

## **IPPC-7157 Series**

**15" XGA TFT LCD Pentium D/  
Pentium 4/ Celeron D Industrial  
Panel PC with 7 x PCI/PCle Slots  
and Membrane Keypad**

**User Manual**

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這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

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## **FCC Class A**

Note: 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.

*Warning! Any changes or modifications made to the equipment which are not expressly approved by the relevant standards authority could void your authority to operate the equipment.*



## **Packing List**

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Before setting up the system, check that the item is among those listed below and is in good condition. If your Workstation does not match any of those below, please contact your dealer immediately.

- 1 x IPPC-7157 Workstation
- 1 x Accessory Box, with:
- CD ROM for IPPC-7157 Series DRV
- Registration and 2 year Warranty card
- Startup manual of AIMB-762 mother board
- SATA Cable x 2
- SATA Power Cable x 2
- PATA 40PIN DMA66 Flat Cable
- FDD Cable
- D-Sub Flat Cable with bracket
- Mother Board I/O sheet metal bracket
- Jumper Bag (mini jumper\*20)

IPPC-7157 Industrial Workstations includes the following models:

**IPPC-7157A-X1AE:** Rugged Pentium® D/Pentium® 4/Celeron® D Industrial workstation with 15” LCD, AIMB-762 M/B, 300W AC power supply. Stainless steel chassis and aluminum front panel with membrane function keys.

**IPPC-7157A-R1AE :** IPPC-7157A-X1AE with resistive touchscreen

## **Additional Information and Assistance**

Step 1. Visit the Advantech web site at **[www.advantech.com](http://www.advantech.com)** where you can find the latest information about the product.

Step 2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:

- Product name and serial number
- Description of your peripheral attachments
- Description of your software (operating system, version, application software, etc.)
- A complete description of the problem
- The exact wording of any error messages

## Safety Instructions

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1. Read these safety instructions carefully.
2. Keep this User's Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
  - a. The power cord or plug is damaged.
  - b. Liquid has penetrated into the equipment.
  - c. The equipment has been exposed to moisture.
  - d. The equipment does not work well, or you cannot get it to work according to the user's manual.
  - e. The equipment has been dropped and damaged.
  - f. The equipment has obvious signs of breakage.
15. **DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.**
16. **CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.**

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

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## General Information

This chapter gives background information on the IPPC-7157 series  
Sections include:

- Introduction
- Specifications
- Dimensions

# Chapter 1 General Information

## 1.1 Introduction

---

The IPPC-7157 is an all new designed workstation with 15" TFT LCD and 7 expansion slots. With the new ID Design, IPPC-7157 will be a brand new front panel workstation from existed AWS series. The IPPC-7157 support ATX industrial mother board and standard motherboard. The IPPC-7157 also provides many powerful features such as detachable front panel module, a front-access USB port, 53 membrane key & touch pad with two mouse buttons, 6 OSD Control keys, NEMA4/IP65 compliant front panel, Optional analog resistive touchscreen (USB Interface).

### **Modularized Side-Open Front Panel Makes Maintenance Easy**

The IPPC-7157 makes user can maintain the system fast and easily. First, if there are problems with the LCD display, the detachable front panel with “hinge” design allows you to replace it or service it simply and quickly. This helps saves downtime costs associated with system crashes.

Second, the side-open LCD front panel also make it more convenient when you want to maintain the CPU, I/O cards, HDD, CD-ROM and even floppy.

### **Industrial Design Withstands Harsh Environments**

In addition, the AWS-8259 also features many powerful functions to meet the industrial-grade requirements. The front panel is made of Aluminum and being chemical treated by anode. That prevents the panel from damaging by acid and salt. Besides, it's waterproof and IP65/NEMA4 compliant. The AWS-8259 also offers the stainless steel chassis. It also protects the chassis. For keeping the system working properly, the AWS-8259 provides a fan & filter to avoid overheating & dust. In addition, the AWS-8259 also provides three mounting ways to fit different application: 19" rack, panel or wall mounting.

## 1.2 Specifications

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### 1.2.1 General

- **Button Control:**

Membrane Keypad 1: 43 operating keys

Membrane Keypad 2: 10 programmable macro function keys

- **BIOS:** Award™ 8 Mbit FWH

- **Certifications:** BSMI, CCC, CE, FCC

- **Cooling System:** 1 x 49 CFM fan w/50,000 hrs MTBF

- **Dimensions (W x H x D):**

482 x 354.8 x 162 mm (18.97" x 13.96" x 6.37")

- **Disk Drive Bay:**

Supports 1 x FDD, 2 x 3.5" HDD & 1 x CD-ROM (HDD optional)

- **Enclosure:** Front Panel – Aluminum,

Chassis – Anti-rust

- **Mounting:** Panel, 19" Rack

- **Power Input:** 90 ~ 264 VAC @ 47 ~ 63 Hz full range 6.0/3.0A

- **Power Output:** +5V@30A, +12V@15A, +3.3V@28A, -5V@0.3A,  
-12V@0.8A, +5 VSB@2A

- **Power Supply:** Watt :300 W, MTBF: 100,000 hrs

- **Weight (Gross):** 18 kg ( 39.7 lb)

### 1.2.2 System Hardware

- **Audio Ports:** 1 x Mic-in, 1 x Line-out

- **Chipset:** Intel 945G + ICH7R

- **CPU:** Socket 775,

Intel® Pentium® D up to 3.2 GHz (Dual-core),

Intel® Pentium® 4 up to 3.8GHz,

Intel® Celeron® D up to 3.06GHz

- **Expansion Slots:** 1 x PCIe x16 4.0 GB/s per direction

1 x PCIe x4 1.0 GB/s per direction

5 x PCI 32-bit/33 MHz

- **Keyboard/Mouse:** 2 x PS/2 for mouse & keyboard interface
- **LAN:** 2 x 10/100/1000Base-T
- **Memory:** 4 x 240-pin Dual ch DDR2 DIMM sockets  
(Up to 4 GB, Clock 266)
- **Parallel Port:** 1 x enhanced parallel port  
Supports SPP/EPP/ECP parallel mode.  
BIOS configurable to LPT1, LPT2, LPT3 or disabled
- **Serial Ports:** 1 x RS-232/422/485 on pin header  
1 x RS-232 on rear I/O
- **USB Ports:** 1 x USB 2.0 on front panel  
4 x USB 2.0 on rear I/O

### 1.2.3 LCD Display

- **Backlight Life:** 50,000 hrs
- **Contrast Ratio:** 500 : 1
- **Display Size:** 15"
- **Display Type:** XGA TFT LCD
- **Luminance:** 250 cd/m<sup>2</sup>
- **Max. Colors:** 16.2 M (RGB 6-bit + FRC data)
- **Max. Resolution:** 1024x768
- **OSD Control:** ON/OFF, Brightness down, up (behind the front panel)
- **Viewing Angle (H/V°):** 140/120

### 1.2.4 Touchscreen (Optional)

- **Interface:** USB
- **Lifespan:**  
10 million with silicone rubber of R8 finger, writing rate is 250g at 2X/s
- **Light Transmission:** > 80% (AMT)
- **OS Support:** Windows 95/98/ME/2000/XP/CE/NT/Vista, Linux
- **Type:** 8W Resistive

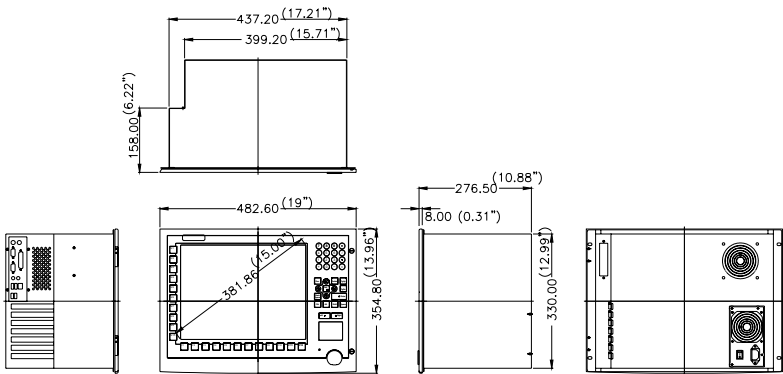
## 1.2.5 Environment

- **Humidity:** 5 ~ 85% RH @ 40° C (non-condensing)
- **Ingress Protection:** Front panel NEMA4/IP65
- **Operating Temperature:** 0 ~ 50° C (32 ~ 122° F)
- **Storage Temperature:** -20 ~ 60° C (-4 ~ 140° F)
- **Vibration Protection:** 5~500 Hz,  
1 GRMS random vibration (operating)

## 1.3 Dimensions

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IPPC-7157A



CUT OUT Dimensions 439.20(17.29")x332.00(13.07")

**Figure 1.1: IPPC-7157 Dimensions**



## **System Setup**

This chapter details system setup for the IPPC-7157 Series.

Sections include:

- A Quick Tour of IPPC-7157
- Installing a CPU & CPU Cooler
- Installing Optional Disk Drives
- Rack Mounting

# Chapter 2 System Setup

## 2.1 A Quick Tour of IPPC-7157

---

Before you start the computer, please follow these procedures to set up the system.

1. Check and adjust jumpers on the motherboard (see Chapter 3)
2. Install SDRAM
3. Install CPU & CPU Cooler
4. Install add-on cards
5. Connect the wires, cables and accessories
6. Mount the computer
7. Program the BIOS settings
8. Install an operating system.

### Warnings



*1. Switch off and unplug the computer every time you access its interior.*

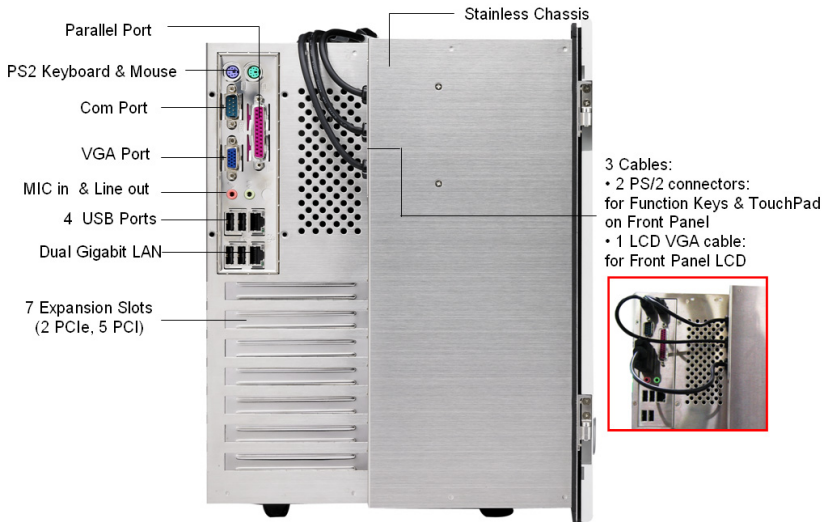
*2. The motherboard inside the system is composed of many delicate ICs, chips and other integrated circuit components. These components are easily damaged by static shock. When you begin to install components, please:*

- *Avoid touching metal parts of the motherboard.*
- *Wear an anti-static ring when handling a CPU or SDRAM module.*
- *Put SDRAM modules and the CPU inside an anti-static bag or a similar place before installation.*





**Figure 2.1: OverviewView**



**Figure 2.2: Side View**

### **2.1.1 PS/2 Mouse and Keyboard**

If you wish to use a full-size desktop keyboard and PS/2 mouse with your Workstation, follow these instructions:

1. Be sure the workstation is turned off.
2. Reattach the original 2 black PS/2 keyboard & mouse cables if they are already connected on the right side of the chassis.
3. Attach your keyboard & mouse adapter onto the PS/2 ports.

*Note: Please be aware, once after connecting your keyboard & mouse onto the I/O of 7157 right side of chassis, the all front panel function keys & touch pad will be disabled, since the original cables are removed*

### **2.1.2 Parallel Ports**

The Workstation supports the latest EPP and ECP parallel port protocols for improved performance and versatility with compatible printers or other devices.

To connect the Workstation to a printer or other devices:

1. Make sure both the Workstation and the printer/devices are turned off.
2. Connect the 25-pin male connector of the printer cable to the 25-pin female port on the Workstation labelled "parallel port."
3. If necessary, attach the other end of your printer cable to your printer, and fasten any retaining screws.
4. Turn on the printer and any other peripheral devices you may have connected to the Workstation. Then turn on the Workstation.
5. If necessary, run the Workstation's BIOS setup program to configure the parallel port to respond as required by your printer and software operating environment.

### 2.1.3 Serial COM Ports

There are two serial COM ports on the I/O at the right side of workstation. You can easily attach a serial device to the Workstation, such as an external modem or mouse. Follow these instructions:

1. Make sure the Workstation and any other peripheral devices you may have connected to the Workstation are turned off.
2. Attach the interface cable of the serial device to the Workstation's serial port. (See Fig. 2-2.) If necessary, attach the other end of the interface cable to your serial device. Fasten any retaining screws.
3. Turn on any other peripheral devices you may have connected to the Workstation, and then turn on the Workstation.
4. Refer to the manual(s) which accompanied your serial device(s) for instructions on configuring your operating environment to recognize the device(s).
5. Run the BIOS setup program to set the I/O address and IRQ, and configure the jumper settings to change the mode of the COM ports (refer to section 3.3).

### 2.1.4 USB Ports

An external USB device may be connected to the system via the USB ports located on the right side of the system unit and also could access from 1 USB port on the front panel of IPPC-7157.

1. Connect the external device to the system.
2. The USB ports support hot plug-in connection. You should install the device driver before you use the device.

### 2.1.5 Audio Interface

The audio interface includes three jacks: microphone-in, line-out and line-in. Their functions are:

**Microphone-in:** Use an external microphone to record voice and sound.

**Line-out:** Output audio to external devices such as speakers or ear-phones. The built-in speaker will not be disabled when the line-out jack is connected to external audio devices.

1. Connect the audio device to the system.
2. Install the driver before you use the device.

## 2.1.6 Ethernet

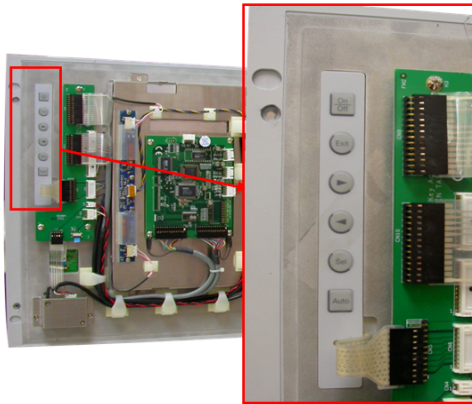
To install Ethernet for your system:

1. Connect the Ethernet cable.
2. Turn on the Workstation.
3. Run the Ethernet driver in the Mother Board Disc to connect up to the program: "E:\Drv\_LAN\Intel 82573\Autorun.exe"

## 2.1.7 Adjusting the LCD Brightness

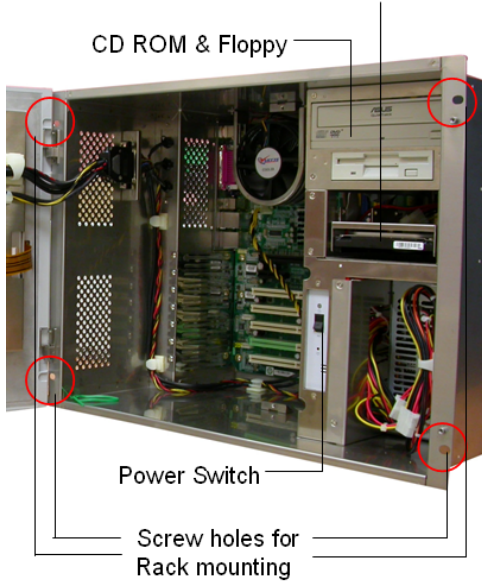
The LCD OSD control key is located behind the front panel module, you have to open the front panel to access it.

1. Unscrew the 2 screws on the right side of front panel.
2. Open the front panel door, to find the LCD OSD control key.



### 2.1.8 System On/Off

The IPPC-7157 has 1 system on/off switch, located inside the chassis.  
HDD Bay (HDD is optional)

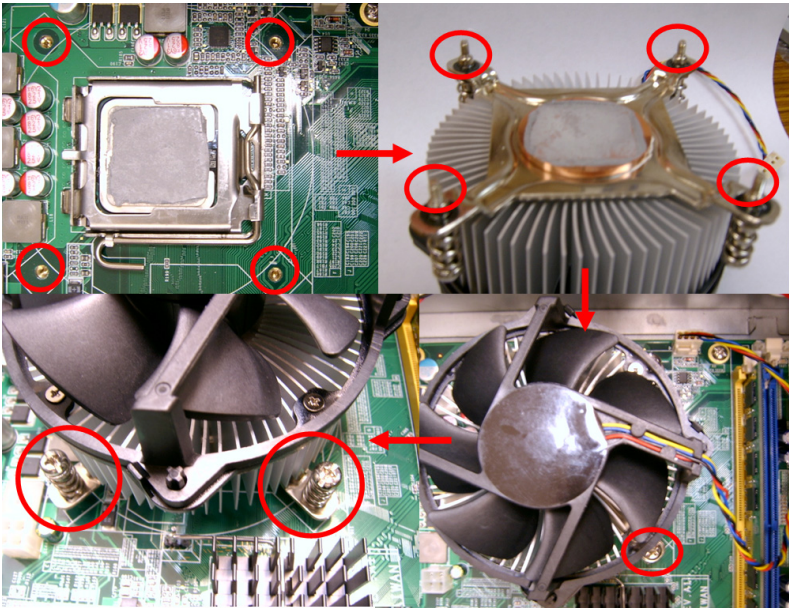


## 2.2 Installing a CPU & CPU Cooler

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The CPU can be upgraded to improve system performance. The 7157 provides Socket 478 architecture which supports Pentium 4 CPU up to 2.8 GHz, and Celeron up to 2.5 GHz.

While installing or upgrading the CPU, CPU cooler must be correctly removed. After installing CPU, then the CPU cooler can be screwed back into the standoff from the chassis. see below Figure 2.xx for reference.



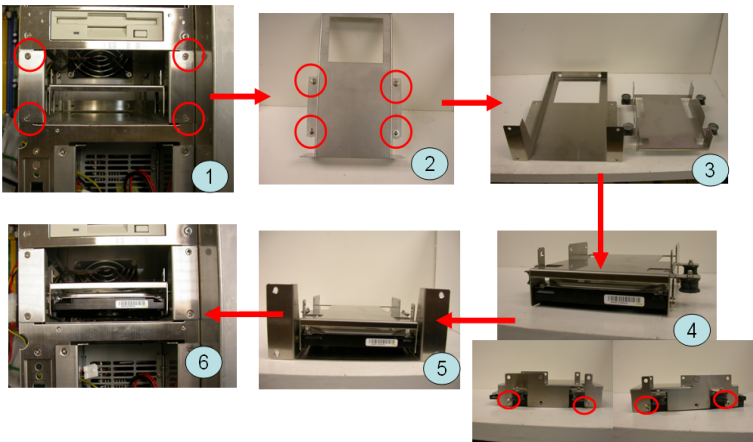
## 2.3 Installing Optional Disk Drives

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The IPPC-7157 provides spaces for two 3.5" hard disk drives, one CD-ROM drive, & one 3.5" floppy disk drive within the chassis. Front-facing FDD & CD-ROM have already been installed. You can access them after opening the front LCD panel.

Below is the procedure of installing HDD:

1. Unscrew and remove the HDD Drive Bay.
2. Unscrew the 4 screws on the drive bay, and separate the 2 parts.
3. Install HDD with 2 screws on each side.
4. Combine the 2 sheet metal parts of the drive bay with the screws
5. Install the HDD drive bay back into chassis.



## 2.4 Rack Mounting

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The IPPC-7157A can be mounted to a 19" industrial rack.





## Touchscreen

This chapter contains information on the touchscreen, its installation and configuration.

Sections include:

- Introduction
- Installing Windows 2000/X Drivers
- Configuring PenMount Drivers
- Uninstalling PenMount Drivers

# Chapter 3 Touchscreen

## 3.1 Introduction

---

The IPPC-7157 Series' optional touchscreen uses advanced 8-wire resistive technology. It provides more accurate sensing capacity than other technologies. The touchscreen is specially designed for tough industrial environments, and has been approved to FCC Class B standards.

## 3.2 Installing Windows 2000/XP Drivers

---

The touchscreen of IPPC-7157 is controlled by USB interface and has drivers for Linux, Windows 2000, Windows XP, Windows Vista and Windows CE. You should read the instructions in this chapter carefully before you attempt installation.

Please install the touchscreen driver from following path:

*"\Touchscreen Drivers\PenMount Windows Universal Driver  
V1.0.1018\_v1.0.0.2Beta"*

**Note 1:**     *The following windows illustrations are examples only. You must follow the flow chart instructions and pay attention to the instructions which then appear on your screen.*

**Note 2:**     *Install the HMI CD Driver into the system CD-ROM (D:\ means CD-ROM)*

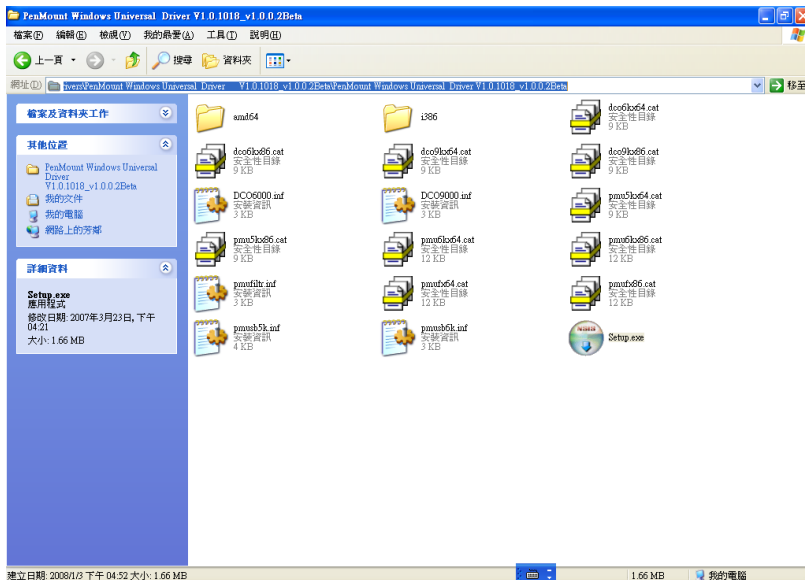
Before installing the Windows 2000/XP driver software, you must have the Windows 2000/XP system installed and running on your computer.

If you have an older version of the PenMount Windows 2000/XP driver installed in your system, please remove it first. Follow the steps below to install the PenMount Windows 2000/XP driver.

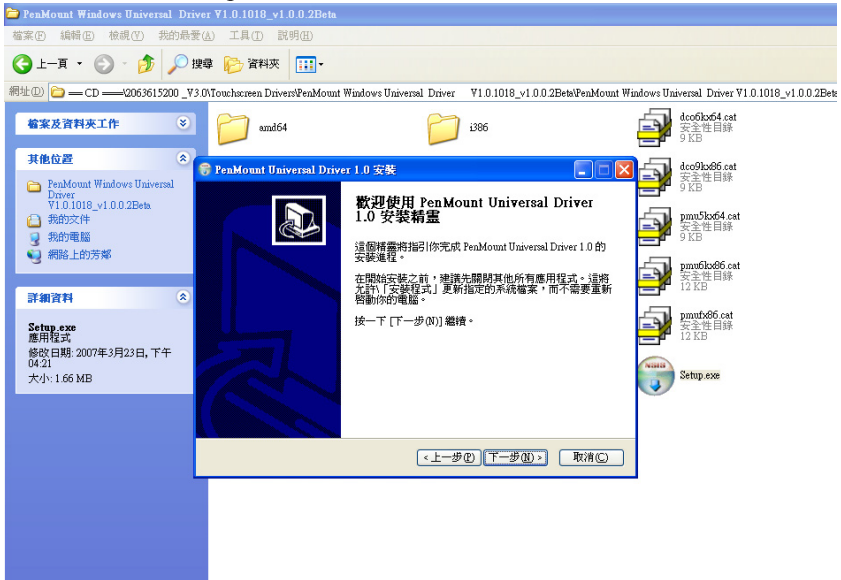
1. When the system first detects the controller board, a screen appears that shows “Unknown Device.” Do not use this hardware wizard. Press Cancel.



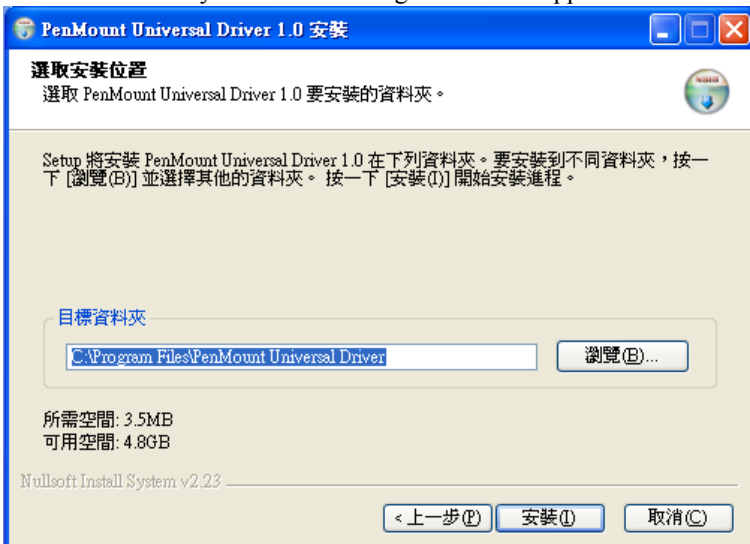
2. Find the Setup.exe in the PenMount Universal Driver Folder:  
"D:\Touchscreen Drivers\PenMount Windows Universal Driver V1.0.1018\_v1.0.0.2Beta"



- The screen displays the installation wizard for the PenMount software. Click “Next”.
- A License Agreement appears. Click “I accept...” and then proceed to next step.”



- The “Ready to Install the Program” screen appears. Select “Install.”



6. If a pop-up windows shows “Hardware Installation.” Select “Continue Anyway” then proceed.



7. The “InstallShield Wizard Completed” appears. Click “Finish.”



## 3.3 Configuring PenMount Drivers

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Upon rebooting, the computer automatically finds the new 9000 controller board. The touch screen is connected but not calibrated. Follow the procedures below to carry out calibration.

1. After installation, click the PenMount Monitor icon “PM” in the menu bar.
2. When the PenMount Control Panel appears, click “Calibrate.”

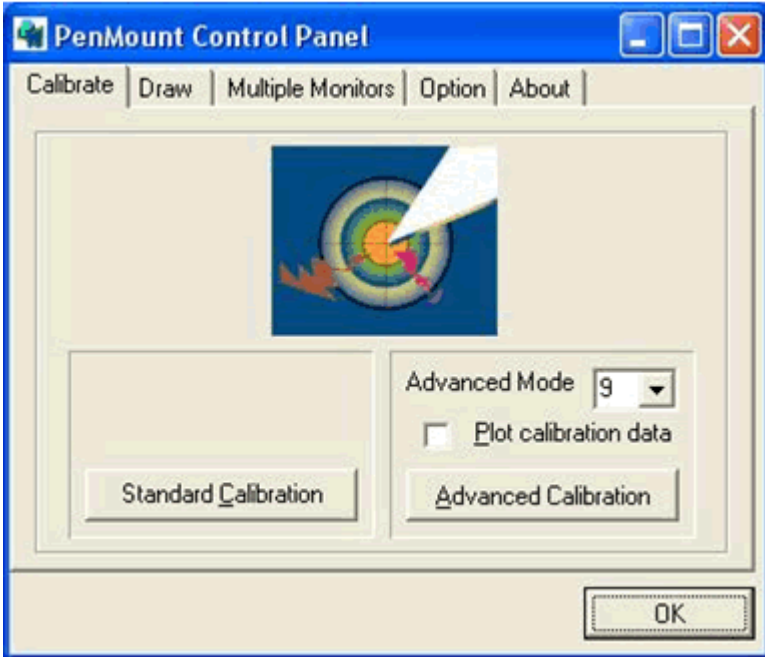
### 3.3.1 PenMount Control Panel

The functions of the PenMount Control Panel are Calibrate, Draw, Multiple Monitors, Option, and About, which are explained in the following sections.

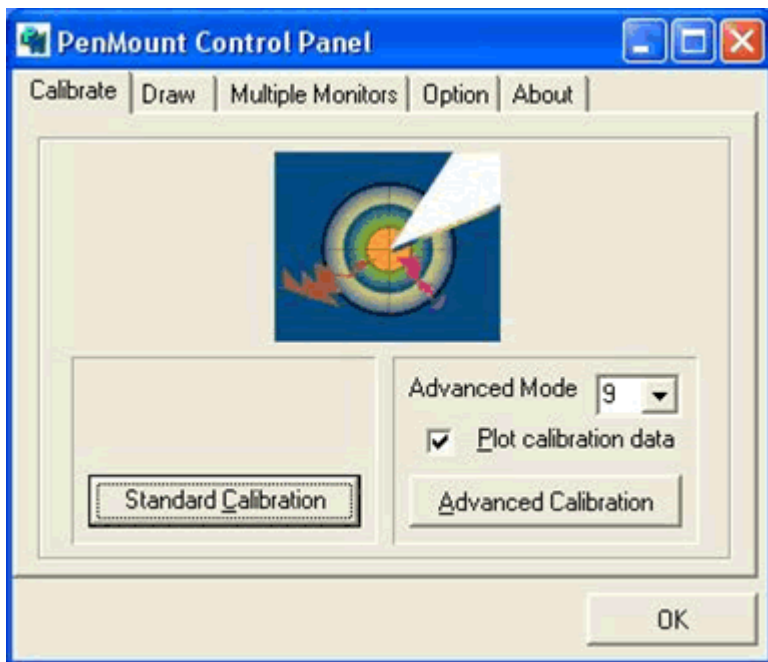
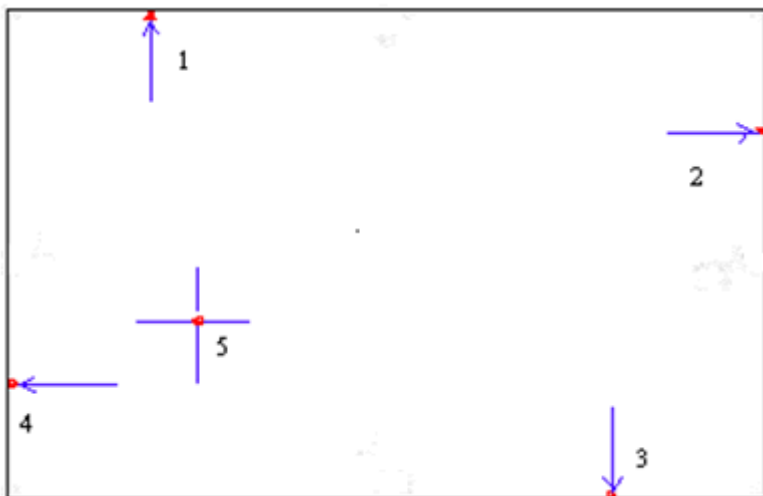
#### Calibrate

This function offers two ways to calibrate your touch screen. ‘Standard Calibration’ adjusts most touch screens. ‘Advanced Calibration’ adjusts aging touch screens.

Standard Calibration	Click this button and arrows appear pointing to red squares. Use your finger or stylus to touch the red squares in sequence. After the fifth red point calibration is complete. To skip, press ‘ESC’.
Advanced Calibration	Advanced Calibration uses 4, 9, 16 or 25 points to effectively calibrate touch panel linearity of aged touch screens. Click this button and touch the red squares in sequence with a stylus. To skip, press ‘ESC’.



*NOTE: The older the touch screen, the more Advanced Mode calibration points you need for an accurate calibration. Use a stylus during Advanced Calibration for greater accuracy.*

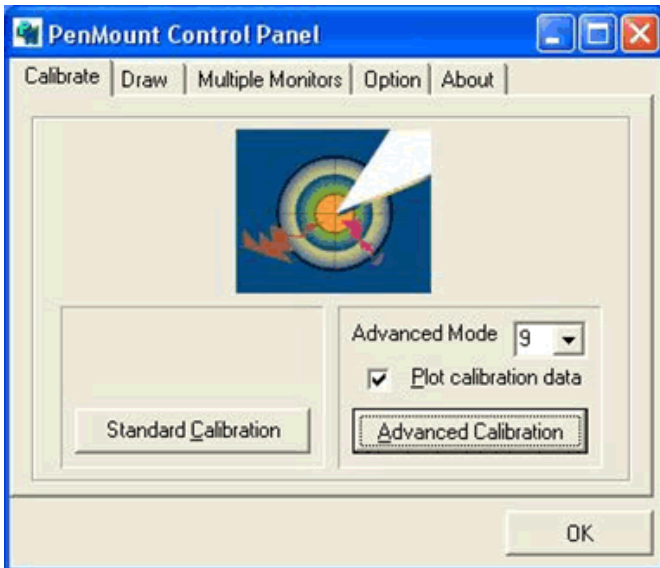






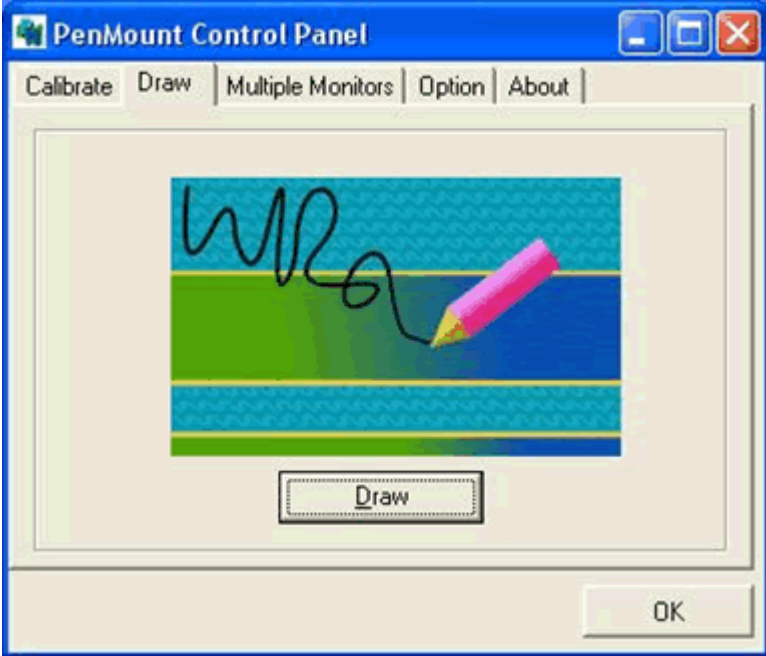
Plot  
Calibration  
Data

Check this function and a touch panel linearity comparison graph appears when you have finished Advanced Calibration. The blue lines show linearity before calibration and black lines show linearity after calibration.



## Draw

Tests or demonstrates the PenMount touch screen operation. The display shows touch location. Click Draw to start. Touch the screen with your finger or a stylus and the drawing screen registers touch activity such left, right, up, down, pen up, and pen down.



Touch the screen with your finger or a stylus and the drawing screen registers touch activity such left, right, up, down, pen up, and pen down.



Click Clear Screen to clear the drawing.

## Multiple Monitors

Multiple Monitors supports from two to six touch screen displays for one system. The PenMount drivers for Windows 2000/XP support Multiple Monitors. This function supports from two to six touch screen displays for one system. Each monitor requires its own PenMount touch screen control board, either installed inside the display or in a central unit. The PenMount control boards must be connected to the computer COM ports via the RS-232 interface. Driver installation procedures are the same as for a single monitor. Multiple Monitors supports the following modes:

Windows Extend Monitor Function

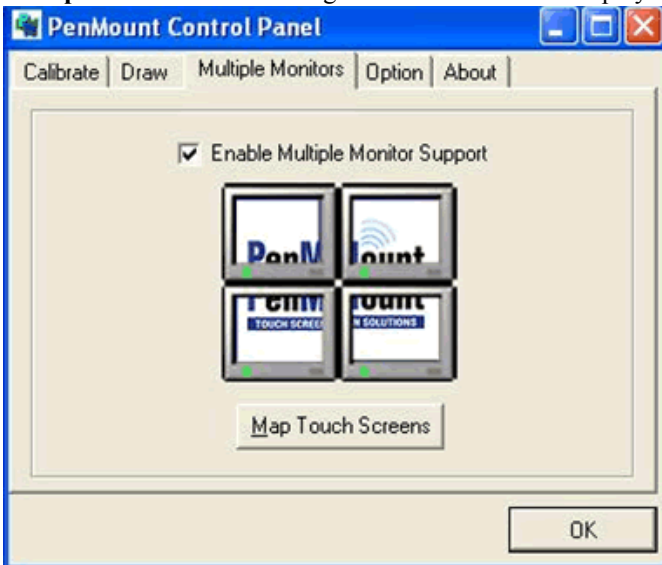
Matrox DualHead Multi-Screen Function

nVidia nView Function

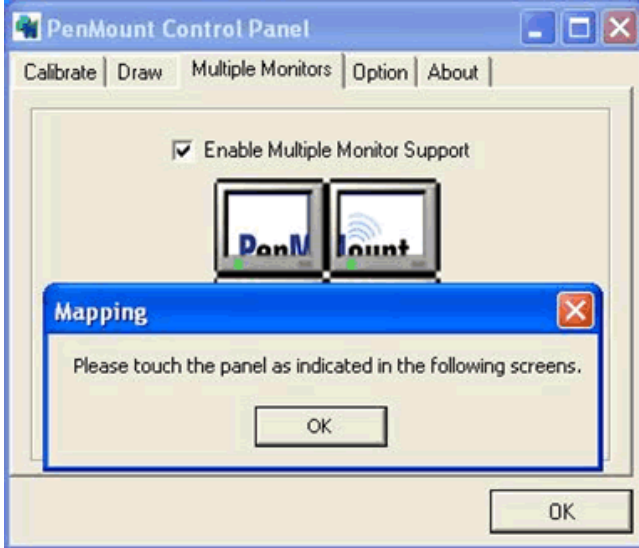
*Note: The Multiple Monitors function is for use with multiple displays only. Do not use this function if you have only one touch screen display. Please note once you turn on this function the Rotating function is disabled.*

Enable the multiple display function as follows:

1. Check the **Enable Multiple Monitor Support** box; then click **Map Touch Screens** to assign touch controllers to displays.



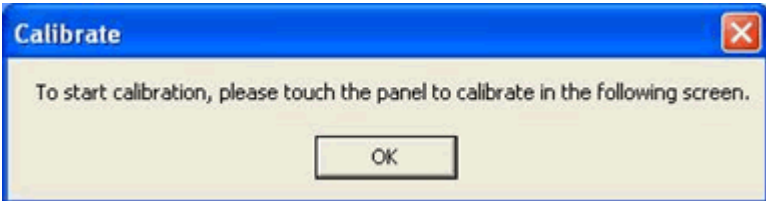
2. When the mapping screen message appears, click OK.



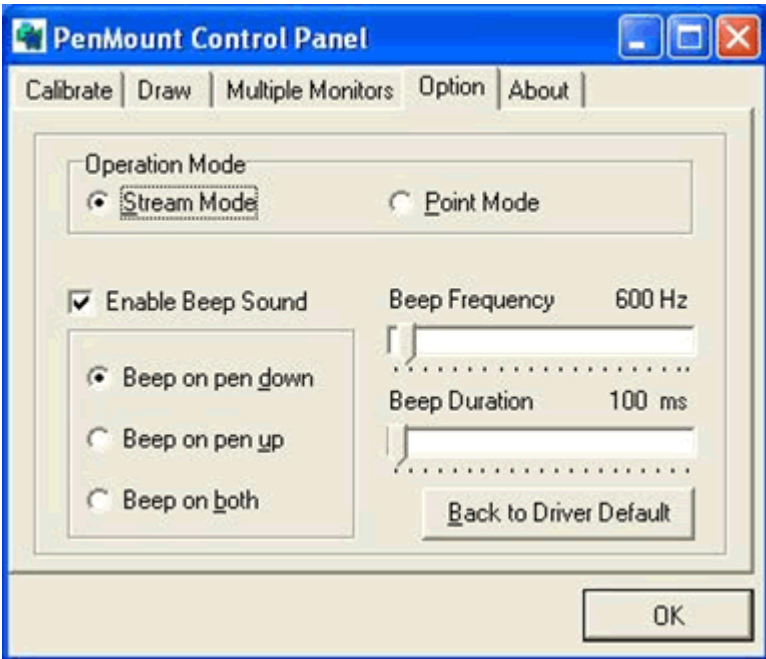
3. Touch each screen as it displays “Please touch this monitor.” Following this sequence and touching each screen is called **mapping the touch screens**.



4. Touching all screens completes the mapping and the desktop reappears on the monitors.



5. Select a display and execute the 'Calibration' function. A message to start calibration appears. Click OK.



6. "Touch this screen to start its calibration" appears on one of the screens. Touch the screen.
7. "Touch the red square" messages appear. Touch the red squares in sequence.
8. Continue calibration for each monitor by clicking **Standard Calibration** and touching the red squares.

- Note:**
1. If you used a single VGA output for multiple monitors, please do not use the Multiple Monitors function. Just follow the regular procedure for calibration on each of your desktop monitors.
  2. The Rotating function is disabled if you use the Multiple Monitors function.
  3. If you change the resolution of display or screen address, you have to redo Map Touch Screens so the system understands where the displays are.

## Options

This panel function supports two modes—Operation Mode and Beep Sound Mode—which allow configuration for specific touch screen applications, such as point-of-sales (POS) terminals.

Operation Mode	<p>This mode enables and disables the mouse's ability to drag on-screen icons—useful for configuring POS terminals.</p> <p><i>Stream Mode</i> – Select this mode and the mouse functions as normal and allows dragging of icons.</p> <p><i>Point Mode</i> – Select this mode and the mouse only provides a click function, and dragging is disabled.</p>
Beep Sound Mode	<p><i>Enable Beep Sound</i> – turns beep function on and off</p> <p><i>Beep on Pen Down</i> – beep occurs when pen comes down</p> <p><i>Beep on Pen Up</i> – beep occurs when pen is lifted up</p> <p><i>Beep on both of Pen Down/Up</i> – beep occurs on both</p> <p><i>Beep Frequency</i> – modifies sound frequency</p> <p><i>Beep Duration</i> – modifies sound duration</p>

## About

This panel displays information about the PenMount controller and driver version.

### 3.3.2 PenMount Monitor Menu Icon

The PenMount monitor icon (PM) appears in the menu bar of Windows 2000/XP when you turn on PenMount Monitor in PenMount Utilities.



PenMount Monitor has the following functions.



**Beep** Turns beep on or off.

**Right Button** When you select this function, a mouse icon appears in the right-bottom of the screen. Click this icon to switch between Right and Left Button functions.



**Pen Stabilizer** Check this function to reduce cursor vibration for relatively unstable touch screens, or where there may be excess vibration. Normally this function is not checked.

**Exit** Exits the PenMount Monitor function.

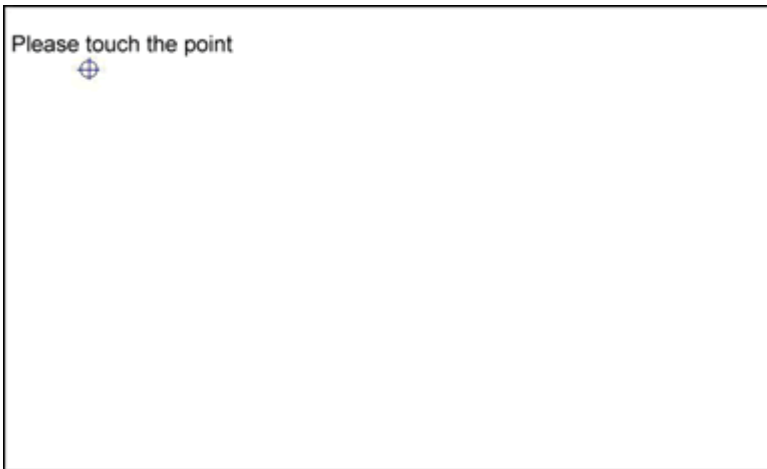
### 3.3.3 PenMount Rotating Functions

The PenMount driver for Windows 2000/XP supports several display rotating software packages. Please see Chapter 5 for more information. The PenMount drivers for Windows 95, Windows 98/Me, Windows 2000/XP, as well as Windows 98 USB and Windows Me/2000/XP support display rotating software packages such as:

- Portrait's Pivot Screen Rotation Software
- ATI Display Driver Rotate Function
- nVidia Display Driver Rotate Function
- SMI Display Driver Rotate Function
- Intel 845G/GE Display Driver Rotate Function

#### Configuring the Rotate Function

1. Install the rotation software package.
2. Choose the rotate function (0°, 90°, 180°, 270°) in the 3<sup>rd</sup> party software. The calibration screen appears automatically. Touch this point and rotation is mapped.



**NOTE:** The Rotate function is disabled if you use Monitor Mapping



## 3.4 Uninstalling PenMount Drivers

1. Exit the PenMount monitor (PM) in the menu bar.
2. Go to Settings, then Control Panel, and then click Add/Remove program. Select PenMount Universal Driver 1.0 and click the Remove button..



3. Select 'Yes' and "Close" to remove the PenMount Universal Driver, and reboot the system.



## Award BIOS Setup

This chapter details the Award BIOS Setup.

Sections include:

- Award BIOS Setup
- CMOS Setup Utility
- Advanced BIOS Features
- Advanced Chipset Features
- Integrated Peripherals
- Power Management Setup
- PnP/PCI Configuration
- PC Health Status
- Frequency/Voltage Control
- Load Optimized Defaults
- Set Password
- Save & Exit Setup
- Exit Without Saving

# Chapter 4 Award BIOS Setup

## 4.1 Award BIOS Setup

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The IPPC-7157 comes with an Award BIOS chip that contains the ROM setup for your system. This chip serves as an interface between the processor and the rest of the mainboard's components. This chapter explains the information contained in the setup program and tells you how to modify the settings according to your system configuration. Some setup items will not be explained, because it is recommended that users do not change such items.

*Note: Values for the various setup items that appear on your own screen (including default values) may not be the same as the values shown on the screen figures in this chapter. This is because the BIOS is revised and updated from time to time. If in doubt, check Advantech's website for the latest BIOS versions and related information.*

## 4.2 CMOS Setup Utility

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A setup program, built into the system BIOS, is stored in the CMOS RAM that allows the configuration settings to be changed. This program is executed when the user changes the system configuration; when the user changes the system backup battery; or when the system detects a configuration error and asks the user to run the setup program. At power-on RAM testing, the message "Press DEL to enter Setup" appears. After pressing the "DEL" key, the CMOS setup utility screen will appear as shown in followings. Use the arrow keys to select and press "Enter" to run the selected program.

Standard CMOS Features Advanced BIOS Features Advanced Chipset Features Integrated Peripherals Power Management Setup PnP/PCI Configurations	Frequency/Voltage Control Load Optimized Defaults Set Password Save & Exit Setup Exit without Saving
Esc : Quit F10 : Save & Exit Setup	↑ ↓ → ← : Select Item
Time, Date, hard disk Type...	

### 4.2.1 Standard CMOS Setup

Standard CMOS Setup records some basic system hardware configuration and sets the system clock and error handling. You only need to modify the configuration values of this option if you want to change your system hardware configuration or when the data stored in the CMOS memory gets lost or damaged.

Run the STANDARD CMOS SETUP as follows:

1. Choose “STANDARD CMOS SETUP” from the Main Menu and a screen with a list of options will appear:

Date (mm:dd:yy)	Mon, January 1 2001	Item Help
Time (hh:mm:ss)	12 : 05 : 55	Menu Level
IDE Primary Master	None	
IDE Primary Slave	None	
IDE Secondary Master	None	
IDE Secondary Slave	None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All Errors	
Select Display Device	Auto	
TV Type	NTSC	
Base Memory	640K	
Extended Memory	31744K	
Total Memory	32768K	

**Figure 4.1: Standard CMOS features**

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys.

### **Date (mm:dd:yy)**

The BIOS determines the day of the week from the other date information. This field is for information only. Press the left or right arrow key to move to the desired field (date, month, year). Press the PgUp or PgDn key to increment the setting, or type the desired value into the field.

### **Time (hh:mm:ss)**

The time format is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Press the left or right arrow key to move to desired field. Press the PgUp or PgDn key to increment the setting, or type the desired value into the field.

### **Primary / Secondary & Master / Slave**

This field records the specifications for all non-SCSI hard disk drives installed in your system. Refer to the respective documentation on how to install the drives.

IDE HDD Auto-Detection	Press Enter	Item Help
IDE Primary Master Access mode	Auto Auto	Menu Level
Capacity	13022 MB	
Cylinder	25232	
Head	16	
Percomp	0	
Landing Zone	25231	
Sector	63	

*Figure 4.2: Standard CMOS features*

### **Drive A / Drive B**

Select this field to the type(s) of floppy disk drive(s) installed in your system. The choices are:

360 KB, 5.25 in;

1.2 MB, 5.25 in;

720 KB, 3.5 in;

1.44 MB, 3.5 in;

2.88 MB, 3.5 in;

None.

## **Video**

Select the type of primary video subsystem in your computer. The BIOS usually detects the correct video type automatically. The BIOS supports a secondary video subsystem, but you do not select it in setup.

## **Halt On**

During the power-on self-test (POST), the computer stops if the BIOS detects a hardware error. You can tell the BIOS to ignore certain errors during POST and continue the boot-up process.

## **Select Display Device**

Select this field to the display device. The choices are:

Auto

CRT

LCD

CRT+LCD

TV

CRT+TV

## **TV Type**

Select this field to the type of TV. The choices are:

NTSC

PAL

## **Base Memory**

Typically 640KB. Also called conventional memory. The DOS operating system and conventional applications use this area.

## **Extended Memory**

Above the 1MB boundary. Early IBM personal computers could not use memory above 1MB, but current PCs and their software can use extended memory.

## Total Memory

This option shows system memory capacity.

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4.3 Advanced BIOS Features

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Advanced BIOS Features improves your system performance or sets up system features according to your preference.

Run the ADVANCED BIOS FEATURES as follows:

1. Choose “Advanced BIOS Features” from the Main Menu and a screen with a list of options will appear.
2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys.

		Item Help
Virus Warning	Disabled	
CPU Internal Cache	Enabled	Menu Level
External Cache	Enabled	
CPU L2 Cache ECC Checking	Enabled	
Processor Number Feature	Enabled	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	CDROM	
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Enabled	
Boot Up NumLock Status	On	
Gate A20 Option	Fast	
Typematic Rate Setting	Disabled	
Typematic Rate (Chars/Sec)	6	
Typematic Delay (Msec)	250	
Security Option	Setup	
PS/2 Mouse Function		
OS Select For DRAM > 64MB	Non-OS2	
Reports No FDD For Win95		
Video BIOS Shadow	Enabled	
C8000-CBFFF Shadow	Disabled	
CC000-CFFFF Shadow	Disabled	
D0000-D3FFF Shadow	Disabled	
D4000-D7FFF Shadow	Disabled	
D8000-DBFFF Shadow	Disabled	
DC000-DFFFF Shadow	Disabled	
Small Logo (EPA) Show		



## **Virus Warning**

When enabled, you receive a warning message if a program (specifically, a virus) attempts to write to the boot sector or the partition table of the hard disk drive.

You should then run an antivirus program. Keep in mind that this feature protects only the boot sector, not the entire hard drive.

**Note:** Many disk diagnostic programs that access the boot sector table can trigger the virus warning message. If you plan to run such a program, we recommend that you disable the virus warning.

## **CPU Internal Cache/External Cache**

Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for faster access by the CPU.

## **CPU L2 Cache ECC Checking**

When you select Enabled, it will speed up memory checking when the external cache contains ECC SRAMs. The choices: Enabled; Disabled.

## **Processor Number Feature**

Choose Disabled or Enabled. When enabled, the processor serial number will display during the boot up screen.

## **Quick Power On Self Test**

Select Enabled to reduce the amount of time required to run the power-on self-test (POST). A quick POST skips certain steps. We recommend that you normally enable quick POST.

### **First/Second/Third/Other Boot Device**

The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The choices: Floppy; LS/ZIP; HDD; SCSI; CDROM; Disabled.

### **Swap Floppy Drive**

When enabled, floppy drives A and B will be exchanging without any physical connection and modification on the cables.

### **Boot Up Floppy Seek**

When enabled, the BIOS tests (seeks) floppy drives to determine whether they have 40 or 80 tracks. Only 360-KB floppy drives have 40 tracks; drives with 270KB, 1.2MB, and 1.44MB capacity all have 80 tracks. Because very few modern PCs have 40-track floppy drives, we recommend that you set this field to disabled to save time.

### **Boot Up NumLock Status**

Toggle between On or Off to control the state of the NumLock key when the system boots. If On, the numeric keypad is in numeric mode. If off, the numeric keypad is in cursor control mode.

### **Gate A20 Option**

Gate A20 refers to the way the system addresses memory above 1 MB (extended memory). When set to Fast, the system chipset controls Gate A20. When set to Normal, a pin in the keyboard controller controls Gate A20. Setting Gate A20 to Fast improves system speed, particularly with OS/2 and Windows.

### **Typematic Rate Setting**

When Disabled, the following two items (Typematic Rate and Typematic Delay) are irrelevant. Keystroke repeats at a rate determined by the keyboard controller in your system. When Enabled, you can select a typematic rate and typematic delay.

### **Typematic Rate (Chars / Sec)**

When the typematic rate setting is enabled, you can select a typematic rate (the rate at which character repeats when you hold down a key) of 6, 8, 10, 12, 15, 20, 24, or 30 characters per second.

### **Typematic Delay (Msec)**

Choices: 250; 500; 750; 1000. This option sets the time interval for displaying the first and the second characters. If enabled, the time interval is optional.

### **Security Option**

If you have set a password, select whether the password is required every time the System boots, or only when you enter setup. The choices: system; setup.

### **PS/2 Mouse Function**

Disabled: Prevents any installed PS/2 mouse from functioning but free up occupied IRQ.

Enabled: Allows the operating system to determine whether to enable or disable the mouse.

### **OS Select For DRAM > 64MB**

Select OS2 only if you are running OS/2 operating system with greater than 64MB of RAM on your system.

### **Reports No FDD For Win95**

### **Video BIOS Shadow**

Performance will be improved by copying Video BIOS to Shadow RAM.

### **C8000-CBFFF to DC000-DFFFF Shadow**

These options are used to shadow other expansion card ROMs.

### **Small Logo (EPA) show**

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4.4 Advanced Chipset Features

Advanced Chipset Features is used to modify the values of chipset buffers. These buffers control the system options.

Run the Advanced Chipset Features as follows:

1. Choose “Advanced Chipset Features” from the Main Menu and a list of options will appear.

		Item Help
DRAM Timing by SPD	Enabled	Menu Level
DRAM Clock	Host CLK	
SDRAM Cycle Length	3	
Bank Interleave	Disabled	
Memory Hole	Enabled	
P2C/C2P Concurrency	Enabled	
System BIOS Cacheable	Enabled	
Video RAM Cacheable	Enabled	
Frame Buffer Size	16M	
AGP Aperture Size	64M	
APG-4X Mode	Enabled	
AGP Driving Control	Auto	
AGP Driving Value	DA	
Boot Device Select	Both	
OnChip USB	Enabled	
USB Keyboard Support	Disabled	
OnChip Sound	Enabled	
CPU to PCI Write Buffer	Enabled	
PCIDynamic Bursting	Enabled	
PCIMaster 0 WS Write	Enabled	
PCIDelay Transaction	Enabled	
PC#2 Access #1 Retry	Disabled	
AGP Master 1 WS Write	Disabled	
AGP Master 1 WS Read	Disabled	

Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys.

### DRAM Timing by SPD

When this item is Enabled, DRAM Timing is set by SPD. SPD (Serial Presence Detect) is located on the memory modules, BIOS reads information coded in SPD during system boot up.

### DRAM Clock

This item allows you to control the DRAM speed.

The choices are : Host Clock, HCLK+33M.

### **SDRAM Cycle Length**

Select CAS latency time in HCLKs of 2 or 3. The system designer already set the values. Do not change the default value unless you change specifications of the installed DRAM or the installed CPU.

### **Bank Interleave**

Please use default setting. The choices: Disabled; 2 Bank; 4 Bank.

### **Memory Hole**

In order to improve performance, certain space in memory is reserved for ISA cards. This memory must be mapped into the memory space below 16 MB. The choices: 15M-16M; Disabled.

### **P2C/C2P Concurrency**

This item allows you to enable/disable the PCI to CPU, CPU to PCI concurrency. The choices: Enabled; Disabled.

### **System BIOS Cacheable**

selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance.

### **Video RAM Cacheable**

Selecting Enabled allows caching of the video memory (RAM) at A0000h to AFFFFh, resulting in better video performance. However, check your AGP manual to find out if any compatibility problem exists.

### **Frame Buffer size**

This option allows you select memory size shared to on-chip graphics.

### **AGP Aperture Size**

Series of options are available: 4, 8, 16, 32, 64, 128 or 256 MB. Memory mapped and graphics data structures can reside in a Graphics Aperture. This area is like a linear buffer. BIOS will automatically report the starting address of this buffer to the O.S. The default setting is 64 MB.

### **AGP– 4X Mode**

This item allows you to enable AGP-4X mode. The choices are: Disabled, Enabled

### **AGP Driving Control**

This item allows you to adjust the AGP driving force. Choose Manual to key in a AGP Driving Value in the next selection. This field is recommended to set in Auto for avoiding any error in your system. The choice: Manual, Auto.

### **AGP Driving Value**

This item allows you to adjust the AGP driving force.  
The choice: Min=0000 ~ Max=00FF.

### **Boot Device Select**

This item allows you to select your boot display device. The choices are: Both, Auto

### **OnChip USB**

This should be enabled if our system has a USB installed on the system board and you wish to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature.  
The choices: Enabled; Disabled.

### **USB Keyboard Support**

Enable function when the USB keyboard is being used. When the AT keyboard is being used, choose disabled. The choices:Enabled; Disabled.

### **OnChip Sound**

Select Enabled to use the on-chip Audio capability of your system. Most of the following field do not appear when this field is Disabled. For user who wants to use another sound card, this field must be Disabled.

### **CPU to PCI Write Buffer**

When this field is Enabled, writes from the CPU to the PCI bus are buffered, to compensate for the speed differences between the CPU and the PCI bus. When Disabled, the writes are not buffered and the CPU must wait until the write is complete before starting another write cycle.

The choices: Enabled; Disabled.

### **PCI Dynamic Bursting**

When Enabled, every write transaction goes to the write buffer. Bursting transactions then burst on the PCI bus and non-bursting transactions don't. The choices: Enabled; Disabled.

### **PCI Delay Transaction**

Leave this field at default. The choice: Enabled, Disabled.

### **PCI Master 0 WS Write**

When Enabled, writes to the PCI bus are executed with zero wait states.

The choice: Enabled, Disabled.

### **PCI # 2 Access # 1 Retry**

Leave this field at default. The choice: Enabled, Disabled(default).

### **AGP Master 1 WS Write**

Leave this field at default. The choice: Enabled, Disabled(default).

### **AGP Master 1 WS Read**

Leave this field at default. The choice: Enabled, Disabled(default).

Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4.5 Integrated Peripherals

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Integrated Peripherals option allows you to get some information inside your system when it is working.

Run the INTEGRATED PERIPHERALS as follows:

1. Choose "Integrated Peripherals" from the Main Menu and a list of options will appear.
2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys.

		Item Help
On-Chip IDE Channel 0	Enabled	
On-Chip IDE Channel 1	Enabled	Menu Level
IDE Prefetch Mode	Enabled	
Primary Master PIO	Auto	
Primary Slave PIO	Auto	
Secondary Master PIO	Auto	
Secondary Slave PIO	Auto	
Primary Master UDMA	Auto	
Primary Slave UDMA	Auto	
Secondary Master UDMA	Auto	
Secondary Slave UDMA	Auto	
Init Display First	PCI Slot	
IDE HDD Block Mode	Enabled	
Onboard FDD Controller	Enabled	
Onboard Serial Port 1	Auto	
Onboard Serial Port 2	Auto	
UART 2 Mode	Standard	
IR Function Duplex	Half	
TX, RX inverting enable	No, Yes	
Onboard Parallel Port	378/IRQ7	
Onboard Parallel Mode	Normal	
ECP Mode Use DMA	3	
Parallel Port EPP Type	EPP1.9	
Onboard Serial Port 3		
Serial Port 3 use IRQ		
Onboard Serial Port 4		
Serial Port 4 Use IRQ		
Onboard Legacy Audio	Enabled	
Sound Blaster	Disabled	



## **OnChip IDE Channel 0/1**

The chipset contains a PCI IDE interface with support from two IDE channels. Select Enabled to activate the first and/or the second IDE interface. Select Disabled to inactivate an interface if you install a primary and/or second add-on IDE interface. The choices: Enabled; Disabled.

## **IDE Prefetch Mode**

The on-board IDE drive supports IDE prefetching for faster drive accesses. If the IDE device doesn't support prefetching, set this field to Disabled. The choices: Enabled; Disabled.

## **Primary Master / Slave PIO & Secondary Master / Slave PIO**

Choose Auto or Mode 0~4. The BIOS will detect the HDD mode type automatically when you choose Auto. You need to set to a lower mode than Auto when your hard disk becomes unstable.

The choices: Auto; Mode 0; Mode 1; Mode 2; Mode 3; Mode 4.

## **Primary Master / Slave UDMA & Secondary Master / Slave UDMA**

Ultra DMA33/66/100 implementation is possible only if your IDE hard drive supports it, if the operating environment includes a DMA drive, and if your system software both support Ultra DMA33/66/100. Select "Auto" to enable BIOS support. The choices: Auto; Disabled.

## **Init Display First**

Initialize the AGP video display before initializing any other display device on the system. Thus the AGP display becomes the primary display. The choices: PCI Slot; AGP.

## **IDE HDD Block Mode**

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/write per sector the drive can support.

The choices: Enabled; Disabled.

### **Onboard FDD Controller**

Select Enabled if your system has a floppy drive controller (FDC) installed in the system board and you want to use it. If you install add-in FDC or the system has no floppy drive, select Disabled in this field. The choices: Enabled; Disabled.

### **Onboard Serial Port 1 / Port2**

Select an address and corresponding interrupt for the first and second serial ports.

The choices: 3F8/IRQ4; 2E8/IRQ3; 3E8/IRQ4; 2F8/IRQ3; Disabled; Auto.

### **UART 2 Mode**

The second serial port on your system may offer a variety of infrared port modes. Click here for a description of various modes. (Click your browser's Back button, or your right mouse button, to return to this page.) The choices: Standard; HPSIR; ASKIR.

### **IR Function Duplex**

This item allows you to select the IR half / full duplex function.

The choices: Half; Full.

### **TX, RX inverting enable**

This item allows you to enable the TX, RX inverting which depends on different H/W requirement. This field is not recommended to change its default setting.

The choices: "No, No"; "No, Yes"; "Yes, No"; "Yes, Yes".

### **Onboard Parallel Port**

Select a logical LPT port name and matching address for the physical parallel (printer) port.

The choices: 378H/IRQ7; 278H/IRQ5; 3BC/IRQ7; Disabled.

### **Onboard Paralle Mode**

Select an operating mode for the onboard parallel (printer) port. Select Normal, Compatible, or SPP unless you are certain your hardware and software both support one of the other available modes. The choices: SPP; EPP; ECP; ECP + EPP.

### **ECP Mode Use DMA**

Select a DMA channel for the parallel port for use during ECP mode. The choices: 3; 1.

### **Parallel Port EPP Type**

Select EPP port type 1.7 or 1.9. The choices: EPP1.7; 1.9.

### **Onboard Legacy Audio**

This field controls the onboard audio.

- Sound Blaster
- SB I/O Base Address
- SB IRQ Select
- SB DMA Select
- MPU-401
- MPU-401 I/O Address
- Game Port (200-207H)

Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4.6 Power Management Setup

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POWER MANAGEMENT SETUP allows you to set the system's power saving functions.

Run the POWER MANAGEMENT SETUP as follows:

1. Choose "Integrated Peripherals" from the Main Menu and a list of options will appear.
2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys.

ACPI Function	Disabled	Item Help
Power Management	Press Enter	Menu Level
PM Control by APM	Yes	
Video Off Option	Suspend --> Off	
Video Off Method	V/H SYNC+Blank	
MODEM Use IRQ	3	
Soft-Off by PWRBTN	Instand-Off	
Wake Up Events	Press Enter	

### ACPI Function

Select Enabled only if your computer's operating system supports the Advanced Configuration and Power Interface (ACPI) specification. Currently, Windows NT 5.0 supports ACPI.

### Power Management

When this option is chosen, the following item appears for user's configuration.

Power Management	User Define	Item Help
HDD Power Down	Disable	Menu Level
Doze Mode	Disable	
Suspend Mode	Disable	

- **Power Management:** This option allows you to select the type (or degree) of power saving for Doze, Standby, and Suspend modes. This table describes the power management modes for your reference:

Max Saving	Maximum power savings. Only Available for SL CPUs. Inactivity period is 1 minute in each mode.
User Define	Set each mode individually. Select time-out period in the section for each mode stated below.
Min Saving	Minimum power savings. Inactivity period is 1 hour in each mode (except the hard drive).

- **HDD Power Down:** When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.
- **Suspend Mode:** After the selected period of system inactivity, the chipset enters a hardware suspend mode, stopping the CPU clock and possibly causing other system devices to enter power management modes.
- **Doze Mode:** After the selected period of system inactivity, the CPU clock runs at slower speed while all other devices still operate at full speed.

### PM Control by APM

If Advanced Power Management (APM) is installed on your system, selecting “Yes” gives better power savings. The Choices: Yes; No.

### Video Off Option

This feature allows the VGA adapter to operate in a power saving mode

Always On	Monitor will remain on during power saving modes.
Suspend → Off	Monitor blanked when the systems enters the Suspend mode.
All Modes → Off	Monitor blanked when the system enters either Suspend or Standby modes.

## Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC + Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS Supports	Select this option if you monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards to select video power management values.

## MODEM Use IRQ

This determines the IRQ which the MODEM can use.

The choices: 3; 4; 5; 7; 9; 10; 11; NA.

## Soft-Off by PWRBTN

When Enabled, turning the system off with the on/ off button places the system in a very low-powerusage state, with only enough circuitry receiving power to detect power button activity or Resume by Ring activity.

## WAKE UP EVENTS

When this option is chosen, the following item appears for user's configuration.

VGA	Off	Item Help
LPT & COM	LPT/COM	Menu Level
HDD & FDD	On	
PCIMaster	Off	
IRQs Activity		
Monitoring	Press Enter	

- **VGA:** When Enabled, you can set the VGA awakens the system.
- **LPT & COM:** When LPT & COM is ON, any activity from one of the listed system peripheral devices or IRQs wakes up the system.

- **HDD & FDD:** When HDD & FDD is ON, any activity from one of the listed system peripheral devices wakes up the system.
- **PCI Master:** When PCI Master is ON, any activity from one of the listed system peripheral devices wakes up the system.
- **Primary INTR:** When set to on, any event occurring at will awaken a system which has been powered down.

On(default):The system can not enter the power saving mode when I/O ports or IRQ# is activated. Off:The system still can enter the power saving mode when I/O ports or IRQ# is activated.

- **IRQ Activity Monitoring:** The following is a list of IRQ's (Interrupt Requests), which can be exempted much as the COM ports and LPT ports above can. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service. When set On, activity will neither prevent the system from going into a power management mode nor awaken it.

When this option is chosen, the following item appears for user's configuration.

IRQ-3 (COM2)	Enabled	Item Help
IRQ-4 (COM1)	Enabled	Menu Level
IRQ-5 (LPT2)	Enabled	
IRQ-6 (Floppy Disk)	Enabled	
IRQ-7 (LPT1)	Enabled	
IRQ-8 (RTC Alarm)	Disabled	
IRQ-9 (IRQ2 Redir)	Disabled	
IRQ-10 (Reserved)	Disabled	
IRQ-11 (Reserved)	Disabled	
IRQ-12 (PS/2 Mouse)	Enabled	
IRQ 13 (Coprocessor)	Disabled	
IRQ 14 (Hard Disk)	Enabled	
IRQ 15 (Reserved)	Disabled	

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4.7 PnP/PCI Configuration

---

PnP/PCI Configuration allows you to modify the system's power saving functions.

Run the PnP/PCI Configuration as follows:

1. Choose "PnP/PCI Configuration" from the Main Menu and a list of options will appear.
2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys.

PNP OS Installed	No	Item Help
Reset Configuration Data	Disabled	Menu Level
Resources Controlled By	Auto(ESCD)	
IRQ Resources	Press Enter	
DMA Resources	Press Enter	
PCI/VGA Palette Snoop	Disabled	
Assign IRQ For VGA	Enabled	
Assign IRQ For USB	Enabled	

### PNP OS Installed

Select Yes if the system operating environment is Plug-and-Play aware (e.g. Windows 95).

*Note: BIOS will automatically disable all PnP resources except the boot device card when you select Yes on Non-PnP operating system.*

### Reset Configuration Data

Normally, you leave this Disabled. Select Enabled to reset Extended System Configuration Data (ESCD), when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

### Resource Controlled By

The Plug and Play Award BIOS can automatically configure all the boot and Plug and Play-compatible devices. If you select Auto, all the interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assigns them.



## IRQ Resources

Press Enter. Please refer to the list below:

IRQ -9 assigned to PCI/ISA PnP	Item Help
	Menu Level

## DMA Resources

Press Enter. Please refer to the below list.

DMA-0 assigned to PCI/ISA PnP	Item Help
DMA-1 assigned to PCI/ISA PnP	Menu Level
DMA-3 assigned to PCI/ISA PnP	
DMA-5 assigned to PCI/ISA PnP	
DMA-6 assigned to PCI/ISA PnP	
DMA-7 assigned to PCI/ISA PnP	

## PCI/VGA Palette Snoop

This option allows the BIOS to preview VGA status, and to modify the information delivered from the feature Connector of the VGA card to MPEG card. This option can solve the display inversion to black after you have used MPEG card.

### Assign IRQ for VGA

Select Enabled if you system has a VGA controller and you have one or more USB devices connected. If you are not using your system's VGA controller, select Disabled to free the IRQ resource.

### Assign IRQ for USB

Select Enabled if you system has a USB controller and you have one or more USB devices connected. If you are not using your system's USB controller, select Disabled to free the IRQ resource.

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4.8 PC Health Status

---

This section helps you to get more information about your system including CPU temperature, FAN speed and voltage. It is recommended that you contact your mainboard supplier to get proper values about the setting of the CPU temperature.

Run the PC Health Status as follows:

1. Choose "PC Health Status" from the Main Menu and a list of options will appear.
2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys.

Current CPUFAN1 Speed	Item Help
Current CPUFAN2 Speed	Menu Level
Vcore	
2.5V	
3.3V	
5V	
12V	

### **Current CPU FAN1 Speed**

Shows current CPU FAN1 speed. The fan must provide rotary pulse. (Normally these types of fan have a three-wire connector)

### **Current CPU FAN2 Speed**

Shows current CPUFAN2 speed. The fan must provide rotary pulse. (Normally these types of fan have a three-wire connector)

### **Vcore/2.5V/3.3V/5V/1.2V**

Shows power supply actual voltage value.

## 4.9 Frequency/Voltage Control

---

Run the Frequency/Voltage Control as follows:

1. Choose “Frequency/Voltage Control” from the Main Menu and a list of options will appear.
2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys.

Auto Dect DIMM / PCI CLK	Enabled	Item Help
Spread Spectrum	Enabled	Menu Level

### Auto Detect DIMM/PCI CLK

To reduce the occurrence of electromagnetic interference (EMI), the BIOS detects the presence or absence of components in DIMM and PCI slots and turns off system clock generator pulses against empty slots.

### Spread Spectrum

When the system clock generator pulses, the extreme values of the pulse generate excess EMI. Enabling pulse spectrum spread modulation changes the extreme values from spikes to flat curves, thus reducing EMI. This benefit may in some cases be outweighed by problems with timing-critical devices, such as a clock-sensitive SCSI device.

## 4.10 Load Optimized Defaults

---

When you press <Enter> on this item, you will get a confirmation dialog box with a message similar to:

**“ Load Optimized Defaults (Y/N) ? N ”**

“Y” is for “Yes”, and “N” is for “No”.

Pressing “Y” loads the BIOS default values that are factor settings for optimal performance of system operations.

## 4.11 Set Password

---

These option allows you to set your system passwords. The way to set up the password is as follows:

1. Choose “Change Password” in the Main Menu and press <Enter>. Then following message appears:  
“Enter Password : “
2. The first time you run this option, enter your password up to 8 characters and press <Enter>. (The screen does not display the entered characters.)
3. After you enter the password, the following message appears prompting you to confirm the password:  
“Confirm Password : “
4. Enter the same password “exactly” the same as you have just typed to confirm the password and press <Enter>.
5. Move the cursor to Save & Exit Setup to save the password.
6. If you need to delete the password entered before, choose the Supervisor Password and press <Enter>. It will delete the password that you have entered before.
7. Move the cursor to Save & Exit Setup to save the option you have just configured; otherwise the old password will still be there the next time you turn your system on.
8. Press <Enter> to exit to the Main Menu.

*Note: If you forget the password, access the system is to clear the CMOS RAM. All setup information will be lost and you need to run the BIOS setup program again.*

## 4.12 Save & Exit Setup

---

Save & Exit Setup allows you to save all modifications you have specified into the CMOS memory. Highlight this option on the Main Menu and the following message appears:

**“Save to CMOS and Exit (Y/N) ? Y “**

“Y” is for “Yes”, and “N” is for “No”.

Press <Enter> key to save the configuration changes.

## 4.13 Exit Without Saving

---

Exit Without Saving option allows you to exit the Setup Utility without saving the modifications that you have specified. Highlight this option on the Main Menu and the following message appears:

**“Quit Without Saving (Y/N) ? N “**

“Y” is for “Yes”, and “N” is for “No”.

You may change the prompt to “Y” and press <Enter> key to leave this option .



Appendix

**A**

## **LCD Specifications and Selection Settings**

# Appendix A LCD Specifications

## A.1 IPPC-7157 LCD Specifications

---

<b>Model</b>	IPPC-7157
<b>Display</b>	17" TFT LCD
<b>Max. resolution</b>	1280 X 1024
<b>Colors</b>	
<b>Dot pitch (mm)</b>	0.264 (per 1 triad) x 0.264
<b>Viewing angle</b>	140 (H), 130 (V)
<b>Luminance</b>	260 cd/sq meter
<b>Viewing area</b>	337.9 x 270.3
<b>Power consumption</b>	5V@7.5ma
<b>Operating temperature</b>	0 ~ 50°C
<b>Storage temperature</b>	-20 ~ 60°C
<b>Backlight MTBF</b>	50,000 hours

**Note:** *The color LCD display installed in the IPPC is of high quality and reliability. However, it may contain a few defective pixels which may not always illuminate. With current technology, it is impossible to completely eliminate defective pixels. Advantech is actively working to improve this technology.*



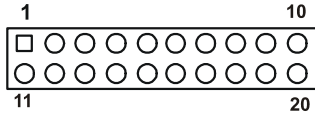
Appendix

**B**

## **Pin Assignments**

# Appendix B Pin Assignments

## B.1 ATX Power Connector 1 (CN1)

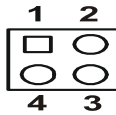


*Table B.1: AT Power connector 1 (CN1)*

<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS-ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW-OK	18	-5V
9	5VSB	19	5V
10	12V	20	5V

## B.2 ATX Power Connector 2 (CN2)

---



*Table B.2: ATX power connector 2 (CN2)*

Pin	Signal	Pin	Signal
1	GND	3	12V
2	GND	4	12V

## B.3 LVDS Connector 1(CN4)

---

*Table B.3: LVDS connector 1(CN4)*

Pin	Signal	Pin	Signal
1	VDD	11	RXIN2+
2	VDD	12	RXIN2-
3	GND	13	GND
4	GND	14	RXIN1+
5	RXIN3+	15	RXIN1-
6	RXIN3-	16	GND
7	GND	17	RXIN0+
8	CLK0+	18	RXIN0-
9	CLK0-	19	DDC_CLK
10	GND	20	DDC_DAT

## B.4 LVDS Connector 2 (CN6)

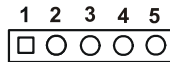
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*Table B.4: Table B.4: LVDS connector 2 (CN6)*

Pin	Signal	Pin	Signal
1	VDD	11	RXIN6+
2	VDD	12	RXIN6-
3	GND	13	GND
4	GND	14	RXIN5+
5	CLK1+	15	RXIN5-
6	CLK1-	16	GND
7	GND	17	RXIN4+
8	RXIN7+	18	RXIN4-
9	RXIN7-	19	CONTRAST
10	GND	20	HPLG_DT

## B.5 Inverter Power Connector (CN5)

---




*Table B.5: Inverter power connector (CN5)*

Pin	Signal
1	+12V
2	GND
3	ENABKL
4	Brightness Adj.
5	+5V

## B.6 FDD Connector (CN9)

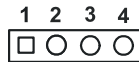
*Table B.6: FDD connector (CN9)*

Pin	Signal	Pin	Signal
1	Vcc(+5V)	14	Step
2	Index	15	GND
3	Vcc(+5V)	16	Write data
4	Drive select	17	GND
5	Vcc(+5V)	18	Write enable
6	Disk change	19	GND
7	NC	20	Track 0
8	NC	21	GND
9	NC	22	Write protect
10	Motor on	23	GND
11	NC	24	Read data
12	Direction	25	GND
13	Density select	26	Side 1 select



## B.7 Internal Speaker Connector (CN15)

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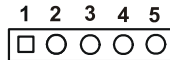


*Table B.7: Internal speaker connector (CN15)*

Pin	Signal
1	Speaker out_R -
2	Speaker out_R +
3	Speaker out_L +
4	Speaker out_L -

## B.8 IR Connector (CN24)

---

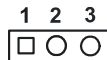


*Table B.8: IR connector (CN24)*

Pin	Signal
1	Vcc
2	NC
3	IR_IN
4	GND
5	IR_OUT

## B.9 Fan Power Connector (FAN1 & FAN2)

---

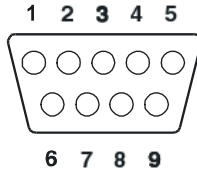


*Table B.9: Fan power connector (FAN1 & FAN2)*

Pin	Signal
1	GND
2	+12V
3	FAN_DET

## B.10 COM1 RS-232 serial port (CN10)

---

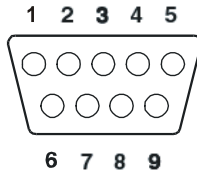


*Table B.10: COM1 RS-232 serial port (CN10)*

Pin	Signal	Pin	Signal
1	DCD	2	RXD
3	TxD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI (RI/+5V/+12V)		

## B.11 COM2 (CN11)

---



*Table B.11: COM2 (CN11)*

Pin	Signal	RS-422	RS-485I
1	DCD	TX-	DATA-
2	RX	TX+	DATA+
3	TX	RX+	
4	DTR	RX-	
5	GND	GND	
6	DSR		
7	RTS		
8	CTS		
9	RI (RI/+5V/+12V)		





Appendix

C

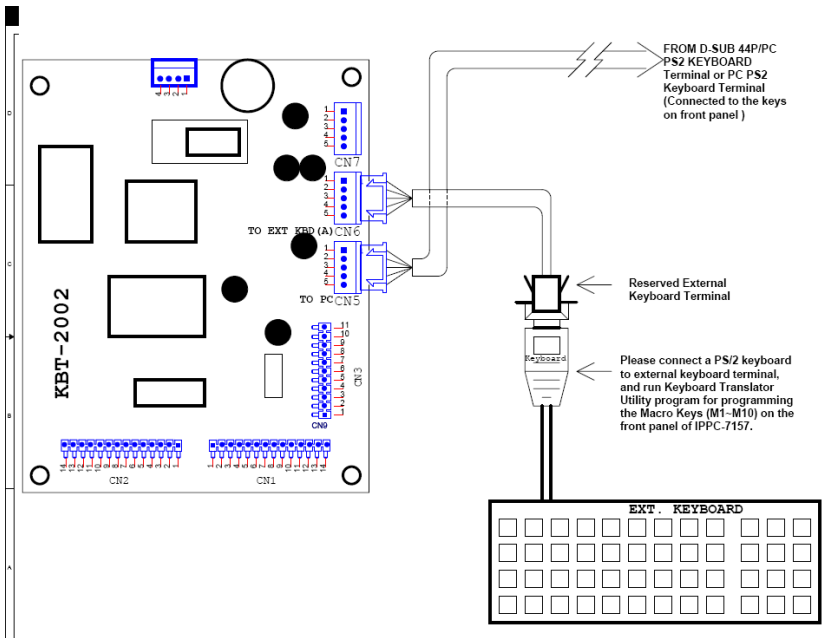
## Keyboard Translator

# Appendix C Keyboard Translator

## C.1 Overview

The keyboard translator is an interface that switches the signal from the membrane keypad to the standard AT keyboard. There are six connectors on the board. On top of the board, there are two connectors linking two flat cables to the membrane keypad (as shown in Fig. 4-3). On the side of the board, there are four connectors.

The figure below shows the keyboard translator & the cable connection for macro keys programming details.



**Caution:**

Keyboard Translator(KBT-2002) can't be programmed through the USB keyboard.

The step of programming the Macro Key(M1~M10) on the front panel:

1. Open the front panel door, use a PS/2 keyboard connect to the reserved external keyboard terminal of KBT-2002 which on the back of front panel (see figure below).
2. Boot up the system and enter the BIOS, check & make sure the USB function is disabled.( This step is to avoid the influence or interference caused by any USB keyboard or mouse device at the later macro keys programming process)
3. Run the Keyboard Translator Utility Program(Main.exe) under DOS mode by using the connected PS/2 keyboard, and then edit the function of front panel macro keys M1~M10 then programmed the functions into KBT-2002. (Please be notified that the SF1~SF10 in the utility program which is exactly mapping to the macro keys M1~M10 on the front panel, please edit the function you need accordingly.)

## **C.2 Programming the Front Panel Macro Keys**

---

The Front Panel Macro Keys (M1~M10) could be programmed to have specific function by running the "Keyboard Translator Utility", which can be found at IPPC-7157 CD-ROM.

You can find Keyboard Translator Utility in the IPPC User CD:

*\System Drivers\IPPC-7157A\Keyboard Translator  
Driver\2053xxxxx\_ Utility V1.5*

And follow the instruction to complete the Keyboard Translator Utility installation.

You can find out more details about KBT-2002 in the PDF document which located in the below path of the IPPC User CD:

*D:\System Drivers\IPPC-7157A\Keyboard Translator Driver\KBT-2002  
Manual\_ed1.pdf*

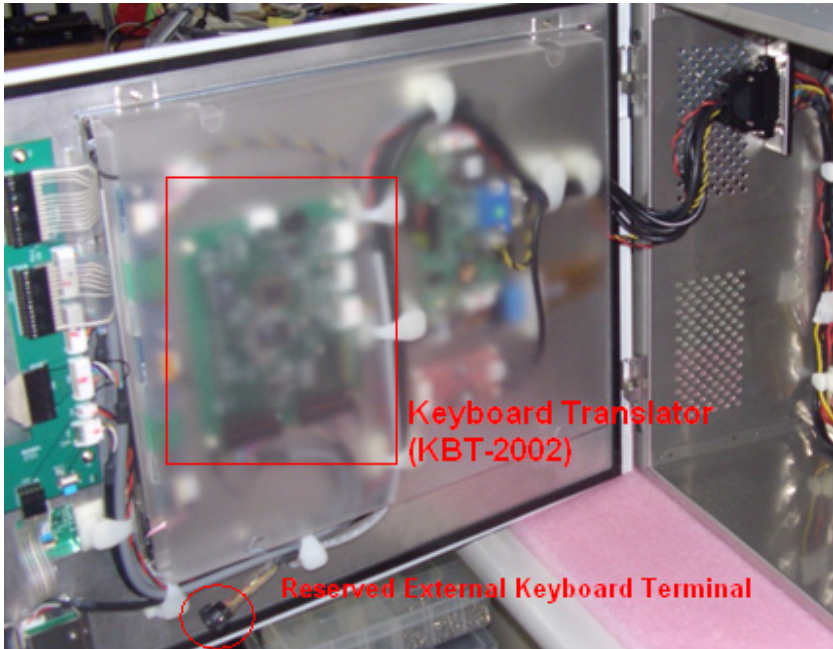
## C.3 Keyboard Translator Maintenance

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### (KBT-2002)

Below is the procedure of replacing the keyboard translator while needed:

1. Switch off the power, and detach the main power cord.
2. Unscrew the screws on front panel and open the front panel door of IPPC-7157.
3. The Keyboard Translator will be located on the back of the front panel, behind the mylar protect. (See below)



4. Unscrew the screws on the mylar and remove it.
5. Remove the keypad connector protective bracket.
6. Carefully detach all cables connected to the keyboard translator.
7. Unscrew the four screws on the corners, pull out the keyboard translator, and replace it. Right after that, reverse the step below to re-install all things.