



MODEL:

AFL2-15A-H61 Series

Flat Bezel Panel PC with 2nd Generation Intel® Core™ i7/ i5/ i3,
Pentium® and Celeron® Processor, Touch Screen, Wi-Fi, USB,
GbE LAN , RS-232/422/485, 1.3M pixels Camera,
HD Audio and RoHS

User Manual

Revision

| Date | Version | Changes |
|------------------|---------|--|
| 25 July, 2013 | 1.01 | Added information of the CPU temperature alert LED in Section 1.2.1.1. Updated Section 8.3.7: RS-422/485 RJ-45 Serial Port (COM3) |
| 11 October, 2012 | 1.00 | Initial release |

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Chapter

1

Introduction

1.1 Overview



Figure 1-1: AFL2-15A-H61 Flat Bezel Panel PC

The AFL2-15A-H61 is a 2nd Generation Intel® Core™ i7/ i5/ i3, Celeron® or Pentium® processor powered flat bezel panel PC with a rich variety of functions and peripherals. The AFL2-15A-H61 is designed for easy and simplified integration into kiosk and point-of-sales (POS) applications.

An Intel® H61 chipset ensures optimal memory, graphics, and peripheral I/O support. The system comes with two 2.0 GB of DDR3 SO-DIMMs ensuring smooth data throughputs with reduced bottlenecks and fast system access.

Three serial ports, three external USB 2.0 ports and two external USB 3.0 ports ensure simplified connectivity to a variety of external peripheral devices. Wi-Fi capabilities and one RJ-45 Ethernet connector provide the system with smooth connection to an external LAN. An optional MSR card reader can equip the system for scanning credit cards, identification cards, loyalty cards, gift cards, and more.

AFL2-15A-H61

1.1.1 Model Variations

The model variations of the AFL2-15A-H61 Series are listed below.

| Model No. | Touchscreen Type | Optional Features |
|-------------------------------------|-----------------------|--------------------|
| Intel® Core™ i5 Series | | |
| AFL2-15A-H61-i5/PC-EM-R10 | Projective capacitive | EM card reader |
| AFL2-15A-H61-i5/PC-MF-R10 | Projective capacitive | MIFARE card reader |
| AFL2-15A-H61-i5/PC-R10 | Projective capacitive | N/A |
| AFL2-15A-H61-i5/R-EM-R10 | 5-Wire Resistive | EM card reader |
| AFL2-15A-H61-i5/R-MF-R10 | 5-Wire Resistive | MIFARE card reader |
| AFL2-15A-H61-i5/R-R10 | 5-Wire Resistive | N/A |
| Intel® Core™ i3 Series | | |
| AFL2-15A-H61-i3/PC-EM-R10 | Projective capacitive | EM card reader |
| AFL2-15A-H61-i3/PC-MF-R10 | Projective capacitive | MIFARE card reader |
| AFL2-15A-H61-i3/PC-R10 | Projective capacitive | N/A |
| AFL2-15A-H61-i3/R-EM-R10 | 5-Wire Resistive | EM card reader |
| AFL2-15A-H61-i3/R-MF-R10 | 5-Wire Resistive | MIFARE card reader |
| AFL2-15A-H61-i3/R-R10 | 5-Wire Resistive | N/A |
| Intel® Pentium® G6xxT Series | | |
| AFL2-15A-H61-P/PC-EM-R10 | Projective capacitive | EM card reader |
| AFL2-15A-H61-P/PC-MF-R10 | Projective capacitive | MIFARE card reader |
| AFL2-15A-H61-P/PC-R10 | Projective capacitive | N/A |
| AFL2-15A-H61-P/R-EM-R10 | 5-Wire Resistive | EM card reader |
| AFL2-15A-H61-P/R-MF-R10 | 5-Wire Resistive | MIFARE card reader |
| AFL2-15A-H61-P/R-R10 | 5-Wire Resistive | N/A |

Table 1-1: AFL2-15A-H61 Model Variations

1.1.2 Features

The AFL2-15A-H61 features are listed below:

- Flat-bezel LCD with LED backlight
- 2nd Generation Intel® Core™ i7/ i5/ i3, Pentium® and Celeron® processor

- Two 204-pin DDR3 SO-DIMM slot (system max. 16GB) preinstalled with 4GB (two 2GB) memory
- Projected capacitive touchscreen and 5-wire resistive type touchscreen supported
- Wi-Fi 802.11b/g/n 2T2R high speed wireless
- EM or Mifare RFID reader
- Built-in 1.3-megapixel webcam with AF, AE and AWB capabilities
- Built-in two 2W speakers and microphone
- IP64 compliant front panel
- Auto dimming control
- Light fanless technology design
- Type K thermocouple temperature

1.1.3 Light Fanless Technology Design

AFL2-15A-H61 series panel PCs are designed with light fanless technology. The light fanless technology utilizes type K thermocouple temperature sensor to detect environment temperature and control fan operation to enhance system stability and remote environment control. When the environment temperature is lower than default temperature setting, the fan will turn off, showing the advantage of quiet and dust free from fanless mode. While the environment temperature is higher, the smart fan will turn on to speed up heat emission. The default temperature setting can be adjusted in BIOS (see Section 4.3.9). The system can be easily implemented in working environments that require quiet and dust free, like clean rooms, indoor HMI, and hospitals.

1.2 External Overview

1.2.1 Front Panel

The front side of the AFL2-15A-H61 is a flat bezel panel TFT LCD screen surrounded by a PC/ABS plastic frame.

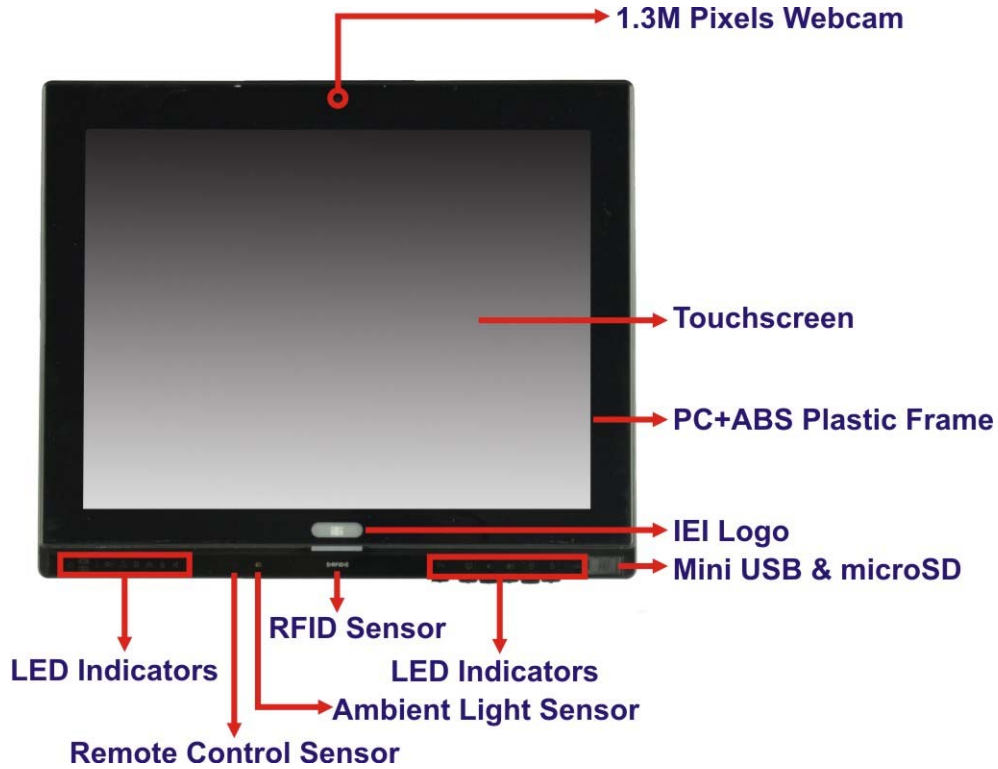


Figure 1-2: Front View

1.2.1.1 LED Indicators

There are several LED indicators located along the bottom of the LCD screen (Figure 1-3).

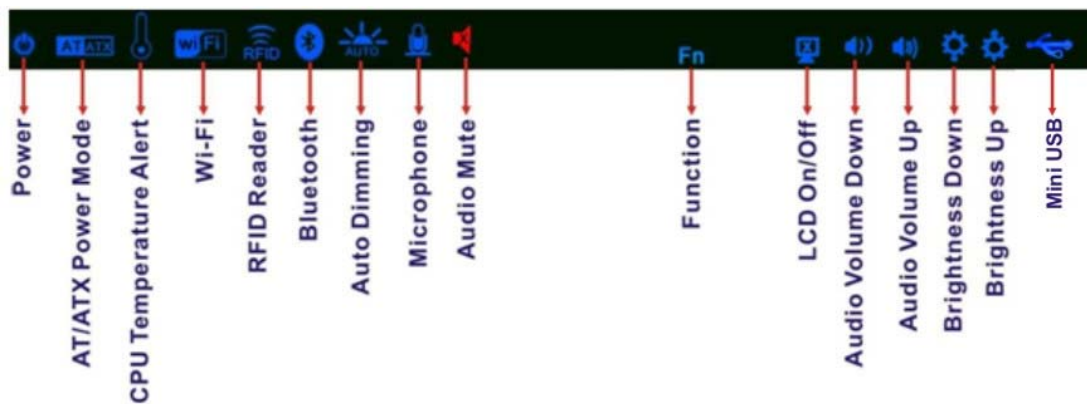


Figure 1-3: LED Indicators

The descriptions of each LED indicator are listed below.

| LED Indicator | Description |
|-----------------------|---|
| Power | <p>Off: power cord not attached or power supply failure</p> <p>Blinking amber: the system is connected to a power source and is ready to be turned on.</p> <p>Solid blue: the system is turned on.</p> <p><i>Power on/off by the hot keys. See Table 1-3</i></p> |
| AT/ATX Mode | <p>AT: the system is in AT power mode</p> <p>ATX: the system is in ATX power mode</p> <p><i>Controlled by the AT/ATX power mode switch.</i></p> |
| CPU Temperature Alert | <p>Blue: CPU temperature is normal.</p> <p>Red: CPU temperature is at or over 80°C.</p> |
| Wi-Fi | <p>On: the Wi-Fi module is enabled</p> <p>Off: the Wi-Fi module is disabled.</p> <p><i>Controlled by the BIOS. See Section 4.5.2</i></p> |
| RFID | <p>On: the optional RFID reader is enabled</p> <p>Off: the optional RFID reader is disabled.</p> <p><i>Controlled by the hot keys. See Table 1-3</i></p> |
| Bluetooth | <p>On: the Bluetooth module is enabled</p> <p>Off: the Bluetooth module is disabled.</p> <p><i>Controlled by the BIOS. See Section 4.5.2</i></p> |
| Auto-Dimming | <p>On: the auto-dimming function is enabled</p> <p>Off: the auto-dimming function is disabled.</p> <p><i>Hold down Fn key for 3 seconds to enable/disable auto-dimming function or control via BIOS setting (see Section 4.5.2).</i></p> |
| Microphone | <p>On: the microphone is enabled</p> <p>Off: the microphone is disabled.</p> <p><i>Controlled by the BIOS. See Section 4.5.2</i></p> |
| Audio Mute | <p>On (solid red): the audio is turned off</p> <p>Off: the audio is turned on</p> <p><i>Controlled by the hot keys. See Table 1-3</i></p> |
| Mini USB | <p>On: the Mini USB 2.0 module is enabled</p> <p>Off: the Mini USB 2.0 module is disabled.</p> <p><i>Controlled by the hot keys. See Table 1-3</i></p> |
| Function | Shows the status of the function keys below the LED |

| LED Indicator | Description |
|-------------------|---|
| LCD On/Off | indicators. Blinks when the corresponding button is pushed. |
| Audio Volume Down | |
| Audio Volume Up | |
| Brightness Down | |
| Brightness Up | |

Table 1-2: LED Indicators



WARNING:

When the CPU temperature is at or over 80°C, the CPU temperature alert LED shows in red. If the alert LED turns red, the user must lower the environments temperature or close some running applications to cool down the CPU.

1.2.1.2 Function Keys

The function keys are located under the bottom right hand corner of the LCD screen (Figure 1-4).

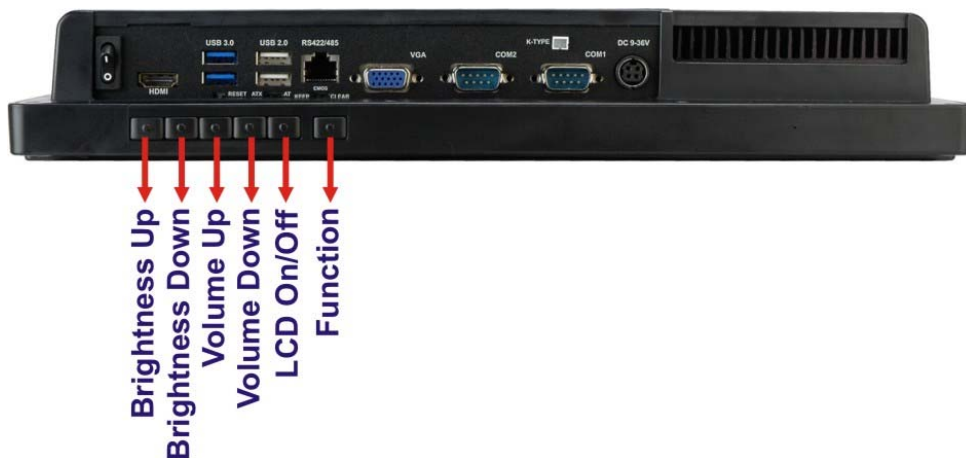


Figure 1-4: Function Keys

The function keys are described in **Table 1-3**:

| Key Combination | Function Key Description |
|--|---|
| Fn | Hold down Fn key for 3 seconds to enable/disable auto-dimming function. |
| Fn + LCD On/Off | Enable/Disable RFID |
| Fn + Audio Volume Down | Mute audio |
| Fn + Audio Volume Up | Enable/Disable camera |
| Fn + Brightness Down | Enable/Disable Mini USB or microSD |
| Fn + Brightness Up | Power On/Off Note: To power on the system, hold down the Fn + Brightness Up buttons for six seconds. To power down the system, hold down the Fn + Brightness Up buttons for six seconds. |
| Fn: The function key can maintain for 2 seconds. | |

Table 1-3: Function Key Descriptions

1.2.2 Rear Panel

The rear panel provides access to retention screw holes that support VESA mounting. The HDD bay and CF slot are protected by the HDD cover. Refer to **Figure 1-5**.



Figure 1-5: Rear View

AFL2-15A-H61

1.2.3 Bottom Panel

The bottom panel of the AFL2-15A-H61 has the following connectors and switches (Figure 1-6):

- 1 x AT/ATX switch
- 1 x Clear CMOS switch
- 1 x 9V ~ 36V DC input power jack
- 6 x Function keys
- 1 x HDMI port
- 1 x Power button
- 1 x Reset button
- 2 x RS-232 DB-9 connectors
- 1 x RS-422/485 RJ-45 connector
- 1 x Type K thermocouple connector
- 2 x USB 2.0 connectors
- 2 x USB 3.0 connectors
- 1 x VGA port

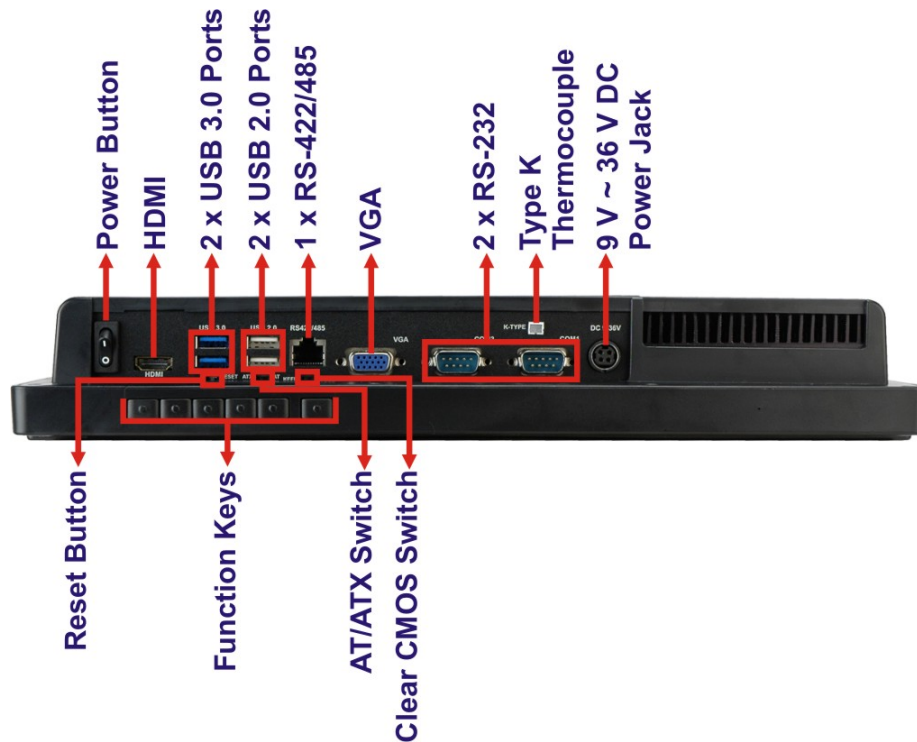


Figure 1-6: Bottom Panel

1.2.4 Side Panels

The side panels of the AFL2-15A-H61 have the following features (**Figure 1-7**):

- 2 x Audio jacks (Line-out, Mic-in)
- 1 x RJ-45 LAN connector
- 1 x USB 2.0 connector
- 1 x Temperature sensor (left side panel)



Figure 1-7: Side Panels

1.3 Dimensions

The AFL2-15A-H61 dimensions are shown below.

- **Width:** 363.2 mm
- **Height:** 305.1 mm
- **Depth:** 58.8 mm

AFL2-15A-H61

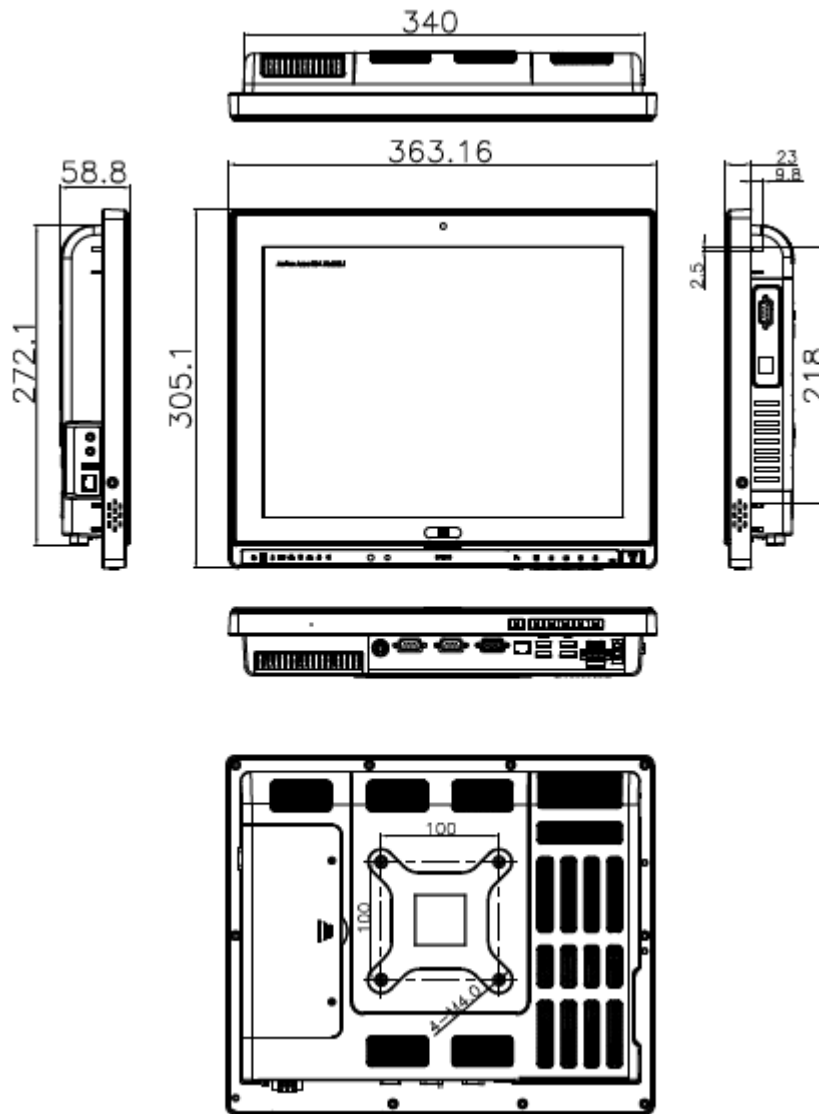


Figure 1-8: AFL2-15A-H61 Dimensions (mm)

1.4 Internal Overview

The AFL2-15A-H61 has the following components installed internally:

- 1 x Motherboard
- 2 x 2.0 GB 1333 MHz DDR3 SO-DIMMs
- 1 x 802.11 b/g/n wireless LAN module

1.5 System Specifications

The technical specifications for the AFL2-15A-H61 systems are listed in **Table 1-4**.

| Specification | AFL2-15A-H61 |
|---------------------------------|---|
| LCD Size | 15" (4:3) |
| Max. Resolution | 1024 (W) x 768 (H) |
| Brightness (cd/m ²) | 400 |
| Contrast Ratio | 700:1 |
| LCD Color | 16.2M |
| Pixel Pitch (H x V) (mm) | 0.297(H) x 0.297 (V) |
| Viewing Angle (H-V) | 160° / 140° |
| Backlight MTBF (hr) | 50,000 |
| Touchscreen | 5-Wire resistive type touch screen (R models only) Projected capacitive type touch screen (PC models only) |
| CPU | 2nd Generation Intel® Core™ i7/ i5/ i3, Pentium® or Celeron® processor |
| Chipset | Intel® H61 |
| Ethernet | Realtek RTL8111E PCIe GbE controller support ASF2.0 |
| Memory | Preinstalled two 204-pin 2 GB DDR3 SO-DIMM (max. 16G) |
| Expansion | 1 x PCIe Mini slot for Wi-Fi module 1 x PCIe Mini slot reserved |
| SSD | CF Type II socket |
| HDD | 2.5" SATA 3Gb/s HDD bay |
| Audio | Realtek ALC892 HD Audio codec (Line-out, Mic-in) |
| Speaker | AMP 2 W + 2 W (built-in stereo speakers) |
| Camera | 1.3 M pixels with low light function |
| Wireless | 1 x Wireless LAN 802.11 b/g/n module (PCIe Mini card) |
| Bluetooth | Optional internal USB interface, Bluetooth V2.0+EDR |
| RFID Reader | EM 125 KHz or MIFARE 13.56 MHz card reader (optional) |
| MSR Card Reader | MSR card reader (optional) |
| OSD Function | LCD on/off, brightness up/down, volume up/down, Hot Key |
| Construction Material | PC + ABS plastic front frame |
| Mounting | VESA 100 mm x 100 mm (Wall, Stand or Arm) |

AFL2-15A-H61

| | |
|------------------------------------|---|
| Front Panel Color | Black |
| Weight (N/G) | 5.2 kg / 7.3 kg |
| Dimensions (W x H x D) (mm) | 363.2 x 305.1 x 58.8 |
| Operating Temperature | -20°C ~ 50°C |
| Storage Temperature | -20°C ~ 60°C |
| Humidity | 10% ~ 95% (no-condensing) |
| IP level | IP 64 compliant front panel |
| Power Supply | 90W power adapter |
| | Input: 100V AC ~ 240V AC @ 50 / 60 Hz |
| | Output: 19V DC |
| Power Requirement | 9V ~ 36V DC |
| Power Consumption | 19V@3.42A (Intel® Core™ i3-2100T CPU with 4GB 1333 MHz DDR3 memory) |
| I/O Ports and Switches | 2 x RS-232 (DB-9 connector) |
| | 1 x GbE LAN (RJ-45 connector) on left side |
| | 1 x RS-422/485 (RJ-45 connector) |
| | 3 x USB 2.0 connectors (two on bottom side, one on left side) |
| | 2 x USB 3.0 connectors |
| | 1 x Mini USB 2.0 connector (on front panel) |
| | 1 x microSD card slot (on front panel) |
| | 2 x Audio jacks (line-out, MIC) |
| | 1 x VGA port (DB15 connector) |
| | 1 x HDMI port |
| | 1 x Power switch |
| | 1 x AT/ATX switch |
| | 1 x Reset button |
| | 1 x Clear CMOS button |
| 1 x 9 V ~ 36 V DC input jack | |

Table 1-4: System Specifications

Chapter

2

Unpacking

AFL2-15A-H61

2.1 Unpacking

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




WARNING!












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

- Step 1:** Use box cutters, a knife or a sharp pair of scissors that seals the top side of the external (second) box.
- Step 2:** Open the external (second) box.
- Step 3:** Use box cutters, a knife or a sharp pair of scissors that seals the top side of the internal (first) box.
- Step 4:** Lift the monitor out of the boxes.
- Step 5:** Remove both polystyrene ends, one from each side.
- Step 6:** Pull the plastic cover off the flat bezel panel PC.
- Step 7:** Make sure all the components listed in the packing list are present.




2.1.1 Packing List

The AFL2-15A-H61 flat bezel panel PC is shipped with the following components:

| Quantity | Item | Image |
|-----------------|-----------------------|---|
| Standard | | |
| 1 | AFL2-15A-H61 panel PC |  |

| | | |
|---|--|---|
| 1 | Power adapter (P/N: 63040-010090-020-RS) |  |
| 1 | Power cord (P/N: 32702-000401-100-RS) |  |
| 1 | Power transfer cord (P/N: 32702-000300-100-RS) |  |
| 1 | RJ-45 to DB-9 COM Port Cable (P/N: 32005-000200-200-RS) |  |
| 1 | OSD Remote Control (P/N: 7Z000-SLPCB005-RS) |  |
| 1 | Temperature sensor cable (P/N: 32133-004300-100-RS) |  |
| 1 | Pen for resistive touchscreen (P/N: 43125-0002C0-00-RS) |  |
| 4 | M3 screw pack (P/N: 44013-030041-RS) |  |
| 4 | M4 screw pack (P/N: 44033-040061-RS) |  |
| 1 | Utility CD |  |
| 1 | One Key Recovery CD (P/N: 7B000-000724-RS) |  |

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| Optional | |
|--|---|
| Wall mounting kit (P/N: AFLWK-19/AFLWK-19B) |  |
| Arm (P/N: ARM-11-RS/ARM-31-RS) |  |
| Stand (P/N: STAND-A19/ STAND-B19/ STAND-C19/ STAND-210-R11) |  |
| Hybrid Card Reader (P/N: AFL2P-12AMSI-U-R10) |  |
| Magnetic Stripe Reader (P/N: AFL2P-12AMSR-U-R10) |  |
| Bluetooth Module Kit (P/N: AFL2-BT-KIT01-R11) | |
| OS: Win CE 6.0 (128MB CF Card) (P/N: AFL2CF-15A-H61-CE060-128M-R10) | |
| OS: Win XPE (2GB CF Card) (P/N: AFL2CF-15A-H61-XPE-2G-R10) | |
| OS: Win XPE (4GB CF Card) (P/N: AFL2CF-15A-H61-XPE-4G-R10) | |

| | |
|---|--|
| OS: Linux (2GB CF Card) (P/N: AFL2CF-15A-H61-LNX-2G-R10) | |
| OS: Win 7 Embedded (4GB CF Card) (P/N: AFL2CF-15A-H61-WES7P-4G-R10 AFL2CF-15A-H61-WES7E-4G-R10) | |

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

Chapter

3

Installation

3.1 Anti-static Precautions

**WARNING:**

Failure to take ESD precautions during the maintenance of the AFL2-15A-H61 may result in permanent damage to the AFL2-15A-H61 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the AFL2-15A-H61. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the AFL2-15A-H61 is accessed internally, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- **Wear an anti-static wristband:** - Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- **Self-grounding:** - Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- **Use an anti-static pad:** - When configuring the AFL2-15A-H61, place it on an anti-static pad. This reduces the possibility of ESD damaging the AFL2-15A-H61.
- **Only handle the edges of the PCB:** - When handling the PCB, hold the PCB by the edges.

3.2 Installation Precautions

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

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

AFL2-15A-H61

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

3.3 Installation and Configuration Steps

The following installation steps must be followed.

- Step 1:** Unpack the flat bezel panel PC.
- Step 2:** Install the HDD.
- Step 3:** Install the CF card.
- Step 4:** Install the RFID reader. (optional)
- Step 5:** Configure the system.
- Step 6:** Connect peripheral devices to the flat bezel panel PC.
- Step 7:** Mount the flat bezel panel PC.

3.4 HDD Installation



WARNING:

Over-tightening back cover screws will crack the plastic frame.
Maximum torque for cover screws is 5 kg-cm (0.36 lb-ft/0.49 Nm).

To install the HDD into the AFL2-15A-H61, please follow the steps below:

- Step 1:** Remove two (2) retention screws from the HDD cover (**Figure 3-1**).



Figure 3-1: HDD Cover Retention Screws

Step 2: Remove the HDD cover from the device.

Step 3: Loosen the captive screw to release the HDD bracket from the chassis. Slide the HDD bracket out of the device as shown (**Figure 3-2**).



Figure 3-2: HDD Bracket Removal

Step 4: Insert an HDD into the bracket as shown (**Figure 3-3**).

AFL2-15A-H61



Figure 3-3: Inserting the HDD

Step 5: Secure the HDD to the bracket using four (4) retention screws (two screws on each side) (Figure 3-4).



Figure 3-4: Securing the HDD

Step 6: Slide the HDD module back into the device.

Step 7: Tighten the captive screw.

Step 8: Replace the HDD cover and secure it using two (2) retention screws.

3.5 CF Card Installation

The AFL2-15A-H61 has one CF Type II slot under the HDD bay. To install the CF card, follow the instructions below.

Step 1: Remove two (2) retention screws from the HDD cover (Figure 3-1).

Step 2: Remove the HDD cover from the device.

Step 3: Locate the CF slot (Figure 3-5).

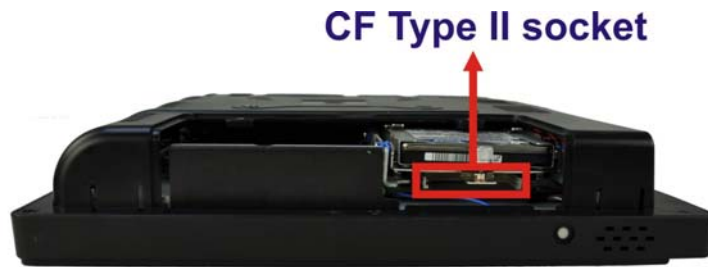


Figure 3-5: CF Card Location

Step 4: Insert a CF card into the slot (Figure 3-6).



Figure 3-6: Insert CF Card

Step 5: Replace the HDD cover and secure it using two (2) retention screws.

AFL2-15A-H61

3.6 RFID Reader Installation (Optional)

An optional RFID reader can be installed in the AFL2-15A-H61. To install the RFID reader, follow the instructions below.

Step 1: Remove a total of ten (10) retention screws from the back cover (**Figure 3-7**).



Figure 3-7: Back Cover Retention Screws

Step 2: Remove the six (6) retention screws securing the internal aluminum cover to the chassis (**Figure 3-8**).



Figure 3-8: Internal Cover Retention Screws

Step 3: Install the RFID reader module in the location shown in **Figure 3-9** by two retention screws.

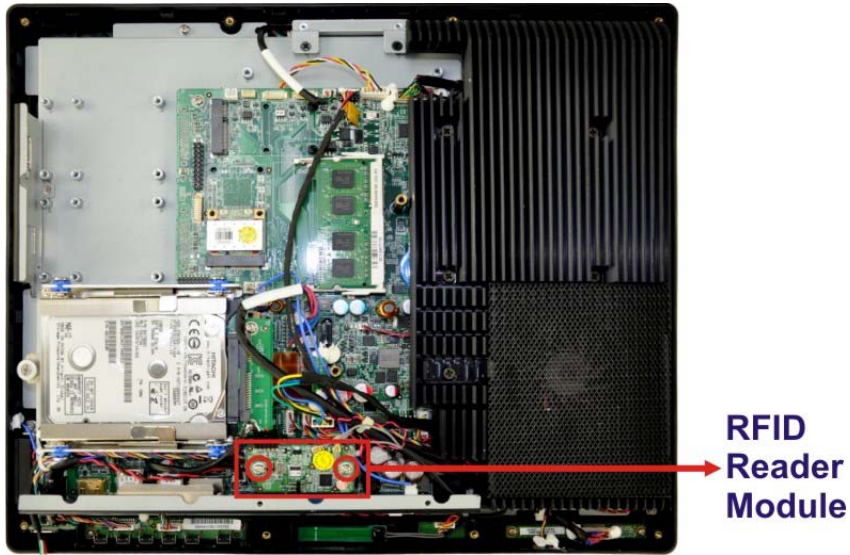


Figure 3-9: RFID Reader Module Installation

Step 4: Connect the RFID module to the RFID connector on the main board (**Figure 3-10**). The RFID connector pinouts are listed in Section 8.2.17.

Step 5: Place the RFID antenna on the location shown in **Figure 3-10**. Connect the RFID antenna to the RFID antenna connector on the RFID module.

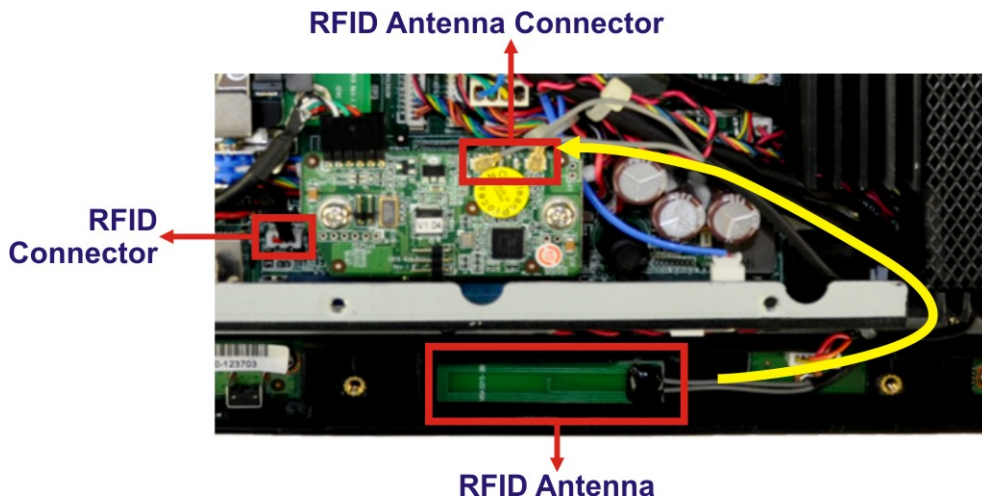


Figure 3-10: RFID Reader Connection

AFL2-15A-H61

Step 6: Replace the internal cover and back cover using previously removed retention screws.

3.7 AT/ATX Mode Selection

AT or ATX power mode can be used on the AFL2-15A-H61. The selection is made through an AT/ATX switch located on the bottom panel. To select AT mode or ATX mode, follow the steps below.

Step 1: Locate the AT/ATX switch on the bottom panel (**Figure 3-11**).



Figure 3-11: AT/ATX Switch Location

Step 2: Adjust the AT/ATX switch.

3.7.1 AT Power Mode

With the AT mode selected, the power is controlled by a central power unit rather than a power switch. The AFL2-15A-H61 panel PC turns on automatically when the power is connected. The AT mode benefits a production line to control multiple panel PCs from a central management center and other applications including:

- ATM
- Self-service kiosk
- Plant environment monitoring system
- Factory automation platform
- Manufacturing shop flow

3.7.2 ATX Power Mode

With the ATX mode selected, the AFL2-15A-H61 panel PC goes in a standby mode when it is turned off. The panel PC can be easily turned on via network or a power switch in standby mode. Remote power control is perfect for advertising applications since the

broadcasting time for each panel PC can be set individually and controlled remotely. Other possible application includes

- Security surveillance
- Point-of-Sale (POS)
- Advertising terminal

3.8 Clear CMOS

If the AFL2-15A-H61 fails to boot due to improper BIOS settings, the clear CMOS switch clears the CMOS data and resets the system BIOS information. To do this, adjust the clear CMOS switch to clear CMOS mode for a few seconds then reinstall the clear CMOS switch back to keep CMOS mode.

Step 1: Locate the clear CMOS switch on the bottom panel (**Figure 3-12**).



Figure 3-12: Clear CMOS Switch Location

Step 2: Adjust the clear CMOS switch.

3.9 Reset the System

The reset button enables user to reboot the system when the system is turned on. To reboot the system, follow the steps below.

Step 1: Locate the reset button on the bottom panel (**Figure 3-13**).



Figure 3-13: Reset Button Location

AFL2-15A-H61

Step 2: Press the reset button.

3.10 Powering On the System

To power on the system, follow the steps below:

Step 1: Locate the **Function** and **Brightness Up** function keys. See **Section 1.2.1.2**.

Step 2: Hold down the Function and Brightness Up buttons for **three** seconds to power on the system.

3.11 Powering Off the System

To power off the system, follow the steps below:

Step 1: Locate the **Function** and **Brightness Up** function keys. See **Section 1.2.1.2**.

Step 2: Hold down the Function and Brightness Up buttons for **six** seconds to power off the system.

3.12 Mounting the System



WARNING:

When mounting the flat bezel panel PC onto an arm, onto the wall or onto a panel, it is better to have more than one person to help with the installation to make sure the panel PC does not fall down and get damaged.

The three methods of mounting the AFL2-15A-H61 are listed below.

- Wall mounting
- Arm mounting
- Stand mounting

The three mounting methods are described below.

3.12.1 Wall Mounting

To mount the flat bezel panel PC onto the wall, please follow the steps below.

- Step 1:** Select the location on the wall for the wall-mounting bracket.
- Step 2:** Carefully mark the locations of the four screw holes in the bracket on the wall.
- Step 3:** Drill four pilot holes at the marked locations on the wall for the bracket retention screws.
- Step 4:** Align the wall-mounting bracket screw holes with the pilot holes.
- Step 5:** Secure the mounting-bracket to the wall by inserting the retention screws into the four pilot holes and tightening them (**Figure 3-14**).

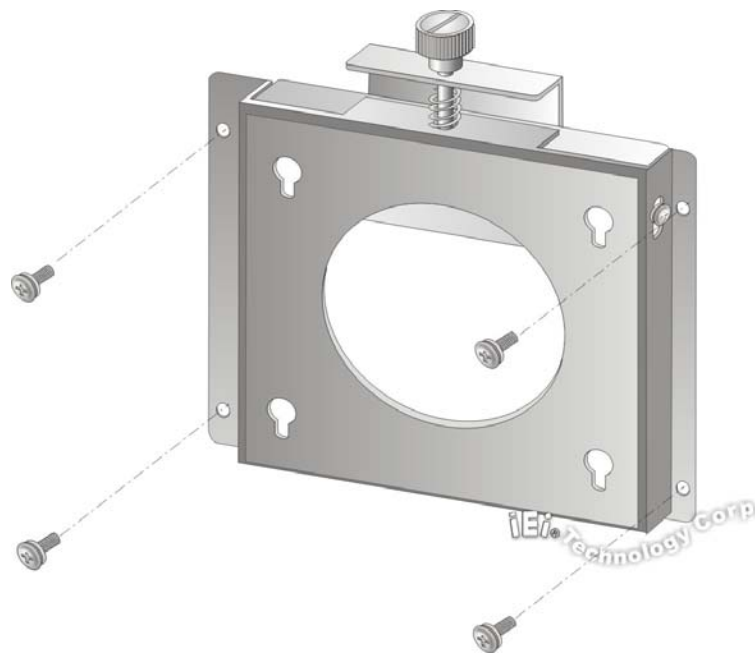


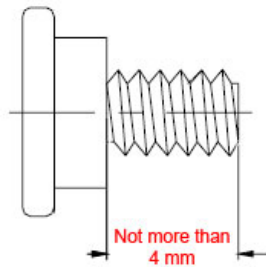
Figure 3-14: Wall-mounting Bracket

AFL2-15A-H61

Step 6: Insert the four monitor mounting screws provided in the wall mount kit into the four screw holes on the rear panel of the flat bezel panel PC and tighten until the screw shank is secured against the rear panel (**Figure 3-15**).

**WARNING:**

Please use the M4 screws provided in the wall mount kit for the rear panel. If the screw is missing, the thread depth of the replacement screw should be not more than 4 mm.



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

Step 8: Carefully insert the screws through the holes and gently pull the monitor downwards until the monitor rests securely in the slotted holes (**Figure 3-15**). Ensure that all four of the mounting screws fit snugly into their respective slotted holes.

**NOTE:**

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

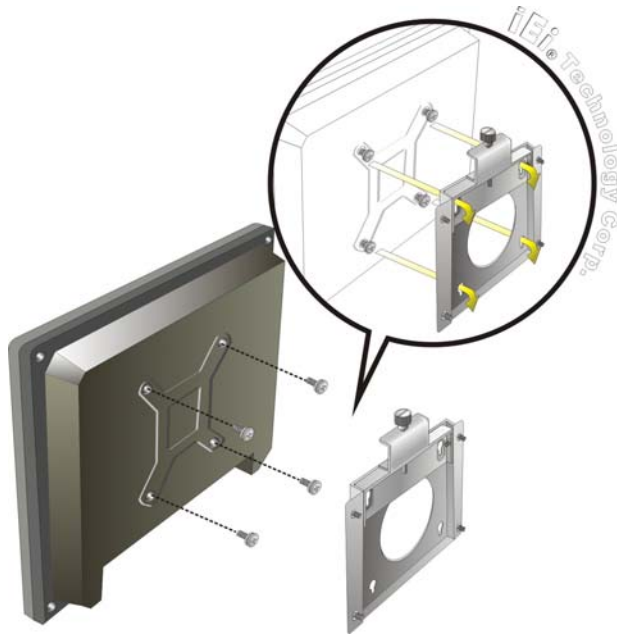


Figure 3-15: Chassis Support Screws

Step 9: Secure the panel PC by fastening the retention screw of the wall-mounting bracket. (**Figure 3-16**).

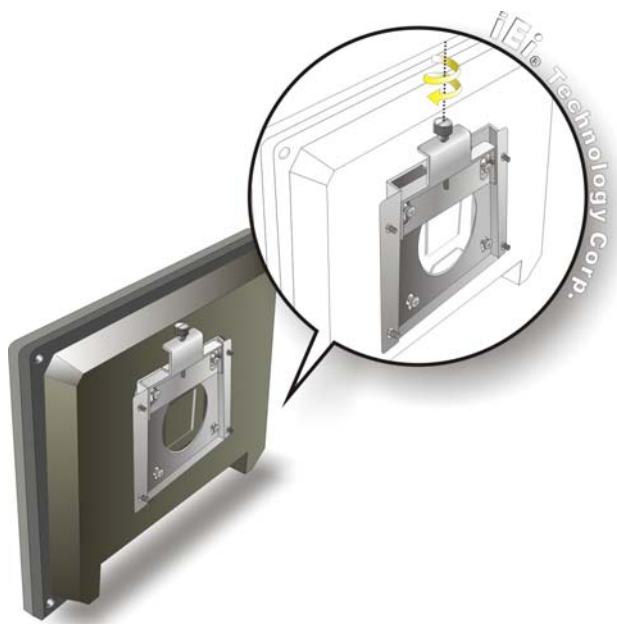


Figure 3-16: Secure the Panel PC

AFL2-15A-H61

3.12.2 Arm Mounting

The AFL2-15A-H61 is VESA (Video Electronics Standards Association) compliant and can be mounted on an arm with a 100mm interface pad. To mount the AFL2-15A-H61 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:

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 AFL2-15A-H61 flat bezel panel PC.

Step 2: Once the mounting arm has been firmly attached to the surface, lift the flat bezel panel PC onto the interface pad of the mounting arm.

Step 3: Align the retention screw holes on the mounting arm interface with those in the flat bezel panel PC (**Figure 3-17**).



Figure 3-17: Arm Mounting Retention Screw Holes

- Step 4:** Secure the AFL2-15A-H61 to the interface pad by inserting four retention screws through the mounting arm interface pad and into the AFL2-15A-H61.

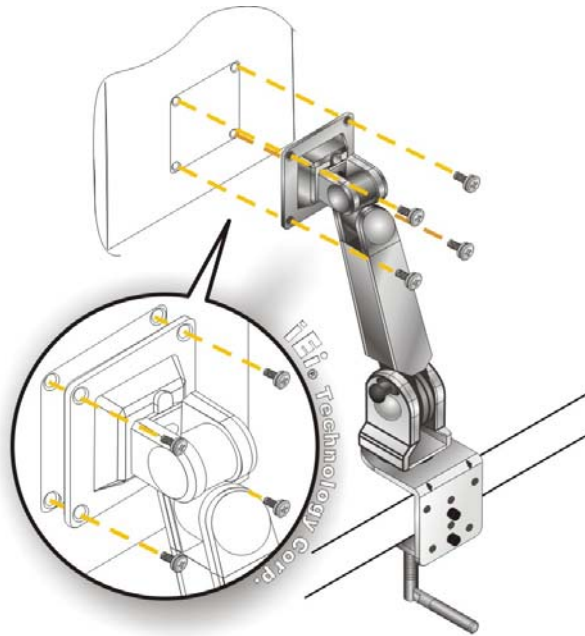


Figure 3-18: Arm Mounting (ARM-11-RS)

3.12.3 Stand Mounting

To mount the AFL2-15A-H61 using the stand mounting kit, please follow the steps below.

- Step 1:** Locate the screw holes on the rear of the AFL2-15A-H61. 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 AFL2-15A-H61 insert the retention screws into the screw holes and tighten them.

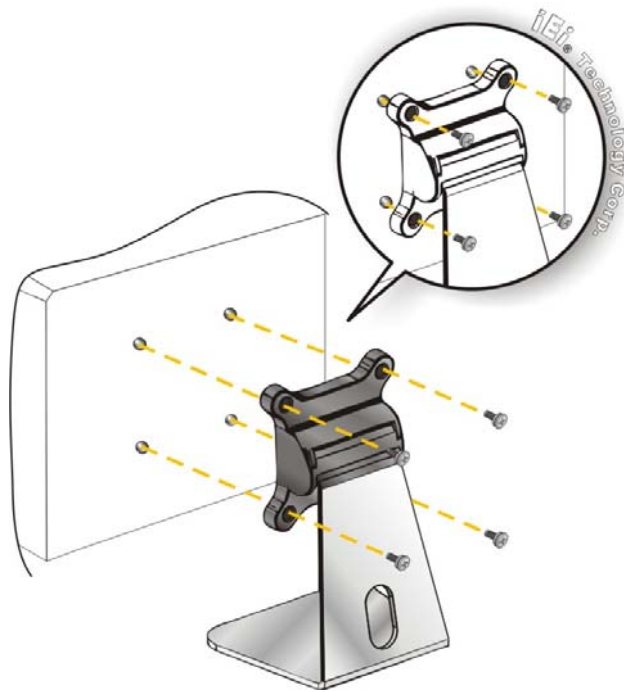


Figure 3-19: Stand Mounting (Stand-A/Bxx)

3.13 External Peripheral Device Connection

The following external peripheral devices can be connected to the external peripheral interface connectors.

- Audio devices
- HDMI devices
- RJ-45 Ethernet cable connector
- Serial port devices
- USB devices
- VGA monitor

To install these devices, connect the corresponding cable connector from the actual device to the corresponding AFL2-15A-H61 external peripheral interface connector making sure the pins are properly aligned.

3.13.1 Audio Connection

The audio jacks on the external audio connector enable the AFL2-15A-H61 to be connected to a stereo sound setup. To install the audio devices, follow the steps below.

Step 1: Identify the audio plugs. The plugs on your home theater system or speakers may not match the colors on the rear panel. If audio plugs are plugged into the wrong jacks, sound quality will be very bad.

Step 2: Plug the audio plugs into the audio jacks. Plug the audio plugs into the audio jacks. If the plugs on your speakers are different, an adapter will need to be used to plug them into the audio jacks.

- **Line Out port (Lime):** Connects to a headphone or a speaker.
- **Microphone (Pink):** Connects to a microphone.

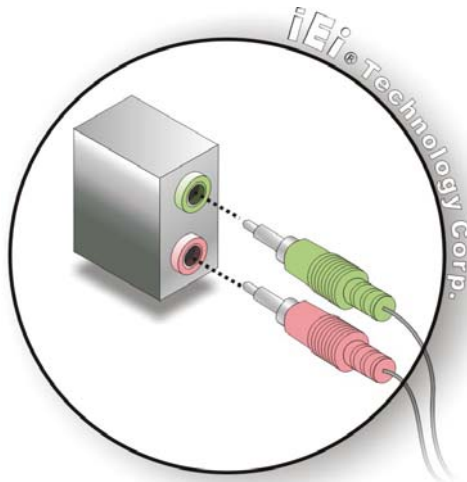


Figure 3-20: Audio Connector

Step 3: Check audio clarity. Check that the sound is coming through the right speakers by adjusting the balance front to rear and left to right.

3.13.2 HDMI Device Connection

The HDMI connector transmits a digital signal to compatible HDMI display devices such as a TV or computer screen. To connect the HDMI cable to the AFL2-15A-H61, follow the steps below.

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- Step 1:** Locate the HDMI connector. The location is shown in Chapter 1.
- Step 2:** **Align the connector.** Align the HDMI connector with the HDMI port. Make sure the orientation of the connector is correct.

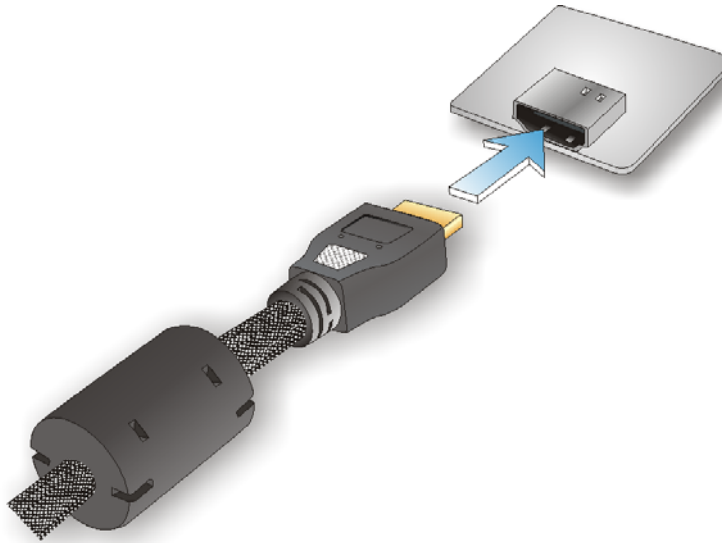


Figure 3-21: HDMI Connection

- Step 3:** **Insert the HDMI connector.** Gently insert the HDMI connector. The connector should engage with a gentle push. If the connector does not insert easily, check again that the connector is aligned correctly, and that the connector is being inserted with the right way up.

3.13.3 LAN Connection

There is one external RJ-45 LAN connectors. The RJ-45 connector enables 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 connectors.** The location of the LAN connector is shown in Chapter 1.
- Step 2:** **Align the connectors.** Align the RJ-45 connector on the LAN cable with one of

the RJ-45 connectors on the AFL2-15A-H61. See **Figure 3-22**.

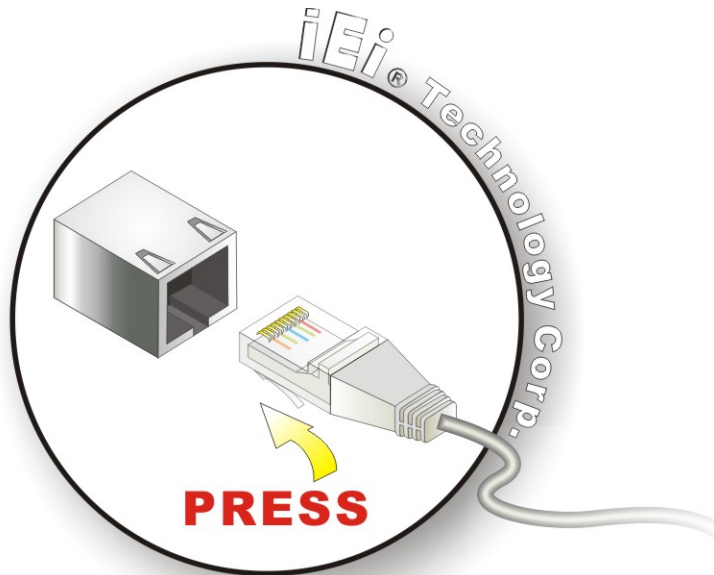


Figure 3-22: LAN Connection

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

3.13.4 Serial Device Connection

There are two external RS-232 DB-9 connectors and one RS-422/485 RJ-45 connector for serial device connection. Follow the steps below to connect a serial device to the AFL2-15A-H61.

3.13.4.1 DB-9 Serial Port Connection

Follow the steps below to connect a serial device to the DB-9 connector of the AFL2-15A-H61 panel PC.

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

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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 3-23**.

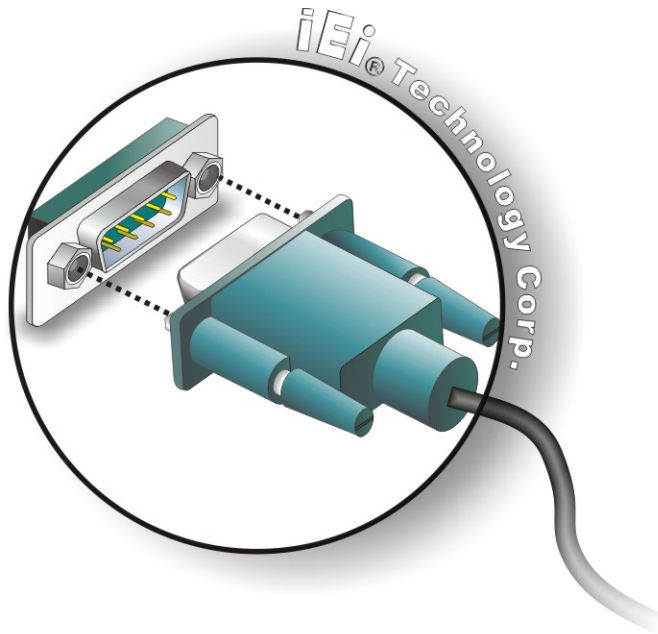


Figure 3-23: DB-9 Serial Port Connector

Step 3: **Secure the connector.** Secure the serial device connector to the external interface by tightening the two retention screws on either side of the connector.

3.13.4.2 RJ-45 Serial Port Connection

Follow the steps below to connect a serial device to the RJ-45 serial port connector of the AFL2-15A-H61 panel PC.

Step 1: **Locate the RJ-45 serial port.** The location of the RJ-45 serial port is shown in **Chapter 1**.

Step 2: **Connect the RJ-45 to COM port cable to the panel PC.** Insert the RJ-45 connector end of cable into the RJ-45 serial port. See **Figure 3-24**.

Step 3: **Connect the serial device.** Connect a serial device to the DB-9 connector end of the cable. See **Figure 3-24**.

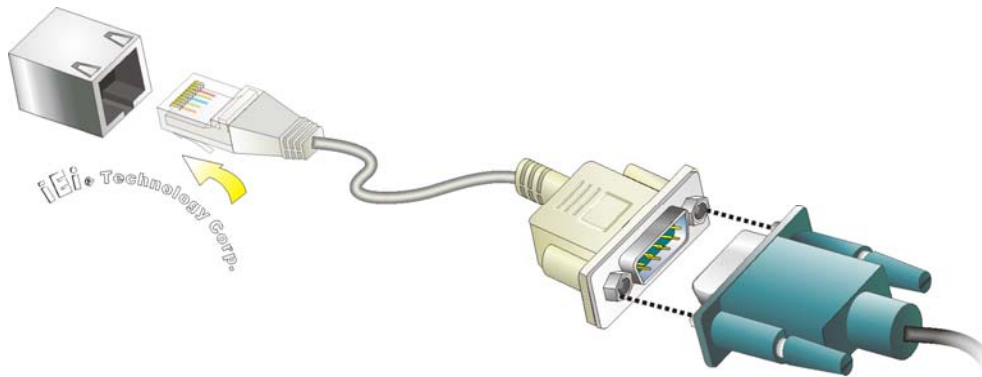


Figure 3-24: RJ-45 Serial Port Connector

Step 4: Secure the connector. Secure the serial device connector to the external interface by tightening the two retention screws on either side of the connector.

3.13.5 Type K Temperature Sensor Connection

The AFL2-15A-H61 has a type K thermocouple connector on the bottom panel. The type K connector is connected to a type K temperature sensor cable, which can be found in the packing list. To connect a type K temperature sensor cable to the AFL2-15A-H61, please follow the steps below.

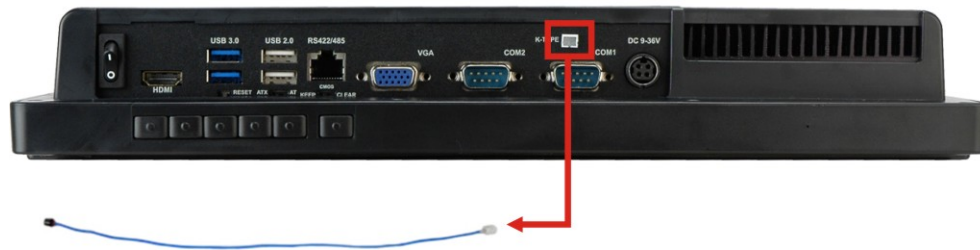
Step 1: Locate the type K connector on the bottom panel. See **Figure 3-25**.

Step 2: Align the connectors. Align the type K connector on the type K temperature sensor cable with the type K connector on the AFL2-15A-H61.

Step 3: Insert the temperature sensor cable type K connector. Once aligned, gently insert the temperature sensor cable type K connector into the external interface.

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Type K Thermocouple Connector



Type K Temperature Sensor Cable

Figure 3-25: Type K Temperature Sensor Installation

3.13.6 USB Device Connection

**NOTE:**

User must install the USB 3.0 driver before connecting a USB device to the system or else the system may not recognize the connected device.

There are three USB 2.0 connectors and two USB 3.0 connectors on the AFL2-15A-H61. To connect a USB device, please follow the instructions below.

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

Step 2: Align the connectors. Align the USB device connector with one of the connectors on the AFL2-15A-H61. See **Figure 3-26**.

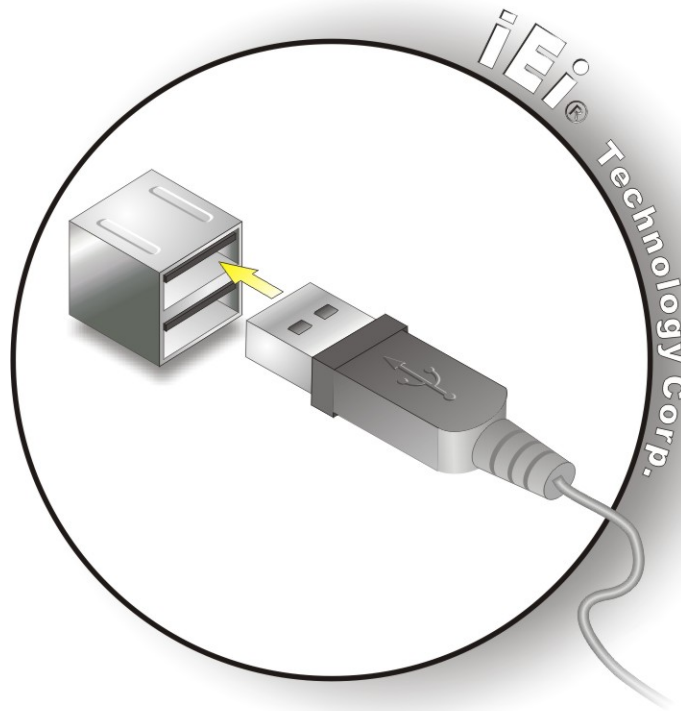


Figure 3-26: USB Device Connection

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

3.13.7 VGA Monitor Connection

The AFL2-15A-H61 has a single female DB-15 connector on the external peripheral interface panel. The DB-15 connector is connected to a CRT or VGA monitor. To connect a monitor to the AFL2-15A-H61, 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 1**.
- 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 AFL2-15A-H61. See **Figure 3-27**.

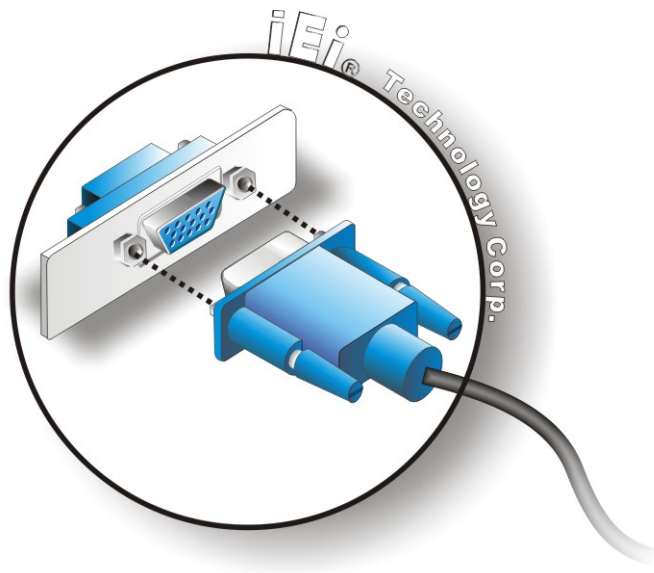


Figure 3-27: VGA Connector

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.

Chapter

4

BIOS Setup

4.1 Introduction

A licensed copy of the BIOS is preprogrammed into the ROM BIOS. The BIOS setup program allows users to modify the basic system configuration. This chapter describes how to access the BIOS setup program and the configuration options that may be changed.

4.1.1 Starting Setup

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

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

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

4.1.2 Using Setup

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

| Key | Function |
|-------------|--|
| Up arrow | Move to the item above |
| Down arrow | Move to the item below |
| Left arrow | Move to the item on the left hand side |
| Right arrow | Move to the item on the right hand side |
| + | Increase the numeric value or make changes |
| - | Decrease the numeric value or make changes |
| F1 key | General help, only for Status Page Setup Menu and Option Page Setup Menu |

| | |
|---------|---|
| F2 key | Load previous values. |
| F3 key | Load optimized defaults |
| F4 key | Save changes and Exit BIOS |
| Esc key | Main Menu – Quit and do not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu |

Table 4-1: BIOS Navigation Keys

4.1.3 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.

4.1.4 Unable to Reboot after Configuration Changes

If the computer cannot boot after changes to the system configuration are made, CMOS defaults.

4.1.5 BIOS Menu Bar

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

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

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

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4.2 Main

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

| Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc. | | | | | |
|--|----------|---------|---------------------|----------|--|
| Main | Advanced | Chipset | Boot | Security | Save & Exit |
| BIOS Information | | | | | Set the Date. Use Tab to switch between Data elements. |
| BIOS Vendor | | | American Megatrends | | |
| Core Version | | | 4.6.4.0 0.03 | | |
| Compliancy | | | UEFI 2.0 | | |
| Project Version | | | SE16AR16.ROM | | |
| Build Date and Time | | | 08/23/2012 17:38:38 | | ----- |
| iWDD Vendor | | | ICP | | ←→: Select Screen |
| iWDD Version | | | SE16ER17.bin | | ↑ ↓: Select Item |
| Memory Information | | | | | EnterSelect |
| Total Memory | | | 2048 MB (DDR3 1333) | | +/-: Change Opt. |
| System Date | | | [Fri 07/19/2012] | | F1: General Help |
| System Time | | | [17:16:27] | | F2: Previous Values |
| Access Level | | | Administrator | | F3: Optimized Defaults |
| | | | | | F4: Save & Exit |
| | | | | | ESC: Exit |
| Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc. | | | | | |

BIOS Menu 1: Main

→ BIOS Information

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

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

→ iWDD Vendor

- The **iWDD Vendor** displays the installed iWDD vendor. The fields in **iWDD Vendor** cannot be changed.

→ **iWDD Version**

- The **iWDD Version** displays the current iWDD version. The fields in **iWDD Version** cannot be changed.

→ **Memory Information**

The **Memory Information** lists a brief summary of the on-board memory. The fields in **Memory Information** cannot be changed.

- **Total Memory:** Displays the auto-detected system memory size and type.

The System Overview field also has two user configurable fields:

→ **System Date [xx/xx/xx]**

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

→ **System Time [xx:xx:xx]**

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

4.3 Advanced

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



WARNING:

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

- ACPI Settings
- RTC Wake Settings
- Trusted Computing

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- CPU Configuration
- SATA Configuration
- Intel TXT (LT) Configuration
- USB Configuration
- F81216 Super IO Configuration
- H/W Monitor
- Serial Port Console Redirection
- iEi Feature

```

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
Main  Advanced  Chipset  Boot  Security  Save & Exit
-----
> ACPI Settings                System ACPI Parameters.
> RTC Wake Settings
> Trusted Computing
> CPU Configuration
> SATA Configuration
> Intel TXT(LT) Configuration
> USB Configuration
> F81216 Super IO Configuration
> H/M Monitor
> Serial Port Console Redirection
> iEi Feature

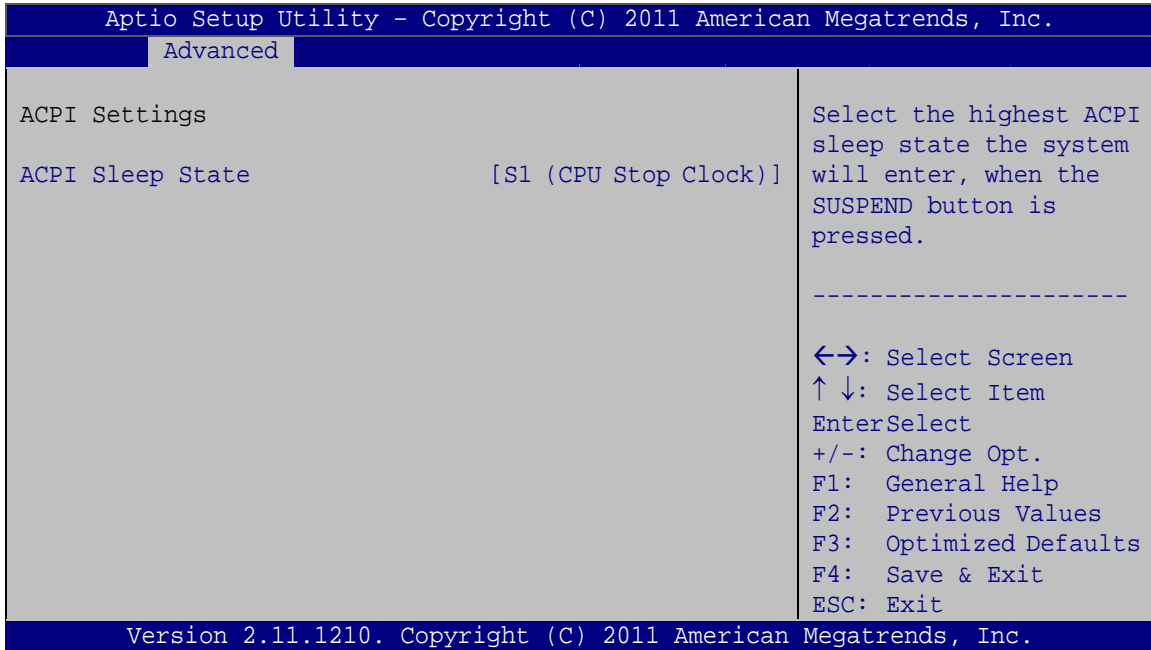
-----
<=>: Select Screen
↑ ↓: Select Item
Enter>Select
+/-: Change Opt.
F1:  General Help
F2:  Previous Values
F3:  Optimized Defaults
F4:  Save & Exit
ESC: Exit

Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.

```

BIOS Menu 2: Advanced**4.3.1 ACPI Settings**

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



BIOS Menu 3: ACPI Configuration

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

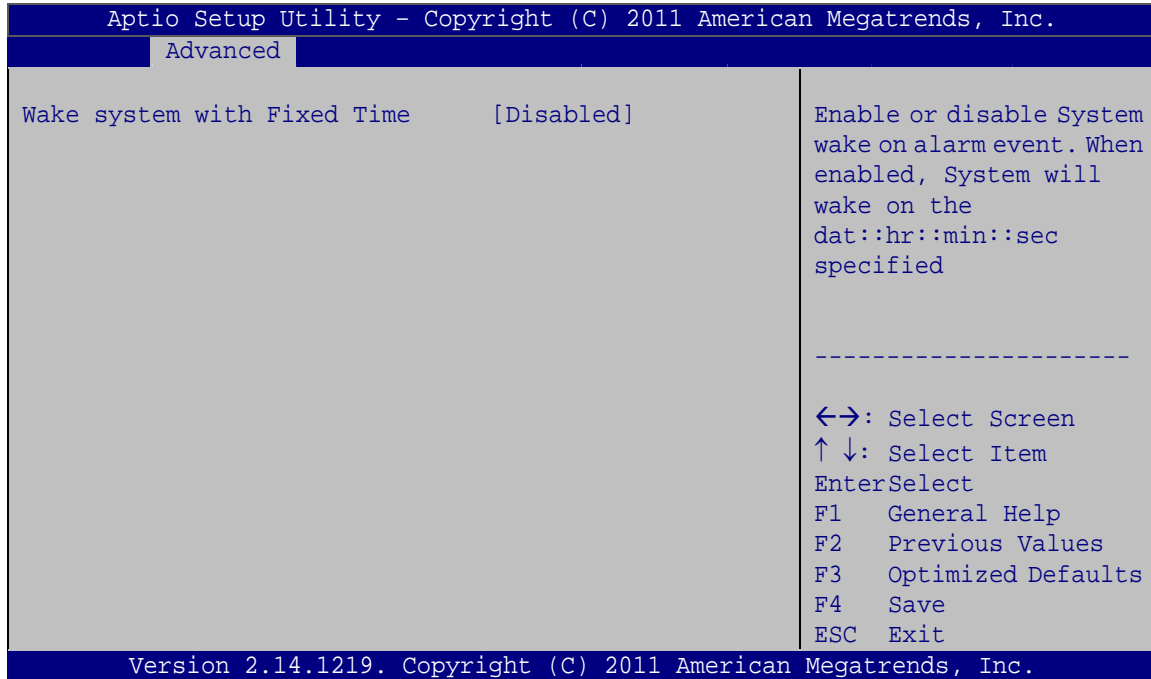
Use the **ACPI Sleep State** option to specify the sleep state the system enters when it is not being used.

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

4.3.2 RTC Wake Settings

The **RTC Wake Settings** menu (**BIOS Menu 4**) configures RTC wake event.

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BIOS Menu 4: RTC Wake Settings

→ Wake System with Fixed Time [Disabled]

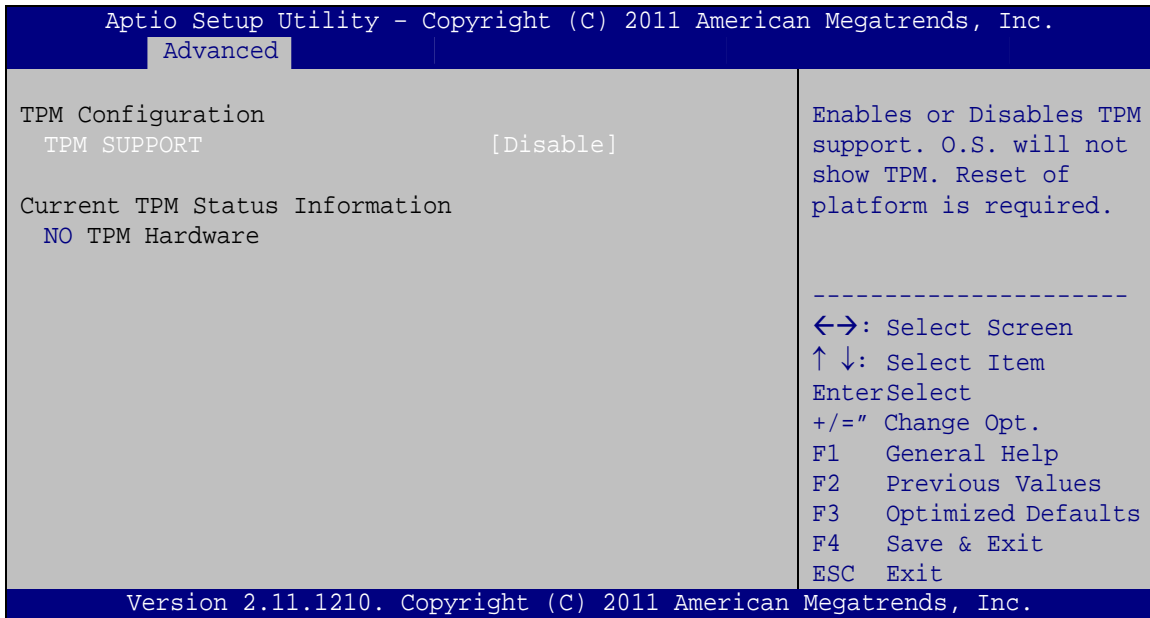
Use the **Wake System with Fixed Time** option to specify the time the system should be roused from a suspended state.

- **Disabled** **DEFAULT** The real time clock (RTC) cannot generate a wake event
- **Enabled** If selected, the following appears with values that can be selected:
 - *Wake up every day
 - *Wake up date
 - *Wake up hour
 - *Wake up minute
 - *Wake up second

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

4.3.3 Trusted Computing

Use the **Trusted Computing** menu (**BIOS Menu 5**) to configure settings related to the Trusted Computing Group (TCG) Trusted Platform Module (TPM).



BIOS Menu 5: TPM Configuration

→ TPM Support [Disable]

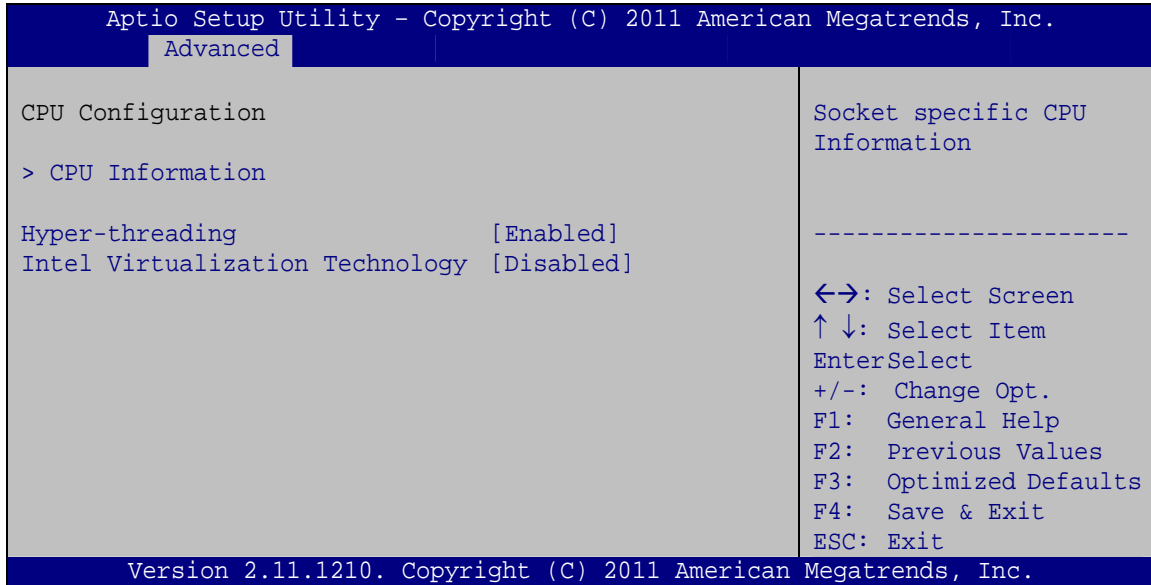
Use the **TPM Support** option to configure support for the TPM.

- **Disable** **DEFAULT** TPM support is disabled.
- **Enable** TPM support is enabled.

4.3.4 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 6**) to enter the **CPU Information** submenu or enable Intel Virtualization Technology.

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**BIOS Menu 6: CPU Configuration****→ Hyper-threading [Enabled]**

Use the Hyper-threading function to enable or disable the CPU hyper threading function.

- **Disabled** Disables the use of hyper-threading technology
- **Enabled** **DEFAULT** Enables the use of hyper-threading technology

→ Intel Virtualization Technology [Disabled]

Use the **Intel Virtualization Technology** option to enable or disable virtualization on the system. When combined with third party software, Intel Virtualization technology allows several OSs to run on the same system at the same time.

- **Disabled** **DEFAULT** Disables Intel Virtualization Technology.
- **Enabled** Enables Intel Virtualization Technology.

4.3.4.1 CPU Information

Use the **CPU Information** submenu (**BIOS Menu 7**) to view detailed CPU specifications and configure the CPU.

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

Advanced

| | | |
|--|---------------|-------|
| Socket 0 CPU Information | | |
| Intel(R) Core(TM) i3-2100T CPU @ 2.50GHz | | |
| CPU Signature | 206a7 | ----- |
| Microcode Patch | 25 | |
| Max CPU Speed | 2500 MHz | |
| Min CPU Speed | 1600 MHz | |
| Processor Cores | 2 | |
| Intel HT Technology | Supported | |
| Intel VT-x Technology | Supported | |
| Intel SMX Technology | Not Supported | |
| L1 Data Cache | 32 kB x 2 | |
| L1 Code Cache | 32 kB x 2 | |
| L2 Cache | 256 kB x 2 | |
| L3 Cache | 3072 kB | |

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

Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.

BIOS Menu 7: CPU Configuration

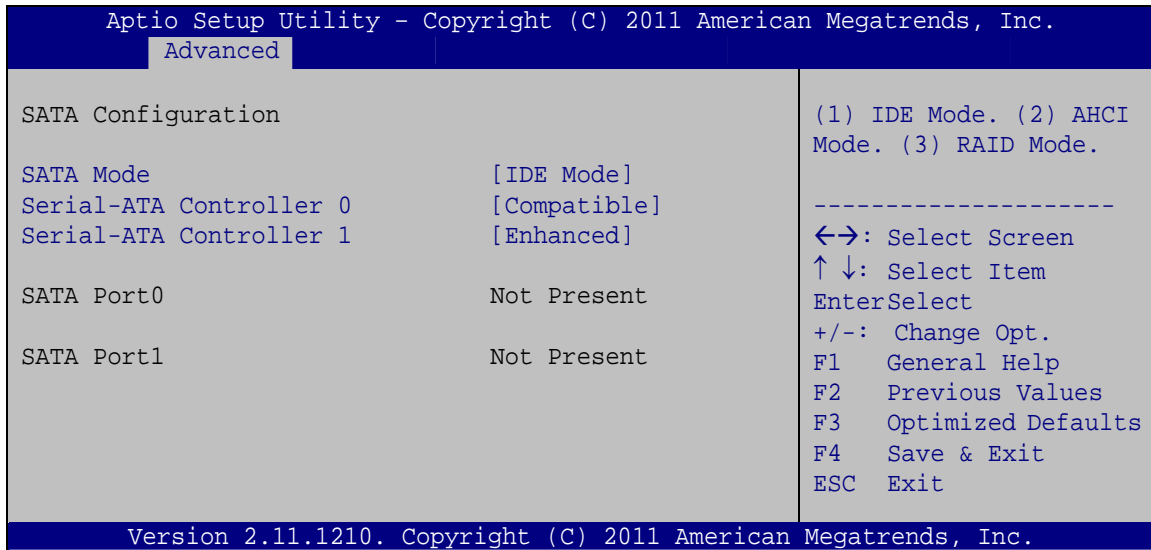
The CPU Configuration menu (**BIOS Menu 6**) lists the following CPU details:

- Processor Type: Lists the brand name of the CPU being used
- CPU Signature: Lists the CPU signature value.
- Microcode Patch: Lists the microcode patch being used.
- Max CPU Speed: Lists the maximum CPU processing speed.
- Min CPU Speed: Lists the minimum CPU processing speed.
- Processor Cores: Lists the number of the processor core
- Intel HT Technology: Indicates if Intel HT Technology is supported by the CPU.
- Intel VT-x Technology: Indicates if Intel VT-x Technology is supported by the CPU.
- Intel SMX Technology: Indicates if Intel SMX Technology is supported by the CPU.
- L1 Data Cache: Lists the amount of data storage space on the L1 cache.
- L1 Code Cache: Lists the amount of code storage space on the L1 cache.
- L2 Cache: Lists the amount of storage space on the L2 cache.
- L3 Cache: Lists the amount of storage space on the L3 cache.

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4.3.5 SATA Configuration

Use the **SATA Configuration** menu (**BIOS Menu 8**) to change and/or set the configuration of the SATA devices installed in the system.



BIOS Menu 8: IDE Configuration

→ SATA Mode [IDE Mode]

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

- **Disable** Disables SATA devices.
- **IDE Mode** **DEFAULT** Configures SATA devices as normal IDE device.

→ Serial-ATA Controller 0 [Compatible]

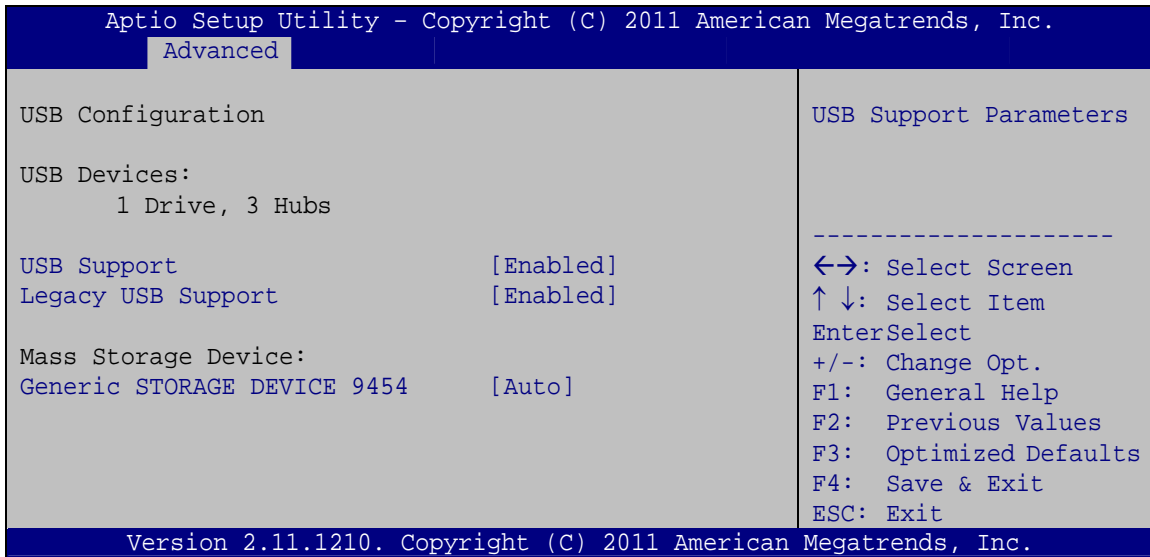
Use the **Serial-ATA Controller 0** option to configure the Serial-ATA controller mode when the SATA mode is set to IDE Mode.

- **Disabled** Disables Serial-ATA controller.
- **Enhanced** Configures the Serial-ATA controller to be in enhanced mode. In this mode, IDE channels and SATA channels are separated. Some legacy OS do not support this mode.

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4.3.7 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 10**) to read USB configuration information and configure the USB settings.



BIOS Menu 10: USB Configuration

→ USB Devices

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

→ USB Support [Enabled]

Use the **USB Support** BIOS option to enable USB support.

→ **Disabled** USB support disabled

→ **Enabled** **DEFAULT** USB support enabled

→ Legacy USB Support [Enabled]

Use the **Legacy USB Support** BIOS option to enable USB mouse and USB keyboard support. Normally if this option is not enabled, any attached USB mouse or USB keyboard does not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB

keyboard can control the system even when there is no USB driver loaded onto the system.

- ➔ **Enabled** **DEFAULT** Legacy USB support enabled
- ➔ **Disabled** Legacy USB support disabled
- ➔ **Auto** Legacy USB support disabled if no USB devices are connected

➔ **Generic STORAGE DEVICE 9454 [Auto]**

Use the **Generic STORAGE DEVICE 9454** 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.
- ➔ **CD-ROM** 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.

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4.3.8 F81216 Super IO Configuration

Use the **F81216 Super IO Configuration** menu (**BIOS Menu 11**) to set or change the configurations for the FDD controllers, parallel ports and serial ports.

```

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
  Advanced
F81216 Super IO Configuration                               Set Parameters of Serial
                                                           Port 0 (COMA)
Super IO Chip                                             Fintek F81216
> Serial Port 1 Configuration
> Serial Port 2 Configuration
> Serial Port 3 Configuration
-----
<=>: Select Screen
↑ ↓: Select Item
EnterSelect
+/-: Change Opt.
F1:  General Help
F2:  Previous Values
F3:  Optimized Defaults
F4:  Save & Exit
ESC: Exit
Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
    
```

BIOS Menu 11: Super IO Configuration

4.3.8.1 Serial Port n Configuration

Use the **Serial Port n Configuration** menu (**BIOS Menu 12**) to configure the serial port n.

```

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
  Advanced
Serial Port 0 Configuration                               Enable or Disable Serial
                                                           Port (COM)
Serial Port                                             [Enabled]
Device Settings                                       IO=3F8h; IRQ=4
Change Settings                                       [Auto]
-----
<=>: Select Screen
↑ ↓: Select Item
EnterSelect
+/-: Change Opt.
F1:  General Help
F2:  Previous Values
F3:  Optimized Defaults
F4:  Save & Exit
ESC: Exit
Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
    
```

BIOS Menu 12: Serial Port n Configuration Menu

4.3.8.1.1 Serial Port 1 Configuration

→ Serial Port [Enabled]

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

- **Disabled** Disable the serial port
- **Enabled** **DEFAULT** Enable the serial port

→ Change Settings [Auto]

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

- **Auto** **DEFAULT** The serial port IO port address and interrupt address are automatically detected.
- **IO=3F8h; IRQ=4** Serial Port I/O port address is 3F8h and the interrupt address is IRQ4
- **IO=3F8h; IRQ=3, 4,5,6,7,10,11,12** Serial Port I/O port address is 3F8h and the interrupt address is IRQ3, 4, 5, 6, 7, 10, 11, 12
- **IO=2F8h; IRQ=3, 4,5,6,7,10,11,12** Serial Port I/O port address is 2F8h and the interrupt address is IRQ3, 4, 5, 6, 7, 10, 11, 12
- **IO=3E8h; IRQ=3, 4,5,6,7,10,11,12** Serial Port I/O port address is 3E8h and the interrupt address is IRQ3, 4, 5, 6, 7, 10, 11, 12
- **IO=2E8h; IRQ=3, 4,5,6,7,10,11,12** Serial Port I/O port address is 2E8h and the interrupt address is IRQ3, 4, 5, 6, 7, 10, 11, 12

4.3.8.1.2 Serial Port 2 Configuration

→ Serial Port [Enabled]

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

- **Disabled** Disable the serial port

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→ **Enabled** **DEFAULT** Enable the serial port

→ **Change Settings [Auto]**

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

- **Auto** **DEFAULT** The serial port IO port address and interrupt address are automatically detected.
- **IO=2F8h; IRQ=3** Serial Port I/O port address is 2F8h and the interrupt address is IRQ3
- **IO=3F8h; IRQ=3, 4,5,6,7,10,11,12** Serial Port I/O port address is 3F8h and the interrupt address is IRQ3, 4, 5, 6, 7, 10, 11, 12
- **IO=2F8h; IRQ=3, 4,5,6,7,10,11,12** Serial Port I/O port address is 2F8h and the interrupt address is IRQ3, 4, 5, 6, 7, 10, 11, 12
- **IO=3E8h; IRQ=3, 4,5,6,7,10,11,12** Serial Port I/O port address is 3E8h and the interrupt address is IRQ3, 4, 5, 6, 7, 10, 11, 12
- **IO=2E8h; IRQ=3, 4,5,6,7,10,11,12** Serial Port I/O port address is 2E8h and the interrupt address is IRQ3, 4, 5, 6, 7, 10, 11, 12

4.3.8.1.3 Serial Port 3 Configuration

→ **Serial Port [Enabled]**

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

- **Disabled** Disable the serial port
- **Enabled** **DEFAULT** Enable the serial port

→ **Change Settings [Auto]**

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

- **Auto** **DEFAULT** The serial port IO port address and interrupt address are automatically detected.
- **IO=3E8h; IRQ=7** Serial Port I/O port address is 3E8h and the interrupt address is IRQ7
- **IO=3F8h; IRQ=3, 4,5,6,7,10,11,12** Serial Port I/O port address is 3F8h and the interrupt address is IRQ3, 4, 5, 6, 7, 10, 11, 12
- **IO=2F8h; IRQ=3, 4,5,6,7,10,11,12** Serial Port I/O port address is 2F8h and the interrupt address is IRQ3, 4, 5, 6, 7, 10, 11, 12
- **IO=3E8h; IRQ=3, 4,5,6,7,10,11,12** Serial Port I/O port address is 3E8h and the interrupt address is IRQ3, 4, 5, 6, 7, 10, 11, 12
- **IO=2E8h; IRQ=3, 4,5,6,7,10,11,12** Serial Port I/O port address is 2E8h and the interrupt address is IRQ3, 4, 5, 6, 7, 10, 11, 12
- **IO=2E0h; IRQ=3, 4,5,6,7,10,11,12** Serial Port I/O port address is 2E0h and the interrupt address is IRQ3, 4, 5, 6, 7, 10, 11, 12
- **IO=2F0h; IRQ=3, 4,5,6,7,10,11,12** Serial Port I/O port address is 2F0h and the interrupt address is IRQ3, 4, 5, 6, 7, 10, 11, 12

→ **Device Mode [RS422]**

Use the **Device Mode** option to select the serial port mode.

- **RS422** **DEFAULT** Enables serial port RS-422 support.
- **RS485** Enables serial port RS-485 support.

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4.3.9 H/W Monitor

The H/W Monitor menu (**BIOS Menu 13**) shows the operating temperature, fan speeds and system voltages.

```

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
-----
Advanced
-----
CPU Temperature           :+58 °C
Environment Temperature 1 :+63 °C
Environment Temperature 2 :+39 °C
SYS Temperature          :+38 °C

CPU FAN Speed            :648 RPM

Fanless Temp. Overwrite Control [Enabled]
Temperature Of FANLess     [32 C]

Fanless Temperature Reading :+32 °C

-----
<->: Select Screen
↑ ↓: Select Item
Enter>Select
+/-: Change Opt.
F1:  General Help
F2:  Previous Values
F3:  Optimized Defaults
F4:  Save & Exit
ESC: Exit
-----
Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.

```

BIOS Menu 13: Hardware Health Configuration→ **Hardware Health Status**

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

- System Temperatures:
 - CPU Temperature
 - Environment Temperature
 - System Temperature
- Fan Speeds:
 - CPU Fan Speed

→ **Fanless Temp. Overwrite Control [Enabled]**

Use the **Fanless Temp. Overwrite Control** BIOS option to enable or disable Temperature of Fanless configuration.

- **Disabled** Temperature of Fanless option can not be configured.
- **Enabled** **DEFAULT** Temperature of Fanless option can be configured.

→ **Temperature Of Fanless [32 C]**



NOTE:

If the Temperature of Fanless is enabled, the fan will only turn on when the Environment Temperature 1 reaches to the temperature set in the following Temperature of Fanless option.

For safety reason, the fan will turn on automatically to cool down the system when the CPU temperature exceeds 80 °C, no matter the Temperature of Fanless is enabled or not.

Use the **Temperature Of Fanless** option to configure default temperature setting. When the environment temperature is lower than default temperature setting, the fan will turn off. When the environment temperature is higher than default temperature setting, the fan will turn on. A list of available options is shown below:

- **Disabled** Disabled the Temperature Of Fanless function
- **4 C** When the environment temperature 1 is lower than 4 C, the fan will be switched off.
- **8 C** When the environment temperature 1 is lower than 8 C, the fan will be switched off.
- **12 C** When the environment temperature 1 is lower than 12 C, the fan will be switched off.
- **16 C** When the environment temperature is lower than 16 C, the fan will be switched off.
- **20 C** When the environment temperature 1 is lower than 20 C, the fan will be switched off.

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- ➔ **24 C** When the environment temperature 1 is lower than 24 C, the fan will be switched off.
- ➔ **28 C** When the environment temperature 1 is lower than 28 C, the fan will be switched off.
- ➔ **32 C** **DEFAULT** When the environment temperature 1 is lower than 32 C, the fan will be switched off.
- ➔ **36 C** When the environment temperature 1 is lower than 36 C, the fan will be switched off.
- ➔ **40 C** When the environment temperature 1 is lower than 40 C, the fan will be switched off.

4.3.10 Serial Port Console Redirection

The **Serial Port Console Redirection** menu (**BIOS Menu 14**) allows the console redirection options to be configured. Console redirection allows users to maintain a system remotely by re-directing keyboard input and text output through the serial port.

```

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
  Advanced
COM1
Console Redirection [Disabled] Console Redirection
> Console Redirection Settings Enable or Disable.

COM2
Console Redirection [Disabled]
> Console Redirection Settings
-----
<->: Select Screen
↑ ↓: Select Item
Enter>Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
  
```

BIOS Menu 14: Serial Port Console Redirection

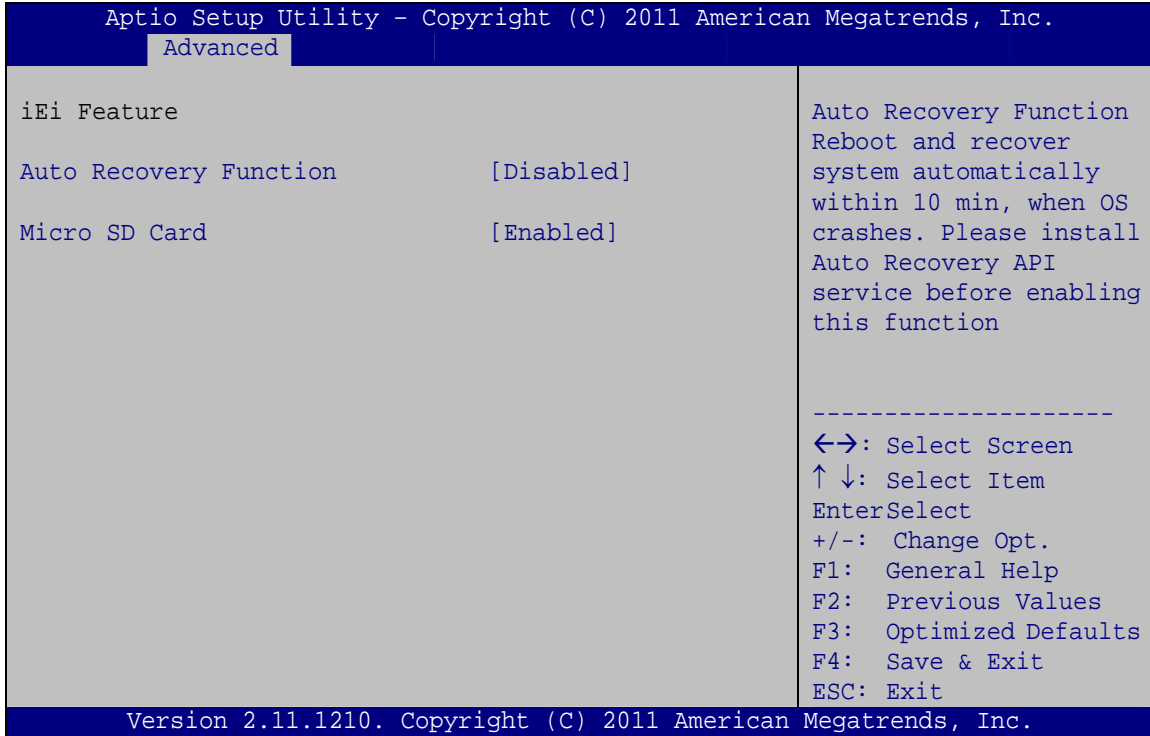
- ➔ **Console Redirection [Disabled]**

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

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

4.4 iEi Feature

Use the **iEi Feature** menu (**BIOS Menu 15**) to configure the auto recovery function.



BIOS Menu 15: iEi Feature

➔ **Auto Recovery Function [Disabled]**

Use the **Auto Recovery Function** option to enable or disable auto recovery on the system.

- ➔ **Disabled** **DEFAULT** Auto Recovery Function support disabled
- ➔ **Enabled** Auto Recovery Function support enabled

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→ Micro SD Card [Enabled]

Use the **Micro SD Card** option to enable or disable the microSD card slot on the front panel.

- **Disabled** **DEFAULT** microSD card slot is disabled
- **Enabled** microSD card slot is enabled

4.5 Chipset

Use the **Chipset** menu (**BIOS Menu 16**) to access the North Bridge, South Bridge, Integrated Graphics, and ME Subsystem configuration menus.



WARNING!

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

```

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
Main   Advanced  Chipset  Boot   Security  Save & Exit
-----
> North Bridge
> South Bridge
> Integrated Graphics
> ME Subsystem

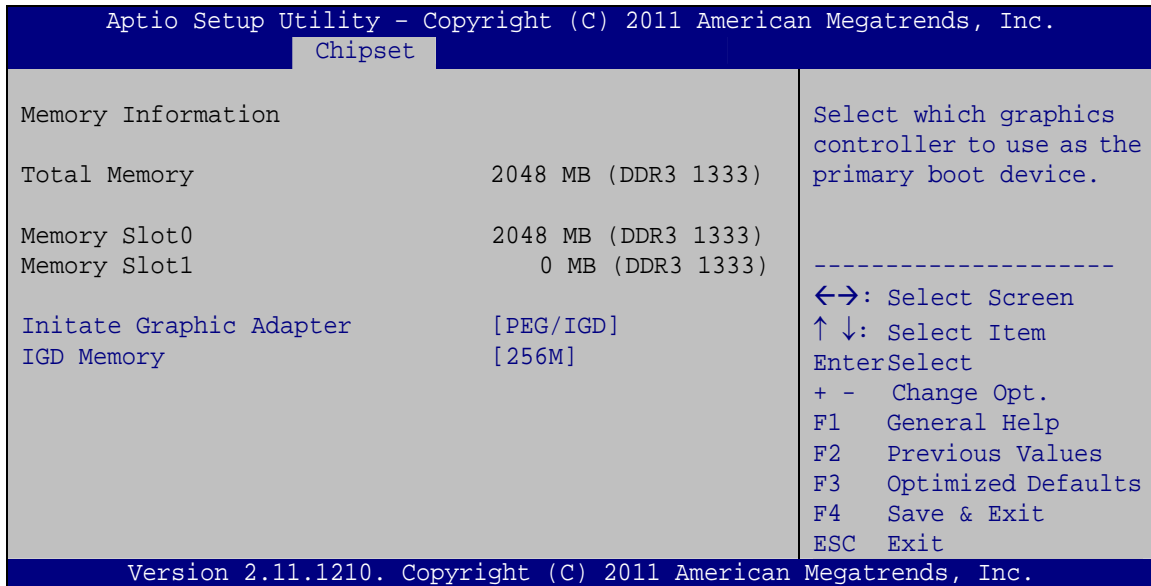
North Bridge Parameters
-----
<->: Select Screen
↑ ↓: Select Item
Enter>Select
+ - Change Opt.
F1  General Help
F2  Previous Values
F3  Optimized Defaults
F4  Save & Exit
ESC Exit

Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
    
```

BIOS Menu 16: Chipset

4.5.1 Northbridge Configuration

Use the **North Bridge** menu (**BIOS Menu 17**) to configure the Northbridge chipset.



BIOS Menu 17: Northbridge Chipset Configuration

→ Initiate Graphic Adapter [PEG/IGD]

Use the **Initiate Graphic Adapter** option to select the graphics controller used as the primary boot device. Select either an integrated graphics controller (IGD) or a combination of PCI graphics controller, a PCI express (PEG) controller or an IGD. Configuration options are listed below:

- IGD
- PCI/IGD
- PCI/PEG
- PEG/IGD **DEFAULT**
- PEG/PCI

→ IGD Memory [256M]

Use the **IGD Memory** option to specify the amount of system memory that can be used by the internal graphics device.

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| | | | |
|---|------|---------|---|
| ➔ | 32M | | 32 MB of memory used by internal graphics device |
| ➔ | 64M | | 64 MB of memory used by internal graphics device |
| ➔ | 128M | | 128 MB of memory used by internal graphics device |
| ➔ | 256M | DEFAULT | 256 MB of memory used by internal graphics device |
| ➔ | 512M | | 512 MB of memory used by internal graphics device |

4.5.2 Southbridge Configuration

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

```

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
Chipset
Auto Power Button Status      [ON]
Restore AC Power Loss         [Last State]
Power Saving Function         [Disabled]
Init LED Bar To DEFAULT      [Enabled]
WIFI Function                 [Enabled]
DMIC Function                 [Enabled]
BT Function                   [Enabled]
RFID Function                 [Enabled]
Auto Dimming Support         [Disabled]

Audio Configuration
Azalia HD Audio              [Enabled]
Azalia internal HDMI codec   [Enabled]

PCI Express Ports Configuration
PCIe LAN PXE Boot            [Disabled]
PCIe LAN Controller          [Enabled]
PCIe USB 3.0 Controller      [Enabled]

-----
<=>: Select Screen
↑ ↓: Select Item
EnterSelect
+ - Change Opt.
F1  General Help
F2  Previous Values
F3  Optimized Defaults
F4  Save & Exit
ESC Exit
    
```

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BIOS Menu 18: Southbridge Chipset Configuration

→ Restore AC Power Loss [Last State]

Use the **Restore AC Power Loss** BIOS option to specify what state the system returns to if there is a sudden loss of power to the system.

- **Power Off** The system remains turned off
- **Power On** The system turns on
- **Last State** **DEFAULT** The system returns to its previous state. If it was on, it turns itself on. If it was off, it remains off.

→ Power Saving Function [Disabled]

Use the **Power Saving Function** BIOS option to enable or disable the power saving function.

- **Disabled** **DEFAULT** Power saving function is disabled.
- **Enabled** Power saving function is enabled. It will reduce power consumption when the system is off.

→ WIFI Function [Enabled]

Use the **WIFI Function** option to enable or disable the Wi-Fi function.

- **Disabled** Wi-Fi function disabled
- **Enabled** **DEFAULT** Wi-Fi function enabled

→ DMIC Function [Enabled]

Use the **DMIC Function** option to enable or disable the Microphone function.

- **Disabled** Microphone function disabled
- **Enabled** **DEFAULT** Microphone function enabled

→ BT Function [Enabled]

Use the **BT Function** option to enable or disable the BT function.

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- Disabled BT function disabled
- Enabled DEFAULT BT function enabled

→ RFID Function [Enabled]

Use the **RFID Function** option to enable or disable the RFID function.

- Disabled RFID function disabled
- Enabled DEFAULT RFID function enabled

→ Auto Dimming Support [Disabled]

Use the **Auto Dimming Support** option to enable or disable the auto dimming function.

- Disabled DEFAULT Auto dimming function disabled
- Enabled Auto dimming function enabled

→ Azalia HD Audio [Enabled]

Use the **Azalia HD Audio** option to enable or disable the High Definition Audio controller.

- Disabled The onboard High Definition Audio controller is disabled
- Enabled DEFAULT The onboard High Definition Audio controller is detected automatically and enabled

→ Azalia internal HDMI codec [Enabled]

Use the **Azalia internal HDMI codec** option to enable or disable the internal HDMI codec for High Definition Audio.

- Disabled Disable internal HDMI codec for High Definition Audio
- Enabled DEFAULT Enable internal HDMI codec for High Definition Audio

→ **PCIe LAN PXE Boot [Disabled]**

Use the **PCIe LAN PXE Boot** option to enable or disable the boot option for the PCIe LAN PXE.

- **Disabled** **DEFAULT** Disables PCIe LAN PXE Boot option
- **Enabled** Enables PCIe LAN PXE Boot option

→ **PCIe LAN Controller [Enabled]**

Use the **PCIe LAN Controller** option to enable or disable the PCI Express LAN controller.

- **Disabled** The onboard PCIe LAN controller is disabled
- **Enabled** **DEFAULT** The onboard PCIe LAN controller is enabled

→ **PCIe USB 3.0 Controller [Enabled]**

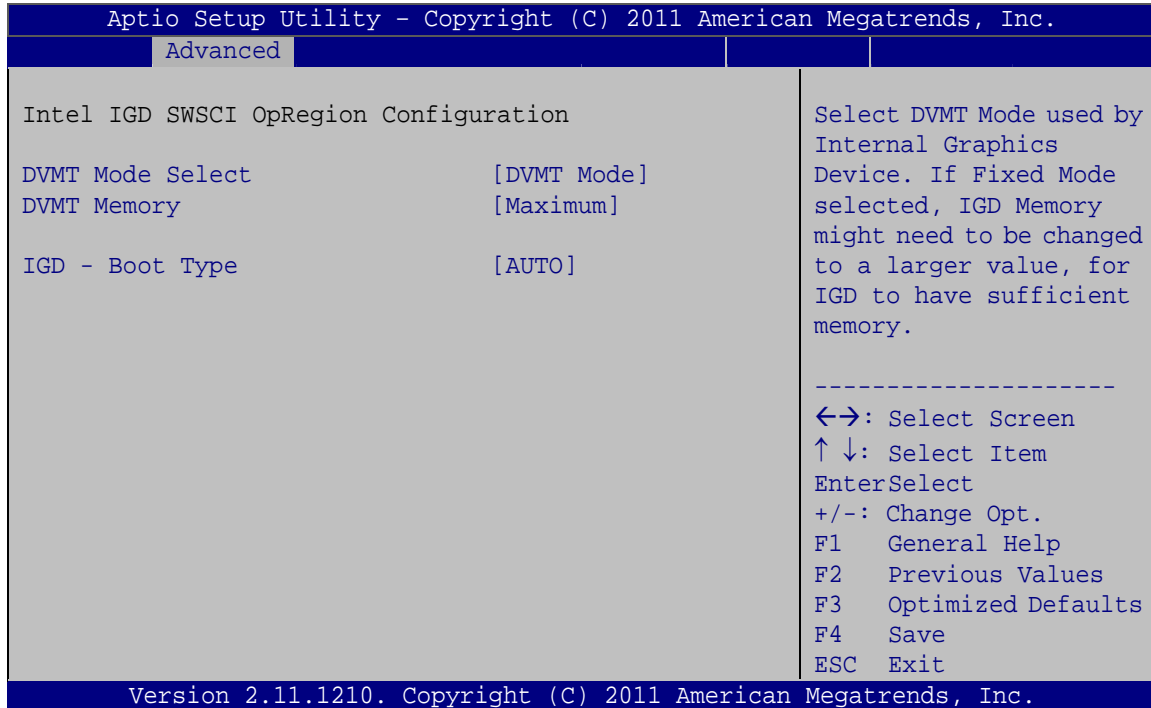
Use the **PCIe USB 3.0 Controller** BIOS option to enable or disable the PCIe USB 3.0 controller.

- **Disabled** The onboard PCIe USB 3.0 controller is disabled
- **Enabled** **DEFAULT** The onboard PCIe USB 3.0 controller is enabled

4.5.3 Integrated Graphics

Use the **Integrated Graphics** menu (**BIOS Menu 19**) to configure the video device connected to the system.

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BIOS Menu 19: Integrated Graphics

→ DVMT Mode Select [DVMT Mode]

Use the **DVMT Mode Select** option to select the Intel Dynamic Video Memory Technology (DVMT) operating mode.

- **Fixed Mode** A fixed portion of graphics memory is reserved as graphics memory.
- **DVMT Mode** **DEFAULT** Graphics memory is dynamically allocated according to the system and graphics needs.

→ DVMT Memory [Maximum]

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

- 128 MB
- 256 MB
- Maximum **DEFAULT**

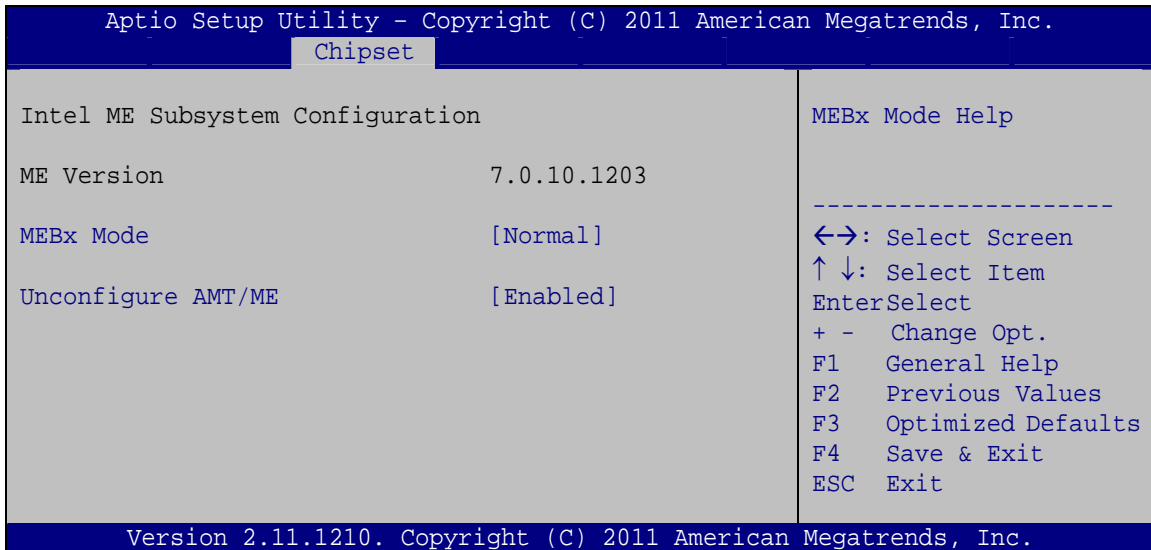
➔ **IGD - Boot Type [AUTO]**

Use the **IGD - Boot Type** option to select the display device used by the system when it boots. For dual display support, select “Auto.” Configuration options are listed below.

- **AUTO** **DEFAULT**
- LVDS
- CRT
- HDMI

4.5.4 ME Subsystem

Use the **ME Subsystem** menu (**BIOS Menu 20**) to configure the Intel® Management Engine (ME) configuration options.



BIOS Menu 20: ME Subsystem

➔ **MEBx Mode [Normal]**

Use the **MEBx Mode** option to configure MEBx Mode options.

- ➔ **Normal** **DEFAULT** Enables normal mode
- ➔ **Hidden** Enables hidden Ctrl+P function
- Ctrl + P**

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- ➔ **Enter MEBx Setup** Enables user to enter MEBx setup

➔ **Unconfigure AMT/ME [Enabled]**

Use the **Unconfigure AMT/ME** option to perform AMT/ME unconfigure without password operation.

- ➔ **Disabled** Disable AMT/ME unconfigure
- ➔ **Enabled DEFAULT** Enable AMT/ME unconfigure

4.6 Boot

Use the **Boot** menu (**BIOS Menu 21**) to configure system boot options.

```

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
Main   Advanced  Chipset  Boot   Security  Save & Exit
-----
Boot Configuration
Bootup NumLock State      [On]
Quiet Boot                 [Enabled]
Option ROM Messages       [Force BIOS]
UEFI Boot                 [Disabled]

Boot Option Priorities
Boot Option #1             [SATA: Optiarc CDRW...]
Boot Option #2             [Generic STORAGE DE...]

Floppy Drive BBS Priorities
Hard Drive BBS Priorities

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

Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.

```

BIOS Menu 21: Boot

➔ **Bootup NumLock State [On]**

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

- **On** **DEFAULT** Allows the Number Lock on the keyboard to be enabled automatically when the computer system boots up. This allows the immediate use of the 10-key numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard is lit.
- **Off** Does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard lights up when the Number Lock is engaged.

→ **Quiet Boot [Enabled]**

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

- **Disabled** Normal POST messages displayed
- **Enabled** **DEFAULT** OEM Logo displayed instead of POST messages

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

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

- **Force BIOS** **DEFAULT** Sets display mode to force BIOS.
- **Keep Current** Sets display mode to current.

→ **Boot Option #1 [SATA: Optiarc CDRW...]**

Use **Boot Option #1** to enable or disable booting from the detected drive.

- **SATA: Optiarc CDRW...** **DEFAULT** Enables booting from the detected storage device.

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→ **Disabled** Disables boot option.

→ **Boot Option #2 [Generic STORAGE DE...]**

Use **Boot Option #2** to enable or disable booting from the detected drive.

→ **Generic STORAGE DE...** **DEFAULT** Enables booting from the detected storage device.

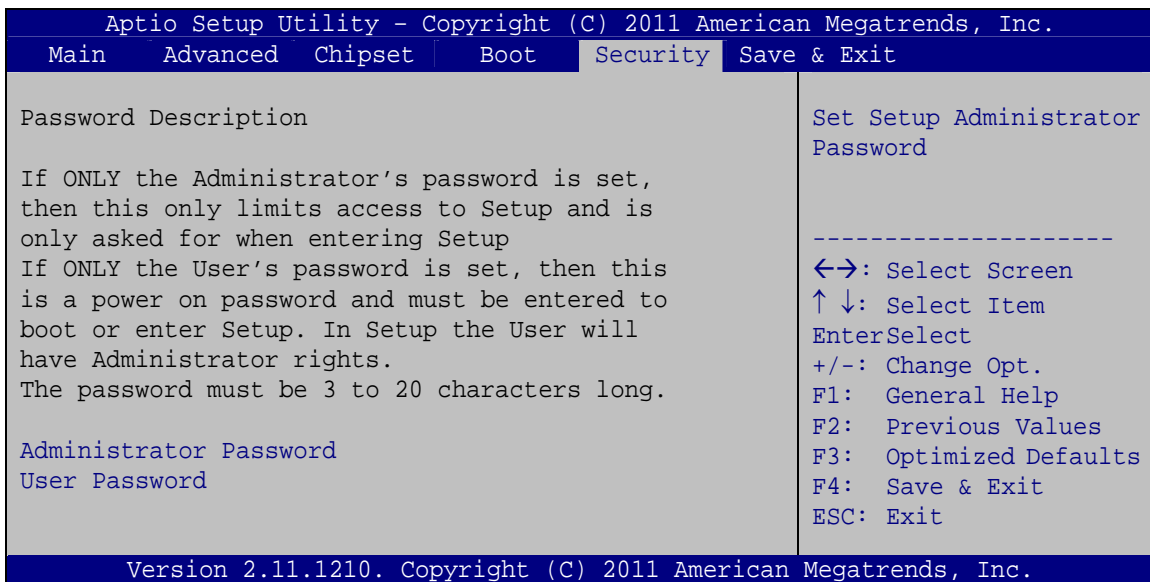
→ **Disabled** Disables boot option.

→ **Hard Drive BBS Priorities**

Use **Hard Drive BBS Priorities** option to set the system boot order.

4.7 Security

Use the **Security** menu (**BIOS Menu 22**) to set system and user passwords.



BIOS Menu 22: Security

→ **Administrator Password**

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

→ User Password

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

4.8 Save & Exit

Use the **Save & Exit** menu (**BIOS Menu 23**) to load default BIOS values, optimal failsafe values and to save configuration changes.

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

Save Changes and Reset
Discard Changes and Reset

Restore Defaults
Save as User Defaults
Restore User Defaults

Reset the system after
saving the changes.

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

Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
```

BIOS Menu 23: Exit

→ Save Changes and Reset

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

→ Discard Changes and Reset

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

→ Restore Defaults

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

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→ **Save as User Defaults**

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

→ **Restore User Defaults**

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

Chapter

5

Software Drivers

5.1 Available Software Drivers



NOTE:

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

The following drivers can be installed on the system:

- Chipset
- Graphic
- LAN
- Audio
- Touch Screen
- Wi-Fi
- USB 3.0
- Camera

Installation instructions are given below.

5.2 Starting the Driver Program

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

Step 1: Insert the CD-ROM that came with the system into a CD-ROM drive attached to the system.

Step 2: Click **AFL2-15A-H61 Driver**.

Step 3: A list of available drivers appears.

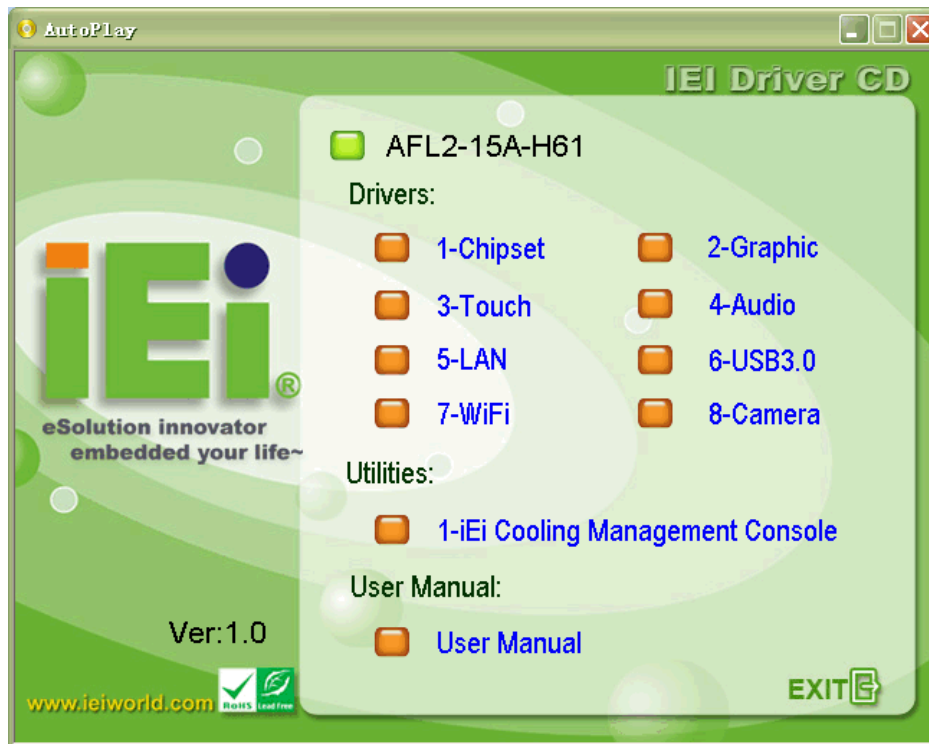


Figure 5-1: Drivers

5.3 Chipset Driver Installation

To install the chipset driver, please do the following.

- Step 1:** Access the driver list. (See **Section 5.2**)
- Step 2:** Click “Chipset.”
- Step 3:** Locate the setup file and double click on it.
- Step 4:** The setup files are extracted as shown in **Figure 5-2**.



Figure 5-2: Chipset Driver Screen

Step 5: When the setup files are completely extracted the **Welcome Screen** in Figure 5-3 appears.

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



Figure 5-3: Chipset Driver Welcome Screen

Step 7: The license agreement in **Figure 5-4** appears.

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

Step 9: Click **Yes** to continue.



Figure 5-4: Chipset Driver License Agreement

Step 10: The **Read Me** file in **Figure 5-5** appears.

Step 11: Click **Next** to continue.



Figure 5-5: Chipset Driver Read Me File

Step 12: Setup Operations are performed as shown in Figure 5-6.

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



Figure 5-6: Chipset Driver Setup Operations

Step 14: The Finish screen in Figure 5-7 appears.

Step 15: Select “Yes, I want to restart this computer now” and click **Finish**.



Figure 5-7: Chipset Driver Installation Finish Screen

5.4 Graphics Driver Installation

To install the Graphics driver, please do the following.

Step 1: Access the driver list. (See **Section 5.2**)

Step 2: Click “VGA” and select the folder which corresponds to your operating system.

Step 3: Double click the setup file.

Step 4: The **Read Me** file in **Figure 5-8** appears.

Step 5: Click **Next** to continue.

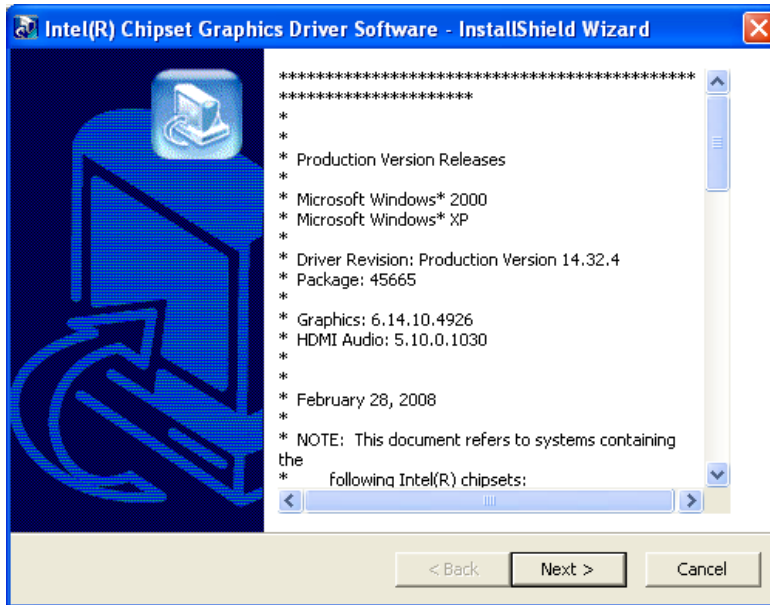


Figure 5-8: Graphics Driver Read Me File

Step 6: The installation files are extracted. See Figure 5-9.

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

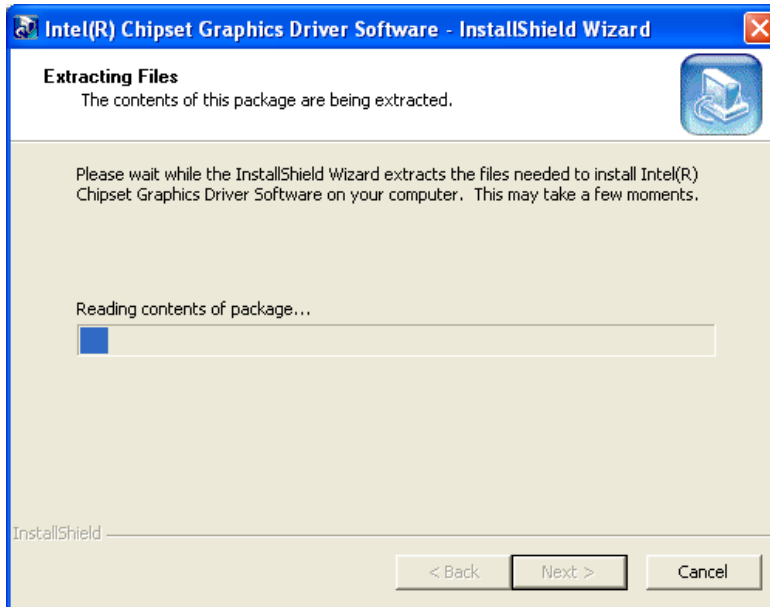


Figure 5-9: Graphics Driver Setup Files Extracted

Step 8: The **Welcome Screen** in Figure 5-10 appears.

Step 9: Click **Next** to continue.

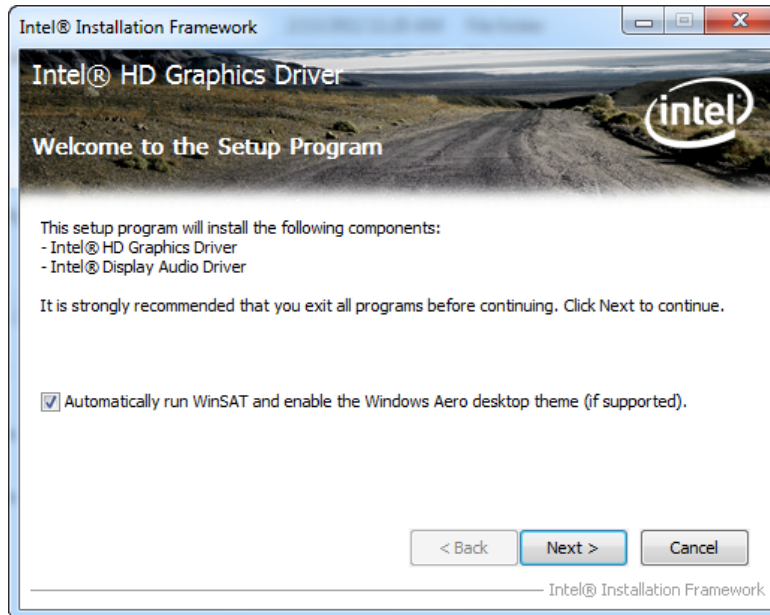


Figure 5-10: Graphics Driver Welcome Screen

Step 10: The License Agreement in Figure 5-11 appears.

Step 11: Click **Yes** to accept the agreement and continue.

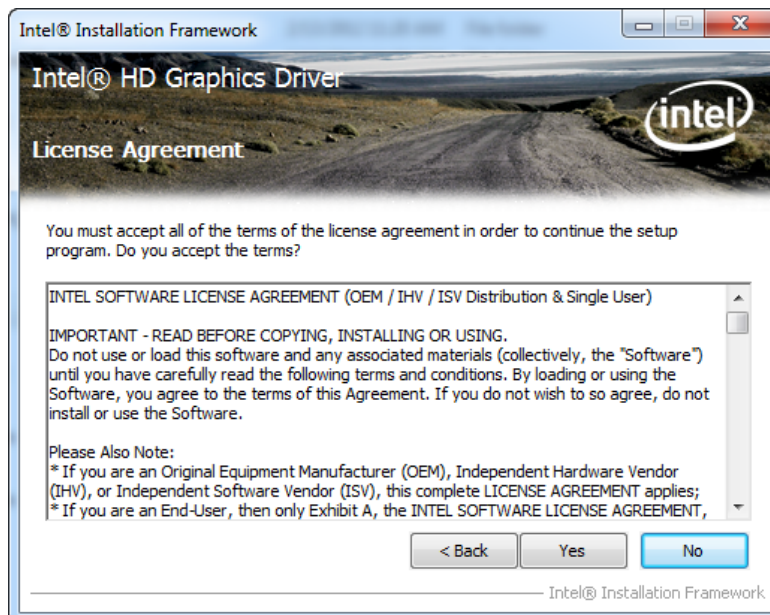


Figure 5-11: Graphics Driver License Agreement

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

Step 13: Click **Next** to continue.

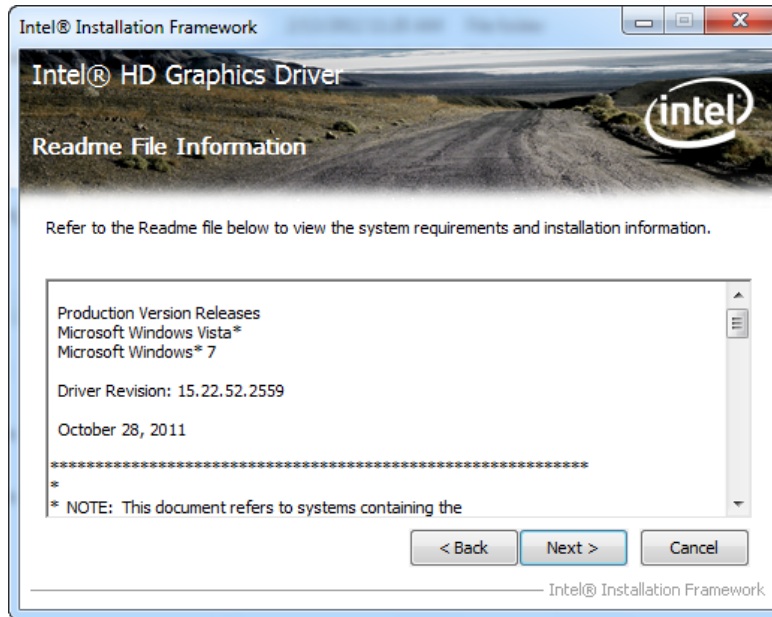


Figure 5-12: Graphics Driver Read Me File

Step 14: Setup Operations are performed as shown in Figure 5-13.

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

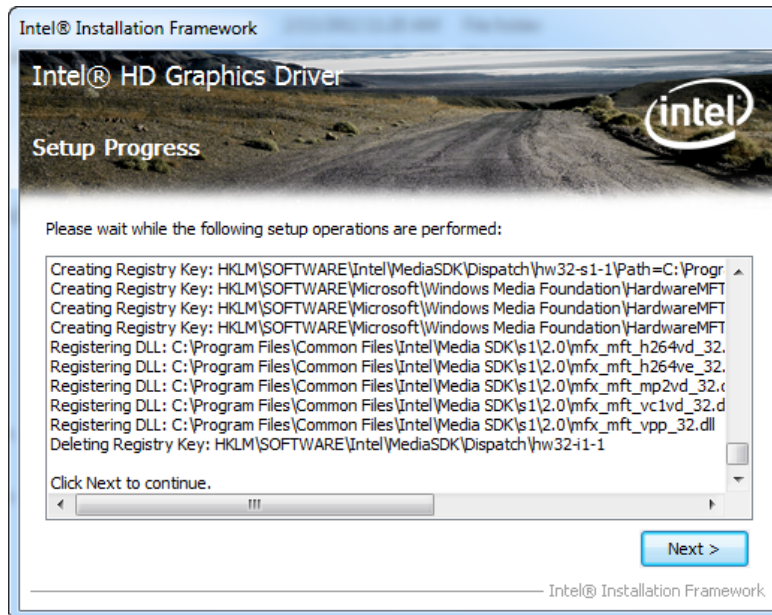


Figure 5-13: Graphics Driver Setup Operations

Step 16: The Finish screen in Figure 5-14 appears.

Step 17: Select “Yes, I want to restart this computer now” and click Finish.

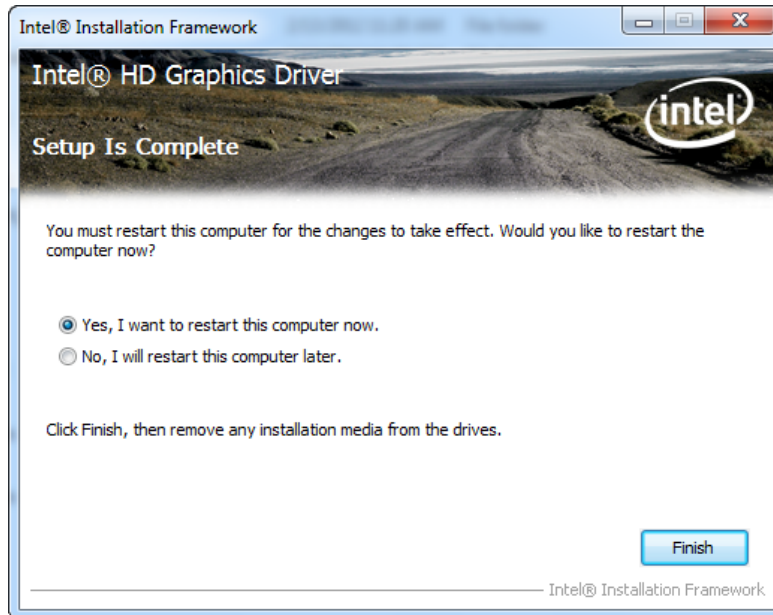


Figure 5-14: Graphics Driver Installation Finish Screen

5.5 LAN Driver Installation

To install the LAN driver, please do the following.

- Step 1:** Access the driver list. (See **Section 5.2**)
- Step 2:** Click “LAN” and select the folder which corresponds to the operating system.
- Step 3:** Double click the setup file.
- Step 4:** The **Welcome** screen in **Figure 5-15** appears.

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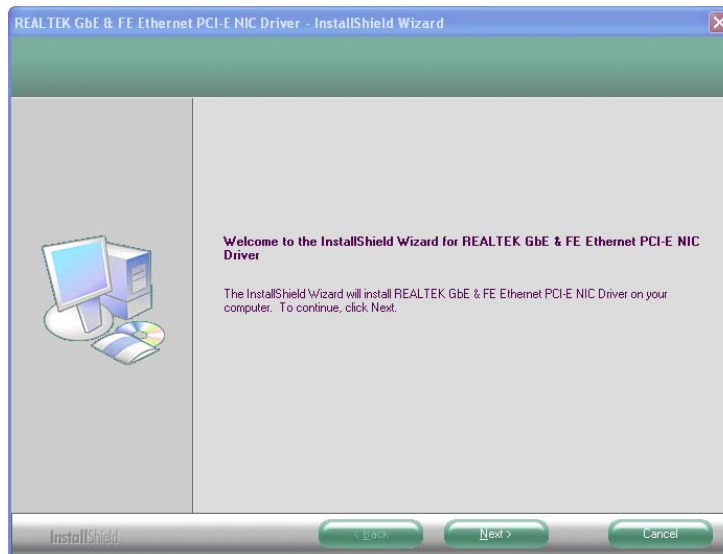


Figure 5-15: LAN Driver Welcome Screen

Step 5: Click **Next** to continue.

Step 6: The **Ready to Install the Program** Screen in **Figure 5-16** appears.

Step 7: Click **Install** to proceed with the installation.

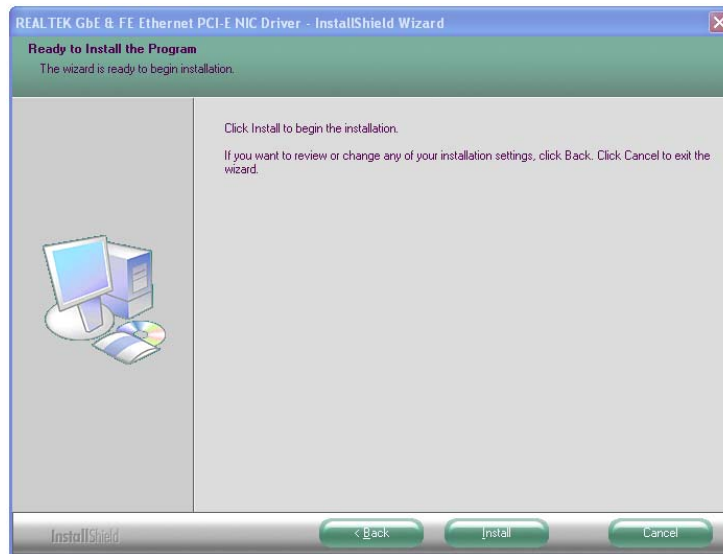


Figure 5-16: LAN Driver Ready to Install Screen

Step 8: The program begins to install.

Step 9: The **Setup Status** screen in **Figure 5-17** appears.

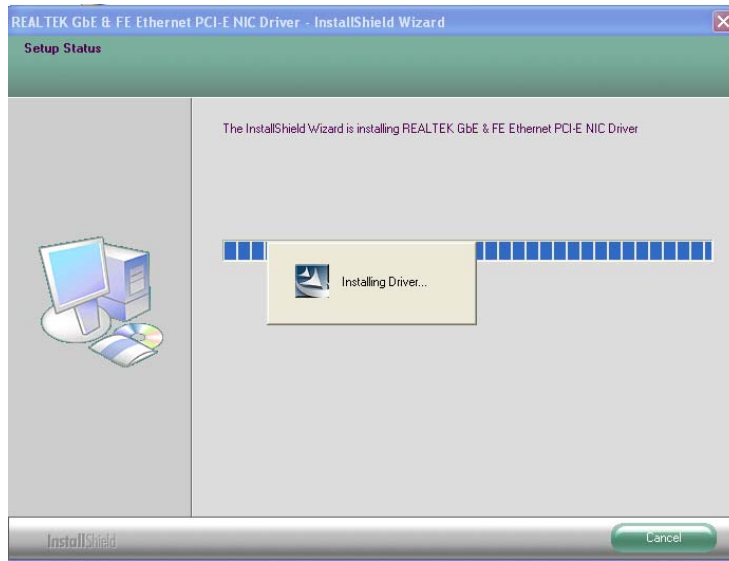


Figure 5-17: LAN Driver Setup Status Screen

Step 10: When the driver installation is complete, the screen in **Figure 5-18** appears.

Step 11: Click **Finish** to exit.

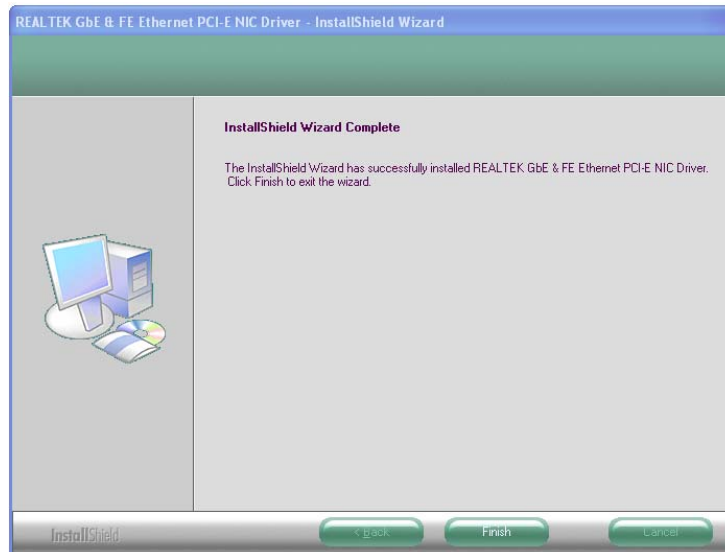


Figure 5-18: LAN Driver Installation Complete

5.6 Audio Driver Installation

To install the audio driver, please do the following.

Step 1: Access the driver list. (See **Section 5.2**)

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Step 2: Click **Audio** and select the folder which corresponds to your operating system.

Step 3: Double click the setup file.

Step 4: The **Audio Driver Welcome Screen** in **Figure 5-19** appears.

Step 5: Click **Next** to continue.

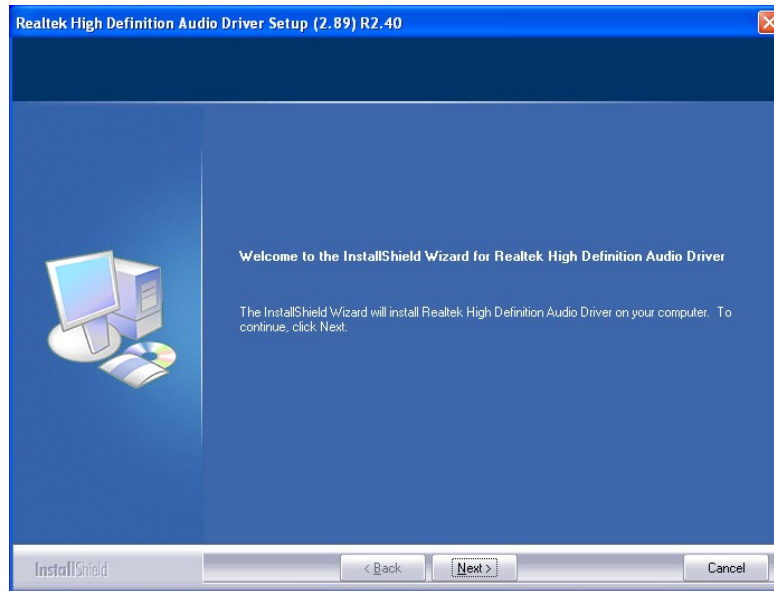


Figure 5-19: Audio Driver Welcome Screen

Step 6: The audio driver installation begins. See **Figure 5-20**.

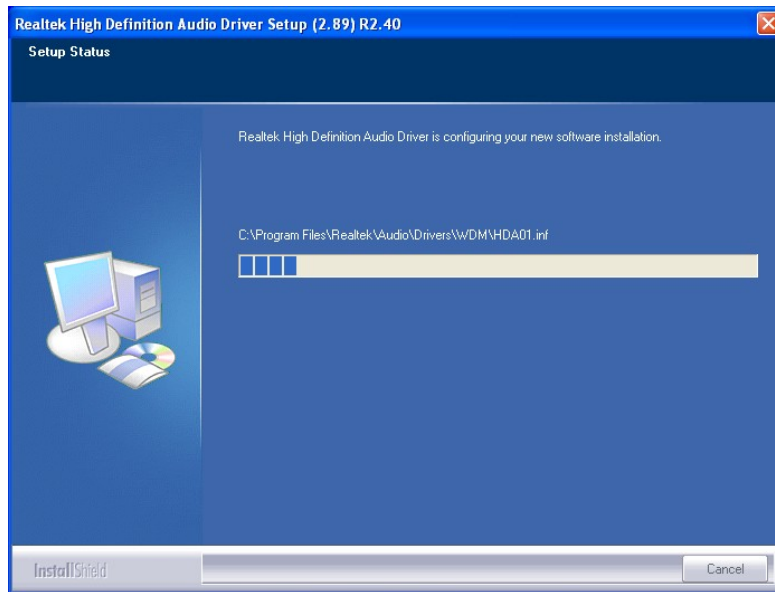


Figure 5-20: Audio Driver Installation

Step 7: When the installation is complete, the screen in **Figure 5-21** appears.

Step 8: Select “**Yes, I want to restart my computer now**” and click **Finish**.

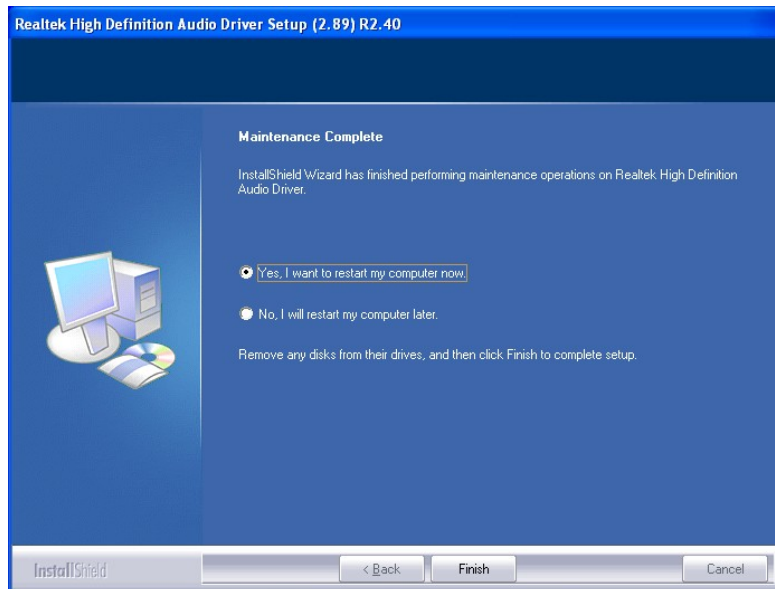


Figure 5-21: Audio Driver Installation Complete

5.7 Touch Screen Driver

To install the touch panel software driver, please follow the steps below.

Step 1: Access the driver list. (See **Section 5.2**)

Step 2: Click “**Touch Screen.**”

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

Step 4: A **Welcome Screen** appears (Figure 5-22).

Step 5: Click **NEXT** to continue.



Figure 5-22: Touch Screen Driver Welcome Screen

Step 6: The **License Agreement** shown in Figure 5-23 appears.

Step 7: Click **I AGREE** to accept and continue.

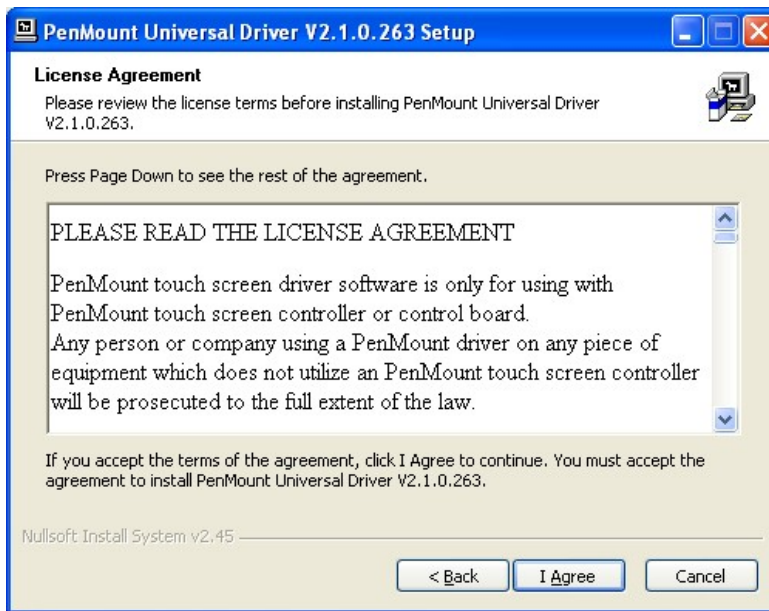


Figure 5-23: Touch Screen Driver License Agreement

Step 8: Browse for an install location or use the one suggested (Figure 5-24).

Step 9: Click **INSTALL** to continue.

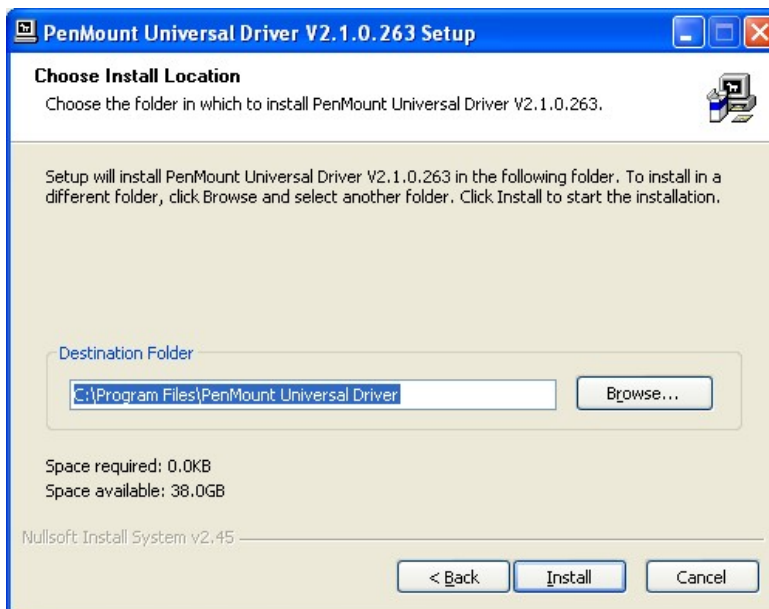


Figure 5-24: Touch Screen Driver Choose Install Location

Step 10: The **Install** screen appears and displays the progress of the installation (Figure 5-25).

Step 11: Click **NEXT** to continue.

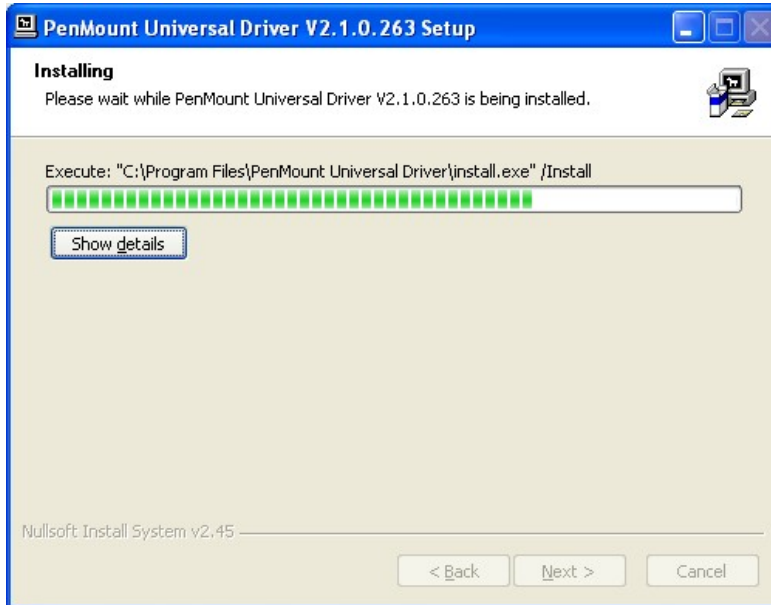


Figure 5-25: Touch Screen Driver Installation Screen

Step 12: When the installation is complete, click **FINISH** to exit setup. (Figure 5-26).

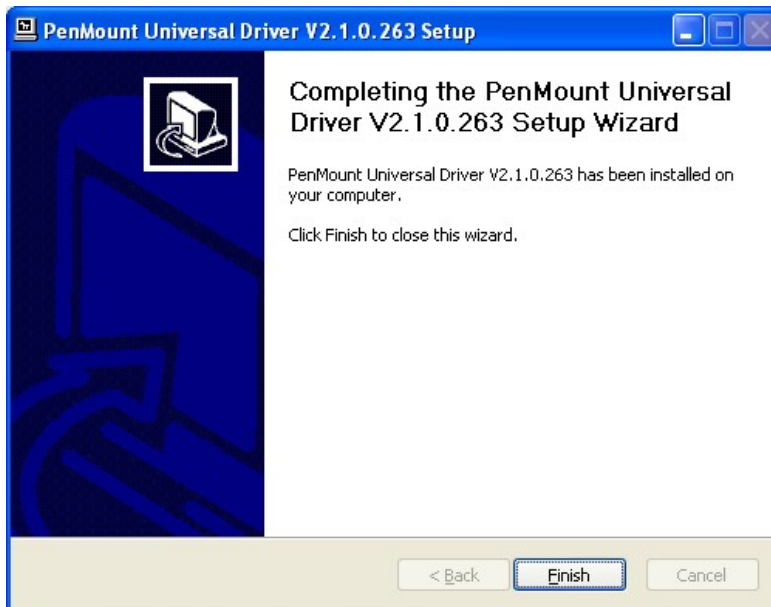


Figure 5-26: Touch Screen Driver Update Complete

5.7.1 Calibrating the Touch Screen

To calibrate the touch screen cursor with the motion of the touch screen pen (or finger), please follow the steps below:

Step 1: Make sure the touch screen driver is properly installed.

Step 2: Locate the PenMount Monitor icon in the bottom right corner of the screen.



Figure 5-27: PenMount Monitor Icon

Step 3: Click the icon. A pop up menu appears. See **Figure 5-28**.

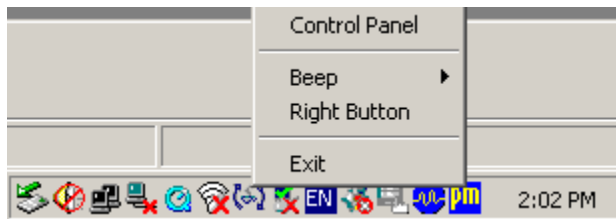


Figure 5-28: PenMount Monitor Popup Menu

Step 4: Click Control Panel in the pop up menu shown in **Figure 5-28**.

Step 5: The configuration screen in **Figure 5-29** appears.

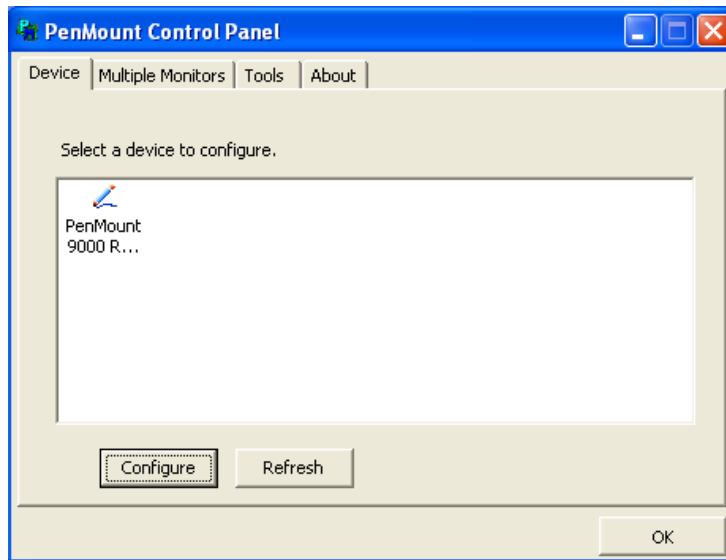


Figure 5-29: Configuration Screen

Step 6: Double click the PenMount 9000 icon as shown in **Figure 5-29**.

Step 7: The calibration initiation screen in **Figure 5-30** appears.

Step 8: Select the **Standard Calibration** button as shown in **Figure 5-30**.

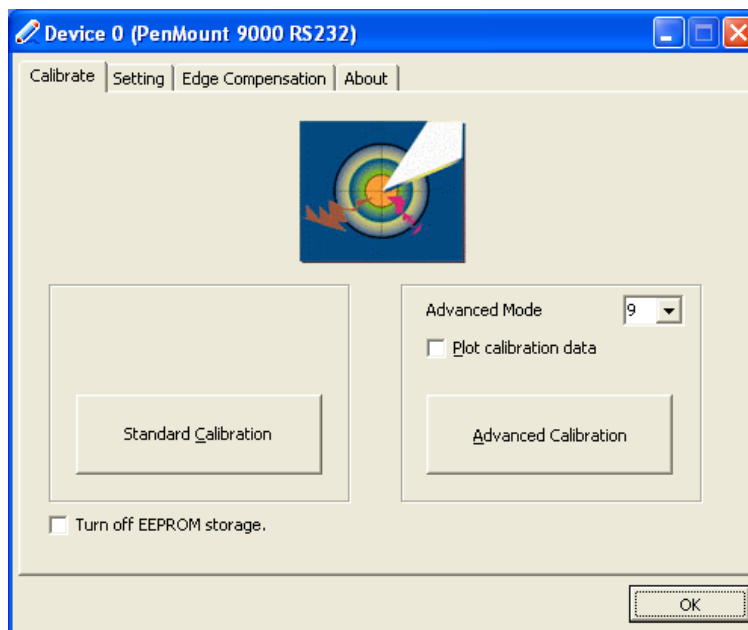


Figure 5-30: Calibration Initiation Screen

Step 9: The calibration screen in is shown. See **Figure 5-31**.

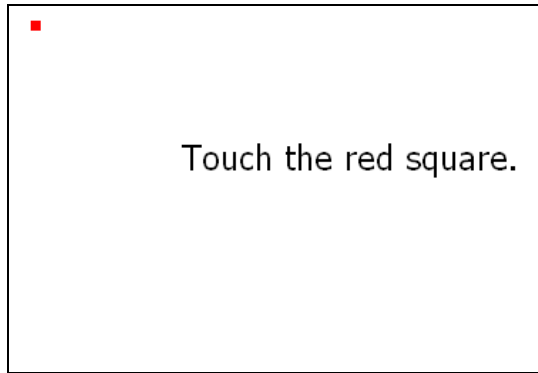


Figure 5-31: Calibration Screen

Step 10: Follow the instructions. The user is asked touch the screen at five specified points after which the screen is calibrated.

5.8 Wi-Fi Driver Installation

To install the wireless LAN driver, please follow the steps below.

Step 1: Access the driver list. (See **Section 5.2**)

Step 2: Click **“WiFi”** and select the folder which corresponds to your operating system.

Step 3: The **License Agreement** screen in **Figure 5-32** appears.

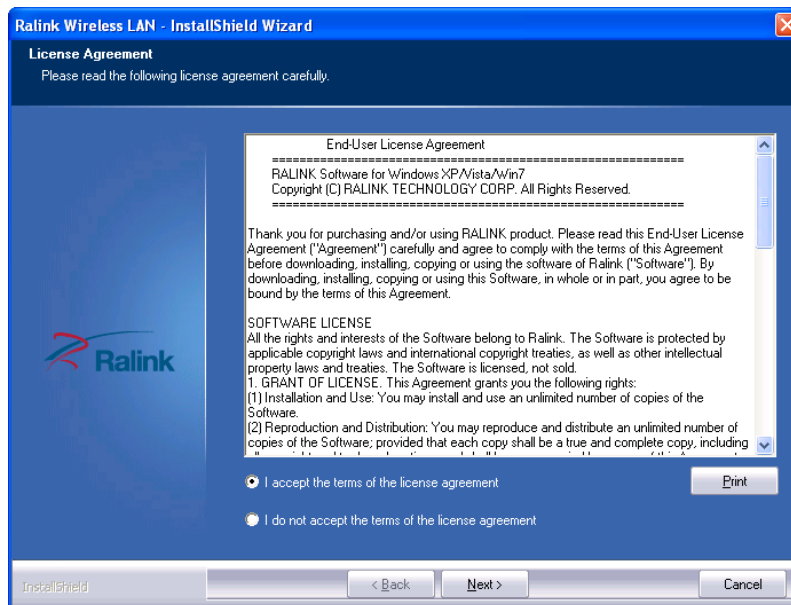


Figure 5-32: License Agreement

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Step 4: Accept the conditions of the license agreement and click **NEXT** to continue.

Step 5: The **Setup Type** screen in **Figure 5-33** appears.

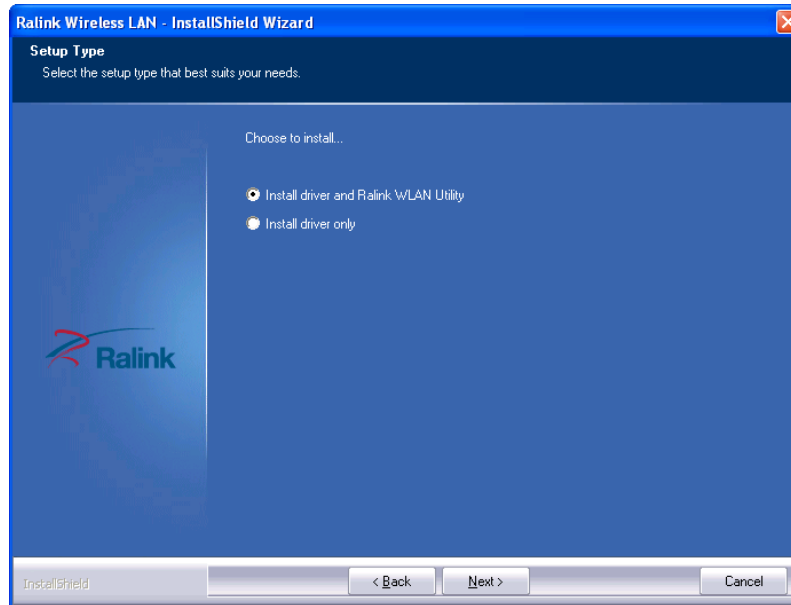


Figure 5-33: Setup Type

Step 6: Select “**Install driver and Ralink WLAN Utility**” and click **NEXT** to continue.

Step 7: The **Configuration Tool** screen in **Figure 5-34** appears.

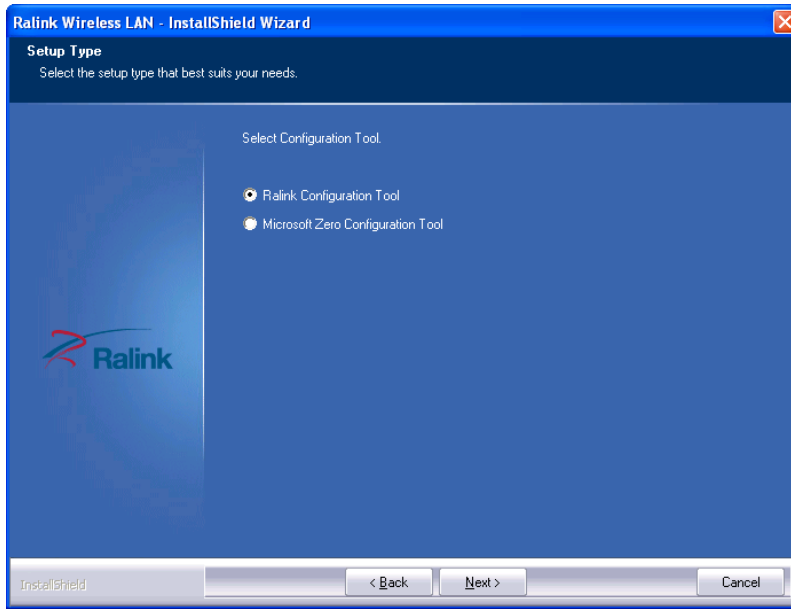


Figure 5-34: Configuration Tool

Step 8: Select “Ralink Configuration Tool” and click **NEXT** to continue.

Step 9: The **Ready to Install the Program** screen in **Figure 5-35** appears.

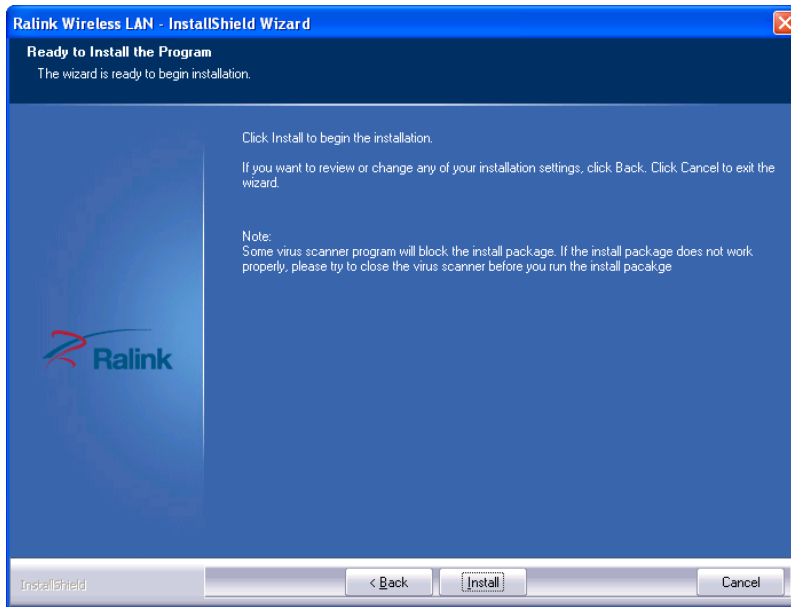


Figure 5-35: Ready to Install the Program

Step 10: Click **Install** to proceed with the installation.

Step 11: The **Setup Status** screen in **Figure 5-36** appears and displays the progress of the installation.

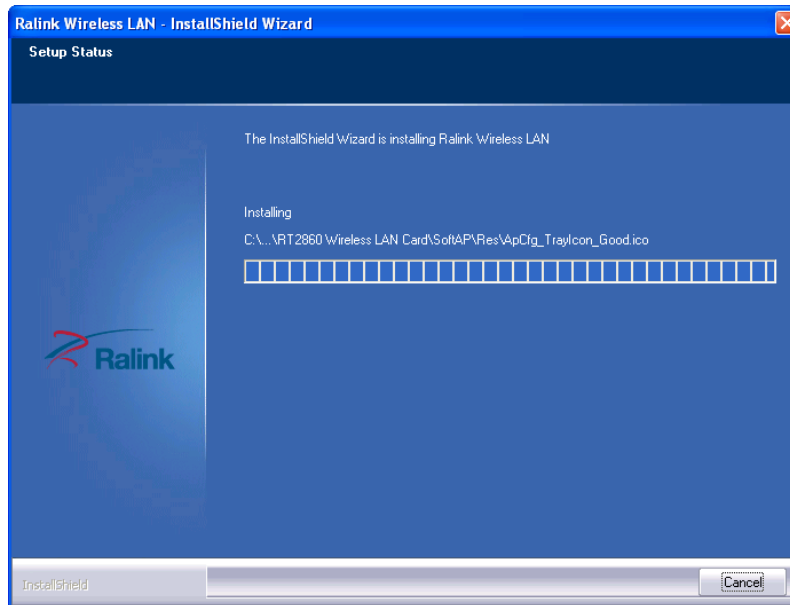


Figure 5-36: Setup Status

Step 12: When the driver installation is complete, the screen in **Figure 5-37** appears.

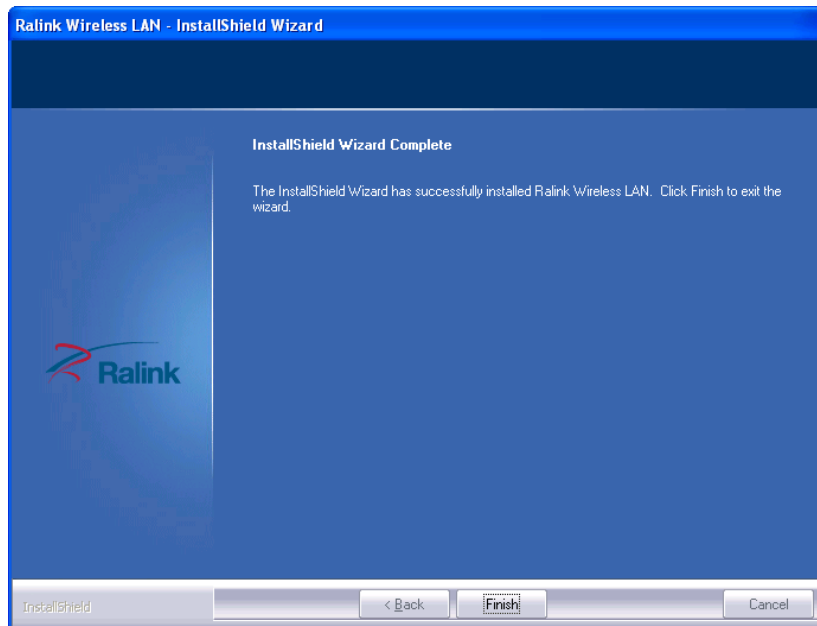


Figure 5-37: Installation Complete

Step 13: Click **FINISH** to complete installation.

5.9 USB 3.0 Driver Installation

To install the touch panel software driver, please follow the steps below.

Step 1: Access the driver list. (See **Section 5.2**)

Step 2: Click “**USB 3.0**”.

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

Step 4: A **Welcome Screen** appears (Figure 5-38).

Step 5: Click **Next** to continue.



Figure 5-38: USB 3.0 Driver Welcome Screen

Step 6: The **License Agreement** shown in Figure 5-39 appears.

Step 7: Accept the agreement by selecting “I accept the terms in the license agreement”.

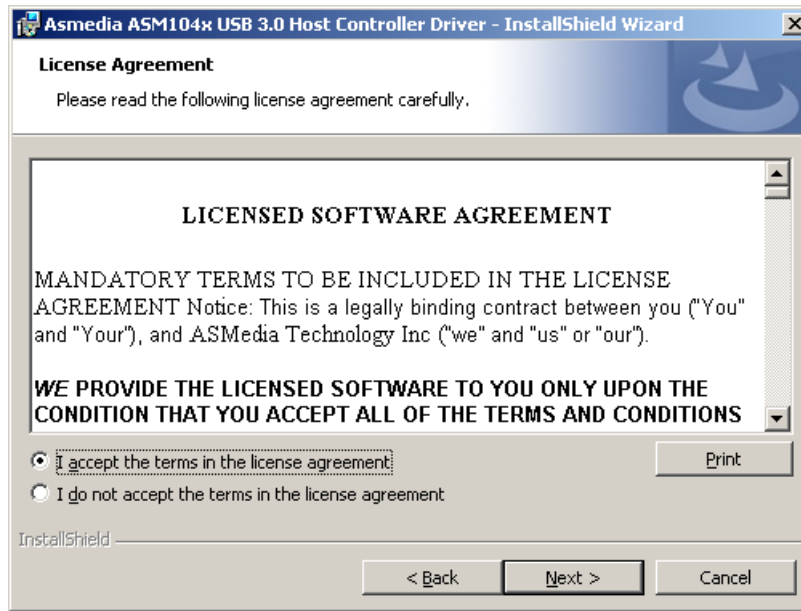


Figure 5-39: USB 3.0 Driver License Agreement

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

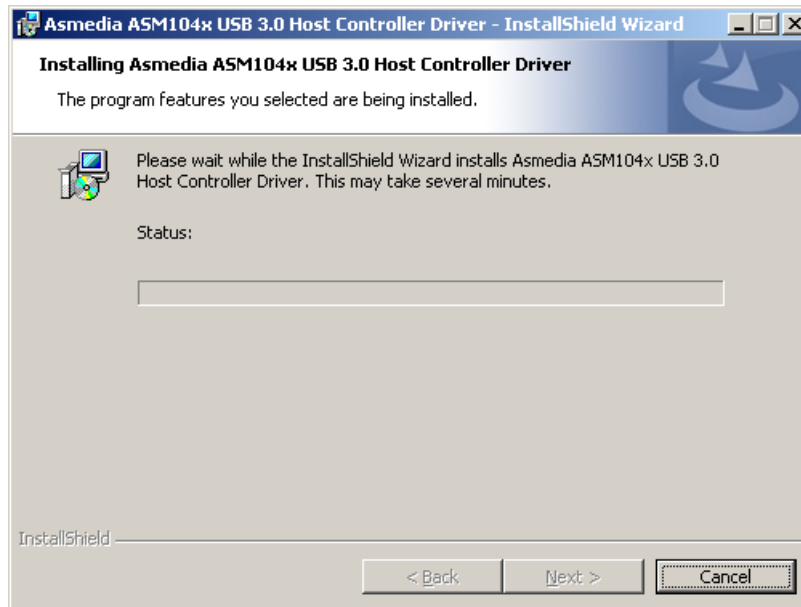


Figure 5-40: USB 3.0 Driver Installation

Step 9: The **Install** screen appears and displays the progress of the installation.

Step 10: When the installation is complete, click **Finish** to exit setup. (Figure 5-41).



Figure 5-41: USB 3.0 Driver Update Complete

Chapter

6

System Monitoring: iCMC

6.1 IEI Cooling Management Console (iCMC)

The iCMC system cooling management console tracks system and CPU temperatures, frequency, cooling fan speeds, and allows users to configure light fanless settings. The iCMC quickly captures and reports system conditions to ensure operators can prevent system damage.

6.1.1 iCMC Installation

To install the iCMC application, please follow the steps below:



NOTE:

The **Microsoft .NET Framework 3.5 SP1** must be installed before installing the iCMC.

Step 1: Insert the driver CD.

Step 2: Locate the iCMC setup file in the driver CD. Double click it.

Step 3: The Cooling Management Console Setup Wizard appears. Click **Next** to start.

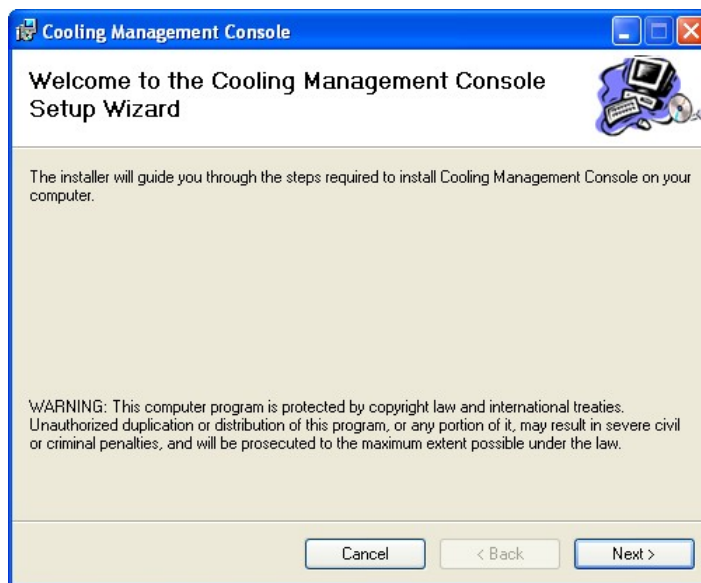


Figure 6-1: Cooling Management Console Setup Wizard

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Step 4: Select a folder for Cooling Management Console installation in **Figure 6-2**. Click **Next** to continue.

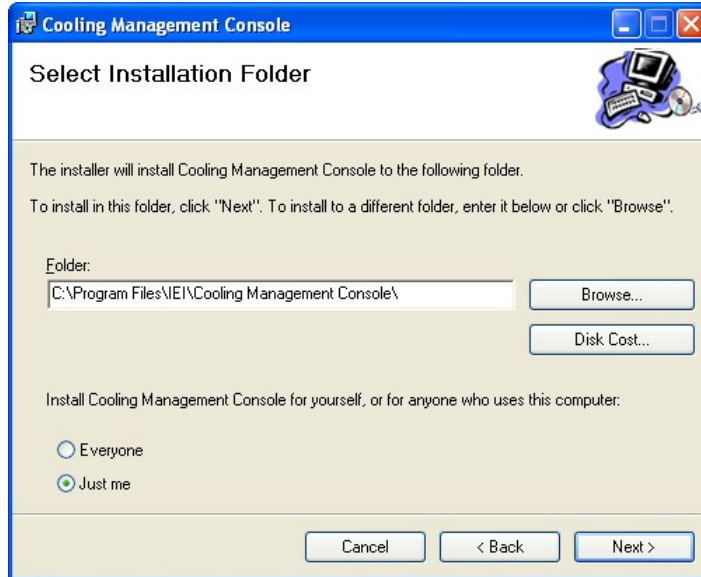


Figure 6-2: Select Installation Folder

Step 5: The following screen appears. Click **Next** to confirm the installation.

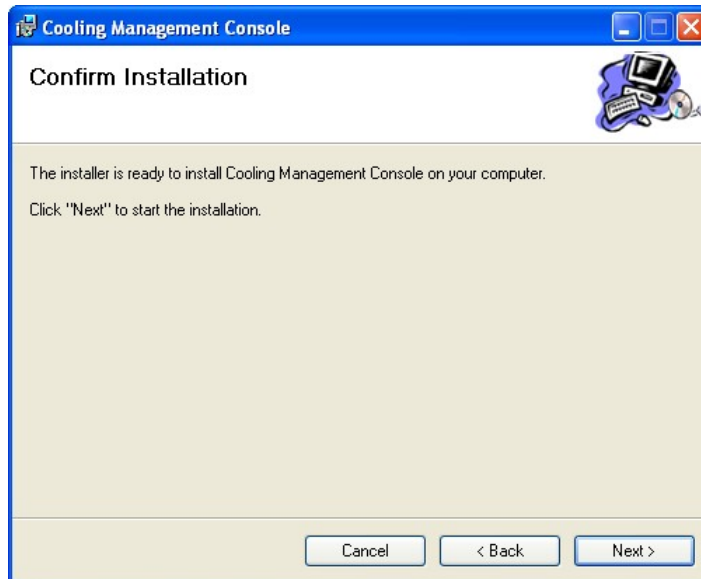


Figure 6-3: Confirm Installation

Step 6: The system starts installing the Cooling Management Console.

Step 7: When the Cooling Management Console is successfully installed, the following window appears. Click **Close** to exit.

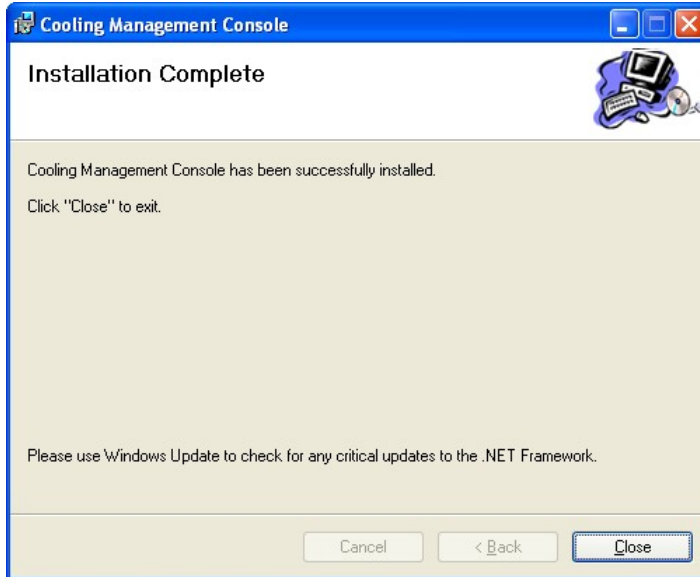


Figure 6-4: Installation Complete

Step 8: The confirmation screen offers the option of restarting the system now or later. For the settings to take effect, the system must be restarted. Click **Yes** to restart the system.

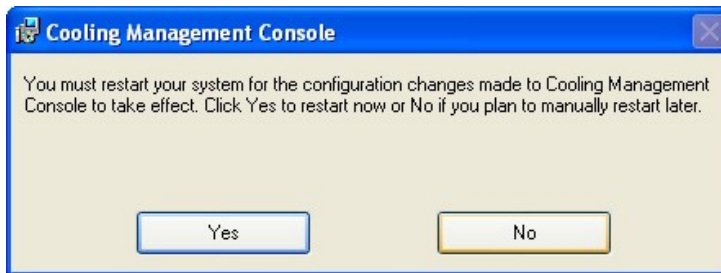


Figure 6-5: Restart the System

Step 9: The Cooling Management Console icon shows on the computer desktop. Double click it to launch the application.

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Figure 6-6: Cooling Management Console Icon

6.2 iCMC Overview

Figure 6-7 shows the iCMC interface. The iCMC interface is consisted of two panels: information panel (left) and chart panel (right). The chart panel can be hidden by selecting Chart visible option to “Off”. The following sections describe the two panels in detail.

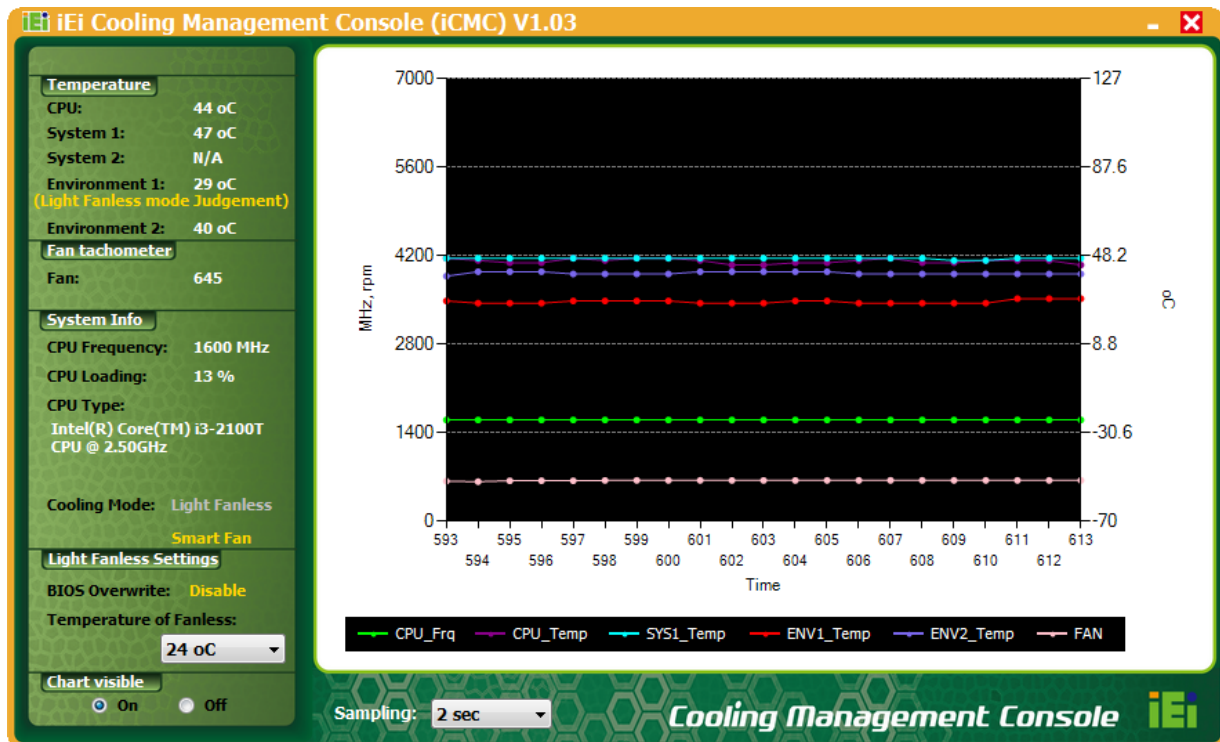


Figure 6-7: iCMC

6.2.1 Information Panel

Figure 6-8 shows the information panel interface. The information descriptions are listed in Table 6-1.

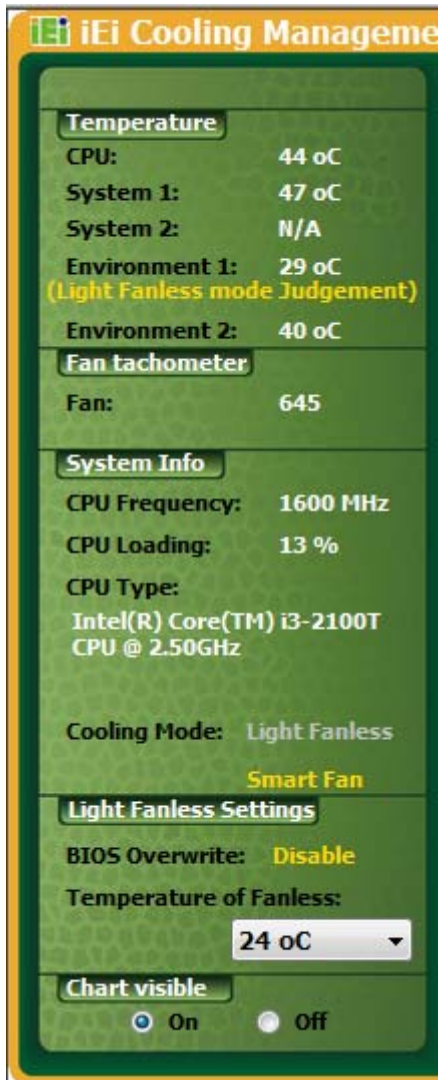


Figure 6-8: iCMC Information Panel

| Temperature | |
|----------------|---|
| CPU | The current CPU temperature. |
| System 1 | The current system temperature. |
| System 2 | The current system temperature. |
| Environment 1 | The current environment temperature detected by the temperature sensor on the system. |
| Environment 2 | The current environment temperature detected by the temperature sensor on the system. |
| Fan Tachometer | |

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| | |
|-------------------------------|--|
| Fan | The system fan speed. "0" indicates the fan is off. |
| System Info | |
| CPU Frequency | The CPU frequency parameters. |
| CPU Loading | The CPU loading parameters. |
| CPU Type | The brand name of the CPU being used in the system. |
| Light Fanless Settings | |
| BIOS Overwrite | <p>Use this option to determine either to follow the BIOS setting or the iCMC setting for the light fanless operation. This setting is configured through BIOS (see Section 4.3.9). The options include:</p> <ul style="list-style-type: none"> - Enable: The light fanless operation will take effect based on the "Temperature of Fanless" set in the BIOS. - Disable: The light fanless operation will take effect based on the "Temperature of Fanless" set in the iCMC. |
| Temperature of Fanless | <p>When the environment temperature 1 is lower than the temperature set here, the fan will turn off. When the environment temperature 1 is higher than the temperature set here, the fan will turn on. A list of available options is shown below:</p> <ul style="list-style-type: none"> ▪ Disabled ▪ 4°C ▪ 8°C ▪ 12°C ▪ 16°C ▪ 20°C ▪ 24°C ▪ 28°C ▪ 32°C (Default) ▪ 36°C ▪ 40°C <p>For safety reason, the fan will turn on automatically to cool down the system when the CPU temperature exceeds 80 °C, no matter the Temperature of Fanless is enabled or not.</p> |
| Chart Visible | |
| On/Off | <p>On: show the chart panel</p> <p>Off: hide the chart panel</p> |

Table 6-1: iCMC Information Panel Description

6.2.2 Chart Panel

Figure 6-9 shows the chart panel interface. The line chart is used to visualize the system data listed in the information panel. The following information is displayed in different color lines:

- **Green:** CPU frequency
- **Pink:** CPU temperature
- **Blue:** System temperature 1
- **Yellow:** Environment temperature 1
- **Red:** Environment temperature 2
- **Purple:** Fan speed

The y-axis on the left represents the values for CPU frequency (MHz) and fan speed (RPM) while the y-axis on the right represents the values for CPU, system and environment temperatures.

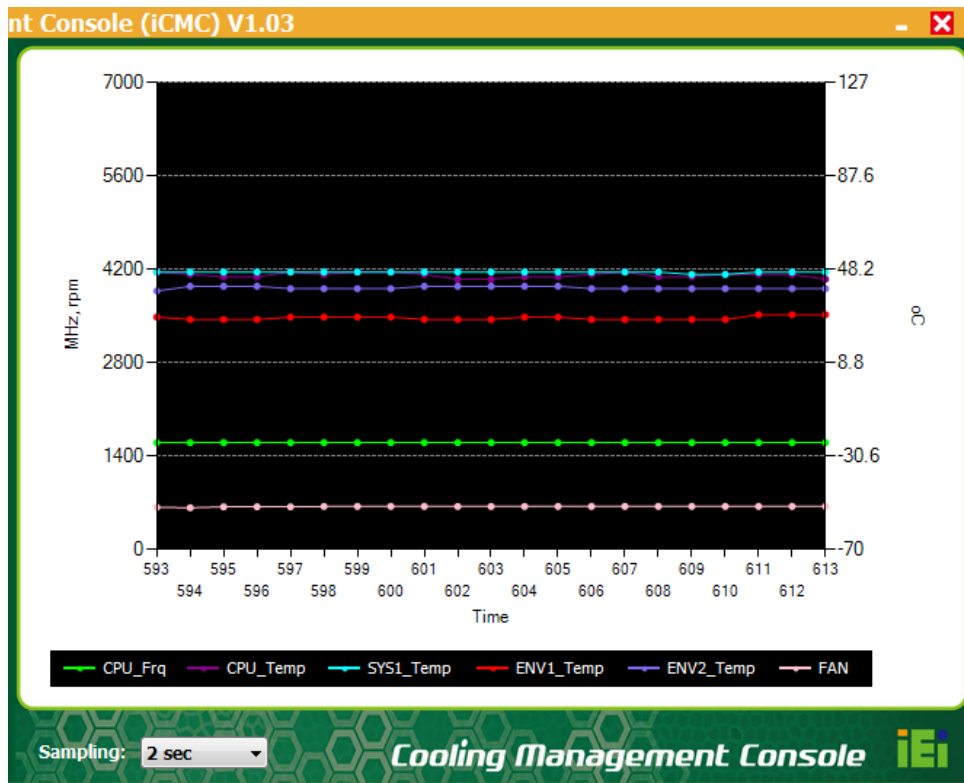


Figure 6-9: iCMC – Chart Panel

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The user can adjust the time interval between sampling by selecting the options in the Sampling drop down menu (see **Figure 6-10**). The x-axis of the line chart (Time in seconds) will change according to the adjustment.

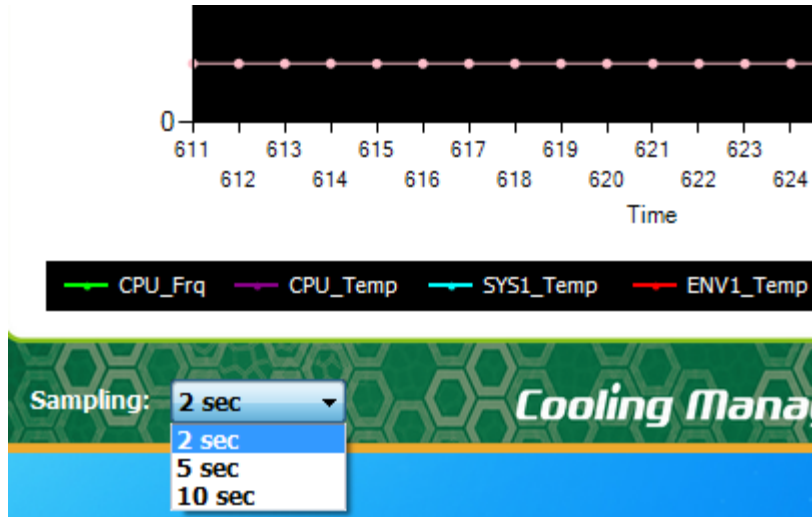


Figure 6-10: iCMC – Time Interval Adjustment

Chapter

7

System Maintenance

AFL2-15A-H61

7.1 System Maintenance Introduction

If the components of the AFL2-15A-H61 fail they must be replaced. Components that can be replaced include:

- SO-DIMM module
- WLAN module

Please contact the system reseller or vendor to purchase the replacement parts. Back cover removal instructions for the AFL2-15A-H61 are described below.

7.2 Anti-static Precautions



WARNING:

Failure to take ESD precautions during the maintenance of the AFL2-15A-H61 may result in permanent damage to the AFL2-15A-H61 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the AFL2-15A-H61. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the AFL2-15A-H61 is accessed internally, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband:*** - Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding:*** - Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad:*** - When configuring the AFL2-15A-H61, place it on an anti-static pad. This reduces the possibility of ESD damaging the AFL2-15A-H61.
- ***Only handle the edges of the PCB:*** - When handling the PCB, hold the PCB by the edges.

7.3 Turn off the Power



WARNING:

Failing to turn off the system before opening it can cause permanent damage to the system and serious or fatal injury to the user.

Before any maintenance procedures are carried out on the system, make sure the system is turned off.

To power off the system, follow the steps below:

Step 1: Locate the Function and Brightness Up function keys. See Section 1.2.1.2.

Step 2: Hold down the Function and Brightness Up buttons for **six** seconds to power off the system.

7.4 Opening the System

7.4.1 Removing the Back Cover



WARNING:

Over-tightening back cover screws will crack the plastic frame. Maximum torque for cover screws is 5 kg-cm (0.36 lb-ft/0.49 Nm).

To access the AFL2-15A-H61 internally the back cover must be removed. To remove the back cover, please follow the steps below.

Step 1: Follow all anti-static procedures. See Section 7.2.

Step 2: Turn off the power. See Section 7.3.

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Step 3: Remove a total of ten (10) retention screws from the back cover (**Figure 7-1**).



Figure 7-1: Back Cover Retention Screws

Step 4: Carefully separate the back cover from the chassis and lift the cover clear of the device

7.4.2 Removing the Internal Aluminum Cover

To remove the internal aluminum cover, follow the steps below.

Step 1: Remove the six (6) retention screws securing the internal aluminum cover to the chassis (**Figure 7-2**).

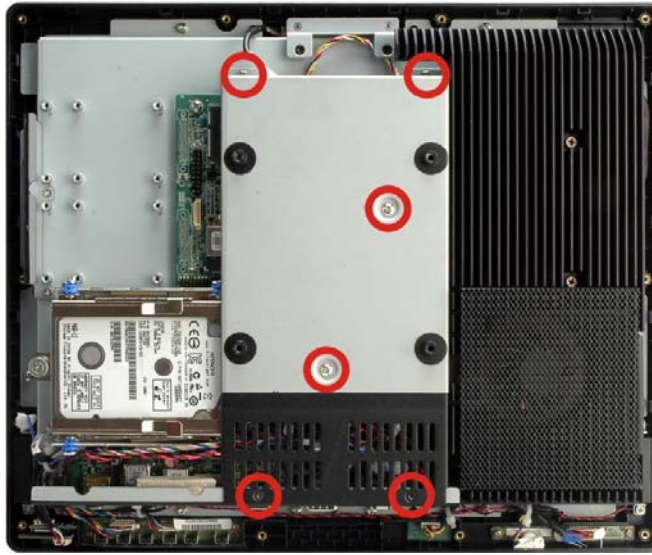


Figure 7-2: Internal Cover Retention Screws

Step 2: Lift the aluminum cover off the AFL2-15A-H61.

Step 3: The internal parts will all be viewable.

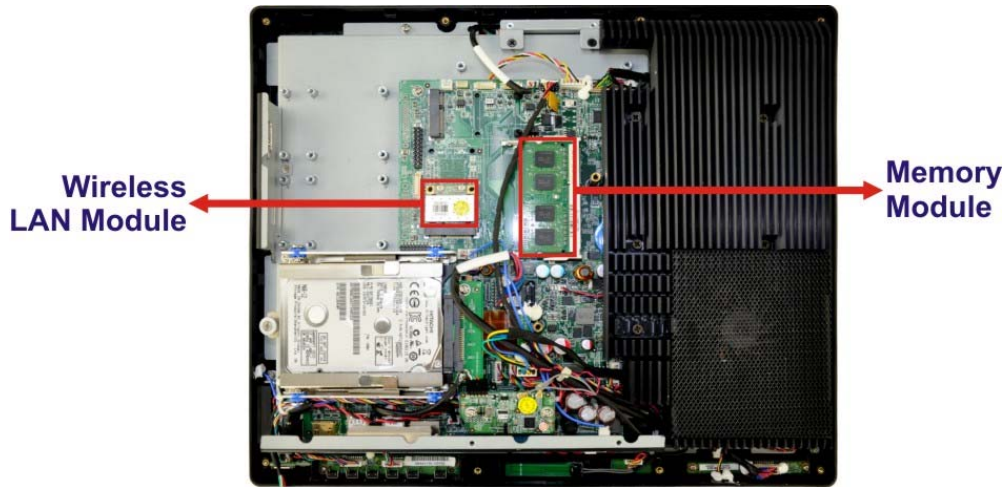


Figure 7-3: Internal Components

7.5 Replacing Components

7.5.1 Memory Module Replacement

The flat bezel panel PC is preinstalled with two 2.0 GB DDR3 memory module. If the memory module fails, follow the instructions below to replace the memory module.

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- Step 1:** Follow all anti-static procedures. See **Section 7.2**.
- Step 2:** Turn off the power. See **Section 7.3**.
- Step 3:** Remove the back cover. See **Section 7.4.1** above.
- Step 4:** Remove the internal aluminum back cover. See **Section 7.4.2** above.
- Step 5:** Locate the DDR3 SO-DIMM on the motherboard.
- Step 6:** Remove the DDR3 memory module by pulling both the spring retainer clips outward from the socket.
- Step 7:** Grasp the DDR3 memory module by the edges and carefully pull it out of the socket.
- Step 8:** Install the new DDR3 memory module by pushing it into the socket at an angle (**Figure 7-4**).
- Step 9:** Gently pull the spring retainer clips of the SO-DIMM socket out and push the rear of the DDR memory module down (**Figure 7-4**).
- Step 10:** Release the spring retainer clips on the SO-DIMM socket. They clip into place and secure the DDR memory module in the socket.

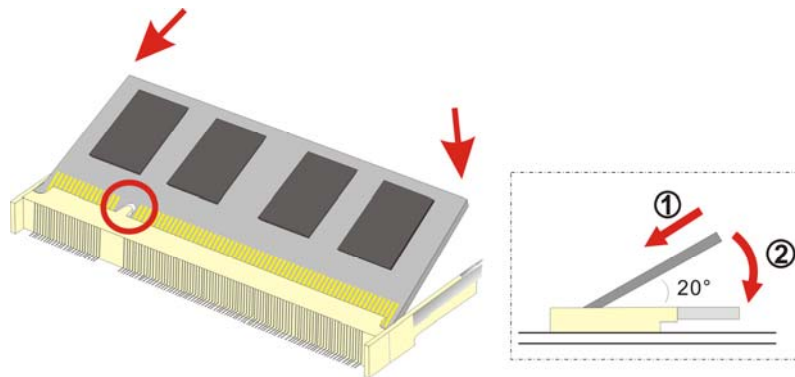


Figure 7-4: DDR SO-DIMM Module Installation

- Step 11:** Replace the internal aluminum cover and secure it to the chassis using six (6) retention screws.

Step 12: Replace the back cover and secure it using ten (10) previously removed retention screws.

7.5.2 WLAN Card Replacement

The AFL2-15A-H61 has one WLAN card slot. To replace the WLAN card, follow the instructions below.

Step 1: Follow all anti-static procedures. See **Section 7.2**.

Step 2: Turn off the power. See **Section 7.3**.

Step 3: Remove the back cover. See **Section 7.4.1** above.

Step 4: Remove the internal aluminum back cover. See **Section 7.4.2** above.

Step 5: Locate the WLAN card.

Step 6: Disconnect the main and auxiliary antennas on the WLAN module (**Figure 7-5**).



Figure 7-5: Removing the Antennas

Step 7: Push the two spring clips in to release the WLAN card.

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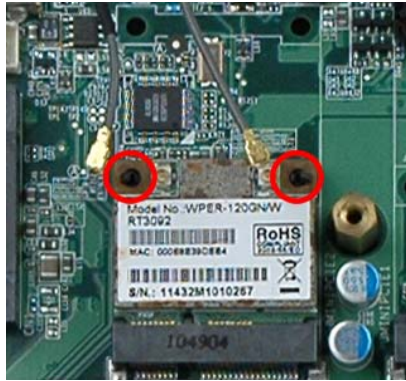


Figure 7-6: Releasing the WLAN Card

Step 8: Grasp the WLAN card by the edges and carefully pull it out of the socket (**Figure 7-7**).



Figure 7-7: Removing the WLAN card

Step 9: Install a new WLAN card by inserting the card into the slot at an angle

Step 10: Push the WLAN card down until the spring retainer clips lock into place.

Step 11: Connect the main (1) and auxiliary (2) antennas. The main antenna is indicated with a strip of black electrical tape. See **Figure 7-8**.

**NOTE:**

To ensure the WLAN module functions correctly, please make sure the WLAN antennas are attached in the proper configuration.

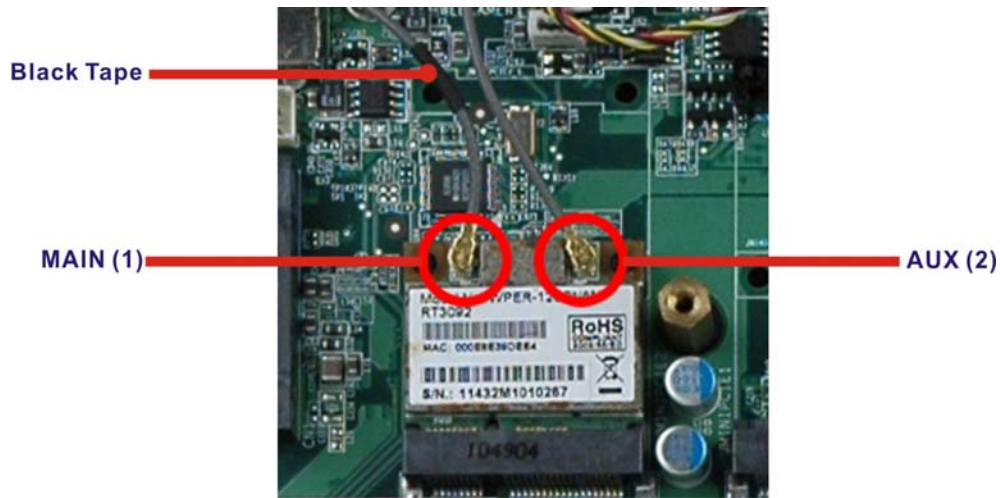


Figure 7-8: Attaching the Antennas

Step 12: Replace the internal aluminum cover and secure it to the chassis using six (6) retention screws.

Step 13: Replace the back cover and secure it using ten (10) previously removed retention screws.

7.6 Reinstalling the Covers



WARNING:

Failing to reinstall the covers may result in permanent damage to the system. Please make sure all coverings are properly installed.

When maintenance procedures are complete, please make sure all the covers are replaced, including the following:

- Aluminum internal cover
- Plastic back cover

Chapter

8

Interface Connectors

8.1 Peripheral Interface Connectors

The AFL2-15A-H61 panel PC motherboard comes with a number of peripheral interface connectors and configuration jumpers. The connector locations are shown in **Figure 8-1**. The Pin 1 locations of the on-board connectors are also indicated in the diagram below. The connector pinouts for these connectors are listed in the following sections.

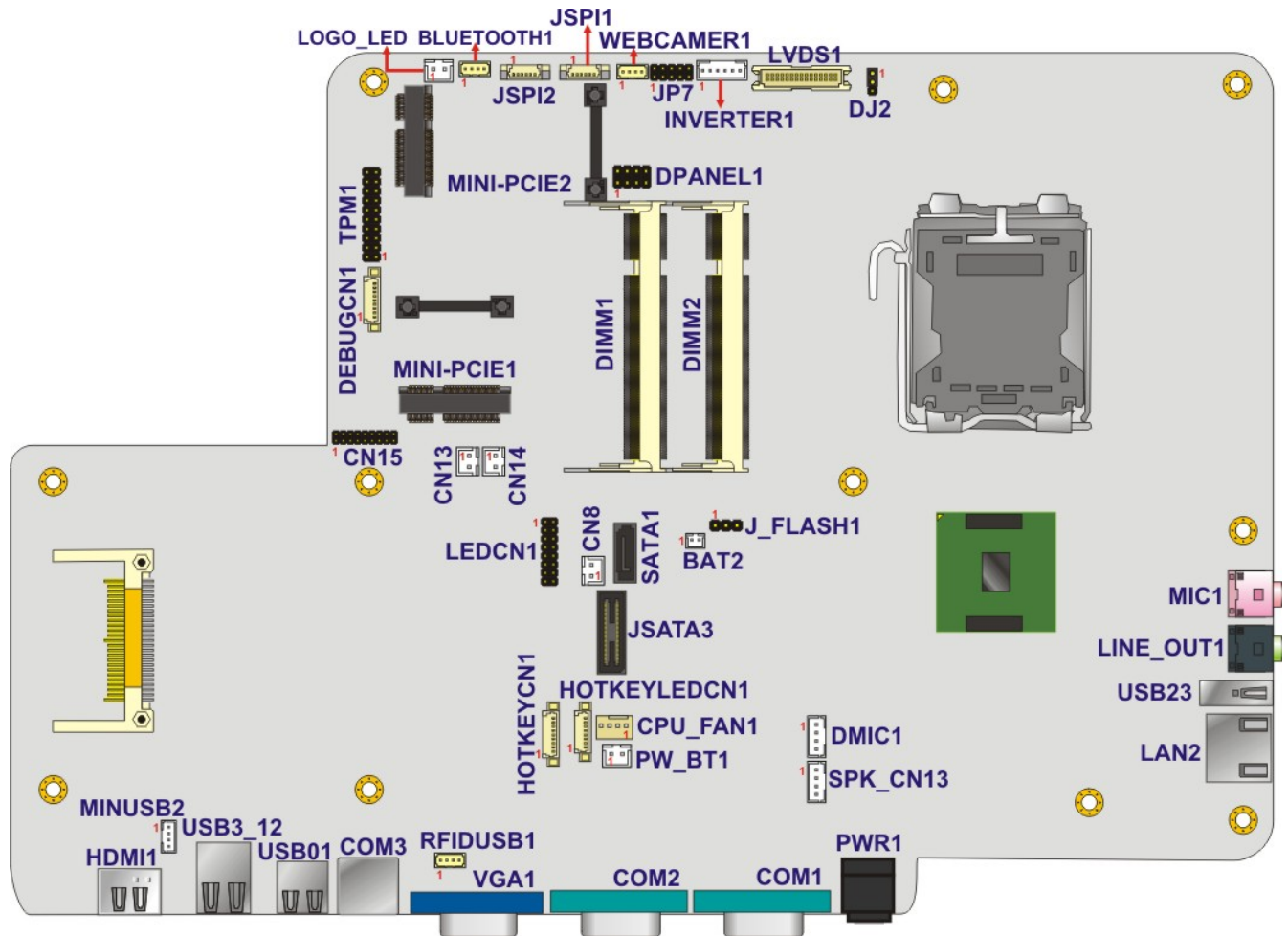


Figure 8-1: Main Board Layout Diagram

8.2 Internal Peripheral Connectors

Internal peripheral connectors are found on the motherboard and are only accessible when the motherboard is outside of the chassis. The table below shows a list of the peripheral interface connectors on the AFL2MB-15A. Pinouts of these connectors can be found in the following sections.

| Connector | Type | Label |
|--------------------------|---------------------|---------------------------|
| Auto-dimming connector | 10-pin header | JP7 |
| Battery connector | 2-pin wafer | BAT2 |
| Bluetooth connector | 4-pin wafer | BLUETOOTH1 |
| Debug port | 9-pin wafer | DEBUGCN1 |
| EC debug connector | 18-pin header | CN15 |
| Fan connector | 4-pin wafer | CPU_FAN1 |
| HDD connector | 20-pin connector | JSATA3 |
| Hot key connector | 9-pin wafer | HOTKEYCN1 |
| Hot key LED connector | 8-pin wafer | HOTKEYLEDCN1 |
| LED indicator connector | 16-pin header | LEDCN1 |
| Logo LED connector | 2-pin wafer | LOGO_LED |
| LVDS connector | 30-pin crimp | LVDS1 |
| LVDS backlight connector | 6-pin wafer | INVERTER1 |
| Microphone connector | 4-pin wafer | DMIC1 |
| Mini USB connectors | 4-pin wafer | MINUSB1, MINUSB2 |
| PCIe Mini card slots | PCIe Mini card slot | MINI-PCIE1, MINI-PCIE2 |
| Power button connector | 2-pin wafer | PW_BT1 |
| RFID USB connector | 4-pin wafer | RFIDUSB1 |
| SATA connector | SATA connector | SATA1 |

| Connector | Type | Label |
|-------------------------------|-------------------|--------------|
| SATA power connector | 2-pin wafer | CN8 |
| SO-DIMM connectors | SO-DIMM connector | DIMM1, DIMM2 |
| Speaker connector | 4-pin wafer | SPK_CN13 |
| SPI Flash connector | 6-pin wafer | JSPI1 |
| SPI Flash connector (EC) | 6-pin wafer | JSPI2 |
| Touch panel connector | 9-pin wafer | TS1 |
| TPM connector | 20-pin header | TPM1 |
| Type K thermocouple connector | 2-pin wafer | CN13, CN14 |
| Webcam connector | 4-pin wafer | WEBCAMER1 |

Table 8-1: Peripheral Interface Connectors

8.2.1 Auto-dimming Connector (JP7)

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-------------|---------|-------------|
| 1 | NC | 2 | VCC5DUAL |
| 3 | VCC5DUAL | 4 | IRRX |
| 5 | GROUND | 6 | AUTO_CLK |
| 7 | NC | 8 | AUTO_DATA |
| 9 | NC | 10 | GROUND |

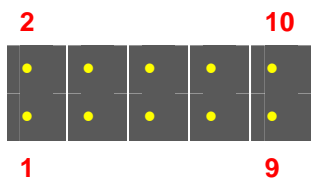


Table 8-2: Auto-dimming Connector (JP3) Pinouts

8.2.2 Battery Connector (BAT2)

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | VBATT |
| 2 | GND |

Table 8-3: Battery Connector (BAT2) Pinouts

8.2.3 Bluetooth USB Connector (BLUETOOTH1)

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | VCC |
| 2 | -DATA9 |
| 3 | +DATA9 |
| 4 | GND |

Table 8-4: Bluetooth USB Connector (BLUETOOTH1) Pinouts

8.2.4 EC Debug Connector (CN15)

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-------------|---------|--------------|
| 1 | EC_EPP_STB# | 2 | EC_EPP_AFD# |
| 3 | EC_EPP_PD0 | 4 | EC_EPP_ERR# |
| 5 | EC_EPP_PD1 | 6 | EC_EPP_INIT# |
| 7 | EC_EPP_PD2 | 8 | EC_EPP_SLIN# |
| 9 | EC_EPP_PD3 | 10 | GND |
| 11 | EC_EPP_PD4 | 12 | EC_EPP_ACK# |
| 13 | EC_EPP_PD5 | 14 | EC_EPP_BUSY |
| 15 | EC_EPP_PD6 | 16 | EC_EPP_PE |
| 17 | EC_EPP_PD7 | 18 | EC_EPP_SLCT |

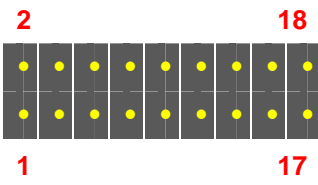


Table 8-5: EC Debug Connector (CN15) Pinouts

8.2.5 Fan Connector (CPU_FAN1)

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | GND |
| 2 | +V12S |
| 3 | FANIN1 |
| 4 | +V3.3S |

Table 8-6: Fan Connector (CPU_FAN1) Pinouts

8.2.6 HDD Connector (JSATA3)

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|---------------------|---------|-------------|
| 1 | GND | 2 | +V12S |
| 3 | NC | 4 | +V12S |
| 5 | NC | 6 | NC |
| 7 | GND | 8 | +V5S |
| 9 | SATA20_PRX_C_DTX_P3 | 10 | +V5S |
| 11 | SATA20_PRX_C_DTX_N3 | 12 | +V5S |
| 13 | GND | 14 | +V5S |
| 15 | SATA20_PRX_C_DRX_P3 | 16 | GND |
| 17 | SATA20_PRX_C_DRX_N3 | 18 | +V3.3S |
| 19 | GND | 20 | +V3.3S |

Table 8-7: HDD Connector (JSTAT3) Pinouts

8.2.7 Hot Key LED Connector (HOTKEYLEDCN1)

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-------------|---------|-------------|
| 1 | KEYLED1 | 2 | KEYLED2 |
| 3 | KEYLED3 | 4 | KEYLED4 |
| 5 | KEYLED5 | 6 | KEYLED6 |
| 7 | GND | 8 | VCC3 |

Table 8-8: Hotkey LED Connector (HOTKEYLEDCN1) Pinouts

8.2.8 Hot Key Connector (HOTKEYCN1)

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-------------|---------|-------------|
| 1 | EC_KSO0 | 2 | EC_KSO1 |
| 3 | EC_KSO2 | 4 | EC_KSO3 |
| 5 | EC_KSO4 | 6 | EC_KSO5 |
| 7 | EC_KSI6 | 8 | EC_KSI7 |
| 9 | GND | 1 | |

Table 8-9: Hotkey Connector (HOTKEYCN1) Pinouts

8.2.9 LED Indicator Connector (LEDCN1)

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-------------|---------|-------------|
| 1 | AUDIO_LED# | 2 | PWRLED01# |
| 3 | MIC_LED# | 4 | PWRLED02# |
| 5 | CPU_LED02# | 6 | AT_LED# |
| 7 | CPU_LED01# | 8 | ATX_LED# |
| 9 | AD_LED# | 10 | +V3.3S |
| 11 | WiFi_LED# | 12 | +V3.3S |
| 13 | BT_LED# | 14 | +V3.3A_EC |
| 15 | VCC_RFID | 16 | GROUND |

Table 8-10: LED Indicator Connector (LEDCN1) Pinouts

8.2.10 Logo LED Connector (LOGO_LED)

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | GND |
| 2 | PWR |

Table 8-11: Logo LED Connector (LOGO_LED) Pinouts

8.2.11 LVDS Connector (LVDS1)

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-------------|---------|-------------|
| 1 | GND | 2 | GND |
| 3 | A0P_C | 4 | A0M_C |
| 5 | A1P_C | 6 | A1M_C |
| 7 | A2P_C | 8 | A2M_C |
| 9 | CLK1P_C | 10 | CLK1M_C |
| 11 | A3P_C | 12 | A3M_C |
| 13 | GND | 14 | GND |
| 15 | A4P_C | 16 | A4M_C |
| 17 | A5P_C | 18 | A5M_C |
| 19 | A6P_C | 20 | A6M_C |
| 21 | CLK2P_C | 22 | CLK2M_C |

| | | | |
|----|-------|----|-------|
| 23 | A7P_C | 24 | A7M_C |
| 25 | GND | 26 | GND |
| 27 | VCC | 28 | VCC |
| 29 | VCC | 30 | VCC |

Table 8-12: LVDS Connector (LVDS1) Pinouts

8.2.12 LVDS Backlight Connector (INVERTER1)

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | BKL_POWER |
| 2 | BKL_POWER |
| 3 | ENABKL |
| 4 | BRIGHTNESS |
| 5 | GND |
| 6 | GND |

Table 8-13: LVDS Backlight Connector (INVERTER1) Pinouts

8.2.13 Microphone Connector (DMIC1)

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | DMIC_CLK |
| 2 | DMIC_DATA |
| 3 | VCC3 |
| 4 | GND |

Table 8-14: Microphone Connector (DMIC1) Pinouts

8.2.14 Mini USB Connector (MINUSB1)

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | VCC |
| 2 | -DATA8 |
| 3 | +DATA8 |
| 4 | GND |
| 5 | 3VCC |

Table 8-15: Mini USB Connector (MINUSB1) Pinouts**8.2.15 Mini USB Connector (MINUSB2)**

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | VCC |
| 2 | -DATA4 |
| 3 | +DATA4 |
| 4 | GND |

Table 8-16: Mini USB Connector (MINUSB2) Pinouts**8.2.16 Power Button Connector (PW_BT1)**

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | EX_PWRBTSW- |
| 2 | GND |

Table 8-17: Power Button Connector (PW_BT1) Pinouts

8.2.17 RFID USB Connector (RFIDUSB1)

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | VCC |
| 2 | -DATA5 |
| 3 | +DATA5 |
| 4 | GND |

Table 8-18: RFID USB Connector (RFID_USB1) Pinouts

8.2.18 SATA Connector (SATA1)

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

Table 8-19: SATA Connector (SATA1) Pinouts

8.2.19 SATA Power Connector (CN8)

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | +V5S |
| 2 | GND |

Table 8-20: SATA Power Connector (CN8) Pinouts

8.2.20 Speaker Connector (SPK_CN13)

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | SPK_OUT_P_L |
| 2 | SPK_OUT_N_L |
| 3 | SPK_OUT_N_R |
| 4 | SPK_OUT_P_R |

Table 8-21: Speaker Connector (SPK_CN13) Pinouts

8.2.21 SPI Flash Connector (JSPI1)

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | SPI_VCC |
| 2 | SPI_CS#O_CN |
| 3 | SPI_SOO_CN |
| 4 | SPI_CLKO_CN |
| 5 | SPI_SIO_CN |
| 6 | GND |

Table 8-22: SPI Flash Connector (JSPI1) Pinouts

8.2.22 EC SPI Flash Connector (JSPI2)

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | SPI_VCC |
| 2 | FSCE#_S |
| 3 | FMISO_S |
| 4 | FSCK_S |
| 5 | FMOSI_S |
| 6 | GND |

Table 8-23: EC SPI Flash Connector (JSPI2) Pinouts

8.2.23 Touch Panel Connector (TS1)

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | X+ |
| 2 | X- |
| 3 | Y+ |
| 4 | SENSE |
| 5 | X+ |
| 6 | X- |
| 7 | Y+ |
| 8 | Y- |
| 9 | GND |

Table 8-24: Touch Panel Connector (TS1) Pinouts

8.2.24 TPM Connector (TPM1)

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|--------------|---------|--------------|
| 1 | TPMPCLK | 2 | GND |
| 3 | LPC_FRAME# | 4 | NC |
| 5 | BUF_PLT_RST# | 6 | +V5S |
| 7 | LPC_AD3 | 8 | LPC_AD2 |
| 9 | +V3.3S | 10 | LPC_AD1 |
| 11 | LPC_ADO | 12 | GND |
| 13 | SMBCLK_MAIN | 14 | SMBDATA_MAIN |
| 15 | +V3.3A | 16 | INT_SERIRQ |
| 17 | GND | 18 | PM_CLKRUN# |
| 19 | PM_SUS_STAT# | 20 | SIO_DRQ#0 |

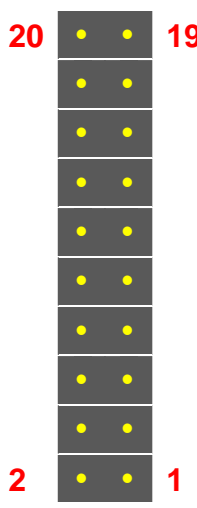


Table 8-25: TPM Connector (TPM1) Pinouts

8.2.25 Type K Thermocouple Connector (CN13, CN14)

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | D- |
| 2 | D+ |

Table 8-26: Type K Thermocouple Connector (CN13, CN14) Pinouts

8.2.26 Webcam Connector (WEBCAMER1)

| PIN NO. | DESCRIPTION |
|---------|-------------|
| 1 | VCC |
| 2 | -DATA10 |
| 3 | +DATA10 |
| 4 | GND |

Table 8-27: Webcam Connector (WEBCAMER1) Pinouts

8.3 External Interface Panel Connectors

The table below lists the rear panel connectors on the AFL2MB-15A motherboard. Pinouts of these connectors can be found in the following sections.

| Connector | Type | Label |
|------------------------|--------------|--------------|
| Audio mic-in jack | Audio jack | MIC1 |
| Audio line-out jack | Audio jack | LINE_OUT1 |
| Ethernet connector | RJ-45 | LAN2 |
| HDMI connector | HDMI | HDMI1 |
| Power connector | 4-pin DIN | PWR1 |
| RS-232 serial ports | DB-9 | COM1, COM2 |
| RS-422/485 serial port | RJ-45 | COM3 |
| USB 2.0 connectors | USB 2.0 port | USB01, USB23 |
| USB 3.0 connectors | USB 3.0 port | USB3_12 |

| Connector | Type | Label |
|---------------|-------|-------|
| VGA connector | DB-15 | VGA1 |

Table 8-28: Rear Panel Connectors

8.3.1 Audio Mic-in Jack (MIC1)

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|--------------|---------|--------------|
| 1 | GND | 2 | MIC1_JD |
| 3 | LMIC1-CONN-R | 4 | LMIC1-CONN-L |
| 5 | GND | | |

Table 8-29: Audio Mic-in Jack (MIC1) Pinouts

8.3.2 Audio Lline-out Jack (LINE_OUT1)

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-------------|---------|-------------|
| 1 | GND | 2 | LFRONT-L |
| 3 | AMP_INL | 4 | AMP_INR |
| 5 | LFRONT-R | | |

Table 8-30: Audio Lline-out Jack (LINE_OUT1) Pinouts

8.3.3 Ethernet Connector (LAN2)

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|--------------|---------|---------------|
| 1 | LAN1_MDIO+ | 2 | LAN1_MDIO- |
| 3 | LAN1_MDI1+ | 4 | LAN1_MDI1- |
| 5 | GND | 6 | GND |
| 7 | LAN1_MDI2+ | 8 | LAN1_MDI2- |
| 9 | LAN1_MDI3+ | 10 | LAN1_MDI3- |
| 11 | GND | 12 | GND |
| 13 | NC | 14 | NC |
| L1 | LAN1_LINK100 | L2 | LAN1_LINK1000 |
| L3 | LAN1_ACT-1 | L4 | POWER |

Table 8-31: Ethernet Connector (LAN2) Pinouts

8.3.4 HDMI Connector (HDMI1)

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|--------------------|---------|--------------------|
| 1 | HDMI_TMDS_C_DATA2 | 2 | GND |
| 3 | HDMI_TMDS_C_DATA2# | 4 | HDMI_TMDS_C_DATA1 |
| 5 | GND | 6 | HDMI_TMDS_C_DATA1# |
| 7 | HDMI_TMDS_C_DATA0 | 8 | GND |
| 9 | HDMI_TMDS_C_DATA0# | 10 | HDMI_TMDS_C_CLK |
| 11 | GND | 12 | HDMI_TMDS_C_CLK# |
| 13 | NC | 14 | NC |
| 15 | HDMI_DDC_SCLK | 16 | HDMI_DDC_SDATA |
| 17 | GND | 18 | +5V_HDMI |
| 19 | HDMI_HPD | | |

Table 8-32: HDMI Connector (HDMI1) Pinouts

8.3.5 Power Connector (PWR1)

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-------------|---------|-------------|
| 1 | WIDE_VIN | 2 | GND |
| 3 | WIDE_VIN | 4 | GND |
| 5 | GND | | |

Table 8-33: Power Connector (PWR1) Pinouts

8.3.6 RS-232 Serial Ports (COM1, COM2)

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-------------|---------|-------------|
| 1 | -NDCCD | 2 | NSIN |
| 3 | NSOUT | 4 | -NDTR |
| 5 | GND | 6 | -NDSR |
| 7 | -NRTS | 8 | -NCTS |
| 9 | -XRI | 10 | |

Table 8-34: RS-232 Serial Ports (COM1, COM2) Pinouts

8.3.7 RS-422/485 RJ-45 Serial Port (COM3)

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-----------------|---------|-------------|
| 1 | RXD422+ | 2 | NC |
| 3 | RXD422- | 4 | NC |
| 5 | TXD422+/TXD485+ | 6 | NC |
| 7 | TXD422-/TXD485- | 8 | NC |

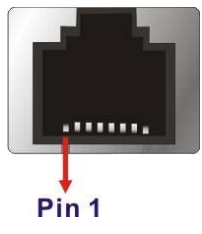


Table 8-35: RS-422/485 Serial Port (COM3) Pinouts

The serial device is connected to the system through the RJ-45 to COM port cable. The DB-9 connector pinouts of the cable are listed below.

| PIN NO. | RS-422 | RS-485 |
|---------|--------|--------|
| 1 | RX+ | - |
| 2 | RX- | - |
| 3 | TX+ | DATA+ |
| 4 | TX- | DATA- |
| 5 | - | - |
| 6 | - | - |
| 7 | - | - |
| 8 | - | - |
| 9 | - | - |

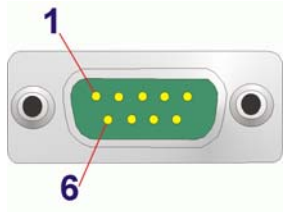


Table 8-36: DB-9 Connector Pinout

8.3.8 USB 2.0 Connectors (USB01)

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-------------|---------|-------------|
| 1 | POWER | 2 | -DATA0 |
| 3 | +DATA0 | 4 | GND |
| 5 | POWER | 6 | -DATA1 |
| 7 | +DATA1 | 8 | GND |

Table 8-37: USB 2.0 Connectors (USB01) Pinouts

8.3.9 USB 2.0 Connector (USB23)

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-------------|---------|-------------|
| 1 | POWER | 2 | -DATA2 |
| 3 | +DATA2 | 4 | USB20_GND |

Table 8-38: USB 2.0 Connector (USB023) Pinouts

8.3.10 USB 3.0 Connectors (USB3_12)

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|------------------|---------|------------------|
| 1 | USB3_PWR1 | 2 | USB2P0_DM1_L |
| 3 | USB2P0_DP1_L | 4 | GND |
| 5 | USB3P0_RXDN1_L | 6 | USB3P0_RXDP1_L |
| 7 | GND | 8 | USB3P0_TXDN1_C_L |
| 9 | USB3P0_TXDP1_C_L | 10 | USB3_PWR2 |
| 11 | USB2P0_DM2_L | 12 | USB2P0_DP2_L |
| 13 | GND | 14 | USB3P0_RXDN2_L |
| 15 | USB3P0_RXDP2_L | 16 | GND |
| 17 | USB3P0_TXDN2_C_L | 18 | USB3P0_TXDP2_C_L |

Table 8-39: USB 3.0 Connectors (USB3_12) Pinouts

8.3.11 VGA Connector (VGA1)

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---------|-------------|---------|--------------|
| 1 | CRT_RED | 2 | CRT_GREEN |
| 3 | CRT_BLUE | 4 | NC |
| 5 | GND | 6 | GND |
| 7 | GND | 8 | GND |
| 9 | CRT_VCC | 10 | CRT_PLUG# |
| 11 | NC | 12 | CRT_DDC_DATA |
| 13 | CRT_HSYNC | 14 | CRT_VSYNC |
| 15 | CRT_DDC_CLK | | |

Table 8-40: VGA Connector (VGA1) Pinouts

8.4 Jumper Settings

The jumpers on the AFL2MB-15A motherboard are listed in **Table 8-41**.

| Connector | Type | Label |
|------------------------------|--------------|---------|
| LVDS panel voltage selection | 3-pin header | DJ2 |
| LVDS panel | 8-pin header | DPANEL1 |

Table 8-41: Jumpers

8.4.1 LVDS Panel Voltage Selection Jumper (DJ2)

| Pin | Description |
|-----------|------------------|
| Short 1-2 | +3.3 V (Default) |
| Short 2-3 | +5 V |

Table 8-42: LVDS Voltage Selection Jumper (DJ2) Settings

8.4.2 LVDS Panel Jumper (DPANEL1)

| Pin | Description |
|-----|------------------------------------|
| 1-2 | Open: high Short: low (Default) |
| 2-3 | Open: high (Default) Short: low |
| 5-6 | Open: high Short: low (Default) |
| 7-8 | Open: high Short: low (Default) |

Table 8-43: LVDS Panel Jumper (DPANEL1) Settings

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 AFL2-15A-H61.

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 AFL2-15A-H61 is opened.
- **Make sure the power is turned off and the power cord is disconnected** whenever the AFL2-15A-H61 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 AFL2-15A-H61 chassis is opened when the AFL2-15A-H61 is running.
- **Do not drop or insert any objects** into the ventilation openings of the AFL2-15A-H61.
- **If considerable amounts of dust, water, or fluids enter the AFL2-15A-H61,** turn off the power supply immediately, unplug the power cord, and contact the AFL2-15A-H61 vendor.
- **DO NOT:**
 - Drop the AFL2-15A-H61 against a hard surface.
 - Strike or exert excessive force onto the LCD panel.
 - Touch any of the LCD panels with a sharp object
 - In a site where the ambient temperature exceeds the rated temperature

AFL2-15A-H61

A.1.2 CPU Temperature Warning



WARNING:

If the CPU Temperature Alert LED shows **RED**, the CPU core temperature is at or over 80°C. To lower the CPU temperature, lower the environment temperature or decrease the amount of running programs.

A.1.3 Anti-static Precautions



WARNING:

Failure to take ESD precautions during the installation of the AFL2-15A-H61 may result in permanent damage to the AFL2-15A-H61 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the AFL2-15A-H61. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the AFL2-15A-H61 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 anti-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.1.4 Product Disposal

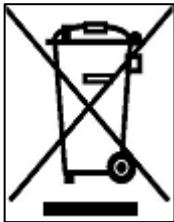


CAUTION:

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 AFL2-15A-H61, please follow the guidelines below.

A.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the AFL2-15A-H61, please read the details below.

AFL2-15A-H61

- 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.
- Never use alcohol to clean the external chassis.
- The interior of the AFL2-15A-H61 does not require cleaning. Keep fluids away from the AFL2-15A-H61 interior.
- Be cautious of all small removable components when vacuuming the AFL2-15A-H61.
- Turn the AFL2-15A-H61 off before cleaning the AFL2-15A-H61.
- Never drop any objects or liquids through the openings of the AFL2-15A-H61.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the AFL2-15A-H61.
- Avoid eating, drinking and smoking within vicinity of the AFL2-15A-H61.

A.2.2 Cleaning Tools

Some components in the AFL2-15A-H61 may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the AFL2-15A-H61.

- **Cloth** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the AFL2-15A-H61.
- **Water** – A cloth moistened with water can be used to clean the AFL2-15A-H61.
- **Using solvents** – The use of solvents is not recommended when cleaning the AFL2-15A-H61 as they may damage the plastic parts.
- **Vacuum cleaner** – Using a vacuum specifically designed for computers is one of the best methods of cleaning the AFL2-15A-H61. Dust and dirt can restrict the airflow in the AFL2-15A-H61 and cause its circuitry to corrode.
- **Cotton swabs** - Cotton swabs moistened with 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

BIOS Menu Options

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Appendix

C

One Key Recovery

C.1 One Key Recovery Introduction

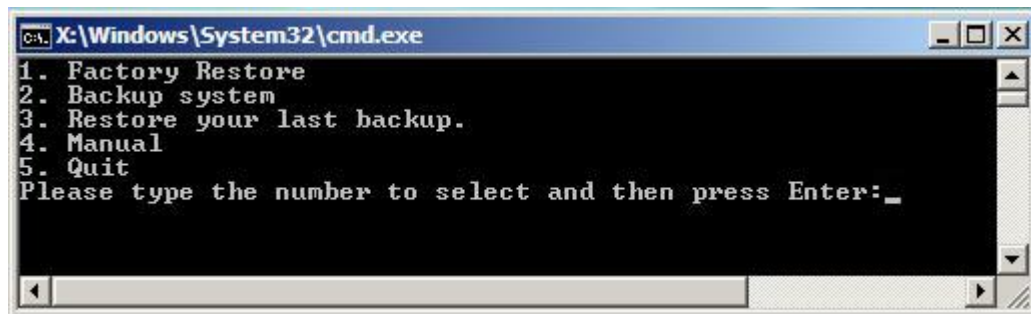
The IEI one key recovery is an easy-to-use front end for the Norton Ghost system backup and recovery tool. This tool provides quick and easy shortcuts for creating a backup and reverting to that backup or reverting to the factory default settings.



NOTE:

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

The IEI One Key Recovery tool menu is shown below.



```
C:\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: _
```

Figure C-1: IEI One Key Recovery Tool Menu

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

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

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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 C.5**.



NOTE:

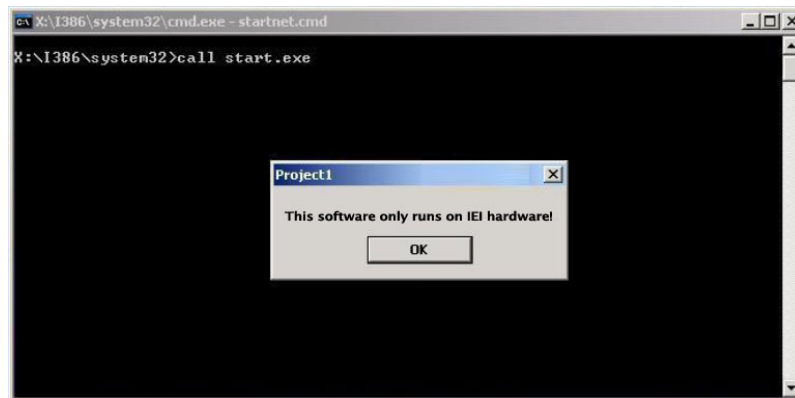
The initial setup procedures for Linux system are described in **Section C.3**.

C.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.

C.1.2 Supported Operating System

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

- Microsoft Windows
 - Windows 2000
 - Windows XP (Service Pack 2 or 3 required)
 - Windows Vista
 - Windows 7
 - Windows CE 5.0
 - Windows CE 6.0
 - Windows XP Embedded
 - Windows Embedded Standard 7

**NOTE:**

The auto recovery function (described in Section C.3) and the restore through LAN function (described in Section C.6) are not supported in the Windows CE 5.0/6.0 operating system environment.

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- 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.

C.2 Setup Procedure for Windows

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

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

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

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

Step 4: Build the recovery partition (see **Section C.2.4**) or build the auto recovery partition (see **Section C.3**)

Step 5: Create factory default image (see **Section C.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, most of the setup procedures are the same except for several steps described in **Section C.3**.

C.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.

C.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.

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Step 2: Boot the system from recovery CD. When prompted, press any key to boot from the recovery CD. It will take a while to launch the recovery tool. Please be patient!

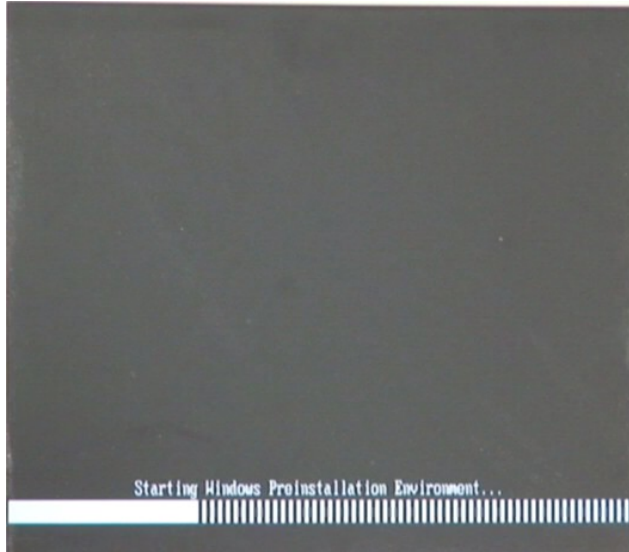


Figure C-2: Launching the Recovery Tool

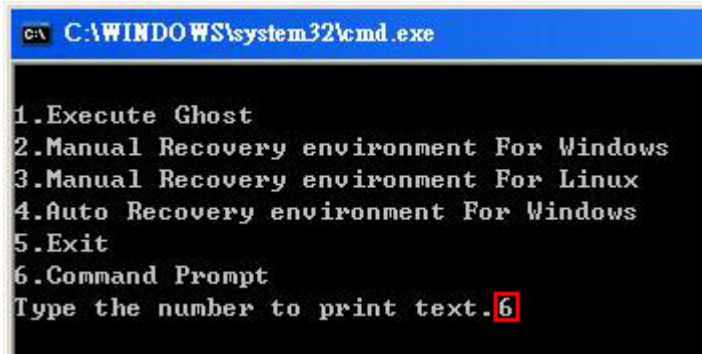
Step 3: The recovery tool setup menu is shown as below.

```
C:\WINDOWS\system32\cmd.exe

1.Execute Ghost
2.Manual Recovery environment For Windows
3.Manual Recovery environment For Linux
4.Auto Recovery environment For Windows
5.Exit
6.Command Prompt
Type the number to print text.
```

Figure C-3: Recovery Tool Setup Menu

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



```
C:\WINDOWS\system32\cmd.exe

1.Execute Ghost
2.Manual Recovery environment For Windows
3.Manual Recovery environment For Linux
4.Auto Recovery environment For Windows
5.Exit
6.Command Prompt
Type the number to print text. 6
```

Figure C-4: Command Prompt

Step 5: The command prompt window appears. Type the following commands (marked in red) to create two partitions. One is for the OS installation; the other is for saving recovery files and images which will be an invisible partition. (Press <Enter> after entering each line below)

```
system32>diskpart
DISKPART>list vol
DISKPART>sel disk 0
DISKPART>create part pri size= ____
DISKPART>assign letter=N
DISKPART>create part pri size= ____
DISKPART>assign letter=F
DISKPART>exit
system32>format N: /fs:ntfs /q /y
system32>format F: /fs:ntfs /q /v:Recovery /y
system32>exit
```

```

X:\I386\SYSTEM32\CMD.EXE
X:\I386\SYSTEM32>diskpart → Starts the Microsoft disk partitioning tool.

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

DISKPART> list vol → Show partition information

   Volume ###  Ltr  Label          Fs          Type          Size         Status       Info
   -----  -  -  -  -  -  -  -  -  -
   Volume 0             X   CD_ROM        CDFS        DUD-ROM       405 MB       Healthy      Boot
   Volume 1             D                   FAT32      Removeable   3854 MB       Healthy

DISKPART> sel disk 0 → Select a disk
Disk 0 is now the selected disk.

DISKPART> create part pri size=2000 → Create partition 1 and assign a size.
                                     This partition is for OS installation.
DiskPart succeeded in creating the specified partition.

DISKPART> assign letter=N → Assign partition 1 a code name (N).
DiskPart successfully assigned the drive letter or mount point.

DISKPART> create part pri size=1800 → Create partition 2 and assign a size.
                                     This partition is for recovery images.
DiskPart succeeded in creating the specified partition.

DISKPART> assign letter=F → Assign partition 2 a code name (F).
DiskPart successfully assigned the drive letter or mount point.

DISKPART> exit → Exit diskpart

X:\I386\SYSTEM32>format n: /fs:ntfs /q /y → Format partition 1 (N) as NTFS format.
The type of the file system is RAW.
The new file system is NTFS.
QuickFormatting 2000M
Creating file system structures.
Format complete.
 2048254 KB total disk space.
 2035620 KB are available.

X:\I386\SYSTEM32>format f: /fs:ntfs /q /v:Recovery /y
The type of the file system is RAW.
The new file system is NTFS.
QuickFormatting 1804M
Creating file system structures.
Format complete.
 1847474 KB total disk space.
 1835860 KB are available.

X:\I386\SYSTEM32>exit → Exit Windows PE

```

Figure C-5: Partition Creation Commands

**NOTE:**

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

```
X:\I386\SYSTEM32>diskpart
Microsoft DiskPart version 5.2.3790.1830
Copyright (C) 1999-2001 Microsoft Corporation.
On computer: MININT-JUC
DISKPART> sel disk 0
Disk 0 is now the selected disk.
DISKPART> list part
  Partition ###  Type              Size      Offset
-----
  Partition 1    Primary           2000 MB    32 KB
  Partition 2    Primary           1804 MB    2000 MB
DISKPART> exit
```

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

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

C.2.3 Install Operating System, Drivers and Applications

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

**NOTE:**

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

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

C.2.4 Building the Recovery Partition

- Step 1:** Put the recover CD in the optical drive.
- Step 2:** Start the system.
- Step 3:** **Boot the system from the recovery CD.** When prompted, press any key to boot from the recovery CD. It will take a while to launch the recovery tool. Please be patient!

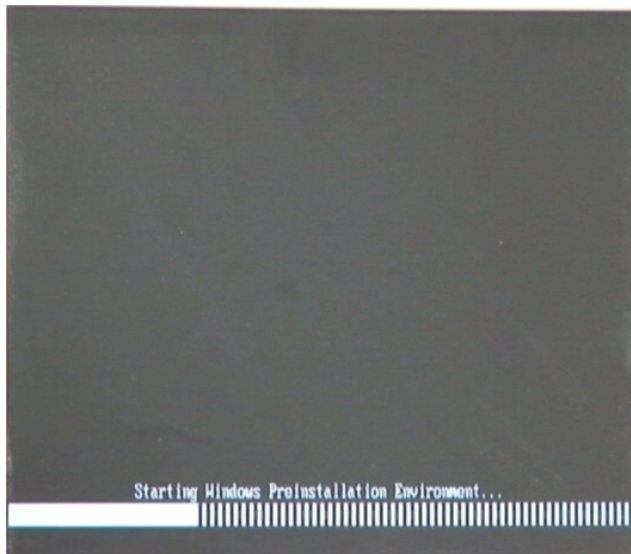


Figure C-6: Launching the Recovery Tool

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

```
C:\ C:\WINDOWS\system32\cmd.exe

1.Execute Ghost
2.Manual Recovery environment For Windows
3.Manual Recovery environment For Linux
4.Auto Recovery environment For Windows
5.Exit
6.Command Prompt
Type the number to print text.2
```

Figure C-7: Manual Recovery Environment for Windows

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

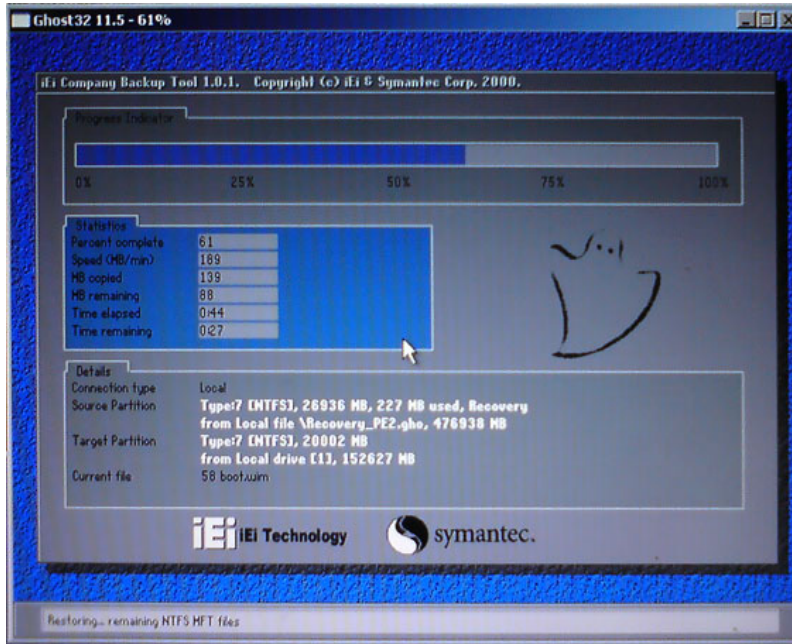


Figure C-8: Building the Recovery Partition

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

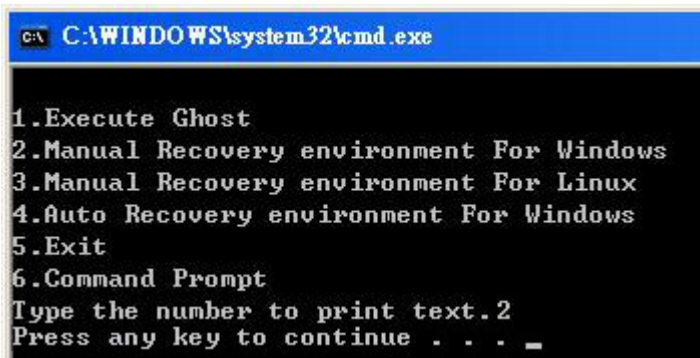


Figure C-9: Press Any Key to Continue

Step 7: Eject the recovery CD.

C.2.5 Create Factory Default Image



NOTE:

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

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

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

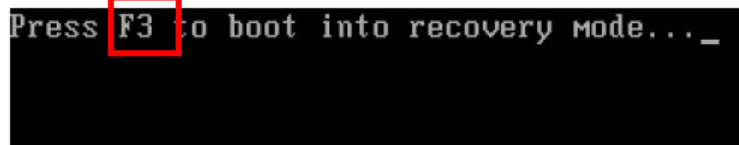


Figure C-10: Press F3 to Boot into Recovery Mode

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

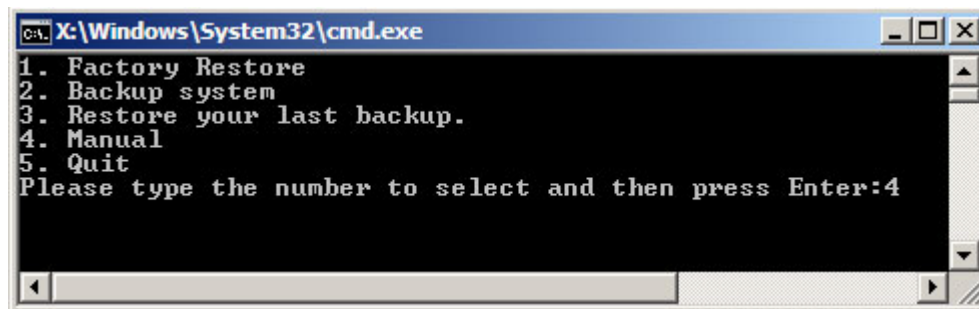


Figure C-11: Recovery Tool Menu

Step 3: The About Symantec Ghost window appears. Click **OK** button to continue.

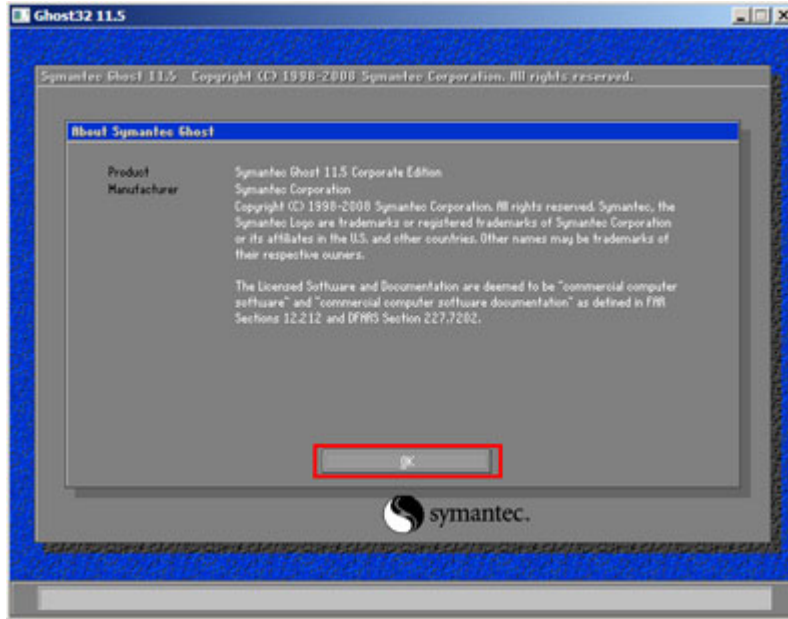


Figure C-12: About Symantec Ghost Window

Step 4: Use mouse to navigate to the option shown below (Figure C-13).

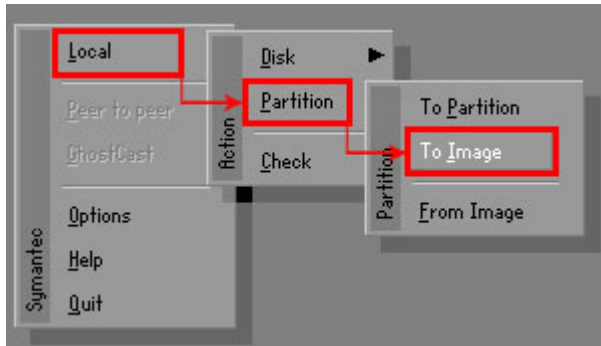


Figure C-13: Symantec Ghost Path

Step 5: Select the local source drive (Drive 1) as shown in Figure C-14. Then click OK.

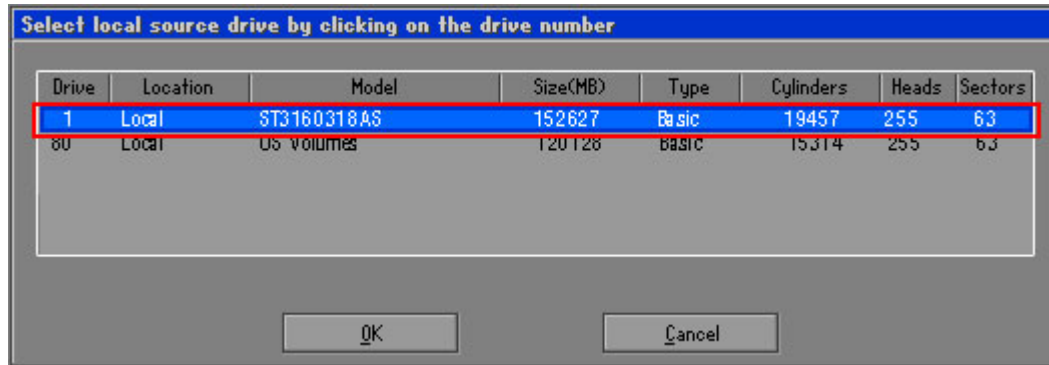


Figure C-14: Select a Local Source Drive

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

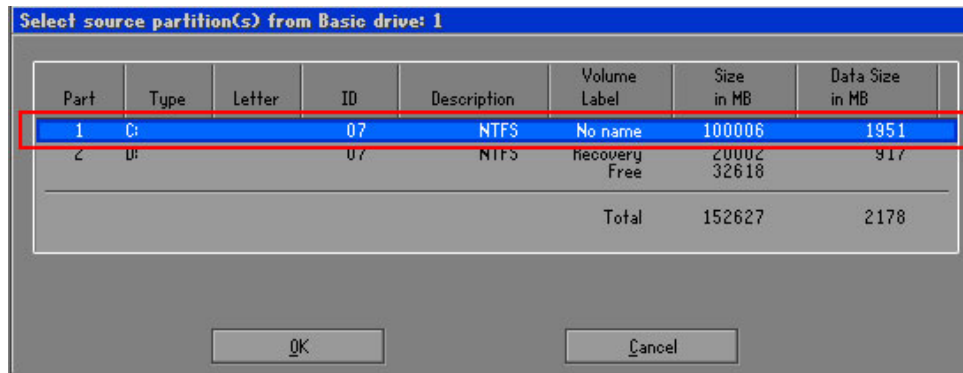


Figure C-15: Select a Source Partition from Basic Drive

Step 7: Select **1.2: [Recovery] NTFS drive** and enter a file name called **iei** (**Figure C-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**.

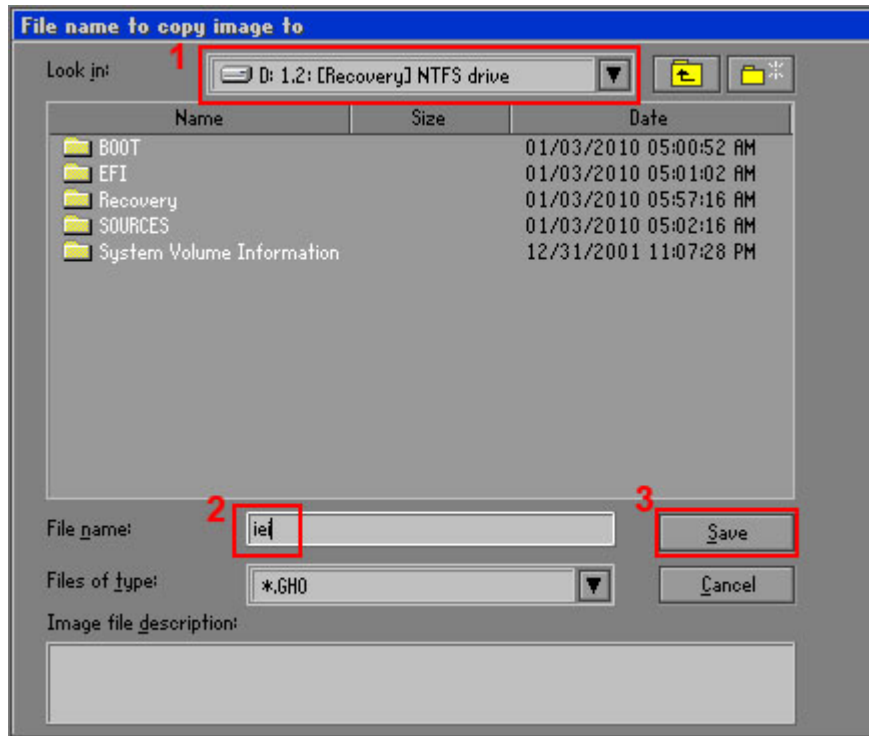


Figure C-16: File Name to Copy Image to

Step 8: When the Compress Image screen in **Figure C-17** prompts, click **High** to make the image file smaller.

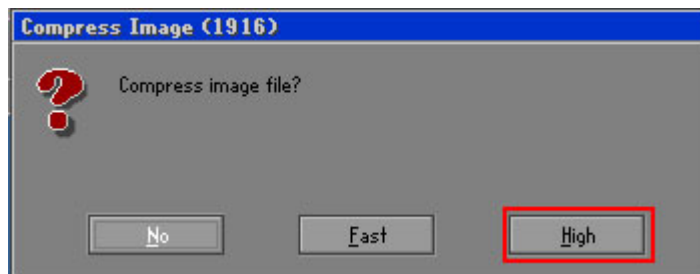


Figure C-17: Compress Image

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

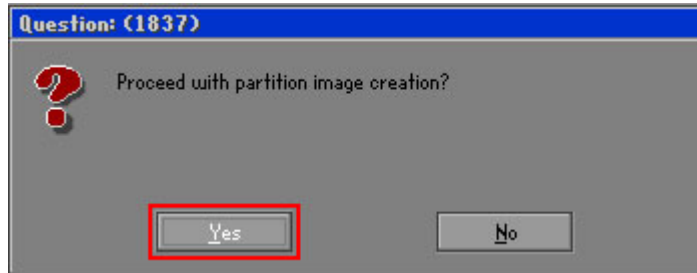


Figure C-18: Image Creation Confirmation

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

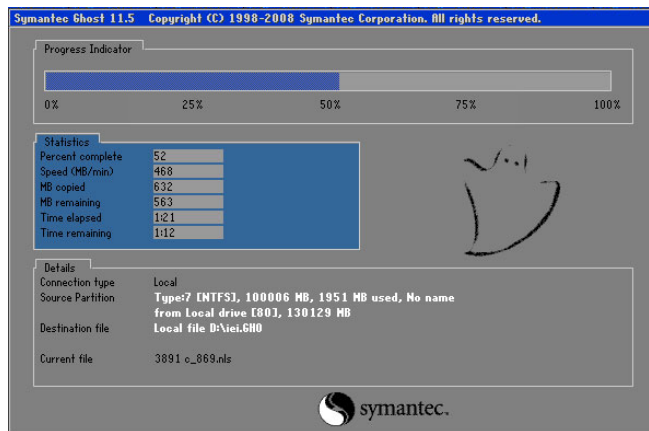


Figure C-19: Image Creation Complete

Step 11: When the image creation completes, a screen prompts as shown in **Figure C-20**.

Click **Continue** and close the Ghost window to exit the program.

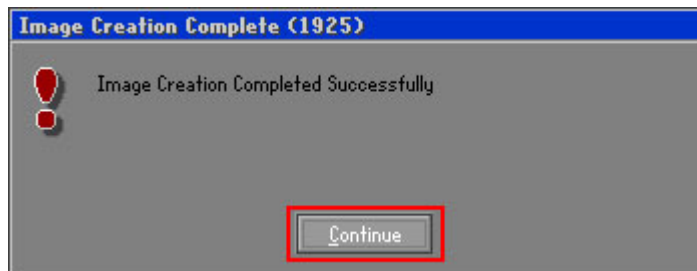
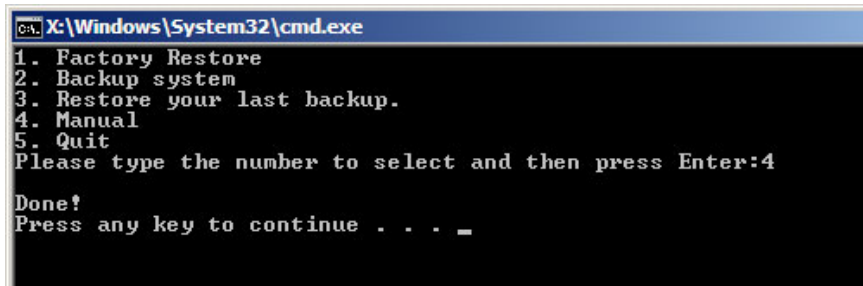


Figure C-20: Image Creation Complete

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



```
C:\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
Done!
Press any key to continue . . . _
```

Figure C-21: Press Any Key to Continue

C.3 Auto Recovery Setup Procedure

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



CAUTION:

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

- Windows 2000
- Windows XP
- Windows Vista
- Windows 7
- Windows XP Embedded
- Windows Embedded Standard 7



CAUTION:

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

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- Step 1:** Follow the steps described in **Section C.2.1 ~ Section C.2.3** to setup BIOS, create partitions and install operating system.
- Step 2:** Install the auto recovery utility into the system by double clicking the **Utility/AUTORECOVERY-SETUP.exe** in the One Key Recovery CD. This utility **MUST** be installed in the system, otherwise, the system will automatically restore from the factory default image every ten (10) minutes.



Figure C-22: Auto Recovery Utility

- Step 3:** **Disable the automatically restart function before creating the factory default image.** Go to: My Computer → Properties → Advanced. Click the Settings button of Startup and Recovery. Deselect “Automatically restart”. Click OK to save the settings and exit. (See Figure C-23)

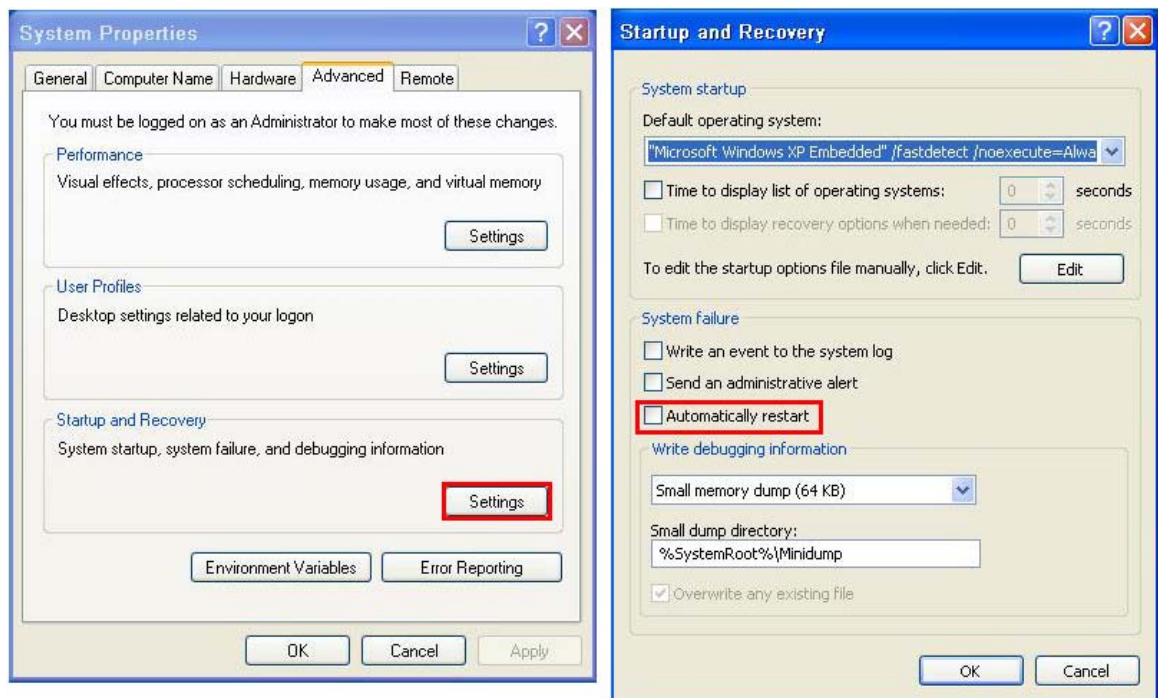


Figure C-23: Disable Automatically Restart

Step 4: Reboot the system from the recovery CD. When prompted, press any key to boot from the recovery CD. It will take a while to launch the recovery tool. Please be patient!

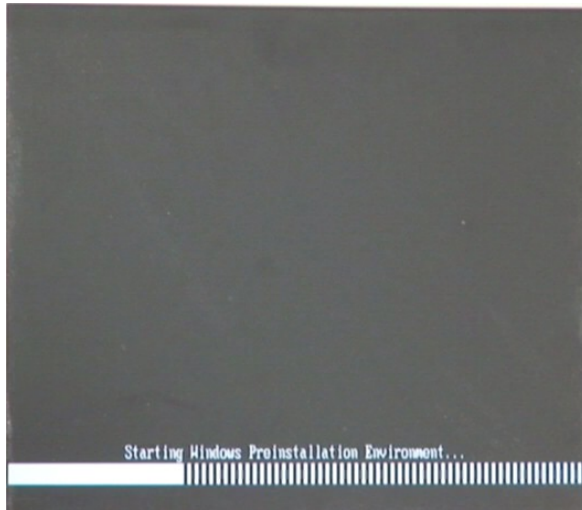


Figure C-24: Launching the Recovery Tool

Step 5: When the recovery tool setup menu appears, press <4> then <Enter>.

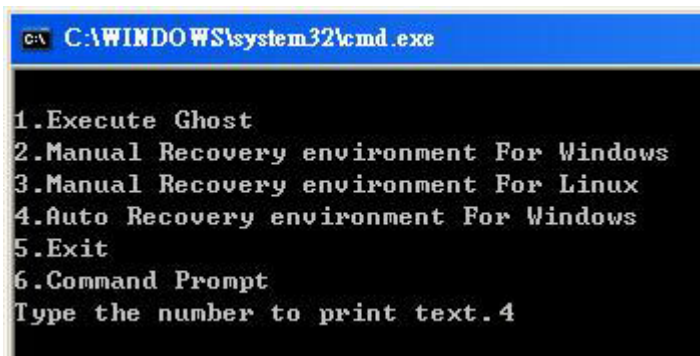


Figure C-25: Auto Recovery Environment for Windows

Step 6: The Symantec Ghost window appears and starts configuring the system to build an auto recovery partition. In this process the partition created for recovery files in **Section C.2.2** is hidden and the auto recovery tool is saved in this partition.

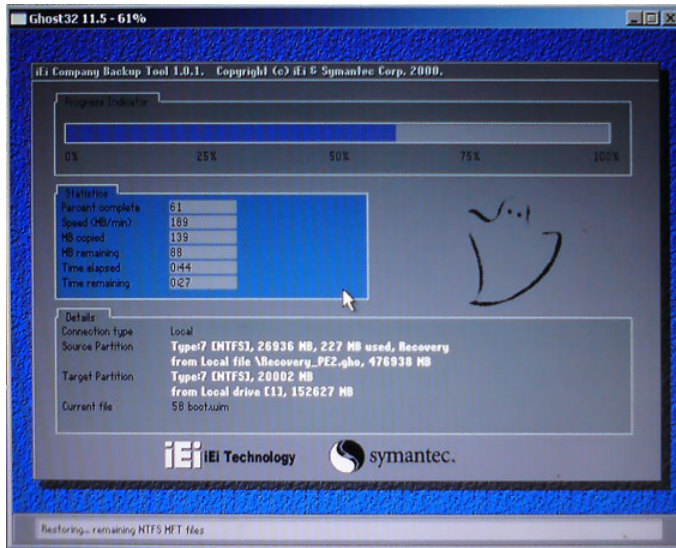


Figure C-26: Building the Auto Recovery Partition

Step 7: After completing the system configuration, the following message prompts to confirm whether to create a factory default image. Type **Y** to have the system create a factory default image automatically. Type **N** within 6 seconds to skip this process (The default option is YES). It is suggested to choose YES for this option.



Figure C-27: Factory Default Image Confirmation

Step 8: The Symantec Ghost starts to create the factory default image (**Figure C-28**).

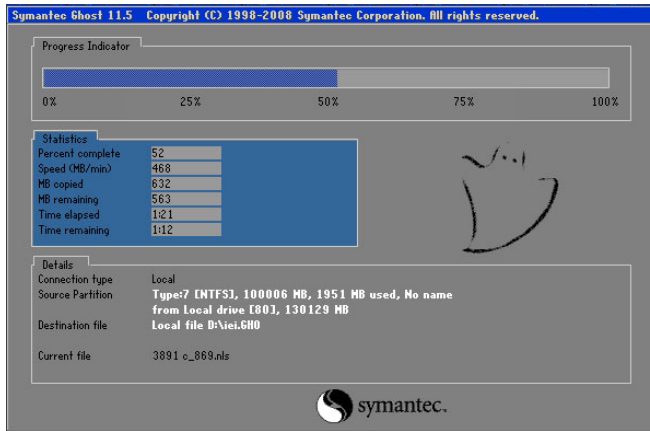


Figure C-28: Image Creation Complete

Step 9: After completing the system configuration, press any key in the following window to restart the system.

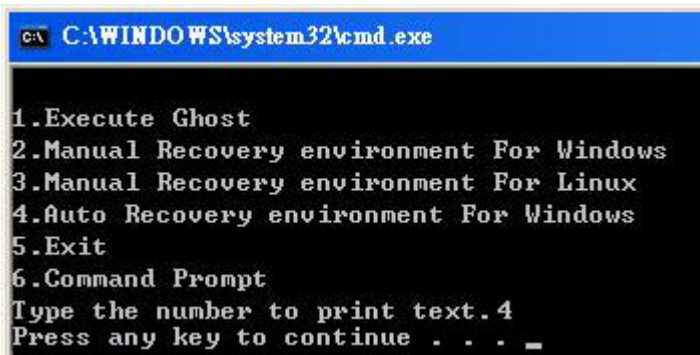
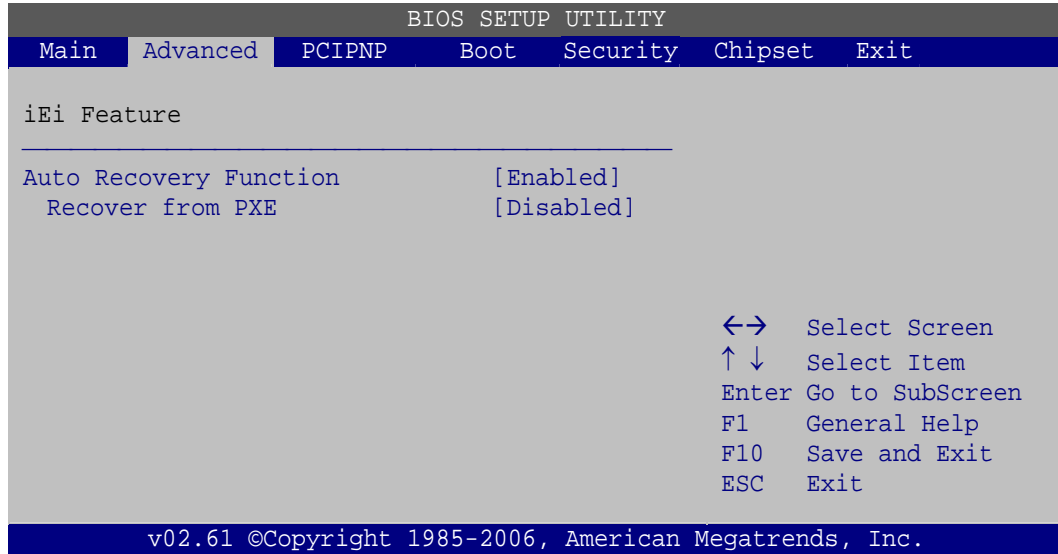


Figure C-29: Press any key to continue

Step 10: Eject the One Key Recovery CD and restart the system.

Step 11: Press the <DELETE> key as soon as the system is turned on to enter the BIOS.

Step 12: Enable the Auto Recovery Function option (**Advanced** → **iEi Feature** → **Auto Recovery Function**).



BIOS Menu 24: IEI Feature

Step 13: Save changes and restart the system. If the system encounters a Blue Screen of Death (BSoD) or a hang for around 10 minutes, it will automatically restore from the factory default image.

C.4 Setup Procedure for Linux

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

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

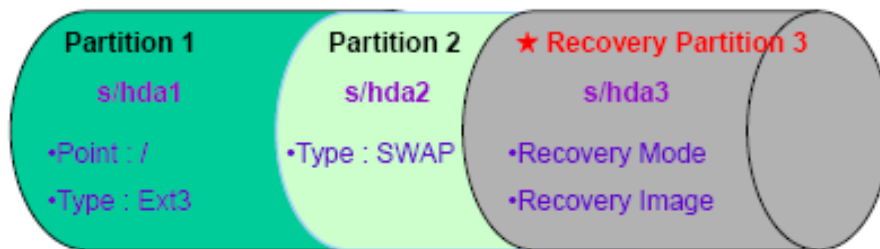


Figure C-30: Partitions for Linux

Step 3: Create a recovery partition. Insert the recovery CD into the optical disk drive.

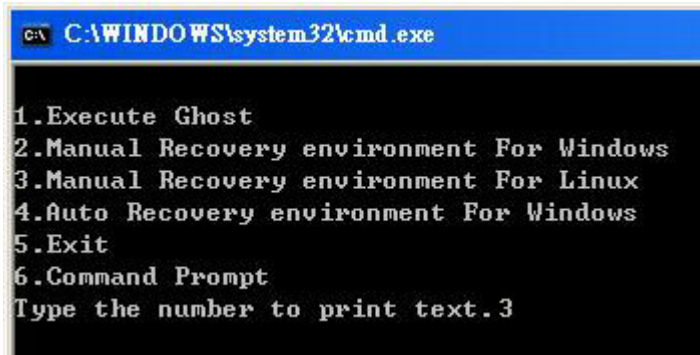
Follow **Step 1 ~ Step 3** described in **Section C.2.2**. Then type the following commands (marked in red) to create a partition for recovery images.

```
system32>diskpart
DISKPART>list vol
DISKPART>sel disk 0
DISKPART>create part pri size= ____
DISKPART>assign letter=N
DISKPART>exit
system32>format N: /fs:ntfs /q /v:Recovery /y
system32>exit
```

Step 4: Build the recovery partition. Press any key to boot from the recovery CD. It will take a while to launch the recovery tool. Please be patient. When the recovery tool setup menu appears, type <3> and press <Enter> (**Figure C-31**). The Symantec Ghost window appears and starts configuring the system to build a

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recovery partition. After completing the system configuration, press any key to reboot the system. Eject the recovery CD.



```
C:\WINDOWS\system32\cmd.exe

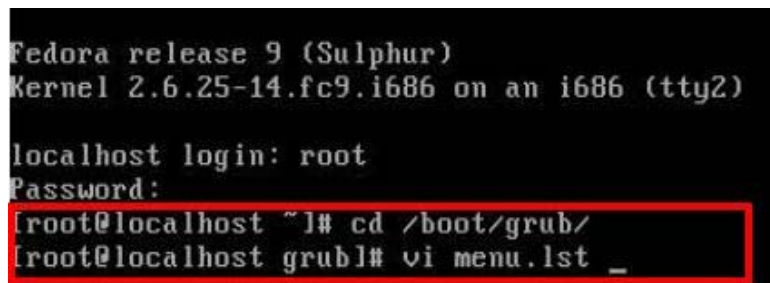
1.Execute Ghost
2.Manual Recovery environment For Windows
3.Manual Recovery environment For Linux
4.Auto Recovery environment For Windows
5.Exit
6.Command Prompt
Type the number to print text.3
```

Figure C-31: Manual Recovery Environment for Linux

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

```
cd /boot/grub
```

```
vi menu.lst
```



```
Fedora release 9 (Sulphur)
Kernel 2.6.25-14.fc9.i686 on an i686 (tty2)

localhost login: root
Password:
[root@localhost ~]# cd /boot/grub/
[root@localhost grub]# vi menu.lst _
```

Figure C-32: Access menu.lst in Linux (Text Mode)

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

```
#boot=/dev/sda
default=0
timeout=10 ← Modify timeout=10
splashimage=(hd0,0)/grub/splash.xpm.gz
hiddenmenu
title Fedora (2.6.25-14.fc9.i686)
    root (hd0,0)
    kernel /vmlinuz-2.6.25-14.fc9.i686 ro root=UUID=10f1acd
ac38b5c78910 rhgb quiet
    initrd /initrd-2.6.25-14.fc9.i686.img

title Recovery Partition
    root (hd0,2)
    makeactive ← Type command
    chainloader +1
```

- Type command:
title Recovery Partition
root (hd0,2)
makeactive
chainloader +1

Step 7: The recovery tool menu appears. (Figure C-33)

```
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:
```

Figure C-33: Recovery Tool Menu

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

C.5 Recovery Tool Functions

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

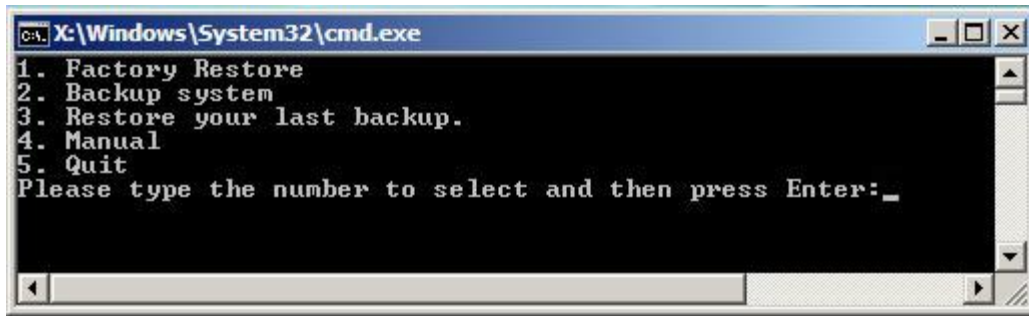


Figure C-34: Recovery Tool Main Menu

The recovery tool has several functions including:

1. **Factory Restore:** Restore the factory default image (iei.GHO) created in Section C.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:

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



WARNING:

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

C.5.1 Factory Restore

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

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

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

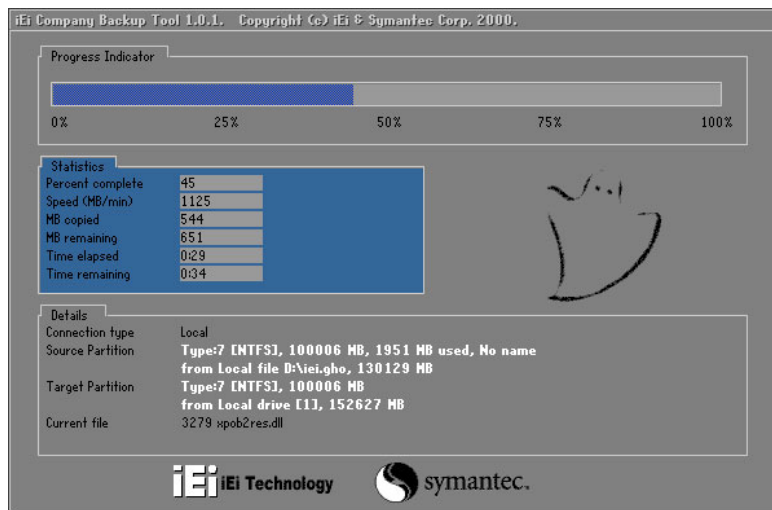


Figure C-35: Restore Factory Default

Step 3: The screen shown in **Figure C-36** appears when completed. Press any key to reboot the system.

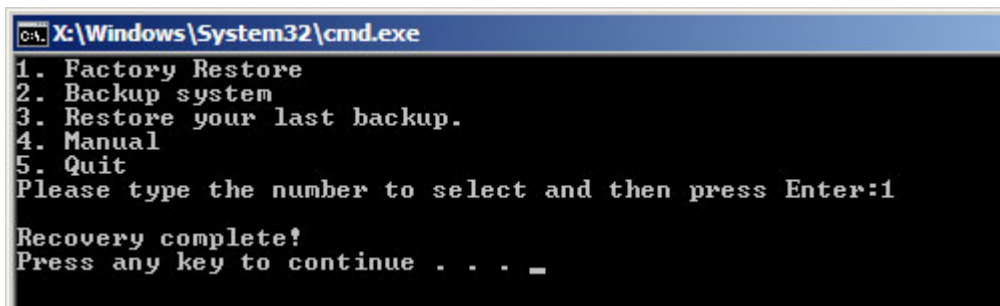


Figure C-36: Recovery Complete Window

C.5.2 Backup System

To backup the system, please follow the steps below.

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

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

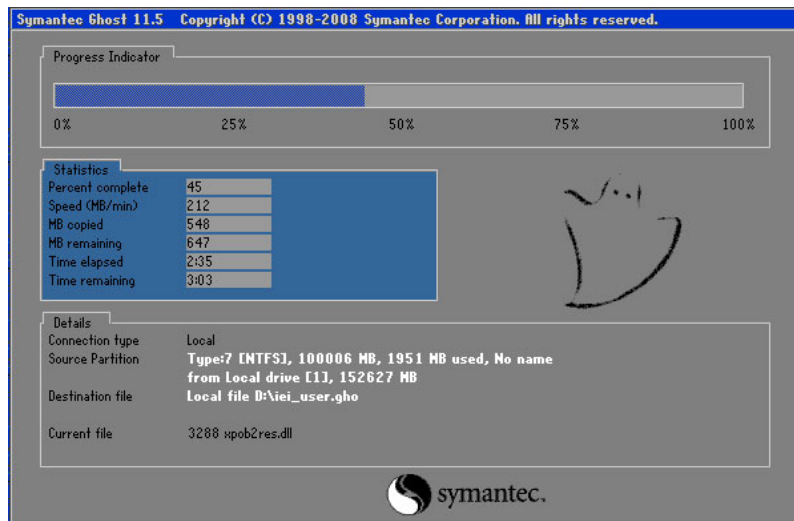


Figure C-37: Backup System

Step 3: The screen shown in **Figure C-38** appears when system backup is complete. Press any key to reboot the system.

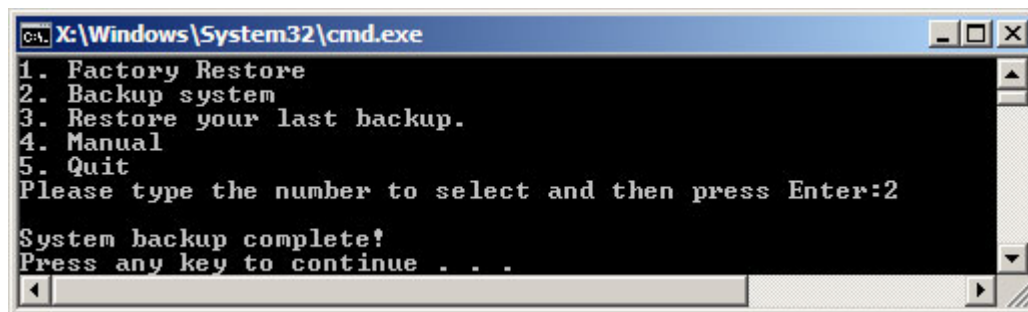


Figure C-38: System Backup Complete Window

C.5.3 Restore Your Last Backup

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

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

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

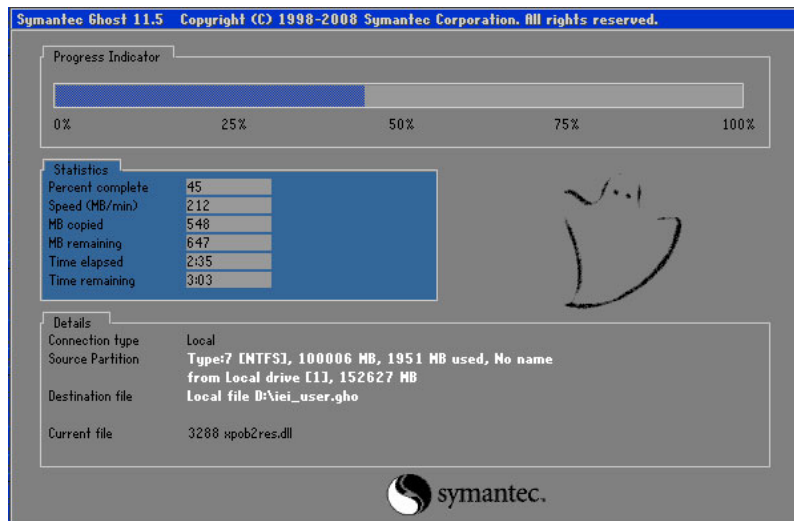


Figure C-39: Restore Backup

Step 3: The screen shown in **Figure C-40** appears when backup recovery is complete. Press any key to reboot the system.

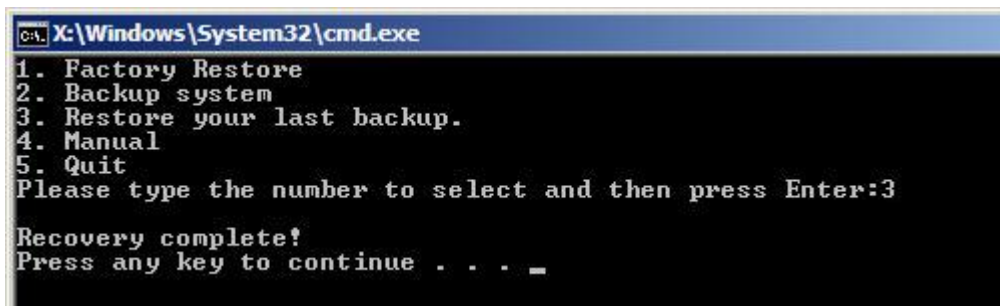


Figure C-40: Restore System Backup Complete Window

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C.5.4 Manual

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

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

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

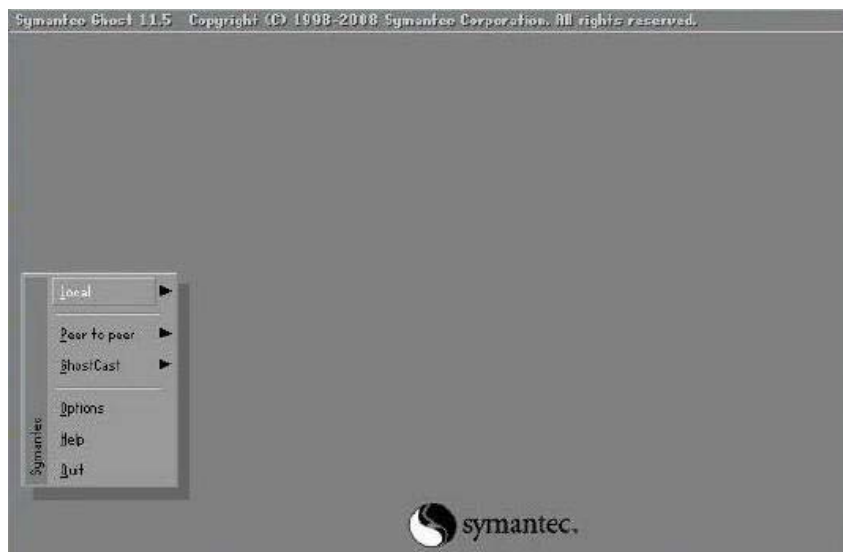
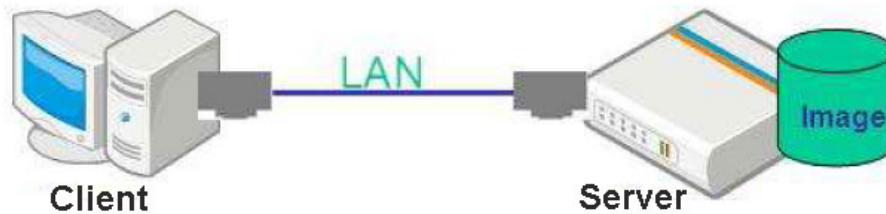


Figure C-41: Symantec Ghost Window

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

C.6 Restore Systems from a Linux Server through LAN

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



CAUTION:

The supported client OS includes:

- Windows 2000
- Windows XP
- Windows Vista
- Windows 7
- Windows XP Embedded
- Windows Embedded Standard 7

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

Step 1: Configure DHCP server settings

Step 2: Configure TFTP settings

Step 3: Configure One Key Recovery server settings

Step 4: Start DHCP, TFTP and HTTP

Step 5: Create a shared directory

Step 6: Setup a client system for auto recovery

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

C.6.1 Configure DHCP Server Settings

Step 1: Install the DHCP

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

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

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

CentOS

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

`#vi /etc/dhcpd.conf`

The DHCP server sample location is shown as below:

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

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

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

`#vi /etc/dhcpd.conf`

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

subnet 192.168.0.0 netmask 255.255.255.0 {
# --- default gateway
    option routers                192.168.0.2;
    option subnet-mask            255.255.255.0;

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

Debian

`#vi /etc/dhcpd.conf`

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

`next-server PXE server IP address;`

```
filename "pxelinux.0";
```

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

subnet 192.168.0.0 netmask 255.255.255.0 {
# --- default gateway
    option routers                192.168.0.2;
    option subnet-mask            255.255.255.0;

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

C.6.2 Configure TFTP Settings

Step 1: Install the tftp, httpd and syslinux.

```
#yum install tftp-server httpd syslinux (CentOS)
```

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

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

CentOS

```
#vi /etc/xinetd.d/tftp
```

Modify:

```
disable = no
```

```
server_args = -s /tftpboot -m /tftpboot/tftpd.remap -vvv_
```

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

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Debian

Replace the TFTP settings from “inetd” to “xinetd” and annotate the “inetd” by adding “#”.

`#vi /etc/inetd.conf`

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

```
#:BOOT: TFTP service is provided primarily for booting. Most sites
# run this only on machines acting as "boot servers."
#tftp dgram udp wait root /usr/sbin/in.tftpd /usr/sbin/in.tftpd -s
/var/lib/tftpboot
```

`#vi /etc/xinetd.d/tftp`

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

C.6.3 Configure One Key Recovery Server Settings

Step 1: Copy the **Utility/RECOVERYR10.TAR.BZ2** package from the One Key Recovery CD to the system (server side).



Step 2: Extract the recovery package to /.

```
#cp RecoveryR10.tar.bz2 /
#cd /
#tar -xvjf RecoveryR10.tar.bz2
```

Step 3: Copy “pxelinux.0” from “syslinux” and install to “/tftpboot”.

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

C.6.4 Start the DHCP, TFTP and HTTP

Start the DHCP, TFTP and HTTP. For example:

CentOS

```
#service xinetd restart
```

```
#service httpd restart
```

```
#service dhcpd restart
```

Debian

```
#/etc/init.d/xinetd reload
```

```
#/etc/init.d/xinetd restart
```

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

C.6.5 Create Shared Directory

Step 1: Install the samba.

```
#yum install samba
```

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

```
#mkdir /share
```

```
#cd /share
```

```
#mkdir /image
```

```
#cp iei.gho /image
```



WARNING:

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

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

```
#vi /etc/samba/smb.conf
```

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Modify:

[image]

comment = One Key Recovery

path = /share/image

browseable = yes

writable = yes

public = yes

create mask = 0644

directory mask = 0755

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

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

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

Step 5: Modify the hostname

```
#vi /etc/hostname
```

Modify: RecoveryServer

```
RecoveryServer
```

C.6.6 Setup a Client System for Auto Recovery

Step 1: Disable the automatically restart function before creating the factory default image. Go to: My Computer → Properties → Advanced. Click the Settings button of Startup and Recovery. Deselect “Automatically restart”. Click OK to save the settings and exit. (See Figure C-23)

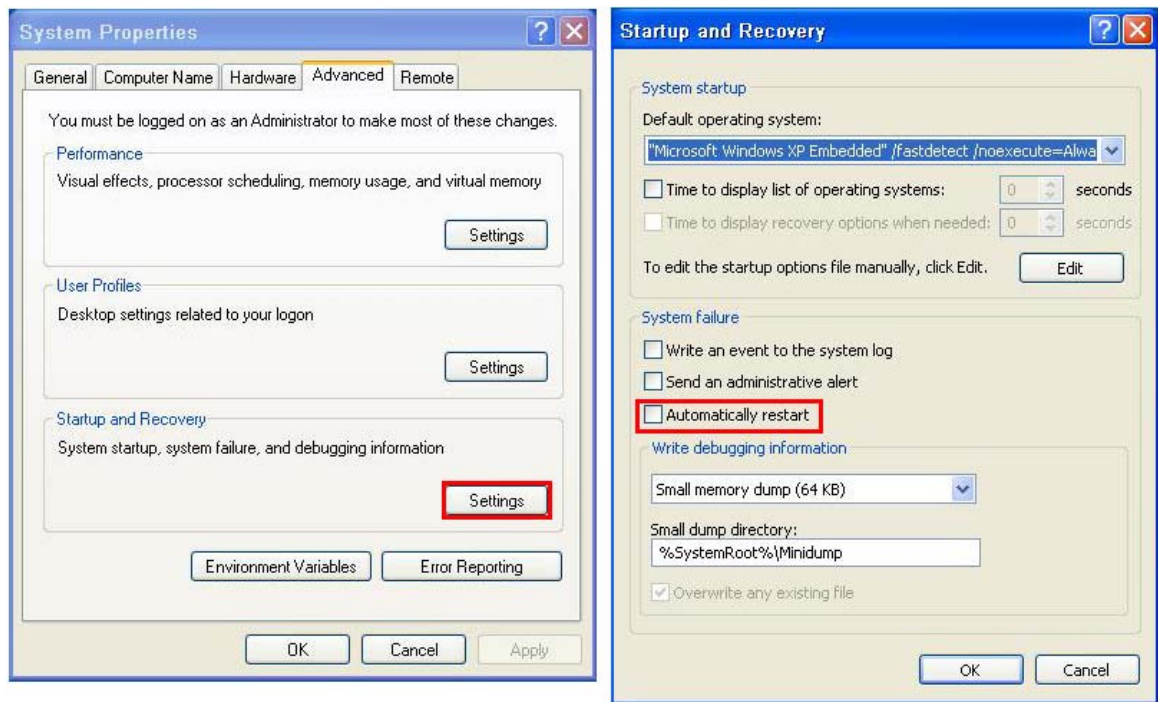


Figure C-42: Disable Automatically Restart

- Step 2:** Configure the following BIOS options of the client system.
- Advanced → iEi Feature → Auto Recovery Function → **Enabled**
 - Advanced → iEi Feature → Recover from PXE → **Enabled**
 - Boot → Launch PXE OpROM → **Enabled**
- Step 3:** Continue to configure the **Boot Option Priorities** BIOS option of the client system:
- Boot Option #1 → remain the default setting to boot from the original OS.
 - Boot Option #2 → select the boot from LAN option.
- Step 4:** Save changes and exit BIOS menu.
- Exit → **Save Changes and Exit**
- Step 5:** Install the auto recovery utility into the system by double clicking the **Utility/AUTORECOVERY-SETUP.exe** in the One Key Recovery CD. This utility

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MUST be installed in the system, otherwise, the system will automatically restore from the factory default image every ten (10) minutes.



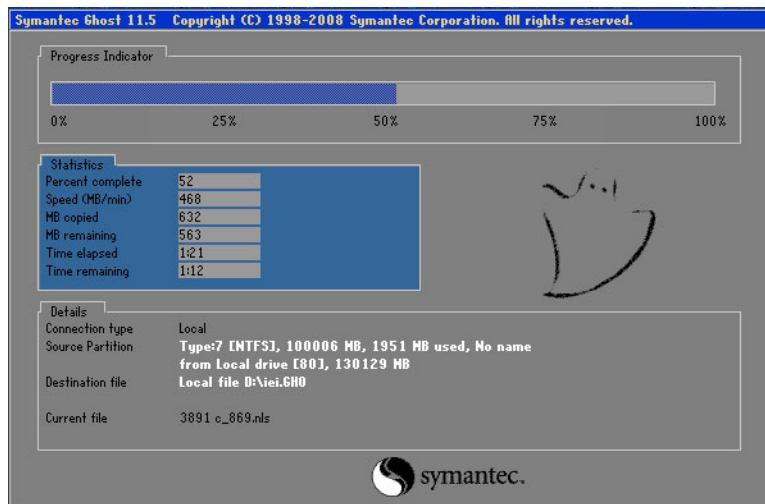
Step 6: Restart the client system from LAN. If the system encounters a Blue Screen of Death (BSoD) or a hang for around 10 minutes, it will automatically restore from the factory default image. The following screens will show when the system starts auto recovering.

```
Realtek PCIe GBE Family Controller Series v2.35 (06/14/10)
CLIENT MAC ADDR: 00 18 7D 13 E6 89  GUID: 00020003-0004-0005-0006-0007000000
DHCP . ./
```

```
My IP address seems to be C0A80009 192.168.0.9
ip=192.168.0.9:192.168.0.8:192.168.0.2:255.255.255.0
TFTP prefix:
Trying to load: pxelinux.cfg/00020003-0004-0005-0006-000700000009
Trying to load: pxelinux.cfg/01-00-18-7d-13-e6-89
Trying to load: pxelinux.cfg/C0A80009
Trying to load: pxelinux.cfg/C0A8000
Trying to load: pxelinux.cfg/C0A800
Trying to load: pxelinux.cfg/C0A80
Trying to load: pxelinux.cfg/C0A8
Trying to load: pxelinux.cfg/C0A
Trying to load: pxelinux.cfg/C0
Trying to load: pxelinux.cfg/C
Trying to load: pxelinux.cfg/default
boot:
```

Windows is loading files...

```
IP: 192.168.0.8, File: \Boot\WinPE.wim
```

**NOTE:**

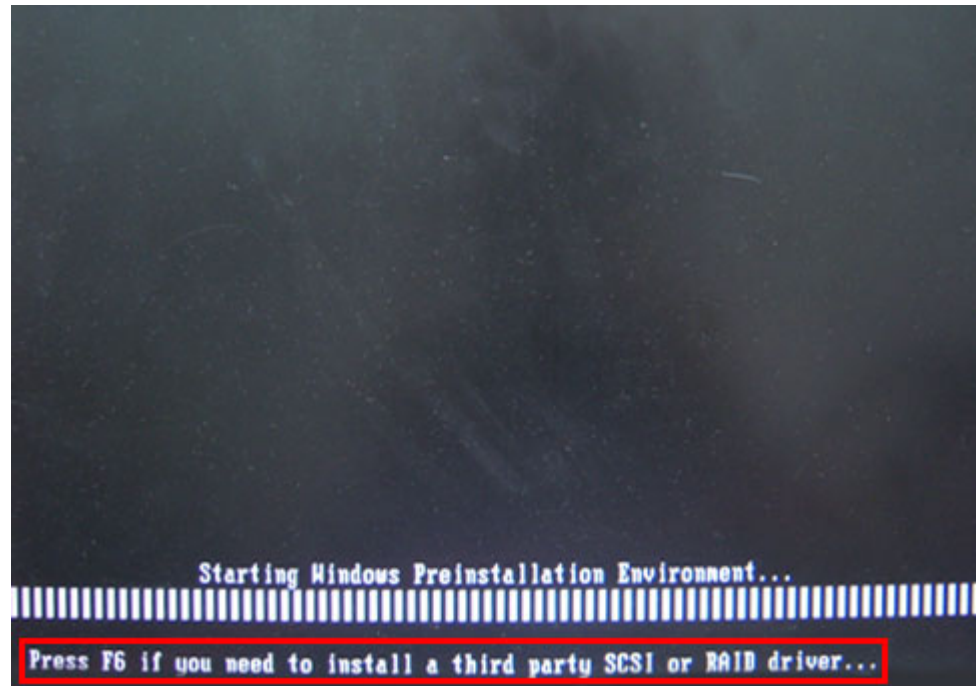
A firewall or a SELinux is not in use in the whole setup process described above. If there is a firewall or a SELinux protecting the system, modify the configuration information to accommodate them.

C.7 Other Information

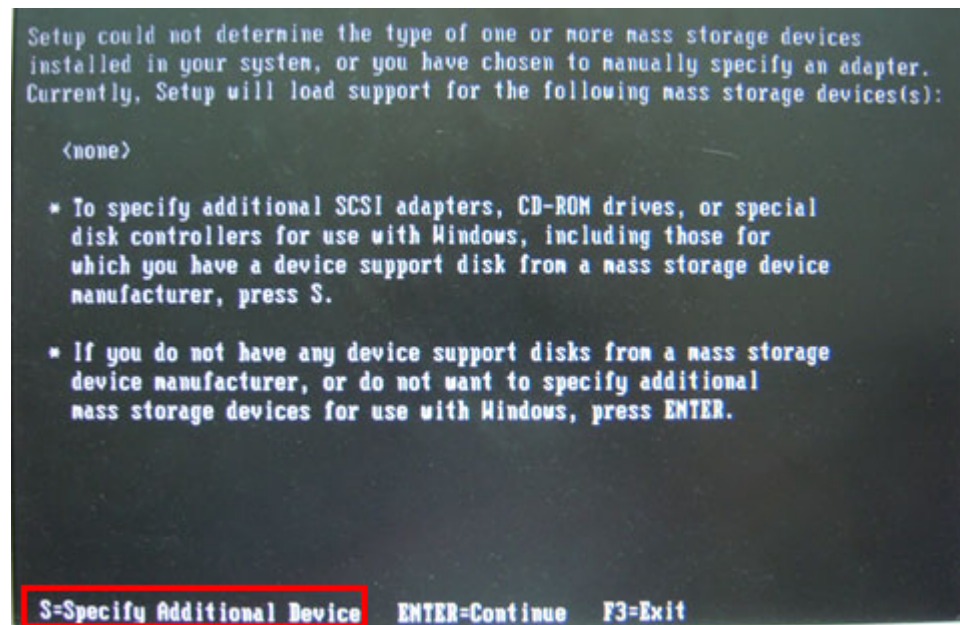
C.7.1 Using AHCI Mode or ALi M5283 / VIA VT6421A Controller

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

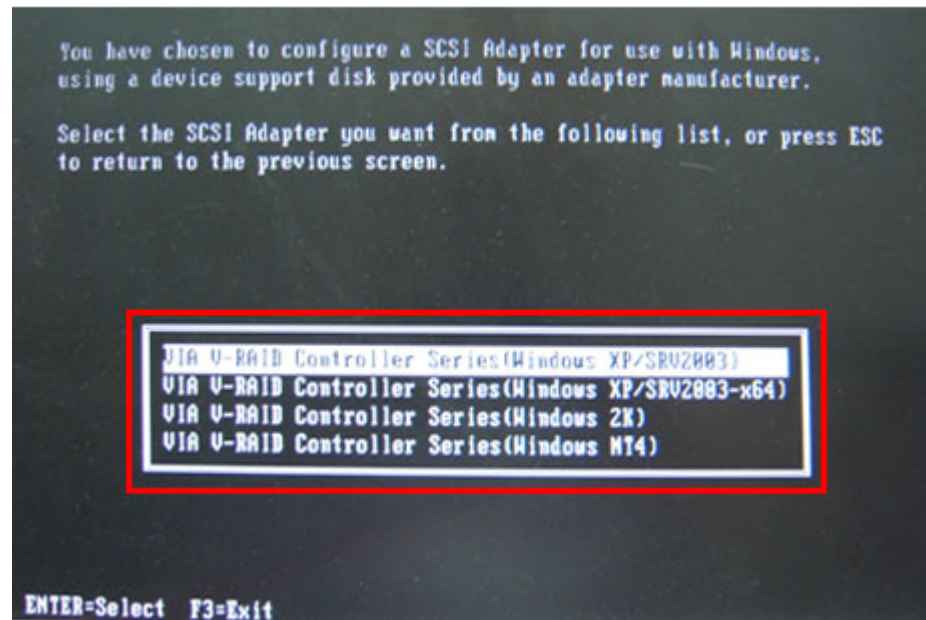
- Step 1:** Copy the SATA RAID/AHCI driver to a floppy disk and insert the floppy disk into a USB floppy disk drive. The SATA RAID/AHCI driver must be especially designed for the on-board SATA controller.
- Step 2:** Connect the USB floppy disk drive to the system.
- Step 3:** Insert the One Key Recovery CD into the system and boot the system from the CD.
- Step 4:** When launching the recovery tool, press <F6>.



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



Step 6: In the following window, select a SATA controller mode used in the system. Then press <Enter>. The user can now start using the SATA HDD.



Step 7: After pressing <Enter>, the system will get into the recovery tool setup menu. Continue to follow the setup procedure from **Step 4** in **Section C.2.2 Create Partitions** to finish the whole setup process.

C.7.2 System Memory Requirement

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

- **Using Award BIOS:** 128 MB system memory
- **Using AMI BIOS:** 512 MB system memory.

Appendix

D

Hazardous Materials Disclosure

D.1 Hazardous Material Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

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| 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。