EPC-QB

Fanless Intel® Atom™ E640 Tiny Box PC
with Intel® Platform Controller Hub EG20T Chipset

Quick Reference Guide

1st Ed – 4 June 2012

Part No. E2017EPCQA0R

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 UNDESIRED 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 INSTATLLED 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/

If you still cannot find the answer, gather all the information or questions that apply to your problem, and with the product close at hand, call your dealer. Our dealers are well trained and ready to give you the support you need to get the most from your Avalue's products. In fact, most problems reported are minor and are able to be easily solved over the phone.
In addition, free technical support is available from Avalue's engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products. Please do not hesitate to call or e-mail us.

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Content

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

Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 x EPC-QB Fanless Intel® Atom™ E640 Tiny Box PC with Intel® Platform Controller Hub EG20T Chipset
- 1 x Quick Reference Guide
- 1 x DVD-ROM contains the followings:
  - User's Manual (this manual in PDF file)
  - Ethernet driver and utilities
  - VGA drivers and utilities
  - Audio drivers and utilities
- Other major components include the followings:
  - 1 x Screw kit for 2.5" HDD/SSD and Aluminum stand fixing
  - 1 x AC to DC Adapter
  - 1 x Power cord
  - 1 x Aluminum stand

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

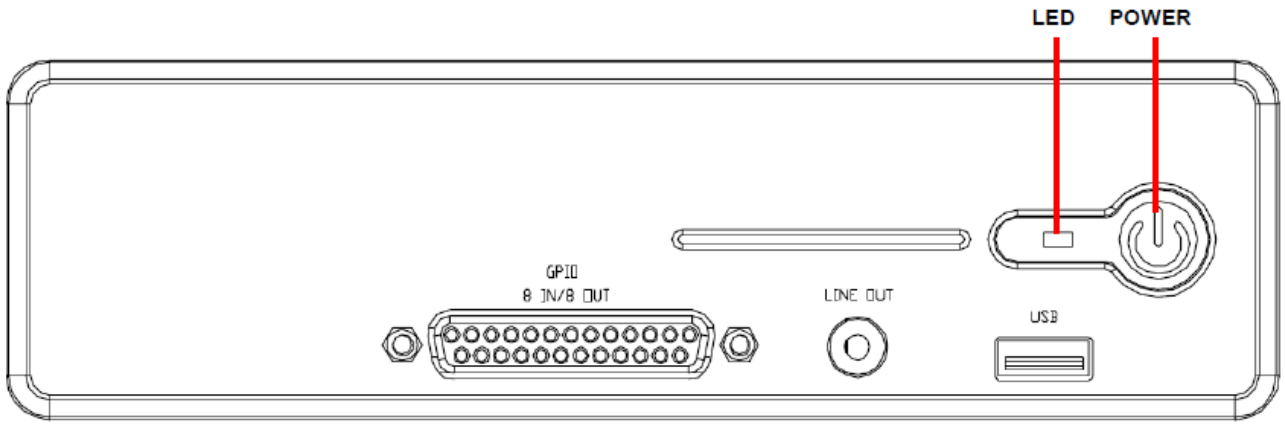
1.3 System Specifications

System	
Board	ECM-QB
CPU	Onboard Intel® Atom™ E640 1.00GHz CPU
BIOS	AMI 16Mbit Flash BIOS
System Chipset	Intel® Platform Controller Hub EG20T Chipset
I/O Chip	Nuvoton W83627DHG-P
System Memory	Onboard DDR2 1GB Memory
SSD	1 x CompactFlash Type I/II Socket, 1 x MicroSD
Hard Disk	1 x 2.5” SATA HDD/ SSD
Watchdog Timer	Reset: 1sec. ~ 65535sec./min. and 1sec. or 1min./step
H/W Status Monitor	Monitoring System Temperature, Voltage with Auto Throttling Control
Expansion Interface	1 x Mini PCIe Card
External I/O	
COM Port	2 x RS-232
Multi-Funnction Port	1 x RS-422, 1 x RS-485, 1 x CAN Bus
LAN Port	2 x RJ-45
Antenna	2 Knockouts for Antenna Mounting (Options to Add WiFi & 3G)
VGA	1 x VGA
GPIO	8-bit GPI and 8-bit GPO
Audio Port	Line-out
USB Port	3 x USB 2.0
Expansions	1 Mini-PCIe Socket
Display	
Chipset	Intel® Tunnel Creek Integrated
Resolution	CRT Mode: 1280 x 1024 @ 85Hz
Audio	
Audio Chipset	Realtek ALC892 Supports 5.1-CH Audio
Audio Interface	High Definition Audio
Environment & Mechanical	
Power Requirement	+12Vdc (Lockable DC Plug)
ACPI	Single Power ATX Support S0, S3, S4, S5 and ACPI 3.0 Compliant
Power Type	AT/ ATX
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)
Storage Temperature	-40 ~ 75°C (-40 ~ 167°F)
Relative Humidity	0% ~ 90% Relative Humidity, Non-condensing

Vibration Protection	With CF/ SSD: 1.5Grms, IEC 60068-2-64, Random, 5 ~ 500Hz, 30min/axis
Shock Protection	With CF/ SSD: 10G, IEC 60068-2-27, Half Sine,11ms
Dimension (W x D x H)	7” x 5.6” x 2.0” (178mm x 142mm x 50mm)
Weight	2.7lbs (1.2Kgs)
Mounting	VESA Compliance

1.4 System Overview

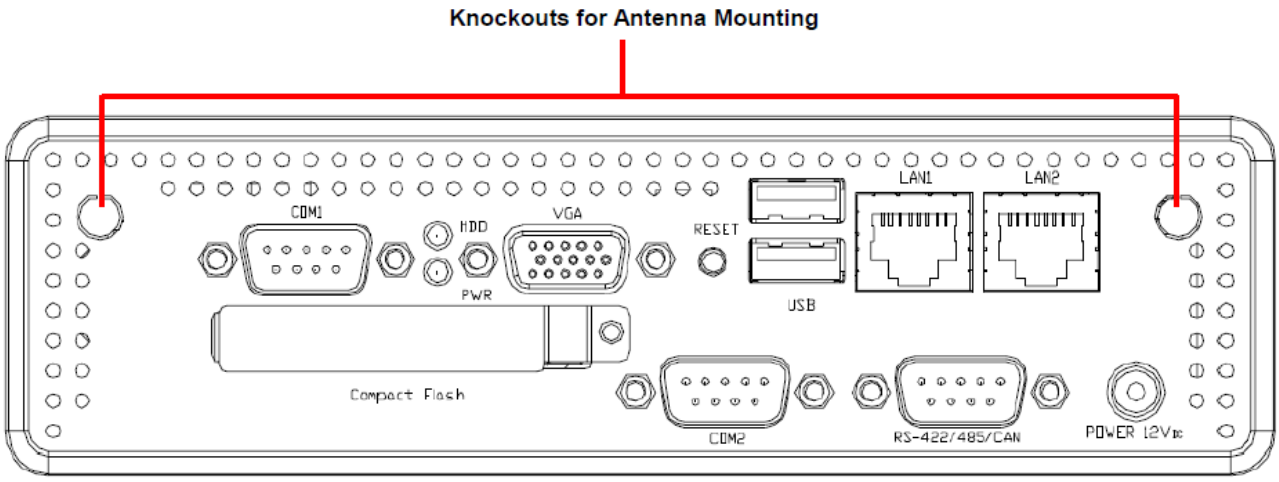
1.4.1 Front View



Connectors

Label	Function	Note
POWER	Power on button	
LED	System power indicator	
USB	USB 2.0 connector	
LINE OUT	Line-out audio jack	
GPIO 8 IN/8 OUT	General purpose I/O connector	

1.4.2 Rear View

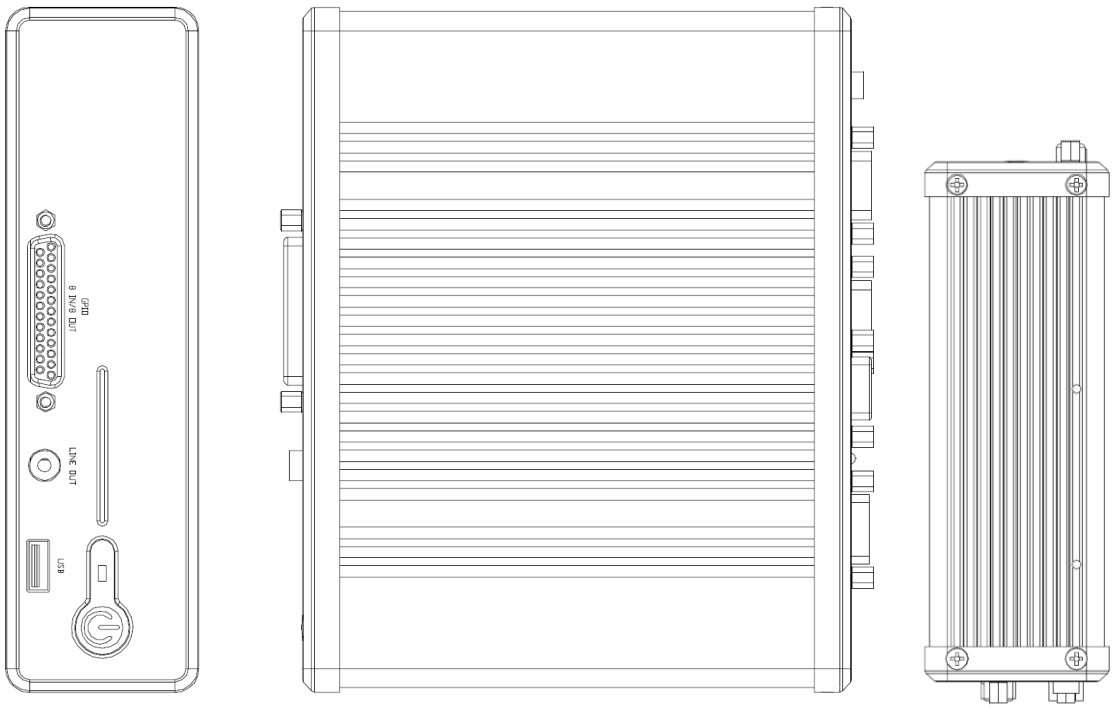


Connectors

Label	Function	Note
COM1	Serial port 1 connector	DB-9 male connector
COM2	Serial port 2 connector	DB-9 male connector
HDD	HDD indicator	
Compact Flash	CF card connector	
POWER 12V DC	POWER connector	
LAN1&2	2 x 10/100Base-Tx Ethernet connector	RJ-45
RS-422/485/CAN	Serial port 5 in RS-485 mode/ Serial port 4 in RS-422 mode / CAN connector	
PWR	System power indicator	
RESET	Reset button	
USB	USB 2.0 connector	
VGA	CRT connector	DB-15 female connector

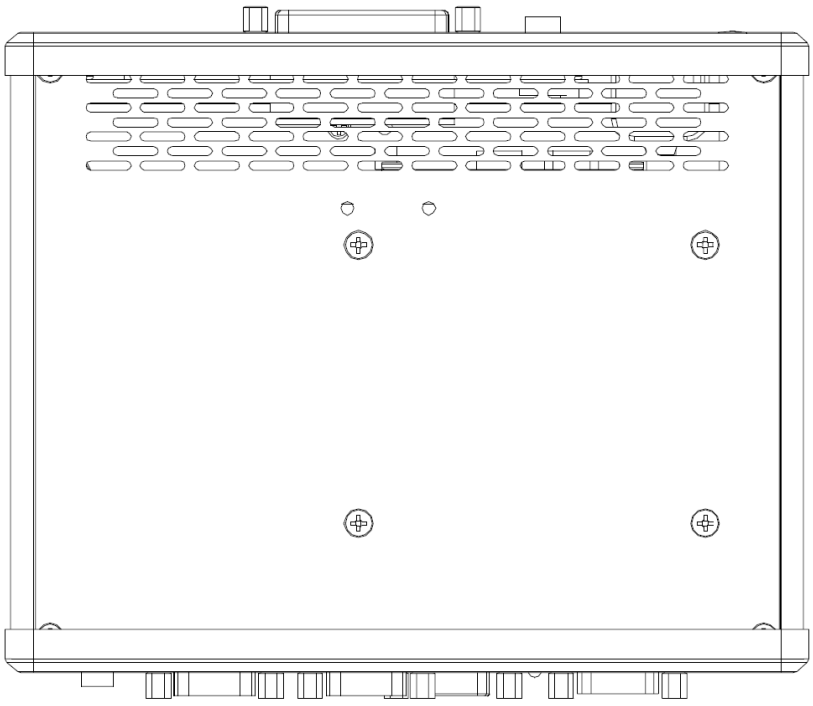
1.5 System Dimensions

1.5.1 Top /Front& Side view



(Unit: mm)

1.5.2 Bottom view



(Unit: mm)

2. Hardware Configuration

Jumper and Connector Setting, Driver and BIOS Installing

Please refer to ECM-QB Quick Installation Guide or User's Manual for advanced information.

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

http://www.avalue.com.tw

2.1 EPC-QB connector list

Connectors

Label	Function	Note
POWER	Power on button	
LED	System power indicator	
USB	USB 2.0 connector	
LINE OUT	Line-out audio jack	
GPIO 8 IN/8 OUT	General purpose I/O connector	
COM1	Serial port 1 connector	DB-9 male connector
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HDD	HDD indicator	
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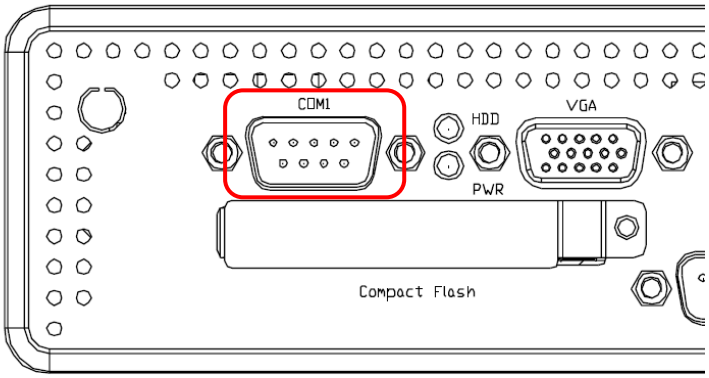
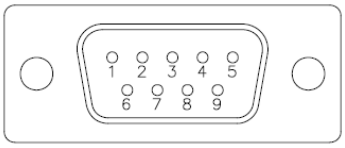
PWR	System power indicator	
RESET	Reset button	
USB	USB 2.0 connector	
VGA	CRT connector	DB-15 female connector

2.2 EPC-QB connector mapping

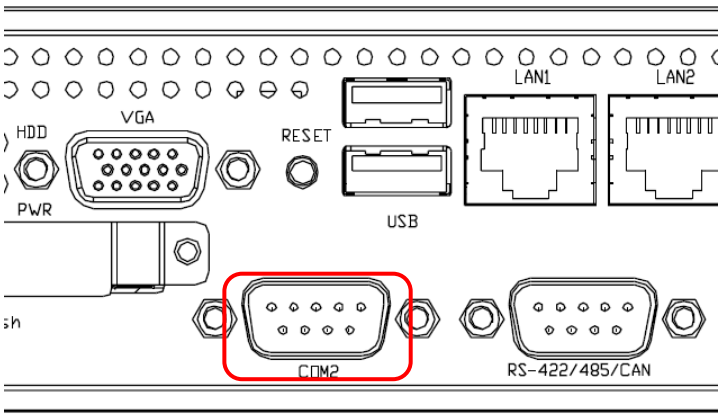
2.2.1 Serial port 1 connector (COM1)

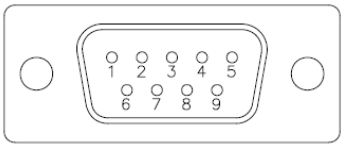




Signal	PIN	PIN	Signal
DCD#1	1	2	RxD1
TxD1	3	4	DTR#1
GND	5	6	DSR#1
RTS#1	7	8	CTS#1
RI#1	9	10	NC

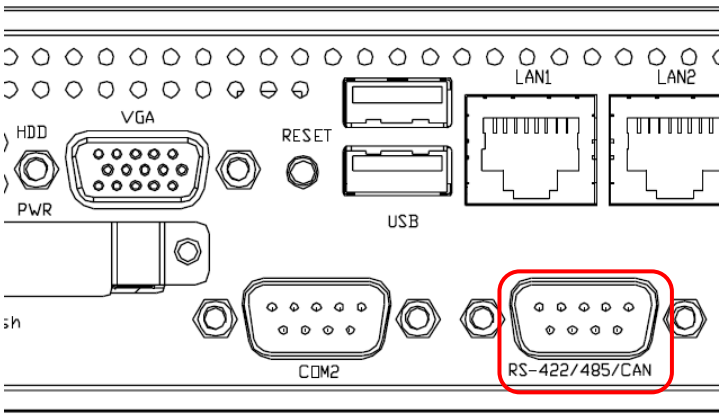
2.2.2 Serial port 2 connector (COM2)

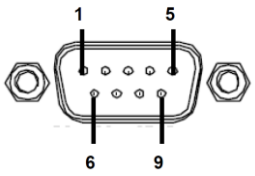




Signal	PIN	PIN	Signal
DCD#2	1	2	RxD2
TxD2	3	4	DTR#2
GND	5	6	DSR#2
RTS#2	7	8	CTS#2
RI#2	9	10	NC

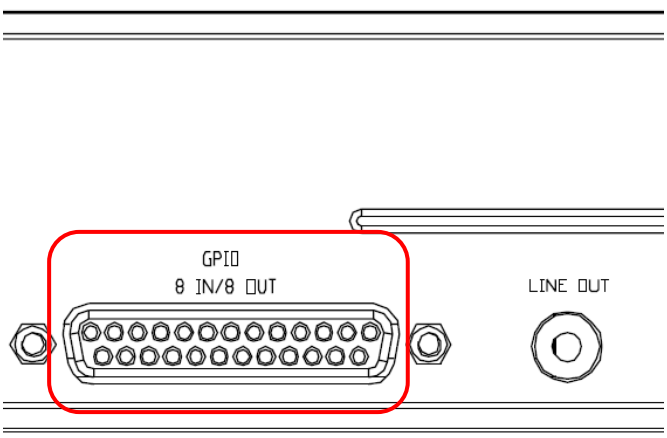
2.2.3 Serial port 5 in RS-485 mode/ Serial port 4 in RS-422 mode / CAN connector (RS-422/485/CAN)

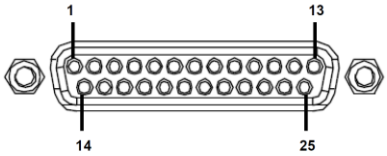




Signal	PIN	PIN	Signal
GND	1	2	485 Data+
485 Data-	3	4	422 RxD+
422 RxD+	5	6	CAN bus+
CAN bus-	7	8	422 TxD+
422 TxD-	9		

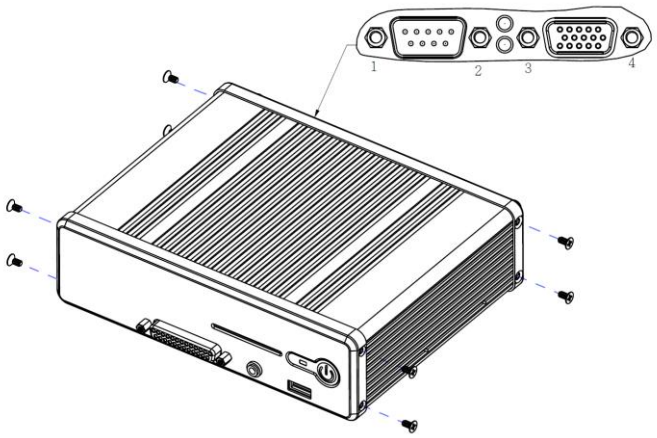
2.2.4 General purpose I/O connector (GPIO 8 IN/8 OUT)



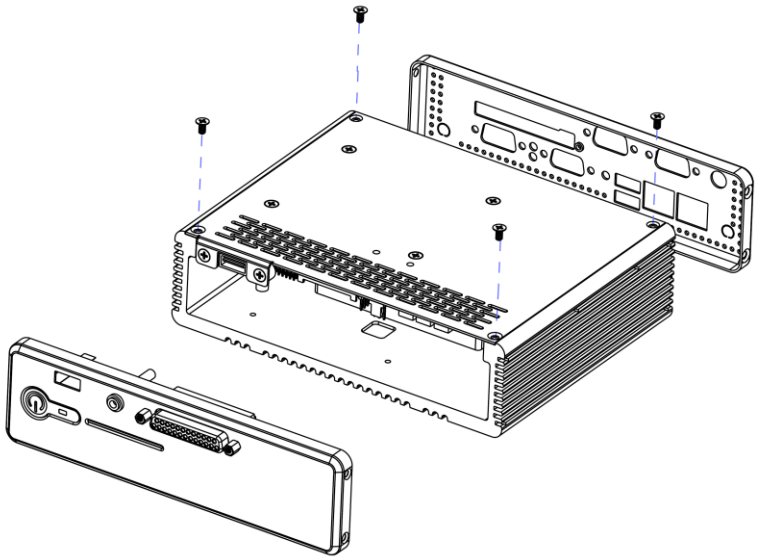


Signal	PIN	PIN	Signal
DI0	1	2	DI1
DI2	3	4	DI3
DI4	5	6	DI5
DI6	7	8	DI7
SMB_CLK	9	10	GND
NC	11	12	NC
NC	13	14	DO10
DO11	15	16	DO12
DO13	17	18	DO14
DO15	19	20	DO16
DO17	21	22	SMB_DATA
NC	23	24	NC
NC	25		

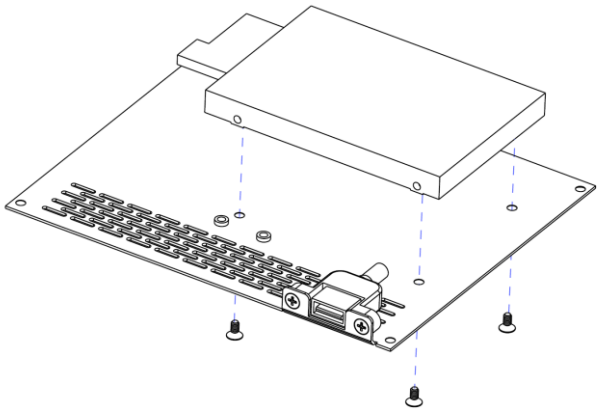
2.3 Installing Hard Disk & Memory



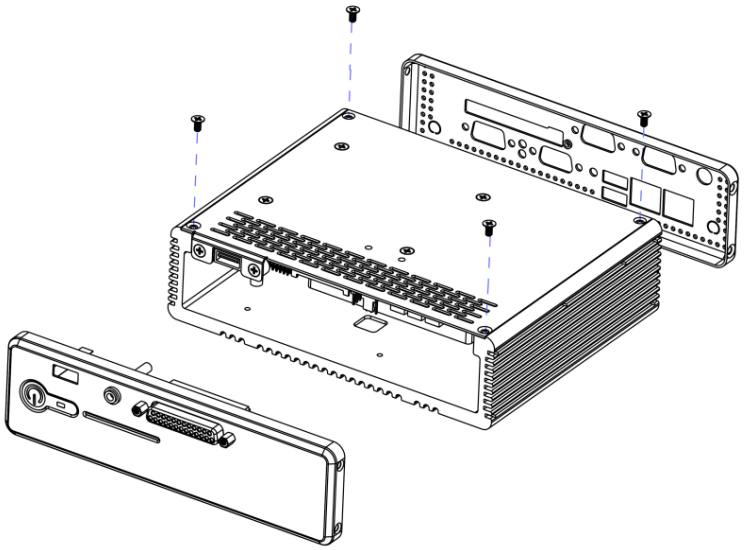
Step 1. Remove 8 screws from two sides, 4 screws from COM and VGA as displayed above, before you can remove the chassis cover.



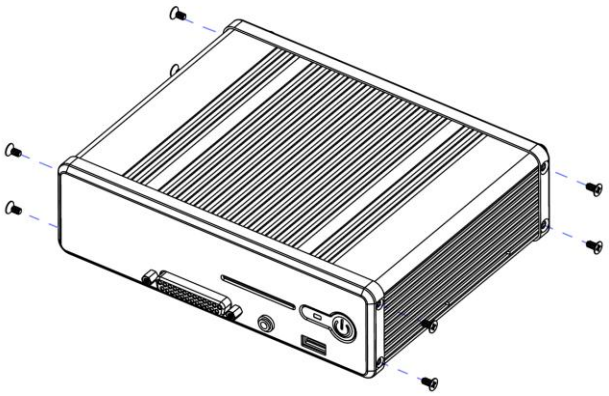
Step 2. Detach front & rear chassis, then remove 4 screws from the bottom side



Step 3. Install HDD by means of 3 screws as shown above.



Step 4. Re-place the bottom cover, fasten with 4 screws to lock, then re-assemble the front/rear chassis



Step 5. Return & fasten 8 screws back to complete installation.