

# HPC-BYT

Intel® Baytrail SoC Processor  
Fanless Rugged Embedded System

## Quick Reference Guide

3<sup>rd</sup> Ed –23 January 2017

### Copyright Notice

Copyright © 2017 Avalue Technology Inc., ALL RIGHTS RESERVED.

## FCC Statement



THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

- (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.
- (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

## A Message to the Customer

### *Avalue Customer Services*

Each and every Avalue's product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new Avalue device is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name Avalue has come to be known.

Your satisfaction is our primary concern. Here is a guide to Avalue's customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

### *Technical Support*

We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone. So please consult the user's manual first.

To receive the latest version of the user's manual; please visit our Web site at:

<http://www.avalue.com.tw/>

# Content

|                                                        |           |
|--------------------------------------------------------|-----------|
| <b>1. Getting Started .....</b>                        | <b>5</b>  |
| 1.1 Safety Precautions .....                           | 5         |
| 1.2 Packing List .....                                 | 5         |
| 1.3 System Specifications .....                        | 6         |
| 1.4 System Overview.....                               | 9         |
| 1.4.1 Front View .....                                 | 9         |
| 1.4.2 Bottom View .....                                | 9         |
| 1.4.3 Top View .....                                   | 10        |
| 1.5 System Dimensions.....                             | 12        |
| <b>2. Hardware Configuration.....</b>                  | <b>13</b> |
| 2.1 HPC-BYT connector mapping .....                    | 14        |
| 2.1.1 Serial Port 1 connector (COM1) .....             | 14        |
| 2.1.2 Serial Port 2 connector (COM2) .....             | 14        |
| 2.2 EAP-CE04 and HPC-BYT DB-A Overviews .....          | 15        |
| 2.2.1 EAP-CE04.....                                    | 15        |
| 2.2.2 HPC-BYT DB-A.....                                | 17        |
| 2.3 EAP-CE04 Jumper & Connector list.....              | 18        |
| 2.4 EAP-CE04 Jumpers & Connectors settings .....       | 19        |
| 2.4.1 COM 1/2 pin 9 signal select (JRI1/2) .....       | 19        |
| 2.4.2 AT/ ATX Input power select (JAT1) .....          | 19        |
| 2.4.3 IET interface DP mode select (JDDI1).....        | 20        |
| 2.4.4 Clear CMOS (JBAT1) .....                         | 20        |
| 2.4.5 Serial port 1/2 – RS485 mode select (SW1).....   | 21        |
| 2.4.6 DC power-in connector (DCIN) .....               | 22        |
| 2.4.7 LPC port connector (JLPC1).....                  | 22        |
| 2.4.8 On-board header for USB2.0 (USB2) .....          | 23        |
| 2.4.9 SATA power connector (CN6) .....                 | 23        |
| 2.4.10 Power button connector (PWRBTN2) .....          | 24        |
| 2.4.11 COM Express Connector 1 (CN11A).....            | 25        |
| 2.4.12 COM Express Connector 2 (CN11B).....            | 29        |
| 2.5 HPC-BYT DB-A Jumper & Connector list.....          | 33        |
| 2.6 HPC-BYT DB-A Jumpers & Connectors settings.....    | 34        |
| 2.6.1 Serial port 1/2 – RS485 mode select (OSW1) ..... | 34        |
| 2.6.2 Serial port 3/4 – RS485 mode select (OSW2) ..... | 35        |
| 2.6.3 Digital Input selector (OJDI1).....              | 36        |

## HPC-BYT

|       |                                           |    |
|-------|-------------------------------------------|----|
| 2.6.4 | Digital Output selector (OJDO1) .....     | 37 |
| 2.6.5 | Digital Input power select (JPWRDI) ..... | 38 |
| 2.6.6 | Digital Output power select (JPWRDO)..... | 38 |
| 2.6.7 | Digital I/O connector (ODIO).....         | 39 |
| 2.6.8 | Serial port 3/4 connector (OCOM34) .....  | 39 |
| 2.6.9 | Serial port 5/6 connector (OCOM56) .....  | 40 |
| 2.7   | Installing Hard Disk.....                 | 41 |
| 2.8   | Installing Memory .....                   | 43 |
| 2.9   | Installing CF Card.....                   | 45 |
| 2.10  | Installing MPCIE devices.....             | 46 |

# 1. Getting Started

## 1.1 Safety Precautions

### Warning!



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

### Caution!



Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

## 1.2 Packing List

- 1 x HPC-BYT Intel® Baytrail SoC Processor Fanless Rugged Embedded System
- 1 x Driver/Utility DVD-ROM
- Other major components include the followings:
  - Din-Rail kit
  - DP to VGA adapter
  - Terminal Block Kit
  - Terminal Block to Lockable DC Jack cable



If any of the above items is damaged or missing, contact your retailer.

## 1.3 System Specifications

| System                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CPU                               | <ul style="list-style-type: none"> <li>Intel® Atom™ E3845 4-Core 1.91GHz processor (Primary)</li> <li>Intel® Celeron® J1900 4-Core 2.0GHz processor (Secondary)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| BIOS                              | <ul style="list-style-type: none"> <li>AMI uEFI BIOS, 64Mbit SPI Flash ROM</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| System Chipset                    | <ul style="list-style-type: none"> <li>Valleyview SoC integrated</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| I/O Chip                          | <ul style="list-style-type: none"> <li>EC ITE IT8528</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| System Memory                     | <ul style="list-style-type: none"> <li>One 204-pin SODIMM Socket Up to 4 GB DDR3L 1333MHz SDRAM (socket direction needs to pay attention)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Watchdog Timer                    | <ul style="list-style-type: none"> <li>H/W Reset, 1sec. ~ 65535sec.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| H/W Status Monitor                | <ul style="list-style-type: none"> <li>Monitoring CPU &amp; System Temperature and Voltage</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Battery                           | <ul style="list-style-type: none"> <li>Wide Temperature RTC Battery</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Expansion                         | <ul style="list-style-type: none"> <li>2 x mini PCIe socket,</li> <li>IET for HPC Interface(4 x UART, 2 x PCIe1, 4 x USB2.0, 1 x LPC, 1 x Line-Out(R/L), 1xLine-In, 1 x SMBus)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Storage                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Combination                       | <ul style="list-style-type: none"> <li>1 x CFast</li> <li>1 x 2.5" Drive Bay</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| External I/O                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Top Side External I/O Connector   | <ul style="list-style-type: none"> <li>1 x CFast</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Front Side External I/O Connector | <ul style="list-style-type: none"> <li>1 x Dual deck for 1 x Type A USB 3.0 &amp; 1 x Type A USB 2.0 (Host)</li> <li>2 x DB-9 for 2 COM <ul style="list-style-type: none"> <li>COM1~COM2: RS-232/422/485(4-wire) selectable by BIOS, with +5V and +12V support on Pin-9 selectable by jumper</li> </ul> </li> <li>2 x 10-Pin Terminal Block for 4COM (Surge Protection) <ul style="list-style-type: none"> <li>COM3 to COM6 supports RS232/422/485 that selected by BIOS</li> <li>RS485 supports auto-flow</li> <li>ESD protection supports 15KV</li> <li>Magnetic Isolation protection supports 5KV</li> </ul> </li> <li>1 x 20-Pin Terminal Block for 16bit GPIO (Surge Protection) <ul style="list-style-type: none"> <li>8bit DI and 8bit DO</li> <li>Magnetic Isolation protection supports 5KV</li> <li>DI</li> </ul> </li> </ul> <p>Input Channels: 8, source type<br/>Input Voltage: 0~30Vdc input</p> |

|                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                           | <p>Dry Contacts:</p> <p>Logic level 0: Close to GND</p> <p>Logic level 1: Open</p> <p>Wet Contacts:</p> <p>Logic level 0: +3.3V to +30V</p> <p>Logic level 1: +2V max.</p> <p>- DO</p> <p>Output Channels: 8, sink type</p> <p>Output Current: Max. 250mA per channel</p> <ul style="list-style-type: none"> <li>16 x LED for the following indicators <ul style="list-style-type: none"> <li>1 x Power on/off in Green</li> <li>2 x WiFi/3G in Green</li> <li>1 x 2.5" storage/ CFast accessory in Green</li> </ul> </li> </ul> <p>When storage accessed data the LED will flash</p> <ul style="list-style-type: none"> <li>12 x COM port LED in 2 color (A/B)</li> </ul> <p>A on COM transmits data</p> <p>B on COM receives data</p> <ul style="list-style-type: none"> <li>3 x Antenna mounting</li> </ul> |
| <b>Bottom Side External I/O Connector</b> | <ul style="list-style-type: none"> <li>1 x 6-pin terminal block for dual DC-Input (Surge Protection) <ul style="list-style-type: none"> <li>2 for relay to supports DC Input Alarm( Relay output with 0.5A@125VAC, 1A@30VDC)</li> <li>3 for PWR, GND and Shield Ground</li> <li>1 for Power Failure to connect UPS</li> </ul> </li> <li>2 x Display Port</li> <li>1 x Push Button for Power on/off</li> <li>1 x Rest Button in hidden type</li> <li>1 x Audio Jack Line-Out (Green) and Line-In (Blue)</li> <li>1 x 2-pin terminal block for wire-control power on/off (Surge Protection)</li> <li>2 x Type A USB 2.0(Host)</li> </ul>                                                                                                                                                                         |
| <b>Internal I/O Connector</b>             | <ul style="list-style-type: none"> <li>1 x 1 x 5-Pin wafer for USB 2.0 reservation</li> <li>1 x 3-pin pin header for Power mode (AT/ATX)</li> <li>2 x 2 x 3-pin header for COM1/ 2 pin 9 signal selection (+5, +12, Ring)</li> <li>1 x 7-pin SATA connector</li> <li>1 x 2-pin wafer connector for +5V SATA Power.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Display</b>                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Chipset</b>                            | <ul style="list-style-type: none"> <li>Intel® Valleyview SoC integrated Graphics</li> <li>Supports dual display</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Resolution</b>                         | <ul style="list-style-type: none"> <li>DP: Max. resolution 2560 x 1080@60Hz</li> <li>DP: Max. resolution 2560 x 1080@60Hz</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Ethernet</b>                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

## HPC-BYT

|                                       |                                                                                                                                                                                                                                                                   |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Chipset</b>                        | <ul style="list-style-type: none"> <li>Intel I211AT / Intel I210IT GbE controller</li> </ul>                                                                                                                                                                      |
| <b>Ethernet Interface</b>             | <ul style="list-style-type: none"> <li>10/100/1000 Base-Tx GbE compatible</li> </ul>                                                                                                                                                                              |
| <b>Lan Port</b>                       | <ul style="list-style-type: none"> <li>2 x RJ45 w/LED</li> <li>Supports PXE boot and LAN wake-up</li> <li>Right: Link/Active (Yellow)</li> <li>Left: 1000-base (orange); 100-base (green); 10-base (dark)</li> <li>Magnetic isolation protection 1.5KV</li> </ul> |
| <b>Audio</b>                          |                                                                                                                                                                                                                                                                   |
| <b>Chipset</b>                        | <ul style="list-style-type: none"> <li>Realtek ALC892 HD codec</li> </ul>                                                                                                                                                                                         |
| <b>Audio Interface</b>                | <ul style="list-style-type: none"> <li>Line-Out and Amp, Line-In</li> </ul>                                                                                                                                                                                       |
| <b>Audio Amp.</b>                     | <ul style="list-style-type: none"> <li>2W Per Channel APA4863RI</li> </ul>                                                                                                                                                                                        |
| <b>Mechanical &amp; Environmental</b> |                                                                                                                                                                                                                                                                   |
| <b>Power Requirement</b>              | <ul style="list-style-type: none"> <li>DC +12V ~ +48V (<math>\pm 10\%</math>), wide voltage single power input</li> <li>OVP, UVP, Reverse protection, support ErP</li> </ul>                                                                                      |
| <b>ACPI</b>                           | <ul style="list-style-type: none"> <li>Single power ATX Support S0, S3, S4, S5</li> <li>ACPI 5.0 Compliant</li> </ul>                                                                                                                                             |
| <b>Power Connector Type</b>           | <ul style="list-style-type: none"> <li>6-Pin Terminal Block</li> </ul>                                                                                                                                                                                            |
| <b>Dimension</b>                      | <ul style="list-style-type: none"> <li>TBD</li> </ul>                                                                                                                                                                                                             |
| <b>Weight</b>                         | <ul style="list-style-type: none"> <li>TBD</li> </ul>                                                                                                                                                                                                             |
| <b>Color</b>                          | <ul style="list-style-type: none"> <li>Black</li> </ul>                                                                                                                                                                                                           |
| <b>Mounting Kit</b>                   | <ul style="list-style-type: none"> <li>Din Rail kit is the standard accessory</li> <li>Wall mount kit is the optional accessory</li> </ul>                                                                                                                        |
| <b>Reliability</b>                    |                                                                                                                                                                                                                                                                   |
| <b>Vibration Test</b>                 | <ul style="list-style-type: none"> <li>With SSD/CFast : 5Grms, IEC 60068-2-64, Random, 5 ~ 500Hz, 1hr/axis</li> <li>With HDD : 0.5Grms, IEC 60068-2-64, Random, 5 ~ 500Hz, 1hr/axis</li> </ul>                                                                    |
| <b>Mechanical Shock Test</b>          | <ul style="list-style-type: none"> <li>With SSD/CFast : 50G, IEC 60068-2-27, Half Sine, 11ms</li> <li>With HDD : 10G, IEC 60068-2-27, Half Sine, 11ms</li> </ul>                                                                                                  |
| <b>Drop Test</b>                      | <ul style="list-style-type: none"> <li>Avalue Standard Test Criteria</li> </ul>                                                                                                                                                                                   |
| <b>Operating Temperature</b>          | <ul style="list-style-type: none"> <li>-40°C ~ 70°C (w/SSD, CFast) ambient w/ air flow</li> <li>0°C ~ 45°C (w/HDD) ambient w/ air flow</li> </ul>                                                                                                                 |
| <b>Operating Humidity</b>             | <ul style="list-style-type: none"> <li>5% ~ 90% relative humidity, non-condensing</li> </ul>                                                                                                                                                                      |
| <b>Storage Temperature</b>            | <ul style="list-style-type: none"> <li>-40°C ~ 85°C</li> </ul>                                                                                                                                                                                                    |
| <b>Certification</b>                  | <ul style="list-style-type: none"> <li>CE, FCC(Heavy Industrial) / UL 60950-1</li> </ul>                                                                                                                                                                          |
| <b>Test Compliance</b>                | <ul style="list-style-type: none"> <li>EN50121-4 (Railway application) / UL 508</li> </ul>                                                                                                                                                                        |

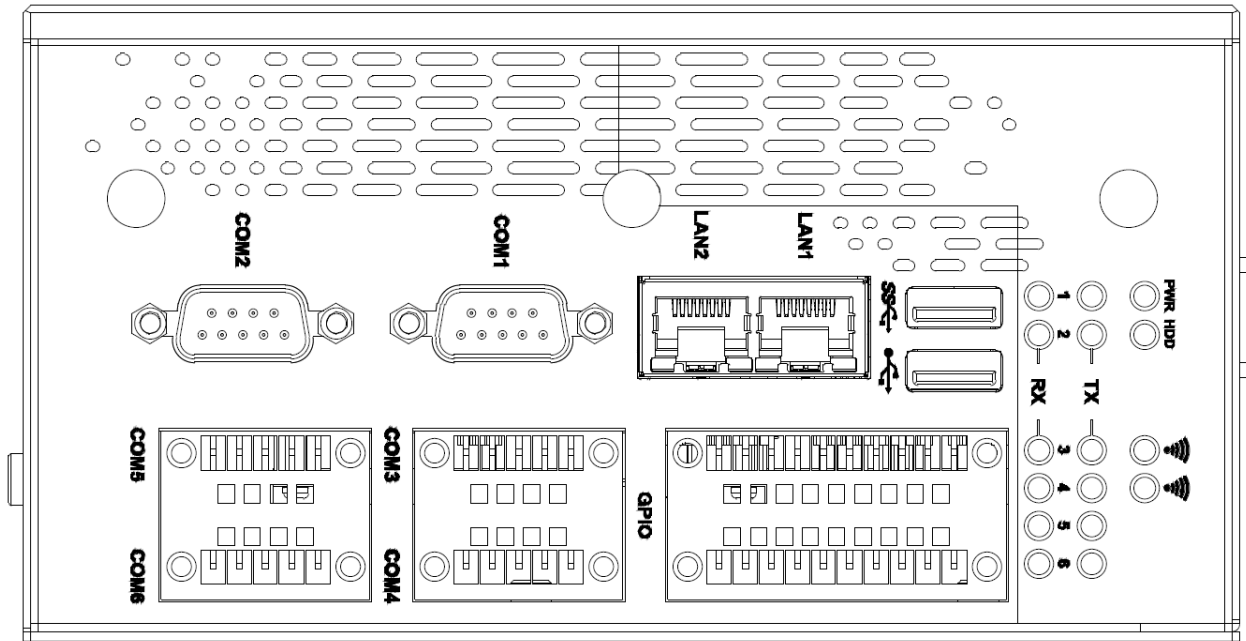


**Note:** Specifications are subject to change without notice.

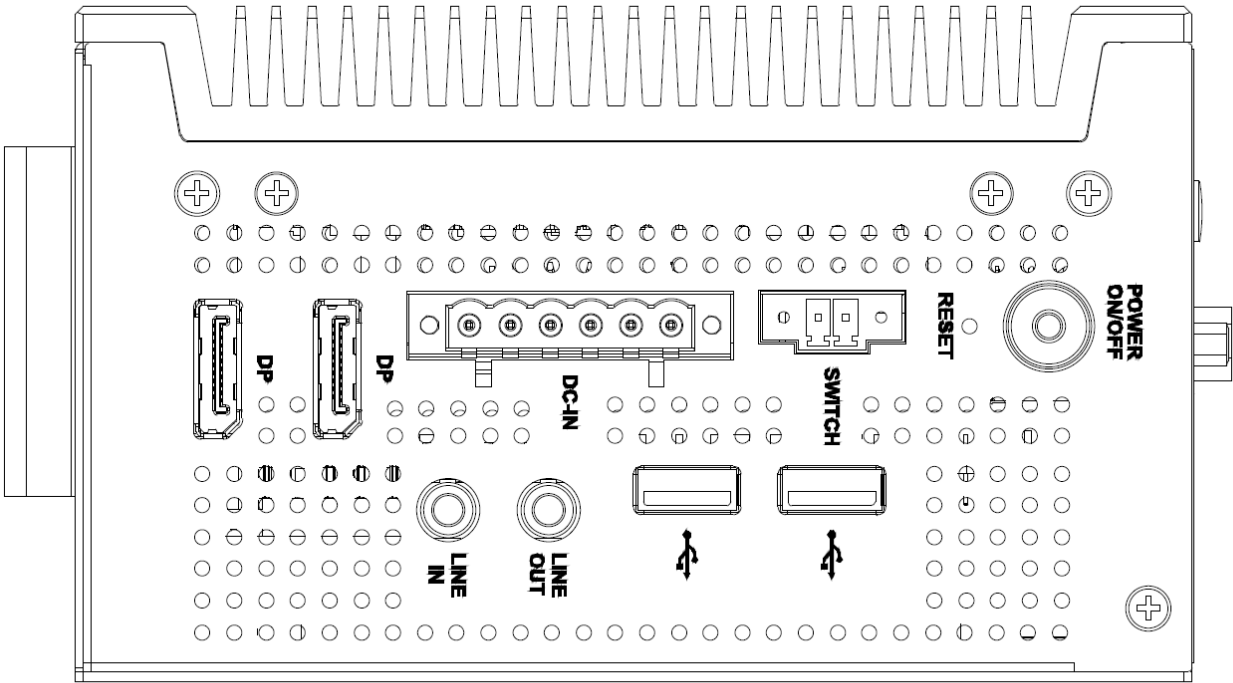


1.4 System Overview

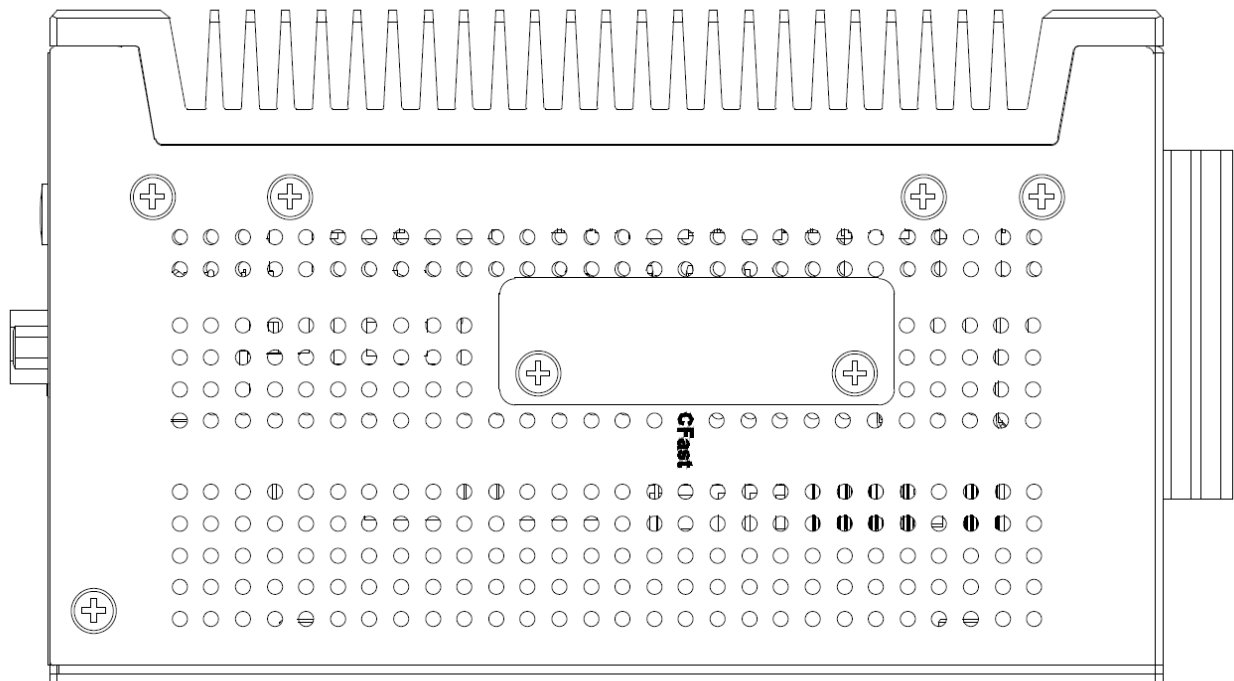
1.4.1 Front View



1.4.2 Bottom View



### 1.4.3 Top View

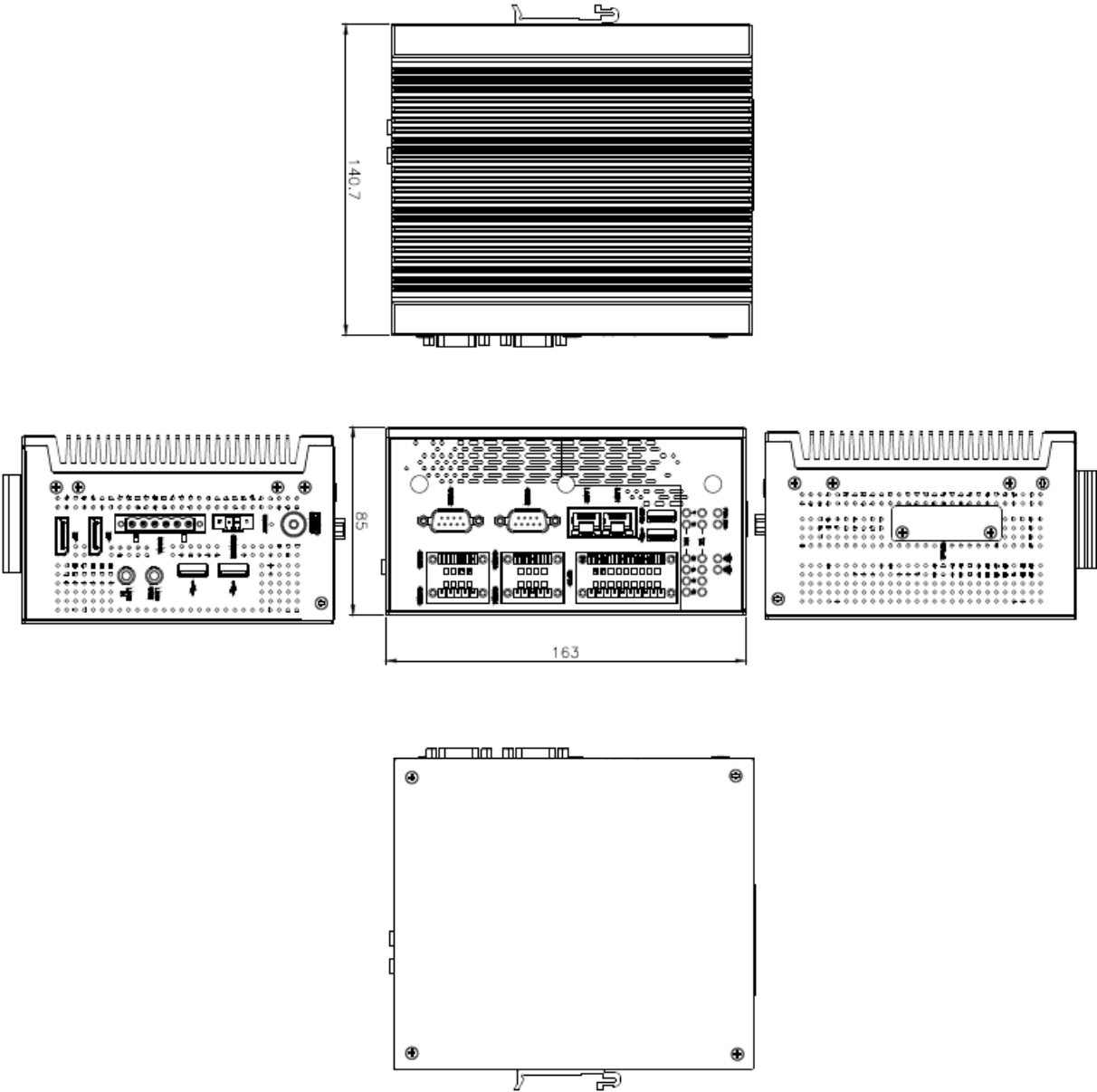


#### Connectors

| Label           | Function                      | Note                                                                            |
|-----------------|-------------------------------|---------------------------------------------------------------------------------|
| COM1~2          | Serial port 1~2 connector     | D-sub 9-pin, male<br>Note : COM1~2 support<br>RS232/422/485 by BIOS setting     |
| COM3~6          | Serial port 3~6 connector     | 10-Pin Terminal Block<br>Note : COM3~6 support<br>RS232/422/485 by BIOS setting |
| LAN1~2          | 2 x RJ-45 Ethernet connector  |                                                                                 |
| USB             | 4 x USB 2.0 connector         |                                                                                 |
| PWR             | System power indicator        |                                                                                 |
| HDD             | HDD indicator                 |                                                                                 |
| GPIO            | General purpose I/O connector |                                                                                 |
| POWER<br>ON/OFF | Power on button               |                                                                                 |
| DP              | DP connector                  |                                                                                 |
| DC-IN           | DC power-in connector         |                                                                                 |
| LINE OUT        | Line-out jack                 |                                                                                 |

|                |                |
|----------------|----------------|
| <b>LINE IN</b> | Line-in jack   |
| <b>RESET</b>   | Reset button   |
| <b>SWITCH</b>  | Power switch   |
| <b>CFast</b>   | CF card socket |

1.5 System Dimensions



(Unit: mm)

## 2. Hardware Configuration

### Jumper and Connector Setting

For advanced information, please refer to:

- 1- EAP-CE04 and HPC-BYT DB-A included in this manual.

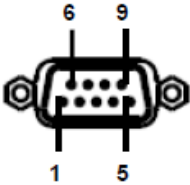
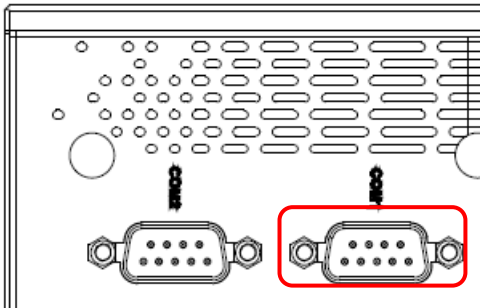


**Note:** If you need more information, please visit our website:

<http://www.avalue.com.tw>

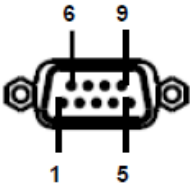
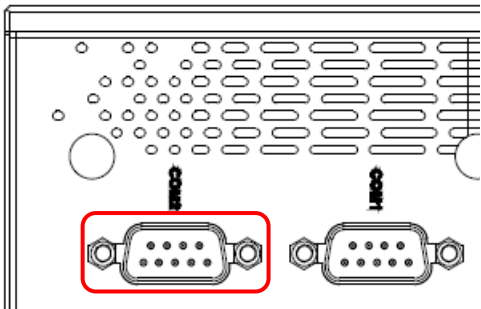
2.1 HPC-BYT connector mapping

2.1.1 Serial Port 1 connector (COM1)



| Pin | RS-232 | RS-422 | RS-485 |
|-----|--------|--------|--------|
| 1   | DCD    | TX-    | Data-  |
| 2   | RXD    | TX+    | Data+  |
| 3   | TXD    | RX+    |        |
| 4   | DTR    | RX-    |        |
| 5   | GND    | GND    | GND    |
| 6   | DSR    |        |        |
| 7   | RTS    |        |        |
| 8   | CTS    |        |        |
| 9   | RI     |        |        |

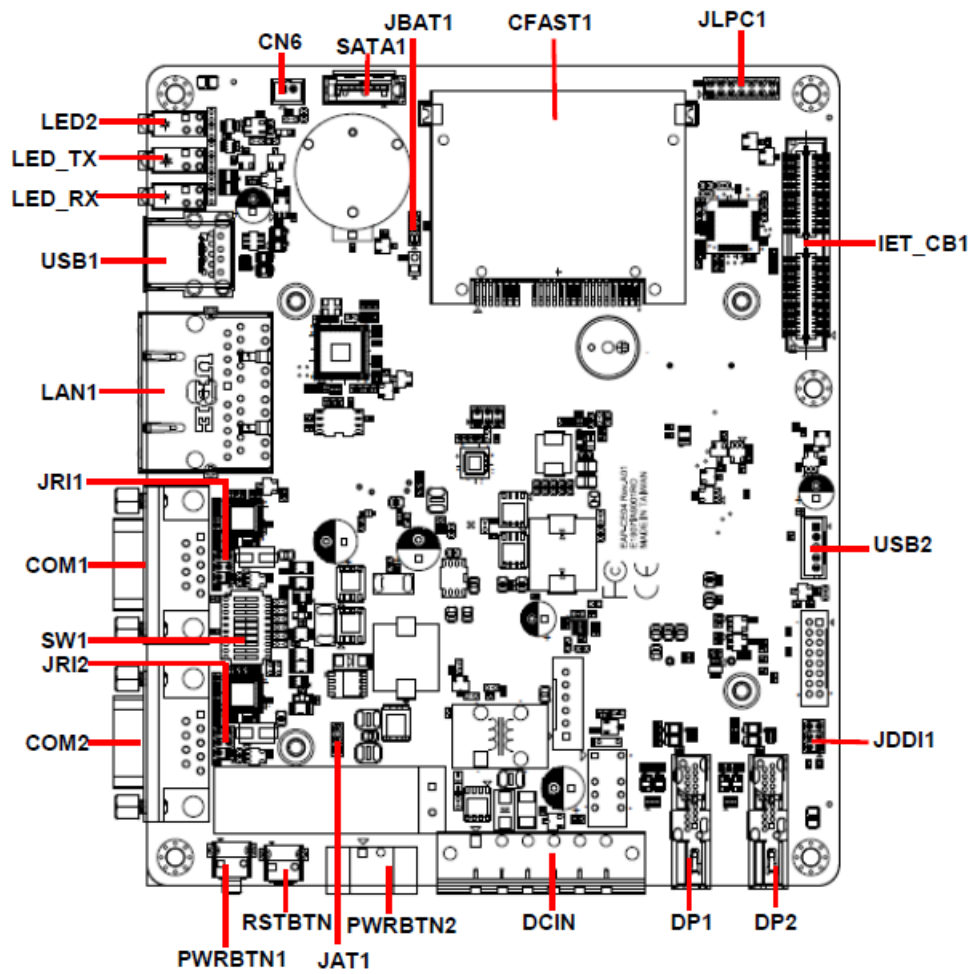
2.1.2 Serial Port 2 connector (COM2)

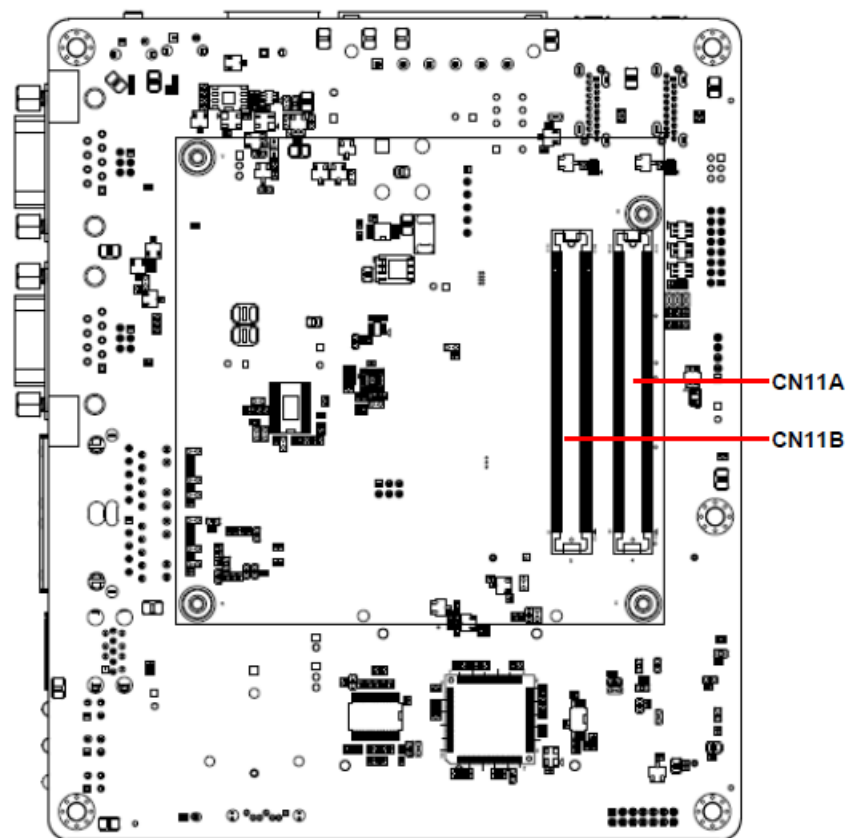


| Pin | RS-232 | RS-422 | RS-485 |
|-----|--------|--------|--------|
| 1   | DCD    | TX-    | Data-  |
| 2   | RXD    | TX+    | Data+  |
| 3   | TXD    | RX+    |        |
| 4   | DTR    | RX-    |        |
| 5   | GND    | GND    | GND    |
| 6   | DSR    |        |        |
| 7   | RTS    |        |        |
| 8   | CTS    |        |        |
| 9   | RI     |        |        |

## 2.2 EAP-CE04 and HPC-BYT DB-A Overviews

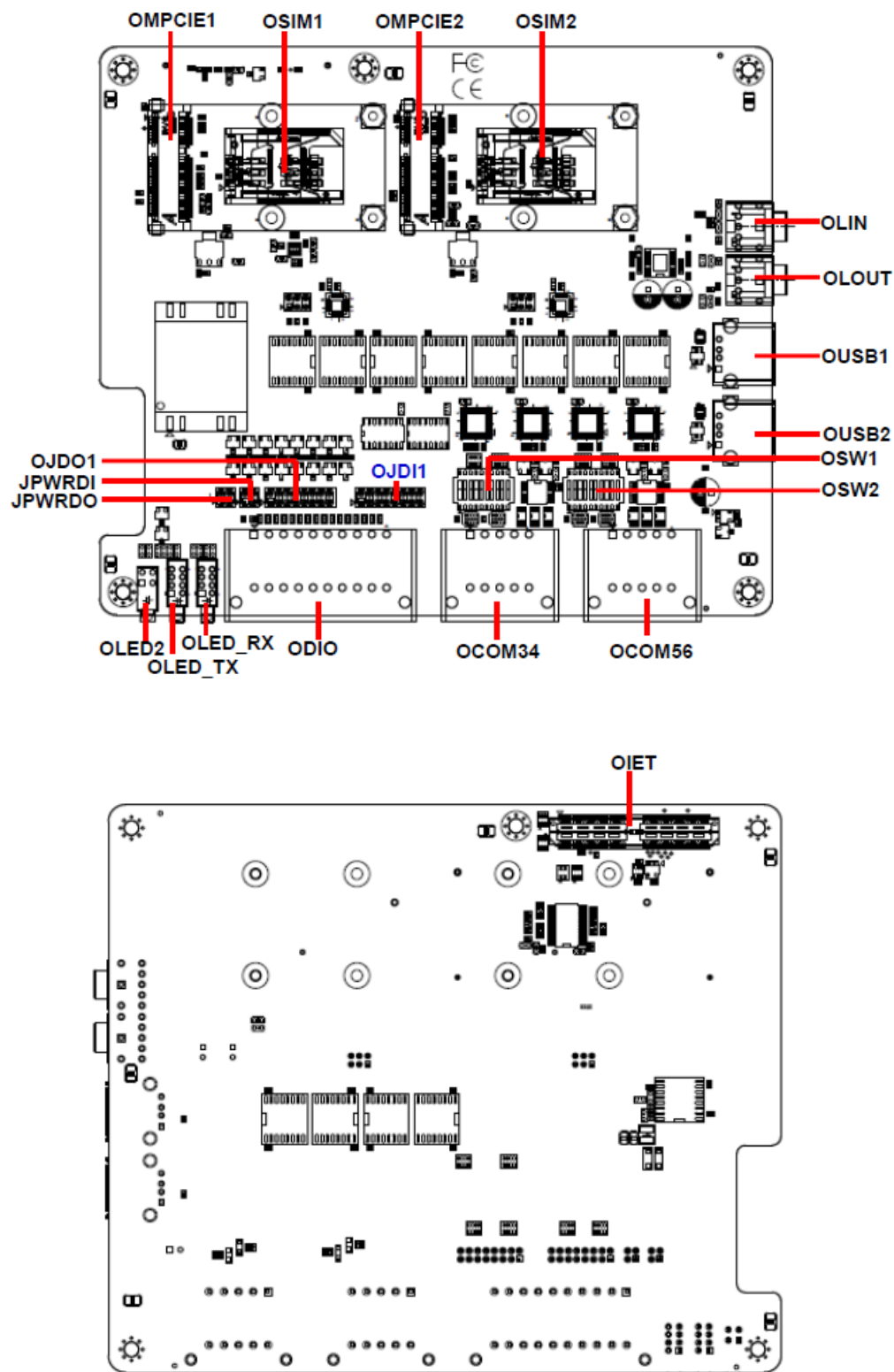
### 2.2.1 EAP-CE04







## 2.2.2 HPC-BYT DB-A



## 2.3 EAP-CE04 Jumper & Connector list

### Jumpers

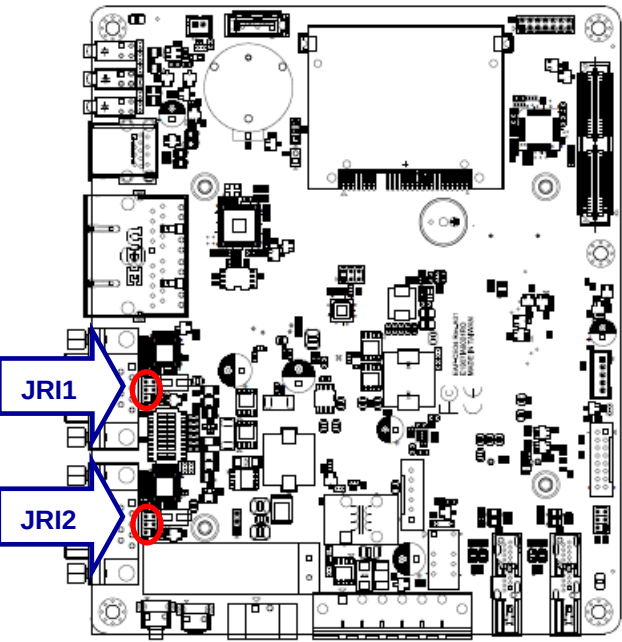
| Label  | Function                            | Note                        |
|--------|-------------------------------------|-----------------------------|
| JRI1/2 | COM 1/2 pin 9 signal select         | 3 x 2 header, pitch 2.00 mm |
| SW1    | Serial port 1/2 – RS485 mode select | DIP switch 10pin            |
| JAT1   | AT/ ATX Input power select          | 3 x 1 header, pitch 2.00 mm |
| JBAT1  | Clear CMOS                          | 3 x 1 header, pitch 2.00 mm |
| JDDI1  | IET interface DP mode select        | 3 x 2 header, pitch 2.00 mm |

### Connectors

| Label   | Function                   | Note                         |
|---------|----------------------------|------------------------------|
| DP1/2   | DP connector 1/2           |                              |
| DCIN    | DC power-in connector      | 6 x 1 Phoenix, pitch 5.08 mm |
| PWRBTN1 | Power button               |                              |
| PWRBTN2 | Power button connector     | 2 x 1 Phoenix, pitch 3.50 mm |
| RSTBTN  | Reset button               |                              |
| COM1/2  | Serial port connector 1/2  |                              |
| LAN1    | LAN connector              |                              |
| USB1    | USB connector              |                              |
| USB2    | On-board header for USB2.0 | 5 x 1 wafer, pitch 2.00 mm   |
| LED_RX  | LED Power                  |                              |
| LED_TX  | LED Power                  |                              |
| LED2    | LED Power                  |                              |
| CN6     | SATA power connector       | 2 x 1 wafer, pitch 2.00 mm   |
| SATA1   | Serial ATA connector       |                              |
| CFAST1  | CF card socket             |                              |
| JLPC1   | LPC port connector         |                              |
| IET_CB1 | IET Expansion slot         |                              |
| CN11A   | COM Express connector 1    |                              |
| CN11B   | COM Express connector 2    |                              |

2.4 EAP-CE04 Jumpers & Connectors settings

2.4.1 COM 1/2 pin 9 signal select (JRI1/2)



JRI1

JRI2

Ring\*

|                                     |                                     |   |
|-------------------------------------|-------------------------------------|---|
| <input type="checkbox"/>            | <input type="checkbox"/>            | 5 |
| <input type="checkbox"/>            | <input type="checkbox"/>            | 1 |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1 |

+5V

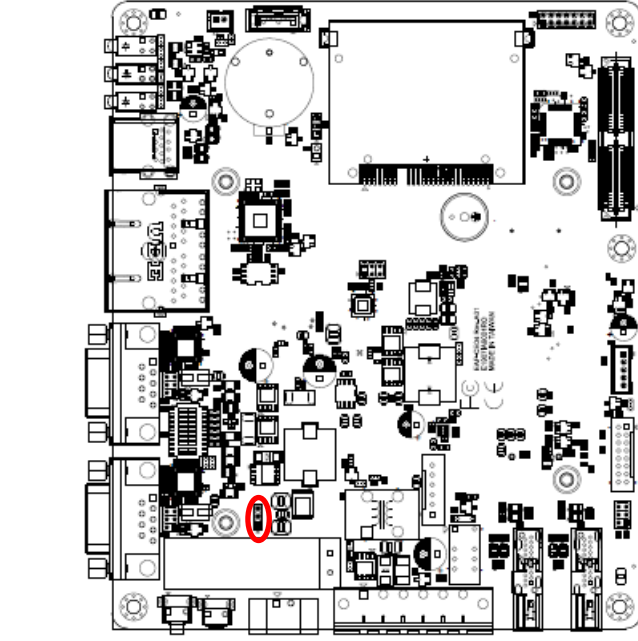
|                                     |                                     |   |
|-------------------------------------|-------------------------------------|---|
| <input type="checkbox"/>            | <input type="checkbox"/>            | 5 |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1 |
| <input type="checkbox"/>            | <input type="checkbox"/>            | 1 |

+12V

|                                     |                                     |   |
|-------------------------------------|-------------------------------------|---|
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 5 |
| <input type="checkbox"/>            | <input type="checkbox"/>            | 1 |
| <input type="checkbox"/>            | <input type="checkbox"/>            | 1 |

\* Default

2.4.2 AT/ ATX Input power select (JAT1)



JAT1

AT

|                                     |
|-------------------------------------|
| <input type="checkbox"/>            |
| <input checked="" type="checkbox"/> |
| <input type="checkbox"/>            |

1

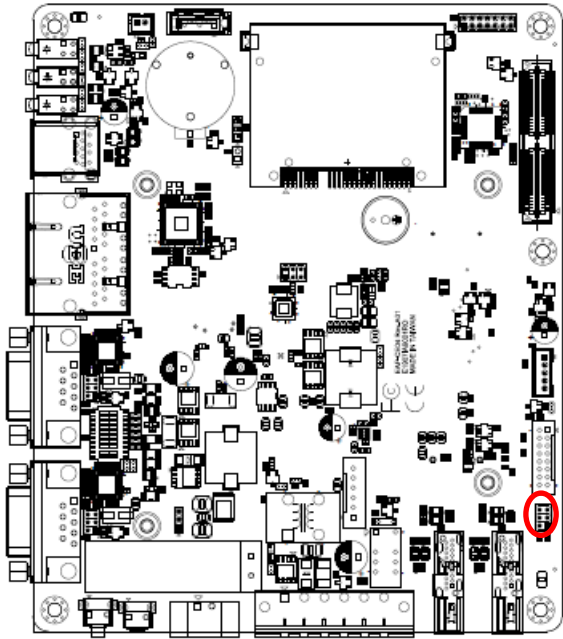
ATX\*

|                                     |
|-------------------------------------|
| <input checked="" type="checkbox"/> |
| <input checked="" type="checkbox"/> |
| <input type="checkbox"/>            |

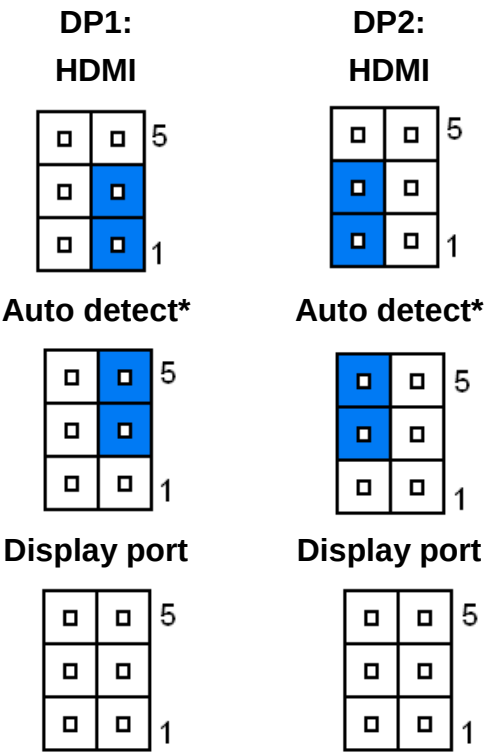
1

\*Default

2.4.3 IET interface DP mode select (JDDI1)



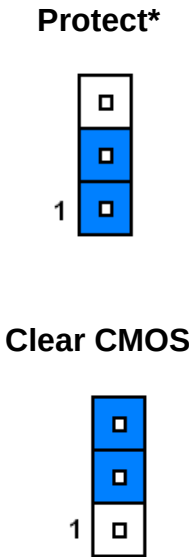
\*Default



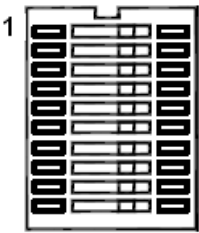
2.4.4 Clear CMOS (JBAT1)



\* Default



2.4.5 Serial port 1/2 – RS485 mode select (SW1)



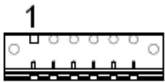
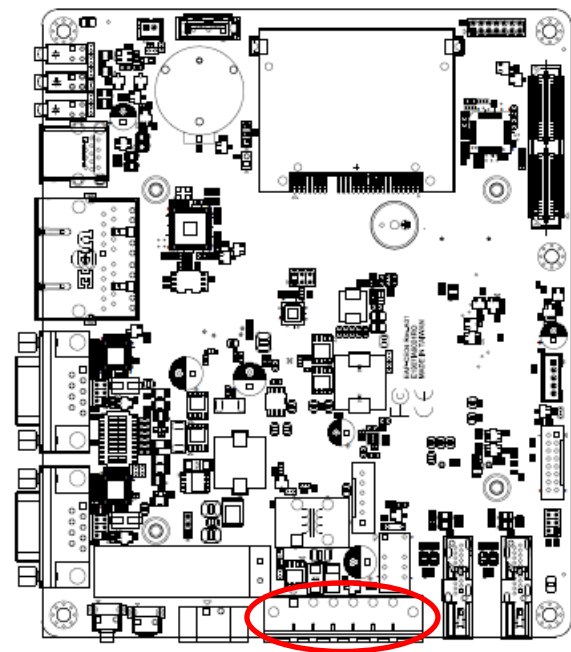
In Serial Port 1 mode

|   | ON                                  | OFF     |
|---|-------------------------------------|---------|
| 1 | reserve                             | reserve |
| 2 | 485TXP external<br>biasing resistor | OPEN*   |
| 3 | 485TXN external<br>biasing resistor | OPEN*   |
| 4 | 485RXP external<br>biasing resistor | OPEN*   |
| 5 | 485RXN external<br>biasing resistor | OPEN*   |

In Serial Port 2 mode

|    | ON                                  | OFF     |
|----|-------------------------------------|---------|
| 6  | reserve                             | reserve |
| 7  | 485TXP external<br>biasing resistor | OPEN*   |
| 8  | 485TXN external<br>biasing resistor | OPEN*   |
| 9  | 485RXP external<br>biasing resistor | OPEN*   |
| 10 | 485RXN external<br>biasing resistor | OPEN*   |

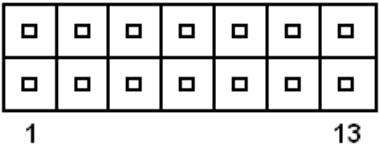
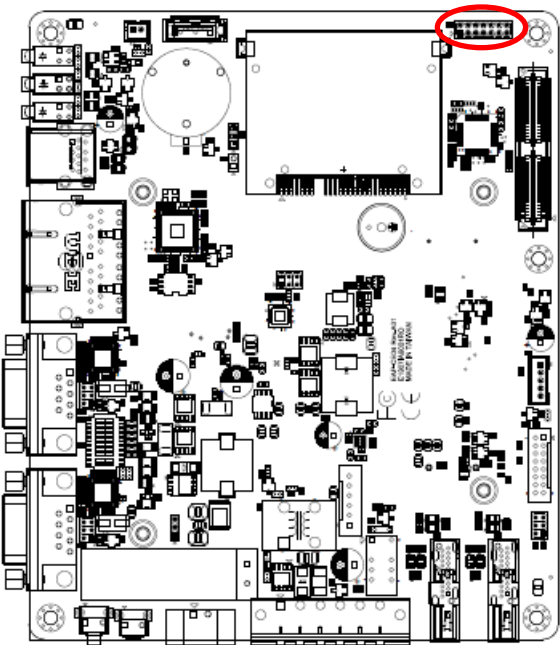
2.4.6 DC power-in connector (DCIN)



| Signal      | PIN |
|-------------|-----|
| GND         | 1   |
| VIN         | 2   |
| CHASSIS GND | 3   |
| UPS_PF#     | 4   |
| ALARM#      | 5   |
| ALARM       | 6   |

\* Default

2.4.7 LPC port connector (JLPC1)



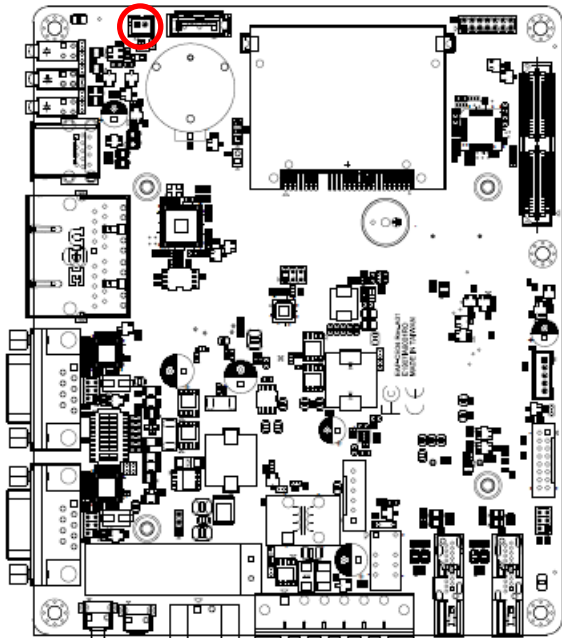
| Signal  | PIN | PIN | Signal          |
|---------|-----|-----|-----------------|
| LPC_AD0 | 1   | 2   | +3.3V           |
| LPC_AD1 | 3   | 4   | LPC_PORT80_RST# |
| LPC_AD2 | 5   | 6   | LPC_FRAME#      |
| LPC_AD3 | 7   | 8   | LPC1_PORT80_CLK |
| SERIRQ  | 9   | 10  | GND             |
| +5V     | 11  | 12  | GND             |
| +5VSB   | 13  | 14  | LPC_DRQ1#       |

2.4.8 On-board header for USB2.0 (USB2)



| Signal   | PIN |
|----------|-----|
| USBVCC2  | 1   |
| USB_PN_2 | 2   |
| USB_PP_2 | 3   |
| GND      | 4   |
| GND      | 5   |

2.4.9 SATA power connector (CN6)



| Signal | PIN |
|--------|-----|
| GND    | 1   |
| +5V    | 2   |

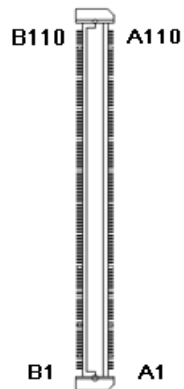
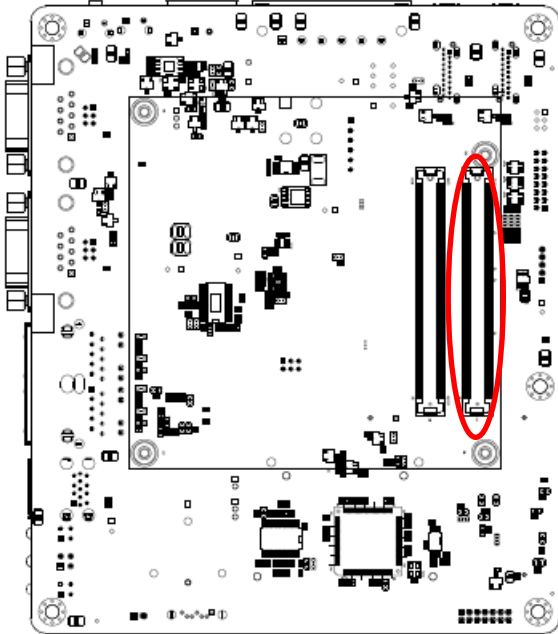
2.4.10 Power button connector (PWRBTN2)



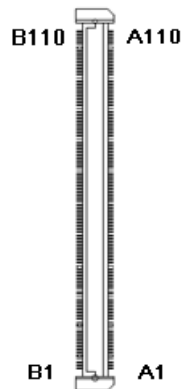
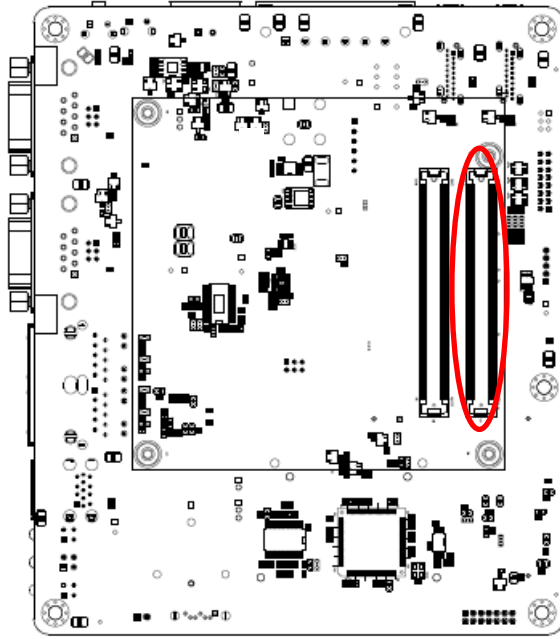
| Signal    | PIN |
|-----------|-----|
| PWRBTN#_R | 1   |
| GND       | 2   |



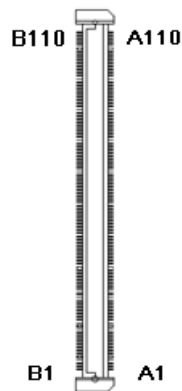
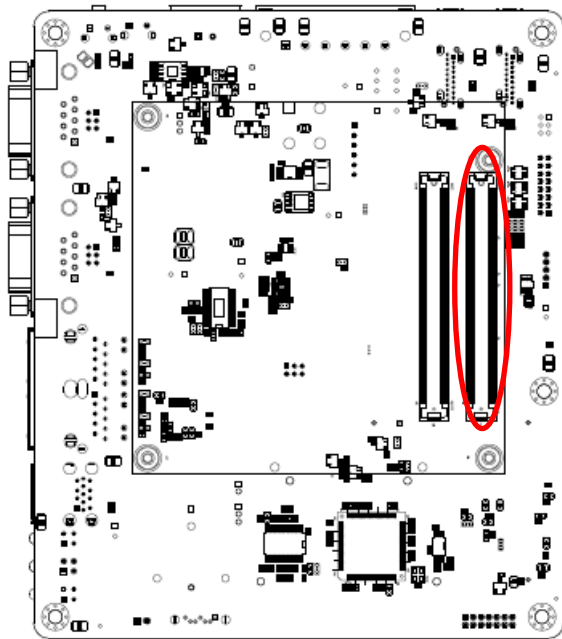
## 2.4.11 COM Express Connector 1 (CN11A)



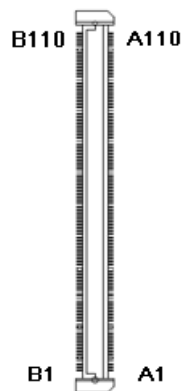
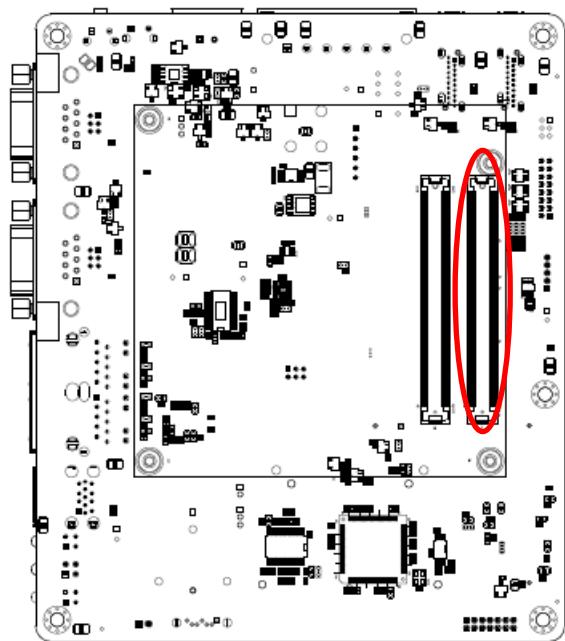
| Signal       | PIN  | PIN  | Signal        |
|--------------|------|------|---------------|
| GND          | B110 | A110 | GND           |
| VCC          | B109 | A109 | VCC           |
| VCC          | B108 | A108 | VCC           |
| VCC          | B107 | A107 | VCC           |
| VCC          | B106 | A106 | VCC           |
| VCC          | B105 | A105 | VCC           |
| VCC          | B104 | A104 | VCC           |
| NC           | B103 | A103 | LID#          |
| NC           | B102 | A102 | NC            |
| NC           | B101 | A101 | NC            |
| GND          | B100 | A100 | GND           |
| NC           | B99  | A99  | NC            |
| NC           | B98  | A98  | NC            |
| NC           | B97  | A97  | NC            |
| VGA_I2C_DAT  | B96  | A96  | NC            |
| VGA_I2C_CK   | B95  | A95  | NC            |
| VGA_VSYNC    | B94  | A94  | NC            |
| VGA_HSYNC    | B93  | A93  | GPO0/SD_CLK   |
| VGA_BLU      | B92  | A92  | NC            |
| VGA_GRN      | B91  | A91  | NC            |
| GND          | B90  | A90  | GND           |
| VGA_RED      | B89  | A89  | PCIE_CLK_REF- |
| NC           | B88  | A88  | PCIE_CLK_REF+ |
| VCC_5V_SBY_4 | B87  | A87  | NC            |
| VCC_5V_SBY_3 | B86  | A86  | NC            |
| VCC_5V_SBY_2 | B85  | A85  | GPI3/SD_DATA3 |
| VCC_5V_SBY_1 | B84  | A84  | NC            |
| NC           | B83  | A83  | NC            |
| NC           | B82  | A82  | NC            |
| NC           | B81  | A81  | NC            |



| Signal      | PIN | PIN | Signal        |
|-------------|-----|-----|---------------|
| GND         | B80 | A80 | GND           |
| NC          | B79 | A79 | NC            |
| NC          | B78 | A78 | NC            |
| NC          | B77 | A77 | NC            |
| NC          | B76 | A76 | LVDS_A2-      |
| NC          | B75 | A75 | NC            |
| NC          | B74 | A74 | NC            |
| NC          | B73 | A73 | NC            |
| NC          | B72 | A72 | NC            |
| NC          | B71 | A71 | NC            |
| GND         | B70 | A70 | GND           |
| PCIE_RX0-   | B69 | A69 | PCIE_TX0-     |
| PCIE_RX0+   | B68 | A68 | PCIE_TX0+     |
| WAKE1#      | B67 | A67 | GPI2/SD_DATA2 |
| WAKE0#      | B66 | A66 | GND           |
| PCIE_RX1-   | B65 | A65 | PCIE_TX1-     |
| PCIE_RX1+   | B64 | A64 | PCIE_TX1+     |
| GPO3/SD_CD# | B63 | A63 | GPI1/SD_DATA1 |
| PCIE_RX2-   | B62 | A62 | PCIE_TX2-     |
| PCIE_RX2+   | B61 | A61 | PCIE_TX2+     |
| GND         | B60 | A60 | GND           |
| NC          | B59 | A59 | NC            |
| NC          | B58 | A58 | NC            |
| GPO2/SD_WP  | B57 | A57 | GND           |
| NC          | B56 | A56 | NC            |
| NC          | B55 | A55 | NC            |
| GPO1/SD_CMD | B54 | A54 | GPI0/SD_DATA0 |
| NC          | B53 | A53 | NC            |
| NC          | B52 | A52 | NC            |
| GND         | B51 | A51 | GND           |

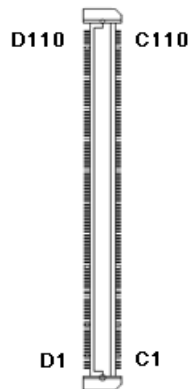
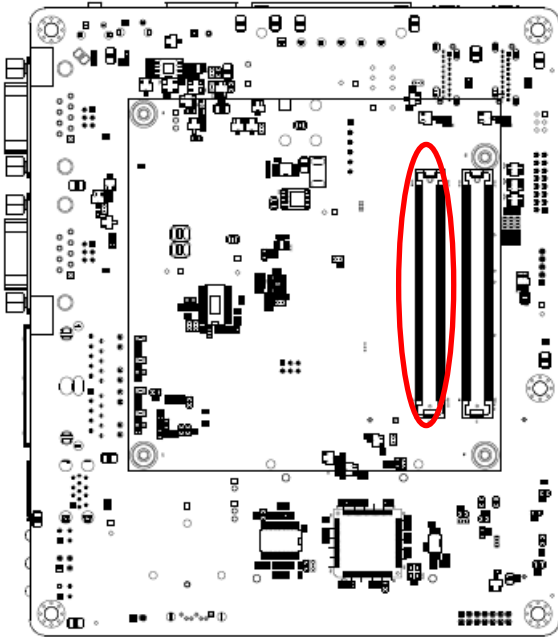


| Signal       | PIN | PIN | Signal        |
|--------------|-----|-----|---------------|
| CB_RESET#    | B50 | A50 | LPC_SERIRQ    |
| SYS_RESET#   | B49 | A49 | NC            |
| NC           | B48 | A48 | NC            |
| NC           | B47 | A47 | VCC_RTC       |
| USB1+        | B46 | A46 | USB0+         |
| USB1-        | B45 | A45 | USB0-         |
| USB_0_1_OC#  | B44 | A44 | USB_2_3_OC#   |
| USB3+        | B43 | A43 | USB2+         |
| USB3-        | B42 | A42 | USB2-         |
| GND          | B41 | A41 | GND           |
| USB5+        | B40 | A40 | USB4+         |
| USB5-        | B39 | A39 | USB4-         |
| USB_4_5_OC#  | B38 | A38 | USB_6_7_OC#   |
| NC           | B37 | A37 | USB6+         |
| NC           | B36 | A36 | USB6-         |
| THRM#        | B35 | A35 | THRMTRIP#     |
| I2C_DAT      | B34 | A34 | NC            |
| I2C_CK       | B33 | A33 | A/HDA_SDOUT   |
| SPKR         | B32 | A32 | AC/HDA_BITCLK |
| GND          | B31 | A31 | GND           |
| AC/HDA_SDIN0 | B30 | A30 | AC/HDA_RST#   |
| NC           | B29 | A29 | AC/HDA_SYNC   |
| NC           | B28 | A28 | (S)ATA_ACT#   |
| WDT          | B27 | A27 | BATLOW#       |
| NC           | B26 | A26 | NC            |
| NC           | B25 | A25 | NC            |
| PWR_OK       | B24 | A24 | SUS_S5#       |
| NC           | B23 | A23 | NC            |
| NC           | B22 | A22 | NC            |
| GND          | B21 | A21 | GND           |

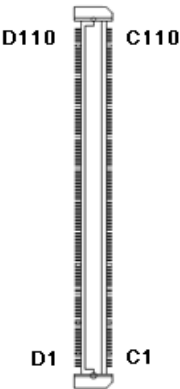
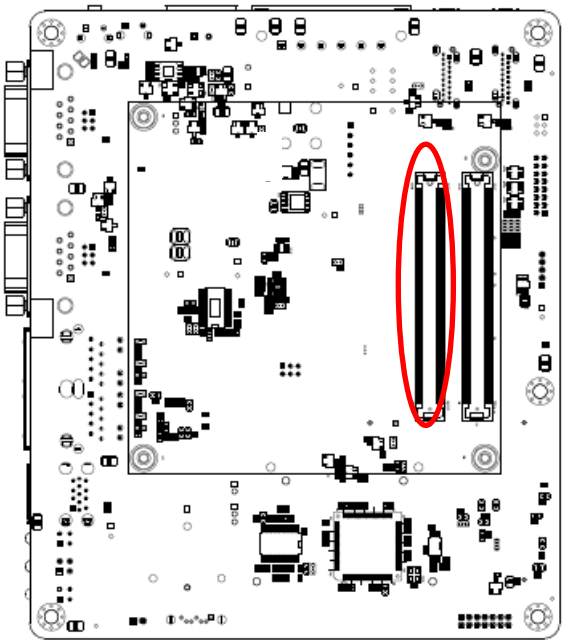


| Signal     | PIN | PIN | Signal         |
|------------|-----|-----|----------------|
| SATA1_RX-  | B20 | A20 | SATA0_RX-      |
| SATA1_RX+  | B19 | A19 | SATA0_RX+      |
| SUS_STAT#  | B18 | A18 | SUS_S4#        |
| SATA1_TX-  | B17 | A17 | SATA0_TX-      |
| SATA1_TX+  | B16 | A16 | SATA0_TX+      |
| SMB_ALERT# | B15 | A15 | SUS_S3#        |
| SMB_DAT    | B14 | A14 | GBE0_CTREF     |
| SMB_CK     | B13 | A13 | GBE0_MDI0+     |
| PWRBTN#    | B12 | A12 | GBE0_MDI0-     |
| GND        | B11 | A11 | GND            |
| LPC_CLK    | B10 | A10 | GBE0_MDI1+     |
| LPC_DRQ1#  | B9  | A9  | GBE0_MDI1-     |
| LPC_DRQ0#  | B8  | A8  | GBE0_LINK#     |
| LPC_AD3    | B7  | A7  | GBE0_MDI2+     |
| LPC_AD2    | B6  | A6  | GBE0_MDI2-     |
| LPC_AD1    | B5  | A5  | GBE0_LINK1000# |
| LPC_AD0    | B4  | A4  | GBE0_LINK100#  |
| LPC_FRAME# | B3  | A3  | GBE0_MDI3+     |
| GBE0_ACT#  | B2  | A2  | GBE0_MDI3-     |
| GND        | B1  | A1  | GND            |

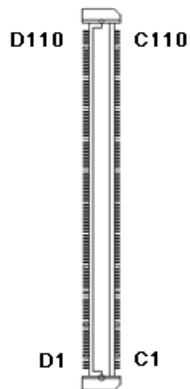
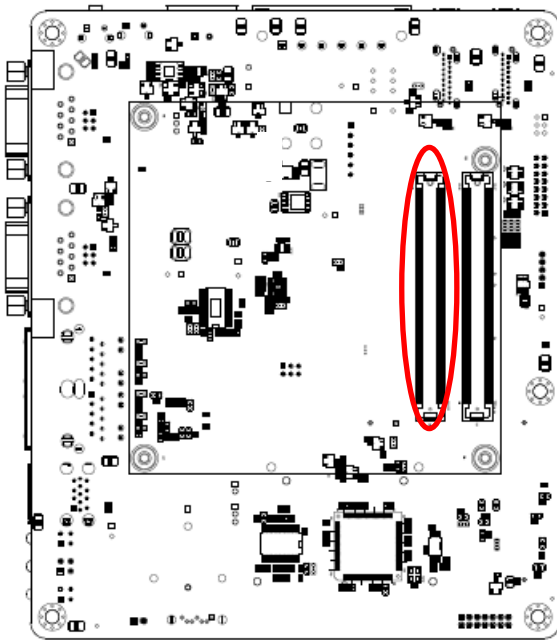
## 2.4.12 COM Express Connector 2 (CN11B)



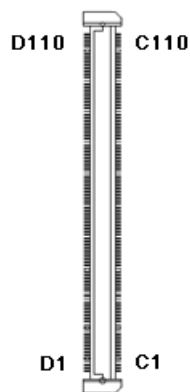
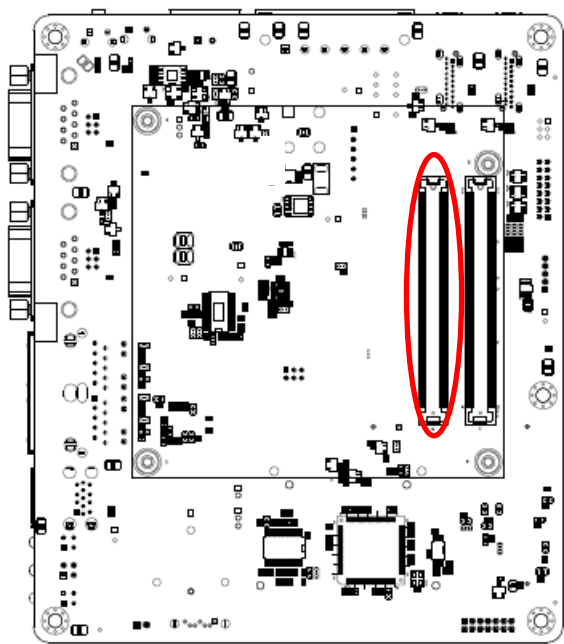
| Signal | PIN  | PIN  | Signal |
|--------|------|------|--------|
| GND    | D110 | C110 | GND    |
| VCC    | D109 | C109 | VCC    |
| VCC    | D108 | C108 | VCC    |
| VCC    | D107 | C107 | VCC    |
| VCC    | D106 | C106 | VCC    |
| VCC    | D105 | C105 | VCC    |
| VCC    | D104 | C104 | VCC    |
| GND    | D103 | C103 | GND    |
| NC     | D102 | C102 | NC     |
| NC     | D101 | C101 | NC     |
| GND    | D100 | C100 | GND    |
| NC     | D99  | C99  | NC     |
| NC     | D98  | C98  | NC     |
| NC     | D97  | C97  | NC     |
| GND    | D96  | C96  | GND    |
| NC     | D95  | C95  | NC     |
| NC     | D94  | C94  | NC     |
| GND    | D93  | C93  | GND    |
| NC     | D92  | C92  | NC     |
| NC     | D91  | C91  | NC     |
| GND    | D90  | C90  | GND    |
| NC     | D89  | C89  | NC     |
| NC     | D88  | C88  | NC     |
| GND    | D87  | C87  | GND    |
| NC     | D86  | C86  | NC     |
| NC     | D85  | C85  | NC     |
| GND    | D84  | C84  | GND    |
| NC     | D83  | C83  | NC     |
| NC     | D82  | C82  | NC     |
| NC     | D81  | C81  | NC     |



| Signal | PIN | PIN | Signal |
|--------|-----|-----|--------|
| GND    | D80 | C80 | GND    |
| NC     | D79 | C79 | NC     |
| NC     | D78 | C78 | NC     |
| NC     | D77 | C77 | NC     |
| GND    | D76 | C76 | GND    |
| NC     | D75 | C75 | NC     |
| NC     | D74 | C74 | NC     |
| GND    | D73 | C73 | GND    |
| NC     | D72 | C72 | NC     |
| NC     | D71 | C71 | NC     |
| GND    | D70 | C70 | GND    |
| NC     | D69 | C69 | NC     |
| NC     | D68 | C68 | NC     |
| GND    | D67 | C67 | NC     |
| NC     | D66 | C66 | NC     |
| NC     | D65 | C65 | NC     |
| NC     | D64 | C64 | NC     |
| NC     | D63 | C63 | NC     |
| NC     | D62 | C62 | NC     |
| NC     | D61 | C61 | NC     |
| GND    | D60 | C60 | GND    |
| NC     | D59 | C59 | NC     |
| NC     | D58 | C58 | NC     |
| TYPE2# | D57 | C57 | NC     |
| NC     | D56 | C56 | NC     |
| NC     | D55 | C55 | NC     |
| NC     | D54 | C54 | NC     |
| NC     | D53 | C53 | NC     |
| NC     | D52 | C52 | NC     |
| GND    | D51 | C51 | GND    |



| Signal           | PIN | PIN | Signal             |
|------------------|-----|-----|--------------------|
| DDI2_PAIR3-      | D50 | C50 | NC                 |
| DDI2_PAIR3+      | D49 | C49 | NC                 |
| NC               | D48 | C48 | NC                 |
| DDI2_PAIR2-      | D47 | C47 | NC-                |
| DDI2_PAIR2+      | D46 | C46 | NC                 |
| NC               | D45 | C45 | NC                 |
| DDI2_HPD         | D44 | C44 | NC                 |
| DDI2_PAIR1-      | D43 | C43 | NC                 |
| DDI2_PAIR1+      | D42 | C42 | NC                 |
| GND              | D41 | C41 | GND                |
| DDI2_PAIR0-      | D40 | C40 | NC                 |
| DDI2_PAIR0+      | D39 | C39 | NC                 |
| NC               | D38 | C38 | NC                 |
| DDI1_PAIR3-      | D37 | C37 | NC                 |
| DDI1_PAIR3+      | D36 | C36 | NC                 |
| NC               | D35 | C35 | NC                 |
| DDI1_DDC_AUX_SEL | D34 | C34 | DDI2_DDC_AUX_SEL   |
| DDI1_PAIR2-      | D33 | C33 | DDI2_CTRLDATA_AUX- |
| DDI1_PAIR2+      | D32 | C32 | DDI2_CTRLCLK_AUX+  |
| GND              | D31 | C31 | GND                |
| DDI1_PAIR1-      | D30 | C30 | NC                 |
| DDI1_PAIR1+      | D29 | C29 | NC                 |
| NC               | D28 | C28 | NC                 |
| DDI1_PAIR0-      | D27 | C27 | NC                 |
| DDI1_PAIR0+      | D26 | C26 | NC                 |
| NC               | D25 | C25 | NC                 |
| NC               | D24 | C24 | DDI1_HPD           |
| NC               | D23 | C23 | NC                 |
| NC               | D22 | C22 | NC                 |
| GND              | D21 | C21 | GND                |



| Signal             | PIN | PIN | Signal     |
|--------------------|-----|-----|------------|
| NC                 | D20 | C20 | NC         |
| NC                 | D19 | C19 | NC         |
| NC                 | D18 | C18 | NC         |
| NC                 | D17 | C17 | NC         |
| DDI1_CTRLDATA_AUX- | D16 | C16 | NC         |
| DDI1_CTRLCLK_AUX+  | D15 | C15 | NC         |
| GND                | D14 | C14 | GND        |
| USB_SSTX3+         | D13 | C13 | NC         |
| USB_SSTX3-         | D12 | C12 | NC         |
| GND                | D11 | C11 | GND        |
| USB_SSTX2+         | D10 | C10 | NC         |
| USB_SSTX2-         | D9  | C9  | NC         |
| GND                | D8  | C8  | GND        |
| USB_SSTX1+         | D7  | C7  | NC         |
| USB_SSTX1-         | D6  | C6  | NC         |
| GND                | D5  | C5  | GND        |
| USB_SSTX0+         | D4  | C4  | USB_SSRX0+ |
| USB_SSTX0-         | D3  | C3  | USB_SSRX0- |
| GND                | D2  | C2  | GND        |
| GND                | D1  | C1  | GND        |



## 2.5 HPC-BYT DB-A Jumper & Connector list

### Jumpers

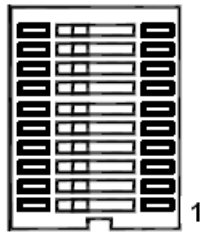
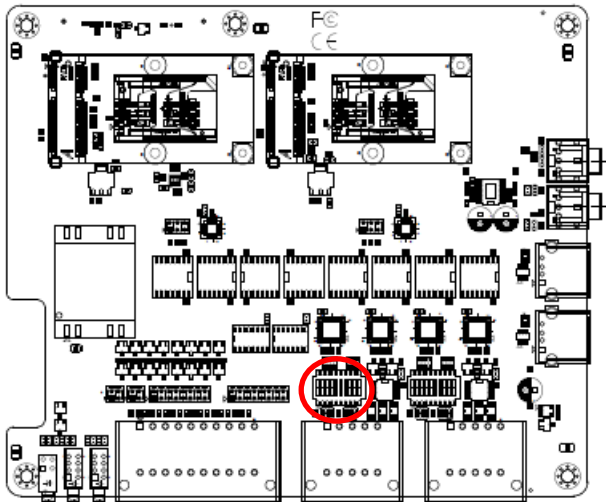
| Label  | Function                            | Note                        |
|--------|-------------------------------------|-----------------------------|
| OJDI1  | Digital Input selector              | 8 x 2 header, pitch 2.00 mm |
| OJDO1  | Digital Output selector             | 8 x 2 header, pitch 2.00 mm |
| JPWRDI | Digital Input power select          | 2 x 2 header, pitch 2.00 mm |
| JPWRDO | Digital Output power select         | 2 x 2 header, pitch 2.00 mm |
| OSW1   | Serial port 1/2 – RS485 mode select | DIP switch 10pin            |
| OSW2   | Serial port 3/4 – RS485 mode select | DIP switch 10pin            |

### Connectors

| Label     | Function                  | Note                          |
|-----------|---------------------------|-------------------------------|
| OMPCIE1/2 | Mini-PCIe connector 1/2   |                               |
| OSIM1/2   | SIM card slot 1/2         |                               |
| OLIN      | Audio line-in connector   |                               |
| OLOUT     | Audio line-out connector  |                               |
| OUSB1/2   | 2 x USB connector         |                               |
| OCOM34    | Serial port 3/4 connector | 5 x 2 phoenix, pitch 3.50 mm  |
| OCOM56    | Serial port 5/6 connector | 5 x 2 phoenix, pitch 3.50 mm  |
| ODIO      | Digital I/O connector     | 10 x 2 phoenix, pitch 3.50 mm |
| OLED_RX   | LED Power for COM RX      |                               |
| OLED_TX   | LED Power for COM TX      |                               |
| OLED2     | LED Power for WWAN/WLAN   |                               |
| OIET      | IET Expansion slot        |                               |

2.6 HPC-BYT DB-A Jumpers & Connectors settings

2.6.1 Serial port 1/2 – RS485 mode select (OSW1)



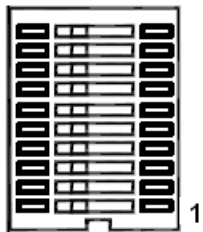
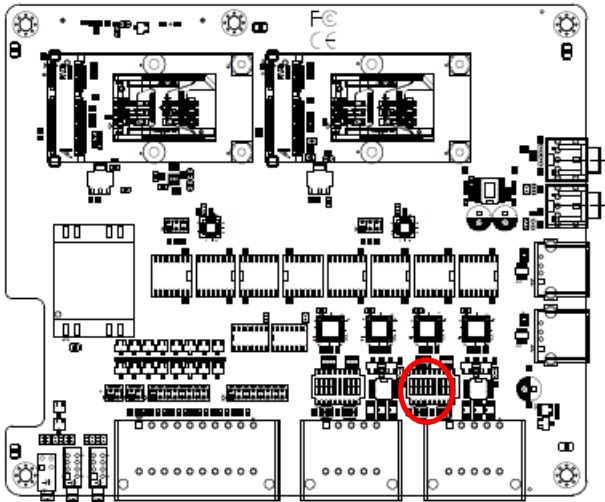
In Serial Port 1 mode

|   | ON                                  | OFF     |
|---|-------------------------------------|---------|
| 1 | Reserve                             | Reserve |
| 2 | 485TXP external<br>biasing resistor | OPEN*   |
| 3 | 485TXN external<br>biasing resistor | OPEN*   |
| 4 | 485RXP external<br>biasing resistor | OPEN*   |
| 5 | 485RXN external<br>biasing resistor | OPEN*   |

In Serial Port 2 mode

|    | ON                                  | OFF     |
|----|-------------------------------------|---------|
| 6  | Reserve                             | Reserve |
| 7  | 485TXP external<br>biasing resistor | OPEN*   |
| 8  | 485TXN external<br>biasing resistor | OPEN*   |
| 9  | 485RXP external<br>biasing resistor | OPEN*   |
| 10 | 485RXN external<br>biasing resistor | OPEN*   |

2.6.2 Serial port 3/4 – RS485 mode select (OSW2)



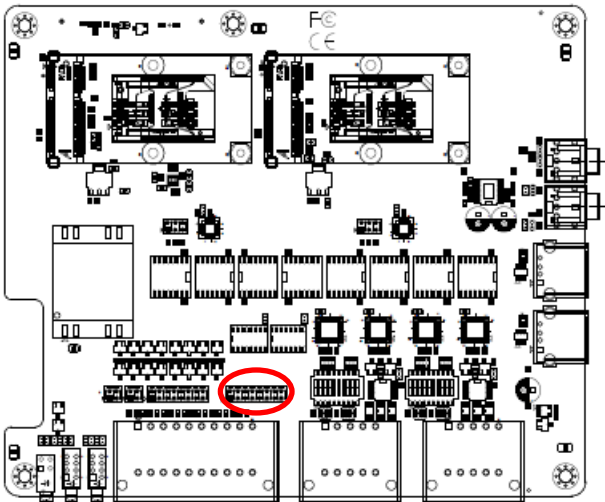
In Serial Port 1 mode

|   | ON                                  | OFF     |
|---|-------------------------------------|---------|
| 1 | reserve                             | reserve |
| 2 | 485TXP external<br>biasing resistor | OPEN*   |
| 3 | 485TXN external<br>biasing resistor | OPEN*   |
| 4 | 485RXP external<br>biasing resistor | OPEN*   |
| 5 | 485RXN external<br>biasing resistor | OPEN*   |

In Serial Port 2 mode

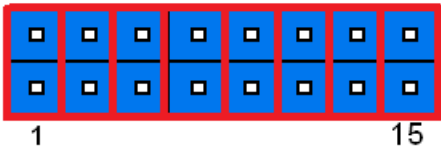
|    | ON                                  | OFF     |
|----|-------------------------------------|---------|
| 6  | reserve                             | reserve |
| 7  | 485TXP external<br>biasing resistor | OPEN*   |
| 8  | 485TXN external<br>biasing resistor | OPEN*   |
| 9  | 485RXP external<br>biasing resistor | OPEN*   |
| 10 | 485RXN external<br>biasing resistor | OPEN*   |

2.6.3 Digital Input selector (OJD11)

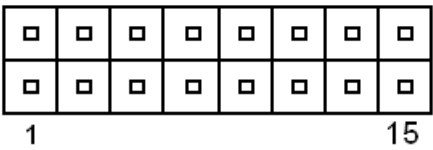


\*Default

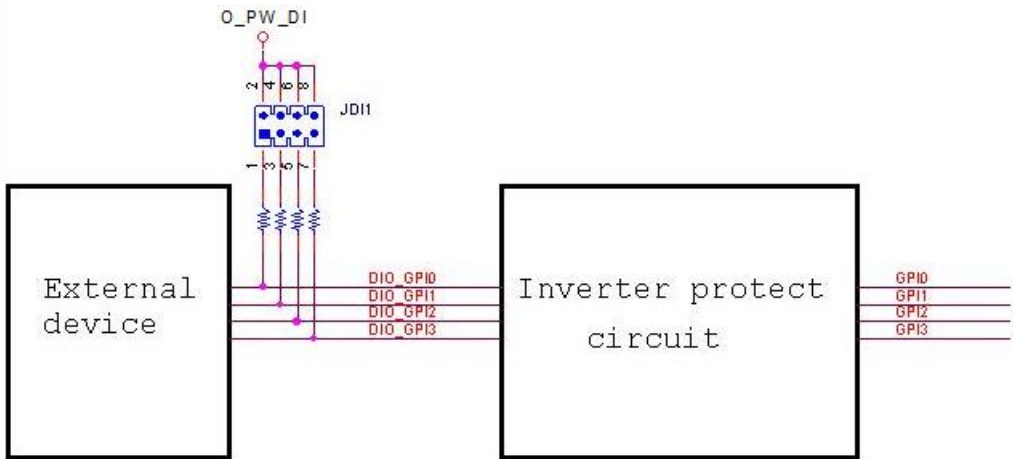
Dry\*



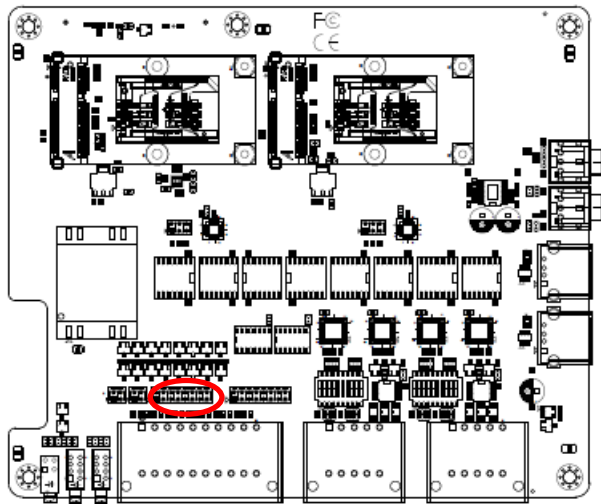
Wet



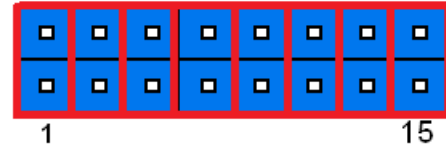
| Mode | Digital Input                                      |
|------|----------------------------------------------------|
| Dry  | Logic level 1: Close to GND<br>Logic level 0: Open |
| Wet  | Logic level 1: < 2<br>Logic level 0: +3.3V ~ +30V  |



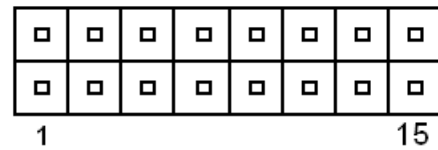
### 2.6.4 Digital Output selector (OJDO1)



Dry\*



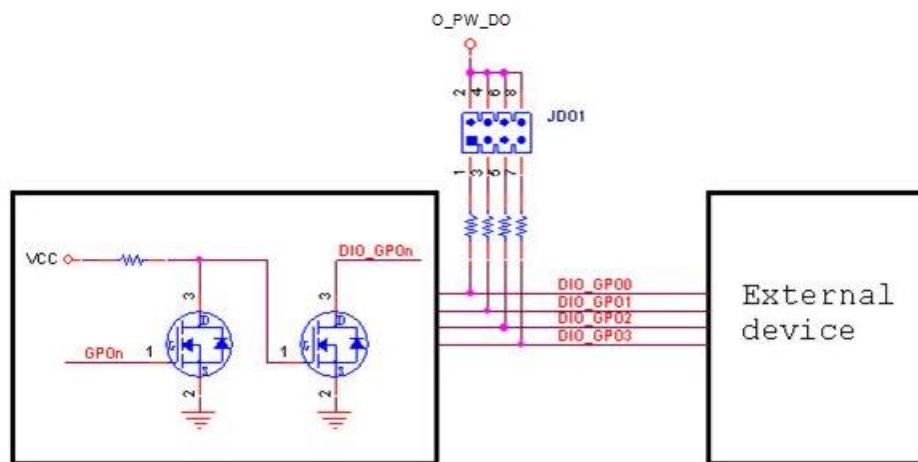
Wet



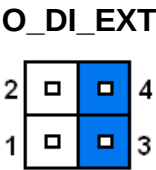
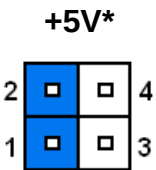
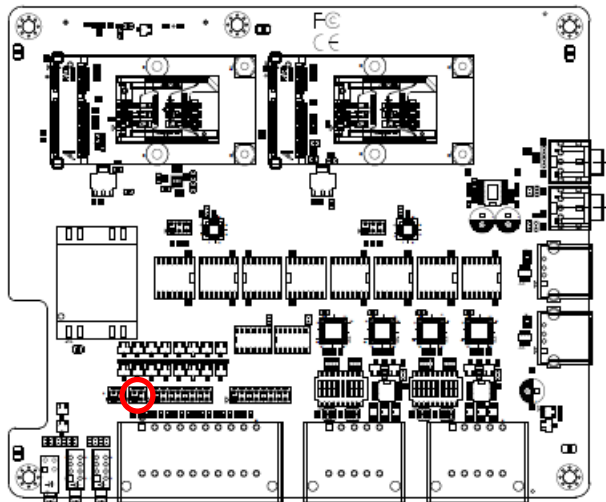
\*Default

#### Note:

Output Voltage: Max 250 mA per channel, current sink type.



2.6.5 Digital Input power select (JPWRDI)

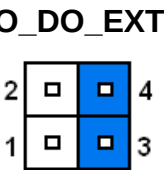
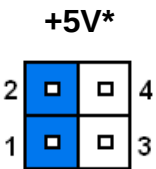
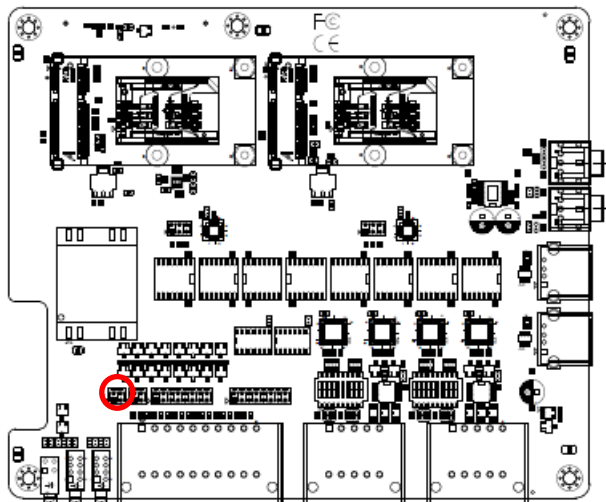


\*Default

**Note:**

O\_DI\_EXT is for reserve, power from ODIO pin1.

2.6.6 Digital Output power select (JPWRDO)

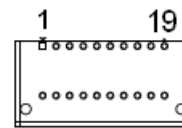
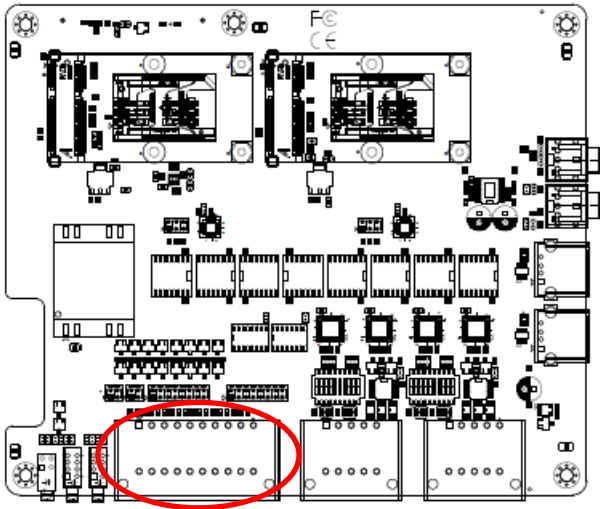


\*Default

**Note:**

O\_DO\_EXT is for reserve, power from ODIO pin2.

### 2.6.7 Digital I/O connector (ODIO)



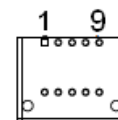
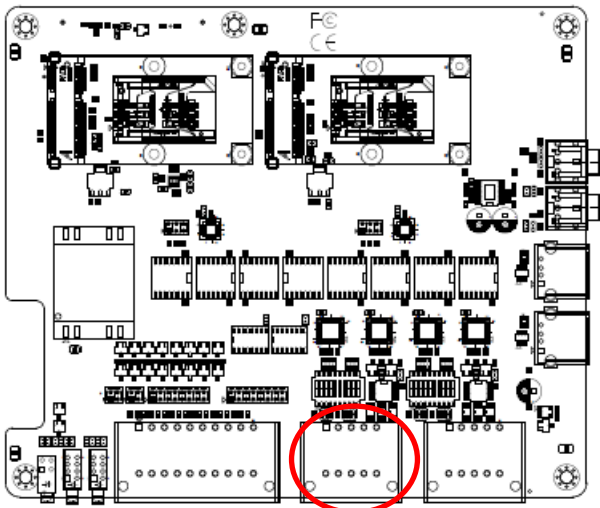
**Note:**

Pin1 is reserve for O\_DI\_EXT.

Pin2 is reserve for O\_DO\_EXT.

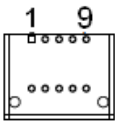
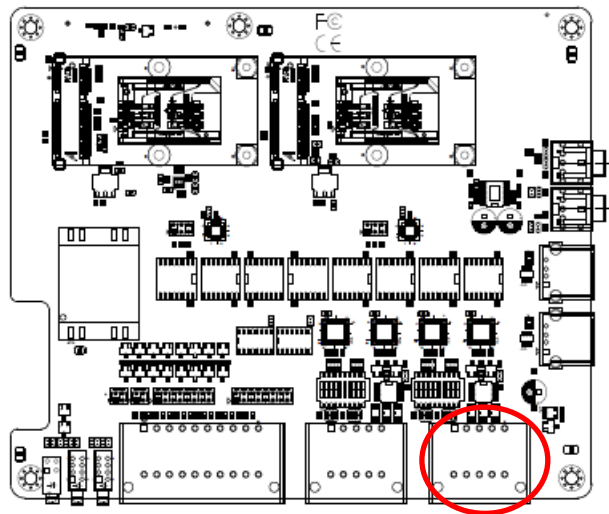
| Signal     | PIN | PIN | Signal     |
|------------|-----|-----|------------|
| reserve    | 1   | 2   | reserve    |
| O_DIO_GPI0 | 3   | 4   | O_DIO_GPO0 |
| O_DIO_GPI1 | 5   | 6   | O_DIO_GPO1 |
| O_DIO_GPI2 | 7   | 8   | O_DIO_GPO2 |
| O_DIO_GPI3 | 9   | 10  | O_DIO_GPO3 |
| O_DIO_GPI4 | 11  | 12  | O_DIO_GPO4 |
| O_DIO_GPI5 | 13  | 14  | O_DIO_GPO5 |
| O_DIO_GPI6 | 15  | 16  | O_DIO_GPO6 |
| O_DIO_GPI7 | 17  | 18  | O_DIO_GPO7 |
| GND        | 19  | 20  | GND        |

### 2.6.8 Serial port 3/4 connector (OCOM34)



| Signal       | PIN | PIN | Signal       |
|--------------|-----|-----|--------------|
| CTS2#_485TXN | 1   | 2   | CTS1#_485TXN |
| RXD2_485TXP  | 3   | 4   | RXD1_485TXP  |
| TXD2_485RXP  | 5   | 6   | TXD1_485RXP  |
| RTS2#_485RXN | 7   | 8   | RTS1#_485RXN |
| GND          | 9   | 10  | GND          |

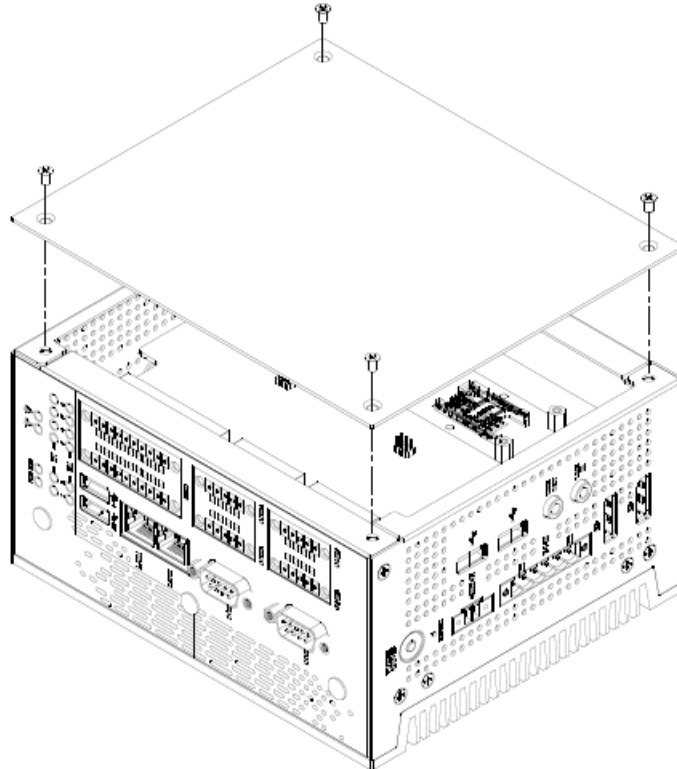
2.6.9 Serial port 5/6 connector (OCOM56)



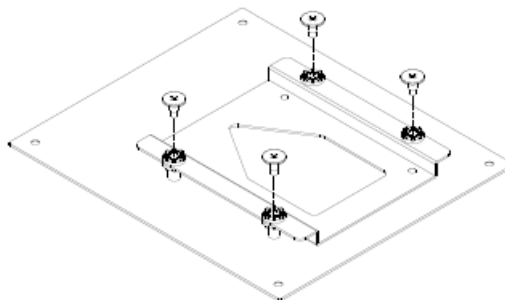
| Signal       | PIN | PIN | Signal       |
|--------------|-----|-----|--------------|
| CTS3#_485TXN | 1   | 2   | CTS4#_485TXN |
| RXD3_485TXP  | 3   | 4   | RXD4_485TXP  |
| TXD3_485RXP  | 5   | 6   | TXD4_485RXP  |
| RTS3#_485RXN | 7   | 8   | RTS4#_485RXN |
| GND          | 9   | 10  | GND          |



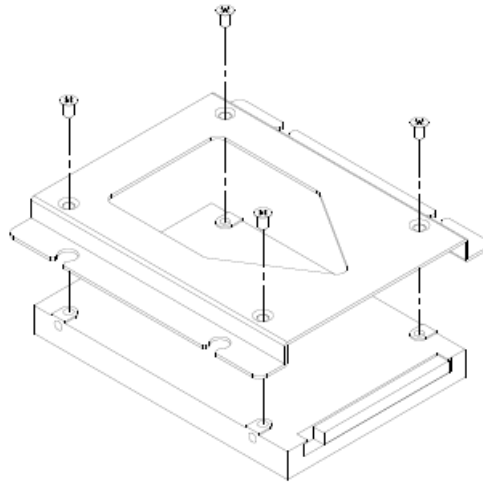
## 2.7 Installing Hard Disk



**Step 1.** Unfasten 4 screws to remove the back cover.

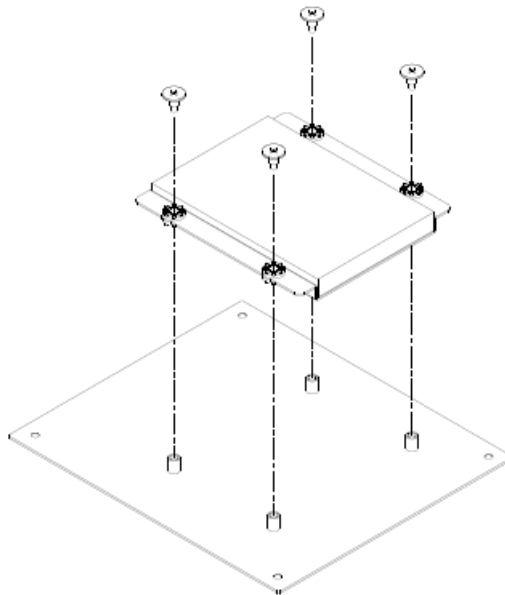


**Step 2.** Remove 4 screws to release the HDD bracket.



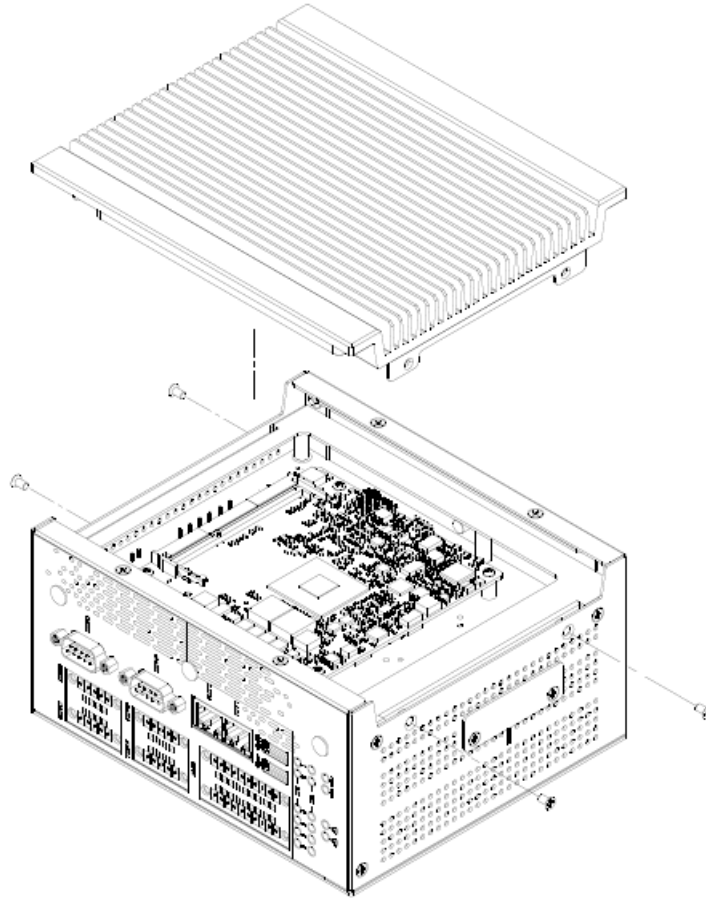
**Step 3.1** Slide HDD into its bracket until properly seated.

**Step 3.2** Secure HDD by means of 4 screws.

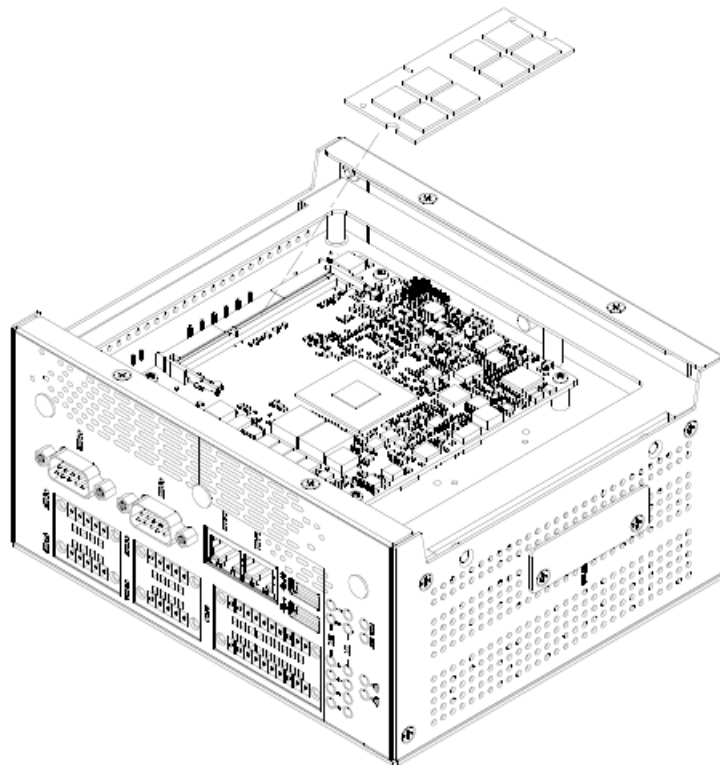


**Step 4.** Fix HDD module using the 4 screws.

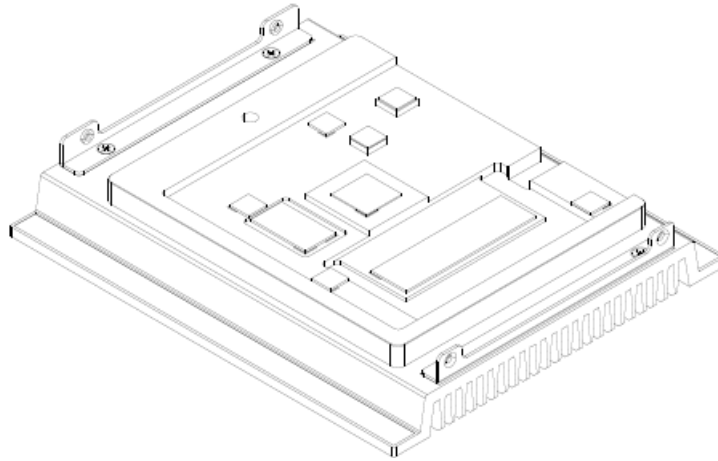
## 2.8 Installing Memory



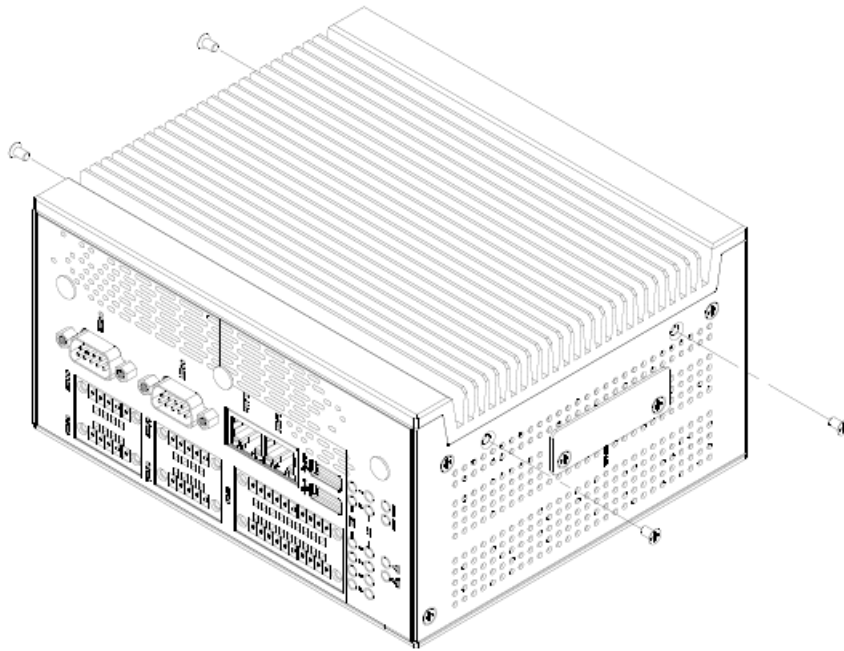
**Step 1.** Unfasten 4 screws to remove the cover.



**Step 2.** Slide the DDR3L SODIMM into the memory socket and press it down until properly seated.

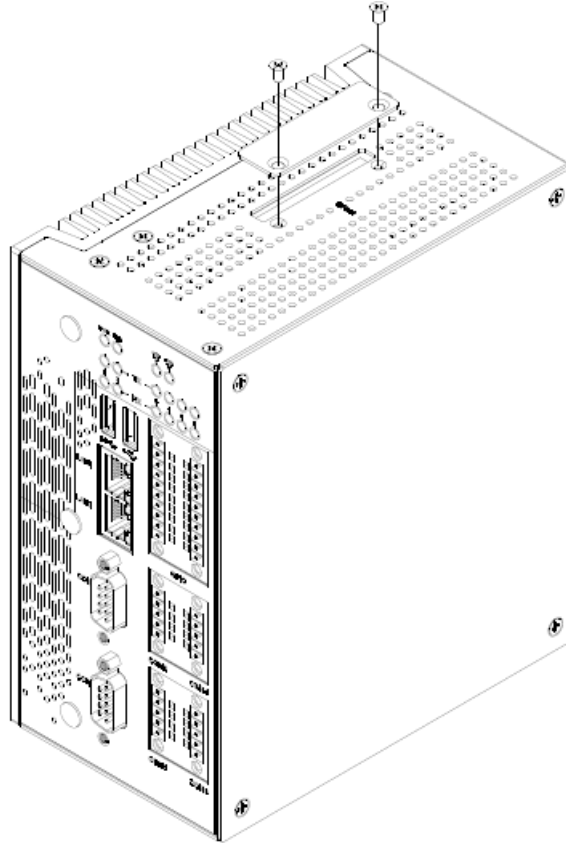


**Step 3.** Check if heatsink thermal pad is damaged; you need change a new one.

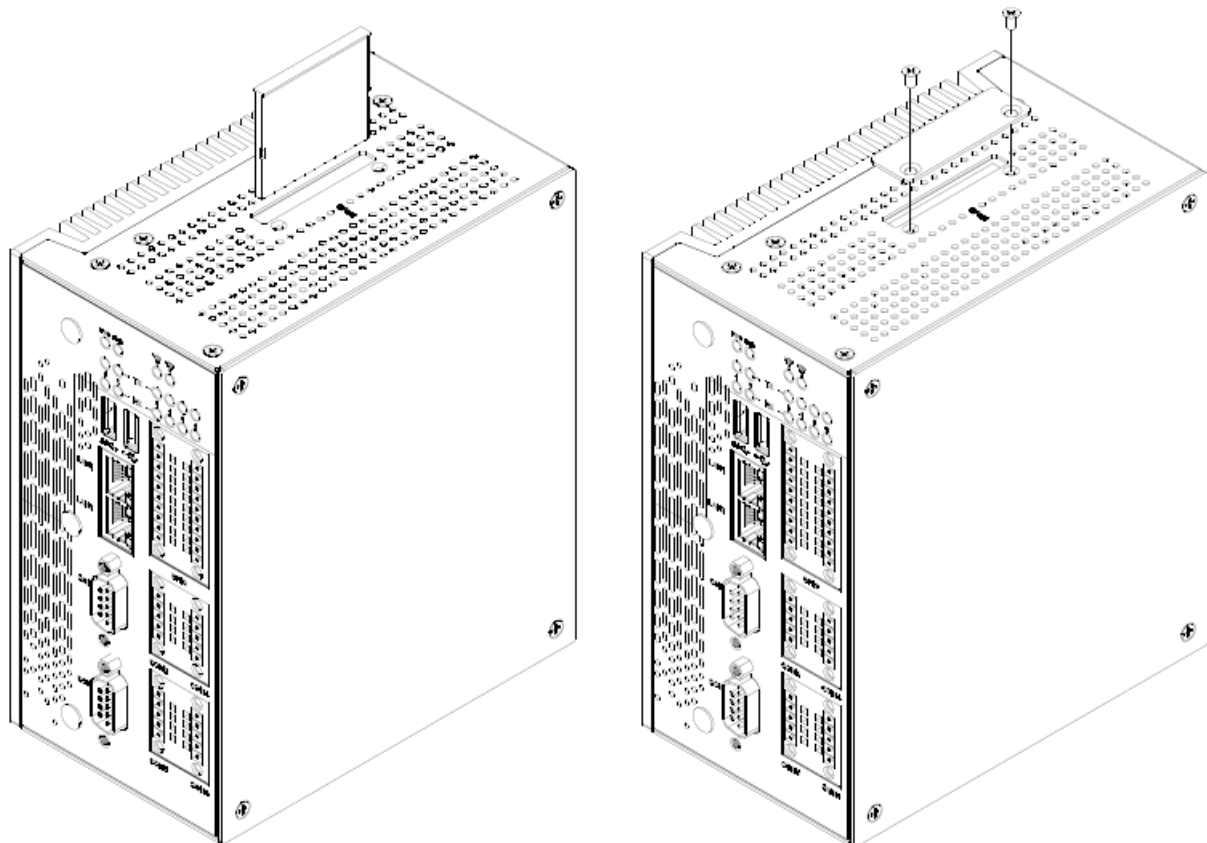


**Step 4.** Place back the cover and fasten 4 screws back to complete

## 2.9 Installing CF Card

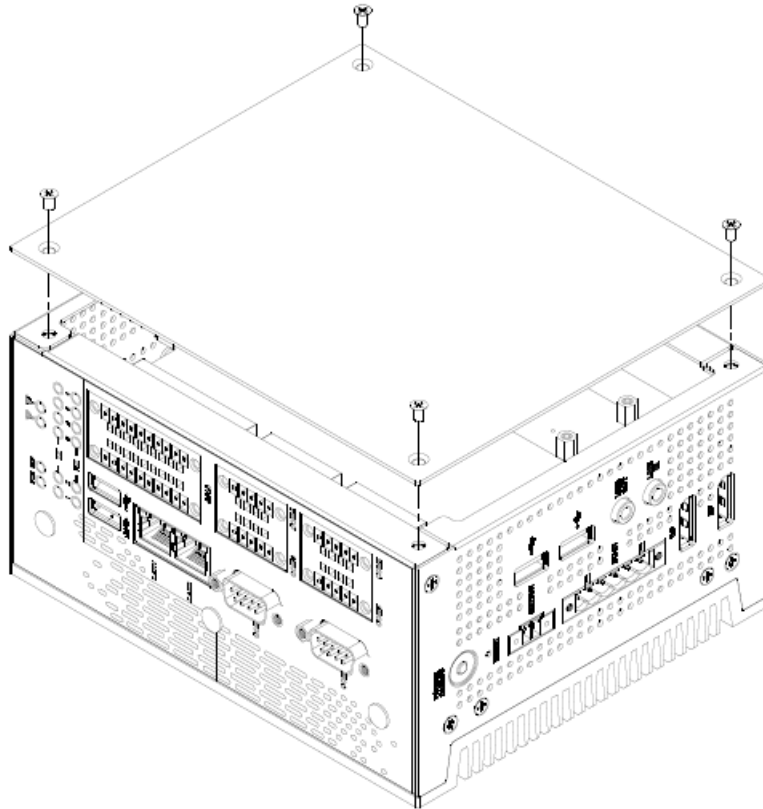


**Step 1.** Unlock 2 screws from the rear side of the system.

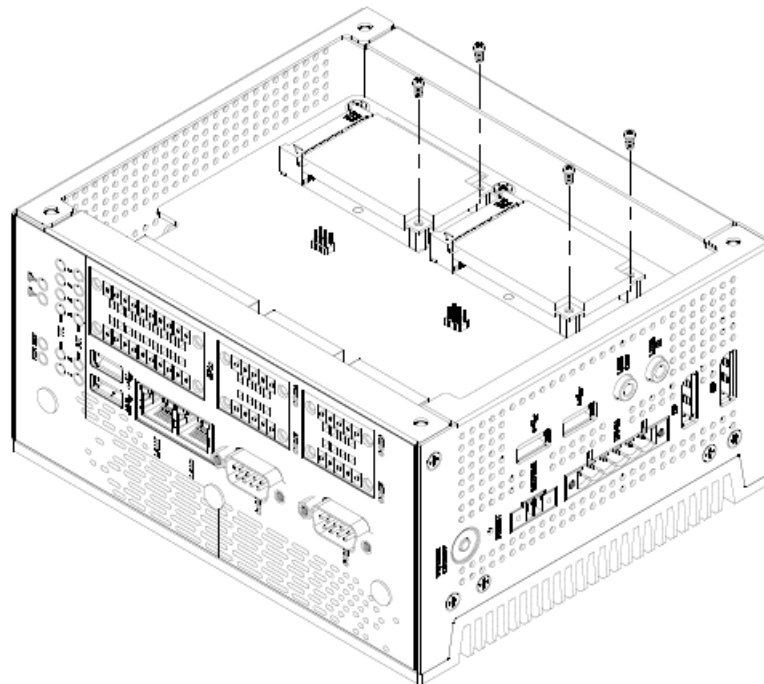


**Step 2.** Put the CF card into the socket and fasten 2 screws back.

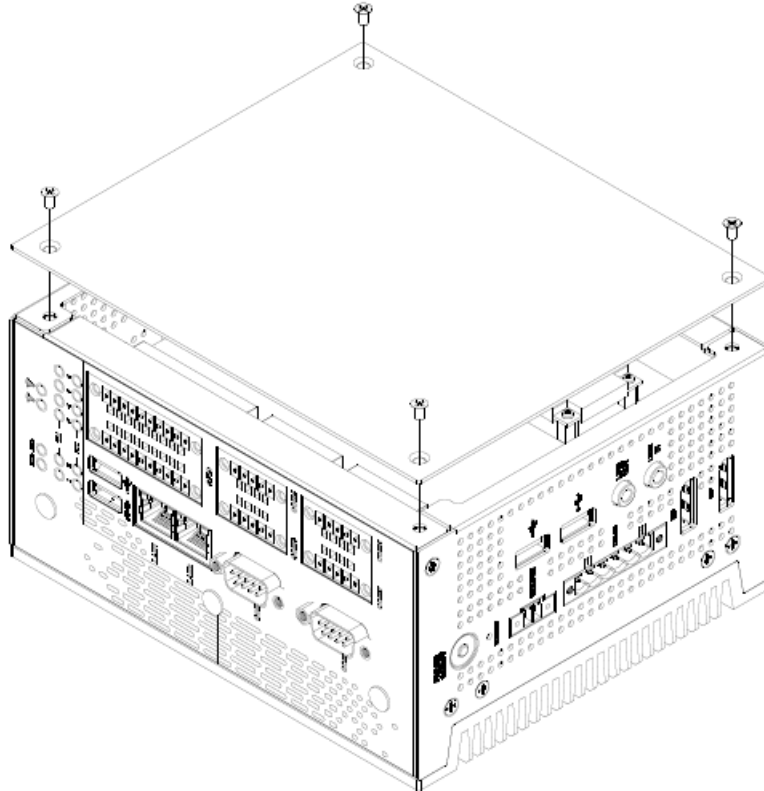
## 2.10 Installing MPCIE devices



**Step 1.** Unfasten 4 screws to remove the back cover.



**Step 2.** Insert MPCIE cards into designated locations and fasten with 4 screws to complete MPCIE installation.



**Step 3.** Place back the cover with 4 screws locked

