IEi

IEI Integration Corp.

MODEL:

PPC-37xxA-N26

Panel PC with Intel® Atom™ N2600 CPU, DDR3,
Touchscreen, USB 3.0, Dual GbE, HDMI, VGA,
mSATA, SATA 3Gb/s, Audio, RS-232/422/485,
IP 65 Compliant Front Panel and RoHS Compliant

User Manual

Rev. 1.10 – 12 March, 2014

RoHS Lead Free

Revision

Date	Version	Changes
12 March, 2014	1.10	Updated for R11 version Updated Section 6.8: Touchscreen Driver Installation Added touchscreen type selection jumper in Section 3.6.2
24 December, 2012	1.00	Initial release

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Introduction

1.1 Overview

Figure 1-1: PPC-37xxA-N26 Panel PC

The PPC-37xxA-N26 is an industrial flat panel PC. The PPC-37xxA-N26 can be used for machine control, production lines, kiosks and information stations. The PPC-37xxA-N26 is preinstalled with an Intel® Atom™ N2600 CPU for applications where more computing power is needed.

The PPC-37xxA-N26 supports a second monitor for presenting information to customers or extending the display area. The second monitor can show different information to the main screen, or duplicate the main screen content.

The PPC-37xxA-N26 can be installed in a rack, on a VESA clamp or in a custom enclosure with a hole of the correct size. Storage options include a 2.5" hard drive and optional mSATA, allowing for flexibility in choosing solid state drives or traditional hard drives.

1.2 Model Variations

The model numbers and model variations are listed below.

Model	CPU	Memory	Screen
PPC-3708A-N26/R/2G-R11	1.6 GHz Intel® Atom™ N2600	2 GB DDR3	8.4"
PPC-3710A-N26/R/2G-R11	1.6 GHz Intel® Atom™ N2600	2 GB DDR3	10.4"
PPC-3712A-N26/R/2G-R11	1.6 GHz Intel® Atom™ N2600	2 GB DDR3	12.1"

Table 1-1: Model Variations

1.3 Features

Some of the features of the PPC-37xxA-N26 panel PC include:

- 1.6 GHz Intel® Atom™ N2600 processor
- Preinstalled 2 GB DDR3 SO-DIMM memory module
- Multiple storage options: 2.5" SATA HDD and mSATA SSD
- Optional PCIe Mini 802.11b/g/n wireless module
- Dual video output: HDMI and VGA
- Dual GbE
- Supports slim type optical disk drive (PPC-3712A-N26 only)
- Supports 9 V ~ 28 V DC power input (default: 12 V)
- IP 65 compliant front panel
- RoHS compliant

1.4 External Overview

The PPC-37xxA-N26 panel PC is comprised of an LCD screen, aluminum front panel and heavy duty steel rear and side panels. The rear panel provides screw holes for wall and an arm mounting. The bottom panel provides access to external interface connectors that include GbE, USB 3.0, USB 2.0, audio, serial port connectors, VGA port and HDMI port.

1.4.1 Front Panel

The front panel of the PPC-37xxA-N26 (**Figure 1-2**) is a flat panel TFT LCD screen surrounded by an aluminum frame.
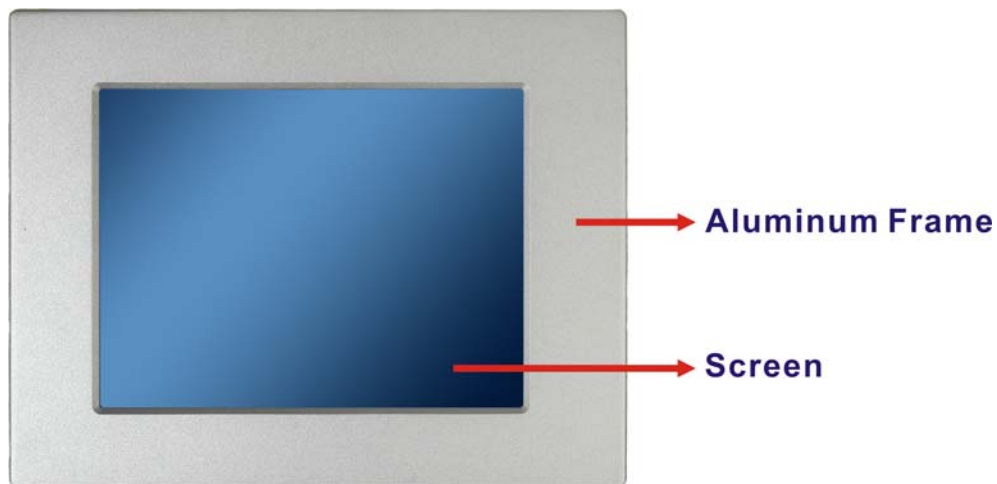
Figure 1-2: Front View

1.4.2 Rear Panel

The rear panel contains some vents for ventilation, four VESA standard mounting holes and several retention screw holes. The VESA mounting holes are circled in **Figure 1-3**.

Figure 1-3: Rear View

1.4.3 Bottom Panel

The bottom panel has the following interfaces:

- 1 x 12 V DC power input connector
- 1 x Power switch
- 2 x USB 3.0 connectors
- 2 x USB 2.0 connectors
- 2 x RJ-45 GbE connectors
- 2 x RS-232 connectors
- 1 x RS-422/485 connector
- 1 x Line-out jack
- 1 x Line-in jack
- 1 x Mic-in jack
- 1 x VGA connector
- 1 x HDMI connector
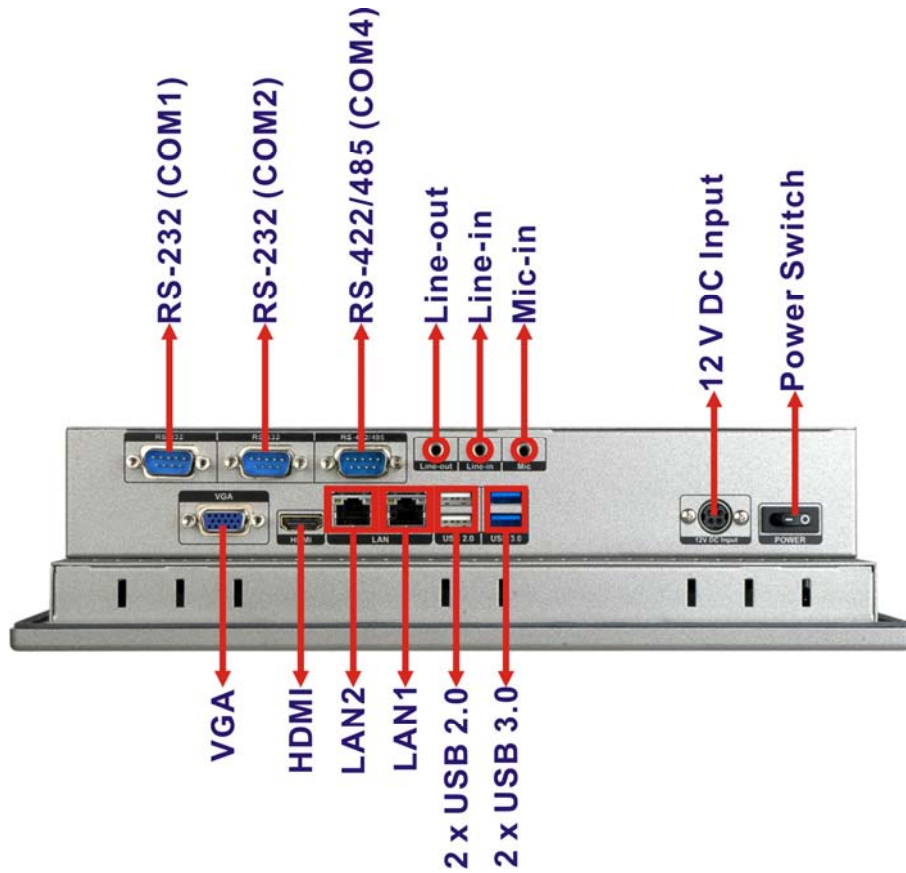
Figure 1-4: Bottom View

1.4.4 Side Panels

The both sides panel of the panel PC contain some vents for ventilation. The left side panel of PPC-3712A-N26 provides access to the slim type optical disk drive bay.
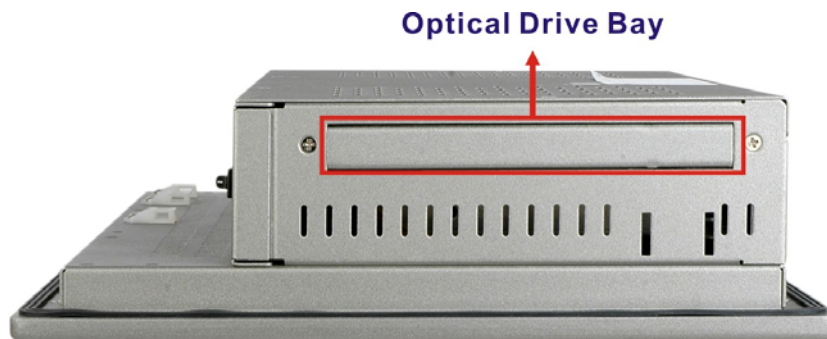
Figure 1-5: PPC-3712A-N26 Left View

1.4.5 Frame

An aluminum frame surrounds the LCD screen. The aluminum frames of the PPC-3710A-N26 and PPC-3712A-N26 have small screw holes that are used when the flat panel PC is mounted into a rack or cabinet. These screws are circled in **Figure 1-7** and **Figure 1-7**.

Figure 1-6: PPC-3710A-N26 Frame Rear View

Figure 1-7: PPC-3712A-N26 Frame Rear View

1.5 Dimensions

1.5.1 PPC-3708A-N26 Dimensions
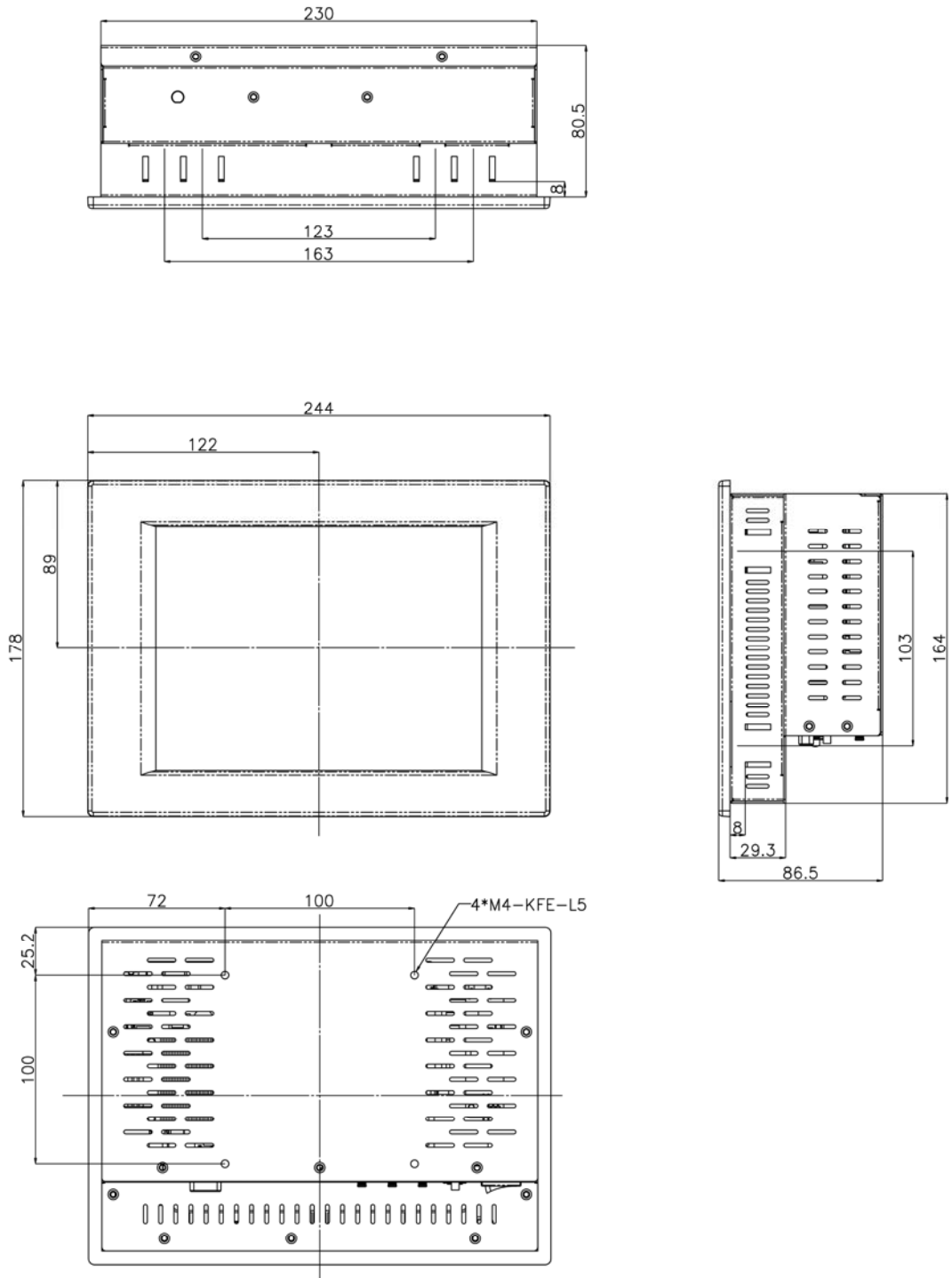
Figure 1-8: PPC-3708A-N26 Dimensions (mm)

1.5.2 PPC-3710A-N26 Dimensions
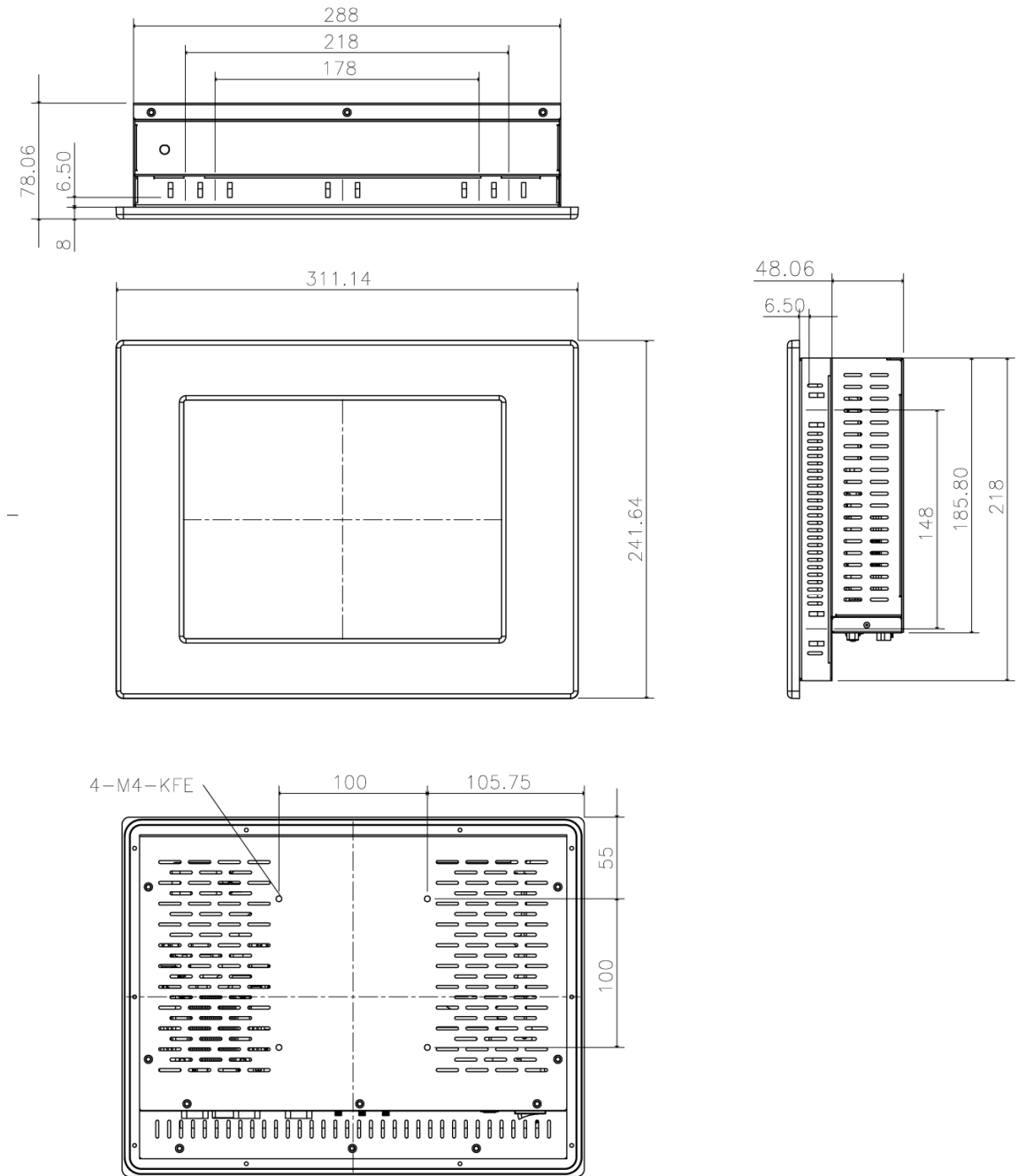
Figure 1-9: PPC-3710A-N26 Dimensions (mm)

1.5.3 PPC-3712A-N26 Dimensions
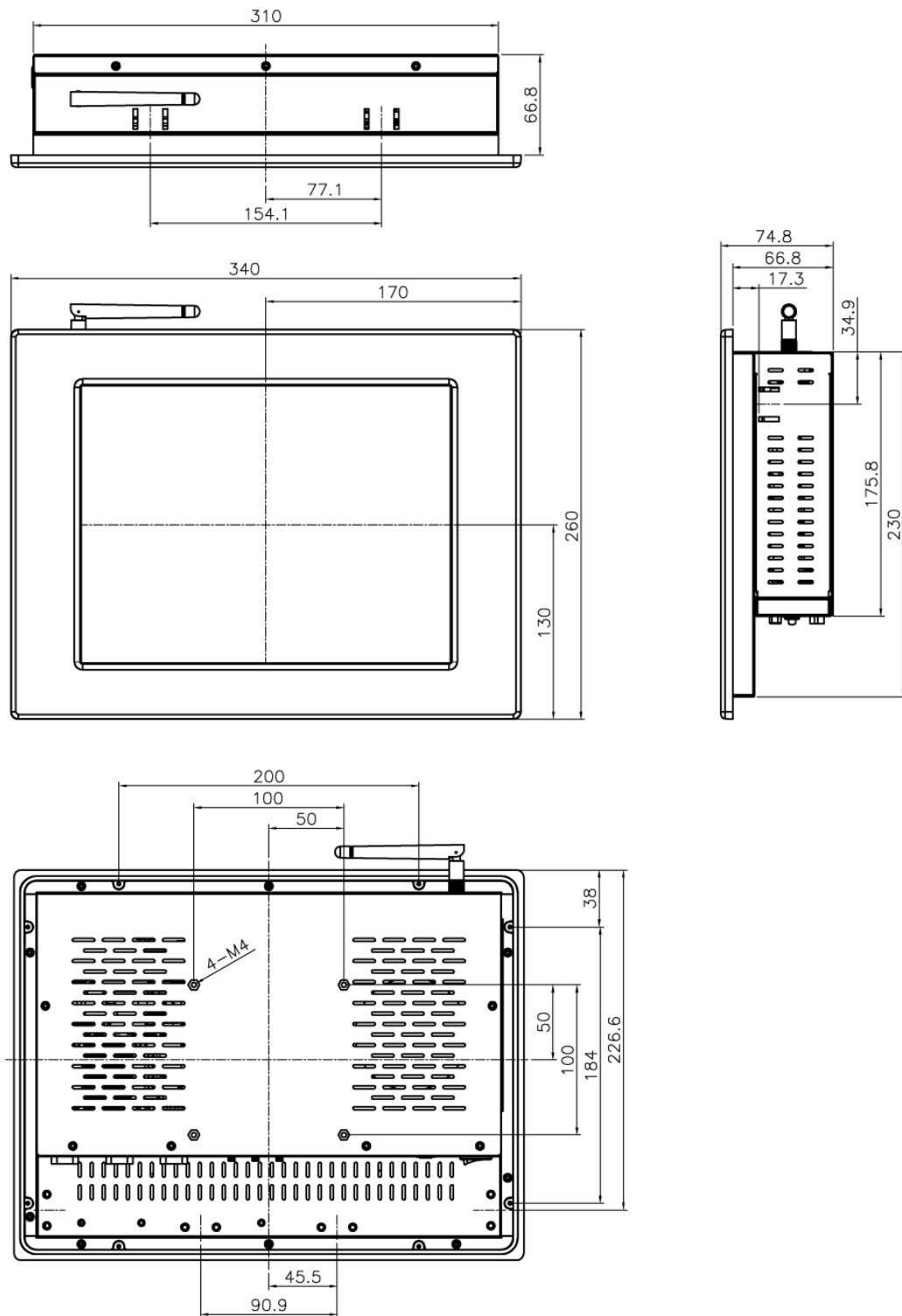
Figure 1-10: PPC-3712A-N26 Dimensions (mm)

1.6 Specifications

The technical specifications for the PPC-37xxA-N26 system are listed in **Table 1-2**.

	PPC-3708A-N26	PPC-3710A-N26	PPC-3712A-N26
LCD Size	8.4"	10.4"	12.1"
Max. Resolution	800 (W) x 600 (H)	800 (W) x 600 (H)	1024 (W) x 768 (H)
Brightness	450 cd/m^2	400 cd/m^2	500 cd/m^2
Contrast Ratio	600:1	700:1	700:1
Pixel Pitch (mm)	0.213 (H) x 0.213 (V)	0.264 (H) x 0.264 (V)	0.3075 (H) x 0.3075 (V)
Viewing Angle (V-H)	140/160	140/160	160/160
LCD Color	262K	262K	262K
Backlight MTBF	50,000 hours (LED backlight)		
SBC Model	NANO-CV-N26001-R10		
CPU	1.6 GHz Intel® Atom™ N2600 dual-core CPU		
Chipset	Intel® NM10		
Memory	One 204-pin 800 MHz DDR3 SO-DIMM slot (up to 2 GB)		
Ethernet	Two Realtek RTL8111E PCIe GbE controllers (LAN1 with ASF 2.0 support)		
Audio	Realtek ALC662 HD Audio codec		
Solid State Drive (SSD)	mSATA (optional)		
Drive Bays	One 2.5" SATA HDD bay		
	One slim type optical disk drive bay (PPC-3712A-N26 only)		
Expansion Slots	One PCIe Mini card slot with mSATA support		
Touchscreen	4-wire resistive type with USB interface	5-wire resistive type with USB interface	5-wire resistive type with USB interface
Wireless LAN	IEEE 802.11b/g/n 2T2R mode WLAN via internal PCIe Mini card (optional)		
Mounting	VESA 100 mm x 100 mm Panel, wall, rack, stand and arm		

	PPC-3708A-N26	PPC-3710A-N26	PPC-3712A-N26
Power Requirement	9 V ~ 28 V DC		
Power Adapter	P/N: 63040-010060-050-RS 60 W Input: 90 V AC ~ 264 V AC, 50/60 Hz Output: 12 V DC		
I/O Ports and Switches	2 x USB 3.0 2 x USB 2.0 2 x RS-232 1 x RS-422/485 1 x HDMI connector 1 x VGA connector 2 x RJ-45 LAN connectors 3 x Audio jacks (Line-in, Line-out and Mic-in) 1 x Power switch 1 x 12 V DC power input connector		
Chassis Construction	Heavy-duty steel (SECC)		
Front Panel Construction	Aluminum die-casting		
Front Panel Color	Silver (PANTONE 8001C)		
Vibration	5 Hz ~ 17 Hz 0.1" double amplitude displacement 17 Hz ~ 640 Hz 1.5G acceleration peak to peak		
Shock	10G acceleration part to part (11 ms)		
Humidity	10% ~ 95%, non-condensing		
Operating Temperature (Ambient with air flow)	-10ºC ~ 50ºC		
Storage Temperature	-20ºC ~ 60ºC		
Net/Gross Weight	2.2 kg/4.4 kg	3.4 kg/5.8 kg	6 kg/8 kg
Dimensions (W x H x D) (mm)	244 x 175 x 86.5	311 x 242 x 77.8	340 x 260 x 74.8

Table 1-2: System Specifications

Chapter

2

Unpacking

2.1 Unpacking

To unpack the panel PC, follow the steps below:

⚠️ **WARNING!**

The front side LCD screen has a protective plastic cover stuck to the screen. Only remove the plastic cover after the panel PC has been properly installed. This ensures the screen is protected during the installation process.

Step 1: Use box cutters, a knife or a sharp pair of scissors that seals the top side of the external (second) box.

Step 2: Open the external (second) box.

Step 3: Use box cutters, a knife or a sharp pair of scissors that seals the top side of the internal (first) box.

Step 4: Lift the monitor out of the boxes.

Step 5: Remove both polystyrene ends, one from each side.

Step 6: Pull the plastic cover off the panel PC.

Step 7: Make sure all the components listed in the packing list are present.

2.2 Packing List

The PPC-37xxA-N26 panel PC is shipped with the following components:

Quantity	Item	Image
1	PPC-37xxA-N26	
1	Power adapter (**P/N**: 63040-010060-050-RS)	
1	Power cord (**P/N**: 32702-000200-100-RS)	
1	Screw kit (**P/N**: 19600-000205-RS)	
1	Touch pen (**P/N**: 43125-0002C0-00-RS)	
1	Panel mounting kit (**P/N**: 19Z00-000026-RS)	
1	Wall mounting kit (**P/N**: 41020-016102-00-RS, 41014-057602-00-RS)	
1	User manual and driver CD	

Quantity	Item	Image
1	One Key Recovery CD	

Table 2-1: Packing List

If any of the above items are missing or damaged, contact the distributor or sales representative immediately.

2.3 Optional Items

The following items are optional accessories for the PPC-37xxA-N26:

Item	Image
Slim type SATA DVD-ROM (PPC-3712A-N26 only) (**P/N**: 73400-AD7760H01-RS)	
Arm (**P/N**: ARM-11-RS)	
Stand (**P/N**: STAND-100-RS)	

Rack mounting kit
(**P/N**: RK-084MS-R10
      RK-104MS-R10
      RK-121MS-R10)	

Item	Image
Wi-Fi module with RF cable and antenna, 2T2R, 802.11b/g/n (**P/N**: PPC-WL-KIT02-R10)	

Table 2-2: Optional Items

Chapter

3

Installation

3.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the maintenance of the EP series may result in permanent damage to the EP series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the PPC-37xxA-N26. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the PPC-37xxA-N26 is accessed internally, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- **Wear an anti-static wristband**: - Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- **Self-grounding**: - Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- **Use an anti-static pad**: - When configuring the PPC-37xxA-N26, place it on an antic-static pad. This reduces the possibility of ESD damaging the PPC-37xxA-N26.
- **Only handle the edges of the PCB**: - When handling the PCB, hold the PCB by the edges.

3.2 Installation Precautions

When installing the panel PC, please follow the precautions listed below:

- **Power turned off**: When installing the panel PC, make sure the power is off. Failing to turn off the power may cause severe injury to the body and/or damage to the system.
- **Certified Engineers**: Only certified engineers should install and modify onboard functionalities.

> ▪ **Anti-static Discharge**: If a user open the rear panel of the panel PC, to configure the jumpers or plug in added peripheral devices, ground themselves first and wear and anti-static wristband.

3.3 Preinstalled Components

The following components are all preinstalled.

- ▪ Motherboard
- ▪ DDR3 memory module
- ▪ TFT LCD
- ▪ Touchscreen

Preinstalled OEM customizations may include the following.

- ▪ HDD
- ▪ Wi-Fi module
- ▪ Optical disk drive (PPC-3712A-N26 only)

3.4 Installation and Configuration Steps

The following installation steps must be followed.

Step 1: Unpack the PPC-37xxA-N26.

Step 2: Set the jumper settings (not usually necessary).

Step 3: Install the mSATA SSD, HDD and optical disk drive.

Step 4: Mount the PPC-37xxA-N26 panel PC.

Step 5: Connect peripheral devices to the bottom panel of the PPC-37xxA-N26.

Step 6: Configure the system.

3.5 Removing the Back Cover

Remove all the retention screws on the back cover. Lift the cover up to remove.

Figure 3-1: PPC-3708A-N26 Back Cover Retention Screws
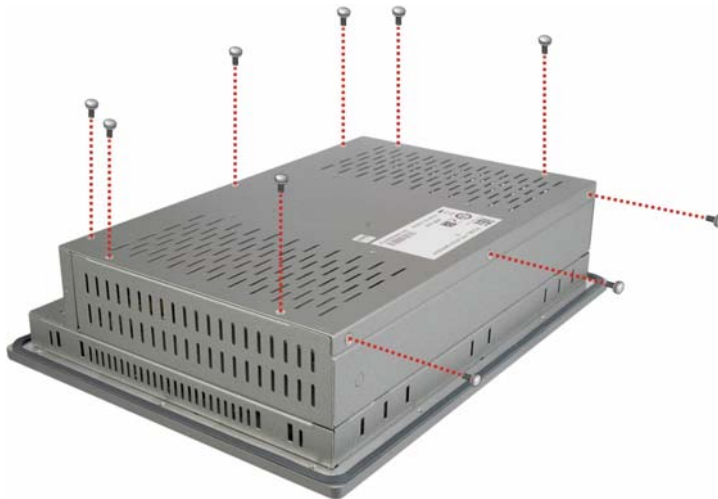
Figure 3-2: PPC-3710A-N26 Back Cover Retention Screws

Figure 3-3: PPC-3712A-N26 Back Cover Retention Screws

3.6 Jumper Settings

NOTE:

A jumper is a metal bridge used to close an electrical circuit. It consists of two or three metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To CLOSE/SHORT a jumper means connecting the pins of the jumper with the plastic clip and to OPEN a jumper means removing the plastic clip from a jumper.
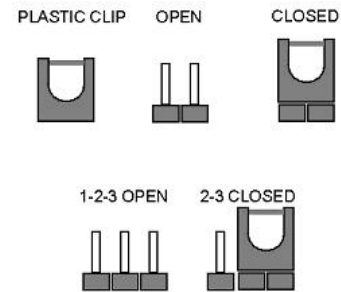
The following jumpers can be found on the motherboard installed in the PPC-37xxA-N26. Before the PPC-37xxA-N26 is installed, the jumpers must be set in accordance with the desired configuration. The jumpers on the PPC-37xxA-N26 motherboard are listed in **Table 3-1**.

Description	Label	Type
AT/ATX power selection	JP3	2-pin header
Clear CMOS	JP1	3-pin header
mSATA/PCIe Mini mode selection	MSATA_SW1	2-pin header

Table 3-1: Jumpers

3.6.1 Access the Jumpers

To access the jumpers, remove the back cover. To remove the back cover, please refer to **Section 3.5**.

3.6.2 Preconfigured Jumpers

⚠️ **WARNING:**

> Do not change the settings on the jumpers described here. Doing so may disable or damage the system

The following jumpers are preconfigured for the PPC-37xxA-N26. Users should not change these jumpers.

Jumper Name	Label	Type
LVDS voltage selection	JP5	3-pin header
Touchscreen type selection	J_WIRE1	Switch

Table 3-2: Preconfigured Jumpers

Setting	Description
Short 1-2	+3.3V LVDS (Default)
Short 2-3	+5V LVDS

Table 3-3: LVDS Voltage Selection Jumper Settings

Setting	Description
A	5-wire resistive touch (for PPC-3710A-N26 and PPC-3712A-N26)
B	4-wire resistive touch (for PPC-3708A-N26)

Table 3-4: Touchscreen Type Selection Jumper Settings
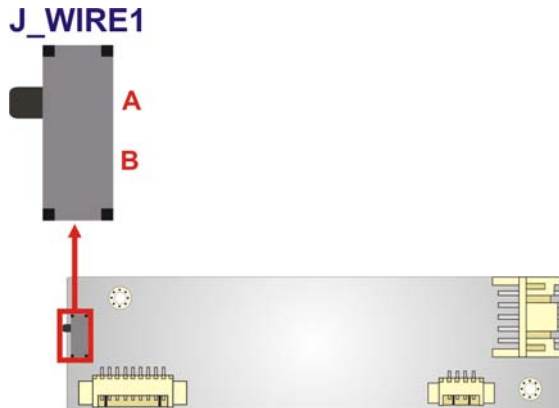
Figure 3-4: Touchscreen Type Selection Jumper Location

3.6.3 AT/ATX Power Selection Jumper

Jumper Label:	JP3
Jumper Type:	2-pin header
Jumper Settings:	See **Table 3-5**
Jumper Location:	See **Figure 3-5**

The AT/ATX power selection jumper specifies the system power mode as AT or ATX.

Setting	Description
Short 1-2	Use ATX power (Default)
Off	Use AT power

Table 3-5: AT/ATX Power Selection Jumper Settings
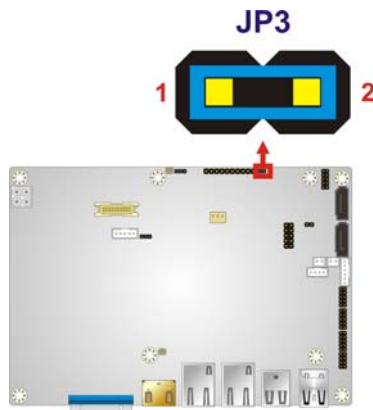
Figure 3-5: AT/ATX Power Selection Jumper Location

3.6.4 Clear CMOS Jumper

Jumper Label:	**JP1**
Jumper Type:	3-pin header
Jumper Settings:	See **Table 3-6**
Jumper Location:	See **Figure 3-6**

To reset the BIOS, move the jumper to the "Clear BIOS" position for 3 seconds or more, and then move back to the default position.

Setting	Description
Short 1-2	Normal (Default)
Short 2-3	Clear BIOS

Table 3-6: Clear CMOS Jumper Settings
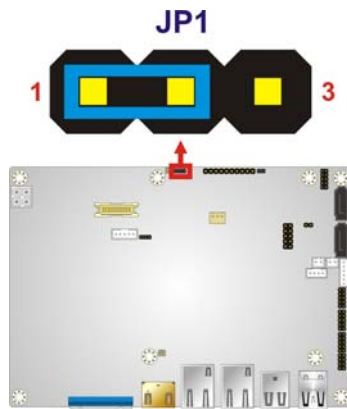
Figure 3-6: Clear CMOS Jumper Location

3.6.5 mSATA/PCIe Mini Mode Selection

Jumper Label:	**MSATA_SW1**
Jumper Type:	2-pin header
Jumper Settings:	See **Table 3-7**
Jumper Location:	See **Figure 3-7**

The jumper configures the PCIe Mini slot (M_PCIE1) to automatically detect mSATA device or to force mSATA to be enabled.

Setting	Description
Short 1-2	Auto-detect mSATA device (Default)
Off	Enable mSATA

Table 3-7: mSATA/PCIe Mini Mode Selection Jumper Settings
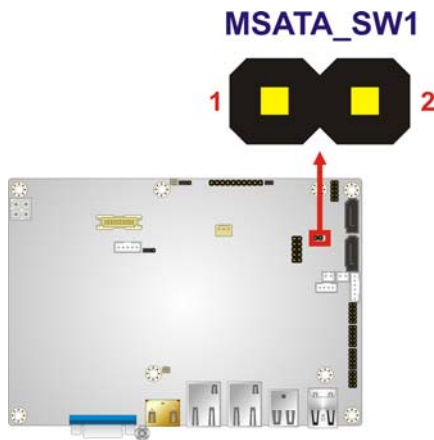
Figure 3-7: mSATA/PCIe Mini Mode Selection Jumper Location

3.7 mSATA SSD Installation

The PPC-37xxA-N26 has one PCIe Mini slot on the solder side of the motherboard for mSATA SSD installation. To install the mSATA SSD, follow the instructions below.

Step 1: Remove the back cover (**Section 3.5**).

Step 2: Remove the two hex nuts on the bottom panel (**Figure 3-8**).

Figure 3-8: Hex Nuts on the Bottom Panel

Step 3: Remove all the cables connected to the motherboard.

Step 4: Release the motherboard from the panel PC by removing the four retention screws (**Figure 3-9**).
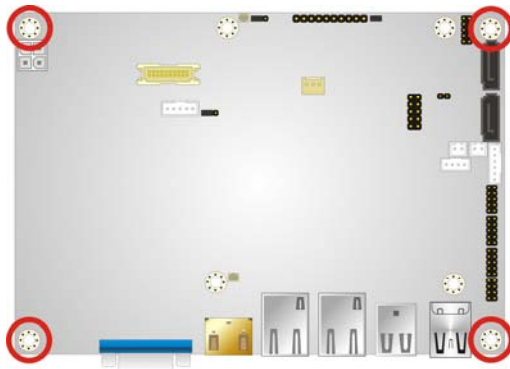
Figure 3-9: Retention Screws on the Motherboard

Step 5: Locate the PCIe Mini slot on the solder side of the motherboard (**Figure 3-10**).
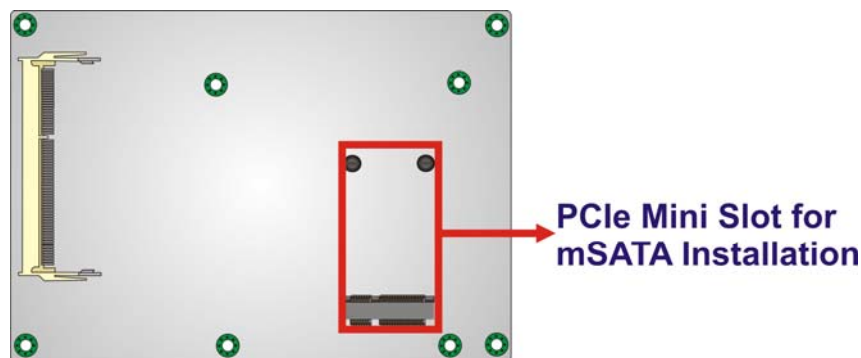
Figure 3-10: PCIe Mini Slot Location

Step 6: **Insert into the socket at an angle**. Line up the notch on the card with the notch on the connector. Slide the PCIe Mini card into the socket at an angle of about 20º (**Figure 3-11**).
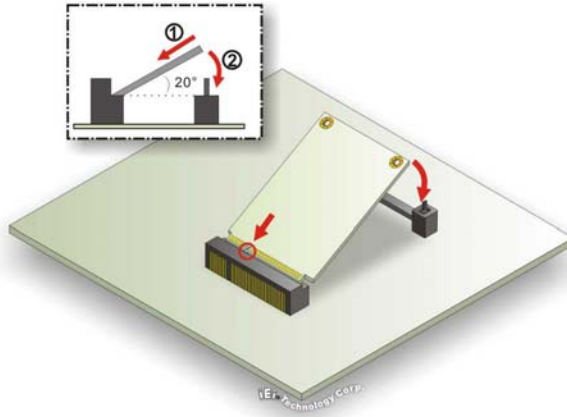
Figure 3-11: PCIe Mini Card Installation

Step 7: **Push down until the card clips into place**. Push the other end of the card down until it clips into place on the plastic connector (**Figure 3-11**).

Step 8: Reassemble the whole system.

3.8 HDD Installation

3.8.1 PPC-3708A-N26 HDD Installation

To install the HDD into the PPC-3708A-N26, please follow the steps below:

Step 1: **Remove the back cover**. Refer to **Section 3.5**.

Step 2: **Remove the HDD bracket from the PPC-3708A-N26**. The HDD bracket is attached on the PPC-3708A-N26 with four retention screws, two on the top panel (**Figure 3-12**) and two inside the chassis (**Figure 3-13**). Remove the four retention screws and lift the bracket off the panel PC.

Figure 3-12: PPC-3708A-N26 HDD Bracket Retention Screws (Tope Panel)
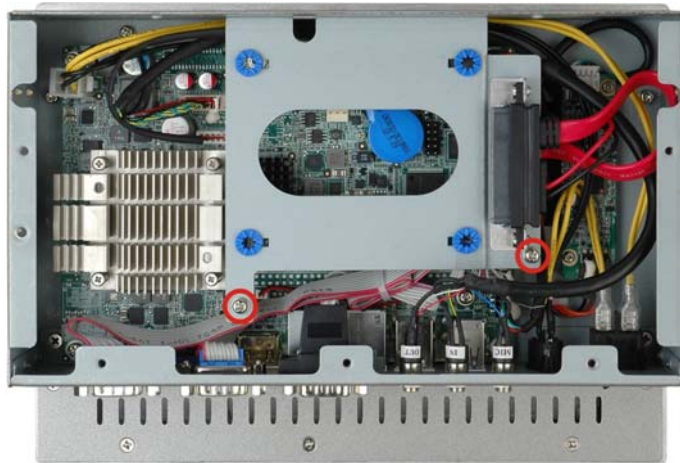
Figure 3-13: PPC-3708A-N26 HDD Bracket Retention Screws (Inside)

Step 3:   **Attach the HDD to the HDD bracke**t. To do this, align the four retention screw

holes in the HDD bracket with the retention screw holes on the bottom of the

HDD. Insert four retention screws into the HDD bracket and fasten them.

(**Figure 3-14**).

Figure 3-14: PPC-3708A-N26 HDD Retention Screws

Step 4: Install the HDD bracket (with hard drive and SATA cable attached) into the

PPC-3708A-N26 and fasten the four HDD bracket screws. **(Figure 3-15.)**
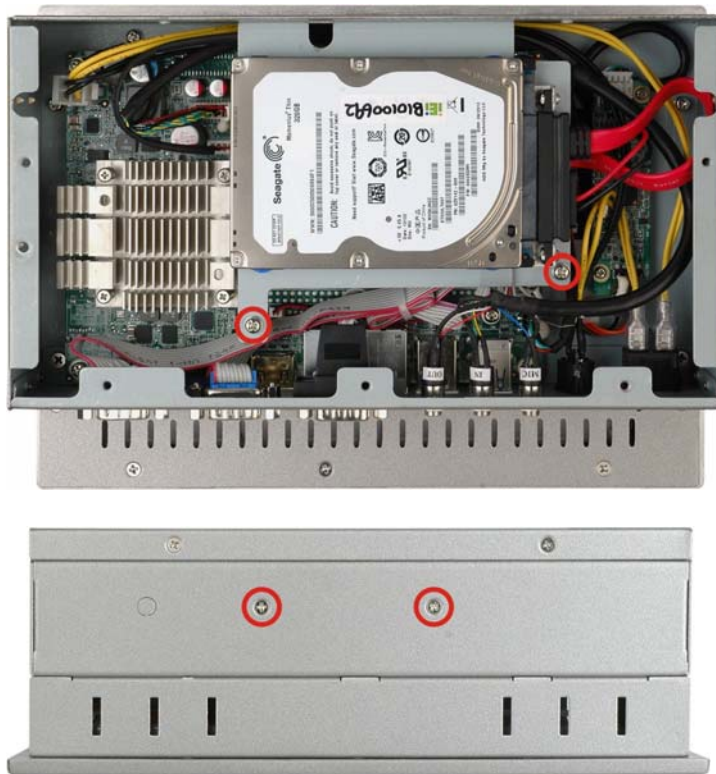
Figure 3-15: Replacing the PPC-3708A-N26 HDD Bracket

3.8.2 PPC-3710A-N26 HDD Installation

To install the HDD into the PPC-3710A-N26, please follow the steps below:

Step 1: **Remove the back cover**. See **Section 3.5.**

Step 2: **Remove the HDD bracket from the PPC-3710A-N26**. The HDD bracket is attached on the panel PC with four retention screws inside the chassis (**Figure 3-16**). Remove the four retention screws and lift the bracket off the panel PC.
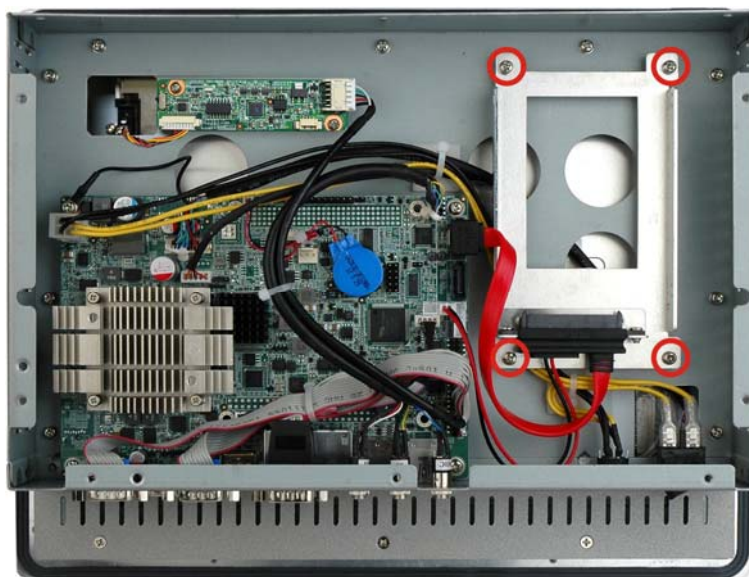
Figure 3-16: PPC-3710A-N26 HDD Bracket Retention Screws

Step 3: **Attach the hard drive in the bracket**. To do this, slide the hard drive onto the bracket until it connects with the SATA connector at the back. Fasten the four retention screws on the sides (**Figure 3-17**).

Figure 3-17: PPC-3710A-N26 HDD Retention Screws

Step 4: Install the hard drive bracket (with hard drive and SATA cable attached) into the

panel PC and fasten the four hard drive bracket screws.
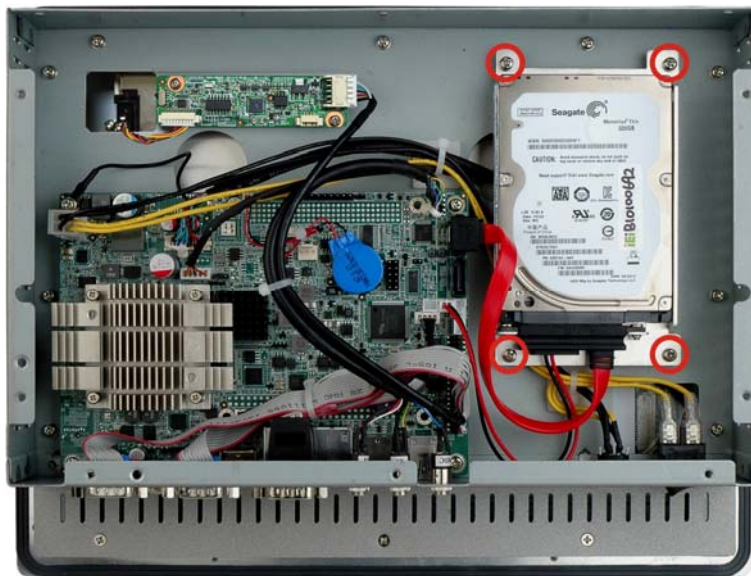
Figure 3-18: Replacing the PPC-3710A-N26 HDD Bracket

3.8.3 PPC-3712A-N26 HDD Installation

To install the HDD into the PPC-3712A-N26, please follow the steps below:

Step 1: **Remove the back cover**. See **Section 3.5**.

Step 2: **Remove the optical drive bracket**. Undo the optical drive bracket screws and

remove the optical drive bracket. See **Figure 3-19.**

Step 3: Follow **Steps 2 ~ 4** in **Section 3.8.2** to install a hard disk drive to the panel PC.

Step 4: Replace the optical drive bracket.

3.9 Optical Disk Drive Installation (PPC-3712A-N26 Only)

To install an optical disk drive, please follow the steps below.

Step 1: **Remove the back cover**. See **Section 3.5**.

Step 2: **Remove the optical drive bracket from the PPC-3712A-N26**. To do this,

remove four retention screws, two on the side panel and two inside the panel PC

(**Figure 3-19**).
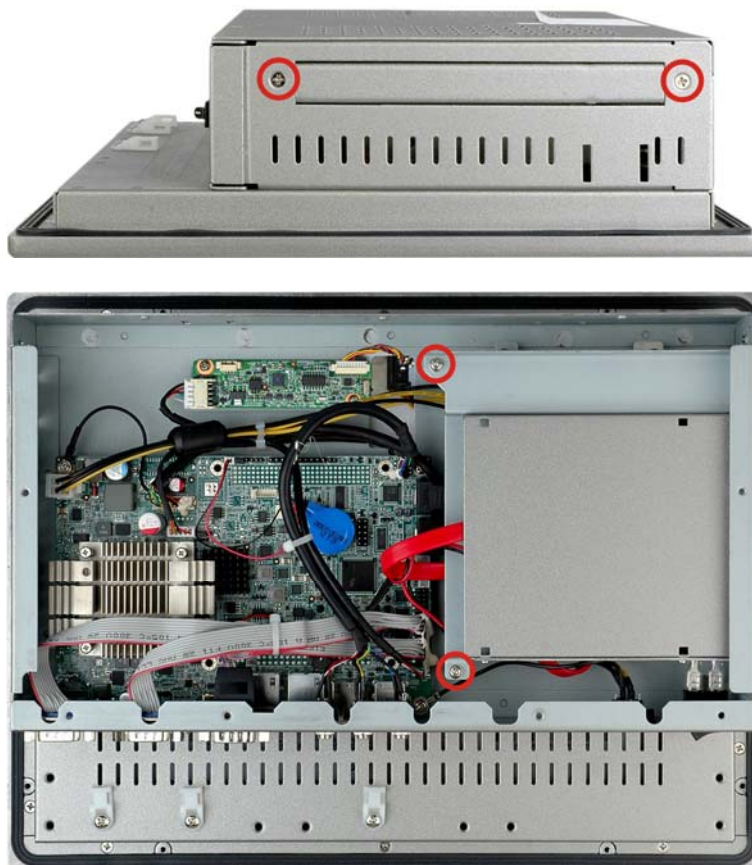
Figure 3-19: Optical Drive Bracket Retention Screws

Step 3: Remove the four screws from the optical drive bracket assembly (**Figure 3-20**).

Remove the blank drive plate.
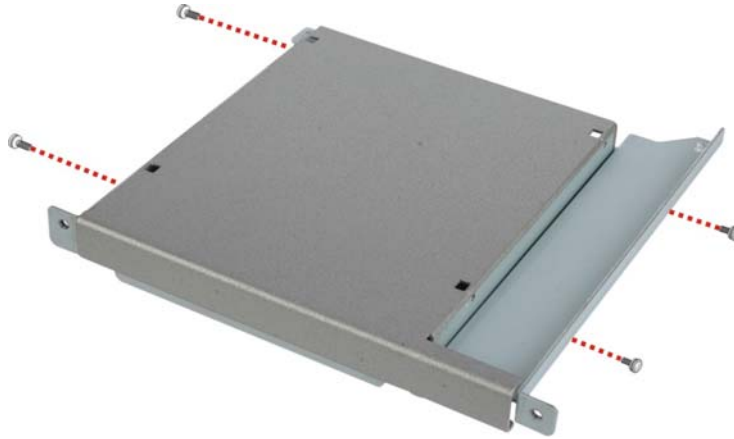
Figure 3-20: Optical Drive Blank Plate Assembly

Step 4: Install the optical drive in the same position as the previously removed blank

optical drive plate. Fasten the same four screws to attach the optical drive to the

bracket.

Figure 3-21: Optical Drive Screws

Step 5: Attach the SATA cable to the back of the optical drive.

Figure 3-22: Optical Drive SATA Cable

Step 6: Reinstall the optical drive bracket into the PPC-3712A-N26 and fasten the

optical bracket screws.
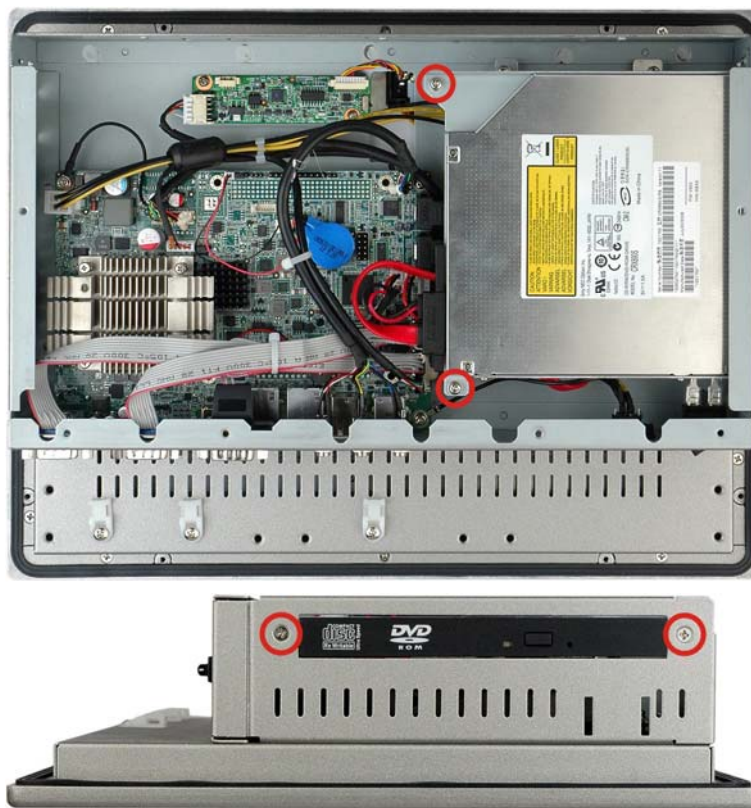
Figure 3-23: Replacing the Optical Drive Bracket

3.10 Mounting the System

![WARNING icon] **WARNING!**

When mounting the PPC-37xxA-N26 panel PC, it is advisable to have more than one person help with the installation to prevent accidental damage to the panel and avoid personal injury.

The methods of mounting the PPC-37xxA-N26 are:

- Wall mounting
- Panel mounting
- Arm mounting
- Stand mounting
- Rack mounting

The mounting methods are described in the following sections.

3.10.1 Wall Mounting

To mount the PPC-37xxA-N26 panel PC onto a wall, please follow the steps below.

Step 1: Select the location on the wall for the wall-mounting bracket.

Step 2: Carefully mark the locations of the four bracket screw holes on the wall.

Step 3: Drill four pilot holes at the marked locations on the wall for the bracket retention screws.

Step 4: Align the wall-mounting bracket screw holes with the pilot holes.

Step 5: Secure the mounting bracket to the wall by inserting the retention screws into the four pilot holes and tightening them (**Figure 3-24**).
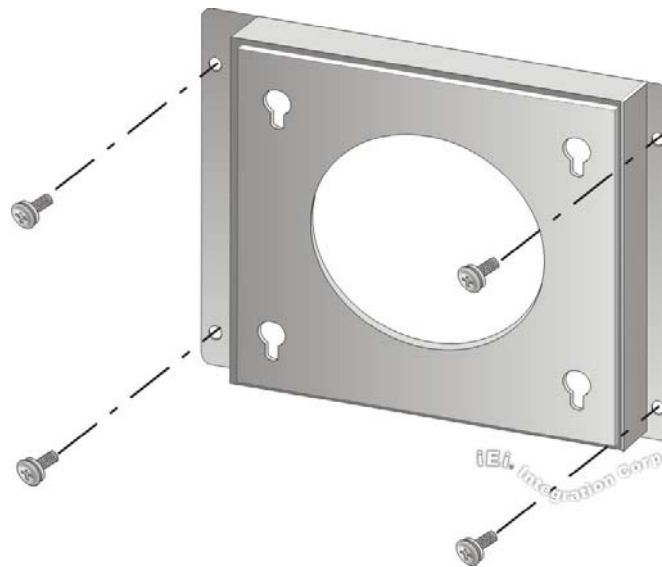
Figure 3-24: Wall-mounting Bracket

Step 6: Insert the four monitor mounting screws provided in the wall mounting kit into the four screw holes on the real panel of the monitor and tighten until the screw shank is secured against the rear panel (**Figure 3-25**).

Step 7: Align the mounting screws on the monitor rear panel with the mounting holes on the bracket.

Step 8: Carefully insert the screws through the holes and gently pull the monitor downwards until the monitor rests securely in the slotted holes (**Figure 3-25**). Ensure that all four of the mounting screws fit snuggly into their respective slotted holes.

NOTE:

In the diagram below the bracket is already installed on the wall.
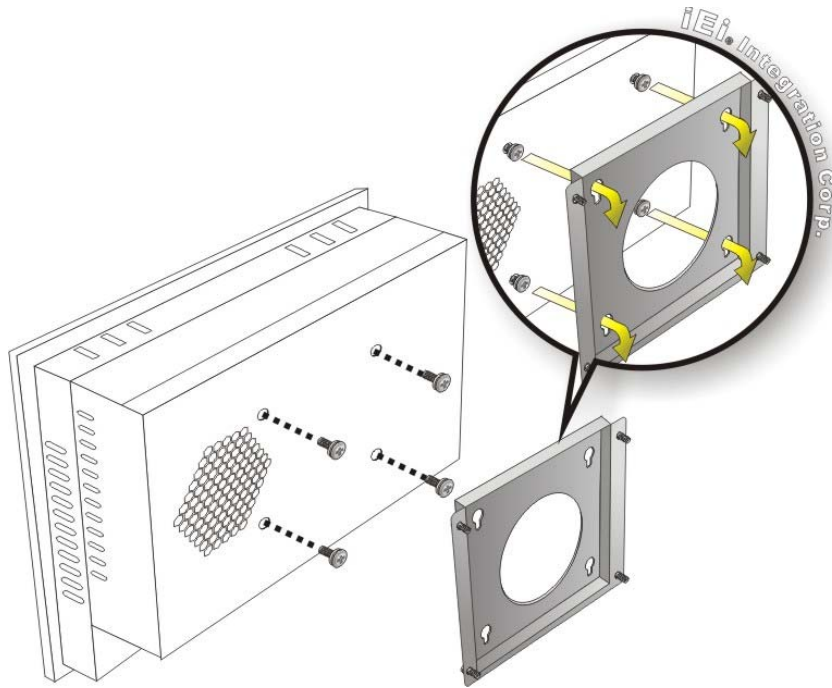
Figure 3-25: Mount the Chassis

Step 9: Secure the panel PC with the wall-mounting kit. To do this, stick the protective cushion to the wall-mounting kit first. Then, put the wall-mounting kit on the top panel of the panel PC. Carefully mark the location of the wall-mounting kit screw holes on the wall. Drill a pilot hole at the marked location on the wall. Secure the wall-mounting kit to the wall by inserting a retention screw into the pilot hole on the wall (**Figure 3-26**). This step is to avoid the panel PC being pushed apart from the wall-mounting bracket accidentally.
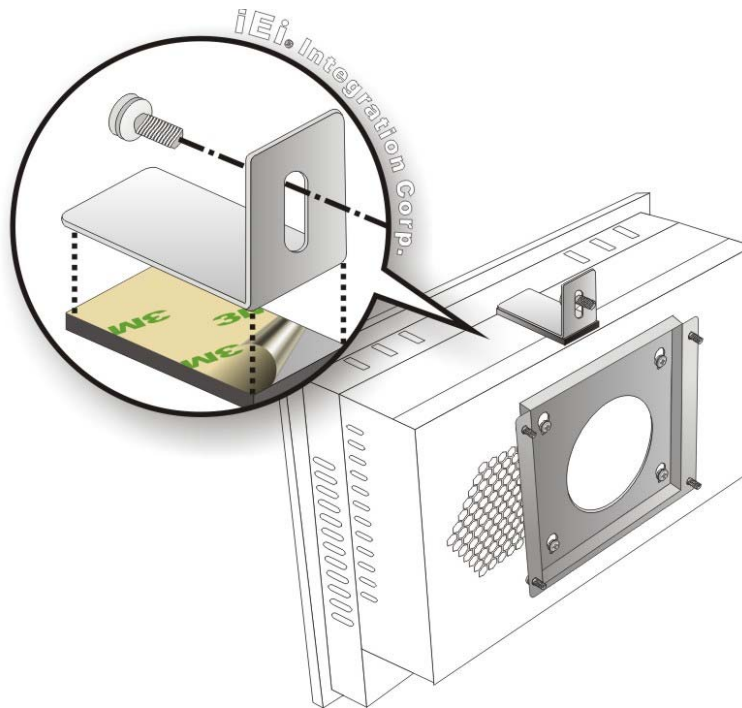
Figure 3-26: Secure the Chassis

3.10.2 Panel Mounting

3.10.2.1 PPC-3708A-N26 and PPC-3710A-N26

To mount the PPC-3708A-N26 or PPC-3710A-N26 panel PC into a panel, please follow the steps below.

Step 1: Select the position on the panel to mount the PPC-37xxA-N26.

Step 2: Cut out a section of the panel that corresponds to the rear panel dimensions of the panel PC. The recommended cutout sizes are shown below (**Figure 3-27** and **Figure 3-28**).
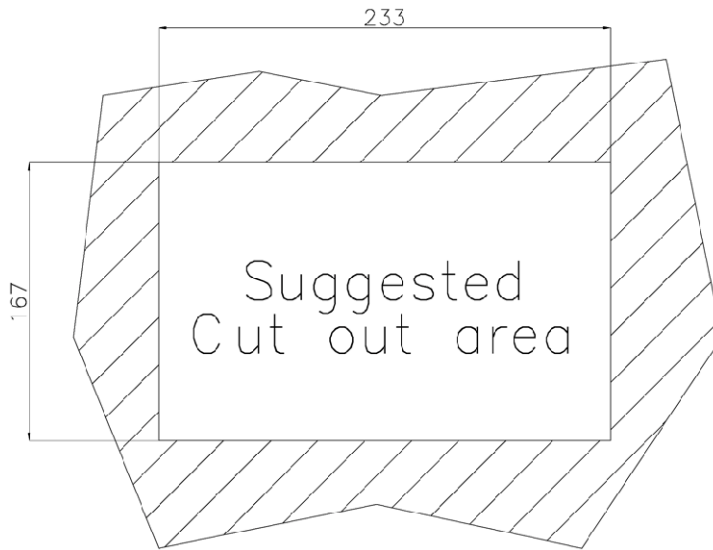
Figure 3-27: PPC-3708A-N26 Panel Cutout Dimensions
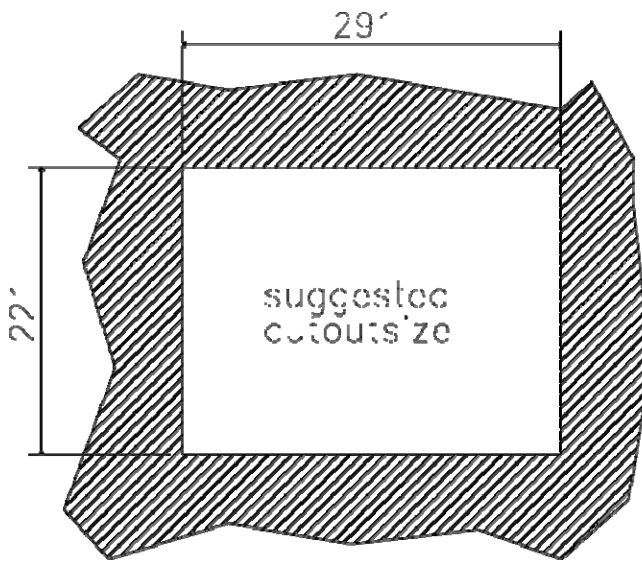
Figure 3-28: PPC-3710A-N26 Panel Cutout Dimensions

Step 3: Slide the panel PC through the hole until the aluminum frame is flush against the panel.

Step 4: Insert the panel mounting clamps into the pre-formed holes along the edges of the panel PC, behind the aluminum frame (**Figure 3-29**). There are a total of 8 panel mounting clamps for PPC-3708A-N26 and 10 clamps for PPC-3710A-N26.

Step 5: Tighten the screws that pass through the panel mounting clamps until the plastic caps at the front of all the screws are firmly secured to the panel (**Figure 3-29**).
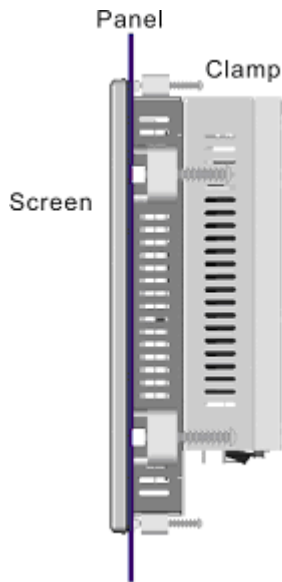
Figure 3-29: Tighten the Panel Mounting Clamp Screws

3.10.2.2 PPC-3712A-N26

To mount the PPC-3712A-N26 panel PC into a panel, please follow the steps below.

Step 1: Install the panel mounting kit onto the real panel (**Figure 3-30**).
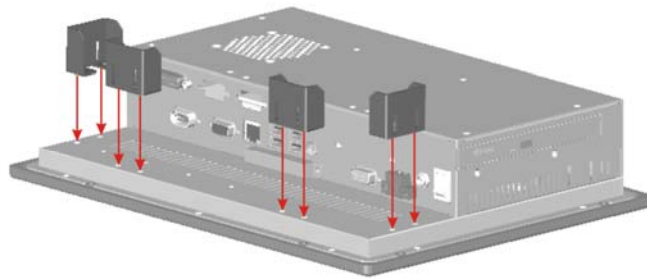
Figure 3-30: Panel Mounting Kit

Step 2: Select the position in the panel to mount the PPC-3712A-N26.

Step 3: Cut out a section from the panel that corresponds to the dimensions of the flat panel PC chassis. The panel section that is cut out must be smaller than the size of the aluminum frame that surrounds the 12.1" TFT LCD panel but just large enough for the chassis to fit through (**Figure 3-31**).
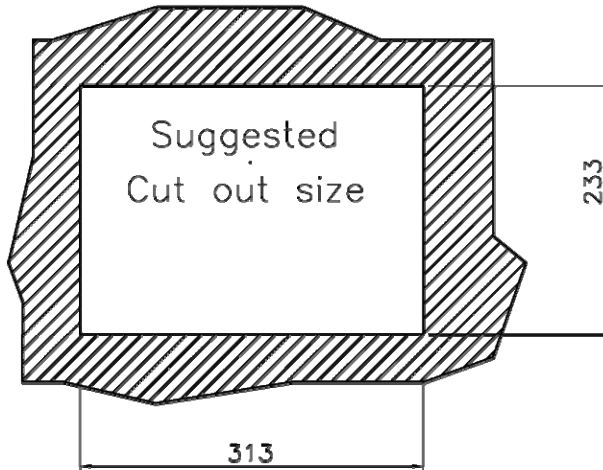
Figure 3-31: PPC-3712A-N26 Panel Cutout Dimensions

Step 4: Slide the panel PC through the hole until the aluminum frame is flush against the panel.

Step 5: Insert the panel mounting clamps into the pre-formed holes along the edges of the chassis, behind the aluminum frame. There are a total of 8 panel mounting clamps.

Step 6: Tighten the screws that pass through the panel mounting clamps until the plastic caps at the front of all the screws are firmly secured to the panel (**Figure 3-32**).
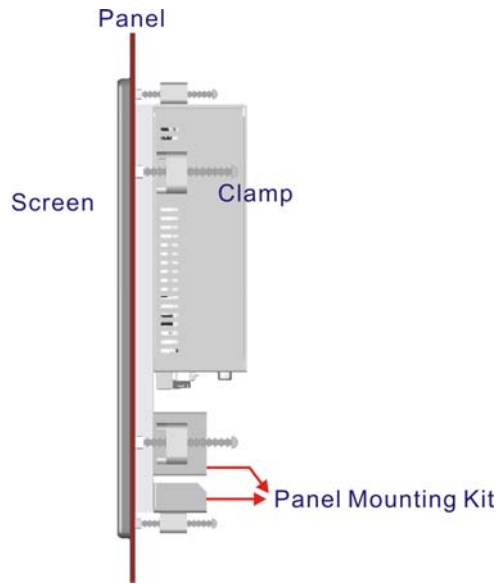
Figure 3-32: Tighten the Panel Mounting Clamp Screws

3.10.3 Cabinet and Rack Installation

The PPC-37xxA-N26 panel PC can be installed into a cabinet or rack. To do this, please follow the steps below.

3.10.3.1 PPC-3708A-N26

Step 1: Slide the rear chassis of the PPC-3708A-N26 panel PC through the rack/cabinet bracket until the aluminum frame is flush against the front of the bracket (**Figure 3-33**).

Rack/cabinet bracket
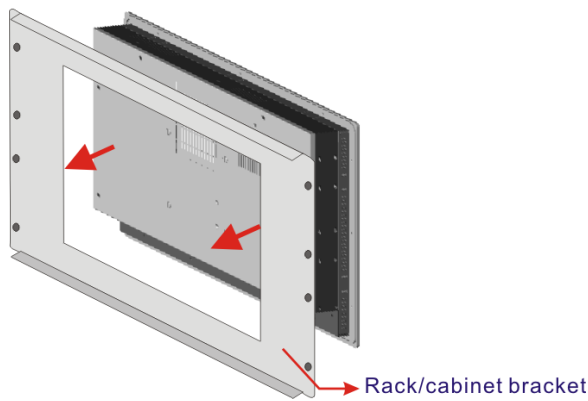
Figure 3-33: The Rack/Cabinet Bracket

Step 2:   Insert the rack mounting clamps into the pre-formed holes along the edges of the PPC-3708A-N26, behind the aluminum frame. The required number of mounting clamps should be eight.

Step 3:   Tighten the screws that pass through the rack mounting clamps until the plastic caps at the front of all the screws are firmly secured to the bracket (**Figure 3-34**).
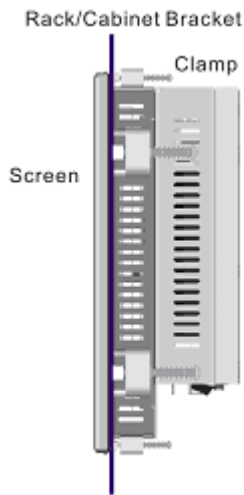
Figure 3-34: Securing the PPC-3708A-N26 Rack/Cabinet Bracket

Step 4:   Slide the PPC-3708A-N26 panel PC with the attached rack/cabinet bracket into a rack or cabinet (**Figure 3-35**).
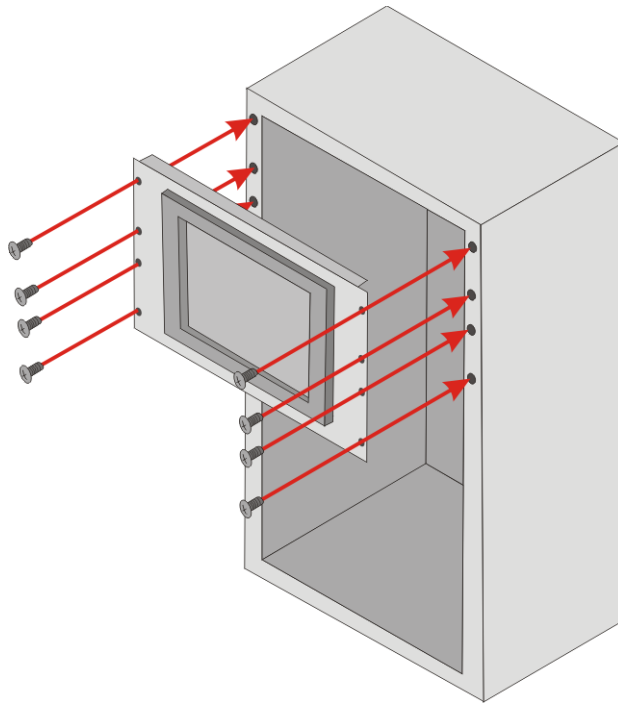
Figure 3-35: Installing into a Rack/Cabinet

Step 5: Once the panel PC with the attached rack/cabinet bracket has been properly inserted into the rack or cabinet, secure the front of the rack/cabinet bracket to the front of the rack or cabinet (**Figure 3-35**).

3.10.3.2 PPC-3710A-N26 and PPC-3712A -N26

Step 1: The back of the aluminum frame surrounding the LCD screen has retention screw holes (PPC-3710A-N26 has 10 holes and PPC-3712A -N26 has 8 holes) for a cabinet/rack installation bracket.

![checkmark icon] **NOTE:**

When purchasing the cabinet/rack installation bracket, make sure it is compatible with both the panel PC and the rack/cabinet into which the panel PC is installed.

Step 2: Slide the rear chassis through the rack/cabinet bracket until the rear side of the LCD screen frame is flush against the front of the bracket.

Step 3: Make sure the retention screw holes at the rear of the LCD screen are aligned with the retention screw holes in the rack/cabinet bracket.

Step 4: Secure the rack/cabinet bracket to the panel PC by inserting the retention screws (**Figure 3-36**).
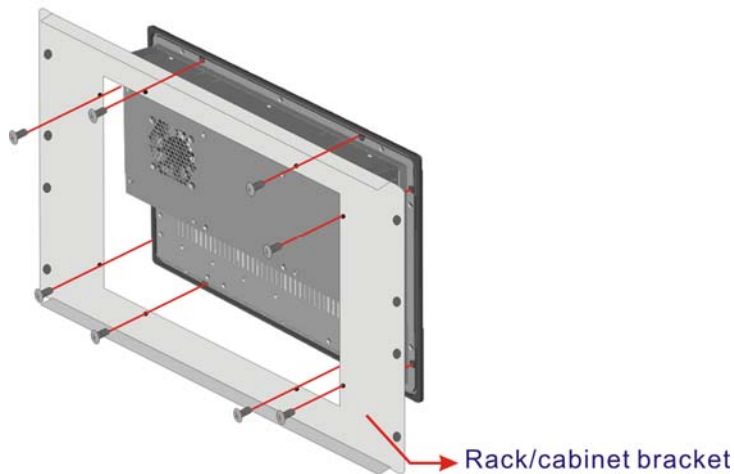
Figure 3-36: Securing the Rack/Cabinet Bracket

Step 5: Follow **Step 4** and **Step 5** of the PPC-3708A-N26 Cabinet and Rack Installation procedures to complete the whole installation process.

3.10.4 Arm Mounting

The PPC-37xxA-N26 is VESA (Video Electronics Standards Association) compliant and can be mounted on an arm with a 100 mm interface pad. To mount the PPC-37xxA-N26 on an arm, please follow the steps below.

Step 1: The arm is a separately purchased item. Please correctly mount the arm onto the surface it uses as a base. To do this, refer to the installation documentation that came with the mounting arm.

> ![NOTE icon] **NOTE:**
>
> When purchasing the arm please ensure that it is VESA compliant and that the arm has a 100 mm interface pad. If the mounting arm is not VESA compliant, it cannot be used to support the PPC-37xxA-N26 panel PC.

Step 2: Once the mounting arm has been firmly attached to its surface, lift the PPC-37xxA-N26 panel PC onto the interface pad of the mounting arm.

Step 3: Align the retention screw holes on the mounting arm interface with those in the PPC-37xxA-N26 panel PC. The arm mounting retention screw holes of the PPC-37xxA-N26 panel PC are shown in **Figure 3-37**.
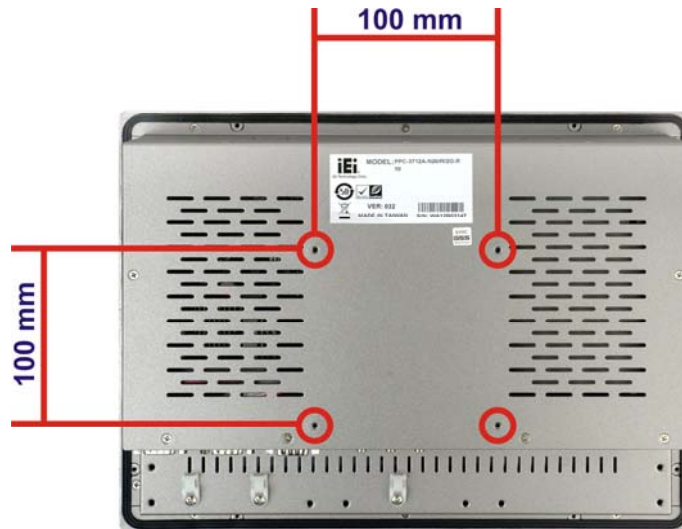
Figure 3-37: Arm Mounting Retention Screw Holes

Step 4: Secure the PPC-37xxA-N26 to the interface pad by inserting four retention screws through the mounting arm interface pad and into the PPC-37xxA-N26 panel PC.
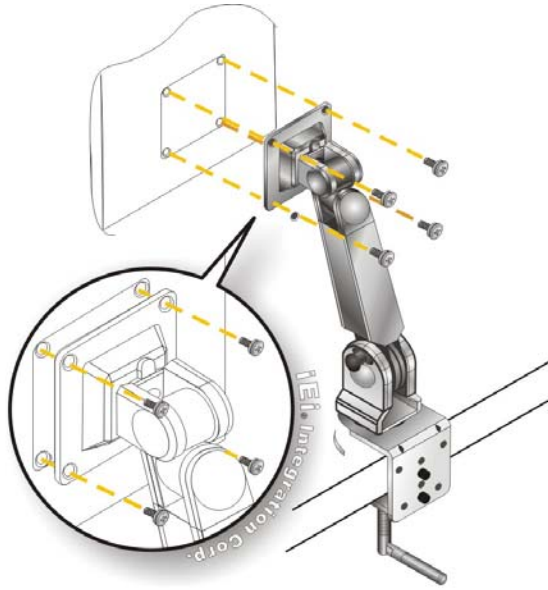
Figure 3-38: Arm Mounting

3.10.5 Stand Mounting

To mount the PPC-37xxA-N26 using the stand mounting kit, please follow the steps below.

Step 1: Locate the screw holes on the rear of the PPC-37xxA-N26. This is where the bracket will be attached.
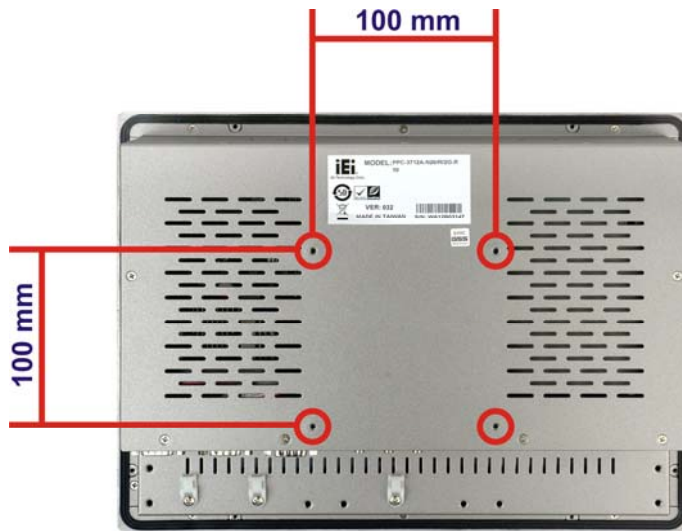
Figure 3-39: Stand Mounting Retention Screw Holes

Step 2: Align the bracket with the screw holes.

Step 3: To secure the bracket to the PPC-37xxA-N26, insert the retention screws into the screw holes and tighten them.

3.11 Bottom Panel Connectors

The bottom panel of the PPC-37xxA-N26 contains I/O connectors, power connector and power switch. Detailed descriptions of the connectors can be found in the subsections below.

3.11.1 Audio Connectors

The audio jacks connect to external audio devices.

- **Mic:** Connects to a microphone.
- **Line-in:** Connects to a player or other audio sources.
- **Line-out:** Connects to a headphone or a speaker. With multi-channel configurations, this port can also connect to front speakers.

3.11.2 HDMI Connector

The HDMI connector transmits a digital signal to compatible HDMI display devices such as a TV or computer screen. To connect the HDMI cable to the PPC-37xxA-N26, follow the steps below.

Step 1: **Locate the HDMI connector**. The location is shown in **Figure 1-4**.

Step 2: **Align the connector**. Align the HDMI connector with the HDMI port. Make sure the orientation of the connector is correct.
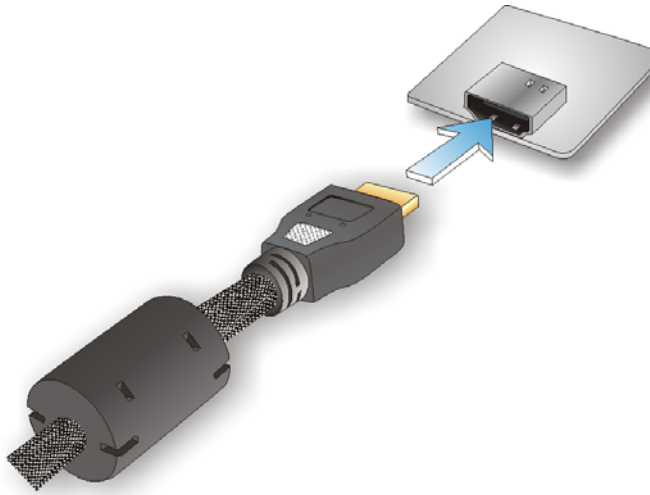
Figure 3-40: HDMI Connection

Step 3: **Insert the HDMI connector**. Gently insert the HDMI connector. The connector

should engage with a gentle push. If the connector does not insert easily, check

again that the connector is aligned correctly, and that the connector is being

inserted with the right way up.

3.11.3 Power Input Connector

The standard system is shipped with a 90 V to 264 V AC power adapter that has a
maximum power output of 60 W. The power adapter has a 12 V DC output connector. The
PPC-37xxA-N26 has one 12 V power input connector on the bottom panel. The location of
the power connector is shown in **Figure 1-4**.

3.11.4 RJ-45 LAN Connectors

The RJ-45 LAN connectors allow connections to external networks. The pinouts of the
RJ-45 LAN connector is shown below.

Pin	Description	Pin	Description
1	MDI0+	5	MDI2+
2	MDI0-	6	MDI2-
3	MDI1+	7	MDI3+
4	MDI1-	8	MDI3-

Table 3-8: LAN Pinouts
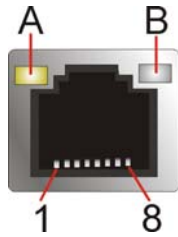
Figure 3-41: RJ-45 LAN Connector

Each RJ-45 LAN connector has two status LEDs. See **Figure 3-41**.

LED	Description	LED	Description
A	on: linked blinking: data is being sent/received	B	off: 10 Mb/s green: 100 Mb/s orange: 1000 Mb/s

Table 3-9: RJ-45 LAN Connector LEDs

To connect the PPC-37xxA-N26 to a network through the RJ-45 LAN connectors, follow the steps below.

Step 1: **Locate the RJ-45 connectors**. The locations of the RJ-45 connectors are shown in **Figure 1-4**.

Step 2: **Align the connectors**. Align the RJ-45 connector on the LAN cable with one of the RJ-45 connectors on the PPC-37xxA-N26. See **Figure 3-42**.
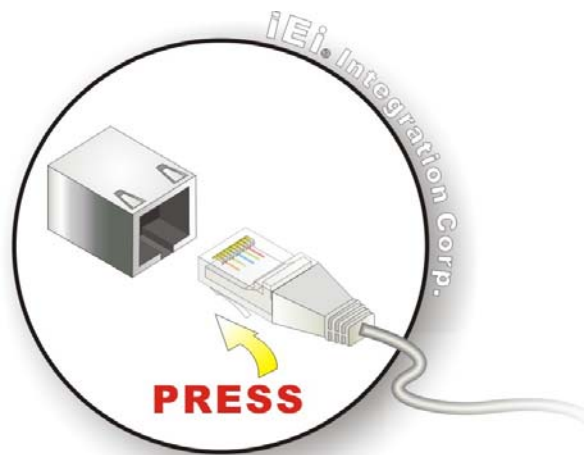
Figure 3-42: LAN Connection

Step 3: **Insert the LAN cable RJ-45 connector**. Once aligned, gently insert the LAN

cable RJ-45 connector into the on-board RJ-45 connector.

3.11.5 RS-232 Serial Ports

An RS-232 device can be connected to the RS-232 serial port on the bottom panel. To install the RS-232 devices, follow the steps below.

Step 1: **Locate the DB-9 connector**. The locations of the DB-9 connectors are shown

in **Figure 1-4**.

Step 2: **Insert the serial connector**. Insert the DB-9 connector of a serial device into

the DB-9 connector on the external peripheral interface. See **Figure 3-43**
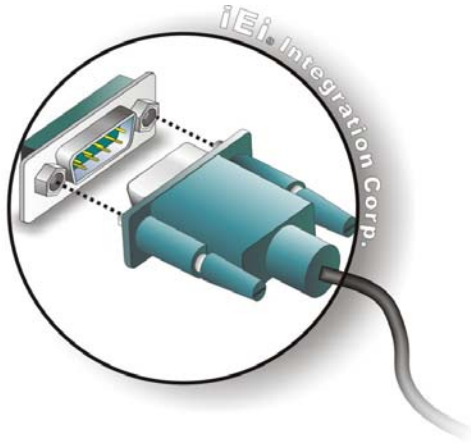
Figure 3-43: RS-232 Serial Device Connector

Step 3: **Secure the connector**. Secure the serial device connector to the external

interface by tightening the two retention screws on either side of the connector

3.11.6 RS-422/485 Serial Port

To install the RS-422/485 device, follow the steps below.

Step 1: **Locate the DB-9 connector**. The location of the DB-9 connector is shown in

Figure 1-4.

Step 2: **Insert the serial connector**. Insert the DB-9 connector of a serial device into

the DB-9 connector on the external peripheral interface. See **Figure 3-44**
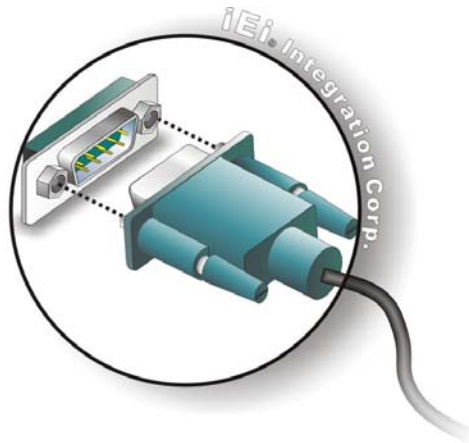
Figure 3-44: RS-422/485 Serial Device Connector

Step 3: **Secure the connector**. Secure the serial device connector to the external

interface by tightening the two retention screws on either side of the connector

3.11.7 USB 2.0 Connectors

The USB 2.0 ports are for attaching USB 2.0/1.1 peripheral devices to the system. To connect a USB 2.0 or USB 1.1 device, please follow the instructions below.

Step 1: **Located the USB connectors**. The locations of the USB connectors are shown

in **Figure 1-4**.

Step 2: **Align the connectors**. Align the USB device connector with one of the

connectors on the bottom panel. See **Figure 3-45**.
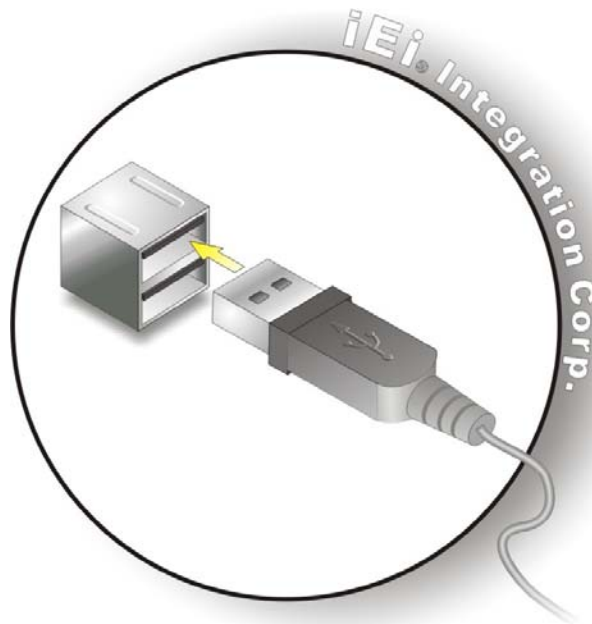
Figure 3-45: USB Device Connection

Step 3: **Insert the device connector**. Once aligned, gently insert the USB device

connector into the onboard connector.

3.11.8 USB 3.0 Connectors

The USB 3.0 ports are for attaching USB 3.0 peripheral devices to the system. Follow the instructions in the previous section to connect the USB devices to the USB 3.0 ports.

NOTE:

If installing the Windows® 7 OS by using the USB 3.0 ports, loading the
USB 3.0 driver during OS installation is necessary. Refer to **Section
6.7.1** for detailed installation procedure.

3.11.9 VGA Connector

The VGA connector connects to a monitor that accepts VGA video input. To connect the PPC-37xxA-N26 to a second display via the VGA connector, follow the steps below,

Step 1: **Locate the female DB-15 connector**. The location of the female DB-15 connector is shown in **Figure 1-4**.

Step 2: **Align the VGA connector**. Align the male DB-15 connector on the VGA screen cable with the female DB-15 connector on the external peripheral interface.

Step 3: **Insert the VGA connector**. Once the connectors are properly aligned with the insert the male connector from the VGA screen into the female connector on the PPC-37xxA-N26. See **Figure 3-46**
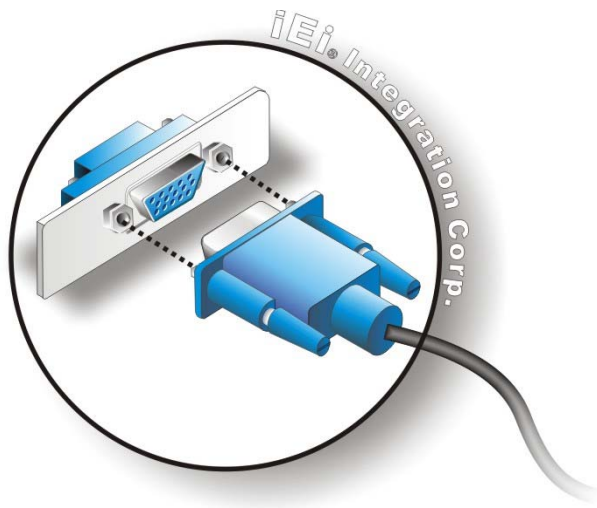
Figure 3-46: VGA Connector

Chapter

4

System Maintenance

4.1 System Maintenance Introduction

The following system components may require maintenance.

- Motherboard
- SO-DIMM module

If these components fail, they must be replaced. Please contact the system reseller or vendor to purchase replacement parts. Replacement instructions for the above listed components are described below.

4.2 Motherboard Replacement

A user cannot replace a motherboard. If the motherboard fails it must be shipped back to IEI to be replaced. If the system motherboard has failed, please contact the system vendor, reseller or an IEI sales person directly.

4.3 Back Cover Removal

WARNING!

Before removing the back cover, make sure all power to the system has been disconnected. Failing to do so may cause severe damage to the PPC-37xxA-N26 and injury to the user.

WARNING!

Please take antistatic precautions when working with the internal components. The interior of the PPC-37xxA-N26 contains very sensitive electronic components. These components are easily damaged by electrostatic discharge (ESD). Before working with the internal components, make sure all anti-static precautions described earlier have been observed.

To access the panel PC internal components, the back cover must be removed. To remove the back cover, please refer to **Section 3.5** for back cover removal instructions.

4.4 SO-DIMM Replacement

Please read the warnings at the beginning of the previous section before attempting to access any PPC-37xxA-N26 internal components.

To install/replace the SO-DIMM modules, please follow the steps below.

Step 1: Remove the back cover (**Section 3.5**).

Step 2: Follow **Steps 2 ~ 4** in **Section 3.7** to release the motherboard from the panel PC.

Step 3: Locate the SO-DIMM module on the solder side of the motherboard.
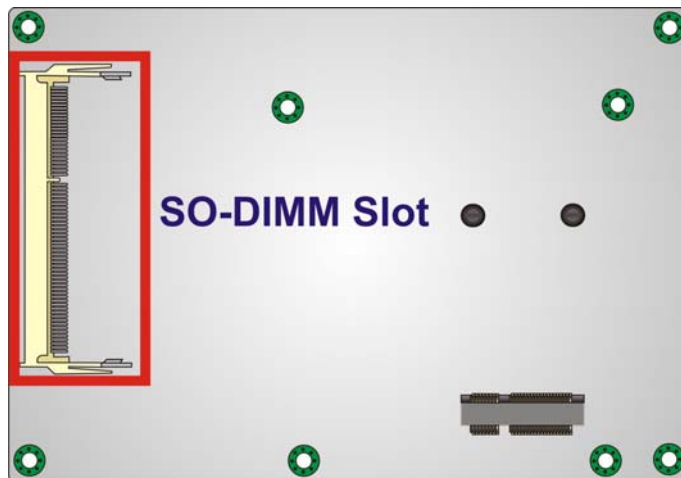
Figure 4-1: SO-DIMM Module Location

Step 4: Release the SO-DIMM module by pulling both the spring retainer clips outward from the socket.

Step 5: Grasp the SO-DIMM module by the edges and carefully pull it out of the socket.

Step 6: Install the new SO-DIMM module by pushing it into the socket at an angle (**Figure 4-2**).

Step 7:   Gently push the rear of the SO-DIMM module down (**Figure 4-2**). The spring

retainer clips clip into place and secure the SO-DIMM module in the socket.
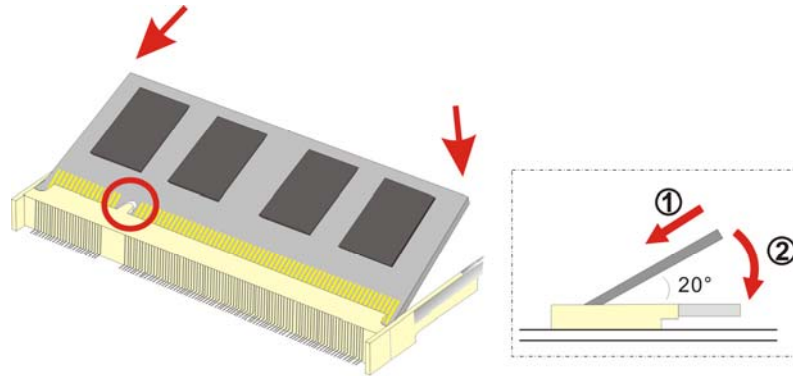
Figure 4-2: SO-DIMM Module Installation

Step 8:   Push the new DIMM module until it engages and the white plastic end clips click

into place. Make sure the end clips are fully secured after installation.

Chapter

5

BIOS Setup

5.1 Introduction

The BIOS is programmed onto the BIOS chip. The BIOS setup program allows changes to certain system settings. This chapter outlines the options that can be changed.

5.1.1 Starting Setup

The UEFI BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

1. Press the **DELETE** or **F2** key as soon as the system is turned on or
2. Press the **DELETE** or **F2** key when the "**Press DELETE or F2 to enter SETUP**" message appears on the screen.

If the message disappears before the **DELETE** or **F2** key is pressed, restart the computer and try again.

5.1.2 Using Setup

Use the arrow keys to highlight items, press **ENTER** to select, use the PageUp and PageDown keys to change entries, press **F1** for help and press **ESC** to quit. Navigation keys are shown in the following table.

Key	Function
Up arrow	Move to the item above
Down arrow	Move to the item below
Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
+	Increase the numeric value or make changes
-	Decrease the numeric value or make changes
Page up	Move to the next page
Page down	Move to the previous page

Key	Function
Esc	Main Menu – Quit and do not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
F1	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2	Load previous values
F3	Load optimized defaults
F4	Save changes and Exit BIOS

Table 5-1: BIOS Navigation Keys

5.1.3 Getting Help

When **F1** is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window press **Esc** or the **F1** key again.

5.1.4 Unable to Reboot after Configuration Changes

If the computer cannot boot after changes to the system configuration are made, press the CMOS button on the bottom panel to clear the CMOS data and reset the system BIOS information. The location of the CMOS button is shown in **Section 3.6.4**.

5.1.5 BIOS Menu Bar

The **menu bar** on top of the BIOS screen has the following main items:

- Main – Changes the basic system configuration.
- Advanced – Changes the advanced system settings.
- Chipset – Changes the chipset settings.
- Boot – Changes the system boot configuration.
- Security – Sets User and Supervisor Passwords.
- Save & Exit – Selects exit options and loads default settings

The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.

5.2 Main

The **Main** BIOS menu (**BIOS Menu 1**) appears when the **BIOS Setup** program is entered.
The **Main** menu gives an overview of the basic system information.

```
        Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
    Main    Advanced   Chipset     Boot     Security  Save & Exit

BIOS Information                                        Set the Date. Use Tab to
BIOS Vendor                    American Megatrends      switch between Data
Core Version                   4.6.5.3.0.16             elements.
Compliancy                     UEFI 2.3; PI 1.2
Project Version                H730AR12.ROM
Build Date and Time            10/26/2012 11:46:29      ---------------------

                                                        →←: Select Screen
System Date                    [Tue 12/18/2012]         ↑ ↓: Select Item
System Time                    [14:20:27]               Enter: Select
                                                        +/-:  Change Opt.
Access Level                   Administrator            F1:  General Help
                                                        F2:  Previous Values
                                                        F3:  Optimized Defaults
                                                        F4:  Save & Exit
                                                        ESC: Exit
         Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

BIOS Menu 1: Main

➔ **BIOS Information**

The **BIOS Information** lists a brief summary of the BIOS. The fields in **BIOS Information** cannot be changed. The items shown in the system overview include:

- **BIOS Vendor:** Installed BIOS vendor
- **Core Version:** Current BIOS version
- **Compliancy:** compliant UEFI specification version
- **Project Version:** the board version
- **Build Date and Time:** Date and time the current BIOS version was made

➔ **System Date [xx/xx/xx]**

Use the **System Date** option to set the system date. Manually enter the day, month and year.

➔ **System Time [xx:xx:xx]**

Use the **System Time** option to set the system time. Manually enter the hours, minutes and seconds.

5.3 Advanced

Use the **Advanced** menu (**BIOS Menu 2**) to configure the CPU and peripheral devices through the following sub-menus:

> ⚡ **WARNING!**
>
> Setting the wrong values in the sections below may cause the system to malfunction. Make sure that the settings made are compatible with the hardware.

```
        Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
   Main    Advanced   Chipset     Boot    Security  Save & Exit

 > ACPI Settings                                    System ACPI Parameters
 > RTC Wake Settings
 > CPU Configuration
 > IDE Configuration
 > USB Configuration                                ---------------------
 > F81866 Super IO Configuration
 > F81866 H/M Monitor                               →←: Select Screen
 > Serial Port Console Redirection                  ↑ ↓: Select Item
 > iEi Feature                                      Enter: Select
                                                    +/-:  Change Opt.
                                                    F1:   General Help
                                                    F2:   Previous Values
                                                    F3:   Optimized Defaults
                                                    F4:   Save & Exit
                                                    ESC: Exit
        Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

BIOS Menu 2: Advanced

5.3.1 ACPI Settings

The **ACPI Settings** menu (**BIOS Menu 3**) configures the Advanced Configuration and Power Interface (ACPI) options.

```
       Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
          Advanced

ACPI Settings                                        Select the highest ACPI
                                                     sleep state the system will
ACPI Sleep State                  [S1 (CPU Stop Clock]   enter when the SUSPEND
                                                     button is pressed.


                                                     ----------------------

                                                     →←: Select Screen
                                                     ↑ ↓: Select Item
                                                     Enter: Select
                                                     +/-:  Change Opt.
                                                     F1:   General Help
                                                     F2:   Previous Values
                                                     F3:   Optimized Defaults
                                                     F4:   Save & Exit
                                                     ESC:  Exit
          Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```
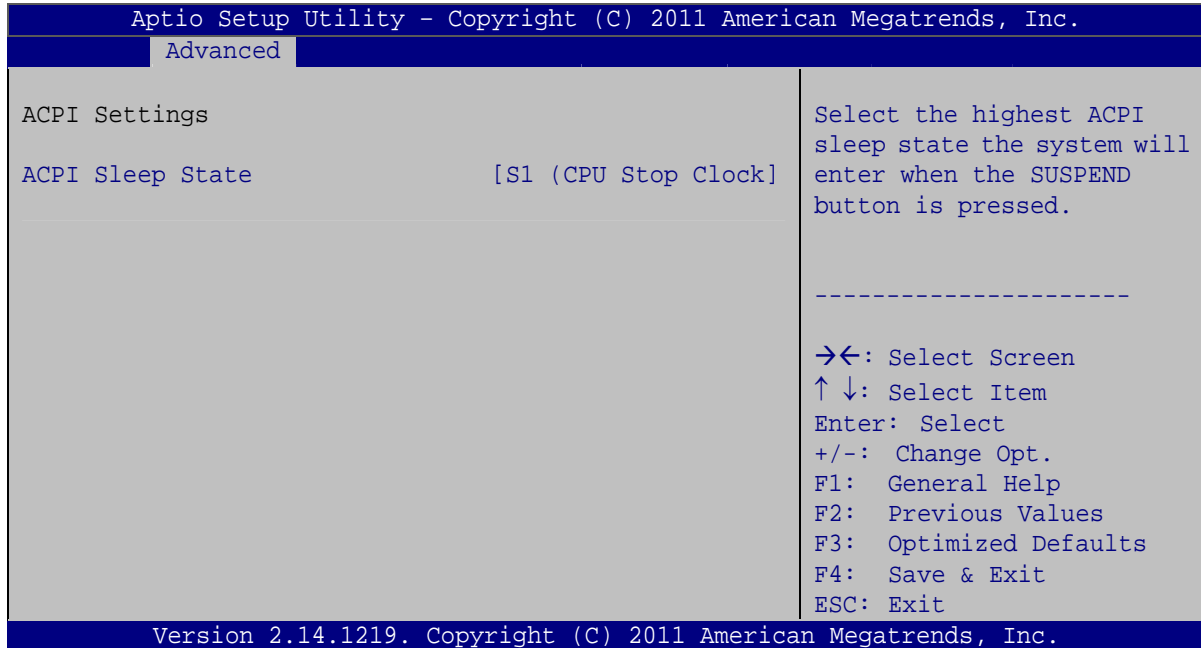
BIOS Menu 3: ACPI Settings

➔ **ACPI Sleep State [S1 (CPU Stop Clock)]**

Use the **ACPI Sleep State** option to specify the sleep state the system enters when it is not being used.

➔	**S1 (CPU Stop Clock)** DEFAULT	The system enters S1(POS) sleep state. The system appears off. The CPU is stopped; RAM is refreshed; the system is running in a low power mode.
➔	**S3 (Suspend to RAM)**	The caches are flushed and the CPU is powered off. Power to the RAM is maintained. The computer returns slower to a working state, but more power is saved.

5.3.2 RTC Wake Settings

The **RTC Wake Settings** menu (**BIOS Menu 4**) enables the system to wake at the specified time.

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
                Advanced

Wake system with Fixed Time      [Disabled]              Enable or disable System
                                                         wake on alarm event. When
                                                         enabled, System will
                                                         wake on the
                                                         date::hr::min::sec
                                                         specified

                                                         ----------------------

                                                         →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-:  Change Opt.
                                                         F1:   General Help
                                                         F2:   Previous Values
                                                         F3:   Optimized Defaults
                                                         F4:   Save & Exit
                                                         ESC: Exit
          Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

   BIOS Menu 4: RTC Wake Settings

➔   **Wake system with Fixed Time [Disabled]**

Use the **Wake system with Fixed Time** option to enable or disable the system wake on alarm event.

➔   **Disabled**   **DEFAULT**   The real time clock (RTC) cannot generate a wake event

➔   **Enabled**   If selected, the **Wake up every day** option appears allowing you to enable to disable the system to wake every day at the specified time. Besides, the following options appear with values that can be selected:

   Wake up date

   Wake up hour

   Wake up minute

   Wake up second

After setting the alarm, the computer turns itself on from a suspend state when the alarm goes off.

5.3.3 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 5**) to view detailed CPU specifications and configure the CPU.

```
           Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
              Advanced

 CPU Configuration                                        Enabled for Windows XP and
                                                          Linux (OS optimized for
 Processor Type              Intel(R) Atom(TM)            Hyper-Threading
                             CPU N2600 @ 1.60GHz          Technology) and Disabled
 EMT64                       Supported                    for other OS (OS not
 Processor Speed             1600 MHz                     optimized for
 System Bus Speed            400 MHz                      Hyper-Threading
 Ratio Status               16                            Technology)
 Actual Ratio               16
 System Bus Speed            400 MHz                      ---------------------
 Processor Stepping          30661
 Microcode Revision          269                          →←: Select Screen
 L1 Cache RAM                2x56 k                        ↑ ↓: Select Item
 L2 Cache RAM                2x512 k                       Enter: Select
 Processor Core              Dual                          +/-:  Change Opt.
 Hyper-Threading             Supported                     F1:   General Help
                                                           F2:   Previous Values
 Hyper-Threading             [Enabled]                     F3:   Optimized Defaults
                                                           F4:   Save & Exit
                                                           ESC:  Exit
           Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

BIOS Menu 5: CPU Configuration

The CPU Configuration menu (**BIOS Menu 5**) lists the following CPU details:

- **Processor Type**: Lists the brand name of the CPU being used.
- **EMT64**: Indicates if EMT64 is supported by the CPU.
- **Processor Speed**: Lists the CPU processing speed.
- **System Bus Speed**: Lists the system bus speed.
- **Ratio Status**: Lists the ratio status.
- **Actual Ratio**: Lists the ratio of the frequency to the clock speed.
- **Processor Stepping**: Lists the CPU ID.
- **Microcode Revision**: Lists the microcode revision.
- **L1 Cache RAM**: Lists the CPU L1 cache size.
- **L2 Cache RAM**: Lists the CPU L2 cache size.
- **Processor Core**: Lists the number of the processor core.
- **Hyper-Threading**: Indicates if Intel HT Technology is supported by the CPU.

➔ **Hyper-Threading [Enabled]**

Use the **Hyper-Threading** BIOS option to enable or disable the Intel Hyper-Threading Technology.

➔ **Disabled**   Disables the Intel Hyper-Threading Technology.

➔ **Enabled**   **DEFAULT**   Enables the Intel Hyper-Threading Technology.

5.3.4 IDE Configuration

Use the **IDE Configuration** menu (**BIOS Menu 6**) to change and/or set the configuration of the SATA devices installed in the system.

```
       Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
         Advanced

SATA Port0                        Not Present          Select a configuration for
SATA Port1                        Not Present          SATA Controller.

Configure SATA as              [IDE]
                                                       ---------------------

                                                       →←: Select Screen
                                                       ↑ ↓: Select Item
                                                       Enter: Select
                                                       +/-:  Change Opt.
                                                       F1:  General Help
                                                       F2:  Previous Values
                                                       F3:  Optimized Defaults
                                                       F4:  Save & Exit
                                                       ESC: Exit
          Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

   BIOS Menu 6: SATA Configuration

➔ **Configure SATA as [IDE]**

Use the **Configure SATA as** option to configure SATA devices as normal IDE or AHCI devices.

➔ **IDE**   **DEFAULT**   Configures SATA devices as normal IDE device.

➔ **AHCI**   Configures SATA devices as AHCI device.

5.3.5 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 7**) to read USB configuration information
and configure the USB settings.

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
          Advanced

 USB Configuration                                         Enables Legacy USB
                                                           support. AUTO option
 USB Devices:                                              disables legacy support
        1 Keyboard                                         if no USB devices are
                                                           connected. DISABLE
 Legacy USB Support               [Enabled]                option will keep USB
 USB3.0 Support                   [Enabled]                devices available only
 XHCI Hand-off                    [Enabled]                for EFI applications.
 EHCI Hand-off                    [Disabled]
 USB Mass Storage Driver Support  [Enabled]                ---------------------
                                                           →←: Select Screen
 USB hardware delays and time-outs:                        ↑↓: Select Item
 USB transfer time-out            [20 sec]                 Enter: Select
 Device reset time-out            [20 sec]                 +/-: Change Opt.
 Device power-up delay            [Auto]                   F1:  General Help
                                                           F2:  Previous Values
                                                           F3:  Optimized Defaults
                                                           F4:  Save & Exit
                                                           ESC: Exit
          Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

BIOS Menu 7: USB Configuration

➔ **USB Devices**

The **USB Devices** field lists the USB devices that are enabled on the system

➔ **Legacy USB Support [Enabled]**

Use the **Legacy USB Support** BIOS option to enable USB mouse and USB keyboard
support. Normally if this option is not enabled, any attached USB mouse or USB keyboard
does not become available until a USB compatible operating system is fully booted with all
USB drivers loaded. When this option is enabled, any attached USB mouse or USB
keyboard can control the system even when there is no USB driver loaded onto the
system.

➔ **Enabled**   **DEFAULT**   Legacy USB support enabled

➔ **Disabled**   Legacy USB support disabled

➔ **Auto**   Legacy USB support disabled if no USB devices are connected

➔ **USB3.0 Support [Enabled]**

Use the **USB3.0 Support** BIOS option to enable or disable the USB 3.0 controller.

➔ **Enabled**   DEFAULT   Enables the USB 3.0 support

➔ **Disabled**   Disables the USB 3.0 support

➔ **XHCI Hand-off [Enabled]**

Use the **XHCI Hand-off** BIOS option to enable the support for operating systems without an XHCI hand-off feature. The XHCI ownership change should be claimed by XHCI driver.

➔ **Enabled**   DEFAULT   Enables the support for operating systems without an XHCI hand-off feature

➔ **Disabled**   Disables the XHCI hand-off support

➔ **EHCI Hand-off [Disabled]**

Use the **EHCI Hand-off** BIOS option to enable the support for operating systems without an EHCI hand-off feature. The EHCI ownership change should be claimed by EHCI driver.

➔ **Enabled**   Enables the support for operating systems without an EHCI hand-off feature

➔ **Disabled**   DEFAULT   Disables the EHCI hand-off support

➔ **USB Mass Storage Driver Support [Enabled]**

Use the **USB Mass Storage Driver Support** BIOS option to enable or disable the USB mass storage driver support.

➔ **Enabled**   DEFAULT   Enables the USB mass storage driver support

➔ **Disabled**   Disables the USB mass storage driver support

➔ **USB transfer time-out [20 sec]**

Use the **USB transfer time-out** option to set the time-out value for Control, Bulk and Interrupt transfers.

- 1 sec
- 5 sec
- 10 sec
- 20 sec   DEFAULT

➔ **Device reset time-out [20 sec]**

Use the **Device reset time-out** option to set the number of seconds that the Power-On Self Test will wait for a USB mass storage device to start.

- 10 sec
- 20 sec   DEFAULT
- 30 sec
- 40 sec

➔ **Device power-up delay [Auto]**

Use the **Device power-up delay** BIOS option to set the maximum time a USB device will take before it properly reports itself to the Host Controller.

➔ **Auto**   DEFAULT   Uses the default values.
                                  For a Root port: 100 ms delay.
                                  For a Hub port: Uses the delay from Hub descriptor

➔ **Manual**   Allows setting the delay ranging from 1 to 40 seconds.

5.3.6 F81866 Super IO Configuration

Use the **F81866 Super IO Configuration** menu (**BIOS Menu 8**) to set or change the configurations for the serial ports.

```
       Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
         Advanced

 F81866 Super IO Configuration                        Set Parameters of Serial
                                                      Port 1 (COMA)
 F81866 Super IO Chip            F81866
 > Serial Port 1 Configuration                        --------------------
 > Serial Port 2 Configuration                        →←: Select Screen
 > Serial Port 3 Configuration                        ↑↓: Select Item
 > Serial Port 4 Configuration                        Enter: Select
                                                      +/-:  Change Opt.
                                                      F1:   General Help
                                                      F2:   Previous Values
                                                      F3:   Optimized Defaults
                                                      F4:   Save & Exit
                                                      ESC: Exit
         Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

BIOS Menu 8: F81866 Super IO Configuration

5.3.6.1 Serial Port n Configuration

Use the **Serial Port n Configuration** menu (**BIOS Menu 9**) to configure the serial port n.

```
       Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
         Advanced

 Serial Port 1 Configuration                          Enable or Disable Serial
                                                      Port (COM)
 Serial Port                    [Enabled]
 Device Settings                IO=3F8h; IRQ=4
                                                      --------------------
 Change Settings                [Auto]                →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-:  Change Opt.
                                                      F1:   General Help
                                                      F2:   Previous Values
                                                      F3:   Optimized Defaults
                                                      F4:   Save & Exit
                                                      ESC: Exit
         Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

BIOS Menu 9: Serial Port n Configuration Menu

5.3.6.1.1 Serial Port 1 Configuration

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

➔ **Disabled**   Disable the serial port

➔ **Enabled**   **DEFAULT**   Enable the serial port

➔ **Change Settings [Auto]**

Use the **Change Settings** option to change the serial port IO port address and interrupt address.

➔ **Auto**   **DEFAULT**   The serial port IO port address and interrupt address are automatically detected.

➔ **IO=3F8h;**   Serial Port I/O port address is 3F8h and the interrupt
   IRQ=4   address is IRQ4

➔ **IO=3F8h;**   Serial Port I/O port address is 3F8h and the interrupt
   IRQ=3, 4   address is IRQ3, 4

➔ **IO=2F8h;**   Serial Port I/O port address is 2F8h and the interrupt
   IRQ=3, 4   address is IRQ3, 4

➔ **IO=3E8h;**   Serial Port I/O port address is 3E8h and the interrupt
   IRQ=3, 4   address is IRQ3, 4

➔ **IO=2E8h;**   Serial Port I/O port address is 2E8h and the interrupt
   IRQ=3, 4   address is IRQ3, 4

5.3.6.1.2 Serial Port 2 Configuration

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

➔ **Disabled**   Disable the serial port

➔ **Enabled**   **DEFAULT**   Enable the serial port

➔ **Change Settings [Auto]**

Use the **Change Settings** option to change the serial port IO port address and interrupt address.

   ➔ **Auto**   **DEFAULT**   The serial port IO port address and interrupt address are automatically detected.

   ➔ **IO=2F8h; IRQ=3**   Serial Port I/O port address is 2F8h and the interrupt address is IRQ3

   ➔ **IO=3F8h; IRQ=3, 4**   Serial Port I/O port address is 3F8h and the interrupt address is IRQ3, 4

   ➔ **IO=2F8h; IRQ=3, 4**   Serial Port I/O port address is 2F8h and the interrupt address is IRQ3, 4

   ➔ **IO=3E8h; IRQ=3, 4**   Serial Port I/O port address is 3E8h and the interrupt address is IRQ3, 4

   ➔ **IO=2E8h; IRQ=3, 4**   Serial Port I/O port address is 2E8h and the interrupt address is IRQ3, 4

5.3.6.1.3 Serial Port 3 Configuration

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

   ➔ **Disabled**   Disable the serial port

   ➔ **Enabled**   **DEFAULT**   Enable the serial port

➔ **Change Settings [Auto]**

Use the **Change Settings** option to change the serial port IO port address and interrupt address.

➔ **Auto**　　DEFAULT　　The serial port IO port address and interrupt address are automatically detected.

➔ **IO=3E8h;** **IRQ=10**　　Serial Port I/O port address is 3E8h and the interrupt address is IRQ10

➔ **IO=3F8h;** **IRQ=10, 11**　　Serial Port I/O port address is 3F8h and the interrupt address is IRQ10, 11

➔ **IO=2F8h;** **IRQ=10, 11**　　Serial Port I/O port address is 2F8h and the interrupt address is IRQ10, 11

➔ **IO=3E8h;** **IRQ=10, 11**　　Serial Port I/O port address is 3E8h and the interrupt address is IRQ10, 11

➔ **IO=2E8h;** **IRQ=10, 11**　　Serial Port I/O port address is 2E8h and the interrupt address is IRQ10, 11

➔ **IO=250h;** **IRQ=10, 11**　　Serial Port I/O port address is 250h and the interrupt address is IRQ10, 11

➔ **IO=2E0h;** **IRQ=10, 11**　　Serial Port I/O port address is 2E0h and the interrupt address is IRQ10, 11

5.3.6.1.4 Serial Port 4 Configuration

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

➔ **Disabled**　　　　Disable the serial port

➔ **Enabled**　　DEFAULT　　Enable the serial port

➔ **Change Settings [Auto]**

Use the **Change Settings** option to change the serial port IO port address and interrupt address.

➔ **Auto**   <small>DEFAULT</small>   The serial port IO port address and interrupt address are automatically detected.

➔ **IO=2E8h;**
IRQ=10   Serial Port I/O port address is 2E8h and the interrupt address is IRQ10

➔ **IO=3F8h;**
IRQ=10, 11   Serial Port I/O port address is 3F8h and the interrupt address is IRQ10, 11

➔ **IO=2F8h;**
IRQ=10, 11   Serial Port I/O port address is 2F8h and the interrupt address is IRQ10, 11

➔ **IO=3E8h;**
IRQ=10, 11   Serial Port I/O port address is 3E8h and the interrupt address is IRQ10, 11

➔ **IO=2E8h;**
IRQ=10, 11   Serial Port I/O port address is 2E8h and the interrupt address is IRQ10, 11

➔ **IO=250h;**
IRQ=10, 11   Serial Port I/O port address is 250h and the interrupt address is IRQ10, 11

➔ **IO=2E0h;**
IRQ=10, 11   Serial Port I/O port address is 2E0h and the interrupt address is IRQ10, 11

5.3.7 F81866 H/W Monitor

The F81866 H/W Monitor menu (**BIOS Menu 10**) contains the fan configuration submenu and displays system temperature, voltages, and fan speeds.

```
          Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
             Advanced

PC Health Status                                              Smart Fan Mode Select

> Smart Fan Mode Configuration
System Temperature                : +55 C
CPU_FAN1 Speed                    : N/A
SYS_FAN1 Speed                    : N/A                       ---------------------
+VCC_CPU                          : +0.968 V                  →←: Select Screen
+VCC_GFX                          : +1.680 V                  ↑ ↓: Select Item
+V1.05S                           : +1.072 V                  Enter: Select
+1.5_DDR3                         : +1.536 V                  +/-:  Change Opt.
VSB5V                             : +4.992 V                  F1:  General Help
+V3.3S                            : +3.360 V                  F2:  Previous Values
VSB3V                             : +3.376 V                  F3:  Optimized Defaults
VBAT                              : +3.312 V                  F4:  Save & Exit
                                                             ESC: Exit
          Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```
BIOS Menu 10: F81866 H/W Monitor

➔ **PC Health Status**

The following system parameters and values are shown. The system parameters that are monitored are:

- System Temperatures:
  o System Temperature
- Fan Speeds:
  o CPU_FAN1 Speed
  o SYS_FAN1 Speed
- Voltages:
  o +VCC_CPU
  o +VCC_GFX
  o +V1.05S
  o +1.5_DDR3
  o VSB5V
  o +V3.3S
  o VSB3V
  o VBAT

5.3.7.1 Smart Fan Mode Configuration

Use the **Smart Fan Mode Configuration** submenu (**BIOS Menu 11**) to configure the fan temperature and speed settings.

```
         Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
            Advanced

Smart Fan Mode Configuration                                  Smart Fan Mode Select
                                                             (Reference System
CPU_FAN1 Smart Fan control         [Auto Duty-Cycle Mode]    Temperature)
CPU Temperature 1                  60
CPU Temperature 2                  50
CPU Temperature 3                  40                         --------------------
CPU Temperature 4                  30
SYS_FAN1 Smart Fan control         [Auto Duty-Cycle Mode]    →←: Select Screen
System Temperature 1               60                        ↑ ↓: Select Item
System Temperature 2               50                        Enter: Select
System Temperature 3               40                        +/-:  Change Opt.
System Temperature 4               30                        F1:  General Help
                                                             F2:  Previous Values
                                                             F3:  Optimized Defaults
                                                             F4:  Save & Exit
                                                             ESC: Exit
         Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

BIOS Menu 11: Smart Fan Mode Configuration

➔ **CPU_FAN1/SYS_FAN1 Smart Fan Control [Auto Duty-Cycle Mode]**

Use the **CPU_FAN1/SYS_FAN1 Smart Fan Control** option to configure the smart fans.

➔ **Manual Duty Mode**		The fan spins at the speed set in Manual Duty Mode settings.
➔ **Auto Duty-Cycle Mode**	DEFAULT	The fan adjusts its speed using Auto Duty-Cycle Mode settings.

➔ **CPU Temperature n/System Temperature n**

Use the + or – key to change the temperature value. Enter a decimal number between 1 and 100.

5.3.8 Serial Port Console Redirection

The **Serial Port Console Redirection** menu (**BIOS Menu 12**) allows the console redirection options to be configured. Console redirection allows users to maintain a system remotely by re-directing keyboard input and text output through the serial port.

```
          Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
            Advanced

 COM1                                             Console Redirection
 Console Redirection              [Disabled]      Enable or Disable
 > Console Redirection Settings

 COM2                                             ---------------------
 Console Redirection              [Disabled]
 > Console Redirection Settings                   →←: Select Screen
                                                  ↑↓: Select Item
 COM3                                             Enter: Select
 Console Redirection              [Disabled]      +/-:  Change Opt.
 > Console Redirection Settings                   F1:  General Help
                                                  F2:  Previous Values
                                                  F3:  Optimized Defaults
                                                  F4:  Save & Exit
                                                  ESC: Exit
          Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

BIOS Menu 12: Serial Port Console Redirection

➔ **Console Redirection [Disabled]**

Use **Console Redirection** option to enable or disable the console redirection function.

➔ **Disabled**   **DEFAULT**   Disabled the console redirection function

➔ **Enabled**   Enabled the console redirection function

5.3.8.1 Console Redirection Settings

Use the **Console Redirection Settings** menu (**BIOS Menu 13**) to configure console redirection settings of the specified serial port. This menu appears only when the Console Redirection is enabled.

```
        Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
            Advanced

 COM1                                              Emulation: ANSI: Extended
 Console Redirection Settings                      ASCII char set. VT100:
                                                   ASCII char set. VT100+:
 Terminal Type                  [ANSI]             Extends VT100 to support
 Bits per second                [115200]           color, function keys, etc.
 Data Bits                      [8]                VT-UTF8: Uses UTF8
 Parity                         [None]             encoding to map Unicode
 Stop Bits                      [1]                chars onto 1 or more bytes.

                                                   --------------------
                                                   →←: Select Screen
                                                   ↑ ↓: Select Item
                                                   Enter: Select
                                                   +/-:  Change Opt.
                                                   F1:   General Help
                                                   F2:   Previous Values
                                                   F3:   Optimized Defaults
                                                   F4:   Save & Exit
                                                   ESC:  Exit
        Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```
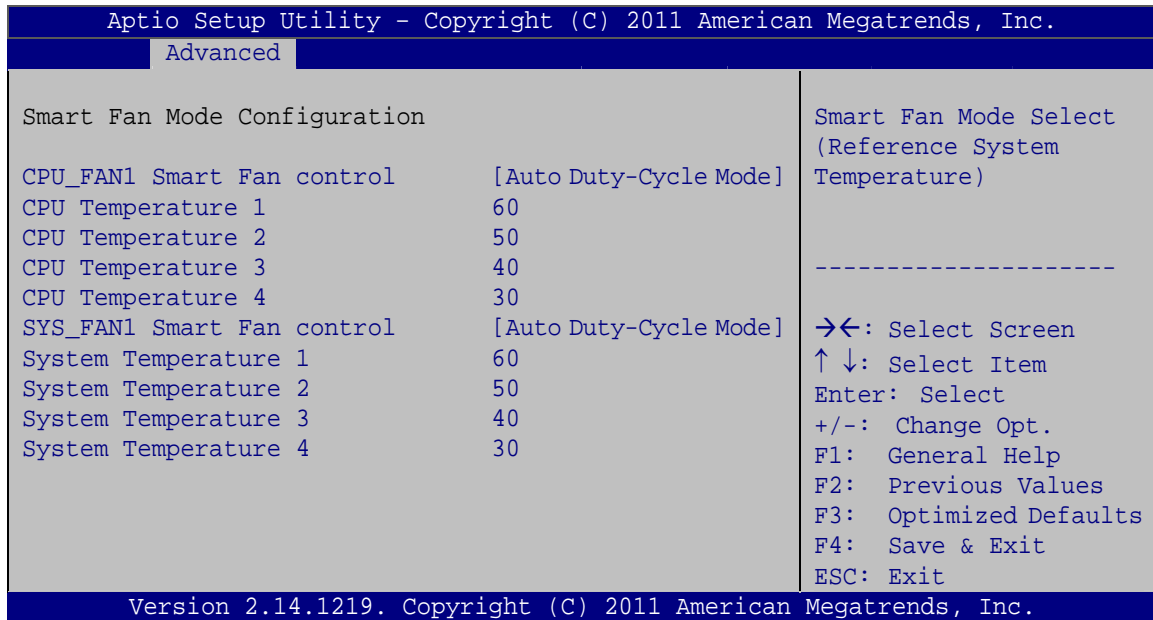
BIOS Menu 13: Console Redirection Settings

➔ **Terminal Type [ANSI]**

Use the **Terminal Type** option to specify the remote terminal type.

➔ **VT100**   The target terminal type is VT100

➔ **VT100+**   The target terminal type is VT100+

➔ **VT-UTF8**   The target terminal type is VT-UTF8

➔ **ANSI**   DEFAULT   The target terminal type is ANSI

➔ **Bits per second [115200]**

Use the **Bits per second** option to specify the serial port transmission speed. The speed
must match the other side. Long or noisy lines may require lower speeds.

➔ **9600**   Sets the serial port transmission speed at 9600.

➔ **19200**   Sets the serial port transmission speed at 19200.

➔ **38400**   Sets the serial port transmission speed at 38400.

➔ **57600**   Sets the serial port transmission speed at 57600.

➔ **115200**   **DEFAULT**   Sets the serial port transmission speed at 115200.

➔ **Data Bits [8]**

Use the **Data Bits** option to specify the number of data bits.

➔ **7**   Sets the data bits at 7.

➔ **8**   **DEFAULT**   Sets the data bits at 8.

➔ **Parity [None]**

Use the **Parity** option to specify the parity bit that can be sent with the data bits for detecting the transmission errors.

➔ **None**   **DEFAULT**   No parity bit is sent with the data bits.

➔ **Even**   The parity bit is 0 if the number of ones in the data bits is even.

➔ **Odd**   The parity bit is 0 if the number of ones in the data bits is odd.

➔ **Mark**   The parity bit is always 1. This option does not provide error detection.

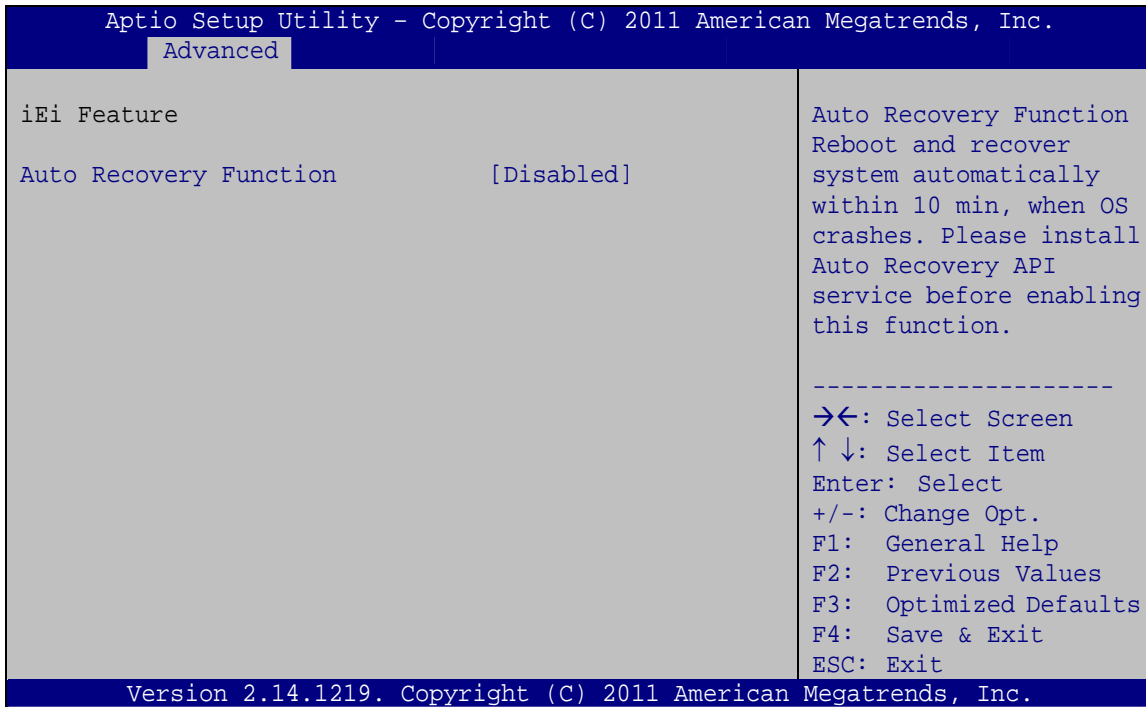➔ **Space**   The parity bit is always 0. This option does not provide error detection.

➔ **Stop Bits [1]**

Use the **Stop Bits** option to specify the number of stop bits used to indicate the end of a serial data packet. Communication with slow devices may require more than 1 stop bit.

➔ **1**   **DEFAULT**   Sets the number of stop bits at 1.

➔ **2**   Sets the number of stop bits at 2.

5.3.9 iEi Feature

Use the **iEi Feature** menu (**BIOS Menu 13**) to configure One Key Recovery function.

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
             Advanced

  iEi Feature                                                Auto Recovery Function
                                                             Reboot and recover
  Auto Recovery Function          [Disabled]                 system automatically
                                                             within 10 min, when OS
                                                             crashes. Please install
                                                             Auto Recovery API
                                                             service before enabling
                                                             this function.

                                                             ---------------------
                                                             →←: Select Screen
                                                             ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1:  General Help
                                                             F2:  Previous Values
                                                             F3:  Optimized Defaults
                                                             F4:  Save & Exit
                                                             ESC: Exit
          Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

BIOS Menu 14: iEi Feature

➔ **Auto Recovery Function [Disabled]**

Use the **Auto Recovery Function** BIOS option to enable or disable the auto recovery function of the IEI One Key Recovery.

➔ **Disabled**   DEFAULT   Auto recovery function disabled

➔ **Enabled**   Auto recovery function enabled

5.4 Chipset

Use the **Chipset** menu (**BIOS Menu 15**) to access the Host Bridge and Southbridge configuration menus.

WARNING!

Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.

```
       Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
   Main    Advanced   Chipset    Boot    Security  Save & Exit

> Host Bridge                                          Host Bridge Parameters
> South Bridge


                                                       ---------------------
                                                       →←: Select Screen
                                                       ↑ ↓: Select Item
                                                       Enter: Select
                                                       +/-:  Change Opt.
                                                       F1:   General Help
                                                       F2:   Previous Values
                                                       F3:   Optimized Defaults
                                                       F4:   Save & Exit
                                                       ESC: Exit

        Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

BIOS Menu 15: Chipset

5.4.1 Host Bridge Configuration

Use the **Host Bridge Configuration** menu (**BIOS Menu 16**) to configure Intel IGD Configuration and display the memory information.

```
        Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
                  Chipset

> Intel IGD Configuration                          Config Intel IGD Settings

******* Memory Information *******                 --------------------
Memory Frequency                800 MHz(DDR3)
Total Memory                    2048 MB            →←: Select Screen
DIMM#1                          2048 MB            ↑ ↓: Select Item
                                                   Enter: Select
                                                   +/-:  Change Opt.
                                                   F1:  General Help
                                                   F2:  Previous Values
                                                   F3:  Optimized Defaults
                                                   F4:  Save & Exit
                                                   ESC: Exit

        Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

BIOS Menu 16: Host Bridge Configuration

5.4.1.1 Intel IGD Configuration

Use the **Intel IGD Configuration** submenu (**BIOS Menu 17**) to configure the video device connected to the system.

```
        Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
            Advanced

Intel IGD Configuration                            Enable/Disable LVDS1.
IGFX – Boot Type                [LVDS1]
LVDS1 Panel Type                [1024x768 LVDS]    --------------------
Backlight Control               [Normal]
Fixed Graphics Memory Size      [128MB]            →←: Select Screen
                                                   ↑ ↓: Select Item
                                                   Enter: Select
                                                   +/-: Change Opt.
                                                   F1:  General Help
                                                   F2:  Previous Values
                                                   F3:  Optimized Defaults
                                                   F4:  Save & Exit
                                                   ESC: Exit

        Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```
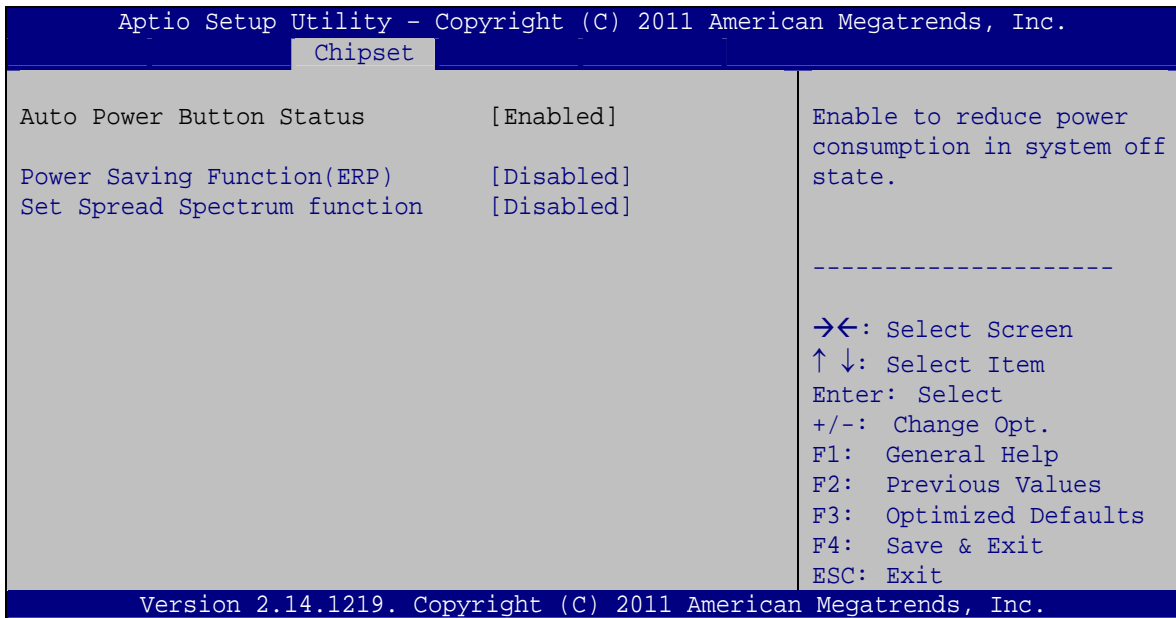
BIOS Menu 17: Intel IGD Configuration

➔ **Fixed Graphics Memory Size [128MB]**

Use the **Fixed Graphics Memory Size** option to specify the maximum amount of memory that can be allocated as graphics memory. Configuration options are listed below.

- ▪ 128MB **DEFAULT**
- ▪ 256MB

5.4.2 South Bridge Configuration

Use the **South Bridge Configuration** menu (**BIOS Menu 18**) to configure the Southbridge chipset.

```
          Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
                        Chipset

Auto Power Button Status          [Enabled]              Enable to reduce power
                                                         consumption in system off
Power Saving Function(ERP)        [Disabled]             state.
Set Spread Spectrum function      [Disabled]

                                                         ----------------------

                                                         →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-:  Change Opt.
                                                         F1:   General Help
                                                         F2:   Previous Values
                                                         F3:   Optimized Defaults
                                                         F4:   Save & Exit
                                                         ESC: Exit
          Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

BIOS Menu 18: Southbridge Configuration

➔ **Power Saving Function(ERP) [Disabled]**

Use the **Power Saving Function(ERP)** option to enable or disable the power saving function.

➔ **Disabled** **DEFAULT** Disables the power saving function.

➔ **Enabled** Enables the power saving function.

➔ **Set Spread Spectrum function [Disabled]**

The **Set Spread Spectrum Function** option can help to improve CPU EMI issues.

➔ **Disabled**   DEFAULT   The spread spectrum mode is disabled

➔ **Enabled**   The spread spectrum mode is enabled

5.5 Boot

Use the **Boot** menu (**BIOS Menu 19**) to configure system boot options.

```
        Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
   Main    Advanced  Chipset     Boot    Security  Save & Exit

  Boot Configuration                                   Select the keyboard
  Bootup NumLock State         [On]                    NumLock state
  Quiet Boot                   [Enabled]
  Launch PXE OpROM             [Disabled]
  Option ROM Messages          [Force BIOS]            --------------------
  UEFI Boot                     [Disabled]             →←: Select Screen
                                                       ↑ ↓: Select Item
  Boot Option Priorities                               Enter: Select
                                                       +/-:  Change Opt.
                                                       F1:   General Help
                                                       F2:   Previous Values
                                                       F3:   Optimized Defaults
                                                       F4:   Save & Exit
                                                       ESC: Exit
        Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

BIOS Menu 19: Boot

➔ **Bootup NumLock State [On]**

Use the **Bootup NumLock State** BIOS option to specify if the number lock setting must be modified during boot up.

➔ **On**   DEFAULT   Allows the Number Lock on the keyboard to be enabled automatically when the computer system boots up. This allows the immediate use of the 10-key numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard is lit.

➔ **Off**
Does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard lights up when the Number Lock is engaged.

➔ **Quiet Boot [Enabled]**

Use the **Quiet Boot** BIOS option to select the screen display when the system boots.

➔ **Disabled** Normal POST messages displayed

➔ **Enabled** DEFAULT OEM Logo displayed instead of POST messages

➔ **Launch PXE OpROM [Disabled]**

Use the **Launch PXE OpROM** option to enable or disable boot option for legacy network devices.

➔ **Disabled** DEFAULT Ignore all PXE Option ROMs

➔ **Enabled** Load PXE Option ROMs

➔ **Option ROM Messages [Force BIOS]**

Use the **Option ROM Messages** option to set the Option ROM display mode.

➔ **Force BIOS** DEFAULT Sets display mode to force BIOS.

➔ **Keep Current** Sets display mode to current.

➔ **UEFI Boot [Disabled]**

Use the **UEFI Boot** BIOS option to allow the system to boot from the UEFI devices.

➔ **Disabled** DEFAULT Disables to boot from the UEFI devices.

➔ **Enabled** Enables to boot from the UEFI devices.

5.6 Security

Use the **Security** menu (**BIOS Menu 20**) to set system and user passwords.

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
    Main     Advanced   Chipset     Boot    Security  Save & Exit

  Password Description                                    Set Administrator
                                                          Password
  If ONLY the Administrator's password is set,
  then this only limits access to Setup and is
  only asked for when entering Setup.
  If ONLY the User's password is set, then this           --------------------
  is a power on password and must be entered to
  boot or enter Setup. In Setup the User will             →←: Select Screen
  have Administrator rights.                               ↑↓: Select Item
  The password length must be                             Enter: Select
  in the following range:                                 +/-:  Change Opt.
  Minimum length               3                          F1:   General Help
  Maximum length              20                          F2:   Previous Values
                                                          F3:   Optimized Defaults
  Administrator Password                                  F4:   Save & Exit
  User Password                                           ESC: Exit

          Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

BIOS Menu 20: Security

➔ **Administrator Password**

Use the **Administrator Password** to set or change an administrator password.

➔ **User Password**

Use the **User Password** to set or change a user password.

5.7 Save & Exit

Use the **Save & Exit** menu (**BIOS Menu 21**) to load default BIOS values, optimal failsafe values and to save configuration changes.

```
     Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
  Main    Advanced   Chipset      Boot    Save & Exit

  Save Changes and Reset                         Exit the system after
  Discard Changes and Reset                      saving the changes.

  Restore Defaults
  Save as User Defaults
  Restore User Defaults
                                                 --------------------
                                                 →←: Select Screen
                                                 ↑↓: Select Item
                                                 Enter: Select
                                                 +/-:  Change Opt.
                                                 F1:   General Help
                                                 F2:   Previous Values
                                                 F3:   Optimized Defaults
                                                 F4:   Save & Exit
                                                 ESC: Exit
          Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```
BIOS Menu 21: Save & Exit

➔ **Save Changes and Reset**

Use the **Save Changes and Reset** option to save the changes made to the BIOS options and reset the system.

➔ **Discard Changes and Reset**

Use the **Discard Changes and Reset** option to exit the system without saving the changes made to the BIOS configuration setup program.

➔ **Restore Defaults**

Use the **Restore Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F3 key can be used for this operation.**

➔ **Save as User Defaults**

Use the **Save as User Defaults** option to save the changes done so far as user defaults.

➔ **Restore User Defaults**

Use the **Restore User Defaults** option to restore the user defaults to all the setup options.

Chapter

6

Driver Installation

6.1 Available Software Drivers

> **NOTE:**
>
> The content of the CD may vary throughout the life cycle of the product and is subject to change without prior notice. Visit the IEI website or contact technical support for the latest updates.

The following drivers can be installed on the system:

- Chipset
- VGA
- LAN
- Audio
- USB 3.0
- Touchscreen

Installation instructions for the drivers are given in the following sections.

6.2 Starting the Driver Program

To access the driver installation programs, please do the following.

Step 1: Insert the CD that came with the system into an optical disk drive connected to the system.

> **NOTE:**
>
> If the installation program doesn't start automatically:
> Click "Start->Computer->CD Drive->autorun.exe"

Step 2: The list of drivers in **Figure 6-1** appears.

Figure 6-1: Drivers

6.3 Chipset Driver Installation

To install the chipset driver, please do the following.

Step 1: Access the driver list. (See **Section 6.2**)

Step 2: Click "**CHIPSET**".

Step 3: Go to the 32-bit or 64-bit folder that corresponds to your OS version.

Step 4: Open the **Intel Chipset Software Installation Utility** folder.

Step 5: Double click the **infinst_autol** icon.

Step 6: The setup files are extracted as shown in **Figure 6-2**.
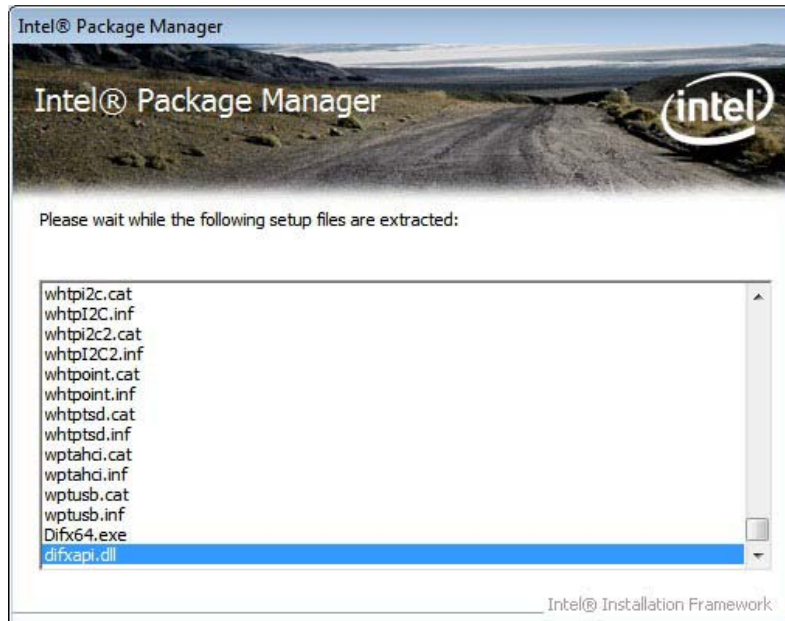
Figure 6-2: Chipset Driver Screen

Step 7: When the setup files are completely extracted, the **Welcome Screen** in **Figure 6-3** appears.
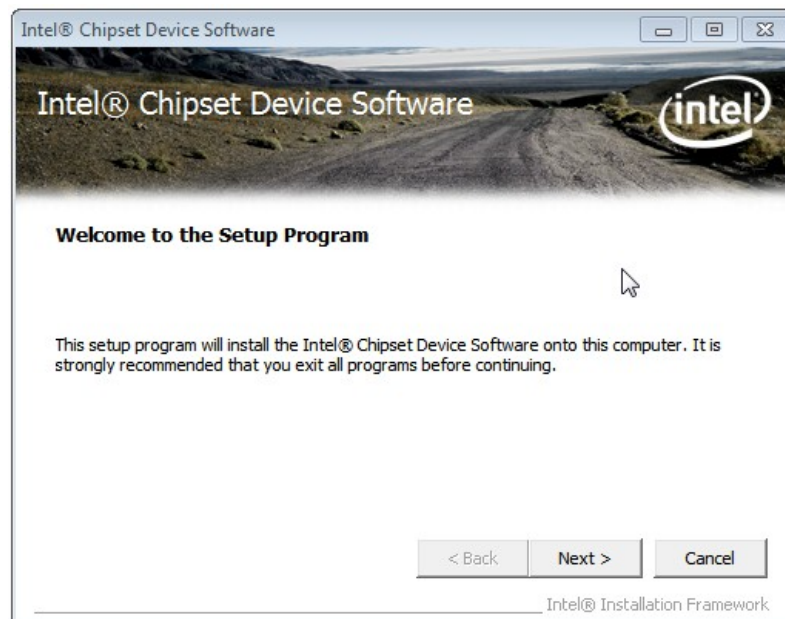
Figure 6-3: Chipset Driver Welcome Screen

Step 8: Click **Next** to continue.

Step 9: The license agreement in **Figure 6-4** appears.

Step 10: Read the **License Agreement**.

Step 11: Click **Yes** to continue.
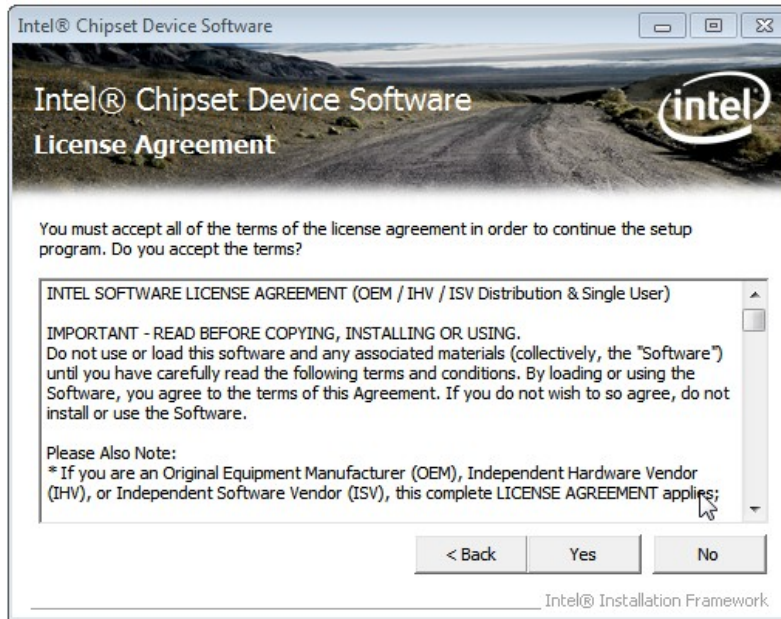
Figure 6-4: Chipset Driver License Agreement

Step 12: The Read Me file in **Figure 6-5** appears.

Step 13: Click **Next** to continue.
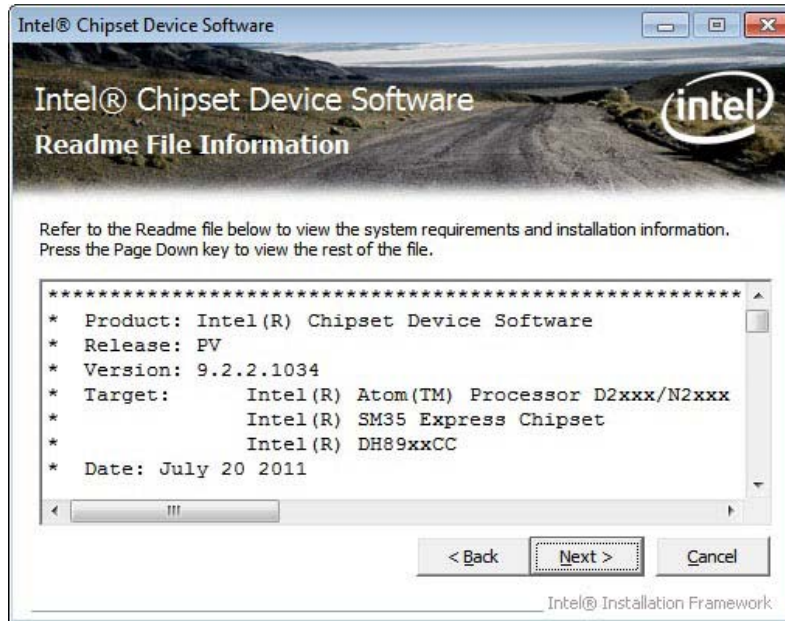
Figure 6-5: Chipset Driver Read Me File

Step 14: **Setup Operations** are performed as shown in **Figure 6-6**.
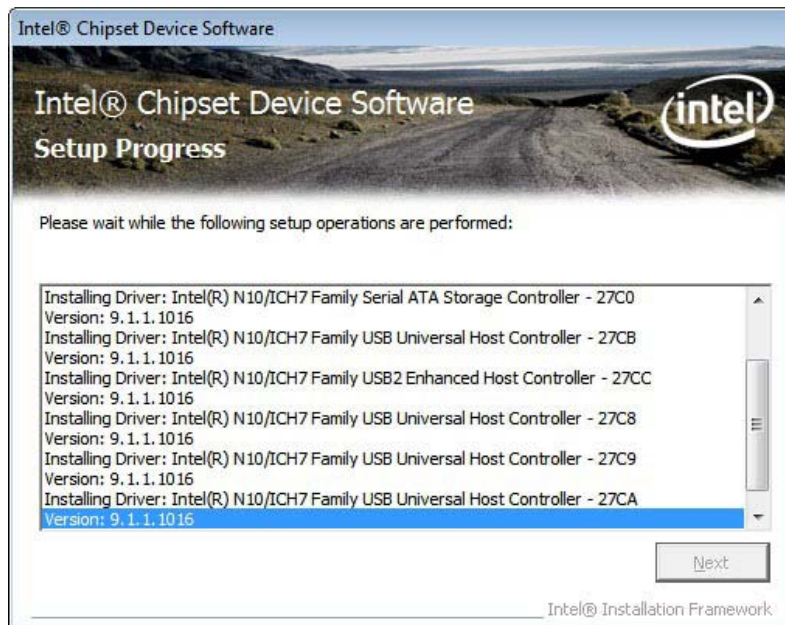
Figure 6-6: Chipset Driver Setup Operations

Step 15: Once the **Setup Operations** are complete, click **Next** to continue.

Step 16: The **Finish** screen appears.

Step 17: Select "**Yes, I want to restart the computer now**" and click the **Finish** icon.

See **Figure 6-7**.

Figure 6-7: Chipset Driver Installation Finish Screen

6.4 VGA Driver Installation

![NOTE icon] **NOTE:**

Due to Intel® GMA driver limitation, the monitor connected to the VGA connector may become extended desktop or not have signal to it after restarting from the graphics driver installation. To work out this limitation, press the Ctrl+Alt+F1 hotkey to switch the primary display to CRT mode.

To install the VGA driver, please do the following.

Step 1: Access the driver list. (See **Section 6.2**)

Step 2: Click "**VGA**".

Step 3: Open the 32-bit or 64-bit folder that corresponds to your OS version.

Step 4: Double click the **Setup** icon.

Step 5: The **Welcome Screen** in **Figure 6-8** appears.
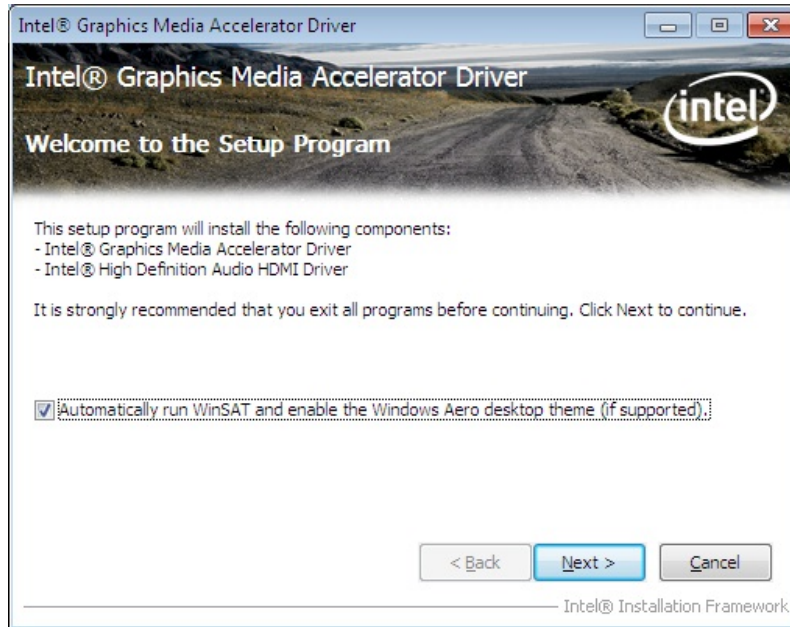
Figure 6-8: VGA Driver Welcome Screen

Step 6: Click **Next** to continue.

Step 7: The license agreement in **Figure 6-9** appears.

Step 8: Read the **License Agreement**.

Step 9: Click **Yes** to continue.
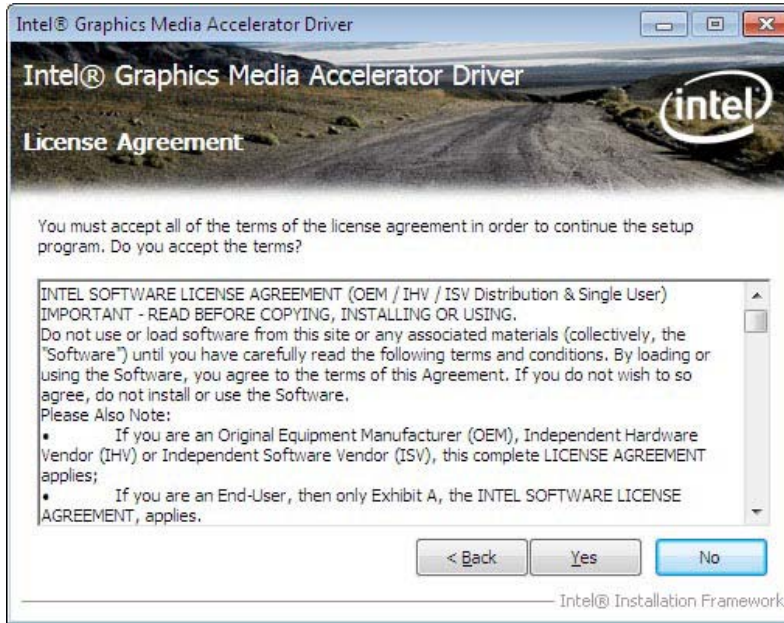
Figure 6-9: VGA Driver License Agreement

Step 10: The Read Me file in **Figure 6-10** appears.

Step 11: Click **Next** to continue.
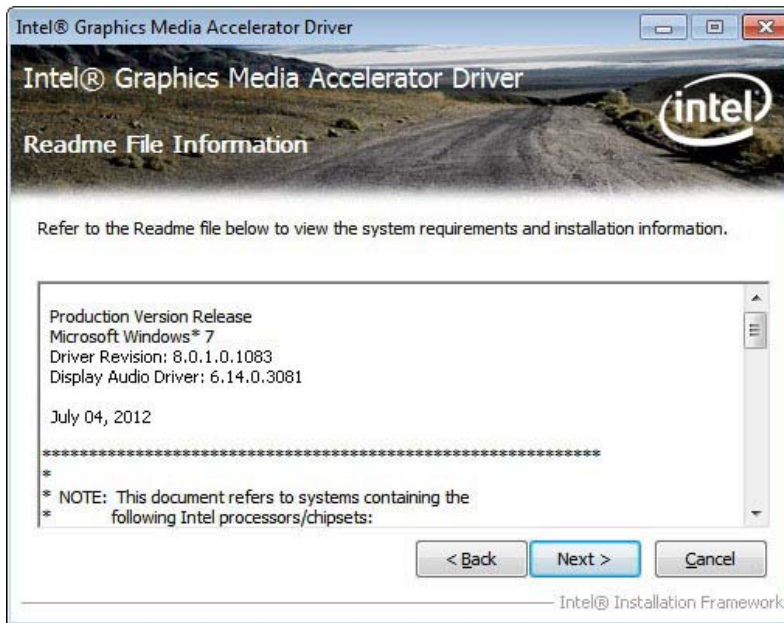
Figure 6-10: VGA Driver Read Me File

Step 12: Setup Operations are performed as shown in **Figure 6-11**.
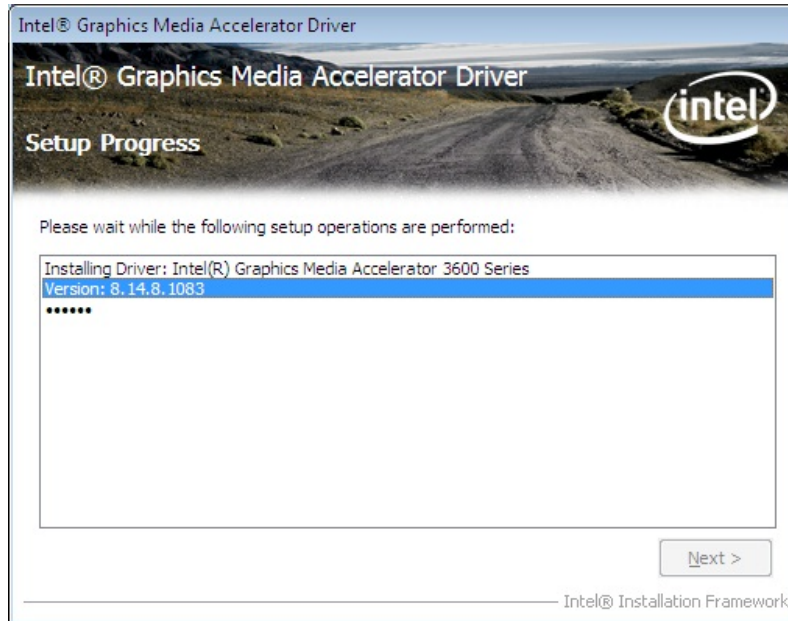
Figure 6-11: VGA Driver Setup Operations

Step 13: Once the **Setup Operations** are complete, click the **Next** icon to continue.

Step 14: The **Finish** screen appears.

Step 15: Select "**Yes, I want to restart the computer now**" and click the **Finish** icon.

See **Figure 6-12**.

**Figure 6-12: VGA Driver Installation Finish Screen**

6.5 LAN Driver Installation

To install the LAN driver, please do the following.

Step 1: Access the driver list. (See **Section 6.2**)

Step 2: Click "**LAN**".

Step 3: Go to the **Realtek > Install_Win7_7048_09162011** folder.

Step 4: Double click the **setup** icon.

Step 5: The **Welcome** screen in **Figure 6-13** appears.
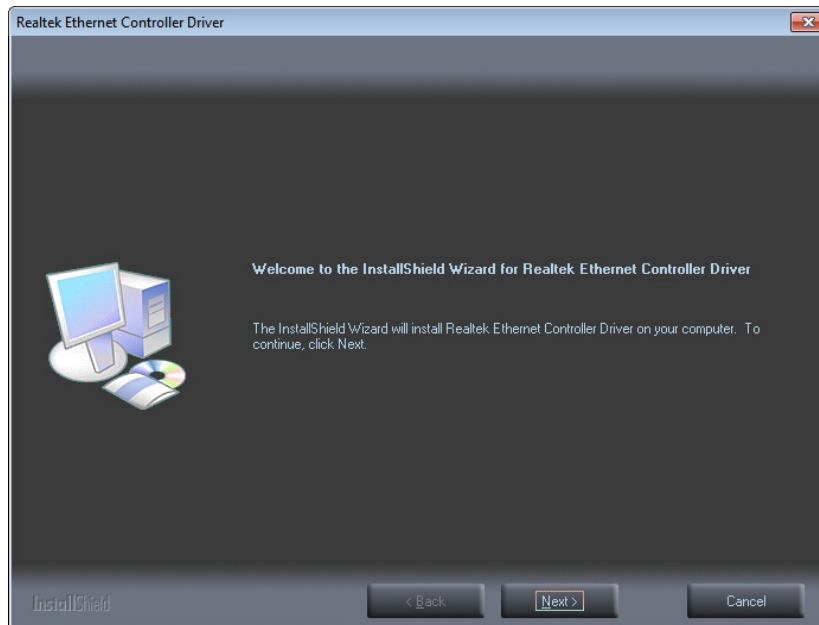
Figure 6-13: LAN Driver Welcome Screen

Step 6: Click **Next** to continue.

Step 7: The **Ready to Install** screen in **Figure 6-14** appears.

Step 8: Click **Install** to proceed with the installation.
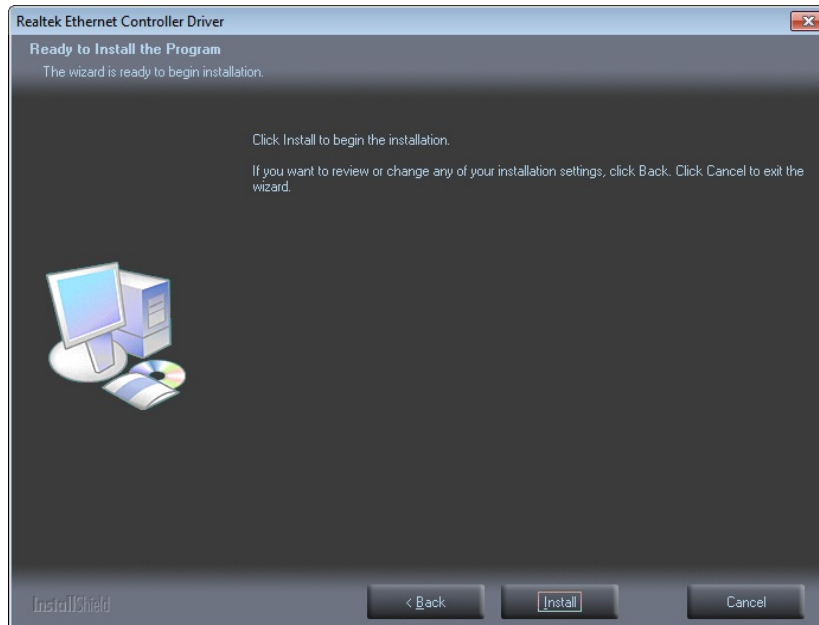
Figure 6-14: LAN Driver Installation

Step 9: The program begins to install.

Step 10: When the driver installation is complete, the screen in **Figure 6-15** appears.

Step 11: Click **Finish** to exit.
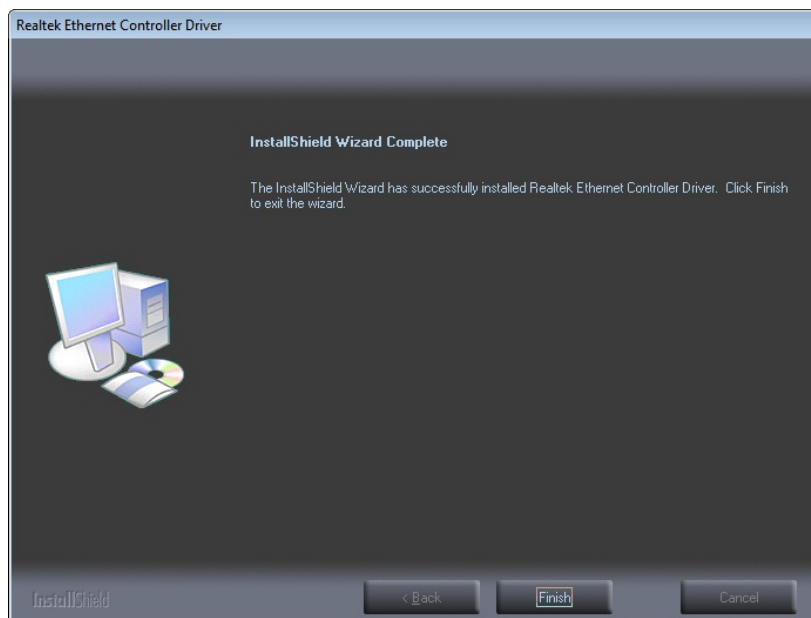
Figure 6-15: LAN Driver Installation Complete

6.6 Audio Driver Installation

To install the Audio driver, please do the following.

Step 1: Access the driver list. (See **Section 6.2**)

Step 2: Click "**AUDIO**".

Step 3: Open the **Win7** folder.

Step 4: Double click the **Vista_Win7_R263** icon.

Step 5: The installation files are extracted as shown in **Figure 6-16**.
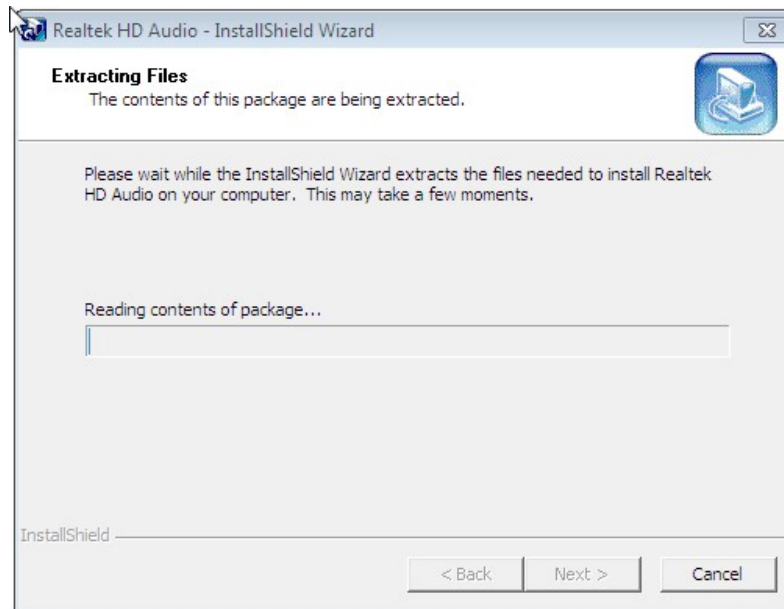
Figure 6-16: Audio Driver Installation File Extraction

Step 6: The **Welcome** screen in **Figure 6-17** appears.
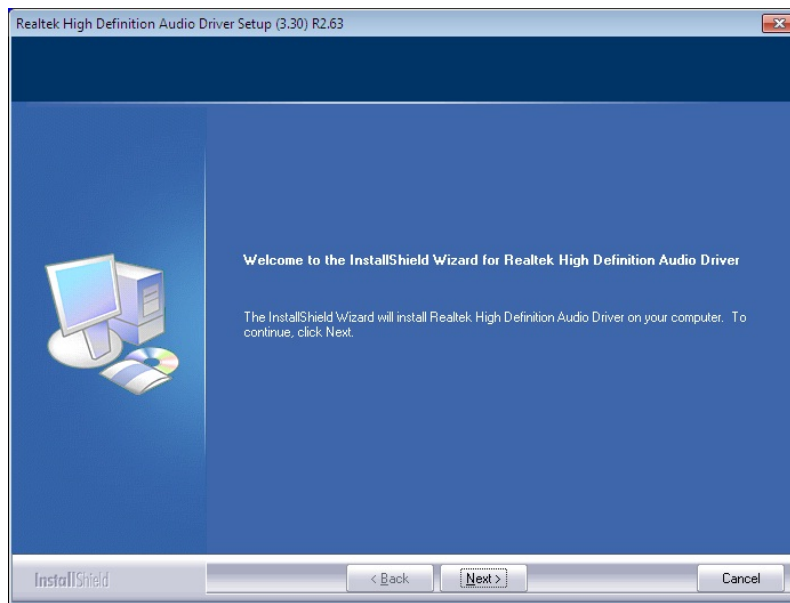
Figure 6-17: Audio Driver Welcome Screen

Step 7: Click **Next** to continue.

Step 8: The program begins to install.

Step 9: The installation progress can be monitored in the progress bar shown in **Figure 6-18**.
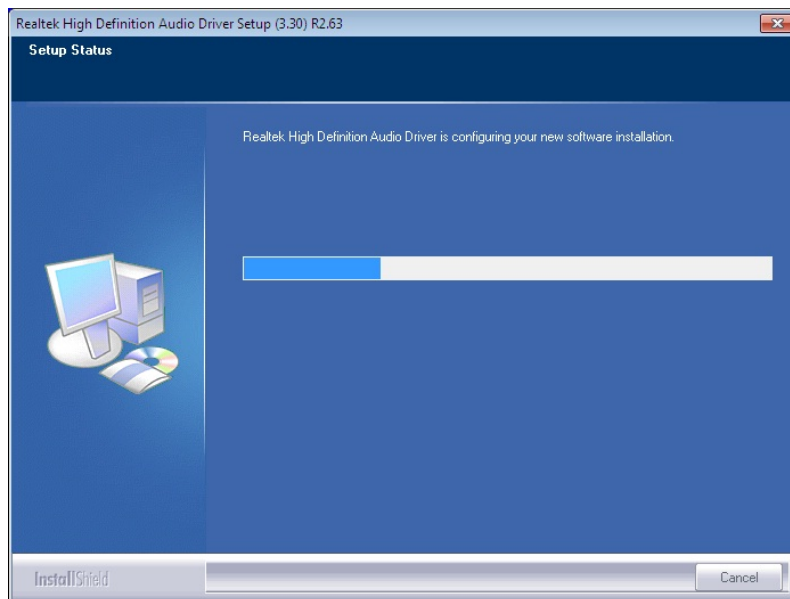
Figure 6-18: Audio Driver Installation

Step 10: When the driver installation is complete, the screen in **Figure 6-19** appears.

Realtek High Definition Audio Driver Setup (3.30) R2.63

InstallShield Wizard Complete

The InstallShield Wizard has successfully installed Realtek High Definition Audio Driver. Before you can use the program, you must restart your computer.

⦿ Yes, I want to restart my computer now.

◯ No, I will restart my computer later.

Remove any disks from their drives, and then click Finish to complete setup.

InstallShield   < Back   Finish   Cancel

Figure 6-19: Audio Driver Installation Complete

Step 11: Select "**Yes, I want to restart my computer now**" and click **Finish**.

Step 12: The system reboots.

6.7 USB 3.0 Driver Installation

> ⚠️ **WARNING:**
>
> Do not run this driver's installer (Setup.exe) from a USB storage device (ie. external USB hard drive or USB thumb drive). For proper installation, please copy driver files to a local hard drive folder and run from there.

To install the USB 3.0 driver, please follow the steps below.

Step 1: Access the driver list. (See **Section 6.2**)

Step 2: Click "USB 3.0".

Step 3: Locate the setup file and double click on it.

Step 4: The **Welcome Screen** in **Figure 6-20** appears.

Step 5: Click **Next** to continue.
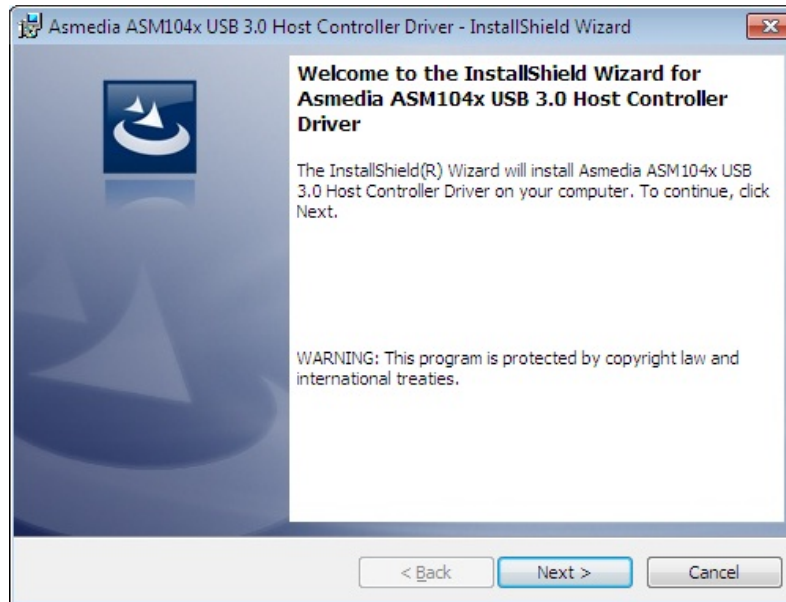
Figure 6-20: USB 3.0 Driver Welcome Screen

Step 6: The license agreement in **Figure 6-21** appears.

Step 7: Read the **License Agreement**.

Step 8: Check **I accept the terms in the license agreement**, and then click **Next** to

continue.
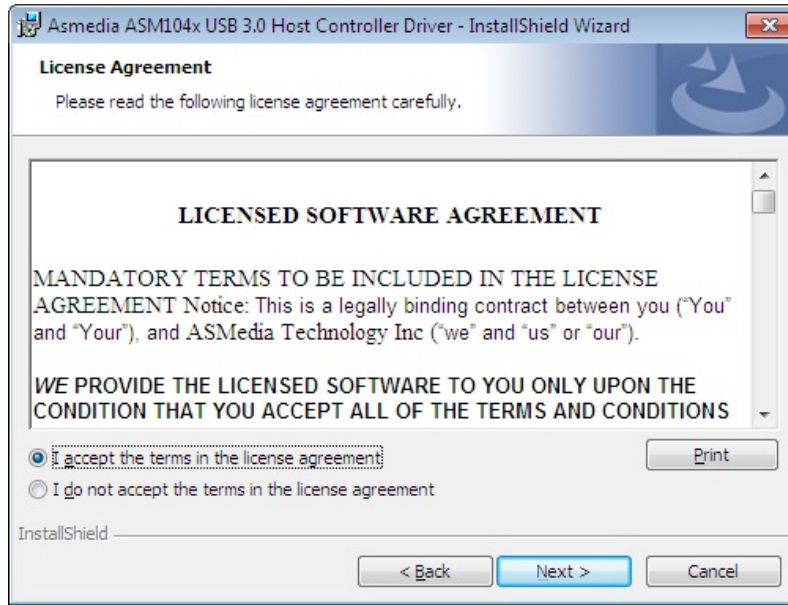
Figure 6-21: USB 3.0 Driver License Agreement

Step 9: The installation progress can be monitored in the progress bar shown in **Figure 6-22**.
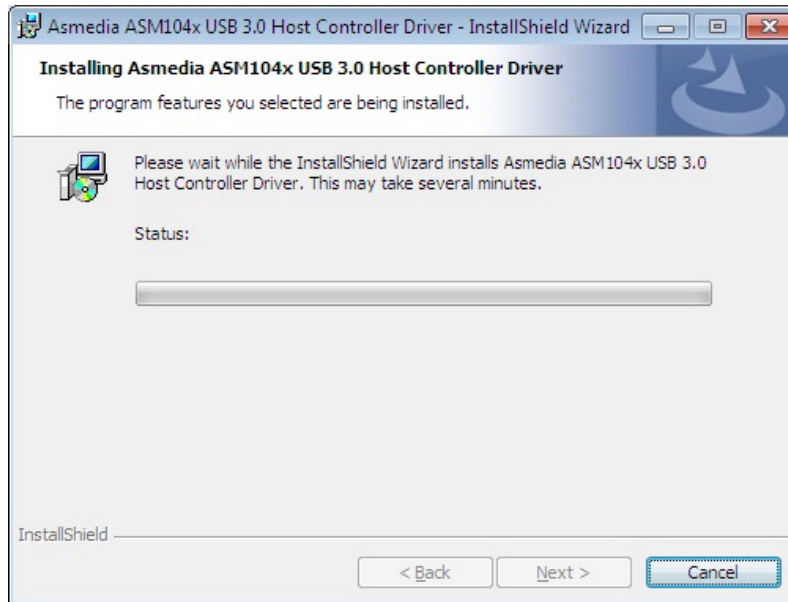
Figure 6-22: USB 3.0 Driver Setup Operations

Step 10: When the driver installation is complete, the screen in **Figure 6-23** appears

Step 11: Click **Finish** to exit.
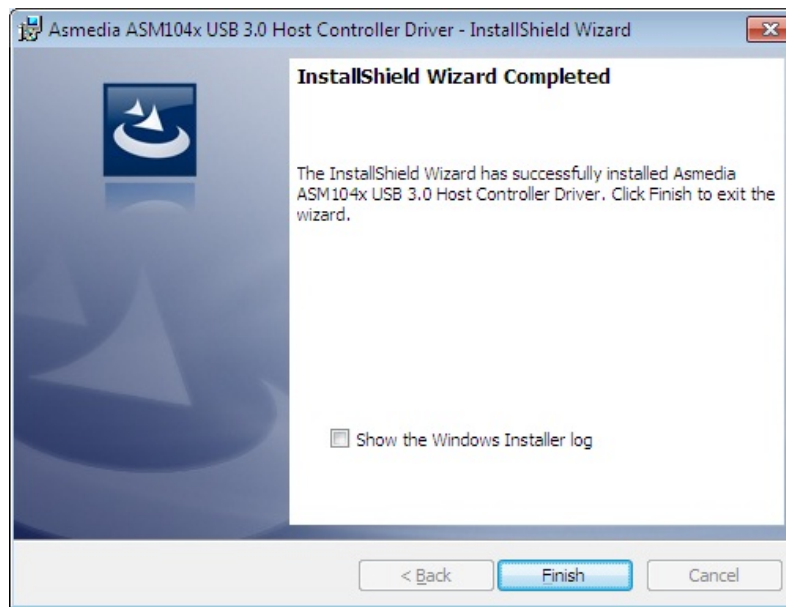
Figure 6-23: USB 3.0 Driver Installation Finish Screen

6.7.1 Installing USB 3.0 Driver during Windows® 7 OS Installation

If installing the Windows® 7 OS by using the USB 3.0 ports, loading the USB 3.0 driver during the OS installation is necessary. Follow the instructions below to complete the task.

Step 1: Insert the USB flash drive containing the USB 3.0 driver into one of the USB 2.0 ports on the PPC-37xxA-N26.

Step 2: After clicking the **Install now** button during the OS installation (**Figure 6-24**), the Load Driver screen appears (**Figure 6-25**). Click **Browse**.

Figure 6-24: Install Now
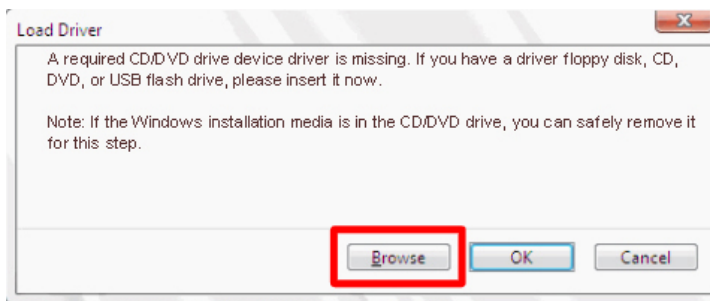
Figure 6-25: Load Driver

Step 3: Locate the USB 3.0 driver folder, select **Driver**, and then click **OK** (**Figure 6-26**).
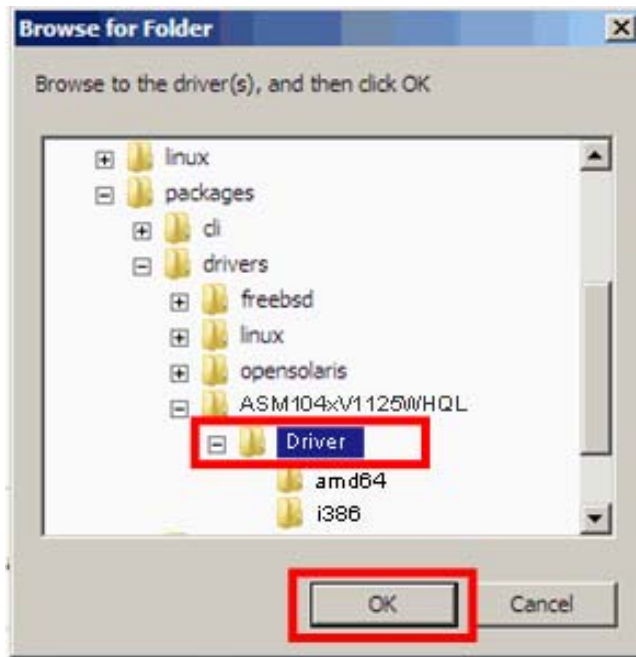
Figure 6-26: Browse for Folder

Step 4: Make sure the **ASMedia XHCI Controller** driver is selected, and then click

Next.
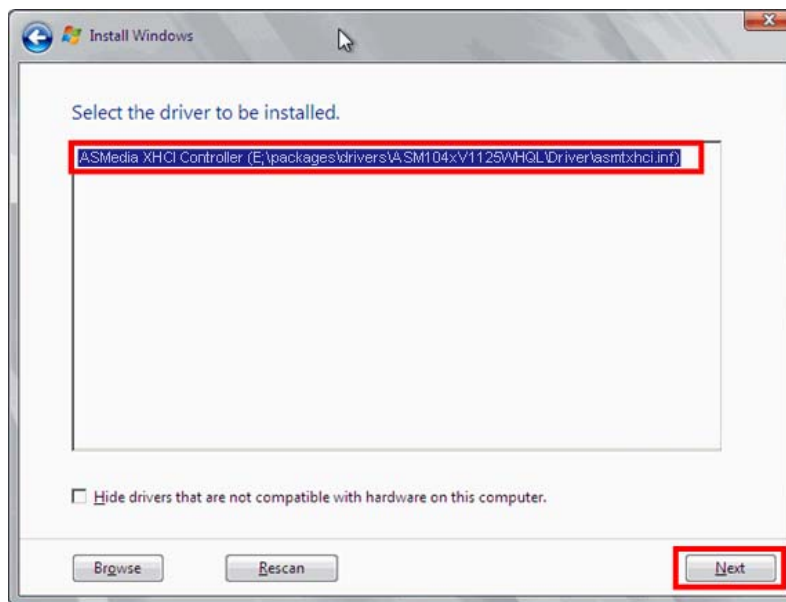
Figure 6-27: Select the ASMedia XHCI Controller Driver

Step 5: Click **OK** to continue (**Figure 6-28**).

Figure 6-28: Confirm the Driver File

Step 6: Make sure the **Driver** subfolder inside the USB 3.0 driver folder is selected, and then click **OK** (**Figure 6-26**).

Step 7: Select the **USB Root Hub** driver and click **Next**.
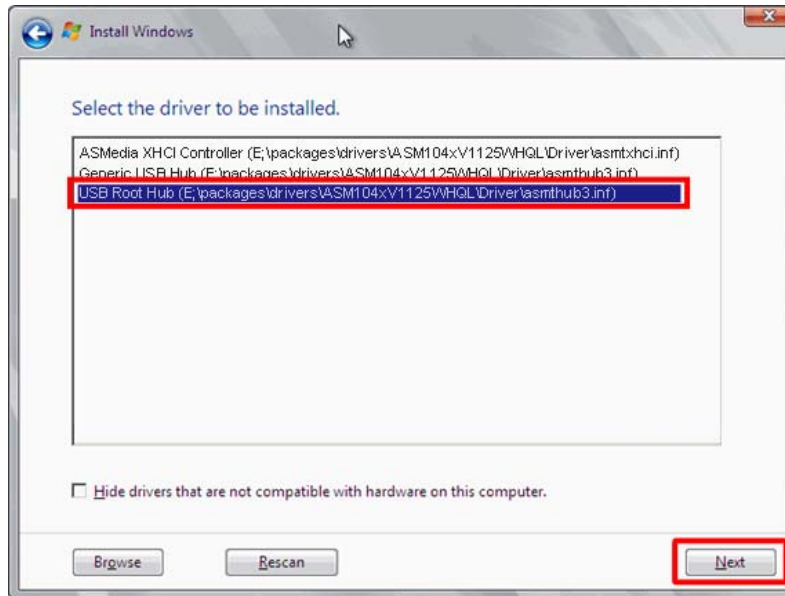
Figure 6-29: Select the USB Root Hub Driver

Step 8: Follow the on-screen instructions of the Windows setup wizard to complete the OS installation.

6.8 Touchscreen Driver Installation

To install the touchscreen driver, please follow the steps below.

Step 1: Access the driver list. (See **Section 6.2**)

Step 2: Click "**Touch**".

Step 3: Double click the **setup** icon.

Step 4: The Welcome screen in **Figure 6-30** appears. Click **Next** to continue.
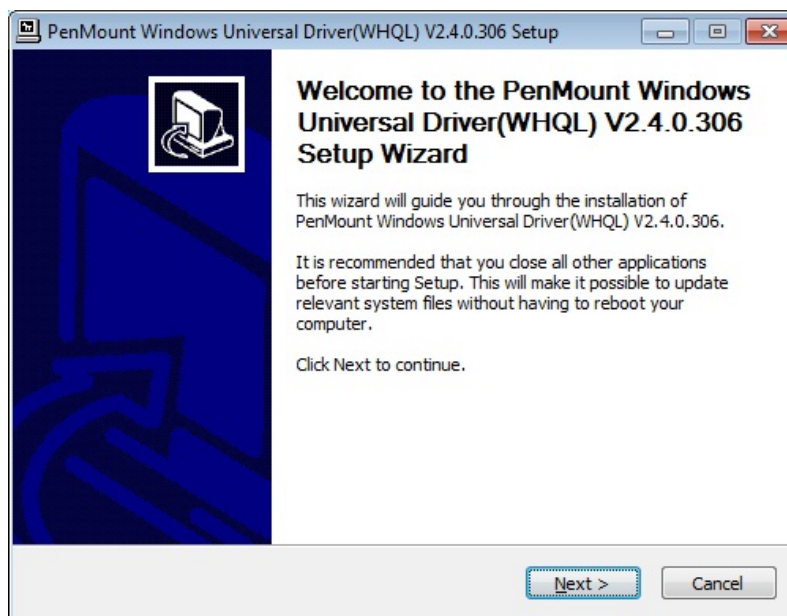
Figure 6-30: Welcome Screen

Step 5: The license agreement in **Figure 6-31** appears.

Step 6: Read the **License Agreement**.

Step 7: Click **I Agree** to continue.
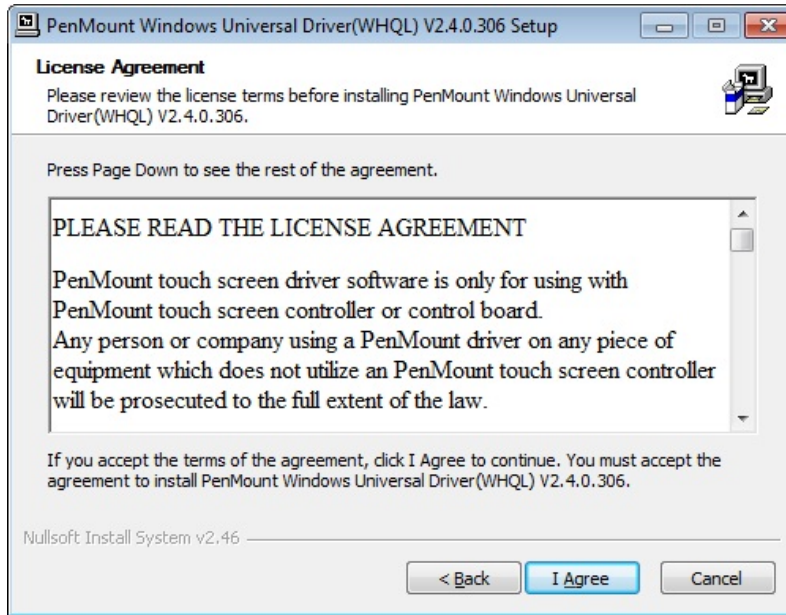
Figure 6-31: Touchscreen Driver License Agreement

Step 8: Select the destination folder where the setup files will be copied to (**Figure 6-32**).

Step 9: Click **Install** to start installation.
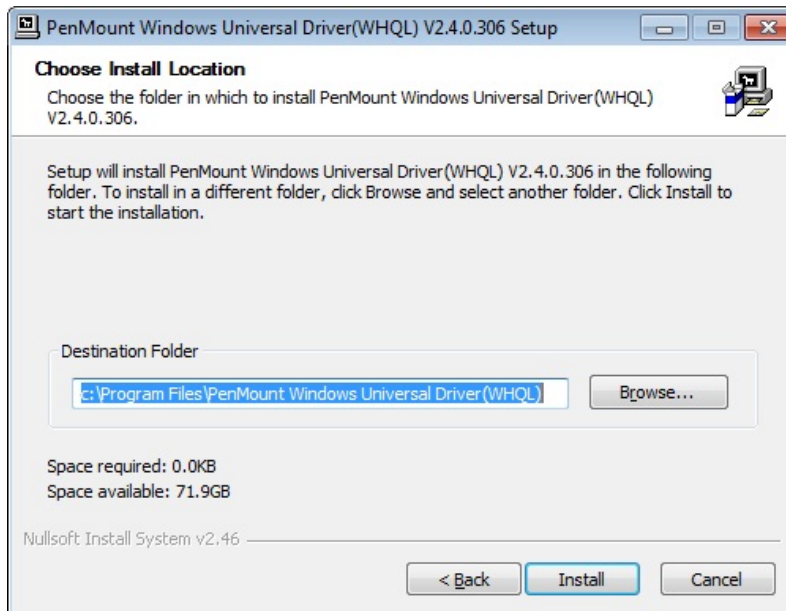
Figure 6-32: Choose Destination Folder

Step 10: The installation begins. See **Figure 6-33**.
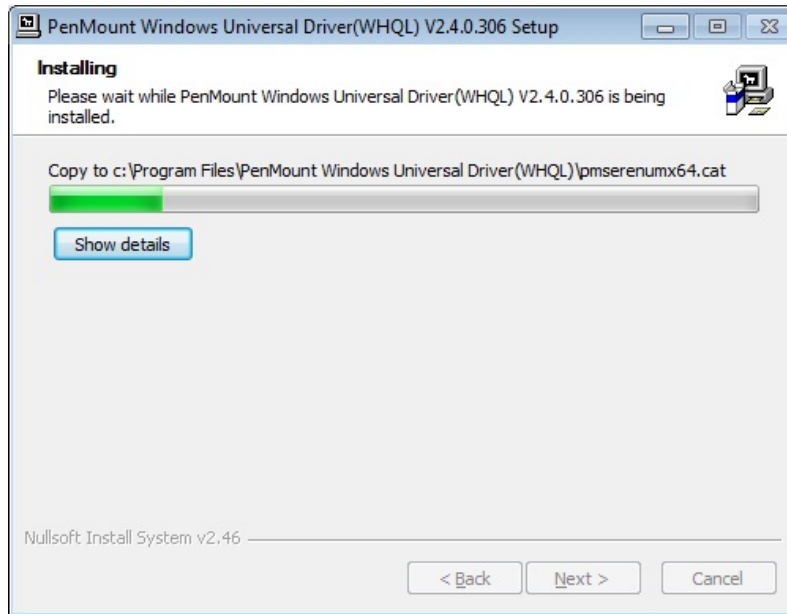
Figure 6-33: Setup Status

Step 11: When the installation is complete, the screen in **Figure 6-34** appears. Click

Finish to close the setup wizard.
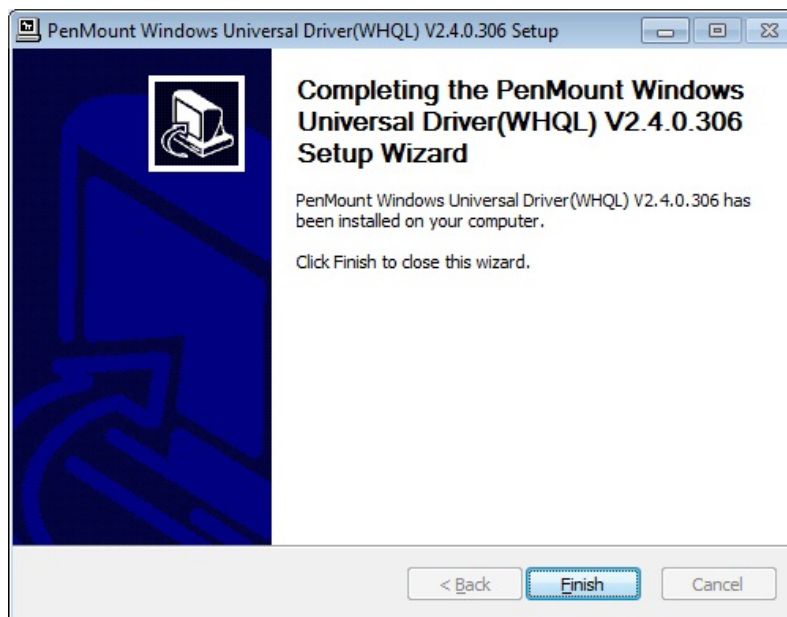
Figure 6-34: Touchscreen Driver Installation Finish Screen

6.8.1 Calibrating the Touchscreen

To calibrate the touchscreen, please follow the steps below.

Step 1: Click the ![pm] icon on the Windows taskbar.

Step 2: Click **Control Panel** from the menu (**Figure 6-35**).

:
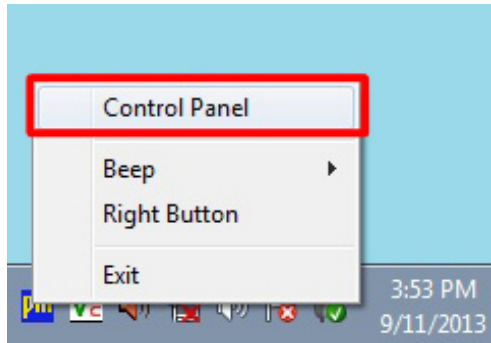
Figure 6-35: Select Control Panel

Step 3: The touchscreen control panel appears (**Figure 6-36**). Click **Configure**.
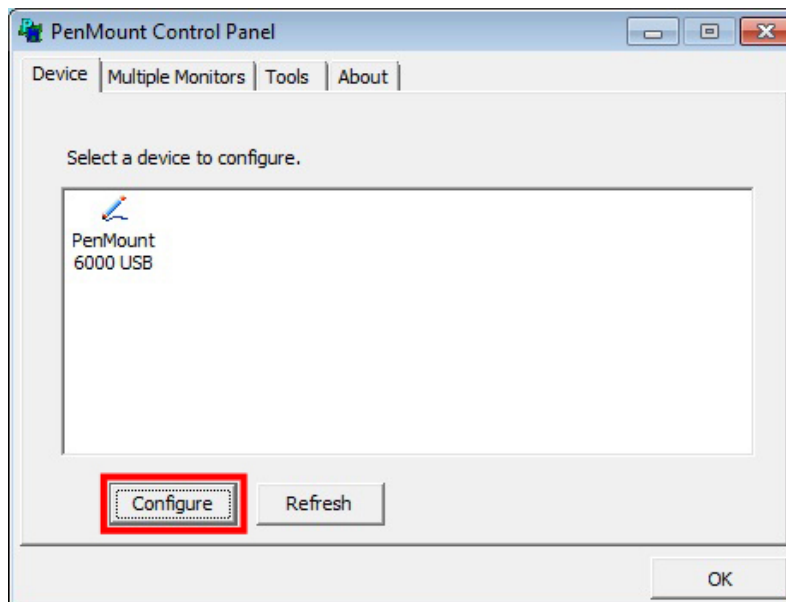
Figure 6-36: Touchscreen Control Panel

Step 4: The user can click **Standard Calibration** or **Advanced Calibration** to proceed with standard or advanced calibration.
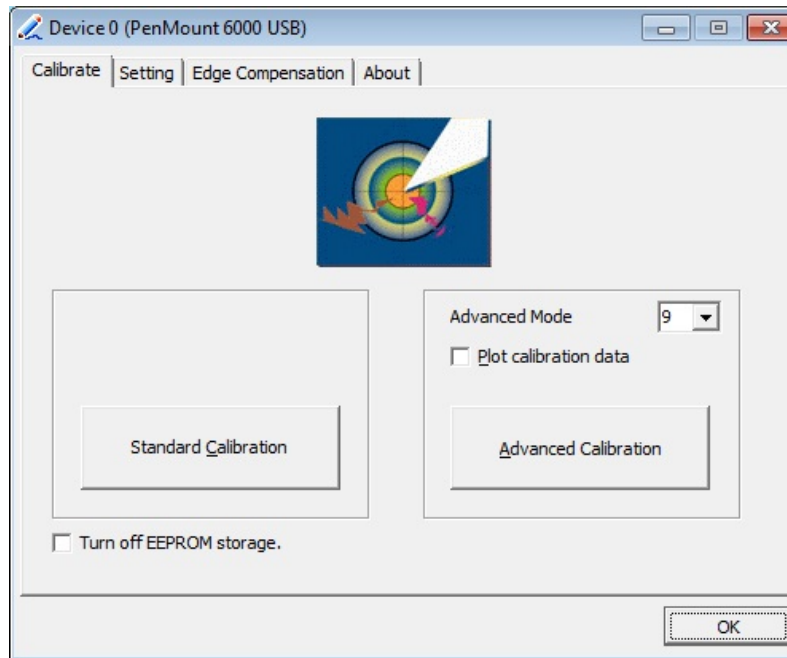
Figure 6-37: Select Calibration Type

Step 5: The calibration window in **Figure 6-38** appears. The user is asked to touch the screen at five specified points, if Standard Calibration is selected. Follow the screen guide to touch and hold each red square in the calibration window until it shows "Lift off to proceed".

Touch the red square.
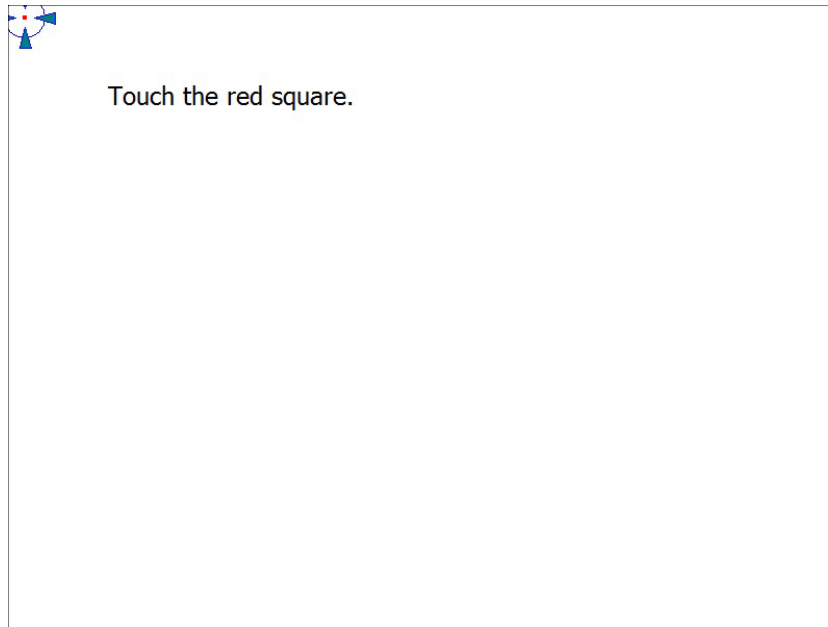
Figure 6-38: Calibration Window

Step 6: When the calibration is complete, the setup returns to the control panel. Click

OK to exit.

Chapter

7

Interface Connectors

7.1 Peripheral Interface Connectors

The PPC-37xxA-N26 panel PC motherboard comes with a number of peripheral interface connectors and configuration jumpers. The connector locations are shown in **Figure 6-1** and **Figure 6-2**. The Pin 1 locations of the on-board connectors are also indicated in the diagrams. The connector pinouts for these connectors are listed in the following sections.
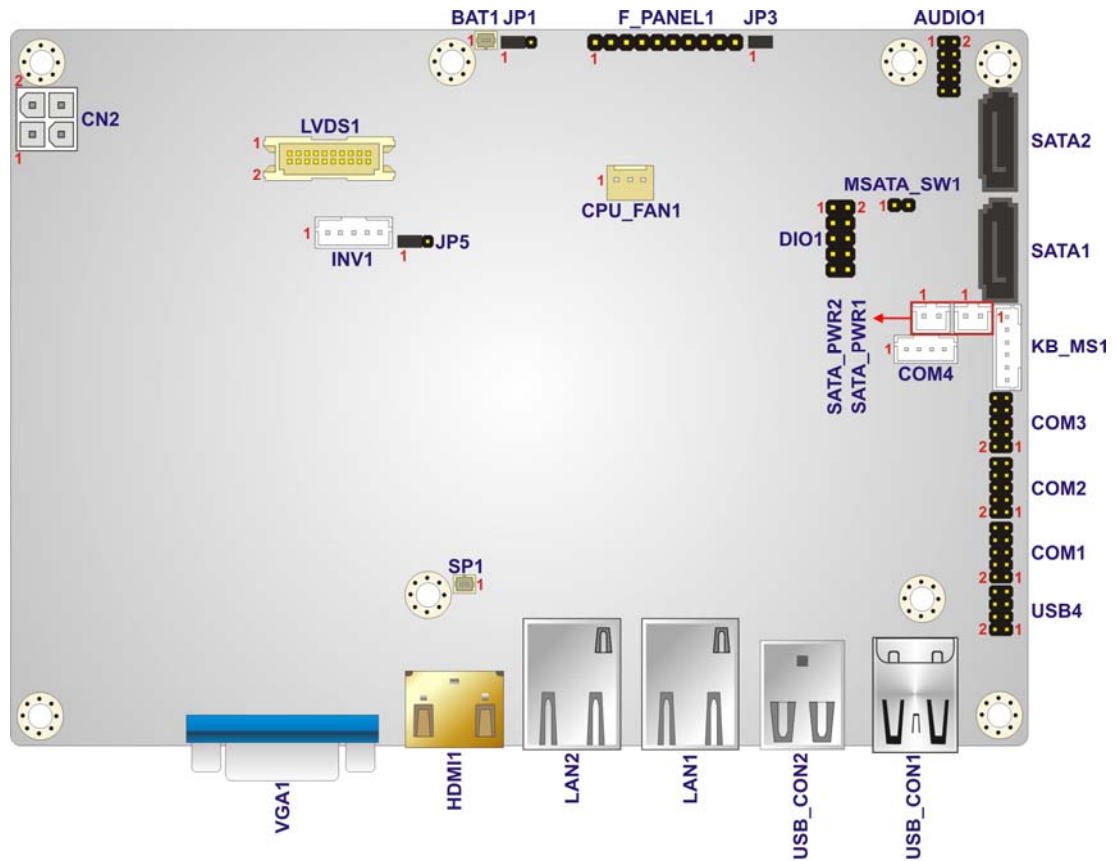
Figure 7-1: Main Board Layout Diagram (Front Side)
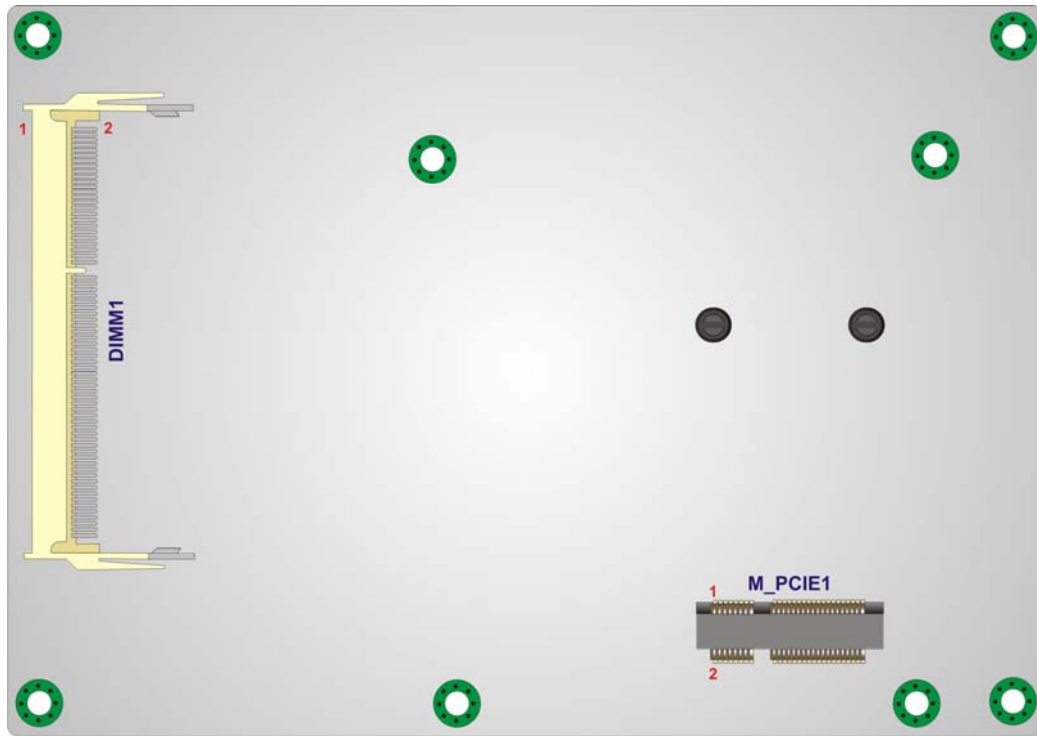
Figure 7-2: Main Board Layout Diagram (Solder Side)

7.2 Internal Peripheral Connectors

Internal peripheral connectors are found on the motherboard and are only accessible when the motherboard is outside of the chassis. The table below shows a list of the peripheral interface connectors on the PPC-37xxA-N26 motherboard. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
5 V SATA power connectors	2-pin wafer	SATA_PWR1, SATA_PWR2
Audio connector	10-pin header	AUDIO1
Backlight inverter connector	5-pin wafer	INV1
Battery connector	2-pin wafer	BAT1
Buzzer connector	2-pin wafer	SP1
Digital Input/Output (DIO) connector	10-pin header	DIO1

Connector	Type	Label
Fan connector	3-pin wafer	CPU_FAN1
Front panel connector	10-pin header	F_PANEL1
Keyboard and mouse connector	6-pin wafer	KB_MS1
LVDS connector	20-pin crimp	LVDS1
PCIe Mini card slot	52-pin PCIe Mini	M_PCIE1
Power connector (9V~28V)	4-pin connector	CN2
RS-232 serial port connectors	10-pin header	COM1, COM2, COM3
RS-422/485 serial port connector	4-pin wafer	COM4
Serial ATA (SATA) drive connectors	7-pin SATA	SATA1, SATA2
SO-DIMM connector	SO-DIMM connector	DIMM1
USB 2.0 connector	8-pin header	USB4

Table 7-1: Peripheral Interface Connectors

7.2.1 5 V SATA Power Connectors (SATA_PWR1/SATA_PWR2)

PIN NO.	DESCRIPTION
1	GND
2	GND

Table 7-2: 5 V SATA Power Connectors Pinouts

7.2.2 Audio Connector (AUDIO1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	SPK_R	2	LINE1_R
3	AUD_GND	4	AUD_GND
5	SPK _L	6	LINE1_L
7	AUD_GND	8	AUD_GND
9	MIC1_R	10	MIC1_L

Table 7-3: Audio Connector (AUDIO1) Pinouts

7.2.3 Backlight Inverter Connector (INV1)

PIN NO.	DESCRIPTION
1	LCD_BKLTCTL
2	GROUND
3	+12V
4	GROUND
5	BACKLIGHT ENABLE

Table 7-4: Backlight Inverter Connector (INV1) Pinouts

7.2.4 Battery Connector (BAT1)

PIN NO.	DESCRIPTION
1	Battery+
2	GND

Table 7-5: Battery Connector (BAT1) Pinouts

7.2.5 Buzzer Connector (SP1)

PIN NO.	DESCRIPTION
1	+V5S
2	GND

Table 7-6: Buzzer Connector (SP1) Pinouts

7.2.6 Digital Input/Output Connector (DIO1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	VCC
3	Output 3	4	Output 2
5	Output 1	6	Output 0
7	Input 3	8	Input 2
9	Input 1	10	Input 0

Table 7-7: Digital Input/Output Connector (DIO1) Pinouts

7.2.7 Fan Connector (CPU_FAN1)

PIN NO.	DESCRIPTION
1	FANIO
2	+12V (PWM)
3	Ground

Table 7-8: Fan Connector (CPU_FAN1) Pinouts

7.2.8 Front Panel Connector (F_PANEL1)

FUNCTION	PIN NO.	DESCRIPTION	FUNCTION	PIN NO.	DESCRIPTION
	1	NC		6	PWRLED
Power Button	2	PWRBTSW#	Power LED	7	PWRLED
	3	GND		8	GND
HDD LED	4	+V5S	Reset Button	9	RESET+
	5	HDD_LED-		10	GND

Table 7-9: Front Panel Connector (F_PANEL1) Pinouts

7.2.9 Keyboard/Mouse Connector (KB_MS1)

PIN NO.	DESCRIPTION
1	VCC
2	Mouse Data
3	Mouse Clock
4	Keyboard Data
5	Keyboard Clock
6	GND

Table 7-10: Keyboard/Mouse Connector (KB_MS1) Pinouts

7.2.10 LVDS Connector (LVDS1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	LVDS_DATA0	4	LVDS_DATA0#
5	LVDS_DATA1	6	LVDS_DATA1#
7	LVDS_DATA2	8	LVDS_DATA2#
9	LVDS_CLK	10	LVDS_CLK#
11	NC	12	NC
13	GND	14	GND
15	LDDC_DATA	16	LDDC_CLK
17	VCC_LCD	18	VCC_LCD
19	VCC_LCD	20	VCC_LCD

Table 7-11: LVDS Connector (LVDS1) Pinouts

7.2.11 PCIe Mini Card Slot (M_PCIE1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	PCIE_WAKE#	2	VCC3
3	N/C	4	GND
5	N/C	6	1.5V
7	N/C	8	N/C
9	GND	10	N/C
11	PCIE_CLK#	12	N/C
13	PCIE_CLK	14	N/C
15	GND	16	N/C
17	N/C	18	GND
19	N/C	20	N/C
21	GND	22	PCIRST#
23	PCIE_RXN	24	VCC3
25	PCIE_RXP	26	GND
27	GND	28	1.5V
29	GND	30	SMBCLK

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
31	PCIE_TXN	32	SMBDATA
33	PCIE_TXP	34	GND
35	GND	36	USBD-
37	GND	38	USBD+
39	VCC3	40	GND
41	VCC3	42	N/C
43	GND	44	N/C
45	N/C	46	N/C
47	N/C	48	1.5V
49	N/C	50	GND
51	M-SATA Detect	52	VCC3

Table 7-12: PCIe Mini Card Slot (M_PCIE1) Pinouts

7.2.12 Power Connector (9V~28V) (CN2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	PWR	4	PWR

Table 7-13: Power Connector (9V~28V) (CN2) Pinouts

7.2.13 RS-232 Serial Port Connectors (COM1/COM2/COM3)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	GND

Table 7-14: RS-232 Serial Port Connector Pinouts

7.2.14 RS-422/485 Serial Port Connector (COM4)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RXD422-	3	TXD422+/TXD485+
2	RXD422+	4	TXD422-/TXD485-

Table 7-15: RS-422/485 Serial Port Connector (COM4) Pinouts

7.2.15 SATA 3Gb/s Connectors (SATA1/SATA2)

PIN NO.	DESCRIPTION
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

Table 7-16: SATA 3Gb/s Connectors (SATA1/SATA2) Pinouts

7.2.16 USB 2.0 Connector (USB4)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	USB_VCC	2	GND
3	DATA-	4	DATA+
5	DATA+	6	DATA-
7	GND	8	USB_VCC

Table 7-17: USB 2.0 Connector (USB4) Pinouts

7.3 External Interface Panel Connectors

The table below lists the rear panel connectors on the PPC-37xxA-N26 motherboard. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
HDMI connector	HDMI	HDMI1
RJ-45 LAN connectors	RJ-45	LAN1/LAN2
USB 2.0 connectors	USB 2.0 port	USB_CON2
USB 3.0 connectors	USB 3.0 port	USB_CON1
VGA connector	15-pin female	VGA1

Table 7-18: Rear Panel Connectors

7.3.1 HDMI Connector (HDMI1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	HDMI_DATA2	13	N/C
2	GND	14	N/C
3	HDMI_DATA2#	15	HDMI_SCL
4	HDMI_DATA1	16	HDMI_SDA
5	GND	17	GND
6	HDMI_DATA1#	18	+5V
7	HDMI_DATA0	19	HDMI_HPD
8	GND	20	HDMI_GND
9	HDMI_DATA0#	21	HDMI_GND
10	HDMI_CLK	22	HDMI_GND
11	GND	23	HDMI_GND
12	HDMI_CLK#		

Table 7-19: HDMI Connector (HDMI1) Pinouts

7.3.2 RJ-45 LAN Connectors (LAN1/LAN2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MDI0+	5	MDI2+
2	MDI0-	6	MDI2-
3	MDI1+	7	MDI3+
4	MDI1-	8	MDI3-

Table 7-20: RJ-45 LAN Connector Pinouts

7.3.3 USB 2.0 Connectors (USB_CON2)

PIN NO.	DESCRIPTION
1	VCC
2	DATA-
3	DATA+
4	GND

Table 7-21: USB 2.0 Connectors (USB_CON2) Pinouts

7.3.4 USB 3.0 Connectors (USB_CON1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	D-
3	D+	4	GND
5	RX-	6	RX+
7	GND	8	TX-
9	TX+		

Table 7-22: USB 3.0 Connectors (USB_CON1) Pinouts

7.3.5 VGA Connector (VGA1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RED	9	VCC
2	GREEN	10	GROUND
3	BLUE	11	NC
4	NC	12	DDCDAT
5	GROUND	13	HSYNC
6	GROUND	14	VSYNC
7	GROUND	15	DDCCLK
8	GROUND		

Table 7-23: VGA Connector (VGA1) Pinouts

BIOS Configuration Options

PPC-37xxA-N26 Panel PC

A.1 BIOS Configuration Options

Below is a list of BIOS configuration options described in **Chapter 0**.

Appendix

B

One Key Recovery

B.1 One Key Recovery Introduction

The IEI one key recovery is an easy-to-use front end for the Norton Ghost system backup and recovery tool. This tool provides quick and easy shortcuts for creating a backup and reverting to that backup or reverting to the factory default settings.

![NOTE icon] **NOTE:**

> The latest One Key Recovery software provides an auto recovery function that allows a system running Microsoft Windows OS to automatically restore from the factory default image after encountering a Blue Screen of Death (BSoD) or a hang for around 10 minutes. Please refer to Section B.3 for the detailed setup procedure.

The IEI One Key Recovery tool menu is shown below.
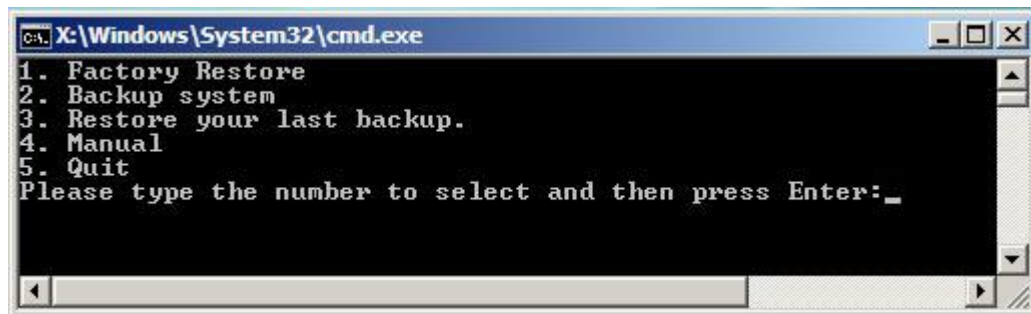
Figure B-1: IEI One Key Recovery Tool Menu

Prior to using the IEI One Key Recovery tool (as shown in **Figure B-1**) to backup or restore Windows system, five setup procedures are required.

1. Hardware and BIOS setup (see **Section B.2.1**)
2. Create partitions (see **Section B.2.2**)
3. Install operating system, drivers and system applications (see **Section B.2.3**)
4. Build the recovery partition (see **Section B.2.4**)
5. Create factory default image (see **Section B.2.5**)

After completing the five initial setup procedures as described above, users can access the recovery tool by pressing <**F3**> while booting up the system. The detailed information of each function is described in **Section B.5**.

![NOTE icon] **NOTE:**

> The initial setup procedures for Linux system are described in **Section B.3**.

B.1.1 System Requirement

![NOTE icon] **NOTE:**

> The recovery CD can only be used with IEI products. The software will fail to run and a warning message will appear when used on non-IEI hardware.
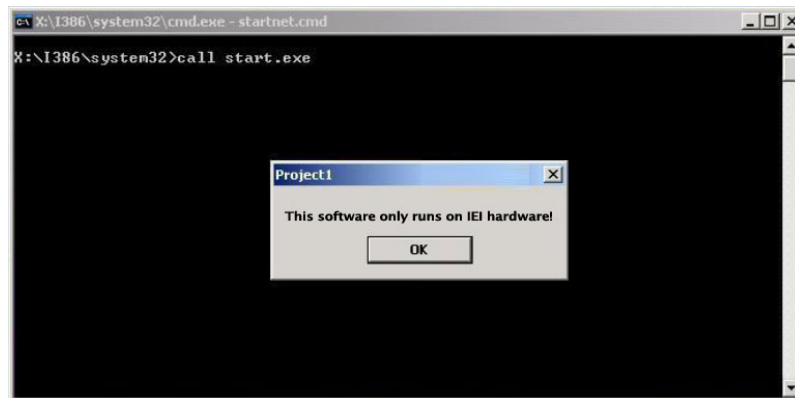
To create the system backup, the main storage device must be split into two partitions (three partitions for Linux). The first partition will be for the operating system, while the second partition will be invisible to the operating system and contain the backup made by the one key recovery software.

The partition created for recovery images must be big enough to contain both the factory default image and the user backup image. The size must be calculated before creating the

partitions. Please take the following table as a reference when calculating the size of the partition.

	OS	OS Image after Ghost	Compression Ratio
Windows® 7	7 GB	5 GB	70%
Windows® XPE	776 MB	560 MB	70%
Windows® CE 6.0	36 MB	28 MB	77%

NOTE:

Specialized tools are required to change the partition size if the operating system is already installed.

B.1.2 Supported Operating System

The recovery CD is compatible with both Microsoft Windows and Linux operating systems (OS). The supported OS versions are listed below.

- Microsoft Windows
  - Windows XP (Service Pack 2 or 3 required)
  - Windows Vista
  - Windows 7
  - Windows CE 5.0
  - Windows CE 6.0
  - Windows XP Embedded
- Linux
  - Fedora Core 12 (Constantine)
  - Fedora Core 11 (Leonidas)
  - Fedora Core 10 (Cambridge)
  - Fedora Core 8 (Werewolf)
  - Fedora Core 7 (Moonshine)
  - RedHat RHEL-5.4
  - RedHat 9 (Ghirke)

o Ubuntu 8.10 (Intrepid)

o Ubuntu 7.10 (Gutsy)

o Ubuntu 6.10 (Edgy)

o Debian 5.0 (Lenny)

o Debian 4.0 (Etch)

o SuSe 11.2

o SuSe 10.3

![NOTE icon] **NOTE:**

Installing unsupported OS versions may cause the recovery tool to fail.

B.2 Setup Procedure for Windows

Prior to using the recovery tool to backup or restore, a few setup procedures are required.

Step 1: Hardware and BIOS setup (see **Section B.2.1**)

Step 2: Create partitions (see **Section B.2.2)**

Step 3: Install operating system, drivers and system applications (see **Section B.2.3**)

Step 4: Build the recovery partition (see **Section B.2.4**) or build the auto recovery

partition (see **Section B.3**)

Step 5: Create factory default image (see **Section B.2.5**)

The detailed descriptions are described in the following sections.

![NOTE icon] **NOTE:**

The setup procedures described below are for Microsoft Windows operating system users. For Linux, most of the setup procedures are the same except for several steps described in **Section B.3**.

B.2.1 Hardware and BIOS Setup

Step 1: Make sure the system is powered off and unplugged.

Step 2: Install a hard drive or SSD in the system. An unformatted and unpartitioned disk is recommended.

Step 3: Connect an optical disk drive to the system and insert the recovery CD.

Step 4: Turn on the system.

Step 5: Press the <**DELETE**> key as soon as the system is turned on to enter the BIOS.

Step 6: Select the connected optical disk drive as the 1st boot device. (**Boot → Boot Device Priority → 1st Boot Device**).

Step 7: Save changes and restart the computer. Continue to the next section for instructions on partitioning the internal storage.

B.2.2 Create Partitions

To create the system backup, the main storage device must be split into two partitions (three partitions for Linux). The first partition will be for the operating system, while the second partition will be invisible to the operating system and contain the backup made by the one key recovery software.

Step 1: Put the recovery CD in the optical drive of the system.

Step 2: **Boot the system from recovery CD**. When prompted, press any key to boot from the recovery CD. It will take a while to launch the recovery tool. Please be patient!
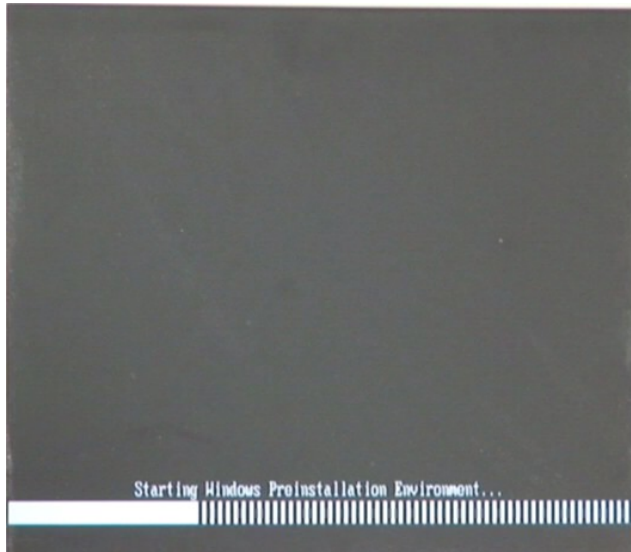
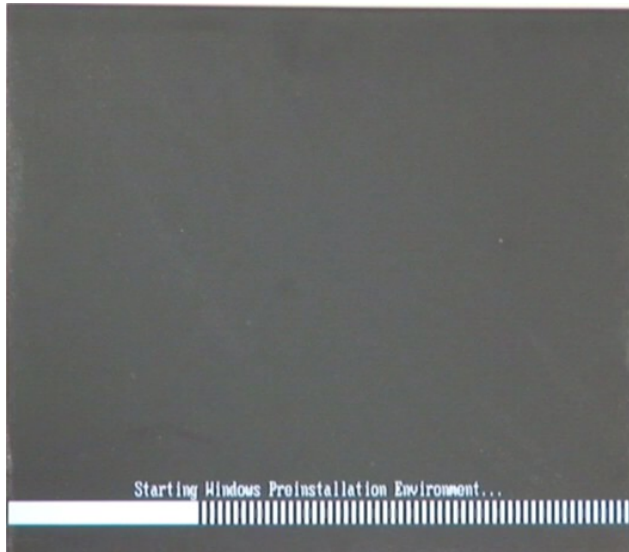**Figure B-2: Launching the Recovery Tool**
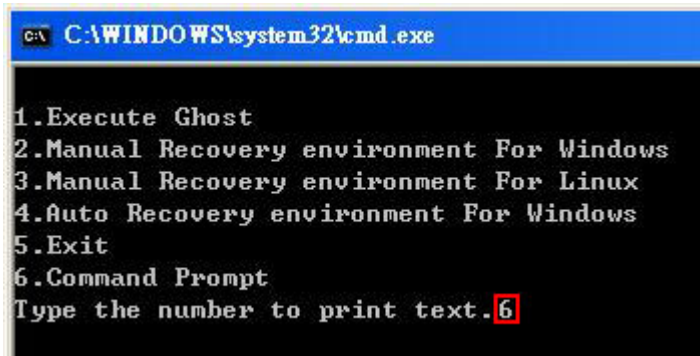
Step 3: The recovery tool setup menu is shown as below.
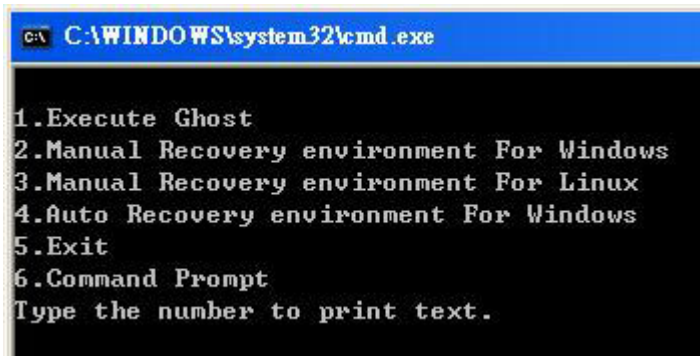
Figure B-3: Recovery Tool Setup Menu

Step 4: Press <**6**> then <Enter>.

Figure B-4: Command Prompt

Step 5: The command prompt window appears. Type the following commands (marked

in red) to create two partitions. One is for the OS installation; the other is for

saving recovery files and images which will be an invisible partition.

(Press <Enter> after entering each line below)

system32>diskpart

DISKPART>list vol

DISKPART>sel disk 0

DISKPART>create part pri size= ___

DISKPART>assign letter=N

DISKPART>create part pri size= ___

DISKPART>assign letter=F

DISKPART>exit

system32>format N: /fs:ntfs /q /y

system32>format F: /fs:ntfs /q /v:Recovery /y

system32>exit

Figure B-5: Partition Creation Commands

NOTE:

Use the following commands to check if the partitions were created successfully.

```
X:\I386\SYSTEM32>diskpart

Microsoft DiskPart version 5.2.3790.1830
Copyright (C) 1999-2001 Microsoft Corporation.
On computer: MININT-JUC

DISKPART> sel disk 0

Disk 0 is now the selected disk.

DISKPART> list part

  Partition ###  Type               Size     Offset
  -------------  -----------------  -------  -------
  Partition 1    Primary            2000 MB    32 KB
  Partition 2    Primary            1804 MB  2000 MB

DISKPART> exit
```

Step 6:   Press any key to exit the recovery tool and automatically reboot the system.

Please continue to the following procedure: Build the Recovery Partition.

B.2.3 Install Operating System, Drivers and Applications

Install the operating system onto the unlabelled partition. The partition labeled "Recovery" is for use by the system recovery tool and should not be used for installing the operating system or any applications.

NOTE:

The operating system installation program may offer to reformat the chosen partition. DO NOT format the partition again. The partition has already been formatted and is ready for installing the new operating system.

To install the operating system, insert the operating system installation CD into the optical drive. Restart the computer and follow the installation instructions.

B.2.4 Building the Recovery Partition

Step 1: Put the recover CD in the optical drive.

Step 2: Start the system.

Step 3: **Boot the system from the recovery CD**. When prompted, press any key to boot from the recovery CD. It will take a while to launch the recovery tool. Please be patient!

Figure B-6: Launching the Recovery Tool

Step 4: When the recovery tool setup menu appears, press <**2**> then <Enter>.

Figure B-7: Manual Recovery Environment for Windows

Step 5: The Symantec Ghost window appears and starts configuring the system to build a recovery partition. In this process the partition created for recovery files in **Section B.2.2** is hidden and the recovery tool is saved in this partition.
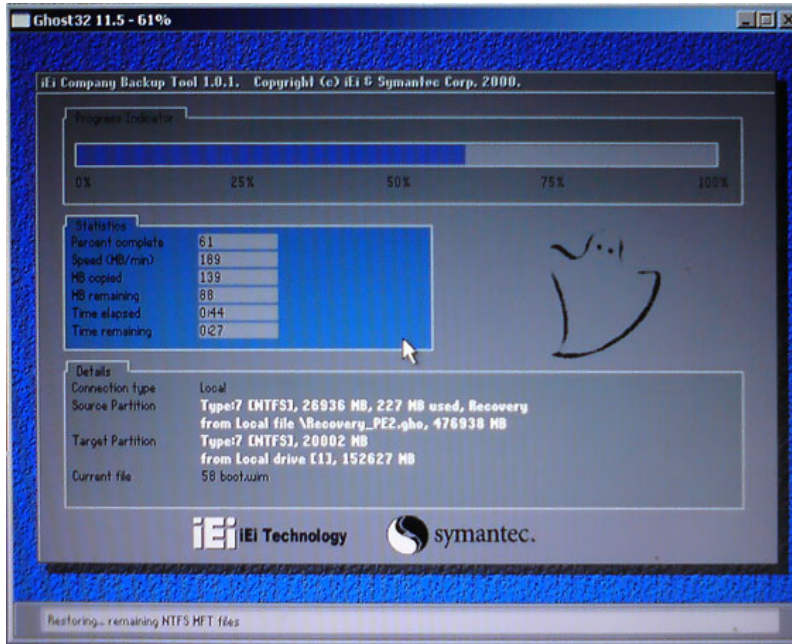
Figure B-8: Building the Recovery Partition

Step 6: After completing the system configuration, press any key in the following window to reboot the system.
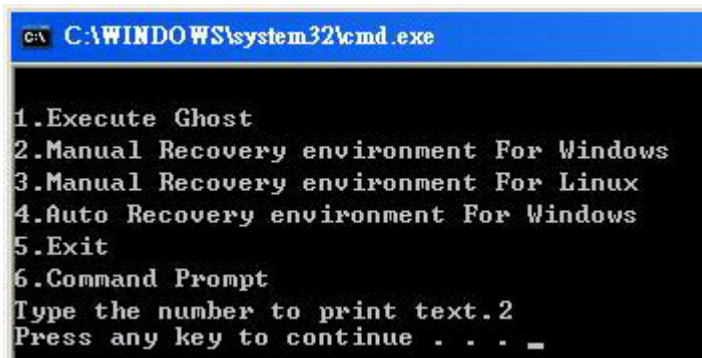
Figure B-9: Press Any Key to Continue

Step 7: Eject the recovery CD.

B.2.5 Create Factory Default Image

NOTE:

Before creating the factory default image, please configure the system to a factory default environment, including driver and application installations.

To create a factory default image, please follow the steps below.

Step 1: Turn on the system. When the following screen displays (**Figure B-10**), press the <**F3**> key to access the recovery tool. The message will display for 10 seconds, please press F3 before the system boots into the operating system.
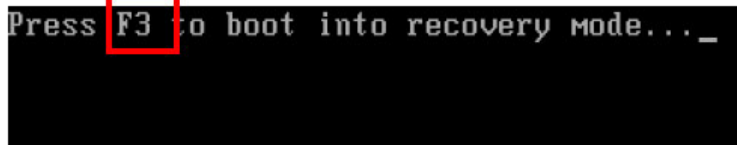
Figure B-10: Press F3 to Boot into Recovery Mode

Step 2: The recovery tool menu appears. Type <**4**> and press <**Enter**>. (**Figure B-11**)
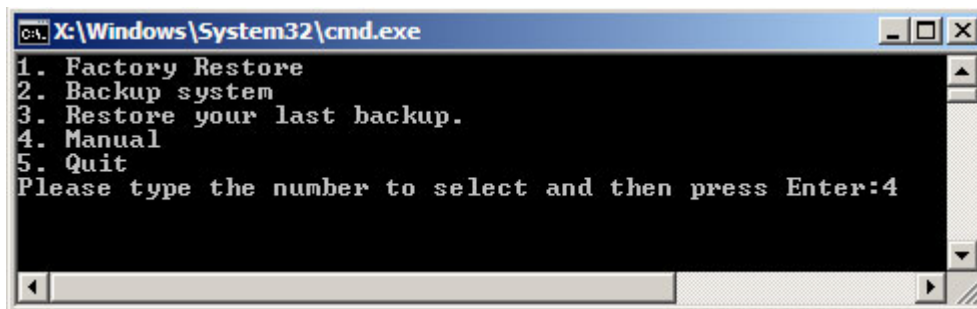
Figure B-11: Recovery Tool Menu

Step 3: The About Symantec Ghost window appears. Click **OK** button to continue.
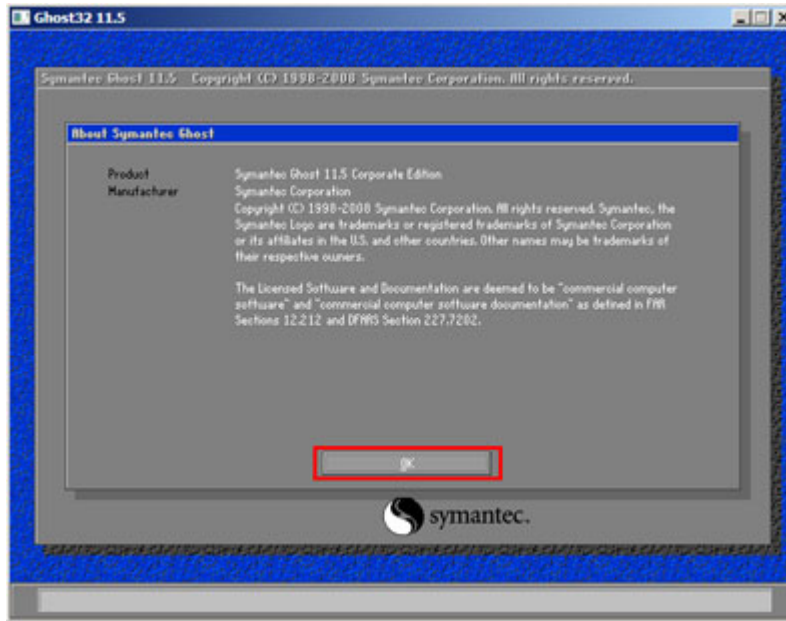
Figure B-12: About Symantec Ghost Window

Step 4: Use mouse to navigate to the option shown below (**Figure B-13**).
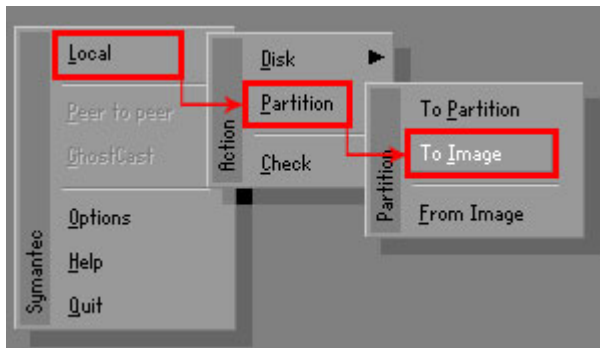
Figure B-13: Symantec Ghost Path

Step 5: Select the local source drive (Drive 1) as shown in **Figure B-14**. Then click OK.
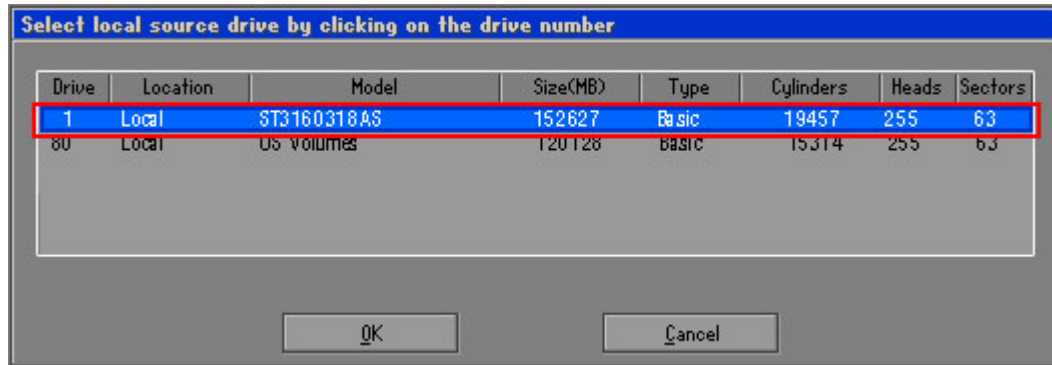
Figure B-14: Select a Local Source Drive

Step 6: Select a source partition (Part 1) from basic drive as shown in **Figure B-15**.

Then click OK.
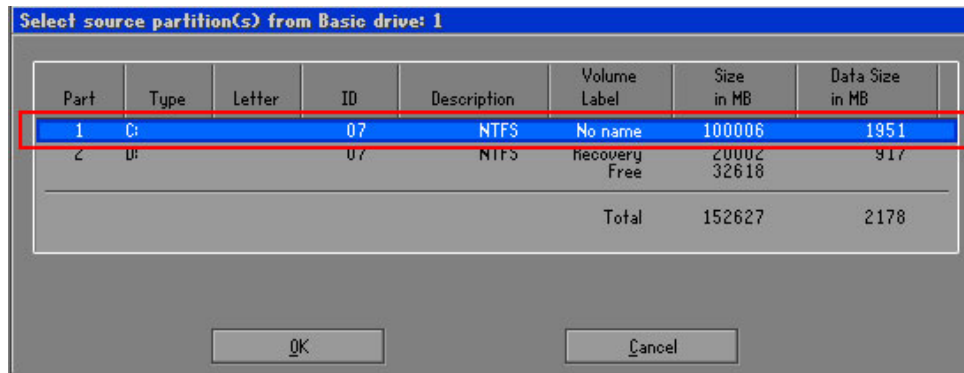
Figure B-15: Select a Source Partition from Basic Drive

Step 7: Select **1.2: [Recovery] NTFS drive** and enter a file name called **iei** (**Figure B-16**). Click **Save**. The factory default image will then be saved in the selected recovery drive and named IEI.GHO.

![warning icon] **WARNING:**

The file name of the factory default image must be **iei.GHO**.
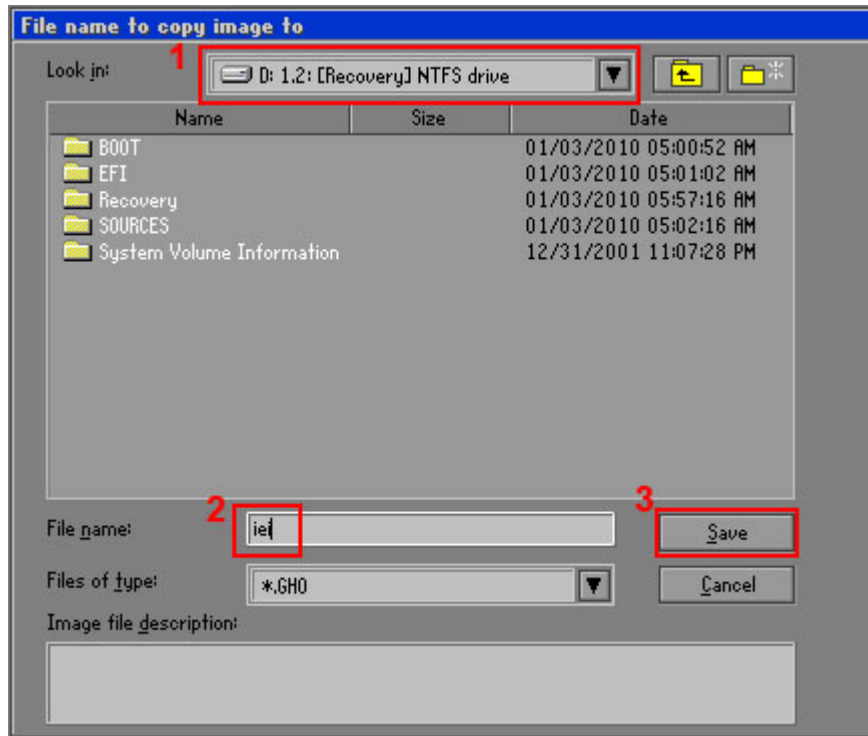
Figure B-16: File Name to Copy Image to

Step 8: When the Compress Image screen in **Figure B-17** prompts, click **High** to make

the image file smaller.
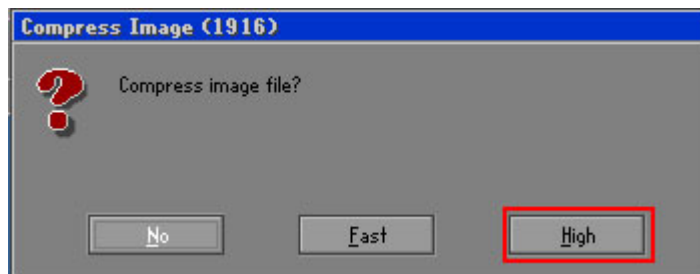
Figure B-17: Compress Image

Step 9: The Proceed with partition image creation window appears, click **Yes** to

continue.
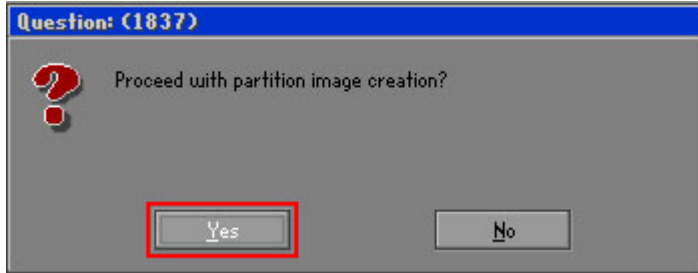
Figure B-18: Image Creation Confirmation

Step 10: The Symantec Ghost starts to create the factory default image (**Figure B-19**).
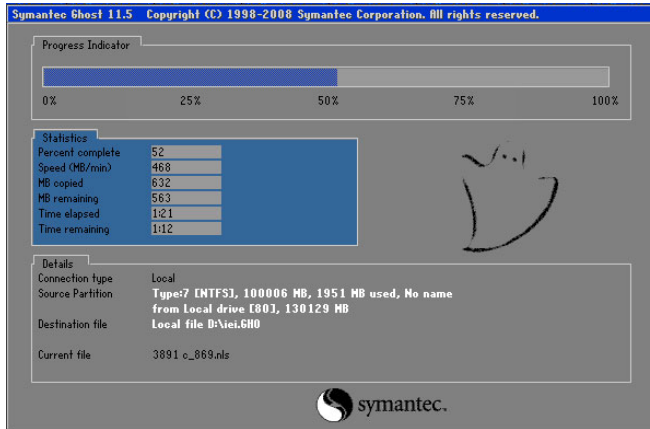
Figure B-19: Image Creation Complete
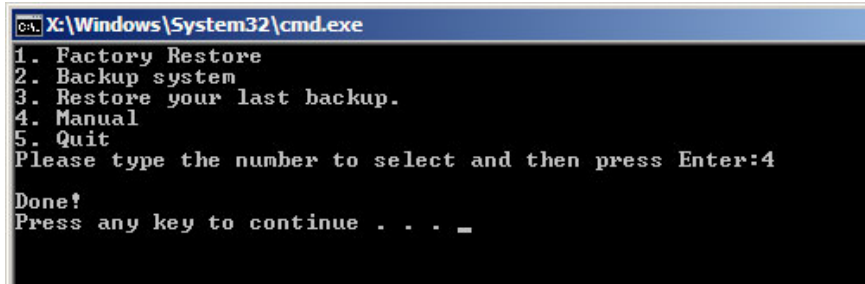
Step 11: When the image creation completes, a screen prompts as shown in **Figure B-20**.

Click **Continue** and close the Ghost window to exit the program.
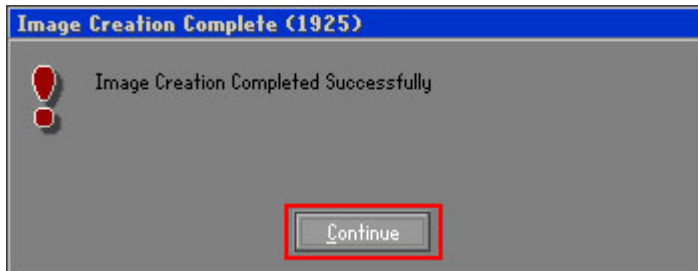
Figure B-20: Image Creation Complete

Step 12: The recovery tool main menu window is shown as below. Press any key to

reboot the system.

Figure B-21: Press Any Key to Continue

B.3 Auto Recovery Setup Procedure

The auto recovery function allows a system to automatically restore from the factory default image after encountering a Blue Screen of Death (BSoD) or a hang for around 10 minutes. To use the auto recovery function, follow the steps described in the following sections.

> ⚠️ **CAUTION:**
>
> The setup procedure may include a step to create a factory default image. It is suggested to configure the system to a factory default environment before the configuration, including driver and application installations.

Step 1: Follow the steps described in **Section B.2.1 ~ Section B.2.3** to setup BIOS,

create partitions and install operating system.

Step 2: Install the auto recovery utility into the system by double clicking the

Utility/AUTORECOVERY-SETUP.exe in the One Key Recovery CD. This utility

MUST be installed in the system, otherwise, the system will automatically

restore from the factory default image every ten (10) minutes.

Figure B-22: Auto Recovery Utility

Step 3: Reboot the system from the recovery CD. When prompted, press any key to boot from the recovery CD. It will take a while to launch the recovery tool. Please be patient!
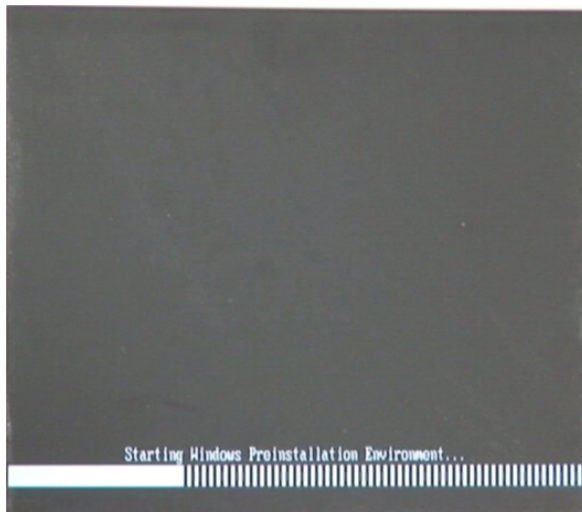
Figure B-23: Launching the Recovery Tool

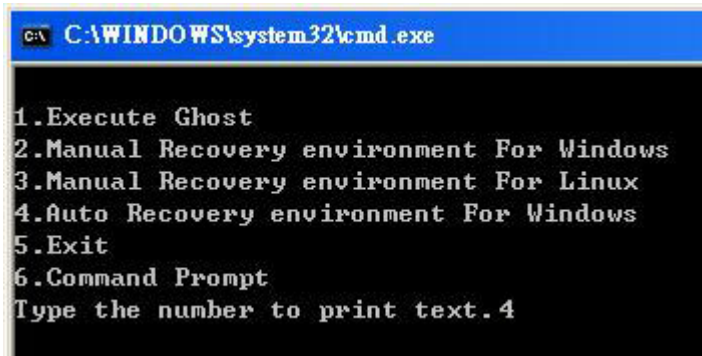**Step 4:** When the recovery tool setup menu appears, press <**4**> then <Enter>.

Figure B-24: Auto Recovery Environment for Windows

Step 5: The Symantec Ghost window appears and starts configuring the system to build

an auto recovery partition. In this process the partition created for recovery files

in **Section B.2.2** is hidden and the auto recovery tool is saved in this partition.
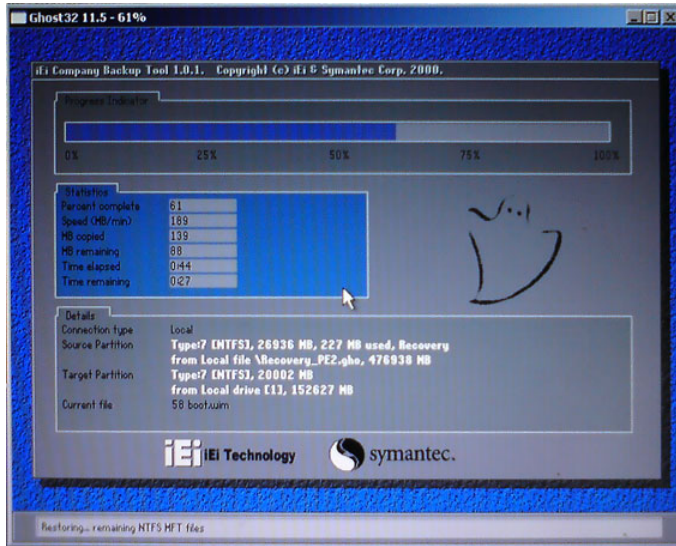
Figure B-25: Building the Auto Recovery Partition

Step 6: After completing the system configuration, the following message prompts to

confirm whether to create a factory default image. Type **Y** to have the system

create a factory default image automatically. Type **N** within 6 seconds to skip this

process (The default option is YES). It is suggested to choose YES for this

option.

Figure B-26: Factory Default Image Confirmation

Step 7: The Symantec Ghost starts to create the factory default image (**Figure B-27**).
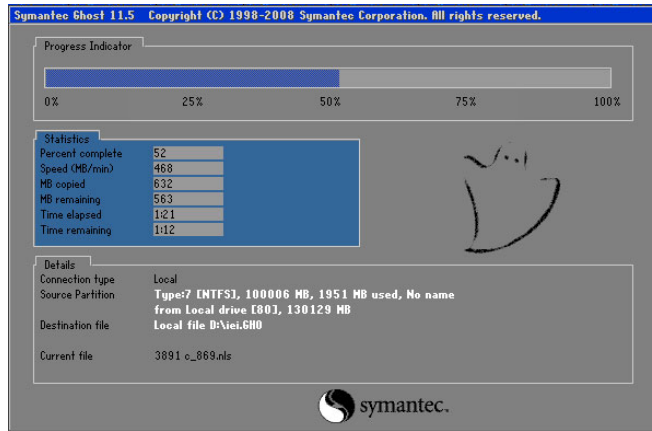
Figure B-27: Image Creation Complete

Step 8: After completing the system configuration, press any key in the following window to restart the system.
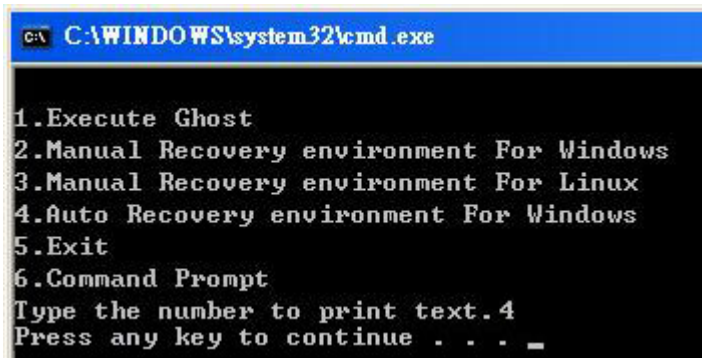
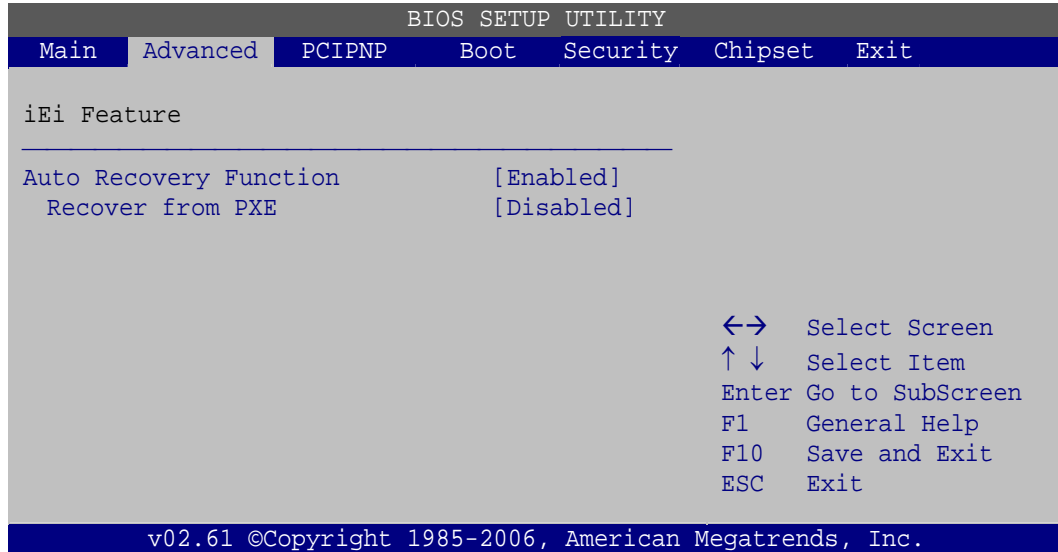**Figure B-28: Press any key to continue**

Step 9: Eject the One Key Recovery CD and restart the system.

Step 10: Press the <**DELETE**> key as soon as the system is turned on to enter the BIOS.

Step 11: Enable the Auto Recovery Function option (**Advanced → iEi Feature → Auto Recovery Function**).

```
                         BIOS SETUP UTILITY
   Main    Advanced   PCIPNP    Boot    Security   Chipset    Exit

  iEi Feature
  _____

  Auto Recovery Function           [Enabled]
    Recover from PXE               [Disabled]


                                                  ←→    Select Screen
                                                  ↑ ↓   Select Item
                                                  Enter Go to SubScreen
                                                  F1    General Help
                                                  F10   Save and Exit
                                                  ESC   Exit
         v02.61 ©Copyright 1985-2006, American Megatrends, Inc.
```

BIOS Menu 22: IEI Feature

Step 12: Save changes and restart the system. If the system encounters a Blue Screen of Death (BSoD) or a hang for around 10 minutes, it will automatically restore from the factory default image.

⚠️ **CAUTION:**

The auto recovery function can only apply on a Microsoft Windows system running the following OS versions:

- Windows XP
- Windows Vista
- Windows 7

B.4 Setup Procedure for Linux

The initial setup procedure for Linux system is mostly the same with the procedure for Microsoft Windows. Please follow the steps below to setup recovery tool for Linux OS.

Step 1: **Hardware and BIOS setup**. Refer to **Section B.2.1**.

Step 2: **Install Linux operating system**. Make sure to install GRUB (v0.97 or earlier) MBR type and Ext3 partition type. Leave enough space on the hard drive to create the recover partition later.

> **NOTE:**
>
> If the Linux OS is not installed with GRUB (v0.97 or earlier) and Ext3, the Symantec Ghost may not function properly.

While installing Linux OS, please create two partitions:

- Partition 1: **/**
- Partition 2: **SWAP**

> **NOTE:**
>
> Please reserve enough space for partition 3 for saving recovery images.
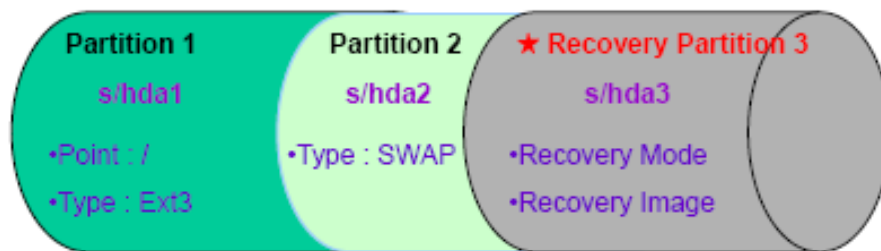
Figure B-29: Partitions for Linux

Step 3: **Create a recovery partition**. Insert the recovery CD into the optical disk drive. Follow **Step 1** ~ **Step 3** described in **Section B.2.2**. Then type the following commands (marked in red) to create a partition for recovery images.

system32>diskpart
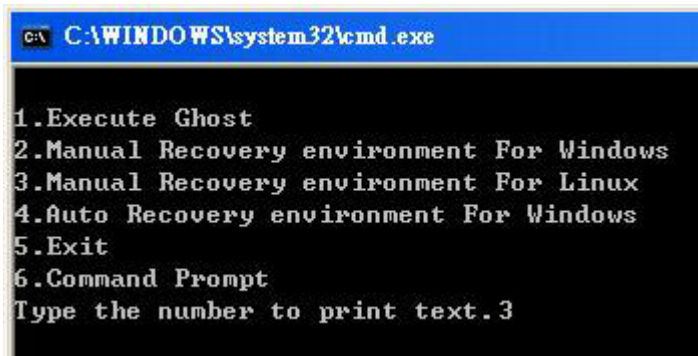
DISKPART>list vol

DISKPART>sel disk 0

> **DISKPART>**create part pri size= ___
>
> **DISKPART>**assign letter=N
>
> **DISKPART>**exit
>
> **system32>**format N: /fs:ntfs /q /v:Recovery /y
>
> **system32>**exit

Step 4: **Build the recovery partition**. Press any key to boot from the recovery CD. It will take a while to launch the recovery tool. Please be patient. When the recovery tool setup menu appears, type **<3>** and press **<Enter>** (**Figure B-30**). The Symantec Ghost window appears and starts configuring the system to build a recovery partition. After completing the system configuration, press any key to reboot the system. Eject the recovery CD.

Figure B-30: Manual Recovery Environment for Linux

Step 5: **Access the recovery tool main menu by modifying the "menu.lst"**. To first access the recovery tool main menu, the menu.lst must be modified. In Linux, enter Administrator (root). When prompt appears, type:

cd /boot/grub

vi menu.lst

Figure B-31: Access menu.lst in Linux (Text Mode)

Step 6: Modify the menu.lst as shown below.

- Type command:

  title Recovery Partition

  root (hd0,2)

  makeactive

  chainloader +1

Step 7: The recovery tool menu appears. (**Figure B-32**)

Figure B-32: Recovery Tool Menu

Step 8: **Create a factory default image**. Follow **Step 2** ~ **Step 12** described in **Section B.2.5** to create a factory default image.

B.5 Recovery Tool Functions

After completing the initial setup procedures as described above, users can access the recovery tool by pressing <**F3**> while booting up the system. However, if the setup procedure in Section B.3 has been completed and the auto recovery function is enabled, the system will automatically restore from the factory default image without pressing the F3 key. The recovery tool main menu is shown below.
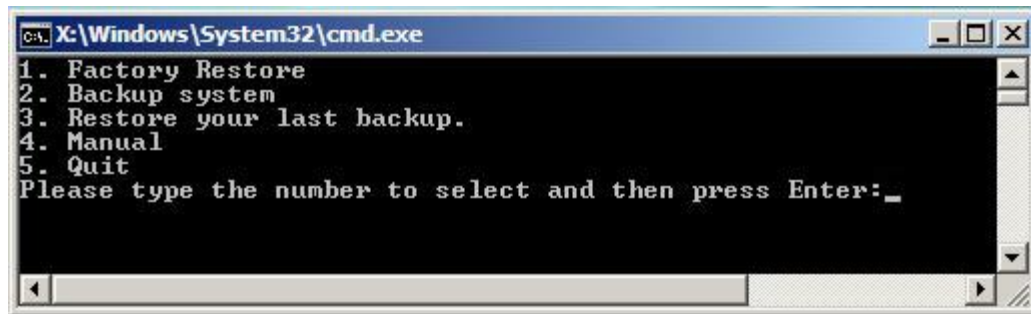

Figure B-33: Recovery Tool Main Menu

The recovery tool has several functions including:

1. **Factory Restore**: Restore the factory default image (iei.GHO) created in Section B.2.5.
2. **Backup system**: Create a system backup image (iei_user.GHO) which will be saved in the hidden partition.
3. **Restore your last backup**: Restore the last system backup image
4. **Manual**: Enter the Symantec Ghost window to configure manually.
5. **Quit**: Exit the recovery tool and restart the system.

![WARNING icon] **WARNING:**

Please do not turn off the system power during the process of system recovery or backup.

WARNING:

All data in the system will be deleted during the system recovery. Please backup the system files before restoring the system (either Factory Restore or Restore Backup).

B.5.1 Factory Restore

To restore the factory default image, please follow the steps below.

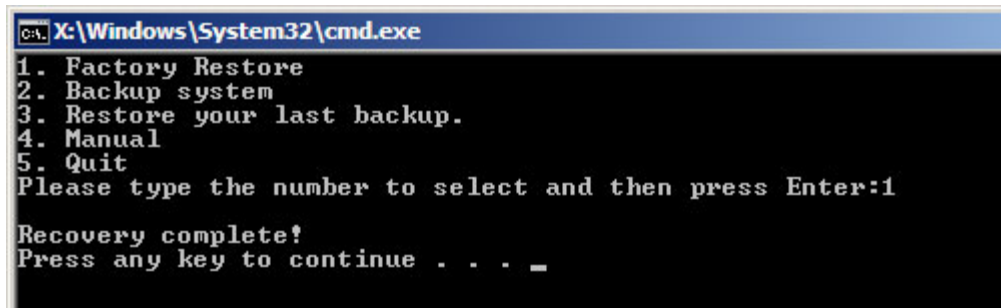**Step 1:** Type <**1**> and press <**Enter**> in the main menu.

Step 2: The Symantec Ghost window appears and starts to restore the factory default. A factory default image called **iei.GHO** is created in the hidden Recovery partition.
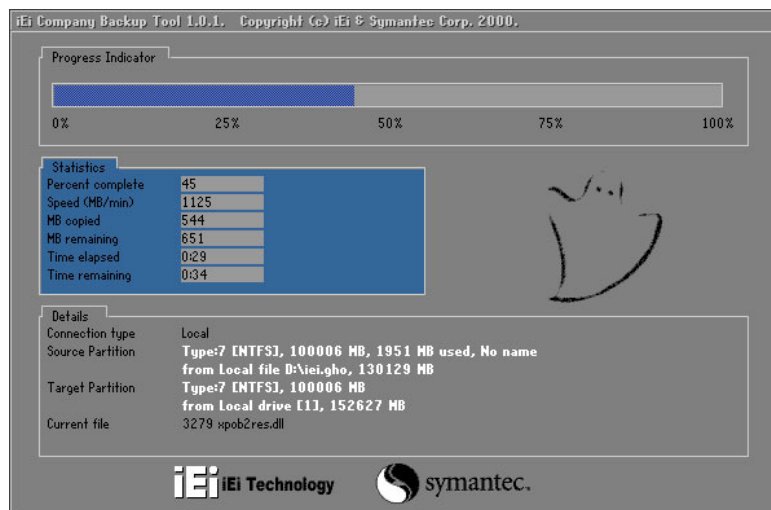
Figure B-34: Restore Factory Default

Step 3: The screen shown in **Figure B-35** appears when completed. Press any key to reboot the system.

Figure B-35: Recovery Complete Window

B.5.2 Backup System

To backup the system, please follow the steps below.

Step 1: Type <**2**> and press <**Enter**> in the main menu.

Step 2: The Symantec Ghost window appears and starts to backup the system. A backup image called **iei_user.GHO** is created in the hidden Recovery partition.
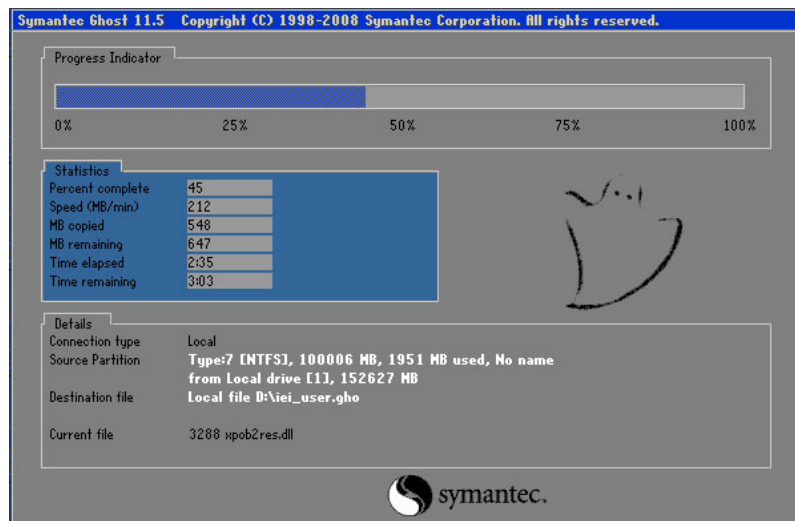

Figure B-36: Backup System

Step 3: The screen shown in **Figure B-37** appears when system backup is complete. Press any key to reboot the system.
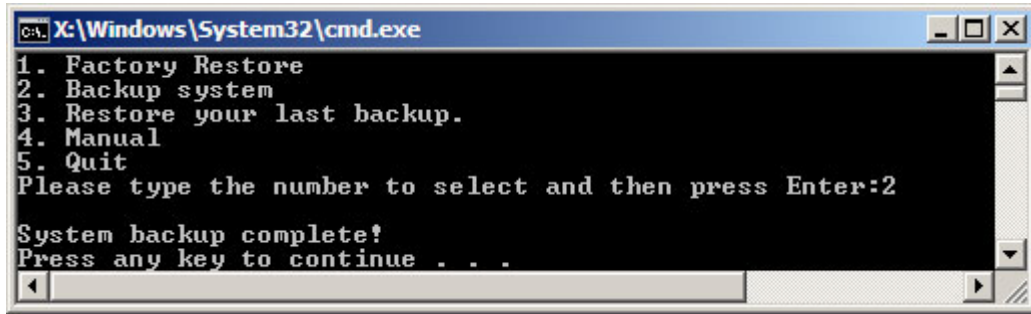
Figure B-37: System Backup Complete Window

B.5.3 Restore Your Last Backup

To restore the last system backup, please follow the steps below.

Step 1: Type <**3**> and press <**Enter**> in the main menu.

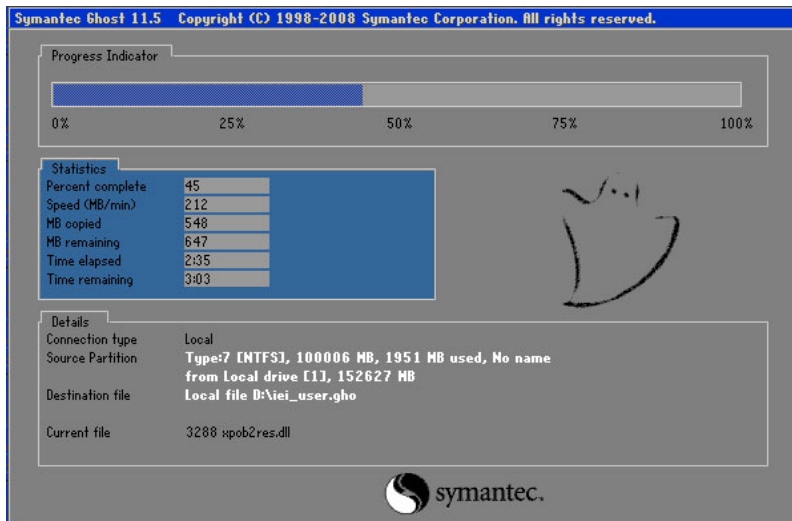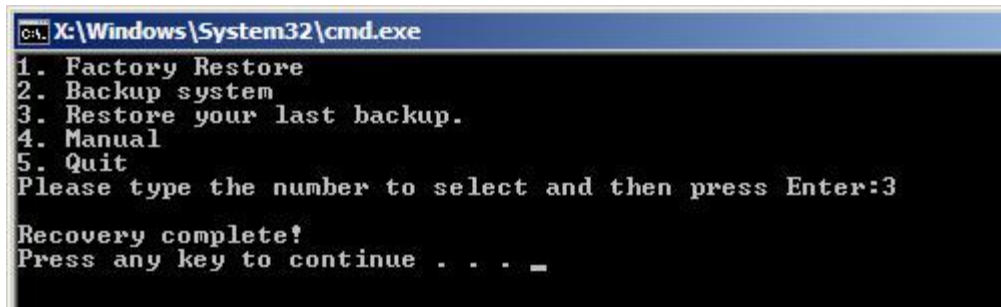**Step 2:** The Symantec Ghost window appears and starts to restore the last backup image (iei_user.GHO).

Figure B-38: Restore Backup

Step 3: The screen shown in **Figure B-39** appears when backup recovery is complete. Press any key to reboot the system.

Figure B-39: Restore System Backup Complete Window

B.5.4 Manual

To restore the last system backup, please follow the steps below.

Step 1: Type <**4**> and press <**Enter**> in the main menu.

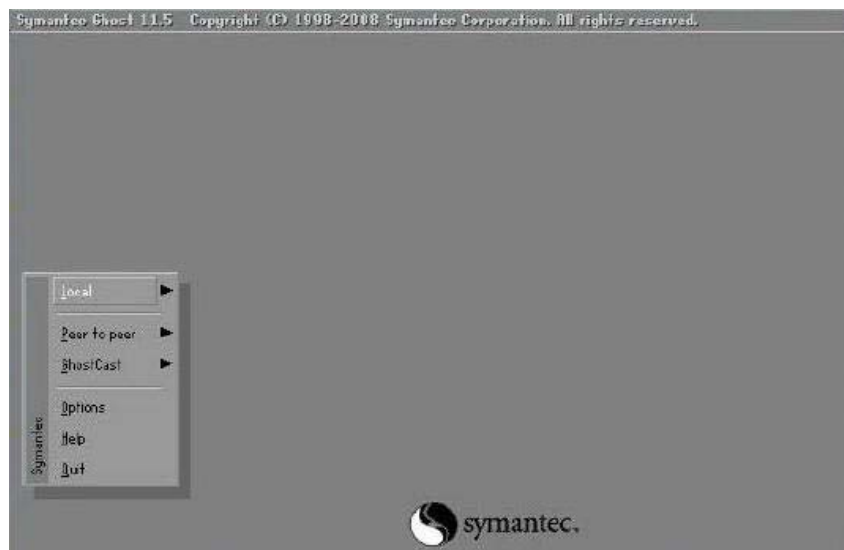**Step 2:** The Symantec Ghost window appears. Use the Ghost program to backup or recover the system manually.

Figure B-40: Symantec Ghost Window

Step 3: When backup or recovery is completed, press any key to reboot the system.

B.6 Restore Systems from a Linux Server through LAN

The One Key Recovery allows a client system to automatically restore to a factory default image saved in a Linux system (the server) through LAN connectivity after encountering a Blue Screen of Death (BSoD) or a hang for around 10 minutes. To be able to use this function, the client system and the Linux system MUST reside in the same domain.
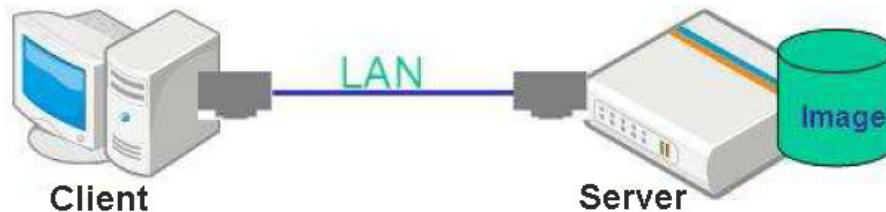
![NOTE icon] **NOTE:**

The supported client OS includes:

- Windows 2000
- Windows 7
- Windows XP
- Windows CE
- Windows Vista
- Windows XP Embedded

Prior to restoring client systems from a Linux server, a few setup procedures are required.

Step 1: Configure DHCP server settings

Step 2: Configure TFTP settings

Step 3: Configure One Key Recovery server settings

Step 4: Start DHCP, TFTP and HTTP

Step 5: Create a shared directory

Step 6: Setup a client system for auto recovery

The detailed descriptions are described in the following sections. In this document, two types of Linux OS are used as examples to explain the configuration process – CentOS 5.5 (Kernel 2.6.18) and Debian 5.0.7 (Kernel 2.6.26).

B.6.1 Configure DHCP Server Settings

Step 1: Install the DHCP

#yum install dhcp (CentOS, commands marked in red)

#apt-get install dhcp3-server (Debian, commands marked in blue)

Step 2: Confirm the operating system default settings: dhcpd.conf.

<u>CentOS</u>

Use the following command to show the DHCP server sample location:

#vi /etc/dhcpd.conf

The DHCP server sample location is shown as below:

```
# DHCP Server Configuration file.
#   see /usr/share/doc/dhcp*/dhcpd.conf.sample
#
```

Use the following command to copy the DHCP server sample to etc/dhcpd.conf:

#cp /usr/share/doc/dhcp-3.0.5/dhcpd.conf.sample /etc/dhcpd.conf

#vi /etc/dhcpd.conf

```
ddns-update-style interim;
ignore client-updates;

subnet 192.168.0.0 netmask 255.255.255.0 {

# --- default gateway
        option routers                  192.168.0.2;
        option subnet-mask              255.255.255.0;

        option nis-domain               "domain.org";
        option domain-name              "domain.org";
        option domain-name-servers      192.168.0.1;
        next-server 192.168.0.6;
        filename "pxelinux.0";
        option time-offset              -18000; # Eastern Standard Time
        option ntp-servers              192.168.1.1;
```

<u>Debian</u>

#vi /etc/dhcpd.conf

Edit "/etc/dhcpd.conf" for your environment. For example, add

next-server PXE server IP address;

filename "pxelinux.0";

```
ddns-update-style interim;
ignore client-updates;

subnet 192.168.0.0 netmask 255.255.255.0 {

# --- default gateway
        option routers                  192.168.0.2;
        option subnet-mask              255.255.255.0;

        option nis-domain               "domain.org";
        option domain-name              "domain.org";
        option domain-name-servers      192.168.0.1;
        next-server 192.168.0.6;
        filename "pxelinux.0";
        option time-offset              -18000; # Eastern Standard Time
        option ntp-servers              192.168.1.1;
```

B.6.2 Configure TFTP Settings

Step 1:   Install the tftp, httpd and syslinux.

#yum install tftp-server httpd syslinux (CentOS)

#apt-get install tftpd-hpa xinetd syslinux (Debian)

Step 2:   Enable the TFTP server by editing the "/etc/xinetd.d/tftp" file and make it use the remap file. The "-vvv" is optional but it could definitely help on getting more information while running the remap file. For example:

CentOS

#vi /etc/xinetd.d/tftp

Modify:

disable = no

server_args = -s /tftpboot –m /tftpboot/tftpd.remap -vvv

```
        socket_type             = dgram
        protocol                = udp
        wait                    = yes
        user                    = root
        server                  = /usr/sbin/in.tftpd
        server_args             = -s /tftpboot -m /tftpboot/tftpd.remap -vvv
        disable                 = no
        per_source              = 11
        cps                     = 100 2
        flags                   = IPv4
```

Debian

Replace the TFTP settings from "inetd" to "xinetd" and annotate the "inetd" by

adding "#".

#vi /etc/inetd.conf

Modify: #tftp dgram udp wait root /usr/sbin....... (as shown below)

#vi /etc/xinetd.d/tftp

B.6.3 Configure One Key Recovery Server Settings

Step 1: Copy the **Utility/RECOVERYR10.TAR.BZ2** package from the One Key

Recovery CD to the system (server side).

Step 2: Extract the recovery package to /.

#cp RecoveryR10.tar.bz2 /

#cd /

#tar –xvjf RecoveryR10.tar.bz2

Step 3: Copy "pxelinux.0" from "syslinux" and install to "/tftboot".

#cp /usr/lib/syslinux/pxelinux.0 /tftpboot/

B.6.4 Start the DHCP, TFTP and HTTP

Start the DHCP, TFTP and HTTP. For example:

CentOS

#service xinetd restart

#service httpd restart

#service dhcpd restart

Debian

#/etc/init.d/xinetd reload

#/etc/init.d/xinetd restart

#/etc/init.d/dhcp3-server restart

B.6.5 Create Shared Directory

Step 1: Install the samba.

#yum install samba

Step 2: Create a shared directory for the factory default image.

#mkdir /share

#cd /share

#mkdir /image

#cp iei.gho /image

![Warning icon] **WARNING:**

The file name of the factory default image must be **iei.gho**.

Step 3: Confirm the operating system default settings: smb.conf.

#vi /etc/samba/smb.conf

Modify:

[image]

    comment = One Key Recovery

    path = /share/image

    browseable = yes

    writable = yes

    public = yes

    create mask = 0644

    directory mask = 0755

Step 4:   Edit "/etc/samba/smb.conf" for your environment. For example:

```
# "security = user" is always a good idea. This will require a Unix account
# in this server for every user accessing the server. See
# /usr/share/doc/samba-doc/htmldocs/Samba3-HOWTO/ServerType.html
# in the samba-doc package for details.
  security = share

[image]
  comment = One Key Recovery
  path = /share/image
  browseable = yes
  writable = yes
  public = yes
  create mask = 0644
  directory mask = 0755
```

Step 5:   Modify the hostname

    #vi /etc/hostname

    Modify: RecoveryServer

```
RecoveryServer
~
```

B.6.6 Setup a Client System for Auto Recovery

Step 1:   Configure the following BIOS options of the client system.

    Advanced → iEi Feature → Auto Recovery Function → **Enabled**

    Advanced → iEi Feature → Recover from PXE → **Enabled**

    Boot → Launch PXE OpROM → **Enabled**

Step 2: Continue to configure the **Boot Option Priorities** BIOS option of the client

system:

Boot Option #1 → remain the default setting to boot from the original OS.

Boot Option #2 → select the boot from LAN option.

Step 3: Save changes and exit BIOS menu.

Exit → **Save Changes and Exit**

Step 4: Install the auto recovery utility into the system by double clicking the

Utility/AUTORECOVERY-SETUP.exe in the One Key Recovery CD. This utility

MUST be installed in the system, otherwise, the system will automatically

restore from the factory default image every ten (10) minutes.

Step 5: Restart the client system from LAN. If the system encounters a Blue Screen of

Death (BSoD) or a hang for around 10 minutes, it will automatically restore from

the factory default image. The following screens will show when the system

starts auto recovering.

![NOTE] **NOTE:**

A firewall or a SELinux is not in use in the whole setup process. If there is a firewall or a SELinux protecting the system, modify the configuration information to accommodate them.

B.7 Other Information

B.7.1 Using AHCI Mode or ALi M5283 / VIA VT6421A Controller

When the system uses AHCI mode or some specific SATA controllers such as ALi M5283 or VIA VT6421A, the SATA RAID/AHCI driver must be installed before using one key recovery. Please follow the steps below to install the SATA RAID/AHCI driver.

Step 1: Copy the SATA RAID/AHCI driver to a floppy disk and insert the floppy disk into a USB floppy disk drive. The SATA RAID/AHCI driver must be especially designed for the on-board SATA controller.

Step 2: Connect the USB floppy disk drive to the system.

Step 3: Insert the One Key Recovery CD into the system and boot the system from the CD.

Step 4: When launching the recovery tool, press <**F6**>.
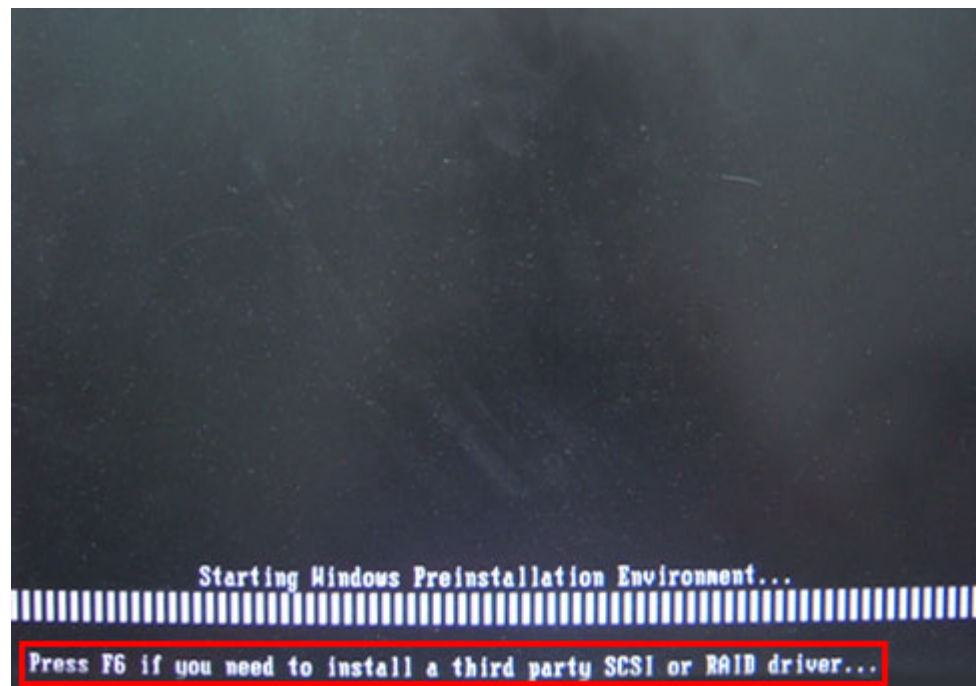
Step 5: When the following window appears, press **<S>** to select "Specify Additional

Device".
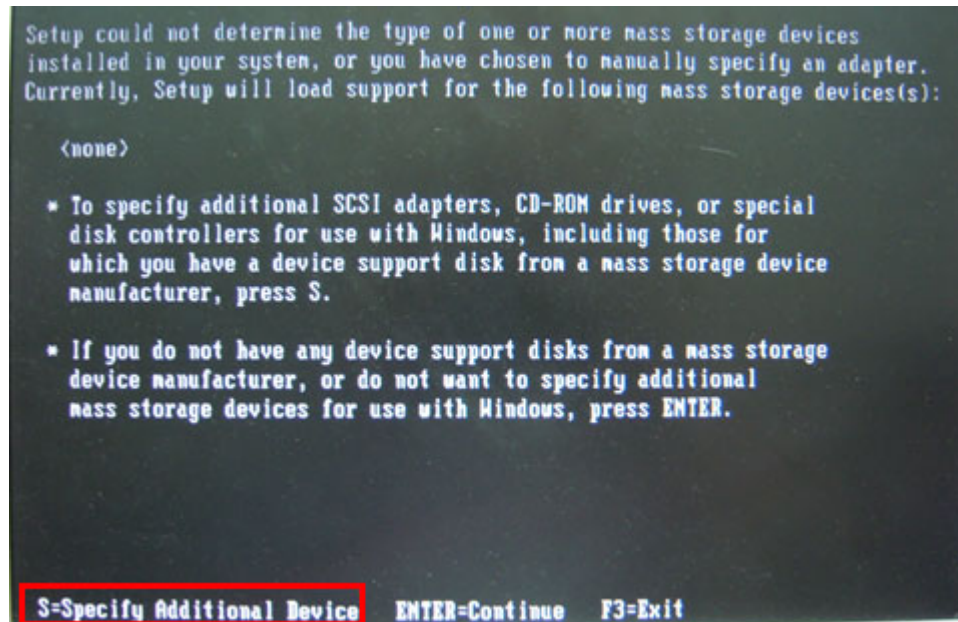
Step 6: In the following window, select a SATA controller mode used in the system. Then

press **<Enter>**. The user can now start using the SATA HDD.
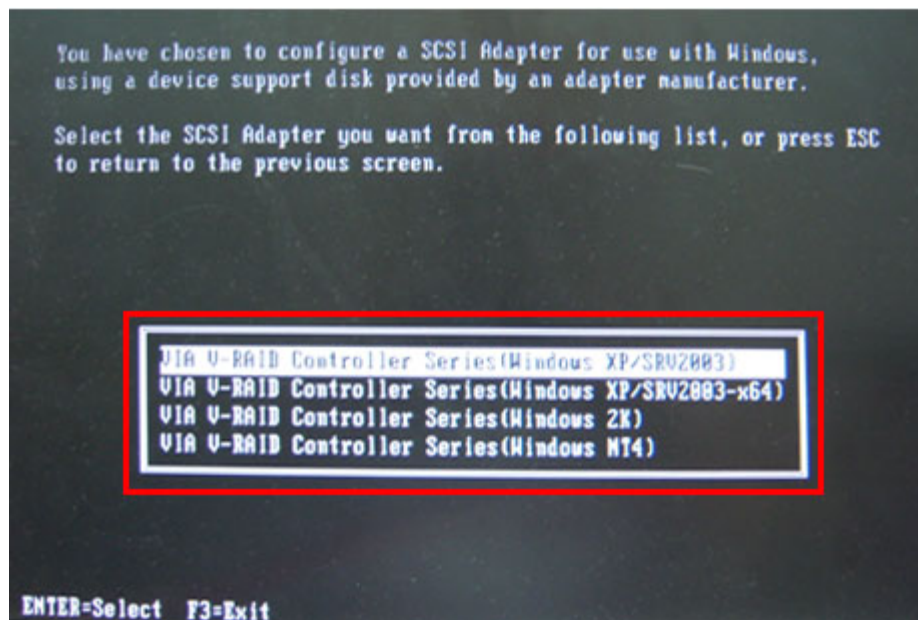
Step 7:   After pressing <Enter>, the system will get into the recovery tool setup menu.

Continue to follow the setup procedure from **Step 4** in **Section B.2.2 Create Partitions** to finish the whole setup process.

B.7.2 System Memory Requirement

To be able to access the recovery tool by pressing **<F3>** while booting up the system, please make sure to have enough system memory. The minimum memory requirement is listed below.

- Using Award BIOS: 128 MB system memory
- Using AMI BIOS: 512 MB system memory.

Appendix

C

Safety Precautions

WARNING:

The precautions outlined in this chapter should be strictly followed. Failure to follow these precautions may result in permanent damage to the EP series.

C.1 Safety Precautions

Please follow the safety precautions outlined in the sections that follow:

C.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- *Follow the electrostatic precautions* outlined below whenever the EP series is opened.
- *Make sure the power is turned off and the power cord is disconnected* whenever the EP series is being installed, moved or modified.
- *Do not apply voltage levels that exceed the specified voltage range*. Doing so may cause fire and/or an electrical shock.
- *Electric shocks can occur* if the EP series chassis is opened when the EP series is running.
- *Do not drop or insert any objects* into the ventilation openings of the EP series.
- *If considerable amounts of dust, water, or fluids enter the EP series*, turn off the power supply immediately, unplug the power cord, and contact the EP series vendor.
- **DO NOT**:
  - Drop the EP series against a hard surface.
  - Strike or exert excessive force onto the LCD panel.
  - Touch any of the LCD panels with a sharp object
  - In a site where the ambient temperature exceeds the rated temperature

C.1.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the EP series may result in permanent damage to the EP series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the EP series. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the EP series is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- **Wear an anti-static wristband**: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- **Self-grounding**: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- **Use an anti-static pad**: When configuring or working with an electrical component, place it on an antic-static pad. This reduces the possibility of ESD damage.
- **Only handle the edges of the electrical component**: When handling the electrical component, hold the electrical component by its edges.

C.1.3 Product Disposal

CAUTION:

Risk of explosion if battery is replaced by and incorrect type. Only certified engineers should replace the on-board battery.

Dispose of used batteries according to instructions and local regulations.

- Outside the European Union - If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.
- Within the European Union:
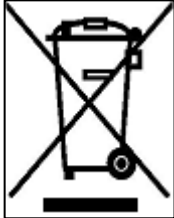
EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product. The mark on electrical and electronic products only applies to the current European Union Member States.

Please follow the national guidelines for electrical and electronic product disposal.

C.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the EP series, please follow the guidelines below.

C.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the EP series, please read the details below.

- Except for the LCD panel, never spray or squirt liquids directly onto any other components. To clean the LCD panel, gently wipe it with a piece of soft dry cloth or a slightly moistened cloth.
- The interior of the EP series does not require cleaning. Keep fluids away from the EP series interior.
- Be cautious of all small removable components when vacuuming the EP series.
- Turn the EP series off before cleaning the EP series.
- Never drop any objects or liquids through the openings of the EP series.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the EP series.
- Avoid eating, drinking and smoking within vicinity of the EP series.

C.2.2 Cleaning Tools

Some components in the EP series may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the EP series.

- *Cloth* – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the EP series.
- *Water or rubbing alcohol* – A cloth moistened with water or rubbing alcohol can be used to clean the EP series.
- *Using solvents* – The use of solvents is not recommended when cleaning the EP series as they may damage the plastic parts.
- *Vacuum cleaner* – Using a vacuum specifically designed for computers is one of the best methods of cleaning the EP series. Dust and dirt can restrict the airflow in the EP series and cause its circuitry to corrode.
- *Cotton swabs* - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- **Foam swabs** - Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

D

Watchdog Timer

  NOTE:

The following discussion applies to DOS environment.　IEI support is contacted or the IEI website visited for specific drivers for more sophisticated operating systems, e.g., Windows and Linux.

The Watchdog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMI or a software bug. When the CPU stops working correctly, Watchdog Timer either performs a hardware reset (cold boot) or a Non-Maskable Interrupt (NMI) to bring the system back to a known state.

A BIOS function call (INT 15H) is used to control the Watchdog Timer:

INT 15H:

AH – 6FH Sub-function:	
AL – 2:	Sets the Watchdog Timer's period.
BL:	Time-out value (Its unit-second is dependent on the item "Watchdog Timer unit select" in CMOS setup).

  Table D-1: AH-6FH Sub-function

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer starts counting down. While the timer value reaches zero, the system resets. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the Watchdog timer is disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

> **NOTE:**
>
> When exiting a program it is necessary to disable the Watchdog Timer,
> otherwise the system resets.

Example program:

```
; INITIAL TIMER PERIOD COUNTER
;
W_LOOP:

        MOV     AX, 6F02H           ; setting the time-out value
        MOV     BX, 05              ; time-out value is 5 seconds
        INT     15H
;
; ADD THE APPLICATION PROGRAM HERE
;
        CMP     EXIT_AP, 1          ; is the application over?
        JNE     W_LOOP          ; No, restart the application

        MOV    AX, 6F02H        ; disable Watchdog Timer
        MOV    BX, 0            ;
        INT     15H
;
; EXIT ;
```

Hazardous Materials

Disclosure

E.1 Hazardous Material Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated "Environmentally Friendly Use Period" (EFUP). This is an estimate of the number of years that these substances would "not leak out or undergo abrupt change." This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	O	O	O	O	O	O
Display	O	O	O	O	O	O
Printed Circuit Board	O	O	O	O	O	O
Metal Fasteners	O	O	O	O	O	O
Cable Assembly	O	O	O	O	O	O
Fan Assembly	O	O	O	O	O	O
Power Supply Assemblies	O	O	O	O	O	O
Battery	O	O	O	O	O	O

O:　This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006

X:　This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有"环境友好使用期限"的标签，此期限是估算这些物质"不会有泄漏或突变"的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	O	O	O	O	O	O
显示	O	O	O	O	O	O
印刷电路板	O	O	O	O	O	O
金属螺帽	O	O	O	O	O	O
电缆组装	O	O	O	O	O	O
风扇组装	O	O	O	O	O	O
电力供应组装	O	O	O	O	O	O
电池	O	O	O	O	O	O
O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。						
X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。						