

ERS-BYT

Intel® Celeron® SoC Processor J1900 Fanless Rugged
Embedded System

Quick Reference Guide

2nd Ed – 22 September 2016

Copyright Notice

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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:

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Content

1. Getting Started	4
1.1 Safety Precautions	4
1.2 Packing List	4
1.3 System Specifications	5
1.4 System Overview.....	7
1.4.1 Rear View	7
1.5 System Dimensions.....	8
1.5.1 Front & Top View	8
2. Hardware Configuration	9
2.1 ERS-BYT connector mapping.....	10
2.1.1 Serial port 1 connector (COM1).....	10
2.1.2 VGA connector (VGA).....	10
2.1.3 Multi-Function Port combined COM2, COM3, COM4 and 8-bit GPIO (COM2~COM4/8bit GPIO)	11
2.2 Installing Hard Disk & Memory	12
2.3 Installing CF Card.....	14

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 ERS-BYT Intel® Celeron® SoC Processor J1900 Fanless Rugged Embedded System
- 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:
 - AC/DC adapter
 - Screw kit for 2.5" SSD/HDD fixing
 - EU Power Cord
 - Wall Mount Kit



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

ERS-BYT

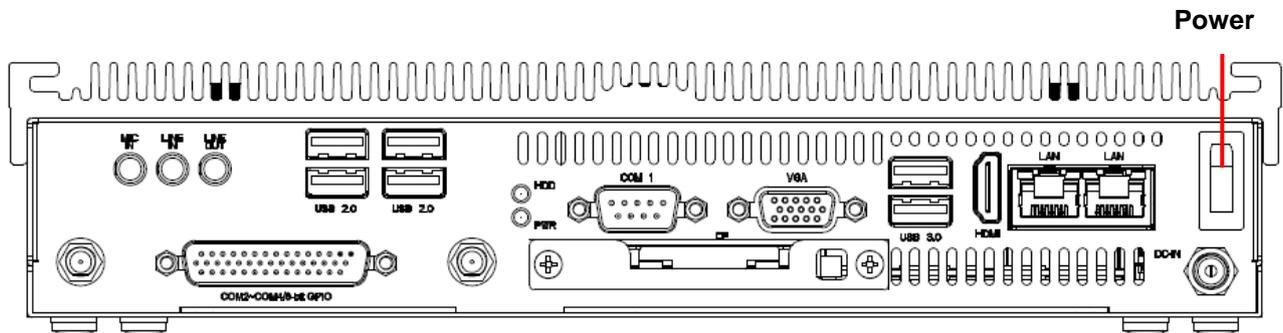
Power Type	<ul style="list-style-type: none">+12 ~ 26Vdc (Lockable DC Jack)
ACPI	<ul style="list-style-type: none">Single Power ATX Support S0, S3, S4, S5ACPI 3.0 Compliant
Power Mode	<ul style="list-style-type: none">AT/ATX (ATX is the default setting)
Operating Temperature	<ul style="list-style-type: none">-10°C ~ 60°C (14°F ~ 140°F) (w/CF & SSD), Ambient w/Air Flow
Storage Temperature	<ul style="list-style-type: none">-40 ~ 75°C (-40 ~ 167°F)
Relative Humidity	<ul style="list-style-type: none">0% ~ 90% Relative Humidity, Non-condensing
Vibration Protection	<ul style="list-style-type: none">With CF/SSD: 5Grms, IEC 60068-2-64, Random, 10 ~ 500Hz, 1hr/axis
Shock Protection	<ul style="list-style-type: none">With CF/SSD: 50G, IEC 60068-2-27, Half Sine, 11ms
Certification	<ul style="list-style-type: none">CE, FCC Class B
Dimension (W x H x D)	<ul style="list-style-type: none">271mm x 150mm x 55mm
Weight	<ul style="list-style-type: none">2.5kgs
Color	<ul style="list-style-type: none">Silver and Black
Fanless	<ul style="list-style-type: none">YES
Reliability	
IP Rating	<ul style="list-style-type: none">IP 30



Note: Specifications are subject to change without notice.

1.4 System Overview

1.4.1 Rear View

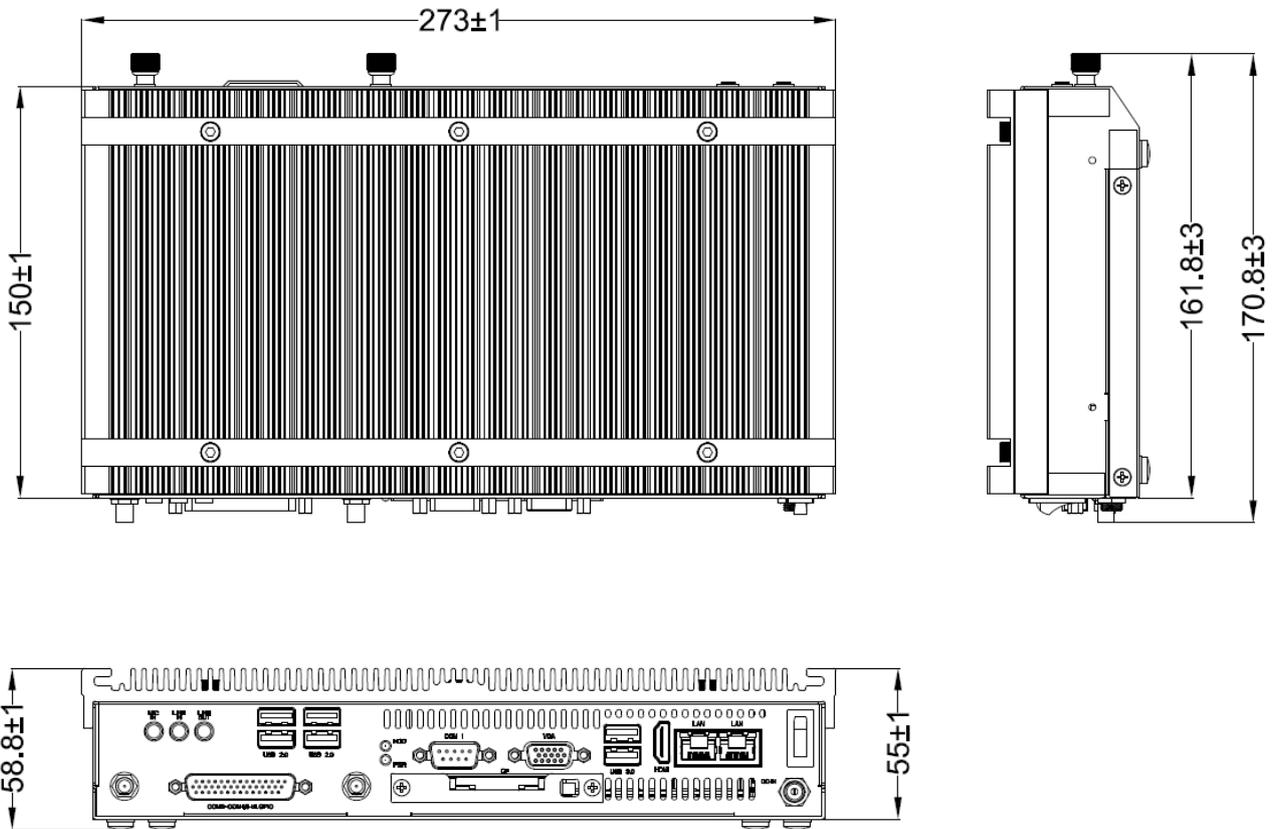


Connectors

Label	Function	Note
POWER	Power on button	
MIC IN	Mic-in audio jack	
LINE IN	Line-in audio jack	
LINE OUT	Line-out audio jack	
COM1	Serial port 1 connector	D-sub 9-pin, male Note : COM1 support RS422/485 by BIOS setting
COM2~COM4/ 8-bit GPIO	Multi-Function Port combined COM2, COM3, COM4 and 8-bit GPIO	
CF	Compact Flash card connector	
HDD	HDD indicator	
LAN	RJ-45 Ethernet connector x 2	
PWR	System power indicator	
USB	USB 2.0 connector x 5 USB 3.0 connector x 1	
VGA	VGA connector	DB-15 female connector
HDMI	HDMI connector	
DC IN	DC Power-in connector	

1.5 System Dimensions

1.5.1 Front & Top View



(Unit: mm)

2. Hardware Configuration

For advanced information, please refer to:

- 1- ECM-BYT User's Manual

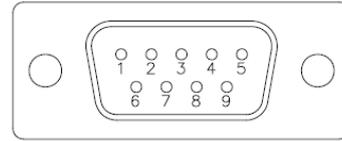
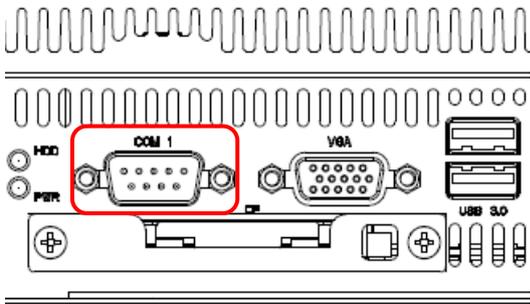


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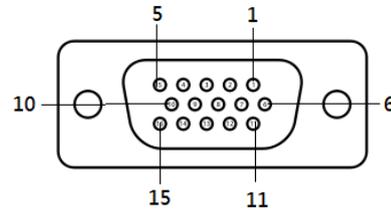
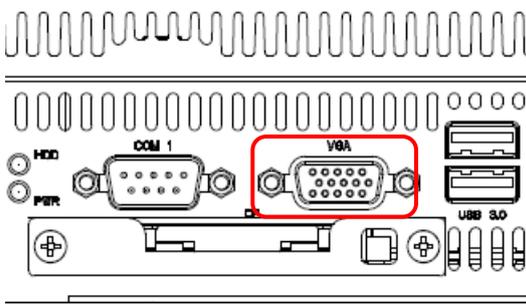
2.1 ERS-BYT connector mapping

2.1.1 Serial port 1 connector (COM1)



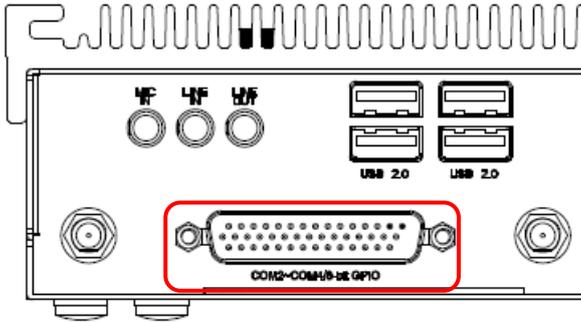
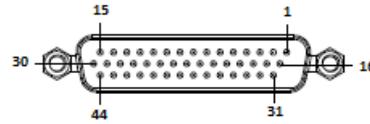
Signal	PIN	PIN	Signal
NDCDA#_485TXN	1	2	NRXDA_485TXP
NTXDA_485RXP	3	4	NDTRA#_485RXN
GND	5	6	NDSRA#
RTSA#	7	8	NCTSA#
NRIA#	9	10	NC

2.1.2 VGA connector (VGA)



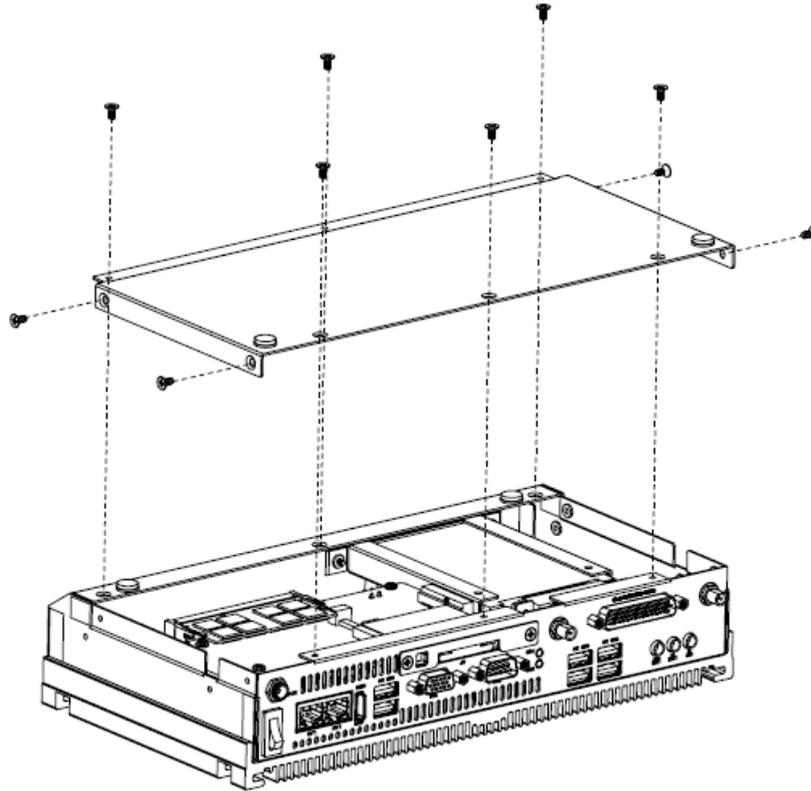
PIN	Signal	PIN	Signal	PIN	Signal
1	R	6	GND	11	NC
2	G	7	GND	12	DATA
3	B	8	GND	13	HSYNC
4	NC	9	+5V	14	VSYNC
5	GND	10	GND	15	CLK

2.1.3 Multi-Function Port combined COM2, COM3, COM4 and 8-bit GPIO
(COM2~COM4/8bit GPIO)

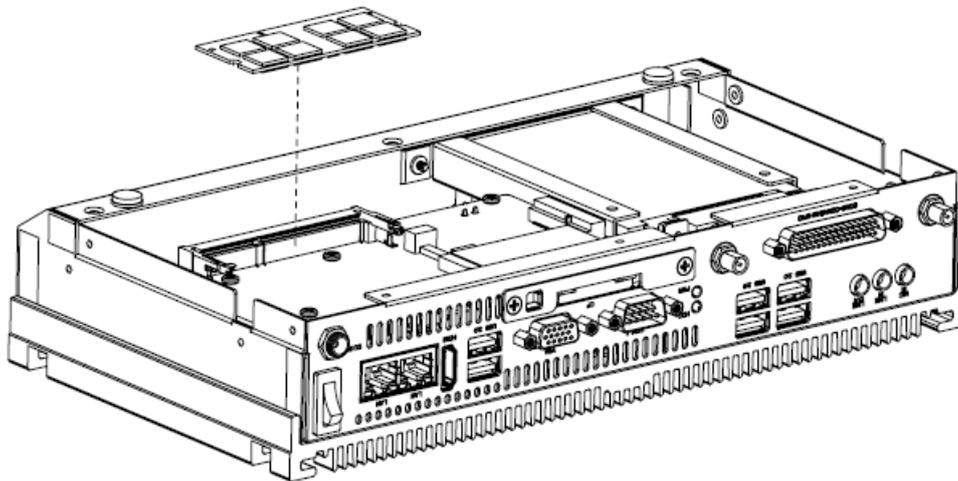


PIN	Signal	PIN	Signal	PIN	Signal	PIN	Signal
1	DCD#_2	10	DCD#_3	19	DCD#_4	28	DIO_GP20
2	RXD_2	11	RXD_3	20	RXD_4	29	DIO_GP10
3	TXD_2	12	TXD_3	21	TXD_4	30	DIO_GP21
4	DTR#_2	13	DTR#_3	22	DTR#_4	31	DIO_GP11
5	GND	14	GND	23	GND	32	DIO_GP22
6	DSR#_2	15	DSR#_3	24	DSR#_4	33	DIO_GP12
7	RTS#_2	16	RTS#_3	25	RTS#_4	34	DIO_GP23
8	CTS#_2	17	CTS#_3	26	CTS#_4	35	DIO_GP13
9	RI#_2	18	RI#_3	27	RI#_4	36	SMB_CLK_9555
						37	SMB_DATA_9555
						38	GND
						39	+5V

2.2 Installing Hard Disk & Memory

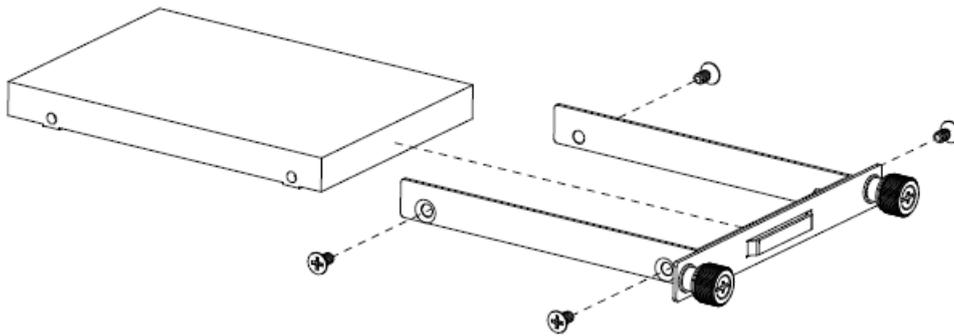


Step1. Remove 10 screws from the rear side before removing back cover.



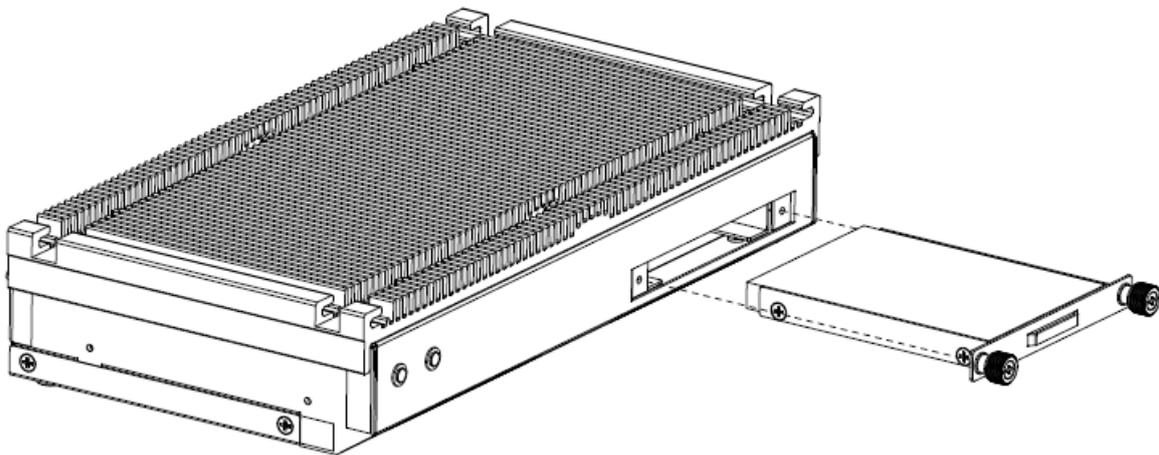
Step2.1 Properly install the memory module and press until properly seated.

Step2.2 Re-assemble your system back through previous steps to complete the installation.



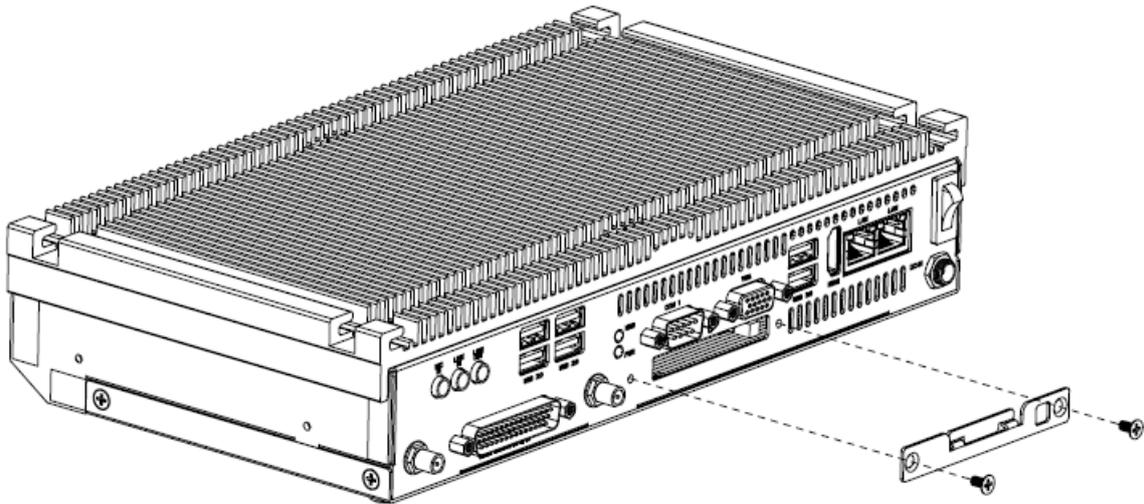
Step3.1 For HDD installation, please remove 4 screws to release the HDD bracket.

Step3.2 Insert the HDD into the bracket and fasten 4 screws.

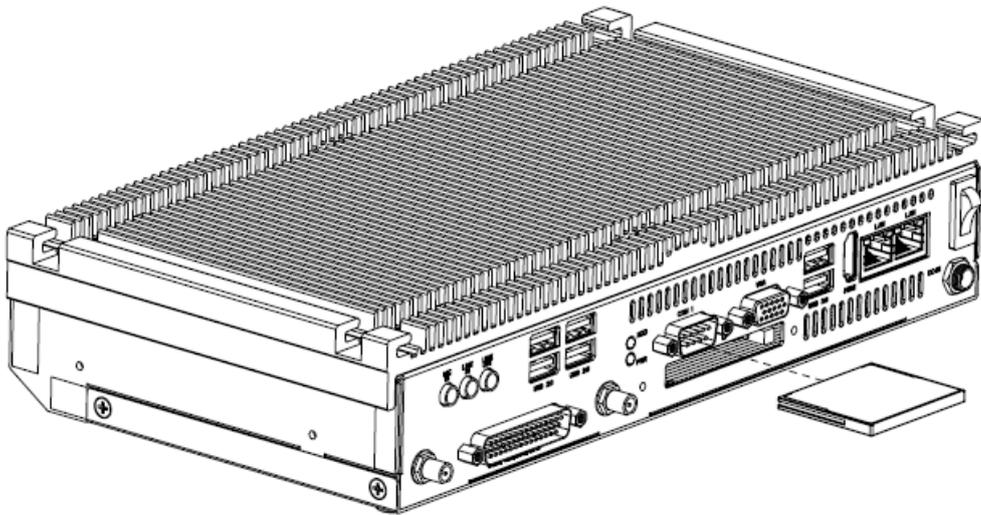


Step4. Insert the HDD back and fasten 2 screws.

2.3 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.

