

# QBiP-155UB QBiP-125UB

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3.5" SBC Boards

## Copyright Notice

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# Packing List

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

| Item                      | Quantity |
|---------------------------|----------|
| QBiP-155UB/ QBiP-125UB MB | 1        |
| SATA power cable          | 1        |
| Thermal pad for Memory    | 1        |

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

## How to assemble Thermal pad for Memory

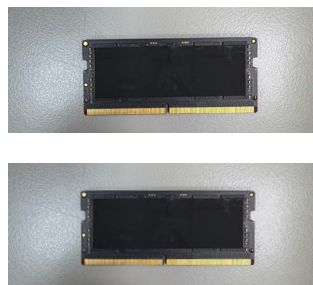
Follow instructions to apply thermal pad only when using 2 x DDR5 32GB 2Rx8 SO-DIMMs or above, to ensure better performance.

**A**

The thermal pad kit, located at the bottom of the single box, contains 2 x thermal pads and 4 x complex thermally conductive film.

**B**

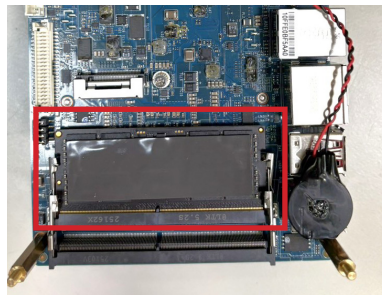
Paste complex thermally conductive film on both sides of memory modules.

**C**

Apply the **thick** thermal pad to the motherboard (as below), and lock memory module on SO-DIMM2.

**D**

Apply the **thin** thermal pad to the installed memory module (as below), and lock memory module on SO-DIMM1.



## 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](http://GIGAIPC.com) for the latest version of this document.

## Safety Precautions

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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

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**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<br>(Pb) | 汞<br>(Hg) | 镉<br>(Cd) | 六价铬<br>(Cr(VI)) | 多溴联苯<br>(PBB) | 多溴二苯醚<br>(PBDE) |
| 印刷电路板<br>及其电<br>子组件                                                                                                                                                        | ○         | ○         | ○         | ○               | ○             | ○               |
| 外部信号<br>连接器<br>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                                                                                                                                                                                                                                                                                                                                                                                                                                              | O                                             | O            | O            | O                            | O                              | O                                     |
| Wires & Connectors for External Connections                                                                                                                                                                                                                                                                                                                                                                                                                         | O                                             | O            | O            | O                            | O                              | O                                     |
| <p>O : The quantity of poisonous or hazardous substances or elements found in each of the component's parts is below the SJ/T 11363-2006-stipulated requirement.</p> <p>X: The quantity of poisonous or hazardous substances or elements found in at least one of the component's parts is beyond the SJ/T 11363-2006-stipulated requirement.</p> <p>Note: The Environment Friendly Use Period as labeled on this product is applicable under normal usage only</p> |                                               |              |              |                              |                                |                                       |

# Table Contents

|                                             |          |
|---------------------------------------------|----------|
| <b>3.5" SBC Boards</b>                      | <b>1</b> |
| Copyright Notice .....                      | 2        |
| Acknowledgement .....                       | 3        |
| Packing List.....                           | 4        |
| How to assemble Thermal pad for Memory..... | 5        |
| About this Document.....                    | 6        |
| Safety Precautions .....                    | 7        |
| FCC Statement.....                          | 9        |
| China RoHS Requirements (CN).....           | 10       |
| China RoHS Requirement (EN) .....           | 11       |

|                                           |           |
|-------------------------------------------|-----------|
| <b>Chapter 1 - Product Specifications</b> | <b>15</b> |
|-------------------------------------------|-----------|

|                                                   |    |
|---------------------------------------------------|----|
| 1.1 Specifications - QBiP-155UB/ QBiP-125UB ..... | 17 |
|---------------------------------------------------|----|

|                                         |           |
|-----------------------------------------|-----------|
| <b>Chapter 2 – Hardware Information</b> | <b>19</b> |
|-----------------------------------------|-----------|

|                                                             |    |
|-------------------------------------------------------------|----|
| 2.1 Jumpers and Connectors .....                            | 20 |
| 2.2.1 CPU_FAN (CPU fan connector) .....                     | 23 |
| 2.2.2 SYS_FAN (System fan connector) .....                  | 24 |
| 2.2.3 COM1 (Serial Port (RS-232/422/485 & RI/5V/12V)) ..... | 25 |
| 2.2.4 LAN2 (LAN connector).....                             | 26 |
| 2.2.5 LAN1 (LAN connector).....                             | 27 |
| 2.2.6 HDMI21 (HDMI connector) .....                         | 28 |
| 2.2.7 USB32_2 (USB 3.2 Gen 2x1 connector) .....             | 29 |
| 2.2.8 USB32_1 (USB 3.2 Gen 2x1 connector) .....             | 30 |
| 2.2.9 SODIMM1, SODIMM2 (DDR5 SO-DIMM Slot).....             | 31 |

|        |                                                                |    |
|--------|----------------------------------------------------------------|----|
| 2.2.10 | LSW (LVDS resolution jumper) .....                             | 32 |
| 2.2.11 | LVDS (LVDS connector).....                                     | 33 |
| 2.2.12 | BKL_CN (Backlight control header).....                         | 34 |
| 2.2.13 | SPKR (Speaker out connector) .....                             | 35 |
| 2.2.14 | FP_AUDIO (Front Audio connector) .....                         | 36 |
| 2.2.15 | GPIO_CNT (General Purpose input/output header) .....           | 37 |
| 2.2.16 | CAN_BUS (CANBus header) .....                                  | 38 |
| 2.2.17 | SYS_PANEL (Front panel header) .....                           | 39 |
| 2.2.18 | DC_IN (DC IN 1x4 pin power connector) .....                    | 40 |
| 2.2.19 | AT_CN (AT/ATX mode select jumper) .....                        | 41 |
| 2.2.20 | COM2, COM3, COM4 (Serial port header, RS-232/422/485)<br>..... | 42 |
| 2.2.21 | FUSB1, FUSB2 (USB 2.0 headers) .....                           | 43 |
| 2.2.22 | JCOM1 (RI# pin RI#/5V/12V Select jumper for COM1<br>Port)..... | 44 |
| 2.2.23 | SATA0 (SATA 6Gb/s connector) .....                             | 45 |
| 2.2.24 | SATAPWR (SATA power connector).....                            | 46 |
| 2.2.25 | M2E (M.2 Slot, 2230 E-key).....                                | 47 |
| 2.2.26 | MPCIE (Mini PCIe slot).....                                    | 48 |
| 2.2.27 | BATTERY (Battery cable Connector) .....                        | 49 |
| 2.2.28 | M2M (M.2 Slot, 2280 M-key).....                                | 50 |

## Chapter 3 – BIOS 51

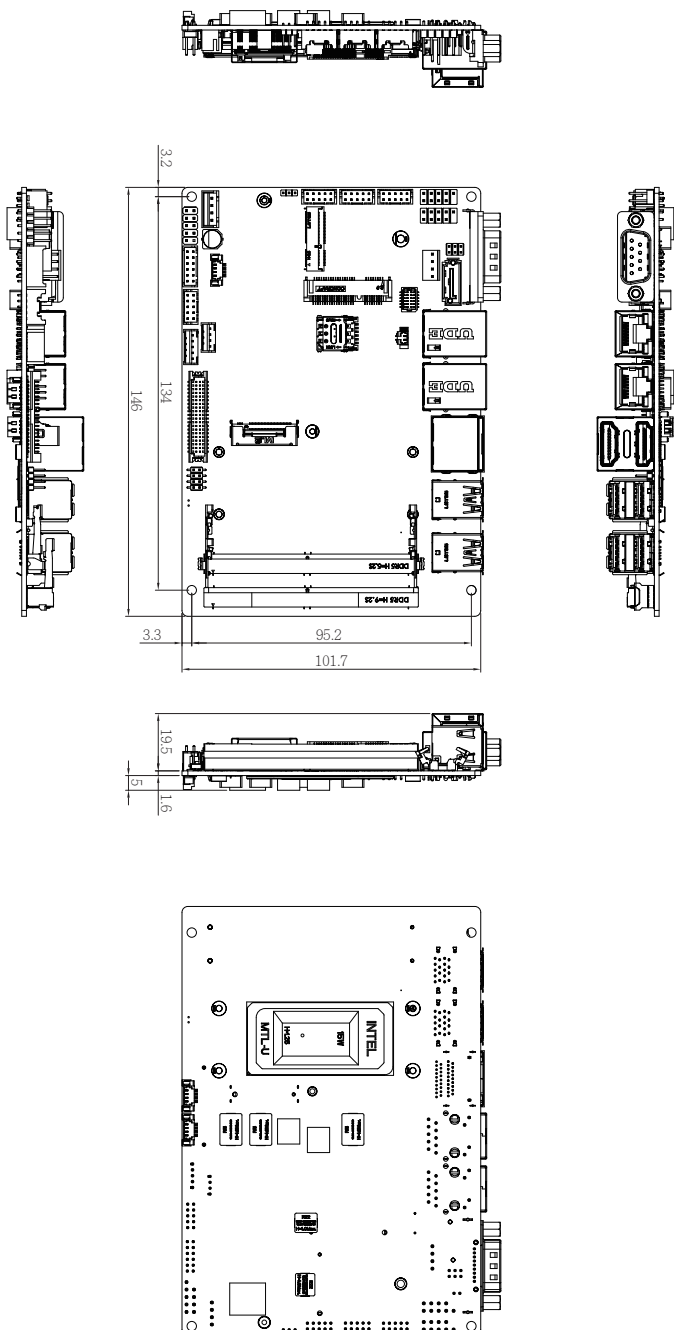
|     |                    |    |
|-----|--------------------|----|
| 3.1 | Introduction ..... | 52 |
| 3.2 | The Main Menu..... | 53 |
| 3.3 | Advanced .....     | 54 |

|        |                                                                                                                              |    |
|--------|------------------------------------------------------------------------------------------------------------------------------|----|
| 3.3.1  | SATA Configuration .....                                                                                                     | 55 |
| 3.3.2  | TPM Configuration.....                                                                                                       | 56 |
| 3.3.3  | CPU Configuration .....                                                                                                      | 58 |
| 3.3.4  | IT5782 Super IO Configuration .....                                                                                          | 59 |
| 3.3.5  | Hardware Monitor .....                                                                                                       | 60 |
| 3.3.6  | S5 RTC Wake Settings .....                                                                                                   | 61 |
| 3.3.7  | Network Stack Configuration.....                                                                                             | 62 |
| 3.3.8  | NVMe Configuration .....                                                                                                     | 63 |
| 3.3.9  | Offboard SATA Controller Configuration .....                                                                                 | 64 |
| 3.3.10 | Digital IO Port Configuration .....                                                                                          | 65 |
| 3.3.11 | Intel(R) Ethernet Controller I226-LM - 10:FF:E0:BC:D3:A1<br>(MAC address may varied based on different motherboard)<br>..... | 66 |
| 3.3.12 | Intel(R) Ethernet Controller I226-V - 10:FF:E0:BC:D3:A2<br>(MAC address may varied based on different motherboard)<br>.....  | 67 |
| 3.4    | Chipset .....                                                                                                                | 68 |
| 3.5    | Security .....                                                                                                               | 70 |
| 3.6    | Boot.....                                                                                                                    | 73 |
| 3.7    | Save & Exit .....                                                                                                            | 74 |

# Chapter 1

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## Chapter 1 - Product Specifications



## 1.1 Specifications - QBiP-155UB/ QBiP-125UB

| Motherboard     | QBiP-155UB                                                                                                                                                                                                                                                           |  | QBiP-125UB                                                                                                                       |  |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------|--|
| Form Factor     | 3.5'' SBC<br>146W x 101.7Dmm                                                                                                                                                                                                                                         |  |                                                                                                                                  |  |
| CPU             | Intel® Core™ Ultra 7 Processor 155U<br>Intel® 4, 12 cores, 2P+8E+2LPE, 14 threads, up to 4.8 GHz<br>TDP 15W<br>12 MB Smart Cache                                                                                                                                     |  | Intel® Core™ Ultra 5 Processor 125U<br>Intel® 4, 12 cores, 2P+8E+2LPE, 14 threads, up to 4.3 GHz<br>TDP 15W<br>12 MB Smart Cache |  |
| Socket          | 1 x FCBGA2049                                                                                                                                                                                                                                                        |  |                                                                                                                                  |  |
| Chipset         | —                                                                                                                                                                                                                                                                    |  |                                                                                                                                  |  |
| Memory          | 2 x DDR5 SO-DIMM sockets, Max. Capacity 96 GB<br>Support Dual channel DDR5 5600 MHz memory modules                                                                                                                                                                   |  |                                                                                                                                  |  |
| Ethernet        | 2 x 2.5GbE LAN Ports (Intel® I226V & I226LM)                                                                                                                                                                                                                         |  |                                                                                                                                  |  |
| Video           | Integrated Graphics Processor - Intel® Graphics:<br>2 x HDMI 2.1 port, supporting a maximum resolution of 7680x4320 @60Hz (HDMI 2 port support HDMI CEC)<br>1 x LVDS port, supporting a maximum resolution of 1920x1200 @60Hz<br><br>(3 independent display outputs) |  |                                                                                                                                  |  |
| Audio           | Realtek® ALC269                                                                                                                                                                                                                                                      |  |                                                                                                                                  |  |
| Storage         | 1 x SATA 6Gb/s port                                                                                                                                                                                                                                                  |  |                                                                                                                                  |  |
| Raid            | Intel® SATA RAID 0/1                                                                                                                                                                                                                                                 |  |                                                                                                                                  |  |
| Expansion Slots | 1 x 2280 M.2 M-Key (PCIe Gen4x4, SATA 6Gb/s)<br>1 x 2230 M.2 E-Key<br>1 x Full-size Mini PCIe with SIM slot                                                                                                                                                          |  |                                                                                                                                  |  |

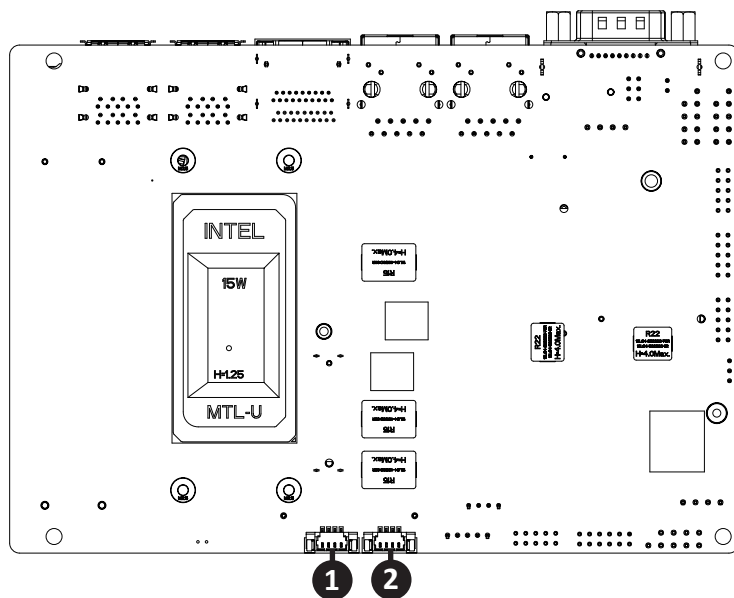
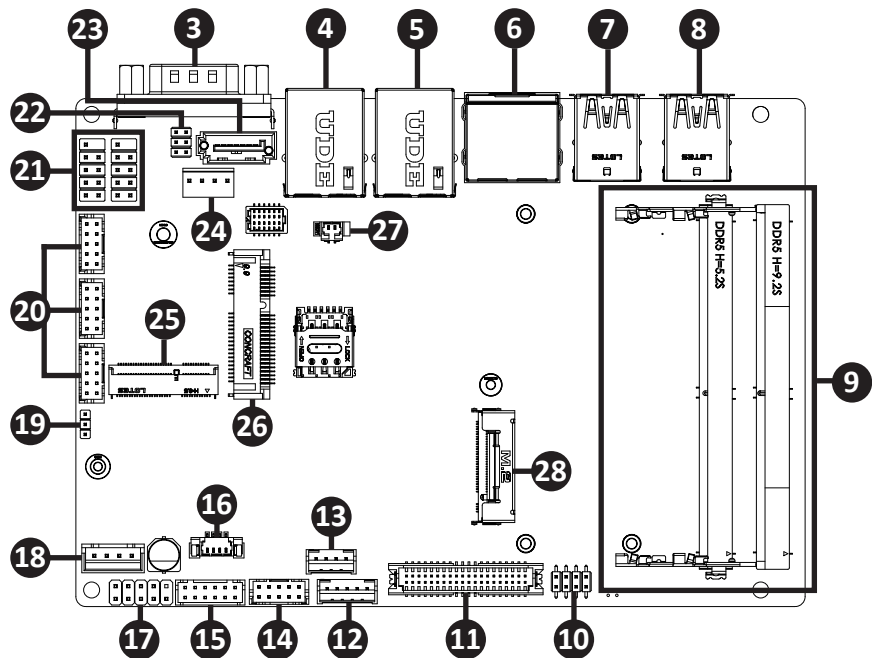
| Motherboard          | QBiP-155UB                                                                                                                                                                                                                                                                                                                                                                                          | QBiP-125UB |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Internal I/O         | 1 x 4-pin box power connector (DC in +9V~36VDC)<br>1 x SATA Power header<br>1 x CPU fan header<br>1 x System fan header<br>1 x Front panel header<br>1 x Front panel audio header<br>1 x 2W Speaker out header<br>4 x USB 2.0 headers<br>3 x COM headers (RS-232/422/485)<br>1 x Backlight control header<br>1 x AT/ATX mode select jumper<br>1 x GPIO (8-bits) & SMBus header<br>1 x CANBus header |            |
| Rear I/O             | 1 x COM Port (RS-232/422/485 & RI/5V/12V)<br>2 x HDMI<br>2 x RJ45 LAN Ports<br>4 x USB 3.2 Gen 2x1                                                                                                                                                                                                                                                                                                  |            |
| TPM                  | Onboard TPM 2.0 security chip<br>INFINEON SLB9672XU2.0                                                                                                                                                                                                                                                                                                                                              |            |
| OS Compatibility     | Windows® 10/11 (x64)                                                                                                                                                                                                                                                                                                                                                                                |            |
| Operating Properties | Operating temperature: 0°C to 60°C<br>Operating humidity: 60°C @ 20-95% (non-condensing)<br>Non-operating temperature: -40°C to 85°C<br>Non-operating humidity: 85°C @ 95% (non-condensing)                                                                                                                                                                                                         |            |

## Chapter 2

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### Chapter 2 – Hardware Information

# 2.1 Jumpers and Connectors

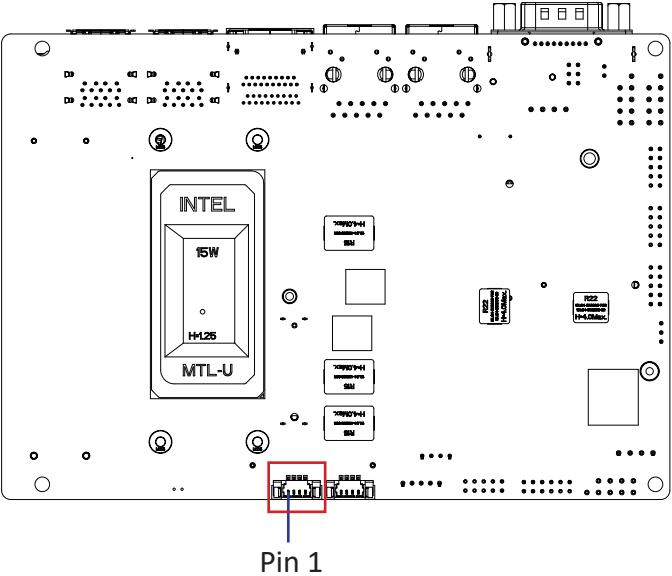


| No | Code                | Description                              |
|----|---------------------|------------------------------------------|
| 1  | CPU_FAN             | CPU fan connector                        |
| 2  | SYS_FAN             | System fan connector                     |
| 3  | COM1                | Serial Port (RS-232/422/485 & RI/5V/12V) |
| 4  | LAN2                | LAN connector                            |
| 5  | LAN1                | LAN connector                            |
| 6  | HDMI21              | HDMI connector                           |
| 7  | USB32_2             | USB 3.2 Gen 2x1 connector                |
| 8  | USB32_1             | USB 3.2 Gen 2x1 connector                |
| 9  | SODIMM1<br>SODIMM2  | DDR5 SO-DIMM Slot                        |
| 10 | LSW                 | LVDS resolution jumper                   |
| 11 | LVDS                | LVDS connector                           |
| 12 | BKL_CN              | Backlight control header                 |
| 13 | SPKR                | Speaker out connector                    |
| 14 | FP_AUDIO            | Front Audio connector                    |
| 15 | GPIO_CNT            | General purpose input / output header    |
| 16 | CAN_BUS             | CANBus header                            |
| 17 | SYS_PANEL           | Front panel header                       |
| 18 | DC_IN               | DC IN 1x4 pin power connector            |
| 19 | AT_CN               | AT/ATX mode select jumper                |
| 20 | COM2, COM3,<br>COM4 | Serial port header (RS-232/422/485)      |
| 21 | FUSB1, FUSB2        | USB 2.0 headers                          |

| No | Code    | Description                                    |
|----|---------|------------------------------------------------|
| 22 | JCOM1   | RI# pin RI#/5V/12V Select jumper for COM1 Port |
| 23 | SATA0   | SATA 6Gb/s connector                           |
| 24 | SATAPWR | SATA power connector                           |
| 25 | M2E     | M.2 Slot, 2230 E-key                           |
| 26 | MPCIE   | Mini PCIe slot                                 |
| 27 | BATTERY | Battery cable connector                        |
| 28 | M2M     | M.2 Slot, 2280 M-key                           |

2.2.1 CPU\_FAN (CPU fan connector)

1

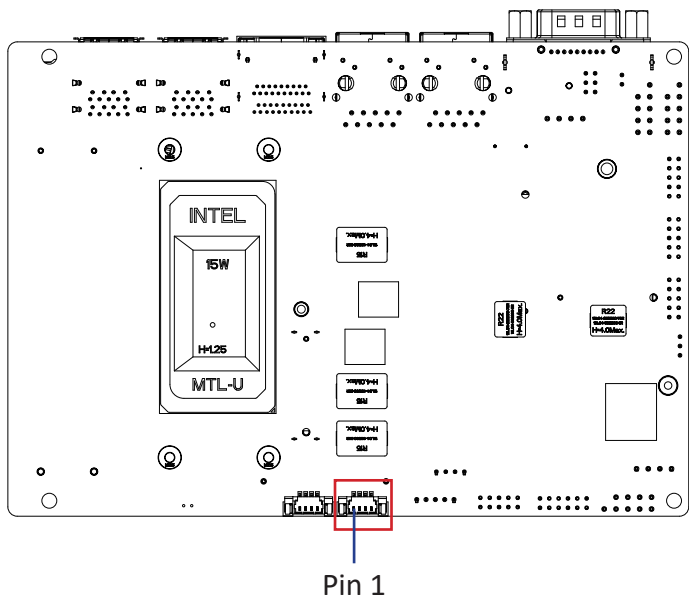


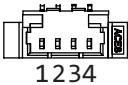
| CPU fan Connector                                                                   |               |
|-------------------------------------------------------------------------------------|---------------|
|  |               |
| Pin No.                                                                             | Definition    |
| 1                                                                                   | GND           |
| 2                                                                                   | 12V           |
| 3                                                                                   | Detect        |
| 4                                                                                   | Speed control |

| Connector PN                | Vendor     |
|-----------------------------|------------|
| 85205-0470N                 | ACES       |
| A1250WV-S-04PC              | JOINT-TECH |
| Connector type              |            |
| 1x4pin header, pitch 1.25mm |            |

## 2.2.2 SYS\_FAN (System fan connector)

2

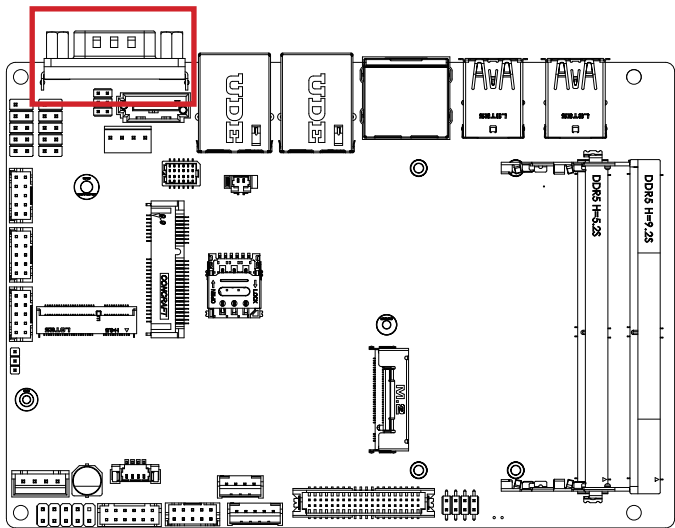


| System fan Connector                                                                |               |
|-------------------------------------------------------------------------------------|---------------|
|  |               |
| Pin No.                                                                             | Definition    |
| 1                                                                                   | GND           |
| 2                                                                                   | 12V           |
| 3                                                                                   | Detect        |
| 4                                                                                   | Speed control |

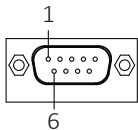
| Connector PN                | Vendor     |
|-----------------------------|------------|
| 85205-0470N                 | ACES       |
| A1250WV-S-04PC              | JOINT-TECH |
| Connector type              |            |
| 1x4pin header, pitch 1.25mm |            |

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

3



Serial Port connector



Connector PN

SM41D1P1122N33NQ

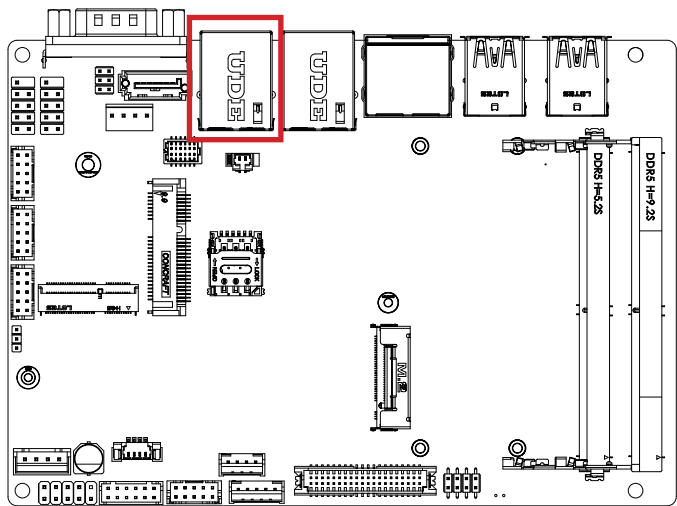
Vendor

FENYING

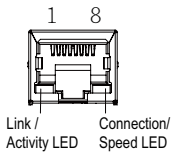
| Pin No. | RS-232 | RS-422 Full Duplex | RS-485 Half Duplex |
|---------|--------|--------------------|--------------------|
| 1       | DCD    | TXD-               | D-                 |
| 2       | RXD    | TXD+               | D+                 |
| 3       | TXD    | RXD+               | -     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

## 2.2.4 LAN2 (LAN connector)

4



LAN Connector



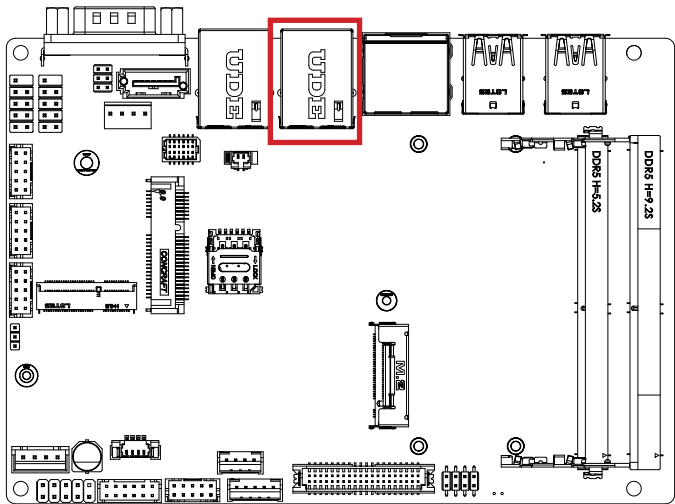
| Pin No. | Definition |
|---------|------------|
| 1       | BI_DA+     |
| 2       | BI_DA-     |
| 3       | BI_DB+     |
| 4       | BI_DC+     |
| 5       | BI_DC-     |
| 6       | BI_DB-     |
| 7       | BI_DD+     |
| 8       | BI_DD-     |

| State     | Description       |
|-----------|-------------------|
| Yellow On | 2.5Gbps data rate |
| Green On  | 1Gbps data rate   |
| Off       | 100Mbps data rate |
| Off       | 10Mbps data rate  |

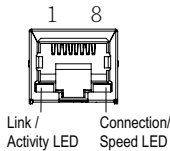
| Connector PN | Vendor |
|--------------|--------|
| RB1-GB-0009  | UDE    |

2.2.5 LAN1 (LAN connector)

5



LAN Connector



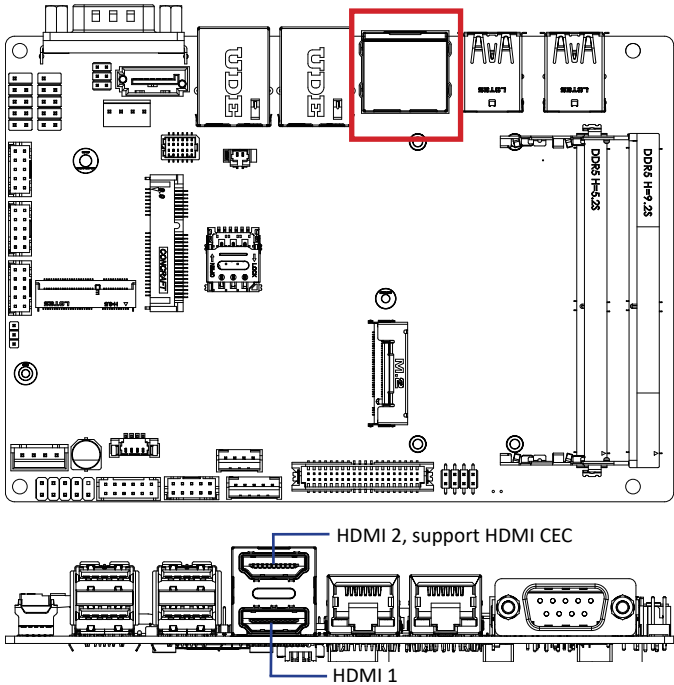
| Pin No. | Definition |
|---------|------------|
| 1       | BI_DA+     |
| 2       | BI_DA-     |
| 3       | BI_DB+     |
| 4       | BI_DC+     |
| 5       | BI_DC-     |
| 6       | BI_DB-     |
| 7       | BI_DD+     |
| 8       | BI_DD-     |

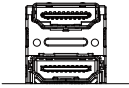
| State     | Description       |
|-----------|-------------------|
| Yellow On | 2.5Gbps data rate |
| Green On  | 1Gbps data rate   |
| Off       | 100Mbps data rate |
| Off       | 10Mbps data rate  |

| Connector PN | Vendor |
|--------------|--------|
| RB1-GB-0009  | UDE    |

2.2.6 HDMI21 (HDMI connector)

6

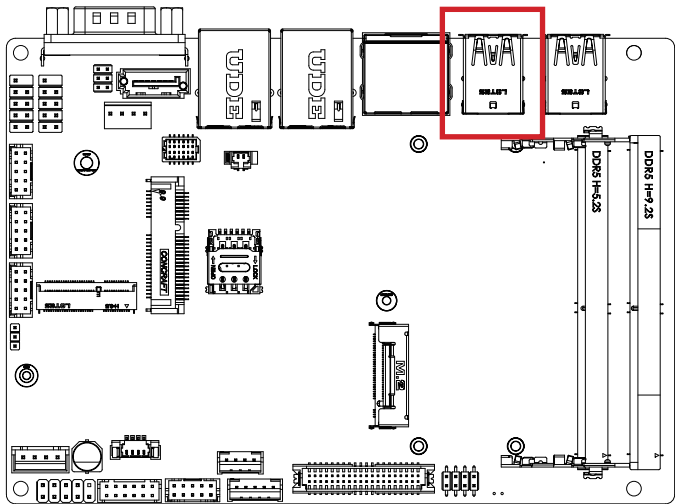


| HDMI Connector                                                                      |            |         |            |
|-------------------------------------------------------------------------------------|------------|---------|------------|
|  |            |         |            |
| HDMI 1 connector                                                                    |            |         |            |
| Pin No.                                                                             | Definition | Pin No. | Definition |
| 1                                                                                   | HDMI_D2p   | 11      | GND        |
| 2                                                                                   | GND        | 12      | HDMI_CLKn  |
| 3                                                                                   | HDMI_D2n   | 13      | NC         |
| 4                                                                                   | HDMI_D1p   | 14      | NC         |
| 5                                                                                   | GND        | 15      | HDMI_SCL   |
| 6                                                                                   | HDMI_D1n   | 16      | HDMI_SDA   |
| 7                                                                                   | HDMI_D0p   | 17      | GND        |
| 8                                                                                   | GND        | 18      | 5V         |
| 9                                                                                   | HDMI_D0n   | 19      | HDMI_HPD   |
| 10                                                                                  | HDMI_CLKp  |         |            |

| HDMI 2 connector    |            |         |            |
|---------------------|------------|---------|------------|
| Pin No.             | Definition | Pin No. | Definition |
| 1                   | HDMI_D2p   | 11      | GND        |
| 2                   | GND        | 12      | HDMI_CLKn  |
| 3                   | HDMI_D2n   | 13      | HDMI CEC   |
| 4                   | HDMI_D1p   | 14      | NC         |
| 5                   | GND        | 15      | HDMI_SCL   |
| 6                   | HDMI_D1n   | 16      | HDMI_SDA   |
| 7                   | HDMI_D0p   | 17      | GND        |
| 8                   | GND        | 18      | 5V         |
| 9                   | HDMI_D0n   | 19      | HDMI_HPD   |
| 10                  | HDMI_CLKp  |         |            |
| Connector PN        |            | Vendor  |            |
| WDDMM-38ACL1B1HW3Z1 |            | WINWIN  |            |

2.2.7 USB32\_2 (USB 3.2 Gen 2x1 connector)

7



USB Connector



Connector PN

18-A5950-6A33-A

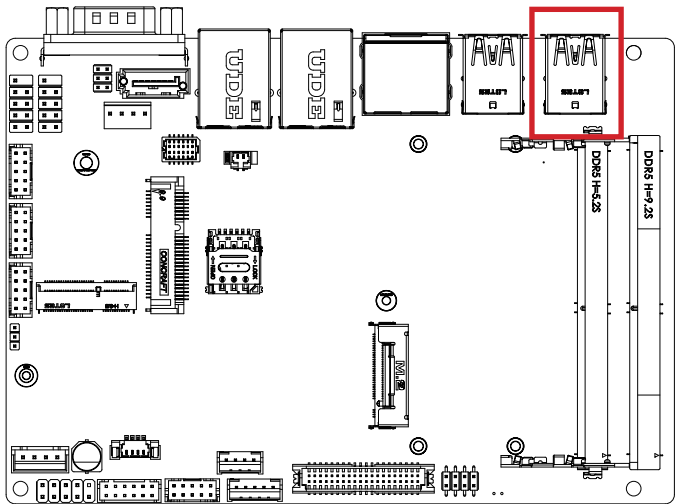
Vendor

TCONN

| Pin No. | Definition | Pin No. | Definition |
|---------|------------|---------|------------|
| 1       | 5V         | 10      | 5V         |
| 2       | USB_Dn     | 11      | USB_Dn     |
| 3       | USB_Dp     | 12      | USB_Dp     |
| 4       | GND        | 13      | GND        |
| 5       | USB3_RXn   | 14      | USB3_RXn   |
| 6       | USB3_RXp   | 15      | USB3_RXp   |
| 7       | GND        | 16      | GND        |
| 8       | USB3_TXn   | 17      | USB3_TXn   |
| 9       | USB3_TXp   | 18      | USB3_TXp   |

# 2.2.8 USB32\_1 (USB 3.2 Gen 2x1 connector)

8



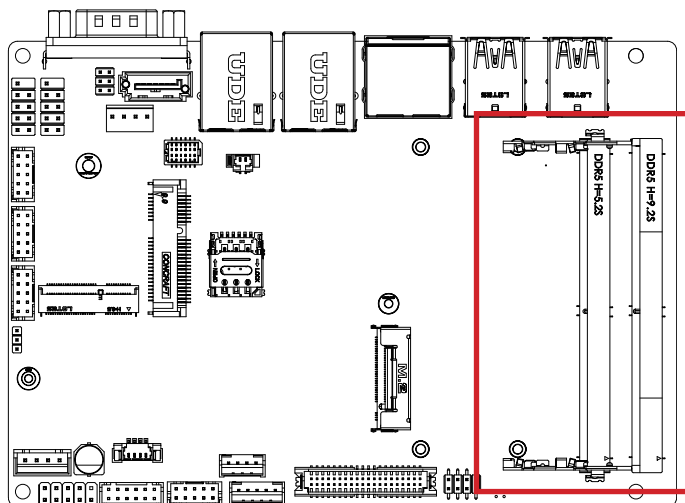
USB Connector

| Connector PN    | Vendor |
|-----------------|--------|
| 18-A5950-6A33-A | TCONN  |

| Pin No. | Definition | Pin No. | Definition |
|---------|------------|---------|------------|
| 1       | 5V         | 10      | 5V         |
| 2       | USB_Dn     | 11      | USB_Dn     |
| 3       | USB_Dp     | 12      | USB_Dp     |
| 4       | GND        | 13      | GND        |
| 5       | USB3_RXn   | 14      | USB3_RXn   |
| 6       | USB3_RXp   | 15      | USB3_RXp   |
| 7       | GND        | 16      | GND        |
| 8       | USB3_TXn   | 17      | USB3_TXn   |
| 9       | USB3_TXp   | 18      | USB3_TXp   |

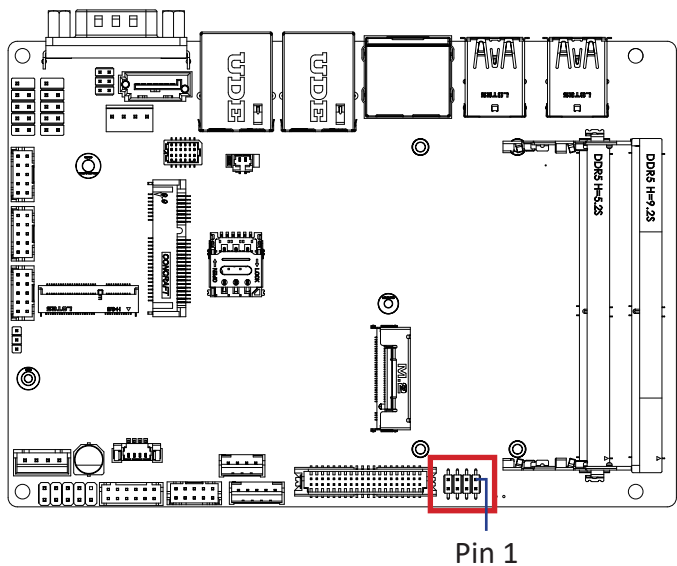
## 2.2.9 SODIMM1, SODIMM2 (DDR5 SO-DIMM Slot)

9



## 2.2.10 LSW (LVDS resolution jumper)

10

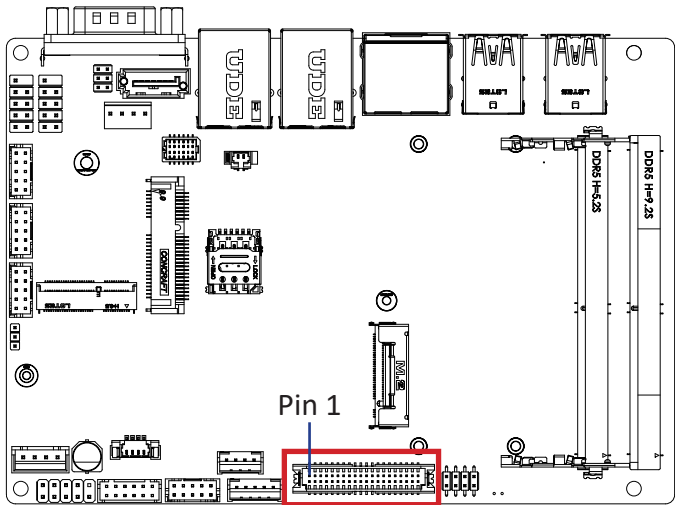


| LVDS Resolution Jumper                                                             |                      |                                                                                     |                      |
|------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------|----------------------|
| Jumper Setting                                                                     | Resolution           | Jumper Setting                                                                      | Resolution           |
|  | 800 x 600<br>18bit   |  | 1366 x 768<br>24bit  |
|  | 1024 x 768<br>18bit  |  | 1440 x 900<br>24bit  |
|  | 1024 x 768<br>24bit  |  | 1400 x 1050<br>24bit |
|  | 1024 x 600<br>18bit  |  | 1600 x 900<br>24bit  |
|  | 1280 x 800<br>18bit  |  | 1680 x 1050<br>24bit |
|  | 1280 x 960<br>18bit  |  | 1600 x 1200<br>24bit |
|  | 1280 x 1024<br>24bit |  | 1920 x 1080<br>24bit |
|  | 1366 x 768<br>18bit  |  | 1920 x 1200<br>24bit |

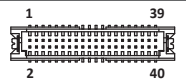
| Connector PN               | Vendor |
|----------------------------|--------|
| 222-97-04GBE1              | PINREX |
| Connector type             |        |
| 2x4pin header, pitch 2.0mm |        |

## 2.2.11 LVDS (LVDS connector)

11



LVDS Connector



| 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       | SPEC0      | 25      | GND        |
| 6       | SPED0      | 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-      |
| 16      | A2+        | 36      | CLK1-      |
| 17      | A3-        | 37      | GND        |

| Pin No. | Definition | Pin No. | Definition |
|---------|------------|---------|------------|
| 18      | A2-        | 38      | GND        |
| 19      | GND        | 39      | 12V        |
| 20      | GND        | 40      | 12V        |

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

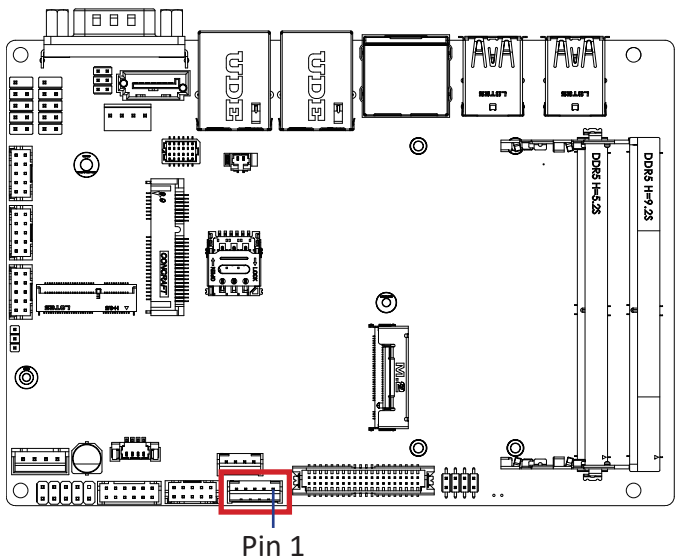
| Connector type               |
|------------------------------|
| 2x20pin header, pitch 1.25mm |

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.

# 2.2.12 BKL\_CN (Backlight control header)

12



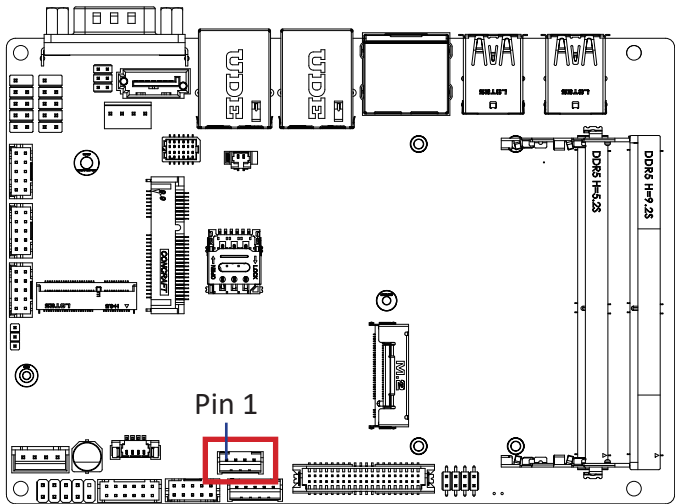
| Backlight control header |   |
|--------------------------|---|
| 5                        | 1 |

| Connector PN               | Vendor |
|----------------------------|--------|
| 721-81-05TW00              | PINREX |
| Connector type             |        |
| 1x5pin header, pitch 2.0mm |        |

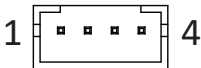
| Pin No. | Definition       |
|---------|------------------|
| 1       | 5V               |
| 2       | PWM              |
| 3       | Backlight Enable |
| 4       | GND              |
| 5       | 12V              |

2.2.13 SPKR (Speaker out connector)

13



Audio Amplifie Connector



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

Connector PN

A2001WV-04P146

Vendor

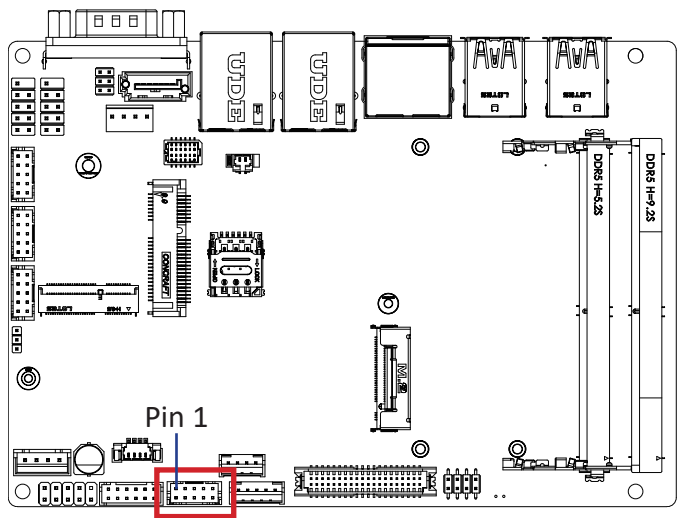
JOINT-TECH

Connector type

1x4pin header, pitch 2.0mm

## 2.2.14 FP\_AUDIO (Front Audio connector)

14

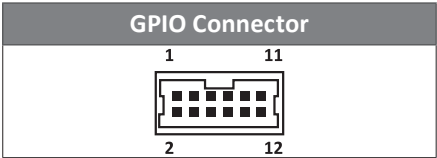
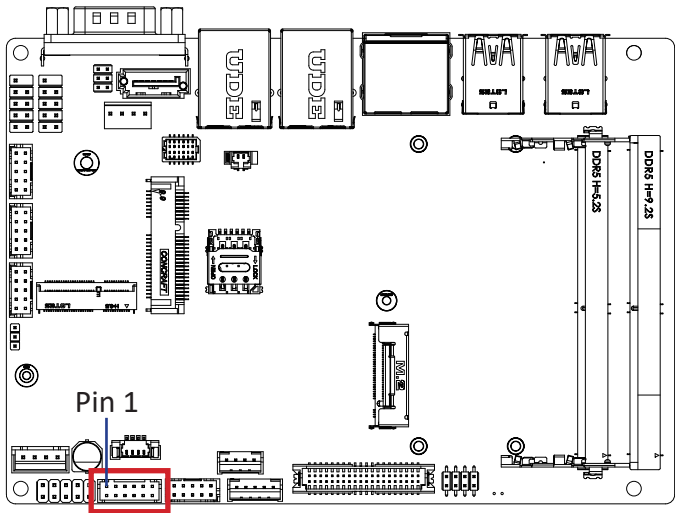


| Front Audio Connector                  |                  |
|----------------------------------------|------------------|
| <div><div>19</div><div>210</div></div> |                  |
| Pin No.                                | Definition       |
| 1                                      | MIC_Left         |
| 2                                      | GND              |
| 3                                      | MIC_Right        |
| 4                                      | NC               |
| 5                                      | LINE_Right       |
| 6                                      | MIC_JD           |
| 7                                      | Jacksense Detect |
| 8                                      | No Connect       |
| 9                                      | LINE_Left        |
| 10                                     | GND              |

| Connector PN               | Vendor |
|----------------------------|--------|
| 725-81-10TW00              | PINREX |
| Connector type             |        |
| 2x5pin header, pitch 2.0mm |        |

2.2.15 GPIO\_CNT (General Purpose input/output header)

15



| 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  |
| 9       | SMBus Clock   |

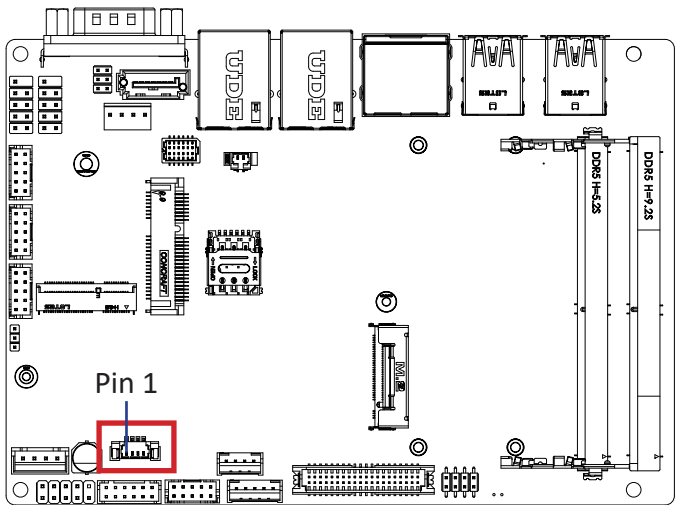
| Pin No. | Definition |
|---------|------------|
| 10      | SMB_DATA   |
| 11      | 5V         |
| 12      | GND        |

| Connector PN  | Vendor |
|---------------|--------|
| 725-81-12TW00 | PINREX |

| Connector type             |
|----------------------------|
| 2x6pin header, pitch 2.0mm |

# 2.2.16 CAN\_BUS (CANBus header)

16

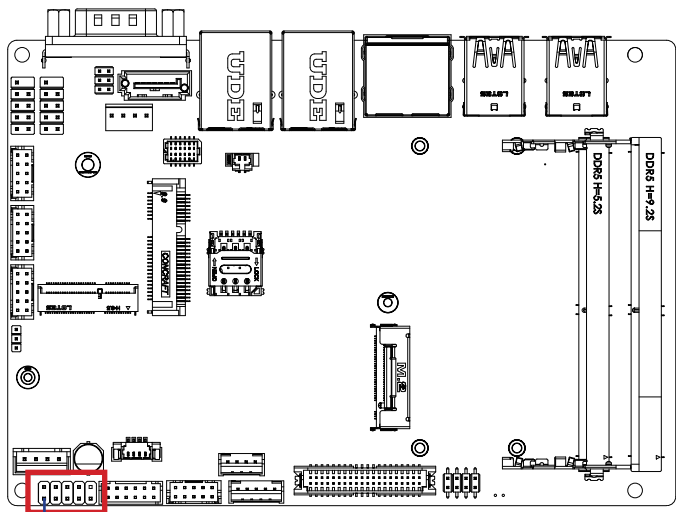


| CANBus Header |            |
|---------------|------------|
| 1234          |            |
|               |            |
| Pin No.       | Definition |
| 1             | GND        |
| 2             | CAN_H      |
| 3             | CAN_L      |
| 4             | 5V         |

| Connector PN                | Vendor     |
|-----------------------------|------------|
| 85205-0470N                 | ACES       |
| A1250WV-S-04PC              | JOINT-TECH |
| Connector type              |            |
| 1x4pin header, pitch 1.25mm |            |

2.2.17 SYS\_PANEL (Front panel header)

17



Pin 1

| System Panel Header |    |
|---------------------|----|
| 2                   | 10 |
| 1                   | 9  |

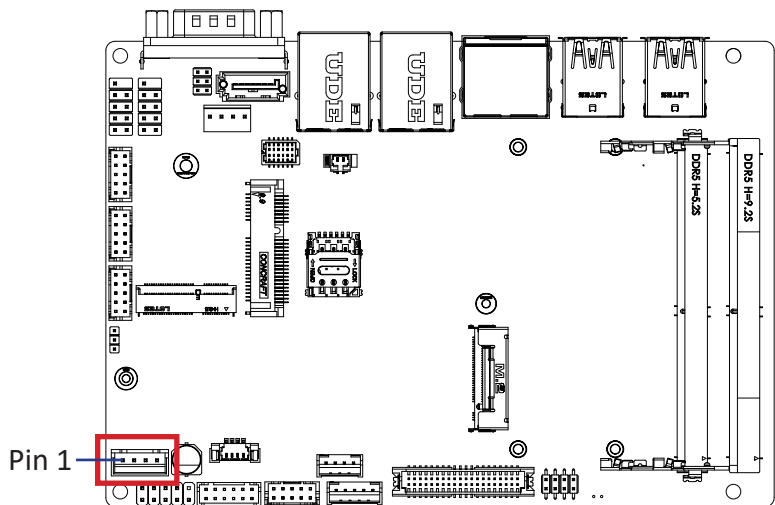
| Pin No. | Definition    |
|---------|---------------|
| 1       | HDD LED+      |
| 2       | Power LED+    |
| 3       | HDD LED-      |
| 4       | Power LED-    |
| 5       | GND           |
| 6       | Power Button+ |
| 7       | Reset Button  |
| 8       | Power Button- |
| 9       | No Connect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

| Connector PN  | Vendor |
|---------------|--------|
| 210-92-05GW5W | PINREX |

| Connector type              |
|-----------------------------|
| 2x5pin header, pitch 2.54mm |

### 2.2.18 DC\_IN (DC IN 1x4 pin power connector)

18

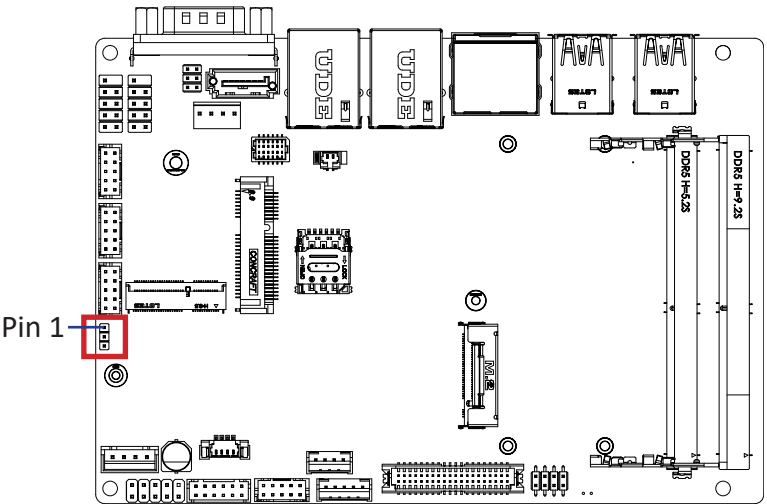


| DC IN connector                                                                     |            |
|-------------------------------------------------------------------------------------|------------|
|  |            |
| 1 2 3 4                                                                       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

| Connector PN               | Vendor |
|----------------------------|--------|
| 753-81-04TW00              | PINREX |
| Connector type             |        |
| 1x4pin header, pitch 2.5mm |        |

2.2.19 AT\_CN (AT/ATX mode select jumper)

19



| AT/ATX mode select jumper |  |
|---------------------------|--|
|                           |  |

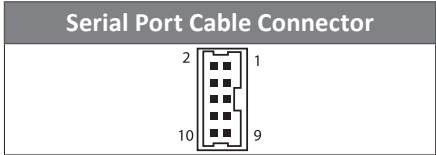
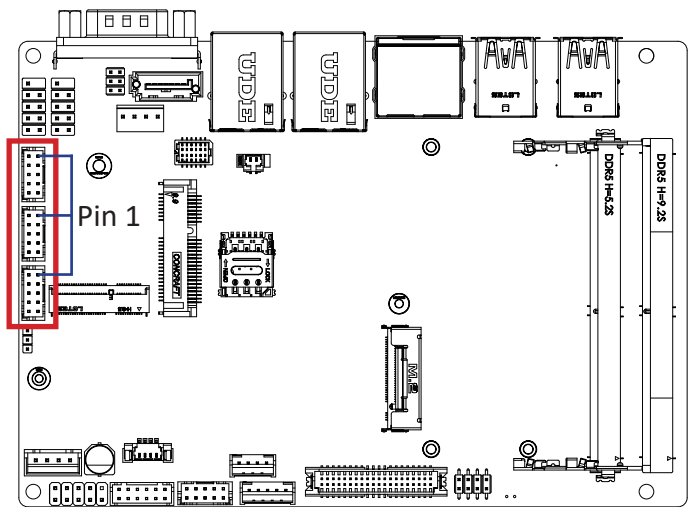
| Pin No.                                | Definition |
|----------------------------------------|------------|
| 1                                      | AT MODE    |
| 2                                      | GPO7       |
| 3                                      | ATX MODE   |
| Jumper setting                         |            |
| 1-2 Close : AT mode.                   |            |
| 2-3 Close : ATX mode.(Default setting) |            |

| Connector PN    | Vendor     |
|-----------------|------------|
| 220-96-03GB001K | PINREX     |
| A2015WV-03P6T   | JOINT-TECH |

| Connector type             |
|----------------------------|
| 1x3pin header, pitch 2.0mm |

# 2.2.20 COM2, COM3, COM4 (Serial port header, RS-232/422/485)

20

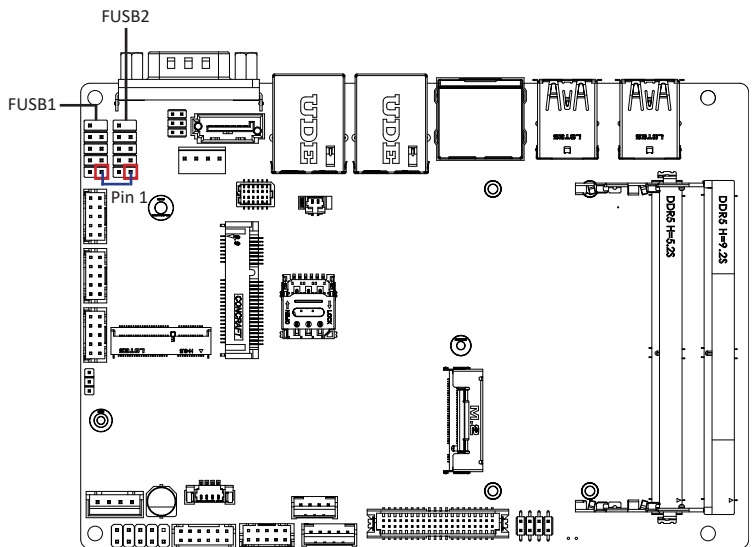


| Pin No. | RS-232     | RS-422 Full Duplex | RS-485 Half Duplex |
|---------|------------|--------------------|--------------------|
| 1       | RXD        | TXD+               | D+                 |
| 2       | DCD        | TXD-               | D-                 |
| 3       | DTR        | RXD-   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

| Connector PN               | Vendor |
|----------------------------|--------|
| 725-81-10TW00              | PINREX |
| Connector type             |        |
| 2x5pin header, pitch 2.0mm |        |

2.2.21 FUSB1, FUSB2 (USB 2.0 headers)

21



USB 2.0 Header



Connector PN

210-92-05GB04

Vendor

PINREX

PH10R53BAZ009

HORNGTONG

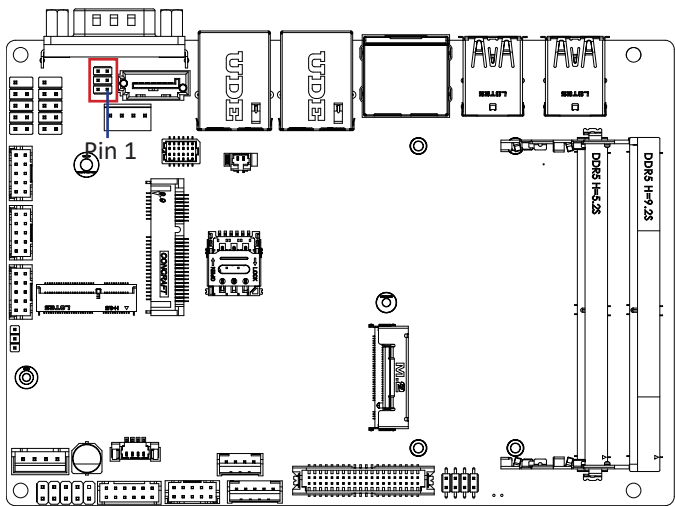
Connector type

2x5pin header, pitch 2.54mm

| Pin No. | Definition |
|---------|------------|
| 1       | 5V         |
| 2       | 5V         |
| 3       | DXn        |
| 4       | DYn        |
| 5       | DXp        |
| 6       | DYp        |
| 7       | GND        |
| 8       | GND        |
| 9       | No Pin     |
| 10      | No Connect |

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

22

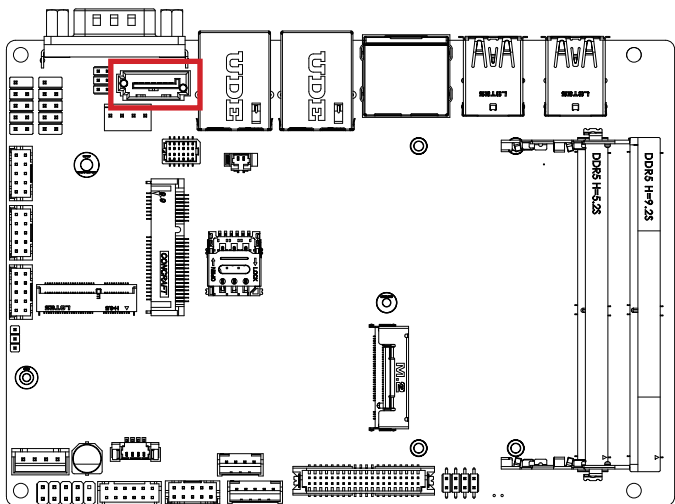


| JCOM1 Jumper Select                                                               |                                                |
|-----------------------------------------------------------------------------------|------------------------------------------------|
| <div><div>65</div><div><div></div><div></div><div></div></div><div>21</div></div> | 1-2 Close: 5V (Power COM)                      |
| <div><div>65</div><div><div></div><div></div><div></div></div><div>21</div></div> | 3-4 Close: RI (Stand COM)<br>(Default-Setting) |
| <div><div>65</div><div><div></div><div></div><div></div></div><div>21</div></div> | 5-6 Close: 12V (Power COM)                     |

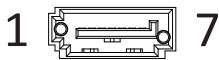
| Connector PN               | Vendor    |
|----------------------------|-----------|
| 220-97-03GB01              | PINREX    |
| PH06N53BAZ000              | HORNGTONG |
| Connector type             |           |
| 2x3pin header, pitch 2.0mm |           |

### 2.2.23 SATA0 (SATA 6Gb/s connector)

23



SATA Connector



Connector PN

WATF-07DBLBA1UW

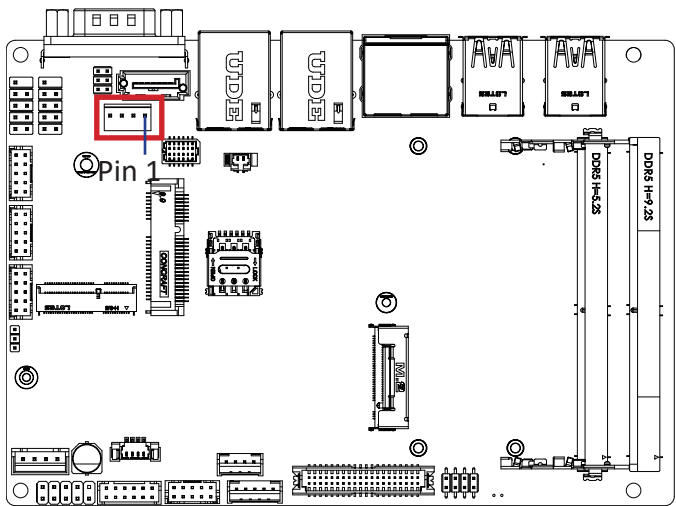
Vendor

WINWIN

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

# 2.2.24 SATAPWR (SATA power connector)

24

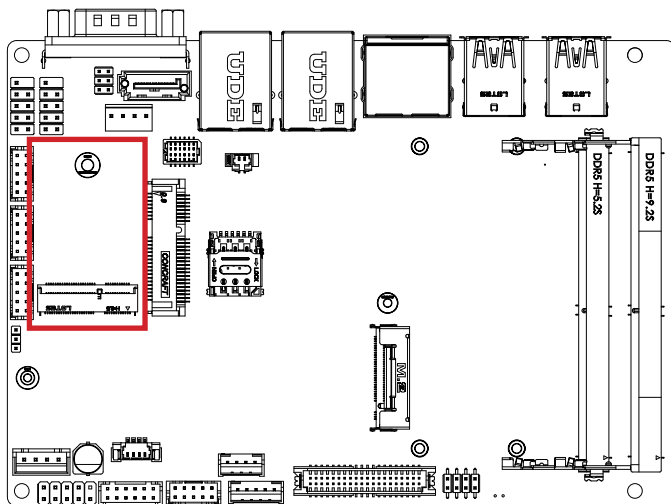


| Hard Disk Power Connector                                            |            |
|----------------------------------------------------------------------|------------|
| <div>4<div><div></div><div></div><div></div><div></div></div>1</div> |            |
| Pin No.                                                              | Definition |
| 1                                                                    | 12V        |
| 2                                                                    | GND        |
| 3                                                                    | GND        |
| 4                                                                    | 5V         |

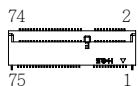
| Connector PN                | Vendor |
|-----------------------------|--------|
| 743-91-045W00               | PINREX |
| Connector type              |        |
| 1x4pin header, pitch 2.54mm |        |

## 2.2.25 M2E (M.2 Slot, 2230 E-key)

25



M.2 E Key Connector



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

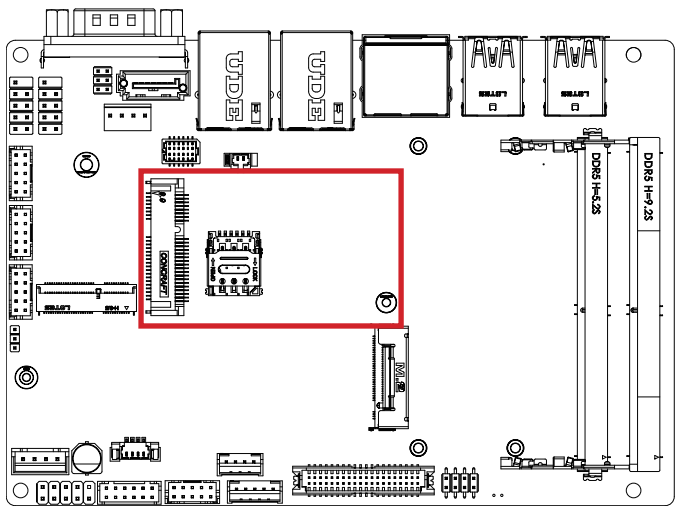
| Pin No. | Definition | Pin No. | Definition |
|---------|------------|---------|------------|
| 33      | GND        | 32      | NC         |
| 35      | WLAN_TXp   | 34      | NC         |
| 37      | WLAN_TXn   | 36      | NC         |

|    |           |    |              |
|----|-----------|----|--------------|
| 39 | GND       | 38 | CL_RST#      |
| 41 | WLAN_RXp  | 40 | CL_DATA      |
| 43 | WLAN_RXn  | 42 | CL_CLK       |
| 45 | GND       | 44 | NC           |
| 47 | CLK_Dp    | 46 | NC           |
| 49 | CLK_Dn    | 48 | NC           |
| 51 | GND       | 50 | SUSCLK       |
| 53 | CLK_REQ   | 52 | PCIE_RST     |
| 55 | PCIE_WAKE | 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 | 3V           |
| 75 | GND       | 74 | 3V           |

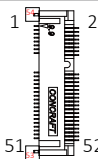
| Connector PN   | Vendor     |
|----------------|------------|
| APCI0095-P002A | LOTES      |
| 80152-8521     | BELLWETHER |

## 2.2.26 MPCIE (Mini PCIe slot)

26



Mini PCIe Connector



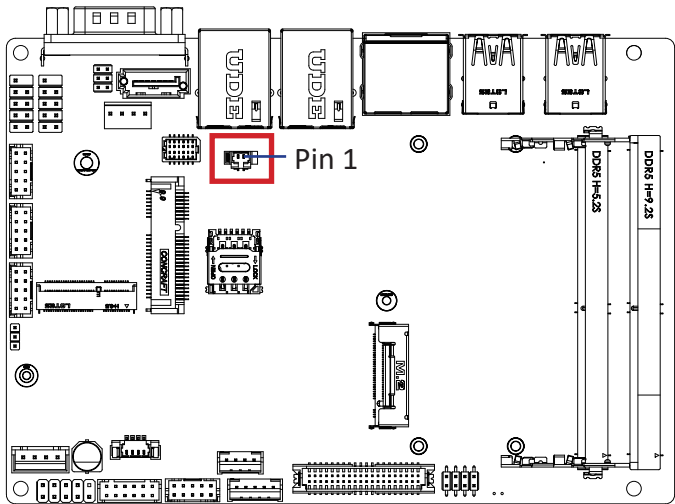
| Pin No. | Definition         | Pin No. | Definition   |
|---------|--------------------|---------|--------------|
| 1       | PCIE WAKE          | 2       | 3.3V         |
| 3       | NC                 | 4       | GND          |
| 5       | NC                 | 6       | NC           |
| 7       | PCIE Clock Request | 8       | SIM PWR      |
| 9       | GND                | 10      | SIM DATA     |
| 11      | PCIE Clock n       | 12      | SIM Clock    |
| 13      | PCIE Clock p       | 14      | SIM Reset    |
| 15      | GND                | 16      | UIM VPP3     |
| 17      | NC                 | 18      | GND          |
| 19      | NC                 | 20      | WLAN_DISABLE |

| Pin No. | Definition | Pin No. | Definition |
|---------|------------|---------|------------|
| 21      | GND        | 22      | Reset      |
| 23      | PCIE RXn   | 24      | 3.3V       |
| 25      | PCIE RXp   | 26      | GND        |
| 27      | GND        | 28      | NC         |
| 29      | GND        | 30      | SMB Clock  |
| 31      | PCIE TXn   | 32      | SMB DATA   |
| 33      | PCIE TXp   | 34      | GND        |
| 35      | GND        | 36      | USB Dn     |
| 37      | GND        | 38      | USB Dp     |
| 39      | 3.3V       | 40      | GND        |
| 41      | 3.3V       | 42      | NC         |
| 43      | GND        | 44      | NC         |
| 45      | NC         | 46      | NC         |
| 47      | NC         | 48      | NC         |
| 49      | NC         | 50      | GND        |
| 51      | NC         | 52      | 3.3V       |

| Connector PN    | Vendor  |
|-----------------|---------|
| AS0B221-S99Q-7H | FOXCONN |

2.2.27 BATTERY (Battery cable Connector)

27



Battery cable Connector



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

Connector PN

85205-0270L

A1250WV-S-02PC

Vendor

ACES

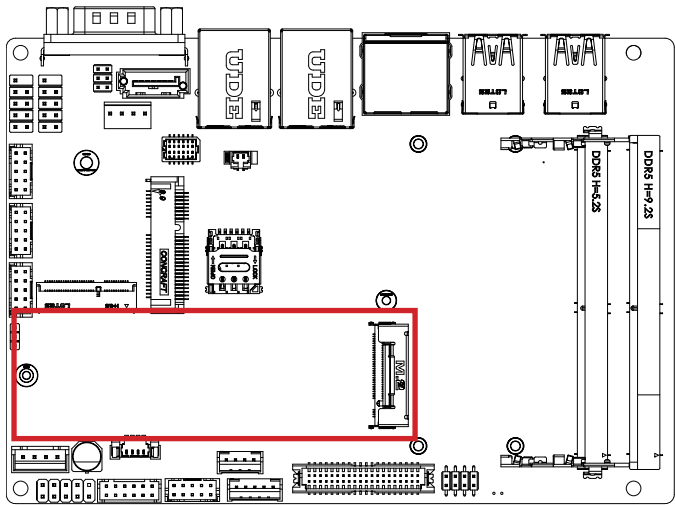
JOINT-TECH

Connector type

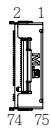
1x2pin header, pitch 1.25mm

# 2.2.28 M2M (M.2 Slot, 2280 M-key)

28



M.2 M Key Connector



| Pin No. | Definition | Pin No. | Definition |
|---------|------------|---------|------------|
| 1       | GND        | 2       | 3.3V       |
| 3       | GND        | 4       | 3.3V       |
| 5       | PCIE_RXn3  | 6       | NC         |
| 7       | PCIE_RXp3  | 8       | NC         |
| 9       | GND        | 10      | M2_LED     |
| 11      | PCIE_TXn3  | 12      | 3.3V       |
| 13      | PCIE_TXp3  | 14      | 3.3V       |
| 15      | GND        | 16      | 3.3V       |
| 17      | PCIE_RXn2  | 18      | 3.3V       |
| 19      | PCIE_RXp2  | 20      | NC         |
| 21      | GND        | 22      | NC         |
| 23      | PCIE_TXn2  | 24      | NC         |
| 25      | PCIE_TXp2  | 26      | NC         |
| 27      | GND        | 28      | NC         |
| 29      | PCIE_RXn1  | 30      | NC         |
| 31      | PCIE_RXp1  | 32      | NC         |

| Pin No. | Definition | Pin No. | Definition |
|---------|------------|---------|------------|
| 33      | GND        | 34      | NC         |
| 35      | PCIE_TXn1  | 36      | NC         |
| 37      | PCIE_TXp1  | 38      | DEVS LP    |
| 39      | GND        | 40      | SMB Clock  |
| 41      | SATA_RXp   | 42      | SMB DATA   |
| 43      | SATA_RXn   | 44      | SMB ALERT  |
| 45      | GND        | 46      | NC         |
| 47      | SATA_TXn   | 48      | NC         |
| 49      | SATA_TXp   | 50      | PLT_RST    |
| 51      | GND        | 52      | CK_REQ     |
| 53      | CLK_n      | 54      | PCIE_WAKE# |
| 55      | CLK_p      | 56      | NC         |
| 57      | GND        | 58      | NC         |

| Pin No. | Definition    | Pin No. | Definition |
|---------|---------------|---------|------------|
| 67      | NC            | 68      | SUSCLK     |
| 69      | M2_SSD_Detect | 70      | 3.3V       |
| 71      | GND           | 72      | 3.3V       |
| 73      | GND           | 74      | 3.3V       |
| 75      | GND           |         |            |

| Connector PN     | Vendor  |
|------------------|---------|
| 2E0BC41-C85CM-LH | FOXCONN |

# Chapter 3

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## 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

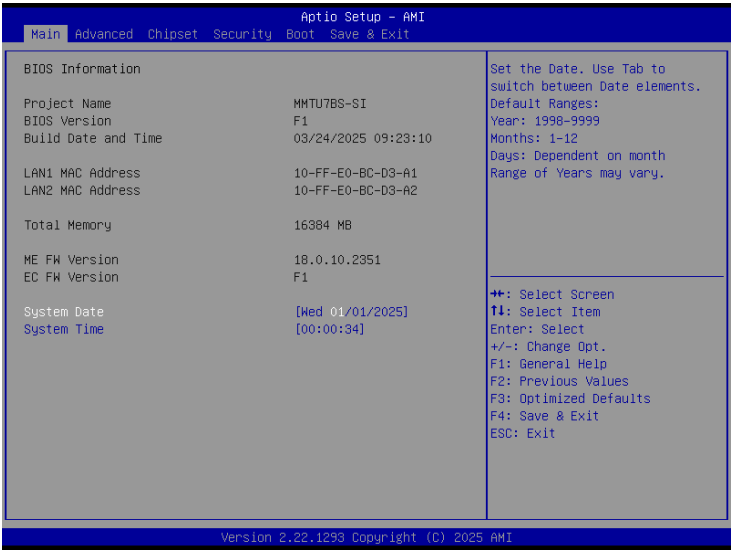
Once the system is power on, press the <DEL> key as soon as possible to access into BIOS Setup program.

#### 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

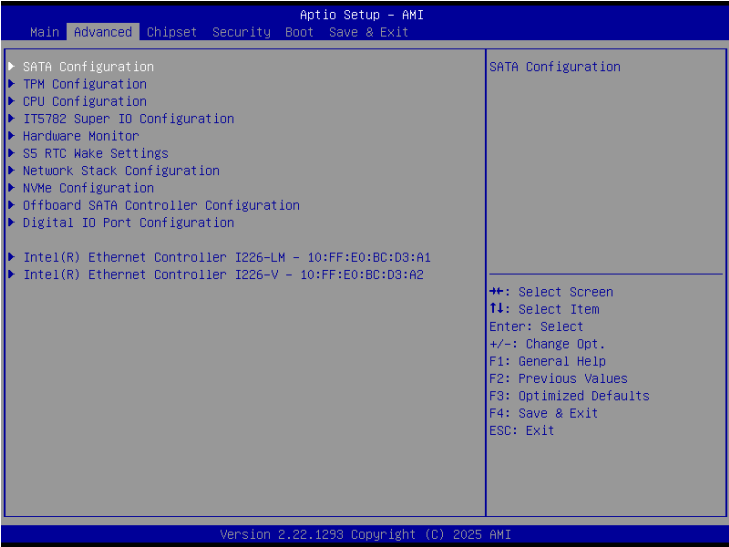
The main menu shows the basic system information.  
Use arrow keys to move among the items.



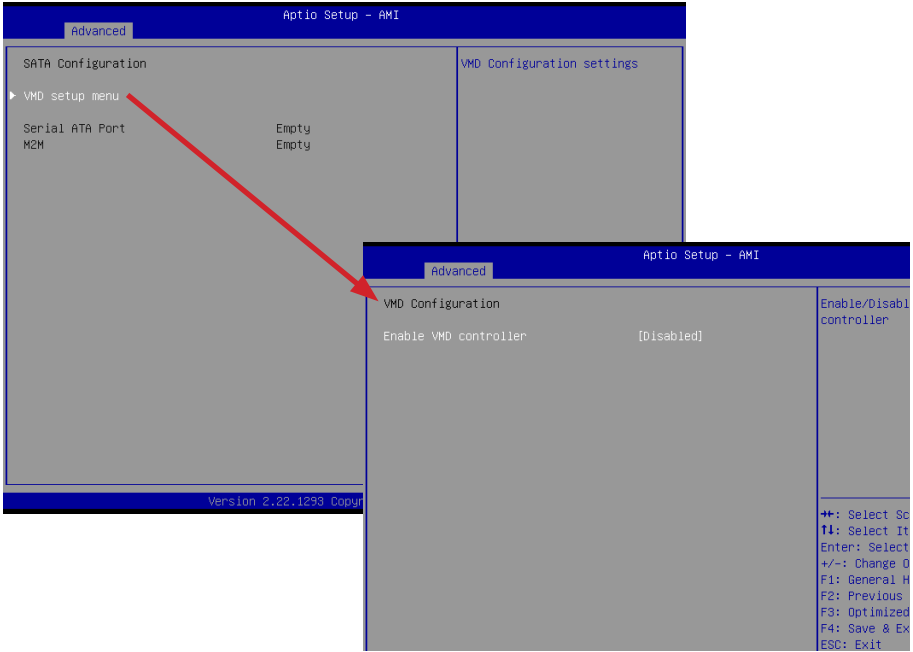
| Items               | Description                                                         |
|---------------------|---------------------------------------------------------------------|
| Project Name        | Shows Project name information                                      |
| BIOS Version        | 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                 |
| ME FW version       | Shows ME firmware version                                           |
| EC FW version       | Shows EC firmware version                                           |
| System Date         | Set the Date for the system<br>(Format : Week - Month - Day - Year) |
| System Time         | Set the time for the system<br>(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 SATA Configuration



| Item                                          | Description                                                                                                                                                                      |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>VMD setup menu / Enable VMD controller</b> | Intel VMD feature helps you to control and manage NVMe PCIe SSD.<br><b>Enabled : Enables Intel VMD feature</b><br><b>Disabled : Disables Intel VMD feature (Default setting)</b> |
| <b>Serial ATA Port</b>                        | shows 2.5"/3.5" SATA HDD/SSD information                                                                                                                                         |
| <b>M2M</b>                                    | shows M.2 SATA interface SSD information                                                                                                                                         |

### 3.3.2 TPM Configuration

Use TPM Configuration submenu to choose TPM interface.



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

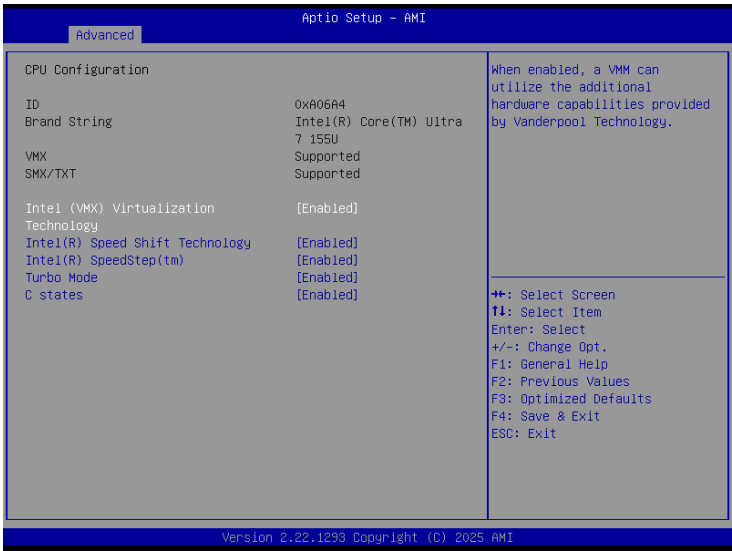
Trusted Computing : Shows TPM information, and TPM module configuration setting.



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

### 3.3.3 CPU Configuration

This submenu shows detailed CPU informations.



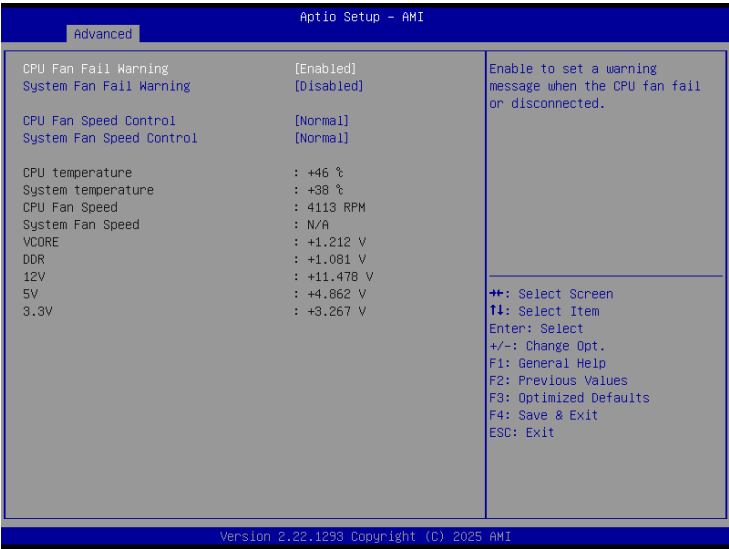
| Item                                  | Description                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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.<br><b>Enabled : Enables Intel Virtualization Technology (Default setting)</b><br><b>Disabled : Disables Intel Virtualization Technology</b> |
| Intel(R) Speed Shift Technology       | To speed up CPU frequency transition time from basic frequency to maximum frequency.<br><b>Enabled : Enables Intel(R) Speed Shift Technology Interrupt control (Default setting)</b><br><b>Disabled : Disables Intel(R) Speed Shift Technology Interrupt control</b>                                                                                                                           |
| 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.<br><b>Enabled : Enables Intel SpeedStep Technology (Default setting)</b><br><b>Disabled : Disables Intel SpeedStep Technology</b>                                                                             |
| Turbo Mode                            | <b>Enabled : Enables Turbo Mode (Default setting)</b><br><b>Disabled : Disables Turbo Mode</b>                                                                                                                                                                                                                                                                                                 |
| C states                              | Command CPU to enter into low power consumption mode when CPU is under idle mode.<br><b>Enabled : Enables C states (Default setting)</b><br><b>Disabled : Disables C states</b>                                                                                                                                                                                                                |

### 3.3.4 IT5782 Super IO Configuration



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

### 3.3.5 Hardware Monitor



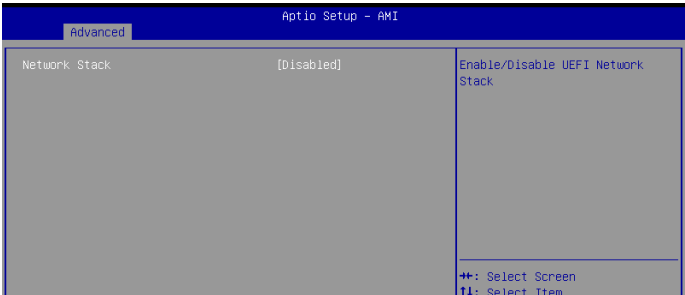
| Item                     | Description                                                                                                                                                                                      |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CPU Fan Fail Warning     | Enabled : Enables CPU FAN Fail warning alert function (Default setting)<br>Disabled : Disables CPU FAN Fail warning alert function                                                               |
| System Fan Fail Warning  | Enabled : Enables to set a warning message when the system fan fail or disconnected.<br>Disabled : Disables to set a warning message when the system fan fail or disconnected. (Default setting) |
| CPU Fan Speed Control    | Normal : Fan speed set by BIOS default (Default setting)<br>Full Speed : Set Fan operates at full speed                                                                                          |
| System Fan Speed Control | Normal : Fan speed set by BIOS default (Default setting)<br>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                                                                                                                                                                   |

3.3.6 S5 RTC Wake Settings

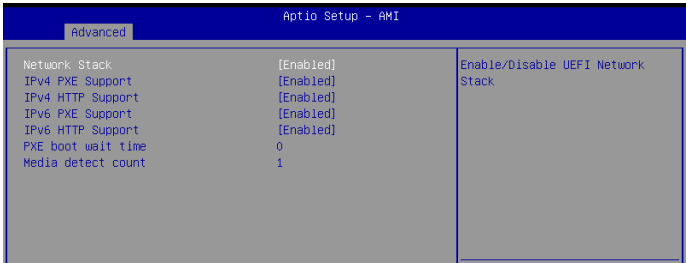


| Item                | Description                                                                                                                                                                                                                                 |
|---------------------|-------------------------------------------------------------------------------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

### 3.3.7 Network Stack Configuration



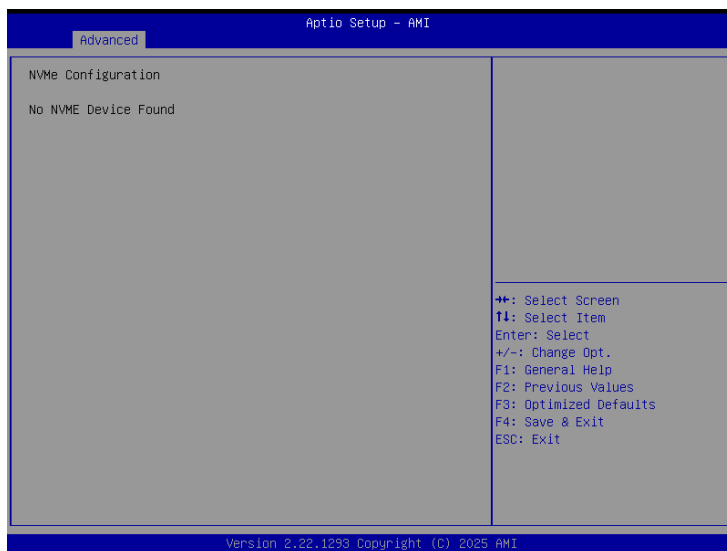
When Network stack is enabled :



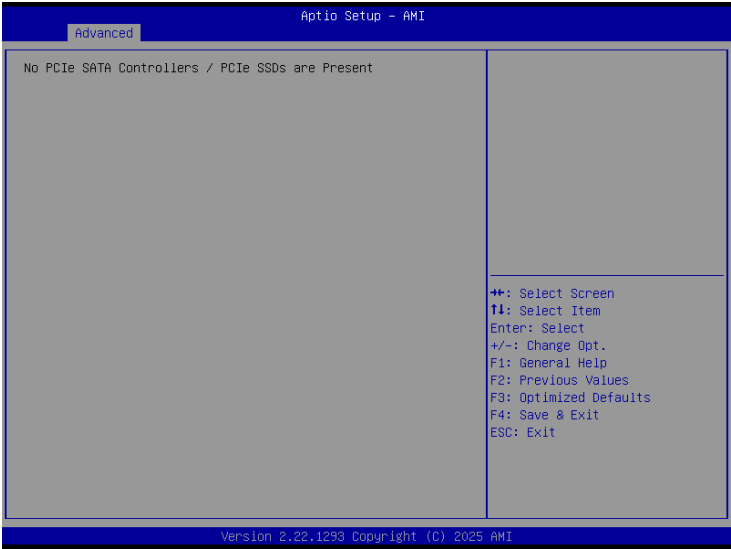
| Item               | Description                                                                                                                                                                   |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network Stack      | When system is power on, install LAN driver under UEFI mode<br><b>Disabled : Disables UEFI Network Stack (Default setting)</b><br><b>Enabled : Enables UEFI Network Stack</b> |
| IPv4 PXE Support   | When Network stack is enabled :<br><b>Disabled : Disables IPv4 PXE Support</b><br><b>Enabled : Enables IPv4 PXE Support</b>                                                   |
| IPv4 HTTP Support  | When Network stack is enabled :<br><b>Disabled : Disables IPv4 HTTP Support</b><br><b>Enabled : Enables IPv4 HTTP Support</b>                                                 |
| IPv6 PXE Support   | When Network stack is enabled :<br><b>Disabled : Disables IPv6 PXE Support</b><br><b>Enabled : Enables IPv6 PXE Support</b>                                                   |
| IPv6 HTTP Support  | When Network stack is enabled :<br><b>Disabled : Disables IPv6 HTTP Support</b><br><b>Enabled : Enables IPv6 HTTP Support</b>                                                 |
| 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.                                                                                                                        |

### 3.3.8 NVMe Configuration

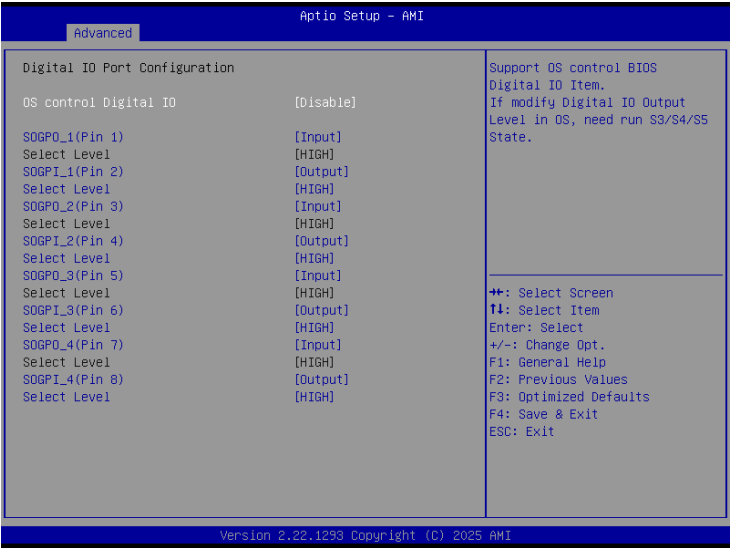
NVMe Configuration shows information when your M.2 NVMe PCIe SSD is installed.



### 3.3.9 Offboard SATA Controller Configuration



3.3.10 Digital IO Port Configuration



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

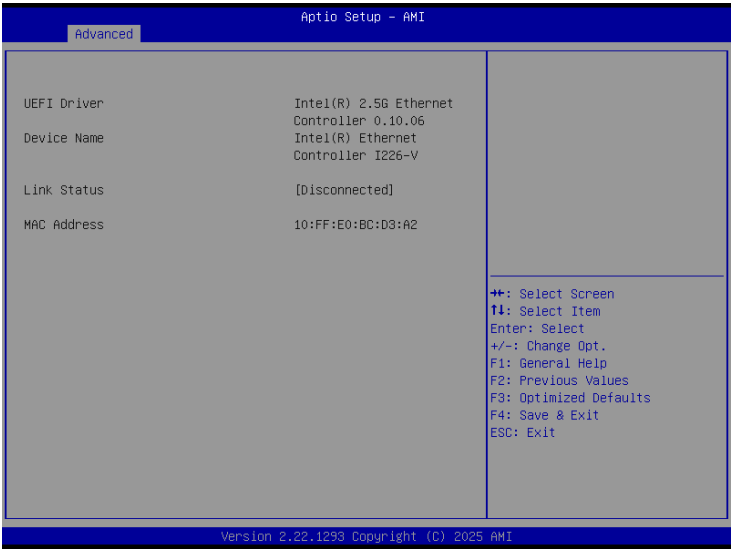
### 3.3.11 Intel(R) Ethernet Controller I226-LM - 10:FF:E0:BC:D3:A1 (MAC address may varied based on different motherboard)

Shows Intel Ethernet controller information

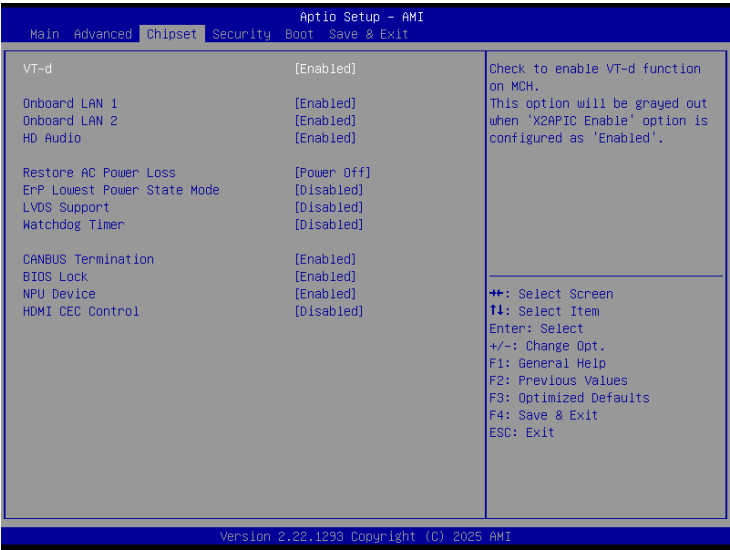


3.3.12 Intel(R) Ethernet Controller I226-V - 10:FF:E0:BC:D3:A2  
(MAC address may varied based on different motherboard)

Shows Intel Ethernet controller information



### 3.4 Chipset



| Item                              | Description                                                                                                                                                                                                                                                                                              |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VT-d                              | <b>Enabled : Enables VT-d function (Default setting)</b><br><b>Disabled : Disables VT-d function</b>                                                                                                                                                                                                     |
| Onboard LAN1<br>Onboard LAN2      | Enable/Disable onboard LAN controller<br><b>Enabled : Enables onboard LAN controller (Default setting)</b><br><b>Disabled : Disables onboard LAN controller</b>                                                                                                                                          |
| HD Audio                          | Enable/Disable onboard audio controller<br><b>Enabled : Enables onboard audio controller (Default setting)</b><br><b>Disabled : Disables onboard audio controller</b>                                                                                                                                    |
| Restore AC<br>Power Loss          | To set which option the system should returns if a sudden power loss occurred<br><b>Power off : Do not power on when the power is back (Default setting)</b><br><b>Power on : System power on when the power is back</b><br><b>Last state : Restore the system to the state before power loss occurs</b> |
| ErP Lowest<br>Power State<br>Mode | Enable/Disable power saving funtion<br><b>Enabled : Enables ERP Lowest Power State Mode</b><br><b>Disabled : Disabled ERP Lowest Power State Mode (Default setting)</b>                                                                                                                                  |

|                           |                                                                                                                                                                                                                  |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>LVDS Support</b>       | <b>Disabled : Disables LVDS Support (Default setting)</b><br><b>Enabled : Enables LVDS Support</b>                                                                                                               |
| <b>Watchdog Timer</b>     | Enable/Disable Watchdog Timer function<br><b>Enabled : Enables Watchdog Timer function</b><br><b>Disabled : Disabled Watchdog Timer function (Default setting)</b>                                               |
| <b>CANBUS Termination</b> | Enable/Disable CANBUS Termination function<br><b>Enabled : Enables CANBUS Termination function (Default setting)</b><br><b>Disabled : Disabled CANBUS Termination funtion</b>                                    |
| <b>BIOS Lock</b>          | Enable/Disable BIOS Lock function<br><b>Enabled : Enables BIOS Lock function (Default setting)</b><br><b>Disabled : Disabled BIOS Lock funtion</b>                                                               |
| <b>NPU Device</b>         | Enable/Disable NPU Device function<br><b>Enabled : Enables NPU Device function (Default setting)</b><br><b>Disabled : Disabled NPU Device funtion</b><br>※Suggest to disable this function when using Windows 10 |
| <b>HDMI CEC Control</b>   | Enable/Disable HDMI CEC Control function<br><b>Enabled : Enables HDMI CEC Control function</b><br><b>Disabled : Disabled HDMI CEC Control funtion (Default setting)</b>                                          |

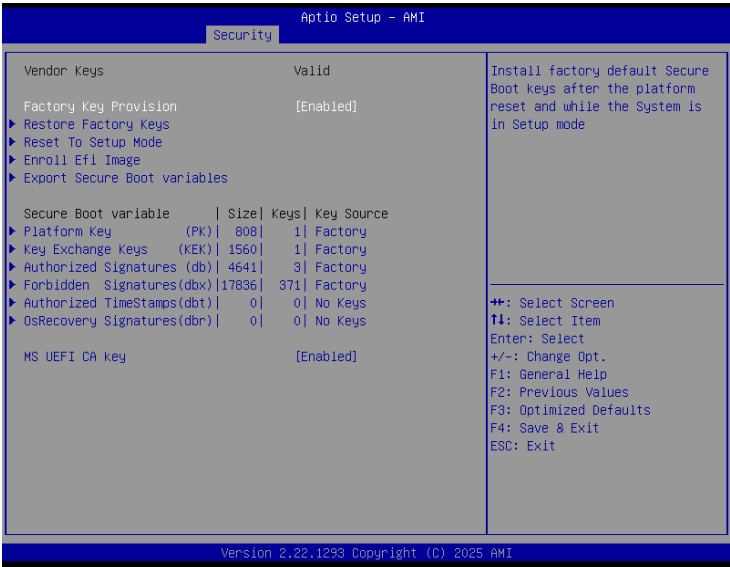
### 3.5 Security



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



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

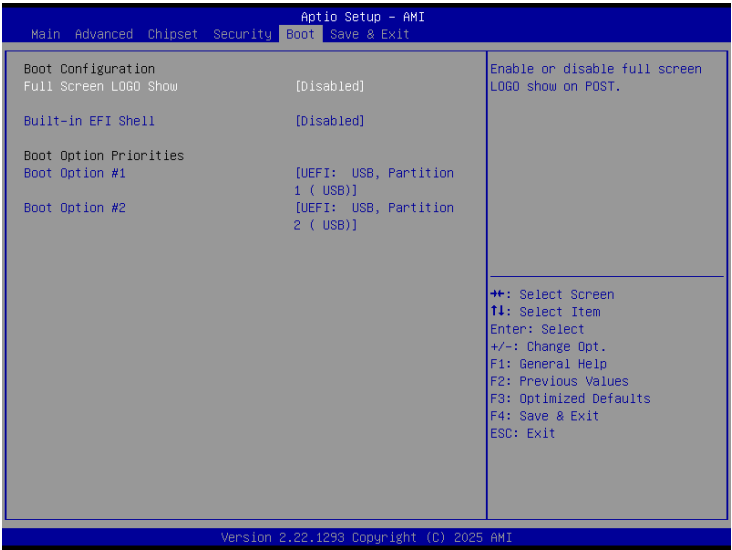


| Item                         | Description                                                                                                                                                                                                                     |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Factory Key Provision        | Install factory default Secure Boot keys after the platform reset and while the system is in Setup mode<br><b>Enabled : Enables Factory Key Provision (Default setting)</b><br><b>Disabled : Disables Factory Key Provision</b> |
| Restore Factory Keys         | To restore factory settings                                                                                                                                                                                                     |
| Reset To Setup Mode          | Delete all Secure boot key databases from NVRAM                                                                                                                                                                                 |
| Enroll Efi Image             | Allow the image to run in Secure Boot mode                                                                                                                                                                                      |
| Export Secure Boot variables | Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device                                                                                                                                   |

| Item                        | Description                                                                                                  |
|-----------------------------|--------------------------------------------------------------------------------------------------------------|
| Platform Key (PK)           | These items allows you to enroll factory defaults or load Certificates from a file.                          |
| Key Exchange Keys (KEK)     |                                                                                                              |
| Authorized Signatures (db)  |                                                                                                              |
| Forbidden Signatures (dbx)  |                                                                                                              |
| Authorized TimeStamps (dbt) |                                                                                                              |
| OsRecovery Signatures (dbr) |                                                                                                              |
| 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                                                                                                                                                                                               |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Full Screen LOGO Show</b> | Enable/Disable full screen LOGO show on POST screen<br><b>Enabled : Enables Full screen LOGO Show on POST screen</b><br><b>Disabled : Disables Full screen LOGO Show on POST screen (Default setting)</b> |
| <b>Built-in EFI Shell</b>    | Enable/Disable Built-in EFI Shell<br><b>Enabled : Enables Built-in EFI Shell</b><br><b>Disabled : Disables Built-in EFI Shell (Default setting)</b>                                                       |
| <b>Boot Option priority</b>  | Shows the information of the storage that be installed in the system<br><b>Choose/set the boot priority</b>                                                                                               |

### 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<br><b>Yes : Agree to save and reset</b><br><b>No : Cancel to save and reset</b> |
| Discard Changes and Reset | Choose this option to reboot the system without saving any changes<br><b>Yes : Agree to discard changes and reset</b><br><b>No : Cancel to discard changes and reset</b>                                    |
| Restore Defaults          | Restore/Load default values for all the setup options<br><b>Yes : Agree to load optimized defaults</b><br><b>No : Cancel to load optimized defaults</b>                                                     |
| Me FW Image Re-Flash      | Enable/Disable Me FW image re-flash function<br><b>Enabled : Enables Me FW image re-flash function</b><br><b>Disabled : Disables Me FW image re-flash function (Default setting)</b>                        |