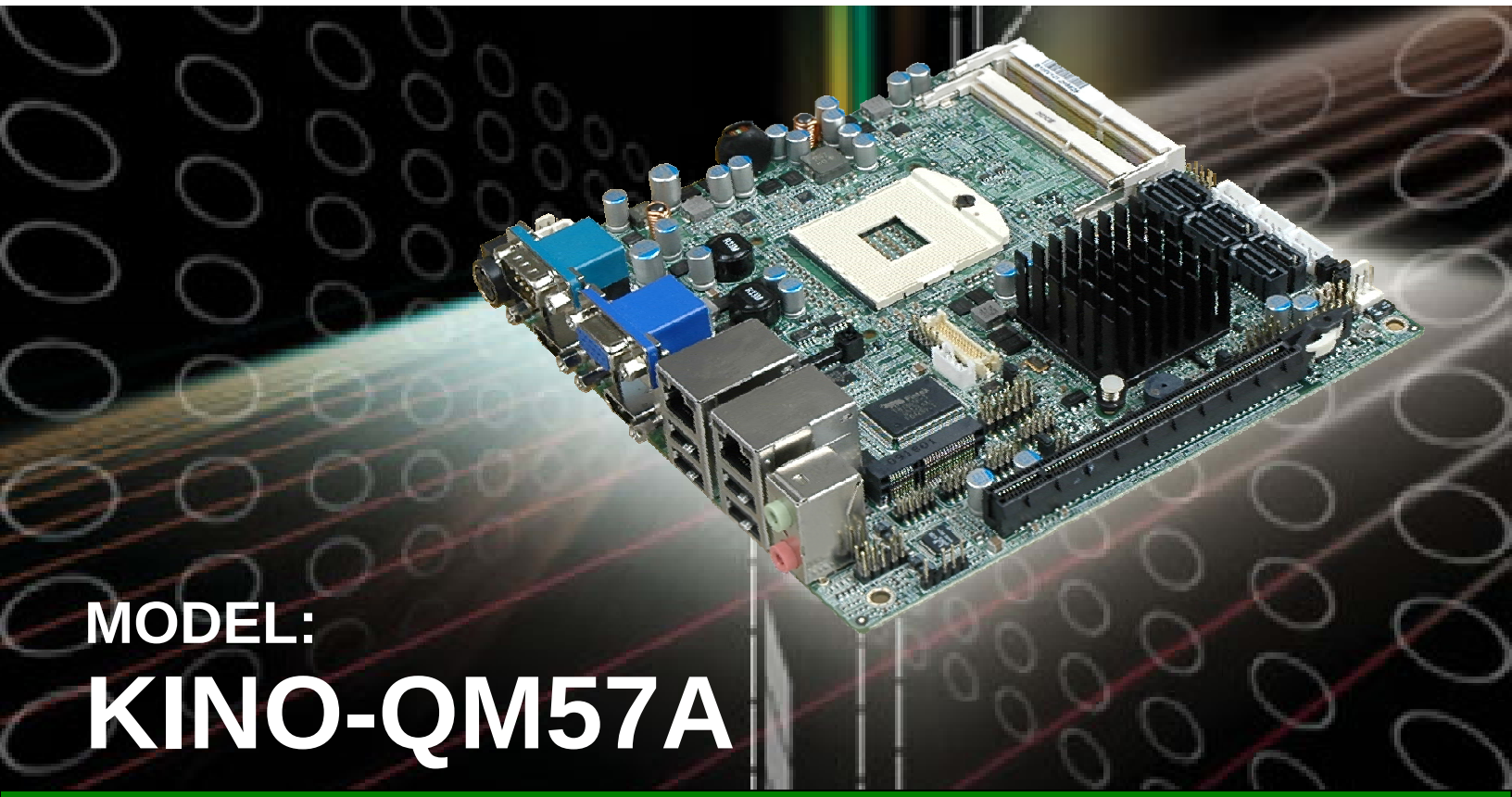
IEI Technology Corp.



MODEL:

# KINO-QM57A

**Mini-ITX Motherboard Supports Intel® Core™ *i5/i7* CPU, VGA/LVDS/HDMI, Dual GbE, Eight USB 2.0, Six SATA 3Gb/s PCIe x16, PCI mini and iAMT 6.0**

# User Manual

**Rev. 1.04 - 27 June, 2011**

RoHS Lead Free

# Revision

| Date | Version | Changes |
|---|---|---|
| 27 June, 2011 | 1.04 | Modified Figure 3-7: +12V Fan Connector Location |
| 2 November, 2010 | 1.03 | Modified Figure 3-21: USB Connector Pinout Locations |
| 1 September, 2010 | 1.02 | Modified maximum system memory support from 4 GB to 8 GB |
| 5 July, 2010 | 1.01 | Updated 12 V power jack (PWR1) connector pinout locations |
| 8 April, 2010 | 1.00 | Initial release |

# Copyright

## COPYRIGHT NOTICE

The information in this document is subject to change without prior notice in order to improve reliability, design and function and does not represent a commitment on the part of the manufacturer.

In no event will the manufacturer be liable for direct, indirect, special, incidental, or consequential damages arising out of the use or inability to use the product or documentation, even if advised of the possibility of such damages.



## TRADEMARKS

All registered trademarks and product names mentioned herein are used for identification purposes only and may be trademarks and/or registered trademarks of their respective owners.

# Table of Contents

# List of Figures

# List of Tables

# List of BIOS Menus

Chapter

1

# Introduction

## 1.1 Introduction

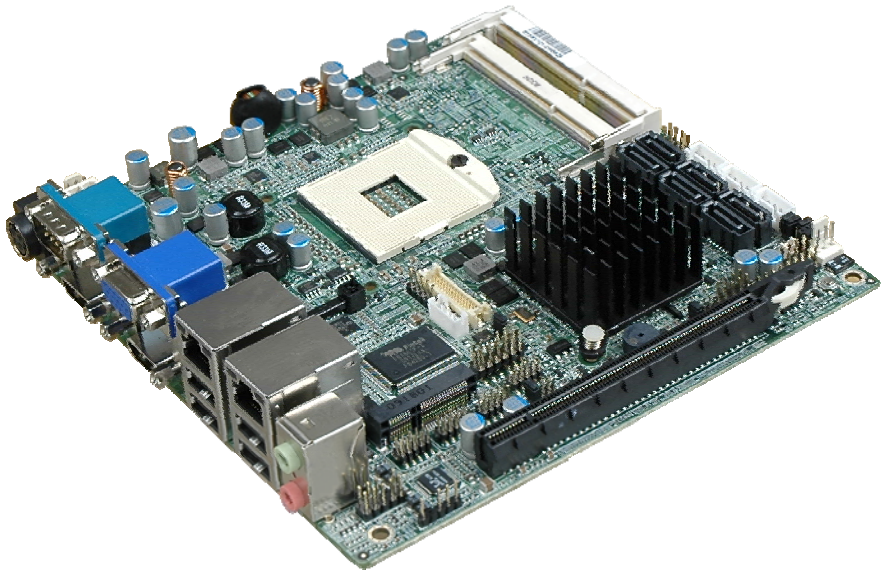


**Figure 1-1: KINO-QM57A**

The KINO-QM57A Mini-ITX motherboard is a Socket G 32nm Intel® Core™ i5 and Core™ i7 processor (Arrandale) platform. Up to two 4.0 GB 800 MHz or 1066 MHz DDR3 SDRAM SO-DIMM are supported by the Intel® Arrandale processor. The processor also supports a PCIe x16 slot.

The integrated Intel® QM57 Express Chipset supports two GbE LAN through the Intel® 82577 Ethernet controller (with iAMT 6.0 support) and the Intel® 82574L Ethernet controller. The Intel® QM57 also supports six SATA 3Gb/s drives and provides 12 V or 5 V SATA power.

The KINO-QM57A supports multiple display devices, including 18-bit or 24-bit dual-channel LVDS, analog CRT, and dual HDMI. Eight USB 2.0 channels and one expansion PCIe mini socket provide flexible expansion options. High Definition Audio (HDA) support ensures HDA devices can be easily implemented on the KINO-QM57A.

## 1.2 Connectors

The connectors on the KINO-QM57A are shown in the figure below.

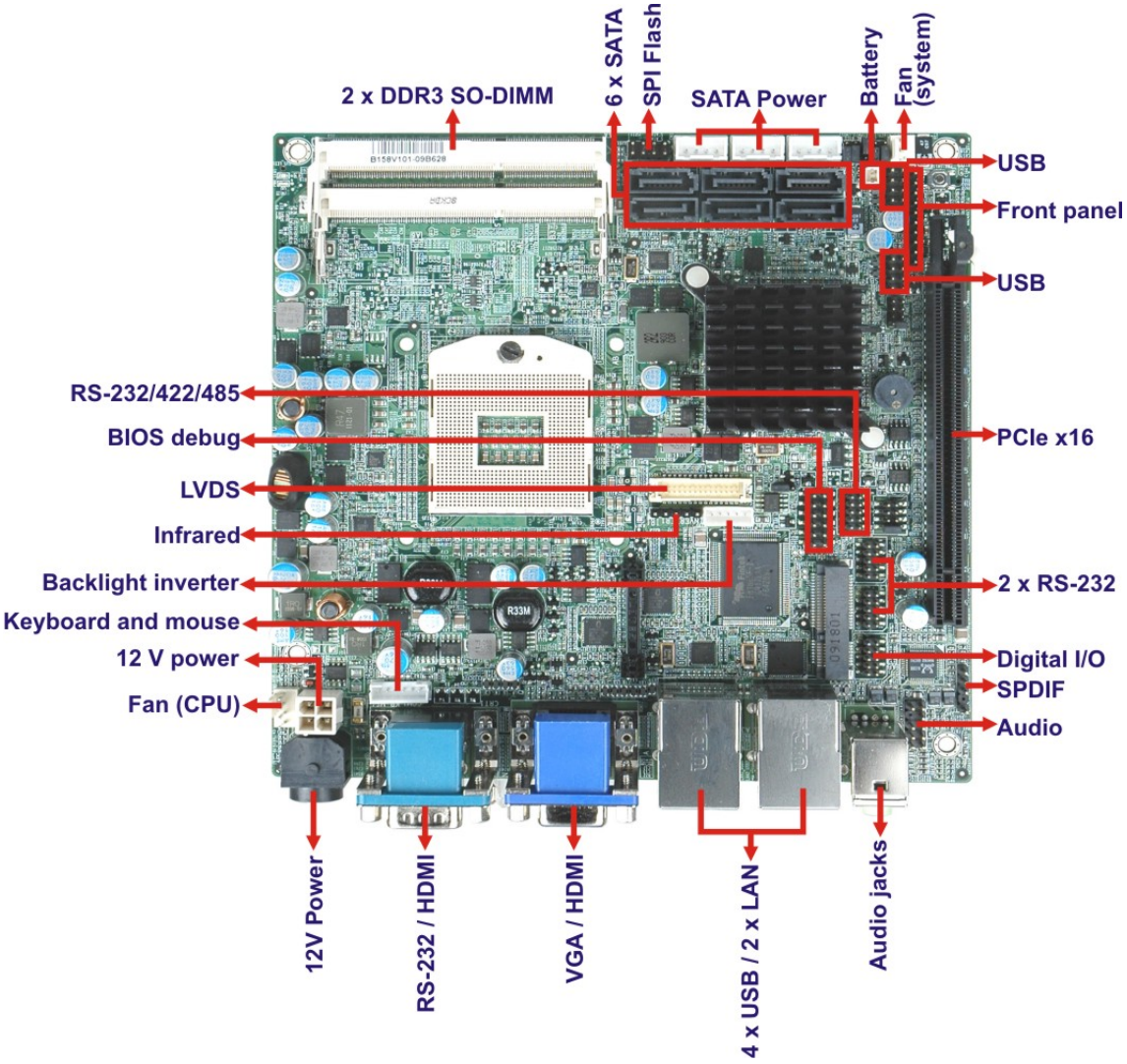



**Figure 1-2: Connectors**

## 1.3 Dimensions

### 1.3.1 Board Dimensions

The dimensions of the board are listed below:

- **Length**: 170 mm
- **Width**: 170 mm

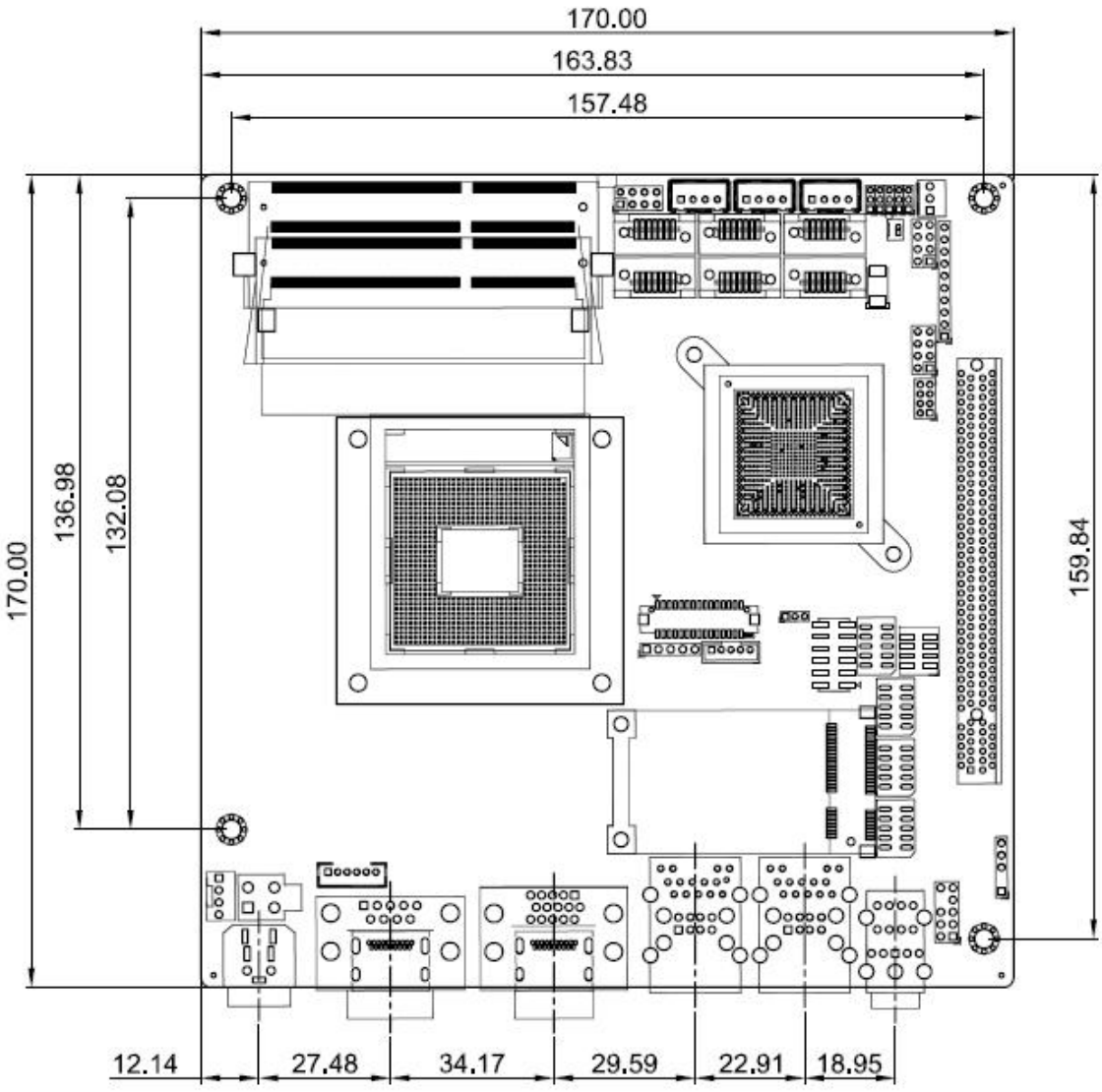



**Figure 1-3: KINO-QM57A Dimensions (mm)**

### 1.3.2 External Interface Panel Dimensions

External peripheral interface connector panel dimensions are shown in **Figure 1-4**.

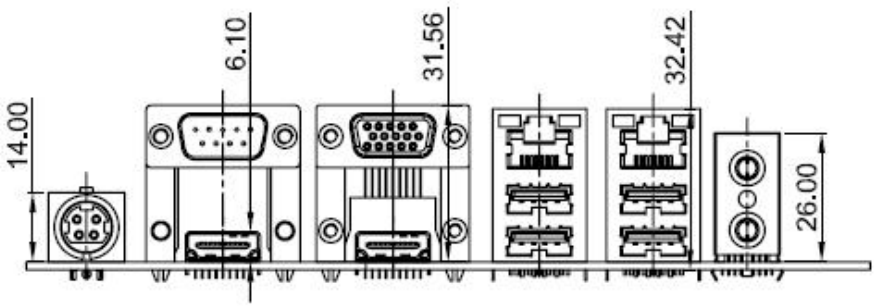



**Figure 1-4: External Interface Panel Dimensions (mm)**

## 1.4 Data Flow

**Figure 1-5** shows the data flow between the two on-board chipsets and other components installed on the motherboard and described in the following sections of this chapter.

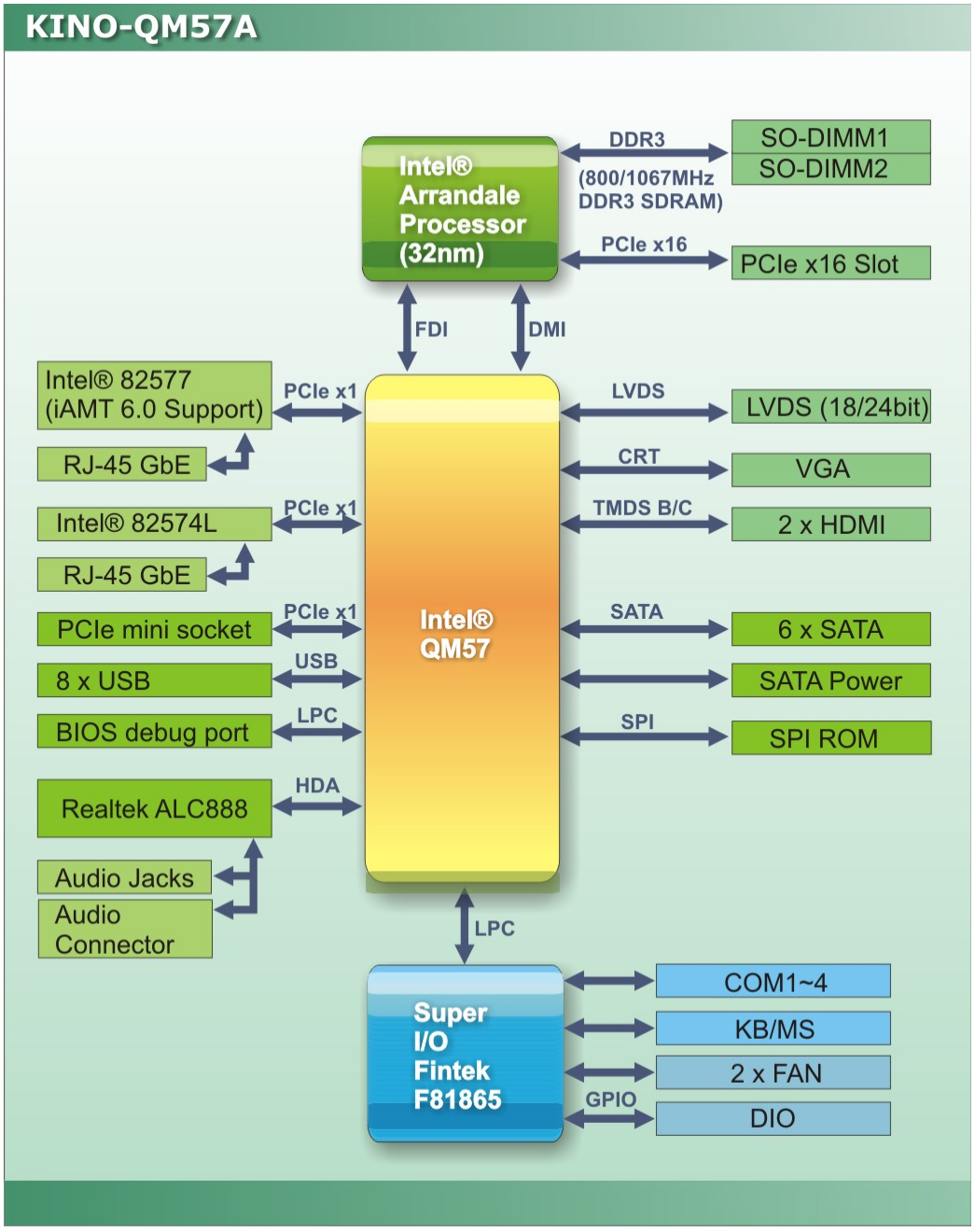



**Figure 1-5: Data Flow Block Diagram**

## 1.5 Technical Specifications

KINO-QM57A technical specifications are listed in table below.

| Specification | KINO-QM57A |
|---|---|
| **Form Factor** | Mini-ITX |
| **Socket** | Socket G (PGA989) |
| **CPU Supported** | 32 nm Socket G Intel® Core™ i5 processor<br>32 nm Socket G Intel® Core™ i7 processor |
| **Express Chipset** | Intel® QM57 |
| **Memory** | Two 204-pin SO-DIMM sockets support two 800/1066 MHz<br>4 GB (max.) DDR3 SDRAM SO-DIMM (system max. 8 GB) |
| **Audio** | Realtek ALC888 HD 7.1 channel audio codec |
| **LAN** | One Intel® 82577 PCIe GbE controller with iAMT 6.0 support<br>One Intel® 82574L PCIe GbE controller |
| **Super I/O** | Fintek F81865 |
| **BIOS** | AMI BIOS label |
| **Watchdog Timer** | Software programmable supports 1~255 sec. system reset |
| **Expansion** | |
| **PCIe** | One PCIe x16 slot<br>One PCIe mini slot |
| **I/O Interface Connectors** | |
| **Audio Connector** | One internal audio connector (10-pin header)<br>One internal SPDIF connector (5-pin header)<br>One external audio line-out connector<br>One external mic-in connector |
| **Display Ports** | One VGA port<br>One 18-bit or 24-bit dual-channel LVDS port<br>Two external HDMI ports |
| **Ethernet** | Two RJ-45 GbE port |

| Specification | KINO-QM57A |
|---|---|
| **Serial Ports** | One RS-232 via DB-9 connector<br>Two RS-232 via three 10-pin header connectors<br>One RS-232/422/485 via 14-pin header connector |
| **USB 2.0/1.1 Ports** | Four external USB ports<br>Four internal USB ports via two 8-pin header connector |
| **Storage** | |
| **Serial ATA** | Six SATA 3.0 Gb/s connectors<br>Three 12V/5V SATA power connectors |
| **Environmental and Power Specifications** | |
| **Power Supply** | 12 V only<br>ATX and AT power supported |
| **Power Connector** | One internal 4-pin Molex power connector for power supply<br>One external 4-pin Mini-DIN for power adapter |
| **Power Consumption** | 12V@5.27A<br>2.66 GHz Intel® Core™ i7 620M CPU with two 1333 MHz<br>2 GB DDR3 SO-DIMM |
| **Operating Temperature** | 0ºC ~ 60ºC (requires cooler and silicone heat sink paste) |
| **Humidity** | 5% ~ 95% (non-condensing) |
| **Physical Specifications** | |
| **Dimensions** | 170 mm x 170 mm |
| **Weight GW/NW** | 1000g/350g |

**Table 1-1: Technical Specifications**

Chapter

2

# Unpacking

## 2.1 Anti-static Precautions

**WARNING!**

Static electricity can destroy certain electronics. Make sure to follow the ESD precautions to prevent damage to the product, and injury to the user.

Make sure to adhere to the following guidelines:

- ***Wear an anti-static wristband***: Wearing an anti-static wristband can prevent electrostatic discharge.
- ***Self-grounding***: Touch a grounded conductor every few minutes to discharge any excess static buildup.
- ***Use an anti-static pad***: When configuring any circuit board, place it on an anti-static mat.
- ***Only handle the edges of the PCB***: Don't touch the surface of the motherboard. Hold the motherboard by the edges when handling.

## 2.2 Unpacking Precautions

When the KINO-QM57A is unpacked, please do the following:

- Follow the antistatic guidelines above.
- Make sure the packing box is facing upwards when opening.
- Make sure all the packing list items are present.

## 2.3 Packing List

**NOTE:**

If any of the components listed in the checklist below are missing, do not proceed with the installation. Contact the IEI reseller or vendor the KINO-QM57A was purchased from or contact an IEI sales representative directly by sending an email to sales@iei.com.tw.

The KINO-QM57A is shipped with the following components:

| Quantity | Item and Part Number | Image |
|---|---|---|
| 1 | KINO-QM57A motherboard |  |
| 3 | SATA and power cable<br>(**P/N**: 32801-000100-100-RS) |  |
| 1 | Dual RS-232 cable<br>(**P/N**: 19800-000112-RS) |  |
| 1 | Mini jumper pack (2.0mm)<br>(**P/N**: 33100-000033-RS) |  |
| 1 | I/O shielding<br>(**P/N**: 45014-0029C0-00-RS) |  |
| 1 | Utility CD |  |

| | | |
|---|---|---|
| 1 | Quick Installation Guide |  |

### 2.3.1 Optional Items

The following are optional components which may be separately purchased:

| Item and Part Number | Image |
|---|---|
| CPU cooler<br>(**P/N**: CF-989A-RS) |  |
| Dual RS-232/422/485 cable<br>(**P/N**: 19800-000110-RS) |  |
| Dual USB cable (with bracket)<br>(**P/N**: CB-USB02-RS) |  |
| PCIe Mini wireless LAN card 802.11b/g<br>(**P/N**: WMUSB-V01-RS) |  |
| PCIe Mini wireless LAN card 802.11b/g<br>(**P/N**: WMPCIE-V01-RS) |  |
| SATA to IDE/CF converter board<br>(**P/N**: SAIDE-KIT01-RS) |  |
| 96W 12V power adapter (90 VAC~260 VAC, 4-pin DIN)<br>(**P/N**: 63000-FSP096AHB-RS) |  |

| |
|---|
| CPU cooler<br>(**P/N**: CF-989B-RS) |

Chapter

3

# Connectors

# 3.1 Peripheral Interface Connectors

This chapter details all the jumpers and connectors.

## 3.1.1 KINO-QM57A Layout

The figures below show all the connectors and jumpers.

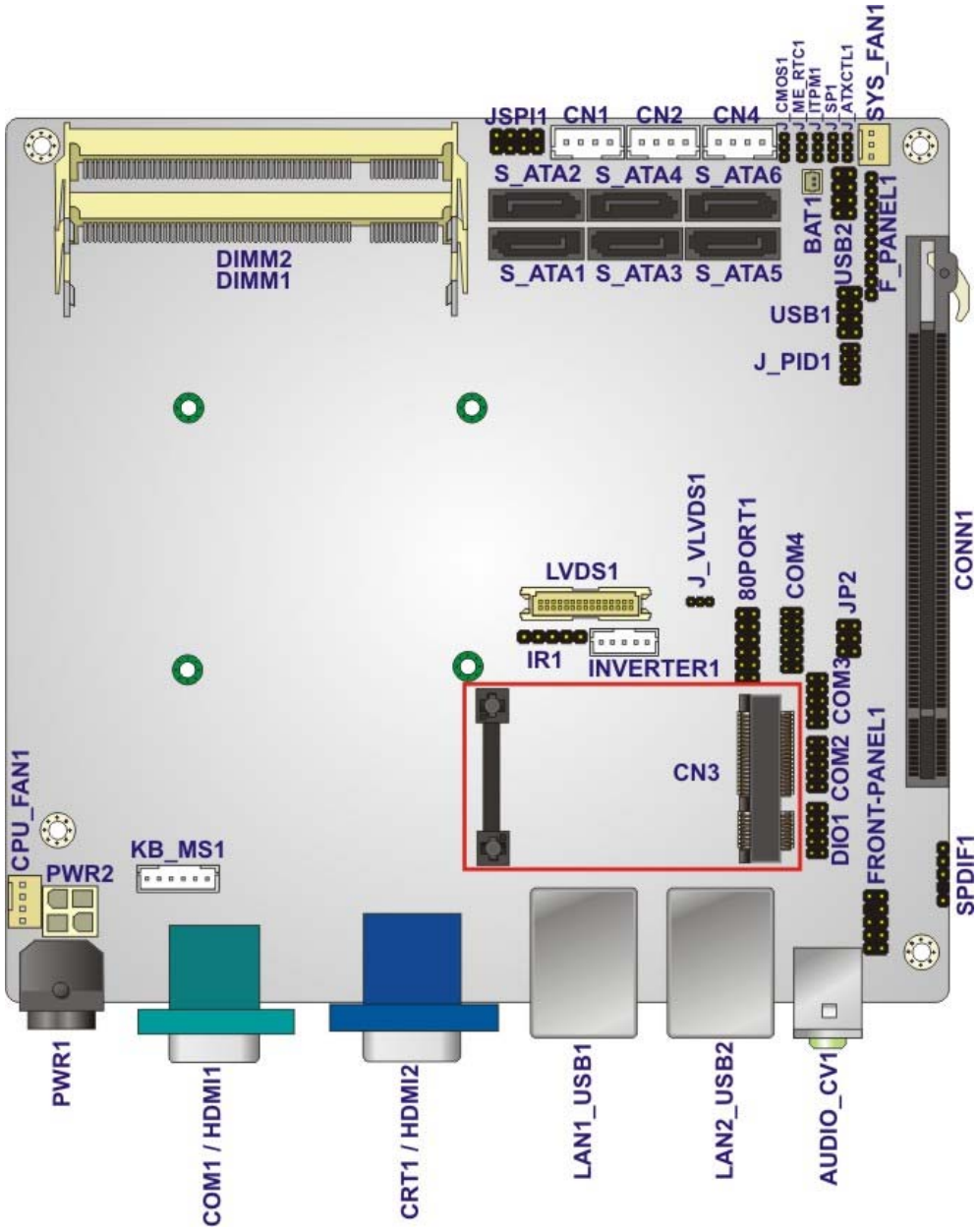



**Figure 3-1: Connector and Jumper Locations**

### 3.1.2 Peripheral Interface Connectors

The table below lists all the connectors on the board.

| Connector | Type | Label |
|---|---|---|
| Audio connector | 10-pin header | FRONT-PANEL1 |
| Battery connector | 2-pin wafer | BAT1 |
| Backlight inverter 12 V power connector | 5-pin wafer | INVERTER1 |
| BIOS debug connector | 12-pin header | 80PORT1 |
| DDR3 SO-DIMM socket | 204-pin socket | DIMM1 |
| DDR3 SO-DIMM socket | 204-pin socket | DIMM2 |
| Digital I/O connector | 10-pin header | DIO1 |
| Fan connector (CPU) | 4-pin wafer | CPU_FAN1 |
| Fan connector (system) | 3-pin wafer | SYS_FAN1 |
| Front panel connector | 10-pin header | F_PANEL1 |
| Infrared connector | 5-pin header | IR1 |
| Keyboard and mouse connector | 6-pin wafer | KB_MS1 |
| LVDS connector | 30-pin crimp | LVDS1 |
| PCIe mini card socket | 52-pin socket | CN3 |
| PCIe x16 connector | 164-pin socket | CONN1 |
| Power connector (+12V, power supply) | 4-pin connector | PWR2 |
| Power switch | Push button | PWR_SW1 |
| RS-232 serial port connector | 10-pin header | COM2 |
| RS-232 serial port connector | 10-pin header | COM3 |
| RS-232/422/485 serial port connector | 14-pin header | COM4 |

| | | |
|---|---|---|
| Serial ATA (SATA) drive connector | 7-pin SATA | S_ATA1 |
| Serial ATA (SATA) drive connector | 7-pin SATA | S_ATA2 |
| Serial ATA (SATA) drive connector | 7-pin SATA | S_ATA3 |
| Serial ATA (SATA) drive connector | 7-pin SATA | S_ATA4 |
| Serial ATA (SATA) drive connector | 7-pin SATA | S_ATA5 |
| Serial ATA (SATA) drive connector | 7-pin SATA | S_ATA6 |
| SATA power connector | 4-pin wafer | CN1 |
| SATA power connector | 4-pin wafer | CN2 |
| SATA power connector | 4-pin wafer | CN4 |
| SPDIF connector | 5-pin header | SPDIF1 |
| SPI Flash connector | 8-pin header | JSPI1 |
| USB connector (1) | 8-pin header | USB1 |
| USB connector (2) | 8-pin header | USB2 |

**Table 3-1: Peripheral Interface Connectors**

### 3.1.3 External Interface Panel Connectors

The table below lists the connectors on the external I/O panel.

| Connector | Type | Label |
|---|---|---|
| Audio jacks | Audio jack | AUDIO_CV1 |
| Ethernet connector | RJ-45 | LAN1 |
| Ethernet connector | RJ-45 | LAN2 |
| HDMI port | HDMI Type A port | HDMI1 |
| HDMI port | HDMI Type A port | HDMI2 |
| Power connector (12V, power adapter) | 4-pin power jack | PWR1 |

| | | |
|---|---|---|
| RS-232 serial port | DB-9 | COM1 |
| USB ports (dual) | USB port | USB1 |
| USB ports (dual) | USB port | USB2 |
| VGA port connector | 15-pin female | CRT1 |

**Table 3-2: Rear Panel Connectors**

## 3.2 Internal Peripheral Connectors

The section describes all of the connectors on the KINO-QM57A.

### 3.2.1 Audio Connector

**CN Label:** **FRONT-PANEL1**

**CN Type:** 10-pin header (2x5)

**CN Location:** See **Figure 3-2**

**CN Pinouts:** See **Table 3-3**

The audio connector is connected to external audio devices including speakers and microphones for the input and output of audio signals to and from the system.

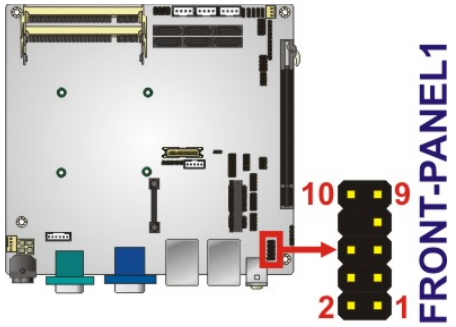



**Figure 3-2: Audio Connector Location**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | MIC-L | 2 | ANALOG GND |
| 3 | MIC-R | 4 | PRESENCE# |

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 5 | LINE-R | 6 | MIC-JD |
| 7 | FRONT-IO | 8 | NC |
| 9 | LINE-L | 10 | INE-JD |

**Table 3-3: Audio Connector Pinouts**

### 3.2.2 Backlight Inverter Connector

**CN Label:** **INVERTER1**

**CN Type:** 5-pin wafer (1x5)

**CN Location:** See **Figure 3-3**

**CN Pinouts:** See **Table 3-4**

The backlight inverter connector provides the backlight on the LCD display connected to the KINO-QM57A with +12V of power.

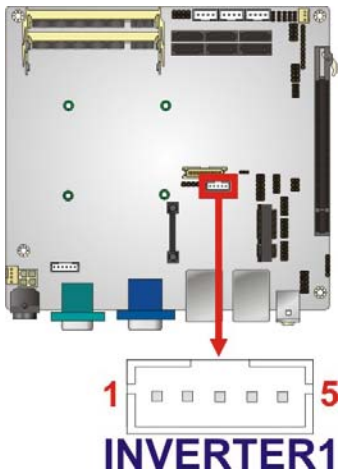



**Figure 3-3: Panel Backlight Connector Pinout Location**

| PIN NO. | DESCRIPTION |
|---|---|
| 1 | LCD Backlight Control |
| 2 | GROUND |
| 3 | +12V |
| 4 | GROUND |

| PIN NO. | DESCRIPTION |
|---|---|
| 5 | Backlight Enable |

**Table 3-4: Panel Backlight Connector Pinouts**

### 3.2.3 BIOS Debug Connector

**CN Label:** **80PORT1**

**CN Type:** 12-pin header (2x6)

**CN Location:** See **Figure 3-4**

**CN Pinouts:** See **Table 3-5**

The connector is for BIOS debug only.

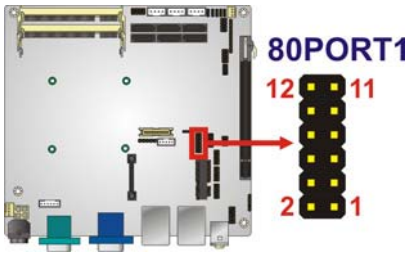



**Figure 3-4: BIOS Debug Connector Location**

| Pin | Description | Pin | Description |
|---|---|---|---|
| 1 | FWHPCLK | 2 | GND |
| 3 | LFRAME# | 4 | KEY |
| 5 | PCIRST# | 6 | VCC |
| 7 | LAD3 | 8 | LAD2 |
| 9 | VCC3 | 10 | LAD1 |
| 11 | LAD0 | 12 | GND |

**Table 3-5: BIOS Debug Connector Pinouts**

### 3.2.4 Digital I/O Connector

**CN Label:** **DIO1**

**CN Type:** 10-pin header (2x5)

**CN Location:** See **Figure 3-5**

**CN Pinouts:** See **Table 3-6**

The digital I/O connector provides programmable input and output for external devices. The digital I/O provides 4-bit output and 4-bit input.

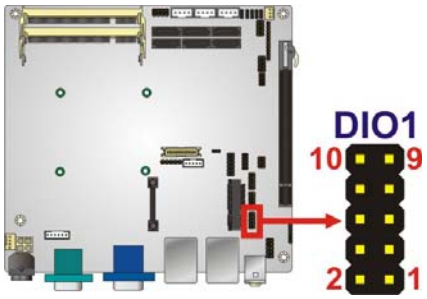



**Figure 3-5: Digital I/O Connector Location**

| Pin | Description | Pin | Description |
|---|---|---|---|
| 1 | GND | 2 | VCC |
| 3 | Output 3 | 4 | Output 2 |
| 5 | Output 1 | 6 | Output 0 |
| 7 | Input 3 | 8 | Input 2 |
| 9 | Input 1 | 10 | Input 0 |

**Table 3-6: Digital I/O Connector Pinouts**

### 3.2.5 Fan Connector (CPU)

**CN Label:** **CPU_FAN1**

**CN Type:** 4-pin wafer (1x4)

**CN Location:** See **Figure 3-6**

**CN Pinouts:** See **Table 3-7**

The fan connector attaches to a CPU cooling fan.

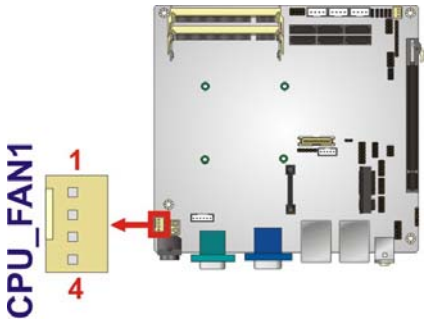



**Figure 3-6: CPU Fan Connector Location**

| Pin | Description |
|---|---|
| 1 | GROUND |
| 2 | +12V |
| 3 | Rotation Signal |
| 4 | PWM Control Signal |

**Table 3-7: CPU Fan Connector Pinouts**

### 3.2.6 Fan Connector (System)

**CN Label:** **SYS_FAN1**

**CN Type:** 3-pin wafer (1x3)

**CN Location:** See **Figure 3-7**

**CN Pinouts:** See **Table 3-8**

The cooling fan connector provides a 12V, 500mA current to the cooling fan. The connector has a "rotation" pin to get rotation signals from fans and notify the system so the system BIOS can recognize the fan speed. Please note that only specified fans can issue the rotation signals.

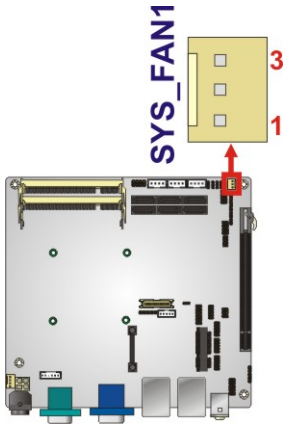



**Figure 3-7: +12V Fan Connector Location**

| PIN NO. | DESCRIPTION |
|---|---|
| 1 | Rotation Signal |
| 2 | +12V |
| 3 | GND |

**Table 3-8: +12V Fan Connector Pinouts**

### 3.2.7 Infrared Interface Connector

**CN Label:** **IR1**

**CN Type:** 5-pin header (1x5)

**CN Location:** See **Figure 3-8**

**CN Pinouts:** See **Table 3-9**

The infrared connector attaches to an infrared receiver for use with remote controls.

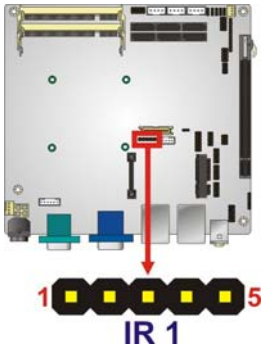



**Figure 3-8: Infrared Connector Location**

| Pin | Description |
|---|---|
| 1 | VCC |
| 2 | NC |
| 3 | IR-RX |
| 4 | GND |
| 5 | IR-TX |

**Table 3-9: Infrared Connector Pinouts**

### 3.2.8 Front Panel Connector

**CN Label:** **F_PANEL1**

**CN Type:** 10-pin header (1x10)

**CN Location:** See **Figure 3-9**

**CN Pinouts:** See **Table 3-10**

The front panel connector connects to external switches and indicators to monitor and controls the motherboard. These indicators and switches include:

- Power button
- Reset
- Power LED
- HDD LED

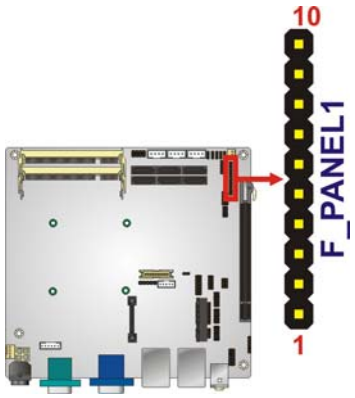



**Figure 3-9: Front Panel Connector Location**

| FUNCTION | PIN | DESCRIPTION | FUNCTION | PIN | DESCRIPTION |
|---|---|---|---|---|---|
| | 1 | NC | Power LED | 6 | PWR_LED+ |
| Power Button | 2 | PWR_BTN+ | | 7 | PWR_LED+ |
| | 3 | PWR_BTN- | | 8 | PWR_LED- |
| HDD LED | 4 | HDD_LED+ | Reset | 9 | RESET+ |
| | 5 | HDD_LED- | | 10 | RESET- |

**Table 3-10: Front Panel Connector Pinouts**

### 3.2.9 Keyboard/Mouse Connector

**CN Label:** **KB_MS1**

**CN Type:** 6-pin wafer (1x6)

**CN Location:** See **Figure 3-10**

**CN Pinouts:** See **Table 3-11**

The keyboard/mouse connector connects to a PS/2 Y-cable that can be connected to a PS/2 keyboard and mouse.

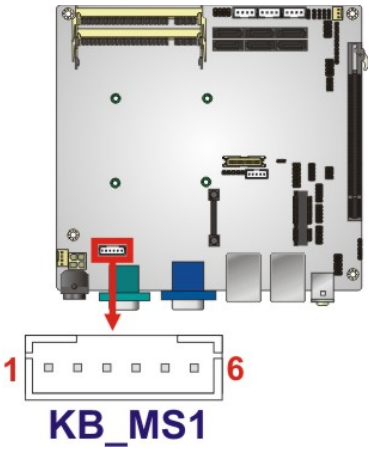



**Figure 3-10: Keyboard/Mouse Connector Location**

| Pin | Description |
|---|---|
| 1 | +5 VCC |
| 2 | MS DATA |
| 3 | MS CLK |
| 4 | KB DATA |
| 5 | KB CLK |
| 6 | GROUND |

**Table 3-11: Keyboard/Mouse Connector Pinouts**

### 3.2.10 LVDS LCD Connector

**CN Label:** **LVDS1**

**CN Type:** 30-pin crimp (2x15)

**CN Location:** See **Figure 3-11**

**CN Pinouts:** See **Table 3-12**

The 30-pin LVDS LCD connectors can be connected to single channel or dual channel, 18-bit LVDS panel.

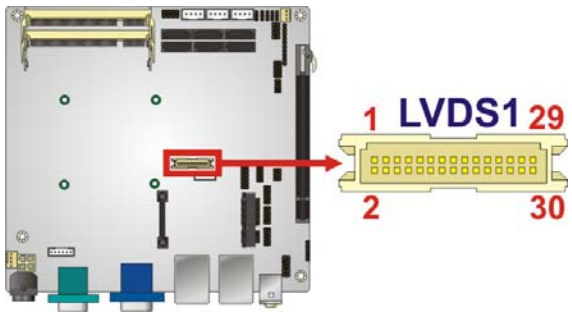



**Figure 3-11: LVDS LCD Connector Pinout Location**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | GND | 2 | GND |
| 3 | A_Y0 | 4 | A_Y0# |
| 5 | A_Y1 | 6 | A_Y1# |
| 7 | A_Y2 | 8 | A_Y2# |
| 9 | A_CK | 10 | A_CK# |
| 11 | A_Y3 | 12 | A_Y3# |
| 13 | GND | 14 | GND |
| 15 | B_Y0 | 16 | B_Y0# |
| 17 | B_Y1 | 18 | B_Y1# |
| 19 | B_Y2 | 20 | B_Y2# |
| 21 | B_CK | 22 | B_CK# |
| 23 | B_Y3 | 24 | B_Y3# |
| 25 | GND | 26 | GND |
| 27 | VCC/VCC3 | 28 | VCC/VCC3 |
| 29 | VCC/VCC3 | 30 | VCC/VCC3 |

**Table 3-12: LVDS LCD Port Connector Pinouts**

### 3.2.11 PCIe Mini Card Slot

**CN Label:** **CN3**

**CN Type:** 52-pin PCIe Mini Card Slot

**CN Location:** See **Figure 3-12**

**CN Pinouts:** See **Table 3-13**

The PCIe mini card slot enables a PCIe mini card expansion module to be connected to the board. Cards supported include among others wireless LAN (WLAN) cards.

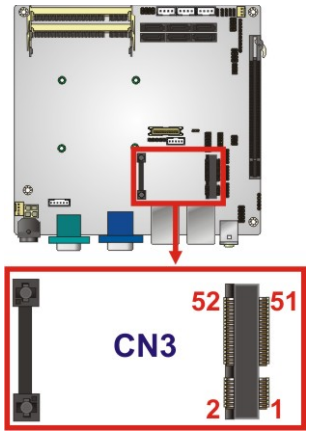



**Figure 3-12: PCIe Mini Card Slot Location**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | PCIE_WAKE# | 2 | 3.3V |
| 3 | N/C | 4 | GND |
| 5 | N/C | 6 | 1.5V |
| 7 | CLKREQ# | 8 | N/C |
| 9 | GND | 10 | N/C |
| 11 | CLK- | 12 | N/C |
| 13 | CLK+ | 14 | N/C |
| 15 | GND | 16 | N/C |
| 17 | N/C | 18 | GND |
| 19 | N/C | 20 | N/C |
| 21 | GND | 22 | PCIRST# |
| 23 | PERN2 | 24 | 3VDual |
| 25 | PERP2 | 26 | GND |
| 27 | GND | 28 | 1.5V |
| 29 | GND | 30 | SMBCLK |
| 31 | PETN2 | 32 | SMBDATA |
| 33 | PETP2 | 34 | GND |
| 35 | GND | 36 | USBD- |

| | | | |
|---|---|---|---|
| 37 | N/C | 38 | USBD+ |
| 39 | N/C | 40 | GND |
| 41 | N/C | 42 | N/C |
| 43 | N/C | 44 | N/C |
| 45 | N/C | 46 | N/C |
| 47 | N/C | 48 | 1.5V |
| 49 | N/C | 50 | GND |
| 51 | N/C | 52 | 3.3V |

**Table 3-13: PCIe Mini Card Slot Pinouts**

### 3.2.12 PCI Express x16 Slot

**CN Label:** **CONN1**

**CN Type:** PCIe x16 slot

**CN Location:** See **Figure 3-13**

**CN Pinouts:** See **Table 3-14** (Side A) **Table 3-15** (Side B)

The PCIe x16 expansion cards slot is for PCIe x16 expansion cards.

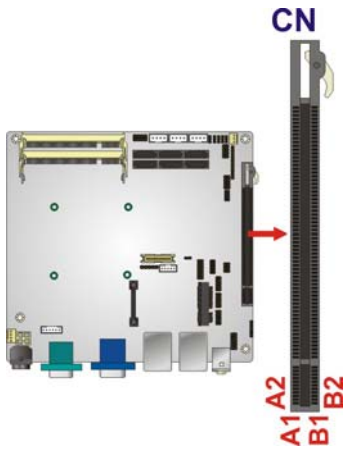



**Figure 3-13: PCIe x16 Slot Location**

| Pin | Description | Pin | Description | Pin | Description | Pin | Description |
|---|---|---|---|---|---|---|---|
| A1 | Name | A22 | HSIn(1) | A43 | HSIp(6) | A64 | HSIp(11) |
| A2 | PRSNT#1 | A23 | GND | A44 | HSIn(6) | A65 | HSIn(11) |
| A3 | +12v | A24 | GND | A45 | GND | A66 | GND |
| A4 | +12v | A25 | HSIp(2) | A46 | GND | A67 | GND |
| A5 | GND | A26 | HSIn(2) | A47 | HSIp(7) | A68 | HSIp(12) |
| A6 | JTAG2 | A27 | GND | A48 | HSIn(7) | A69 | HSIn(12) |
| A7 | JTAG3 | A28 | GND | A49 | GND | A70 | GND |
| A8 | JTAG4 | A29 | HSIp(3) | A50 | RSVD | A71 | GND |
| A9 | JTAG5 | A30 | HSIn(3) | A51 | GND | A72 | HSIp(13) |
| A10 | +3.3v | A31 | GND | A52 | HSIp(8) | A73 | HSIn(13) |
| A11 | +3.3v | A32 | RSVD | A53 | HSIn(8) | A74 | GND |
| A12 | PWRGD | A33 | RSVD | A54 | GND | A75 | GND |
| A13 | GND | A34 | GND | A55 | GND | A76 | HSIp(14) |
| A14 | REFCLK+ | A35 | HSIp(4) | A56 | HSIp(9) | A77 | HSIn(14) |
| A15 | REFCLK- | A36 | HSIn(4) | A57 | HSIn(9) | A78 | GND |
| A16 | GND | A37 | GND | A58 | GND | A79 | GND |
| A17 | HSIp(0) | A38 | GND | A59 | GND | A80 | HSIp(15) |
| A18 | HSIn(0) | A39 | HSIp(5) | A60 | HSIp(10) | A81 | HSIn(15) |
| A19 | GND | A40 | HSIn(5) | A61 | HSIn(10) | A82 | GND |
| A20 | RSVD | A41 | GND | A62 | GND | | |
| A21 | GND | A42 | GND | A63 | GND | | |

**Table 3-14: PCIe x16 Side A Pinouts**

| Pin | Description | Pin | Description | Pin | Description | Pin | Description |
|---|---|---|---|---|---|---|---|
| B1 | +12v | B22 | GND | B43 | GND | B64 | GND |
| B2 | +12v | B23 | HSOp(2) | B44 | GND | B65 | GND |
| B3 | RSVD | B24 | HSOn(2) | B45 | HSOp(7) | B66 | HSOp(12) |
| B4 | GND | B25 | GND | B46 | HSOn(7) | B67 | HSOn(12) |
| B5 | SMCLK | B26 | GND | B47 | GND | B68 | GND |
| B6 | SMDAT | B27 | HSOp(3) | B48 | PRSNT#2 | B69 | GND |
| B7 | GND | B28 | HSOn(3) | B49 | GND | B70 | HSOp(13) |

| Pin | Description | Pin | Description | Pin | Description | Pin | Description |
|---|---|---|---|---|---|---|---|
| B8 | +3.3v | B29 | GND | B50 | HSOp(8) | B71 | HSOn(13) |
| B9 | JTAG1 | B30 | RSVD | B51 | HSOn(8) | B72 | GND |
| B10 | 3.3 Vaux | B31 | PRSNT#2 | B52 | GND | B73 | GND |
| B11 | WAKE# | B32 | GND | B53 | GND | B74 | HSOp(14) |
| B12 | RSVD | B33 | HSOp(4) | B54 | HSOp(9) | B75 | HSOn(14) |
| B13 | GND | B34 | HSOn(4) | B55 | HSOn(9) | B76 | GND |
| B14 | HSOp(0) | B35 | GND | B56 | GND | B77 | GND |
| B15 | HSOn(0) | B36 | GND | B57 | GND | B78 | HSOp(15) |
| B16 | GND | B37 | HSOp(5) | B58 | HSOp(10) | B79 | HSOn(15) |
| B17 | PRSNT#2 | B38 | HSOn(5) | B59 | HSOn(10) | B80 | GND |
| B18 | GND | B39 | GND | B60 | GND | B81 | PRSNT#2 |
| B19 | HSOp(1) | B40 | GND | B61 | GND | B82 | RSVD#2 |
| B20 | HSOn(1) | B41 | HSOp(6) | B62 | HSOp(11) | | |
| B21 | GND | B42 | HSOn(6) | B63 | HSOn(11) | | |

**Table 3-15: PCIe x16 Side B Pinouts**

### 3.2.13 12V Power Connector

**CN Label:** **PWR2**

**CN Type:** 4-pin Molex power connector (1x4)

**CN Location:** See **Figure 3-14**

**CN Pinouts:** See **Table 3-16**

The connector supports the 12V power supply.

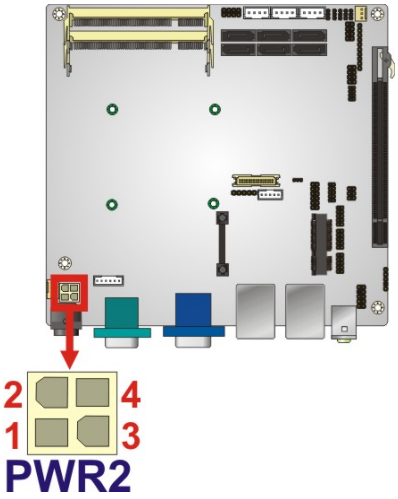



**Figure 3-14: CPU 12V Power Connector Location**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | GND | 2 | GND |
| 3 | +12V | 4 | +12V |

**Table 3-16: CPU 12V Power Connector Pinouts**

### 3.2.14 SATA Drive Connectors

**CN Label:** **S_ATA1**, **S_ATA2**, **S_ATA3**, **S_ATA4**, **S_ATA5** and **S_ATA6**

**CN Type:** 7-pin SATA drive connectors

**CN Location:** See **Figure 3-15**

**CN Pinouts:** See **Table 3-17**

The six SATA 3Gb/s drive connectors are each connected to a SATA 3Gb/s drive. The SATA 3Gb/s drives transfer data at speeds as high as 3.0 Gb/s.

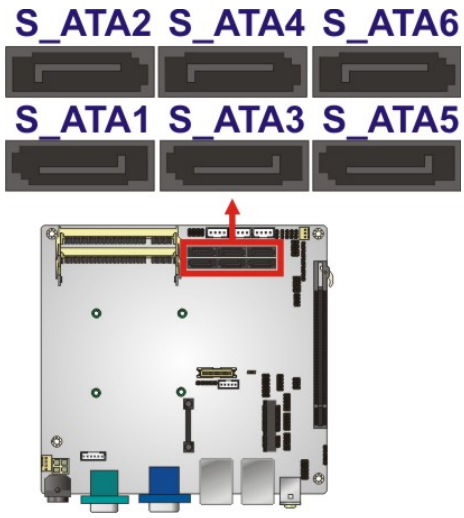



**Figure 3-15: SATA Drive Connector Locations**

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

**Table 3-17: SATA Drive Connector Pinouts**

### 3.2.15 SATA Power Connectors

**CN Label:** **CN1**, **CN2** and **CN4**

**CN Type:** 4-pin wafer (1x4)

**CN Location:** See **Figure 3-16**

**CN Pinouts:** See **Table 3-18**

The SATA Power Connector provides +5V and +12V power output to the SATA connector.

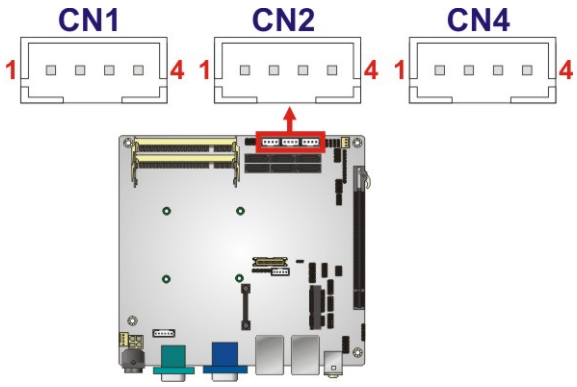



**Figure 3-16: SATA Power Connector Locations**

| PIN NO. | DESCRIPTION |
|---|---|
| 1 | +5V (support 1 A) |
| 2 | GND |
| 3 | GND |
| 4 | +12V (support 1 A) |

**Table 3-18: SATA Power Connector Pinouts**

### 3.2.16 Serial Port Connector (RS-232/422/485)

**CN Label:** **COM4**

**CN Type:** 14-pin header (2x7)

**CN Location:** See **Figure 3-17**

**CN Pinouts:** See **Table 3-19**

Used for RS-232/422/485 communications.

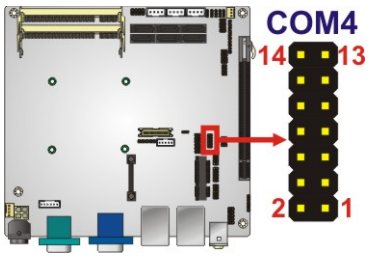



**Figure 3-17: Serial Port Connector Location**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | DCD | 2 | DSR |
| 3 | RXD | 4 | RTS |
| 5 | TXD | 6 | CTS |
| 7 | DTR | 8 | RI |
| 9 | GND | 10 | GND |
| 11 | TXD485+ | 12 | TXD485# |
| 13 | RXD485+ | 14 | RXD485# |

**Table 3-19: Serial Port Connector Pinouts**

## 3.2.17 Serial Port Connectors (RS-232)

**CN Label:** **COM2** and **COM3**

**CN Type:** 10-pin header (2x5)

**CN Location:** See **Figure 3-18**

**CN Pinouts:** See **Table 3-20**

These connectors provide RS-232 communications.

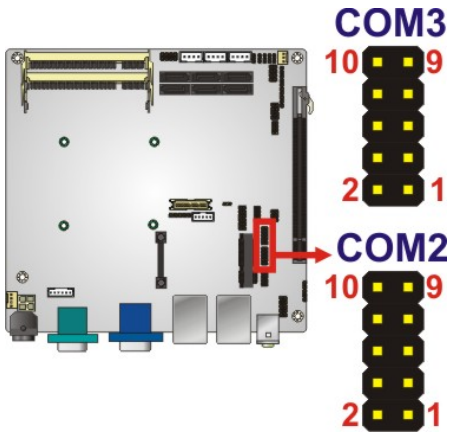



**Figure 3-18: COM Connector Pinout Locations**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | Data Carrier Direct (DCD) | 2 | Data Set Ready (DSR) |
| 3 | Receive Data (RXD) | 4 | Request To Send (RTS) |
| 5 | Transmit Data (TXD) | 6 | Clear To Send (CTS) |
| 7 | Data Terminal Ready (DTR) | 8 | Ring Indicator (RI) |
| 9 | Ground (GND) | 10 | N/C |

**Table 3-20: COM Connector Pinouts**

### 3.2.18 SPDIF Connector

**CN Label:** **SPDIF1**

**CN Type:** 5-pin header (1x5)

**CN Location:** See **Figure 3-19**

**CN Pinouts:** See **Table 3-21**

Use the SPDIF connector to connect digital audio devices to the system.

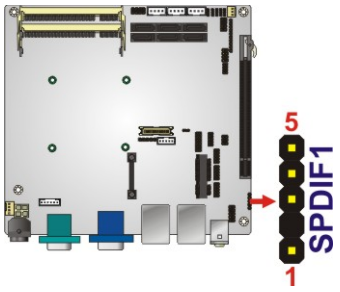



**Figure 3-19: SPDIF Connector Location**

| PIN | DESCRIPTION |
|---|---|
| 1 | 5V |
| 2 | NC |
| 3 | SPDIF OUT |
| 4 | GND |
| 5 | SPDIF IN |

**Table 3-21: SPDIF Connector Pinouts**

### 3.2.19 SPI Flash Connector

**CN Label:** **JSPI1**

**CN Type:** 8-pin header (2x4)

**CN Location:** See **Figure 3-20**

**CN Pinouts:** See **Table 3-22**

The 8-pin SPI Flash connector is used to flash the BIOS.

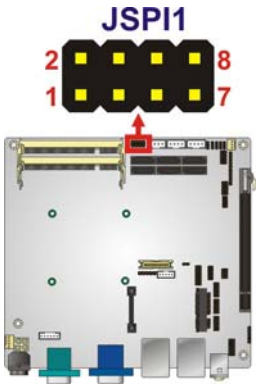



**Figure 3-20: SPI Flash Connector**

| PIN | DESCRIPTION | PIN | DESCRIPTION |
|---|---|---|---|
| 1 | SPI_VCC | 2 | GND |
| 3 | SPI_CS | 4 | SPI_CLK |
| 5 | SPI_SO | 6 | SPI_SI |
| 7 | NC | 8 | NC |

**Table 3-22: SPI Flash Connector**

### 3.2.20 USB Connectors

**CN Label:** **USB1** and **USB2**

**CN Type:** 8-pin header (2x4)

**CN Location:** See **Figure 3-21**

**CN Pinouts:** See **Table** 3-28

The USB connectors connect to USB devices. Each pin header provides two USB ports.

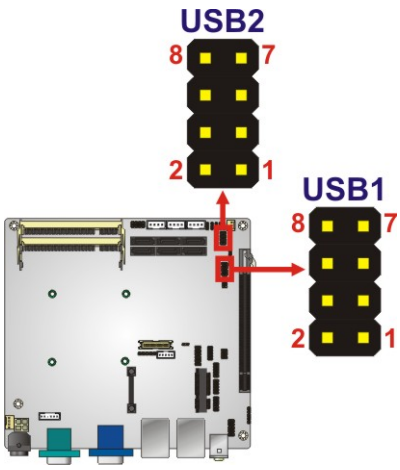



**Figure 3-21: USB Connector Pinout Locations**

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

**Table 3-23: USB Port Connector Pinouts**

## 3.3 External Peripheral Interface Connector Panel

**Figure 3-22** shows the KINO-QM57A external peripheral interface connector (EPIC) panel.

The KINO-QM57A EPIC panel consists of the following:

- 2 x Audio jacks
- 2 x Ethernet connectors
- 2 x HDMI connectors
- 1 x Power connector
- 1 x RS-232 serial port connector
- 4 x USB connectors
- 1 x VGA connector

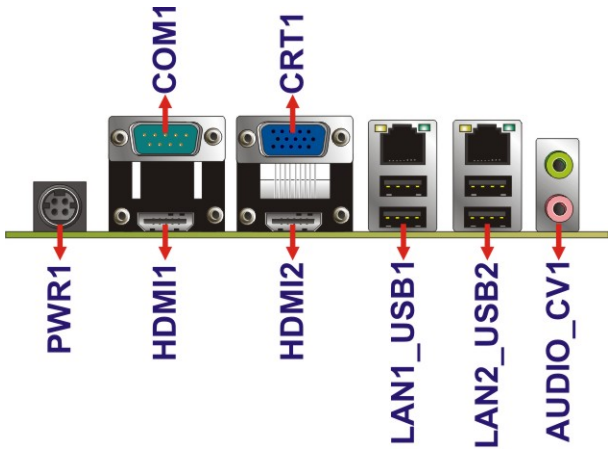



**Figure 3-22: KINO-QM57A External Peripheral Interface Connector**

### 3.3.1 Audio Connector

| | |
|---|---|
| **CN Label:** | **AUDIO_CV1** |
| **CN Type:** | Audio jack |
| **CN Location:** | See **Figure 3-22** |

The audio jacks connect to external audio devices.

- **Line Out port (Lime):** Connects to a headphone or a speaker. With multi-channel configurations, this port can also connect to front speakers.
- **Microphone (Pink):** Connects a microphone.


**Figure 3-23: Audio Jacks**

### 3.3.2 Ethernet Connector

**CN Label:** **LAN1** and **LAN2**

**CN Type:** RJ-45

**CN Location:** See **Figure 3-22**

**CN Pinouts:** See **Table 3-24**

The KINO-QM57A is equipped with two built-in RJ-45 Ethernet controllers. Each controller can connect to the LAN through one RJ-45 LAN connector.

| PIN | DESCRIPTION | PIN | DESCRIPTION |
|---|---|---|---|
| 1 | CT1 | 6 | MDI2+ |
| 2 | MDI0+ | 7 | MDI2- |
| 3 | MDI0- | 8 | MDI3+ |
| 4 | MDI1+ | 9 | MDI3- |
| 5 | MDI1- | 10 | GND |

**Table 3-24: LAN Pinouts**

The RJ-45 Ethernet connector has two status LEDs, one green and one yellow. The green LED indicates activity on the port and the yellow LED indicates the speed. See **Table 3-25**.

| Activity/Link LED | | Speed LED | |
|---|---|---|---|
| **STATUS** | **DESCRIPTION** | **STATUS** | **DESCRIPTION** |
| Off | No link | Off | 10 Mbps connection |
| Yellow | Linked | Green | 100 Mbps connection |
| Blinking | TX/RX activity | Orange | 1 Gbps connection |

**Table 3-25: RJ-45 Ethernet Connector LEDs**


**Figure 3-24: RJ-45 Ethernet Connector**

### 3.3.3 HDMI Connector

**CN Label:** **HDMI1** and **HDMI2**

**CN Type:** HDMI type A connector

**CN Location:** See **Figure 3-22**

**CN Pinouts:** See **Table 3-26**

The HDMI (High-Definition Multimedia Interface) connector connects to digital audio or video sources.

| PIN | DESCRIPTION | PIN | DESCRIPTION |
|---|---|---|---|
| 1 | HDMI_DATA2 | 13 | N/C |
| 2 | GND | 14 | N/C |
| 3 | HDMI_DATA2# | 15 | HDMI_SCL |
| 4 | HDMI_DATA1 | 16 | HDMI_SDA |
| 5 | GND | 17 | GND |
| 6 | HDMI_DATA1# | 18 | +5V |
| 7 | HDMI_DATA0 | 19 | HDMI_HPD |
| 8 | GND | 20 | HDMI_GND |
| 9 | HDMI_DATA0# | 21 | HDMI_GND |
| 10 | HDMI_CLK | 22 | HDMI_GND |
| 11 | GND | 23 | HDMI_GND |
| 12 | HDMI_CLK# | | |

**Table 3-26: HDMI Connector Pinouts**

### 3.3.4 Power Connector (12 V, Power Adapter)

| | |
|---|---|
| **CN Label:** | **PWR1** |
| **CN Type:** | 4-pin Mini-DIN |
| **CN Location:** | See **Figure 3-22** |
| **CN Pinouts:** | See **Figure 3-25** |

The connector supports the 12V power adapter.

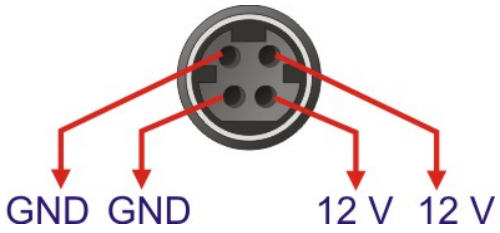



**Figure 3-25: 4-pin Power Mini-DIN Connection**

### 3.3.5 Serial Port Connector (COM1)

| | |
|---|---|
| **CN Label:** | **COM1** |
| **CN Type:** | DB-9 |
| **CN Location:** | See **Figure 3-22** |
| **CN Pinouts:** | See **Table 3-27** |

The serial port connects to a RS-232 serial communications device.

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | DCD | 6 | DSR |
| 2 | RX | 7 | RTS |
| 3 | TX | 8 | CTS |
| 4 | DTR | 9 | RI |
| 5 | GND | | |

**Table 3-27: Serial Port Pinouts**

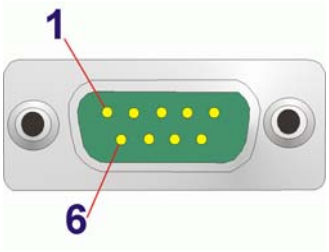



**Figure 3-26: Serial Port Pinouts**

### 3.3.6 USB Connectors

**CN Label:** **USB1** and **USB2**

**CN Type:** USB port

**CN Location:** See **Figure 3-22**

**CN Pinouts:** See **Table 3-28**

The KINO-QM57A has four external USB 2.0 ports. The ports connect to both USB 2.0 and USB 1.1 devices.

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | VCC | 5 | VCC |
| 2 | DATA- | 6 | DATA- |
| 3 | DATA+ | 7 | DATA+ |
| 4 | GROUND | 8 | GROUND |

**Table 3-28: USB Port Connector Pinouts (USB1_2)**

### 3.3.7 VGA Connector

**CN Label:** **CRT1**

**CN Type:** 15-pin Female

**CN Location:** See **Figure 3-22**

**CN Pinouts:** See **Figure 3-27** and **Table 3-29**

The KINO-QM57A has a single 15-pin female connector for connectivity to standard display devices.

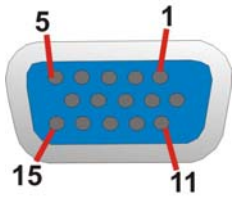



**Figure 3-27: VGA Connector**

| PIN | DESCRIPTION | PIN | DESCRIPTION |
|---|---|---|---|
| 1 | RED | 9 | VGAVCC |
| 2 | GREEN | 10 | GROUND |
| 3 | BLUE | 11 | NC |
| 4 | NC | 12 | DDCDAT |
| 5 | GROUND | 13 | HSYNC |
| 6 | GROUND | 14 | VSYNC |
| 7 | GROUND | 15 | DDCCLK |
| 8 | GROUND | | |

**Table 3-29: VGA Connector Pinouts**

Chapter

4

# Installation

## 4.1 Anti-static Precautions

**WARNING:**

Failure to take ESD precautions during the installation of the KINO-QM57A may result in permanent damage to the KINO-QM57A and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the KINO-QM57A. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the KINO-QM57A, 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 KINO-QM57A, place it on an antic-static pad. This reduces the possibility of ESD damaging the KINO-QM57A.
- ***Only handle the edges of the PCB***:-: When handling the PCB, hold the PCB by the edges.

## 4.2 Installation Considerations

**NOTE:**

The following installation notices and installation considerations should be read and understood before the KINO-QM57A is installed. All installation notices pertaining to the installation of the KINO-QM57A should be strictly adhered to. Failing to adhere to these precautions may lead to severe damage of the KINO-QM57A and injury to the person installing the motherboard.

### 4.2.1 Installation Notices

**WARNING:**

The installation instructions described in this manual should be carefully followed in order to prevent damage to the KINO-QM57A, KINO-QM57A components and injury to the user.

Before and during the installation please **DO** the following:

- Read the user manual:
  - The user manual provides a complete description of the KINO-QM57A installation instructions and configuration options.
- Wear an electrostatic discharge cuff (ESD):
  - Electronic components are easily damaged by ESD. Wearing an ESD cuff removes ESD from the body and helps prevent ESD damage.
- Place the KINO-QM57A on an antistatic pad:
  - When installing or configuring the motherboard, place it on an antistatic pad. This helps to prevent potential ESD damage.
- Turn all power to the KINO-QM57A off:

- When working with the KINO-QM57A, make sure that it is disconnected from all power supplies and that no electricity is being fed into the system.

Before and during the installation of the KINO-QM57A **DO NOT:**

- Remove any of the stickers on the PCB board. These stickers are required for warranty validation.
- Use the product before verifying all the cables and power connectors are properly connected.
- Allow screws to come in contact with the PCB circuit, connector pins, or its components.

## 4.3 Unpacking

When the KINO-QM57A is unpacked, please check all the unpacking list items listed in Chapter 3 are indeed present. If any of the unpacking list items are not available please contact the KINO-QM57A vendor reseller/vendor where the KINO-QM57A was purchased or contact an IEI sales representative.

## 4.4 CPU, CPU Cooling Kit and SO-DIMM Installation

**WARNING:**

A CPU should never be turned on without the specified cooling kit being installed. If the cooling kit (heat sink and fan) is not properly installed and the system turned on, permanent damage to the CPU, KINO-QM57A and other electronic components attached to the system may be incurred. Running a CPU without a cooling kit may also result in injury to the user.

The CPU, CPU cooling kit and DIMM are the most critical components of the KINO-QM57A. If one of these component is not installed the KINO-QM57A cannot run.

### 4.4.1 Socket G CPU Installation

**WARNING:**

CPUs are expensive and sensitive components. When installing the CPU please be careful not to damage it in anyway. Make sure the CPU is installed properly and ensure the correct cooling kit is properly installed.

To install a socket G CPU onto the KINO-QM57A, follow the steps below:

**WARNING:**

When handling the CPU, only hold it on the sides. DO NOT touch the pins at the bottom of the CPU.

**Step 1:** **Unlock the CPU retention screw.** When shipped, the retention screw of the CPU socket should be in the unlocked position. If it is not in the unlocked position, use a screwdriver to unlock the screw. See **Figure 4-1**.

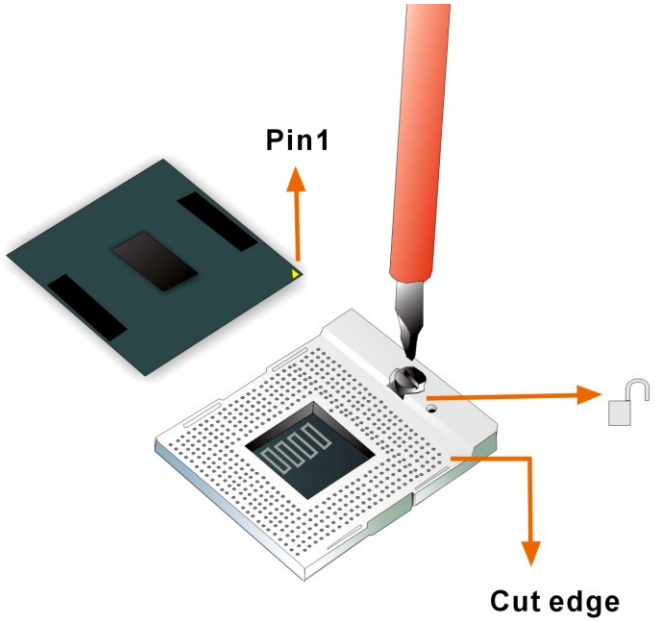



**Figure 4-1: Make sure the CPU socket retention screw is unlocked**

**Step 2:** **Inspect the CPU socket.** Make sure there are no bent pins and make sure the socket contacts are free of foreign material. If any debris is found, remove it with compressed air.

**Step 3:** **Correctly Orientate the CPU**. Make sure the IHS (integrated heat sink) side is facing upwards.

**Step 4:** **Correctly position the CPU.** Match the Pin 1 mark with the cut edge on the CPU socket. See **Figure 4-1**.

**Step 5:** **Align the CPU pins.** Carefully align the CPU pins with the holes in the CPU socket.

**Step 6:** **Insert the CPU.** Gently insert the CPU into the socket. If the CPU pins are properly aligned, the CPU should slide into the CPU socket smoothly.

**Step 7:** **Lock the retention screw.** Rotate the retention screw into the locked position. See **Figure 4-2**.

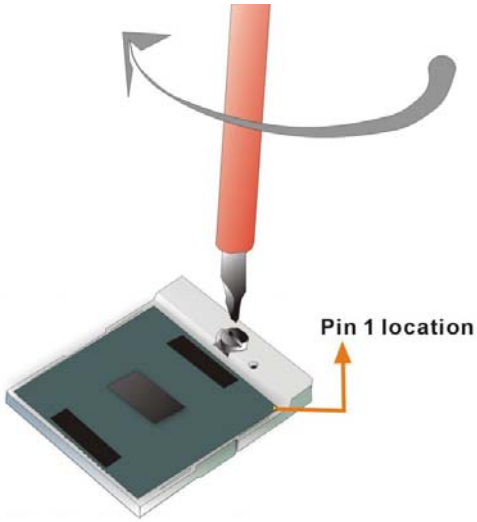



**Figure 4-2: Lock the CPU Socket Retention Screw**

### 4.4.2 Socket G Cooling Kit Installation

An IEI Socket G CPU cooling kit can be purchased separately. (See **Chapter 3**) The cooling kit comprises a CPU heat sink and a cooling fan.

**WARNING:**

Do not wipe off (accidentally or otherwise) the pre-sprayed layer of thermal paste on the bottom of the heat sink. The thermal paste between the CPU and the heat sink is important for optimum heat dissipation.

To install the cooling kit, please follow the steps below.

**Step 1:** **Install the cooling kit bracket**. A cooling kit bracket is installed on the rear of the motherboard. Align the bracket with the four retention holes at the back of the motherboard. Once properly aligned, insert four retention screws from the front of the motherboard.

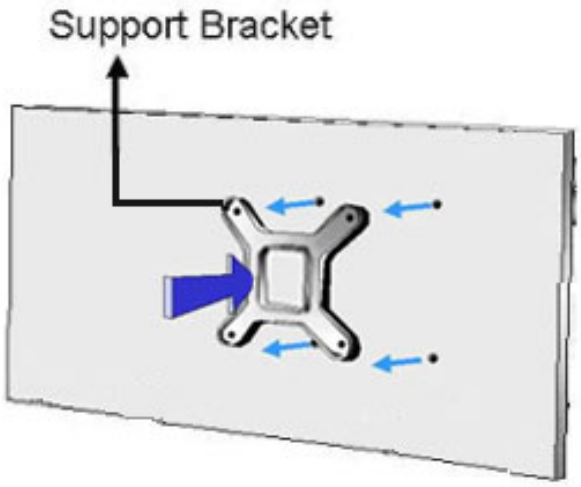



**Figure 4-3: Cooling Kit Support Bracket**

**Step 2:** **Open the lever at the top of the heat sink**. Lift the lever at the top of the cooling kit to loosen the cooling kit clamps.

**Step 3:** **Secure the cooling kit**. Gently place the heat sink and cooling kit onto the CPU. Make sure the hooks are properly secured to the bracket. To secure the cooling kit, close the top lever.

**Step 4:** **Connect the fan cable**. Connect the cooling kit fan cable to the fan connector on the KINO-QM57A. Carefully route the cable and avoid heat generating chips and fan blades.

### 4.4.3 SO-DIMM Installation

To install an SO-DIMM, please follow the steps below and refer to **Figure 4-4**.

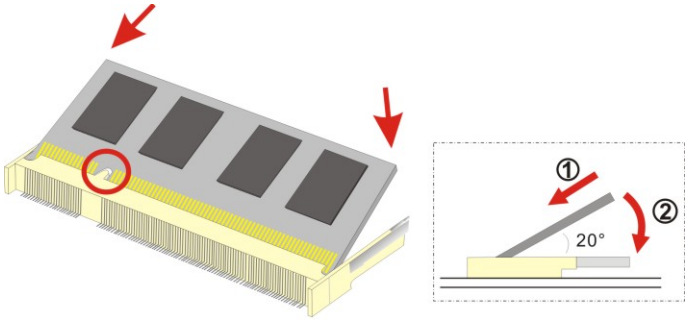



**Figure 4-4: SO-DIMM Installation**

**Step 1:** **Locate the SO-DIMM socket**. Place the board on an anti-static mat.

**Step 2:** **Align the SO-DIMM with the socket**. Align the notch on the memory with the notch on the memory socket.

**Step 3:** **Insert the SO-DIMM**. Push the memory in at a 20º angle. (See **Figure 4-4**)

**Step 4:** **Seat the SO-DIMM**. Gently push downwards and the arms clip into place. (See **Figure 4-4**)

## 4.5 Jumper Settings

**NOTE:**

A jumper is a metal bridge used to close an electrical circuit. It consists of two or three metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To CLOSE/SHORT a jumper means connecting the pins of the jumper with the plastic clip and to OPEN a jumper means removing the plastic clip from a jumper.

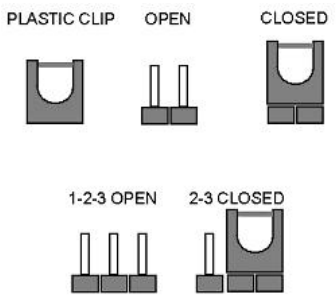



**Figure 4-5: Jumper Locations**

Before the KINO-QM57A is installed in the system, the jumpers must be set in accordance with the desired configuration. The jumpers on the KINO-QM57A are listed in **Table 4-1**.

| Description | Type | Label |
|---|---|---|
| AT Power Mode Setting | 3-pin header | J_ATXCTL1 |
| Clear CMOS | 3-pin header | J_CMOS1 |
| COM4 Function Select | 8-pin header | JP2 |
| LVDS Panel Resolution | 8-pin header | J_PID1 |
| LVDS Voltage Select | 3-pin header | J_VLVDS1 |
| ME RTC Register | 3-pin header | J_ME_RTC1 |
| SPI ROM Program Select | 3-pin header | J_SPI |
| iTPM Enable (Reserved) | 3-pin header | J_ITPM1 |

**Table 4-1: Jumpers**

### 4.5.1 AT Power Select Jumper Settings

**Jumper Label:** **J_ATXCTL1**

**Jumper Type:** 3-pin header (1x3)

**Jumper Settings:** See **Table 4-2**

**Jumper Location:** See **Figure 4-6**

The AT Power Select jumper specifies the systems power mode as AT or ATX. AT Power Select jumper settings are shown in **Table 4-2**.

| AT Power Select | Description | |
|---|---|---|
| **Short 1 - 2** | Use ATX power | Default |
| **Short 2 – 3** | Use AT power | |

**Table 4-2: AT Power Select Jumper Settings**

The location of the AT Power Select jumper is shown in **Figure 4-6** below.

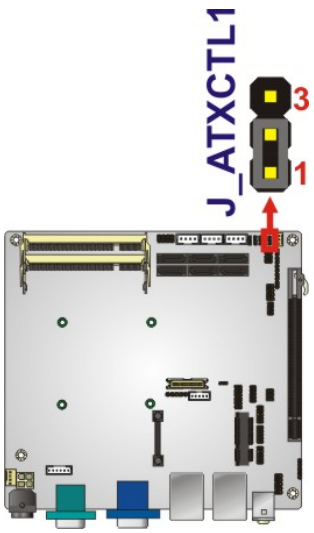



**Figure 4-6: AT Power Select Jumper Location**

### 4.5.2 Clear CMOS Jumper

| | |
|---|---|
| **Jumper Label:** | **J_CMOS1** |
| **Jumper Type:** | 3-pin header (1x3) |
| **Jumper Settings:** | See **Table 4-3** |
| **Jumper Location:** | See **Figure 4-7** |

If the KINO-QM57A fails to boot due to improper BIOS settings, the clear CMOS jumper clears the CMOS data and resets the system BIOS information. To do this, use the jumper cap to close pins 2 and 3 for a few seconds then reinstall the jumper clip back to pins 1 and 2.

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

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

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

The clear CMOS jumper settings are shown in **Table 4-3**.

| Clear CMOS | Description | |
|---|---|---|
| **Short 1 - 2** | Keep CMOS Setup | Default |
| **Short 2 - 3** | Clear CMOS Setup | |

**Table 4-3: Clear CMOS Jumper Settings**

The location of the clear CMOS jumper is shown in **Figure 4-7** below.

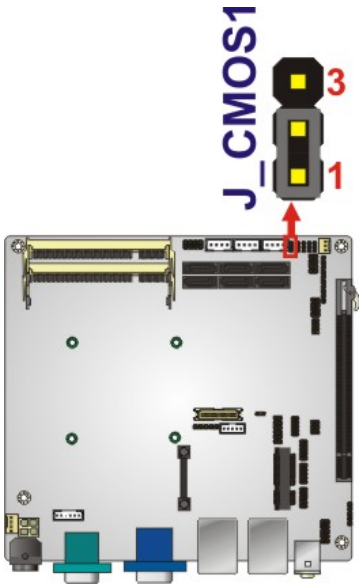



**Figure 4-7: Clear CMOS Jumper**

### 4.5.3 COM 4 Function Select Jumper

**Jumper Label:** **JP2**

**Jumper Type:** 8-pin header (2x4)

**Jumper Settings:** See **Table 4-4**

**Jumper Location:** See **Figure 4-8**

The COM 4 Function Select jumper sets the communication protocol used by the second serial communications port (COM 4) as RS-232, RS-422 or RS-485. The COM 2 Function Select settings are shown in **Table 4-4**.

| Setting | Description | |
|---|---|---|
| **Short 1-2** | RS-232 | Default |
| **Short 3-4** | RS-422 | |
| **Short 5-6** | RS-485 | |

**Table 4-4: COM 4 Function Select Jumper Settings**

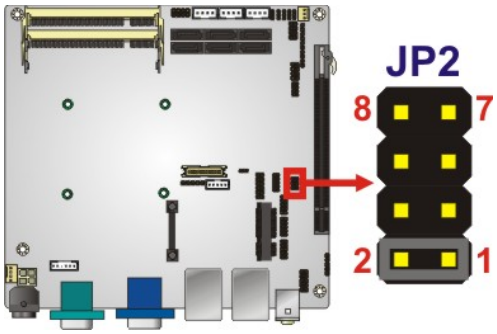



**Figure 4-8: COM 4 Function Select Jumper Location**

### 4.5.4 LVDS Panel Resolution Jumper

**Jumper Label:** **J_PID1**

**Jumper Type:** 8-pin header (2x4)

**Jumper Settings:** See **Table 4-5**

**Jumper Location:** See **Figure 4-9**

The LVDS Panel Resolution jumper allows the resolution of the LVDS screens connected to the LVDS1 connector to be configured. The LVDS Panel Resolution jumper settings are shown in **Table 4-5**.

| Setting | Description | |
|---|---|---|
| Open | LVDS1 800 x 600 (18-bit) | |
| Short 1-2 | LVDS1 1024 x 768 (18-bit) | |
| Short 3-4 | LVDS1 1024 x 768 (24-bit) | Default |
| Short 1-2, 3-4 | LVDS1 1280 x 800 (18-bit) | |
| Short 5-6 | LVDS1 1280 x 1024 (48-bit) | |
| Short 1-2, 5-6 | LVDS1 1366 x 768 (18-bit) | |
| Short 3-4, 5-6 | LVDS1 1400 x 1050 (48-bit) | |
| Short 1-2, 3-4, 5-6 | LVDS1 1440 x 900 (48-bit) | |
| Short 7-8 | LVDS1 1600 x 900 (48-bit) | |
| Short 1-2, 7-8 | LVDS1 1600 x 1200 (48-bit) | |
| Short 3-4, 7-8 | LVDS1 1680 x 1050 (48-bit) | |
| Short 1-2, 3-4, 7-8 | LVDS1 1920 x 1080 (48-bit) | |
| Short 5-6, 7-8 | LVDS1 1920 x 1200 (48-bit) | |
| Short 1-2, 5-6, 7-8 | LVDS1 2048 x 1536 (48-bit) | |

**Table 4-5: LVDS Panel Resolution Jumper Settings**

The LVDS Panel Resolution jumper location is shown in **Figure 4-9**.

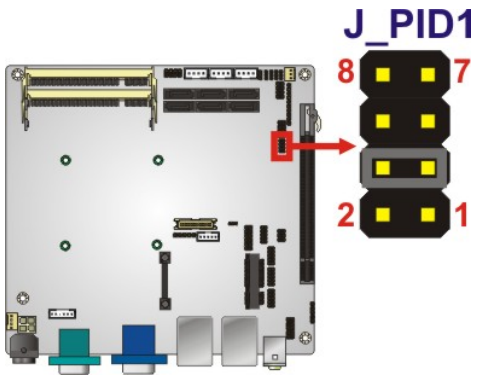



**Figure 4-9: LVDS Panel Resolution Jumper Pinout Locations**

### 4.5.5 LVDS Voltage Selection

**WARNING:**

Permanent damage to the screen and KINO-QM57A may occur if the wrong voltage is selected with this jumper. Please refer to the user guide that cam with the monitor to select the correct voltage.

| | |
|---|---|
| **Jumper Label:** | **J_VLVDS1** |
| **Jumper Type:** | 3-pin header (1x3) |
| **Jumper Settings:** | See **Table 4-6** |
| **Jumper Location:** | See **Figure 4-10** |

The **LVDS Voltage Selection** jumpers allow the LVDS screen voltages to be set. The jumper sets the voltage connected to LVDS1. The **LVDS Voltage Selection** jumper settings are shown in **Table 4-6**.

| LCD Voltage Select | Description | |
|---|---|---|
| **Short 1-2** | +3.3V | Default |
| **Short 2-3** | +5V | |

**Table 4-6: LVDS Voltage Selection Jumper Settings**

The LVDS Voltage Selection jumper location is shown in **Figure 4-10**.

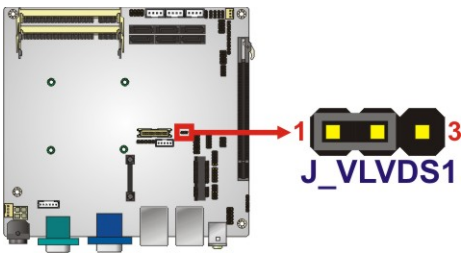



**Figure 4-10: LVDS Voltage Selection Jumper Pinout Locations**

### 4.5.6 ME RTC Register Jumper

| | |
|---|---|
| **Jumper Label:** | **J_ME_RTC1** |
| **Jumper Type:** | 3-pin header |
| **Jumper Settings:** | See **Table 4-7** |
| **Jumper Location:** | See **Figure 4-11** |

The ME RTC Register jumper saves or clears the ME RTC registers. The ME RTC Register jumper settings are shown in **Table 4-3**.

| Setting | Description | |
|---|---|---|
| Short 1-2 | Save ME RTC registers (normal operation) | Default |
| Short 2-3 | Clear ME RTC registers | |

**Table 4-7: ME RTC Register Jumper Settings**

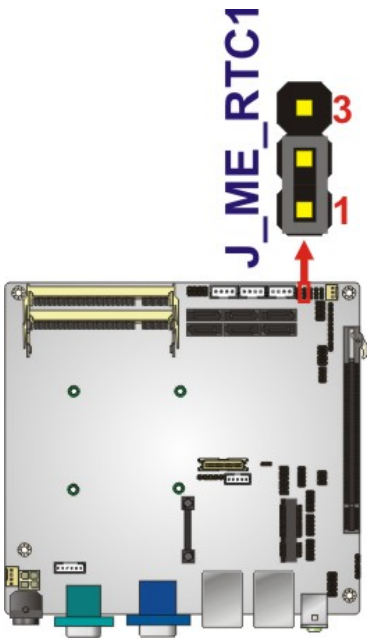



**Figure 4-11: ME RTC Register Jumper Location**

### 4.5.7 SPI ROM Program Select Jumper

| | |
|---|---|
| **Jumper Label:** | **J_SPI** |
| **Jumper Type:** | 3-pin header |
| **Jumper Settings:** | See **Table 4-8** |
| **Jumper Location:** | See **Figure 4-12** |

The SPI ROM Program Select jumper saves or clears the ME RTC registers. The SPI ROM Program Select jumper settings are shown in **Table 4-3**.

| Setting | Description | |
|---|---|---|
| Short 1-2 | Program SPI0 | Default |
| Short 2-3 | Program SPI1 | Reserved |

**Table 4-8: SPI ROM Program Select Jumper Settings**

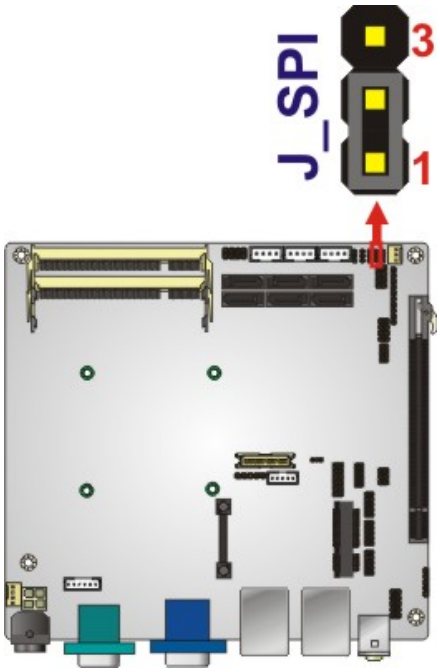



**Figure 4-12: SPI ROM Program Select Jumper Location**

### 4.5.8 iTPM Enable Jumper (Reserved)

**NOTE:**

Intel® does not support iTPM function for Intel® QM57 chipset when writing this manual. The iTPM Enable Jumper is reserved for future use.

| | |
|---|---|
| **Jumper Label:** | **J_ITPM1** |
| **Jumper Type:** | 3-pin header |
| **Jumper Settings:** | See **Table 4-9** |
| **Jumper Location:** | See **Figure 4-13** |

The iTPM enable jumper enables or disables the iTPM function. The iTPM enable jumper settings are shown in **Table 4-3**.

| Setting | Description | |
|---|---|---|
| Short 1-2 | Disable iTPM | |
| Short 2-3 | Enable iTPM | Default |

**Table 4-9: iTPM Enable Jumper Settings (Reserved)**

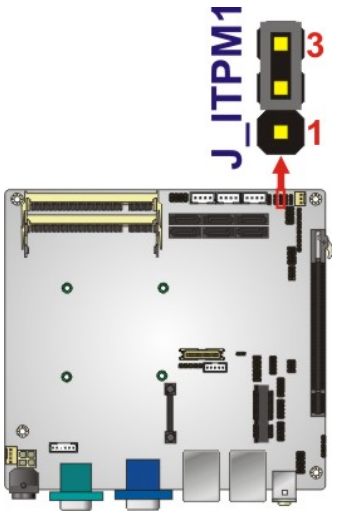



**Figure 4-13: iTPM Enable Jumper Location**

## 4.6 Chassis Installation

### 4.6.1 Airflow

**WARNING:**

Airflow is critical to the cooling of the CPU and other onboard components. The chassis in which the KINO-QM57A must have air vents to allow cool air to move into the system and hot air to move out.

The KINO-QM57A must be installed in a chassis with ventilation holes on the sides allowing airflow to travel through the heat sink surface. In a system with an individual power supply unit, the cooling fan of a power supply can also help generate airflow through the board surface.

### 4.6.2 Motherboard Installation

To install the KINO-QM57A motherboard into the chassis please refer to the reference material that came with the chassis.

## 4.7 Internal Peripheral Device Connections

This section outlines the installation of peripheral devices to the onboard connectors

### 4.7.1 Dual RS-232 Cable with Slot Bracket

The dual RS-232 cable slot connector consists of two connectors attached to two independent cables. Each cable is then attached to a D-sub 9 male connector that is mounted onto a slot. To install the dual RS-232 cable, please follow the steps below.

**Step 1:** **Locate the connectors**. The locations of the RS-232 connectors are shown in **Chapter 3**.

**Step 2:** **Insert the cable connectors**. Insert one connector into each serial port box headers. See Figure 4-14. A key on the front of the cable connectors ensures the connector can only be installed in one direction.

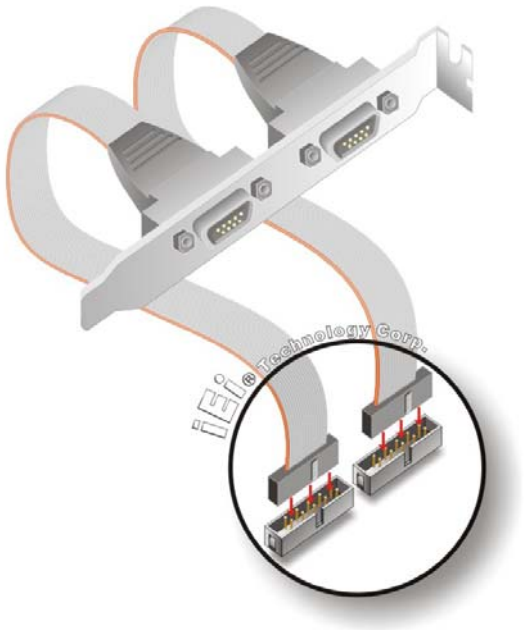


**Figure 4-14: Dual RS-232 Cable Installation**

**Step 3:** **Secure the bracket**. The dual RS-232 connector has two D-sub 9 male connectors secured on a bracket. To secure the bracket to the chassis please refer to the reference material that came with the chassis.

## 4.8 External Peripheral Interface Connection

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

- Audio devices
- HDMI devices
- RJ-45 Ethernet cable connectors
- RS-232 serial port
- USB devices
- VGA monitors

To install these devices, connect the corresponding cable connector from the actual device to the corresponding KINO-QM57A external peripheral interface connector making sure the pins are properly aligned.

### 4.8.1 Audio Connector

The audio jacks on the external audio connector enable the KINO-QM57A 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.

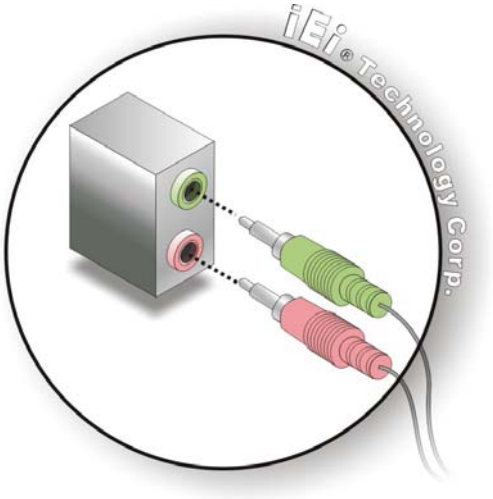


**Figure 4-15: Audio Connector**

**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.

### 4.8.2 LAN and USB Connection

There are two external RJ-45 LAN connectors and four USB connectors on the KINO-QM57A. The RJ-45 connectors enable connection to an external network. The external USB Series "A" receptacle connectors provide easier and quicker access to external USB devices. Follow the steps below to connect USB devices and LAN cable to the KINO-QM57A.

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

**Step 2:** **Align the connectors.** Align the RJ-45 connector on the LAN cable with one of the RJ-45 connectors on the KINO-QM57A.

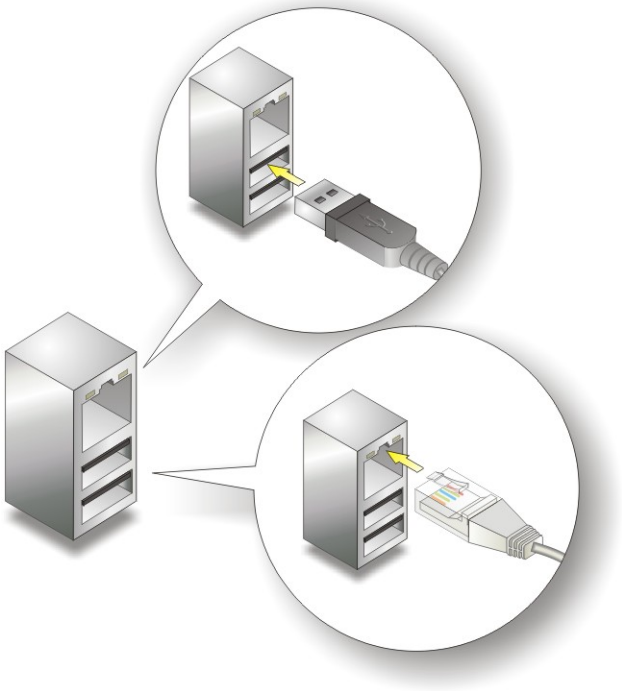


**Figure 4-16: LAN Connection**

**Step 3:** **Insert the LAN cable RJ-45 connector.** Once aligned, gently insert the LAN cable RJ-45 connector into the onboard RJ-45 connector. See **Figure 4-16**.

**Step 4:** **Insert a USB Series "A" plug**. Insert the USB Series "A" plug of a device into the USB Series "A" receptacle on the external peripheral interface. See **Figure 4-16**.

### 4.8.3 Serial Device Connection

The KINO-QM57A has a single female DB-9 connector on the external peripheral interface panel for a serial device. Follow the steps below to connect a serial device to the KINO-QM57A.

**Step 1:** **Locate the DB-9 connector**. The location of the DB-9 connector is shown in **Chapter 3**.

**Step 2:** **Insert the serial connector**. Insert the DB-9 connector of a serial device into the DB-9 connector on the external peripheral interface. See **Figure 4-17**.

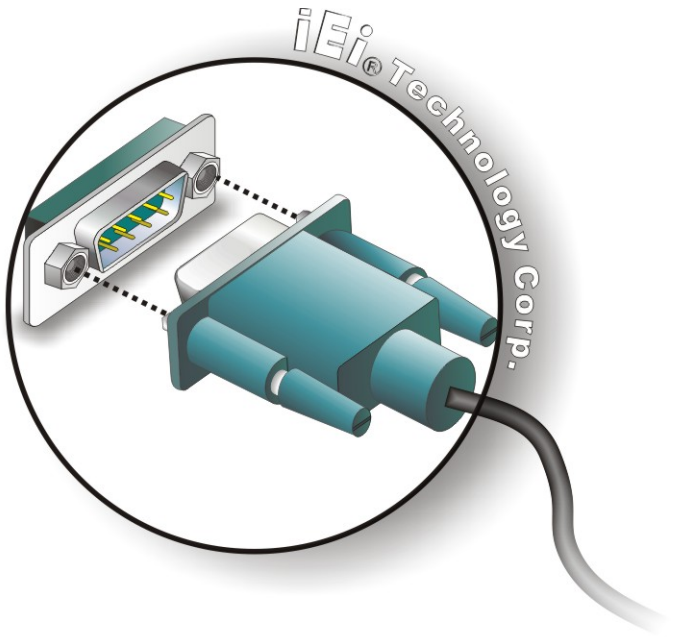


**Figure 4-17: Serial Device Connector**

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

### 4.8.4 VGA Monitor Connection

The KINO-QM57A 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 KINO-QM57A, please follow the instructions below.

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

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

**Step 3:** **Insert the VGA connector**. Once the connectors are properly aligned with the insert the male connector from the VGA screen into the female connector on the KINO-QM57A. See **Figure 4-18**.

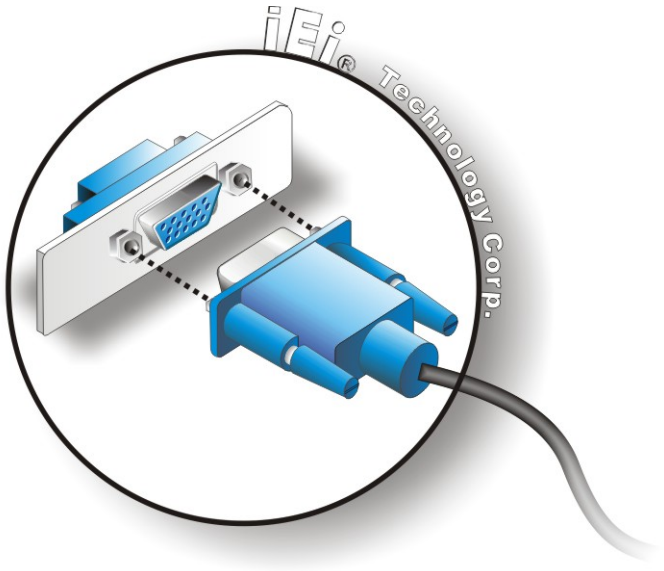


**Figure 4-18: VGA Connector**

**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.

## 4.9 Software Installation

All the drivers for the KINO-QM57A are on the CD that came with the system. To install the drivers, please follow the steps below.

**Step 1:** Insert the CD into a CD drive connected to the system.

**NOTE:**

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

**Step 2:** The driver main menu appears (**Figure 4-19**).

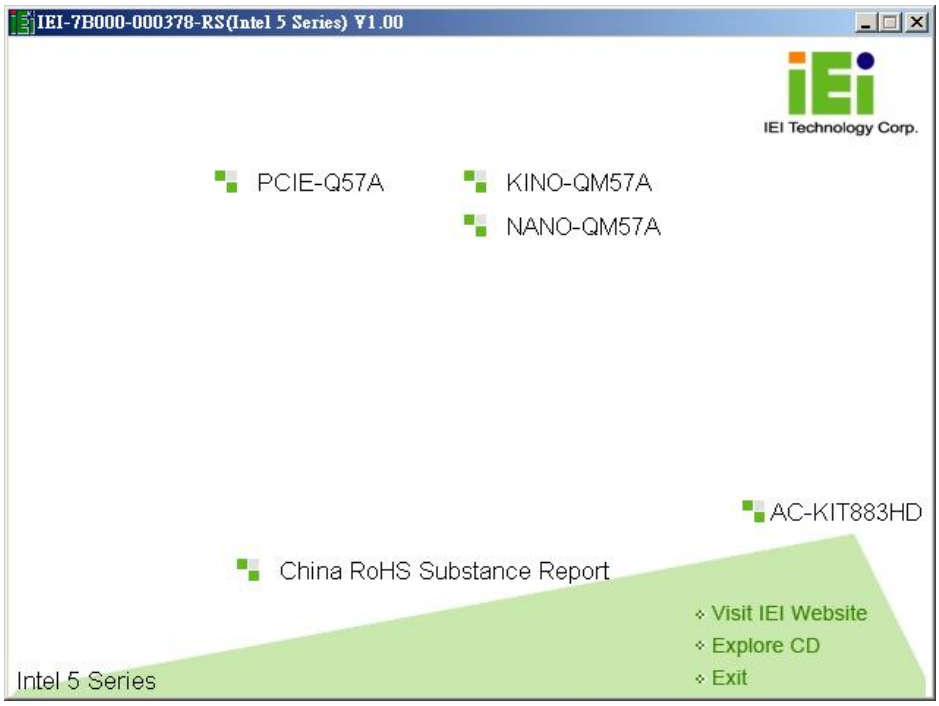



**Figure 4-19: Introduction Screen**

**Step 3:** Click **KINO-QM57A**.

**Step 4:** A new screen with a list of available drivers appears (**Figure 4-20**).


**Figure 4-20: Available Drivers**

**Step 5:** Install all of the necessary drivers in this menu.

Chapter

5

# BIOS Screens

# 5.1 Introduction

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

## 5.1.1 Starting Setup

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

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

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

## 5.1.2 Using Setup

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

| Key | Function |
|---|---|
| Up arrow | Move to previous item |
| Down arrow | Move to next item |
| Left arrow | Move to the item on the left hand side |
| Right arrow | Move to the item on the right hand side |
| Esc key | Main Menu – Quit and not save changes into CMOS<br>Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu |
| 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 |

| Key | Function |
|---|---|
| F4 key | Save all the CMOS changes |

**Table 5-1: BIOS Navigation Keys**

### 5.1.3 Getting Help

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

### 5.1.4 Unable to Reboot After Configuration Changes

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

### 5.1.5 BIOS Menu Bar

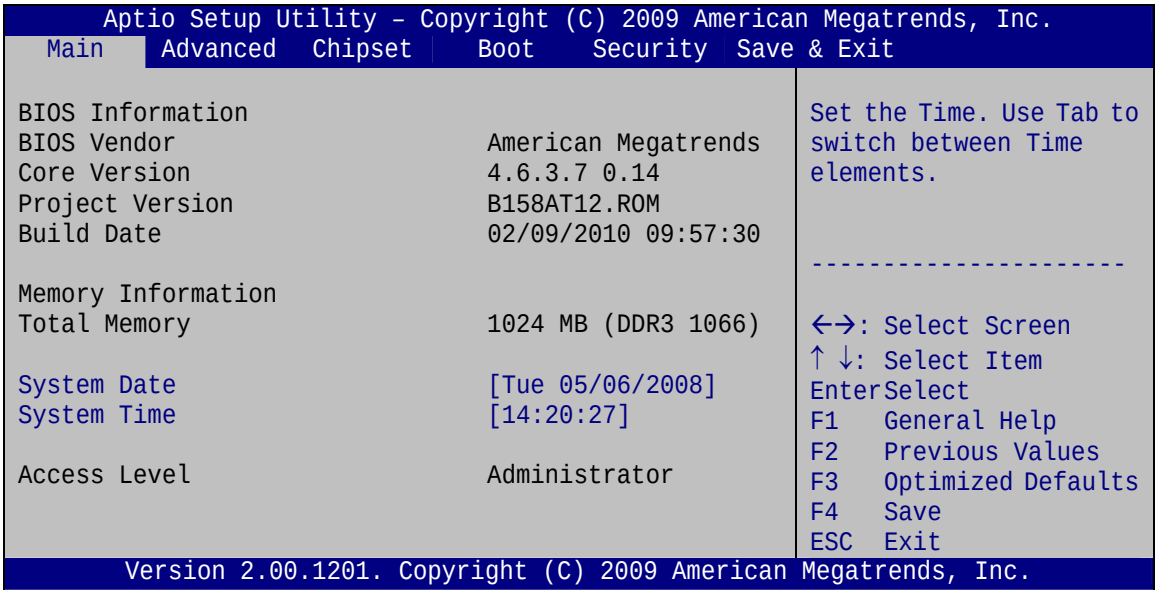
The **menu bar** on top of the BIOS screen has the following main items:

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

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

## 5.2 Main

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




**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
- **Project Version:** the board version
- **Build Date:** Date the current BIOS version was made

### ➔ 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.

## 5.3 Advanced

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

**WARNING!**

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

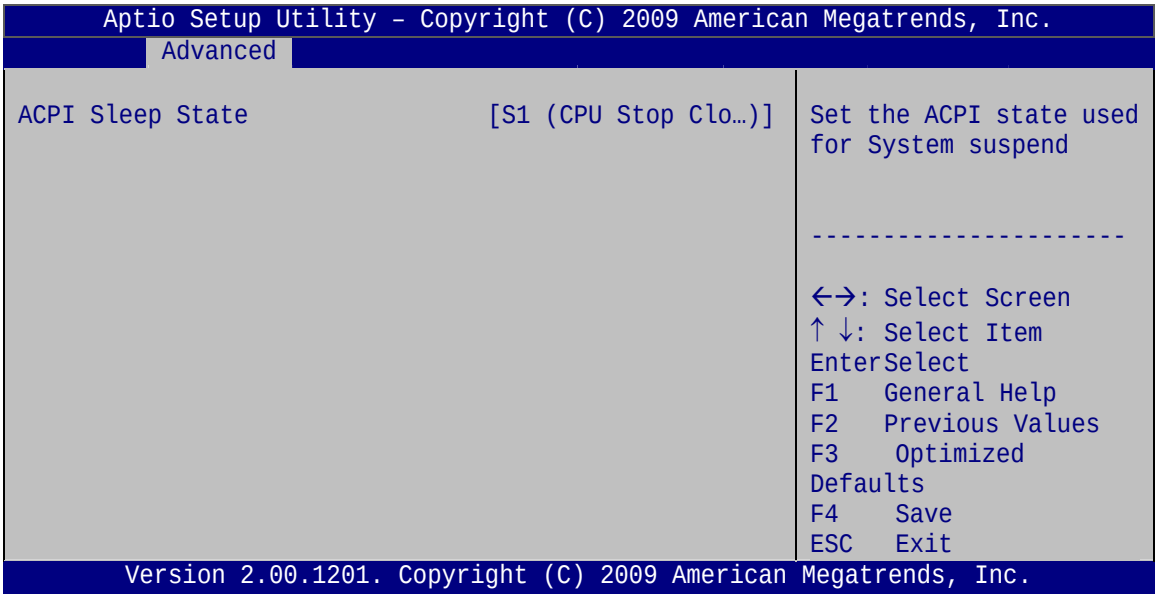
```
        Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.
  Main    Advanced   Chipset    Boot    Security   Save & Exit

> ACPI Settings                                   System ACPI Parameters
> CPU Configuration
> SATA Configuration
> USB Configuration
> Super IO Configuration                          ----------------------
> H/M Monitor
> AMT Configuration                               ←→: Select Screen
> Serial Port Console Redirection                 ↑ ↓: Select Item
                                                  EnterSelect
                                                  F1   General Help
                                                  F2   Previous Values
                                                  F3    Optimized
                                                  Defaults
                                                  F4    Save
                                                  ESC   Exit
        Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```

**BIOS Menu 2: Advanced**

### 5.3.1 ACPI Configuration

The **ACPI Configuration** 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)]**

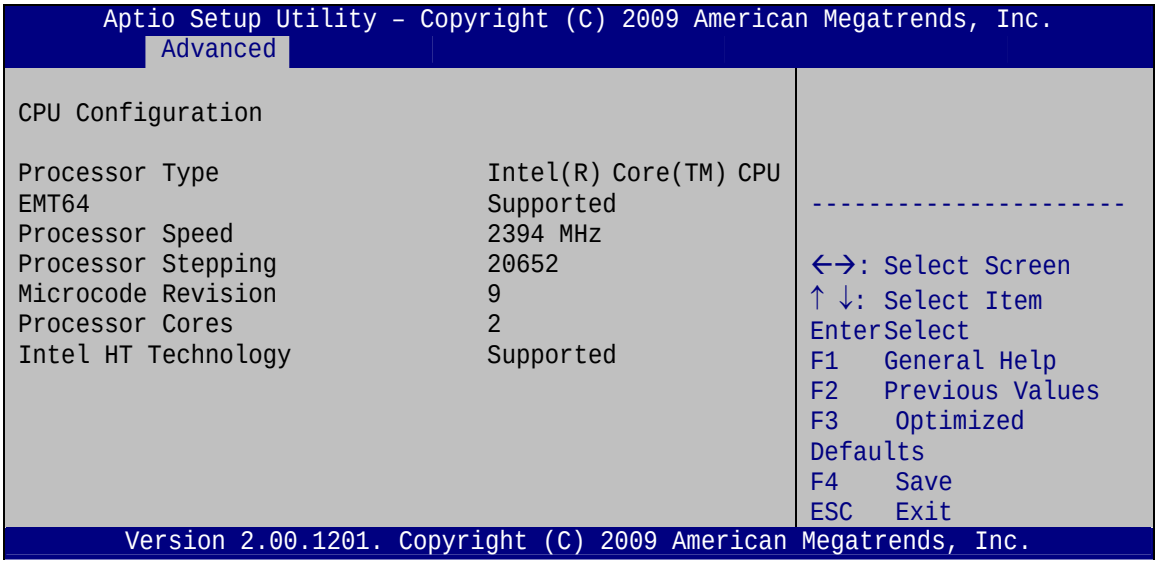
Use the **ACPI Sleep State** option to specify the sleep state the system enters when it is not being used.

➔ **S1 (CPU Stop Clock)** **DEFAULT** The system enters S1(POS) sleep state. The system appears off. The CPU is stopped; RAM is refreshed; the system is running in a low power mode.

➔ **S3 (Suspend to RAM)** The caches are flushed and the CPU is powered off. Power to the RAM is maintained. The computer returns slower to a working state, but more power is saved.

### 5.3.2 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 4**) to view detailed CPU specifications and configure the CPU.



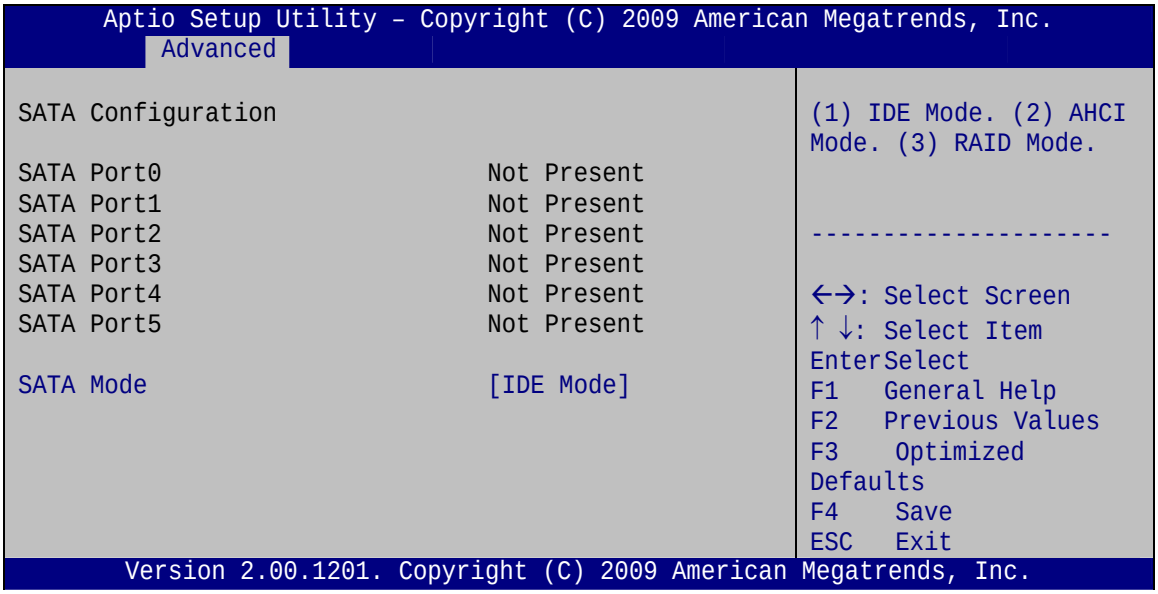

**BIOS Menu 4: CPU Configuration**

The CPU Configuration menu (**BIOS Menu 4**) lists the following CPU details:

- Processor Type: Lists the brand name of the CPU being used
- EMT64: Indicates if the EM64T is supported by the CPU.
- Processor Speed: Lists the CPU processing speed
- Processor Stepping: Lists the CPU processing stepping
- Microcode Revision: Lists the microcode revision
- Processor Cores: Lists the number of the processor core
- Intel HT Technology: Indicates if the Intel HT Technology is supported by the CPU.

### 5.3.3 SATA Configuration

Use the **SATA Configuration** menu (**BIOS Menu 5**) to change and/or set the configuration of the SATA devices installed in the system.




**BIOS Menu 5: IDE Configuration**

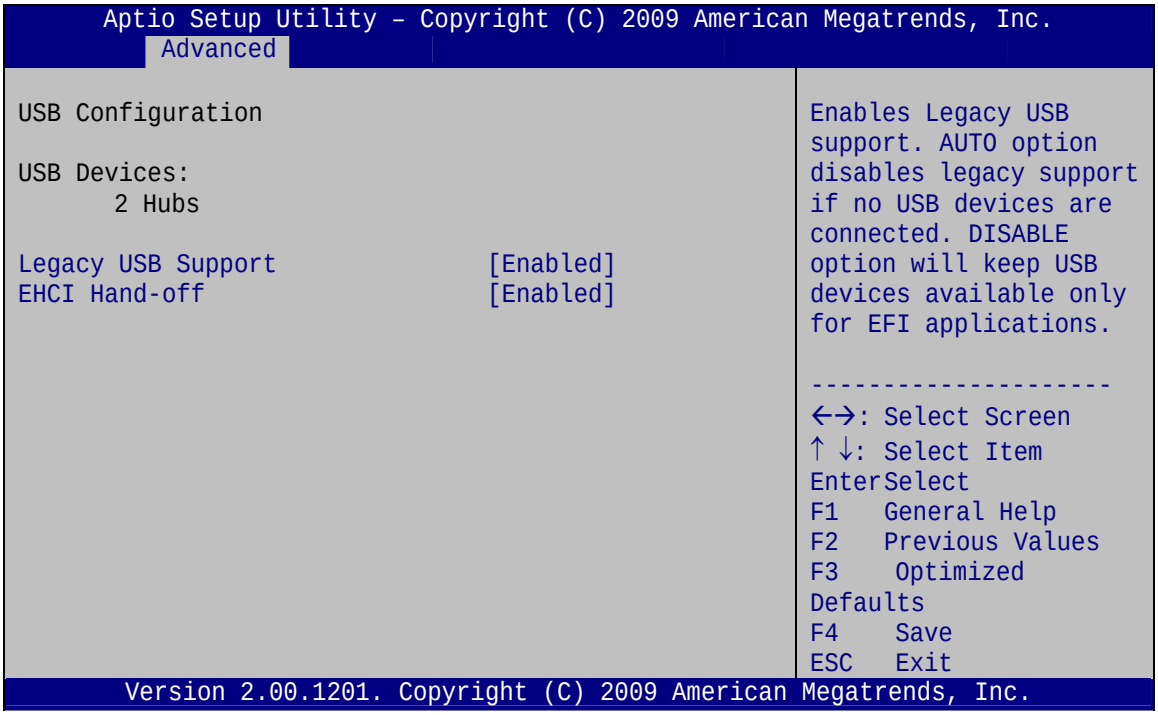
➔ **SATA Mode [IDE Mode]**

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. |
| ➔ | **AHCI Mode** | | Configures SATA devices as AHCI device. |
| ➔ | **RAID Mode** | | Configures SATA devices as RAID device. |

### 5.3.4 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 6**) to read USB configuration information and configure the USB settings.




**BIOS Menu 6: USB Configuration**

➔ **USB Devices**

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

➔ **Legacy USB Support [Enabled]**

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

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

➔ **EHCI Hand-off [Enabled]**

This is a workaround for system without EHCI hand-off support. The EHCI is a high speed controller standard.

| | | |
|---|---|---|
| ➔ **Disabled** | | ECHI hand-off function support disabled |
| ➔ **Enabled** | **DEFAULT** | ECHI hand-off function support enabled |

### 5.3.5 Super IO Configuration

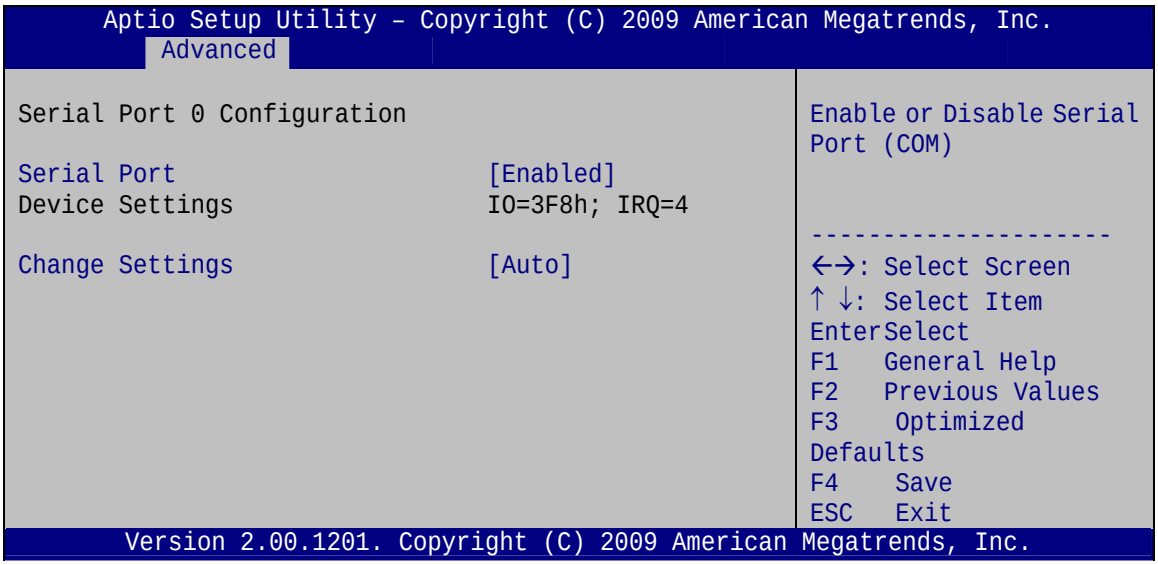
Use the **Super IO Configuration** menu (**BIOS Menu 7**) to set or change the configurations for the FDD controllers, parallel ports and serial ports.

```
      Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.
          Advanced
 Super IO Configuration                          | Set Parameters of Serial
                                                 | Port 0 (COMA)
 Super IO Chip                    Finteck F81865 |
 > Serial Port 0 Configuration                   |
 > Serial Port 1 Configuration                   | ---------------------
 > Serial Port 2 Configuration                   | ←→: Select Screen
 > Serial Port 3 Configuration                   | ↑ ↓: Select Item
                                                 | EnterSelect
                                                 | F1   General Help
                                                 | F2   Previous Values
                                                 | F3    Optimized
                                                 | Defaults
                                                 | F4    Save
                                                 | ESC   Exit
      Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```

**BIOS Menu 7: Super IO Configuration**

### 5.3.5.1 Serial Port n Configuration

Use the **Serial Port n Configuration** menu (**BIOS Menu 8**) to configure the serial port n.




**BIOS Menu 8: Serial Port n Configuration Menu**

#### 5.3.5.1.1 Serial Port 0 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=3E8h; IRQ=4** | | Serial Port I/O port address is 3E8h and the interrupt address is IRQ4 |
| ➔ **IO=2F8h; IRQ=3** | | Serial Port I/O port address is 2F8h and the interrupt address is IRQ3 |
| ➔ **IO=2C0h; IRQ=3, 4** | | Serial Port I/O port address is 2C0h and the interrupt address is IRQ3, 4 |
| ➔ **IO=2C8h; IRQ=3, 4** | | Serial Port I/O port address is 2C8h and the interrupt address is IRQ3, 4 |

#### 5.3.5.1.2 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=2F8h; IRQ=3** | | Serial Port I/O port address is 2F8h and the interrupt address is IRQ3 |
| ➔ **IO=3F8h; IRQ=4** | | Serial Port I/O port address is 3F8h and the interrupt address is IRQ4 |
| ➔ **IO=2F8h; IRQ=3** | | Serial Port I/O port address is 2F8h and the interrupt address is IRQ3 |
| ➔ **IO=2C0h; IRQ=3, 4** | | Serial Port I/O port address is 2C0h and the interrupt address is IRQ3, 4 |

| | | |
|---|---|---|
| ➔ **IO=2C8h; IRQ=3, 4** | | Serial Port I/O port address is 2C8h and the interrupt address is IRQ3, 4 |

#### 5.3.5.1.3 Serial Port 2 Configuration

➔ **Serial Port [Enabled]**

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

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

➔ **Change Settings [Auto]**

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

| | | |
|---|---|---|
| ➔ **Auto** | **DEFAULT** | The serial port IO port address and interrupt address are automatically detected. |
| ➔ **IO=3E8h; IRQ=11** | | Serial Port I/O port address is 3E8h and the interrupt address is IRQ11 |
| ➔ **IO=3E8h; IRQ=10, 11** | | Serial Port I/O port address is 3E8h and the interrupt address is IRQ10, 11 |
| ➔ **IO=2E8h; IRQ=10, 11** | | Serial Port I/O port address is 2E8h and the interrupt address is IRQ10, 11 |
| ➔ **IO=2E0h; IRQ=10, 11** | | Serial Port I/O port address is 2E0h and the interrupt address is IRQ10, 11 |
| ➔ **IO=2D0h; IRQ=10, 11** | | Serial Port I/O port address is 2D0h and the interrupt address is IRQ10, 11 |
| ➔ **IO=2D8h; IRQ=10, 11** | | Serial Port I/O port address is 2D8h and the interrupt address is IRQ10, 11 |

#### 5.3.5.1.4 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 |

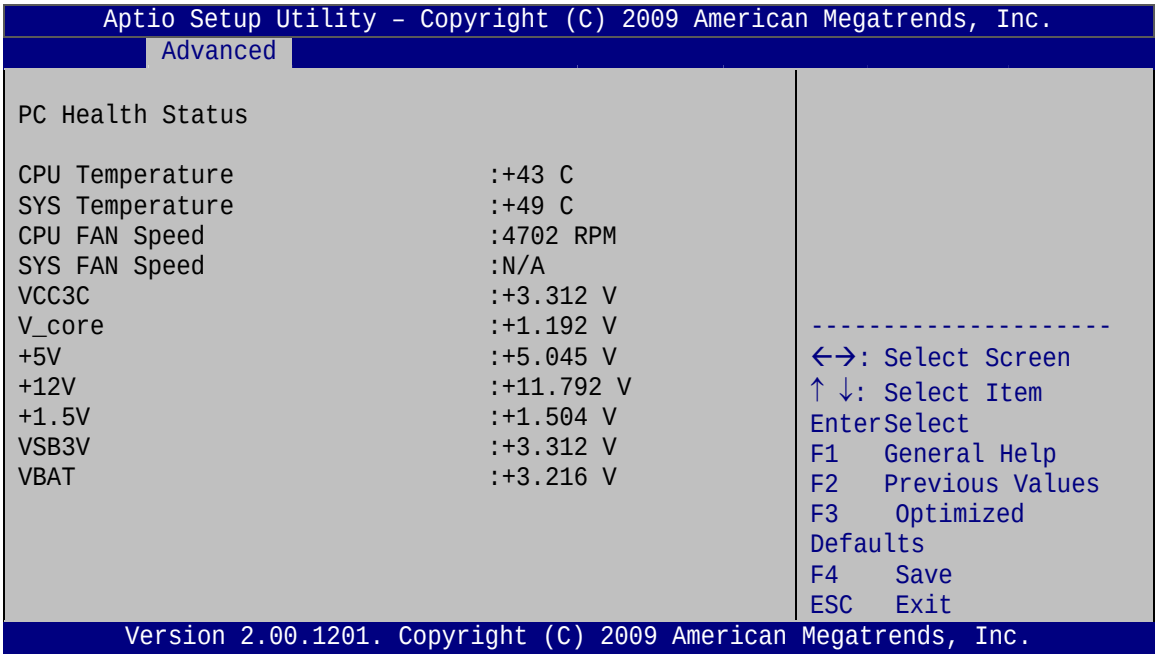
➔ **Change Settings [Auto]**

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=2E8h; IRQ=10** | | Serial Port I/O port address is 2E8h and the interrupt address is IRQ10 |
| ➔ **IO=3E8h; IRQ=10, 11** | | Serial Port I/O port address is 3E8h and the interrupt address is IRQ10, 11 |
| ➔ **IO=2E8h; IRQ=10, 11** | | Serial Port I/O port address is 2E8h and the interrupt address is IRQ10, 11 |
| ➔ **IO=2E0h; IRQ=10, 11** | | Serial Port I/O port address is 2E0h and the interrupt address is IRQ10, 11 |
| ➔ **IO=2D0h; IRQ=10, 11** | | Serial Port I/O port address is 2D0h and the interrupt address is IRQ10, 11 |
| ➔ **IO=2D8h; IRQ=10, 11** | | Serial Port I/O port address is 2D8h and the interrupt address is IRQ10, 11 |

### 5.3.6 H/W Monitor

The H/W Monitor menu (**BIOS Menu 9**) shows the operating temperature, fan speeds and system voltages.




**BIOS Menu 9: Hardware Health Configuration**

➔ **PC Health Status**

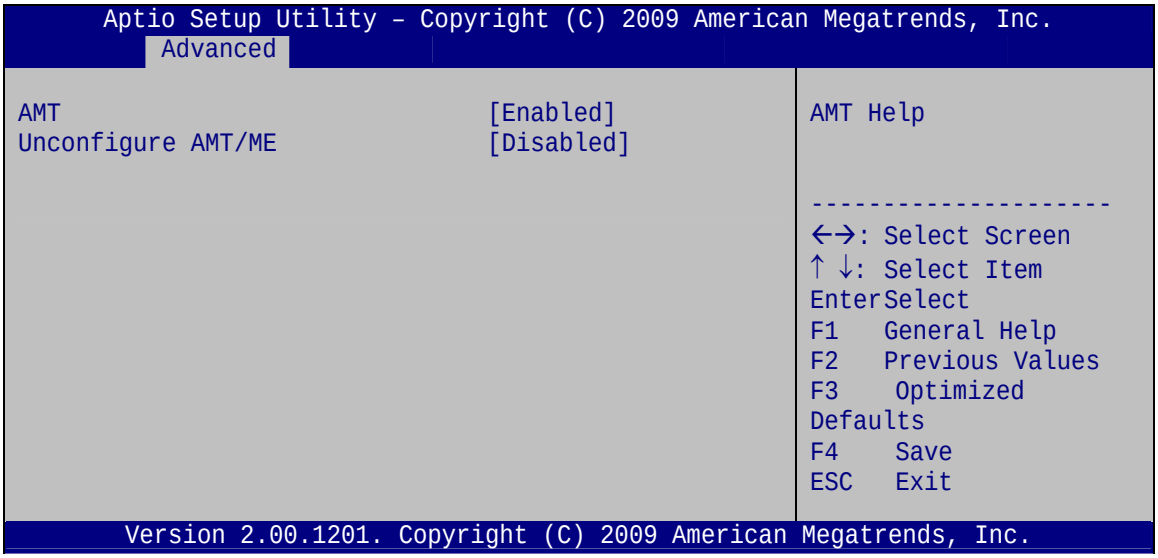
The following system parameters and values are shown. The system parameters that are monitored are:

- System Temperatures:
  - CPU Temperature
  - System Temperature
- Fan Speeds:
  - CPU Fan Speed
  - System Fan Speed
- Voltages:
  - VCC3V
  - Vcore
  - +5V

- +12 V
- +1.5V
- VSB3V
- VBAT

### 5.3.7 AMT Configuration

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




**BIOS Menu 10: AMT Configuration**

➔ **AMT [Enabled]**

Use **AMT** option to enable or disable the Intel® AMT function.

| | | |
|---|---|---|
| ➔ **Disabled** | | Intel® AMT is disabled |
| ➔ **Enabled** | **DEFAULT** | Intel® AMT is enabled |

➔ **Unconfigure AMT/ME [Disabled]**

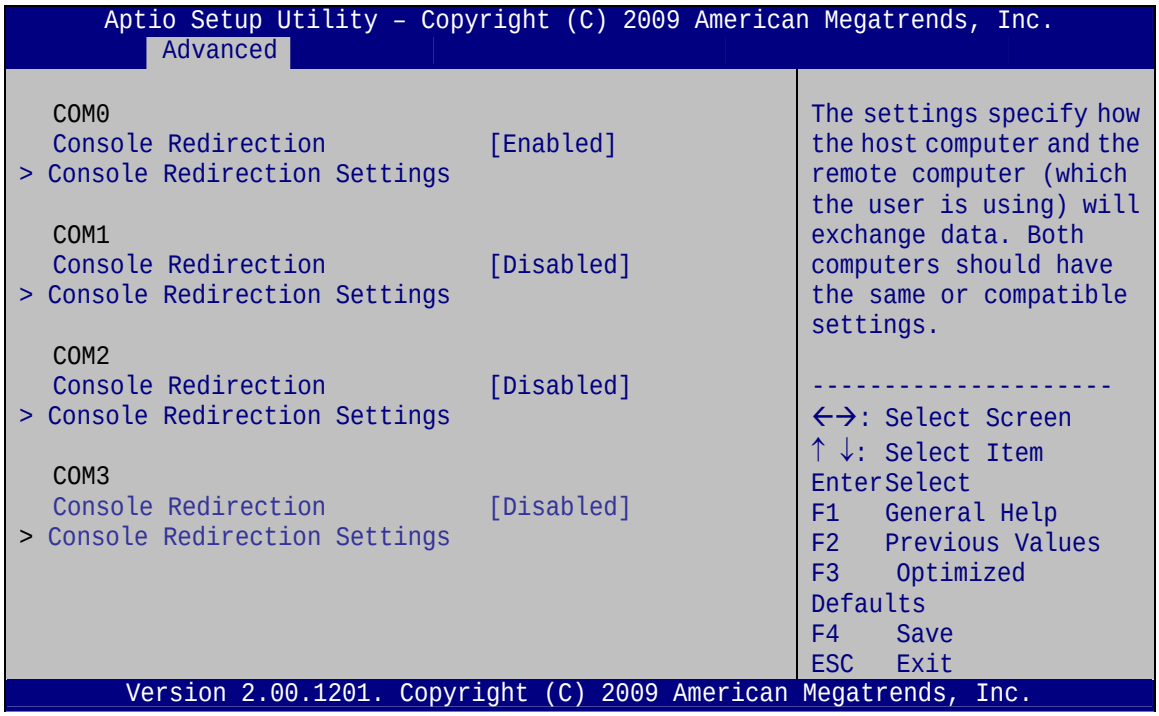
Use the **Unconfigure AMT/ME** option to perform AMT/ME unconfigure without password operation.

➔ **Disabled** **DEFAULT** Not perform AMT/ME unconfigure

➔ **Enabled** To perform AMT/ME unconfigure

### 5.3.8 Serial Port Console Redirection

The **Serial Port Console Redirection** menu (**BIOS Menu 11**) 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.




**BIOS Menu 11: Serial Port Console Redirection**

➔ **Console Redirection**

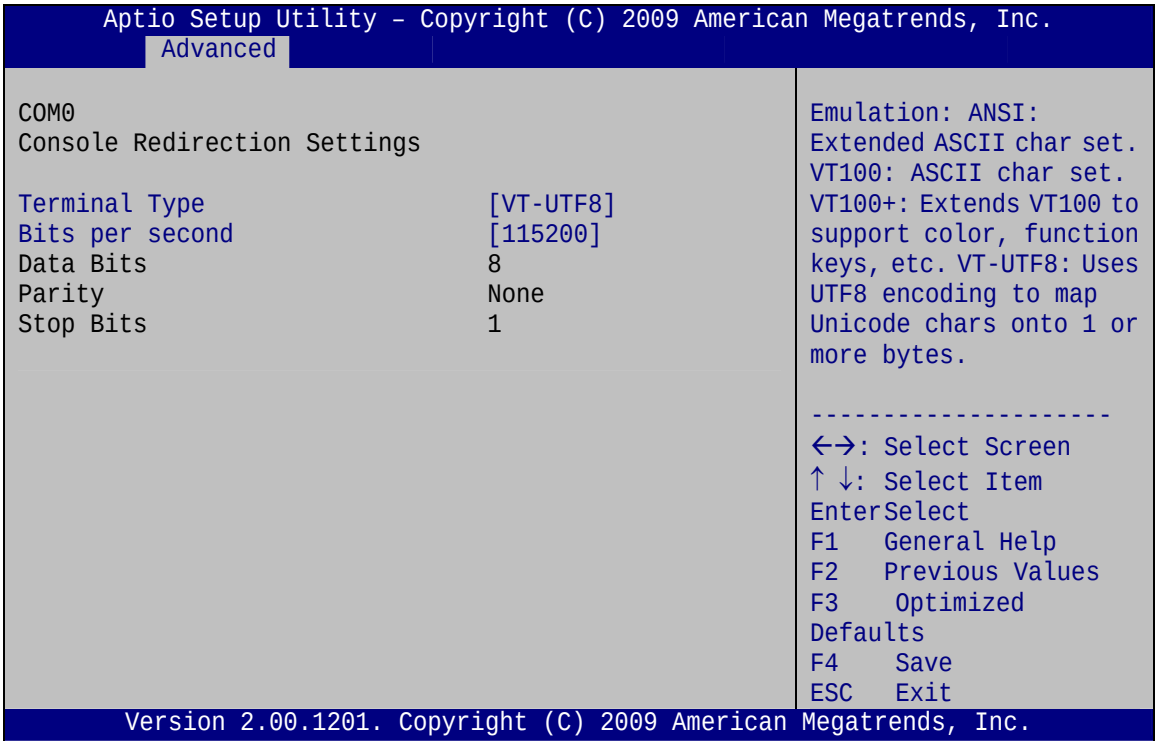
Use **Console Redirection** option to enable or disable the console redirection function.

➔ **Disabled** Disabled the console redirection function

➔ **Enabled** Enabled the console redirection function

### 5.3.8.1 Console Redirection Settings

The **Console Redirection Settings** menu (**BIOS Menu 12**) allows the console redirection options to be configured. The option is active when Console Redirection option is enabled.




**BIOS Menu 12: Console Redirection Settings**

➔ **Terminal Type [ANSI]**

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

| | | | |
|---|---|---|---|
| ➔ | **VT100** | | The target terminal type is VT100 |
| ➔ | **VT100+** | | The target terminal type is VT100+ |
| ➔ | **VT-UTF8** | | The target terminal type is VT-UTF8 |
| ➔ | **ANSI** | **DEFAULT** | The target terminal type is ANSI |

➔ **Bits per second [115200]**

Use the **Bits per second** option to specify the transmission speed of the serial port.

| | | | |
|---|---|---|---|
| ➔ | **9600** | | The transmission speed is 9600 |
| ➔ | **19200** | | The transmission speed is 19200 |
| ➔ | **57600** | | The transmission speed is 57600 |
| ➔ | **115200** | **DEFAULT** | The transmission speed is 115200 |

## 5.4 Chipset

Use the **Chipset** menu (**BIOS Menu 13**) to access the Northbridge and Southbridge configuration menus

**WARNING!**

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

```
      Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.
  Main    Advanced  Chipset    Boot    Security  Save & Exit

> North Bridge                                  North Bridge Parameters
> South Bridge
> Intel IGD SWSCI OpRegion
> ME Subsystem                                  ---------------------
                                                ←→: Select Screen
                                                ↑ ↓: Select Item
                                                EnterSelect
                                                F1   General Help
                                                F2   Previous Values
                                                F3    Optimized
                                                Defaults
                                                F4    Save
                                                ESC   Exit

      Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```

**BIOS Menu 13: Chipset**

### 5.4.1 Northbridge Configuration

Use the **Northbridge Chipset Configuration** menu (**BIOS Menu 14**) to configure the Northbridge chipset.

```
Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.
                    Chipset

Memory Information                                  Select which graphics
                                                    controller to use as the
CPU Type                          Arrandale         primary boot device.

Total Memory                      1024 MB (DDR3 1066)
Memory Slot0                         0 MB (DDR3 1066)
Memory Slot1                      1024 MB (DDR3 1066)

CAS# Latency(tCL)                 7
RAS# Active Time(tRAS)            20
Row Precharge Time(tRP)           7                 ----------------------
RAS# to CAS# Delay(tRCD)          7                 ←→: Select Screen
Write Recovery Time(tWR)          8                 ↑ ↓: Select Item
Row Refresh Cycle Timea(tRFC)     60                EnterSelect
Write to Read Delay(tWTR)         4                 F1   General Help
Active to Active Delay            4                 F2   Previous Values
Read CAS# Precharge(tRTP)         5                 F3    Optimized
                                                    Defaults
Initate Graphic Adapter           [PEG/IGD]         F4    Save
IGD Memory                        [32M]             ESC   Exit

Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```

**BIOS Menu 14:Northbridge Chipset Configuration**

➔ **Initiate Graphics Adapter [PEG/IGD]**

Use the **Initiate Graphics 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 [32 MB]**

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

| | | |
|---|---|---|
| ➔ **Disable** | | |
| ➔ **32 MB** | **DEFAULT** | 32 MB of memory used by internal graphics device |
| ➔ **64 MB** | | 64 MB of memory used by internal graphics device |
| ➔ **128 MB** | | 128 MB of memory used by internal graphics device |

## 5.4.2 Southbridge Configuration

Use the **Southbridge Configuration** menu (**BIOS Menu 15**) to configure the Southbridge chipset.

```
Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.
                    Chipset

Select AT ATX Power              [ATX]
Restore AC Power Loss            [Last State]

Audio Configuration
Azalia HD Audio                  [Enabled]

Enable/Disable Azalia HD
Audio

----------------------
←→: Select Screen
↑ ↓: Select Item
Enter Select
F1   General Help
F2   Previous Values
F3    Optimized
Defaults
F4    Save
ESC   Exit
Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```

**BIOS Menu 15:Southbridge Chipset Configuration**

➔ **Restore AC Power Loss [Power Off]**

Use the **Restore on 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** **DEFAULT** The system turns on

➔ **Last State** The system returns to its previous state. If it was on, it turns itself on. If it was off, it remains off.

➔ **Azalia HD Audio [Enabled]**

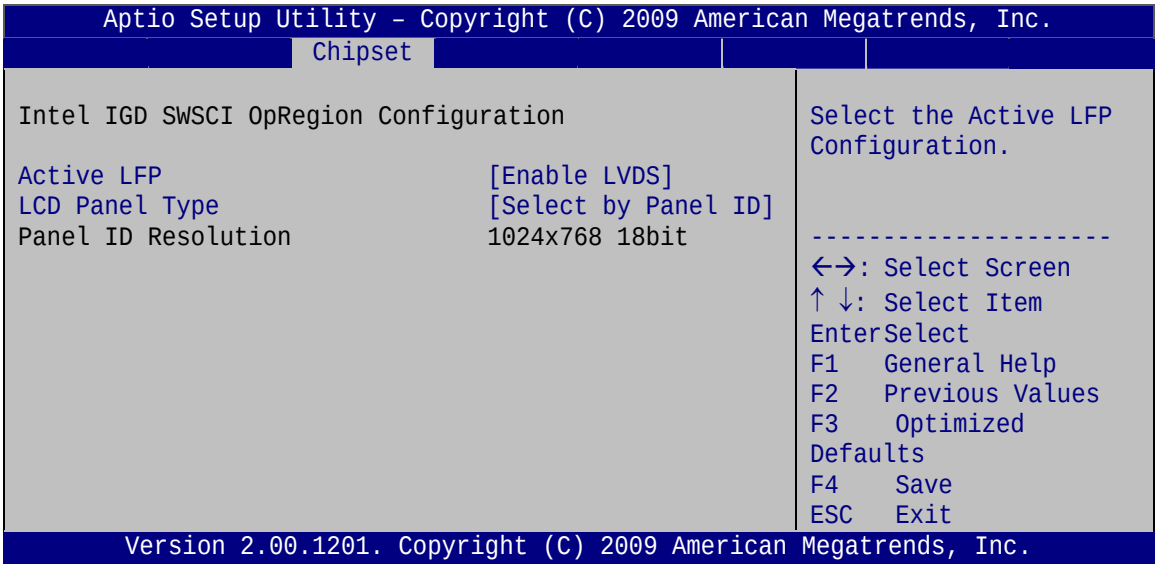
Use the **Azalia HD Audio** option to enable or disable the High Definition Audio controller.

➔ **Disabled** The onboard High Definition Audio controller is disabled

➔ **Enabled** **DEFAULT** The onboard High Definition Audio controller automatically detected and enabled

### 5.4.3 Intel IGD SWSCI OpRegion

Use the **Intel IGD SWSCI OpRegion** menu to configure the video device connected to the system.




**BIOS Menu 16: Intel IGD SWSCI OpRegion**

➔ **Active LFP [Enable LVDS]**

Use the **Active LFP** option to enable or disable LVDS.

➔ **Disabled** Disable LVDS
**LVDS**

➔ **Enabled** **DEFAULT** Enable LVDS.
**LVDS**

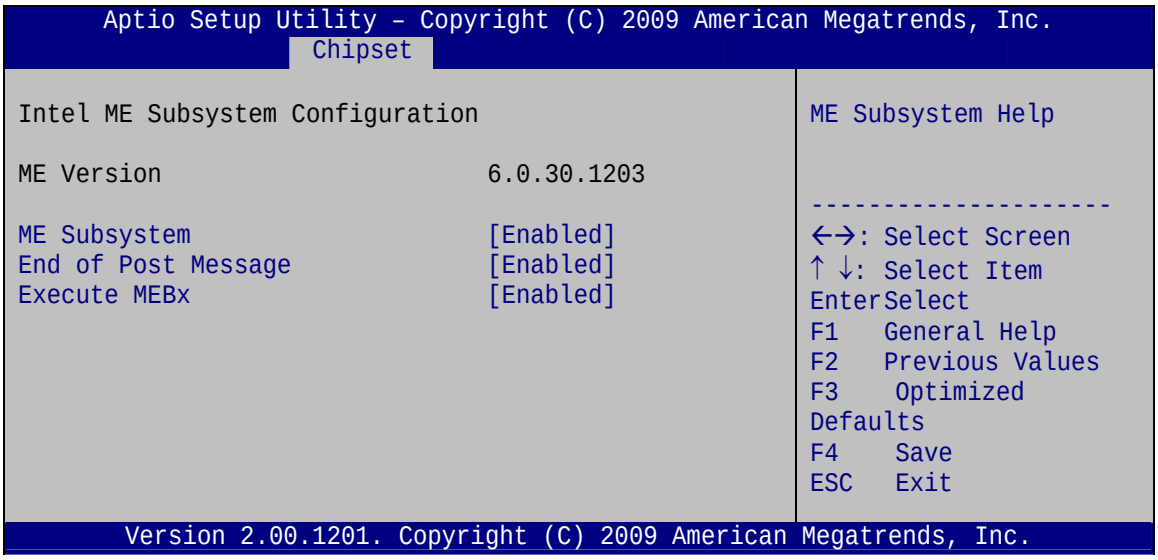
➔ **LCD Panel Type [Select by Panel ID]**

Use the **LCD Panel Type** option to select the type of flat panel connected to the system. Configuration options are listed below.

- Select by Panel ID **DEFAULT**
- 800x600 18bit
- 1024x768 18bit
- 1024x768 24bit
- 1280x800 18bit
- 1280x1024 48bit
- 1366x768 18bit
- 1400x1050 48bit
- 1400x900 48bit
- 1600x900 48bit
- 1600x1200 48bit
- 1680x1050 48bit
- 1920x1080 48bit
- 1920x1200 48bit
- 2048x1536 48bit

### 5.4.4 ME Subsystem

Use the **ME Subsystem** menu (**BIOS Menu 15**) to configure the Intel® Management Engine (ME) configuration options.




**BIOS Menu 17: ME Subsystem**

➔ **ME Subsystem [Enabled]**

Use the **ME Subsystem** option to enable or disable the Intel® ME Subsystem.

➔ **Disabled** Disable the Intel® ME Subsystem

➔ **Enabled** **DEFAULT** Enable the Intel® ME Subsystem

➔ **End of Post Message [Enabled]**

Use the **End of Post Message** option to enable or disable the end of post message of the ME Subsystem.

➔ **Disabled** Disable end of post message

➔ **Enabled** **DEFAULT** Enable end of post message

➔ **Execute MEBx [Enabled]**

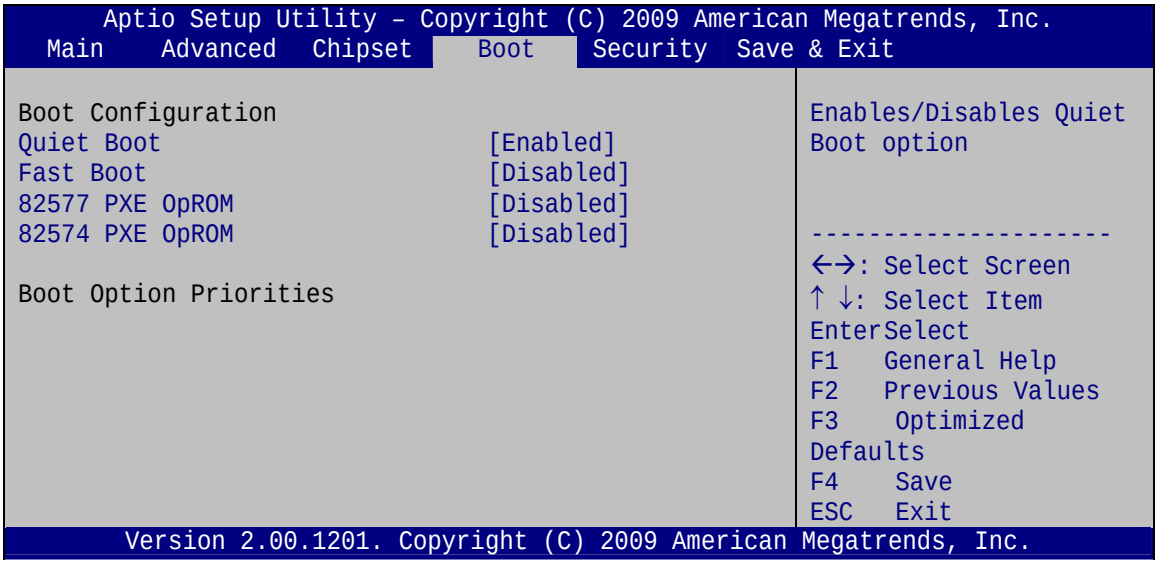
Use the **Execute MEBx** option to enable or disable the Intel® Management Engine BIOS extension (MEBx).

➔ **Disabled** Disable the MEBx

➔ **Enabled** **DEFAULT** Enable the MEBx

## 5.5 Boot

Use the **Boot** menu (**BIOS Menu 18**) to configure system boot options.




**BIOS Menu 18: Boot**

➔ **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

➔ **Fast Boot [Disabled]**

Use the **Fast Boot** option to enable or disable boot with initialization of a minimal set of devices required to launch active boot option. It has no effect for BBS boot options.

➔ **Disabled** **DEFAULT** Disable fast boot.

➔ **Enabled** Enable fast boot

➔ **82577 PXE OpROM [Disabled]**

Use the **82577 PXE OpROM** option to enable the Intel® 82577 PCIe GbE controller to boot the system.

| | | |
|---|---|---|
| ➔ **Disabled** | **DEFAULT** | Cannot be booted from a remote system through the Intel® 82577 PCIe GbE controller |
| ➔ **Enabled** | | Can be booted from a remote system through the Intel® 82577 PCIe GbE controller |

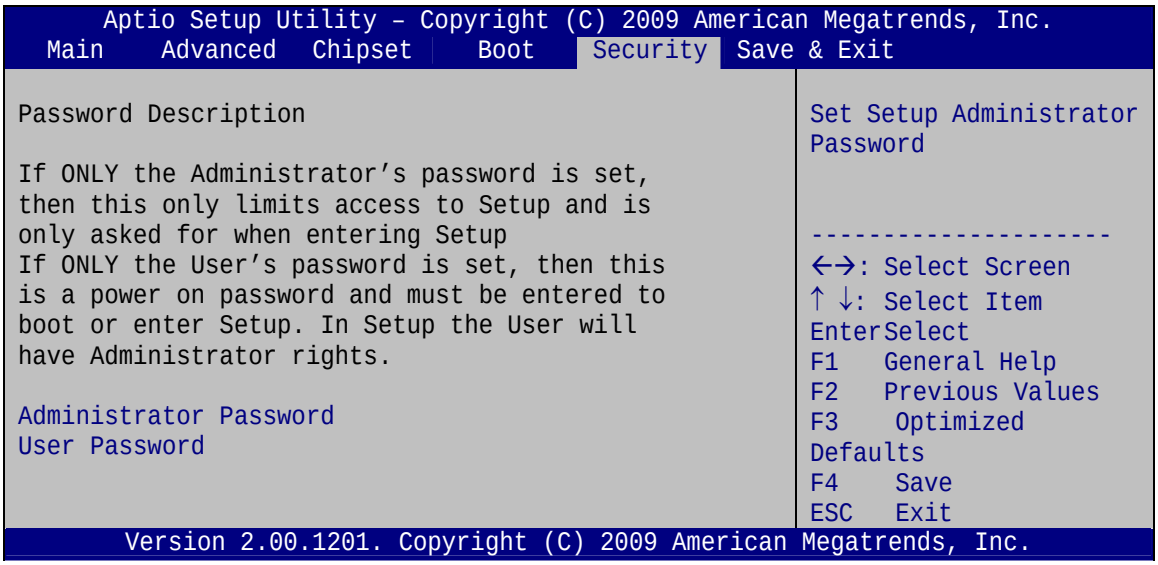
➔ **82574 PXE OpROM [Disabled]**

Use the **82574 PXE OpROM** option to enable the Intel® 82574 PCIe GbE controller to boot the system.

| | | |
|---|---|---|
| ➔ **Disabled** | **DEFAULT** | Cannot be booted from a remote system through the Intel® 82574 PCIe GbE controller |
| ➔ **Enabled** | | Can be booted from a remote system through the Intel® 82574 PCIe GbE controller |

## 5.6 Security

Use the **Security** menu (**BIOS Menu 19**) to set system and user passwords.




**BIOS Menu 19: Security**

➔ **Administrator Password**

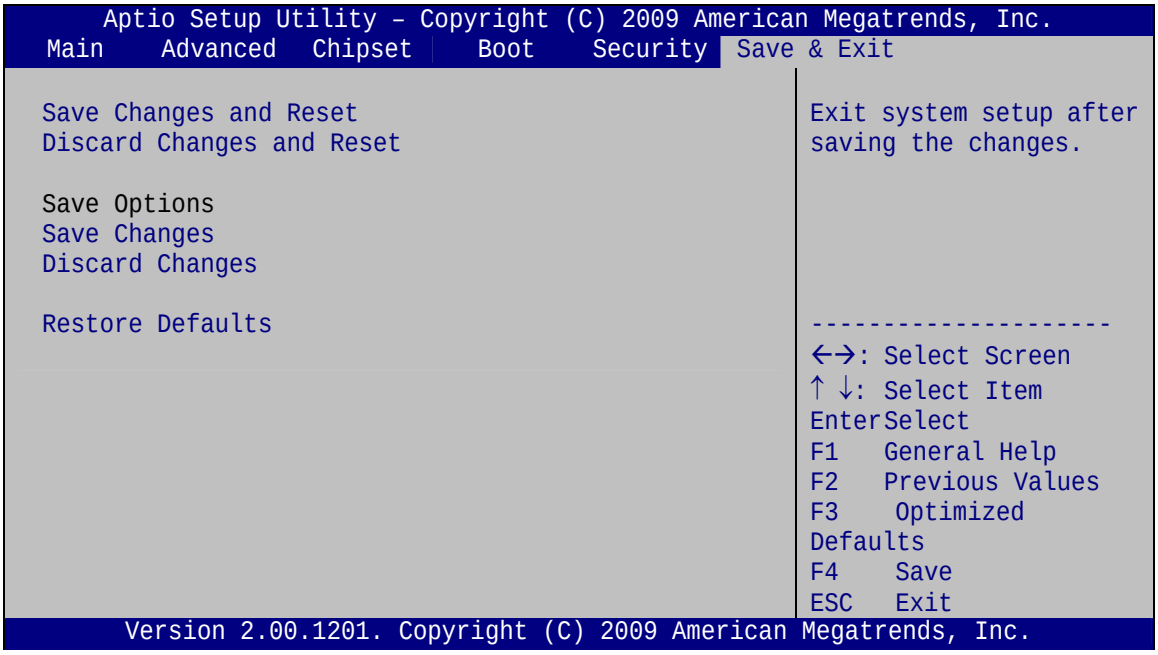
Use the **Administrator Password** to set or change a administrator password.

➔ **User Password**

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

## 5.7 Exit

Use the **Exit** menu (**BIOS Menu 20**) to load default BIOS values, optimal failsafe values and to save configuration changes.




**BIOS Menu 20:Exit**

➔ **Save Changes and Reset**

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

➔ **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.

➔ **Save Changes**

Use the **Save Changes** option to save the changes made to the BIOS options.

➔ **Discard Changes**

Use the **Discard Changes** option to discard the changes and remain in 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.**

Appendix

A

# Intel® AMT Configuration

## A.1 Intel® AMT Setup Procedure

The KINO-QM57A is featured with the Intel® Active Management Technology (AMT) 6.0. To enable the Intel® AMT function, follow the steps below.

**Step 1:** Make sure the DIMM1 socket is installed with one DDR3 SO-DIMM.

**Step 2:** Connect an Ethernet cable to the RJ-45 connector labeled LAN2_USB2.

**Step 3:** The AMI BIOS options regarding the Intel® ME or Intel® AMT must be enabled, including:

AMT Configuration [Advanced]

ME Subsystem [Chipset]

**Step 4:** Configure the Intel® Management Engine BIOS extension (MEBx) (see Section **A.2** below)

**Step 5:** The following dialog window is displayed after the OS is loaded to show the Intel® AMT status on the KINO-QM57A is enabled.


**Figure A-1: Intel® Active Management Technology Status Dialog**

## A.2 Intel® Management Engine BIOS Extension

This section describes the essential steps for using the Intel® Management Engine BIOS extension (MEBx).

**Step 1:** A screen prompts the user to press <Ctrl+P> after a single beep during boot-up process. To get into the Intel® MEBx settings, press <Ctrl+P>.

**Step 2:** Enter the Intel® ME password as it requires (**Figure A-2**). Enter the Intel® default password: **admin**.

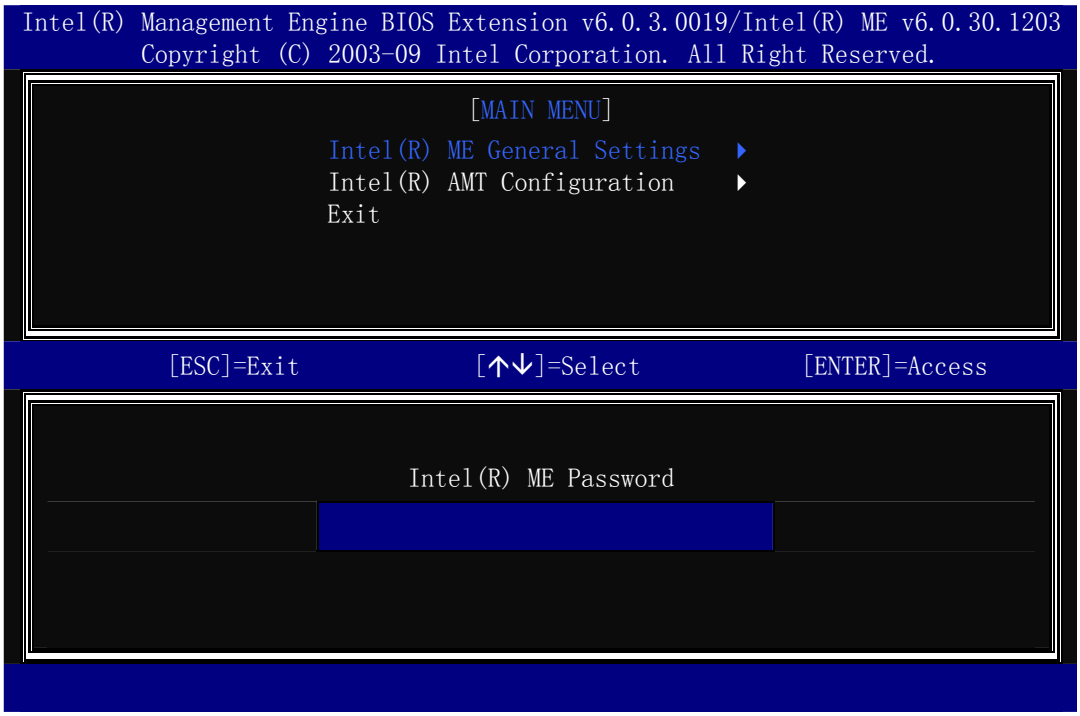



**Figure A-2: Intel® Current ME Password**

**Step 3:** Enter a new password following the strong password rule (containing at least one upper case letter, one lower case letter, one digit and one special character, and be at least eight characters). (**Figure A-3**)

**Step 4:** Verify the new password by entering again.

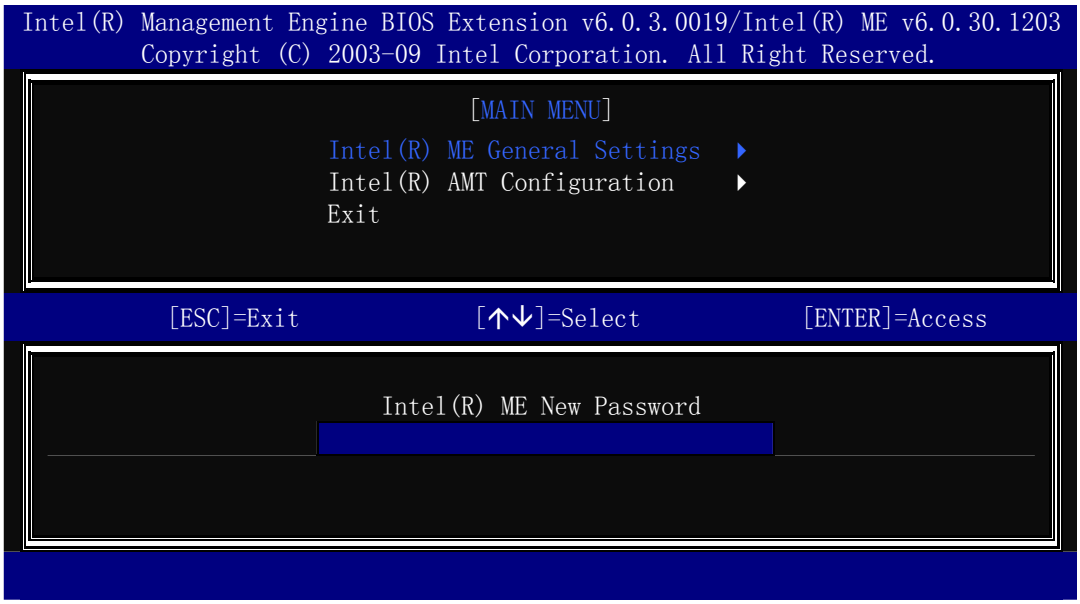



**Figure A-3: Intel® ME New Password**

**Step 5:** Select **Intel® AMT Configuration** and press **Enter** (**Figure A-4**).

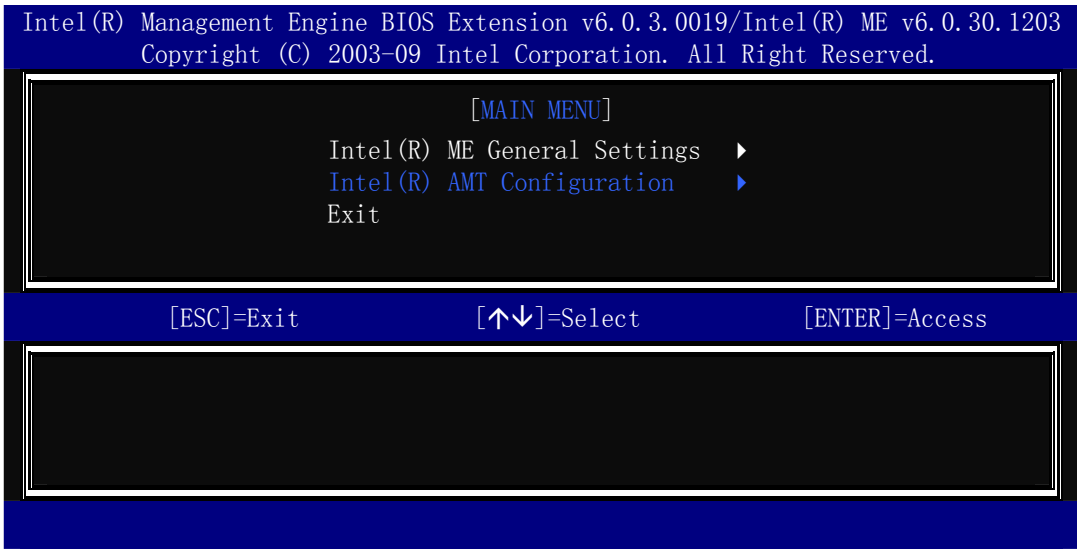



**Figure A-4: Intel® AMT Configuration**

**Step 6:** Select **KVM Configuration** and press **Enter**. (**Figure A-5**)

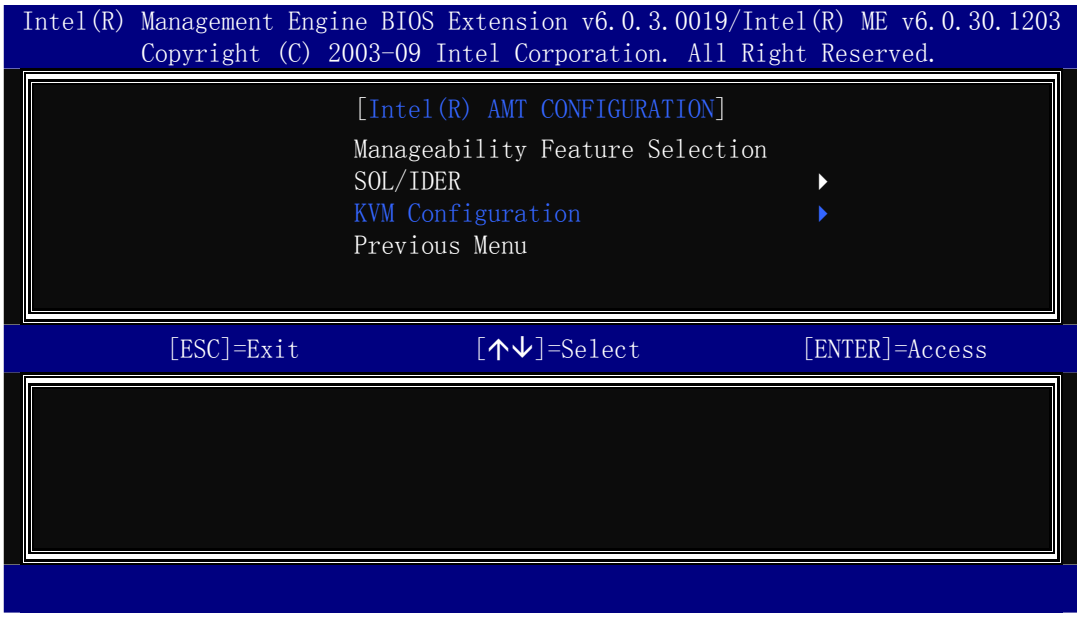



**Figure A-5: Select KVM Configuration**

**Step 7:** When the screen in **Figure A-6** prompts, select **User Opt-in** and press **Enter**.

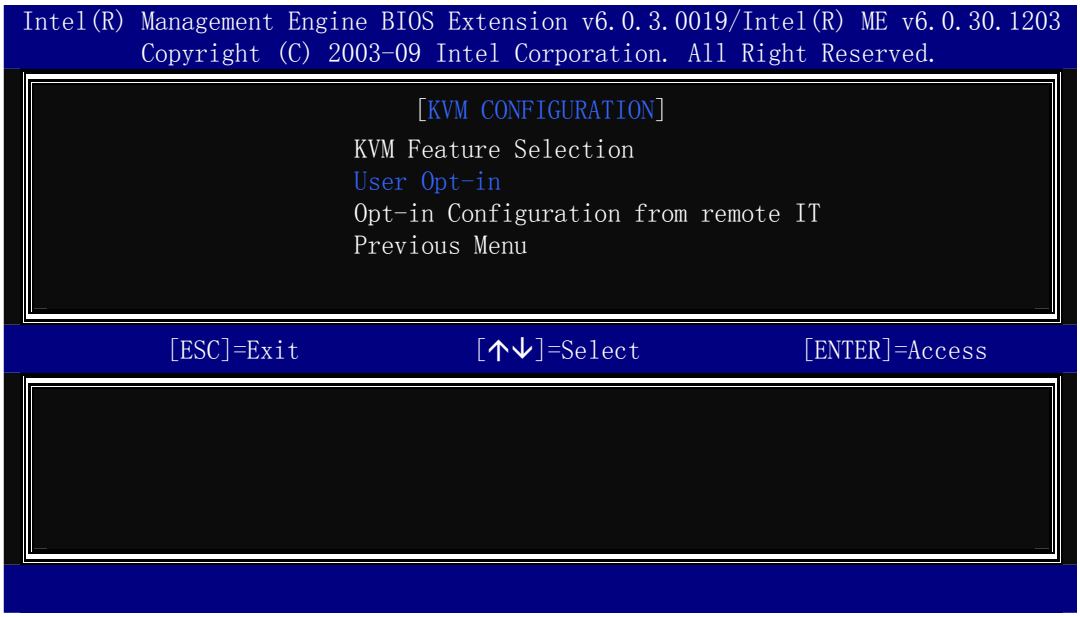



**Figure A-6: KVM Configuration**

**Step 8:** Two options are shown as in **Figure A-7**. Choose **User Consent is not required for KVM session** which means no password is required for using iAMT function. Then press **Enter**.

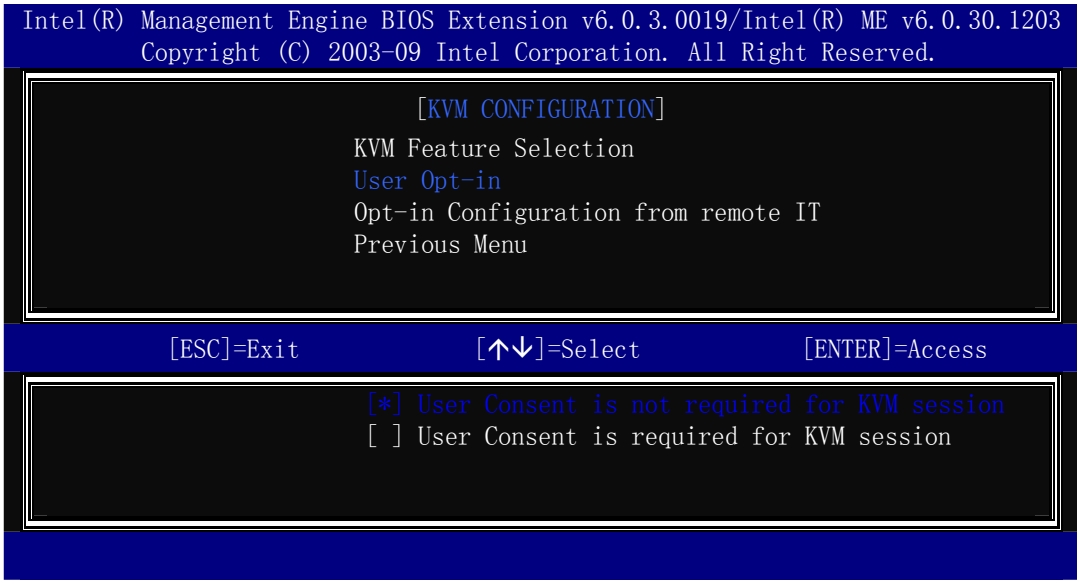



**Figure A-7: KVM User Opt-in**

**Step 9:** Make other necessary settings in the Intel® MEBx depending on users' need.

**Step 10:** To exit the Intel® MEBx, return to the main menu and select Exit. (**Figure A-8**)

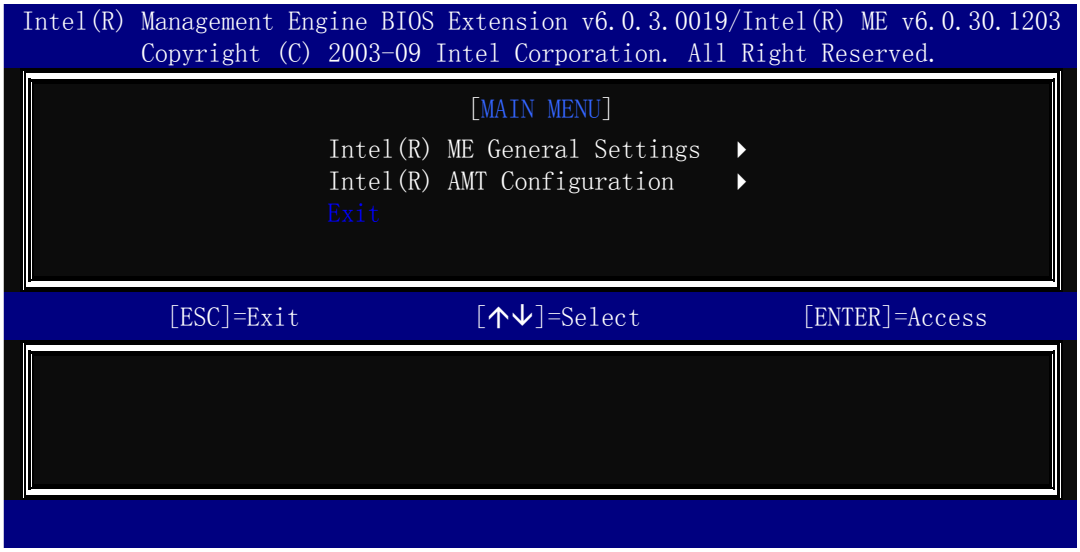



**Figure A-8: Exit**

## A.3 IEI Easy Manager Application


IEI Easy Manager (iEZMan) application program allows a remote user, such as a support person, to remotely control and perform administrative tasks through a graphical user interface in Windows. The functions of the iEZMan application include

- Power Management
- Schedule Power Management
- Remote Access
- Group Management
- Patch Management
- Alert and Events

For more information regarding the iEZMan application, please refer to the instruction manual of the iEZMan.

Appendix

B

# BIOS Menu Options

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

The IEI One Key Recovery tool menu is shown below.


**Figure 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-up recovery partition (see **Section C.2.4**)
5. Create factory default image (see **Section C.2.5**)

After completing the five initial setup procedures as described above, users can access the recovery tool by pressing <**F3**> while booting up the system. The detailed information of each function is described in **Section C.4**.

**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 system (OS). The supported OS versions are listed below.

- Microsoft Windows
  - Windows XP (Service Pack 2 or 3 required)
  - Windows Vista
  - Windows 7
  - Windows CE 5.0
  - Windows CE 6.0
  - Windows XP Embedded
- Linux
  - Fedora Core 12 (Constantine)
  - Fedora Core 11 (Leonidas)
  - Fedora Core 10 (Cambridge)
  - Fedora Core 8 (Werewolf)
  - Fedora Core 7 (Moonshine)
  - RedHat RHEL-5.4
  - RedHat 9 (Ghirke)
  - Ubuntu 8.10 (Intrepid)
  - Ubuntu 7.10 (Gutsy)
  - Ubuntu 6.10 (Edgy)
  - Debian 5.0 (Lenny)
  - Debian 4.0 (Etch)
  - SuSe 11.2
  - SuSe 10.3

**NOTE:**

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

## C.2 Setup Procedure for Windows

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

**Step 1:** Hardware and BIOS setup (see **Section 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-up recovery partition (see **Section C.2.4**)

**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 system, most setup procedures are the same with Microsoft Windows except for several steps which is 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.

**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!

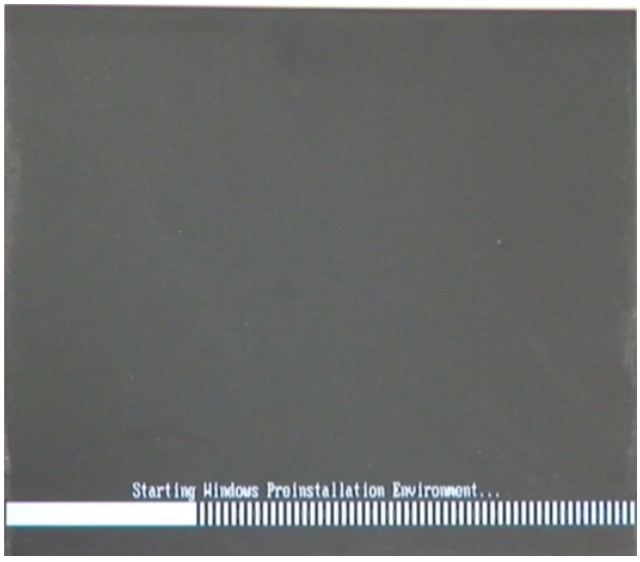



**Figure C-2: Launching the Recovery Tool**

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

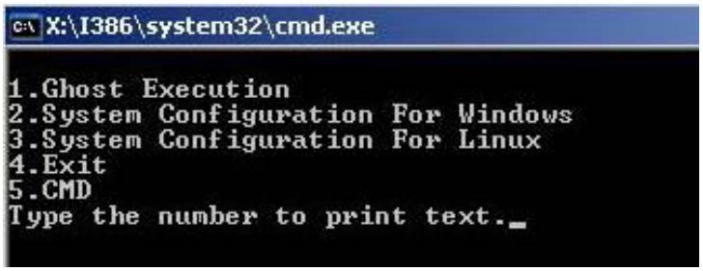



**Figure C-3: Recovery Tool Setup Menu**

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

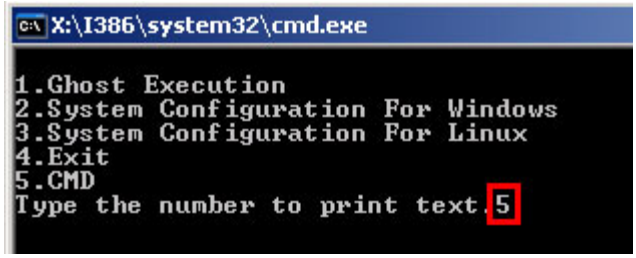



**Figure C-4: Command Mode**

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

(Press <Enter> after entering each line below)

**system32>diskpart**

**DISKPART>list vol**

**DISKPART>sel disk 0**

**DISKPART>create part pri size= ___**

**DISKPART>assign letter=N**

**DISKPART>create part pri size= ___**

**DISKPART>assign letter=F**

**DISKPART>exit**

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

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

system32>exit
```

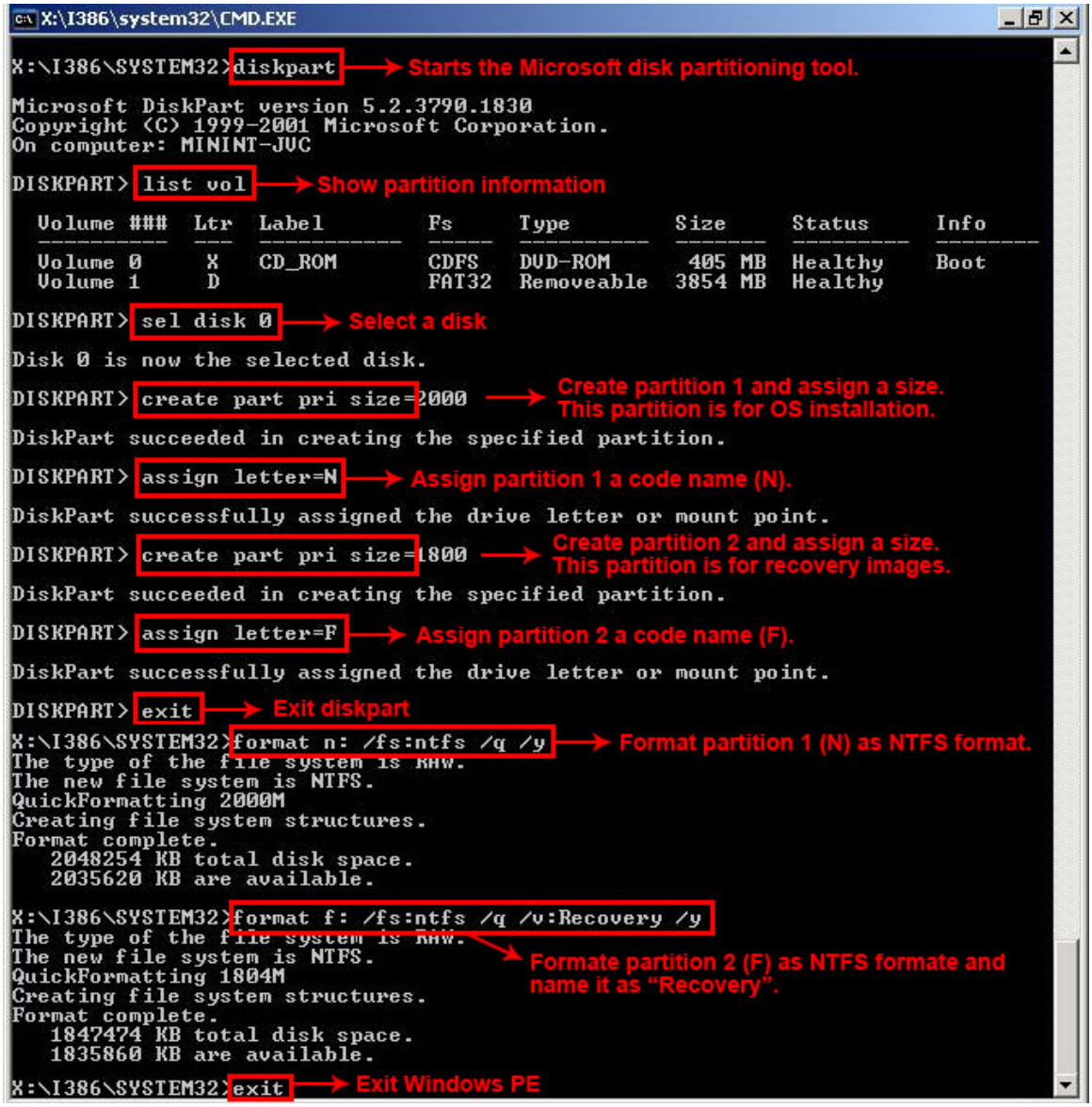
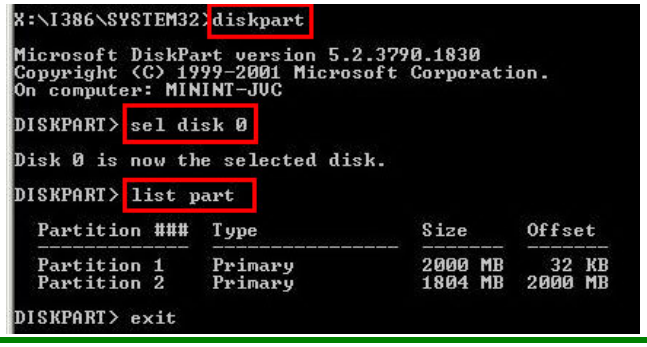



**Figure C-5: Partition Creation Commands**

**NOTE:**

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




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

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

### C.2.3 Install Operating System, Drivers and Applications

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

**NOTE:**

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 Build-up Recovery Partition

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

**Step 2:** Start the system.

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

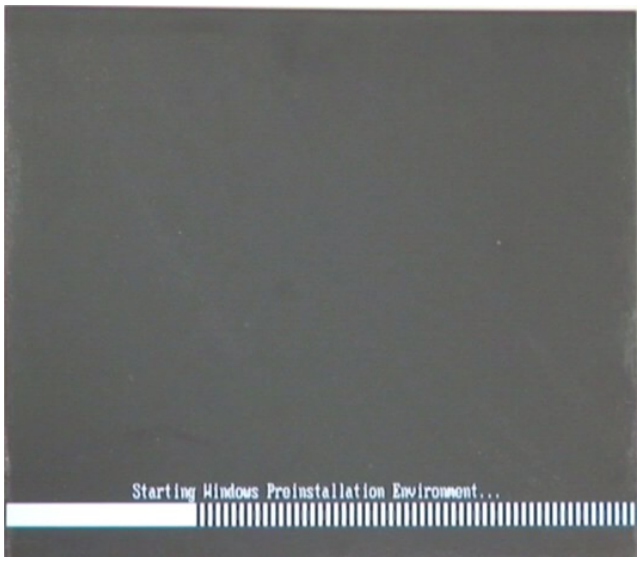



**Figure C-6: Launching the Recovery Tool**

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

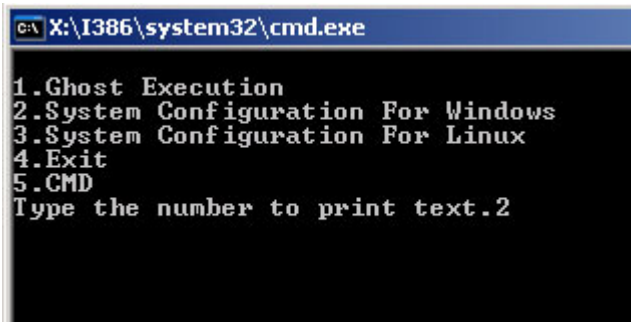



**Figure C-7: System Configuration for Windows**

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

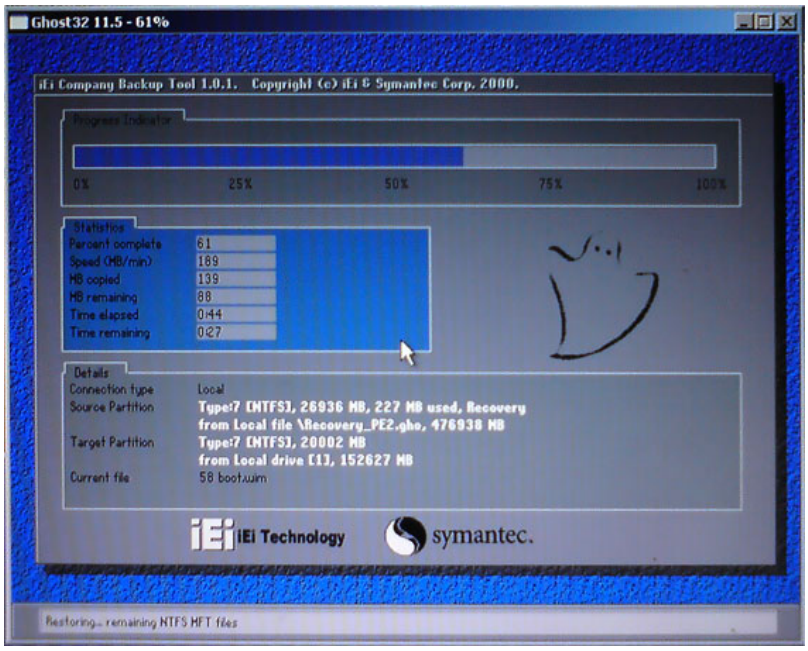



**Figure C-8: Build-up Recovery Partition**

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

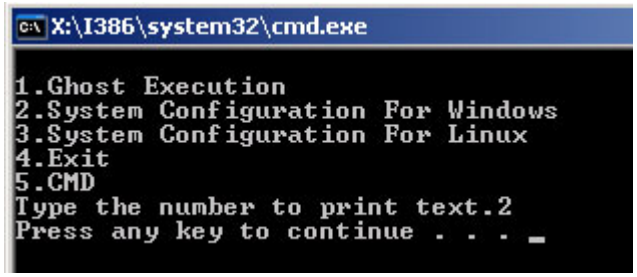



**Figure C-9: Press any key to continue**

**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 A-2**), 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.

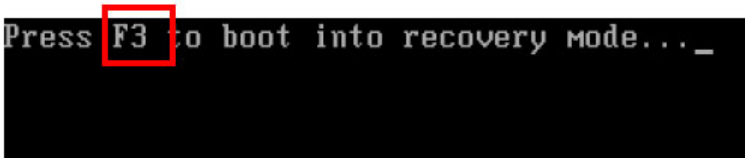



**Figure C-10: Press F3 to Boot into Recovery Mode**

**Step 2:** The recovery tool menu appears. Type <**4**> and press <**Enter**>. (**Figure A-3**)

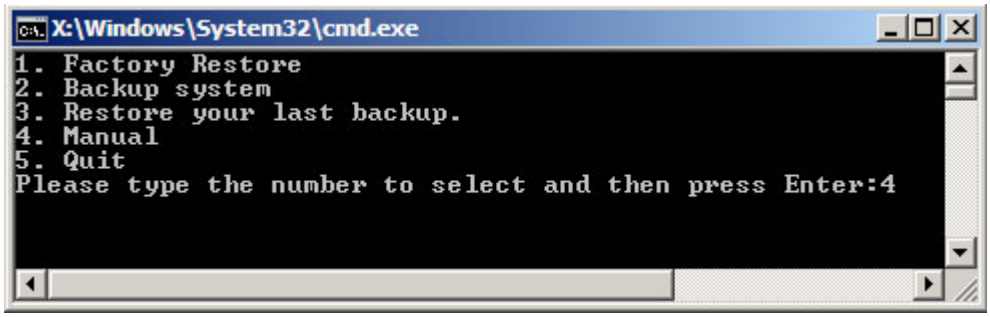



**Figure C-11: Recovery Tool Menu**

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

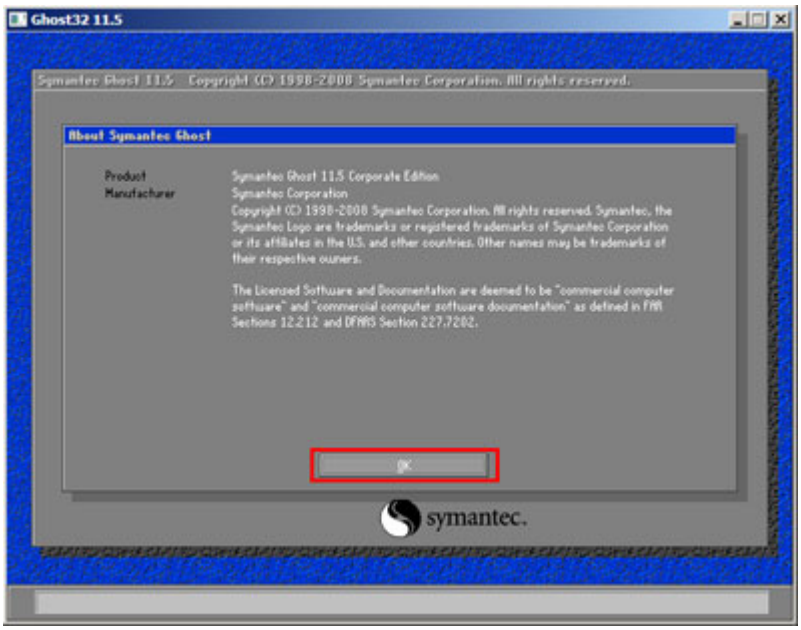



**Figure C-12: About Symantec Ghost Window**

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

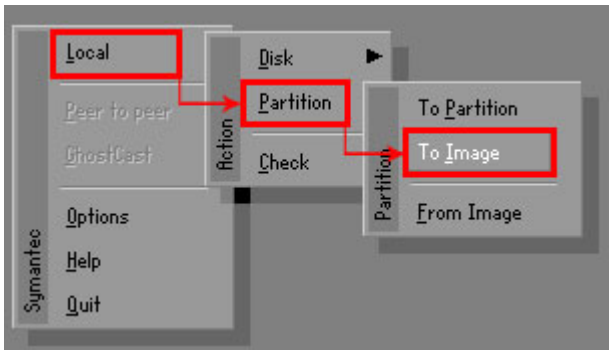



**Figure C-13: Symantec Ghost Path**

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

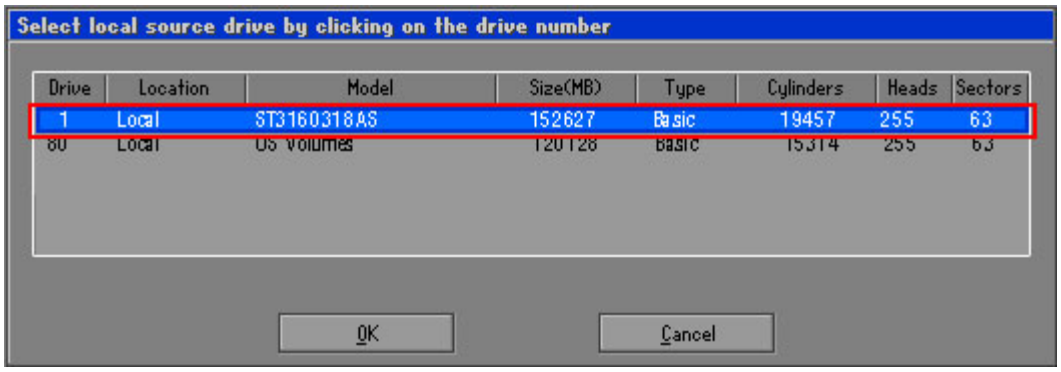



**Figure C-14: Select a Local Source Drive**

**Step 6:** Select a source partition (Part 1) from basic drive as shown in **Figure A-4**. Then click OK.

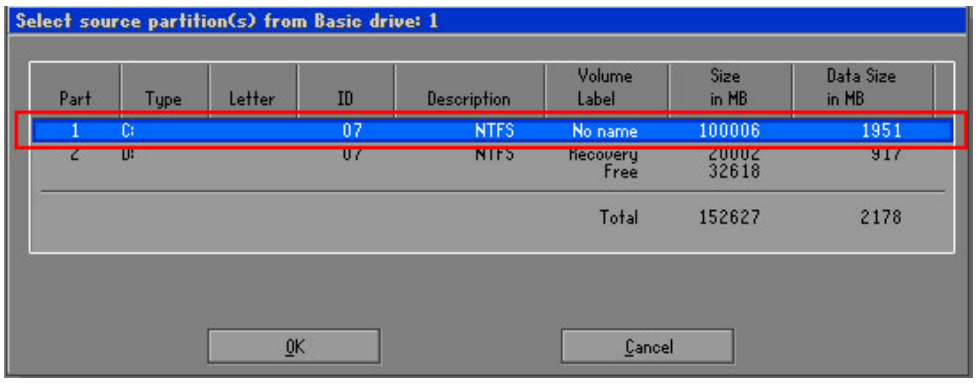



**Figure C-15: Select a Source Partition from Basic Drive**

**Step 7:** Select **1.2: [Recovery] NTFS drive** and enter a file name called **iei** (**Figure A-5**). 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**.

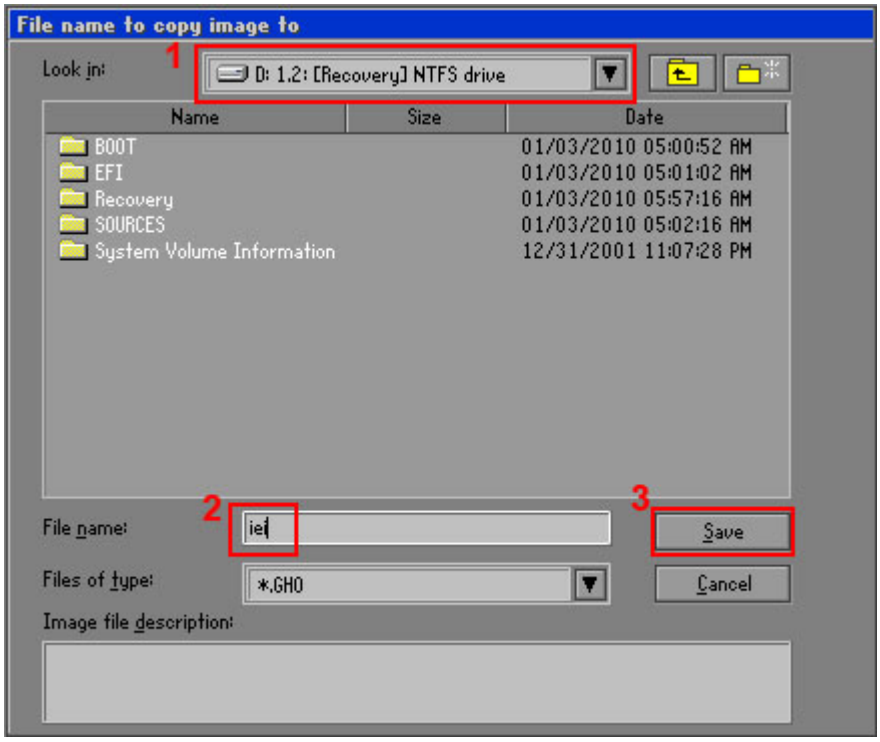



**Figure C-16: File Name to Copy Image to**

**Step 8:** When the Compress Image screen in **Figure A-6** prompts, click **High** to make the image file smaller.

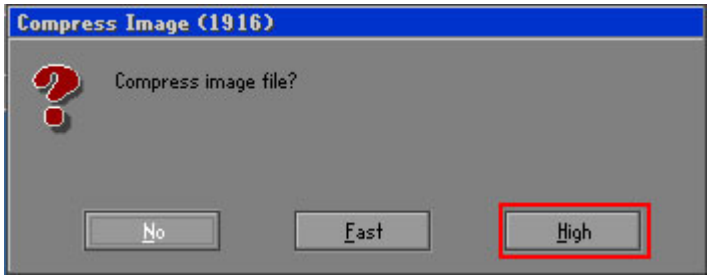



**Figure C-17: Compress Image**

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

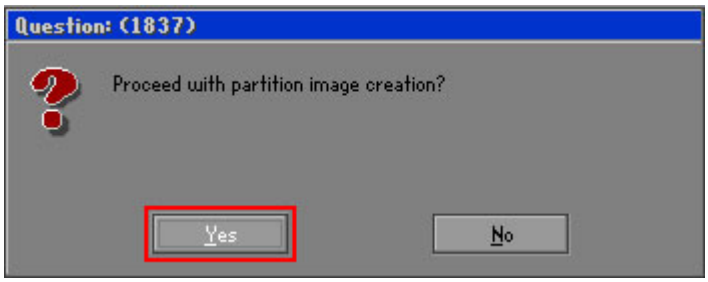



**Figure C-18: Image Creation Confirmation**

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

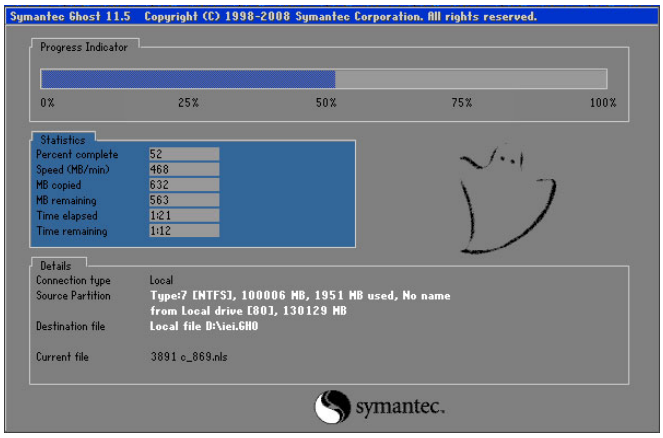



**Figure C-19: Image Creation Process**

**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.

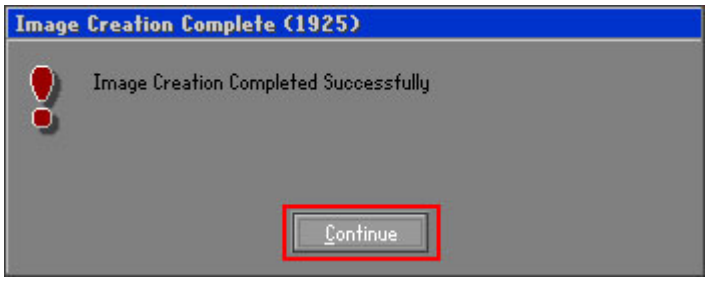



**Figure C-20: Image Creation Complete**

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

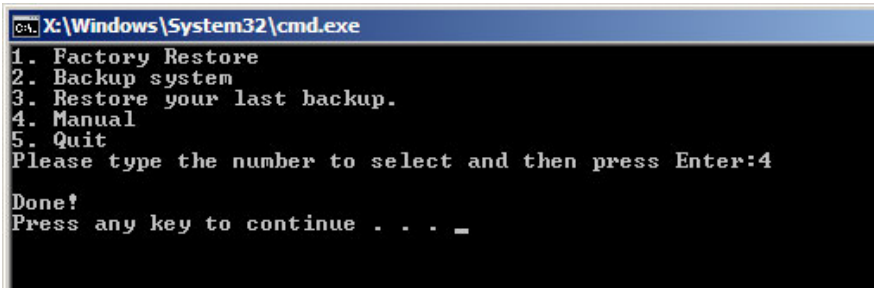



**Figure C-21: Press Any Key to Continue**

## C.3 Setup Procedure for Linux

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

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

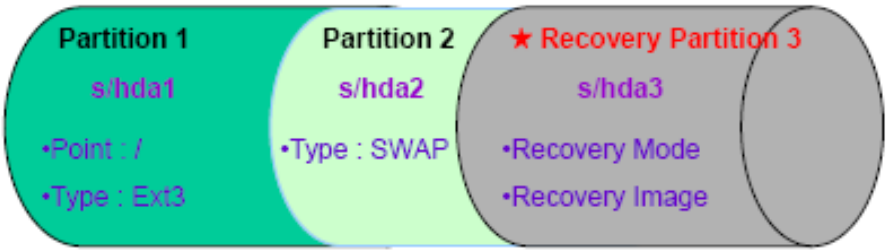



**Figure C-22: Partitions for Linux**

**Step 3:** **Create a recovery partition**. Insert the recovery CD into the optical disk drive. Follow **Step 1** ~ **Step 3** described in **Section 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-up recovery partition**. Press any key to boot from the recovery CD. It will take a while to launch the recovery tool. Please be patient. When the recovery tool setup menu appears, type <**3**> and press <Enter> (**Figure C-23**). The Symantec Ghost window appears and starts configuring the system to build-up a

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

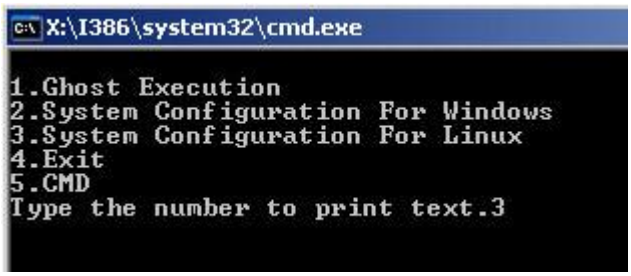



**Figure C-23: System Configuration for Linux**

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

**cd /boot/grub**

**vi menu.lst**

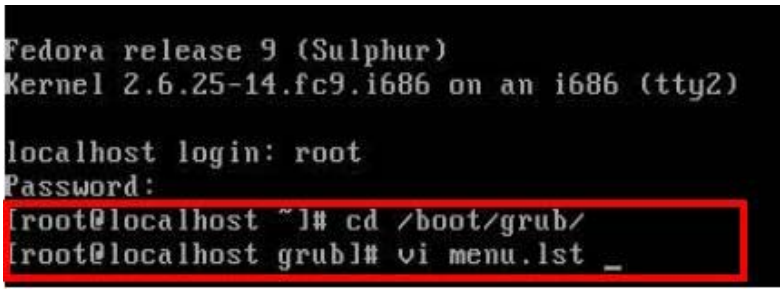
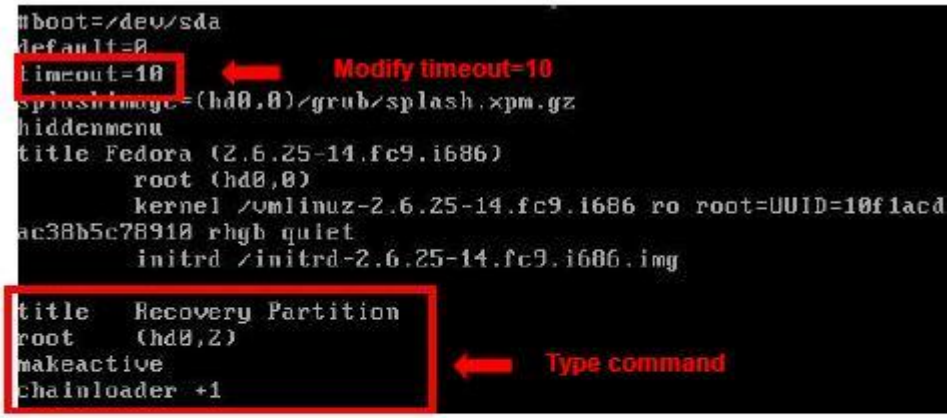



**Figure C-24: Access menu.lst in Linux (Text Mode)**

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




- Type command:

  title Recovery Partition

  root (hd0,2)

  makeactive

  chainloader +1

**Step 7:** The recovery tool menu appears. (**Figure C-25**)

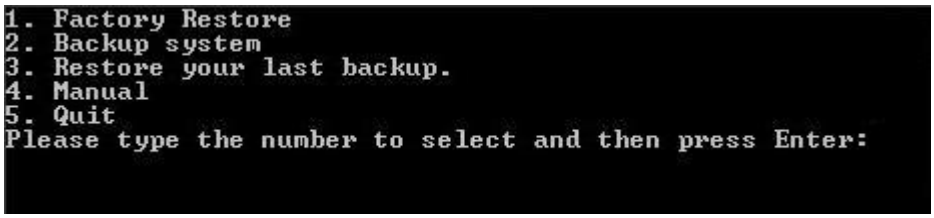



**Figure C-25: Recovery Tool Menu**

**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.4 Recovery Tool Functions

After completing the initial setup procedures as described above, users can access the recovery tool by pressing <**F3**> while booting up the system. The main menu of the recovery tool is shown below.


**Figure C-26: Recovery Tool Main Menu**

The recovery tool has several functions including:

1. **Factory Restore**: Restore the factory default image (iei.GHO) created in Section 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.4.1 Factory Restore

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

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

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

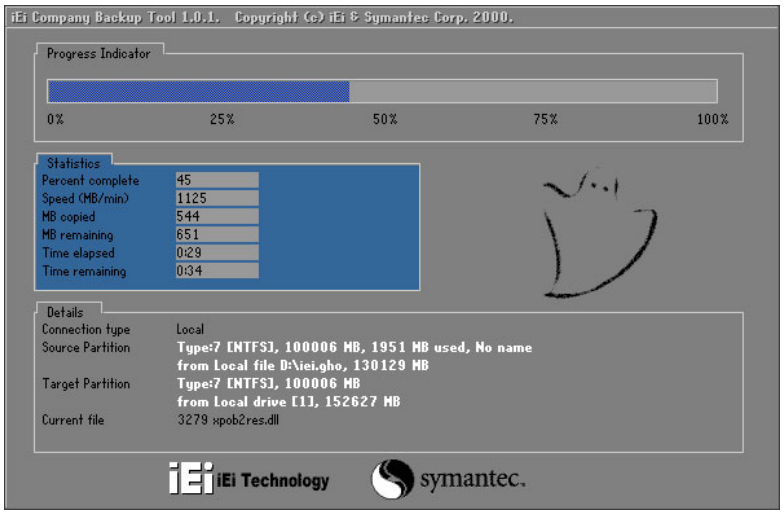



**Figure C-27: Restore Factory Default**

**Step 3:** The screen is shown as in **Figure A-8** when completed. Press any key to reboot the system.

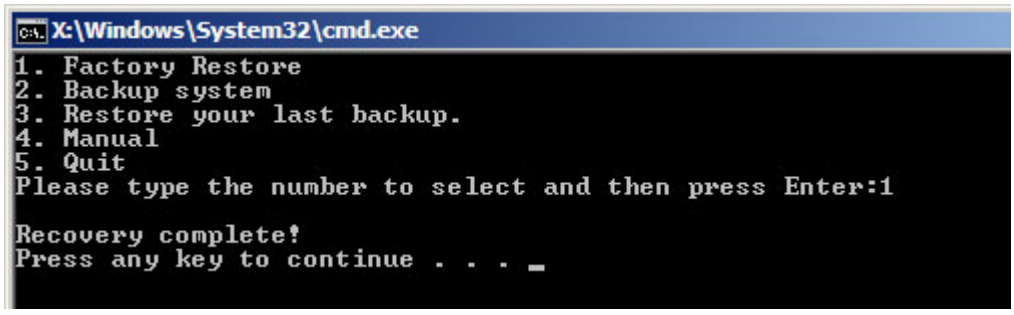



**Figure C-28: Recovery Complete Window**

### C.4.2 Backup System

To backup the system, please follow the steps below.

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

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

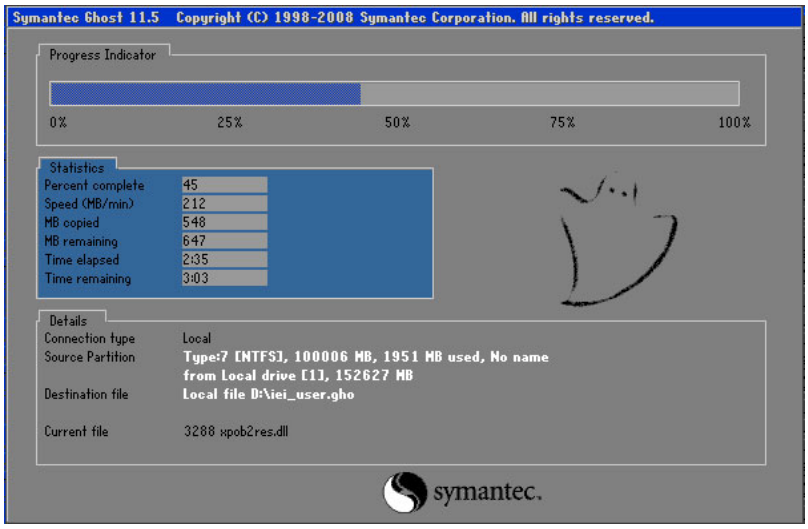



**Figure C-29: Backup System**

**Step 3:** The screen is shown as in **Figure C-30** when system backup is completed. Press any key to reboot the system.

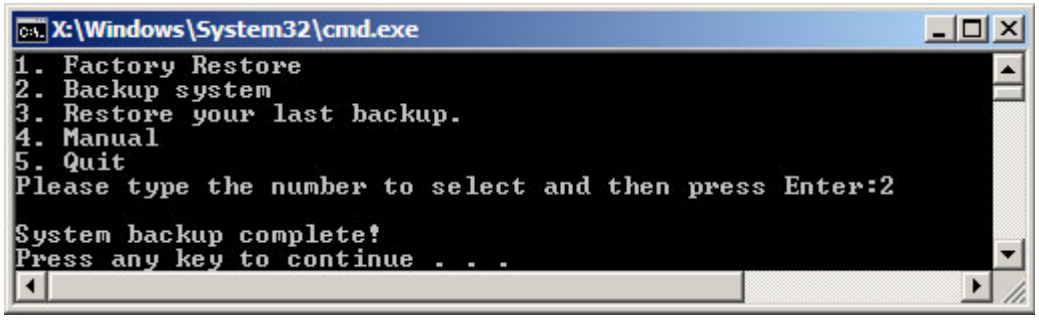



**Figure C-30: System Backup Complete Window**

### C.4.3 Restore Your Last Backup

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

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

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

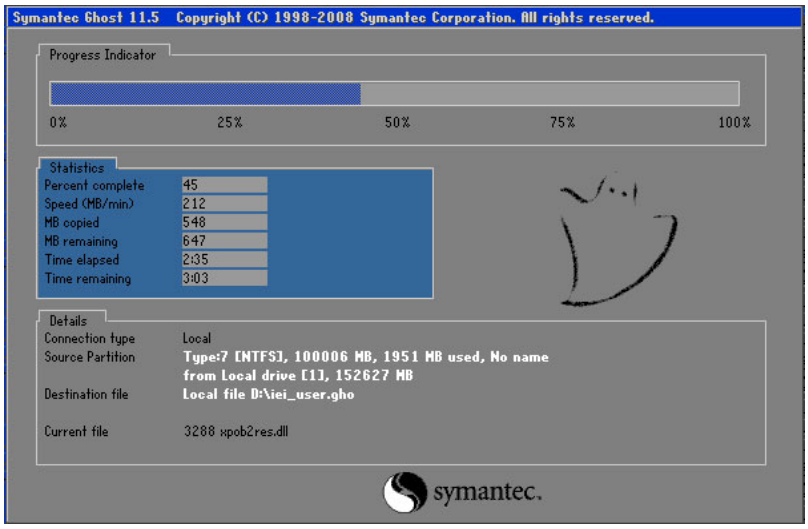



**Figure C-31: Restore Backup**

**Step 3:** The screen is shown as in **Figure C-32** when backup recovery is completed. Press any key to reboot the system.

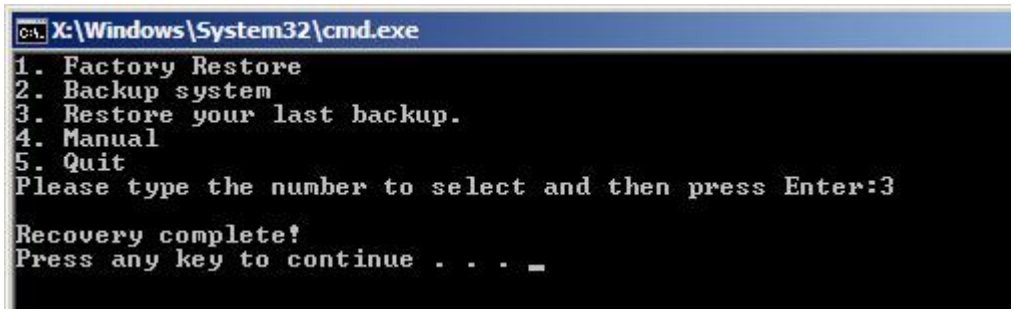



**Figure C-32: Restore System Backup Complete Window**

### C.4.4 Manual

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

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

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

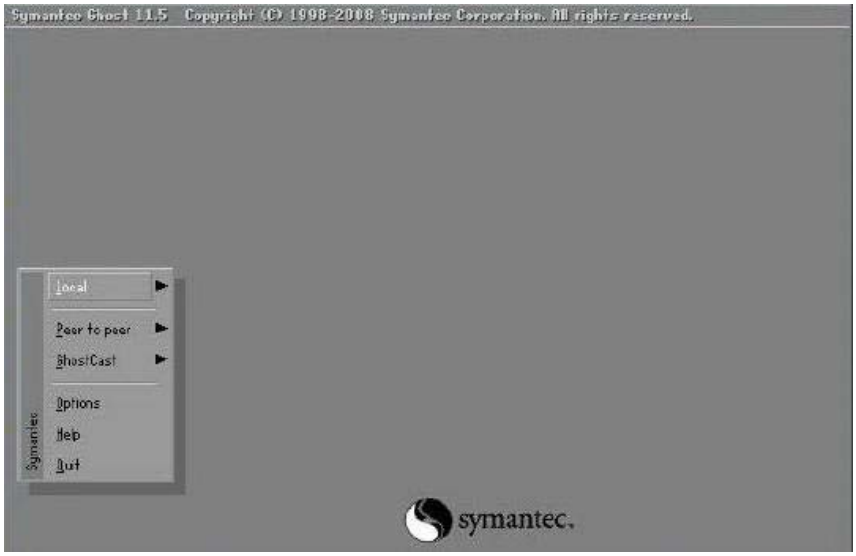



**Figure C-33: Symantec Ghost Window**

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

## C.5 Other Information

### C.5.1 Using AHCI Mode or ALi M5283 / VIA VT6421A Controller

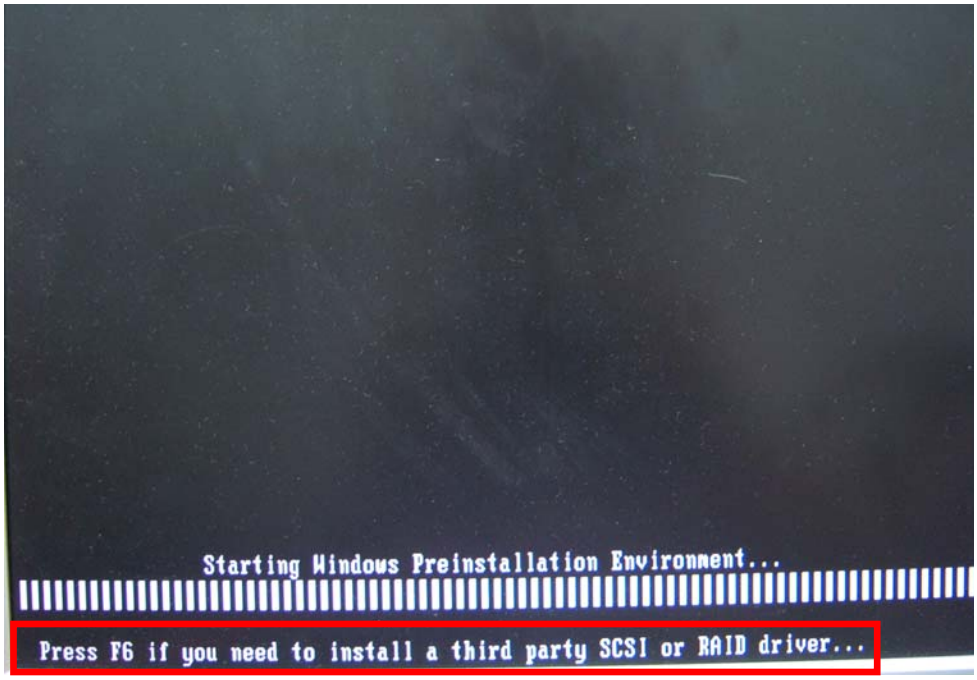
When the system uses AHCI mode or some specific SATA controllers such as ALi M5283 or VIA VT6421A, the SATA RAID/AHCI driver must be installed before using one key recovery. Please follow the steps below to install the SATA RAID/AHCI driver.

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

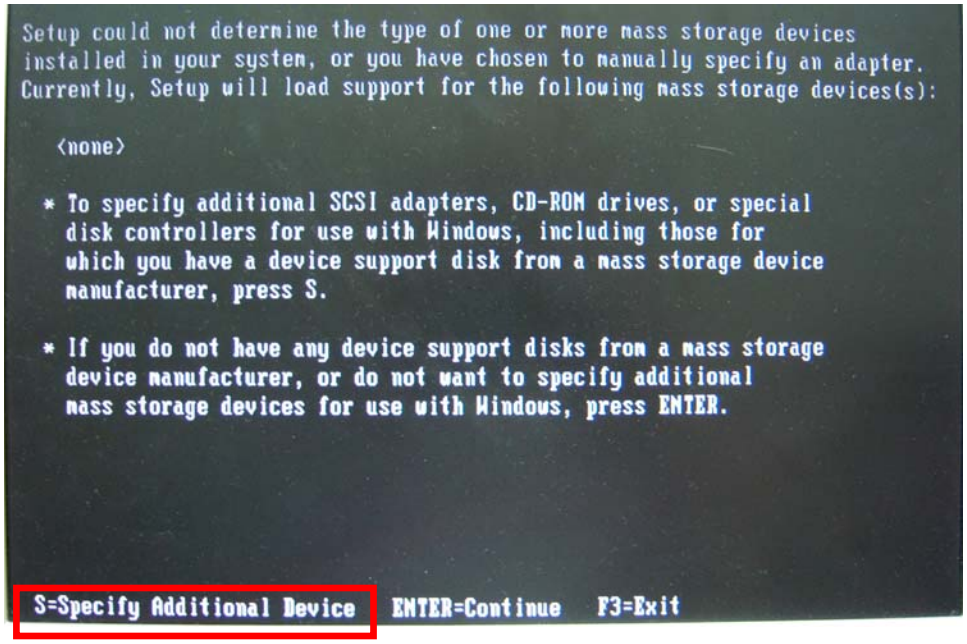
**Step 2:** Connect the USB floppy disk drive to the system.

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

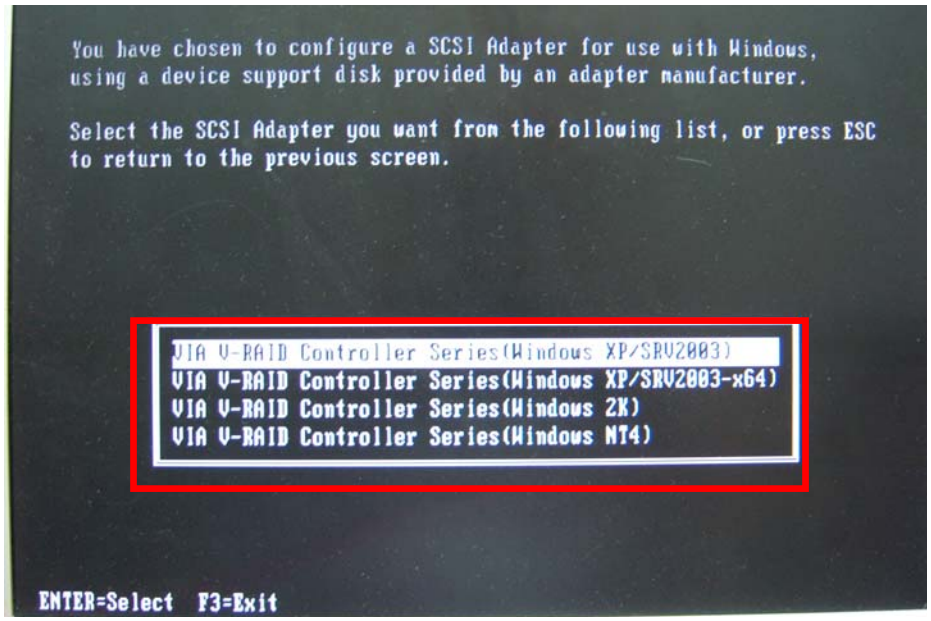
**Step 4:** When launching the recovery tool, press <**F6**>.



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




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



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

### C.5.2 System Memory Requirement

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

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

Appendix

D

# Terminology

| | |
|---|---|
| AC ’97 | Audio Codec 97 (AC’97) refers to a codec standard developed by Intel® in 1997. |
| ACPI | Advanced Configuration and Power Interface (ACPI) is an OS-directed configuration, power management, and thermal management interface. |
| AHCI | Advanced Host Controller Interface (AHCI) is a SATA Host controller register-level interface. |
| ATA | The Advanced Technology Attachment (ATA) interface connects storage devices including hard disks and CD-ROM drives to a computer. |
| APM | The Advanced Power Management (APM) application program interface (API) enables the inclusion of power management in the BIOS. |
| ARMD | An ATAPI Removable Media Device (ARMD) is any ATAPI device that supports removable media, besides CD and DVD drives. |
| ASKIR | Amplitude Shift Keyed Infrared (ASKIR) is a form of modulation that represents a digital signal by varying the amplitude (“volume”) of the signal. A low amplitude signal represents a binary 0, while a high amplitude signal represents a binary 1. |
| BIOS | The Basic Input/Output System (BIOS) is firmware that is first run when the computer is turned on and can be configured by the end user |
| CODEC | The Compressor-Decompressor (CODEC) encodes and decodes digital audio data on the system. |
| CMOS | Complimentary metal-oxide-conductor is a type of integrated circuit used in chips like static RAM and microprocessors. |
| COM | COM is used to refer to serial ports. Serial ports offer serial communication to expansion devices. The serial port on a personal |

| | |
|---|---|
| | computer is usually a male DE-9 connector. |
| DAC | The Digital-to-Analog Converter (DAC) converts digital signals to analog signals. |
| DDR | Double Data Rate refers to a data bus transferring data on both the rising and falling edges of the clock signal. |
| DMA | Direct Memory Access (DMA) enables some peripheral devices to bypass the system processor and communicate directly with the system memory. |
| DIMM | Dual Inline Memory Modules are a type of RAM that offer a 64-bit data bus and have separate electrical contacts on each side of the module. |
| EHCI | The Enhanced Host Controller Interface (EHCI) specification is a register-level interface description for USB 2.0 Host Controllers. |
| GbE | Gigabit Ethernet (GbE) is an Ethernet version that transfers data at 1.0 Gbps and complies with the IEEE 802.3-2005 standard. |
| GPIO | General purpose input |
| IrDA | Infrared Data Association (IrDA) specify infrared data transmission protocols used to enable electronic devices to wirelessly communicate with each other. |
| L1 Cache | The Level 1 Cache (L1 Cache) is a small memory cache built into the system processor. |
| L2 Cache | The Level 2 Cache (L2 Cache) is an external processor memory cache. |
| LVDS | Low-voltage differential signaling (LVDS) is a dual-wire, high-speed differential electrical signaling system commonly used to connect LCD displays to a computer. |
| MAC | The Media Access Control (MAC) protocol enables several terminals or network nodes to communicate in a LAN, or other multipoint networks. |

| | |
|---|---|
| PCIe | PCI Express (PCIe) is a communications bus that uses dual data lines for full-duplex (two-way) serial (point-to-point) communications between the SBC components and/or expansion cards and the SBC chipsets. Each line has a 2.5 Gbps data transmission rate and a 250 MBps sustained data transfer rate. |
| POST | The Power-on Self Test (POST) is the pre-boot actions the system performs when the system is turned-on. |
| QVGA | Quarter Video Graphics Array (QVGA) refers to a display with a resolution of 320 x 240 pixels. |
| RAM | Random Access Memory (RAM) is a form of storage used in computer. RAM is volatile memory, so it loses its data when power is lost. RAM has very fast data transfer rates compared to other storage like hard drives. |
| SATA | Serial ATA (SATA) is a serial communications bus designed for data transfers between storage devices and the computer chipsets. The SATA bus has transfer speeds up to 1.5 Gbps and the SATA 3Gb/s bus has data transfer speeds of up to 3.0 Gbps. |
| S.M.A.R.T | Self Monitoring Analysis and Reporting Technology (S.M.A.R.T) refers to automatic status checking technology implemented on hard disk drives. |
| UART | Universal Asynchronous Receiver-transmitter (UART) is responsible for asynchronous communications on the system and manages the system's serial communication (COM) ports. |
| UHCI | The Universal Host Controller Interface (UHCI) specification is a register-level interface description for USB 1.1 Host Controllers. |
| USB | The Universal Serial Bus (USB) is an external bus standard for interfacing devices. USB 1.1 supports 12Mbps data transfer rates, while |

| | |
|---|---|
| | USB 2.0 supports 480Mbps data transfer rates. |
| VGA | The Video Graphics Array (VGA) is a graphics display system developed by IBM. |

Appendix

E

# Watchdog Timer

**NOTE:**

The following discussion applies to DOS environment. IEI support is contacted or the IEI website visited for specific drivers for more sophisticated operating systems, e.g., Windows and Linux.

The Watchdog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMI or a software bug. When the CPU stops working correctly, Watchdog Timer either performs a hardware reset (cold boot) or a Non-Maskable Interrupt (NMI) to bring the system back to a known state.

A BIOS function call (INT 15H) is used to control the Watchdog Timer:

**INT 15H:**

| **AH – 6FH Sub-function:** | |
|---|---|
| AL – 2: | Sets the Watchdog Timer's period. |
| BL: | Time-out value (Its unit-second is dependent on the item "Watchdog Timer unit select" in CMOS setup). |

**Table E-1: AH-6FH Sub-function**

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer starts counting down. While the timer value reaches zero, the system resets. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the Watchdog timer is disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

**NOTE:**

When exiting a program it is necessary to disable the Watchdog Timer, otherwise the system resets.

## Example program:

```
; INITIAL TIMER PERIOD COUNTER
;
W_LOOP:

        MOV     AX, 6F02H       ;setting the time-out value
        MOV     BL, 30H             ;time-out value is 48 seconds
        INT      15H
 ;
; ADD THE APPLICATION PROGRAM HERE
;
        CMP      EXIT_AP, 1         ;is the application over?
        JNE      W_LOOP     ;No, restart the application

        MOV     AX, 6F02H       ;disable Watchdog Timer
        MOV     BL, 0           ;
        INT      15H
;
; EXIT ;
```

Appendix

F

# Hazardous Materials Disclosure

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

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

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

Please refer to the table on the next page.

| Part Name | Toxic or Hazardous Substances and Elements | | | | | |
|---|---|---|---|---|---|---|
| | Lead (Pb) | Mercury (Hg) | Cadmium (Cd) | Hexavalent Chromium (CR(VI)) | Polybrominated Biphenyls (PBB) | Polybrominated Diphenyl Ethers (PBDE) |
| Housing | 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。