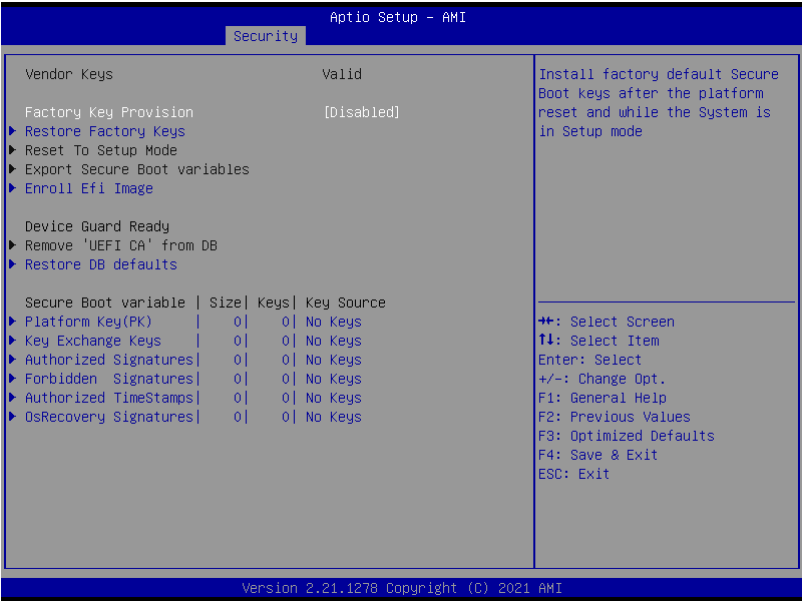
### 3.6.1 Secure Boot



Options summary:

|                                                                                                                                                                          |                                                                               |                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-----------------------------------|
| Secure Boot                                                                                                                                                              | Disabled                                                                      | Optimal Default, Failsafe Default |
|                                                                                                                                                                          | Enabled                                                                       |                                   |
| Secure Boot feature is Active if Secure Boot is Enabled, Platform Key(PLK) is enrolled and the System is in User mode. The mode change requires platform reset           |                                                                               |                                   |
| Secure Boot Mode                                                                                                                                                         | Standard                                                                      | Optimal Default, Failsafe Default |
|                                                                                                                                                                          | Custom                                                                        |                                   |
| Secure Boot mode options: Standard or Custom.<br>In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication |                                                                               |                                   |
| Restore Factory Keys                                                                                                                                                     | Force System to User Mode. Install factory default Secure Boot key databases. |                                   |
| Reset To Setup Mode                                                                                                                                                      | Delete all Secure Boot key databases from NVRAM                               |                                   |

### 3.6.1.1 Key Management



| Options summary:                                                                                        |                                                                                               |                                   |
|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------|
| Factory Key                                                                                             | Disabled                                                                                      | Optimal Default, Failsafe Default |
| Provision                                                                                               | Enabled                                                                                       |                                   |
| Install factory default Secure Boot keys after the platform reset and while the System is in Setup mode |                                                                                               |                                   |
| Restore Factory Keys                                                                                    | Force System to User Mode. Install factory default Secure Boot key databases.                 |                                   |
| 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 |                                   |

|                                 |                                                                                                                                  |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>Enroll Efi Image</b>         | Allow the image to run in Secure Boot mode. Enroll SHA256 Hash certificate of a PE image into Authorized Signature Database (db) |
| <b>Remove 'UEFI CA' from DB</b> | Device Guard ready system must not list 'Microsoft UEFI CA' Certificate in Authorized Signature database (db)                    |
| <b>Restore DB defaults</b>      | Restore DB variable to factory defaults                                                                                          |

## Secure Boot Variables

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

- a) EFI\_SIGNATURE\_LIST
- b) EFI\_CERT\_X509 (DER encoded)
- c) EFI\_CERT\_RSA2048 (bin)
- d) EFI\_CERT\_SHAXXX

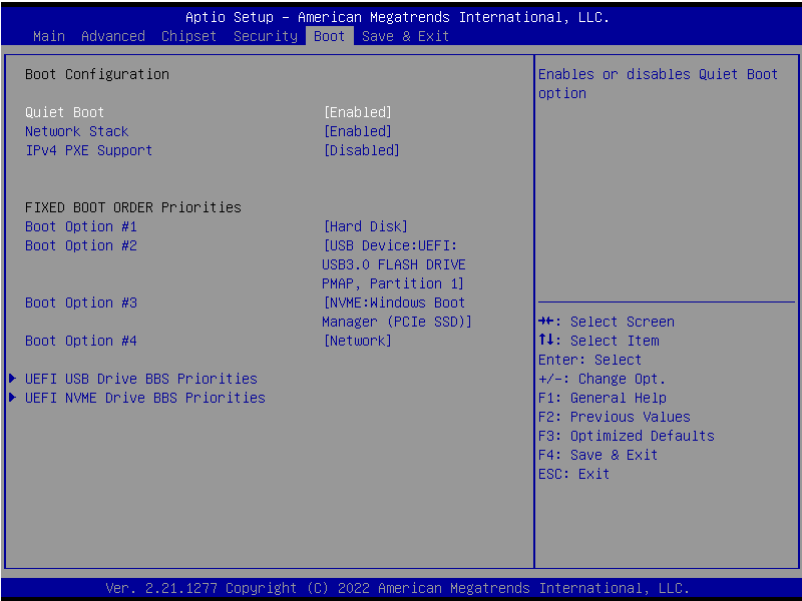
2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

### Key Source:

Default, External, Mixed

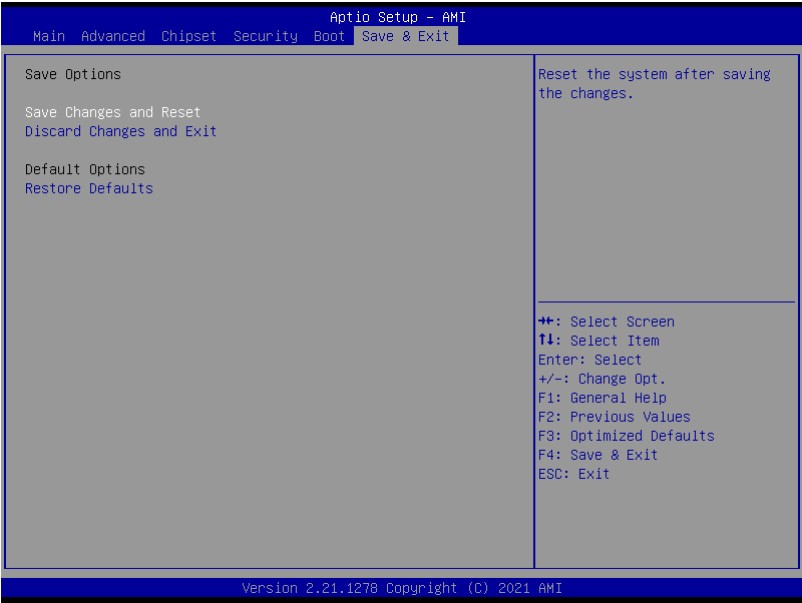
### 3.7 Setup Submenu: Boot



Options summary:

|                                                                                                 |          |                                   |
|-------------------------------------------------------------------------------------------------|----------|-----------------------------------|
| Quiet Boot                                                                                      | Disabled | Optimal Default, Failsafe Default |
|                                                                                                 | Enabled  |                                   |
| Enable or Disable Quiet Boot option.                                                            |          |                                   |
| Network Stack                                                                                   | Disabled | Optimal Default, Failsafe Default |
|                                                                                                 | Enabled  |                                   |
| 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/>

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.

### Step 1 – Install Chipset Driver

1. Open the **AMD Chipset** folder.
2. Run the **AMD\_Chipset\_Software.exe** file.
3. Follow the instructions
4. Drivers will be installed automatically

### Step 2 – Install Graphics Driver

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

### Step 3 – Install LAN Driver

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

## Step 4 – 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

# 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             | 50247-040H0<br>H0-001 | COM Cable           | 170X000317       |
| CN3      | LVDS/eDP<br>back light | SHR              | WL1010H-6P            | LVDS inverter cable | 170X000152       |
| CN5      | Audio with detect      | ACES             | 50247-012H0<br>H0-001 | Audio cable         | 170X000156       |
| CN6      | USB2.0 *4              | ACES             | 50247-020H0<br>H0-001 | USB2.0 Cable        | 170X000390       |
| CN7      | DIO                    | ACES             | 50247-010H0<br>H0-001 | 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       |

| Function | Description | Mating Connector |                | Available Cable         | Mating Cable P/N                                                                       |
|----------|-------------|------------------|----------------|-------------------------|----------------------------------------------------------------------------------------|
|          |             | Vendor           | Model no       |                         |                                                                                        |
| CN18     | LVDS/eDP    | I-PEX            | 20453-030T-01S | eDP Cable<br>LVDS Cable | 170X000445<br>(eDP:<br>B173ZAN01.0)<br>170X000446 &<br>170X000152(LV<br>DS: G101EVN01) |
| CN19     | Battery     | Molex            | 51021-0200     | Battery Cable           | 175011301K                                                                             |

# Appendix B

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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                                     |
| [ ] | [0000000000D000000 - 00000000DFFFFFF] AMD Radeon(TM) Graphics                                    |
| [ ] | [00000000D0000000 - 00000000E01FFFFF] PCI Express Root Port                                      |
| [ ] | [00000000D0000000 - 00000000FEBFFFFF] PCI Express Root Complex                                   |
| [ ] | [00000000E0000000 - 00000000E01FFFFF] AMD Radeon(TM) Graphics                                    |
| [ ] | [00000000F0000000 - 00000000F7FFFFF] System board                                                |
| [ ] | [00000000FD000000 - 00000000FDFFFFFF] Motherboard resources                                      |
| [ ] | [00000000FE400000 - 00000000FE4FFFFF] AMD Sensor Fusion Hub                                      |
| [ ] | [00000000FE400000 - 00000000FE8FFFFF] PCI Express Root Port                                      |
| [ ] | [00000000FE500000 - 00000000FE5FFFFF] AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft) |
| [ ] | [00000000FE600000 - 00000000FE6FFFFF] AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft) |
| [ ] | [00000000FE700000 - 00000000FE7FFFFF] AMD PSP 10.0 Device                                        |
| [ ] | [00000000FE800000 - 00000000FE87FFFFF] AMD Radeon(TM) Graphics                                   |
| [ ] | [00000000FE880000 - 00000000FE8BFFFFF] AMD Audio CoProcessor                                     |
| [ ] | [00000000FE8F0000 - 00000000FE8F7FFF] High Definition Audio Controller                           |
| [ ] | [00000000FE8F8000 - 00000000FE8FBFFF] High Definition Audio Controller                           |
| [ ] | [00000000FE8FC000 - 00000000FE8FDFFF] AMD Sensor Fusion Hub                                      |
| [ ] | [00000000FE8FE000 - 00000000FE8FFFFF] AMD PSP 10.0 Device                                        |
| [ ] | [00000000FE900000 - 00000000FE91FFFFF] Intel(R) I210 Gigabit Network Connection                  |
| [ ] | [00000000FE900000 - 00000000FE9FFFFF] PCI Express Root Port                                      |
| [ ] | [00000000FE920000 - 00000000FE923FFF] Intel(R) I210 Gigabit Network Connection                   |
| [ ] | [00000000FEA00000 - 00000000FEA03FFF] Standard NVM Express Controller                            |
| [ ] | [00000000FEA00000 - 00000000FEAFFFFF] PCI Express Root Port                                      |
| [ ] | [00000000FEB80000 - 00000000FEBBFFFFF] Motherboard resources                                     |
| [ ] | [00000000FEC00000 - 00000000FEC00FFF] Motherboard resources                                      |
| [ ] | [00000000FEC01000 - 00000000FEC01FFF] Motherboard resources                                      |
| [ ] | [00000000FEC10000 - 00000000FEC100FF] AMD Embedded SPI Flash                                     |
| [ ] | [00000000FEC10000 - 00000000FEC10FFF] Motherboard resources                                      |
| [ ] | [00000000FED00000 - 00000000FED003FF] High precision event timer                                 |
| [ ] | [00000000FED40000 - 00000000FED44FFF] Trusted Platform Module 2.0                                |
| [ ] | [00000000FED80000 - 00000000FED8FFFFF] Motherboard resources                                     |
| [ ] | [00000000FED81200 - 00000000FED812FF] AMD GPIO Controller                                        |
| [ ] | [00000000FED81500 - 00000000FED818FF] AMD GPIO Controller                                        |
| [ ] | [00000000FEDC0000 - 00000000FEDC0FFF] Motherboard resources                                      |
| [ ] | [00000000FEDC2000 - 00000000FEDC2FFF] AMD I2C Controller                                         |
| [ ] | [00000000FEE00000 - 00000000FEE00FFF] Motherboard resources                                      |
| [ ] | [00000000FEE00000 - 00000000FFFFFFF] PCI Express Root Complex                                    |
| [ ] | [00000000FF000000 - 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 |
|    | (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 |
|  | (ISA) 0x00000125 (293) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000126 (294) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00000127 (295) | Microsoft ACPI-Compliant System |
|  | (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 |
|    | (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 |

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|-------------------------------------------------------------------------------------|------------------------|---------------------------------|
|    | (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 |



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|-------------------------------------------------------------------------------------|------------------------|---------------------------------|
|    | (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 |

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|-------------------------------------------------------------------------------------|------------------------|---------------------------------|
|    | (ISA) 0x000001AD (429) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001AE (430) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001AF (431) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001B0 (432) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001B1 (433) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001B2 (434) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001B3 (435) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001B4 (436) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001B5 (437) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001B6 (438) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001B7 (439) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001B8 (440) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001B9 (441) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001BA (442) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001BB (443) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001BC (444) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001BD (445) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001BE (446) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001BF (447) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001C0 (448) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001C1 (449) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001C2 (450) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001C3 (451) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001C4 (452) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001C5 (453) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001C6 (454) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001C7 (455) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001C8 (456) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001C9 (457) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001CA (458) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001CB (459) | Microsoft ACPI-Compliant System |
|    | (ISA) 0x000001CC (460) | Microsoft ACPI-Compliant System |
|   | (ISA) 0x000001CD (461) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001CE (462) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001CF (463) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001D0 (464) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001D1 (465) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001D2 (466) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001D3 (467) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001D4 (468) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001D5 (469) | Microsoft ACPI-Compliant System |
|  | (ISA) 0x000001D6 (470) | Microsoft ACPI-Compliant System |

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|-------------------------------------------------------------------------------------|------------------------|---------------------------------|
|    | (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) 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 |
|    | (ISA) 0x00001ED (493)  | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00001EE (494)  | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00001EF (495)  | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00001F0 (496)  | Microsoft ACPI-Compliant System |
|    | (ISA) 0x00001F1 (497)  | Microsoft ACPI-Compliant System |
|   | (ISA) 0x00001F2 (498)  | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00001F3 (499)  | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00001F4 (500)  | Microsoft ACPI-Compliant System |
|  | (ISA) 0x00001F5 (501)  | Microsoft ACPI-Compliant System |
|  | (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) 0xFFFFFF0 (-16)   | Intel(R) I210 Gigabit Network Connection                   |
|  | (PCI) 0xFFFFFF1 (-15)   | AMD PSP 10.0 Device                                        |
|  | (PCI) 0xFFFFFF2 (-14)   | AMD PSP 10.0 Device                                        |
|  | (PCI) 0xFFFFFF3 (-13)   | Standard NVM Express Controller                            |
|  | (PCI) 0xFFFFFF4 (-12)   | Standard NVM Express Controller                            |
|  | (PCI) 0xFFFFFF5 (-11)   | Standard NVM Express Controller                            |
|  | (PCI) 0xFFFFFF6 (-10)   | Standard NVM Express Controller                            |
|  | (PCI) 0xFFFFFF7 (-9)    | Standard NVM Express Controller                            |
|  | (PCI) 0xFFFFFF8 (-8)    | Standard NVM Express Controller                            |
|  | (PCI) 0xFFFFFF9 (-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

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- ▼  DESKTOP-5RQ8OAS
  - ▼  Direct memory access (DMA)
    -  4 Direct memory access controller
  - >  Input/output (IO)
  - >  Interrupt request (IRQ)
  - >  Memory