

mITX-Q670A (MQ670AI-SI)

mITX-Q670A Mini-ITX Motherboard

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 |
|------------------|----------|
| mITX-Q670A MB | 1 |
| SATA power cable | 1 |
| I/O Shield | 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 | ○ | ○ | ○ | ○ | ○ | ○ |
| <p>○: 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 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 | ○ | ○ | ○ | ○ | ○ | ○ |
| Wires & Connectors for External Connections | ○ | ○ | ○ | ○ | ○ | ○ |

○ : 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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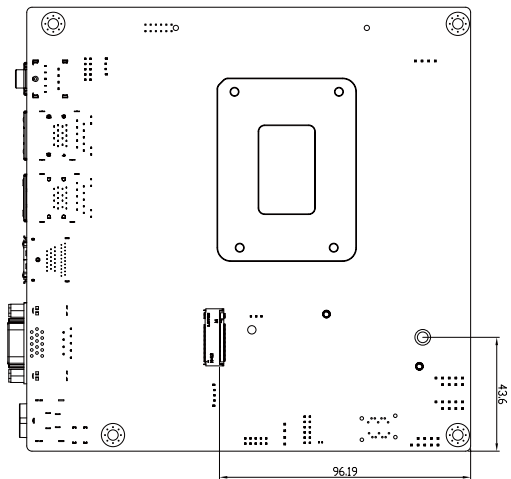
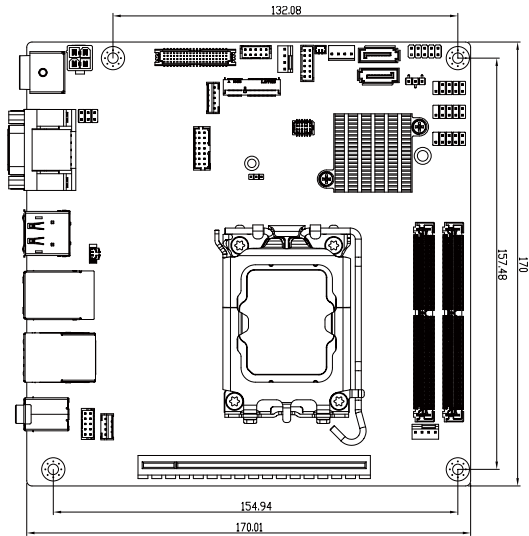
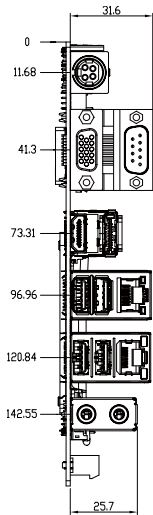
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Chapter 1

Chapter 1 - Product Specifications



1.1 Specifications

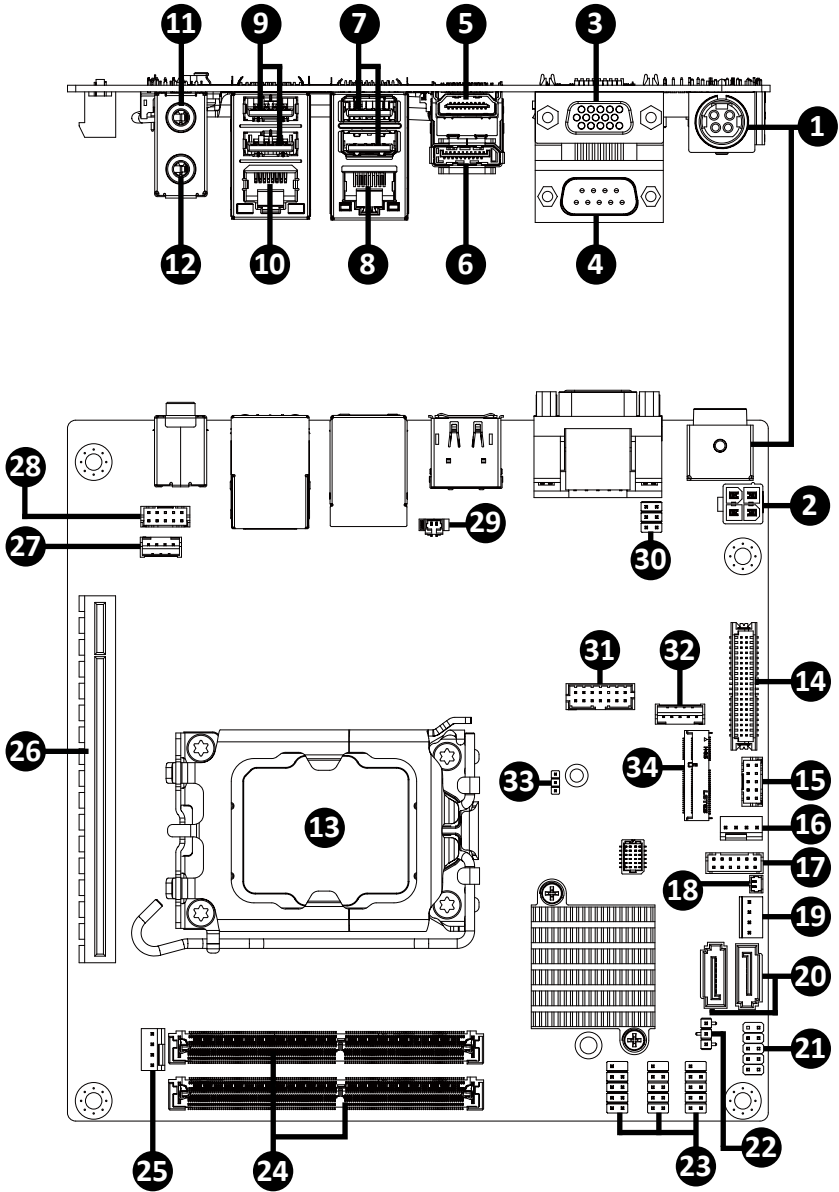
| Motherboard | mITX-Q670A (MQ670AI-SI) |
|-----------------|--|
| Form Factor | Mini-ITX 170W x 170D (mm) |
| CPU | Support for 13th/12th Generation Intel® Core™ i9/ i7/ i5/ i3, Pentium® and Celeron® processors in the LGA1700 package TDP under 65W |
| Socket | 1 x LGA 1700 |
| Chipset | Intel® Q670 Chipset |
| Memory | 2 x DDR4 SO-DIMM sockets, Max. Capacity 64 GB Support Dual channel DDR4 3200 MHz memory modules |
| Ethernet | 1 x GbE LAN Port (Intel® I219LM) 1 x 2.5GbE LAN Port (Intel® I226V) |
| Video | Integrated Graphics Processor - depends on CPU: 1 x HDMI 2.0 port, supporting a maximum resolution of 4096x2160 @60Hz 1 x DP port, supporting a maximum resolution of 4096x2160 @60Hz 1 x VGA port, supporting a maximum resolution of 1920x1080 @60Hz 1 x LVDS port, supporting a maximum resolution of 1920x1200 @60Hz (4 independent display outputs) |
| Audio | Realtek® ALC897 |
| Storage | 2 x SATA 6Gb/s Ports |
| Raid | RAID 0/1 |
| Expansion Slots | 1 x PCIe x16 (Gen4 x16) 1 x 2280 M.2 M-Key (PCIe x4) 1 x 2230 M.2 E-Key (WiFi/BT) |
| Internal I/O | 1 x 4-pin ATX main power connector 2 x SATA power connectors 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 6 x USB 2.0 headers 1 x COM header (RS-232) 1 x GPIO (8 bits) & SMBus header 1 x Backlight Control header 1 x Clear CMOS jumper 1 x Buzzer header 1 x AT/ATX mode select jumper |

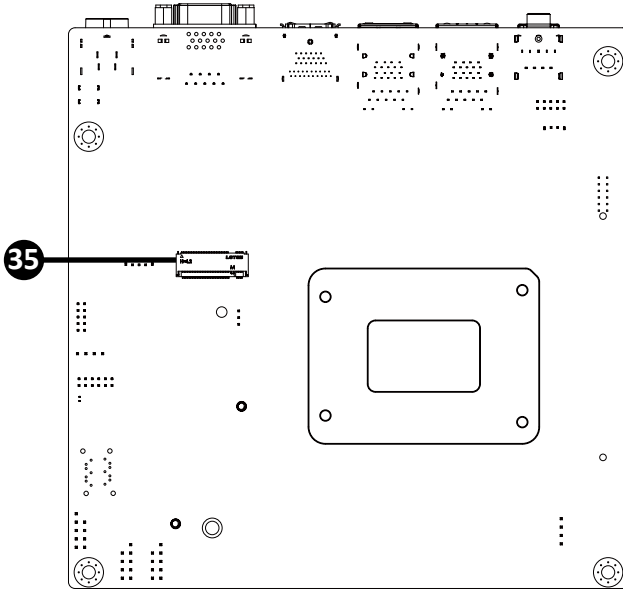
| Motherboard | mITX-Q670A (MQ670AI-SI) |
|----------------------|---|
| Rear I/O | 2 x Audio Jacks (Line out, Mic in) 1 x COM Port (RS-232/422/485 & RI/5V/12V) 1 x HDMI 1 x Display Port 1 x D-Sub 2 x RJ45 LAN Ports 4 x USB 3.2 Gen 1 1 x DC Jack (+12V/+19V~+24VDC) |
| TPM | 1 x TPM header |
| OS Compatibility | Windows® 10/11 (x64) |
| 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) |
| Order Information | Motherboard: 9MQ670AIMR-SI |
| Optional kit: | CPU Cooler : 25ST0-037820-Y0R CPU Cooler Backplate : 12KRH-0A1700-00R TPM 2.0 module: 9CTM010NR-00 |

Chapter 2

Chapter 2 – Hardware Information

2.1 Jumpers and Connectors

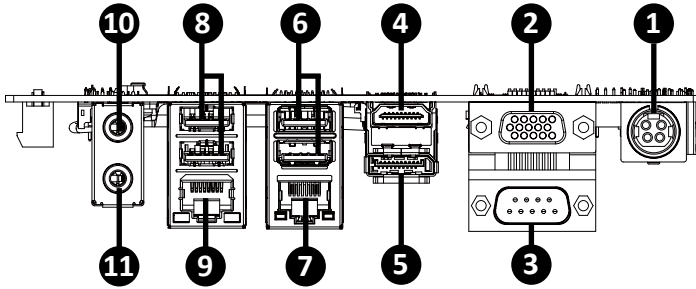




| No | Code | Description |
|----|------------|--|
| 1 | DC_IN1 | DC In Jack 4 pin Din |
| 2 | DC_IN2 | ATX 2x2 pin power Connector |
| 3 | VGA | VGA Port |
| 4 | COM1 | COM1 Port (RS-232/422/485 & RI/5V/12V) |
| 5 | HDMI_DP | HDMI Connector |
| 6 | | Display Port Connector |
| 7 | USB32_LAN1 | USB 3.2 Gen 1 Connector |
| 8 | | GbE LAN port |
| 9 | USB32_LAN2 | USB 3.2 Gen 1 Connector |
| 10 | | 2.5GbE LAN port |
| 11 | MIC_IN | Mic in port (Pink) |
| 12 | LINE_OUT | Line Out port (Green) |
| 13 | CPU Socket | 1 x LGA 1700 Socket |

| No | Code | Description |
|----|-------------------------------|--|
| 14 | LVDS | LVDS Connector |
| 15 | COM2 | COM2 header (RS-232) |
| 16 | SYS_FAN | System Fan Connector |
| 17 | GPIO_CNT | General purpose input/output header |
| 18 | BUZZER | Buzzer header |
| 19 | SATA_PWR | SATA power Connector |
| 20 | SATA4, SATA5 | SATA 6Gb/s Connector x 2 |
| 21 | SYS_PANEL | System Panel header |
| 22 | CLR_CMOS | Clear CMOS jumper |
| 23 | FUSB2_1 FUSB2_2 FUSB2_3 | USB 2.0 header |
| 24 | SODIMM1, SODIMM2 | 2 x DDR4 SO-DIMM Sockets |
| 25 | CPU_FAN | CPU FAN Connector |
| 26 | PCIEX16 | 1 x PCIe x16 (Gen4 x16 bus) slot |
| 27 | SPKR | Speaker out Connector |
| 28 | FP_AUDIO | Front Panel Audio header |
| 29 | BATTERY | Battery Connector |
| 30 | JCOM1 | RI# pin RI#/5V/12V Select jumper for COM1 port |
| 31 | TPM | TPM header |
| 32 | BKL_CN | Backlight Control connector |
| 33 | AT_CN | AT/ATX mode select jumper |
| 34 | M2E | M.2 Slot, 2230 E-Key |
| 35 | M2M | M.2 Slot, 2280 M-Key |

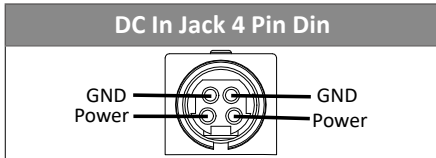
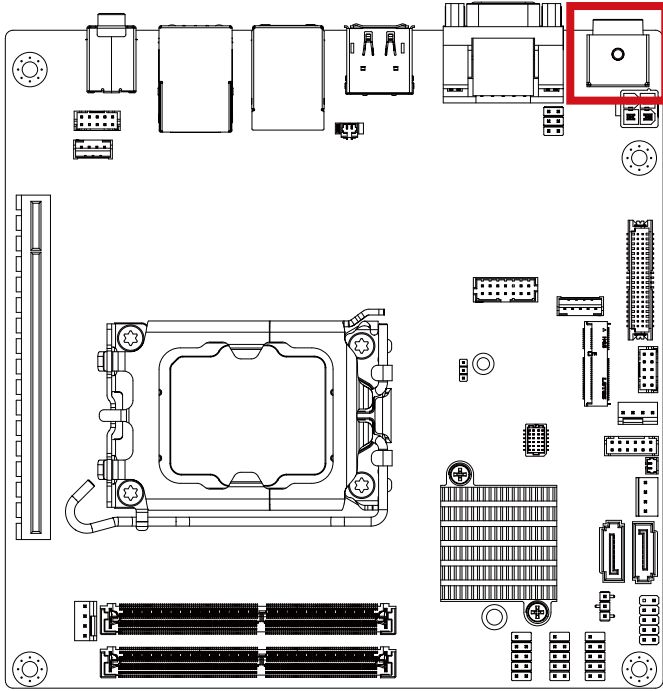
2.2.1 IO Connector Information



| | Code | Description |
|----|------------|--|
| 1 | DC_IN1 | DC In Jack 4 pin Din |
| 2 | VGA | VGA Port |
| 3 | COM1 | COM1 Port (RS-232/422/485 & RI/5V/12V) |
| 4 | HDMI_DP | HDMI Connector |
| 5 | | Display Port Connector |
| 6 | USB32_LAN1 | USB 3.2 Gen 1 Connector |
| 7 | | GbE LAN port |
| 8 | USB32_LAN2 | USB 3.2 Gen 1 Connector |
| 9 | | 2.5GbE LAN port |
| 10 | MIC_IN | Mic in port (Pink) |
| 11 | LINE_OUT | Line Out port (Green) |

2.2.2 DC_IN1 (DC In Jack 4 Pin Din)

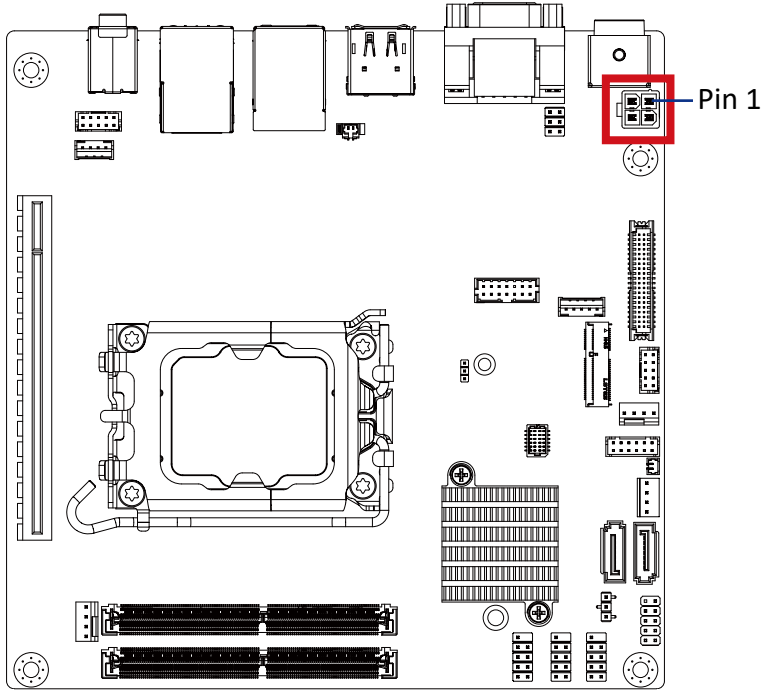
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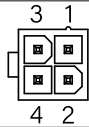
| Connector PN | Vendor |
|--------------|-----------|
| 2MJ-3422A1I0 | SINGATRON |

2.2.3 DC_IN2 (ATX 2x2 Pin Power Connector)

2



Power Connector



Connector PN

740-81-04TW56

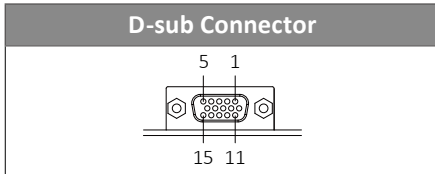
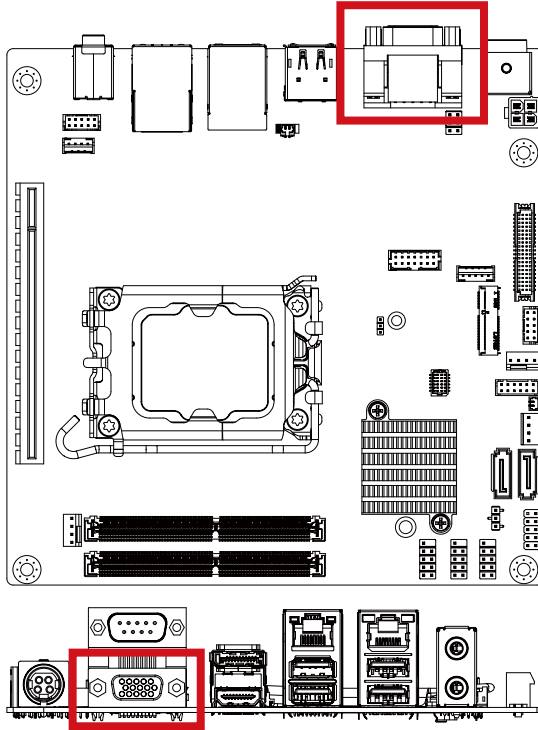
Vendor

PINREX

| Pin No. | Definition |
|---------|------------|
| 1 | GND |
| 2 | GND |
| 3 | DC IN |
| 4 | DC IN |

2.2.4 VGA (VGA Port)

3

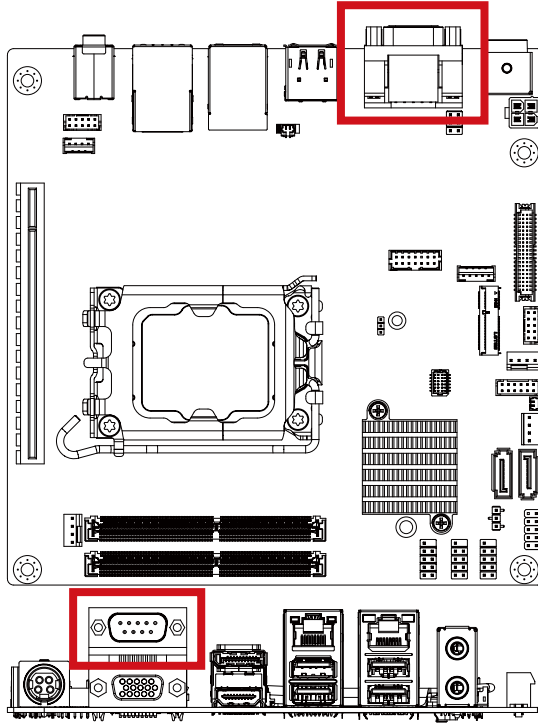


| Connector PN | Vendor |
|-----------------|---------|
| DZ11AA1-H5A7-4F | FOXCONN |
| D11015S021126N | FENYING |

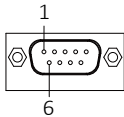
| Pin No. | Definition | Pin No. | Definition |
|---------|------------|---------|------------|
| 1 | Red | 9 | 5V |
| 2 | Green | 10 | GND |
| 3 | Blue | 11 | NC |
| 4 | NC | 12 | DDCSDA |
| 5 | GND | 13 | HSYNC |
| 6 | GND | 14 | VSYNC |
| 7 | GND | 15 | DDCSCS |
| 8 | GND | | |

2.2.5 COM1 (COM1 Port (RS-232/422/485 & RI/5V/12V))

4



Serial Port Connector



Connector PN

DM10151-N5W3-4F

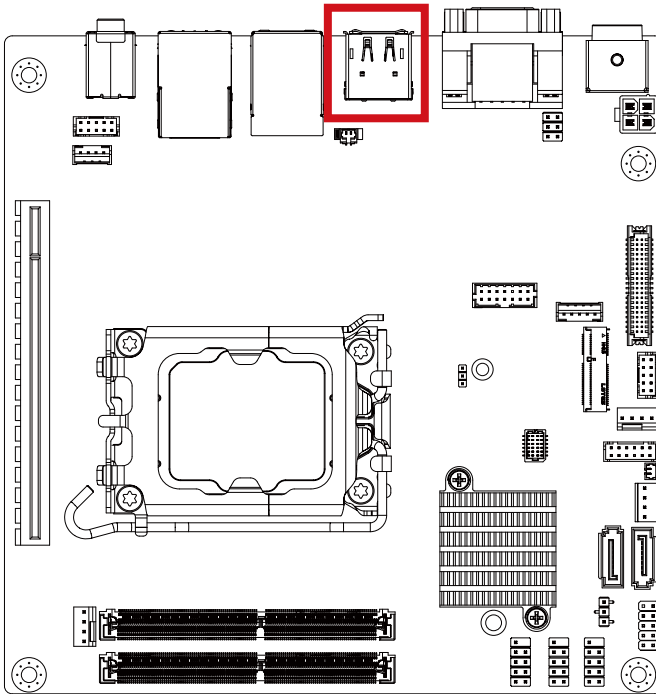
Vendor

FOXCONN

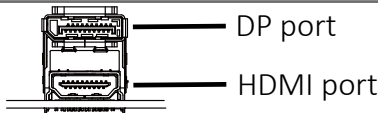
| Pin No. | RS-232 | RS-422 Full Duplex | RS-485 Half Duplex |
|---------|--------|--------------------|--------------------|
| 1 | DCD | TXD- | D- |
| 2 | RXD | TXD+ | D+ |
| 3 | TXD | RXD+ | - |
| 4 | DTR | RXD- | - |
| 5 | GND | | |
| 6 | DSR | - | - |
| 7 | RTS | - | - |
| 8 | CTS | - | - |
| 9 |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

2.2.6 HDMI_DP (HDMI + DP Connector)

5 6



HDMI & DP Connector

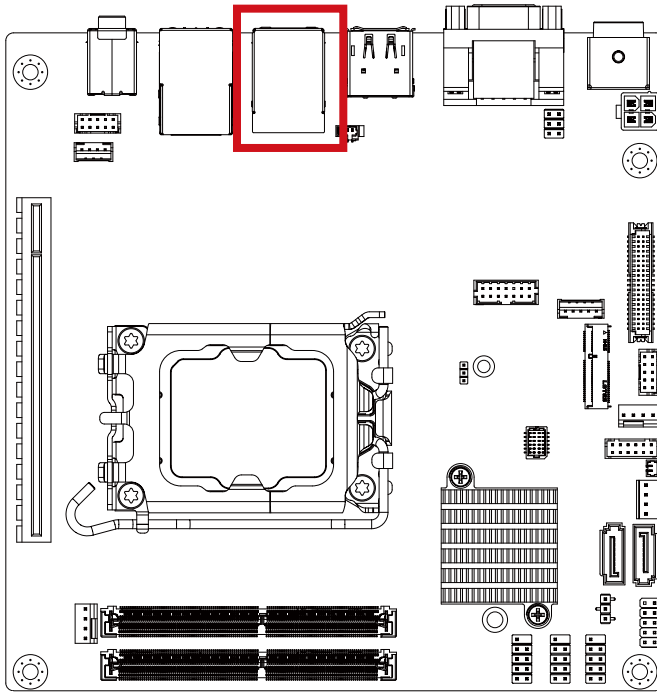


| HDMI Connector | | | |
|----------------|------------|---------|-----------------|
| Pin No. | Definition | Pin No. | Definition |
| 1 | TX2p | 11 | GND |
| 2 | GND | 12 | CLKn |
| 3 | TX2n | 13 | NC |
| 4 | TX1p | 14 | NC |
| 5 | GND | 15 | SCL |
| 6 | TX1n | 16 | SDA |
| 7 | TX0p | 17 | GND |
| 8 | GND | 18 | 5V |
| 9 | TX0n | 19 | Hot Plug Detect |
| 10 | CLKp | | |

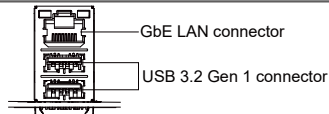
| DP Connector | | | |
|--------------|------------|---------|-----------------|
| Pin No. | Definition | Pin No. | Definition |
| 1 | TX0p | 11 | GND |
| 2 | GND | 12 | TX3n |
| 3 | TX0n | 13 | GND |
| 4 | TX1p | 14 | GND |
| 5 | GND | 15 | AUXp |
| 6 | TX1n | 16 | GND |
| 7 | TX2p | 17 | AUXn |
| 8 | GND | 18 | Hot Plug Detect |
| 9 | TX2n | 19 | 3.3V |
| 10 | TX3p | 20 | 3.3V |

2.2.7 USB32_LAN1 (USB + GbE LAN Connector)

7 8



USB & LAN Connector



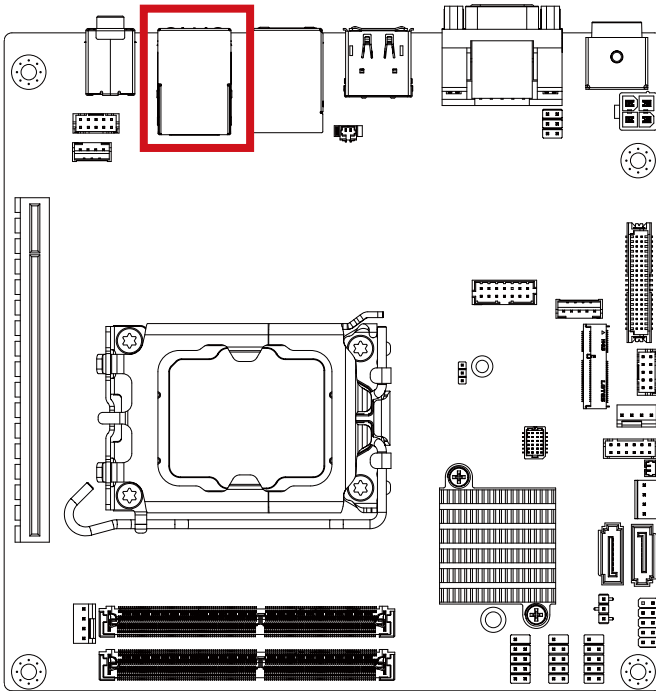
| USB Connector | | | |
|---------------|------------|---------|------------|
| Pin No. | Definition | Pin No. | Definition |
| 1 | 5V | 10 | 5V |
| 2 | D1n | 11 | D0n |
| 3 | D1p | 12 | D0p |
| 4 | GND | 13 | GND |
| 5 | USB3_RX1n | 14 | USB3_RX2n |
| 6 | USB3_RX1p | 15 | USB3_RX2p |
| 7 | GND | 16 | GND |
| 8 | USB3_TX1n | 17 | USB3_TX2n |
| 9 | USB3_TX1p | 18 | USB3_TX2p |

| LAN Connector | | | |
|---------------|------------|---------|------------|
| Pin No. | Definition | Pin No. | Definition |
| 1 | TX1+ | 4 | TX3+ |
| 2 | TX1- | 5 | TX3- |
| 3 | TX2+ | 7 | TX4+ |
| 6 | TX2- | 8 | TX4- |

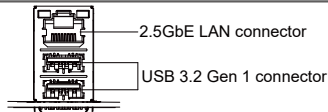
| State | Description |
|-----------|-------------------|
| Orange On | 1Gbps data rate |
| Green On | 100Mbps data rate |
| Off | 10Mbps data rate |

2.2.8 USB32_LAN2 (USB + 2.5GbE LAN Connector)

9 10



USB & LAN Connector



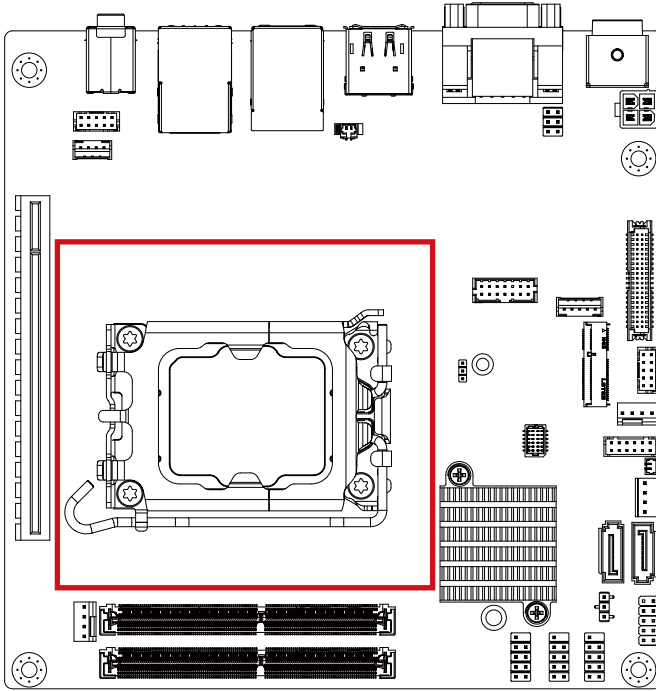
| USB Connector | | | |
|---------------|------------|---------|------------|
| Pin No. | Definition | Pin No. | Definition |
| 1 | 5V | 10 | 5V |
| 2 | D1n | 11 | D0n |
| 3 | D1p | 12 | D0p |
| 4 | GND | 13 | GND |
| 5 | USB3_RX1n | 14 | USB3_RX2n |
| 6 | USB3_RX1p | 15 | USB3_RX2p |
| 7 | GND | 16 | GND |
| 8 | USB3_TX1n | 17 | USB3_TX2n |
| 9 | USB3_TX1p | 18 | USB3_TX2p |

| LAN Connector | | | |
|---------------|------------|---------|------------|
| Pin No. | Definition | Pin No. | Definition |
| 1 | TX1+ | 4 | TX3+ |
| 2 | TX1- | 5 | TX3- |
| 3 | TX2+ | 7 | TX4+ |
| 6 | TX2- | 8 | TX4- |

| State | Description |
|-----------|-----------------------|
| Orange On | 2.5Gbps data rate |
| Green On | 1Gbps data rate |
| Off | 100M&10Mbps data rate |

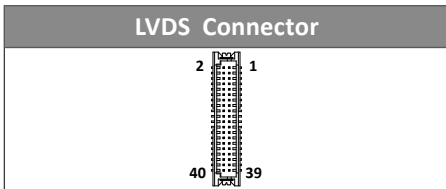
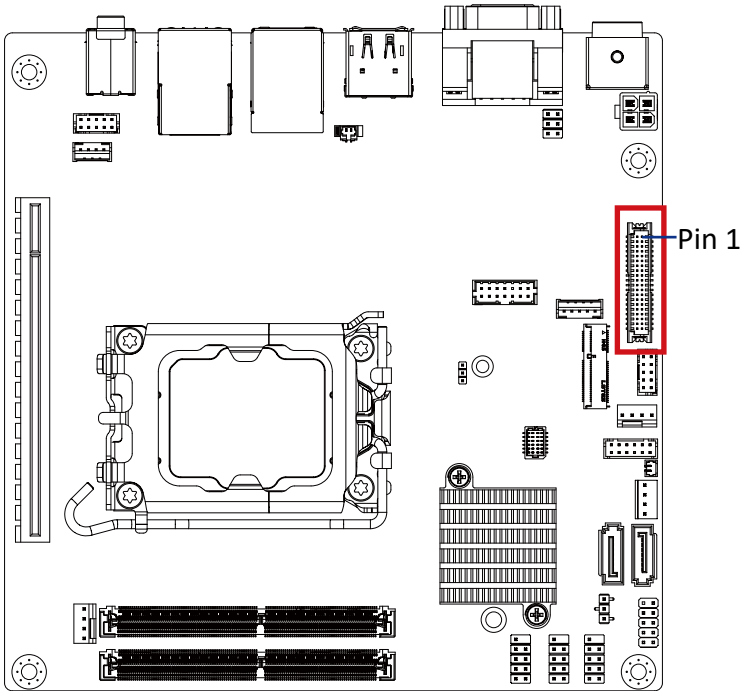
2.2.9 CPU Socket (LGA 1700 Socket)

13



2.2.10 LVDS (LVDS Connector)

14



| Pin No. | Definition | Pin No. | Definition |
|---------|------------|---------|------------|
| 1 | 3.3V | 21 | A5+ |
| 2 | 5V | 22 | A4+ |
| 3 | 3.3V | 23 | A5- |
| 4 | 5V | 24 | A4- |
| 5 | SPECO | 25 | GND |
| 6 | SPEDO | 26 | GND |
| 7 | GND | 27 | A7+ |
| 8 | GND | 28 | A6+ |
| 9 | A1+ | 29 | A7- |
| 10 | A0+ | 30 | A6- |
| 11 | A1- | 31 | GND |
| 12 | A0- | 32 | GND |
| 13 | GND | 33 | CLK2+ |
| 14 | GND | 34 | CLK1+ |
| 15 | A3+ | 35 | CLK2- |

| Pin No. | Definition | Pin No. | Definition |
|---------|------------|---------|------------|
| 16 | A2+ | 36 | CLK1- |
| 17 | A3- | 37 | GND |
| 18 | A2- | 38 | GND |
| 19 | GND | 39 | 12V |
| 20 | GND | 40 | 12V |

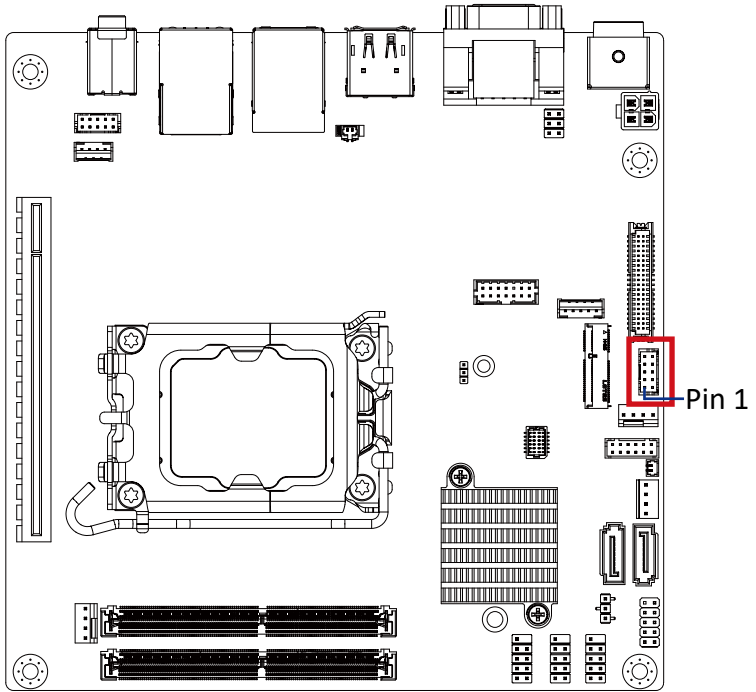
| Connector PN | Vendor |
|---------------------|------------|
| 712-76-40GWE0 | PINREX |
| A1252WV-SF-2X20PD01 | JOINT-TECH |

For each model support LVDS function.
But below model no need to add.
A0~A3 is odd channel 0~3, A4~A7 is even channel.

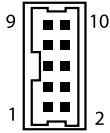
Note: *The LVDS output connector of the unit is only intended to be connected to an UL/IEC/EN approval equipment with fire enclosure.

2.2.11 COM2 (COM2 header (RS-232))

15



COM 2 header

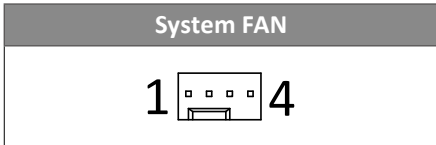
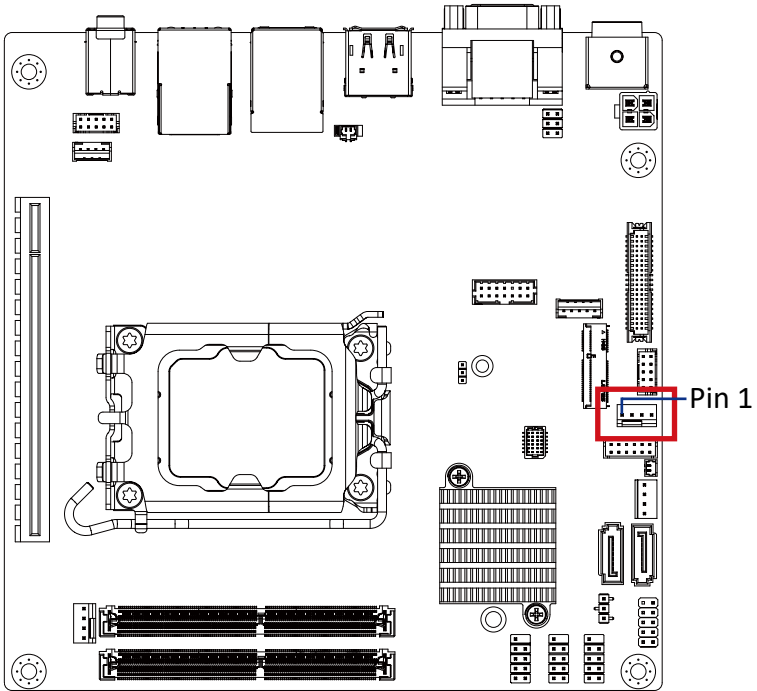


| Connector PN | Vendor |
|-----------------|------------|
| 725-81-10TW00 | PINREX |
| A2004WV-2X05P46 | JOINT-TECH |

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

2.2.12 SYS_FAN (System Fan Connector)

16

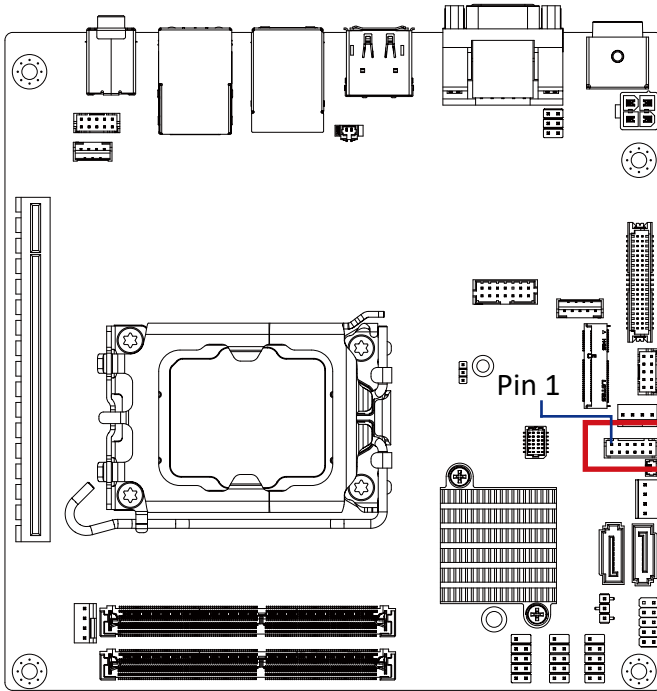


| Connector PN | Vendor |
|---------------|--------|
| 744-81-045R11 | PINREX |

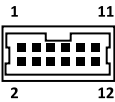
| Pin No. | Definition |
|---------|---------------|
| 1 | GND |
| 2 | 12V |
| 3 | Detect |
| 4 | Speed Control |

2.2.13 GPIO_CNT (General purpose input/out header)

17



GPIO Connector



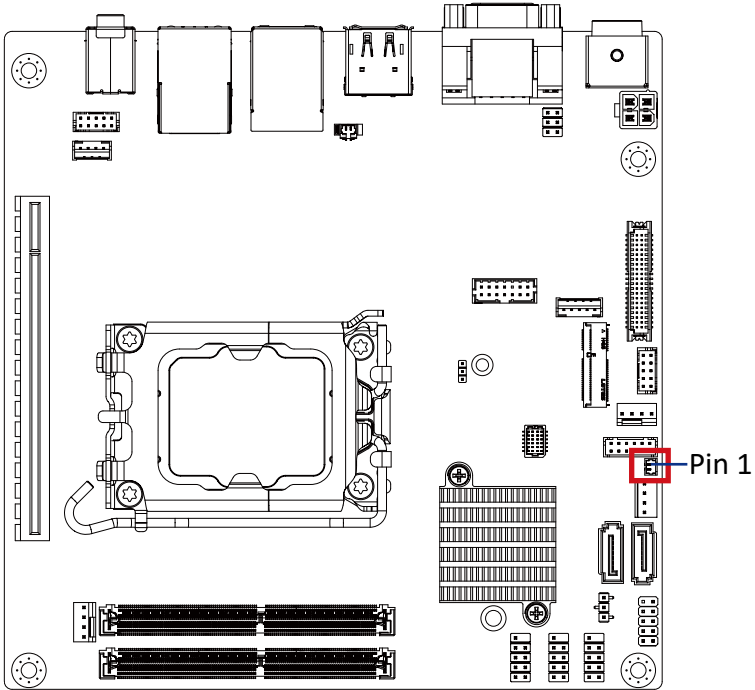
| Pin No. | Definition |
|---------|-------------|
| 9 | SMBus Clock |
| 10 | SMBus DATA |
| 11 | 5V |
| 12 | GND |


| Pin No. | Definition |
|---------|---------------|
| 1 | GPIO-output_1 |
| 2 | GPIO-input_1 |
| 3 | GPIO-output_2 |
| 4 | GPIO-input_2 |
| 5 | GPIO-output_3 |
| 6 | GPIO-input_3 |
| 7 | GPIO-output_4 |
| 8 | GPIO-input_4 |

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

2.2.14 BUZZER (Buzzer header)

18



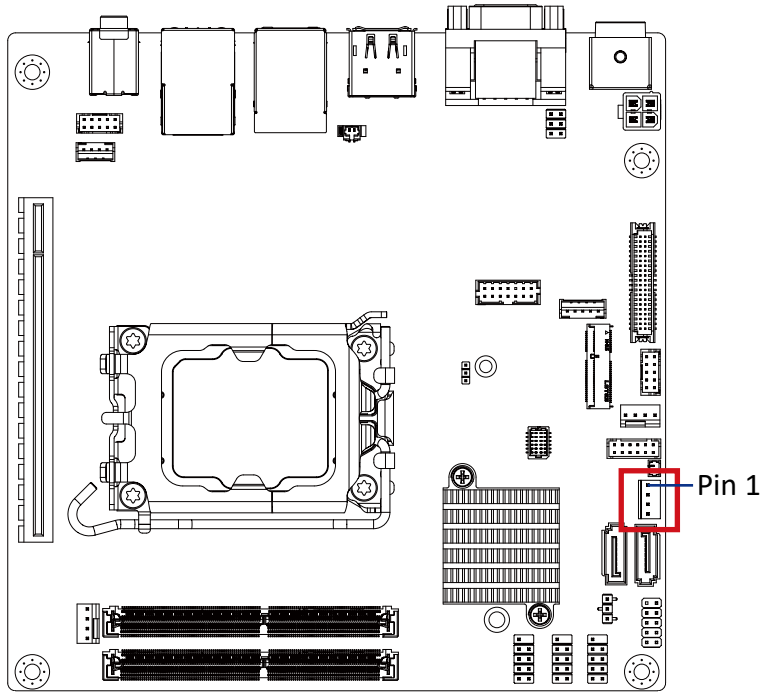
| Buzzer |
|---|
|  |

| Connector PN | Vendor |
|---------------|------------|
| 712-71-02TW01 | PINREX |
| A1250WV-02P | JOINT-TECH |

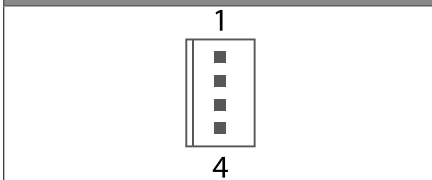
| Pin No. | Definition |
|---------|------------|
| 1 | Buzzer |
| 2 | 5V |

2.2.15 SATA_PWR (SATA Power Connector)

19



SATA Power Connector



Connector PN

743-81-04TW00

Vendor

PINREX

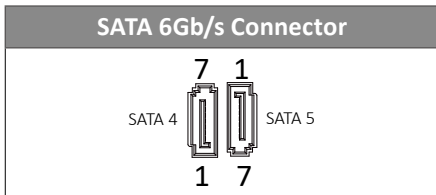
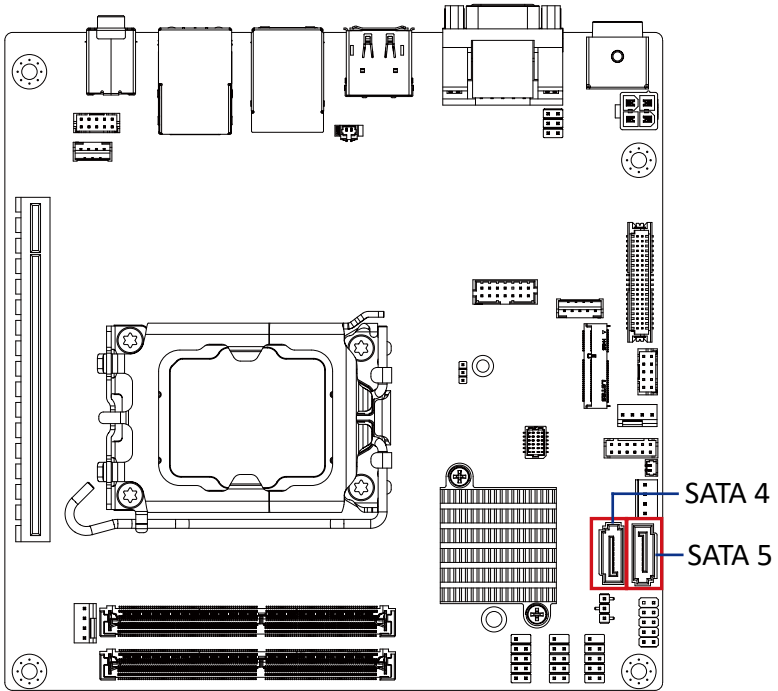
Pin No.

Definition

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

2.2.16 SATA4, SATA5 (SATA 6Gb/s Connector)

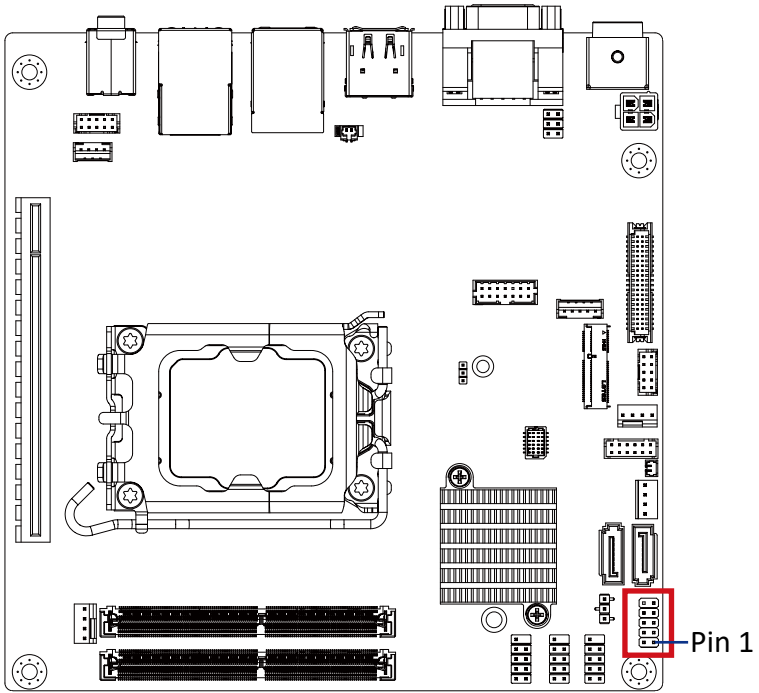
20



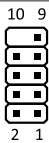
| Pin No. | Definition |
|---------|------------|
| 1 | GND |
| 2 | TXp |
| 3 | TXn |
| 4 | GND |
| 5 | RXn |
| 6 | RXp |
| 7 | GND |

2.2.17 SYS_PANEL (System Panel header)

21



System Panel Header



Connector PN

210-92-05GW5W

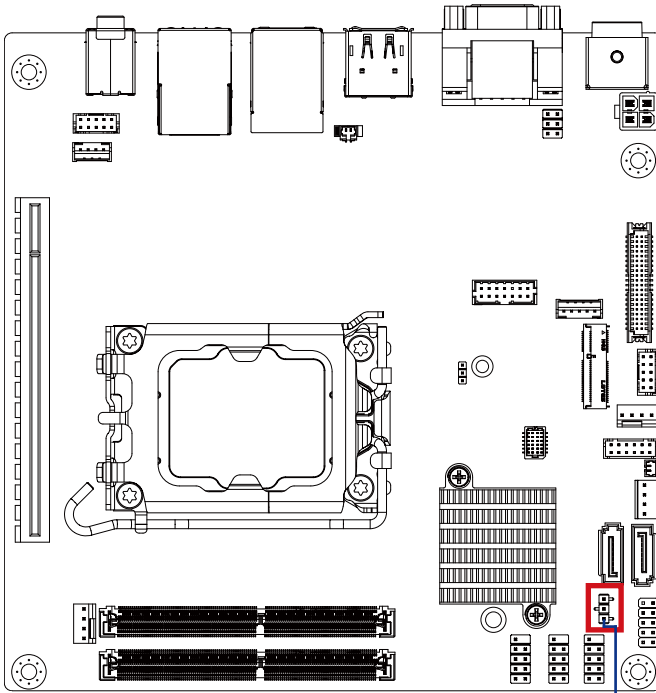
Vendor

PINREX

| Pin No. | Definition |
|---------|------------|
| 1 | HD-P |
| 2 | MPD-P |
| 3 | HD-N |
| 4 | MPD-N |
| 5 | GND |
| 6 | POWER-ON |
| 7 | Reset |
| 8 | GND |
| 9 | Reserved |
| 10 | NC |

2.2.18 CLR_CMOS (Clear CMOS jumper)

22



Pin 1

Clear CMOS Jumper



Connector PN

212-91-03GBE00K

Vendor

PINREX

Pin No.

Definition

1

NC

2

GND

3

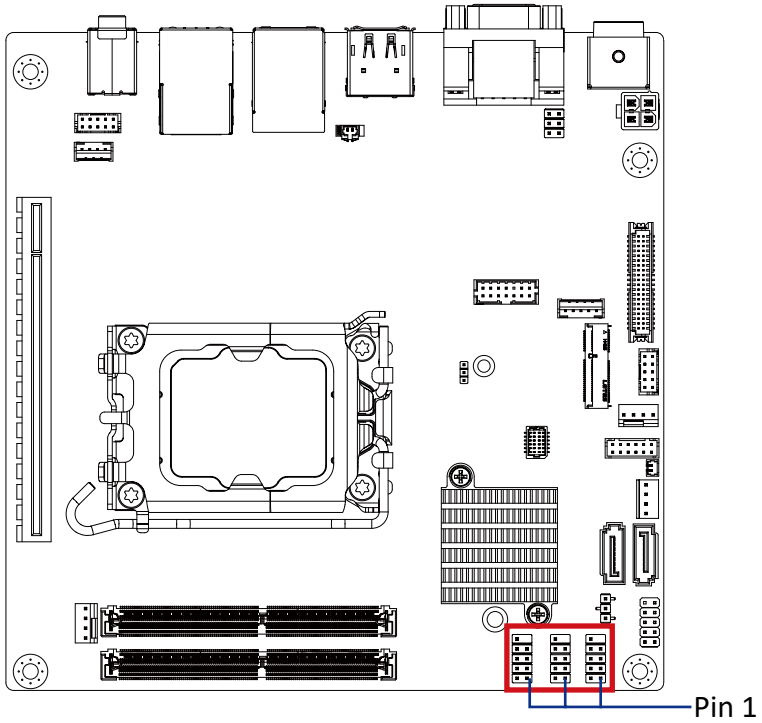
Clear CMOS

1-2 Close:
Normal Operator (Default setting)

2-3 Close:
Clear CMOS data

2.2.19 FUSB2_1, FUSB2_2, FUSB2_3 (USB 2.0 header)

23



USB 2.0 Header



Connector PN

210-92-05GB04

Vendor

PINREX

PH10R53BAZ009

HORNGTONG

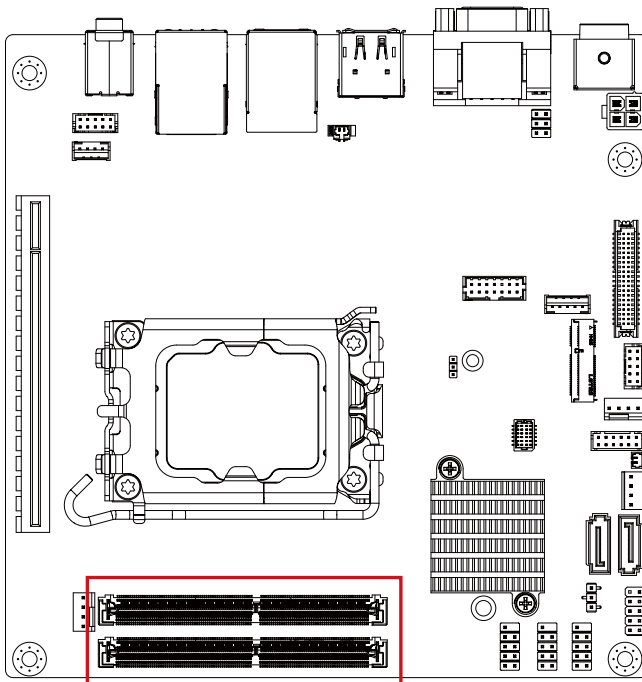
Pin No.

Definition

| Pin No. | Definition |
|---------|------------|
| 1 | 5V |
| 2 | 5V |
| 3 | D2n |
| 4 | D1n |
| 5 | D2p |
| 6 | D1p |
| 7 | GND |
| 8 | GND |
| 9 | No Pin |
| 10 | NC |

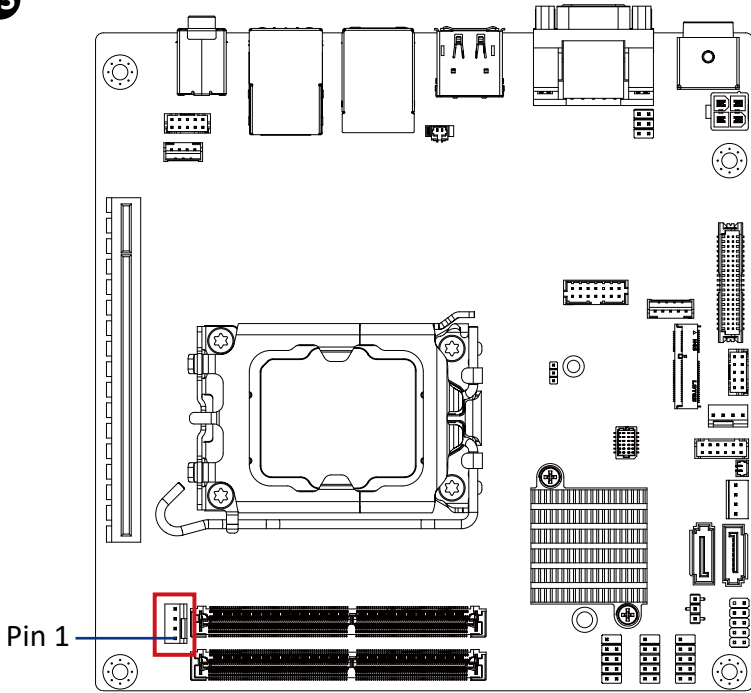
2.2.20 SODIMM1, SODIMM2 (2 x DDR4 SO-DIMM Sockets)

24



2.2.21 CPU_FAN (CPU FAN Connector)

25



CPU Fan Connector



Connector PN

744-81-045W11

Vendor

PINREX

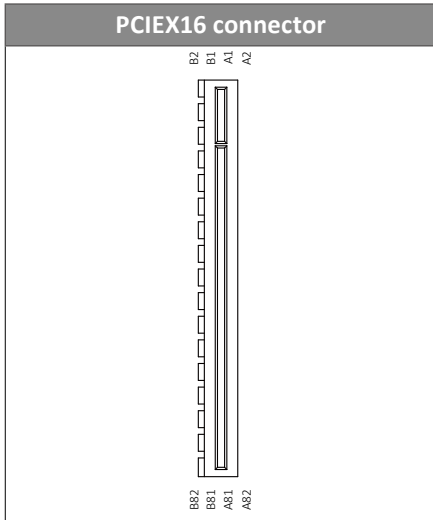
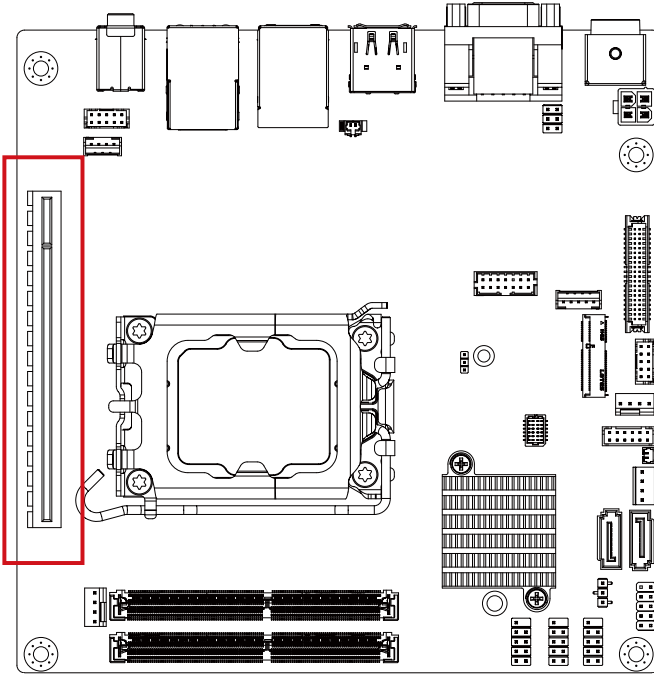
Pin No.

Definition

| | |
|---|---------------|
| 1 | GND |
| 2 | 12V |
| 3 | Detect |
| 4 | Speed Control |

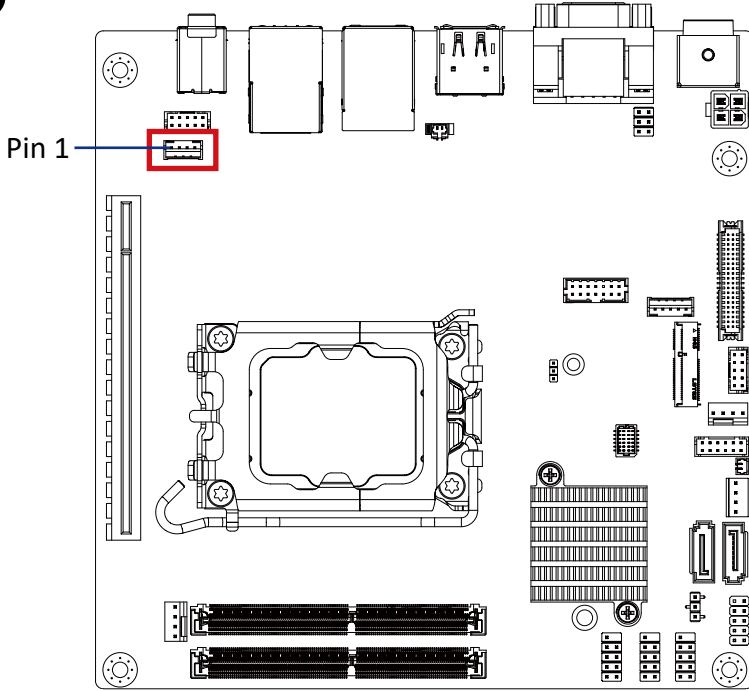
2.2.22 PCIEX16 (1 x PCIe x16 (Gen4 x16 Bus) Slot)

26

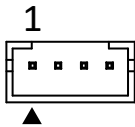


2.2.23 SPKR (Speaker Out Connector)

27



Speaker Out Connector

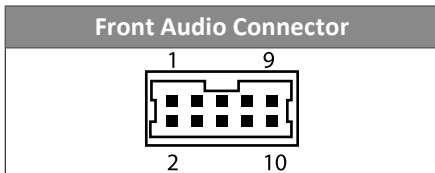
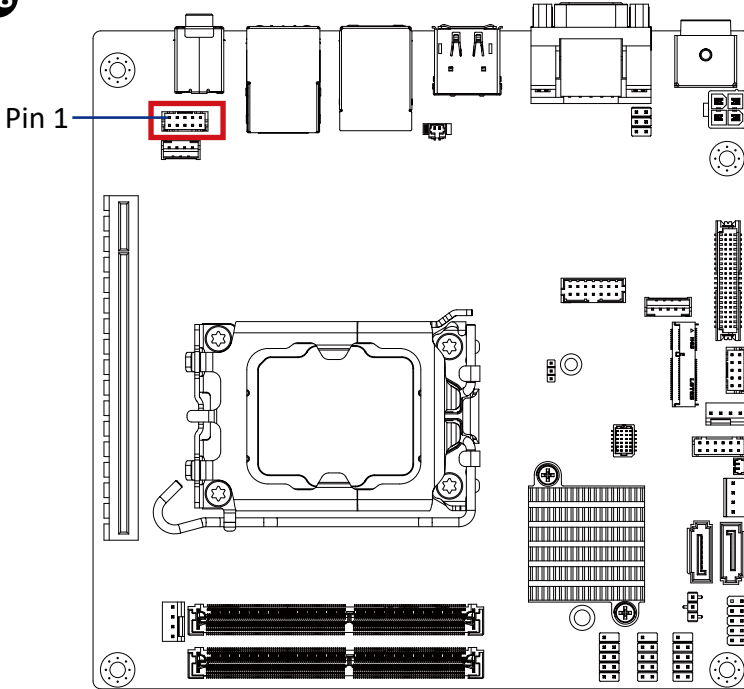


| Connector PN | Vendor |
|----------------|------------|
| 721-81-045W00 | PINREX |
| A2001WV-04P146 | JOINT-TECH |

| Pin No. | Definition |
|---------|------------|
| 1 | SPEAKER L+ |
| 2 | SPEAKER L- |
| 3 | SPEAKER R- |
| 4 | SPEAKER R+ |

2.2.24 FP_AUDIO (Front Panel Audio header)

28

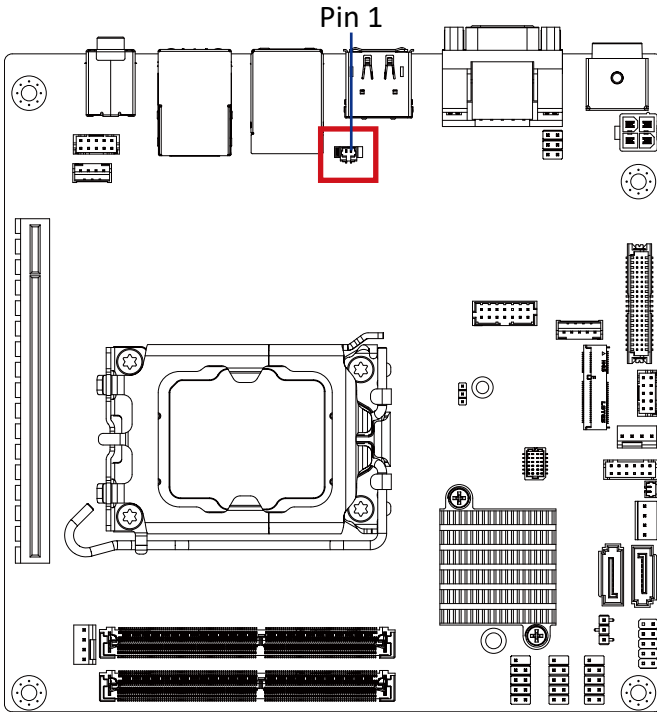


| Connector PN | Vendor |
|-----------------|------------|
| 725-81-10TW00 | PINREX |
| A2004WV-2X05P46 | JOINT-TECH |

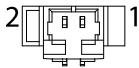
| Pin No. | Definition | Pin No. | Definition |
|---------|------------|---------|---------------------|
| 1 | MIC-LEFT | 6 | GND |
| 2 | GND | 7 | JACKSENCE DETECT |
| 3 | MIC-RIGHT | 8 | NC |
| 4 | DETECT | 9 | LINE-LEFT |
| 5 | LINE-RIGHT | 10 | GND |

2.2.25 BATTERY (Battery Connector)

29



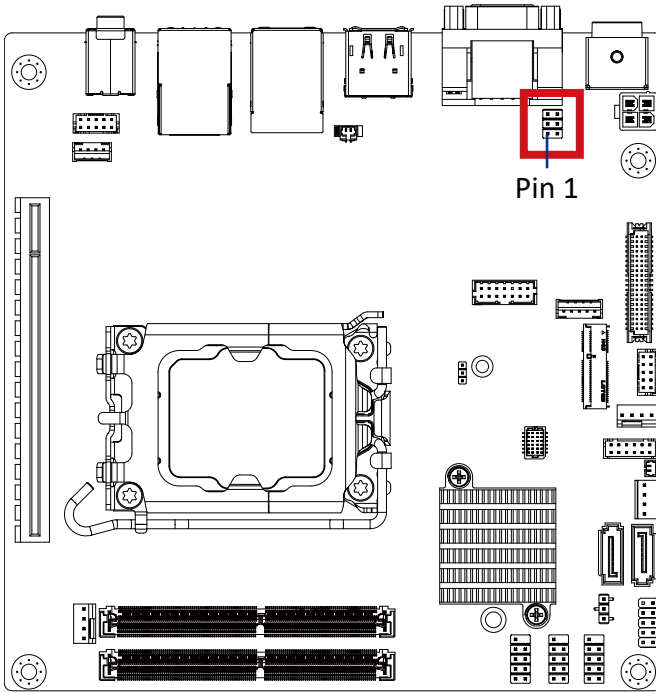
Battery Connector



| Pin No. | Definition |
|---------|------------|
| 1 | 3V |
| 2 | GND |

2.2.26 JCOM1 (RI# pin RI#/5V/12V Select jumper for COM1 Port)

30

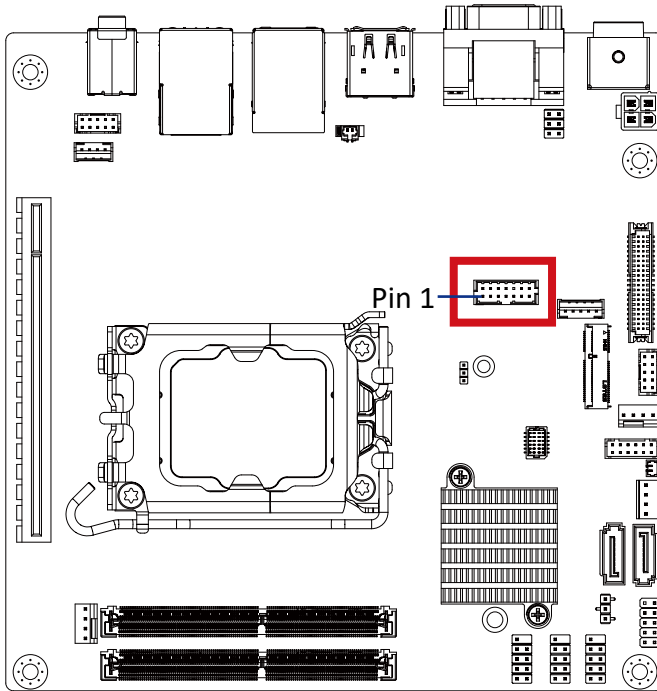


| JCOM1 Jumper Select | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|-------------------------------|
| <table border="1"> <tr><td>5</td><td>6</td></tr> <tr><td>□</td><td>□</td></tr> <tr><td>□</td><td>□</td></tr> <tr><td>■</td><td>■</td></tr> <tr><td>1</td><td>2</td></tr> </table> | 5 | 6 | □ | □ | □ | □ | ■ | ■ | 1 | 2 | 1-2 Close: 5V (Power COM) |
| 5 | 6 | | | | | | | | | | |
| □ | □ | | | | | | | | | | |
| □ | □ | | | | | | | | | | |
| ■ | ■ | | | | | | | | | | |
| 1 | 2 | | | | | | | | | | |
| <table border="1"> <tr><td>5</td><td>6</td></tr> <tr><td>□</td><td>□</td></tr> <tr><td>■</td><td>■</td></tr> <tr><td>□</td><td>□</td></tr> <tr><td>1</td><td>2</td></tr> </table> | 5 | 6 | □ | □ | ■ | ■ | □ | □ | 1 | 2 | 3-4 Close: RI (Stand COM) |
| 5 | 6 | | | | | | | | | | |
| □ | □ | | | | | | | | | | |
| ■ | ■ | | | | | | | | | | |
| □ | □ | | | | | | | | | | |
| 1 | 2 | | | | | | | | | | |
| <table border="1"> <tr><td>5</td><td>6</td></tr> <tr><td>■</td><td>■</td></tr> <tr><td>□</td><td>□</td></tr> <tr><td>□</td><td>□</td></tr> <tr><td>1</td><td>2</td></tr> </table> | 5 | 6 | ■ | ■ | □ | □ | □ | □ | 1 | 2 | 5-6 Close: 12V (Power COM) |
| 5 | 6 | | | | | | | | | | |
| ■ | ■ | | | | | | | | | | |
| □ | □ | | | | | | | | | | |
| □ | □ | | | | | | | | | | |
| 1 | 2 | | | | | | | | | | |

| Connector PN | Vendor |
|---------------|-----------|
| 210-92-03GB01 | PINREX |
| PH06R53BAZ000 | HORNGTONG |

2.2.27 TPM (TPM header)

31



TPM Module Connector



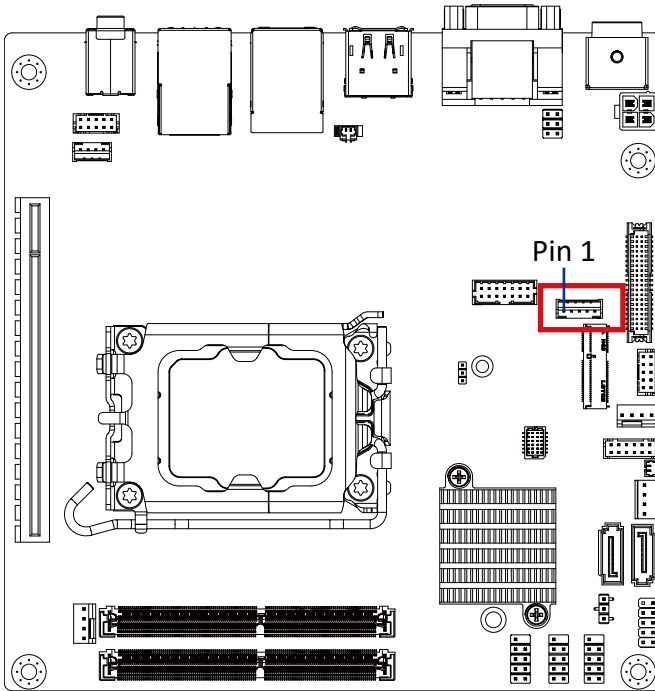
| Pin No. | Definition |
|---------|------------|
| 1 | Clock |
| 2 | 3.3V |
| 3 | Reset |
| 4 | 3.3V |
| 5 | SDO |
| 6 | IRQ_SERIAL |
| 7 | SDIN |
| 8 | NC |
| 9 | NC |
| 10 | NC |
| 11 | NC |

| Pin No. | Definition |
|---------|------------|
| 12 | GND |
| 13 | CS |
| 14 | GND |

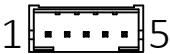
| Connector PN | Vendor |
|--------------------|----------|
| 52M-90-14GBE7 | PINREX |
| LCB25-I1424S01C-12 | LIONCONN |

2.2.28 BKL_CN (Backlight Control Connector)

32



Backlight Control Connector



Connector PN

721-81-05TW00

Vendor

PINREX

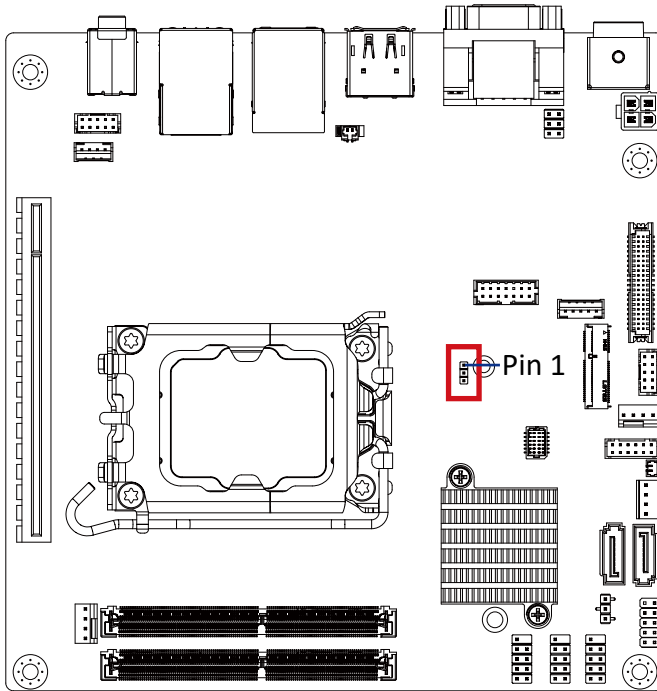
A2001WV-05P146

JOINT-TECH

| Pin No. | Definition |
|---------|-------------------|
| 1 | 5V (12V optional) |
| 2 | PWM |
| 3 | Backlight enable |
| 4 | GND |
| 5 | 12V |

2.2.29 AT_CN (AT/ATX mode select jumper)

33



AT/ATX mode select jumper



Connector PN

| |
|-----------------|
| 220-96-03GB001K |
| PH03N2-7BAN000 |

Vendor

| |
|-----------|
| PINREX |
| HORNGTONG |

| Pin No. | Definition |
|---------|------------|
| 1 | AT MODE |
| 2 | Detect |
| 3 | ATX MODE |

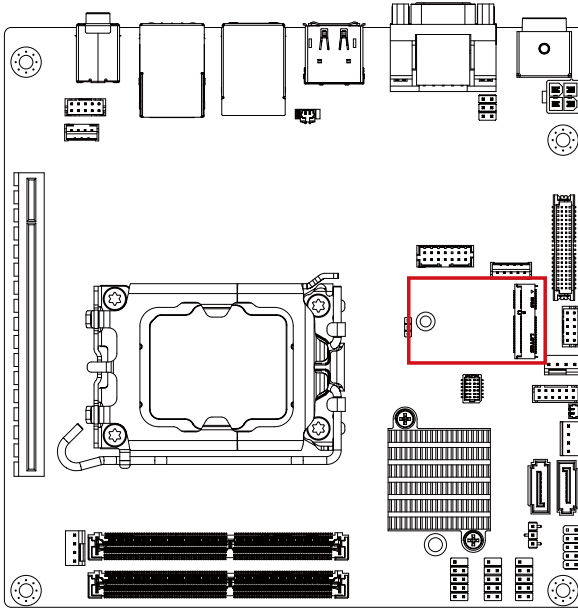
Jumper setting

1-2 Close : AT mode.

2-3 Close : ATX mode.(Default setting)

2.2.30 M2E (M.2 Slot, 2230 E-Key)

34



M.2 E Key Connector



| Pin No. | Definition | Pin No. | Definition |
|---------|------------|---------|------------|
| 1 | GND | 2 | 3.3V |
| 3 | D1p | 4 | 3.3V |
| 5 | D1n | 6 | NC |
| 7 | GND | 8 | NC |
| 9 | NC | 10 | NC |
| 11 | NC | 12 | NC |
| 13 | GND | 14 | NC |
| 15 | NC | 16 | NC |
| 17 | NC | 18 | GND |
| 19 | GND | 20 | NC |
| 21 | NC | 22 | NC |
| 23 | NC | | |

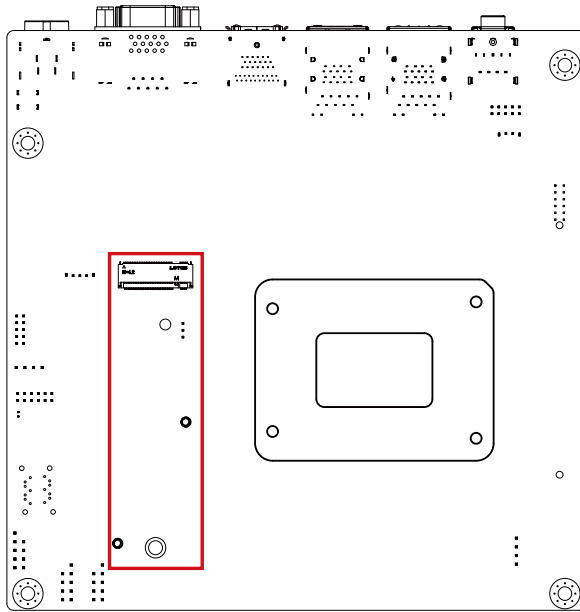
| Pin No. | Definition | Pin No. | Definition |
|---------|------------|---------|------------|
| 33 | GND | 32 | NC |
| 35 | PCIE_TXp | 34 | NC |
| 37 | PCIE_TXn | 36 | NC |
| 39 | GND | 38 | CL_Reset |

| | | | |
|----|--------------------|----|--------------|
| 41 | PCIE_RXp | 40 | CL_DATA |
| 43 | PCIE_RXn | 42 | CL_Clock |
| 45 | GND | 44 | NC |
| 47 | PCIE CLOCKp | 46 | NC |
| 49 | PCIE CLOCKn | 48 | NC |
| 51 | GND | 50 | SUSCLK |
| 53 | PCIE Clock Request | 52 | PCIRST |
| 55 | PCIE wake up | 54 | BT_Disable |
| 57 | GND | 56 | WLAN_DISABLE |
| 59 | NC | 58 | NC |
| 61 | NC | 60 | NC |
| 63 | GND | 62 | NC |
| 65 | NC | 64 | NC |
| 67 | NC | 66 | NC |
| 69 | GND | 68 | NC |
| 71 | NC | 70 | NC |
| 73 | NC | 72 | 3.3V |
| 75 | GND | 74 | 3.3V |

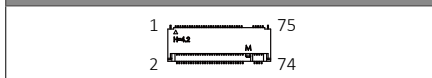
| Connector PN | Vendor |
|------------------|------------|
| 2E0BC21-S85BE-7H | FOXCONN |
| 80152-8521 | BELLWETHER |
| APCI0095-P002A | LOTES |

2.2.31 M2M (M.2 Slot, 2280 M-Key)

35



M.2 M Key Connector



| Pin No. | Definition | Pin No. | Definition |
|---------|------------|---------|------------|
| 1 | GND | 2 | 3.3V |
| 3 | GND | 4 | 3.3V |
| 5 | PCIe3 RXn | 6 | NC |
| 7 | PCIe3 RXp | 8 | NC |
| 9 | GND | 10 | SSD LED |
| 11 | PCIe3 TXn | 12 | 3.3V |
| 13 | PCIe3 TXp | 14 | 3.3V |
| 15 | GND | 16 | 3.3V |
| 17 | PCIe2 RXn | 18 | 3.3V |
| 19 | PCIe2 RXp | 20 | NC |
| 21 | GND | 22 | NC |
| 23 | PCIe2 TXn | 24 | NC |
| 25 | PCIe2 TXp | 26 | NC |
| 27 | GND | 28 | NC |
| 29 | PCIe1 RXn | 30 | NC |
| 31 | PCIe1 RXp | 32 | NC |
| 33 | GND | 34 | NC |
| 35 | PCIe1 TXn | 36 | NC |

| Pin No. | Definition | Pin No. | Definition |
|---------|-------------|---------|--------------------|
| 37 | PCIe2 TXp | 38 | DEVSLP |
| 39 | GND | 40 | NC |
| 41 | PCIe0 RXn | 42 | NC |
| 43 | PCIe0 RXp | 44 | NC |
| 45 | GND | 46 | NC |
| 47 | PCIe0 TXn | 48 | NC |
| 49 | PCIe0 TXp | 50 | PCI Reset |
| 51 | GND | 52 | PCIe Clock Request |
| 53 | PCIe Clockn | 54 | Wakeup |
| 55 | PCIe Clockp | 56 | NC |
| 57 | GND | 58 | NC |

| Pin No. | Definition | Pin No. | Definition |
|---------|------------|---------|------------|
| 67 | NC | 68 | SUSCLK |
| 69 | Detect | 70 | 3.3V |
| 71 | GND | 72 | 3.3V |
| 73 | GND | 74 | 3.3V |
| 75 | GND | | |

| Connector PN | Vendor |
|------------------|---------|
| AS0BC21-S40BM-7H | FOXCONN |
| APCI0073-P001A | LOTES |

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

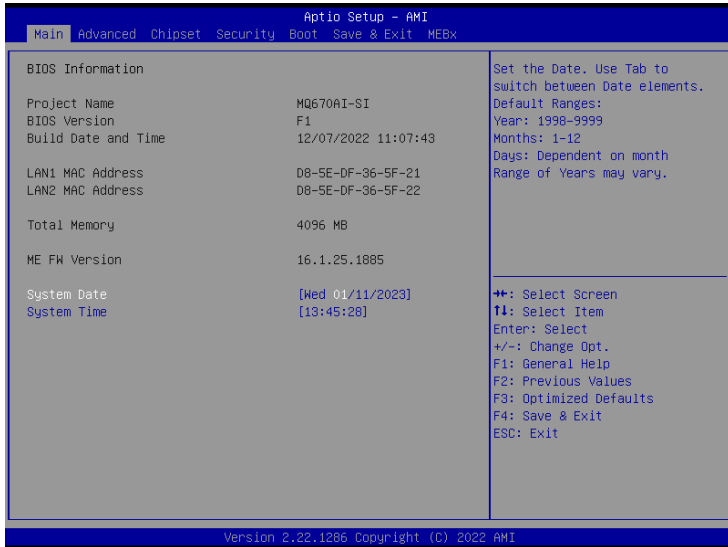
Once the system is power on, press the key as soon as possible to access into BIOS Setup program.

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.

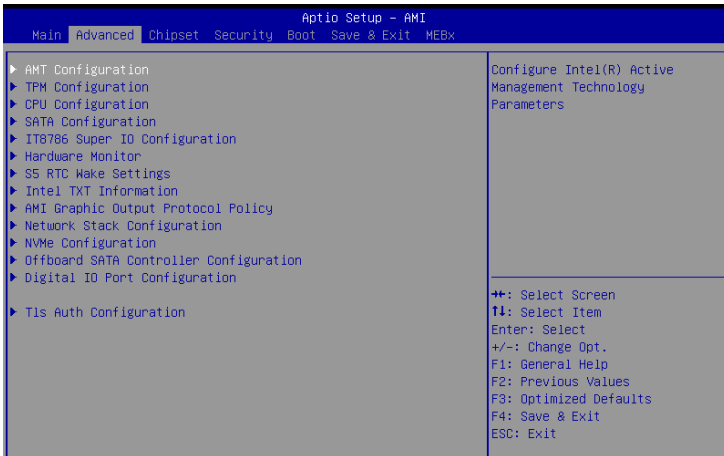


| Items | Description |
|----------------------------|---|
| Project Name | Shows Project name information |
| BIOS Version | Shows the BIOS version of the system |
| Build Date and Time | Shows the Build Date and Time when the BIOS was created. |
| LAN1 MAC Address | Shows LAN 1 MAC Address information |
| LAN2 MAC Address | Shows LAN 2 MAC Address information |
| Total Memory | Shows the total memory size of the installed memory |
| ME FW version | Shows ME firmware version |
| 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) |

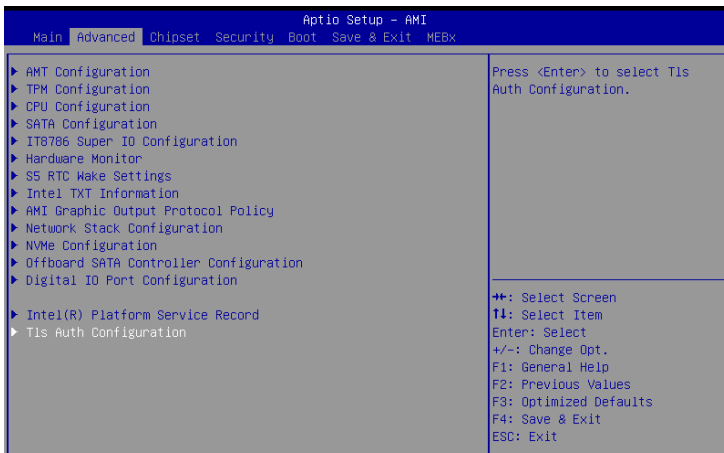
3.3 Advanced

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.

Advanced menu items for 12th CPU

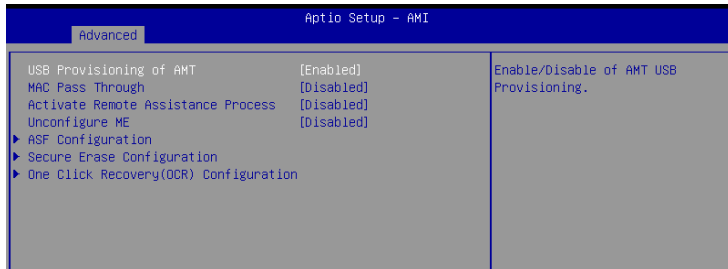


Advanced menu items for 13th CPU

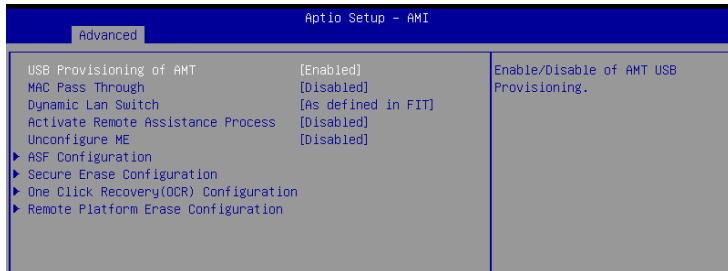


3.3.1 AMT Configuration

Items for 12th CPU

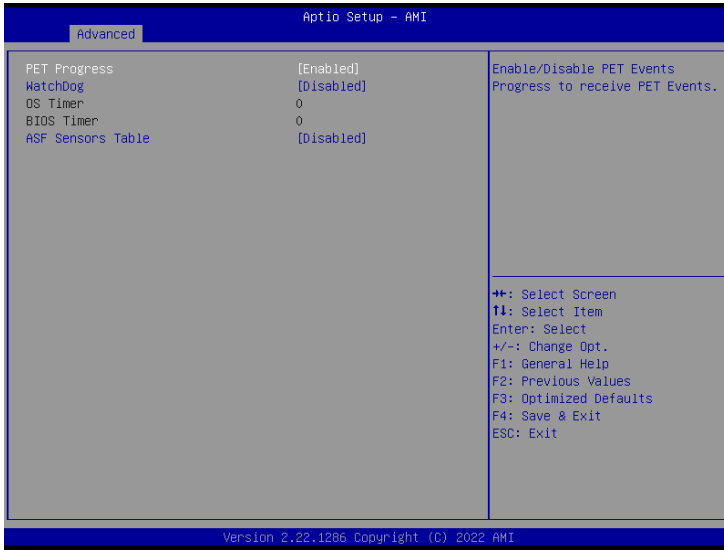


Items for 13th CPU



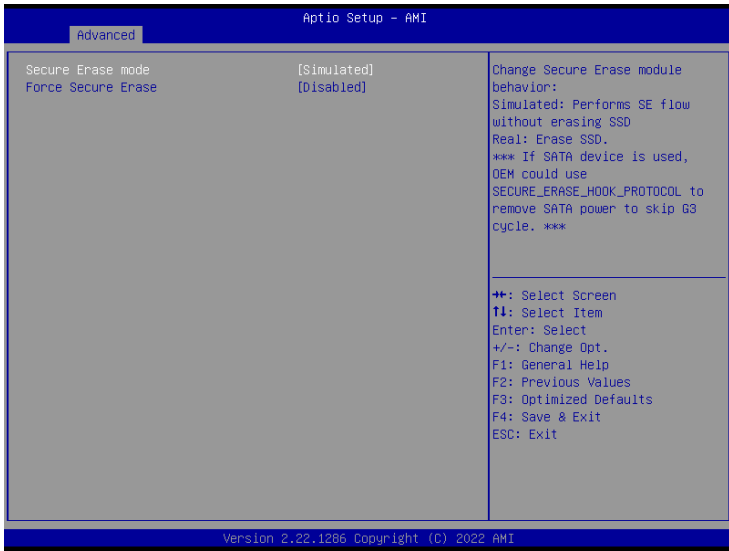
| Item | Description |
|---|--|
| USB Provisioning of AMT | Inserting a specially formatted USB drive into a system, to let the other system remotely control. Disabled : Disables USB Provisioning of AMT Enabled : Enables USB Provisioning of AMT (Default setting) |
| MAC Pass Through | Disabled : Disables MAC Pass Through function (Default setting) Enabled : Enables MAC Pass Through function |
| Dynamic Lan Switch | Allow switching AMT support from Integrated LAN to Discrete LAN. Option items : As defined in FIT (Default setting), Integrated LAN, Discrete LAN. |
| Activate Remote Assistance Process | Trigger CIRA boot Disabled : Disables TPM feature (Default setting) Enabled : Enables TPM feature |
| Unconfigure ME | To Un-configure ME without password. Disabled : Disables Unconfigure ME (Default settings) Enabled : Enables Unconfigure ME |

ASF Configuration



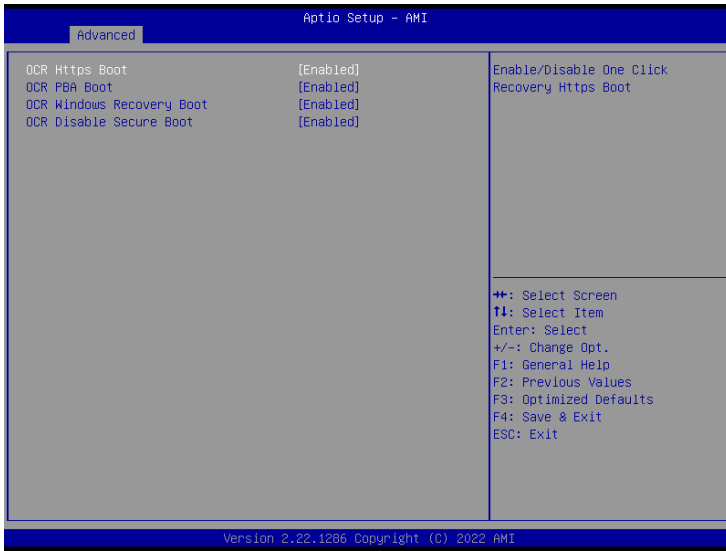
| Item | Description |
|--------------------------|---|
| PET Progress | Choose to receive PET events or not Disabled : Disables PET Progress Enabled : Enables PET Progress (Default setting) |
| WatchDog | Choose to enables watchdog timer or not Disabled : Disables watchdog Timer (Default setting) Enabled : Enables watchdog Timer |
| OS Timer | Sets OS Watchdog Timer. |
| BIOS Timer | Sets BIOS Timer. |
| ASF Sensors Table | Disabled : Disables ASF Sensors Table (Default setting) Enabled : Enables ASF Sensors Table |

Secure Erase Configuration



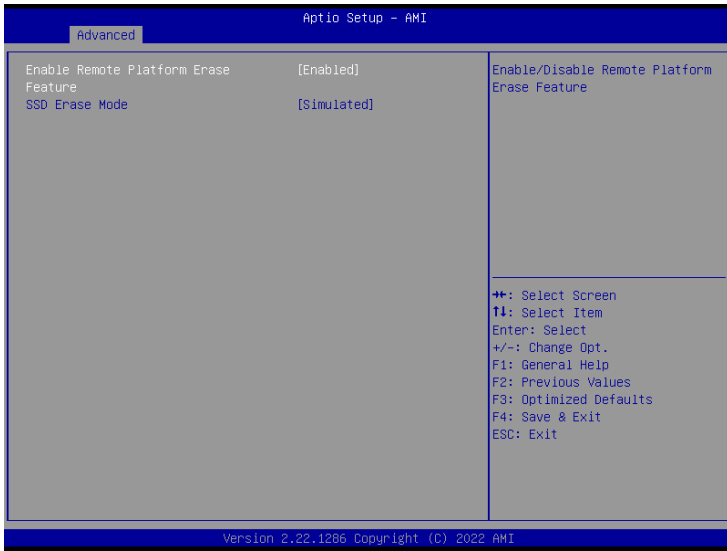
| Item | Description |
|---------------------------|---|
| Secure Erase mode | Choose to enables secure erase mode or not. Simulated : Performs SE flow without erasing SSD (Default setting) Real : Erase SSD |
| Force Secure Erase | Force Secure Erase on next boot. Disabled : Disables Force Secure Erase (Default setting) Enabled : Enables Force Secure Erase |

One Click Recovery (OCR) Configuration



| Item | Description |
|---------------------------|--|
| OCR Https Boot | Enabled : Enables One Click Recovery Https Boot. (Default setting) Disabled : Disables One Click Recovery Https Boot. |
| OCR PBA Boot | Enabled : Enables One Click Recovery PBA Boot. (Default setting) Disabled : Disables One Click Recovery PBA Boot. |
| OCR Windows Recovery Boot | Enabled : Enables One Click Recovery Windows recovery boot. (Default setting) Disabled : Disables One Click Recovery Windows recovery boot. |
| OCR Disable Secure Boot | Allows CSME to request Secureboot to be disabled for One Click Recovery. Enabled : Enables One Click Recovery disable Secure Boot function. (Default setting) Disabled : Disables One Click Recovery disable Secure Boot function. |

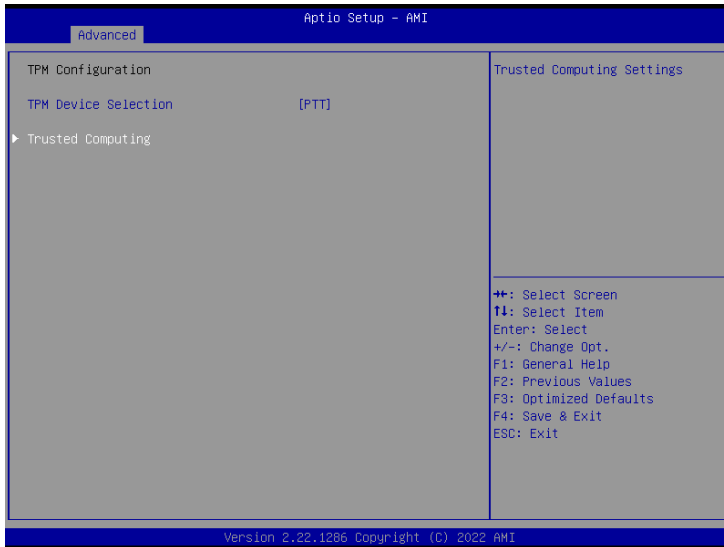
Remote Platform Erase Configuration (Appears on 13th CPU series)



| Item | Description |
|---|---|
| Enable Remote Platform Erase Feature | Disabled : Disables remote platform erase feature. Enabled : Enables remote platform erase feature. (Default setting) |
| SSD Erase Mode | Change RPE SSD Erase Action behavior Simulated : performs RPE SSD Erase flow without erasing SSD. (Default setting) Real : Erase SSD. |

3.3.2 TPM Configuration

Use TPM Configuration submenu to choose TPM interface.



| Item | Description |
|----------------------|---|
| TPM Device Selection | PTT : Internal TPM (Default setting) dTPM : External TPM (When using External TPM module or having TPM chip on MB) |

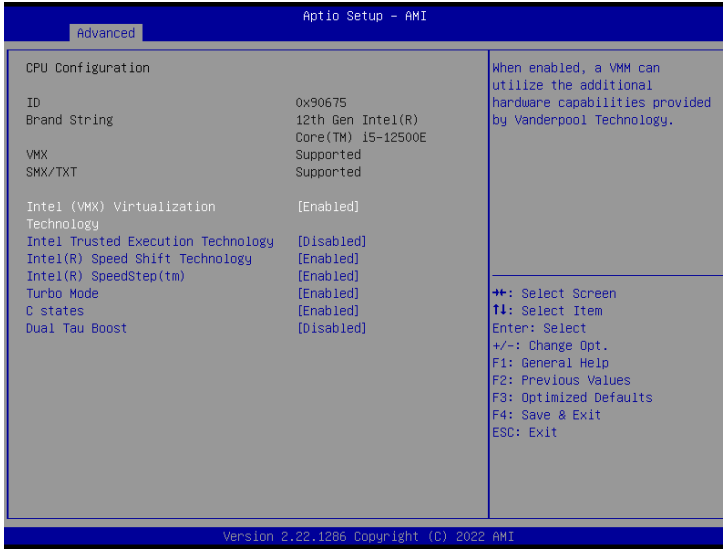
Trusted Computing : Shows TPM information, and TPM module configuration setting.



| Item | Description |
|--------------------------------|---|
| Security Device Support | Enabled : Enables TPM feature (Default setting) Disabled : Disables TPM feature |
| Pending operation | None : No execution will be conducted (Default setting) TPM clear : Set to clear data on TPM |

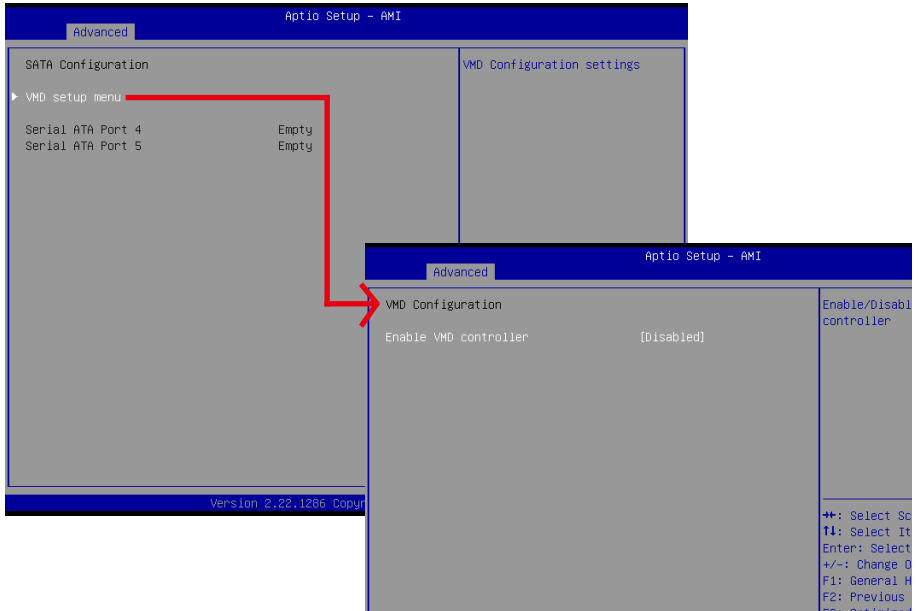
3.3.3 CPU Configuration

This submenu shows detailed CPU informations.



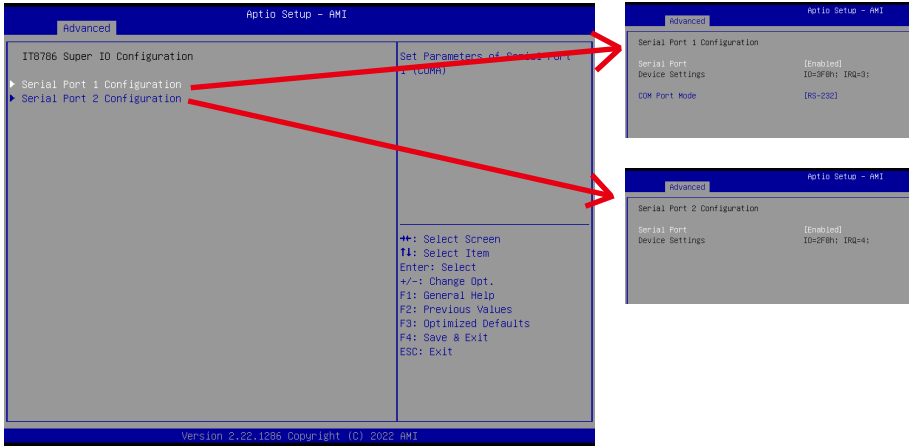
| Item | Description |
|--|--|
| Intel (VMX) Virtualization Technology | Virtualization enhanced by Intel® Virtualization Technology will allow a platform to run multiple operating systems and applications in independent partitions. With virtualization, one computer system can function as multiple virtual systems. Enabled : Enables Intel Virtualization Technology (Default setting) Disabled : Disables Intel Virtualization Technology |
| Intel Trusted Execution Technology | Disabled : Disables Intel Trusted Execution Technology (Intel® TXT) (Default setting) Enabled : Enables Intel Trusted Execution Technology (Intel® TXT) |
| Intel(R) Speed Shift Technology | To speed up CPU frequency transition time from basic frequency to maximum frequency. Enabled : Enables Intel(R) Speed Shift Technology Interrupt control (Default setting) Disabled : Disables Intel(R) Speed Shift Technology Interrupt control |
| Intel(R) SpeedStep(tm) | According to Intel CPU loading, Intel SpeedStep Technology will automatically adjust the CPU voltage and core frequency to decrease heat and power consumption for power saving. Enabled : Enables Intel SpeedStep Technology (Default setting) Disabled : Disables Intel SpeedStep Technology |
| Turbo Mode | Enabled : Enables Turbo Mode (Default setting) Disabled : Disables Turbo Mode |
| C states | Command CPU to enter into low power consumption mode when CPU is under idle mode. Enabled : Enables CPU C states function (Default setting) Disabled : Disables CPU C states function |
| Dual Tau Boost | To optimize CPU performance. Enabled : Enables Dual Tau Boost function Disabled : Disables Dual Tau Boost function (Default setting) |

3.3.4 SATA Configuration



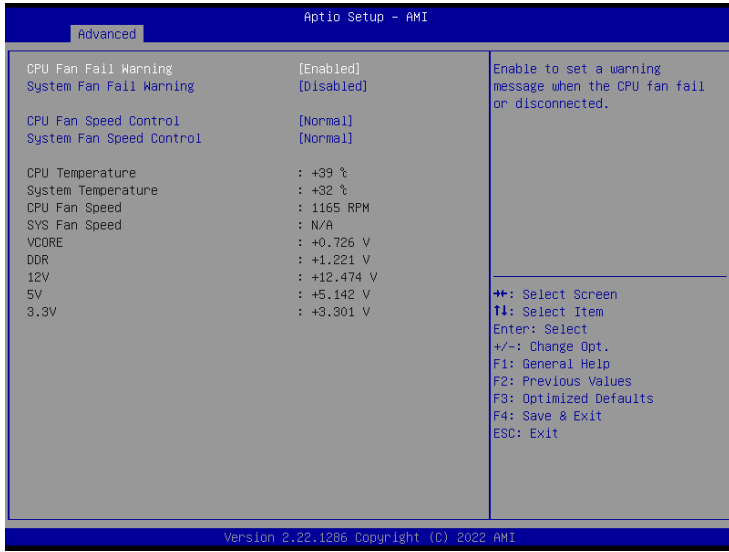
| Item | Description |
|---|--|
| VMD setup menu / Enable VMD controller | Intel VMD feature helps you to control and manage NVMe PCIe SSD. Enabled : Enables Intel VMD feature Disabled : Disables Intel VMD feature (Default setting) |
| Serial ATA Port 4 | shows 2.5" SATA HDD/SSD information |
| Serial ATA Port 5 | shows 2.5" SATA HDD/SSD information |

3.3.5 IT8786 Super IO Configuration



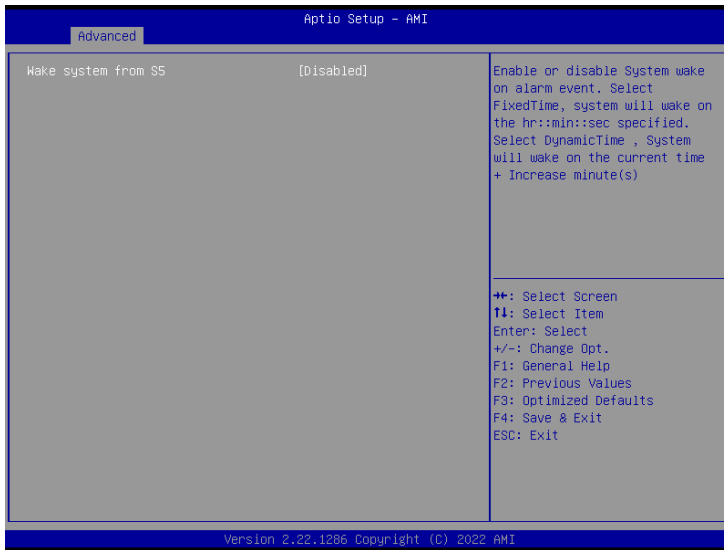
| Item | Description |
|------------------------------------|--|
| Serial Port 1 Configuration | <p>Press [Enter] to configure advanced items :</p> <p>Serial Port : Enabled : Enables allows you to configure the serial port settings Disabled : if Disabled, displays no configuration for the serial port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

3.3.6 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 System FAN Fail warning alert function Disabled : Disables System 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 |
| CPU Fan Speed | Shows current CPU fan Speed |
| SYS Fan Speed | Shows current System fan Speed |

3.3.7 S5 RTC Wake Settings



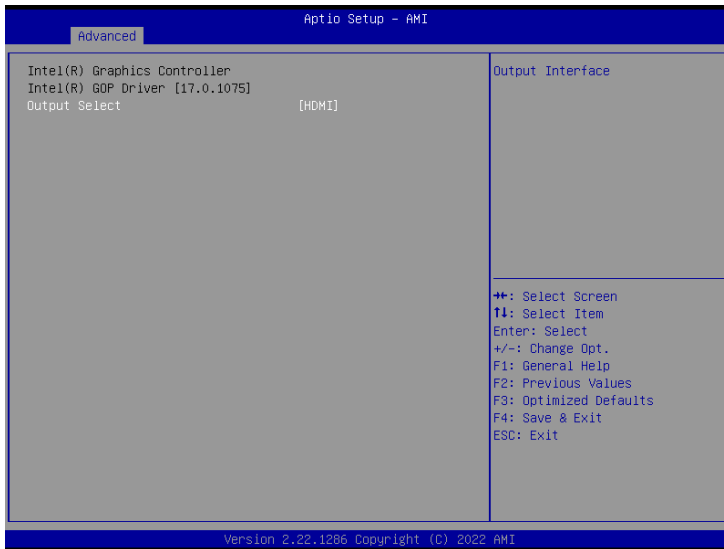
| Item | Description |
|----------------------------|---|
| Wake system from S5 | Enable or Disable System to wake on a specific time. Disabled : Disables system to wake on a specific time (Default setting) Fixed Time : Enables system to wake on a specific time (Format : hr : min : sec) |

3.3.8 Intel TXT Information

This submenu shows detailed Intel TXT informations.

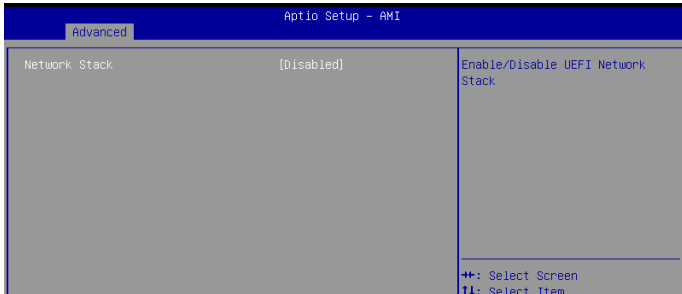


3.3.9 AMI Graphic Output Protocol Policy

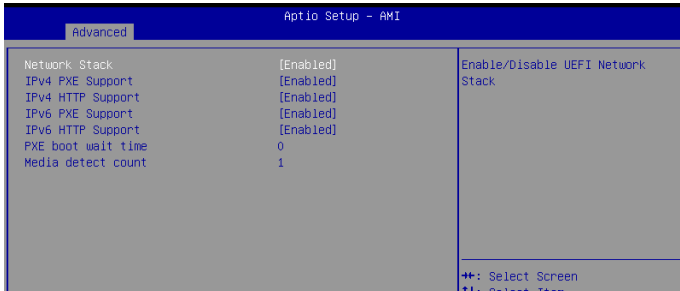


| Item | Description |
|----------------------|--|
| Output Select | Choose default monitor output when there are more than one monitor plugged on the motherboard. |

3.3.10 Network Stack Configuration



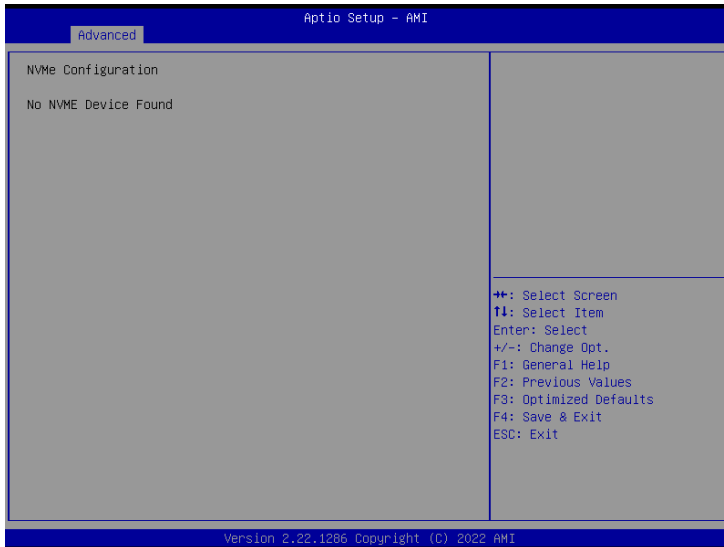
When Network stack is enabled :



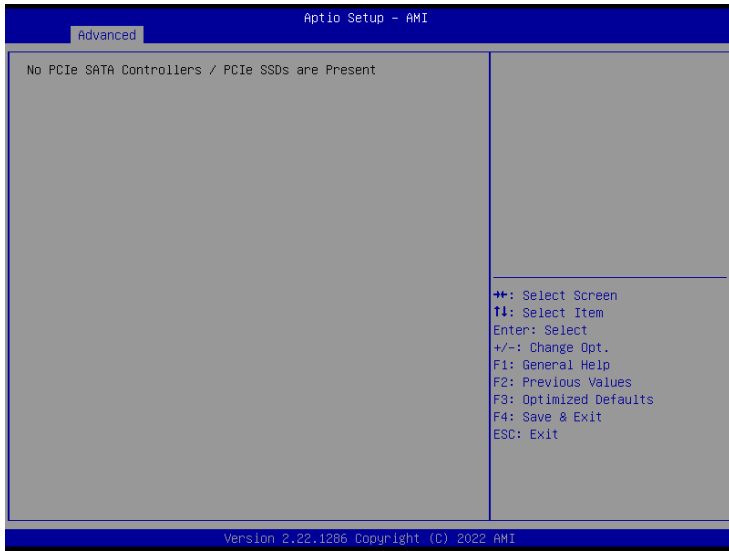
| Item | Description |
|---------------------------|---|
| Network Stack | When system is power on, install LAN driver under UEFI mode Disabled : Disables UEFI Network Stack (Default setting) Enabled : Enables UEFI Network Stack |
| IPv4 PXE Support | When Network stack is enabled : Disabled : Disables IPv4 PXE Support Enabled : Enables IPv4 PXE Support |
| IPv4 HTTP Support | When Network stack is enabled : Disabled : Disables IPv4 HTTP Support Enabled : Enables IPv4 HTTP Support |
| IPv6 PXE Support | When Network stack is enabled : Disabled : Disables IPv6 PXE Support Enabled : Enables IPv6 PXE Support |
| IPv6 HTTP Support | When Network stack is enabled : Disabled : Disables IPv6 HTTP Support Enabled : Enables IPv6 HTTP Support |
| PXE boot wait time | Wait time in seconds, or use ESC key to abort the PXE boot. |
| Media detect count | Number of times the presence of media will be checked. |

3.3.11 NVMe Configuration

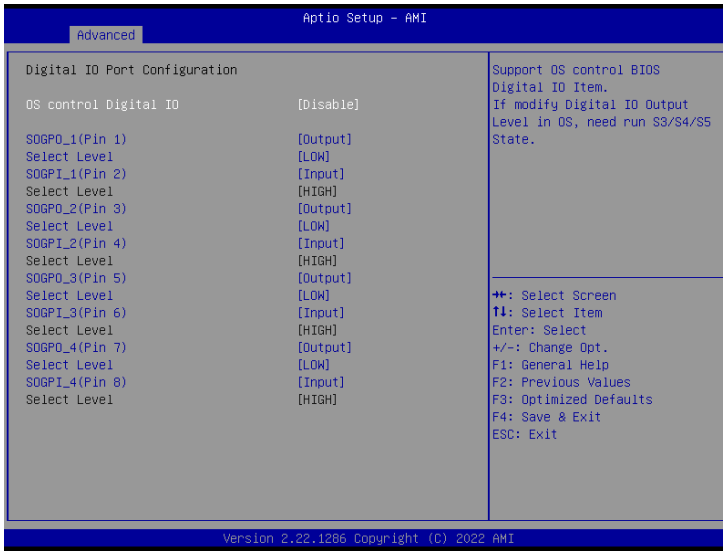
NVMe Configuration shows information when your M.2 NVMe PCIe SSD is installed.



3.3.12 Offboard SATA Controller Configuration



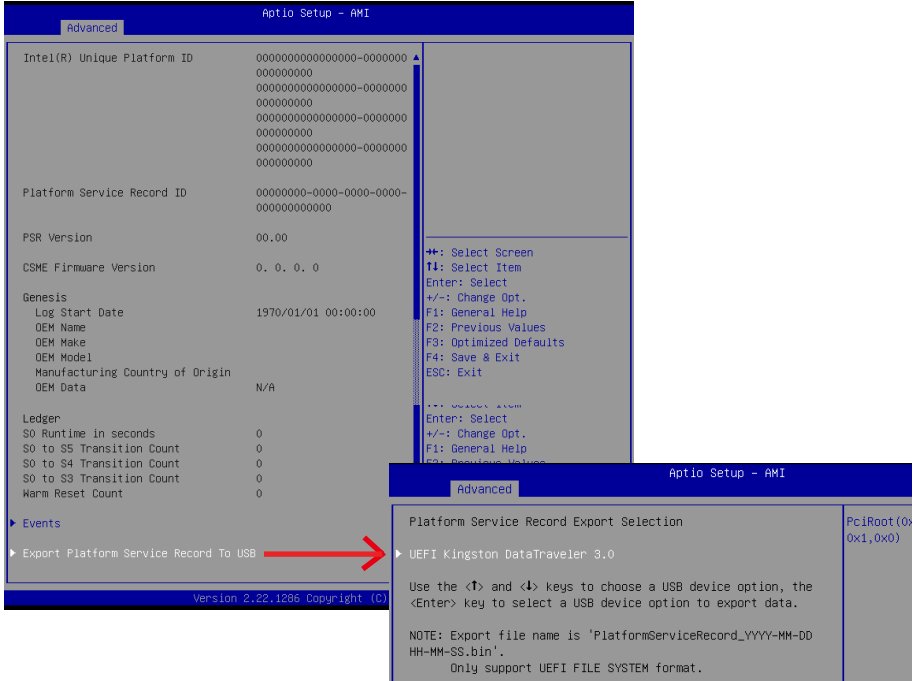
3.3.13 Digital IO Port Configuration



| 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. |

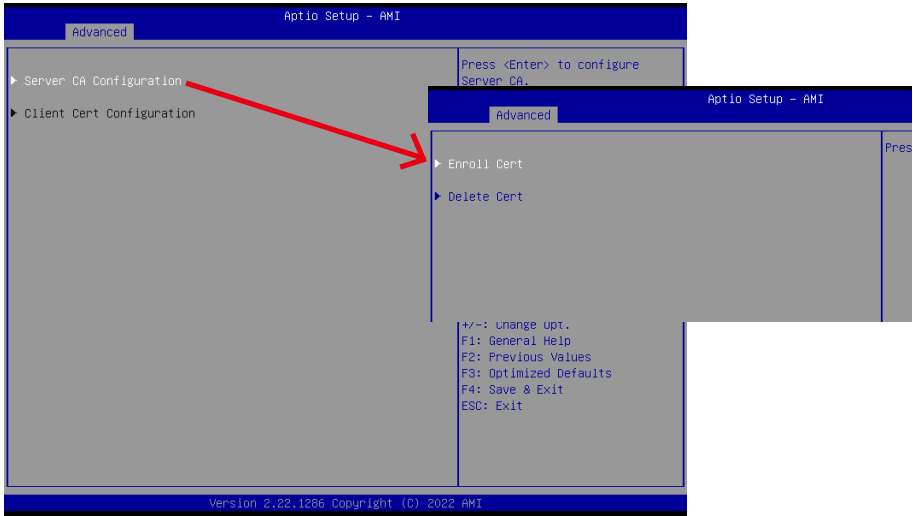
3.3.14 Intel(R) Platform Service Record

This page will only appears on 13th CPU series.



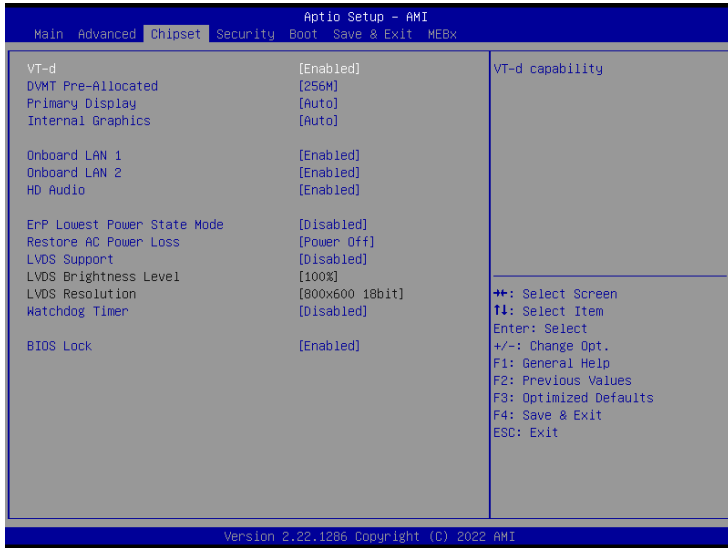
| Item | Description |
|--|---|
| Export Platform Service Record To USB | <p>Platform Service Record Export Selection</p> <p>USE the <↑> and <↓> keys to choose a USB device option, the <Enter> key to select a USB device option to export data.</p> <p>NOTE : Export file name is "PlatformServiceRecord_YYYY-MM-DD HH-MM-SS.bin"</p> <p>Only support UEFI File system format.</p> |

3.3.15 Tls Auth Configuration



| Item | Description |
|--------------------|--|
| Enroll Cert | <p>Press [Enter] to configure advanced items :</p> <p>Server CA Configuration :</p> <p>Enroll Cert :</p> <ol style="list-style-type: none"> 1. Enroll Cert Using File 2. Cert GUID : Input digit character in 11111111-2222-3333-4444-1234567 890ab format. 3. Commit Changes and Exit 4. Discard Changes and Exit |

3.4 Chipset



| Item | Description |
|--|--|
| VT-d | Enabled : Enables VT-d function (Default setting) Disabled : Disables VT-d function |
| DVMT Pre-Allocated | Use DVMT Pre-Allocated to set the amount of system memory which is installed to the integrated graphics processor Option items : 32M , 64M, 128M, 256M (Default setting) |
| Primary Display | Auto : When detects PCIe Graphic card, primary display will set to PCIe (Default setting) IGFX : Force IGFX Graphic card as the primary display device PEG : Force PEG Graphic card as the primary display device |
| Internal Graphics | Enables or disables the onboard graphics function Auto : Detects display device automatically (Default setting) Enabled : Enables onboard graphics Disabled : Disables 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 | <p>Enable/Disable onboard audio controller</p> <p>Enabled : Enables onboard audio controller (Default setting)</p> <p>Disabled : Disables onboard audio controller</p> |
| ErP Lowest Power State Mode | <p>Enable/Disable power saving funtion</p> <p>Enabled : Enables ErP Lowest Power State Mode</p> <p>Disabled : Disabled ErP Lowest Power State Mode (Default setting)</p> |
| Restore AC Power Loss | <p>To set which option the system should returns if a sudden power loss occurred</p> <p>Power off : Do not power on when the power is back (Default setting)</p> <p>Power on : System power on when the power is back</p> <p>Last state : Restore the system to the state before power loss occurs</p> |
| LVDS Support | <p>Disabled : Disables LVDS Support (Default setting)</p> <p>Enabled : Enables LVDS Support</p> |
| LVDS Brightness Level | <p>When LVDS Support is enabled :</p> <p>To modified the backlight brightness of the LVDS panel</p> <p>Option items : 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100% (Default Setting)</p> |
| LVDS Resolution | <p>When LVDS Support is enabled :</p> <p>To modified the LVDS resolution</p> <p>Option items : 800x600 18bit (Default Setting) , 1024x768 18bit, 1024x768 24bit, 1024x600 18bit, 1280x800 18bit, 1280x960 18bit, 1280x1024 24bit, 1366x768 18bit, 1366x768 24bit, 1440x900 24bit, 1400x1050 24bit, 1600x900 24bit, 1680x1050 24bit, 1600x1200 24bit, 1920x1080 24bit, 1920x1200 24bit</p> |
| Watchdog Timer | <p>Enable/Disable Watchdog Timer function</p> <p>Disabled : Disables Watchdog Timer function (Default setting)</p> <p>Enabled : Enables Watchdog Timer function</p> |
| BIOS Lock | <p>Enable/Disable BIOS Lock function</p> <p>Enabled : Enables BIOS Lock function (Default setting)</p> <p>Disabled : Disabled BIOS Lock funtion</p> |

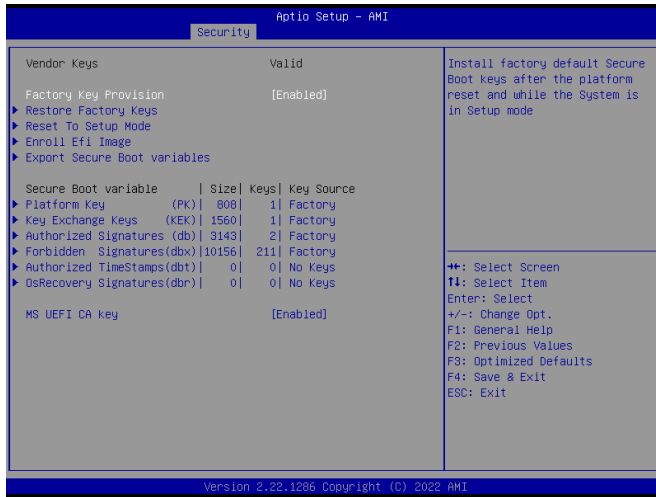
3.5 Security



| 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 |

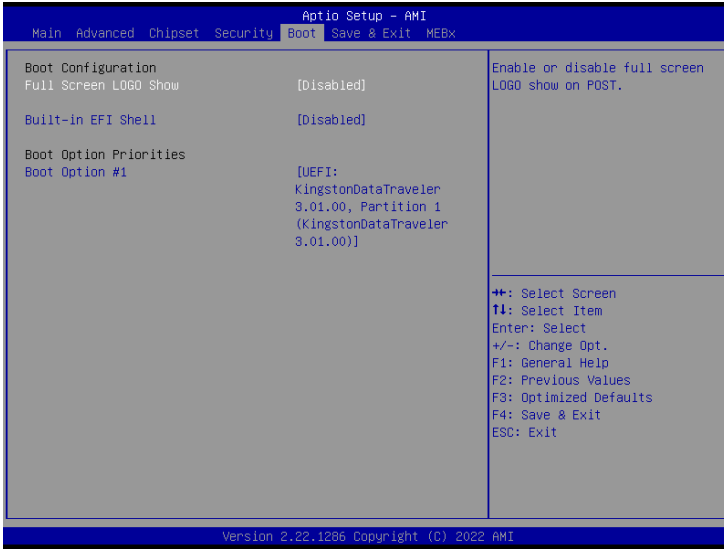


| Item | Description |
|------------------------------|---|
| Factory Key Provision | Install factory default Secure Boot keys after the platform reset and while the system is in Setup mode Enabled : Enables Factory Key Provision (Default setting) Disabled : Disables Factory Key Provision |
| Restore 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 |

| 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 | |
| MS UEFI CA Key | Device Guard ready system must not list 'Microsoft UEFI CA' Certificate in Authorized Signature database(db) |

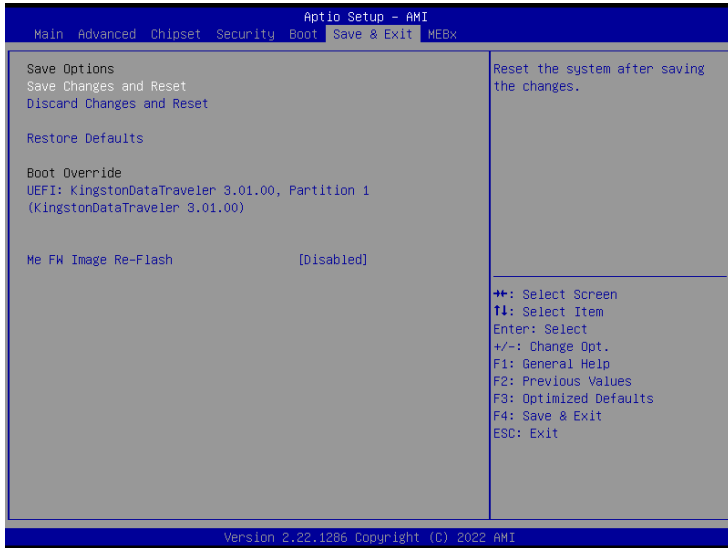
3.6 Boot

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) |
| Built-in EFI Shell | Enable/Disable Built-in EFI Shell Enabled : Enables Built-in EFI Shell Disabled : Disables Built-in EFI Shell (Default setting) |
| Boot Option #1 | 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 |
| Me FW Image Re-Flash | Enable/Disable Me FW image re-flash function Enabled : Enables Me FW image re-flash function Disabled : Disables Me FW image re-flash function (Default setting) |

3.8 MEBx



| Item | Description |
|-----------------------------|----------------|
| Intel(R) ME Password | For MEBx Login |