

# EPC-BYT

Fanless Intel® Celeron® SoC Tiny Box PC

## Quick Reference Guide

1<sup>st</sup> Ed – 27 May 2014

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## 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/>

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# 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 EPC-BYT Fanless Intel® Celeron® SoC Tiny Box PC
- 1 x DVD-ROM contains the followings:
  - QRG in PDF file
  - Ethernet driver and utilities
  - VGA drivers and utilities
  - Audio drivers and utilities
  - Chipset drivers and utilities
- Other major components include the followings:
  - Screw kit
  - Adapter
  - Power Cord
  - Stand



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

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## 1.3 System Specifications

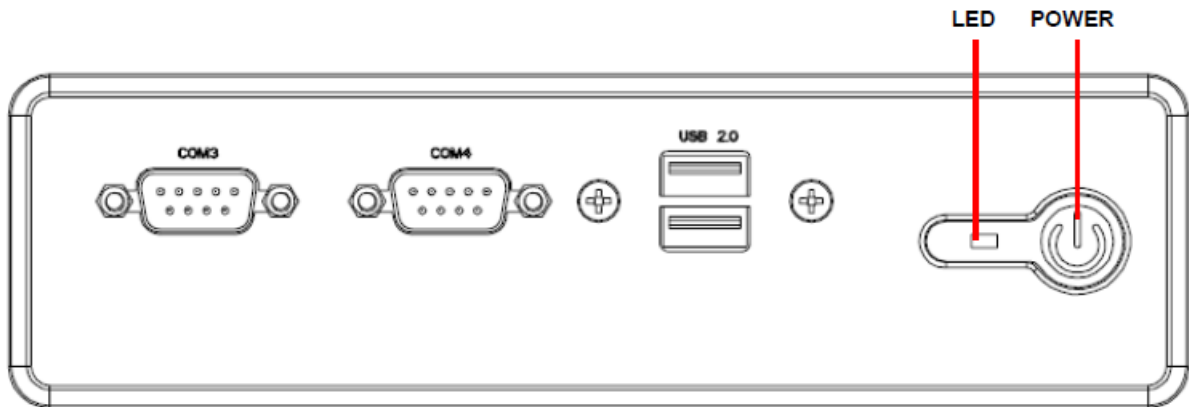
System	
Board	<ul style="list-style-type: none"> <li>ECM-BYT</li> </ul>
CPU	<ul style="list-style-type: none"> <li>Intel® Celeron® Processor J1900 Family</li> </ul>
BIOS	<ul style="list-style-type: none"> <li>AMI uEFI BIOS, 64Mbit SPI Flash ROM</li> </ul>
System Chipset	<ul style="list-style-type: none"> <li>Valleyview D SoC Integrated</li> </ul>
I/O Chipset	<ul style="list-style-type: none"> <li>EC (IT8528E)</li> </ul>
System Memory	<ul style="list-style-type: none"> <li>One 204-pin SODIMM Socket Up to 8GB DDR3L 1333 SDRAM</li> </ul>
Watchdog Timer	<ul style="list-style-type: none"> <li>H/W Reset, 1sec. ~ 65535sec./1sec.step</li> </ul>
H/W Status Monitor	<ul style="list-style-type: none"> <li>Monitoring System Temperature, Voltage with Auto Throttling Control</li> </ul>
Storage	
Solid State Drive	<ul style="list-style-type: none"> <li>1 x CF, 1 x 2.5" Drive Bay(7mm HDD Restricted), 1 x mSATA</li> </ul>
External I/O	
COM Port	<ul style="list-style-type: none"> <li>1 x RS-232/422/485, 3 x RS-232</li> </ul>
USB Port	<ul style="list-style-type: none"> <li>6 x USB (2 on front side; 4 on rear side)</li> </ul>
Video Port	<ul style="list-style-type: none"> <li>1 x VGA, 1 X HDMI</li> </ul>
Audio Port	<ul style="list-style-type: none"> <li>1 x Mic-In, 1 x Line-Out, 1 x Line-In</li> </ul>
LAN Port	<ul style="list-style-type: none"> <li>2 x RJ45</li> </ul>
Switch	<ul style="list-style-type: none"> <li>1 x Power on/off membrane w/ LED</li> </ul>
Indicator Light	<ul style="list-style-type: none"> <li>1 x Power on/off LED on the rear side</li> <li>1 x Storage LED on the rear side</li> </ul>
CF	<ul style="list-style-type: none"> <li>1 x CompactFlash Type I/II Socket w/ Cover</li> </ul>
Antenna	<ul style="list-style-type: none"> <li>1 x Knockouts for antenna mounting</li> </ul>
Expansion Slots	<ul style="list-style-type: none"> <li>1 x Mini PCIe (mSATA supported)</li> </ul>
Display	
Chipset	<ul style="list-style-type: none"> <li>Intel® Celeron® SoC Integrated Graphics</li> </ul>
Multiple Display	<ul style="list-style-type: none"> <li>Dual Display, VGA + HDMI</li> </ul>
Resolution	<ul style="list-style-type: none"> <li>VGA Mode: 2560 x 1600 @ 60Hz</li> <li>HDMI Mode: 1920 x 1200 @ 60Hz</li> </ul>
Audio	
HD Codec	<ul style="list-style-type: none"> <li>Realtek ALC892 Supports 5.1-CH Audio</li> </ul>
Audio Interface	<ul style="list-style-type: none"> <li>Mic-in, Line-in, Line-out</li> </ul>
Ethernet	
Chipset	<ul style="list-style-type: none"> <li>2 x Intel® I211AT Gigabit Ethernet Controller</li> </ul>
Ethernet Interface	<ul style="list-style-type: none"> <li>10/100/1000 Base-Tx Gigabit Ethernet Compatible</li> </ul>
Mechanical	

## EPC-BYT

<b>Power Type</b>	<ul style="list-style-type: none"> <li>+12~26Vdc (Lockable DC Jack)</li> </ul>
<b>ACPI</b>	<ul style="list-style-type: none"> <li>Single Power ATX Support S0, S3, S4, S5</li> <li>ACPI 3.0 Compliant</li> </ul>
<b>Power Mode</b>	<ul style="list-style-type: none"> <li>AT/ATX (ATX is the default setting)</li> </ul>
<b>Operating Temperature</b>	<ul style="list-style-type: none"> <li>0 ~ 50°C (32 ~ 122°F) (w/CF &amp; SSD), Ambient w/Air Flow</li> <li>0 ~ 40°C (32 ~ 104°F) (w/HDD), Ambient w/Air Flow</li> </ul>
<b>Storage Temperature</b>	<ul style="list-style-type: none"> <li>-40 ~ 75°C (-40 ~ 167°F)</li> </ul>
<b>Relative Humidity</b>	<ul style="list-style-type: none"> <li>0% ~ 90% Relative Humidity, Non-condensing</li> </ul>
<b>Vibration Protection</b>	<ul style="list-style-type: none"> <li>With CF/SSD: 1.5Grms, IEC 60068-2-64, Random, 5 ~ 500Hz, 30min/axis</li> </ul>
<b>Shock Protection</b>	<ul style="list-style-type: none"> <li>With CF/SSD: 10G, IEC 60068-2-27, Half Sine, 11ms</li> </ul>
<b>Certification</b>	<ul style="list-style-type: none"> <li>CE, FCC Class A</li> </ul>
<b>Dimension (W x H x D)</b>	<ul style="list-style-type: none"> <li>178mm x 142mm x 50mm</li> </ul>
<b>Weight</b>	<ul style="list-style-type: none"> <li>1.2kgs</li> </ul>
<b>Color</b>	<ul style="list-style-type: none"> <li>Black</li> </ul>
<b>Fanless</b>	<ul style="list-style-type: none"> <li>YES</li> </ul>
<b>Reliability</b>	
<b>IP Rating</b>	<ul style="list-style-type: none"> <li>IP 30</li> </ul>

## 1.4 System Overview

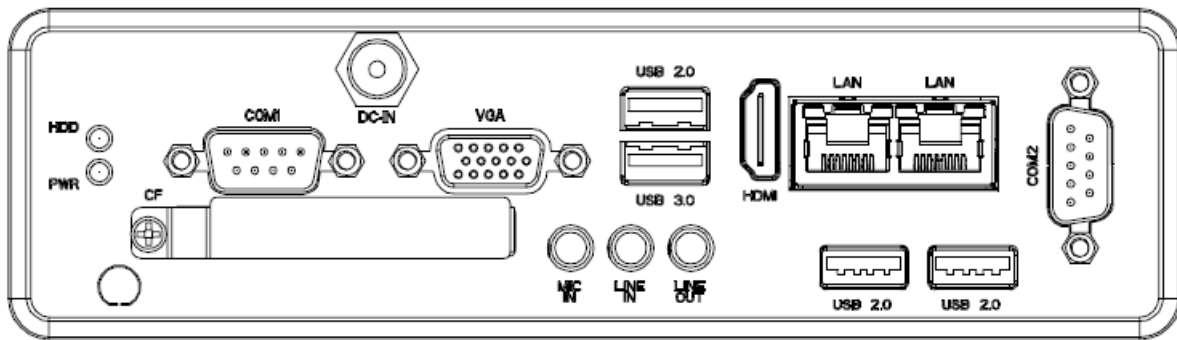
### 1.4.1 Front View



### Connectors

Label	Function	Note
POWER	Power on button	
LED	System power indicator	
USB	USB 2.0 connector	
COM3/4	Serial port 3/4 connector	

1.4.2 Rear View



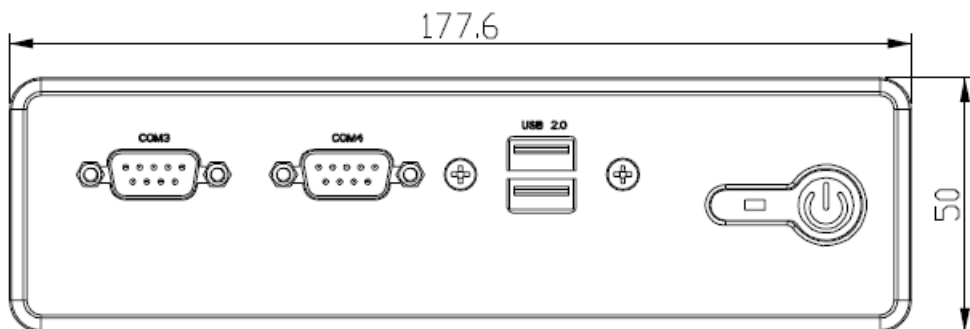
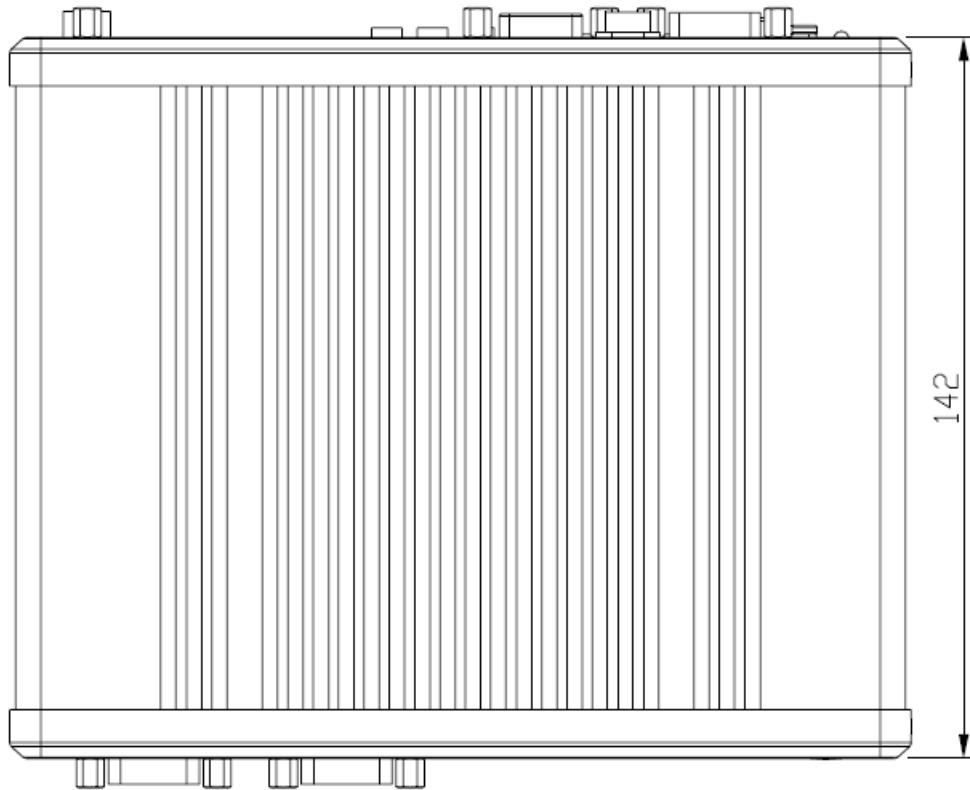
**Connectors**

Label	Function	Note
COM1	Serial port 1 connector	D-sub 9-pin, male <b>Note</b> : COM1 support RS422/485 by BIOS setting
COM2	Serial port 2 connector	DB-9 male connector
HDD	HDD indicator	
CF	CF card connector	
LAN	RJ-45 Ethernet	
PWR	System power indicator	
USB2.0	USB 2.0 connector x 3	
USB3.0	USB 3.0 connector	
VGA	VGA connector	DB-15 female connector
HDMI	HDMI connector	
DC-IN	DC Power-in connector	
MIC IN	Mic-in audio jack	
LINE IN	Line-in audio jack	
LINE OUT	Line-out audio jack	



## 1.5 System Dimensions

### 1.5.1 Front & Top View



(Unit: mm)

# 2. Hardware Configuration

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For advanced information, please refer to:

- 1- ECM-BYT Quick Installation Guide or User's Manual
- 2- AUX-032 included in this manual.

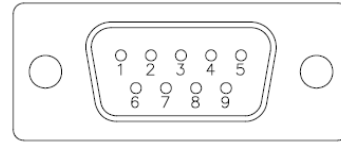
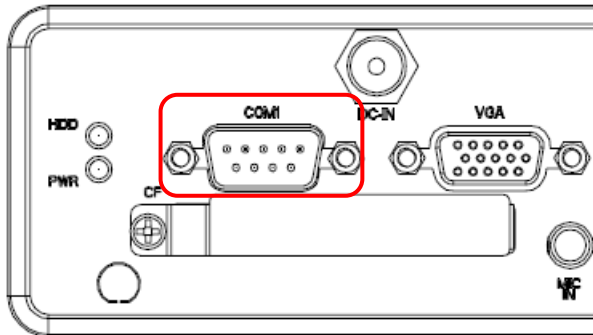


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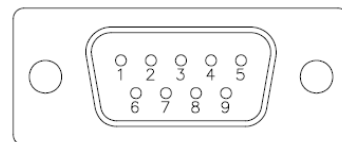
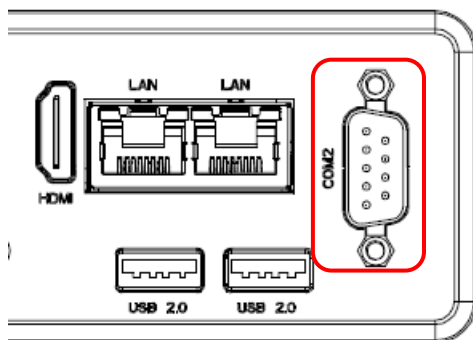
## 2.1 EPC-BYT connector mapping

### 2.1.1 External Serial Port 1 connector (COM1)



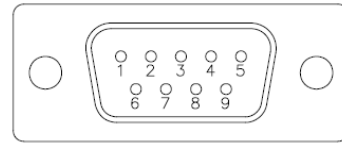
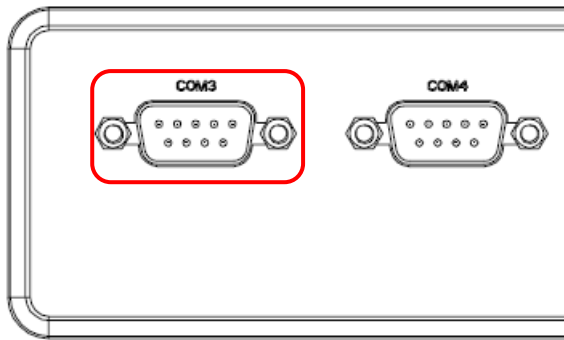
Signal	PIN	PIN	Signal
NDCDA#_485TXN	1	2	NRXDA_485TXP
NTXDA_485RXP	3	4	NDTRA#_485RXN
GND	5	6	NDSRA#
RTSA#	7	8	NCTSA#
NRIA#	9	10	NC

### 2.1.2 External Serial Port 2 connector (COM2)



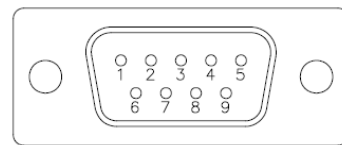
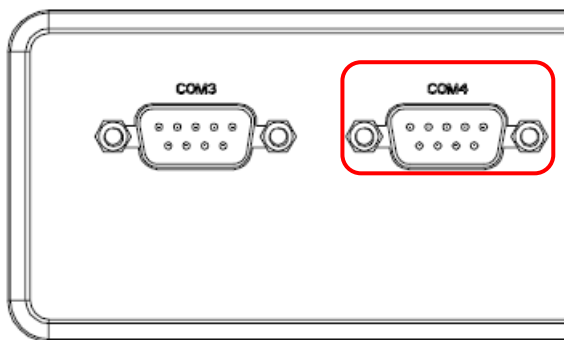
Signal	PIN	PIN	Signal
NDCDB#	1	2	NRXDB
NTXDB	3	4	NDTRB#
GND	5	6	NDSRB#
NRTSB#	7	8	NCTSB#
NRIB#	9	10	NC

2.1.3 External Serial Port 3 connector (COM3)



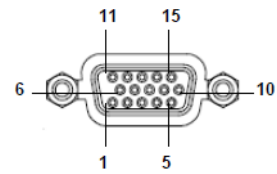
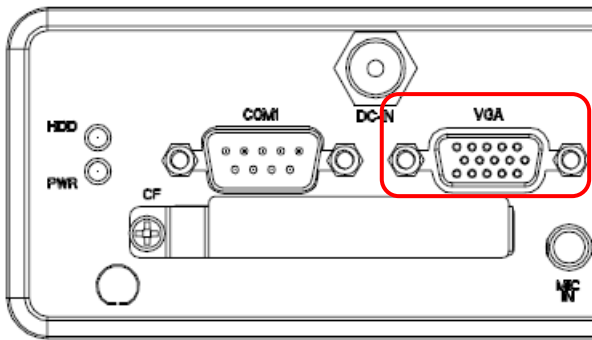
Signal	PIN	PIN	Signal
NDCDC#	1	2	NRXDC
NTXDC	3	4	NDTRC#
GND	5	6	NDSRC#
NRTSC#	7	8	NCTSC#
NRIC#	9	10	NC

2.1.4 External Serial Port 4 connector (COM4)



Signal	PIN	PIN	Signal
NDCDD#	1	2	NRXDD
NTXDD	3	4	NDTRD#
GND	5	6	NDSRD#
NRTSD#	7	8	NCTSD#
NRID#	9	10	NC

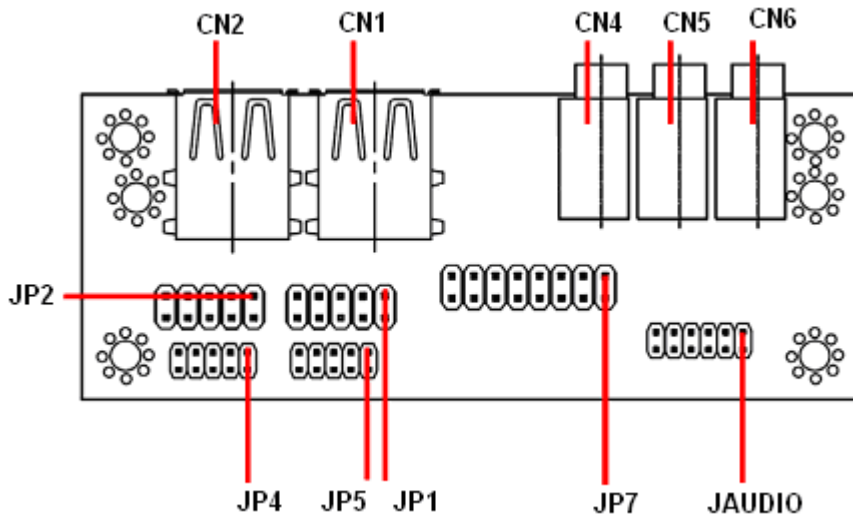
2.1.5 VGA connector (VGA)



PIN	Signal	PIN	Signal	PIN	Signal
1	R	6	GND	11	NC
2	G	7	GND	12	DATA
3	B	8	GND	13	HSYNC
4	NC	9	+5V	14	VSYNC
5	GND	10	GND	15	CLK

## 2.2 AUX-032 User's Guide

### 2.2.1 Jumper and Connector Layout



### 2.2.2 Jumper and Connector List

#### Connectors

Label	Function	Note
<b>CN1/2</b>	USB connector	
<b>CN4</b>	Line out connector	Phone Jack
<b>CN5</b>	Line in connector	Phone Jack
<b>CN6</b>	Mic in connector	Phone Jack
<b>JAUDIO</b>	Audio connector	6 x 2 header, pitch 2.0mm
<b>JP1</b>	2.54mm USB connector	5 x 2 header, pitch 2.54mm
<b>JP2</b>	2.54mm USB connector	5 x 2 header, pitch 2.54mm
<b>JP4</b>	2.0mm USB connector	5 x 2 header, pitch 2.0mm
<b>JP5</b>	2.0mm USB connector	5 x 2 header, pitch 2.0mm
<b>JP7</b>	TV / Audio connector	8 x 2 header, pitch 2.54mm

### 2.2.3 Setting Jumper and Connector

#### Audio Connector (JAUDIO)

Signal	PIN	PIN	Signal
OUTR	1	2	OUTL
GND	3	4	GND
INR1	5	6	INL1
MICIN1	7	8	AREF
FRONT-JD1	9	10	LINE1-JD1
MIC1-JD1	11	12	GND

#### 2.54mm USB Connector (JP1)

Signal	PIN	PIN	Signal
+5V	1	2	GND
D1-	3	4	GND
D1+	5	6	D2+
GND	7	8	D2-
GND	9	10	+5V



**Note:** Wrong USB cable configuration with your USB devices might damage your USB devices.

#### 2.54mm USB Connector (JP2)

Signal	PIN	PIN	Signal
+5V	1	2	GND
D3-	3	4	GND
D3+	5	6	D4+
GND	7	8	D4-
GND	9	10	+5V

#### TV / Audio Connector (JP7)

Signal	PIN	PIN	Signal
Mic In	1	2	Mic Bais
GND	3	4	GND
Line out L	5	6	Line out R
SPK L	7	8	SPK R
Line in L	9	10	Line in R
GND	11	12	NC
TVGND	13	14	NC
TVGND	15	16	COMP

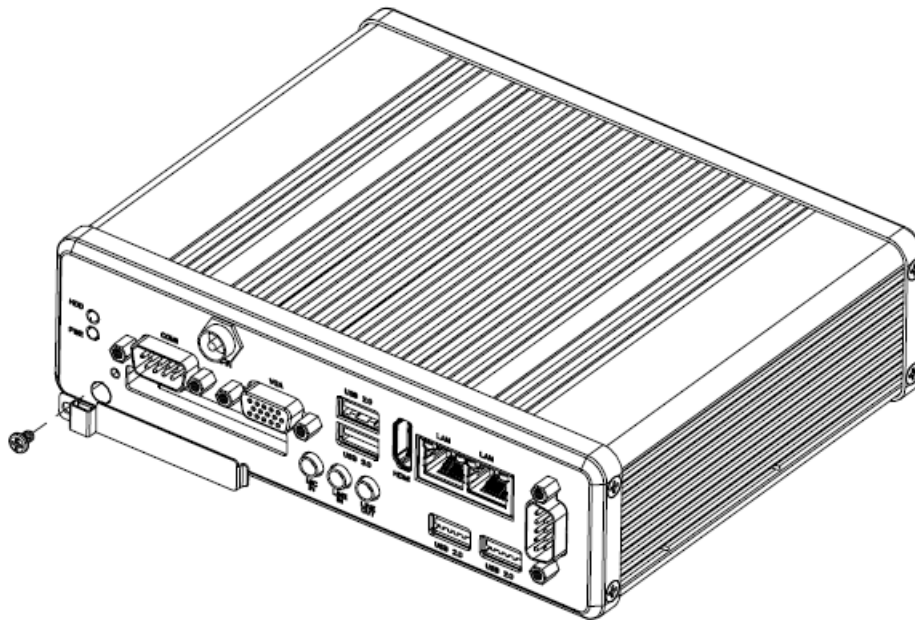
#### 2.0mm USB Connector (JP4)

Signal	PIN	PIN	Signal
+5V	1	2	GND
D3-	3	4	GND
D3+	5	6	D4+
GND	7	8	D4-
GND	9	10	+5V

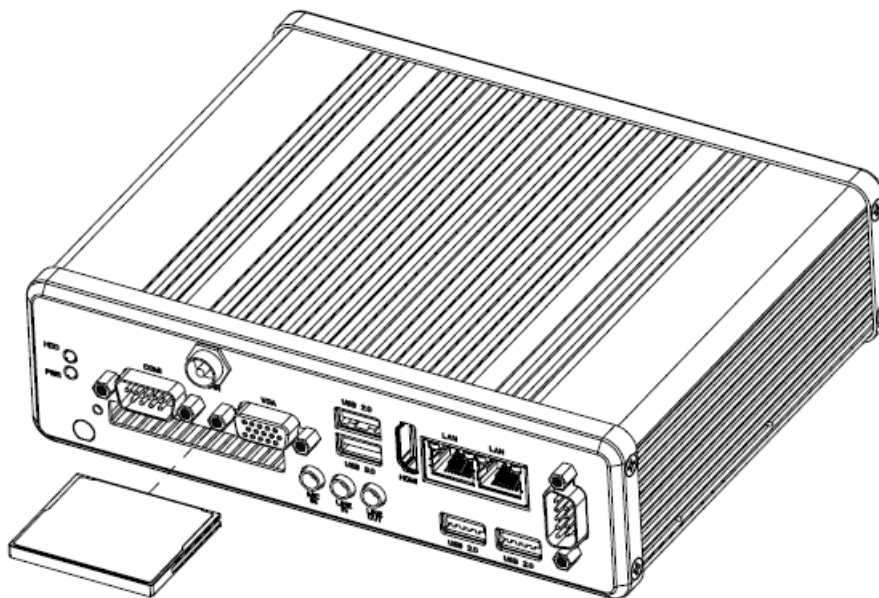
#### 2.0mm USB Connector (JP5)

Signal	PIN	PIN	Signal
+5V	1	2	GND
D1-	3	4	GND
D1+	5	6	D2+
GND	7	8	D2-
GND	9	10	+5V

## 2.3 Installing Hard Disk & Memory (EPC-BYT)

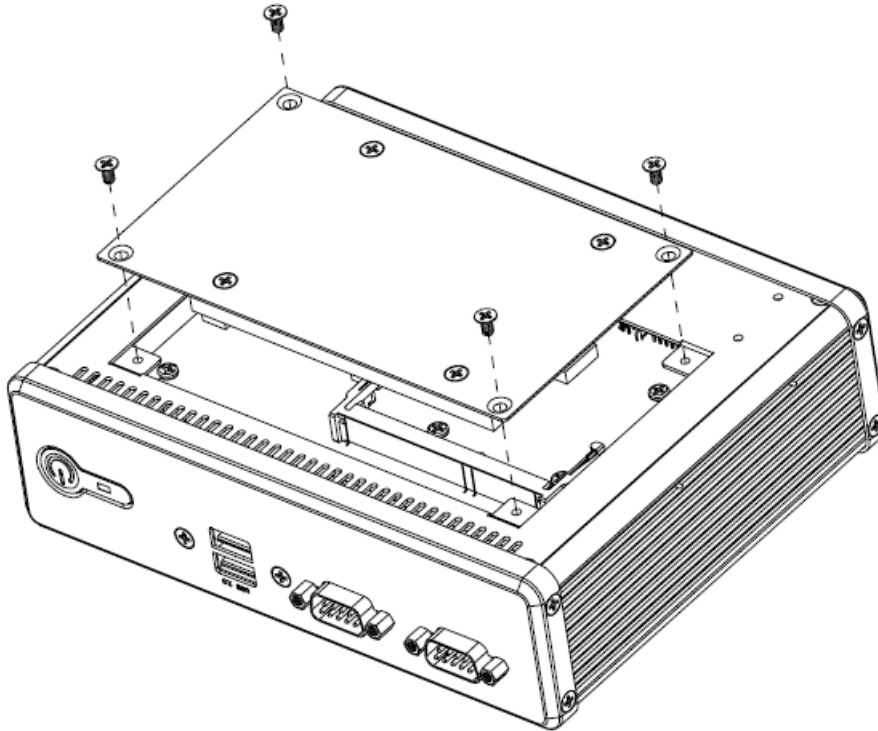


**Step1.** Remove the screw from the bottom before removing back cover.

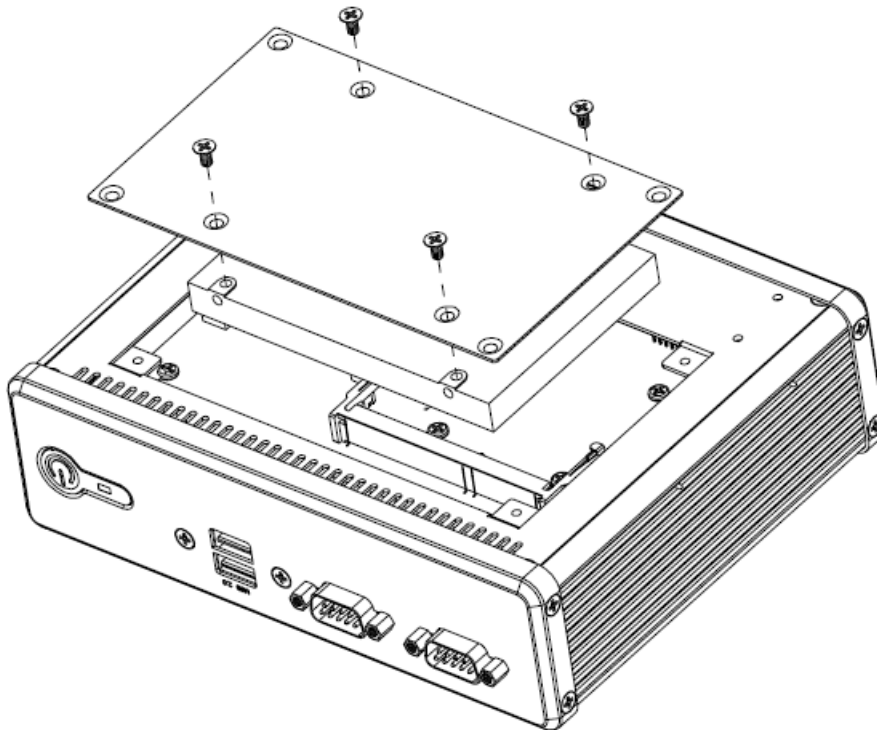


**Step2.** Insert CF card into CF slot.

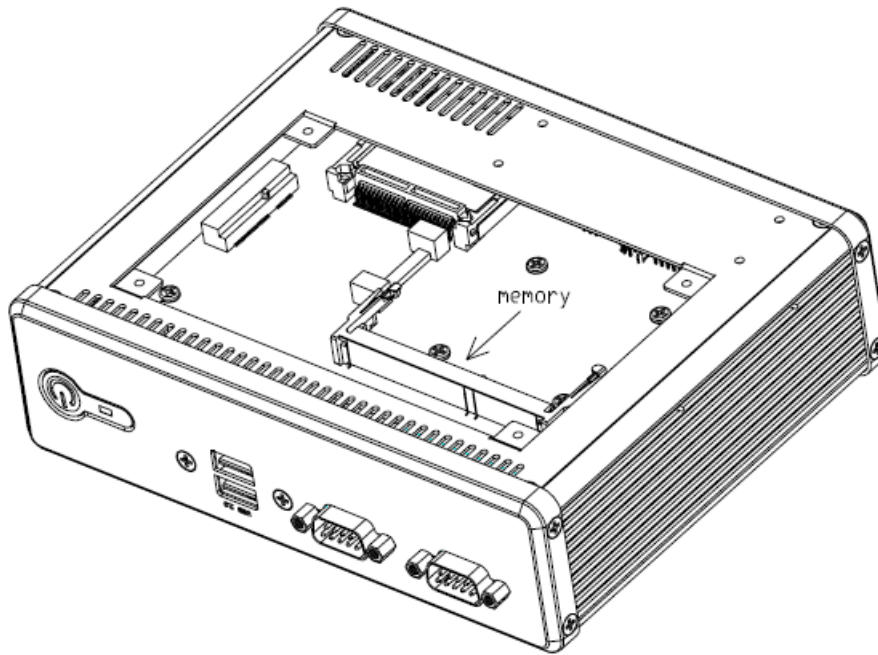




**Step3.** For HDD installation, please remove 4 screws to detach top cover, HDD enclosure from board & system assembly.



**Step4.** Fix HDD using the 4 screws in the Accessory Kit.



**Step5.1** Properly install the memory module and press until properly seated.

**Step5.2** Re-assemble your system back through previous steps to complete the installation.

