EVOC ®

特种计算机

Industrial Computer

产品说明书

User Manual

PPC-1561V SERIES

15″工业平板电脑

15″ Industrial Panel PC

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.

About this manual

Scope of the Manual

The manual is appropriate for EVOC PPC-1561V SERIES.

Convention

The term "the PC" or "the Product" within the manual usually stands for EVOC PPC-1561V SERIES.

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 ⚠, whose existence is dependent upon the scale of the potential hazard.

Contents

1. Product Introduction

1.1 Overview

PPC-1561V SERIES is a touchable industrial panel PC, which contains embedded Intel® Atom™ D525 processor, and supports Linux, WindowsXP, WindowsXPE, Win7, WinCE and DOS operating systems.

The PC adopts Al-alloy material, simple structure, and motherboard+expansion board design solution for system architecture. Highly reliable connectors are used for connection among various modular boards, so as to ensure reliable operating environment, and excellent dust-proof, heat dissipation and anti-vibration performance.

Targeting device control and monitoring devices, PPC-1561V SERIES is mainly used for mechanical device control at industrial site, computer room monitoring, building surveillance equipment and power monitoring, etc.

1.2 Product Specifications

Item		Definition
Main Functional Index	**Microprocessor**	Onboard Intel® Atom™ D525 CPU 1.8G dual-core
	Chipset	Intel® Atom™ D525+ICH8M
	Memory	1 x 204Pin DDR3 SO-DIMM memory slot, supporting Un-buffered and NON-ECC. The single memory slot supports a maximum of 4GB memory capacity. (only 256M×16 mode) Note: The memory capacity of the PC may vary with configurations, and actual configuration shall prevail.
	Display	Supports CRT+LVDS display; The VGA supports up to 2048×1536@60Hz; The LVDS supports single-channel 18bit LCD screen and supports up to 1366×768.
	Network	2 x 10/100/1000Mbps LAN port; LAN1 supports Wake-On-LAN
	Expansion bus	● 2 x PCI slot, supporting PCI2.3 standard; Extended size is not more than H110×L190 PCI card ● 2 x Mini PCIe slot; Mini PCIe2 can only be used for 3G wireless network card and mSATA HDD.

LCD Features		• LCD: 15″TFT LED • Resolution: 1024 x 768 • Luminance: 350cd/m2 • Contrast ratio: 700：1 • Viewing angle (CR≥10) • Horizontal: -70～70°; Vertical: -65～60° Note: The above data may vary with configurations, and actual configuration shall prevail.
Touch Screen		• Connector type: USB type • Type:5-wire resistive Note: When the touch screen is correcting, it is recommended to use 16 or above advanced mode to correct in the advanced position (as shown in the figure below).

External IO Ports		• 6 x COM port, COM1～6 support RS-232/ RS-422/ RS-485, RS-232 as default;
		  Note: According to the different configuration，the number of COM port differ.
		• 4 x USB2.0 port ;
		  Note: According to the different configuration，the number of USB port differ.
		• One 1×10 Phoenix terminal (8-channel GPIO) or one LPT (LPT supports SSP/EEP/ECP working modes and BIOS modification working mode);
		  Note: GPIO and LPT are two alternative options, and cannot exist at same time. As for details, the actual configuration of the PC shall prevail.
		• 1 x VGA port;
		• 2 x LAN port (RJ45)
		• 1 x PS/2 keyboard/mouse port;
		• 1 x power input socket;
		• 1 x RCV port (One-button-recovery; please refer to EVOC One-button-recovery Operating Instructions)

Main Performance Index	Dimensions	400mm (L) x 300mm (W) x 80mm (H)
	Weight	5Kg
	Temperature	● Operating temperature: 0 ℃～45℃, (for the model with hard drive) -20℃～55℃, (for the model with SSD) ● Storage temperature: -20 ℃～70 ℃
	Humidity	85%～95% (non-condensing, +30℃～60℃)
	EMC	● GB 9254-2008 Radiation emission Class (A) ● GB 9254-2008 Conducted emission Class (A) ● GB/T 17626.2.2006 ESD Class (2) ● GB/T 17626.4-2006 Pulse group immunity Class (2) ● GB/T 17626.5-2008 Surge (impact) immunity Class (2) ● GB/T 17626.6-2008 Conduction immunity Class (2)
	Reliability	● MTBF≥10000h ● MTTR≤0.5h
	Safety	Meets basic requirements of GB4943-2001.
	Mechanical and Environmental Adaptability	● Anti-vibration: 5-17Hz/1.0mm amplitude; 17-200Hz/1.0g, acceleration. ● Anti-shock: 10g acceleration, 11ms duration.
	Power Features	● Input voltage/frequency: 220VAC/50Hz (with adapter); Input voltage/current: 9-30VDC (without adapter, direct input for the PC without V configuration) ; Input voltage/current: 19-30VDC (without adapter, direct input for the PC with V configuration) ● Power consumption of the PC: 25W (standby status); power consumption of the PC: 30W (operating MaxPower 100%).
	Operating systems	Supports Linux, WindowsXP, WindowsXPE, Win7, WinCE, DOS

2. Application Scheme

2.1 Transportation

Well-packaged products are suited for transportation by truck, ship, and plane. During transportation, 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 and are not allowed to be exposed to rain, snow and liquid substances and mechanical force.

2.2 Storage

Products should be stored in 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, which is a part of the device, is required for initial device debugging.

● 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. Installation Instructions
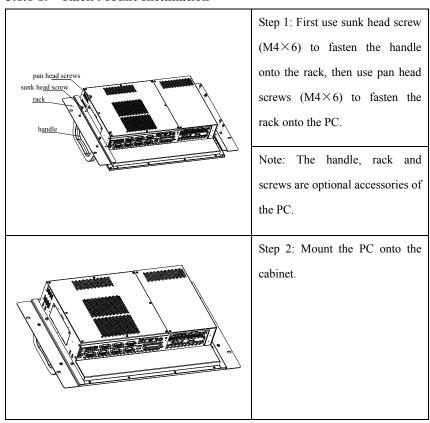
3.1 Mounting Method

■19″ Rack Mount   □Desktop   ■Embedded Panel

□Wall Mount   ■VESA Standard Arm   □Portable
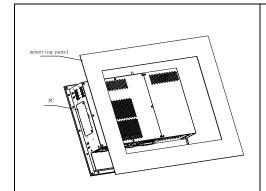
□Others_____

3.1.1 19″ Rack Mount Installation

	Step 1: First use sunk head screw (M4×6) to fasten the handle onto the rack, then use pan head screws (M4×6) to fasten the rack onto the PC.
	Note: The handle, rack and screws are optional accessories of the PC.
	Step 2: Mount the PC onto the cabinet.
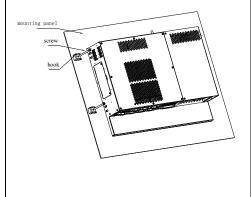
3.1.2 Embedded Panel Installation

	Step 1: Place the PC into the panel, as shown in the left picture.
	Step 2: Place the hooks into the holes on the PC, as shown in the left picture. Then drive in M4×55 screws and press PC against the panel. Carry out the same step as above for the other three hooks.
	Note: the hooks and screws are accessories.
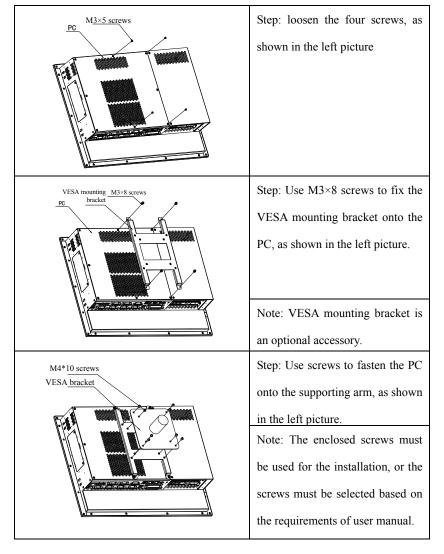
3.1.3 VESA Standard Supporting Arm Mounting

M3×5 screws PC	Step: loosen the four screws, as shown in the left picture
VESA mounting M3×8 screws bracket PC	Step: Use M3×8 screws to fix the VESA mounting bracket onto the PC, as shown in the left picture.
	Note: VESA mounting bracket is an optional accessory.
M4*10 screws VESA bracket	Step: Use screws to fasten the PC onto the supporting arm, as shown in the left picture.
	Note: The enclosed screws must be used for the installation, or the screws must be selected based on the requirements of user manual.

⚠ Warning
The weight bearing capacity of VESA arm shall be at least twice the weight of the PC.

3.2 Outer Appearance and Dimensions
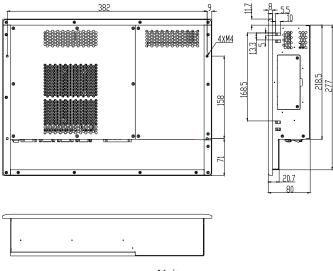
Unit: mm
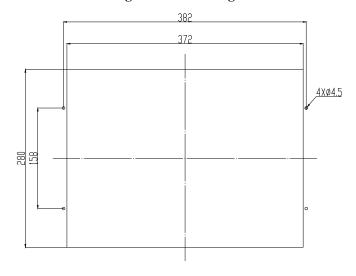
3.3 Installation Dimensions

3.3.1 Installation Dimensions Drawing

Unit: mm

3.3.2 Dimensions Drawing for Hole Drilling

Unit: mm

4. PC Connection

4.1 Things to Know before Connection

⚠ **Warning**
The connected or built-in peripherals with opposite polarities are not allowed.

⚠ **Warning**
The device only operates when connecting 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.
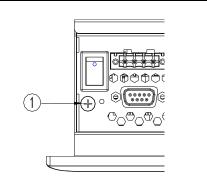
Note:
Only the peripheral devices approved for industrial application can be used. When operating the PC, hot swappable IO modules (USB) can be used. The IO devices without hot swap function can only be connected when the PC is powered off.

4.2 Product Grounding

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.	
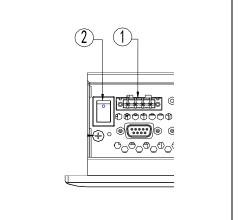
4.3 Connecting the Device to Power

Steps to connect the device to power:	
When inserting power cable, please make sure the power switch ② is at "0" (Off) position, so as to avoid accident startup of the PC.	
Connect the power cable to the socket ①, and press the power switch ② to power on the PC.	

⚠**Danger**
Disconnect the power source and data cable during a lightning storm.
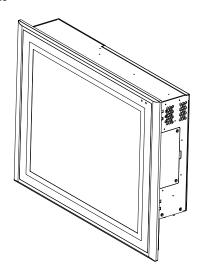
Attention
The PC is completely isolated from the power supply only by disconnecting the power connector.
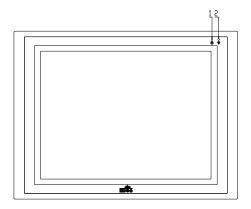
5. Operating Instructions

5.1 Product Outline
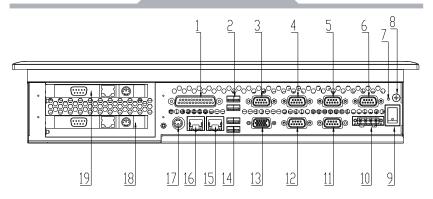
5.2 External Control Ports
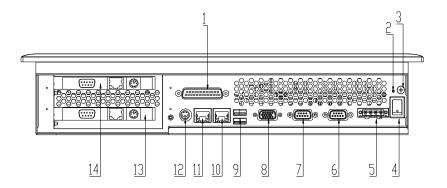
Item	Description	Item	Description
1	HDD LED	2	Power LED

The picture for PPC-1561-0301/ PPC-1561V-0501 configuration
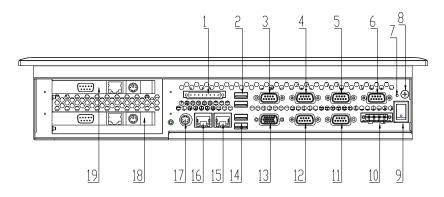
Item	Description	Item	Description	Item	Description
1	Parallel port	2	USB3/4	3	COM3
4	COM4	5	COM5	6	COM6
7	One-button-recovery	8	Ground screw	9	Power
10	Power connector	11	COM2	12	COM1
13	VGA	14	USB1/2	15	LAN2
16	LAN1	17	Mouse/keyboard	18	PCI1
19	PCI2				

The picture for PPC-1561V-0502 configuration

Item	Description	Item	Description	Item	Description
1	Parallel port	2	One-button-recovery	3	Ground screw
4	Power switch	5	Power connector	6	COM2
7	COM1	8	VGA	9	USB1/2
10	LAN2	11	LAN1	12	Mouse/keyboard port
13	PCI1	14	PCI2		

The picture for PPC-1561-0303 configuration

Item	Description	Item	Description	Item	Description
1	GPIO	2	USB3/4	3	COM3
4	COM4	5	COM5	6	COM6
7	One-button-recovery	8	Ground screw	9	Power switch
10	Power connector	11	COM2	12	COM1
13	VGA	14	USB1/2	15	LAN2
16	LAN1	17	Mouse/Keyboard port	18	PCI1
19	PCI2				

5.3 Port Definition

5.3.1 DC Power Input Connector

The product provides one 4P horizontal Phoenix terminal socket, which supports single power input, Its pin definition is as follows:

Pin	Signal Name
1	Positive
2	Negative
3	SW-
4	SW+

DC IN

Note: SW+, SW-: remote power-on/off input signal. Under ATX mode, triggering SW+ and SW- can power on/off the PC.

5.3.2 VGA Port

The product provides one standard DB15 VGA port. Its pin definition is as follows:

Pin	Signal Name	Pin	Signal Name
1	Red	2	Green
3	Blue	4	NC
5	GND	6	GND
7	GND	8	GND
9	NC	10	GND
11	NC	12	DDCDATA
13	HSYNC	14	VSYNC
15	DDCCLK		

VGA
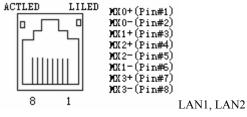
5.3.3 PS/2 Keyboard/Mouse Port

The product provides one PS/2 keyboard/mouse port.

	Pin	Signal Name
	1	KB_DATA
	2	MS_DATA
	3	GND
	4	+5V
	5	KB_CLK
MS/KB	6	MS_CLK

5.3.4 Network Port

LAN1 and LAN2 are standard RJ45 connectors. They are 10/100/1000Mbps Ethernet ports on the motherboard. LILED and ACTLED are two LEDs on both sides of the Ethernet port, which respectively indicates network speed and network activity status. Please refer to the following for the status description of each LED:

```
ACTLED    LILED    MX0+(Pin#1)
                   MX0-(Pin#2)
                   MX1+(Pin#3)
                   MX2+(Pin#4)
                   MX2-(Pin#5)
                   MX1-(Pin#6)
                   MX3+(Pin#7)
                   MX3-(Pin#8)
   8       1                      LAN1, LAN2
```

ACTLED (single color: green)	Network Activity		LILED (two colors: orange and green)	Network Speed
			Green	1000Mbps
Flash	Data being transmitted		Orange	100Mbps
Off	No data being transmitted		Off	10Mbps

Note: no matter the Gigabit LAN card contains Link signal or not, the ACTLED on the left always indicates the data transmission status. When data is being transmitted,

the green LED on the left is "flashing"; when it is connected to network with no data transmission, the green LED is "off"; when there are broadcasting packages, it is normal if the ACTLED is "flashing".

5.3.5 USB Port

Pin	Signal Name
1	+5V
2	USB_Data-
3	USB_Data+
4	GND

USB1, USB2
USB3, USB4

5.3.6 Standard DB9 COM Port

The product provides six COM ports. COM1 ～ COM6 support RS-232/RS-422/RS-485 modes. Their pin definitions are as follows:

Pin	Signal Name		
	RS-232 (Default)	RS-422	RS-485
1	DCD#	TXN	DATA-
2	RXD	TXP	DATA+
3	TXD	RXP	NC
4	DTR#	RXN	NC
5	GND	GND	GND
6	DSR#	NC	NC
7	RTS#	NC	NC
8	CTS#	NC	NC
9	RI#	NC	NC

COM1～COM6

Note: COM port under the RS-485 mode, COMA RS485 AUTO Flow Control is changed to Enabled in BIOS,COM1 can realize the automatic transmission；COMB RS485 AUTO Flow Control is changed to Enabled ,COM2 can realize the automatic transmission. In the other case, the data send/receive direction of COM1-COM6 is controlled by RTS.

COM1, COM2 for RS-232/RS-422/RS-485 Mode Selection Definition

JP1、JP2、JP3--COM1 mode selection; JP4、JP5、JP6--COM2 mode selection

	COM1	COM2	RS-232（Default）	RS-422	RS-485
JP1、JP2、JP3 JP4、JP5、JP6	JP1	JP4	1-2	3-4	5-6、7-8
	JP2	JP5	1-3	3-5	3-5
			2-4	4-6	4-6
	JP3	JP6	1-3	3-5	3-5
			2-4	4-6	4-6

COM3～COM6 for RS-232/RS-422/RS-485 Mode Selection Definition

JP7、JP8、JP9—COM3 mode selection; JP11、JP12、JP13—COM4 mode selection;

JP15、JP16、JP17—COM3 mode selection; JP19、JP20、JP21—COM4 mode selection.

	COM3	COM4	COM5	COM6	RS-232（Default）	RS-422	RS-485
JP7、JP8、JP9 JP11、JP12、JP13 JP15、JP16、JP17 JP19、JP20、JP21	JP7	JP11	JP15	JP19	1-2	3-4	5-6、7-8
	JP8	JP12	JP16	JP20	1-3	3-5	3-5
					2-4	4-6	4-6
	JP9	JP13	JP17	JP21	1-3	3-5	3-5
					2-4	4-6	4-6

Terminal matching mode selection:

If COM1～COM6 are under RS-485 mode, it is suggested that when the transmission distance is more than 300M, terminal matching mode setup should be carried out and 120Ω terminal resistor be connected. (note: the transmission distance is only a recommended value. As for the specific length, please make adjustment according to the signal quality in actual use.

JP2、JP3----COM1 terminal matching mode selection; JP5、JP6----COM2 terminal matching mode selection;

	Setup	Function
	7-8 Short	Terminal resistance is connected
JP2/JP3 JP5/JP6	7-8 Open	Terminal resistance is disconnected（Default）

JP10----COM3 terminal matching mode selection; JP14----COM5 terminal matching mode selection;

JP18----COM5 terminal matching mode selection; JP22----COM6 terminal matching mode selection;

	Setup	Function
	1-2、3-4 Short	Terminal resistance is connected
JP10、JP14 JP18、JP22	1-2、3-4 Open	Terminal resistance is disconnected（Default）

5.3.7 GPIO Port

	Pin	Signal Name	Pin	Signal Name
	1	GPIO1	2	GPIO2
	3	GPIO3	4	GPIO4
GPIO （pitch:3.81mm）	5	GPIO5	6	GPIO6
	7	GPIO7	8	GPIO8
	9	GND	10	VCC

Note: The factory default is high level, and input/output signal voltage range is 0-5V. GPIO output status setup before BIOS initialization.

JP1(1-2)	GPIO OUT: H(Default)
JP1(2-3)	GPIO OUT: L

Note: GPIO1 is brought out via expansion board, and JP1 is on the expansion board.
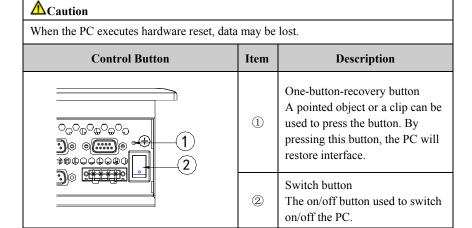
5.3.8 LPT Port

Pin	Signal Name	Pin	Signal Name
1	STB#	14	AFD#
2	PD0	15	ERR#
3	PD1	16	INIT#
4	PD2	17	SLIN#
5	PD3	18	GND
6	PD4	19	GND
7	PD5	20	GND
8	PD6	21	GND
9	PD7	22	GND
10	ACK#	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT	26	NC

LPT1

5.4 Operation Control

⚠ Warning
The On/Off button signal will not disconnect PC power supply!

⚠ Caution
When the PC executes hardware reset, data may be lost.

Control Button	Item	Description
	①	One-button-recovery button A pointed object or a clip can be used to press the button. By pressing this button, the PC will restore interface.
	②	Switch button The on/off button used to switch on/off the PC.
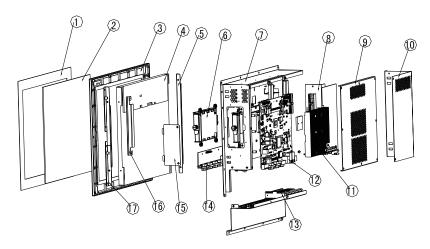
5.5 Status Indicators

Indicator	Meaning	LED	Description
POWER	PC status	Off	Disconnected from power
		Green	PC is running
HDD	Access to the hard drive	Off	No access
		Yellow	Being accessed

6. Assembly and Maintenance

6.1 Overall Assembly Drawing
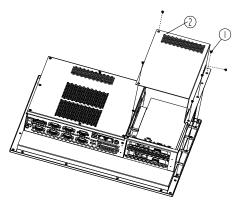
Item	Description	Item	Description	Item	Description
1	Mask	2	Touch screen	3	Front panel
4	LED screen	5	Screen bracket 2	6	HDD assembly
7	Chassis assembly	8	PCI converter board	9	Chassis cover
10	Expansion cover	11	Heat sink	12	Motherboard
13	IO front panel	14	IO board	15	CF door cover
16	Pressure line board	17	Screen bracke1		

6.2 Installation/Removal of Motherboard

6.2.1 Removing the Expansion Cover
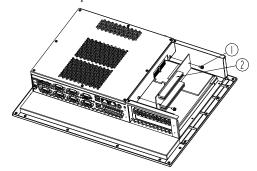
First loosen the six M3×5 sunk head screws on the expansion cover as shown in the figure below, then pull the expansion cover upward to remove it.

Item	Description	Item	Description
1	M3×5 sunk head screw	2	Expansion cover

6.2.2 Removing the Expansion Converter Board

First loosen the two M3×4 pan head screws fixing the expansion card, as shown in the figure below, then remove the expansion converter board.
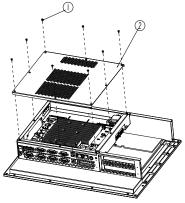
Item	Description	Item	Description
1	M3×4 pan head combo screw	2	Expansion converter board

6.2.3 Removing the Chassis Cover
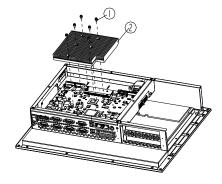
First loosen the six M3×5 sunk head screws on the chassis cover, as shown in the figure below, then pull the chassis cover upward to remove it.

Item	Description	Item	Description
1	M3×5 sunk head screw	2	Chassis cover

6.2.4 Removing the Aluminum Block for Heat Dissipation

First loosen the six M3×10 pan head combo screws on the heat sink, as shown in the figure below, then pull the block upward to remove it.
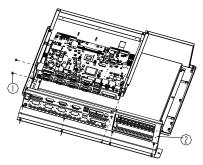
Item	Description	Item	Description
1	M3×10 pan head combo screw	2	Heat sink

6.2.5 Removing the IO Front Panel

As shown in the figure below, first loosen the nine M3 sunk head screws (two on the side, two at front, five at the bottom), then slightly move the IO front panel. When it gets loose, pull the IO front panel backward to remove it from the chassis.
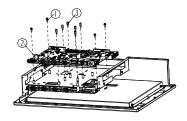
Note: Before removing IO front panel, please remove the switch cable from the motherboard, and remove the hexagon studs on the VGA and COM ports from the front panel.

Item	Description	Item	Description
1	M3×5 sunk head screw	2	IO front panel

6.2.6 Removing the Motherboard

As shown in the figure below, loosen the four M3 combo screws with gasket and six hexagon copper studs, then raise the motherboard upward. When the pin headers get disconnected, pull out the screen cable, touch screen cable and HDD cable, and take the motherboard out of the chassis by upward direction.

Item	Description	Item	Description
1	M3×8 pan head combo screw	2	Motherboard
3	Hexagon copper stud M3×6		
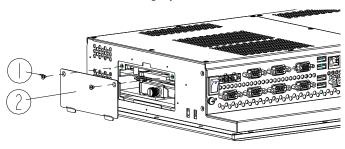
6.2.7 Installing the Motherboard

As for the installation of motherboard, please refer to the steps in 6.2.1 to 6.2.6 and carry out the steps in reverse direction.

6.3 Installation/Removal of HDD

6.3.1 Removing the Door Cover
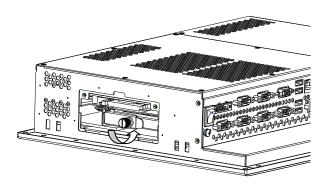
As shown in the figure below, first loosen the two M3×5 sunk head screws on the door cover, then turn the door cover slightly outward to remove it.

Item	Description	Item	Description
1	M3×5 sunk head screw	2	IO front panel
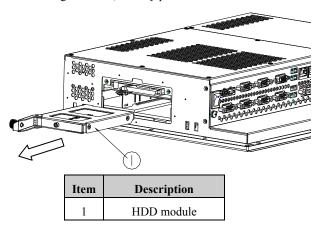
6.3.2 Removing HDD Module

Step 1: As shown in the figure below, loosen the captive screws on the HDD module by counterclockwise direction.
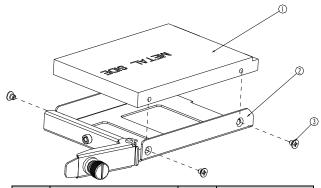
Step 2: As shown in the figure below, directly pull the HDD module outward.

Item	Description
1	HDD module

6.3.3 Removing the HDD

As shown in the figure below, loosen the four screws on the HDD module to replace the HDD.

Item	Description	Item	Description
1	HDD	2	HDD rack
3	M3×5 sunk head screw		
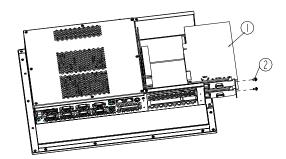
After the HDD is installed, carry out the above-mentioned two steps in reverse direction to install the HDD module. During the installation, the captive handle on the HDD module can be used.

6.4 Installation/Removal of PCI Expansion Card

After removing expansion cover by the steps in 6.2.1, loosen the truss head screws on the bracket fixing expansion card, then the expansion card can be pulled out.

For the installation of the expansion card, please carry out the above steps in reverse direction.
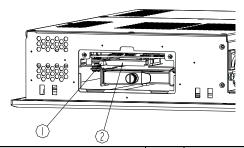
Item	Description	Item	Description
1	Expansion card	2	Truss head screw

Note: it is recommended that the PCI card with buckle on the connector should be installed in the Slot1.

6.5 Installation/Removal of CF Card

After removing expansion cover by the steps in 6.2.1, use fingers to press the push rod of the socket, as shown in the figure below. After CF card is ejected, use fingers to take the CF card out of the chassis.
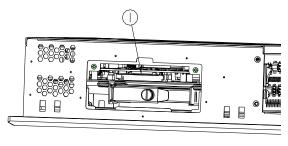
Item	Description	Item	Description
1	Push rod of CF card socket	2	CF card

6.6 Installation/Removal of SIM Card

After removing the expansion cover by the steps in 6.2.1, reach out one finger to the middle of the opening, gently press the SIM card and draw back the finger immediately, then SIM card will eject automatically. Finally, use fingers to take the SIM card out of the chassis.

Note: If SIM card is not ejected out enough, you can press the SIM card into place, and press it for one more time to eject out the SIM card. Tweezers or other tools can also be used to take the SIM card out. As for the installation direction of SIM card , please refer to screen printing on the chassis cover.

Item	Description
1	SIM card

7. BIOS Setup

7.1 Overview

BIOS (Basic Input and Output System) is solidified in the flash memory on the CPU board. Its main functions include: initialize system hardware, set the operating status of the system components, adjust the operating parameters of the system components, diagnose the functions of the system components and report failures, provide hardware operating and controlling interface for the upper level software system, guide operating system and so on. BIOS provides users with a human-computer interface in menu style to facilitate the configuration of system parameters for users, control power management mode and adjust the resource distribution of system device, etc.

Setting the parameters of the BIOS correctly can enable the system operating stably and reliably; it can also improve the overall performance of the system. Inadequate even incorrect BIOS parameter setting will decrease the system operating capability and make the system unstable or even unable to operate normally.

7.2 BIOS Parameter Setup

Prompt message for BIOS setting may appear once the system is powered on. At that time (invalid at other time), press the key specified in the prompt message (usually <Del>) to enter BIOS setting.

When the BIOS setting in CMOS is destroyed, system may also require entering BIOS setting or selecting certain default value.

All the setup values modified by BIOS are saved in the CMOS storage in system. The CMOS storage is powered by battery; unless clearing CMOS is executed, its contents would not be lost even if it is disconnected from power supply.

Note! BIOS setting will influence the computer performance directly. Setting parameter improperly will cause damage to the computer; it may even be unable to power on. Please use the internal default value of BIOS to restore the system.

Our company is constantly researching and updating BIOS, its setup interface may be a bit different. The figure below is for reference only; it may be different from your BIOS setting in use.

7.3 Basic Function Setting for BIOS

After starting SETUP program, the main interface of CMOS Setup Utility will appear:

BIOS SETUP UTILITY	
System Overview	←→ Select Screen ↑↓ Select Item + - Change Field Tab Select Field F1 General Help F10 Save and Exit ESC Exit
Processor Type : Intel(R) Atom(TM) CPU D525 @ 1.80GHz Speed :1800MHz Cores :2 System Memory Size :1015MB Power Supply Type :ATX System Time [00:47:55] System Date [Mon 01/11/2010]	
v02.61 (c)Copyright 1985-2006,American Megatrends, Inc.	

◆   **Main**

➢   **System Time**

Choose this option and set the current time by < + > / < - >, which is displayed in the format of hour/minute/second. Reasonable range for each option is: Hour (00-23), Minute (00-59), Second (00-59).

➢   **System Date**

Choose this option and set the current date by < + > / < - >, which is displayed in the format of month/date/year. Reasonable range for each option is: Month (Jan.-Dec.), Date (01-31), Year (Maximum to 2099), Week (Mon. ~ Sun.).

◆ **Advanced**

BIOS SETUP UTILITY	
Advanced Settings	Configure CPU
WARNING:Setting wrong values in below sections may cause system to malfunction ►CPU Configuration ►IDE Configuration ►Super I/O Configuration ►Hardware Health Configuration ►USB Configuration ►Power Management Configuration ►Clock Generator Configuration	
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➢ **CPU Configuration**

BIOS SETUP UTILITY		
Configure advanced CPU settings		
Brand String:		
Intel(R) Atom(TM) CPU D525	@ 1.80GHz	←→　Select Screen
Frequency;	:1.80GHz	↑↓　Select Item + -　Change Field
FSB Speed;	:800MHz	Tab　Select Field
Cache L1;	:48 KB	F1　General Help
Cache L2;	:1024 KB	F10　Save and Exit ESC　Exit
Ratio Actual Value	:9	
Hyper Threading Technology	[Enabled]	
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● **Hyper Threading Technology**

Control switch of Intel Hyper Threading Technology function.

➢ **IDE Configuration**

BIOS SETUP UTILITY	
IDE Configuration	
ATA/IDE Configuration [Enhanced]	
►Primary IDE Master :[Not Detected]	←→ Select Screen ↑↓ Select Item + - Change Field Tab Select Field F1 General Help F10 Save and Exit ESC Exit
►Primary IDE Slave :[Not Detected]	
►Secondary IDE Master :[Not Detected]	
►Secondary IDE Slave :[Not Detected]	
►Third IDE Master :[Not Detected]	
►Third IDE Slave :[Not Detected]	
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● **ATA/IDE Configuration**

This option is used to configure ATA working mode. Enhanced and Compatible respectively correspond to enhanced mode and compatible mode.

● **Legacy IDE Channels**

To configure IDE channel type in compatible mode, with SATA Only, SATA Pri, PATA Sec and PATA Only options.

● **Primary～Third IDE Master/Slave**

＊**Type**

 Not Installed: IDE device is not detected by the system

AUTO: automatic IDE parameter detection upon system bootup

CD/DVD: used for ATAPI CDROM

ARMD: used for various analog IDE devices

＊**LBA/Large Mode**

Use to set up whether LBA mode is supported.

＊**Block(Multi-sector Transfer)**

Use to set up whether multi-sector transfer is supported.

＊**PIO Mode**

Used for PIO mode setup.

＊**DMA Mode**

Used for DMA mode setup.

＊**S.M.A.R.T**

This option is used to set whether HDD S.M.A.R.T function is enabled, which

is only effective for HDD that supports such function.

＊**32Bit Data Transfer**

This option is used to enable 32-bit HDD access mode, which optimizes the

HDD read/write speed.

➢ **Super IO Configuration**

BIOS SETUP UTILITY		
Configure Super I/O Chipset		Allows BIOS to Enable or Disable Floppy Controller.
OnBoard Floppy Controller	[Enabled]	←→ Select Screen
Serial Port1 Address	[3F8/IRQ4]	↑↓ Select Item
COMA RS485 Auto Flow Control	[Disabled]	+ - Change Field
Serial Port2 Address	[2F8/IRQ3]	Tab Select Field
COMB RS485 Auto Flow Control	[Disabled]	F1 General Help
Parallel Port Address	[378]	F10 Save and Exit
Parallel Port Mode	[Normal]	ESC Exit
Parallel Port IRQ	[IRQ7]	
Uart IRQ Attribute	[Level Active Low]	
Serial Port3 Address	[200]	
Serial Port4 Address	[208]	
Serial Port5 Address	[210]	
Serial Port6 Address	[218]	
Serial Port3-6 IRQ	[10]	
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● **Onboard Floppy Controller**

Used to enable floppy controller.

● **Serial Port 1 Address**

To set up COM1 address and IRQ on the motherboard, with Disabled、
3F8H/IRQ4、3E8/IRQ4、2E8/IRQ3、2F8H/IRQ3.

● **COMA RS485 Auto Flow Controle**

When COMA is 485 mode, to set up whether COM on the motherboard to open
the automatic flow control function.

● **Serial Port 2 Address**

To set up COM2 address and IRQ on the motherboard, with Disabled、
3F8H/IRQ4、3E8/IRQ4、2E8/IRQ3、2F8H/IRQ3.

● **COMB RS485 Auto Flow Control**

When COMB is 485 mode, to set up whether COM on the motherboard to open
the automatic flow control function.

● **Serial Port 3~6 Address**

To set up COM3~6 IO address respectively on the motherboard, COM3~6 share
IRQ、

● **Parallel Port Address**

To setup parallel port addres on the motherboard, address default is 378.

● **Parallel Port Mode**

To setup parallel port mode on the motherboard.

● **Parallel Port IRQ**

To setup IRQ of parallel port on the motherboard.

➢ **Hardware Health Configuration**

BIOS SETUP UTILITY		
Hardware Health Configuration		Enables Hardware Health Monitoring Device
System Temperature	: 30℃/86℉	
CPU Temperature	: 37℃/98℉	←→ Select Screen
		↑↓ Select Item
Vcore	: 1.136 V	+ - Change Field
V3.3	: 3.296 V	Tab Select Field
V5.0	: 5.094 V	F1 General Help
V12.0	: 12.196 V	F10 Save and Exit
VBAT	: 3.152 V	ESC Exit
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● **System Temperature**

Current system temperature, usually monitored by thermal resistor on the motherboard.

● **CPU Temperature**

Current CPU temperature. CPU temperature is monitored by temperature sensor on the board.

● **CPUFAN1**

Current CPU fan speed

● **Vcore**

CPU core voltage.

● **V3.3/ V5.0/V12.0**

Swtich power output voltage.

● **VBAT**

battery voltage monitor

➢ **USB Configuration**

BIOS SETUP UTILITY	
USB Configuration	Enables USB host controllers.
USB Devices Enabled :	
1 Keyboard， 1 Drive	
USB Function　　　　[6 USB Ports] USB 2.0 Controller　　[Enabled] Legacy USB Support　 [Auto] ►USB Mass Storage Device Configuration	←→ Select Screen ↑↓ Select Item + - Change Field F1 General Help F10 Save and Exit ESC Exit
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● **USB Function**

This option is used to set the number of the USB ports, i.e., to confirm how many USB ports are supported. One controller usually has two USB ports.

● **USB 2.0 Controller**

This option is used to set whether to support USB 2.0 controller.

● **Legacy USB Support**

This option is used to support legacy USB devices (keyboard, mouse and storage device, etc.); when this option is set to Enabled, the USB device can be used even under operating systems that doesn't support USB, such as DOS.

● **USB Mass Storage Device Configuration**

This option is used to configure USB mass storage device, including Reset delay setup and enum type.

➢ **Power Management Configuration**

BIOS SETUP UTILITY		
Power Management Configuration		
ACPI APIC Support [Enabled]		←→ Select Screen
Restore on AC Power Loss [Last state]		↑↓ Select Item
Resume on RTC Alarm [Disabled]		+ - Change Field
		F1 General Help
		F10 Save and Exit
		ESC Exit
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● **ACPI APIC Support**

This option is used to enable or disable APIC under ACPI OS (Advanced Interrupt Controller).

● **Restore on AC Power Loss**

This option is used to set the system status when the computer is re-powered on after powered off under AC. "Power Off" is to make the system at power off status; "Power On" is to power on the system automatically; "Last State" is to recover the status before powering off. AT power mode has no this option.

● **Resume on RTC Alarm**

This option is used to enable or disable system alarm. When the set time has expired, the system will waken from power saving mode or even power-off status. This function must be supported by ATX power supply.

➢ **Clock Generator Configuration**

BIOS SETUP UTILITY		
Configure Clock Generator		←→ Select Screen
Spread Spectrum [Enabled]		↑↓ Select Item
		+ - Change Field
		F1 General Help
		F10 Save and Exit
		ESC Exit
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● **Spread Spectrum Control**

This option is used to control the spread spectrum function of the clock signal.

◆ **PCIPnP**

BIOS SETUP UTILITY	
Advanced PCI/PnP Settings	
WARNING:Setting wrong values in below sections may cause system to malfunction.	
IRQ3　　　　　　　[Available]	←→　Select Screen
IRQ4　　　　　　　[Available]	↑↓　Select Item
IRQ5　　　　　　　[Available]	+ -　Change Field
IRQ7　　　　　　　[Available]	F1　General Help
IRQ9　　　　　　　[Available]	F10　Save and Exit
IRQ10　　　　　　[Available]	ESC　Exit
IRQ11　　　　　　[Available]	
IRQ14　　　　　　[Available]	
IRQ15　　　　　　[Available]	
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➢ **IRQ3～15**

This series of options are used to set whether IRQ numbder is PNP mode or reserved to be used by ISA.

◆ **Boot**

BIOS SETUP UTILITY	
Boot Settings	
Quick Boot　　　　[Enabled]	←→　Select Screen
Quiet Boot　　　　[Disabled]	↑↓　Select Item
EVOC Backup　　　[Enabled]	Enter　Go to Sub Screen
	F1　General Help
	F10　Save and Exit
Boot Device Priority	ESC　Exit
1st Boot Device　　[USB:aigo USB DISK]	
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> ➢ **Quick Boot**

During BIOS booting period, configure whether to permit skipping certain test

to reduce BIOS booting time.

> ➢ **Quiet Boot**

Configure whether to display the content of OEM LOGO.

> ➢ **EVOC Backup**

To set up whether to open EVOC one-key recovery functions.

> ➢ **1st～4th Boot Device**

Configure the priority of the boot sequence for devices when the system boots.

◆ **Security**

BIOS SETUP UTILITY	
Security Settings	Install or Change the password
Supervisor Password :Not Installed	
User Password :Not Installed	←→　Select Screen
	↑↓　Select Item
Change Supervisor Password	Enter　Change
Change User Password	F1　　General Help
	F10　Save and Exit
	ESC　Exit
v02.61 (c)Copyright 1985-2006, American Megatrends, Inc.	

> ➢ **Change User/ Supervisor Password**

After pressing Change User/ Supervisor Password and input new password in

the dialog box, this column will indicate that user's password has been

installed.

◆　**Exit**

South Bridge Configuration	
Exit Options Save Changes and Exit Discard Changes and Exit Discard Changes Load Optimal Defaults Load Failsafe Defaults	Exit system setup after saving the changes. ←→　Select Screen ↑↓　Select Item Enter Go to Sub Screen F1　　General Help F10　Save and Exit ESC　Exit
v02.61 (c)Copyright 1985-2006, American Megatrends, Inc.	

➢　**Save Changes and Exit**

When you have finished all the changes and want to cover the original parameters, you may implement this operation and save the new parameters into CMOS storage. To implement this operation, you may choose this option and press < Enter >; press < Enter > again to exit.

➢　**Discard Changes and Exit**

If you do not want to save the change into CMOS storage, please choose this option and press < Enter >; press < Enter > again to exit.

➢　**Discard Changes**

If error occurs in your change and the changes need to be neglected, please choose this option and press < Enter > in order to enter corresponding options again and reset it.

➢　**Load Optimal Defaults**

This menu is used to input default value in system configuration. These default values are optimized and could give play to the high capability of all hardware.

➢　**Load Failsafe Defaults**

This loads the safe default values that support fundamental system functions. To implement this function, choose this option and press < Enter >; messages to be confirmed will be shown on the screen, press < Enter > to confirm execution of this function.

7.4 System Resource Managed by BIOS under X86 Platform

We define three kinds of system resources here: I/O port address, IRQ interrupt number and DMA number.

◆ **DMA**

Level	Function
DMA0	DRAM Refresh
DMA1	Unassigned
DMA2	Unassigned
DMA3	Unassigned (sometimes used for HDD)
DMA4	Used for DMAC Cascade
DMA5	Unassigned
DMA6	Unassigned
DMA7	Unassigned

◆ **APIC**

Advanced programmable interrupt controller. Most motherboards above P4 level support APIC and provide more than 16 interrupt sources, like IRQ16 - IRQ23; while some others can have up to 28 interrupt sources, such as motherboard supporting PCI-X. However, relevant operating systems are required to enable that function, and currently, only the operating systems above Windows 2000 can support that function.

◆ **IO Port Address**

There is 64K for the system I/O address space. Each peripheral will occupy a portion of the space. The table below shows parts of the distribution of the I/O address. As the address of PCI device (e.g. PCI network card) is configured by software, it is not listed in this table.

Address	Device Description
000h - 00Fh	DMA Controller #1
000h– CF7h	PCI bus
010h - 01Fh	Backplane Resource
020h - 021h	Programmable Interrupt Controller#1
022h - 03Fh	Backplane Resource
040h - 043h	System Timer
044h - 05Fh	Backplane Resource
060h	Backplane Resource
061h	System speaker
062h –063h	Backplane Resource
064h	Backplane Resource
065h - 06Fh	Backplane Resource
070h - 071h	Real Time Clock, NMI
072h –07Fh	Backplane Resource
080h	Backplane Resource
081h - 083h	DMA Controller #2
084h - 086h	Backplane Resource
087h	DMA Controller #3
088h	Backplane Resource
089h - 08Bh	DMA Controller#4
08Ch - 08Eh	Backplane Resource
08Fh	DMA Controller#5
090h - 09Fh	Backplane Resource
0A0h - 0A1h	Programmable Interrupt Controller#2
0A2h –0BFh	Backplane Resource

0C0h - 0DFh	DMA Controller#2
0E0h - 0EFh	Backplane Resource
0F0h –0FFh	Numeric Data Processor
1F0h - 1F7h	Primary IDE channel
274h –277h	ISAPNP Read Data Port
279h	ISAPNP Read Data Port
2F8h - 2FFh	COM #2(COM2)
378h –37Fh	LPT（LPT1）
3B0h –3BBh	Intel(R) Graphics Media Accelerator 3150
3C0h –3DFh	Intel(R) Graphics Media Accelerator 3150
3F6h - 3F6h	Primary IDE channel
3F8h - 3FFh	COM #1(COM1)
400h– 41Fh	DMA controller
4D0h –4D1h	Backplane
500h - 53Fh	Backplane
800h - 87Fh	Backplane
880h - 88Fh	Backplane
890h - 89Fh	Backplane
A79h	ISAPNP Read Data Port
0D00h-FFFFh	PCI bus

◆ **IRQ Assignment Table**

There are 15 interrupt sources of the system. Some have been occupied by the system devices. Only the ones that are not occupied can be assigned. The ISA devices claim to engross the interrupt. Only the plug and play ISA devices can be assigned by the BIOS or the OS. And several PCI devices share one interrupt

through the assignment of BIOS or OS. The diagram below shows parts of the interrupt assignment under X86 platform, but it does not show the interrupt sources occupied by the PCI devices.

Level	Function
IRQ0	System Timer
IRQ1	Standard 101/102 Key or Microsoft Keyboard
IRQ2	Programmable Interrupt Controller
IRQ3	COM#2
IRQ4	COM#1
IRQ5	Reserved
IRQ6	Reserved for floppy drive controller
IRQ7	LPT
IRQ8	System CMOS/real time clock
IRQ9	Microsoft ACPI-Compliant System
IRQ10	Reserved
IRQ11	Reserved
IRQ12	PS/2 mouse
IRQ13	Math coprocessor
IRQ14	Primary IDE
IRQ15	Reserved

8. 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.

9. Appendix

9.1 BPI Overview

EVOC BPI (BIOS Programming Interface) is a cross-platform, easy-to-maintain software interface specification, which supports access to hardware under the Protected Mode of the 32-bit operating system. As a link between hardware and software, the function of BPI is to provide a standard interface (in the form of library function, similar to library function of standard C) of platform-irrelevant operating hardware for the application layer, therefore, application software engineer does not need to worry about specific hardware solution for the motherboard. Users can rapidly develop their own software products by using BPI library, and when the hardware of the motherboard is upgraded, there is no need to modify the application software and the former software can operate on the new platform normally. It has greatly sped up the product development and reduced the maintenance cost. The BPI structure is shown in the Figure 1 below:
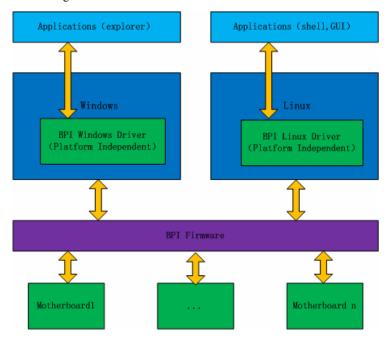

Figure 1 BPI Structure

1. Functions Supported by BPI

1)   Watchdog

Supports Watchdog Startup, Stop and Feed Dog functions.

2)   GPIO

Supports GPIO input/output programming.

3)   Hardware monitoring

Supports monitoring of motherboard CPU temperature, system temperature, fan speed and motherboard core voltage detection, such as CPU Core voltage, V12.0, battery voltage, etc.

4)   Flash programming

The motherboard provides one OEM Flash by default, which is used to store private data of users, such as key and product serial number. The size can be acquired by BPI library function.

Users can carry out second development by using BPI library based on application needs, for example:

a)   Detecting CPU temperature. If temperature is too high, alarm buzzer will be triggered.

b)   Peripheral device can be controlled by GPIO programming.

2. Advantages of BPI

1)   Platform Irrelevant

The interfaces provided by BPI for application layer, i.e. BPI library function is irrelevant to platform, therefore the software developed by using BPI library function can operate on a new platform, supporting BPI function, normally without making any modification.

2)   Security and High Reliability

The BPI library function accessing the hardware is programmed by the motherboard developer and is strictly tested; therefore, it can avoid system malfunction caused by improper operation of the system hardware.

3)   Easy Maintenance

Traditional WDT and GPIO programming are closely related to the hardware with complicated test and debug process and software of different platforms;

however, the software developed by BPI only requires one set of the maintenance software.

4)   Low Cost

Developing the applications by BPI will not result in additional hardware and software cost, but it will reduce the development difficulty, development cycle and time-to-market for the system integrator.

9.2 EVOC One-Button-Recovery Operating Instructions

EVOC one-key recovery functions supports to back up and recover the data in various file systems (FAT32/NTFS/EXT2/EXT3/EXT4). The backup configuration is quite flexible; please specify different configurations according to actual requirement. The following instructions only refer to the default settings. The function supports "RCV" button operation; the "RCV" button is configured on PPC-1561V SERIES.

A. Instructions

1.   The storage devices described here only refer to the devices supported by EVOC boards or EVOC PCs, including IDE/SATA hard disks, CF cards and DOM disks, (USB storage devices are currently unsupported).

2.   When only one storage device is installed in PC, it will back up the data in the first partition of the storage device to the last partition, or recover the backup image files in the last partition of the storage device to the first partition.

3.   The PC can supports up to four storage devices at the same time: one storage device is set as the prime system disk while the last storage device is set as the secondary system disk. The default backup mode is to save the data in the first partition of the primary disk in the last partition of the secondary disk; while the default recovery mode is to restore the backup image files in the last partition of the secondary disk to the first partition of the primary disk.

When both CF card and hard disk are installed in PPC-1561V SERIES the CF card is set as the primary disk of the PC in default and the last hard disk is set as the secondary disk of the PC. When only two hard disks are installed in PPC-1561V SERIES, the first hard disk is set as the primary disk of the PC in default and the last hard disk is set as the secondary disk of the PC.

4. In PPC-1561V SERIES, each storage device shall have two partitions, to ensure the successful operation of system backup and recovery.

5. The file system in the partition of the backup disk can differ from that of the recovery disk; however, the file systems other than FAT32 /NTFS /EXT2 /EXT3 /EXT4 are unsupported.

6. Please make sure the backup image files are ready when implementing recovery for the first time (that is to say, the data shall be backed up following the foresaid steps). Otherwise, the recovery is invalid.

B. Operating Steps:

1. Enable or disable EVOC One-key Recovery Function.

    Press "DEL" key to enter the BIOS Setup interface after the power-on interface appears.

    (1) Find the BOOT option in BIOS Setup interface, set the EVOC Backup option to [Enable] or [Disabled] the EVOC One-key Recovery Function. This function is enabled by default.

2. Enter system backup & recovery interface.

    When EVOC One-key Recovery function is enabled, it will prompt "Please Press button <RCV> for System Recovery within 3 Seconds!!"; at that time, press the button <RCV> at the back of the panel PC within 3 seconds and the system will enter system backup and recovery interface.

3. Implementing system backup

    After entering the system backup & recovery interface, the system will enter into the following interface and ask the user whether to implement One-Button-Recovery, and there is a 25-second countdown. If the function is run for the first time, One-Button-Backup must be selected first and then the first backup operation will be operated. The operating system will display the following information:

EVOC One-Button-Recovery system   EVOC eBack System

===

A． One-Button-Recovery system   Restore

B． One-Button-Backup system   Backup

C． Mannual backup and recovery   Mannual

D． Restore to factory default values   Default

Note: Restore the backup system image of the last time, press ↑ or ↓ button

to move the highlight, or press A, B, C, D buttons to select the option

and press Enter button to confirm.

A． One-Button-Recovery system   Restore

This option is used to restore the backup system image of the last time.

B． One-Button-Backup system   Backup

This option is used to back up the first partition of the first HDD.

C． Mannual backup and restore   Mannual

This option is used for mannual backup and restoration, and must be handled

by professional personnel.

D． Restore to factory default values   Default

This option is used to clear the backup information.

When the data backup or recovery operation is completed, the system will reboot.

Note:

1） It is normal if the progress bar is not moving for around 1 minute; the system is operating at the background. Please wait with patience.

2） The time needed for system backup is around 2~20 minutes, which is dependent upon the size of the system disk.

Instructions for Anti-virus Function

The EVOC MBR anti-virus function is integrated in BIOS, which is well protected from damage from other software (including virus); therefore, it provides excellent defending and safety features. The instructions for the anti-virus function are as follows:

1. During POST period, press "Del" to enter BIOS configuration interface;

2. There is a functional option "Clear MBR Virus Function" in the Security menu of the BIOS configuration interface, which includes three sub-menus:

   a) Disabled: disable the function of clearing MBR virus;

   b) Manual: when MBR virus is detected in the hardware system, prompt to users whether to clear the MBR virus during POST period. Choose "Y" to clear the virus; choose "N" not to clear the virus.

   c) Quiet: when MBR virus is detected in the hardware system, clear the virus automatically without any prompt information.

9.3 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	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	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 included 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.