

QBiP-1605B

3.5" SBC Boards- QBiP-1605B
User's Manual 1st Ed

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Packing List

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

| Item | Quantity |
|------------|----------|
| QBiP-1605B | 1 |
| SATA cable | 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 GIGAIPC.com for the latest version of this document.

Safety Precautions

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

1. All cautions and warnings on the device should be noted.
2. Make sure the power source matches the power rating of the device.
3. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
4. Always completely disconnect the power before working on the system's hardware.
5. No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
6. If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
7. Always disconnect this device from any AC supply before cleaning.
8. While cleaning, use a damp cloth instead of liquid or spray detergents.
9. Make sure the device is installed near a power outlet and is easily accessible.
10. Keep this device away from humidity.
11. Place the device on a solid surface during installation to prevent falls
12. Do not cover the openings on the device to ensure optimal heat dissipation.

13. Watch out for high temperatures when the system is running.
14. Do not touch the heat sink or heat spreader when the system is running
15. Never pour any liquid into the openings. This could cause fire or electric shock.
16. As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers.
17. If any of the following situations arises, please the contact our service personnel:
 - i. Damaged power cord or plug
 - ii. Liquid intrusion to the device
 - iii. Exposure to moisture
 - iv. Device is not working as expected or in a manner as described in this manual
 - v. The device is dropped or damaged
 - vi. Any obvious signs of damage displayed on the device

18. DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE CHAPTER 1) TO PREVENT DAMAGE.

FCC Statement

Warning!



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

Caution:

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

Attention:

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

China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量

GIGAIPC Main Board/ Daughter Board/ Backplane

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

○: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出

SJ/T 11363-2006 标准规定的限量要求。

备注: 此产品所标示之环保使用期限, 系指在一般正常使用状况下。

China RoHS Requirement (EN)

Poisonous or Hazardous Substances or Elements in Products
GIGAIPC 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 |

O : The quantity of poisonous or hazardous substances or elements found in each of the component's parts is below the SJ/T 11363-2006-stipulated requirement.
X: The quantity of poisonous or hazardous substances or elements found in at least one of the component's parts is beyond the SJ/T 11363-2006-stipulated requirement.
Note: The Environment Friendly Use Period as labeled on this product is applicable under normal usage only

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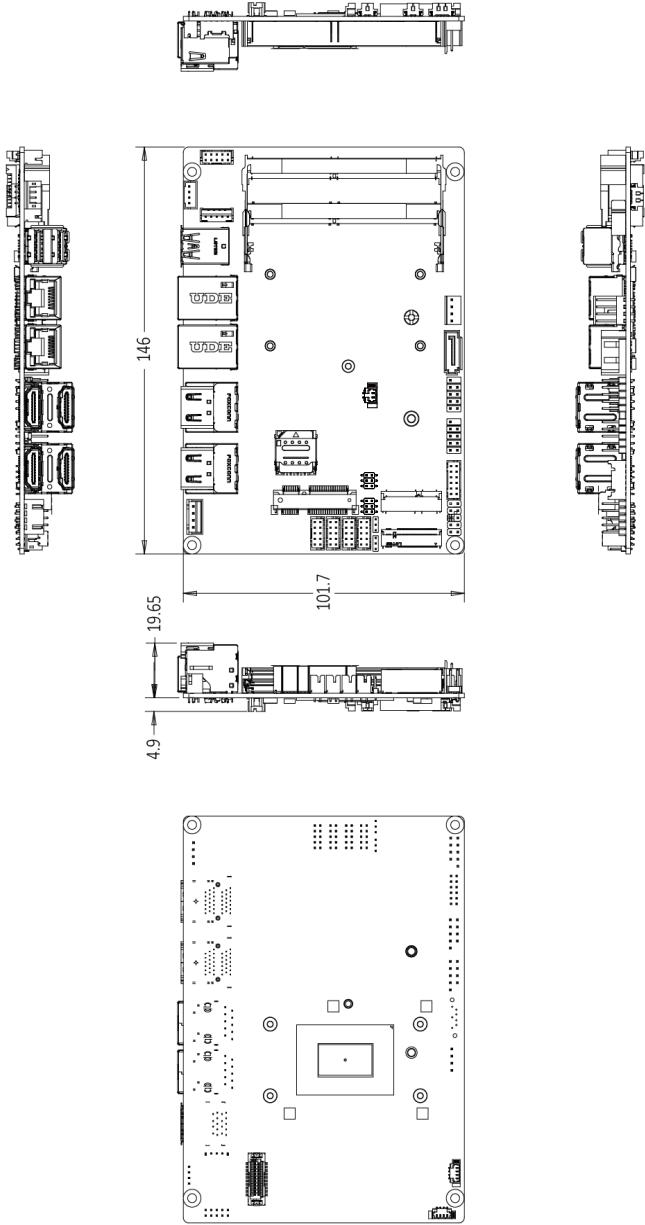
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Chapter 1

Chapter1 - Product Specifications QBiP-1605B



1.1 Specifications- QBiP-1605B

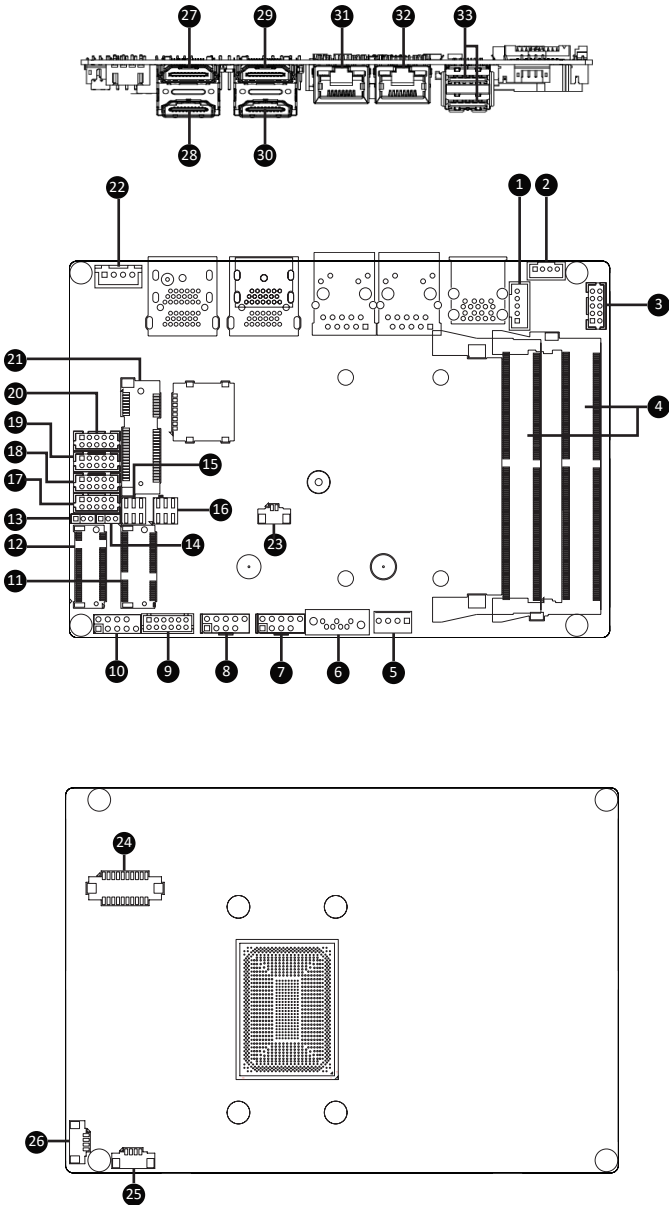
| Motherboard | QBiP-1605B (MRZNVOS) |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Form Factor | 3.5" SBC 146W x 101.7Dmm |
| CPU | AMD Ryzen™ V1605B Embedded Processor 14nm, 4 cores, 8 threads, 2.0 GHz, up to 3.6 GHz TDP 25W 2MB of shared L2 plus 4MB of shared L3 total |
| Package | FP5 Type 1 |
| Chipset | SoC |
| Memory | 2 x DDR4 SO-DIMM sockets, Max. Capacity 32 GB Support Dual channel DDR4 2400/2133 MHz memory modules |
| Ethernet | 2 x GbE LAN Ports (Realtek® RTL8111HS) |
| Video | Integrated Graphics Processor - AMD Radeon™ Vega 8 Graphics 4 x HDMI port, supporting a maximum resolution of 4096x2160 @60Hz 1 x eDP port, supporting a maximum resolution of 3840x2160 @60Hz (Share from HDMI) |
| Audio | Realtek® Audio Codec |
| Storage | 1 x SATA 6Gb/s Port |
| Raid | — |
| Expansion Slots | 1 x 2280 M.2 M-Key (PCIe x4, SATA 6Gb/s) 1 x 2230 M.2 E-Key 1 x Full-size Mini PCIe with SIM slot (PCIe x1 + USB2.0) -- support 3G module |

| Motherboard | QBiP-1605B (MRZNVOS) |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Internal I/O | 1 x 4-pin box power connector (DC in +9V~36VDC) 1 x CPU fan header 1 x System fan header 1 x Front panel header 1 x Front panel audio header 1 x 2W Speaker out header 1 x SATA Power header 4 x USB 2.0 headers 1 x GPIO (8-bits) & SMBUS header 2 x COM headers (RS-232) 2 x COM headers (RS-232/422/485 & RI/5V/12V) 1 x Backlight Control header 1 x AT/ATX mode select jumper 1 x eDP/HDMI jumper 1 x Buzzer |
| Rear I/O | 4 x HDMI 2 x RJ45 LAN Ports 2 x USB 3.2 Gen 1 |
| TPM | Onboard TPM 2.0 security chip INFINEON SLB9665TT2.0 |
| OS Compatibility | Windows 10 (x64) |
| PSU Connectors | 1 x 4-pin box power connector (+9V~36V Full Range) |
| Operating Properties | Operating temperature: 0°C to 60°C Operating humidity: 0-90% (non-condensing) Non-operating temperature: -40°C to 85°C Non-operating humidity: 0%-95% (non-condensing) |

Chapter 2

Chapter 2 – Hardware Information

2.1 Jumpers and Connectors

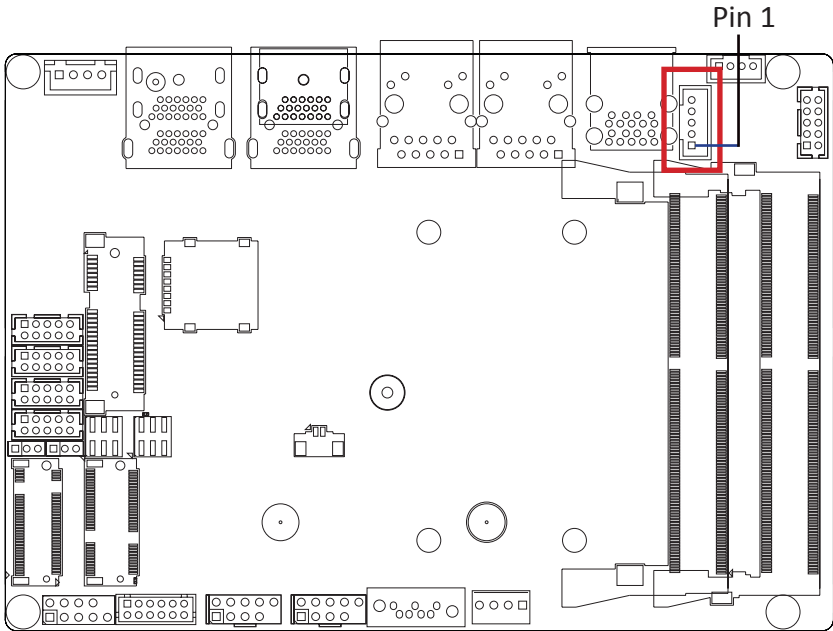


| | Code | Description |
|----|---------------------|-----------------------------------------------------|
| 1 | BKL_CN | Backlight Control header |
| 2 | SPKR | Speaker out connector |
| 3 | F_AUDIO | Front panel audio header |
| 4 | SODIMM1, SODIMM2 | DDR4 SO-DIMM slot |
| 5 | SATAPWR | SATA power connector |
| 6 | SATA | SATA 6Gb/s connector |
| 7 | F_USB2_2 | USB 2.0 header |
| 8 | F_USB2_1 | USB 2.0 header |
| 9 | GPIO_CNT | General Purpose input/output header |
| 10 | SYS_PANEL | Front panel header |
| 11 | M2E | M.2 E-Key for WiFi NGFF |
| 12 | M2M | M.2 M Key for NVME/SATA |
| 13 | AT_CN | AT/ATX mode select jumper |
| 14 | HDMI/eDP_CN | HDMI/eDP mode select jumper |
| 15 | JCOM2 | COM2 RI pin RI/5V/12V Select |
| 16 | JCOM1 | COM1 RI pin RI/5V/12V Select |
| 17 | COM1 | COM1 Serial port header (RS-232/422/485, RI/5V/12V) |
| 18 | COM2 | COM2 Serial port header (RS-232/422/485, RI/5V/12V) |
| 19 | COM3 | COM3 Serial port header (RS-232) |
| 20 | COM4 | COM4 Serial port header (RS-232) |
| 21 | MPCIE | Mini PCIE for 3G/4G module |

| | Code | Description |
|----|---------|------------------------------------------------------------------------------------|
| 22 | DC_IN | DC IN 1x4-pin power connector |
| 23 | Battery | Battery connector |
| 24 | EDP | eDP connector (*The HDMI3's Function is Disabled, during eDP Function Enabled) |
| 25 | CPU_FAN | CPU Fan connector |
| 26 | SYS_FAN | System Fan connector |
| 27 | HDMI1_2 | HDMI 2 connector |
| 28 | | HDMI 1 connector |
| 29 | HDMI3_4 | HDMI 4 connector (*The HDMI 4's function is Disabled, during eDP Function Enabled) |
| 30 | | HDMI 3 connector |
| 31 | LAN2 | LAN connectors |
| 32 | LAN1 | LAN connectors |
| 33 | USB3 | USB 3.2 Gen 1 |

2.2.1 BKL_CN (Backlight Control header)

1



Backlight Control header



Connector PN

721-81-05TW00

A2001WV-05P146

Vendor

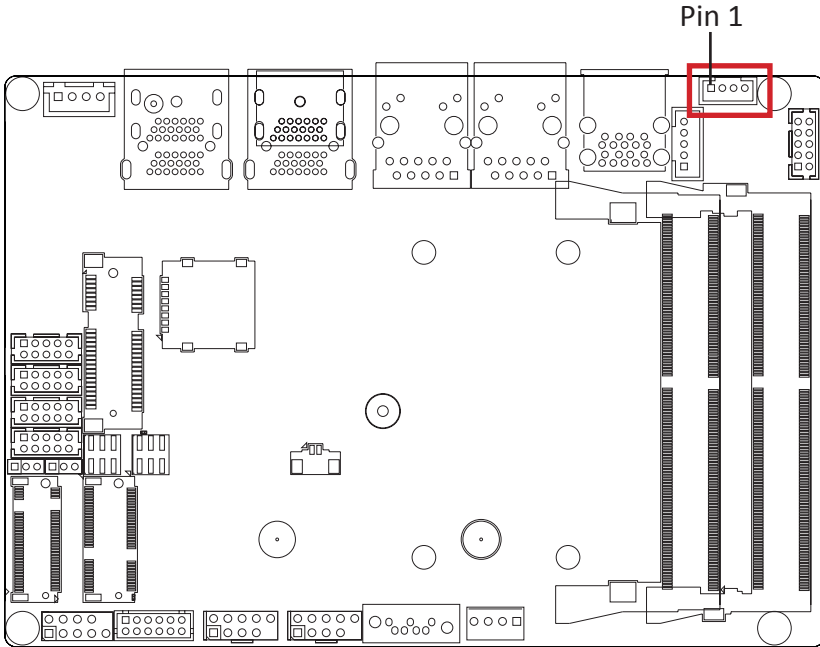
PINREX

JOINT-TECH

| Pin No. | Definition |
|---------|-------------|
| 1 | 12V |
| 2 | GND |
| 3 | eDP_BKLTEN |
| 4 | eDP_BKLTCTL |
| 5 | 5V |

2.2.2 SPK_OUT (Speaker out connector)

2



Speaker out connector



Connector PN

721-81-045W00

Vendor

PINREX

A2001WV-04P146

JOINT-TECH

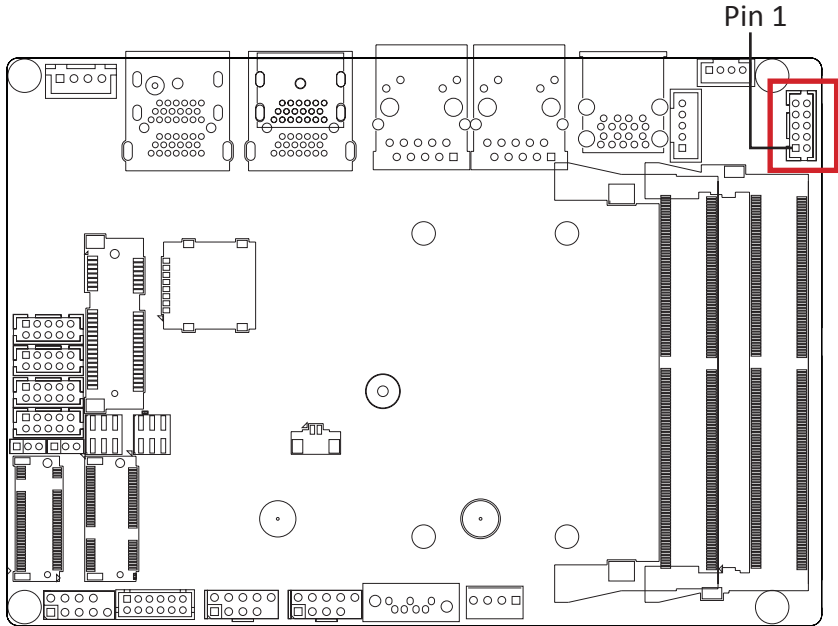
Pin No.

Definition

| | |
|---|----------------|
| 1 | Speaker Out R+ |
| 2 | Speaker Out R- |
| 3 | Speaker Out L- |
| 4 | Speaker Out L+ |

2.2.3 F_Audio (Front panel audio header)

3



Front panel audio header



Connector PN

725-81-10TW00

A2004WV-2X05P46

Vendor

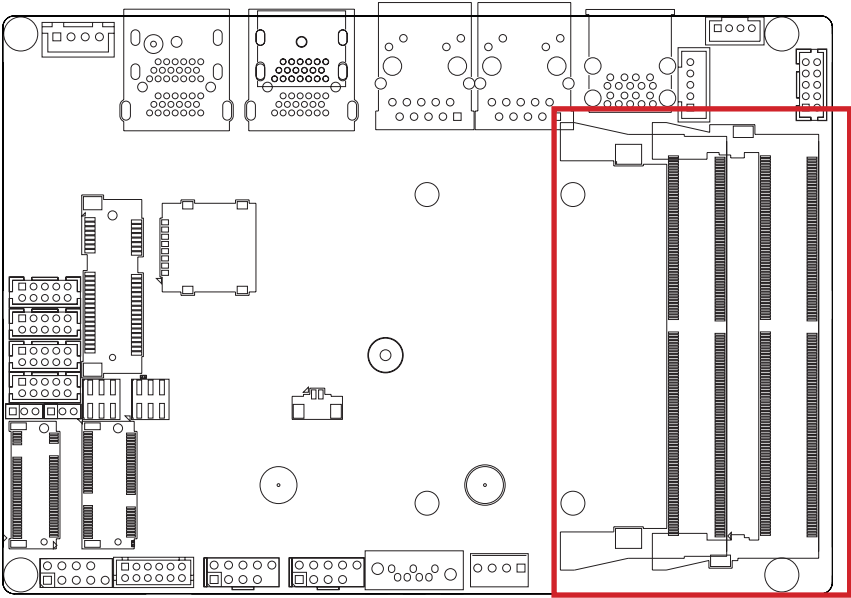
PINREX

JOINT-TECH

| Pin No. | Definition | Pin No. | Definition |
|---------|------------|---------|-------------|
| 1 | F_MIC1_L | 2 | GND |
| 3 | F_MIC1_R | 4 | F_AUDIO_DET |
| 5 | F_HP_R | 6 | F_MIC_JD |
| 7 | FAUDIO_JD | 8 | NC |
| 9 | F_HP_L | 10 | F_HP_JD |

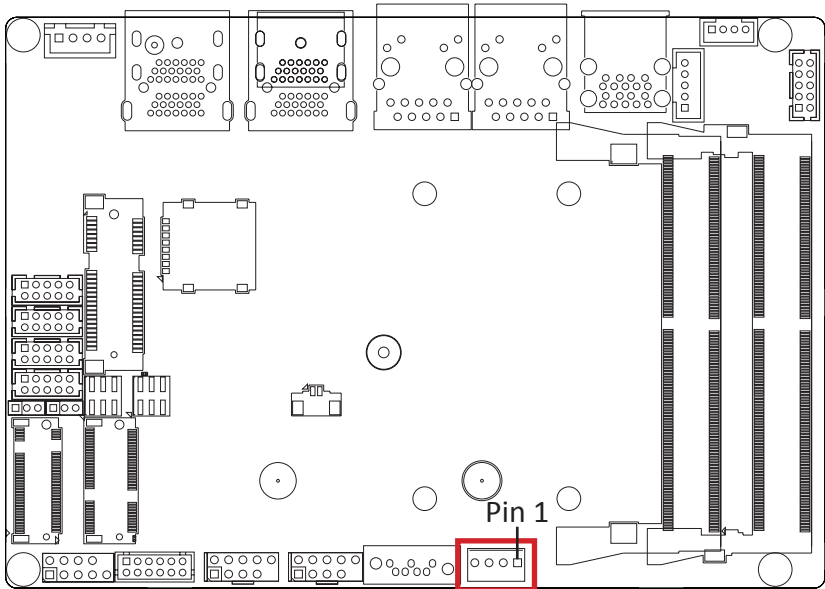
2.2.4 SODIMM1, SODIMM2 (DDR4 SO-DIMM slot)

4



2.2.5 SATAPW (SATA power connector)

5



Hard Disk Power Connector



Connector PN

743-81-04TW00

Vendor

PINREX

WF04Q2-3BJQ000

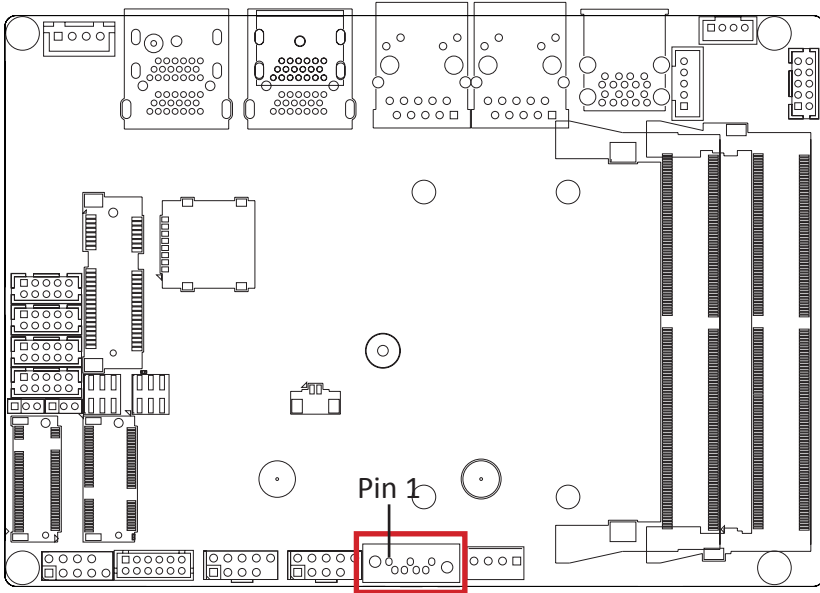
HORNGTONG

Pin No. Definition

| | |
|---|-----|
| 1 | 12V |
| 2 | GND |
| 3 | GND |
| 4 | 5V |

2.2.6 SATA (SATA 6Gb/s connector)

6



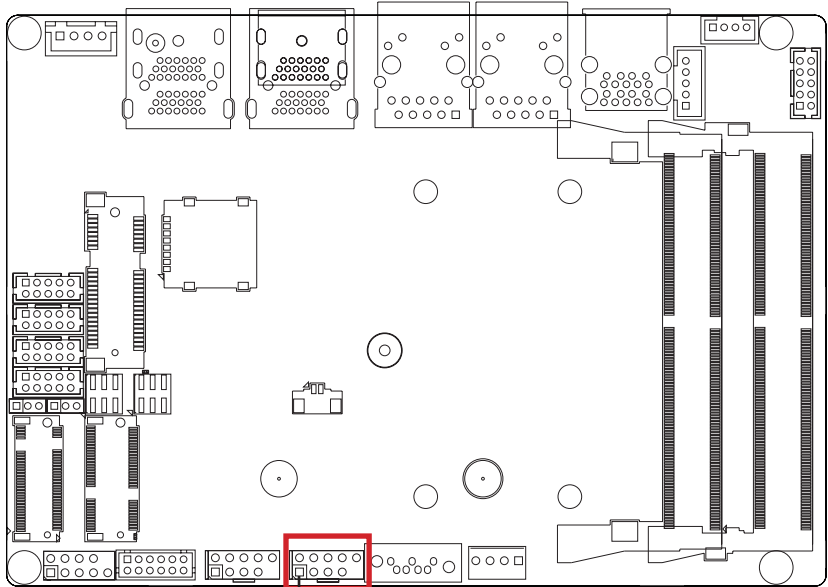
SATA 6Gb/s Connector



| Pin No. | Definition |
|---------|------------|
| 1 | GND |
| 2 | TXP |
| 3 | TXN |
| 4 | GND |
| 5 | RXN |
| 6 | RXP |
| 7 | GND |

2.2.7 F_USB2_2 (USB 2.0 header)

7



Pin 1

USB 2.0 header



Connector PN

210-92-05G117

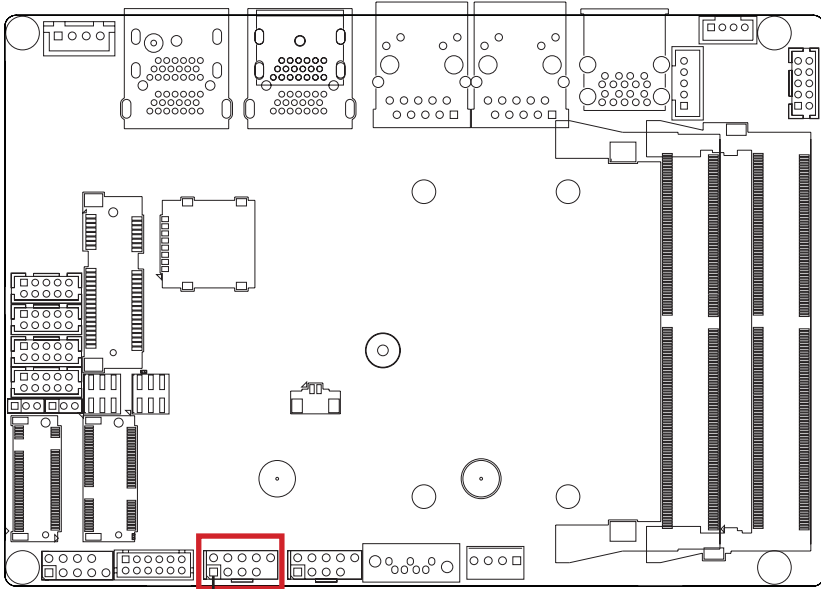
Vendor

PINREX

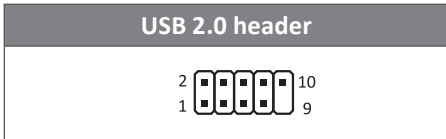
| Pin No. | Definition |
|---------|------------|
| 1 | 5V |
| 2 | 5V |
| 3 | DX- |
| 4 | DY- |
| 5 | DX+ |
| 6 | DY+ |
| 7 | GND |
| 8 | GND |
| 9 | No Pin |
| 10 | No Connect |

2.2.8 F_USB2_1 (USB 2.0 header)

8



Pin 1

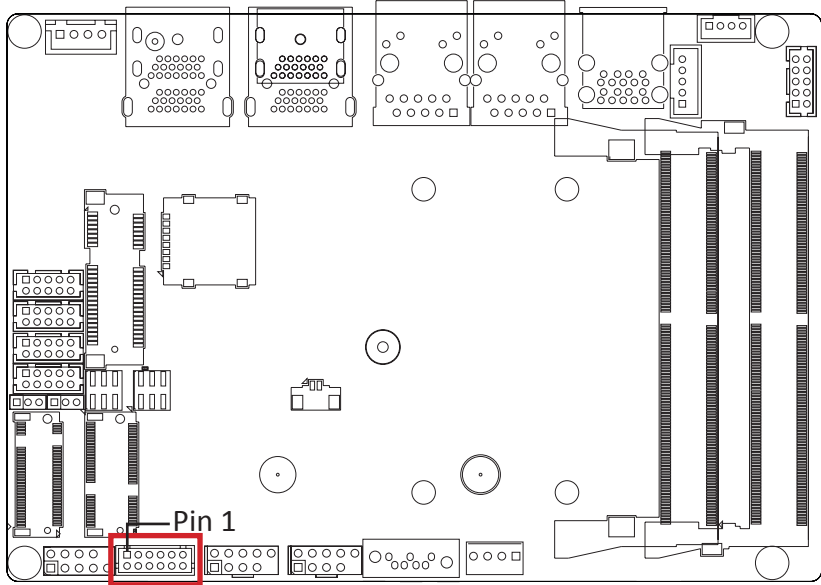


| Connector PN | Vendor |
|---------------|--------|
| 210-92-05G117 | PINREX |

| Pin No. | Definition |
|---------|------------|
| 1 | 5V |
| 2 | 5V |
| 3 | DX- |
| 4 | DY- |
| 5 | DX+ |
| 6 | DY+ |
| 7 | GND |
| 8 | GND |
| 9 | No Pin |
| 10 | No Connect |

2.2.9 GPIO_CNT (General purpose input/output header)

9



GPIO Connector

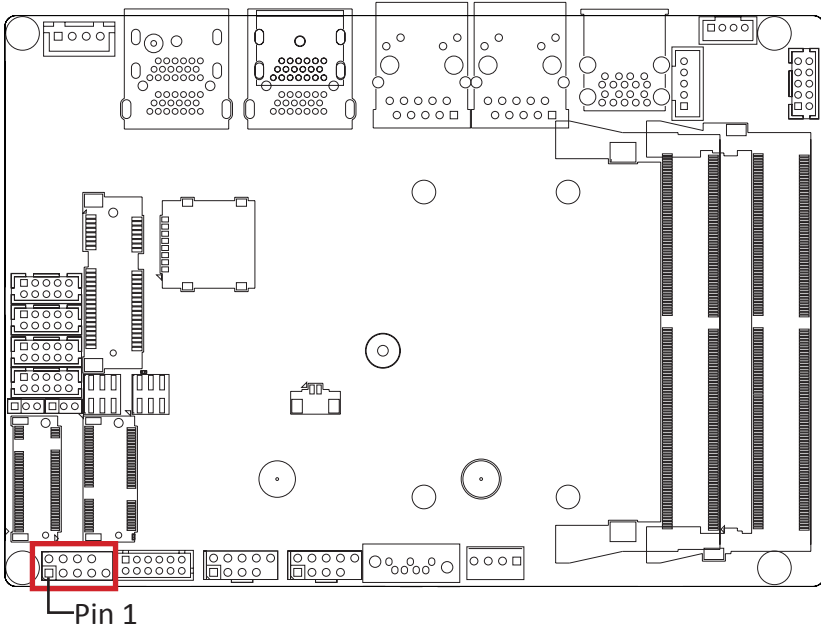


| Connector PN | Vendor |
|-----------------|------------|
| 725-81-12TW00 | PINREX |
| A2004WV-2X06P46 | JOINT-TECH |

| Pin No. | Definition | Pin No. | Definition |
|---------|------------|---------|-------------|
| 1 | GPI_0 | 2 | GPO_0 |
| 3 | GPI_1 | 4 | GPO_1 |
| 5 | GPI_2 | 6 | GPO_2 |
| 7 | GPI_3 | 8 | GPO_3 |
| 9 | SMB_IO_CLK | 10 | SMB_IO_DATA |
| 11 | 3.3V | 12 | GND |

2.2.10 SYS_PANEL (Front panel header)

10



System Panel Header



Connector PN

210-92-05G111

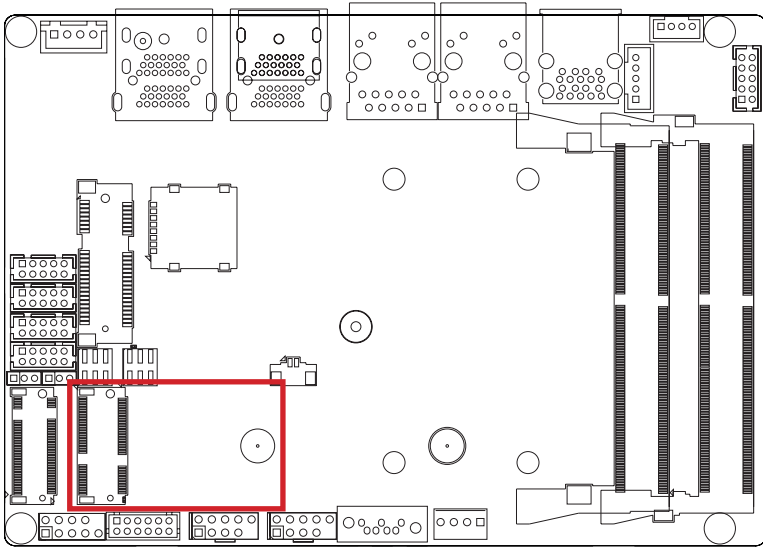
Vendor

PINREX

| Pin No. | Definition |
|---------|---------------|
| 1 | HDD LED+ |
| 2 | Power LED+ |
| 3 | HDD LED- |
| 4 | Power LED- |
| 5 | GND |
| 6 | Power Button+ |
| 7 | Reset Button |
| 8 | Power Button- |
| 9 | No Connect |
| 10 | No Pin |

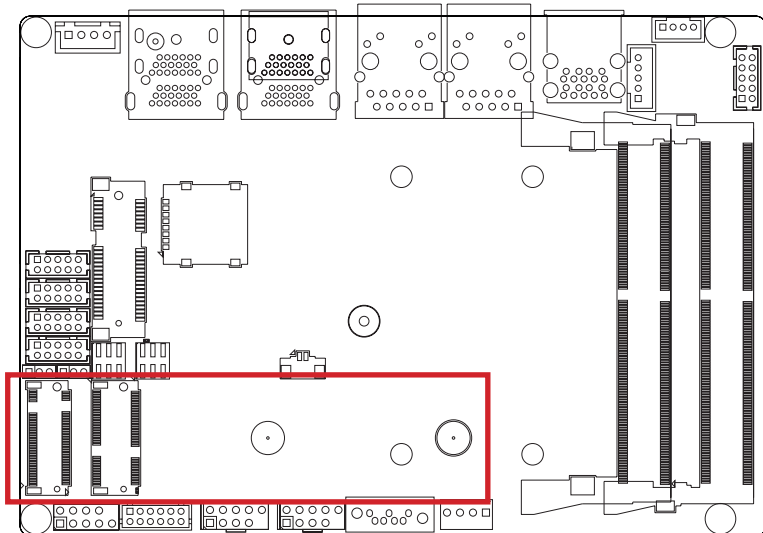
2.2.11 M2E (M.2 E-key for WiFi NGFF)

11



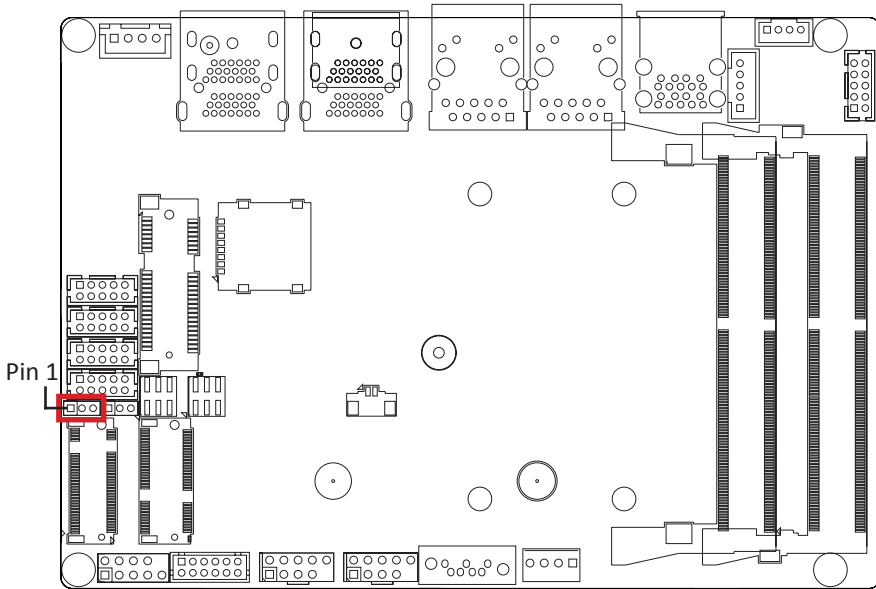
2.2.12 M2M (M.2 M key for NVME/SATA)


12



2.2.13 AT_CN (AT/ATX mode select jumper)

13

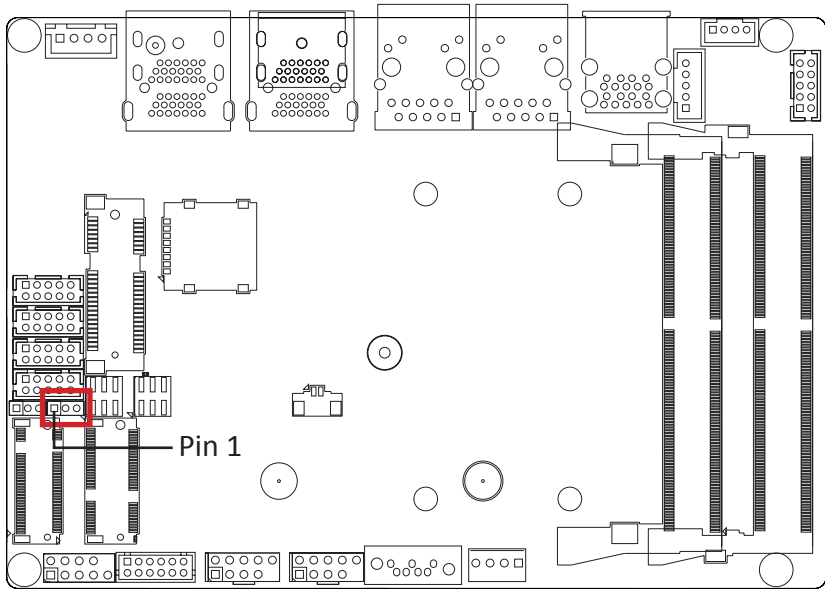


| AT/ATX mode select jumper | |
|-----------------------------------------------------------------------------------|--------------------------------------------|
|  | 1-2 Close : AT mode. |
| | 2-3 Close : ATX mode. (Default setting) |

| Pin No. | Definition |
|---------|------------|
| 1 | AT |
| 2 | COMM |
| 3 | ATX |

2.2.14 HDMI/eDP_CN (HDMI/eDP mode select jumper)

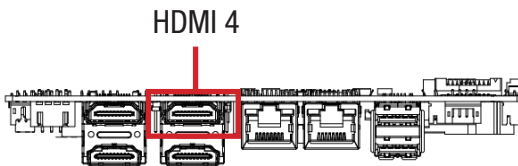
14



HDMI/eDP mode select jumper

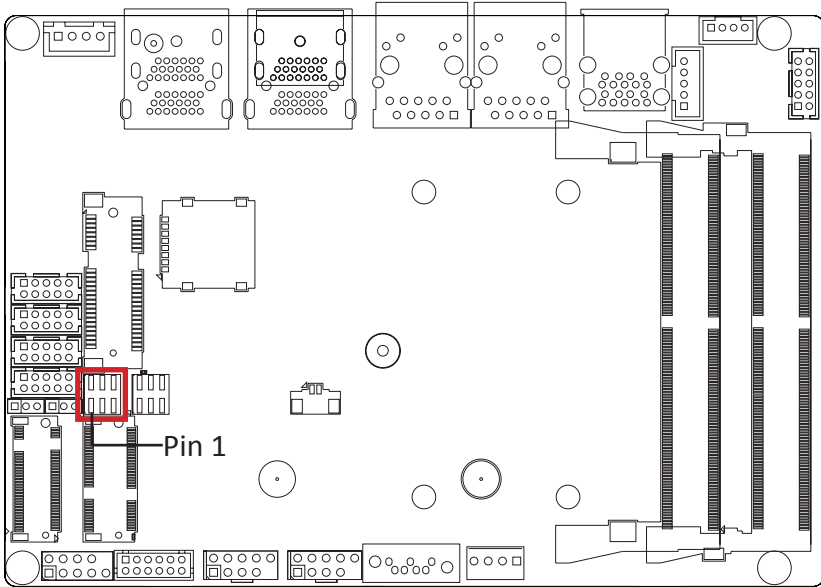
| | |
|--|------------------------------------------------------------------|
| | 1-2 Close: HDMI mode. (Default setting, HDMI 4 I/O is Enable) |
| | 2-3 Close: eDP mode. (HDMI 4 I/O Port is Disable) |

| Pin No. | Definition |
|---------|------------|
| 1 | HDMI |
| 2 | COMM |
| 3 | eDP |



2.2.15 JCOM2 (COM2 RI pin RI/5V/12V Select)

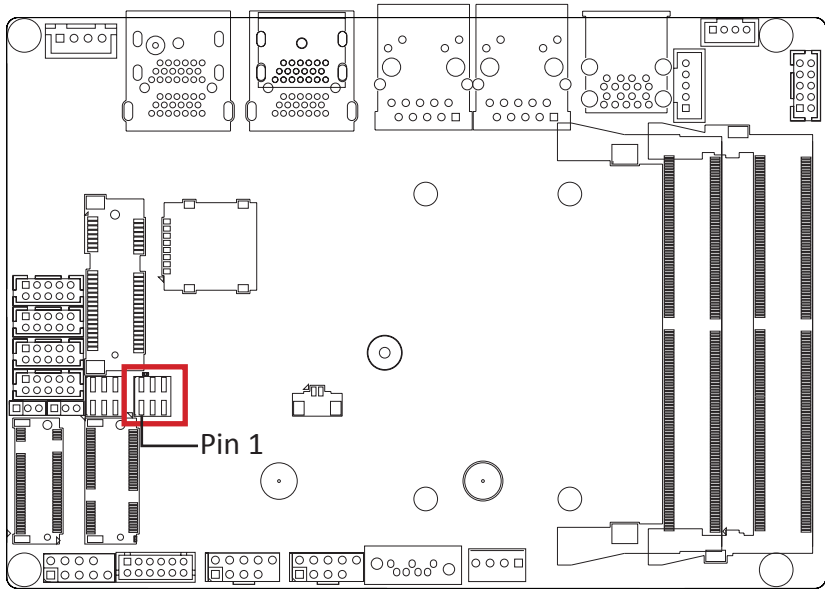
15



| JCOM2 Jumper Select | |
|---------------------|-----------------------------------|
| | 1-2 Close: 5V (Power COM) |
| | 3-4 Close: RI (Stand COM) Default |
| | 5-6 Close: 12V (Power COM) |

2.2.16 JCOM1 (COM1 RI pin RI/5V/12V Select)

16

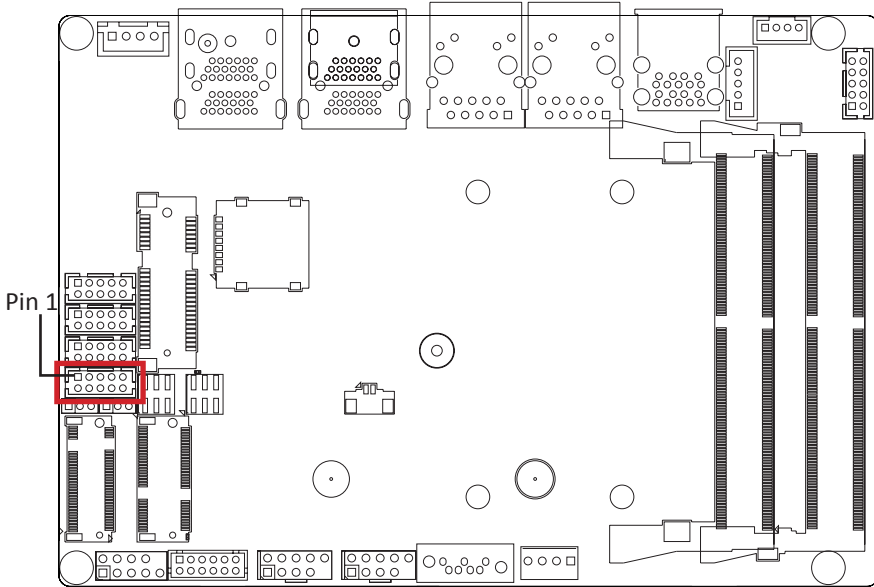


JCOM1 Jumper Select

| | |
|--|-----------------------------------|
| | 1-2 Close: 5V (Power COM) |
| | 3-4 Close: RI (Stand COM) Default |
| | 5-6 Close: 12V (Power COM) |

2.2.17 COM1 (Serial port header, RS-232/422/485 & RI/5V/12V)

17



Serial Port Cable Connector



Connector PN

725-81-10TW00

A2004WV-2X05P46

Vendor

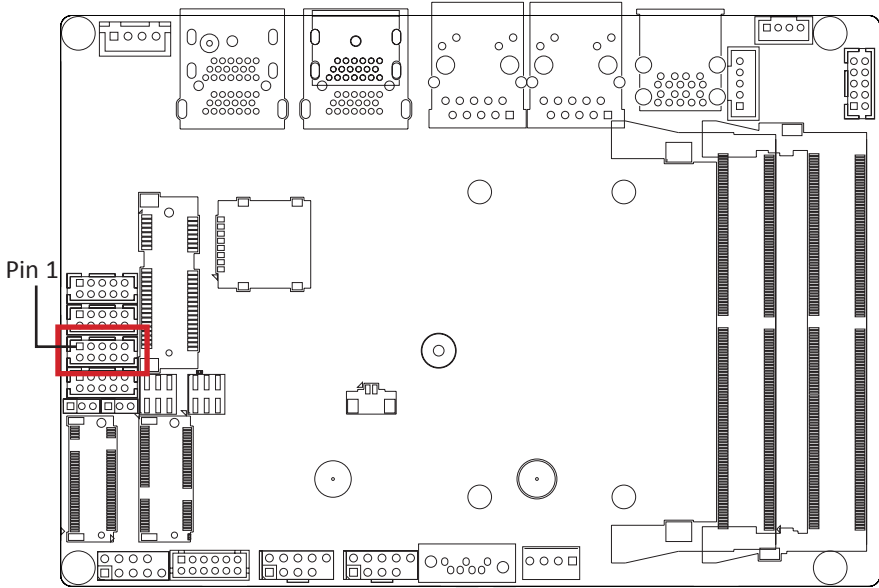
PINREX

JOINT-TECH

| Pin No. | RS-232 | RS-422 Full Duplex | RS-485 Half Duplex |
|---------|------------|--------------------|--------------------|
| 1 | RXD | TXD+ | D+ |
| 2 | DCD | TXD- | D- |
| 3 | DTR | RXD- | — |
| 4 | TXD | RXD+ | — |
| 5 | DSR | — | — |
| 6 | GND | — | — |
| 7 | CTS | — | — |
| 8 | RTS | — | — |
| 9 | No Connect | — | — |
| 10 | RI/5V/12V | — | — |

2.2.18 COM2 (Serial port header, RS-232/422/485 & RI/5V/12V)

18



Serial Port Cable Connector



Connector PN

725-81-10TW00

A2004WV-2X05P46

Vendor

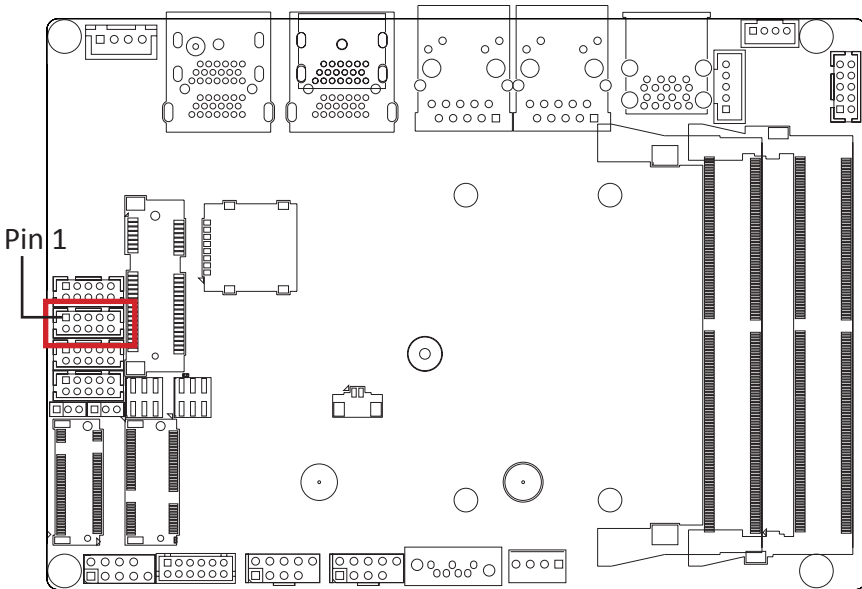
PINREX

JOINT-TECH

| Pin No. | RS-232 | RS-422 Full Duplex | RS-485 Half Duplex |
|---------|------------|--------------------|--------------------|
| 1 | RXD | TXD+ | D+ |
| 2 | DCD | TXD- | D- |
| 3 | DTR | RXD- | — |
| 4 | TXD | RXD+ | — |
| 5 | DSR | — | — |
| 6 | GND | — | — |
| 7 | CTS | — | — |
| 8 | RTS | — | — |
| 9 | No Connect | — | — |
| 10 | RI/5V/12V | — | — |

2.2.19 COM3 (Serial port header, RS-232)

19



Serial Port Cable Connector



Connector PN

725-81-10TW00

Vendor

PINREX

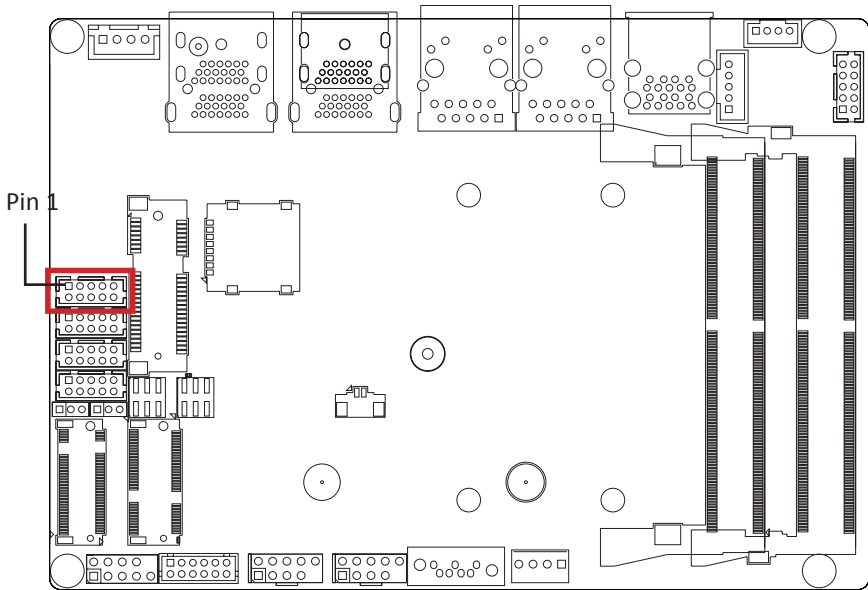
A2004WV-2X05P46

JOINT-TECH

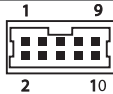
| Pin No. | Definition |
|---------|------------|
| 1 | RXD |
| 2 | DCD |
| 3 | DTR |
| 4 | TXD |
| 5 | DSR |
| 6 | GND |
| 7 | CTS |
| 8 | RTS |
| 9 | No Connect |
| 10 | RI/5V/12V |

2.2.20 COM4 (Serial port header, RS-232)

20



Serial Port Cable Connector



Connector PN

725-81-10TW00

A2004WV-2X05P46

Vendor

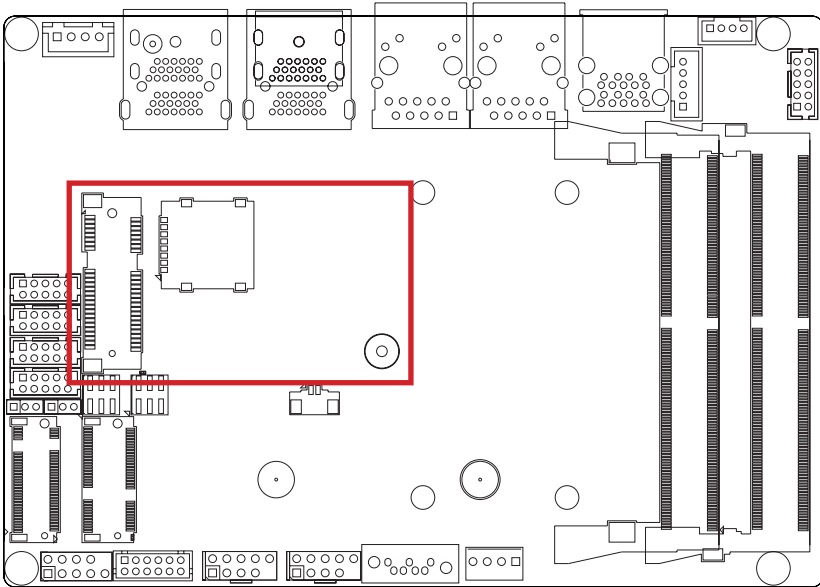
PINREX

JOINT-TECH

| Pin No. | Definition |
|---------|------------|
| 1 | RXD |
| 2 | DCD |
| 3 | DTR |
| 4 | TXD |
| 5 | DSR |
| 6 | GND |
| 7 | CTS |
| 8 | RTS |
| 9 | No Connect |
| 10 | RI/5V/12V |

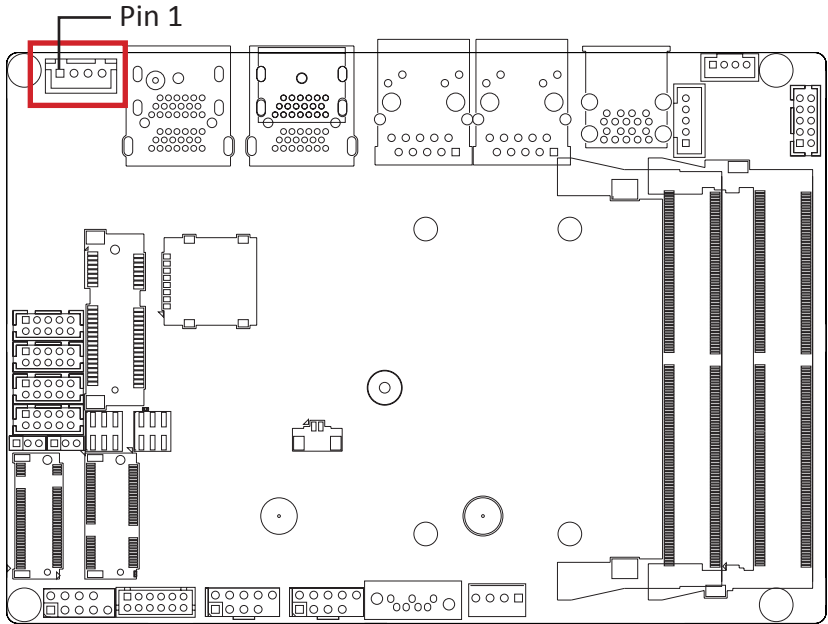
2.2.21 MPCIE (Mini PCIE for 3G/4G module)

21



2.2.22 DC IN (DC IN 1 x 4 pin power connector)

22



DC IN power connector

DC_IN



Connector PN

753-81-04TW00

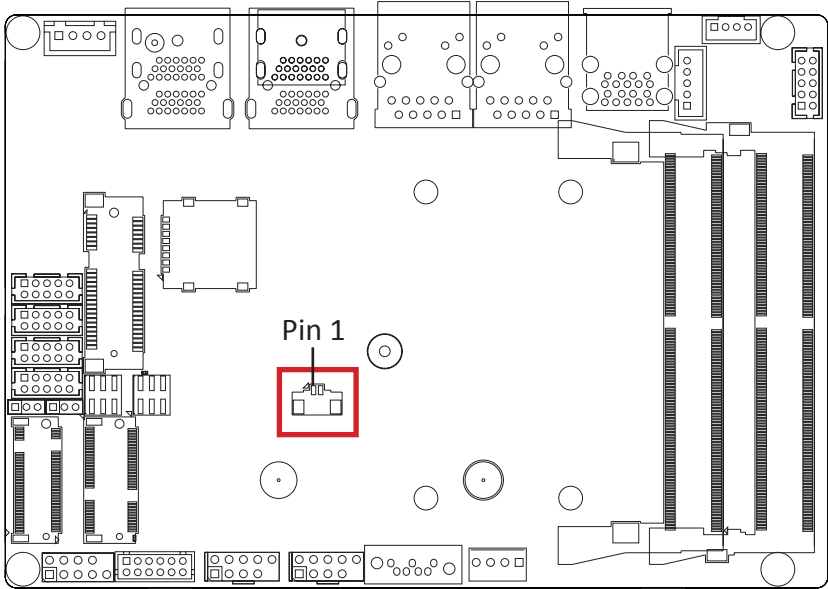
Vendor

PINREX

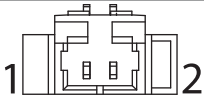
| Pin No. | Definition |
|---------|------------|
| 1 | GND |
| 2 | DCIN |
| 3 | DCIN |
| 4 | GND |

2.2.23 Battery (Battery Connector)

23



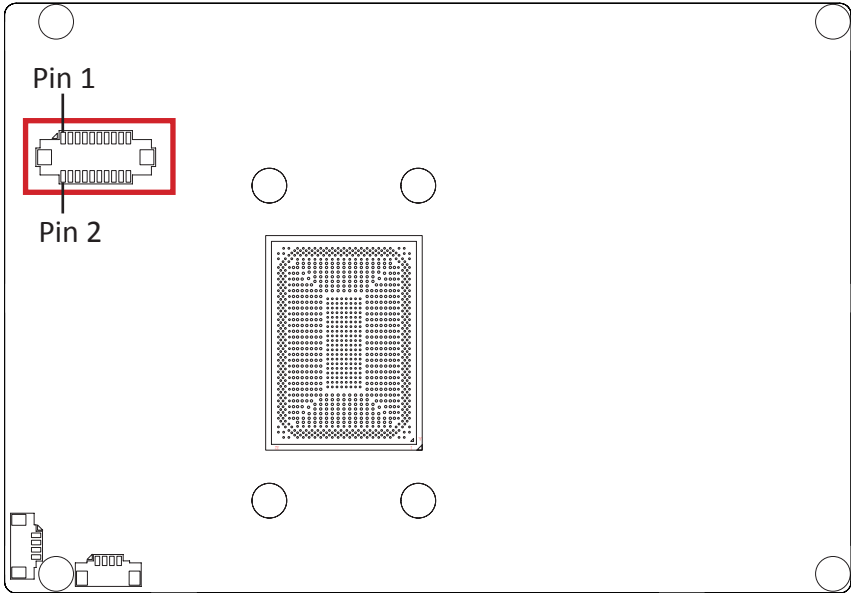
Battery Cable Connector



| Pin No. | Definition |
|---------|------------|
| 1 | 3.3V RTC |
| 2 | GND |

2.2.24 EDP (eDP Connector)

24

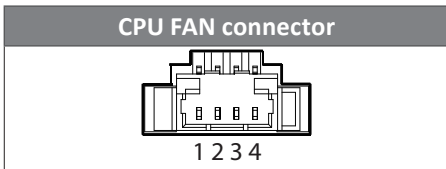
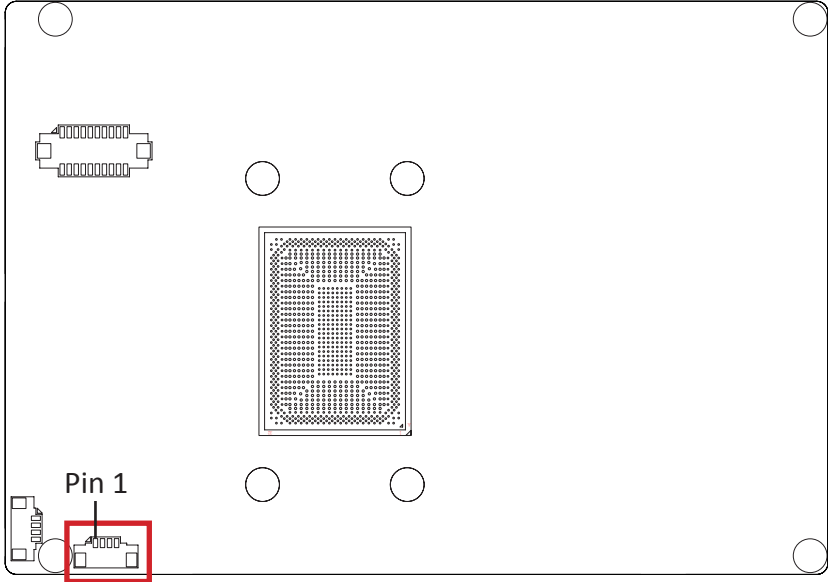


| Pin No. | Definition | Pin No. | Definition |
|---------|------------|---------|------------|
| 1 | GND | 2 | GND |
| 3 | EDP_TXN0 | 4 | EDP_TXN3 |
| 5 | EDP_TXP0 | 6 | EDP_TXP3 |
| 7 | GND | 8 | eDP_DET# |
| 9 | EDP_TXN1 | 10 | GND |
| 11 | EDP_TXP1 | 12 | EDP_AUXN |
| 13 | GND | 14 | EDP_AUXP |
| 15 | EDP_TXN2 | 16 | GND |
| 17 | EDP_TXP2 | 18 | EDP_HPDP |
| 19 | 5V | 20 | 3.3V |

| Connector PN | Vendor |
|---------------------------|------------|
| 50286-02071-001 | ACES |
| A1252WV-SF-2X10PN6BG1G00L | JOINT-TECH |

2.2.25 CPU_FAN (CPU FAN Connector)

25

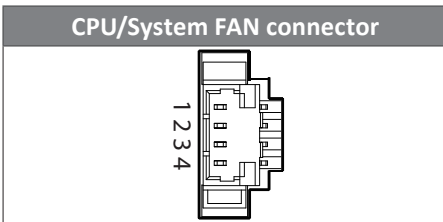
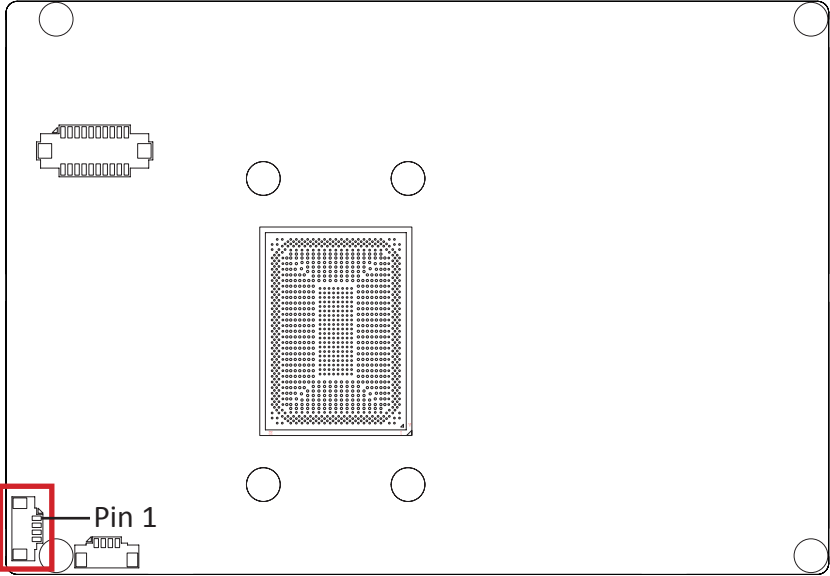


| Connector PN | Vendor |
|----------------|------------|
| 85205-0470N | ACES |
| A1250WV-S-04PC | JOINT-TECH |

| Pin No. | Definition |
|---------|------------|
| 1 | GND |
| 2 | 12V |
| 3 | FANTECH |
| 4 | PWM |

2.2.26 SYS_FAN (System FAN Connector)

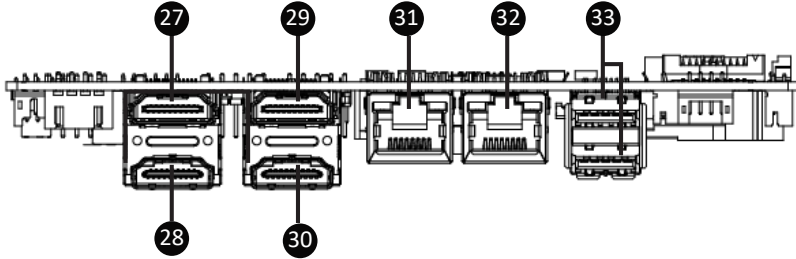
26



| Connector PN | Vendor |
|----------------|------------|
| 85205-0470N | ACES |
| A1250WV-S-04PC | JOINT-TECH |

| Pin No. | Definition |
|---------|------------|
| 1 | GND |
| 2 | 12V |
| 3 | FANTECH |
| 4 | PWM |

2.2.27 IO Connector Information



| | Code | Description |
|----|---------|------------------------------------------------------------------------------------|
| 27 | HDMI1_2 | HDMI 2 connector |
| 28 | | HDMI 1 connector |
| 29 | HDMI3_4 | HDMI 4 connector (*The HDMI 4's Function is Disabled, during eDP Function Enabled) |
| 30 | | HDMI 3 connector |
| 31 | LAN2 | LAN connectors |
| 32 | LAN1 | LAN connectors |
| 33 | USB3 | USB 3.2 Gen 1 |

Chapter 3

Chapter 3 – BIOS

3.1 Introduction

BIOS (Basic input/output system) provides hardware detailed information and boot-up options, which include firmware to control, set-up and test all hardware settings. Therefore, BIOS is the communication bridge between OS/application software and hardware.

3.1.1 How to Entering into BIOS menu

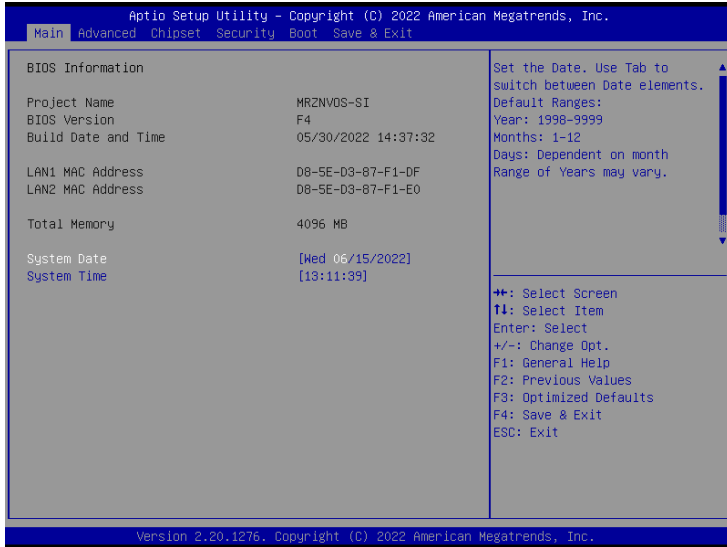
Once the system is power on, press the key as soon as possible to access into BIOS Setup program.

3.1.2 Function Keys to setup in BIOS Setup program

| Function keys | Description |
|---------------|--------------------------------------------|
| →← | Select Screen |
| ↑↓ | Select Item |
| Enter | Execute command or enter the submenu |
| + | Increase the numeric value or make changes |
| — | Decrease the numeric value or make changes |
| F1 | General Help |
| F2 | Previous Values |
| F3 | Load Optimized Defaults Settings |
| F4 | Save changes & Exit the BIOS Setup program |
| ESC | Exit the BIOS Setup program |

3.2 The Main Menu

The main menu shows the basic system information. Use arrow keys to move among the items.



| Items | Description |
|----------------------------|-----------------------------------------------------------------------------|
| Project Name | Shows Project name information |
| BIOS Version | Shows the BIOS version of the system |
| Build Date and Time | Shows the Build Date and Time when the BIOS was created. |
| LAN1 MAC Address | Shows LAN1 MAC Address information |
| LAN2 MAC Address | Shows LAN2 MAC Address information |
| Total Memory | Shows the total memory size of the installed memory |
| System Date | Set the Date for the system (Format : Week - Month - Day - Year) |
| System Time | Set the time for the system (Format : Hour - Minute - Second) |

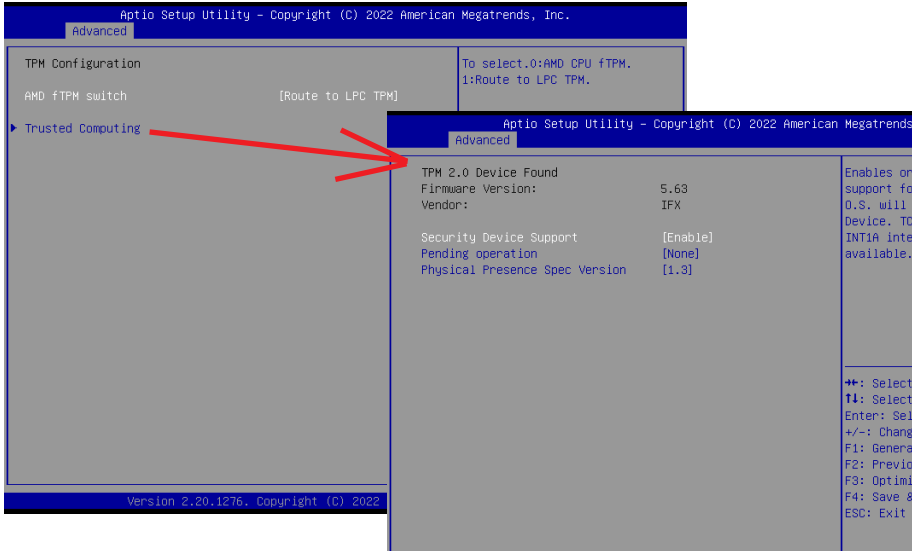
3.3 Advanced

The Advanced menu is to configure the functions of hardware settings through submenu. Use arrow keys to move among the items, and press <Enter> to access into the related submenu.



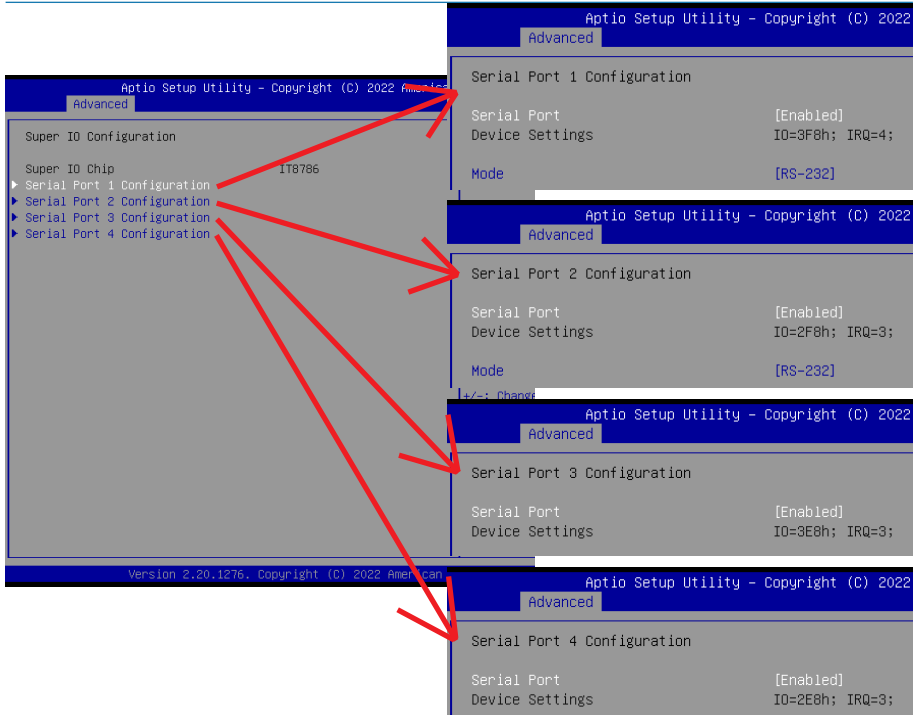
3.3.1 TPM Configuration

Use TPM Configuration submenu to choose TPM interface.



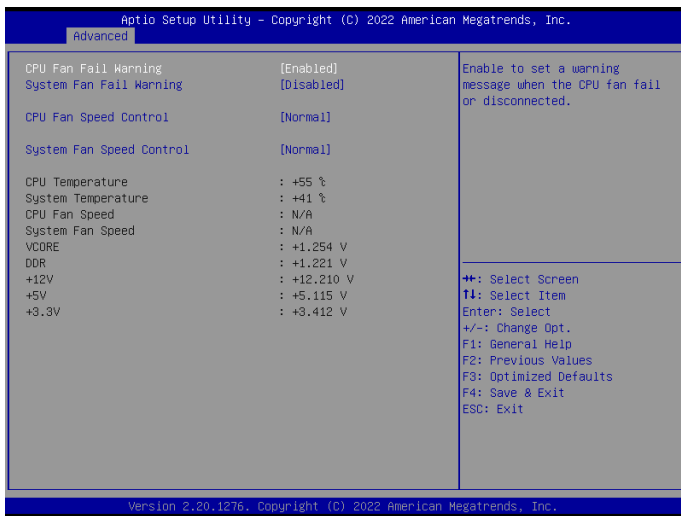
| Item | Description |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AMD fTPM switch | <p>AMD CPU fTPM : Enables AMD CPU firmwarm TPM</p> <p>Route to LPC TPM : Enables to route to LPC TPM (Default setting)</p> |
| Trusted Computing | <p>Security Device Support :</p> <p>Enabled : Enables TPM feature (Default setting)</p> <p>Disabled : Disables TPM feature</p> <p>Pending operation :</p> <p>None : No execution will be conducted (Default setting)</p> <p>TPM clear : Set to clear data on TPM</p> <p>Physical Presence Spec Version :</p> <p>Choose PPI spec version</p> <p>Option items : 1.2 or 1.3 (Default setting)</p> |

3.3.2 Super IO Configuration



| Item | Description |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Super IO Chip | Shows Super I/O chip model |
| Serial Port 1 Configuration | Press [Enter] to configure advanced items : Serial Port : Enabled : Enables allows you to configure the serial port settings Disabled : if Disabled, displays no configuration for the serial port |
| Serial Port 2 Configuration | Device settings : Display the specified Serial Port base I/O address and IRQ Mode : Choose RS-232, RS-422, or RS-485 feature |
| Serial Port 3 Configuration | Press [Enter] to configure advanced items : Serial Port : Enabled : Enables allows you to configure the serial port settings Disabled : if Disabled, displays no configuration for the serial port |
| Serial Port 4 Configuration | Device settings : Display the specified Serial Port base I/O address and IRQ |

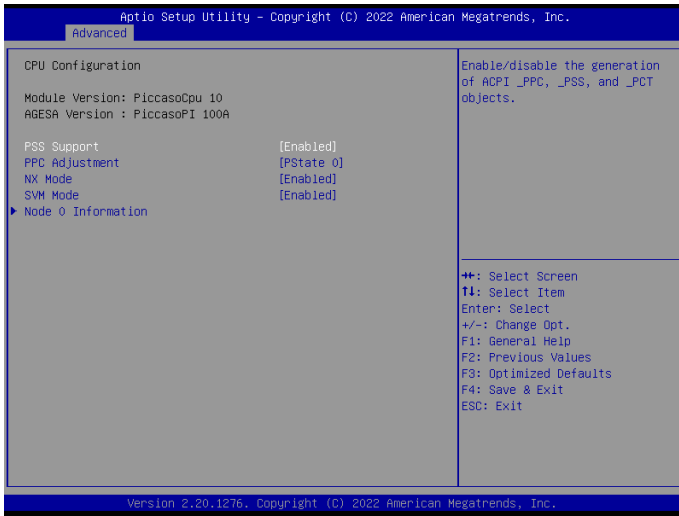
3.3.3 Hardware Monitor



| Item | Description |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| CPU Fan Fail Warning | Enabled : Enables CPU FAN Fail warning alert function (Default setting) Disabled : Disables CPU FAN Fail warning alert function |
| System Fan Fail Warning | Enabled : Enables CPU FAN Fail warning alert function Disabled : Disables CPU FAN Fail warning alert function (Default setting) |
| CPU Fan Speed Control | Normal : Fan speed set by BIOS default (Default setting) Full Speed : Set Fan operates at full speed |
| System Fan Speed Control | Normal : Fan speed set by BIOS default (Default setting) Full Speed : Set Fan operates at full speed |
| CPU temperature | Shows current CPU temperature |
| System temperature | Shows current system temperature |

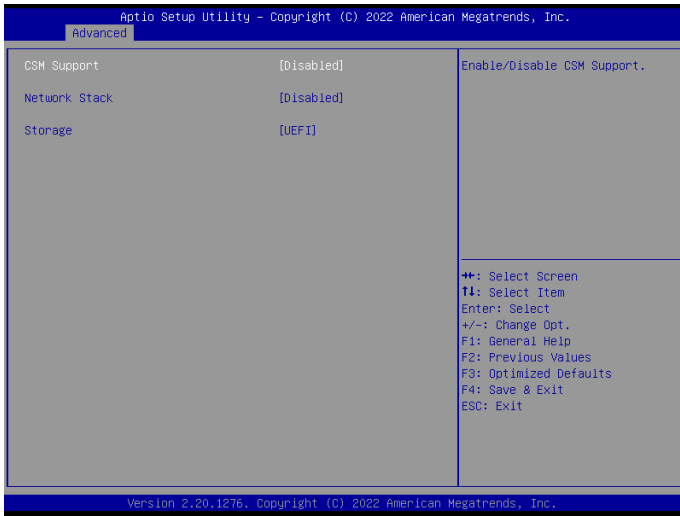
3.3.4 CPU Configuration

This submenu shows detailed CPU informations.



| Item | Description |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PSS Support | Allows you to get PState information Enabled : Enables to get PState information (Default setting) Disabled : Disables to get PState information |
| PPC Adjustment | To adjust the PState of the CPU Option items : PState 0 (Default setting), PState 1, PState 2 |
| NX Mode | Enables or Disables the No-execute page-protection function. Enabled : Enables Turbo Mode (Default setting) Disabled : Disables Turbo Mode |
| SVM Mode | Enables or Disables the CPU virtualization funtion. Enabled : Enables SVM Mode (Default setting) Disabled : Disables SVM Mode |
| Node 0 Information | Shows AMD CPU information |

3.3.5 CSM Configuration



| Item | Description |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CSM Support | Choose UEFI or Legacy Mode Disabled : UEFI Mode only (Default setting) Enabled : Enables Legacy Mode feature |
| Network Stack | When system is power on, install LAN driver under UEFI mode Disabled : Disables UEFI Network Stack (Default setting) Enabled : Enables UEFI Network Stack |
| Storage | Allows to select whether to enable UEFI or Legacy Storage option ROM Do not launch : Disables option ROM UEFI : Enables UEFI option ROM only (Default setting) Legacy : Enables Legacy option ROM only |

3.3.6 S5 RTC Wake Settings



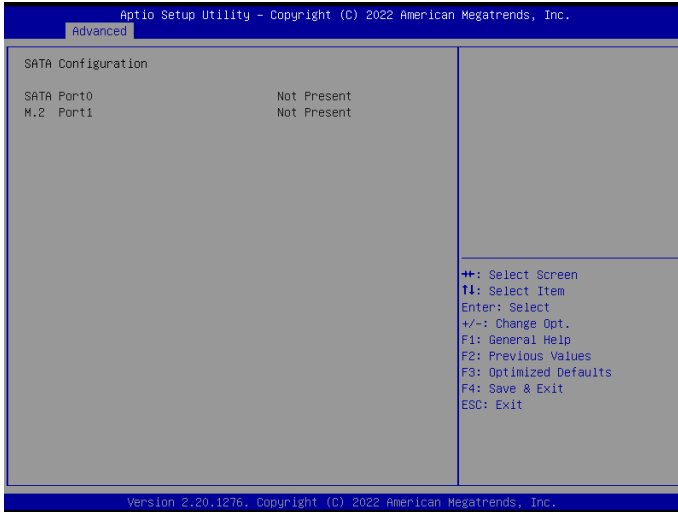
| Item | Description |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Wake system from S5</p> | <p>Enable or Disable System to wake on a specific time. Disabled : Disables system to wake on a specific time (Default setting) Fixed Time : Enables system to wake on a specific time (Format : hr : min : sec)</p> |

3.3.7 NVMe Configuration

NVMe Configuration shows information when your M.2 NVMe PCIe SSD is installed.



3.3.8 SATA Configuration

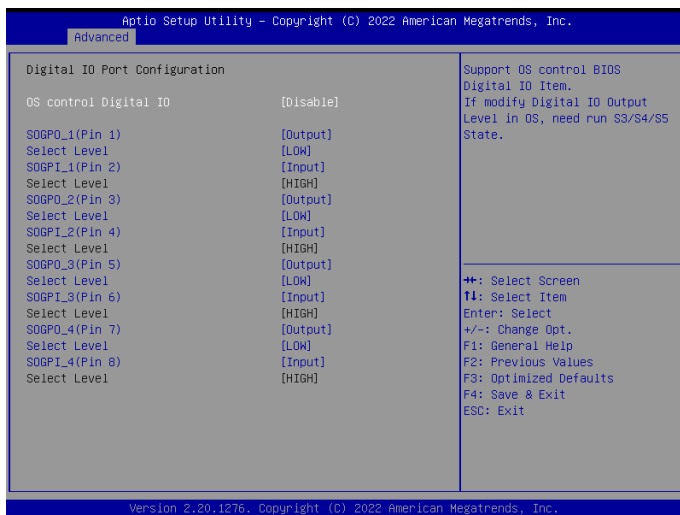


| Item | Description |
|--------------------|------------------------------------------|
| SATA Port 0 | shows 2.5" SATA HDD/SSD information |
| M.2 Port 1 | shows M.2 SATA interface SSD information |

3.3.9 Offboard SATA Controller Configuration

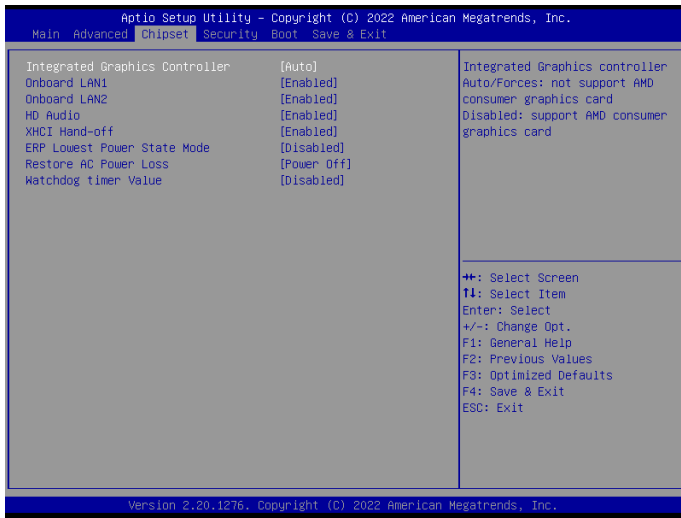


3.3.10 Digital IO Port Configuration



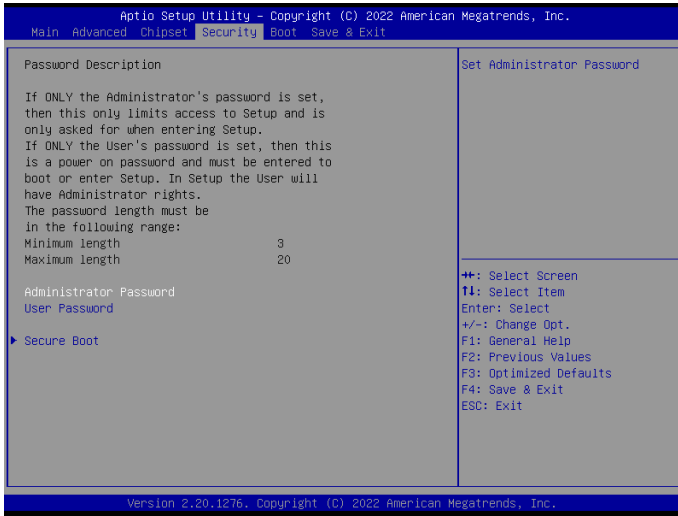
| Item | Description |
|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OS control Digital IO | <p>Disabled : If Digital IO Output value/level is modified in OS, they will not be memorized and kept. (Default setting)</p> <p>Enabled : If Digital IO Output value/level is modified in OS, they will be memorized and kept.</p> |
| SOGPO_1 (Pin 1) SOGPI_1 (Pin 2) SOGPO_2 (Pin 3) SOGPI_2 (Pin 4) SOGPO_3 (Pin 5) SOGPI_3 (Pin 6) SOGPO_4 (Pin 7) SOGPI_4 (Pin 8) | Configure Digital IO Input or Output values for each pin. |

3.4 Chipset

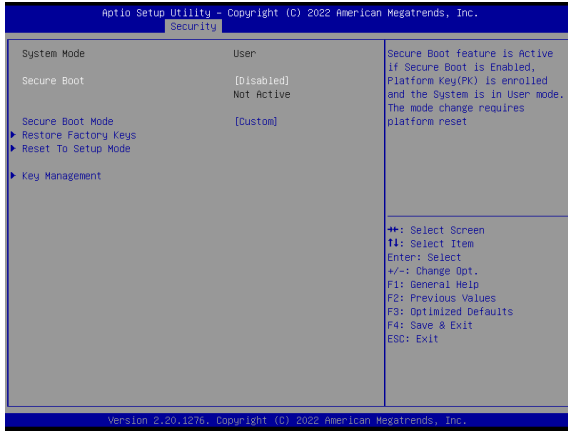


| Item | Description |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Integrated Graphics Controller | Enables or disables the onboard graphics function Auto : System will automatically enables or disables the onboard graphics depending on the graphics card being installed. (Default setting) Forces : Disables the onboard graphics. |
| Onboard LAN1 Onboard LAN2 | Enable/Disable onboard LAN controller Enabled : Enables onboard LAN controller (Default setting) Disabled : Disables onboard LAN controller |
| HD Audio | Enable/Disable onboard audio controller Enabled : Enables onboard audio controller (Default setting) Disabled : Disables onboard audio controller |
| XHCI Hand-off | Enable/Disable XHCI Hand-off function Enabled : Enables XHCI Hand-off function (Default setting) Disabled : Disables XHCI Hand-off function |
| ERP Lowest Power State Mode | Enable/Disable power saving funtion Enabled : Enables ERP Lowest Power State Mode Disabled : Disabled ERP Lowest Power State Mode (Default setting) |
| Restore AC Power Loss | To set which option the system should returns if a sudden power loss occurred Power on : System power on when the power is back Power off : Do not power on when the power is back (Default setting) Last state : Restore the system to the state before power loss occurs |
| Watchdog Timer Value | Enable/Disable Watchdog Timer function Option items : Disabled (Default setting), 30 Seconds, 60 Seconds |

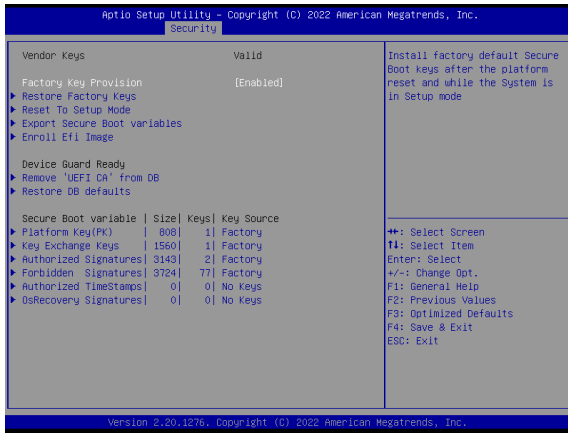
3.5 Security



| Item | Description |
|-------------------------------|-----------------------------------------------------------------------------------------------|
| Administrator Password | To set up Administrator's password Minimum length : 3 Maximum length : 20 |
| User Password | To set up User's password Minimum length : 3 Maximum length : 20 |
| Secure Boot | Press <Enter> to configure the advanced items |



| Item | Description |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Secure Boot | Secure Boot requires all the applications that are running during the booting process to be pre-signed with valid digital certificates Enabled : Enables Secure Boot function Disabled : Disables Secure Boot function (Default setting) |
| Secure Boot Mode | Standard : Standard mode Custom : Custom mode (Default setting) |
| Restore Factory Keys | To restore factory settings Yes : Agree to restore factory settings No : Cancel to restore factory settings |
| Reset To Setup Mode | Yes : Agree to setup mode No : Cancel to setup mode |
| Key Management | Enables expert users to modify Secure boot policy variables without full authentication Press <Enter> to configure the advanced items |



| Item | Description |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Factory Key Provision | Install factory default Secure Boot keys after the platform reset and while the system is in Setup mode Enabled : Enables Factory Key Provision (Default setting) Disabled : Disables Factory Key Provision |
| Restore Factory Keys | To restore factory settings Yes : Agree to restore factory settings No : Cancel to restore factory settings |
| Reset To Setup Mode | Yes : Agree to setup mode No : Cancel to setup mode |
| Export Secure Boot variables | Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device |
| Enroll Efi Image | Allow the image to run in Secure Boot mode |
| Remove 'UEFI CA' from DB | To remove 'UEFI CA' from database Yes : Agree to remove 'UEFI CA' from database No : Cancel to remove 'UEFI CA' from database |
| Restore DB defaults | Restore DB variables to factory defaults Yes : Agree to restore DB defaults No : Cancel to restore DB defaults |

| Item | Description |
|------------------------------|-------------------------------------------------------------------------------------|
| Platform Key (PK) | These items allows you to enroll factory defaults or load Certificates from a file. |
| Key Exchange Keys | |
| Authorized Signatures | |
| Forbidden Signatures | |
| Authorized TimeStamps | |
| OsRecovery Signatures | |

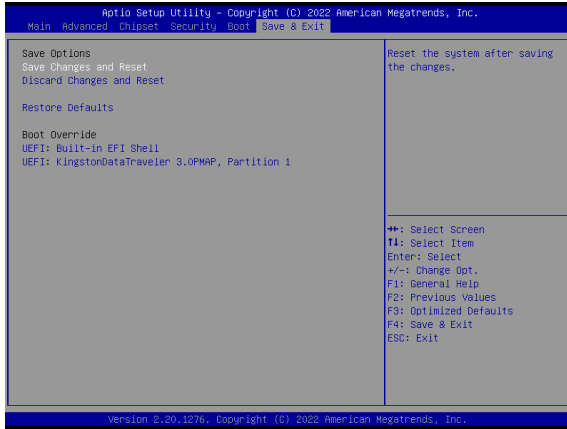
3.6 Boot

This Boot menu allows you to set/change system boot options



| Item | Description |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Full Screen LOGO Show | Enable/Disable full screen LOGO show on POST screen Enabled : Enables Full screen LOGO Show on POST screen Disabled : Disables Full screen LOGO Show on POST screen (Default setting) |
| Boot Option #1 Boot Option #2 | Shows the information of the storage that be installed in the system Choose/set the boot priority |

3.7 Save & Exit



| Item | Description |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Save Changes and Reset | After configuring all the options that you wish to change, choose this option to save all the changes and reboot the system Yes : Agree to save and reset No : Cancel to save and reset |
| Discard Changes and Reset | Choose this option to reboot the system without saving any changes Yes : Agree to discard changes and reset No : Cancel to discard changes and reset |
| Restore Defaults | Restore/Load default values for all the setup options Yes : Agree to load optimized defaults No : Cancel to load optimized defaults |
| Boot Override | Boot override |