IEI Technology Corp.

MODEL:

AFL2-W15A-N270/L325

**Panel PC with Touch Screen Intel® or AMD CPU
Gigabit Ethernet, USB, Audio, RS-232/422/485, SATA
RoHS Compliant, IP 64 Protection**

User Manual

Rev. 1.01 – 28 June 2013

RoHS Lead Free

Revision

Date	Version	Changes
28 June 2013	1.01	Updated Section 2.8: Mounting the System
28 March, 2011	1.00	Initial release

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TRADEMARKS

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Introduction

1.1 Overview

Figure 1-1: AFL2-W15A-N270/L325

The Afolux panel PCs are all-in-one panel PCs with all the elements of a desktop computer contained in a single, slim package, no bigger than a thick monitor. The Afolux panel PCs can be mounted on a desktop monitor stand and save a huge amount of desktop space by including all the computer components behind the screen. All models include a touch screen interface.

The Afolux is a self-contained system, with all parts, excluding the power supply, contained inside the casing allowing a completely interactive panel PC with only a single power cable. External devices are connected wirelessly through Bluetooth technology and network access is enabled through an 802.11b/g/n wireless adapter. Wired options are always available on the rear panel, with two serial ports and USB ports for peripherals and a Gigabit Ethernet jack for networking.

The Afolux includes both audio and visual multimedia capabilities. All models have a VGA output for connecting another monitor to the system, and audio outputs for external audio. There is also a built-in 300 K webcam and microphone.

1.2 Model Variations

There are six models of the AFL2-W15A-N270/L325 series. The model variations are listed below.

AFL2-W15A-	CPU	RFID Reader
N270/R/1G-R10	1.6 GHz Intel® Atom processor N270	N/A
N270/R-EM/1G-R10	1.6 GHz Intel® Atom processor N270	EM card reader.
N270/R-MF/1G-R10	1.6 GHz Intel® Atom processor N270	Mifare card reader.
L325/R/1G-R10	1.6GHz AMD™ ASB1 dual core L325	N/A
L325/R-EM/1G-R10	1.6GHz AMD™ ASB1 dual core L325	EM card reader.
L325/R-MF/1G-R10	1.6GHz AMD™ ASB1 dual core L325	Mifare card reader.

Table 1-1: Model Variations

1.3 Features

Some of the standard features of the AFL2-W15A-N270/L325 flat panel PC include:

- ▪ Fully self-contained, only power from the external power supply required
- ▪ Touch screen
- ▪ Wireless LAN
- ▪ Gigabit Ethernet
- ▪ Bluetooth
- ▪ IP 64 protection
- ▪ RoHS compliant

1.4 External Overview

The AFL2-W15A-N270/L325 consists of a screen and rear panel that covers the back, sides and top. The rear panel contains a smaller access panel, all the cable connections and the mounting holes.

1.4.1 Front Panel

The front side of the AFL2-W15A-N270/L325 is a flat panel LCD screen surrounded by a plastic frame.
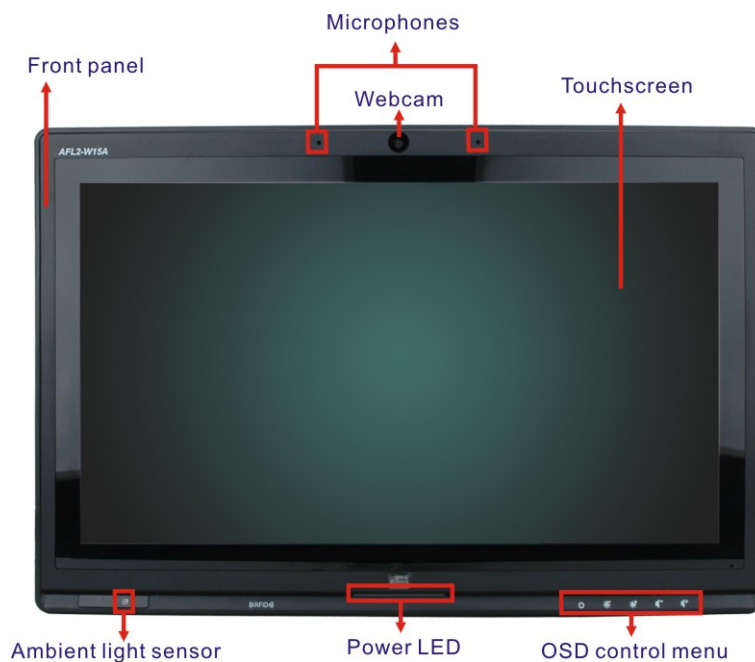
Figure 1-2: Front Panel

1.4.2 Rear Panel

The rear panel provides access to retention screw holes that support the wall mounting. Refer to Figure 1-3.

Expansion module access panel   Back cover retention screws

VESA mount screw holes   SATA/CF card/USB dongle access panel
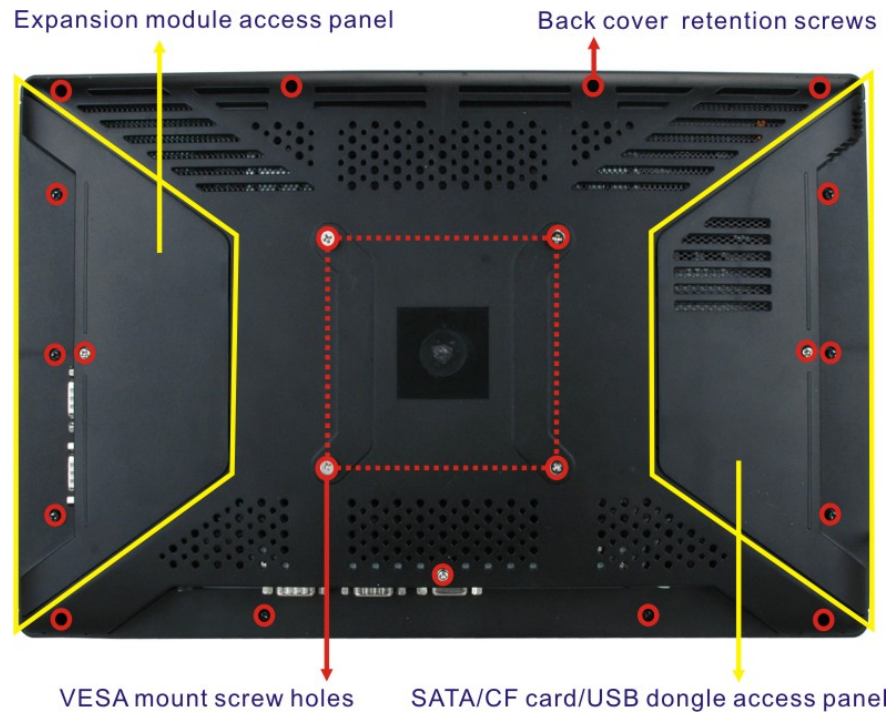
Figure 1-3: Rear Panel

1.4.3 Bottom Panel

The bottom panel has the following slots, buttons and switches (Figure 1-5):

- 1 x RJ-45 jack for Gigabit LAN
- 1 x Audio Line-out jack
- 1 x OSD keypad
- 1 x Power switch
- 1 x Power input (12 V)
- 1 x Reset button
- 1 x RS-232 serial port (COM1)
- 1 x RS-232/422/485 serial port (COM3)
- 4 x USB ports (AFL2-W15A-L325)
- 2 x USB ports (AFL2-W15A-N270)
- 1 x External SATA port (AFL2-W15A-N270)
- 1 x HDMI (AFL2-W15A-L325)
- 1 x VGA port
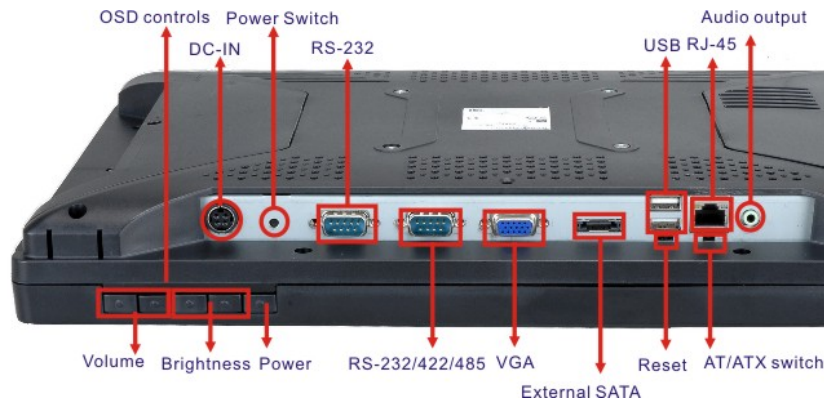
Figure 1-4: AFL2-W15A-N270 Bottom Panel
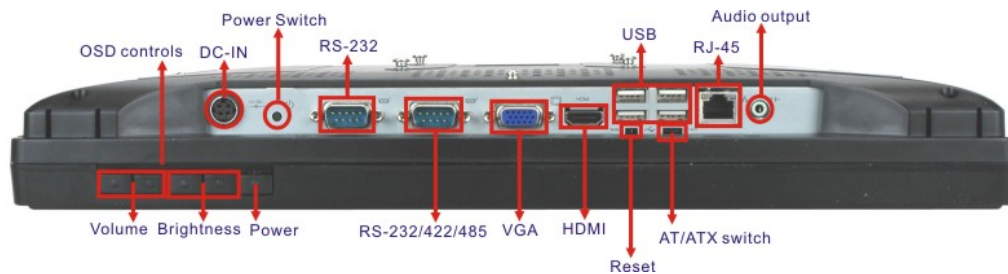
Figure 1-5: AFL2-W15A-L325 Bottom Panel

1.5 Internal Overview

All the components are contained under the rear panel. The internal components include the touch panel module and the motherboard. The motherboard has memory, a wireless module, a SATA hard drive bay, and three expansion interfaces. Optionally, an HSDPA module can be installed in any of the models.

1.6 Specifications

The technical specifications for the AFL2-W15A-N270/L325 systems are listed in Table 1-2.

SPECIFICATIONS	AFL2-W15A-N270	AFL2-W15A-L325
Mainboard	AFLMB2-945GSE-N270	AFL2MB-780E-R10
CPU	1.6 GHz Intel® Atom processor N270	1.6GHz AMD™ ASB1 dual core L325
Chipset	Intel® 945GSE + ICH7M	AMD 780E + SB710
LCD Panel	15.6"	
Resolution	1366 x 768	
Brightness	250	
Contrast Ratio	500:1	
LCD Colors	16.7 million	
Pixel Pitch	0.252 x 0.252	
Viewing Angle (H/V)	110/85	
Backlight MTBF	50000	
Touch Screen	5-wire resistive or projective capacitive	
I/O	1 x Gigabit LAN 1 x Audio line-out 1 x Power input (12 V) 1 x RS-232 1 x RS-232/422/485 2 x USB ports 1 x VGA port 1 x External SATA 1 x Power Button 1 x Reset Button	1 x Gigabit LAN 1 x Audio line-out 1 x Power input (12 V) 1 x RS-232 1 x RS-232/422/485 4 x USB ports 1 x VGA port 1 x HDMI 1 x Power Button 1 x Reset Button
Expansion Interface	2 x Type A module (PCIe x1 + USB 2.0 bus) 1 x Type B module (Parallel + 2 x Serial port bus) 1 x USB dongle	2 x Type A module (PCIe x1 + USB 2.0 bus) 1 x Type B module (Parallel + 2 x Serial port bus)
Wireless LAN	802.11-b/g/n	802.11-b/g/n

SPECIFICATIONS	AFL2-W15A-N270	AFL2-W15A-L325
Bluetooth	Bluetooth V2.1+EDR	Bluetooth V2.1+EDR
HSUPA	Optional HSUPA Mobile Module (supports GSM 850, EGSM 900, DCS 1800 & 1900)	Optional HSUPA Mobile Module (supports GSM 850, EGSM 900, DCS 1800 & 1900)
RFID Reader (Optional)	EM 125 KHz card reader or Mifare 13.56 MHz card reader (Detailed specifications are provided in Section 2.11)	
Power Adapter	60 W 90-246 VAC input 50/60 Hz 12 V DC output	84 W 90-246 VAC input 50/60 Hz 12 V DC output
Power Consumption	51 W	68 W
Mounting Feature	VESA 100 mm x 100 mm	
Operating Temp.	-10°C ~ 50°C	
Dimension (WxHxD)	400 mm x 67 mm x54 mm	
Net/Gross Weight	3.8 kg	
Front Panel Protection	IP64 compliant	
EMC and Safety	CE, FCC, CB, CCC	

Table 1-2: System Specifications

1.7 Dimensions

Width: 400 mm; Height: 267 mm; Depth: 54 mm.
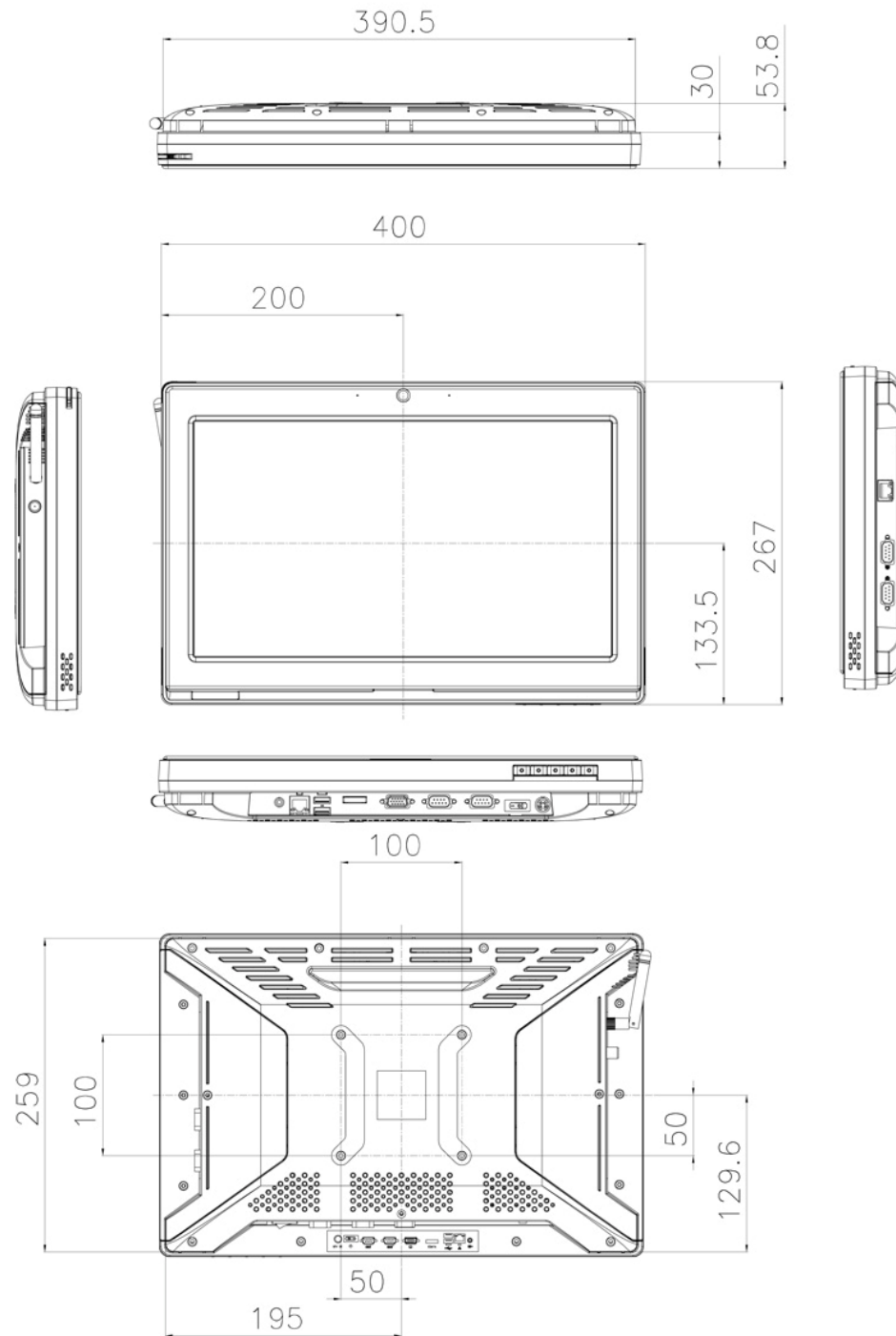
Figure 1–6: Dimensions

Chapter

2

Installation

![WARNING icon] **WARNING:**

When installing the AFL2-W15A-N270/L325, make sure to:

- **Turn the power off**: Chance of electrocution. Turn off the monitor and unplug it from the power supply.
- **Only let certified engineers change the hardware settings**: Incorrect settings can cause irreparable damage to the product.
- **Install the monitor with assistance**: The product is very heavy and may be damaged by drops and bumps. Two or more people should install the panel PC.
- **Take anti-static precautions**: Electrostatic discharge can destroy electrical components and injure the user. Users must ground themselves using an anti-static wristband or similar device.

The installation steps below should be followed in order.

Step 1: Unpack the flat panel PC

Step 2: Check all the required parts are included

Step 3: Install the hard drive

Step 4: Install the CompactFlash® card

Step 5: Mount the flat panel PC

Step 6: Connect peripheral devices to the bottom panel of the flat panel PC

Step 7: Connect the power cable

Step 8: Configure the system

2.1 Unpack the Panel PC

To unpack the flat panel PC, follow the steps below:

 WARNING!

Only remove the protective plastic cover stuck to the front screen after installation. The plastic layer protects the monitor surface during installation process.

Step 1:   Carefully cut the tape sealing the box. Only cut deep enough to break the tape.

Step 2:   Open the outside box.

Step 3:   Carefully cut the tape sealing the box. Only cut deep enough to break the tape.

Step 4:   Open the inside box.

Step 5:   Lift the monitor out of the boxes.

Step 6:   Remove the peripheral parts box from the main box.

2.2 Packing List

The AFL2-W15A-N270/L325 flat panel PC is shipped with the following components:

Quantity	Item	Image
1	AFL2-W15A-N270/L325	
1	Power adapter	
1	Power cord	

Quantity	Item	Image
1	Screw set	
1	Touch screen pen	
1	Remote Control	
1	Utility CD	

Table 2-1: Packing List

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

2.3 Hard Drive Installation

This section outlines the installation of the hard drive in the AFL2-W15A-N270/L325. To install the hard drive, please follow the steps below:

Step 1: Unfasten the right plastic side access panel (SATA/CF card/USB dongle access panel) retention screws and remove the right plastic side access panel (**See figure below**).

Expansion module access panel

SATA/CF card/USB dongle access panel

Figure 2-1: Plastic Back Cover Retention Screws

Step 2: Locate the HDD/CF card brackets. Unfasten screws and removed brackets (**See figure below**).

Bracket retention screws

Figure 2-2: HDD/CF Card Brackets (shown with all plastic covers removed)

Step 3: Insert the SATA connector end of the HDD into the bracket to connect the motherboard SATA connector to the hard drive SATA connector as shown in the figure below.
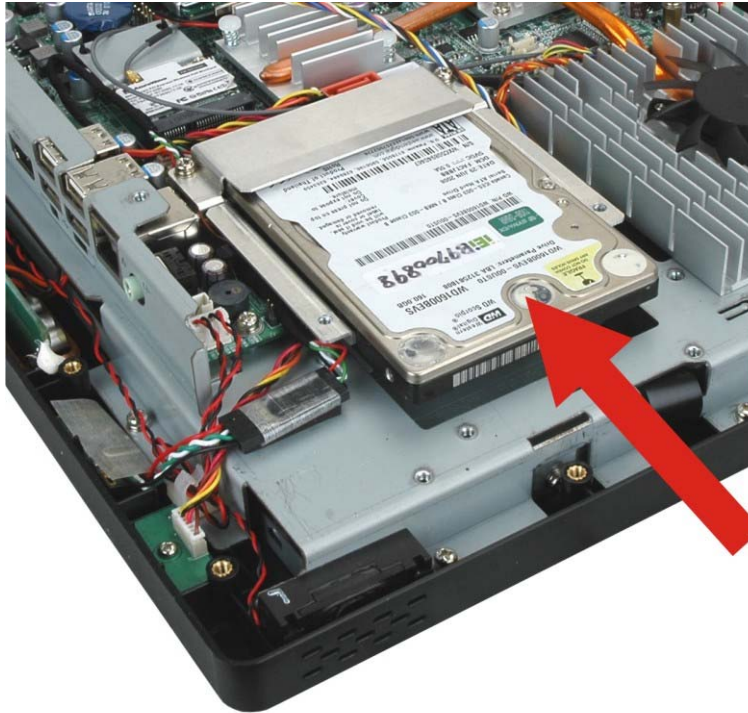
Figure 2–3: HDD Installation (shown with all covers removed)

Step 4: Replace the brackets, covers and screws.

2.4 CompactFlash® Installation

The installation for a CompactFlash® card is described in this section.

2.4.1 CompactFlash® Installation

Step 1: Remove the access panel and brackets as described in the HDD installation instructions.

Step 2: Locate the CompactFlash® slot as shown in the figure below.

CF Card Slot
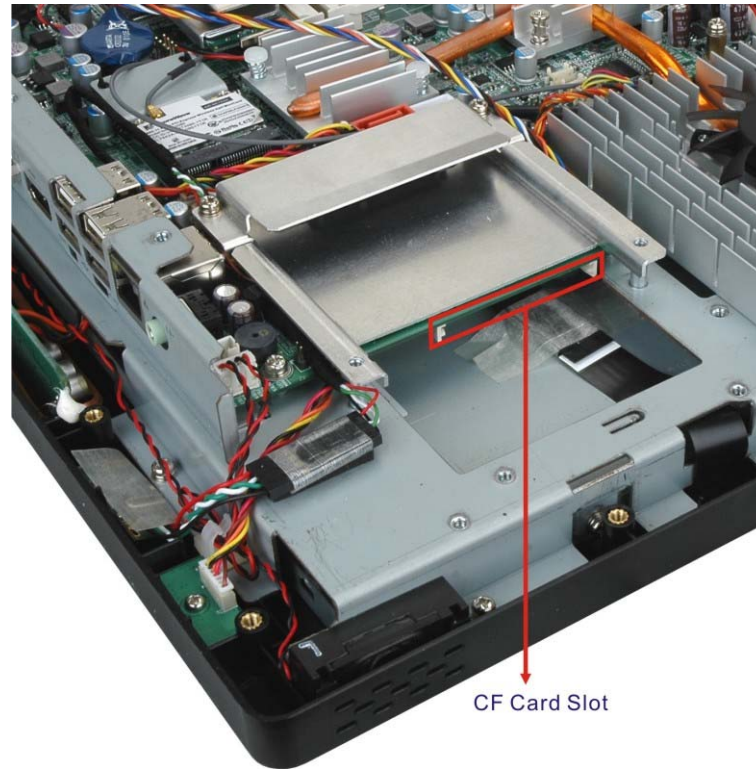
Figure 2–4: CompactFlash® Slot Location (shown with all covers removed)

Step 3: Install the CompactFlash® card into the slot (see figure below).
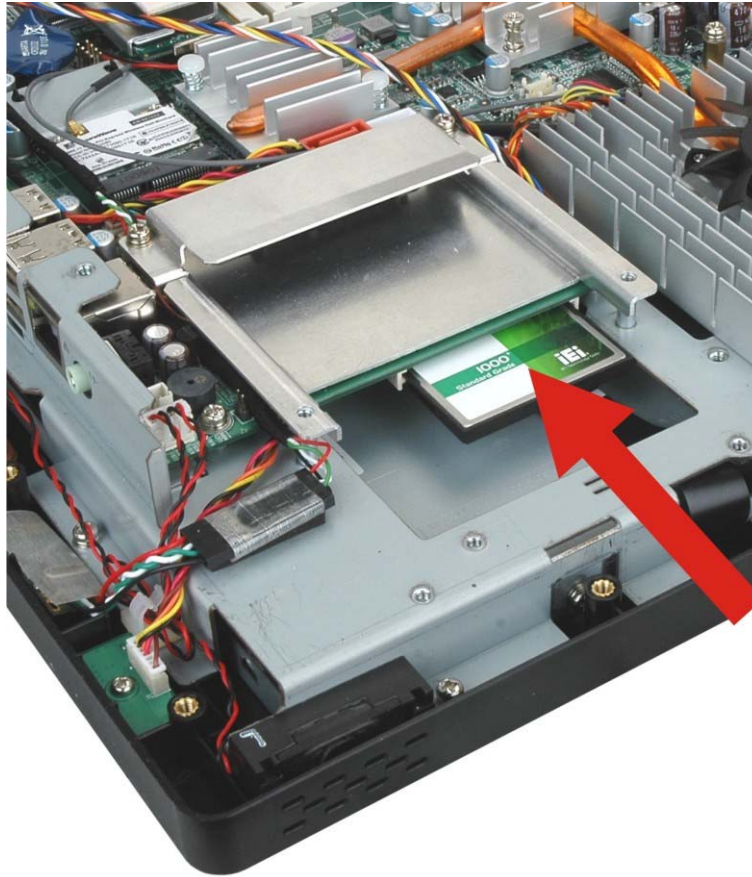
Figure 2–5: CompactFlash® Install (shown with all covers removed)

Step 4: Replace the brackets, access panel and screws.

2.5 Expansion Module Installation

This section outlines the installation of the expansion modules in the AFL2-W15A-N270/L325. To install the modules, please follow the steps below:

Step 1: Unfasten the left plastic side access panel (Expansion module access panel) retention screws and remove the left plastic side access panel (**See figure below**).

Figure 2-6: Plastic Back Cover Retention Screws

Step 2:   Locate the two bracket retention screws. Unfasten screws and remove the

bracket (**See figure below, indicated in yellow**).   If a serial port expansion

module is installed, then remove the serial port retention screws before

removing the bracket.

Module retention screws

Serial port retention screws

Bracket retention screws

SLOT 1

SLOT 2

SLOT 3

Module connectors
Connector Type: JAE KX15-50KLD* or equivalent
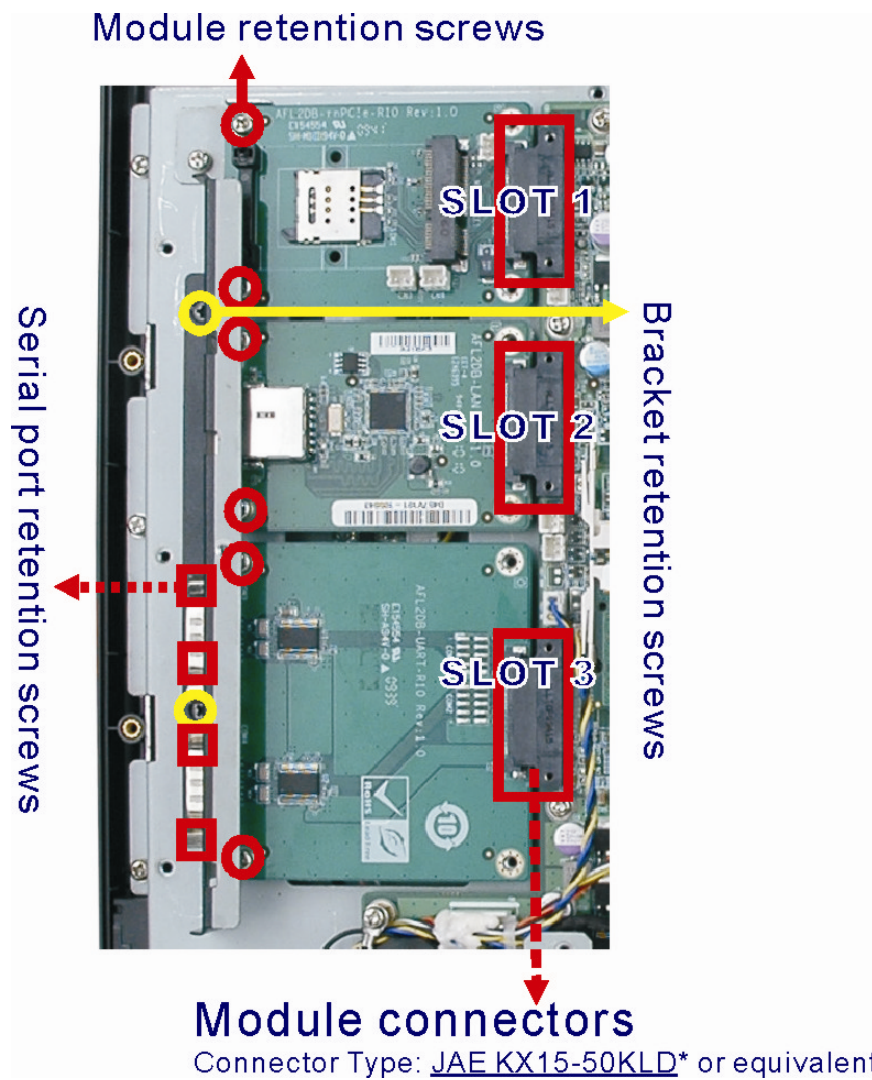
Figure 2-7: Expansion module installation (shown with all covers removed)

Step 3:   Insert the expansion module connector end of the expansion module into the motherboard module connector to connect the module (See above).

Step 4:   Fasten the expansion module retention screws.

Step 5:   Replace the brackets, cover and screws.

2.5.1 Expansion Module Slot Pinouts

There are three connector for two kinds of expansion modules, Type A module and Type B module. Slot 1 and Slot 2 are for installing Type A module and Slot 3 is for Type B module. The pinouts of these slots are listed below.

Pin	Description	Pin	Description	Notes
1	GND	2	GND	Pin 27, 29, 31: +1.5 V (max. 2.1 A)
3	PETP1	4	PERP1	Pin 30, 32, 38: +3.3 V (max. 2.1 A)
5	PETN1	6	PERN1	Pin 44, 46 : +5 V (max 1.4 A)
7	GND	8	GND	Pin 37, 39: +3.3 V dual (max 1.4 A)
9	SMBCLK	10	CLK_PCIE_LAN2	Pin 20, 22: not supported on slot 2
11	SMBDATA	12	CLK_PCIE_LAN2#	of AFL2-W15A-L325
13	GND	14	GND	
15	PCIE_WAKE#	16	PCIRST#1	
17	GND	18	GND	
19	GND	20	USBD+	
21	GND	22	USBD-	
23	GND	24	GND	
25	GND	26	GND	
27	+1.5V_PCI	28	GND	
29	+1.5V_PCI	30	VCC3_PCI	
31	+1.5V_PCI	32	GND	
33	GND	34	VCC3_PCI	
35	GND	36	GND	
37	VCC3	38	VCC3_PCI	
39	VCC3	40	GND	
41	GND	42	GND	
43	GND	44	VCC5_PCI	
45	GND	46	VCC5_PCI	
47	VCC12_PCI (Reserved)	48	GND	
49	VCC12_PCI (Reserved)	50	GND	

Table 2-2: Slot 1 and Slot 2 Pinouts (for Type A Module)

	Pin	Description	Pin	Description
Two Serial Ports	1	DCD-5	2	DSR-5
	3	RXD-5	4	RTS-5
	5	TXD-5	6	CTS-5
	7	DTR-5	8	RI-5
	9	GND	10	GND
	11	GND	12	GND
	13	DCD-6	14	DSR-6
	15	RXD-6	16	RTS-6
	17	TXD-6	18	CTS-6
	19	DTR-6	20	RI-6
	21	GND	22	GND
	23	GND	24	GND
One Parallel Port	25	PD7	26	PD6
	27	PD5	28	PD4
	29	PD3	30	PD2
	31	PD1	32	PD0
	33	-STB	34	-AFD
	35	-ERR	36	-INIT
	37	-SLIN	38	-ACK
	39	BUSY	40	PE
	41	SLCT	42	GND
	43	GND	44	GND
	45	VCC5	46	VCC12
	47	VCC5	48	VCC12
	49	VCC5	50	VCC12

Table 2-3: Slot 3 Pinouts (for Type B Module)

For the dimensions of the Type A and Type B expansion modules, please refer to Appendix C.

2.6 USB Dongle Installation (AFL2-W15A-N270 only)

The installation for an USB dongle is described in this section.

Step 1:   Remove the access panel and brackets as described in the HDD installation

instructions.

Step 2:   Locate the USB dongle connector and install the USB dongle as shown below.

Figure 2-8: USB Dongle Installation

Step 3:   Replace the bracket, access panel and screws.

2.7 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.
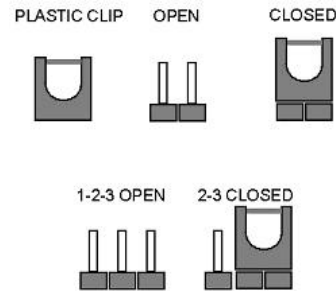
The following jumpers can be found on the motherboard installed in the AFL2-W15A-N270/L325. Before the AFL2-W15A-N270/L325 is installed, the jumpers must be set in accordance with the desired configuration. The jumpers on the AFL2-W15A-N270/L325 motherboard are listed in Table 2-4.

Description	Label	Type
CF card setup	JCF1	2-pin header
Clear CMOS	J_CMOS1	3-pin header
COM1 Pin 9 setting	JP5	10-pin header
COM3 Pin 9 setting	JP7	6-pin header
COM3 RX RS-232/422/485 select	JP8	8-pin header
COM3 RS-232/422/485 select	JP10	12-pin header
COM3 TX RS-422/485 select	JP11	6-pin header

Table 2-4: AFL2-W15A-N270 Jumpers

Description	Label	Type
CF card setup	J2	2-pin header
Clear CMOS	J_CMOS1	3-pin header
COM1 Pin 9 setting	JP7	10-pin header
COM3 Pin 9 setting	JP8	6-pin header
COM3 RX RS-232/422/485 select	JP11	8-pin header
COM3 RS-232/422/485 select	JP9	12-pin header
COM3 TX RS-422/485 select	JP10	6-pin header

Table 2-5: AFL2-W15A-L325 Jumpers

2.7.1 Access the Jumpers

To access the jumpers, please remove the back panel and the internal aluminum chassis. To remove the back panel, please refer to **Section 4.3**.

2.7.2 CF Card Setup

Jumper Label:	**JCF1 (AFL2-W15A-N270)**
	J2 (AFL2-W15A-L325)
Jumper Type:	2-pin header
Jumper Settings:	See **Table 2-6**
Jumper Location:	See **Figure 2-9**

The CF Card Setup jumper sets the CF Type I card or CF Type II cards as either the slave device or the master device. CF Card Setup jumper settings are shown in Table 2-6.

CF Setup	Description
Open	Master (Default)
Closed	Slave

Table 2-6: CF Card Setup Jumper Settings

The CF Card Setup jumper location is shown in Figure 2-9.

AFL2-W15A-N270

AFL2-W15A-L325

Figure 2-9: CF Card Setup Jumper Location

2.7.3 Clear CMOS Jumper

Jumper Label:	J_CMOS1
Jumper Type:	3-pin header
Jumper Settings:	See **Table 2-7**
Jumper Location:	See **Figure 2-10**

If the AFL2-W15A-N270/L325 fails to boot due to improper BIOS settings, the clear CMOS jumper clears the CMOS data and resets the system BIOS information. To do this, use the jumper cap to close the pins for a few seconds then remove the jumper clip.

If the "CMOS Settings Wrong" message is displayed during the boot up process, the fault may be corrected by pressing the F1 to enter the CMOS Setup menu.　Do one of the following:

- Enter the correct CMOS setting
- Load Optimal Defaults
- Load Failsafe Defaults.

After having done one of the above, save the changes and exit the CMOS Setup menu.

The clear CMOS jumper settings are shown in Table 2-7.

Clear CMOS	Description
Short 1 - 2	Keep CMOS Setup (Default)
Short 2 - 3	Clear CMOS Setup

Table 2-7: Clear CMOS Jumper Settings

The location of the clear CMOS jumper is shown in Figure 2-10 below.

AFL2-W15A-N270
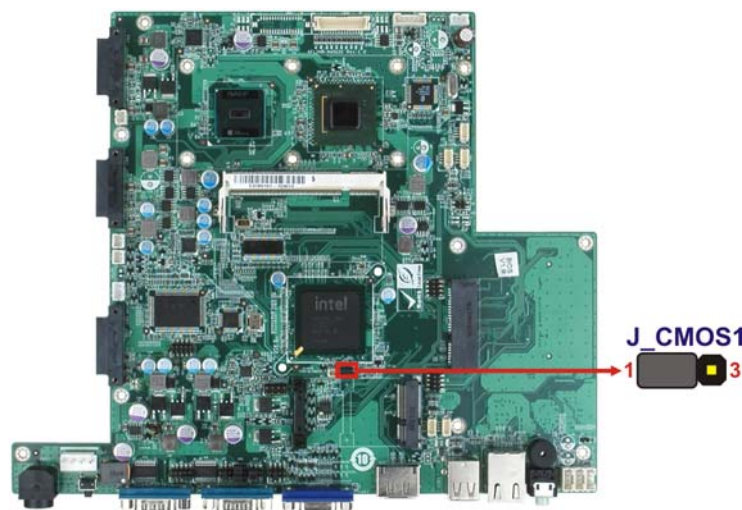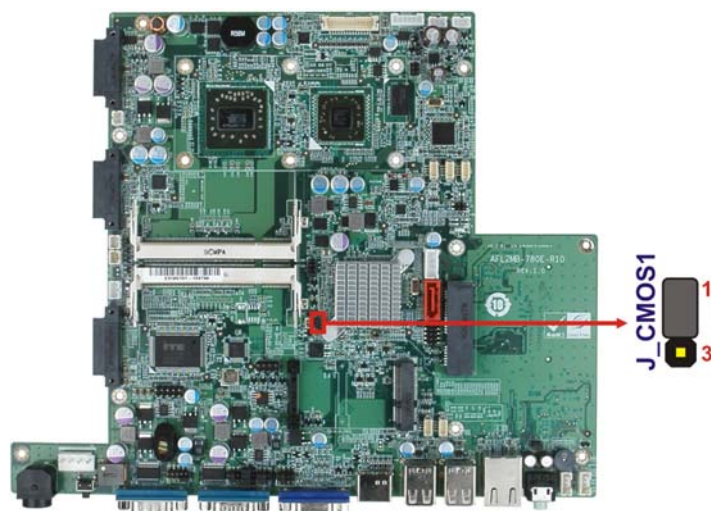
AFL2-W15A-L325

Figure 2-10: Clear CMOS Jumper

2.7.4 COM 1 Port Pin 9 Select

Jumper Label:	**JP5 (AFL2-W15A-N270)**
	JP7 (AFL2-W15A-L325)
Jumper Type:	10-pin header
Jumper Settings:	See **Table 2-8**
Jumper Location:	See **Figure 2-11**

The jumper configures pin 9 on COM1 connector. Pin 9 on the COM1 connector can be set as the ring (RI) signal, +5 V or +12 V. The COM1 Pin 9 Setting jumper selection options are shown in Table 2-8.

JP5 (N270) JP7 (L325)	Description
Short 1-3	COM1 RI Pin use +12 V
Short 5-7	COM1 RI Pin use RI
Short 7-9	COM1 RI Pin use +5 V (Default)

Table 2-8: COM1 Pin 9 Setting Jumper Settings

The COM1 Pin 9 Setting jumper locations are shown in Figure 2-11 below.
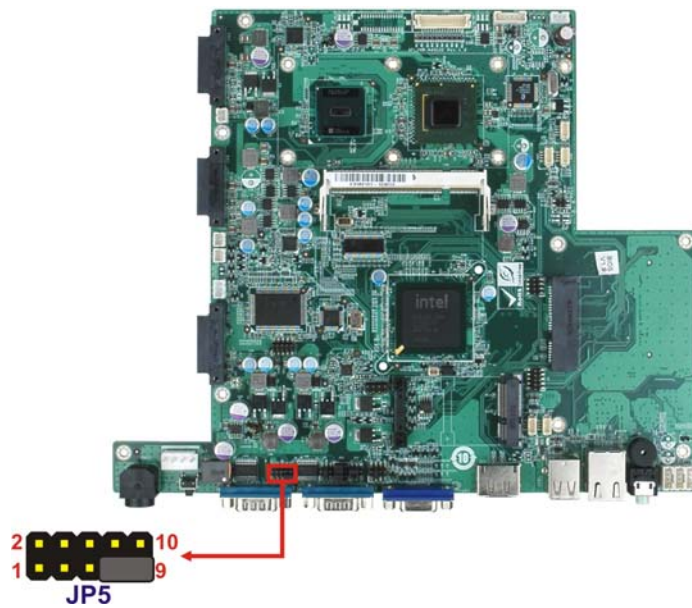
AFL2-W15A-N270
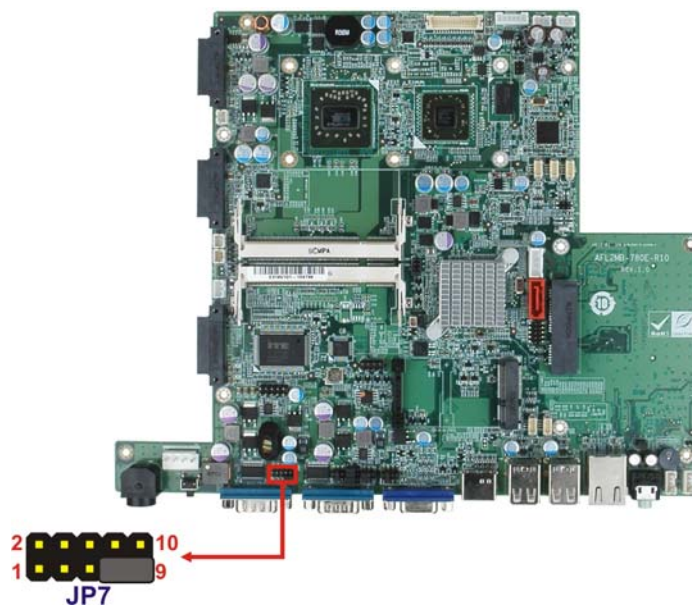
AFL2-W15A-L325

Figure 2-11: COM1 Pin 9 Setting Jumper Locations

2.7.5 COM 3 Port Pin 9 Select

Jumper Label:	**JP7 (AFL2-W15A-N270)**
	JP8 (AFL2-W15A-L325)
Jumper Type:	6-pin header
Jumper Settings:	See **Table 2-9**
Jumper Location:	See **Figure 2-12**

The jumper configures pin 9 on COM3 DB-9 connectors. Pin 9 on the COM3 DB-9 connector can be set as the ring (RI) signal, +5 V or +12 V. The COM3 Pin 9 Setting jumper selection options are shown in Table 2-8.

JP7 (N270) JP8 (L325)	Description
Short 1-2	COM3 RI Pin use +12 V
Short 3-4	COM3 RI Pin use RI (Default)
Short 5-6	COM3 RI Pin use +5 V

Table 2-9: COM3 Pin 9 Setting Jumper Settings

The COM3 Pin 9 Setting jumper locations are shown in Figure 2-11 below.
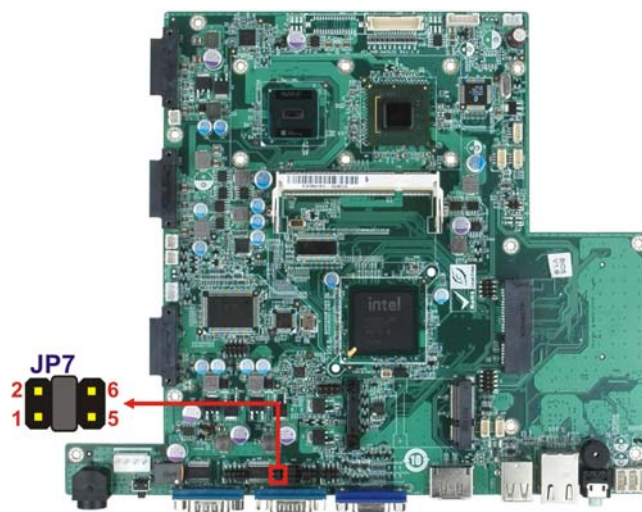
AFL2-W15A-N270
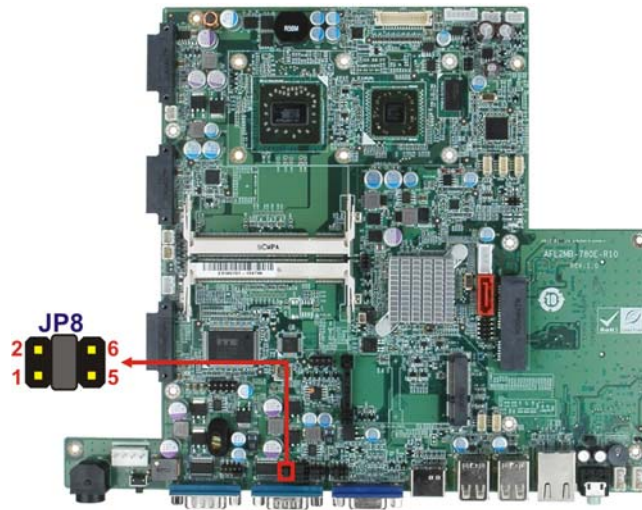
AFL2-W15A-L325

Figure 2-12: COM3 Pin 9 Setting Jumper Locations

2.7.6 COM3 RX Function Select Jumper

Jumper Label:	JP8 (AFL2-W15A-N270)
	JP11 (AFL2-W15A-L325)
Jumper Type:	8-pin header
Jumper Settings:	See Table 2-10
Jumper Location:	See Figure 2-13

The COM3 RX Function Select jumper sets the communication protocol used by the RX serial communications port COM3 as RS-232, RS-422 or RS-485. The COM3 RX Function Select jumper settings are shown in Table 2-10.

JP8 (N270) JP11 (L325)	Description
Short 1-2	DET BIOS RS-232/422/485
Short 3-4	RS-232 (Default)
Short 5-6	RS-422
Short 7-8	RS-485

Table 2-10: COM3 RX Function Select Jumper Settings

The COM3 RX Function Select jumper location is shown in Figure 2-13.

AFL2-W15A-N270
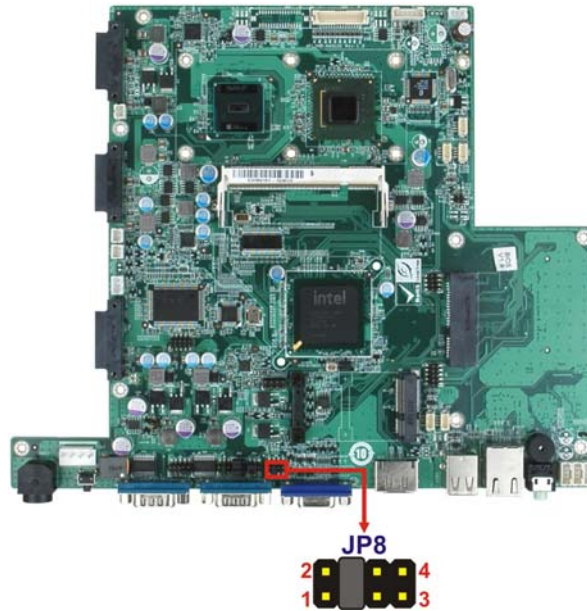
AFL2-W15A-L325
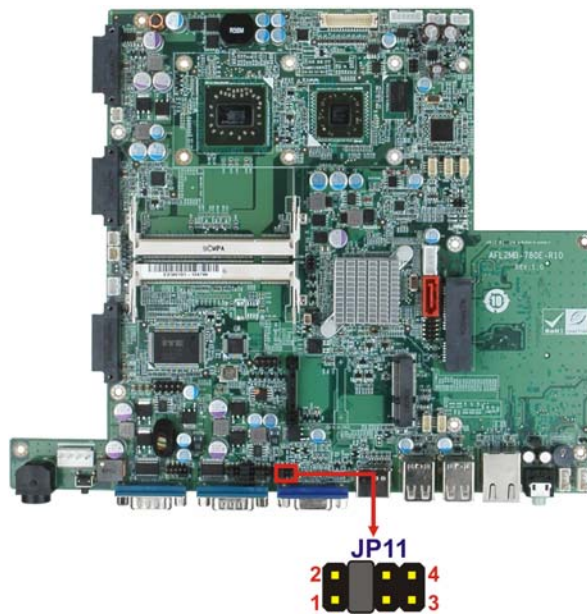
Figure 2-13: COM3 RX Function Select Jumper Location

2.7.7 COM3 RS-232/422/485 Serial Port Select Jumper

Jumper Label:	**JP10 (AFL2-W15A-N270)**
	JP9 (AFL2-W15A-L325)
Jumper Type:	12-pin header (four 3-pin headers combined)
Jumper Settings:	See **Table 2-11**
Jumper Location:	See **Figure 2-14**

The COM3 RS-232/422/485 Serial Port Select jumper sets the communication protocol used by the second serial communications port (COM3) as RS-232, RS-422 or RS-485. The COM3 RS-232/422/485 Serial Port Select settings are shown in Table 2-11.

JP10 (N270) JP9 (L325)	Description
Short 1-2, 4-5, 7-8, 10-11	RS-232 (Default)
Short 2-3, 5-6, 8-9, 11-12	RS-422/485

Table 2-11: COM3 RS-232/422/485 Serial Port Select Jumper Settings

The COM3 RS-232/422/485 Serial Port Select jumper location is shown in Figure 2-14.

AFL2-W15A-N270
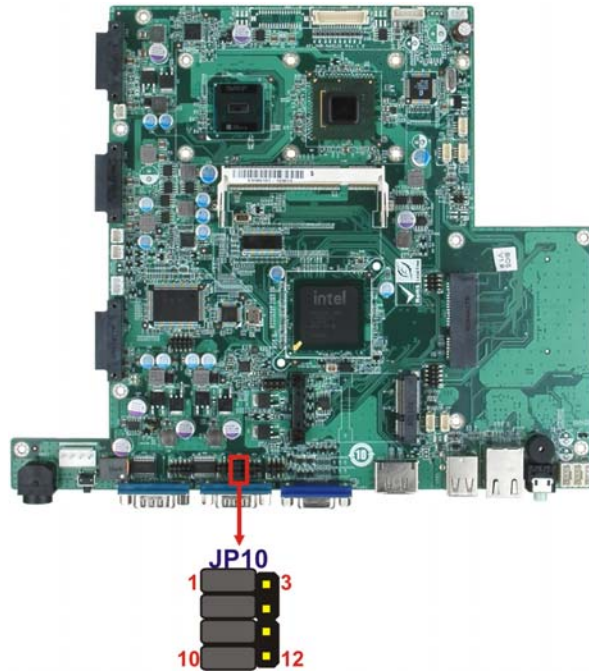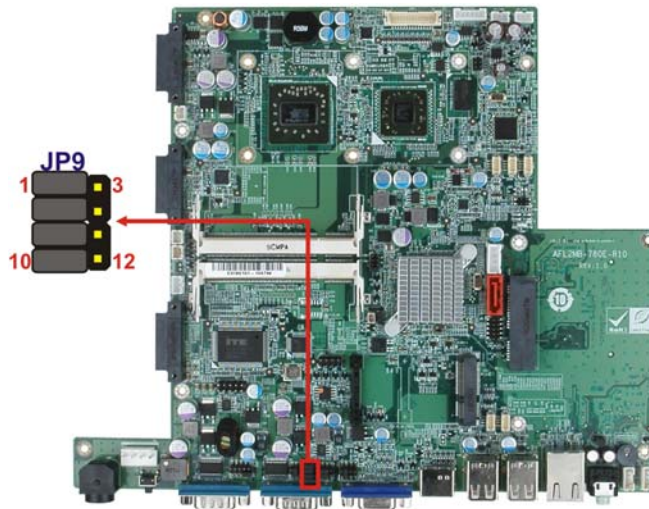
AFL2-W15A-L325

Figure 2-14: COM3 RS-232/422/485 Serial Port Select Jumper Location

2.7.8 COM3 TX Function Select Jumper

Jumper Label: JP11 (AFL2-W15A-N270)

JP10 (AFL2-W15A-L325)

Jumper Type: 6-pin header

Jumper Settings: See **Table 2-12**

Jumper Location: See **Figure 2-15**

The COM3 TX Function Select jumper configures the TX pin on COM3 serial port connector as RS-422 as an RS-485. The COM3 TX Function Select jumper selection options are shown in Table 2-12.

JP11 (N270) JP10 (L325)	Description
Short 1 – 3	RS-422 TX-
Short 2 – 4	RS-422 TX+
Short 3 – 5	RS-485 D-
Short 4 – 6	RS-485 D+

Table 2-12: COM3 TX Function Select Jumper Settings

The COM3 TX Function Select jumper location is shown in Figure 2-15 below.

AFL2-W15A-N270
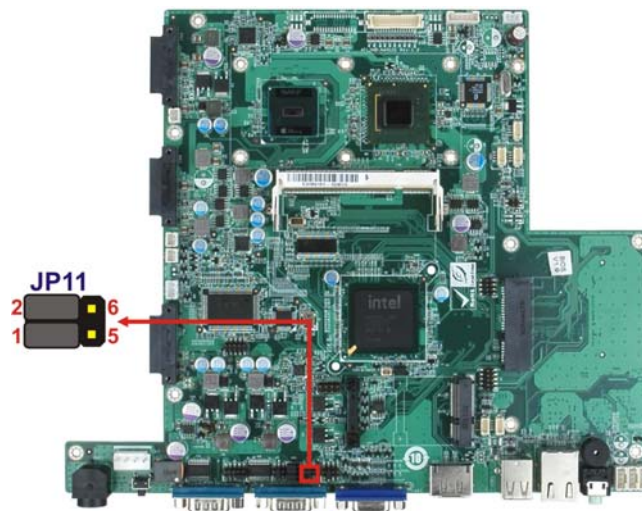
AFL2-W15A-L325
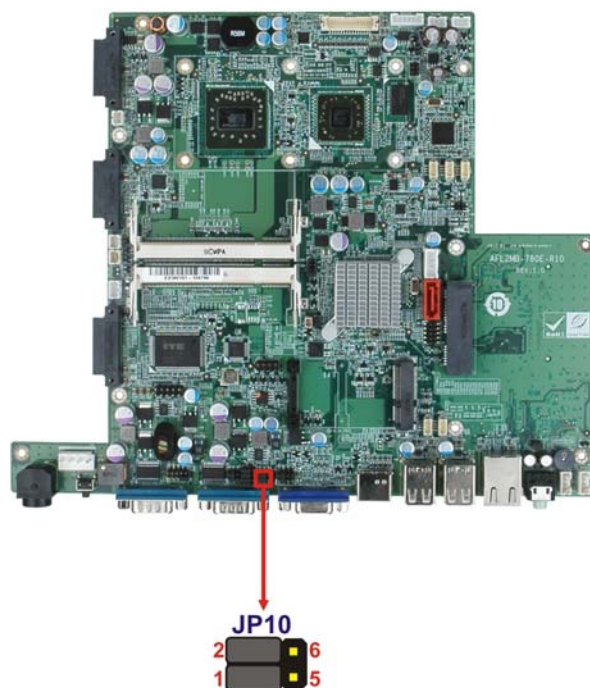
Figure 2-15: COM3 TX Function Select Jumper Pinout Locations

2.7.8.1 COM3 RS-422 and RS-485 Pinouts

The pinouts for RS-422 and RS-485 operation of external serial port COM 3 are detailed below.

COM 3	RS-422 Description
Pin 1	TX-
Pin 2	TX+
Pin 6	RX-
Pin 7	RX+

Table 2-13: RS-422 Pinouts

COM 3	RS-485 Description
Pin 1	Data-
Pin 2	Data+

Table 2-14: RS-485 Pinouts

2.8 Mounting the System

![WARNING icon] **WARNING!**

The panel PC is very heavy. Two or more people should mount the panel PC. Dropping or bumping the panel PC during installation can cause serious or irreparable damage to the panel PC.

The following installation options are available:

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

The installation instructions are included with the stand, arm or mount.

2.8.1 Arm Mounting

The AFL2-W15A-N270/L325 is VESA (Video Electronics Standards Association) compliant and can be mounted on an arm with a 100 mm interface pad. To mount the AFL2-W15A-N270/L325 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 AFL2-W15A-N270/L325.

Step 2: Once the mounting arm has been firmly attached to its surface, lift the

AFL2-W15A-N270/L325 onto the interface pad of the mounting arm.

Step 3: Align the retention screw holes on the mounting arm interface with those in the

AFL2-W15A-N270/L325. The AFL2-W15A-N270/L325 arm mount retention

screw holes are shown in Figure 2-16.

VESA mount screw holes
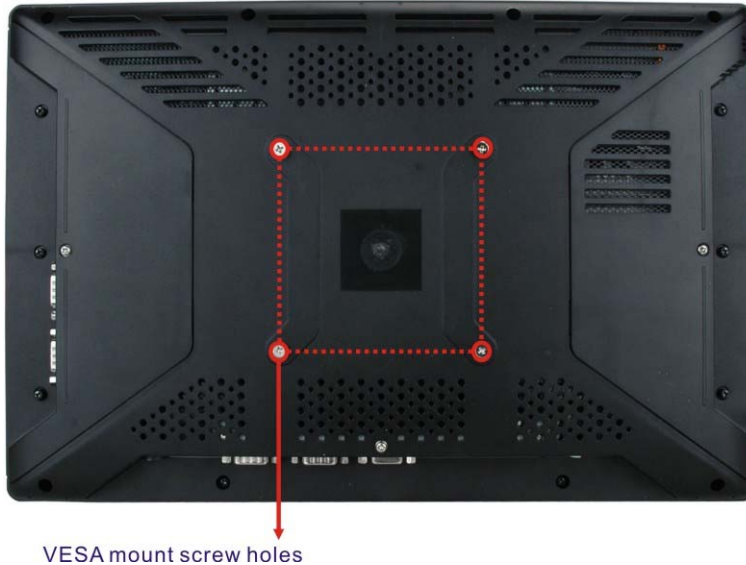
Figure 2-16: Arm Mount Retention Screw Holes

Step 4: Secure the AFL2-W15A-N270/L325 to the interface pad by inserting four

retention screws through the mounting arm interface pad and into the

AFL2-W15A-N270/L325.
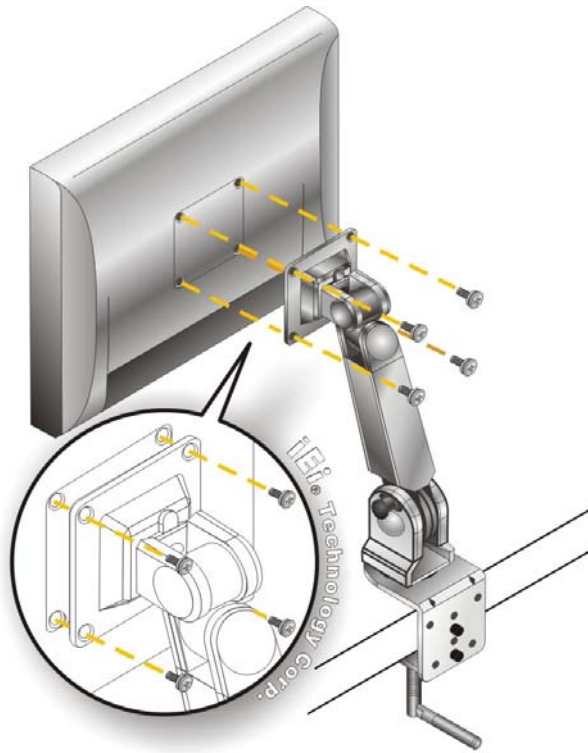
Figure 2-17: Arm Mounting (ARM-11-RS)

2.8.2 Panel Mounting

To mount the panel PC into a panel, please follow the steps below.

Step 1:   Select the position on the panel to mount the flat panel PC.

Step 2:   Cut out a section corresponding to the size shown below. The size must be smaller then the outer edge. Recommended cutout sizes are shown below.
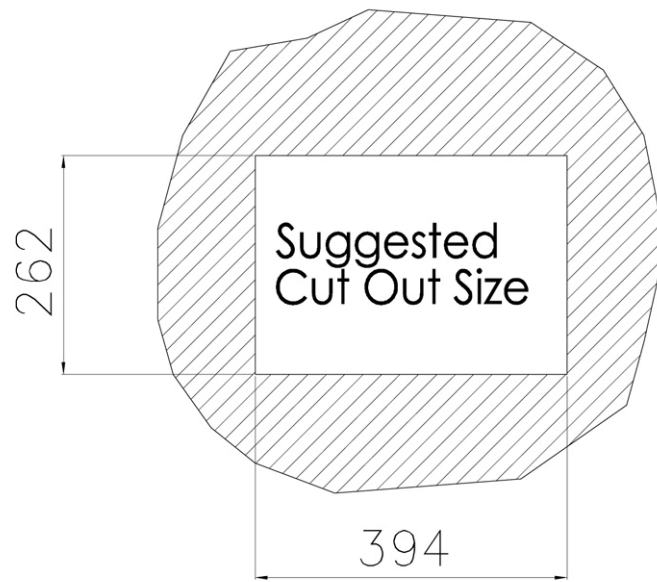
Figure 2-18: Cutout

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

Step 4: Align the panel mounting bracket screw holes with the VESA mounting holes on the rear of the panel PC.

Step 5: Secure the two panel mounting brackets to the rear of the panel PC by inserting the four retention screws into the VESA mounting holes (**Figure 2-19 ❶**).

Step 6: Insert the panel mounting clamps into the pre-formed holes along the two edges of the panel mounting brackets (**Figure 2-19 ❷**). There are a total of 4 panel mounting clamps for the AFL2-W15A-N270/L325.

Step 7: 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 2-19 ❸**).
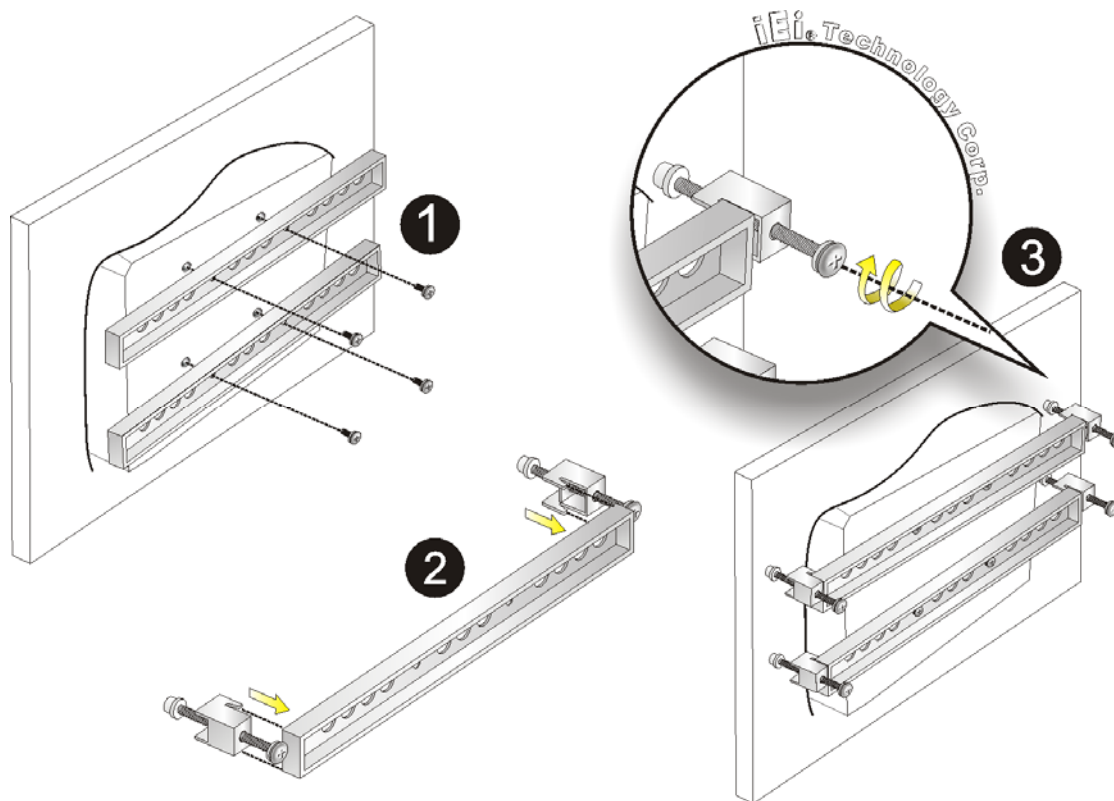
Figure 2-19: Tighten the Panel Mounting Clamp Screws

2.8.3 Stand Mounting

To mount the AFL2-W15A-N270/L325 using the stand mounting kit, please follow the steps below.

Step 1: Locate the screw holes on the rear of the AFL2-W15A-N270/L325. This is where the bracket will be attached.

Step 2: Align the bracket with the screw holes.

Step 3: To secure the bracket to the AFL2-W15A-N270/L325 insert the retention screws into the screw holes and tighten them.
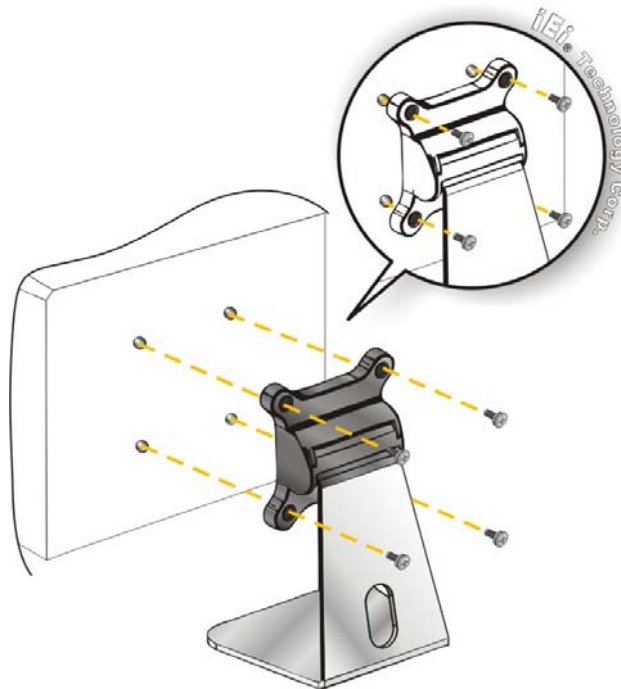
Figure 2-20: Stand Mounting (Stand-A19)

2.8.4 Wall Mounting

To mount the flat panel PC onto the wall, please follow the steps below.
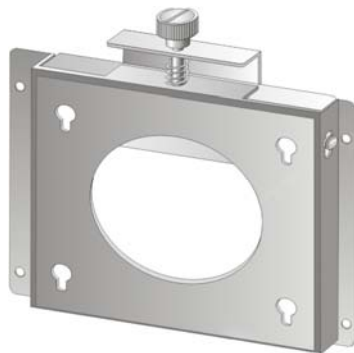
Figure 2-21: Wall Mount

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

Step 2: Carefully mark the locations of the four brackets 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 2-22).
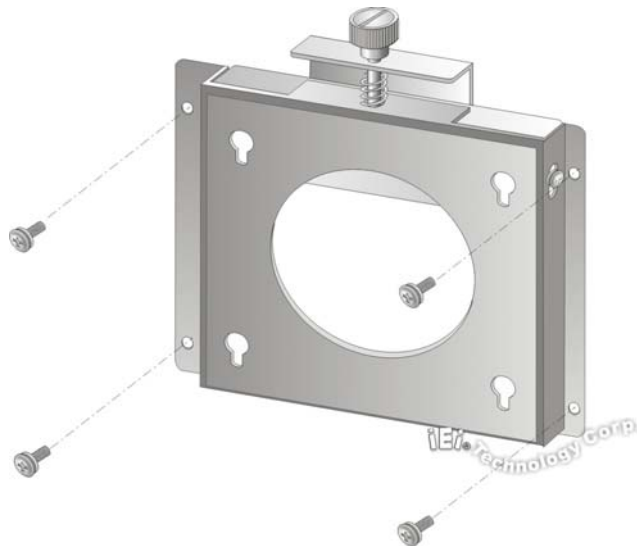
Figure 2-22: Wall-mounting Bracket

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 flat panel PC and tighten until the screw shank is secured against the rear panel (Figure 2-23).

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 2-23). Ensure that all four of the mounting screws fit snuggly into their respective slotted holes.
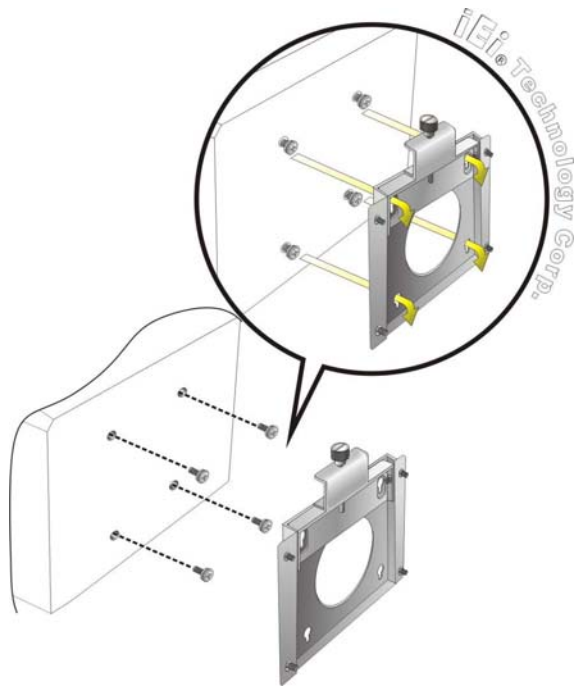
Figure 2-23: Chassis Support Screws

![NOTE icon] **NOTE:**

In the diagram below the bracket is already installed on the wall.

Step 9: Secure the panel PC by fastening the retention screw of the wall-mounting bracket. (Figure 2-24).
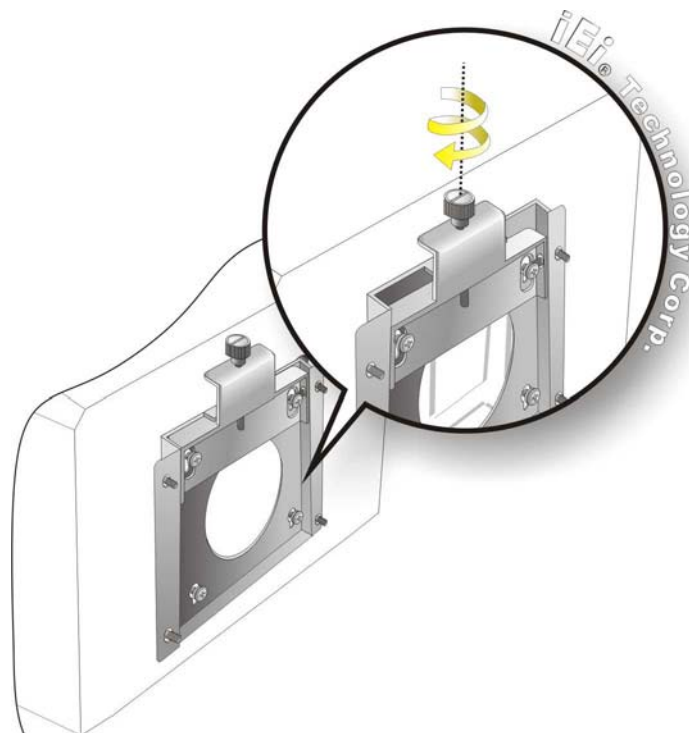
Figure 2-24: Secure the Panel PC

2.9 Bottom Panel Connectors

The bottom panel connectors extend the capabilities of the panel PC but are not essential for operation (except power).
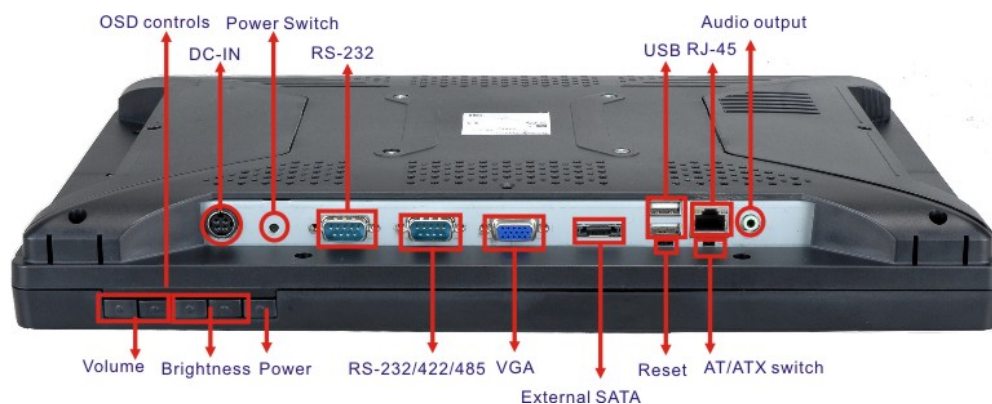
Figure 2-25: AFL2-W15A-N270 Bottom Panel
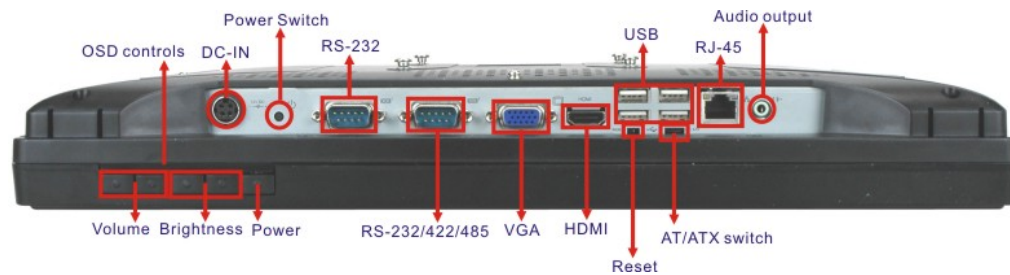
Figure 2-26: AFL2-W15A-L325 Bottom Panel

2.9.1 LAN Connection

The RJ-45 connectors enable connection to an external network. To connect a LAN cable with an RJ-45 connector, please follow the instructions below.

Step 1: **Locate the RJ-45 connector** on the bottom panel of the AFL2-W15A-N270/L325.

Step 2: **Align the connectors.** Align the RJ-45 connector on the LAN cable with one of the RJ-45 connectors on the bottom panel of the AFL2-W15A-N270/L325. See Figure 2-27.
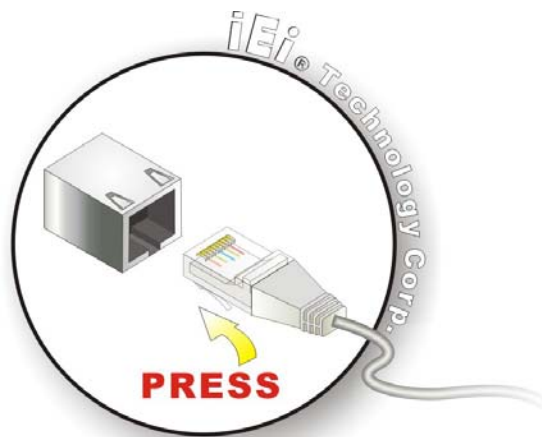
Figure 2-27: LAN Connection

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

2.9.2 Serial Device Connection

The serial device connectors are for connecting serial devices to the AFL2-W15A-N270/L325. Follow the steps below to connect a serial device to the AFL2-W15A-N270/L325 panel PC.

Step 1: **Locate the DB-9 connector**. The location of the DB-9 connector is shown in **Chapter 2**.

Step 2: **Insert the serial connector**. Insert the DB-9 connector of a serial device into the DB-9 connector on the bottom panel. See Figure 2-28.
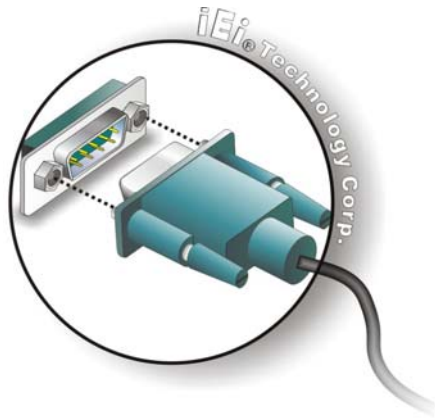
Figure 2-28: Serial Device Connector

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.

2.9.3 USB Device Connection

To connect USB devices to the AFL2-W15A-N270/L325, please follow the instructions below.

Step 1: **Located the USB connectors**. The locations of the USB connectors are shown in **Chapter 2**.

Step 2: **Align the connectors.** Align the USB device connector with one of the connectors on the bottom panel. See Figure 2-29.
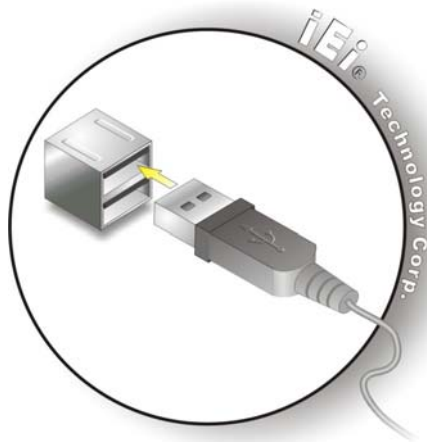
Figure 2-29: USB Device Connection

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

2.9.4 VGA Monitor Connection

The VGA output can be connected to an external VGA monitor. To connect the VGA monitor to the AFL2-W15A-N270/L325, please follow the instructions below.

Step 1: **Locate the female DB-15 connector**. The location of the female DB-15 connector is shown in **Chapter 3**.

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 AFL2-W15A-N270/L325. See Figure 2-30.
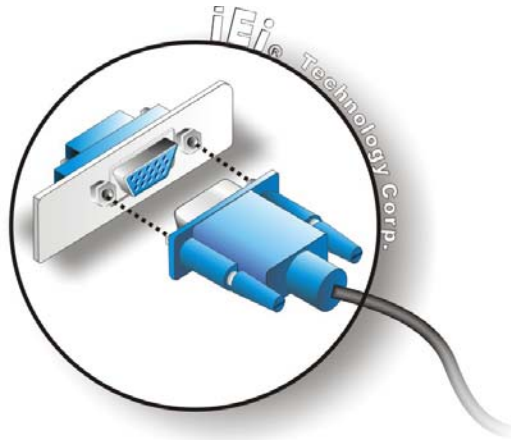
Figure 2-30: VGA Connector

Step 4: **Secure the connector**. Secure the DB-15 VGA connector from the VGA

monitor to the external interface by tightening the two retention screws on either

side of the connector.

2.10 Power Connection

The power cable connects the panel PC to the power supply. The power cable is required for operation of the panel PC.

Step 1: Connect one end to the panel PC.

Step 2: Connect the other end to the included power supply

2.11 RFID Reader Specs and Setup (Optional)

Some of the AFL2-W15A-N270/L325 models include RFID reader. There are two types of RFID modules and the specifications of the RFID modules are listed below.

2.11.1 RFID Module for EM Models

Table 2-15 lists the specifications of the RFID module installed in the AFL2-W15A-N270/L325 **EM** models.

Model	RF222
Power Requirements	5VDC+/-5% at 55 mA typical

Frequency	125 KHz, ASK
Interface	Wiegand 26 bits, ABA Track2, Serial TTL 9600bps, 8N1
Resolution	> 8cm
Transponders Supported	Read only
Dimensions	L90.00x W22.5xH24.00 mm with cover

Table 2-15: RFID Module Specifications for EM Models

2.11.2 RFID Module for MF Model

Table 2-15 lists the specifications of the RFID module installed in the AFL2-W15A-N270/L325 **MF** models.

Model	MF222
Power Requirements	5VDC+/-5% at 100 mA
Frequency	13.56 MHz
Interface	Wiegand 26 bits, ABA Track2, RS-232, Serial TTL 9600bps, 8N1
Card Type	Mifare MF1 standard cards for 1024/4096 bytes and Mifare UltraLight cards of EEPROM size 512 bits for ISO14443A
Reading Distance	2~5 cm
Resolution	> 8cm
Transponders Supported	Read only (for unique serial number/unique identifier)
Dimensions	L90.00x W22.5xH24.00 mm with cover

Table 2-16: RFID Module Specifications for MF Models

2.11.3 Serial Port (COM) Settings

The COM port settings have to be set correctly to enable the communication with the built-in RFID reader. Please follow the information below to setup the COM port settings.

Step 1: Launch the Hyper Terminal from the Start menu (Start → Programs → Accessories → Communications → HyperTerminal).

Step 2: Setup the port properties as shown below.

- **Bits per second**: 9600
- **Data bits**: 8
- **Parity**: None
- **Stop bits**: 1
- **Flow control**: None
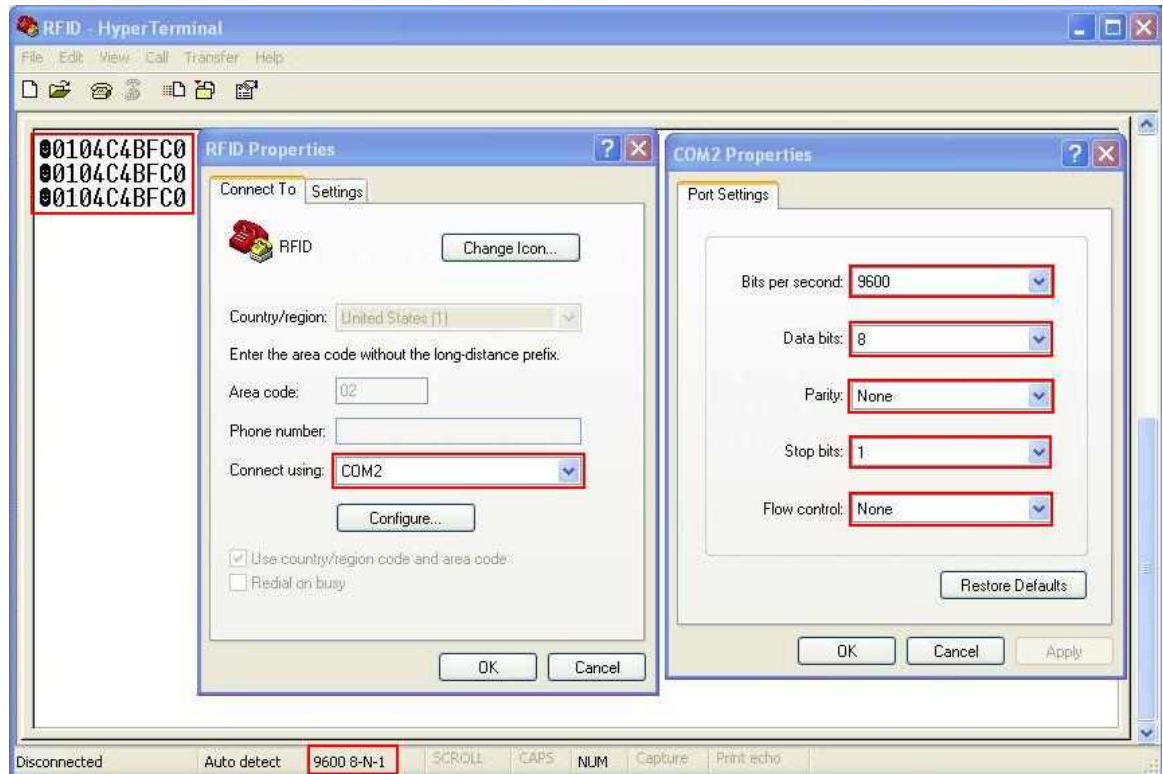
Figure 2-31: RFID Serial Port Settings

2.12 Driver Installation

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. Each driver is in its own directory on the driver CD:

- Chipset driver
- Graphics driver
- LAN driver
- Audio driver
- Touch panel driver
- Keypad utility driver
- Wireless LAN card driver
- Bluetooth driver

Chapter

3

BIOS Setup

3.1 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.

3.1.1 Starting Setup

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

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

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

3.1.2 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.

Key	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
Esc key	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
Page Up key	Increase the numeric value or make changes
Page Dn key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu

Key	Function
F2 /F3 key	Change color from total 16 colors. F2 to select color forward.
F10 key	Save all the CMOS changes, only for Main Menu

Table 3-1: BIOS Navigation Keys

3.1.3 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.

3.1.4 Unable to Reboot After Configuration Changes

If the computer cannot boot after changes to the system configuration is made, CMOS defaults. Use the jumper described in Chapter **5**.

3.1.5 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.
- PCIPnP – Changes the advanced PCI/PnP Settings
- Boot – Changes the system boot configuration.
- Security – Sets User and Supervisor Passwords.
- Chipset – Changes the chipset settings.
- 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.

3.2 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.

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

 System Overview                                   Use [ENTER], [TAB] or
 ─────────────────────────────────────────────    [SHIFT-TAB] to select a
 AMIBIOS                                           field.
 Version    :08.00.15
 Build Date :05/14/10                              Use [+] or [-] to
 ID:        :H548MR12                              configure system time.

 Processor
 AMD Athlon™ Neo X2 Dual Core Processor L325
 Speed      :1500 MHz
 Count      :2
                                                   ←→   Select Screen
 System Memory                                     ↑ ↓  Select Item
 Size       :768MB                                 Enter Go to SubScreen
                                                   F1   General Help
 System Time                     [14:20:27]        F10  Save and Exit
 System Time                     [Tue 11/11/2010]  ESC  Exit

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```

BIOS Menu 1: Main

➔ **System Overview**

The **System Overview** lists a brief summary of different system components. The fields in **System Overview** cannot be changed. The items shown in the system overview include:

- ▪ AMI BIOS: Displays auto-detected BIOS information

  - ○ **Version:** Current BIOS version

  - ○ **Build Date:** Date the current BIOS version was made

  - ○ **ID:** Installed BIOS ID

- ▪ Processor: Displays auto-detected CPU specifications

  - ○ **Type:** Names the currently installed processor

  - ○ **Speed:** Lists the processor speed

  - ○ **Count:** The number of CPUs on the motherboard

- ▪ System Memory: Displays the auto-detected system memory.

  - ○ **Size:** Lists memory size

The System Overview field also has two user configurable fields:

➔ **System Time [xx:xx:xx]**

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

➔ **System Date [xx/xx/xx]**

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

3.3 Advanced

Use the **Advanced** menu (BIOS Menu 2) to configure the CPU and peripheral devices

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

  Advanced Settings                                    Configure CPU
  _____

  WARNING: Setting wrong values in below sections may cause
  system to malfunction

  > CPU Configuration
  > IDE Configuration
  > SuperIO Configuration
  > Hardware Health Configuration          ←→    Select Screen
  > ICP Power Configuration                ↑ ↓   Select Item
  > Remote Access Configuration            Enter Go to SubScreen
  > USB Configuration                      F1    General Help
                                           F10   Save and Exit
                                           ESC   Exit
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```

BIOS Menu 2: Advanced

3.3.1 CPU Configuration

Use the **CPU Configuration** menu (BIOS Menu 3) to view detailed CPU specifications and configure the CPU.

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

 CPU Configuration
 Module Version: 13.55
 AGESA Version: 3.3.2.4
 Physical Count: 1
 Logical Count: 2
 ─────────────────────────────────────────────
 AMD Athlon™ Neo X2 Dual Core Processor L325
 Revision      : G2                              ←→   Select Screen
 Cache L1      : 256KB                           ↑↓   Select Item
 Cache L2      : 1024KB                          Enter Go to SubScreen
 Cache L3      : N/A                             F1    General Help
 Speed         : 1500MHz, NB Clk: N/A            F10   Save and Exit
 Current FSB Multiplier : 7.5x                   ESC   Exit
 Maximum FSB Multiplier : 7.5x
 Able to Change Freq.    : Yes
 uCode Patch Level       : None Required

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```
   BIOS Menu 3: CPU Configuration

The CPU Configuration menu lists the following CPU details:

- Manufacturer: Lists the name of the CPU manufacturer
- Brand String: Lists the brand name of the CPU being used
- Speed: Lists the CPU processing speed
- FSB Speed: Lists the FSB speed
- Cache L1: Lists the CPU L1 cache size
- Cache L2: Lists the CPU L2 cache size

3.3.2 IDE Configuration

Use the **IDE Configuration** menu (BIOS Menu 4) to change and/or set the configuration of the IDE devices installed in the system.

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

 IDE Configuration                                        Options
 _____
 OnChip SATA Channel            [Compatible]             Disabled
 OnChip SATA Type               [Native IDE]             Compatible
                                                         Enhanced
 > Primary IDE Master           : [Not Detected]
 > Primary IDE Slave            : [Hard Disk]
 > Secondary IDE Master         : [Hard Disk]             ←→   Select Screen
 > Secondary IDE Slave          : [Not Detected]          ↑ ↓  Select Item
 > Third IDE Master             : [Not Detected]          Enter Go to SubScreen
 > Third IDE Slave              : [Not Detected]          F1    General Help
                                                         F10   Save and Exit
                                                         ESC   Exit

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```

BIOS Menu 4: IDE Configuration

➔ **OnChip SATA Channel [Enabled]**

Use the **ATA/IDE Configuration** option to configure the ATA/IDE controller.

➔ **Disabled**   Disables the on-board ATA/IDE controller.

➔ **Enabled**   DEFAULT   The SATA drive is configured on an IDE channel.

➔ **OnChip SATA Type [Native IDE]**

Use the **OnChip SATA Type** option to configure SATA devices as normal IDE devices.

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

➔ **RAID**   Used when a RAID setup is installed

➔ **AHCI**   Enables advanced SATA drive features

3.3.2.1 IDE Master, IDE Slave

Use the **IDE Master** and **IDE Slave** configuration menu to view both primary and secondary IDE device details and configure the IDE devices connected to the system.

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

  Primary IDE Master                                Select the type
 _____          of device connected
                                                    to the system
  Device      :Not Detected
 _____

  Type                          [Auto]
  LBA/Large Mode                [Auto]
  Block (Multi-Sector Transfer) [Auto]
  PIO Mode                      [Auto]          ←       Select Screen
  DMA Mode                      [Auto]          ↑ ↓     Select Item
  S.M.A.R.T.                    [Auto]          +-      Change Option
  32Bit Data Transfer           [Enabled]       F1      General Help
                                                F10     Save and Exit
                                                ESC     Exit

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```
BIOS Menu 5: IDE Master and IDE Slave Configuration

➔ **Auto-Detected Drive Parameters**

The "grayed-out" items in the left frame are IDE disk drive parameters automatically detected from the firmware of the selected IDE disk drive. The drive parameters are listed as follows:

- Device: Lists the device type (e.g. hard disk, CD-ROM etc.)
- Type: Indicates the type of devices a user can manually select
- Vendor: Lists the device manufacturer
- Size: List the storage capacity of the device.
- LBA Mode: Indicates whether the LBA (Logical Block Addressing) is a method of addressing data on a disk drive is supported or not.
- Block Mode: Block mode boosts IDE drive performance by increasing the amount of data transferred. Only 512 bytes of data can be transferred per interrupt if block mode is not used. Block mode allows transfers of up to 64 KB per interrupt.
- PIO Mode: Indicates the PIO mode of the installed device.

- Async DMA: Indicates the highest Asynchronous DMA Mode that is supported.
- Ultra DMA: Indicates the highest Synchronous DMA Mode that is supported.
- S.M.A.R.T.: Indicates whether or not the Self-Monitoring Analysis and Reporting Technology protocol is supported.
- 32Bit Data Transfer: Enables 32-bit data transfer.

➔ **Type [Auto]**

Use the **Type** BIOS option select the type of device the AMIBIOS attempts to boot from after the Power-On Self-Test (POST) is complete.

➔ **Not Installed**   BIOS is prevented from searching for an IDE disk drive on the specified channel.

➔ **Auto**   DEFAULT   The BIOS auto detects the IDE disk drive type attached to the specified channel. This setting should be used if an IDE hard disk drive is attached to the specified channel.

➔ **CD/DVD**   The CD/DVD option specifies that an IDE CD-ROM drive is attached to the specified IDE channel. The BIOS does not attempt to search for other types of IDE disk drives on the specified channel.

➔ **ARMD**   This option specifies an ATAPI Removable Media Device. These include, but are not limited to:
ZIP
LS-120

➔ **LBA/Large Mode [Auto]**

Use the **LBA/Large Mode** option to disable or enable BIOS to auto detects LBA (Logical Block Addressing). LBA is a method of addressing data on a disk drive. In LBA mode, the maximum drive capacity is 137 GB.

➔ **Disabled**   BIOS is prevented from using the LBA mode control on the specified channel.

➔ **Auto** DEFAULT BIOS auto detects the LBA mode control on the specified channel.

➔ **Block (Multi Sector Transfer) [Auto]**

Use the **Block (Multi Sector Transfer)** to disable or enable BIOS to auto detect if the device supports multi-sector transfers.

➔ **Disabled** BIOS is prevented from using Multi-Sector Transfer on the specified channel. The data to and from the device occurs one sector at a time.

➔ **Auto** DEFAULT BIOS auto detects Multi-Sector Transfer support on the drive on the specified channel. If supported the data transfer to and from the device occurs multiple sectors at a time.

➔ **PIO Mode [Auto]**

Use the **PIO Mode** option to select the IDE PIO (Programmable I/O) mode program timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases.

➔ **Auto** DEFAULT BIOS auto detects the PIO mode. Use this value if the IDE disk drive support cannot be determined.

➔ **0** PIO mode 0 selected with a maximum transfer rate of 3.3 MB/s

➔ **1** PIO mode 1 selected with a maximum transfer rate of 5.2 MB/s

➔ **2** PIO mode 2 selected with a maximum transfer rate of 8.3 MB/s

➔ **3** PIO mode 3 selected with a maximum transfer rate of 11.1 MB/s

➔ **4** PIO mode 4 selected with a maximum transfer rate of 16.6 MB/s

(This setting generally works with all hard disk drives manufactured after 1999. For other disk drives, such as IDE CD-ROM drives, check the specifications of the drive.)

➔ **DMA Mode [Auto]**

Use the **DMA Mode** BIOS selection to adjust the DMA mode options.

➔ **Auto**   DEFAULT   BIOS auto detects the DMA mode. Use this value if the IDE disk drive support cannot be determined.

➔ **SWDMA0**   Single Word DMA mode 0 selected with a maximum data transfer rate of 2.1 MB/s

➔ **SWDMA1**   Single Word DMA mode 1 selected with a maximum data transfer rate of 4.2 MB/s

➔ **SWDMA2**   Single Word DMA mode 2 selected with a maximum data transfer rate of 8.3 MB/s

➔ **MWDMA0**   Multi Word DMA mode 0 selected with a maximum data transfer rate of 4.2 MB/s

➔ **MWDMA1**   Multi Word DMA mode 1 selected with a maximum data transfer rate of 13.3 MB/s

➔ **MWDMA2**   Multi Word DMA mode 2 selected with a maximum data transfer rate of 16.6 MB/s

➔ **UDMA0**   Ultra DMA mode 0 selected with a maximum data transfer rate of 16.6 MB/s

➔ **UDMA1**   Ultra DMA mode 1 selected with a maximum data transfer rate of 25 MB/s

➔ **UDMA2**   Ultra DMA mode 2 selected with a maximum data transfer rate of 33.3 MB/s

➔ **UDMA3**   Ultra DMA mode 3 selected with a maximum data transfer rate of 44 MB/s (To use this mode, it is required that an 80-conductor ATA cable is used.)

➔ **UDMA4**   Ultra DMA mode 4 selected with a maximum data transfer rate of 66.6 MB/s (To use this mode, it is required that an 80-conductor ATA cable is used.)

➔ **UDMA5** Ultra DMA mode 5 selected with a maximum data transfer rate of 99.9 MB/s (To use this mode, it is required that an 80-conductor ATA cable is used.)

➔ **S.M.A.R.T [Auto]**

Use the **S.M.A.R.T** option to auto-detect, disable or enable Self-Monitoring Analysis and Reporting Technology (SMART) on the drive on the specified channel. **S.M.A.R.T** predicts impending drive failures. The **S.M.A.R.T** BIOS option enables or disables this function.

➔ **Auto** DEFAULT BIOS auto detects HDD SMART support.

➔ **Disabled** Prevents BIOS from using the HDD SMART feature.

➔ **Enabled** Allows BIOS to use the HDD SMART feature

➔ **32Bit Data Transfer [Enabled]**

Use the **32Bit Data Transfer** BIOS option to enables or disable 32-bit data transfers.

➔ **Disabled** Prevents the BIOS from using 32-bit data transfers.

➔ **Enabled** DEFAULT Allows BIOS to use 32-bit data transfers on supported hard disk drives.

3.3.3 Super IO Configuration

Use the **Super IO Configuration** menu (BIOS Menu 6) to set or change the configurations for the FDD controllers, parallel ports and serial ports.

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

  Configure Super I/O Chipset                          Allows BIOS to select
  _____         Serial Port Base
                                                       Addresses
  Serial Port1 Address          [3F8/IRQ4]
  Serial Port2 Address          [2F8/IRQ3]
  Parallel Port Address         [378]
   Parallel Port Mode           [Normal]
   Parallel Port IRQ            [IRQ7]
  Serial Port3 Address          [3E8]                  ←→    Select Screen
   Serial Port3 IRQ             [10]                   ↑ ↓   Select Item
  Serial Port3 Mode             [RS232/RS422]          Enter Go to SubScreen
  Serial Port5 Address          [338]                  F1    General Help
   Serial Port5 IRQ             [10]                    F10   Save and Exit
  Serial Port6 Address          [238]                  ESC   Exit
   Serial Port6 IRQ             [11]

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```

BIOS Menu 6: Super IO Configuration

➔ **Serial Port1 Address [3F8/IRQ4]**

Selects the serial port base address.

➔ **Disabled**   No base address

➔ **3F8/IRQ4**   DEFAULT   I/O address 3F8 and interrupt address IRQ4

➔ **3E8/IRQ4**   I/O address 3E8 and interrupt address IRQ4

➔ **Serial Port2 Address [2F8/IRQ3]**

Selects the serial port base address.

➔ **Disabled**   No base address

➔ **2F8/IRQ3**   DEFAULT   I/O address 2F8 and interrupt address IRQ3

➔ **3E8/IRQ4**   I/O address 3E8 and interrupt address IRQ4

➔ **Parallel Port Address [Disabled]**

Use the **Parallel Port Address** option to select the parallel port base address.

➔ **Disabled** DEFAULT   No base address is assigned to the Parallel Port

➔ **378**   Parallel Port I/O port address is 378

➔ **278**   Parallel Port I/O port address is 278

➔ **3BC**   Parallel Port I/O port address is 3BC

➔ **Parallel Port Mode [Normal]**

Use the **Parallel Port Mode** option to select the mode the parallel port operates in.

➔ **Normal**   DEFAULT   The normal parallel port mode is the standard mode for parallel port operation.

➔ **EPP**   The parallel port operates in the enhanced parallel port mode (EPP). The EPP mode supports bi-directional communication between the system and the parallel port device and the transmission rates between the two are much faster than the Normal mode.

➔ **ECP**   The parallel port operates in the extended capabilities port (ECP) mode. The ECP mode supports bi-directional communication between the system and the parallel port device and the transmission rates between the two are much faster than the Normal mode

➔ **EPP+ECP** The parallel port operates in the extended capabilities port (ECP) mode. The ECP mode supports bi-directional communication between the system and the parallel port device and the transmission rates between the two are much faster than the Normal mode

The parallel port is also be compatible with EPP devices described above

➔ **Parallel Port IRQ [IRQ7]**

Use the **Parallel Port IRQ** selection to set the parallel port interrupt address.

➔ **IRQ5** IRQ5 is assigned as the parallel port interrupt address

➔ **IRQ7** **DEFAULT** IRQ7 is assigned as the parallel port interrupt address

➔ **Serial Port3 Address [3E8]**

Selects the serial port base address.

➔ **Disabled** No base address

➔ **3E8** **DEFAULT** I/O address 3E8

➔ **338** I/O address 338

➔ **238** I/O address 238

➔ **Serial Port3 IRQ [11]**

Selects the serial port interrupt address.

➔ **10** IRQ address 10

➔ **11** **DEFAULT** IRQ address 11

➔ **Select RS232 or RS422/RS485 [RS/232]**

Select the communication method for Serial Port 3.

➔ **RS232** DEFAULT Serial Port 2 signaling mode is RS-232

➔ **RS485** Serial Port 2 signaling mode is RS-485

➔ **RS422** Serial Port 2 signaling mode is RS-422

➔ **Serial Port5 Address [338]**

Selects the serial port base address.

➔ **Disabled** No base address

➔ **3E8** I/O address 3E8

➔ **338** DEFAULT I/O address 338

➔ **238** I/O address 238

➔ **Serial Port5 IRQ [10]**

Use the **Serial Port5 IRQ** option to select the interrupt address for serial port 5.

➔ **10** DEFAULT IRQ address 10

➔ **11** IRQ address 11

➔ **Serial Port6 Address [238]**

Selects the serial port base address.

➔ **Disabled** No base address

➔ **3E8** I/O address 3E8

➔ **338** I/O address 338

➔ **238** DEFAULT I/O address 238

➔ **Serial Port6 IRQ [11]**

Use the **Serial Port6 IRQ** option to select the interrupt address for serial port 6.

➔ **10** IRQ address 10

➔ **11**   **DEFAULT**   IRQ address 11

3.3.4 Hardware Health Configuration

The **Hardware Health Configuration** menu (BIOS Menu 7) shows the operating temperature, fan speeds and system voltages.

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

  Hardware Health Configuration
  _____
  CPU Temperature                  :61°C/141°F
  System Temperature               :64°C/147°F

  SYS Fan Speed                    :2509 RPM

  CPU Core                         :0.880 V
  1.1V                             :1.088 V            ←→    Select Screen
  3.3V                             :3.312 V            ↑↓    Select Item
  5V                               :4.945 V            Enter Go to SubScreen
  12V                              :11.840 V           F1    General Help
  1.8V                             :1.840 V            F10   Save and Exit
  1.2V                             :1.184 V            ESC   Exit
  5V Dual                          :4.999 V
  VBAT                             :3.504 V

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```

BIOS Menu 7: Hardware Health Configuration

➔ **Monitored Values**

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

- ▪ The following system temperatures are monitored:
  - ○ CPU temperature
  - ○ System temperature
- ▪ The following fan speeds are monitored:
  - ○ SYS fan speed
- ▪ The following core voltages are monitored:
  - ○ CPU core
  - ○ 1.1V
  - ○ 3.3V

o 5V

o 12V

o 1.8V

o 1.2V

o 5V Dual

o VBAT

3.3.5 ICP Power Configuration

The **ICP Power Configuration** menu (BIOS Menu 8) allows the advanced power management options to be configured.
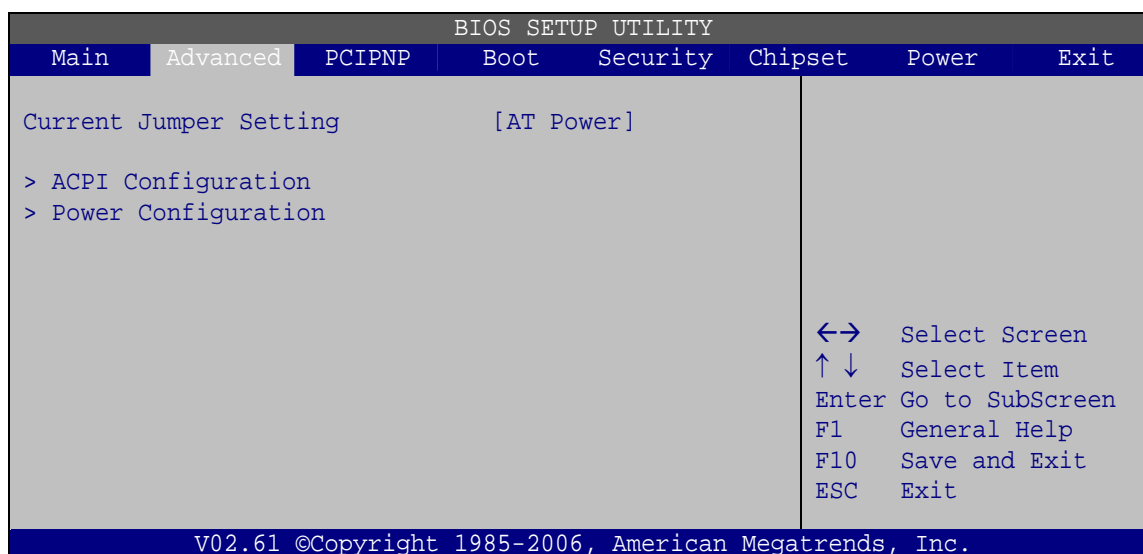
```
                        BIOS SETUP UTILITY
   Main    Advanced   PCIPNP    Boot    Security  Chipset    Power      Exit

 Current Jumper Setting          [AT Power]

 > ACPI Configuration
 > Power Configuration


                                                 ←→    Select Screen
                                                 ↑ ↓   Select Item
                                                 Enter Go to SubScreen
                                                 F1    General Help
                                                 F10   Save and Exit
                                                 ESC   Exit

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```
BIOS Menu 8: ICP Power Configuration

3.3.5.1 ACPI Settings

Use the **ACPI Settings** menu (BIOS Menu 9) to select the ACPI state when the system is suspended.

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

  ACPI Settings
  ──────────────────────────────────────────────────

  Suspend Mode                  [S1 (POS)]


                                                   ←→    Select Screen
                                                   ↑ ↓   Select Item
                                                   Enter Go to SubScreen
                                                   F1    General Help
                                                   F10   Save and Exit
                                                   ESC   Exit

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```
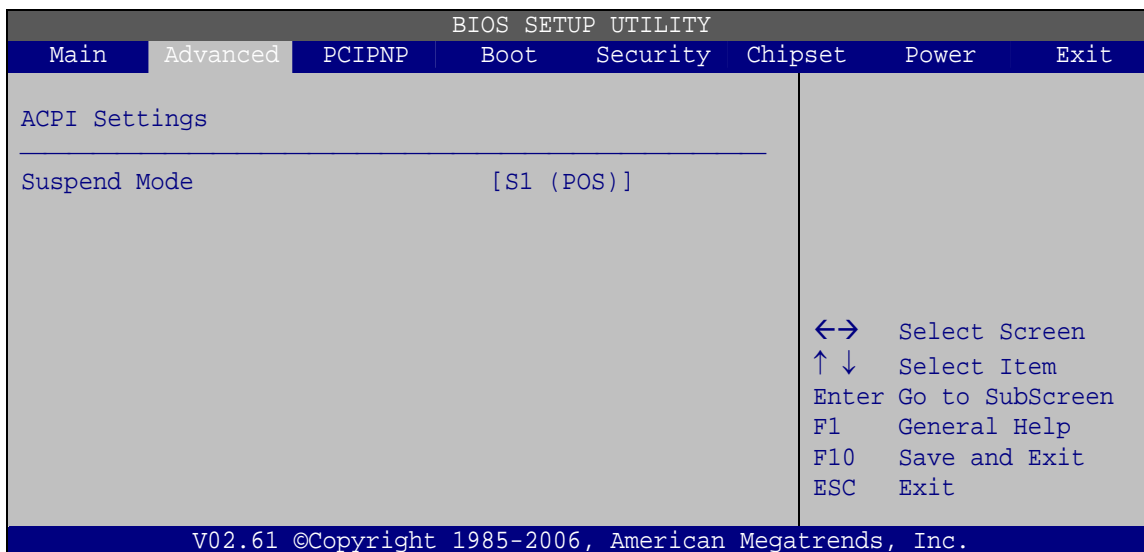
BIOS Menu 9: ACPI Settings

➔ **Suspend Mode [S1(POS)]**

Use the **Suspend Mode** option to specify the sleep state the system enters when it is not being used.

3.3.5.2 Power Configuration

The **Power Configuration** menu (BIOS Menu 10) allows the advanced power management options to be configured.

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

 Power Button Mode              [On/Off]            If the AT/ATX jumper
                                                    been set to AT mode
 Resume On PCIE PME#            [Enabled]           this item will be
 Resume On Ring                 [Disabled]          changed to "power on"
 Resume On Touch Panel          [Disabled]          automatically
 RTC Resume                     [Disabled]


                                                    ←→   Select Screen
                                                    ↑ ↓   Select Item
                                                    Enter Go to SubScreen
                                                    F1    General Help
                                                    F10   Save and Exit
                                                    ESC   Exit

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```
   BIOS Menu 10: Power Configuration

➔ **Power Button Mode [On/Off]**

Use the **Power Button Mode** BIOS to specify how the power button functions.

➔ **On/Off**   DEFAULT   When the power button is pressed the system is either turned on or off

➔ **Suspend**   When the power button is pressed the system goes into suspend mode

➔ **Resume on PCIE PME# [Enabled]**

Use the **Resume on PCIE PME#** BIOS option to enable activity on the PCIE PME (power management event) controller to rouse the system from a suspend or standby state.

➔ **Disabled**   Wake event not generated by PCIE PME controller activity

➔ **Enabled**   DEFAULT   Wake event generated by PCIE PME controller activity

➔

➔ **Resume on Ring [Disabled]**

Use the **Resume on Ring** BIOS option to enable activity on the RI (ring in) modem line to rouse the system from a suspend or standby state. That is, the system will be roused by an incoming call on a modem.

➔ **Disabled** **DEFAULT** Wake event not generated by an incoming call

➔ **Enabled** Wake event generated by an incoming call

➔ **Resume on Touch Panel [Disabled]**

Use the **Resume Touch Panel** BIOS option to enable activity on the touch panel to rouse the system from a suspend or standby state. That is, the system will be roused by touching the touch panel.

➔ **Disabled** **DEFAULT** Wake event not generated by touch panel activity

➔ **Enabled** Wake event generated by touch panel activity

➔

➔ **RTC Resume [Disabled]**

Use the **RTC Resume** option to specify the time the system should be roused from a suspended state.

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

➔ **Enabled** If selected, the following appears with values that can be selected:

RTC Alarm Date (Days)

RTC Alarm Time

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

3.3.6 Remote Access Configuration

Use the **Remote Access Configuration** menu (BIOS Menu 11) to configure remote access parameters. The **Remote Access Configuration** is an AMIBIOS feature and allows a remote host running a terminal program to display and configure the BIOS settings.

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

 Configure Remote Access type and parameters
 _____
 Remote Access                     [Disabled]

 Serial port number               [COM1]
      Base Address, IRQ            [3F8H, 4]
 Serial Port Mode                 [115200 8,n,1]
 Redirection After BIOS POST       [Always]            ←→    Select Screen
 Terminal Type                    [ANSI]               ↑ ↓   Select Item
                                                       Enter Go to SubScreen
                                                       F1    General Help
                                                       F10   Save and Exit
                                                       ESC   Exit

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```

BIOS Menu 11: Remote Access Configuration

➔ **Remote Access [Disabled]**

Use the **Remote Access** option to enable or disable access to the remote functionalities of the system.

➔ **Disabled**   **DEFAULT**   Remote access is disabled.

➔ **Enabled**   Remote access configuration options shown below
appear:

  Serial Port Number

  Serial Port Mode

  Flow Control

  Redirection after BIOS POST

  Terminal Type

  VT-UTF8 Combo Key Support

These configuration options are discussed below.

➔ **Serial Port Number [COM1]**

Use the **Serial Port Number** option allows to select the serial port used for remote
access.

➔ **COM1**   **DEFAULT**   System is remotely accessed through COM1

➔ **COM2**   System is remotely accessed through COM2

NOTE: Make sure the selected COM port is enabled through the Super I/O configuration
menu.

➔ **Base Address, IRQ [2F8h,3]**

The **Base Address, IRQ** option cannot be configured and only shows the interrupt
address of the serial port listed above.

➔ **Serial Port Mode [115200 8,n,1]**

Use the **Serial Port Mode** option to select baud rate through which the console redirection
is made. The following configuration options are available

  ▪ 115200 8,n,1   **DEFAULT**
  ▪ 57600 8,n,1
  ▪ 38400 8,n,1
  ▪ 19200 8,n,1
  ▪ 09600 8,n,1

⬥ **NOTE:**

Identical baud rate setting musts be set on the host (a management computer running a terminal software) and the slave

➔ **Flow Control [None]**

Use the **Flow Control** option to report the flow control method for the console redirection application.

➔ **None** DEFAULT No control flow,

➔ **Hardware** Hardware is set as the console redirection

➔ **Software** Software is set as the console redirection

➔ **Redirection After BIOS POST [Always]**

Use the **Redirection After BIOS POST** option to specify when console redirection should occur.

➔ **Disabled** The console is not redirected after POST

➔ **Boot Loader** Redirection is active during POST and during Boot Loader

➔ **Always** DEFAULT Redirection is always active (Some OSes may not work if set to Always)

➔ **Terminal Type [ANSI]**

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

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

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

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

➔ **VT-UTF8 Combo Key Support [Disabled]**

Use the **VT-UFT8 Combo Key Support** option to enable additional keys that are not provided by VT100 for the PC 101 keyboard.

The VT100 Terminal Definition is the standard convention used to configure and conduct emergency management tasks with UNIX-based servers. VT100 does not support all keys on the standard PC 101-key layout, however. The VT-UTF8 convention makes available additional keys that are not provided by VT100 for the PC 101 keyboard.

➔ **Disabled** DEFAULT   Disables the VT-UTF8 terminal keys

➔ **Enabled**   Enables the VT-UTF8 combination key. Support for ANSI/VT100 terminals

➔ **Sredir Memory Display Delay [Disabled]**

Use the **Sredir Memory Display Delay** option to select the delay before memory information is displayed. Configuration options are listed below

- No Delay   DEFAULT
- Delay 1 sec
- Delay 2 sec
- Delay 4 sec

3.3.7 USB Configuration

Use the **USB Configuration** menu (BIOS Menu 12) to read USB configuration information and configure the USB settings.

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

 USB Configuration                                     Options
 ─────────────────────────────────────────────
 Module Version - 2.24.5-13.4                          Disabled
                                                       Enabled
 USB Devices Enabled:
   1 Keyboard, 1 Mouse

 Legacy USB Support                 [Enabled]          ←→   Select Screen
 USB 2.0 Controller Mode            [HiSpeed]          ↑ ↓  Select Item
                                                       Enter Go to SubScreen
                                                       F1   General Help
                                                       F10  Save and Exit
                                                       ESC  Exit

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```
   BIOS Menu 12: USB Configuration

➔ **USB Configuration**

The **USB Configuration** field shows the system USB configuration. The items listed are:

▪ Module Version: x.xxxxx.xxxxx

➔ **USB Devices Enabled**

The **USB Devices Enabled** 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.

➔ **Disabled**   Legacy USB support disabled

➔ **Enabled**   DEFAULT   Legacy USB support enabled

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

➔ **USB2.0 Controller Mode [HiSpeed]**

Use the **USB2.0 Controller Mode** option to set the speed of the USB2.0 controller.

➔ **FullSpeed**   The controller is capable of operating at 12 Mb/s

➔ **HiSpeed**   DEFAULT   The controller is capable of operating at 480 Mb/s

3.3.7.1 USB Mass Storage Device Configuration

Use the **USB Mass Storage Device Configuration** menu (BIOS Menu 13) to configure
USB mass storage class devices.
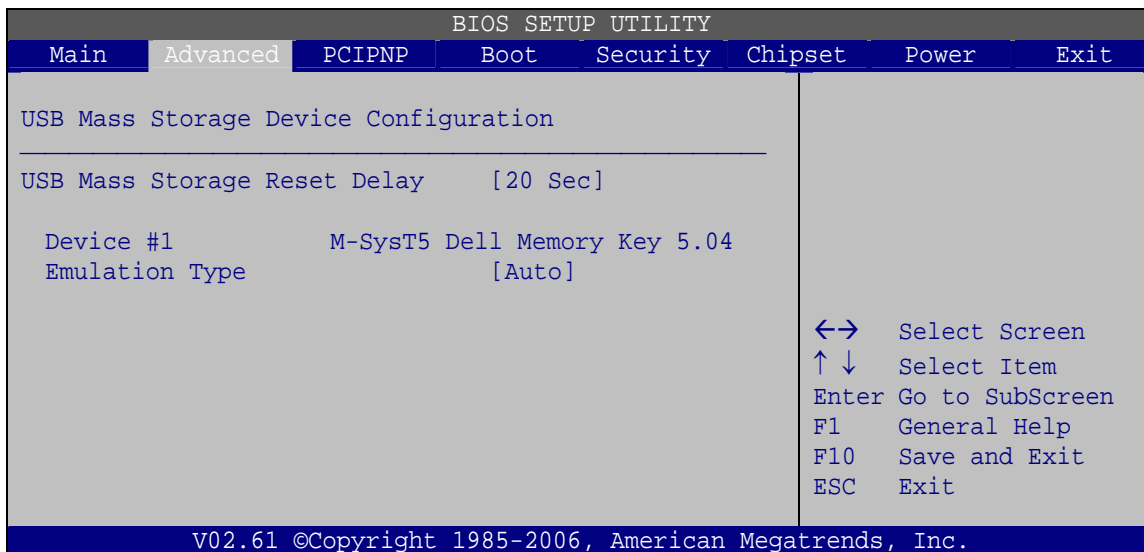
```
                        BIOS SETUP UTILITY
   Main    Advanced   PCIPNP    Boot    Security  Chipset    Power      Exit

 USB Mass Storage Device Configuration
 _____
 USB Mass Storage Reset Delay      [20 Sec]

   Device #1            M-SysT5 Dell Memory Key 5.04
   Emulation Type              [Auto]

                                              ←→   Select Screen
                                              ↑ ↓  Select Item
                                              Enter Go to SubScreen
                                              F1   General Help
                                              F10  Save and Exit
                                              ESC  Exit

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```
BIOS Menu 13: USB Mass Storage Device Configuration

➔ **USB Mass Storage Reset Delay [20 Sec]**

Use the **USB Mass Storage Reset Delay** option to set the number of seconds POST
waits for the USB mass storage device after the start unit command.

➔ **10 Sec**   POST waits 10 seconds for the USB mass storage device after the start unit command.

➔ **20 Sec**   DEFAULT   POST waits 20 seconds for the USB mass storage device after the start unit command.

➔ **30 Sec**   POST waits 30 seconds for the USB mass storage device after the start unit command.

➔ **40 Sec**   POST waits 40 seconds for the USB mass storage device after the start unit command.

➔ **Device ##**

The **Device##** field lists the USB devices that are connected to the system.

➔ **Emulation Type [Auto]**

Use the **Emulation Type** BIOS option to specify the type of emulation BIOS has to provide for the USB device.

➔ **Auto**   DEFAULT   BIOS auto-detects the current USB.

➔ **Floppy**   The USB device will be emulated as a floppy drive. The device can be either A: or B: responding to INT13h calls that return DL = 0 or DL = 1 respectively.

➔ **Forced FDD**   Allows a hard disk image to be connected as a floppy image. This option works only for drives formatted with FAT12, FAT16 or FAT32.

➔ **Hard Disk**   Allows the USB device to be emulated as hard disk responding to INT13h calls that return DL values of 80h or above.

➔ **CDROM**   Assumes the CD-ROM is formatted as bootable media. All the devices that support block sizes greater than 512 bytes can only be booted using this option.

3.4 PCI/PnP

Use the **PCI/PnP** menu (BIOS Menu 14) to configure advanced PCI and PnP settings.

WARNING!

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

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

   Advanced PCI/PnP Settings                         Available: Specified IRQ
   _____  is available to be use
                                                     the PCI/PnP devices
   IRQ3                         [Reserved]           Reserved: Specified IRQ
   IRQ4                         [Reserved]           is reserved for use by
   IRQ5                         [Available]          legacy ISA devices
   IRQ7                         [Available]
   IRQ9                         [Available]
   IRQ10                        [Reserved]
   IRQ11                        [Reserved]
   IRQ14                        [Available]
   IRQ15                        [Available]

   DMA Channel 0                [Available]
   DMA Channel 1                [Available]
   DMA Channel 3                [Available]          ←→    Select Screen
   DMA Channel 5                [Available]          ↑ ↓   Select Item
   DMA Channel 6                [Available]          Enter Go to SubScreen
   DMA Channel 7                [Available]          F1    General Help
                                                     F10   Save and Exit
   Reserved Memory Size         [Disabled]           ESC   Exit

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```

BIOS Menu 14: PCI/PnP Configuration

➔ **IRQ# [Available]**

Use the **IRQ#** address to specify what IRQs can be assigned to a particular peripheral device.

➔ **Available** **DEFAULT** The specified IRQ is available to be used by PCI/PnP devices

➔ **Reserved** The specified IRQ is reserved for use by Legacy ISA devices

Available IRQ addresses are:

- IRQ3
- IRQ4
- IRQ5
- IRQ7
- IRQ9
- IRQ10
- IRQ 11
- IRQ 14
- IRQ 15

➔ **DMA Channel# [Available]**

Use the **DMA Channel#** option to assign a specific DMA channel to a particular PCI/PnP device.

➔ **Available** DEFAULT The specified DMA is available to be used by PCI/PnP devices

➔ **Reserved** The specified DMA is reserved for use by Legacy ISA devices

Available DMA Channels are:

- DM Channel 0
- DM Channel 1
- DM Channel 3
- DM Channel 5
- DM Channel 6
- DM Channel 7

➔ **Reserved Memory Size [Disabled]**

Use the **Reserved Memory Size** BIOS option to specify the amount of memory that should be reserved for legacy ISA devices.

➔ **Disabled**   DEFAULT   No memory block reserved for legacy ISA devices

➔ **16K**   16 KB reserved for legacy ISA devices

➔ **32K**   32 KB reserved for legacy ISA devices

➔ **64K**   54 KB reserved for legacy ISA devices

3.5 Boot

Use the **Boot** menu (BIOS Menu 15) to configure system boot options.

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

 Boot Settings                              Configure settings
 ────────────────────────────────────      during system boot.
 > Boot Settings Configuration

 > Boot Device Priority
 > Hard Disk Drives
 > CD/DVD Drives
 > Removable Drives                         ←→   Select Screen
                                            ↑↓   Select Item
                                            Enter Go to SubScreen
                                            F1   General Help
                                            F10  Save and Exit
                                            ESC  Exit

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```
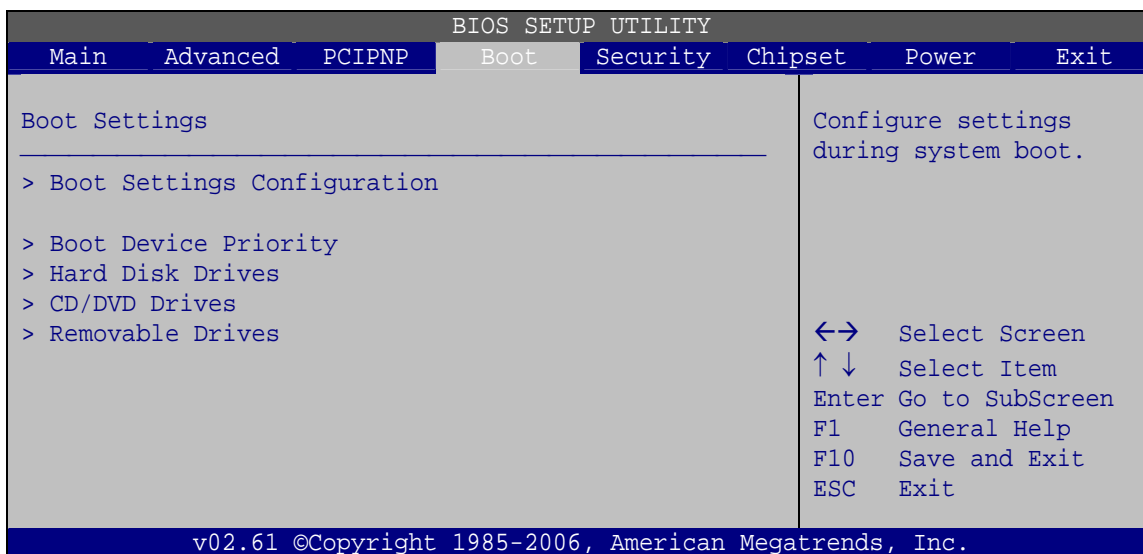
BIOS Menu 15: Boot

3.5.1 Boot Settings Configuration

Use the **Boot Settings Configuration** menu (BIOS Menu 16) to configure advanced system boot options.

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

  Boot Settings Configuration                          Allows BIOS to skip
  _____      certain tests while
                                                       booting. This will
  Quick Boot                  [Enabled]                decrease the time
  Quiet Boot                  [Enabled]                needed to boot the
  AddOn ROM Display Mode       [Force BIOS]            system.
  Bootup Num-Lock             [On]
  Boot From LAN Support       [Disabled]
  Spread Spectrum Function    [Disabled]               ←→   Select Screen
                                                       ↑ ↓   Select Item
                                                       Enter Go to SubScreen
                                                       F1   General Help
                                                       F10  Save and Exit
                                                       ESC  Exit

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```
BIOS Menu 16: Boot Settings Configuration

➔ **Quick Boot [Enabled]**

Use the **Quick Boot** BIOS option to make the computer speed up the boot process.

➔ **Disabled**   No POST procedures are skipped

➔ **Enabled**   DEFAULT   Some POST procedures are skipped to decrease
                            the system boot time

➔ **Quiet Boot [Enabled]**

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

➔ **Disabled**   DEFAULT   Normal POST messages displayed

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

➔ **AddOn ROM Display Mode [Force BIOS]**

Use the **AddOn ROM Display Mode** option to allow add-on ROM (read-only memory) messages to be displayed.

➔ **Force BIOS** DEFAULT The system forces third party BIOS to display during system boot.

➔ **Keep Current** The system displays normal information during system boot.

➔ **Bootup Num-Lock [On]**

Use the **Bootup Num-Lock** BIOS option to specify if the number lock setting must be modified during boot up.

➔ **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.

➔ **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.

➔ **Boot From LAN Support [Disabled]**

Use the **BOOT From LAN Support** option to enable the system to be booted from a remote system.

➔ **Disabled** DEFAULT Cannot be booted from a remote system through the LAN

➔ **Enabled** DEFAULT Can be booted from a remote system through the LAN

➔ **Spread Spectrum Mode [Disabled]**

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

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

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

3.5.2 Boot Device Priority

Use the **Boot Device Priority** menu (BIOS Menu 17) to specify the boot sequence from the available devices. The drive sequence also depends on the boot sequence in the individual device section.

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

 Boot Device Priority                              Specifies the boot
 _____  sequence from the
                                                   available devices.
 > 1st Boot Device              [1st Boot Device]
 > 2nd Boot Device              [2nd Boot Device]
 > 3rd Boot Device              [3rd Boot Device]


                                                   ←→   Select Screen
                                                   ↑↓   Select Item
                                                   Enter Go to SubScreen
                                                   F1   General Help
                                                   F10  Save and Exit
                                                   ESC  Exit

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```

BIOS Menu 17: Boot Device Priority Settings

3.5.3 Hard Disk Drives

Use the **Hard Disk Drives** menu to specify the boot sequence of the available HDDs. Only installed hard drives are shown.
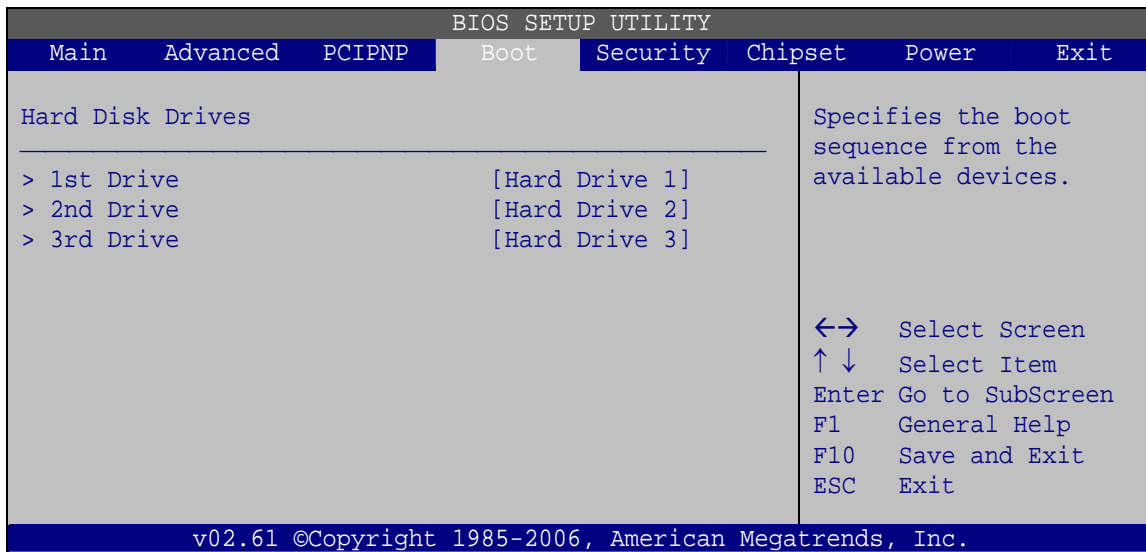
```
                        BIOS SETUP UTILITY
   Main    Advanced    PCIPNP    Boot    Security  Chipset    Power     Exit

 Hard Disk Drives                                    Specifies the boot
 _____        sequence from the
 > 1st Drive                 [Hard Drive 1]          available devices.
 > 2nd Drive                 [Hard Drive 2]
 > 3rd Drive                 [Hard Drive 3]


                                                    ←→    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 18: Hard Disk Drives
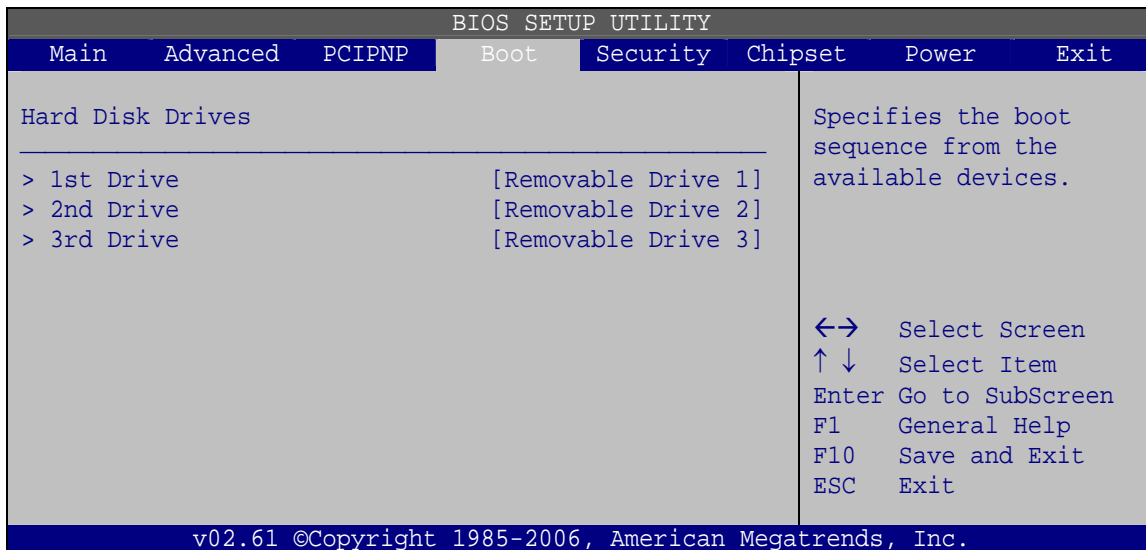
3.5.4 Removable Drives

Use the **Removable Drives** menu (BIOS Menu 19) to specify the boot sequence of the removable drives. Only connected drives are shown.

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

 Hard Disk Drives                                    Specifies the boot
 _____        sequence from the
 > 1st Drive               [Removable Drive 1]       available devices.
 > 2nd Drive               [Removable Drive 2]
 > 3rd Drive               [Removable Drive 3]


                                                    ←→    Select Screen
                                                    ↑↓    Select Item
                                                    Enter Go to SubScreen
                                                    F1    General Help
                                                    F10   Save and Exit
                                                    ESC   Exit
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```
BIOS Menu 19: Removable Drives

3.5.5 CD/DVD Drives

Use the **CD/DVD Drives** menu to specify the boot sequence of the available CD/DVD drives. When the menu is opened, the CD drives and DVD drives connected to the system are listed as shown below:
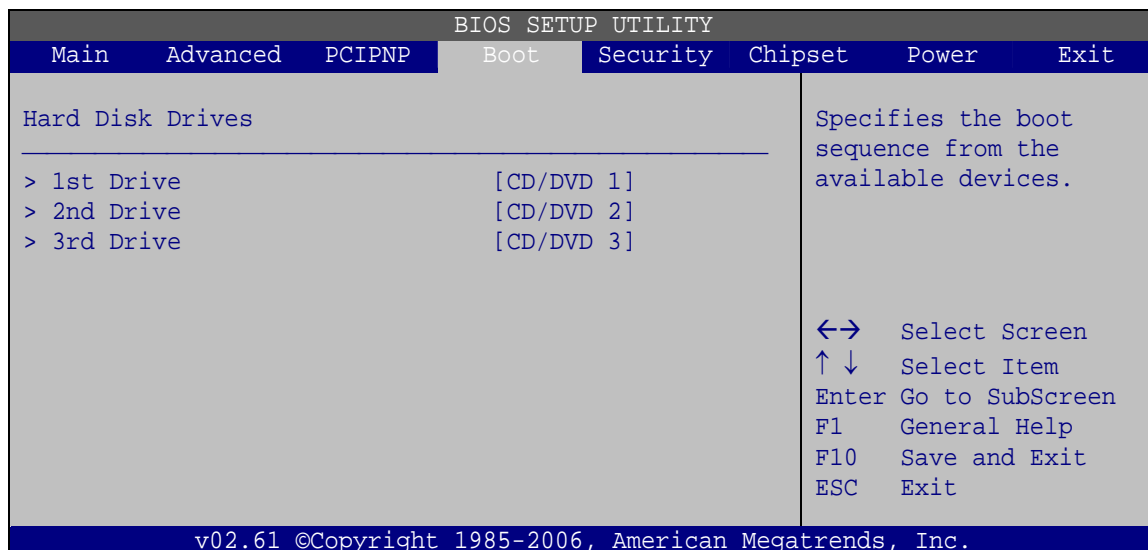
- 1st Drive   [CD/DVD: PM-(part ID)]
- 2nd Drive   [HDD: PS-(part ID)]
- 3rd Drive   [HDD: SM-(part ID)]
- 4th Drive   [HDD: SM-(part ID)]

NOTE:

Only the drives connected to the system are shown. For example, if only two CDs or DVDs are connected only "**1st Drive**" and "**2nd Drive**" are listed.
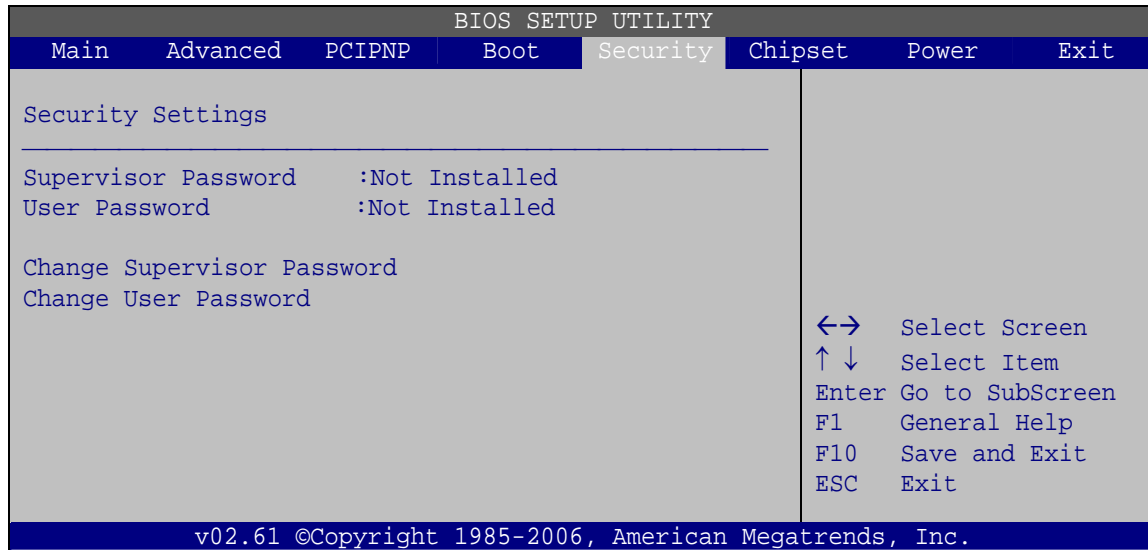
The boot sequence from the available devices is selected. If the "**1st Drive**" option is selected a list of available CD/DVD drives is shown. Select the first CD/DVD drive the system boots from. If the "**1st Drive**" is not used for booting this option may be disabled.

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

 Hard Disk Drives                                      Specifies the boot
 _____         sequence from the
                                                       available devices.
 > 1st Drive                     [CD/DVD 1]
 > 2nd Drive                     [CD/DVD 2]
 > 3rd Drive                     [CD/DVD 3]


                                                       ←→   Select Screen
                                                       ↑↓   Select Item
                                                       Enter Go to SubScreen
                                                       F1   General Help
                                                       F10  Save and Exit
                                                       ESC  Exit

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```

BIOS Menu 20: CD/DVD Drives

3.6 Security

Use the **Security** menu (BIOS Menu 21) to set system and user passwords.

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

 Security Settings
 _____

 Supervisor Password      :Not Installed
 User Password            :Not Installed

 Change Supervisor Password
 Change User Password
                                                 ←→    Select Screen
                                                 ↑↓    Select Item
                                                 Enter Go to SubScreen
                                                 F1    General Help
                                                 F10   Save and Exit
                                                 ESC   Exit

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```

BIOS Menu 21: Security

➔ **Change Supervisor Password**

Use the **Change Supervisor Password** to set or change a supervisor password. The default for this option is **Not Installed**. If a supervisor password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change Supervisor Password**.

➔ **Change User Password**

Use the **Change User Password** to set or change a user password. The default for this option is **Not Installed**. If a user password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change User Password**.
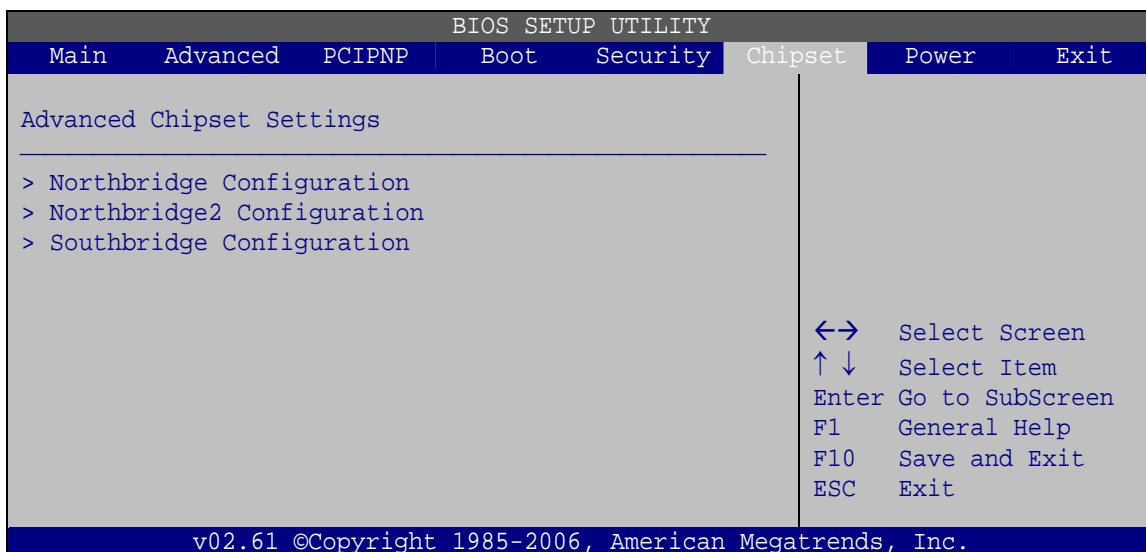
3.7 Advanced Chipset Settings

Use the **Advanced Chipset Settings** menu (BIOS Menu 22) to access the Northbridge and Southbridge configuration menus
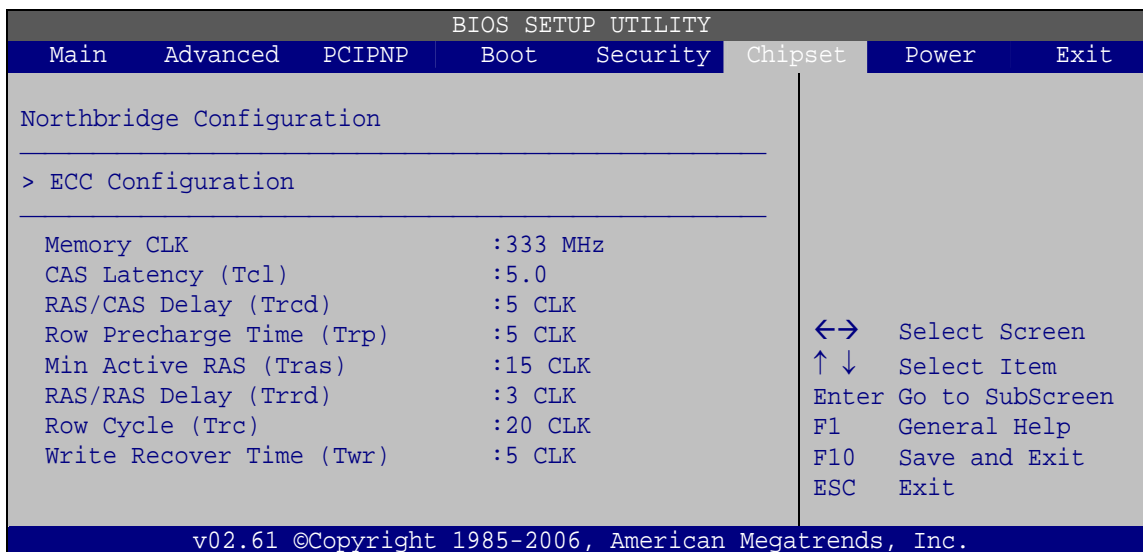
⚠ **WARNING!**

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

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

 Advanced Chipset Settings
 _____

 > Northbridge Configuration
 > Northbridge2 Configuration
 > Southbridge Configuration


                                            ←→    Select Screen
                                            ↑ ↓   Select Item
                                            Enter Go to SubScreen
                                            F1    General Help
                                            F10   Save and Exit
                                            ESC   Exit

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```

BIOS Menu 22: Advanced Chipset Settings

3.7.1 Northbridge Configuration

Use the **Northbridge Chipset Configuration** menu (BIOS Menu 25) to configure the Northbridge chipset.

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

 Northbridge Configuration
 _____
 > ECC Configuration
 _____

   Memory CLK                     :333 MHz
   CAS Latency (Tcl)              :5.0
   RAS/CAS Delay (Trcd)           :5 CLK
   Row Precharge Time (Trp)       :5 CLK          ←→   Select Screen
   Min Active RAS (Tras)          :15 CLK         ↑↓   Select Item
   RAS/RAS Delay (Trrd)           :3 CLK          Enter Go to SubScreen
   Row Cycle (Trc)                :20 CLK         F1    General Help
   Write Recover Time (Twr)       :5 CLK          F10   Save and Exit
                                                  ESC   Exit

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```
BIOS Menu 23: Northbridge Chipset Configuration

3.7.2 ECC Configuration

Use the ECC Configuration menu (**BIOS Menu 24**) to set the ECC parameters.

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

 ECC Configuration
 _____

 ECC Mode                         [Disabled]
   DRAM ECC Enable                [Disabled]
   DRAM SCRUB REDIRECT            [Disabled]
   4-Bit ECC Mode                 [Disabled]
   DRAM BG Scrub                  [Disabled]
   Data Cache BG Scrub            [Disabled]     ←→   Select Screen
   L2 Cache BG Scrub              [Disabled]     ↑↓   Select Item
   L3 Cache BG Scrub              [Disabled]     Enter Go to SubScreen
                                                 F1    General Help
                                                 F10   Save and Exit
                                                 ESC   Exit

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```
BIOS Menu 24: ECC Configuration Chipset Configuration

➔ **DRAM ECC Enable [Enabled]**

Use the **DRAM ECC Enable** option to enable the hardware to report and correct memory errors and thereby automatically maintain the system.

➔ **Disabled**   System cannot report and correct memory errors

➔ **Enabled**   DEFAULT   System can report and correct memory errors

➔ **4-Bit ECC Mode**

Use the **4-Bit ECC Mode** to enable or disable the 4-Bit ECC mode (a.k.a. CHIPKILL ECC MODE)

➔ **Disabled**   4-Bit ECC mode disabled

➔ **Enabled**   DEFAULT   4-Bit ECC mode enabled

➔ **DRAM SCRUB REDIRECT [Disabled]**

Use the **DRAM SCRUB REDIRECT** option to enable the system to immediately correct DRAM ECC errors when they occur, even when background scrubbing is on.

➔ **Disabled**   DEFAULT   System cannot immediately correct DRAM ECC errors

➔ **Enabled**   System cannot immediately correct DRAM ECC errors

➔ **DRAM BG Scrub [Disabled]**

Use the **DRAM BG Scrub** option to enable the system to immediately correct memory errors so later reads are correct. Doing this while memory is not being used improves performance.

![NOTE icon] **NOTE:**

When the AMD node interleave feature is enabled, BIOS will force DRAM scrub off.

The following configuration options are available: Disabled (Default), 40ns, 80ns, 160ns, 320ns, 640ns, 1.28us, 2.56us, 5.12us, 10.2us, 20.5us, 41.0us, 81.9us, 163.8us, 327.7us, 655.4us, 1.31ms, 2.62ms, 5.24ms, 10.49ms, 20.97ms, 42.00ms, 84.00ms.

➔ **Data Cache BG Scrub [Disabled]**

Use the **Data Cache BG Scrub** option to enable the system to correct the L1 Data cache when idle. The following configuration options are available: Disabled (Default), 40ns, 80ns, 160ns, 320ns, 640ns, 1.28us, 2.56us, 5.12us, 10.2us, 20.5us, 41.0us, 81.9us, 163.8us, 327.7us, 655.4us, 1.31ms, 2.62ms, 5.24ms, 10.49ms, 20.97ms, 42.00ms, 84.00ms.

➔ **L2 Cache BG Scrub [Disabled]**

Use the **L2 Cache BG Scrub** option to enable the system to correct the L2 Data cache when idle. The following configuration options are available: Disabled (Default), 40ns, 80ns, 160ns, 320ns, 640ns, 1.28us, 2.56us, 5.12us, 10.2us, 20.5us, 41.0us, 81.9us, 163.8us, 327.7us, 655.4us, 1.31ms, 2.62ms, 5.24ms, 10.49ms, 20.97ms, 42.00ms, 84.00ms.

➔ **L3 Cache BG Scrub [Disabled]**

Use the **L3 Cache BG Scrub** option to enable the system to correct the L3 Data cache when idle. The following configuration options are available: Disabled (Default), 40ns, 80ns, 160ns, 320ns, 640ns, 1.28us, 2.56us, 5.12us, 10.2us, 20.5us, 41.0us, 81.9us, 163.8us, 327.7us, 655.4us, 1.31ms, 2.62ms, 5.24ms, 10.49ms, 20.97ms, 42.00ms, 84.00ms.

3.7.3 Northbridge2 Configuration

Use the **Northbridge2 Chipset Configuration** menu (BIOS Menu 25) to configure the Northbridge chipset.

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

  Northbridge2 Chipset Configuration

  RS780 CIMx Version  :  4.6.0
  _____
  Internal Graphics Configuration
  _____
  Internal Graphics Mode          [UMA]
    UMA Frame Buffer Size         [Auto]            ←→    Select Screen
                                                    ↑ ↓   Select Item
  Flat Panel Type                 [by H/W]          Enter Go to SubScreen
  LVDS Current Jumper Setting      [1366x768 24Bit]  F1    General Help
                                                    F10   Save and Exit
                                                    ESC   Exit

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```
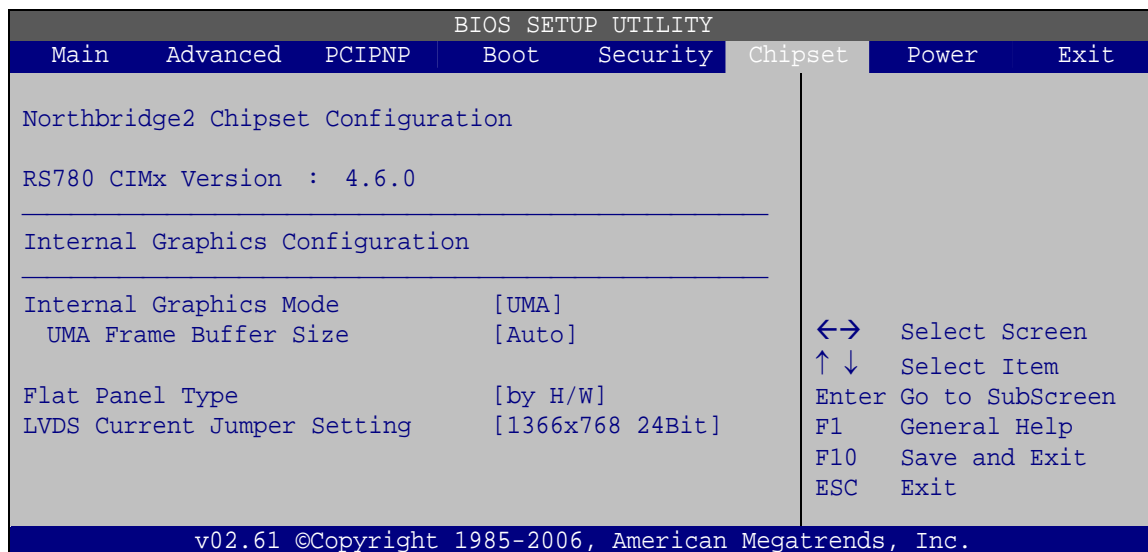
BIOS Menu 25: Northbridge2 Chipset Configuration

➔ **Internal Graphics Mode [UMA]**

Use the **Internal Graphic Mode Select** option to how the internal graphics accesses the memory.

➔ **Disabled**   The internal graphics mode is disabled.

➔ **SIDEPORT**   The integrated graphics core treats the SidePort memory as its local memory

➔ **UMA**   DEFAULT   The integrated graphics can only access a dynamically allocated partition of system memory.

➔ **UMA   +**   The integrated graphics core first uses SidePort
    SIDEPORT   memory and then system memory. If more memory is needed, the driver allocates memory dynamically through the system memory.

➔ **UMA Buffer Size [Auto]**

Use the **UMA Buffer Size** option to specify the memory to be reserved for the integrated graphics. The following configuration options are available:

- Auto **Default**
- 32 MB
- 64 MB
- 128 MB
- 256 MB
- 512 MB

➔ **Flat Panel Type**

Use the **Flat Panel Type** to determine the LCD panel resolution. Configuration options are listed below:

- Disable LVDS
- 640x480 18Bit
- 800x600 18Bit
- 1024x768 18Bit
- 1024x768 24Bit
- 1280x1024 48Bit
- 1920x1080 48Bit
- 1920x1200 48Bit
- 1366x768 24Bit
- 1680x1050 48Bit
- by H/W **DEFAULT**

➔ **Current Jumper Setting**

Shows current value of the hardware jumper setting for the LVDS resolution. This is the value used when "by H/W" is selected in the setting above.

3.7.4 Southbridge Configuration

Use the **Southbridge Configuration** menu (**BIOS Menu 26**) to configure the Southbridge chipset.

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

   Southbridge Configuration                          Options
   ───────────────────────────────────────────
   Audio Controller                 [Auto]            Auto
                                                      Azalia
                                                      AC'97 Audio Only
                                                      All Disabled


                                                      ←→   Select Screen
                                                      ↑ ↓   Select Item
                                                      Enter Go to SubScreen
                                                      F1   General Help
                                                      F10  Save and Exit
                                                      ESC  Exit

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```
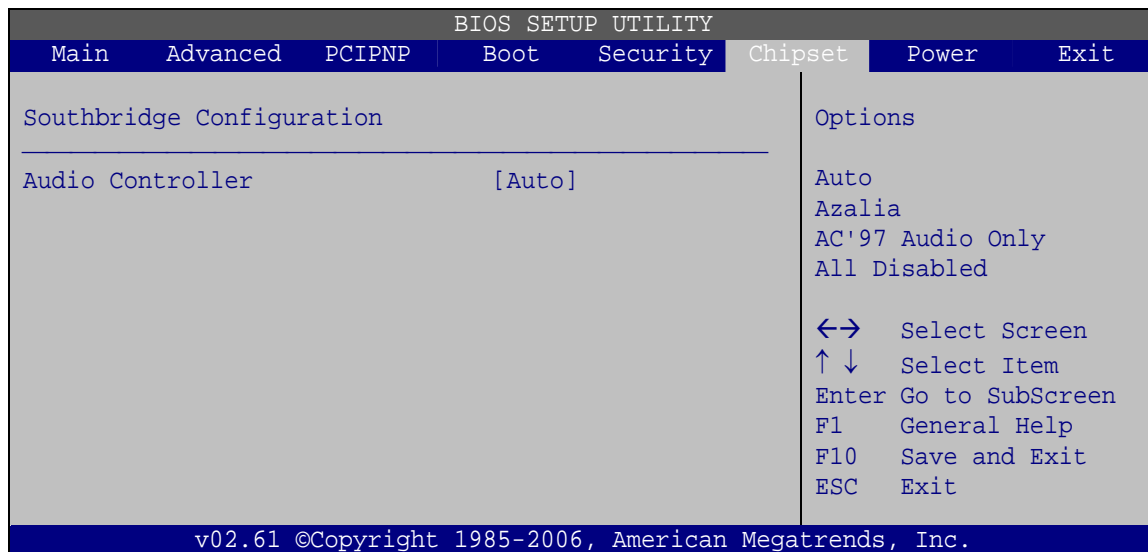
BIOS Menu 26:Southbridge Chipset Configuration

➔ **HD Audio Azalia Device [Auto]**

Use the **HD Audio Azalia Device** option to enable or disable High Definition audio codec.

➔ **Enabled** DEFAULT Enabled High Definition audio

➔ **Disabled** No audio

3.8 Exit

Use the **Exit** menu (BIOS Menu 27) to load default BIOS values, optimal failsafe values and to save configuration changes.

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

   Exit Options                                  Exit system setup after
   _____  saving the changes.

   Save Changes and Exit
   Discard Changes and Exit                      F10 key can be used for
   Discard Changes                               this operation

   Load Optimal Defaults
   Load Failsafe Defaults                        ←→   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 27:Exit

➔ **Save Changes and Exit**

Use the **Save Changes and Exit** option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

➔ **Discard Changes and Exit**

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

➔ **Discard Changes**

Use the **Discard Changes** option to discard the changes and remain in the BIOS configuration setup program.

➔ **Load Optimal Defaults**

Use the **Load Optimal Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F9 key can be used for this operation.**

➔ **Load Failsafe Defaults**

Use the **Load Failsafe Defaults** option to load failsafe default values for each of the parameters on the Setup menus. **F8 key can be used for this operation.**

Chapter

4

System Maintenance

4.1 System Maintenance Introduction

If the components of the AFL2-W15A-N270/L325 fail they must be replaced, such as the wireless LAN module or the motherboard. Please contact the system reseller or vendor to purchase the replacement parts. Back cover removal instructions and jumper settings for the AFL2-W15A-N270/L325 are described below.

4.2 Motherboard Replacement

In the case of motherboard failure, please contact an IEI sales representative, reseller or system vendor. The motherboard is accessible after opening the rear cover.

4.3 Cover Removal

WARNING!

Turn off the power before removing the back cover. Risk of electrocution. Severe damage to the product and injury to the body may occur if internal parts are touched while the power is still on.

WARNING!

Take antistatic precautions when working on the internal components. Some internal components are easily damaged or destroyed by electrostatic discharge. Take antistatic precautions to prevent electrostatic discharge.

To replace any of the following components,

- Memory module
- Wireless LAN module

The back cover of the AFL2-W15A-N270/L325 must be removed. To remove the back cover, unfasten the retention screws and then lift the cover to remove.

Back cover retention screws
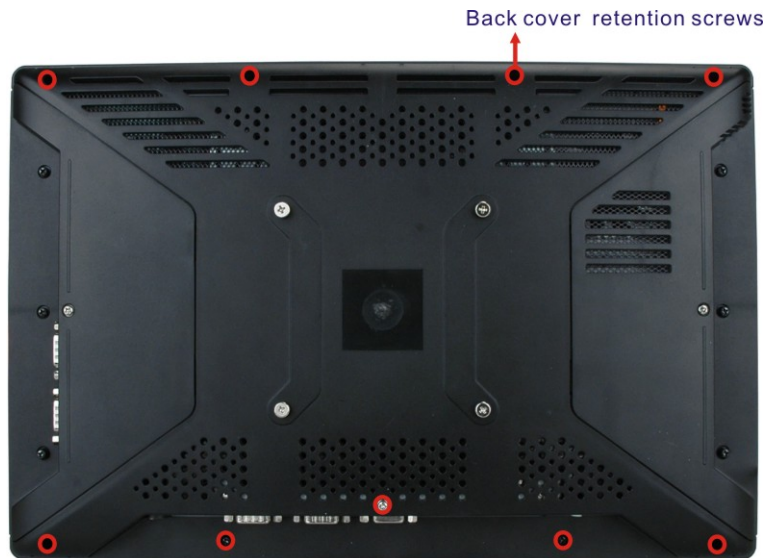
Figure 4-1: Back Cover Retention Screws

4.4 Memory Module Replacement

The flat panel PC has a preinstalled memory module. If the memory module fails, take the steps below to replace it.

Step 1: Remove the back cover. See **Section** 4.3 above.

Step 2: Locate the memory module on the motherboard of the flat panel PC
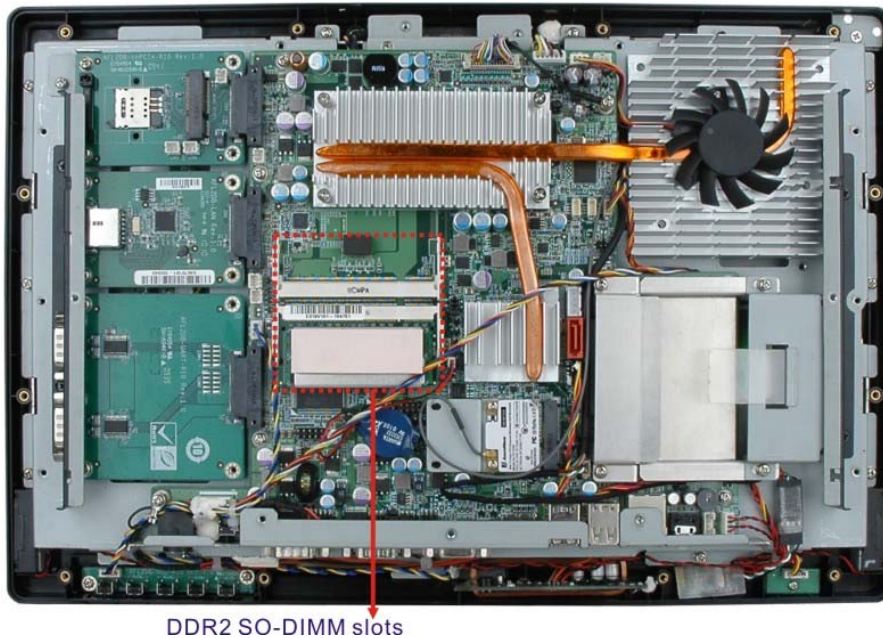
DDR2 SO-DIMM slots

Figure 4-2: AFL2-W15A-L325 SO-DIMM Slots (shown with all covers removed)

Step 3: Remove the memory module by pulling both the spring retainer clips outward from the socket.

Step 4: Grasp the memory module by the edges and carefully pull it out of the socket.

Step 5: Install the new memory module by inserting it at an angle, then pushing down until the clips snap into place (Figure 4-3).
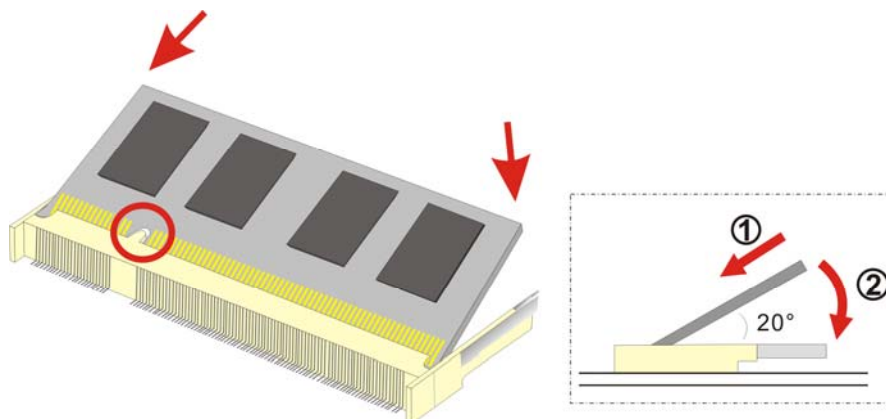
Figure 4-3: DDR SO-DIMM Module Installation

Appendix

A

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 AFL2-W15A-N270/L325.

A.1 Safety Precautions

Please follow the safety precautions outlined in the sections that follow:

A.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 AFL2-W15A-N270/L325 is opened.
- *Make sure the power is turned off and the power cord is disconnected* whenever the AFL2-W15A-N270/L325 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 AFL2-W15A-N270/L325 chassis is opened when the AFL2-W15A-N270/L325 is running.
- *Do not drop or insert any objects* into the ventilation openings of the AFL2-W15A-N270/L325.
- *If considerable amounts of dust, water, or fluids enter the AFL2-W15A-N270/L325*, turn off the power supply immediately, unplug the power cord, and contact the AFL2-W15A-N270/L325 vendor.
- **DO NOT** do the following:
  - ○ **DO NOT** drop the AFL2-W15A-N270/L325 against a hard surface.
  - ○ **DO NOT** strike or exert excessive force onto the LCD panel.
  - ○ **DO NOT** touch any of the LCD panels with a sharp object
  - ○ **DO NOT** use the AFL2-W15A-N270/L325 in a site where the ambient temperature exceeds the rated temperature

A.1.2 Anti-static Precautions

![WARNING icon] **WARNING:**

Failure to take ESD precautions during the installation of the AFL2-W15A-N270/L325 may result in permanent damage to the AFL2-W15A-N270/L325 and sever injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the AFL2-W15A-N270/L325. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the AFL2-W15A-N270/L325 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.

A.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:
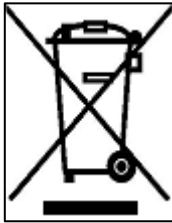
EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need 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.

A.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the AFL2-W15A-N270/L325, please follow the guidelines below.

A.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the AFL2-W15A-N270/L325, 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 does not require cleaning. Keep fluids away from the interior.
- Be careful not to damage the small, removable components inside.
- Turn off before cleaning.
- Never drop any objects or liquids through the openings.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning.
- Avoid eating, drinking and smoking nearby.

A.2.2 Cleaning Tools

Some components 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 for cleaning.

- *Cloth* – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended.
- *Water or rubbing alcohol* – A cloth moistened with water or rubbing alcohol should be used.
- *Using solvents* – The use of solvents is not recommended as they may damage the plastic parts.
- *Vacuum cleaner* – Using a vacuum specifically designed for computers is one of the best methods of cleaning. Dust and dirt can restrict the airflow and cause 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

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. The one key recovery provides quick and easy shortcuts for creating a backup and reverting to that backup or for reverting to the factory default settings.

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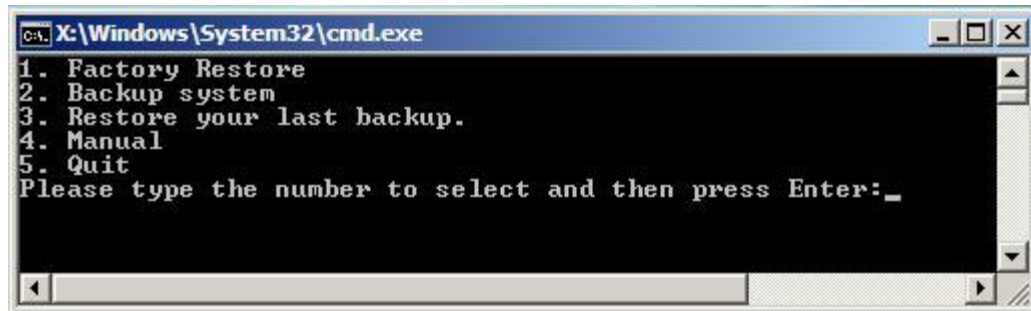
Figure B-1: IEI One Key Recovery Tool Menu

Prior to using the IEI One Key Recovery tool (as shown in **Figure B-1**) to backup or restore <u>Windows</u> 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-up 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.4**.

![NOTE icon] **NOTE:**

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

B.1.1 System Requirement

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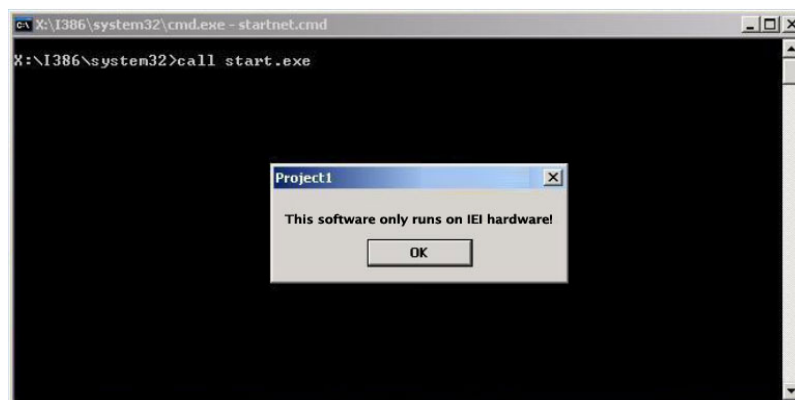
To create the system backup, the main storage device must be split into two partitions (three partitions for Linux). The first partition will be for the operating system, while the second partition will be invisible to the operating system and contain the backup made by the one key recovery software.

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 system (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)
  - ○ Ubuntu 8.10 (Intrepid)
  - ○ Ubuntu 7.10 (Gutsy)
  - ○ Ubuntu 6.10 (Edgy)
  - ○ Debian 5.0 (Lenny)
  - ○ Debian 4.0 (Etch)
  - ○ SuSe 11.2
  - ○ SuSe 10.3

> **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 Windows system, 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-up recovery partition (see **Section B.2.4**)

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

The detailed descriptions are described in the following sections.

> **NOTE:**
>
> The setup procedures described below are for Microsoft Windows operating system users. For Linux system, most setup procedures are the same with Microsoft Windows except for several steps which is 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!


Starting Windows Preinstallation Environment...
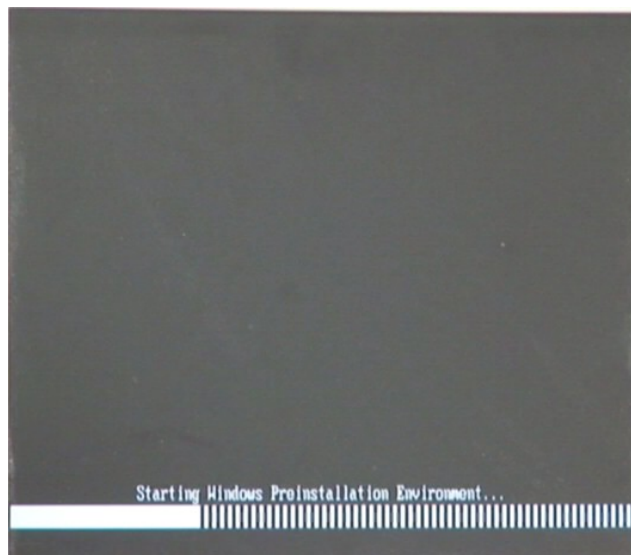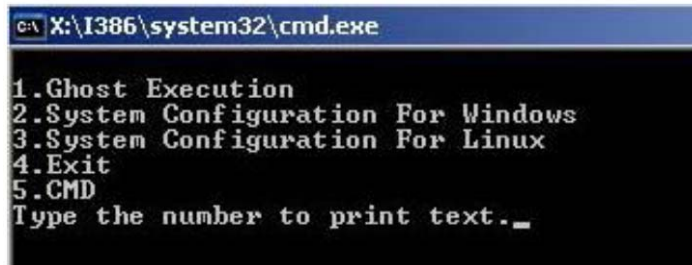
Figure B-2: Launching the Recovery Tool

Step 3: The recovery tool setup menu is shown as below.
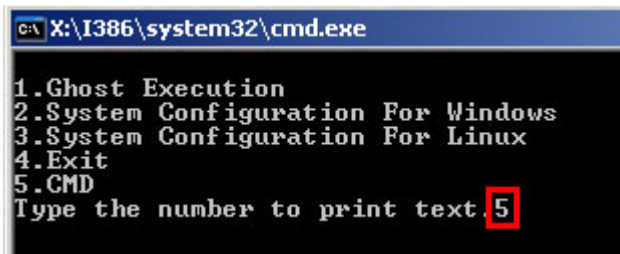
Figure B-3: Recovery Tool Setup Menu

Step 4: Press <**5**> then <Enter>.

Figure B-4: Command Mode

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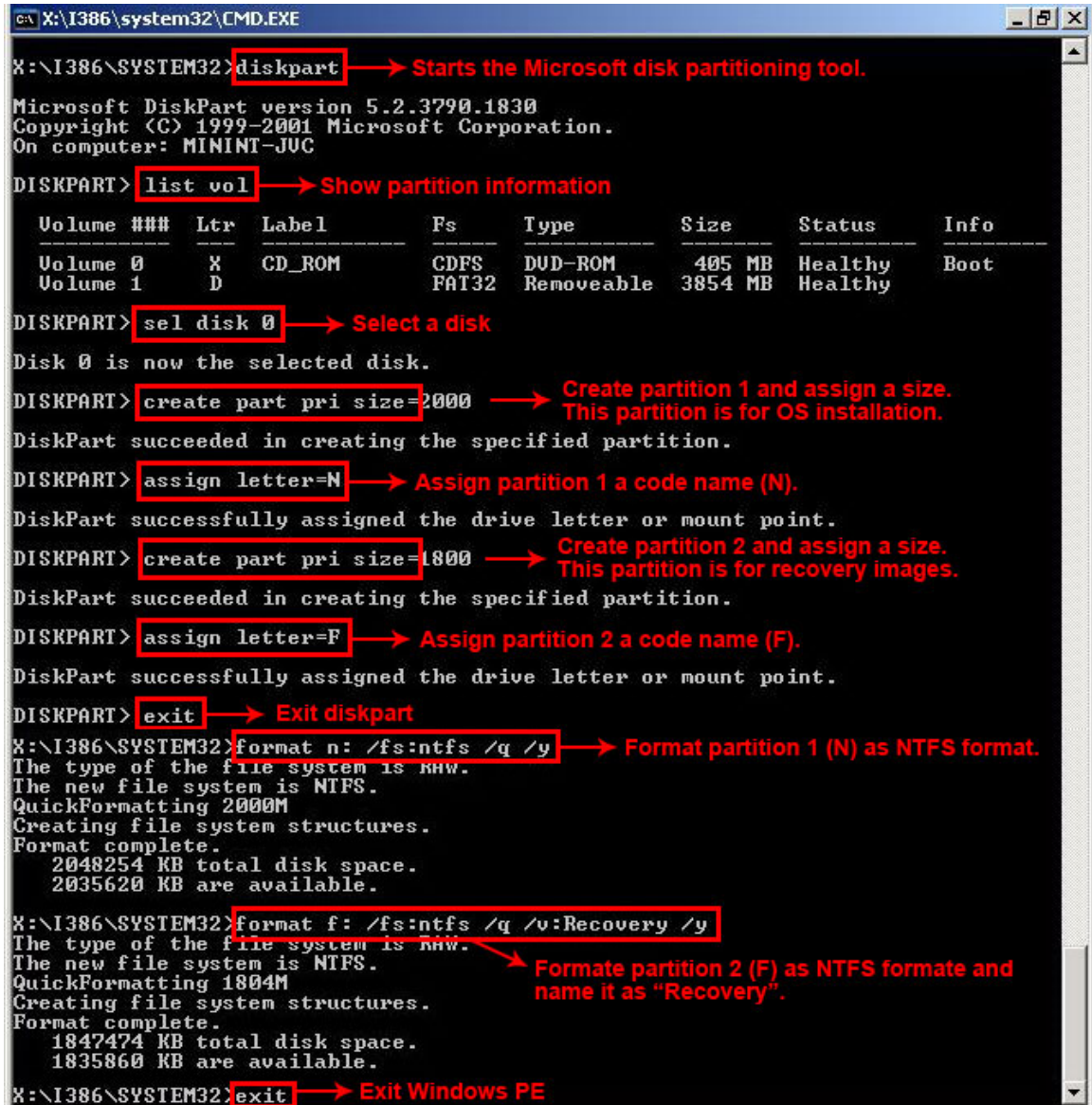
system32>format N: /fs:ntfs /q /y

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

system32>exit

Figure B-5: Partition Creation Commands

![NOTE icon] **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-JVC

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-up Recovery Partition.

B.2.3 Install Operating System, Drivers and Applications

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

![NOTE icon] **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 Build-up Recovery Partition

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

Step 2: Start the system.

Step 3: **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!
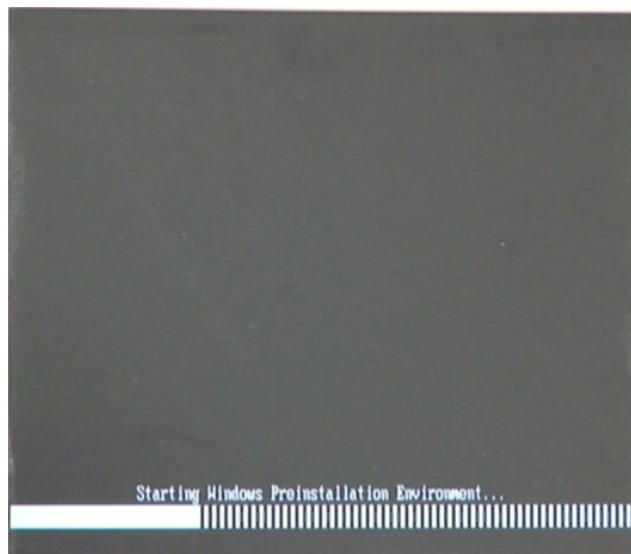
Figure B-6: Launching the Recovery Tool

Step 4: When the recovery tool setup menu appears, press <**2**> then <Enter>.
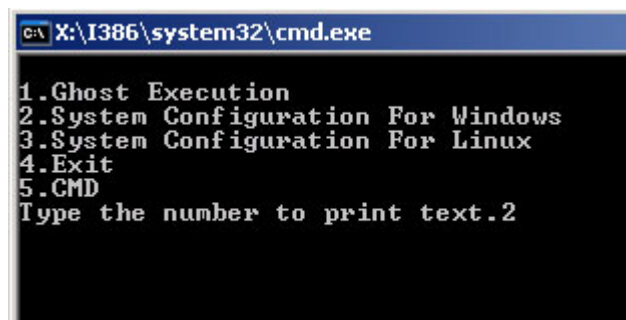
Figure B-7: System Configuration for Windows

Step 5: The Symantec Ghost window appears and starts configuring the system to build-up a recovery partition. In this process, the partition which is created for

recovery files in **Section B.2.2** is hidden and the recovery tool is saved in this

partition.
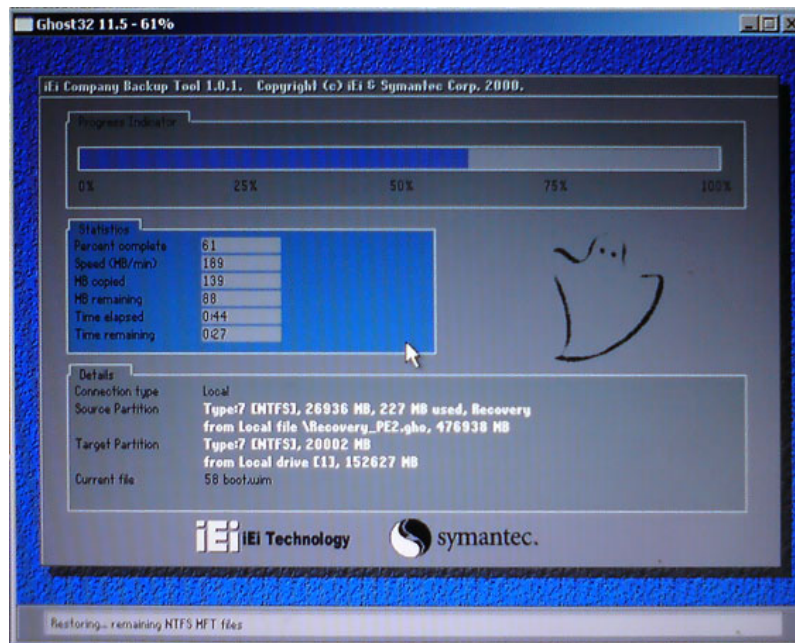
Figure B-8: Build-up Recovery Partition

Step 6: After completing the system configuration, press any key in the following window

to reboot the system.
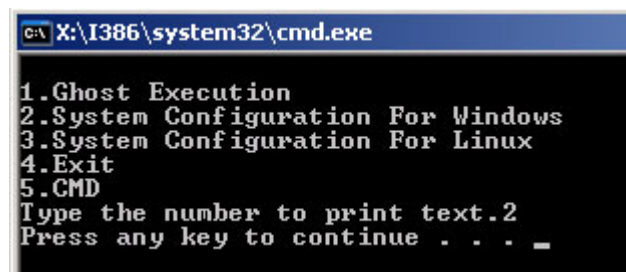
Figure B-9: Press any key to continue

Step 7: Eject the recovery CD.

B.2.5 Create Factory Default Image

![NOTE icon] **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.

Press F3 to boot into recovery mode...
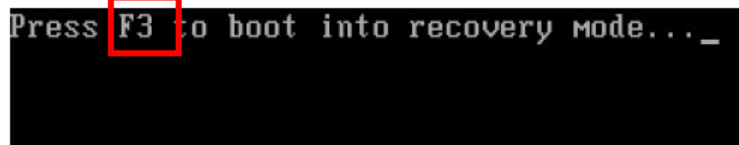
Figure B-10: Press F3 to Boot into Recovery Mode

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


```
X:\Windows\System32\cmd.exe
1. Factory Restore
2. Backup system
3. Restore your last backup.
4. Manual
5. Quit
Please type the number to select and then press Enter:4
```
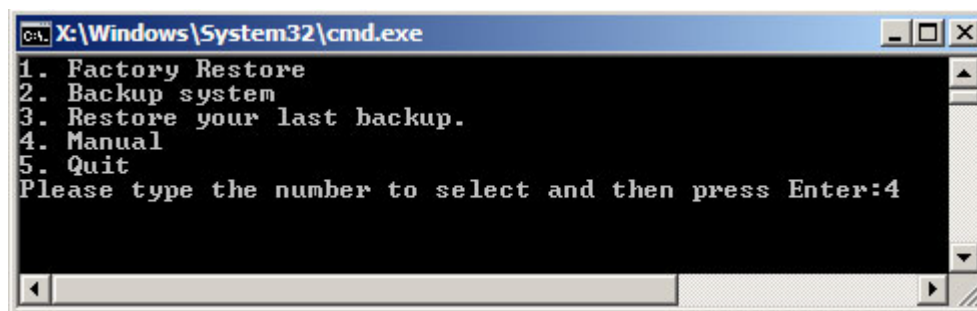
Figure B-11: Recovery Tool Menu

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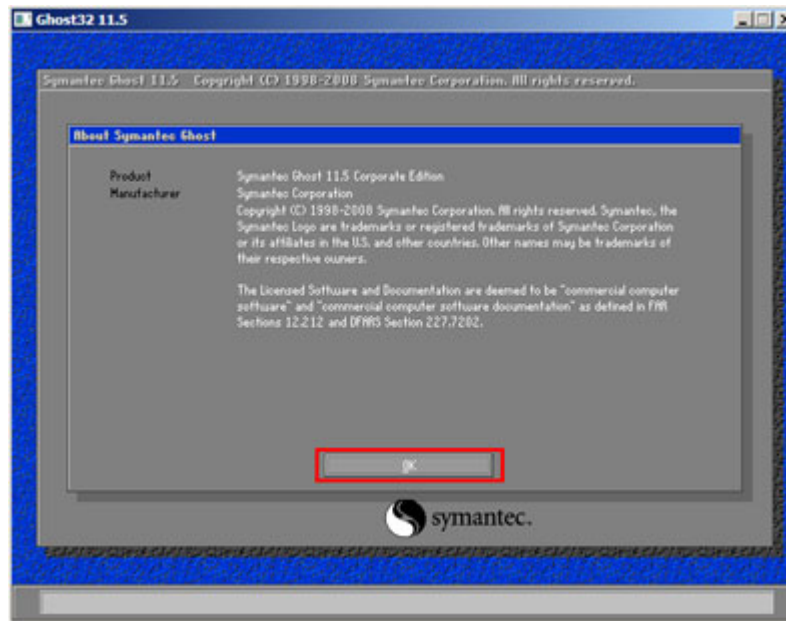
Figure B-12: About Symantec Ghost Window

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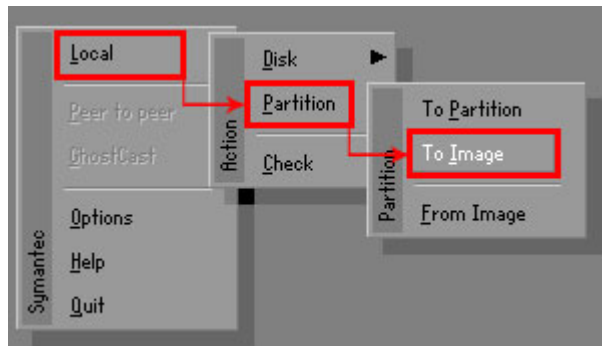
Figure B-13: Symantec Ghost Path

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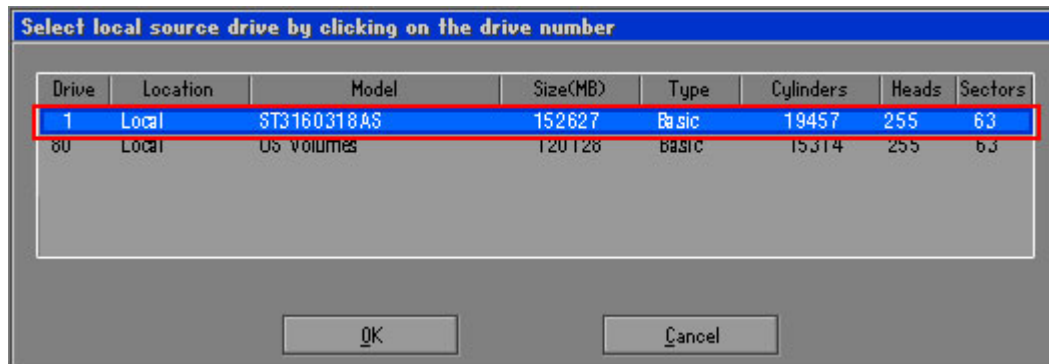
Figure B-14: Select a Local Source Drive

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

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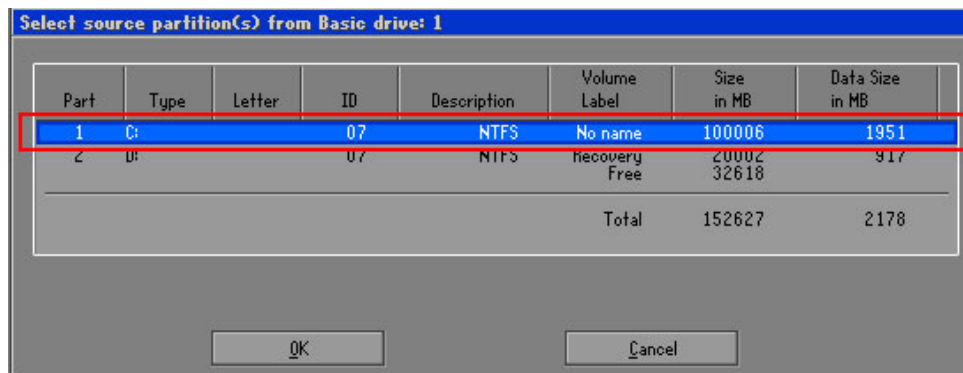
Figure B-15: Select a Source Partition from Basic Drive

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:

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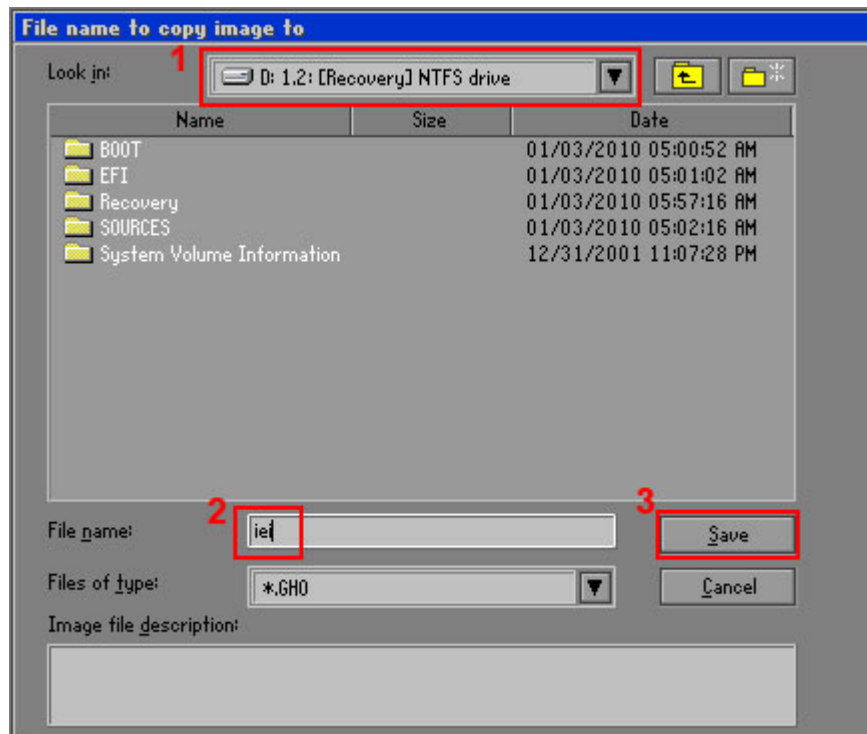
Figure B-16: File Name to Copy Image to

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

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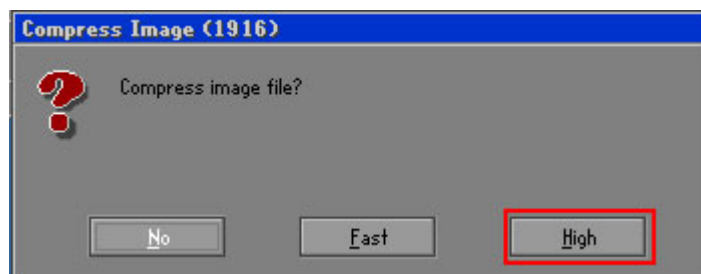
Figure B-17: Compress Image

Step 9: The Proceed with partition image creation window appears, click **Yes** to continue.
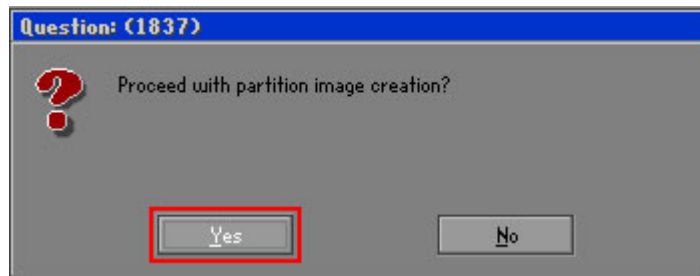
Figure B-18: Image Creation Confirmation

Step 10: The Symantec Ghost starts to create the factory default image (**Figure B-19**).
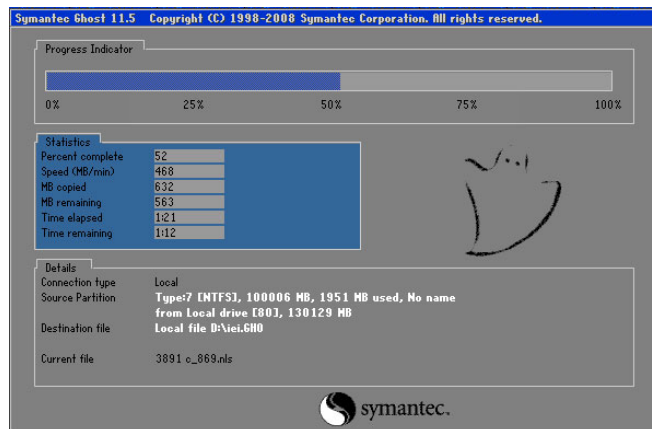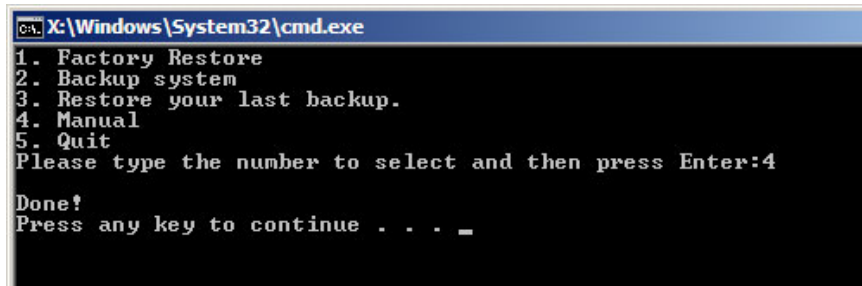

Figure B-19: Image Creation Process

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.
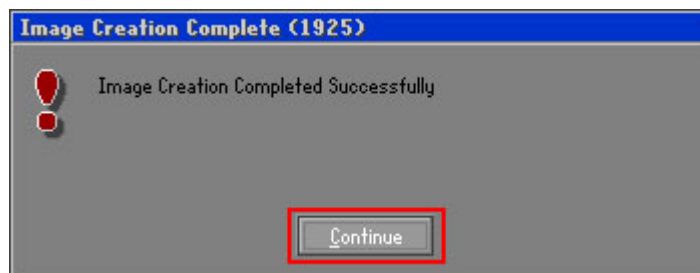
Figure B-20: Image Creation Complete

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 Setup Procedure for Linux

The initial setup procedures for Linux system are 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:

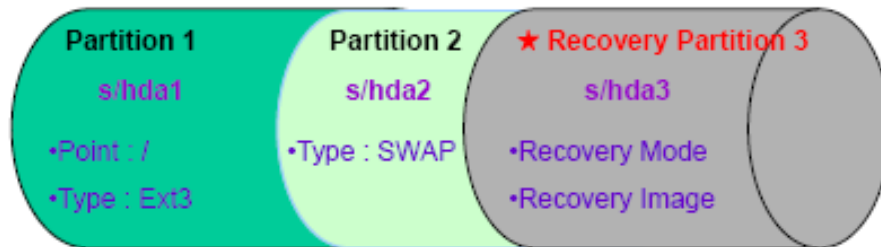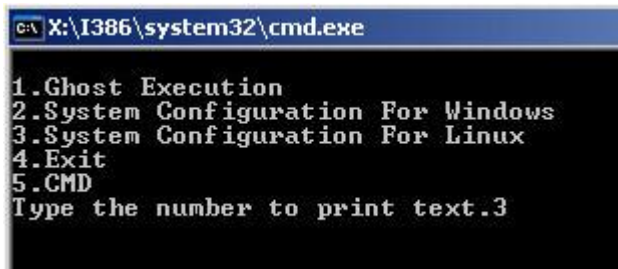Please reserve enough space for partition 3 for saving recovery images.

Figure B-22: 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-up 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-23**). The Symantec Ghost window appears and starts configuring the system to build-up a recovery partition. After completing the system configuration, press any key to reboot the system. Eject the recovery CD.
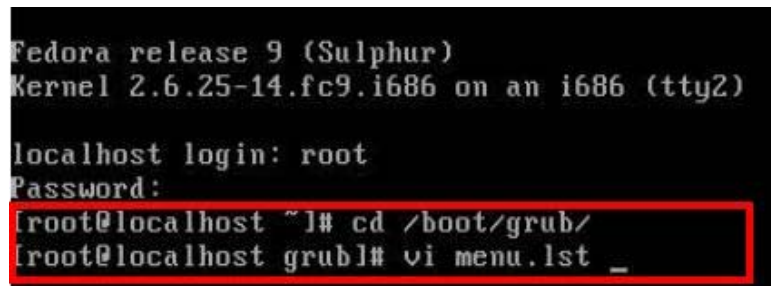
Figure B-23: System Configuration for Linux

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

system, enter Administrator (root). When prompt appears, type:

cd /boot/grub

vi menu.lst

Figure B-24: 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-25**)

Figure B-25: 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.4 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. The main menu of the recovery tool is shown below.
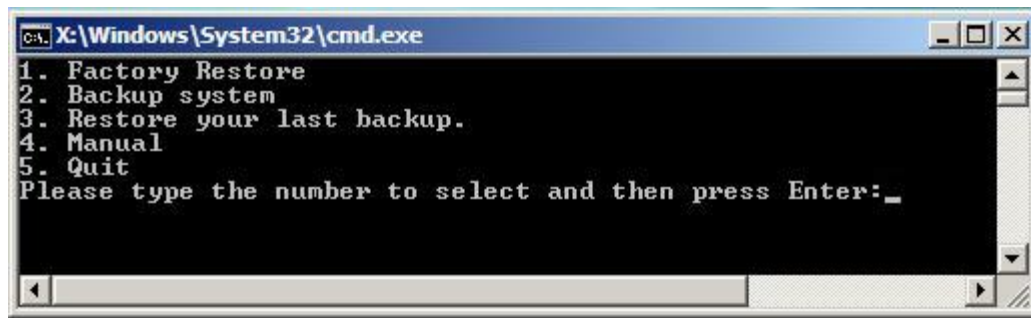
Figure B-26: Recovery Tool Main Menu

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 icon] **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.4.1 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

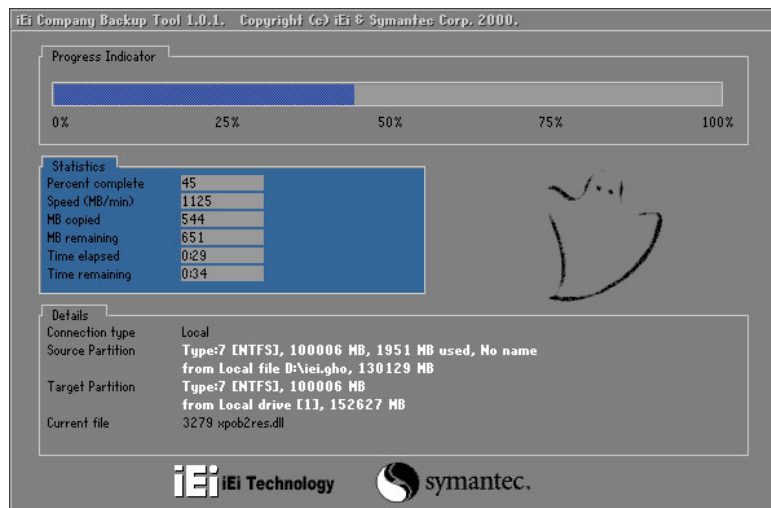factory default image called **iei.GHO** is created in the hidden Recovery partition.

Figure B-27: Restore Factory Default

Step 3:   The screen is shown as in **Figure B-28** when completed. Press any key to

reboot the system.
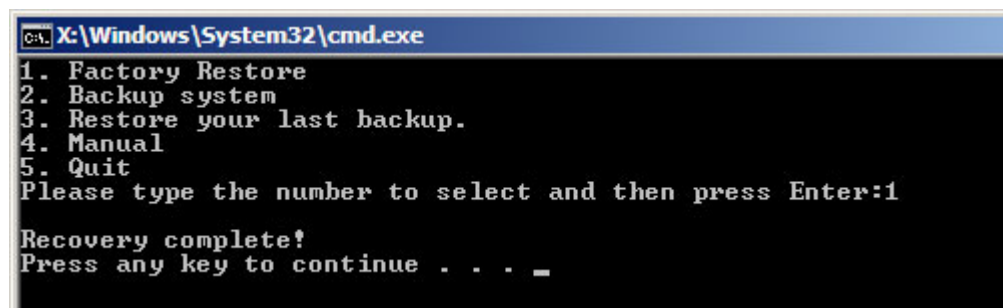
Figure B-28: Recovery Complete Window

B.4.2 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.
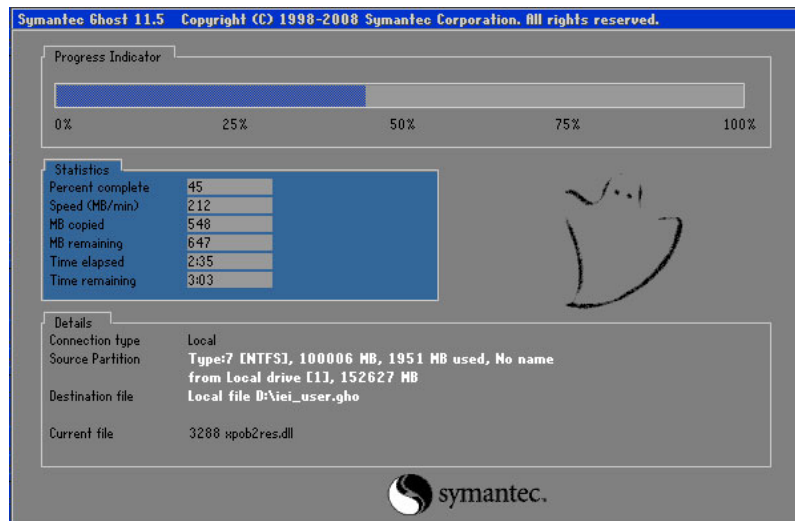
Figure B-29: Backup System

Step 3: The screen is shown as in **Figure B-30** when system backup is completed.

Press any key to reboot the system.
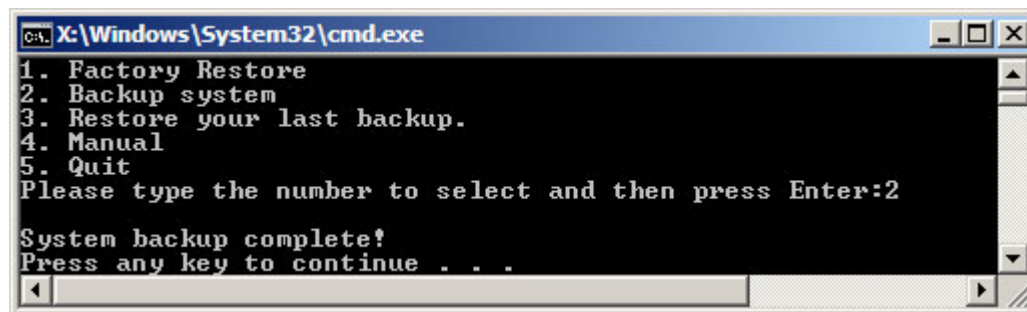
Figure B-30: System Backup Complete Window

B.4.3 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).
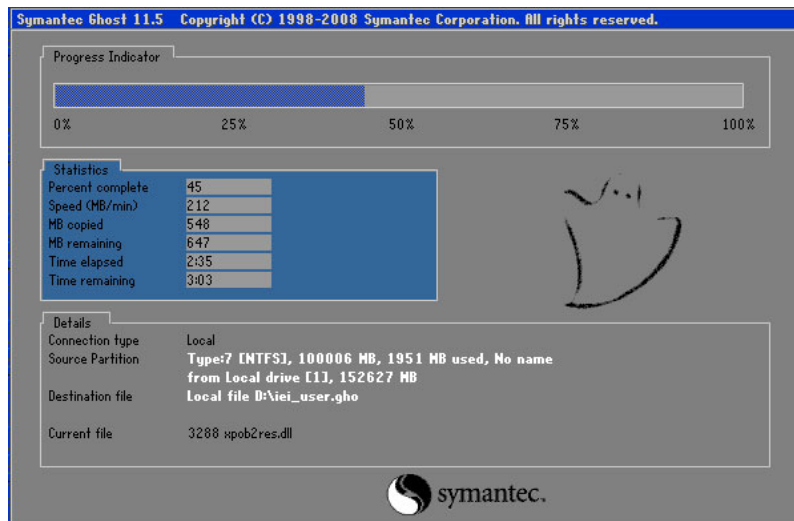
Figure B-31: Restore Backup

Step 3: The screen is shown as in **Figure B-32** when backup recovery is completed. Press any key to reboot the system.
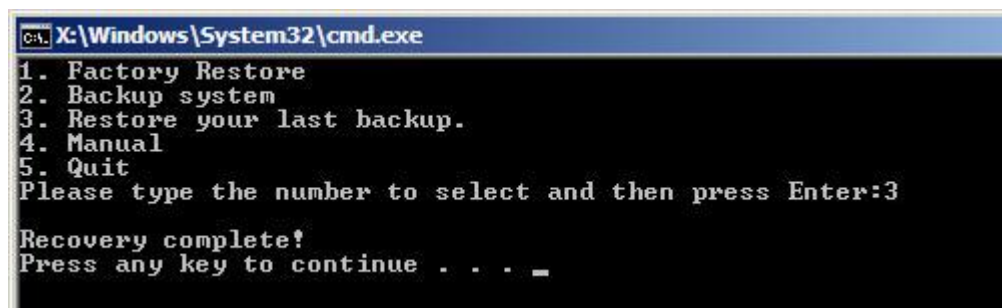
Figure B-32: Restore System Backup Complete Window

B.4.4 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.
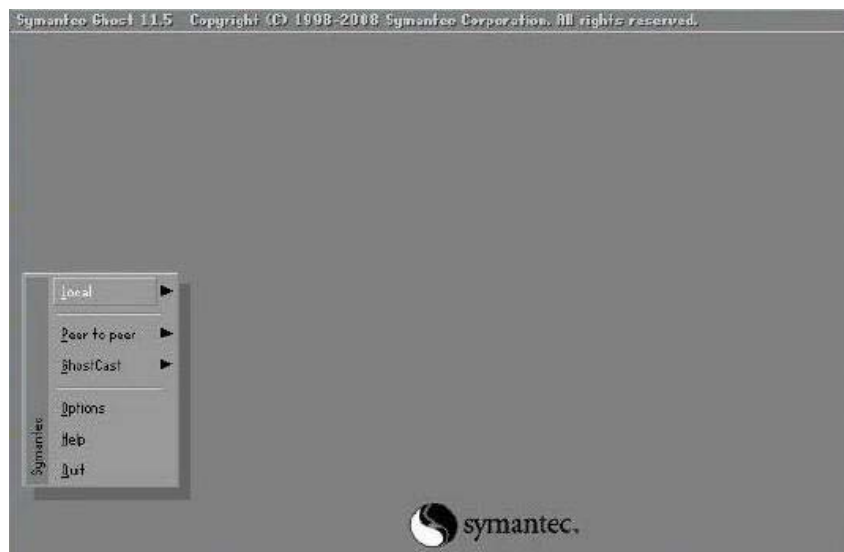
Figure B-33: Symantec Ghost Window

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

B.5 Other Information

B.5.1 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>**.
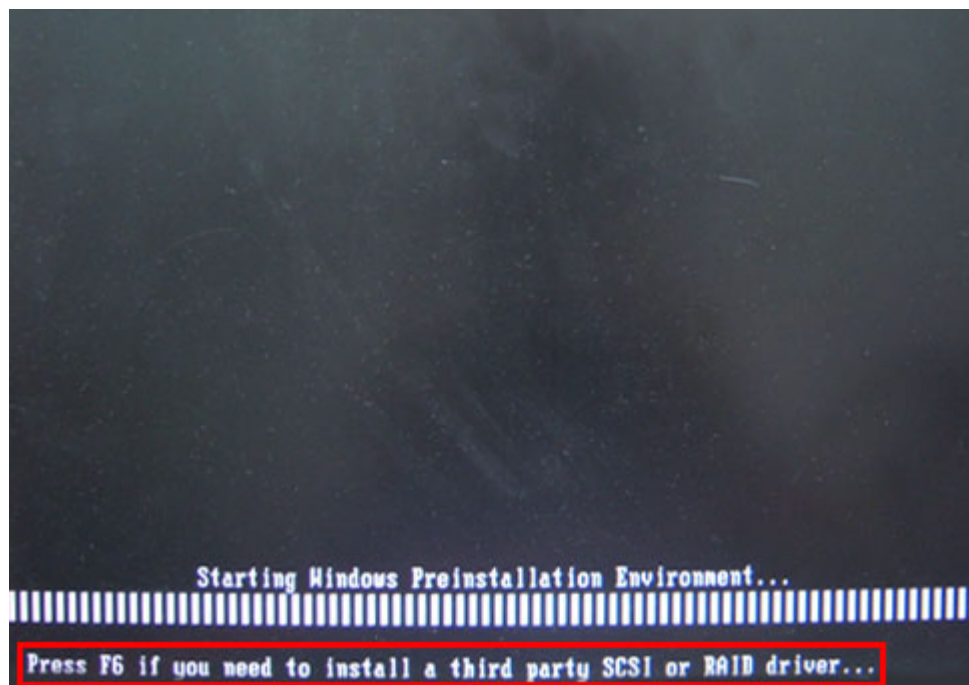
Step 5: When the following window appears, press **<S>** to select "Specify Additional

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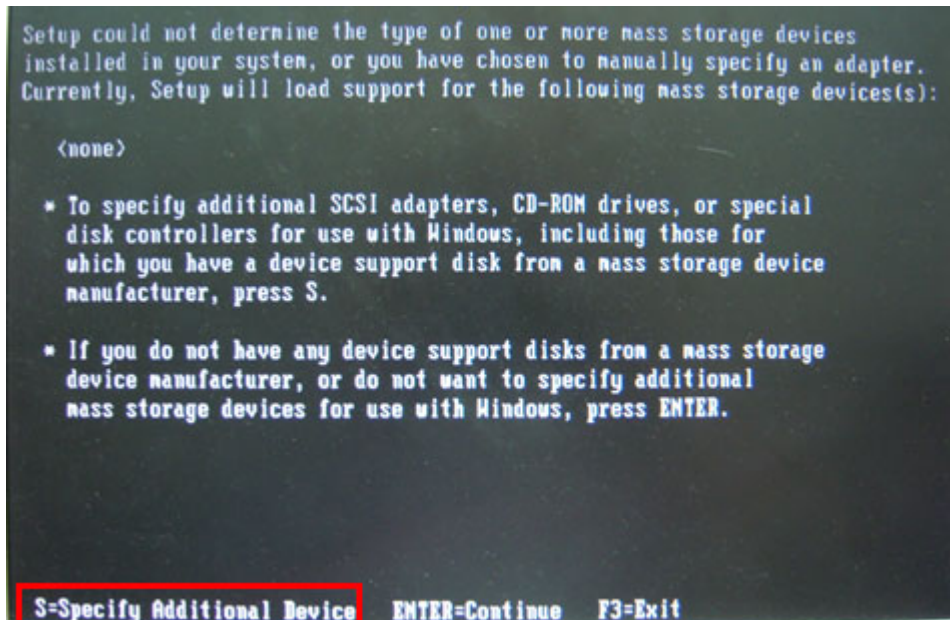
Step 6: In the following window, select a SATA controller mode used in the system. Then

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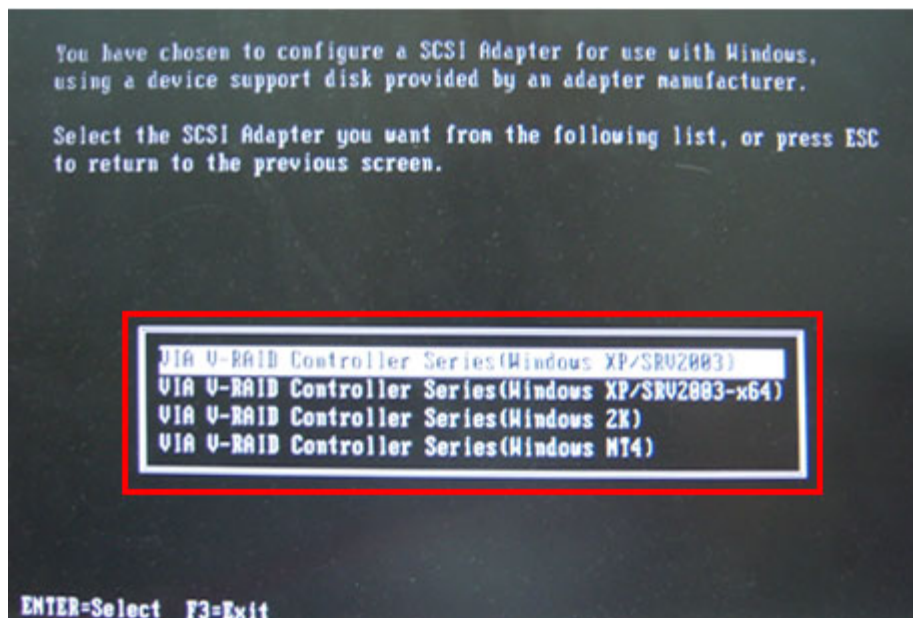
Step 7: After pressing <Enter>, the system will get into the recovery tool setup menu.

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

Partitions to finish the whole setup process.

B.5.2 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

BIOS Options

Below is a list of BIOS configuration options in the BIOS chapter.

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Appendix

D
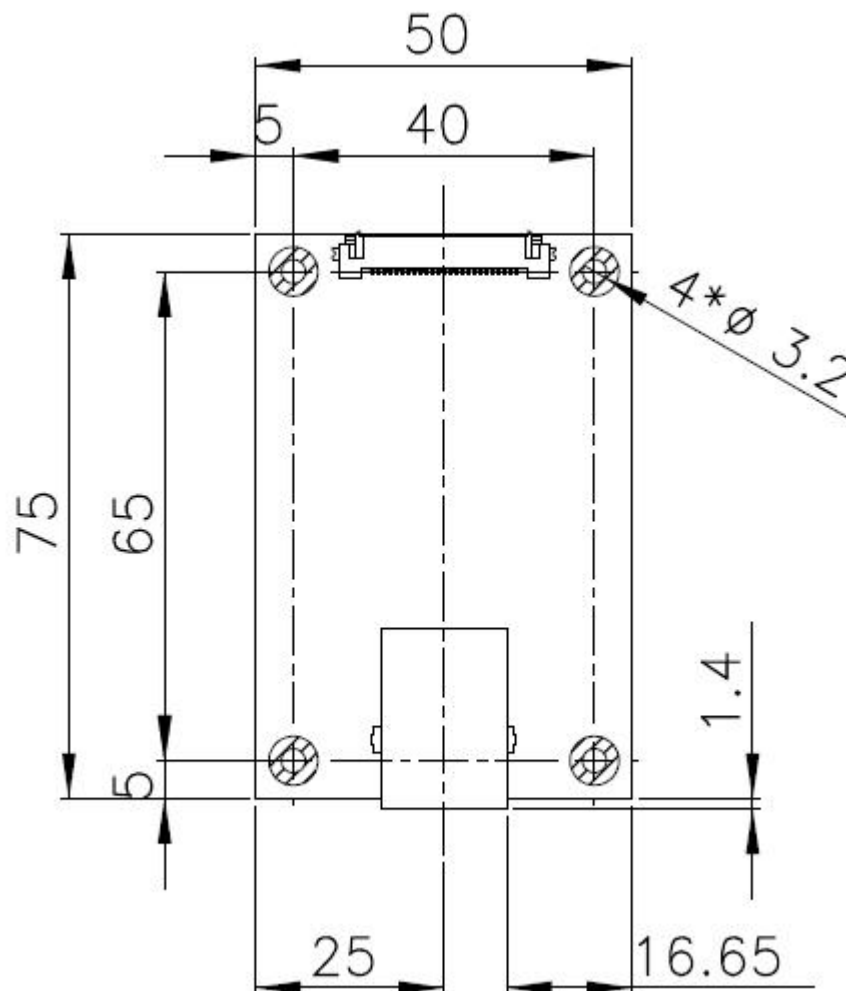
Expansion Module Dimensions

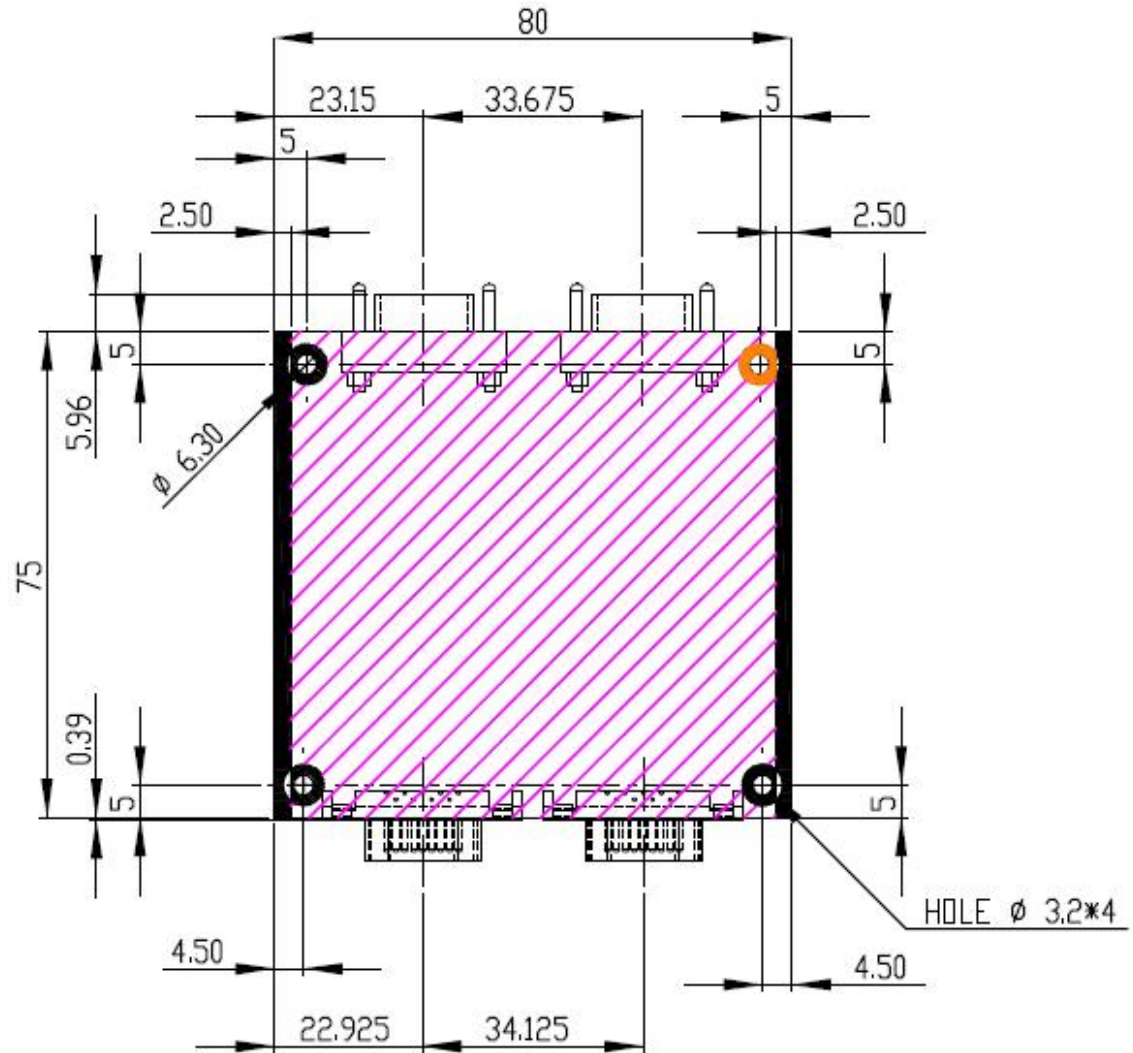## D.1 Type A Module Dimensions (for Slot 1 and Slot 2)

The dimensions of Type A module are listed below.

Figure 4-34: Type A Module Dimensions (for Slot 1 and Slot 2)

D.2 Type B Module Dimensions (for Slot 3)

The dimensions of Type B module are listed below.

Figure 4-35: Type B Module Dimensions (for Slot 3)

Terminology

AC '97	Audio Codec 97 (AC'97) refers to a codec standard developed by Intel® in 1997.
ACPI	Advanced Configuration and Power Interface (ACPI) is an OS-directed configuration, power management, and thermal management interface.
AHCI	Advanced Host Controller Interface (AHCI) is a SATA Host controller register-level interface.
ATA	The Advanced Technology Attachment (ATA) interface connects storage devices including hard disks and CD-ROM drives to a computer.
ARMD	An ATAPI Removable Media Device (ARMD) is any ATAPI device that supports removable media, besides CD and DVD drives.
ASKIR	Amplitude Shift Keyed Infrared (ASKIR) is a form of modulation that represents a digital signal by varying the amplitude ("volume") of the signal. A low amplitude signal represents a binary 0, while a high amplitude signal represents a binary 1.
BIOS	The Basic Input/Output System (BIOS) is firmware that is first run when the computer is turned on and can be configured by the end user
CODEC	The Compressor-Decompressor (CODEC) encodes and decodes digital audio data on the system.
CompactFlash®	CompactFlash® is a solid-state storage device. CompactFlash® devices use flash memory in a standard size enclosure. Type II is thicker than Type I, but a Type II slot can support both types.
CMOS	Complimentary metal-oxide-conductor is an integrated circuit used in chips like static RAM and microprocessors.
COM	COM refers to serial ports. Serial ports offer serial communication to expansion devices. The serial port on a personal computer is usually a male DB-9 connector.
DAC	The Digital-to-Analog Converter (DAC) converts digital signals to analog signals.
DDR	Double Data Rate refers to a data bus transferring data on both the rising and falling edges of the clock signal.

DMA	Direct Memory Access (DMA) enables some peripheral devices to bypass the system processor and communicate directly with the system memory.
DIMM	Dual Inline Memory Modules are a type of RAM that offer a 64-bit data bus and have separate electrical contacts on each side of the module.
DIO	The digital inputs and digital outputs are general control signals that control the on/off circuit of external devices or TTL devices. Data can be read or written to the selected address to enable the DIO functions.
EHCI	The Enhanced Host Controller Interface (EHCI) specification is a register-level interface description for USB 2.0 Host Controllers.
EIDE	Enhanced IDE (EIDE) is a newer IDE interface standard that has data transfer rates between 4.0 MBps and 16.6 MBps.
EIST	Enhanced Intel® SpeedStep Technology (EIST) allows users to modify the power consumption levels and processor performance through application software. The application software changes the bus-to-core frequency ratio and the processor core voltage.
FSB	The Front Side Bus (FSB) is the bi-directional communication channel between the processor and the Northbridge chipset.
GbE	Gigabit Ethernet (GbE) is an Ethernet version that transfers data at 1.0 Gbps and complies with the IEEE 802.3-2005 standard.
GPIO	General purpose input
HDD	Hard disk drive (HDD) is a type of magnetic, non-volatile computer storage device that stores digitally encoded data.
ICH	The Input/Ouput Controll Hub (ICH) is an Intel® Southbridge chipset.
IrDA	Infrared Data Association (IrDA) specify infrared data transmission protocols used to enable electronic devices to wirelessly communicate with each other.
L1 Cache	The Level 1 Cache (L1 Cache) is a small memory cache built into the system processor.
L2 Cache	The Level 2 Cache (L2 Cache) is an external processor memory cache.

LCD	Liquid crystal display (LCD) is a flat, low-power display device that consists of two polarizing plates with a liquid crystal panel in between.
LVDS	Low-voltage differential signaling (LVDS) is a dual-wire, high-speed differential electrical signaling system commonly used to connect LCD displays to a computer.
POST	The Power-on Self Test (POST) is the pre-boot actions the system performs when the system is turned-on.
RAM	Random Access Memory (RAM) is volatile memory that loses data when power is lost. RAM has very fast data transfer rates compared to other storage like hard drives.
SATA	Serial ATA (SATA) is a serial communications bus designed for data transfers between storage devices and the computer chipsets. The SATA bus has transfer speeds up to 1.5 Gbps and the SATA II bus has data transfer speeds of up to 3.0 Gbps.
S.M.A.R.T	Self Monitoring Analysis and Reporting Technology (S.M.A.R.T) refers to automatic status checking technology implemented on hard disk drives.
UART	Universal Asynchronous Receiver-transmitter (UART) is responsible for asynchronous communications on the system and manages the system's serial communication (COM) ports.
UHCI	The Universal Host Controller Interface (UHCI) specification is a register-level interface description for USB 1.1 Host Controllers.
USB	The Universal Serial Bus (USB) is an external bus standard for interfacing devices. USB 1.1 supports 12Mbps data transfer rates and USB 2.0 supports 480Mbps data transfer rates.
VGA	The Video Graphics Array (VGA) is a graphics display system developed by IBM.

Appendix

F

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 EMIs 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 F-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. When 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     BL, 30              ; time-out value is 48 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     BL, 0               ;
        INT     15H
;
;  EXIT ;
```

Hazardous Materials Disclosure

G.1 Hazardous Materials 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	X	O	O	O	O	X
Display	X	O	O	O	O	X
Printed Circuit Board	X	O	O	O	O	X
Metal Fasteners	X	O	O	O	O	O
Cable Assembly	X	O	O	O	O	X
Fan Assembly	X	O	O	O	O	X
Power Supply Assemblies	X	O	O	O	O	X
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	X	O	O	O	O	X
显示	X	O	O	O	O	X
印刷电路板	X	O	O	O	O	X
金属螺帽	X	O	O	O	O	O
电缆组装	X	O	O	O	O	X
风扇组装	X	O	O	O	O	X
电力供应组装	X	O	O	O	O	X
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。						

Appendix

H

International

Standards Compliance

H.1 EN 60601-1, EN 60601-2

The LCD monitor complies with the EN 60601-1 and EN 60601-2 of related European standards.

H.2 FCC

We hereby declare that the equipment specified above conforms to the technical standards as specified in the FCC Rules.

H.3 CCC

声 明

此为 A 级产品，在生活环境中，该产品可能会造成无线电干扰，在这种情况下，可能需要用户对其干扰采取切实可行的措施。