



特种计算机

Industrial Computer

产品说明书

User Manual

JEC-1503C

15" 上翻盖便携式计算机

15" Portable PC with Up Flip

Version:C01

Legal Information

Warnings

Please pay attention to the tips within the manual so as to avoid personal injury or property losses. The tips for personal injury are indicated in warning triangles while the tips only related to property losses have no warning triangles. The warning tips are listed as follows with the hazardous scale from severe to slight.

 Danger

If handled carelessly, death or severe human injury will occur.

 Warning
--

If handled carelessly, death or severe human injury might occur.
--

 Caution
--

Warning triangle indicates that slight human injury might occur if handled carelessly.
--

Note

Unexpected result or status might occur, if not handled according to the tips.
--

Professional Personnel

The product/system covered by the manual can only be handled by qualified and professional personnel. During operation, please follow the respective instructive manuals, especially the safety warnings. The professional personnel have been trained and possess relevant experiences; therefore, he/she could be aware of the risks of the product/system and avoid possible damages.

EVOC Product

Please pay attention to the following instructions:

 Warning
--

EVOC product can only be used according to the descriptions within the manual, including the contents and the relevant technical documents. If the products or components from other companies are required, please get the recommendation and grant from EVOC first. Proper transportation, storage, assembly, installation, debugging, operation and maintenance are prerequisite to ensure product safety and normal operation; therefore, please ensure permitted environment conditions and pay attention to the tips within the manual.



Copyright Notice

Information offered in this manual is believed to be correct at the time of printing, and is subject to change without prior notice in order to improve reliability, design and function and does not represent a commitment on the part of the manufacturer. In no event will the manufacturer be liable for direct, indirect, special, incidental, or consequential damages arising out of improper installation and/or use, or inability to use the product or documentation.

This user manual is protected by copyright. No part of this manual may be reproduced, stored in any retrieval system, or transmitted, in any form or by any means, mechanical, electronic, photocopied, recorded or otherwise, without the prior written permission from the manufacturer.

Trademarks

EVOC is a registered trademark of EVOC Intelligent Technology Co., Ltd. Other product names mentioned herein are used for identification purposes only and may be trademark and/or registered trademarks of their respective companies.

Warranty Terms:

The warranty on the product lasts for one year. If the user has additional requirements, the contract signed between the two sides shall prevail.

Please visit our website: <http://www.evoc.com> for more information, or send an email to the Technical Support Mailbox support@evoc.com (International) or support@evoc.cn (Domestic) for consultation.

Hotline: 4008809666

About this manual

Scope of the Manual

The manual is appropriate for EVOC JEC-1503C.

Convention

The term “the Board” or “the Product” within the manual stands for EVOC JEC-1503C.

Instructions

Safety instructions

To avoid property losses or individual injury, please pay attention to the safety instructions within the manual. The warnings within the manual are marked with warning triangle , which is dependent upon the scale of the potential hazard.

Contents

1. Product Introduction	1
1.1 Overview	1
1.2 Product Specifications	2
2. Application Scheme	4
2.1 Transportation	4
2.2 Storage	4
2.3 Opening the Box and Initial Examination	4
3. Device Connection	6
3.1 Notices before Connection	6
3.2 Product Grounding	6
3.3 Connecting the Device to Power	7
4. Instructions	8
4.1 Product Outline	8
4.2 Product Appearance and Installation Dimensions	9
4.3 External Structure	10
4.4 Operation Control	11
4.5 Status Indicator	11
4.6 COM Setting	12
5. Assembly and Maintenance	13
5.1 Overall Assembly Drawing	13
5.2 Removing the Cover	14
5.3 Removal/Installation of Motherboard	14
5.3.1 Installing the Motherboard	14
5.3.2 Removing the Motherboard	16
5.4 Removal/Installation of Driver	17
5.4.1 Installing the Hard Disk	17
5.4.2 Removing the Hard Disk	17
5.5 Removal/Installation of Power Supply	18
5.5.1 Installing the Power Supply	18
5.5.2 Removing the Power Supply	18
5.6 Assembly and Maintenance of Fan	19

5.6.1 Installing the Fan.....	19
5.6.2 Removing the Fan.....	19
5.7 Assembly and Maintenance of Dust-proof Net.....	20
5.7.1 Installing the Dust-proof Net	20
5.7.2 Removing the Dust-proof Net.....	20
5.8 Installation of PCI/PCI-E Expansion Card	21
6. Installing the Drivers	22
7. Appendix.....	23
7.1 Troubleshooting and Solutions	23

1. Product Introduction

1.1 Overview

JEC-1503C is a portable rugged PC with 15" LCD screen and up-flip. The product adopts modular design and is constituted by three modules, including host, LCD display and keyboard, which adopt shock absorption, rugged installation, IP protection and EMC design respectively.

It adopts Intel® Core™ i5 rugged EPE half-sized card JMB-6811 and supports one PCI-E and two PCI expansions. It contains one 2.5" hard disk shock absorption tray, wide temperature and high luminance LCD screen, 87-key plastic keyboard, 120W industrial level power supplies and multiple IO connectors. All the IO connectors are brought out in standard connectors.

The environment performance of the product meets the requirements of GJB 322A for rugged in-vehicle PC; the EMC performance meets the requirements of GJB 151A while the panel protection level meets the requirements of IP65. The product can be used in in-vehicle and outdoor environment for the industries such as data acquisition and processing, measurement and control and telecommunication, etc.

1.2 Product Specifications

Items		Definitions
Main Functional Index	Microprocessor	Intel® Core™ i5-520E CPU in BGA 1288 package on-board
	Chipset	Intel® QM57
	Memory	2G 1066MHz memory on-board, providing one 204Pin SO-DIMM DDR3 memory slot additionally with Un-buffered and NON-ECC function; the maximum memory capacity supported by a single memory slot is up to 4GB.
	Expansion Bus	<p>EVOC EPE 1.0 bus, supporting PCIe and PCI bus expansion, which is expandable to two PCI cards and one PCIe x16 by carrier, EPE-6104E1-JEC; the PCI card supports 106.6 mm in height and 174.6mm in length (excluding the slot cover). PCI 2.3 bus standard compliant.</p> <p>Note: The power of PCIE expansion slot is no more than 25W, if PCIeX1 expansion card is used, the compatibility between the expansion card and PCIeX16 slot must be verified.</p>
	LCD Feature	<ul style="list-style-type: none"> ● LCD screen: 15" TFT LCD; ● Connector: LVDS; ● Resolution: 1024x768; ● Luminance: 400cd/m²; ● Contrast: 700:1
	Touchpad	Integrated touchpad, left key and right key
	Keyboard	87-key plastic keyboard
	External IO Connectors	<ul style="list-style-type: none"> ● Two serial ports: support RS-232/RS-422/RS-485 mode selection; COM1 supports Modem wake-up function; ● Four USB2.0 ports; ● One VGA connector; ● Two Gigabit LAN ports; ● One PS/2 connector

Main Performance Index	Dimensions (excluding the hangers)	394mm (W) x 111.3mm (H) x 324mm (D)									
	Weight	8.9Kg									
	Temperature	<ul style="list-style-type: none"> ● Operating Temperature: -20°C ~ 60°C; ● Storage Temperature: -40°C ~ 60°C; 									
	Humidity	5%~95% (non-condensing)									
	EMC	<ul style="list-style-type: none"> ● Limits of radio disturbance are compliant with GB9254-2008, class B; ● Limits of immunity are compliant with the threshold of GB/T 17618-1998; ● Meets the requirements of the five items in GJB151A for land force. 									
	Reliability	<ul style="list-style-type: none"> ● MTBF\geq50000h ● MTTR\leq0.5h 									
	Safety	Meets the basic requirements of GB4943;									
	Mechanical and Environment Adaptability	<ul style="list-style-type: none"> ● Sinusoidal Vibration (mechanical hard disk): 6 ~ 200Hz/1.5g, three axes, 15min/direction. The product is operating during testing. ● Sinusoidal Vibration (SSD hard disk): 5 ~ 30Hz/1.2g, 30 ~ 50Hz/0.3mm, 50 ~ 500Hz/3.0g, three axes, 15min/direction. The product is operating during testing. ● Random Vibration (mechanical hard disk): <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Frequency Hz</th> <th>PSD (g²/Hz)</th> <th>dB/oct</th> </tr> </thead> <tbody> <tr> <td>5 ~ 200Hz</td> <td>0.02</td> <td>-----</td> </tr> <tr> <td>200 ~ 1000Hz</td> <td>-----</td> <td>-3</td> </tr> </tbody> </table> Three axes, 30 minutes per direction. ● Anti-shock: 20g acceleration, 11ms duration. 	Frequency Hz	PSD (g ² /Hz)	dB/oct	5 ~ 200Hz	0.02	-----	200 ~ 1000Hz	-----	-3
	Frequency Hz	PSD (g ² /Hz)	dB/oct								
5 ~ 200Hz	0.02	-----									
200 ~ 1000Hz	-----	-3									
Power Feature	<ul style="list-style-type: none"> ● Input voltage/frequency: 100-240VAC 50/60Hz; ● Power consumption of the PC: 29.4W (standby); power consumption of the PC: 72.8W (100% operates MaxPower). 										

2. Application Scheme

2.1 Transportation

During long distance transportation, well-packaged products should not be put in open cabin or carriage. During transshipping, products should not be stored in open air without protection from the atmospheric conditions. Products should not be transported together with inflammable, explosive and corrosive substances.

2.2 Storage

Products should be stored in original package box when it is not used. And warehouse temperature should be 0°C ~ 40°C, and relative humidity should be 20% ~ 85%. In the warehouse, there should be no harmful gas, inflammable, explosive products, and corrosive chemical products, and strong mechanical vibration, shock and strong magnetic field interference. The package box should be at least 10cm above ground, and 50cm away from wall, thermal source, window and air inlet.

Caution
Risk of destroying the device!
When shipping the PC in cold weather, please pay attention to the extreme temperature variation. Under this circumstance, please make sure no water drop (condensation) is formed on the surface or interior of the device. If condensation is formed on the device, please wait for over twelve hours before connecting the device.

2.3 Opening the Box and Initial Examination

Opening the Box

Please pay attention to the following issues when opening the box:

-
- Do not discard the original packing material. Please keep the original packing material for re-transportation.
 - Please keep the documentation at a safe place. The documentation is required for initial device debugging, which is a component of the device.
 - When doing the initial examination, please check whether there are distinct damages to the device caused during the transport.
 - Please check whether the delivery contains the intact device and all of the independently ordered accessories. Please contact the customer service when any unconformity or transportation damages occur.

3. Device Connection

3.1 Notices before Connection

 Warning
--

Peripherals with reverse polarity must not be connected or built-in.
--

 Warning
--

The device only operates when connected with grounded power. No operation is allowed when the device power is ungrounded or only impedance is grounded.

 Warning
--

Rated voltage of the device in use shall be in accord with power feature of the product.
--

Note:

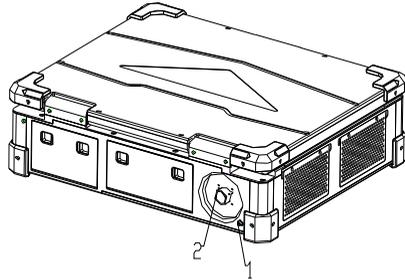
Only the peripheral devices approved for industrial application can be used. When operating the PC, hot swappable IO modules (USB) can be used. The IO devices without hot swap function can only be connected when the PC is powered off.
--

3.2 Product Grounding

Low impedance ground connection is more helpful to release the interference produced by the external cables, the signal cables or the cables connecting the IO module to the grounding system.

Ground Terminals

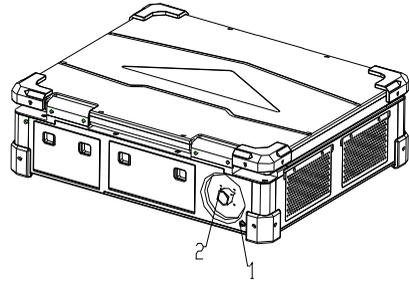
The equipotential bonding terminal 1 on the device (large surface or large area contact) shall be connected with the cabinet installed with the PC or the central grounding busbar on the device. The minimum cross section area of the cable shall be no less than 5mm^2 .



3.3 Connecting the Device to Power

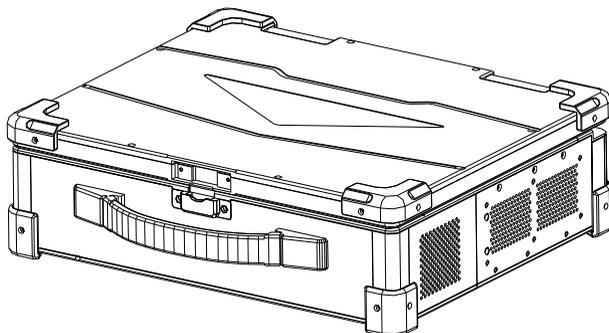
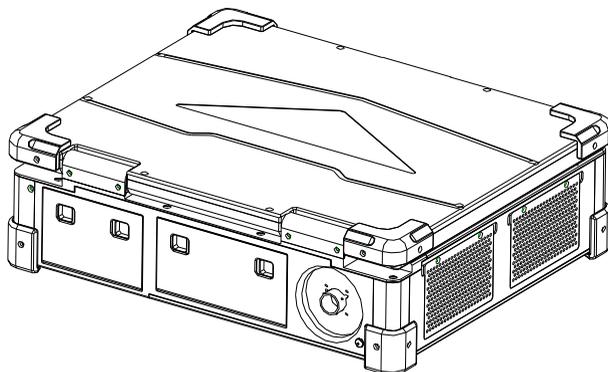
Steps to connect the device to power:

Please connect the power cord with connector 2. Please make sure whether the input voltage is in accord with the instructed voltage on the silkscreen of the power socket before installation.

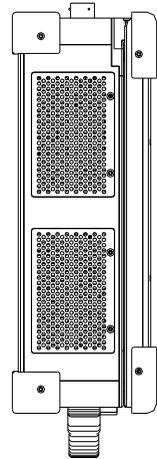
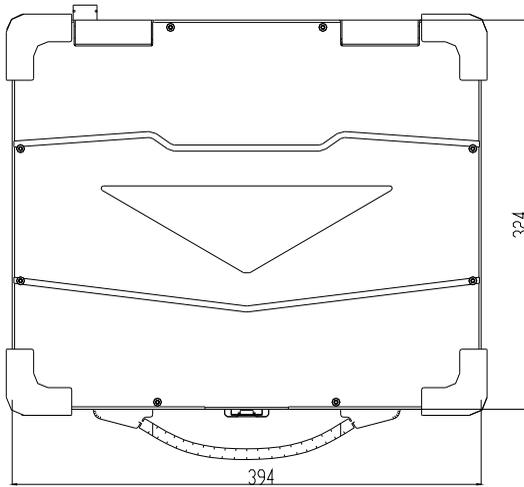
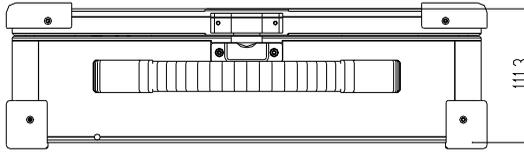


4. Instructions

4.1 Product Outline



4.2 Product Appearance and Installation Dimensions



Unit: mm

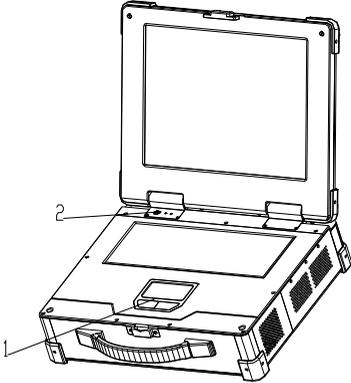
4.3 External Structure

Front View of the Device	Item	Description
	1	Handle
	2	Touchpad
	3	Keyboard
	4	HDD LED indicator
	5	PWR LED indicator
	6	Power switch
	7	LCD screen

Rear View of the Device	Item	Description
	1	MS/KB
	2	VGA
	3	COM 1/2
	4	LAN 1/2
	5	USB1/2/3/4
	6	AC220V power input

4.4 Operation Control

 Warning
Pressing On/Off button won't cut off the power of the PC!
 Caution
Data loss might occur when implementing hardware reset on PC.

Control Button	Item	Description
	1	Touch mouse, left/right button It is designed as fingertip operation. Do not place any object on the surface or press with sharp point object (such as fingernail) or hard object (such as pencil or ball point pen) so as to avoid any scratches on the surface. Please keep the touchpad away from hazardous substances, such as oil, otherwise the cursor may not operate normally.
	2	Power switch The button is used to power on or power off the device.

4.5 Status Indicator

Display	Meaning	LED	Description
POWER	Indicates PC status	Off	Power off
		Green	PC is operating
HDD	Indicates HDD access	Off	No access
		Yellow	Accessing

⚠ Danger

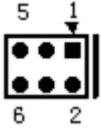
Please disconnect the power and data cables during thunder storm.

Note:

To completely isolate the device from the power supply, please disconnect the power connector.

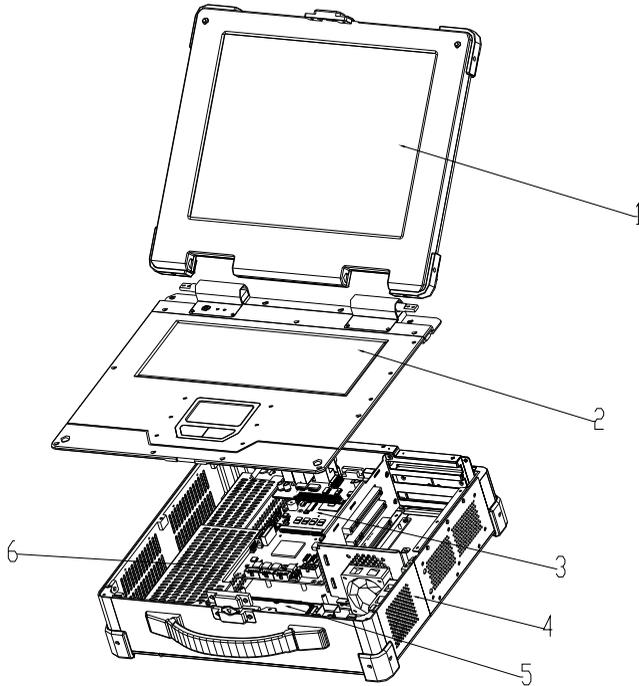
4.6 COM Setting

COM1 and COM2 fully comply with RS-232/RS-422/RS-485 mode, which can be realized by setting JP1 ~ JP6. Please set as follows:

 JP1 ~ JP6	COM Port NO.	Pin Setting	Mode Selection		
			RS-232 (Default)	RS-422	RS-485
COM1	JP1	1-2	5-6	3-4	
	JP2	1-3, 2-4	3-5, 4-6	3-5, 4-6	
	JP3	1-3, 2-4	3-5, 4-6	3-5, 4-6	
COM2	JP4	1-2	5-6	3-4	
	JP5	1-3, 2-4	3-5, 4-6	3-5, 4-6	
	JP6	1-3, 2-4	3-5, 4-6	3-5, 4-6	

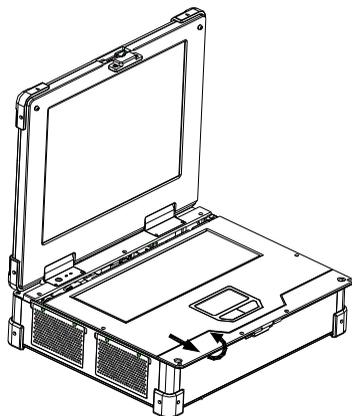
5. Assembly and Maintenance

5.1 Overall Assembly Drawing



Item	Description	Item	Description
1	Screen assembly	2	Keyboard assembly
3	Motherboard assembly	4	Chassis assembly
5	HDD assembly	6	Power supply

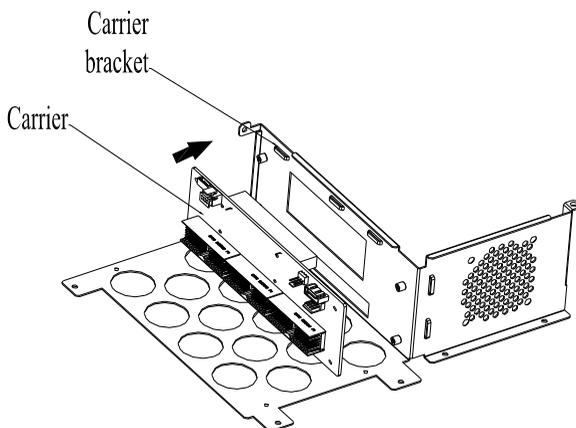
5.2 Removing the Cover



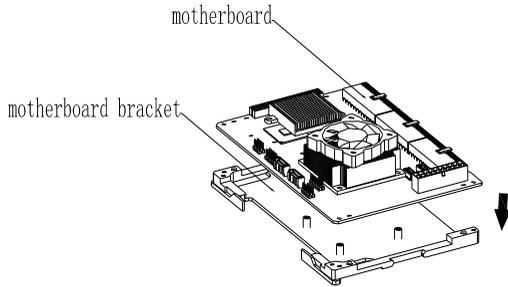
1. Take out the screw caps and the screws on the cover of the host first;
2. Host cover the figure shown by the arrow after the first out, and then flipped up.

5.3 Removal/Installation of Motherboard

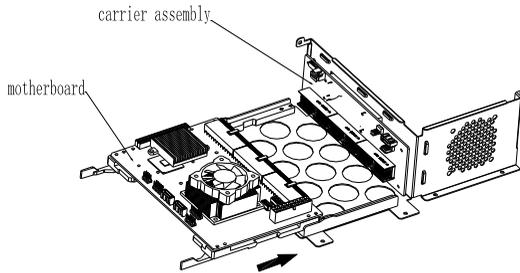
5.3.1 Installing the Motherboard



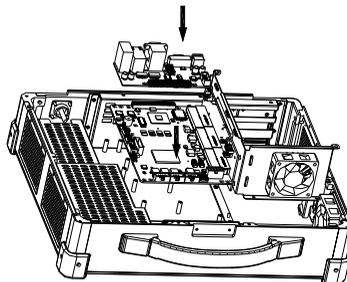
1. Locate the carrier at the corresponding position on the carrier bracket and fix with screws as shown in the above figure;



2. As shown in the picture above, install the motherboard properly onto the motherboard bracket, and fasten it with screws;

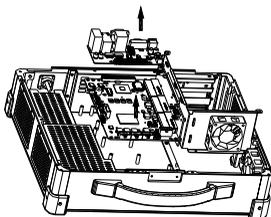


3. Insert the motherboard assembly by the correct direction into the carrier board slot to form an assembly.

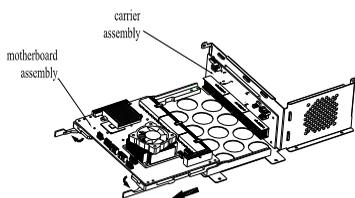


4. Place the assembly properly into the chassis, and fasten it with screws and nuts;
5. Install the IO plate by the direction shown in the picture, and insert the cables connecting with motherboard and carrier board.

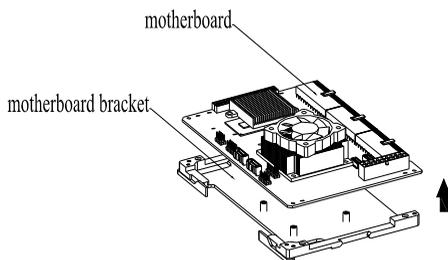
5.3.2 Removing the Motherboard



1. Remove the cables connecting with the motherboard and carrier, take out the IO board in the direction shown in the figure;
2. Remove the screws and nuts fixing the motherboard and carrier bracket;
3. Take out assembly (with motherboard, carrier and carrier bracket);



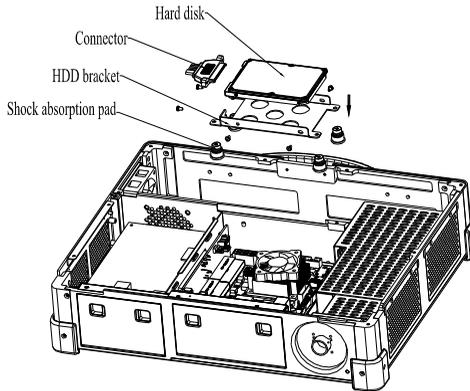
4. Turn the spanner by the direction shown in the picture above, and pull out the motherboard assembly from the slot;



5. Take out the screws fixing the motherboard as per the picture above, and remove the motherboard from the bracket.

5.4 Removal/Installation of Driver

5.4.1 Installing the Hard Disk



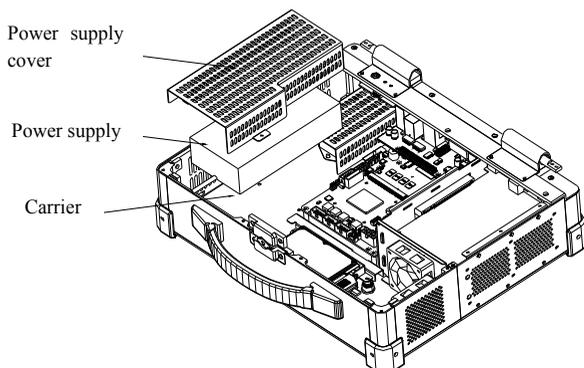
1. Connect the SATA connector with the hard disk and then put them on the hard disk bracket;
2. Fix the connector and the hard disk on the hard disk bracket with screws to form hard disk assembly;
3. Fix the shock absorption pads at the corresponding positions in chassis and then fix the hard disk assembly on the shock absorption pads with screws.

5.4.2 Removing the Hard Disk

1. Remove the screws fixing the hard disk bracket to take out the hard disk assembly;
2. Remove the screws fixing the hard disk and then draw out the hard disk.

5.5 Removal/Installation of Power Supply

5.5.1 Installing the Power Supply



1. Locate the power supply at the corresponding position in chassis and fix with screws;
2. Connect with cables;
3. Install the power supply cover according to the figure and fix with nuts.

5.5.2 Removing the Power Supply

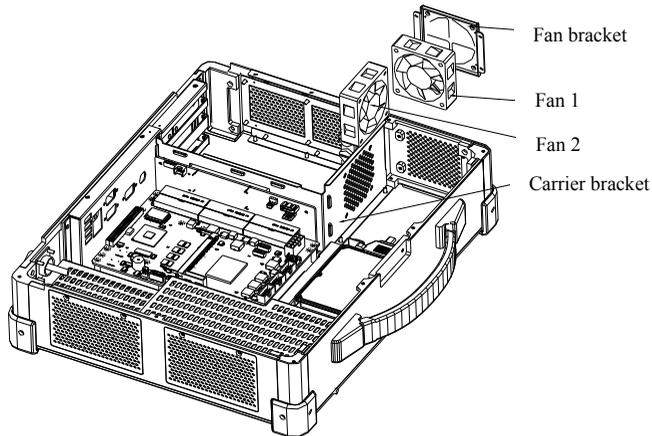
 **Danger**

Before removing the power module, please turn off the power and remove the power cord if any power has been connected.

1. Remove the nuts and take off the power supply cover;
2. Unplug the cables;
3. Remove the screws fixing the power supply and then take out the power supply.

5.6 Assembly and Maintenance of Fan

5.6.1 Installing the Fan



1. Fix fan 1 with fan bracket by screws;
2. Locate the fan assembly at the corresponding position in chassis and fix with screws;
3. Locate fan 2 at the corresponding position on the carrier bracket and fix with screws.

Note:

Because the fan speed is relatively fast, please do not touch the fan before it stops.

5.6.2 Removing the Fan

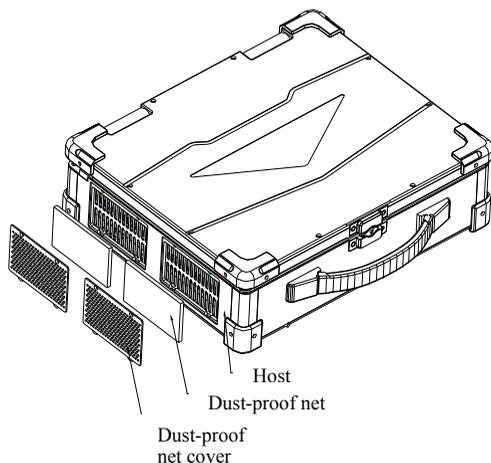
1. Remove the screws and then take off fan 2 from the carrier bracket;
2. Remove the screws and then take off the fan assembly from the side wall of the chassis;
3. Remove the screws and then take off fan 1 from the fan bracket.

Note:

Because the fan speed is relatively fast, please do not touch the fan before it stops.

5.7 Assembly and Maintenance of Dust-proof Net

5.7.1 Installing the Dust-proof Net



1. Put the dust-proof net into the corresponding slot on the side wall of the chassis;
2. Insert the dust-proof net cover into the slot on the side wall and then fix with screws.

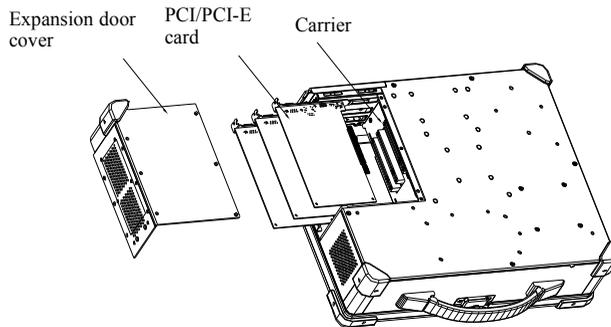
Note:

To ensure excellent system heat dissipation and ventilation and avoid the dust-proof net covered with dust, please clean the net regularly. It is recommended to clean it every three months. In an environment prone to dust or dirt, please clean the net more frequently. The dust-proof net should be replaced once a year.

5.7.2 Removing the Dust-proof Net

1. Remove the screws and then pull out the dust-proof net cover from the slot on the side wall;
2. Take out the dust-proof net from the corresponding slot on the side wall of the chassis.

5.8 Installation of PCI/PCI-E Expansion Card



1. Remove the screws fixing the expansion door cover and then pull out the cover as shown in the above figure;
2. Insert the PCI or PCI-E card into the corresponding slot on carrier and fix the slot cover with screws;
3. Put on the expansion door cover and tighten the screws.

6. Installing the Drivers

Regarding the installation of the driver program and the detailed information of the motherboard, please refer to the enclosed CD of the PC.

7. Appendix

7.1 Troubleshooting and Solutions

Common Malfunctions	Reasons	Troubleshooting and Solution
The device is not operating	No power supply	Please check the power supply and the power cable/connector.
	Improper device operating environment	<ol style="list-style-type: none"> 1. Check with the environment conditions; 2. Please wait for twelve hours before powering on the device shipped in cold weather.
The external display is black	The display has not been turned on	Turn on the display.
	The display is under “power saving” mode	Press any key on the keyboard.
	The luminance control is set to “Black”.	Increase the screen luminance by luminance control. Please refer to the instructions of the display for detailed information.
	Power cable or display cable is not connected	<ol style="list-style-type: none"> 1. Please check whether the power cable is correctly connected with the display, the system unit or the ground port. 2. Please check whether the display cable is correctly connected with the display and the system unit. 3. Contact Technique Support if the screen remains black after implementing the above measures.
Incorrect time or date on PC	Incorrect BIOS setting	Follow the power-on prompt and press the key to enter the BIOS Setup; adjust the time and date in BIOS Setup.

BIOS setting is correct while the time and date are incorrect.	Insufficient backup battery capacity	Replace the battery
USB device has no response	USB port is disabled in BIOS	Use other USB ports or enable that port.
	USB 2.0 device is connected; however, USB 2.0 is disabled.	Enable USB 2.0.
	USB port is not supported by the operating system.	1. Enable USB Legacy Support for the mouse and keyboard (Legacy USB is supported); 2. For other devices, appropriate USB drivers are required.
The computer is not booted or displays “Boot device not found”	In booting priority of the BIOS setting, the device is not the first priority or the device is not include in the booting device.	Modify the booting priority of the device in the Boot menu of BIOS setting or include that device into the booting priority.
No system disk can be found when powering on	The HDD power cable or data cable is not connected well	Check whether the power cable and the data cable of the hard disk (the hard disk shall be installed with operating system and is bootable) are well connected.
	System files on the hard disk are damaged	Enter the system (usually WinPE system) with a bootable disk; check whether the system in the hard disk is damaged. Reinstall the system if necessary.
Plug and play I/O card, no IO card is detected or no IO card can be used when used again	Poor contact of the slot	Poor contact is usually caused by frequent installation/uninstallation of the PCI or ISA card, unstable fixing or improper dust-proof measures; please remove and install the card for a few times or use another slot.