

BMX-T521-BSW

Fanless Intel® Celeron® Processor N3160 Mini ITX Box PC

Quick Reference Guide

1st Ed –16 June 2016

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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.

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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 BMX-T521-BSW Fanless Intel® Celeron® Processor N3160 Mini ITX Box PC
- Other major components include the followings:
 - Adapter
 - Power Cord



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

1.3 System Specifications

System	
Mother Board	<ul style="list-style-type: none"> EMX-BSWP
CPU	<ul style="list-style-type: none"> Onboard Intel® Celeron® Processor N3160 (2M Cache, up to 2.24 GHz)
CPU Cooler (Type)	<ul style="list-style-type: none"> Fanless
Memory	<ul style="list-style-type: none"> 2 x 204-pin DDR3L 1600 MHz SO-DIMM socket, supports up to 8GB Max (Default: 1 x 2GB DDR3L)
Adapter	<ul style="list-style-type: none"> 60W Adapter (DC in 12V@5A)
Microphone	<ul style="list-style-type: none"> 1 x Mic-in
Bluetooth	<ul style="list-style-type: none"> By Mini PCI-e module (optional)
Operating System	<ul style="list-style-type: none"> Windows/ Linux
SIM card slot	<ul style="list-style-type: none"> 1 x SIM card slot
Storage	
Hard Disk Drive	<ul style="list-style-type: none"> 2 x 2.5" HDD/SSD Bays
External I/O	
Serial Port	<ul style="list-style-type: none"> 6 x RS-232
USB Port	<ul style="list-style-type: none"> 4 x USB3.0, 4 x USB2.0
DIO Port	<ul style="list-style-type: none"> 8-bit GPIO (by external cable optional)
Video Port	<ul style="list-style-type: none"> 1 x HDMI, 1 x VGA
Audio Port	<ul style="list-style-type: none"> 1 x Line-out, 1 x Mic-in
LAN Port	<ul style="list-style-type: none"> 2 x Intel I211AT Gigabit Ethernet
Wireless LAN Antenna	<ul style="list-style-type: none"> 2 x SMA Connector (Optional)
Switch	<ul style="list-style-type: none"> 1 x Power on/off membrane with Power LED
Indicator Light	<ul style="list-style-type: none"> 1 x HDD/SSD LED, 2 x LAN Activity Indicator LED
Expansion Slots	<ul style="list-style-type: none"> 1 x full size Mini PCI-e socket supports mSATA only (SATA II and mSATA Switchable Through jumper) 1 x full size Mini PCI-e supports WiFi & 3G/4G module 1 x SD card slot supports SD/ SDHC Card
Mechanical	
Power Type	<ul style="list-style-type: none"> AT / ATX mode Switchable Through Jumper (Default: ATX mode)
Power Connector Type	<ul style="list-style-type: none"> Lockable DC Jack
Dimension	<ul style="list-style-type: none"> 180 x 182 x 76 (L x W x H)
Weight	<ul style="list-style-type: none"> 2.3 kg
Color	<ul style="list-style-type: none"> Black
Fanless	<ul style="list-style-type: none"> Yes

BMX-T521-BSW

Reliability	
EMI Test	<ul style="list-style-type: none"> • CE/FCC Class B design compatible
Safety	<ul style="list-style-type: none"> • UL/CB design compatible
Vibration Test	<ul style="list-style-type: none"> • <u>Sine Vibration test (Non-operation)</u> • Reference IEC60068-2-6 Testing procedures • Test Fc : Vibration sinusoidal <ol style="list-style-type: none"> 1 Test Acceleration : 2G 2 Test frequency : 5 ~ 500 Hz 3 Sweep : 1 Oct/ per one minute. (logarithmic) 4 Test Axis : X,Y and Z axis 5 Test time :30 min. each axis 6 System condition : Non-Operating mode • <u>Package Vibration Test</u> • Reference IEC60068-2-64 Testing procedures • Test Fh : Vibration boardband random Test <ol style="list-style-type: none"> 1. PSD: 0.026G²/Hz , 2.16 Grms 2. Non-operation mode 3. Test Frequency : 5-500Hz 4. Test Axis : X,Y and Z axis 5. 30 min. per each axis • <u>Random Vibration Operation</u> • Reference IEC60068-2-64 Testing procedures • Test Fh : Vibration boardband random Test <ol style="list-style-type: none"> 1. PSD: 0.00454G²/Hz, 1.5 Grms 2. Operation mode 3. Test Frequency : 5-500Hz 4. Test Axis : X,Y and Z axis 5. 30 minutes per each axis 6. IEC 60068-2-64 Test: Fh 7. Storage : SSD or mSATA
Mechanical Shock Test	<ul style="list-style-type: none"> • <u>Bump Test</u> • Reference IEC 60068-2-29 Testing procedures • Test Eb : Bump Test <ol style="list-style-type: none"> 1. Wave form : Half Sine wave 2. Acceleration Rate : 10g for operation mode 3. Duration Time : 11ms 4. No. of Shock : Z axis 300 times 5. Test Axis: Z axis

	6. Operation mode
Drop Test	<ul style="list-style-type: none"> • <u>Packing Drop</u> • Reference ISTA 2A, Method : IEC-60068-2-32 Test:Ed Test Ea : Drop Test <ol style="list-style-type: none"> 1. One corner , three edges, six faces 2. ISTA 2A, IEC-60068-2-32 Test:Ed
Operating Temperature	<ul style="list-style-type: none"> • 0°C ~ 35°C (32°F ~ 95°F) (w/HDD), ambient w/ air flow. • 0°C ~ 40°C (32°F ~ 104°F) (w/HDD), ambient w/ air flow for single HDD only. • 0°C ~ 45°C (32°F ~ 113°F) (w/SSD, mSATA), ambient w/ air flow
Operating Humidity	<ul style="list-style-type: none"> • 0% ~ 90% Relative Humidity, Non-condensing
Storage Temperature	<ul style="list-style-type: none"> • -20°C ~ 75°C (-4°F ~ 167°F)

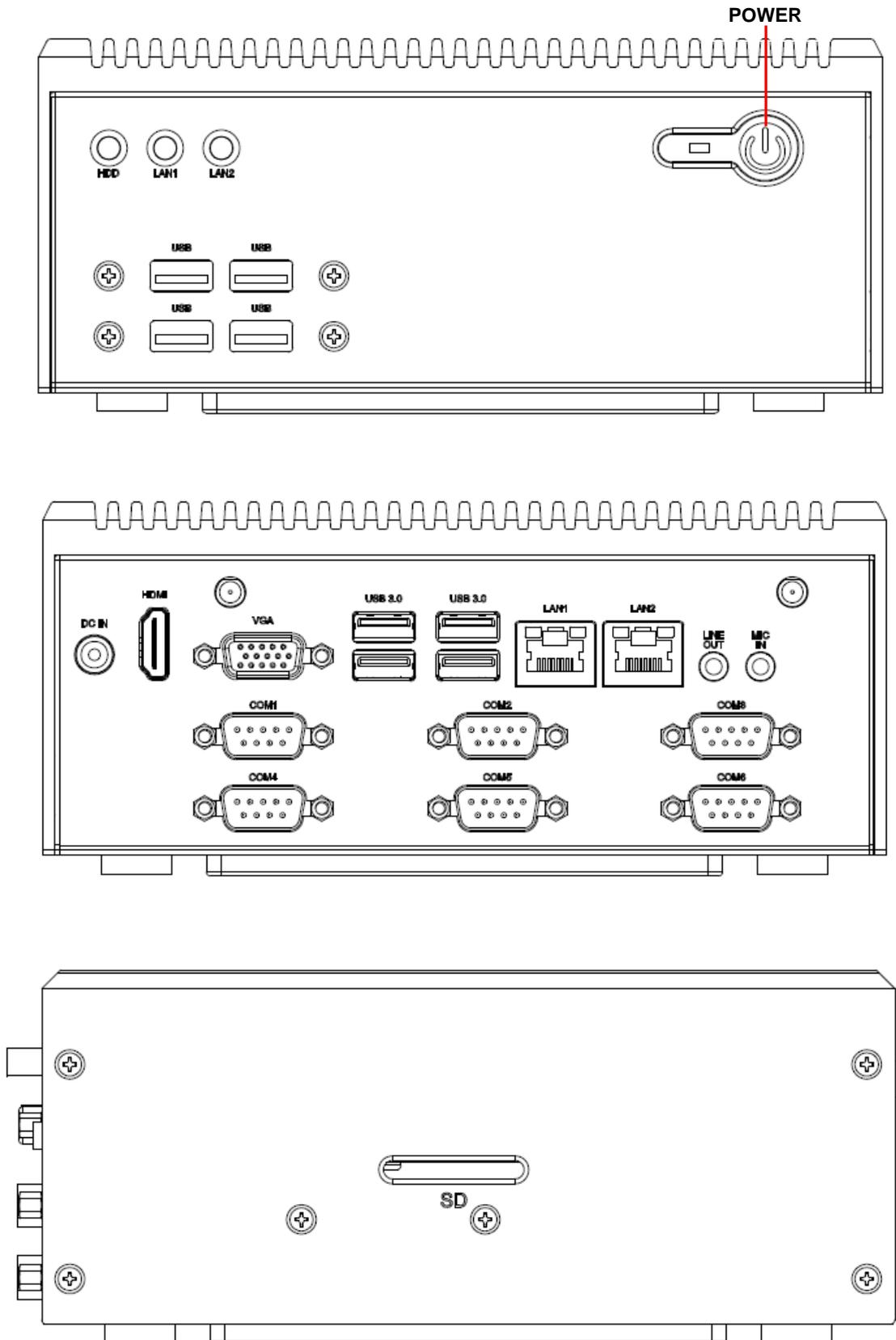


Note:

1. If user want to install Win 8.1 Pro OS on eMMC of EMX-BSWP motherboard, User must do:
 - A. BIOS setup menu must select eMMC mode with “PCI mode”(because selection with “ACPI mode” during OS install, OS cannot find eMMC to install).
 - B. Windows OS must use Microsoft Win 8.1 Pro with update version of OS image to install.
2. Brightness control method choose ”OS driver”, due to Win7 VGA Driver will cause brightness at 100%, Backlight adjustment only support to maximum voltage to **2.5V**. Therefore, should change item value string as Image 1, when choose Brightness control method ”OS driver”, please use OS Win8/10.
3. Win7 does not support SD card.
4. When OS is Win7/DOS(default), please choose “Legacy System/Win7” at BIOS setup item. When OS is Win8/10, please choose “Win8/Win10” at BIOS setup item (Please refer page.65 BOM Config settings.)
5. Specifications are subject to change without notice.

1.4 System Overview

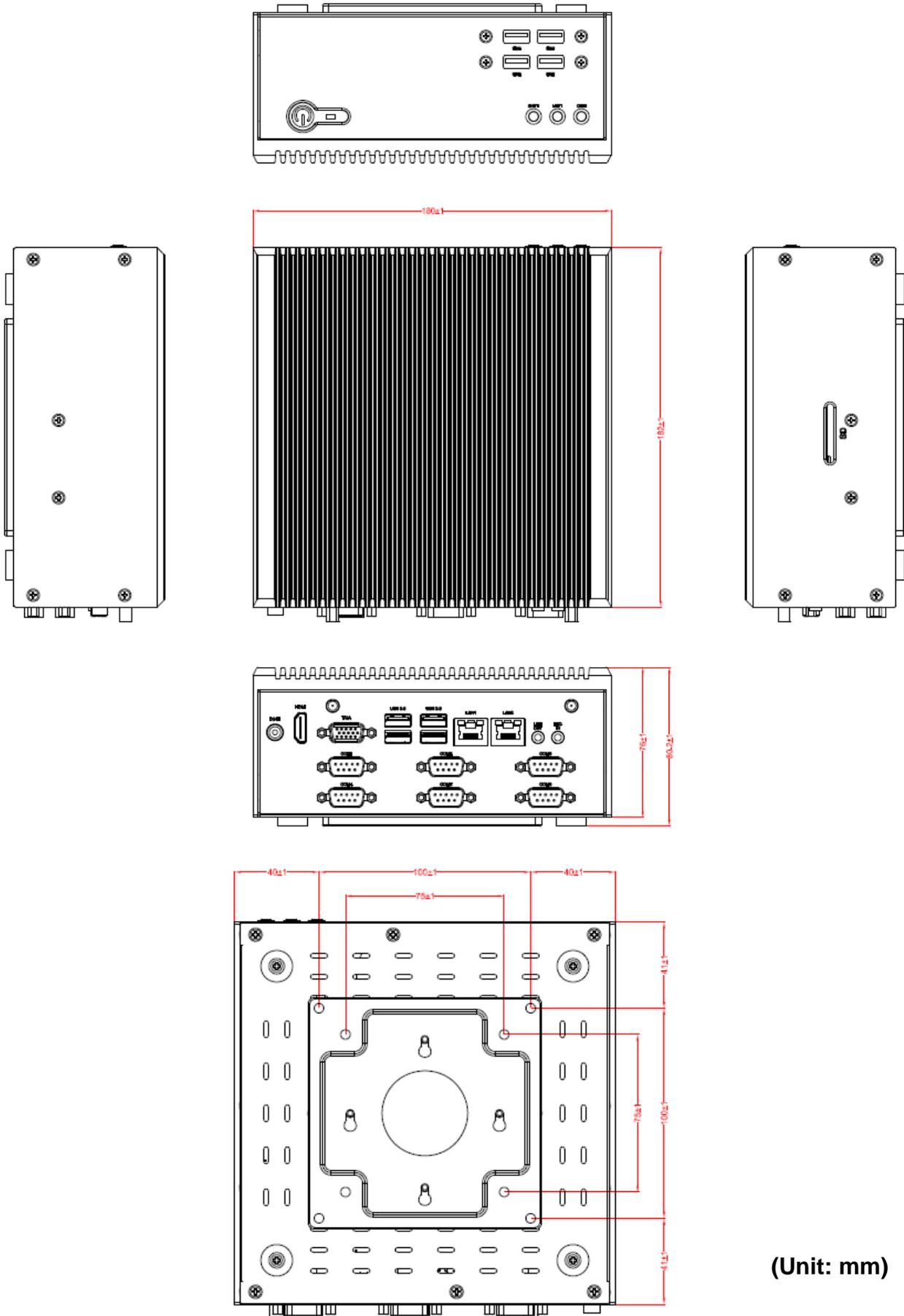
1.4.1 Front/Rear/Side View



Connectors

Label	Function	Note
POWER	Power on button	
HDD	HDD Indicator	
LAN1/2	RJ-45 Ethernet 1/2	
USB	4 x USB2.0 connector 4 x USB3.0 connector	
COM1~6	Serial port 1~6 connector	
DC IN	DC power-in connector	
HDMI	HDMI connector	
LINE OUT	Line-out audio jack	
MIC IN	Mic-in audio jack	
VGA	VGA connector	
SD	SD card slot	

1.5 System Dimensions



(Unit: mm)

2. Hardware Configuration

For advanced information, please refer to:

- 1- EMX-BSWP User's Manual

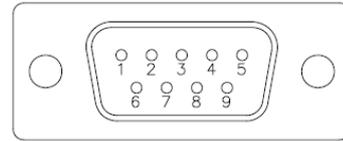
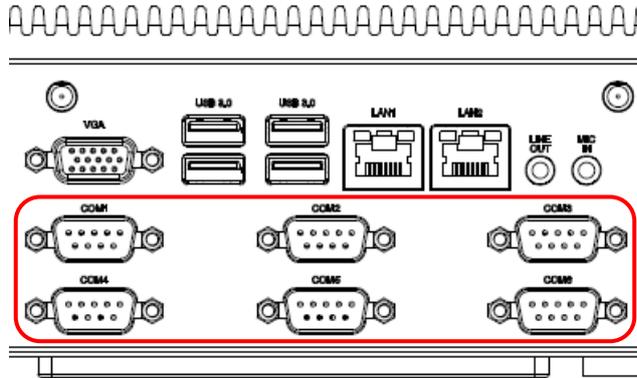


Note: If you need more information, please visit our website:

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

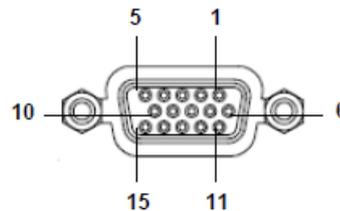
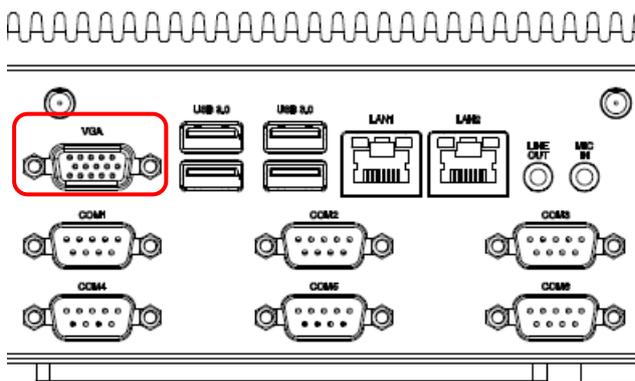
2.1 BMX-T521-BSW connector mapping

2.1.1 Serial port 1~6 connector (COM1~6)



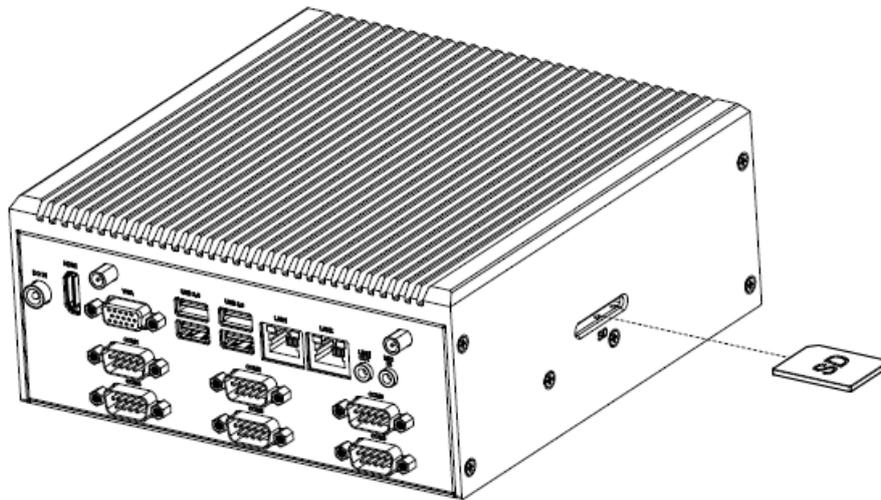
Signal	PIN	PIN	Signal
DCD	1	6	DSR
RXD	2	7	RTS
TXD	3	8	CTS
DTR	4	9	RI
GND	5		

2.1.2 VGA connector (VGA)



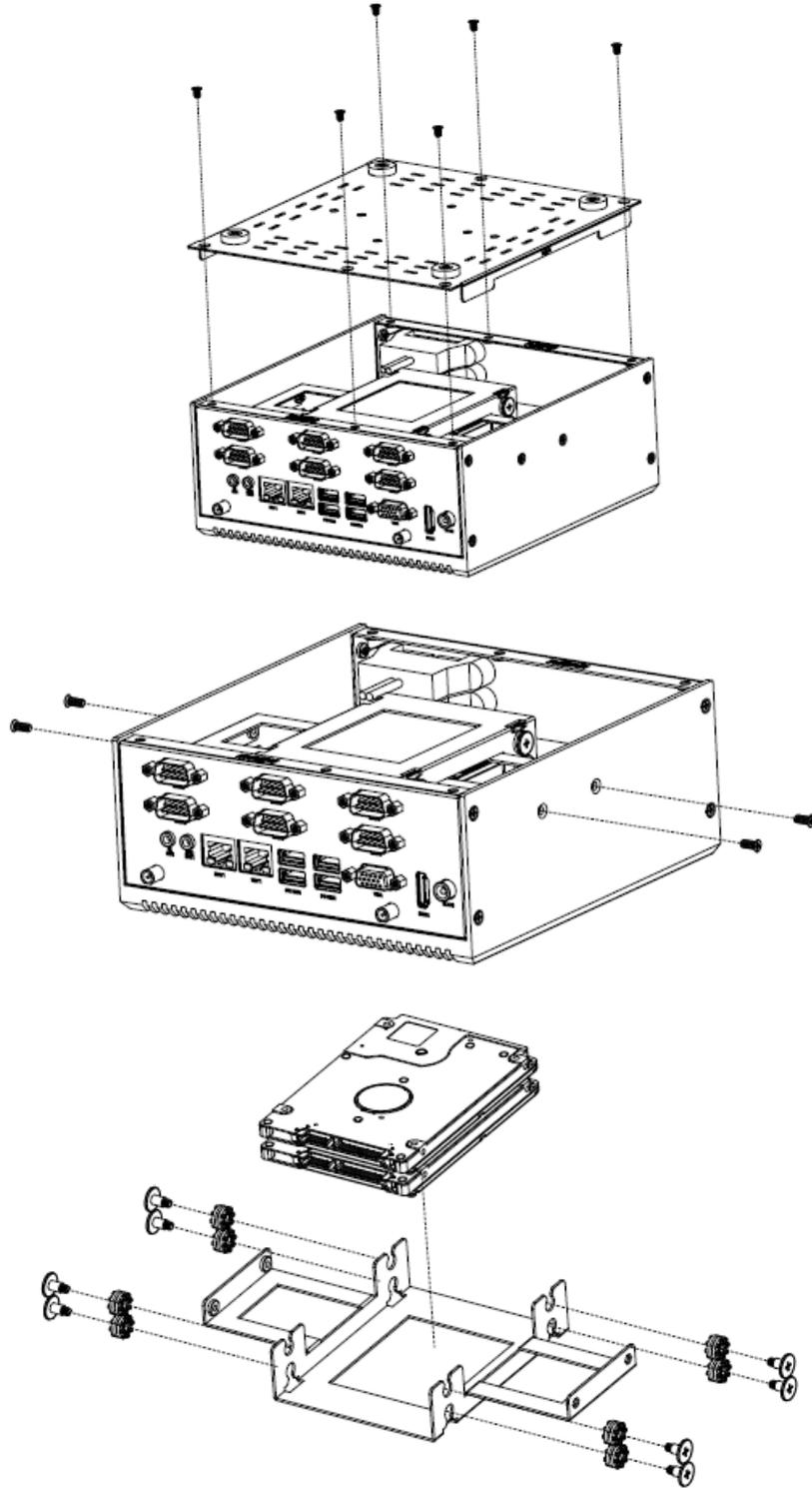
PIN	Signal	PIN	Signal	PIN	Signal
1	RED	6	GND	11	NC
2	GREEN	7	GND	12	DDCDAT
3	BLUE	8	GND	13	HSYNC
4	NC	9	+5V	14	VSYS
5	GND	10	GND	15	DDCLK

2.2 Installing SD card (BMX-T521-BSW)



Step 1. Insert SD card into SD slot.

2.3 Installing Hard Disk (BMX-T521-BSW)



Step1. Remove 10 screws from rear and each side before removing back cover.

Step2. Secure HDD by means of 8screws.

Step3. Re-assemble your system back through previous steps to complete the installation.

