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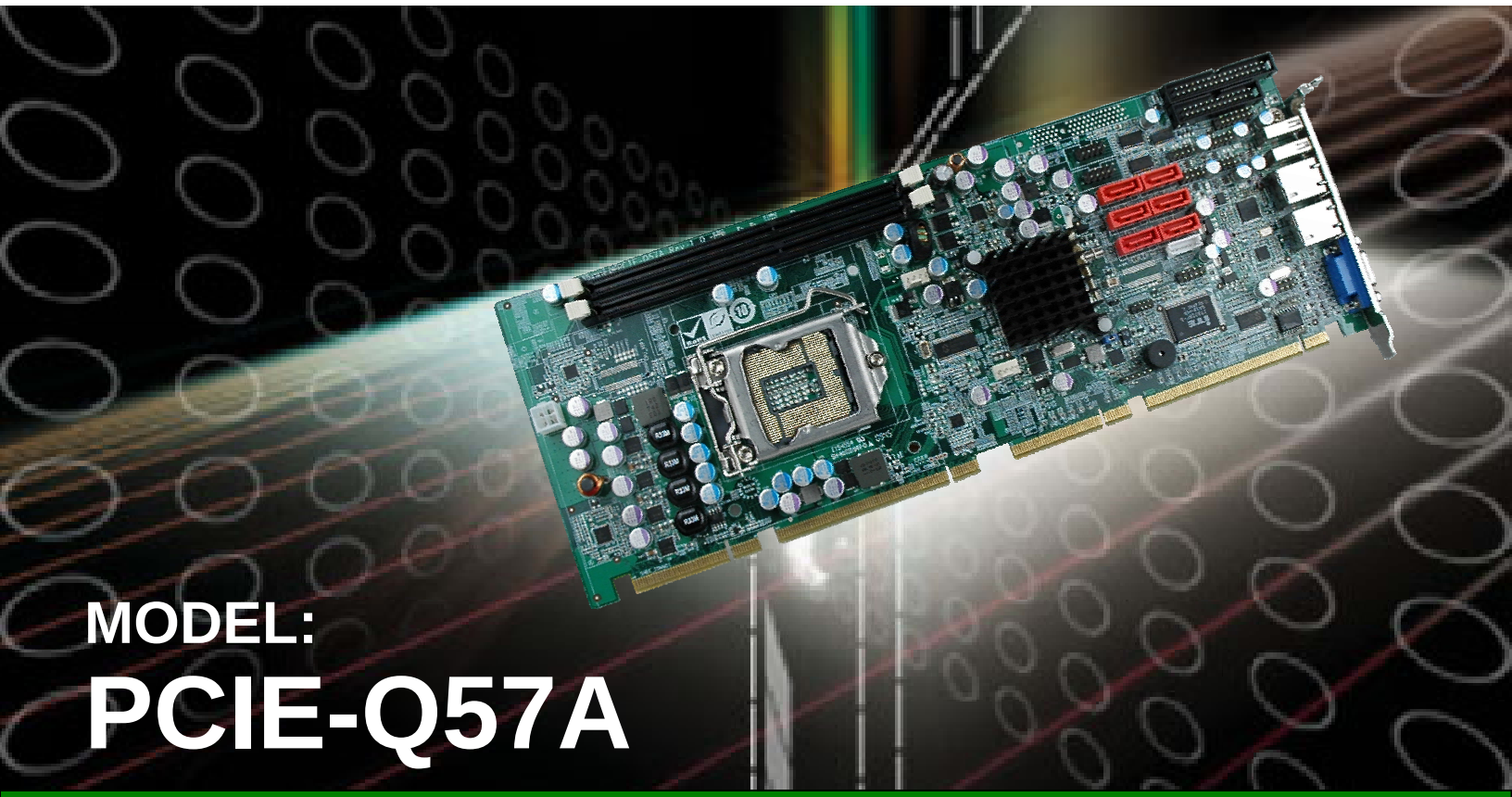
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IEI Technology Corp.



MODEL:

PCIE-Q57A

PICMG 1.3 CPU Card Supports Intel® Core™ i3/i5/i7 CPU, VGA, Dual PCIe GbE, USB 2.0, Six SATA 3Gb/s RS-232, Audio and Intel® AMT 6.0

User Manual

Rev. 1.02 - 16 November, 2011

RoHS Lead Free

Revision

Date	Version	Changes
16 November, 2011	1.02	Modified Section 2.3.1: Optional Items
2 November, 2010	1.01	Added a note for VGA port about Intel® quad-core processor limitation Added a note for CPU installation about Intel® Core™ i7 processor limitation Updated fan installation diagram
6 May, 2010	1.00	Initial release

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Chapter

1

Introduction

1.1 Introduction

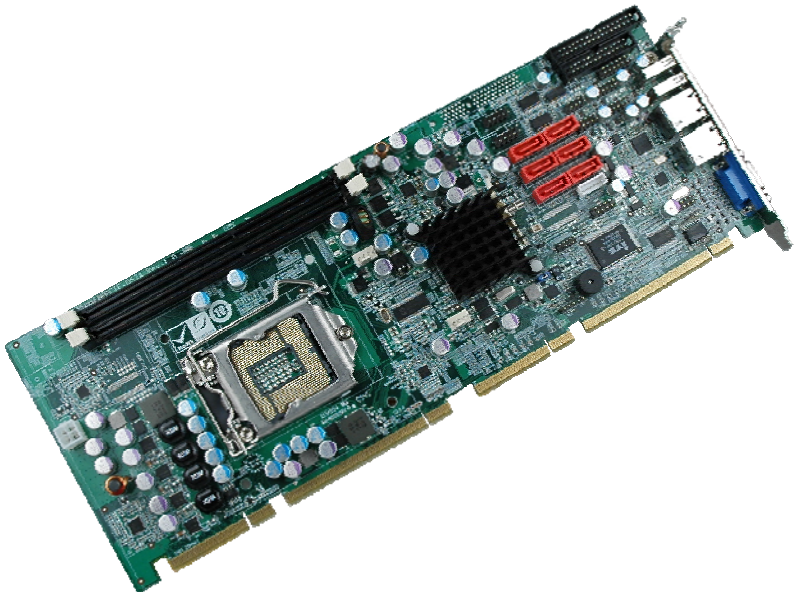


Figure 1-1: PCIE-Q57A

The PCIE-Q57A PICMG 1.3 CPU card is a Socket LGA1156 32nm Intel® Core™ i3, Core™ i5 and Core™ i7 processor platform. Up to two 4.0 GB 1333 MHz, 1066 MHz or 800 MHz DDR3 SDRAM DIMM are supported by the Intel® processor. The processor also supports a PCIe x16 slot on the backplane.

The PCIE-Q57A supports two GbE interfaces through the Intel® 82578DM Ethernet PHY (with Intel® AMT 6.0 support) and the Intel® 82583V Ethernet controller.

The integrated Intel® Q57 Express Chipset supports six SATA 3Gb/s drives and RAID 0, 1, 5, 10. Twelve USB 2.0 channels, one PCIe x4 channel and PCI channels provide flexible expansion options. High Definition Audio (HDA) support ensures HDA devices can be easily implemented on the PCIE-Q57A.

1.2 Connectors

The connectors on the PCIE-Q57A are shown in the figure below.

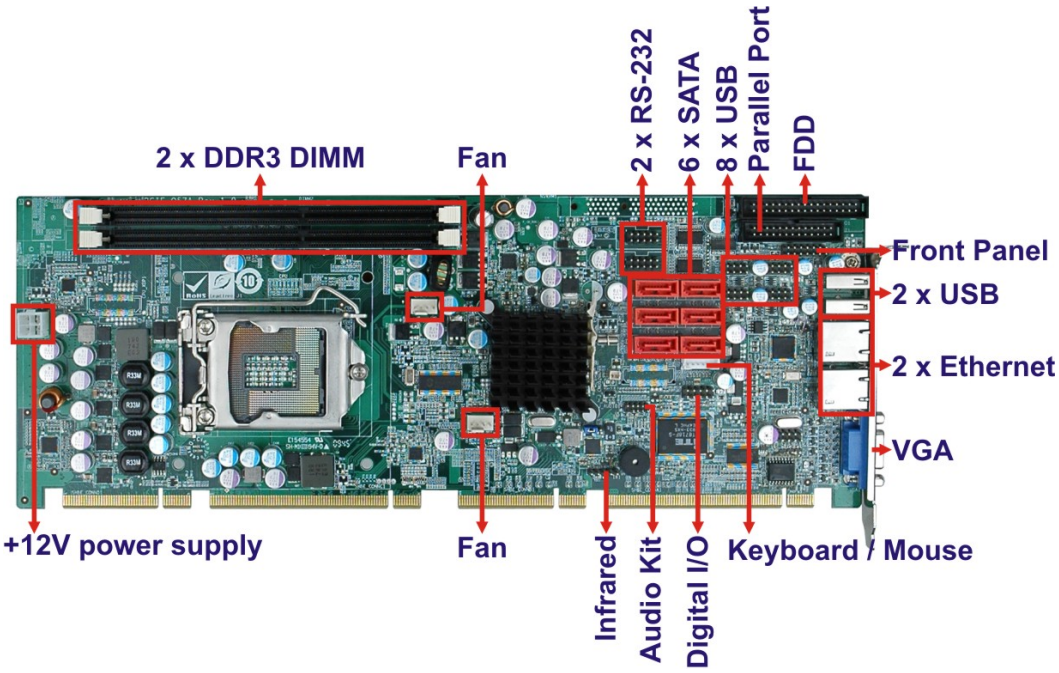


Figure 1-2: Connectors

1.3 Dimensions

The dimensions of the board are listed below:

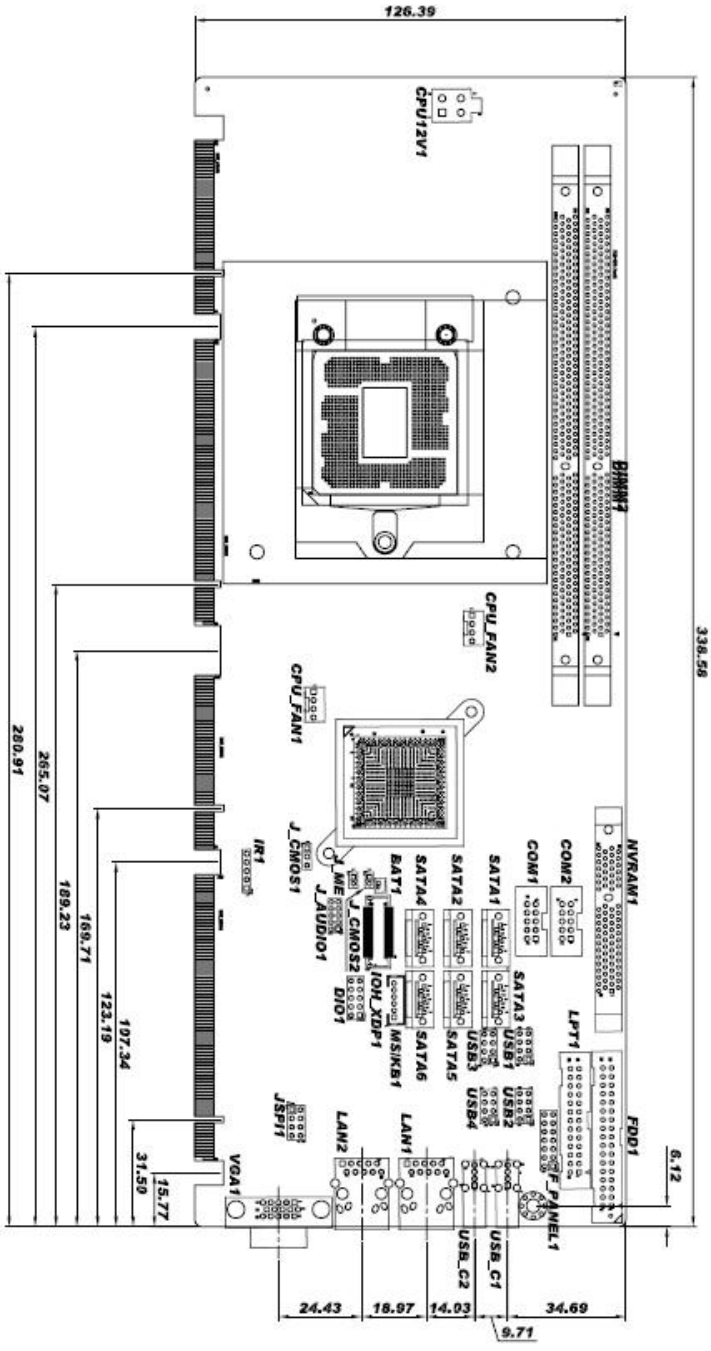


Figure 1-3: PCIE-Q57A Dimensions (mm)

1.3.1 External Interface Panel Dimensions

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

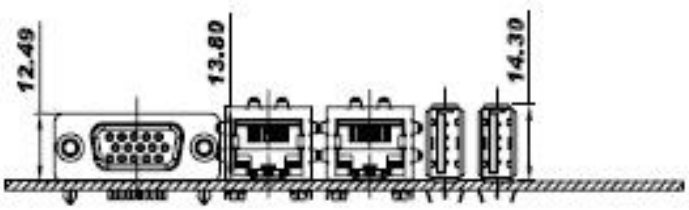


Figure 1-4: External Interface Panel Dimensions (mm)

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.

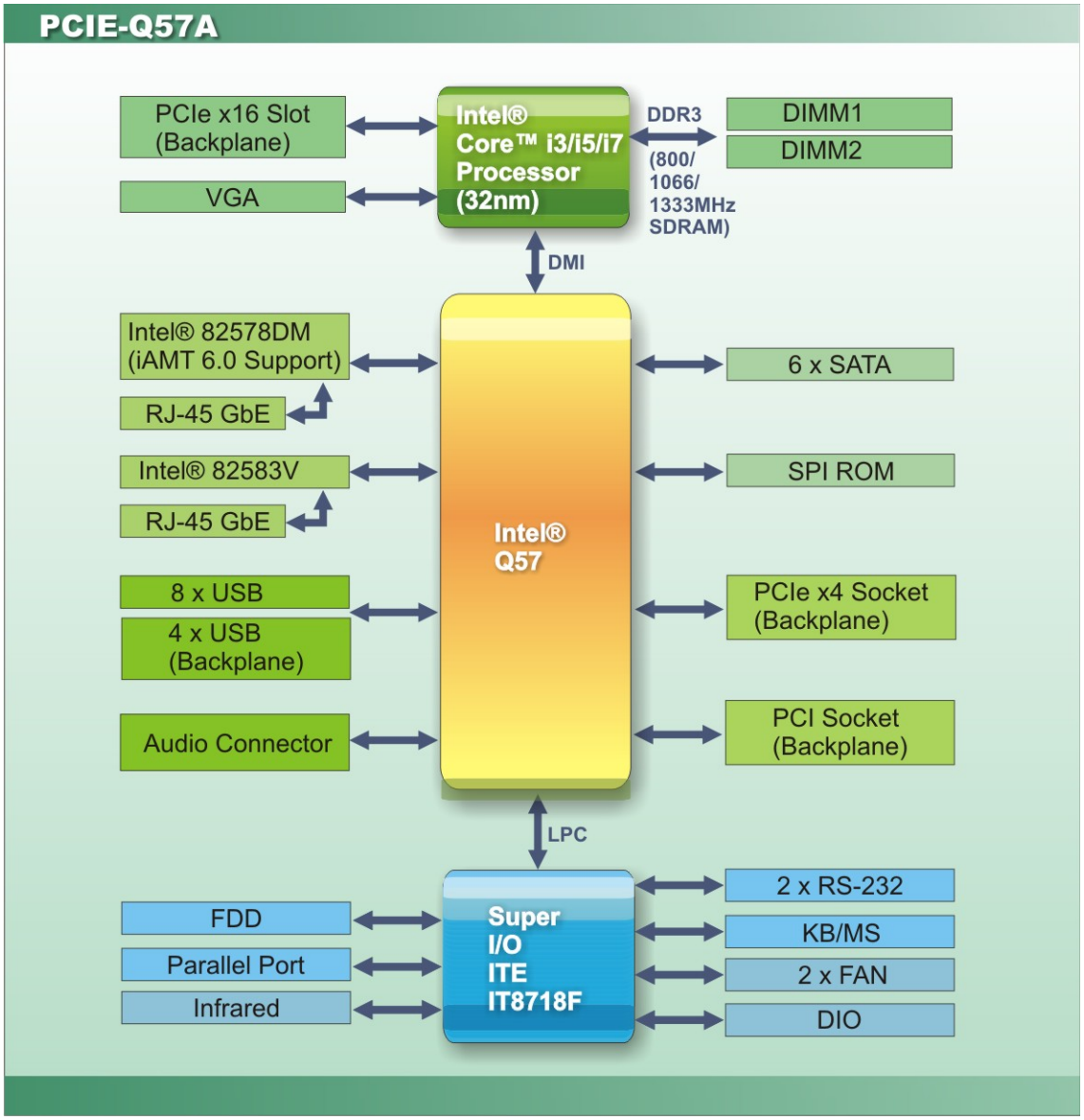


Figure 1-5: Data Flow Block Diagram

1.5 Technical Specifications

PCIE-Q57A technical specifications are listed in table below.

Specification	PCIE-Q57A
Form Factor	PICMG 1.3
Socket	LGA1156
CPU Supported	32 nm Socket LGA1156 Intel® Core™ i3 processor 32 nm Socket LGA1156 Intel® Core™ i5 processor 32 nm Socket LGA1156 Intel® Core™ i7 processor
Express Chipset	Intel® Q57
Memory	Two 240-pin 800/1066/1333 MHz 4.0 GB (max.) DDR3 SDRAM DIMM supported (system max. 8 GB)
Audio	Support 7.1 channel HD Audio kit with Realtek ALC888 codec
LAN	One Intel® 82578DM PCIe GbE PHY with iAMT 6.0 (LAN2) One Intel® 82583V PCIe GbE controller (LAN1)
Super I/O	ITE IT8718F
BIOS	AMI BIOS label
Watchdog Timer	Software programmable supports 1~255 sec. system reset
Expansion	
PCIe	Support one PCIe x16 slot on backplane Support one PCIe x4 slot on backplane
PCI	Support up to four PCI slots on backplane
I/O Interface Connectors	
Audio Connector	One internal audio connector (10-pin header)
Display	One VGA port
Ethernet	Two RJ-45 GbE port
Serial Ports	Two RS-232 via two 10-pin header connectors

Specification	PCIE-Q57A
USB 2.0/1.1 Ports	Two external USB ports Eight internal USB ports via four 8-pin header connector Four USB ports via backplane
Infrared	One infrared connector
Parallel Port	One internal 26-pin parallel port connector
Digital I/O	One 8-bit digital I/O connector (4-bit input, 4-bit output)
Keyboard/Mouse	One 6-pin wafer connector
Fan	Two 4-pin wafer connectors
Storage	
Serial ATA	Six SATA 3.0 Gb/s connectors (support RAID 0, 1, 5, 10)
FDD	One 34-pin floppy disk drive connector
Environmental and Power Specifications	
Power Supply	ATX power supported
Power Connector	One internal 4-pin power connector for power supply
Power Consumption	3.3V@0.89A, 5V@4.62A , 12V@0.51A, Vcore_12V@4.35A, 5VSB@0.14A (3.3 GHz Intel® Core™ i5 660M CPU with two 1066 MHz 2 GB 1066 MHz DDR3 DIMM)
Operating Temperature	0ºC ~ 60ºC (requires cooler and silicone heat sink paste)
Humidity	5% ~ 95% (non-condensing)
Physical Specifications	
Dimensions	338 mm x 126 mm
Weight GW	1100g

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 PCIE-Q57A 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 PCIE-Q57A was purchased from or contact an IEI sales representative directly by sending an email to sales@iei.com.tw.

The PCIE-Q57A is shipped with the following components:

Quantity	Item and Part Number	Image
1	PCIE-Q57A CPU card	
6	SATA cable (**P/N**: 32000-062800-RS)	
1	Dual RS-232 cable (**P/N**: 19800-000051-RS)	
1	Dual USB cable (with bracket) (**P/N**: CB-USB02-RS)	
1	Mini jumper pack (2.54mm) (**P/N**:33100-000079-RS)	
1	Utility CD	

1	Quick Installation Guide	

2.3.1 Optional Items

The PCIE-Q57A can be shipped with the following optional components:

Item and Part Number	Image
Audio kit_ 7.1 Channel (**P/N**: AC-KIT-888HD-R10)	
CPU cooler (**P/N**: CF-1156A-R10)	
FDD cable (**P/N**: 32200-000017-RS)	
KB/MS cable (**P/N**: 19800-000075-RS)	
Parallel port cable (**P/N**:19800-000049-RS)	
SATA power cable (**P/N**: 32102-000100-100-RS) (**P/N**: 32102-000100-200-RS)	
4-port USB cable (**P/N**: CB-USB14-RS)	

Chapter

3

Connectors

3.1 Peripheral Interface Connectors

This chapter details all the jumpers and connectors.

3.1.1 PCIE-Q57A Layout

The figures below show all the connectors and jumpers.

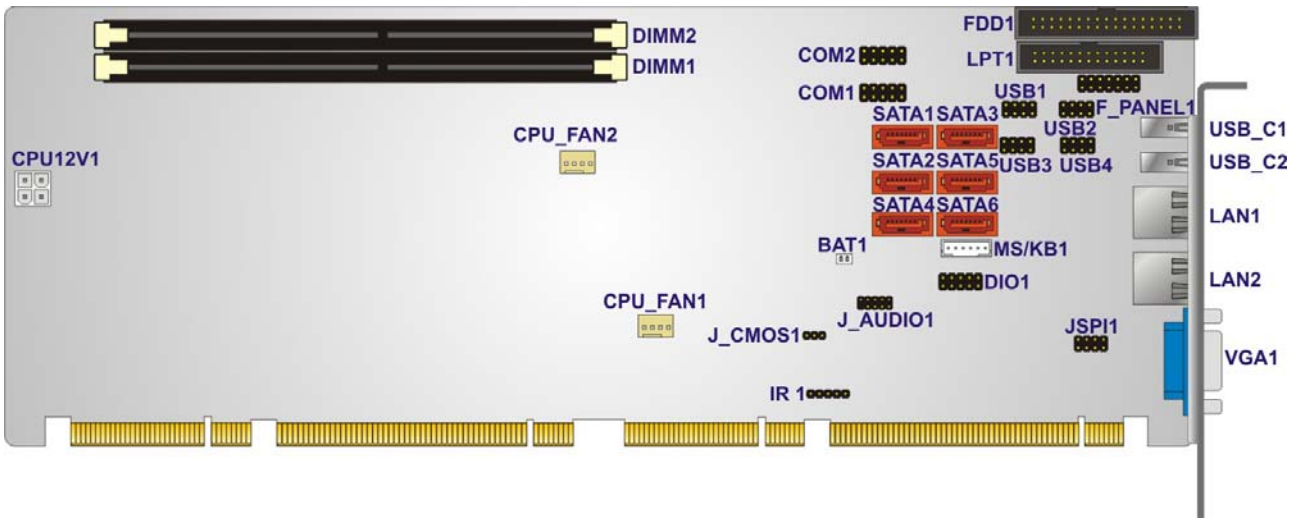


Figure 3-1: Connector and Jumper Locations

3.1.2 Peripheral Interface Connectors

The table below lists all the connectors on the board.

Connector	Type	Label
+12V ATX power supply connector	4-pin Molex power connector	CPU12V1
Audio kit connector	10-pin header	J_AUDIO1
Battery connector	2-pin wafer	BAT1
DDR3 DIMM socket	240-pin socket	DIMM1
DDR3 DIMM socket	240-pin socket	DIMM2
Digital I/O connector	10-pin header	DIO1
Fan connector (CPU)	4-pin wafer	CPU_FAN1
Fan connector (CPU)	4-pin wafer	CPU_FAN2
Floppy disk drive connector	34-pin box header	FDD1
Front panel connector	14-pin header	F_PANEL1
Infrared connector	5-pin header	IR1
Keyboard and mouse connector	6-pin wafer	KB/MS1
Parallel port connector	26-pin box header	LPT1
SATA drive connector (1)	7-pin SATA	SATA1
SATA drive connector (2)	7-pin SATA	SATA2
SATA drive connector (3)	7-pin SATA	SATA3
SATA drive connector (4)	7-pin SATA	SATA4
SATA drive connector (5)	7-pin SATA	SATA5
SATA drive connector (6)	7-pin SATA	SATA6
Serial port connector (RS-232)	10-pin header	COM1

Serial port connector (RS-232)	10-pin header	COM2
SPI Flash connector	8-pin header	JSPI1
USB connector (1)	8-pin header	USB1
USB connector (2)	8-pin header	USB2
USB connector (3)	8-pin header	USB3
USB connector (4)	8-pin header	USB4

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
Ethernet connector	RJ-45	LAN1
Ethernet connector	RJ-45	LAN2
USB port	USB port	USB_C1
USB port	USB port	USB_C2
VGA port connector	15-pin female	VGA1

Table 3-2: Rear Panel Connectors

3.2 Internal Peripheral Connectors

The section describes all of the connectors on the PCIE-Q57A.

3.2.1 12V Power Connector

CN Label: **CPU12V1**

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

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

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

The connector supports the 12V power supply.

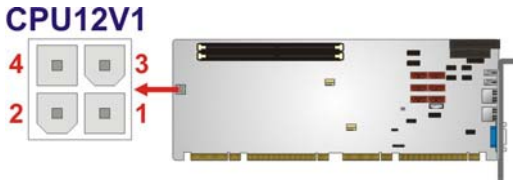


Figure 3-2: CPU 12V Power Connector Location

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

Table 3-3: CPU 12V Power Connector Pinouts

3.2.2 Audio Kit Connector

CN Label: **J_AUDIO1**

CN Type: 10-pin header (2x5)

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

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

This connector connects to an external audio kit.

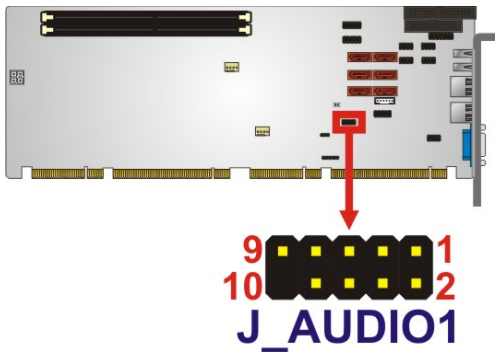


Figure 3-3: Audio Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	ACZ_SYNC	2	ACZ_BITCLK
3	ACZ_SDOUT	4	ACZ_PCBEEP
5	ACZ_SDIN	6	ACZ_RST#
7	ACZ_VCC	8	ACZ_GND
9	ACZ_12V	10	ACZ_GND

Table 3-4: Audio Connector Pinouts

3.2.3 Digital I/O Connector

CN Label: **DIO1**

CN Type: 10-pin header (2x5)

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

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

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.

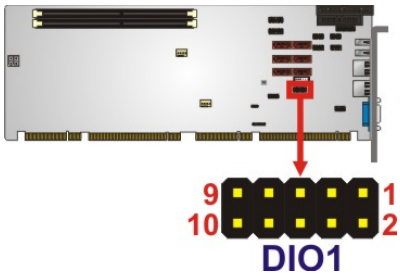


Figure 3-4: Digital I/O Connector Locations

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 3-5: Digital I/O Connector Pinouts

3.2.4 Fan Connector (CPU)

CN Label:	**CPU_FAN1** and **CPU_FAN2**
CN Type:	4-pin wafer (1x4)
CN Location:	See **Figure 3-5**
CN Pinouts:	See **Table 3-6**

The fan connector attaches to a CPU cooling fan.

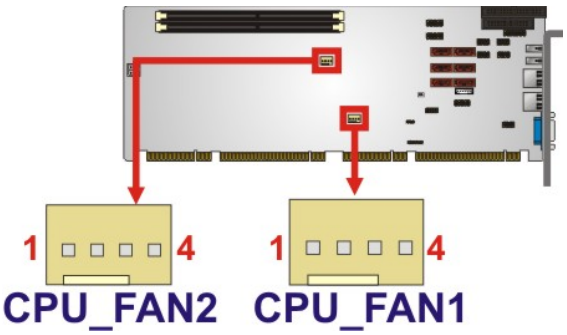


Figure 3-5: CPU Fan Connector Location

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

Table 3-6: CPU Fan Connector Pinouts

3.2.5 Floppy Disk Connector

CN Label:	**FDD1**
CN Type:	34-pin header (2x17)
CN Location:	See **Figure 3-6**
CN Pinouts:	See **Table 3-7**

The floppy disk connector is connected to a floppy disk drive.

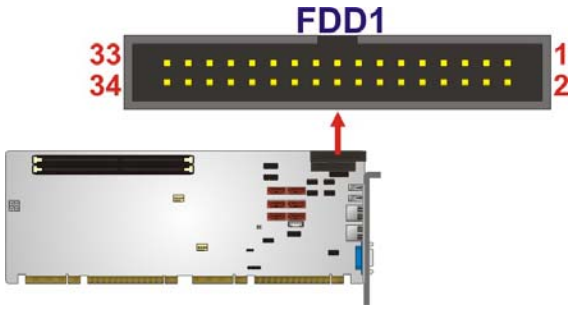


Figure 3-6: Floppy Disk Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	REDUCE WRITE
3	GND	4	N/C
5	N/C	6	N/C
7	GND	8	INDEX#
9	GND	10	MOTOR ENABLE A#
11	GND	12	DRIVE SELECT B#
13	GND	14	DRIVE SELECT A#
15	GND	16	MOTOR ENABLE B#
17	GND	18	DIRECTION#
19	GND	20	STEP#
21	GND	22	WRITE DATA#
23	GND	24	WRITE GATE#
25	GND	26	TRACK 0#
27	GND	28	WRITE PROTECT#
29	GND	30	READ DATA#
31	GND	32	SIDE 1 SELECT#
33	GND	34	DISK CHANGE#

Table 3-7: Floppy Disk Pinouts

3.2.6 Front Panel Connector

CN Label: **F_PANEL1**

CN Type: 14-pin header (2x7)

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

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

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
- Speaker

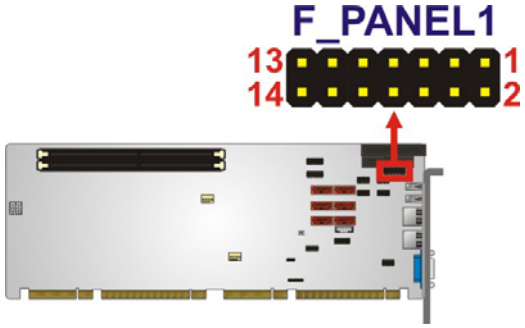


Figure 3-7: Front Panel Connector Location

FUNCTION	PIN	DESCRIPTION	FUNCTION	PIN	DESCRIPTION
Power LED	1	+5V	Speaker	2	+5V
	3	N/C		4	N/C
	5	GROUND		6	N/C
Power Button	7	PWR_BTN+		8	Speaker
	9	PWR_BTN-	Reset	10	N/C
HDD LED	11	+5V		12	RESET-
	13	HDD_LED-		14	GROUND

Table 3-8: Front Panel 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.

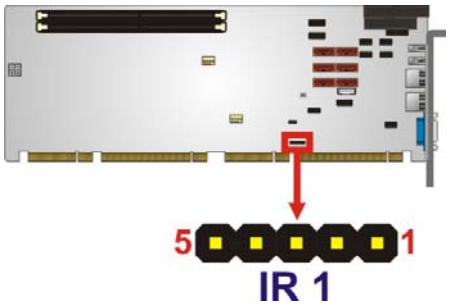


Figure 3-8: Infrared Connector Location

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

Table 3-9: Infrared Connector Pinouts

3.2.8 Keyboard/Mouse Connector

CN Label: **KB/MS1**

CN Type: 6-pin wafer (1x6)

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

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

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

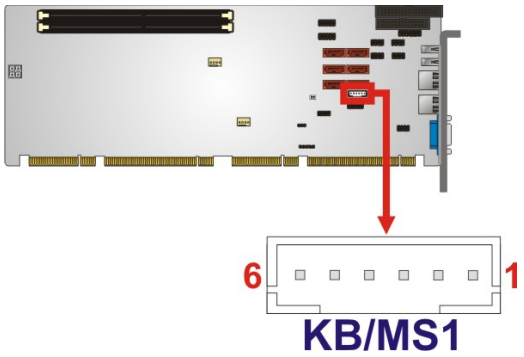


Figure 3-9: Keyboard/Mouse Connector Location

Pin	Description
1	+5 VCC
2	Mouse Data
3	Mouse Clock
4	Keyboard Data
5	Keyboard Clock
6	GROUND

Table 3-10: Keyboard/Mouse Connector Pinouts

3.2.9 Parallel Port Connector

CN Label: **LPT1**

CN Type: 26-pin box header

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

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

The parallel port connector connects to a parallel port connector interface or some other parallel port device such as a printer.

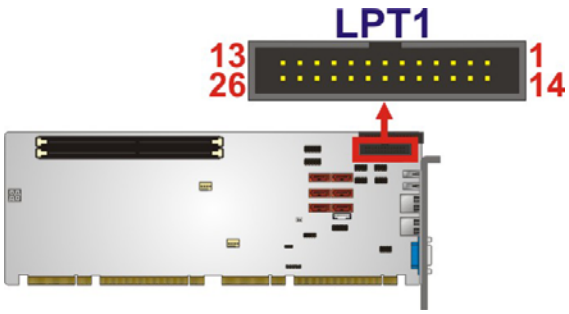


Figure 3-10: Parallel Port Connector Location

Pin	Description	Pin	Description
1	STROBE#	14	AUTO FORM FEED #
2	DATA0	15	ERROR#
3	DATA1	16	INITIALIZE#
4	DATA2	17	PRINTER SELECT LN#
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	ACKNOWLEDGE#	23	GND
11	BUSY	24	GND
12	PAPER EMPTY	25	GND
13	PRINTER SELECT		

Table 3-11: Parallel Port Connector Pinouts

3.2.10 SATA Drive Connectors

CN Label: **SATA1**, **SATA2**, **SATA3**, **SATA4**, **SATA5** and **SATA6**

CN Type: 7-pin SATA drive connectors

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

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

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.

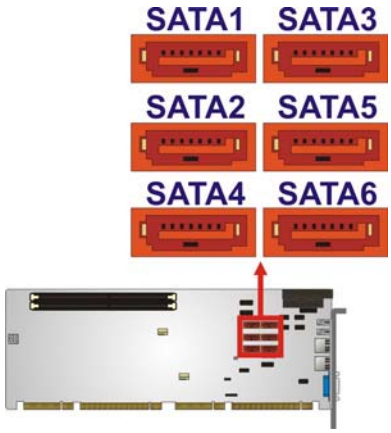


Figure 3-11: SATA Drive Connector Locations

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

Table 3-12: SATA Drive Connector Pinouts

3.2.11 Serial Port Connectors (RS-232)

CN Label:	**COM1** and **COM2**
CN Type:	10-pin header (2x5)
CN Location:	See **Figure 3-12**
CN Pinouts:	See **Table 3-13**

These connectors provide RS-232 communications.

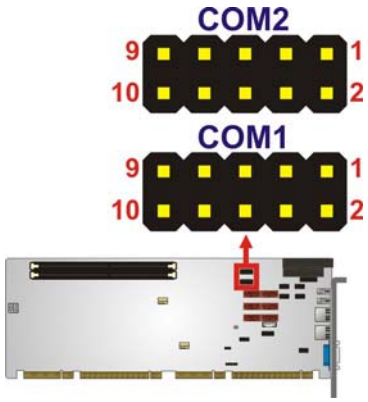


Figure 3-12: COM Connector Pinout Locations

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 3-13: COM Connector Pinouts

3.2.12 SPI Flash Connector

CN Label: **JSPI1**

CN Type: 8-pin header (2x4)

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

CN Pinouts: See **Table 3-14**

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

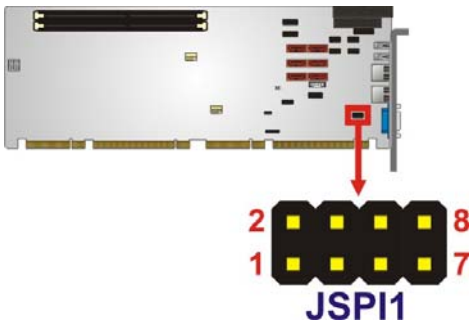


Figure 3-13: SPI Flash Connector

PIN	DESCRIPTION	PIN	DESCRIPTION
1	VCC	2	CE#
3	SO	4	N/C
5	GND	6	CLOCK
7	SI	8	N/C

Table 3-14: SPI Flash Connector

3.2.13 USB Connectors

CN Label: **USB1**, **USB2**, **USB3** and **USB4**

CN Type: 8-pin header (2x4)

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

CN Pinouts: See **Table 3-15**

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

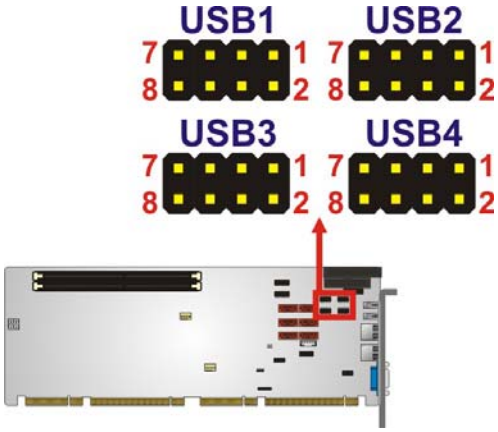


Figure 3-14: USB Connector Pinout Locations

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

Table 3-15: USB Port Connector Pinouts

3.3 External Peripheral Interface Connector Panel

Figure 3-15 shows the PCIE-Q57A external peripheral interface connector (EPIC) panel. The PCIE-Q57A EPIC panel consists of the following:

- 2 x Ethernet connectors
- 2 x USB connectors
- 1 x VGA connector

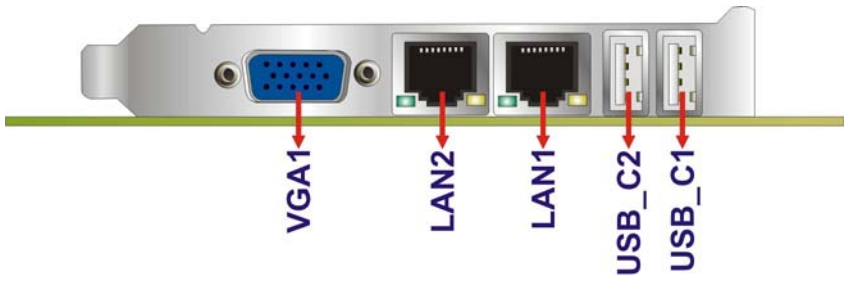


Figure 3-15: PCIE-Q57A External Peripheral Interface Connector

3.3.1 Ethernet Connector

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

CN Type: RJ-45

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

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

The PCIE-Q57A 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	TRD1P0	5	TRD1P2
2	TRD1N0	6	TRD1N2
3.	TRD1P1	7	TRD1P3
4.	TRD1N1	8	TRD1N3

Table 3-16: 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 3-17**.

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

Table 3-17: RJ-45 Ethernet Connector LEDs

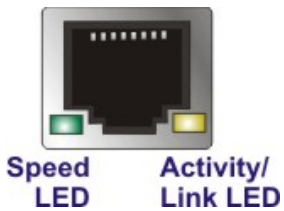


Figure 3-16: RJ-45 Ethernet Connector

3.3.2 USB Connectors

CN Label: **USB_C1** and **USB_C2**

CN Type: USB port

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

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

The PCIE-Q57A has two external USB 2.0 ports. The ports connect to both USB 2.0 and USB 1.1 devices.

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

Table 3-18: USB Port Connector Pinouts

3.3.3 VGA Connector

CN Label: **VGA1**

CN Type: 15-pin Female

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

CN Pinouts: See **Figure 3-17** and **Table 3-19**

The PCIE-Q57A has a single 15-pin female connector for connectivity to standard display devices.

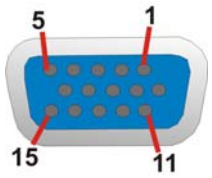


Figure 3-17: VGA Connector

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 3-19: VGA Connector Pinouts

NOTE:

The Intel® HD Graphics is **NOT** integrated in all the Intel® Core™ i7 Desktop processor family and Intel® Core™ i5-700 series processor. An additional graphic card must be installed in order to support display output. Otherwise, the display will show "No display output" when connected to the on-board VGA port.

The following table lists all Intel® Core™ i5 and i3 family processors that support Intel® HD Graphics:

- Intel® Core™ i5-650
- Intel® Core™ i5-655
- Intel® Core™ i5-660
- Intel® Core™ i5-661
- Intel® Core™ i5-670
- Intel® Core™ i5-680
- Intel® Core™ i3-530
- Intel® Core™ i3-540
- Intel® Core™ i3-550
- Intel® Core™ i3-560

Reference *Intel® Core™ i3 Desktop CPU:*

http://ark.intel.com/ProductCollection.aspx?familyID=43129&MarketSegment=DT

Intel® Core™ i5 Desktop CPU:

http://ark.intel.com/ProductCollection.aspx?familyID=42912&MarketSegment=DT

Intel® Core™ i7 Desktop CPU:

http://ark.intel.com/ProductCollection.aspx?familyID=28037&MarketSegment=DT

Chapter

4

Installation

4.1 Anti-static Precautions



WARNING:

Failure to take ESD precautions during the installation of the PCIE-Q57A may result in permanent damage to the PCIE-Q57A and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the PCIE-Q57A. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the PCIE-Q57A, 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 PCIE-Q57A, place it on an antic-static pad. This reduces the possibility of ESD damaging the PCIE-Q57A.
- ***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 PCIE-Q57A is installed. All installation notices pertaining to the installation of the PCIE-Q57A should be strictly adhered to. Failing to adhere to these precautions may lead to severe damage of the PCIE-Q57A 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 PCIE-Q57A, PCIE-Q57A 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 PCIE-Q57A 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 PCIE-Q57A 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 PCIE-Q57A off:

- When working with the PCIE-Q57A, 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 PCIE-Q57A **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 PCIE-Q57A 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 PCIE-Q57A vendor reseller/vendor where the PCIE-Q57A was purchased or contact an IEI sales representative.

4.4 CPU, CPU Cooling Kit and Memory 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, PCIE-Q57A 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 PCIE-Q57A. If one of these component is not installed the PCIE-Q57A cannot run.

4.4.1 Socket LGA1156 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.

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

CAUTION:

Intel® Core™ i7-900 processor series uses LGA1366 socket and support Intel® X58 Chipset. Only Intel® Core™ i7-800 processor series of the Intel® Core™ i7 processor family can be installed into the on-board LGA1156 socket of the PCIE-Q57A.

To install the CPU, follow the steps below.

Step 1: **Disengage the load lever** by pressing the lever down and slightly outward to clear the retention tab. Fully open the lever. See **Figure 4-1**.

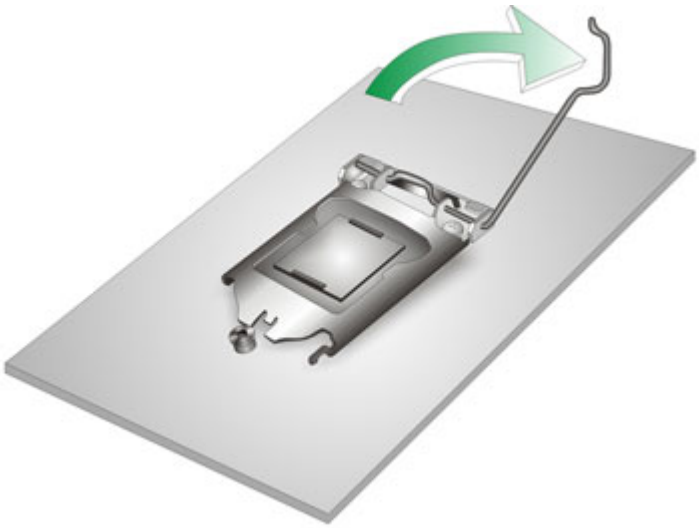


Figure 4-1: Disengage the CPU Socket Load Lever

Step 2: **Open the socket and remove the protective cover.** The black protective cover can be removed by pulling up on the tab labeled "Remove". See **Figure 4-2**.

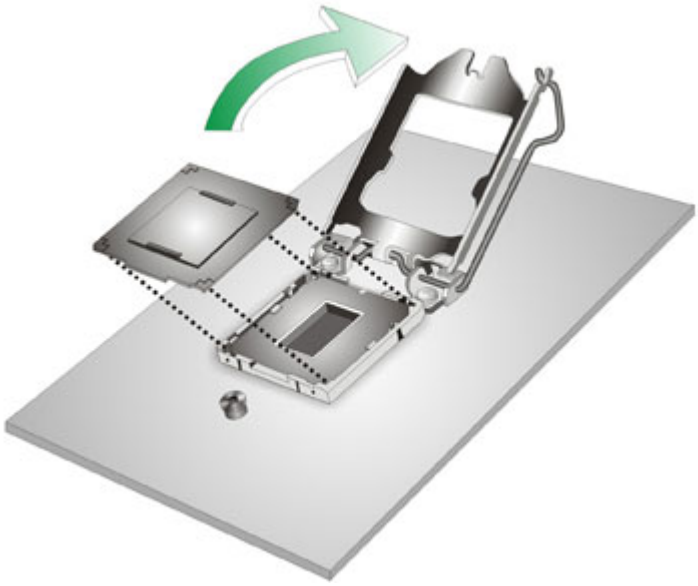


Figure 4-2: Remove Protective Cover

Step 3: **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 4: **Orientate the CPU properly.** The contact array should be facing the CPU socket.

Step 5: **Correctly position the CPU.** Match the Pin 1 mark with the cut edge on the CPU socket.

Step 6: **Align the CPU pins.** Locate pin 1 and the two orientation notches on the CPU. Carefully match the two orientation notches on the CPU with the socket alignment keys.

Step 7: **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. See **Figure 4-3**.

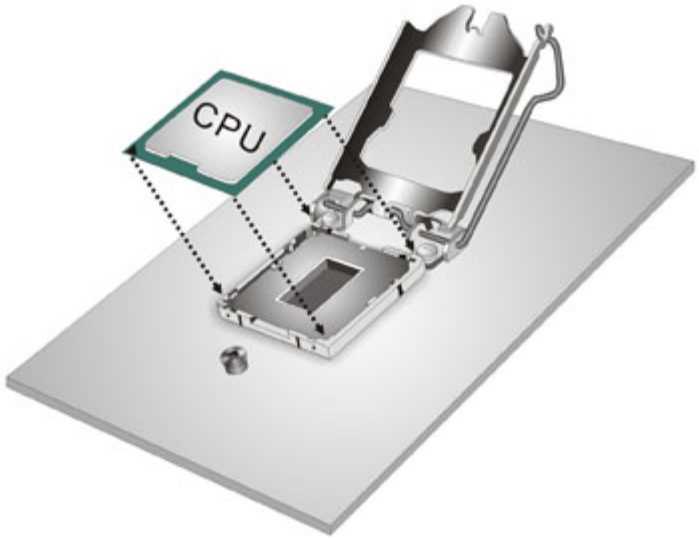


Figure 4-3: Insert the Socket LGA1156 CPU

Step 8: **Close the CPU socket.** Close the load plate and pull the load lever back a little to have the load plate be able to secure to the knob. Engage the load lever by pushing it back to its original position (**Figure 4-4**). There will be some resistance, but will not require extreme pressure.



Figure 4-4: Close the Socket LGA1156

Step 9: **Connect the 12 V power to the board.** Connect the 12 V power from the power supply to the board.

4.4.2 Socket LGA1156 Cooling Kit Installation

An IEI Socket LGA1156 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: A cooling kit bracket is pre-installed on the rear of the CPU card. See **Figure 4-5.**

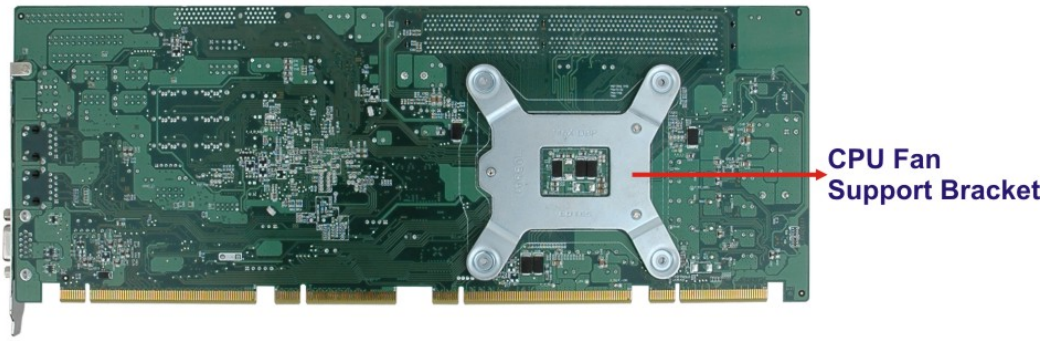


Figure 4-5: Cooling Kit Support Bracket

Step 2: **Place the cooling kit onto the socket LGA1156 CPU**. Make sure the CPU cable can be properly routed when the cooling kit is installed.

Step 3: **Mount the cooling kit**. Gently place the cooling kit on top of the CPU. Make sure the four threaded screws on the corners of the cooling kit properly pass through the holes of the cooling kit bracket.

Step 4: **Secure the cooling kit** by fastening the four retention screws of the cooling kit.

Step 5: **Connect the fan cable**. Connect the cooling kit fan cable to the fan connector on the PCIE-Q57A. Carefully route the cable and avoid heat generating chips and fan blades.

4.4.3 DIMM Installation

To install a DIMM, please follow the steps below and refer to Figure 4-6.

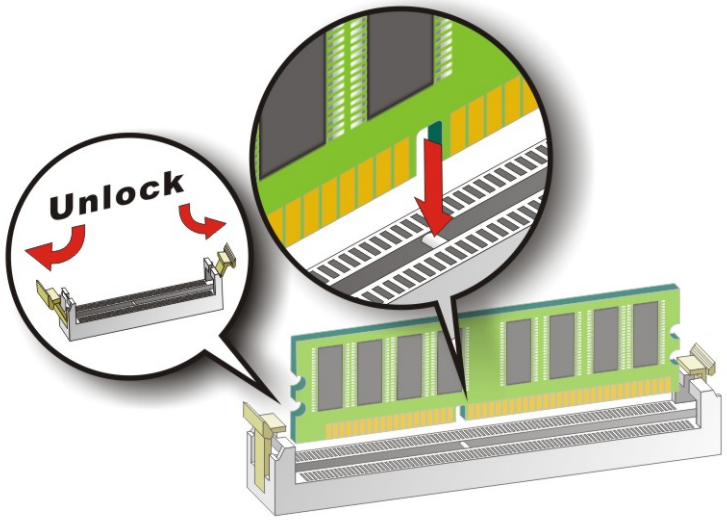


Figure 4-6: DIMM Installation

Step 1: **Open the DIMM socket handles**. Open the two handles outwards as far as they can. See Figure 4-6.

Step 2: **Align the DIMM with the socket**. Align the DIMM so the notch on the memory lines up with the notch on the memory socket. See Figure 4-6.

Step 3: **Insert the DIMM**. Once aligned, press down until the DIMM is properly seated. Clip the two handles into place. See Figure 4-6.

Step 4: **Removing a DIMM**. To remove a DIMM, push both handles outward. The memory module is ejected by a mechanism in the socket.

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.

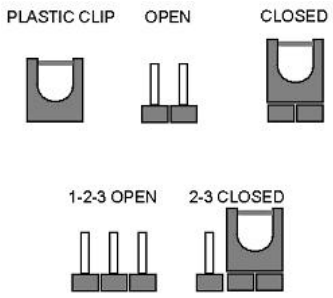


Figure 4-7: Jumper Locations

Before the PCIE-Q57A is installed in the system, the jumpers must be set in accordance with the desired configuration. The jumpers on the PCIE-Q57A are listed in **Table 4-1**.

Description	Type	Label
Clear CMOS	3-pin header	J_CMOS1

Table 4-1: Jumpers

4.5.1 Clear CMOS Jumper

Jumper Label: **J_CMOS1**

Jumper Type: 3-pin header (1x3)

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

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

If the PCIE-Q57A 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 4-2**.

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

Table 4-2: Clear CMOS Jumper Settings

The location of the clear CMOS jumper is shown in **Figure 4-8** below.

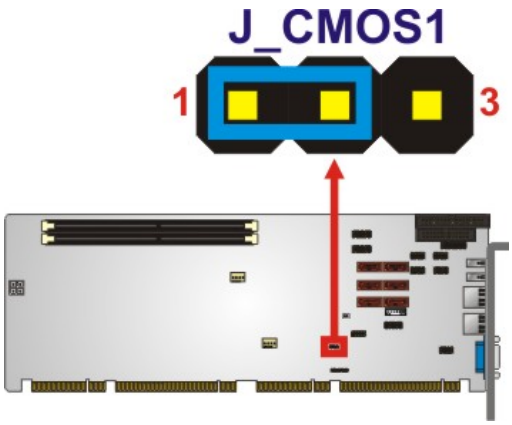


Figure 4-8: Clear CMOS Jumper

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 PCIE-Q57A must have air vents to allow cool air to move into the system and hot air to move out.

The PCIE-Q57A 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 CPU Card Installation

To install the CPU card onto the backplane, carefully align the CPU card edge connector with the CPU card socket on the backplane. To do this, please refer to the reference material that came with the backplane. Next, secure the CPU card to the chassis. To do this, 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 4-9. A key on the front of the cable connectors ensures the connector can only be installed in one direction.

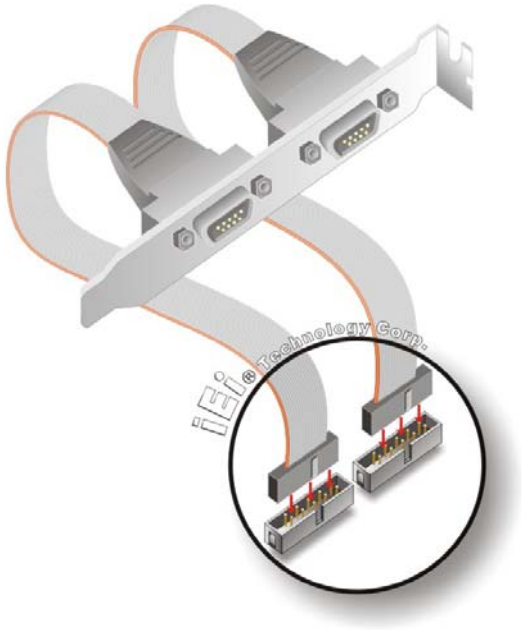


Figure 4-9: Dual RS-232 Cable Installation

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.

4.7.2 SATA Drive Connection

The PCIE-Q57A is shipped with two SATA drive cables and one SATA drive power cable. To connect the SATA drives to the connectors, please follow the steps below.

Step 1: **Locate the connectors**. The locations of the SATA drive connectors are shown in **Chapter 3**.

Step 2: **Insert the cable connector**. Press the clip on the connector at the end of the SATA cable and insert the cable connector into the on-board SATA drive connector. See Figure 4-10.

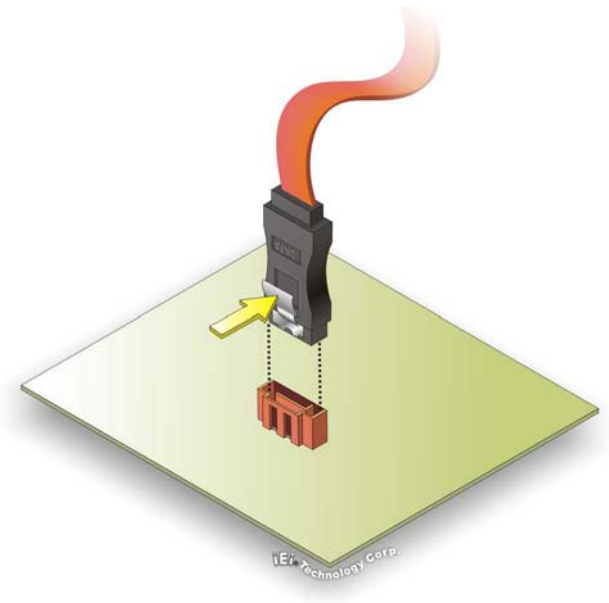


Figure 4-10: SATA Drive Cable Connection

Step 3: **Connect the cable to the SATA disk**. Connect the connector on the other end of the cable to the connector at the back of the SATA drive. See Figure 4-11.

Step 4: **Connect the SATA power cable**. Connect the SATA power connector to the back of the SATA drive. See Figure 4-11.

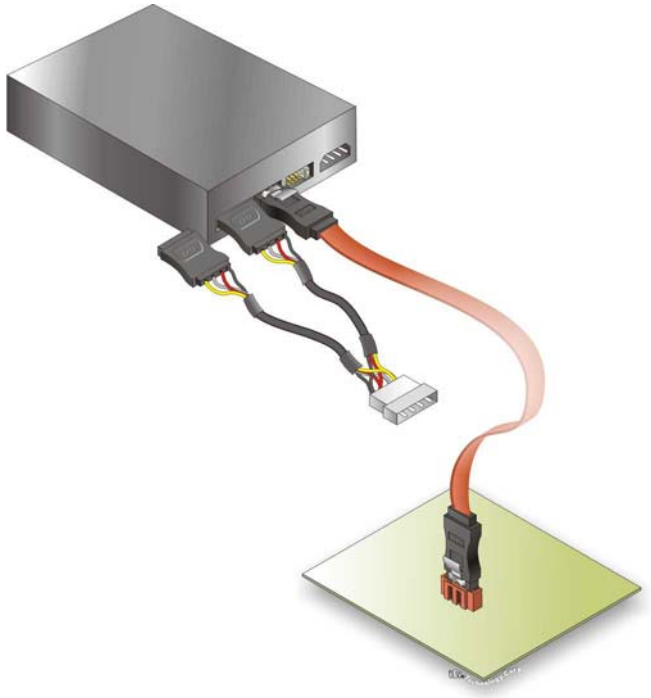


Figure 4-11: SATA Power Drive Connection

4.7.3 USB Cable (Dual Port) with Slot Bracket

The PCIE-Q57A is shipped with a dual port USB 2.0 cable. To connect the USB cable connector, please follow the steps below.

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

WARNING:

If the USB pins are not properly aligned, the USB device can burn out.

Step 2: **Align the connectors**. The cable has two connectors. Correctly align pin 1on each cable connector with pin 1 on the PCIE-Q57A USB connector.

Step 3: **Insert the cable connectors** Once the cable connectors are properly aligned with the USB connectors on the PCIE-Q57A, connect the cable connectors to the on-board connectors. See Figure 4-12.

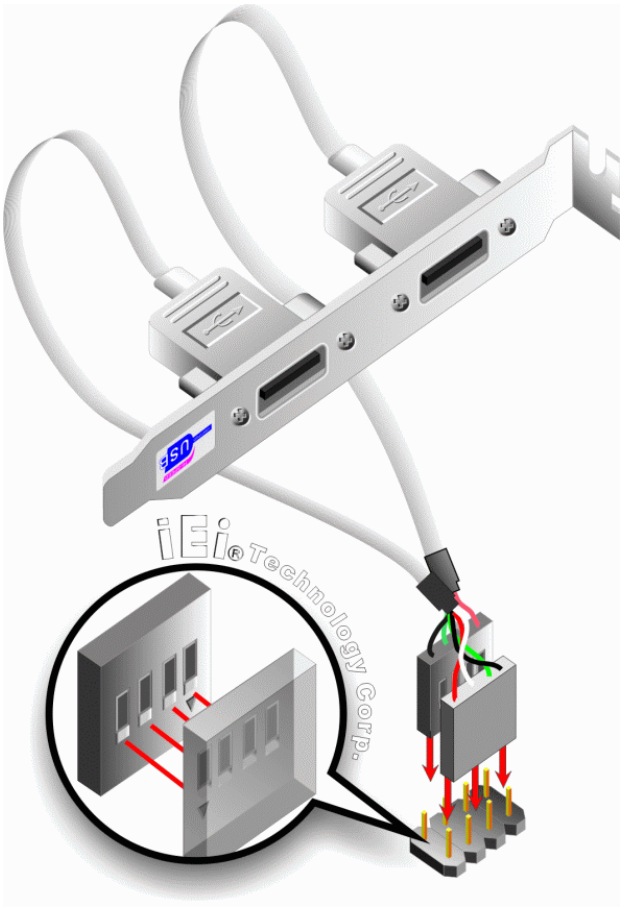


Figure 4-12: Dual USB Cable Connection

Step 4: **Attach the bracket to the chassis**. The USB 2.0 connectors are attached to a bracket. To secure the bracket to the chassis please refer to the installation instructions 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.

- RJ-45 Ethernet cable connectors
- USB devices
- VGA monitors

To install these devices, connect the corresponding cable connector from the actual device to the corresponding PCIE-Q57A external peripheral interface connector making sure the pins are properly aligned.

4.8.1 LAN Connection

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

Step 1: **Locate the RJ-45 connectors**. The locations of the 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 PCIE-Q57A. See Figure 4-13.

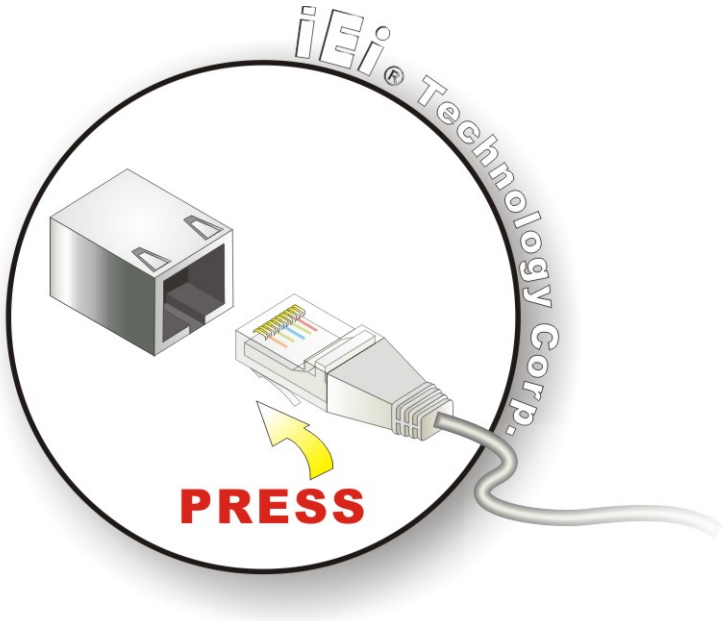


Figure 4-13: LAN Connection

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

4.8.2 USB Device Connection (Single Connector)

There are two external USB 2.0 connectors. Both connectors are perpendicular to the PCIE-Q57A. To connect a USB 2.0 or USB 1.1 device, please follow the instructions below.

Step 1: **Located the USB connectors**. The locations of the USB connectors are shown in **Chapter 4**.

Step 2: **Align the connectors.** Align the USB device connector with one of the connectors on the PCIE-Q57A. See Figure 4-14.

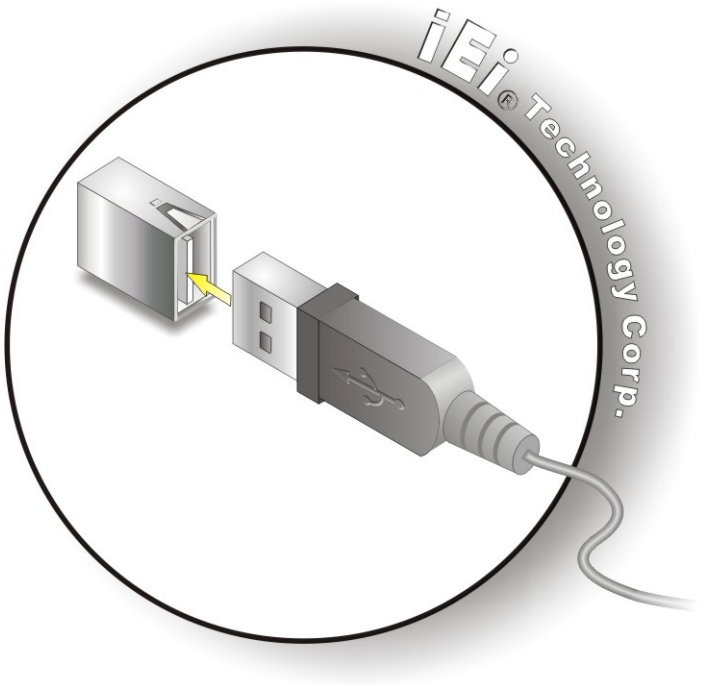


Figure 4-14: USB Device Connection

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

4.8.3 VGA Monitor Connection

The PCIE-Q57A 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 PCIE-Q57A, 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 PCIE-Q57A. See **Figure 4-15**.

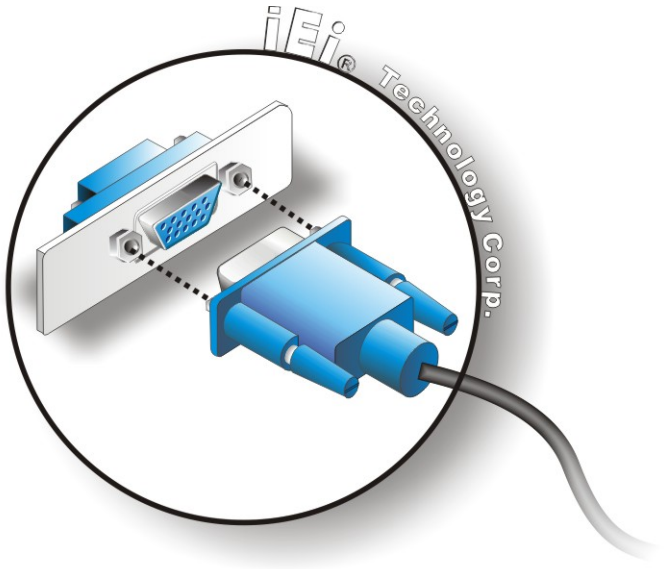


Figure 4-15: VGA Connector

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 PCIE-Q57A 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 4-16**).

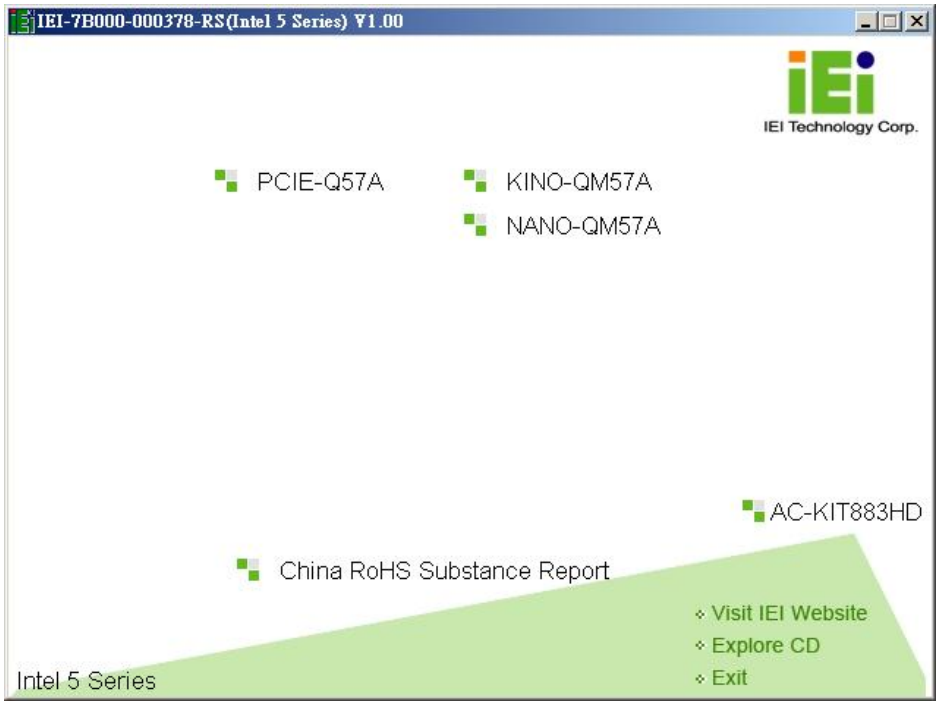


Figure 4-16: Introduction Screen

Step 3: Click **PCIE-Q57A**.

Step 4: A new screen with a list of available drivers appears (**Figure 4-17**).



Figure 4-17: 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 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

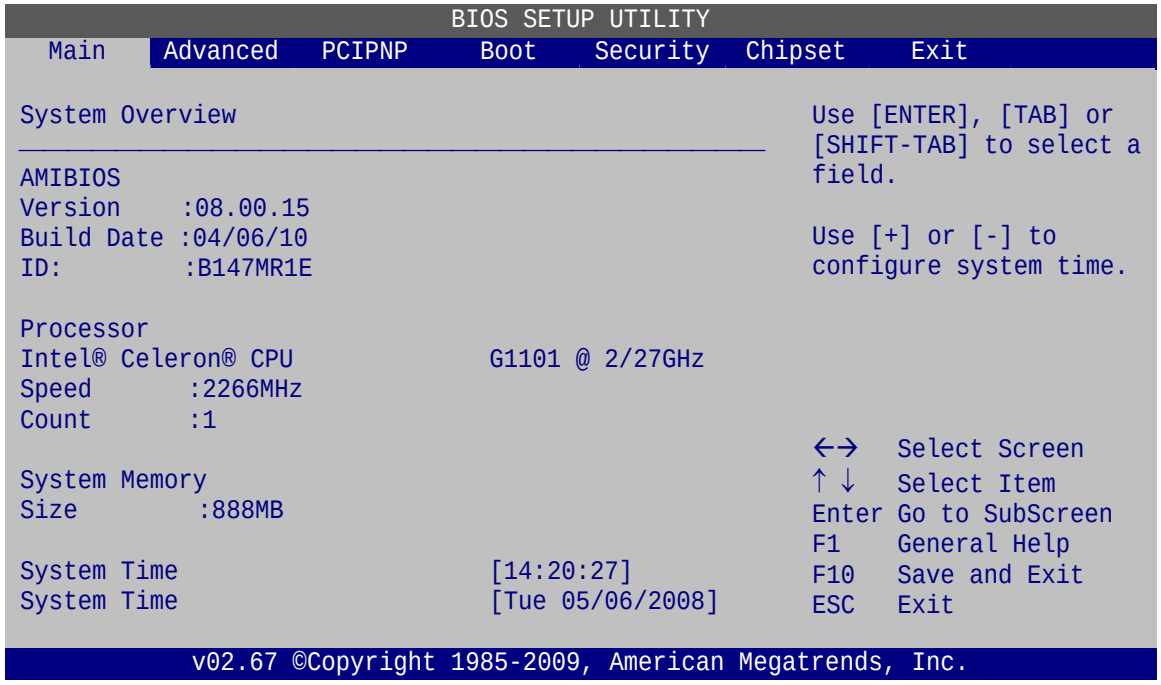
The **menu bar** on top of the BIOS screen has the following main items:

- 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

➔ System Overview

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

- AMI BIOS: Displays auto-detected BIOS information
  - **Version:** Current BIOS version
  - **Build Date:** Date the current BIOS version was made
  - **ID:** Installed BIOS ID
- Processor: Displays auto-detected CPU specifications
  - **Type:** Names the currently installed processor
  - **Speed:** Lists the processor speed
  - **Count:** The number of CPUs on the motherboard
- System Memory: Displays the auto-detected system memory.
  - **Size:** Lists memory size

The System Overview field also has two user configurable fields:

➔ **System Time [xx:xx:xx]**

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

➔ **System Date [xx/xx/xx]**

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

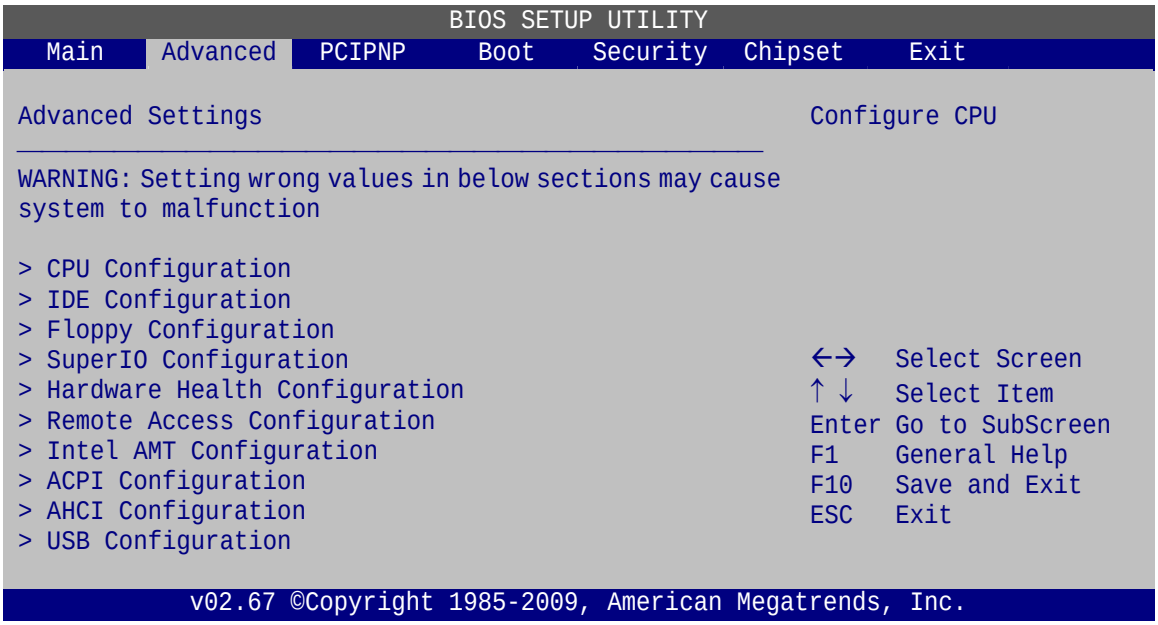
5.3 Advanced

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.

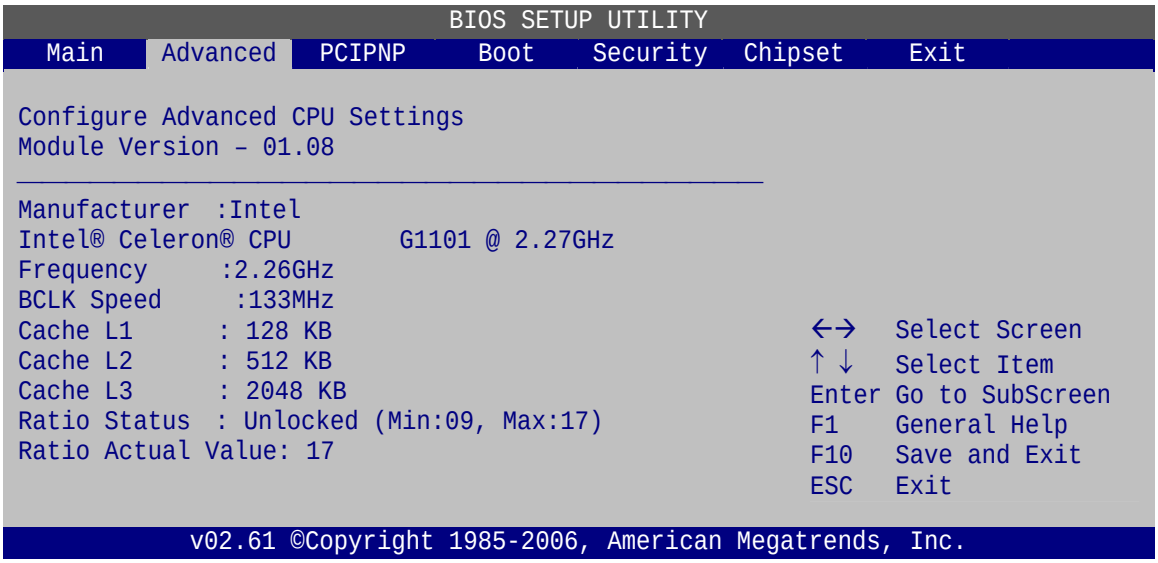
- CPU Configuration (see **Section 5.3.1**)
- IDE Configuration (see **Section 5.3.2**)
- Floppy Configuration (see **Section 5.3.3**)
- Super IO Configuration (see **Section 5.3.4**)
- Hardware Health Configuration (see **Section 5.3.5**)
- Remote Access Configuration (see **Section 5.3.6**)
- Intel AMT Configuration (see **Section 5.3.7**)
- ACPI Configuration (see **Section 5.3.8**)
- AHCI Configuration (see **Section 5.3.9**)
- USB Configuration (see **Section 5.3.10**)



BIOS Menu 2: Advanced

5.3.1 CPU Configuration

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



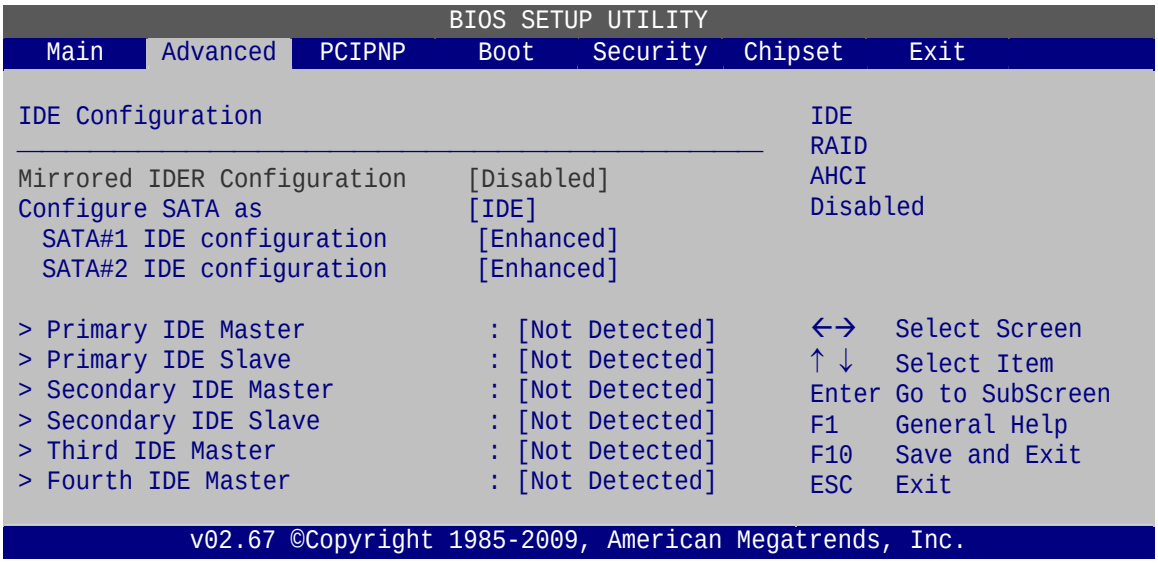
BIOS Menu 3: CPU Configuration

The CPU Configuration menu (**BIOS Menu 3**) lists the following CPU details:

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

5.3.2 IDE Configuration

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



BIOS Menu 4: IDE Configuration

➔ **Configure SATA as [IDE]**

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

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

➔ **RAID** Configures SATA devices as normal RAID device.

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

➔ **Disabled**

➔ **SATA# IDE Configurations [Enhanced]**

Use the **SATA# IDE Configurations** option to configure the ATA/IDE controller.

➔ **Compatible**		Configures the on-board ATA/IDE controller to be in compatible mode. In this mode, a SATA channel will replace one of the IDE channels. This mode supports up to 4 storage devices.
➔ **Enhanced**	**DEFAULT**	Configures the on-board ATA/IDE controller to be in Enhanced mode. In this mode, IDE channels and SATA channels are separated. This mode supports up to 6 storage devices. Some legacy OS do not support this mode.

➔ **IDE Master and IDE Slave**

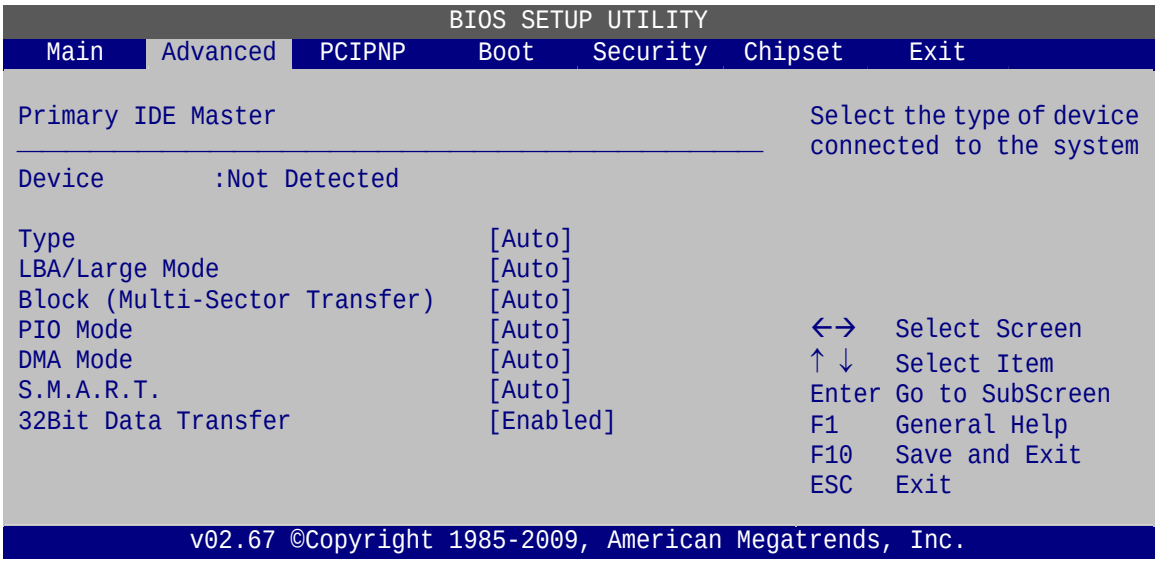
When entering setup, BIOS auto detects the presence of IDE devices. BIOS displays the status of the auto detected IDE devices. The following IDE devices are detected and are shown in the **IDE Configuration** menu:

- Primary IDE Master
- Primary IDE Slave
- Secondary IDE Master
- Secondary IDE Slave
- Third IDE Master
- Fourth IDE Master

The **IDE Configuration** menu (**BIOS Menu 4**) allows changes to the configurations for the IDE devices installed in the system. If an IDE device is detected, and one of the above listed four BIOS configuration options are selected, the IDE configuration options shown in **Section 5.3.2.1** appear.

5.3.2.1 IDE Master, IDE Slave

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



BIOS Menu 5: IDE Master and IDE Slave Configuration

➔ **Auto-Detected Drive Parameters**

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

- Device: Lists the device type (e.g. hard disk, CD-ROM etc.)
- Type: Indicates the type of devices a user can manually select
- Vendor: Lists the device manufacturer
- Size: List the storage capacity of the device.
- LBA Mode: Indicates whether the LBA (Logical Block Addressing) is a method of addressing data on a disk drive is supported or not.
- Block Mode: Block mode boosts IDE drive performance by increasing the amount of data transferred. Only 512 bytes of data can be transferred per interrupt if block mode is not used. Block mode allows transfers of up to 64 KB per interrupt.
- PIO Mode: Indicates the PIO mode of the installed device.
- Async DMA: Indicates the highest Asynchronous DMA Mode that is supported.
- Ultra DMA: Indicates the highest Synchronous DMA Mode that is supported.
- S.M.A.R.T.: Indicates whether or not the Self-Monitoring Analysis and Reporting Technology protocol is supported.

- 32Bit Data Transfer: Enables 32-bit data transfer.

➔ **Type [Auto]**

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

➔ **Not Installed**		BIOS is prevented from searching for an IDE disk drive on the specified channel.
➔ **Auto**	**DEFAULT**	The BIOS auto detects the IDE disk drive type attached to the specified channel. This setting should be used if an IDE hard disk drive is attached to the specified channel.
➔ **CD/DVD**		The CD/DVD option specifies that an IDE CD-ROM drive is attached to the specified IDE channel. The BIOS does not attempt to search for other types of IDE disk drives on the specified channel.
➔ **ARMD**		This option specifies an ATAPI Removable Media Device. These include, but are not limited to: ZIP LS-120

➔ **LBA/Large Mode [Auto]**

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

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

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

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

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

➔ **PIO Mode [Auto]**

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

➔ **Auto**	**DEFAULT**	BIOS auto detects the PIO mode. Use this value if the IDE disk drive support cannot be determined.
➔ **0**		PIO mode 0 selected with a maximum transfer rate of 3.3 MB/s
➔ **1**		PIO mode 1 selected with a maximum transfer rate of 5.2 MB/s
➔ **2**		PIO mode 2 selected with a maximum transfer rate of 8.3 MB/s
➔ **3**		PIO mode 3 selected with a maximum transfer rate of 11.1 MB/s
➔ **4**		PIO mode 4 selected with a maximum transfer rate of 16.6 MB/s (This setting generally works with all hard disk drives manufactured after 1999. For other disk drives, such as IDE CD-ROM drives, check the specifications of the drive.)

➔ **DMA Mode [Auto]**

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

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

➔ **S.M.A.R.T [Auto]**

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

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

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

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

➔ **32Bit Data Transfer [Enabled]**

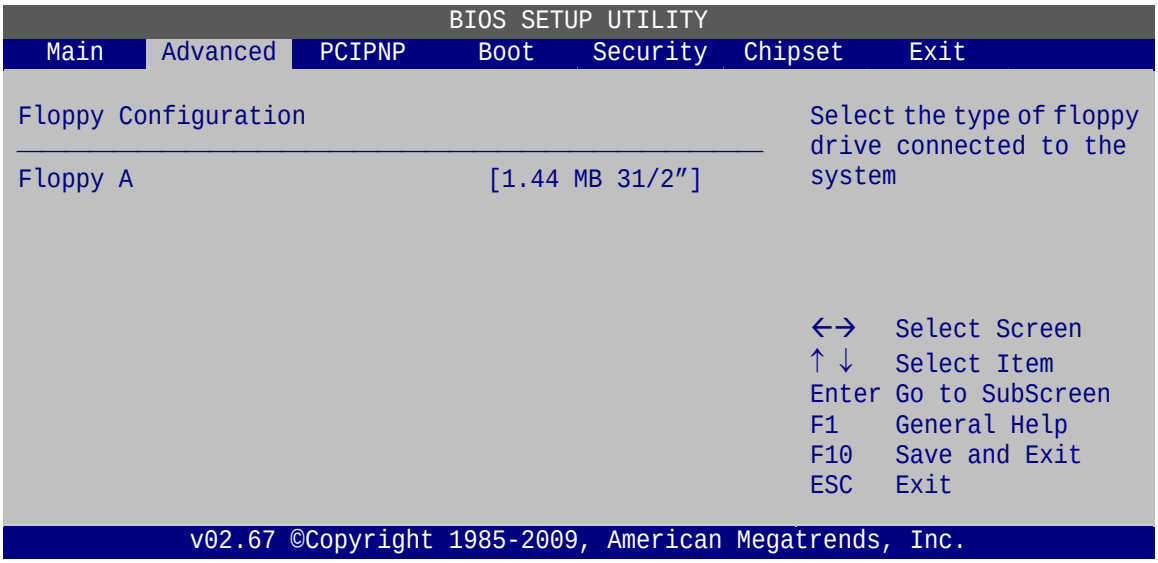
Use the **32Bit Data Transfer** BIOS option to enables or disable 32-bit data transfers.

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

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

5.3.3 Floppy Configuration

Use the **Floppy Configuration menu** to configure the floppy disk drive connected to the system.



BIOS Menu 6: Floppy Configuration

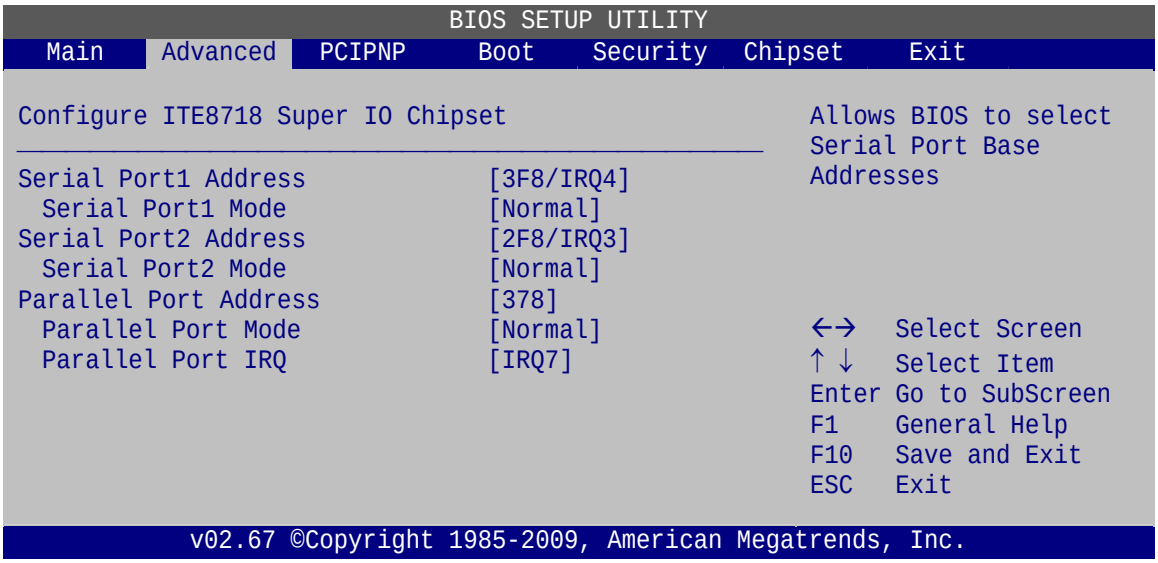
➔ **Floppy A/B**

Use the **Floppy A/B** option to configure the floppy disk drive. Options are listed below:

- Disabled
- 360 KB 51/4"
- 1.2 MB 51/4"
- 720 KB 31/2"
- 1.44 MB 31/2'
- 2.88 MB 31/2"

5.3.4 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.



BIOS Menu 7: Super IO Configuration

➔ **Serial Port1 Address [3F8/IRQ4]**

Use the **Serial Port1 Address** option to select the Serial Port 1 base address.

➔ **Disabled**		No base address is assigned to Serial Port 1
➔ **3F8/IRQ4**	**DEFAULT**	Serial Port 1 I/O port address is 3F8 and the interrupt address is IRQ4
➔ **3E8/IRQ4**		Serial Port 1 I/O port address is 3E8 and the interrupt address is IRQ4
➔ **2E8/IRQ3**		Serial Port 1 I/O port address is 2E8 and the interrupt address is IRQ3

➔ **Serial Port1 Mode [Normal]**

Use the **Serial Port1 Mode** option to select the transmitting and receiving mode for the first serial port.

➔ **Normal**	**DEFAULT**	Serial Port 1 mode is normal
➔ **IrDA**		Serial Port 1 mode is IrDA
➔ **ASK IR**		Serial Port 1 mode is ASK IR

➔ **Serial Port2 Address [2F8/IRQ3]**

Use the **Serial Port2 Address** option to select the Serial Port 2 base address.

➔ **Disabled**		No base address is assigned to Serial Port 2
➔ **2F8/IRQ3**	**DEFAULT**	Serial Port 2 I/O port address is 3F8 and the interrupt address is IRQ3
➔ **3E8/IRQ4**		Serial Port 2 I/O port address is 3E8 and the interrupt address is IRQ4
➔ **2E8/IRQ3**		Serial Port 2 I/O port address is 2E8 and the interrupt address is IRQ3

➔ **Serial Port2 Mode [Normal]**

Use the **Serial Port2 Mode** option to select the Serial Port2 operational mode.

➔ **Normal**	**DEFAULT**	Serial Port 2 mode is normal
➔ **IrDA**		Serial Port 2 mode is IrDA
➔ **ASK IR**		Serial Port 2 mode is ASK IR

➔ **Parallel Port Address [378]**

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

➔ **Disabled**		No base address is assigned to the Parallel Port
➔ **378**	**DEFAULT**	Parallel Port I/O port address is 378
➔ **278**		Parallel Port I/O port address is 278
➔ **3BC**		Parallel Port I/O port address is 3BC

➔ **Parallel Port Mode [Normal]**

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

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

- **Bi-directional** — Parallel port outputs are 8-bits long. Inputs are accomplished by reading 4 of the 8 bits on the status register.
- **EPP** — The parallel port operates in the enhanced parallel port mode (EPP). The EPP mode supports bi-directional communication between the system and the parallel port device and the transmission rates between the two are much faster than the Normal mode.
- **ECP** — The parallel port operates in the extended capabilities port (ECP) mode. The ECP mode supports bi-directional communication between the system and the parallel port device and the transmission rates between the two are much faster than the Normal mode
- **ECP+EPP** — The parallel port is compatible with both ECP and EPP devices described above

➔ **Parallel Port IRQ [IRQ7]**

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

- **IRQ5** — IRQ5 is assigned as the parallel port interrupt address
- **IRQ7** **DEFAULT** — IRQ7 is assigned as the parallel port interrupt address

5.3.5 Hardware Health Configuration

The **Hardware Health Configuration** menu (**BIOS Menu 8**) shows the operating temperature, fan speeds and system voltages.

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

Hardware Health Configuration                    Fan configuration mode
                                                 setting
CPU_FAN2 Mode Setting          [Full On Mode]
CPU_FAN1 Mode Setting          [Full On Mode]

System Temperature Sensor      :34°C/93°F
CPU Temperature Sensor         :36°C/96°F

CPU_FAN2 Speed                 :N/A
CPU_FAN1 Speed                 :4115 RPM

VCCP                           :1.136 V
+1.1V                          :1.152 V
+3.3V                          :3.264 V
+5V                            :5.080 V          ←→   Select Screen
+12V                           :12.032 V         ↑ ↓  Select Item
+1.05V                         :1.040 V          Enter Go to SubScreen
+1.6V(V_SM)                    :1.616 V          F1    General Help
+5V_DUAL                       :5.080 V          F10   Save and Exit
VBAT                           :3.072 V          ESC   Exit
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```

BIOS Menu 8: Hardware Health Configuration

➔ **Mode Setting [Full On Mode]**

Use the **Mode Setting** option to configure the second fan.

➔ **Full On Mode** **DEFAULT** Fan is on all the time

➔ **Automatic mode** The fan adjusts its speed using these settings:

- Temp. Limit of OFF
- Temp. Limit of Start
- Fan Start PWM
- Slope PWM 1

➔ **PWM Manual mode** The fan spins at the speed set in:

- Fan PWM control

➔ **Temp. Limit of OFF [000]**

WARNING:

CPU failure can result if this value is set too high

The fan will turn off if the temperature falls below this value.

- Minimum Value: 0°C
- Maximum Value: 127°C

➔ **Temp. Limit of Start [020]**

WARNING:

CPU failure can result if this value is set too high

When the fan is off, it will only start when the temperature exceeds this setting.

- Minimum Value: 0°C
- Maximum Value: 127°C

➔ **Start PWM [070]**

This is the initial speed of the fan when it first starts spinning.

- PWM Minimum Mode: 0
- PWM Maximum Mode: 127

➔ **Slope PWM [1 PWM]**

A bigger value will increase the fan speed in big amounts. A smaller value will increase the speed more gradually.

- 0 PWM
- 1 PWM
- 2 PWM

- 4 PWM
- 8 PWM
- 16 PWM
- 32 PWM
- 64 PWM

➔ **CPU Fan PWM Control [070]**

This value specifies the speed of the fan.

- PWM Minimum Mode: 0
- PWM Maximum Mode: 127

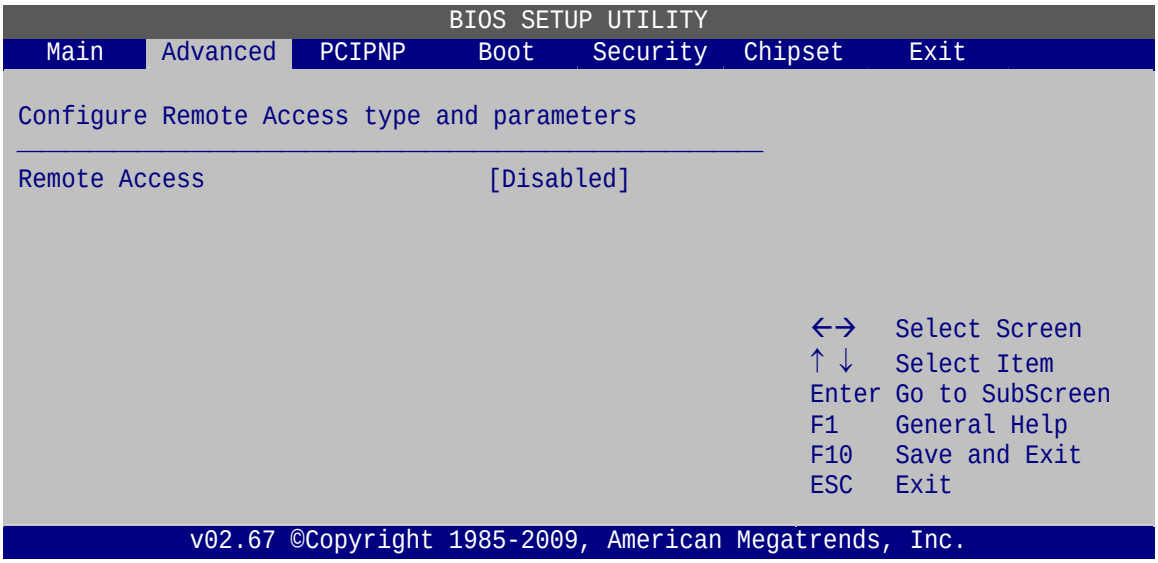
➔ **Hardware Health Monitoring**

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

- System Temperatures:
  - System Temperature Sensor
  - CPU Temperature Sensor
- Fan Speeds:
  - CPU_FAN1 Speed
  - CPU_FAN2 Speed
- Voltages:
  - VCCP
  - +1.1V
  - +3.3V
  - +5V
  - +12V
  - +1.05V
  - +1.6V(V_SM)
  - +5V_DUAL
  - VBAT

5.3.6 Remote Access Configuration

Use the **Remote Access Configuration** menu (**BIOS Menu 9**) to configure remote access parameters. The **Remote Access Configuration** is an AMIBIOS feature and allows a remote host running a terminal program to display and configure the BIOS settings.



BIOS Menu 9: Remote Access Configuration

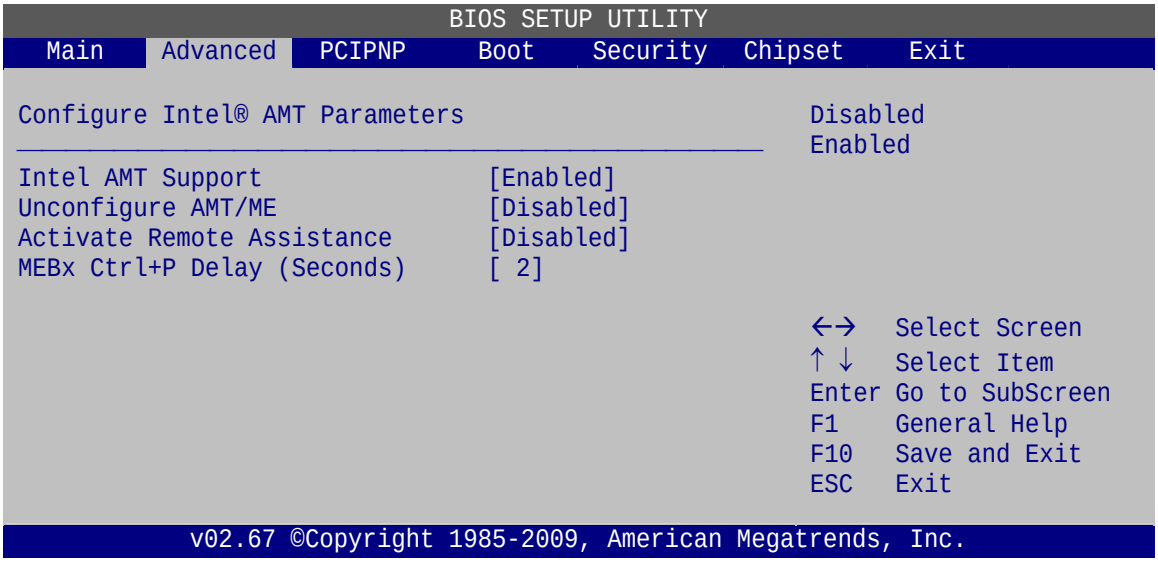
➔ **Remote Access [Disabled]**

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

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

5.3.7 Intel AMT Configuration

The **Intel AMT Configuration** menu (**BIOS Menu 11**) configures the Intel® Active Management Technology (AMT) options.



BIOS Menu 10: Intel AMT Configuration

➔ **Intel AMT Support [Enabled]**

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

➔ **Disabled** The Intel® AMT function is disabled.

➔ **Enabled** **DEFAULT** The Intel® AMT function is enabled.

➔ **Unconfigure AMT/ME [Disabled]**

Use the **Unconfigure AMT/ME** option to enable or disable the Intel® AMT and ME unconfiguration.

➔ **Disabled** **DEFAULT** Disable Intel® AMT and ME unconfiguration

➔ **Enabled** Enable Intel® AMT and ME unconfiguration

➔ **Activate Remote Assistance [Disabled]**

Use the **Activate Remote Assistance** option to enable or disable the remote assistance activation.

➔ **Disabled**	**DEFAULT**	Disable the remote assistance activation
➔ **Enabled**		Enable the remote assistance activation

➔ **MEBx Ctrl+P Delay (Seconds) [2]**

When booting up the PCIE-Q57A, the user can use Ctrl+P to enter the Intel® Management Engine BIOS Extension (MEBx). Use the **MEBx Ctrl+P Delay** option to set how long will the Ctril+P screen stay when booting up the system.

5.3.8 ACPI Configuration

The **ACPI Configuration** menu (**BIOS Menu 11**) configures the Advanced Configuration and Power Interface (ACPI) and Power Management (APM) options.

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

ACPI Settings                                  Set the ACPI state used
_____________________________________________  for System suspend
Suspend mode                  [S1 (POS)]

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

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```

BIOS Menu 11: ACPI Configuration

➔ **Suspend Mode [S1(POS)]**

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

➔ **S1 (POS) 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 (STR)** The system enters S5(POS) sleep state. The system appears off. The CPU is stopped; RAM is refreshed; the system is running in a low power mode.

5.3.9 AHCI Configuration

NOTE:

Advanced Host Controller Interface (AHCI) is a new programming interface for SATA host controllers. AHCI systems do not have master/slave designation for SATA devices, each device is treated as a master, and hardware-assisted native command queuing.

Use the **AHCI Settings** menu (**BIOS Menu 12**) to report on the auto-detection of devices connected to the onboard SATA drive connectors.

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

AHCI Settings                                  Enables for supporting
_____________________________________________  AHCI controller operates
AHCI BIOS Support              [Enabled]       in AHCI mode during BIOS
_____________________________________________  control otherwise
> AHCI Port0 [Not Detected]                    operates in IDE mode.
> AHCI Port1 [Not Detected]
> AHCI Port2 [Not Detected]
> AHCI Port3 [Not Detected]
> AHCI Port4 [Not Detected]
> AHCI Port5 [Not Detected]                    ←→   Select Screen
                                               ↑ ↓   Select Item
                                               Enter Go to SubScreen
                                               F1    General Help
                                               F10   Save and Exit
                                               ESC   Exit
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```

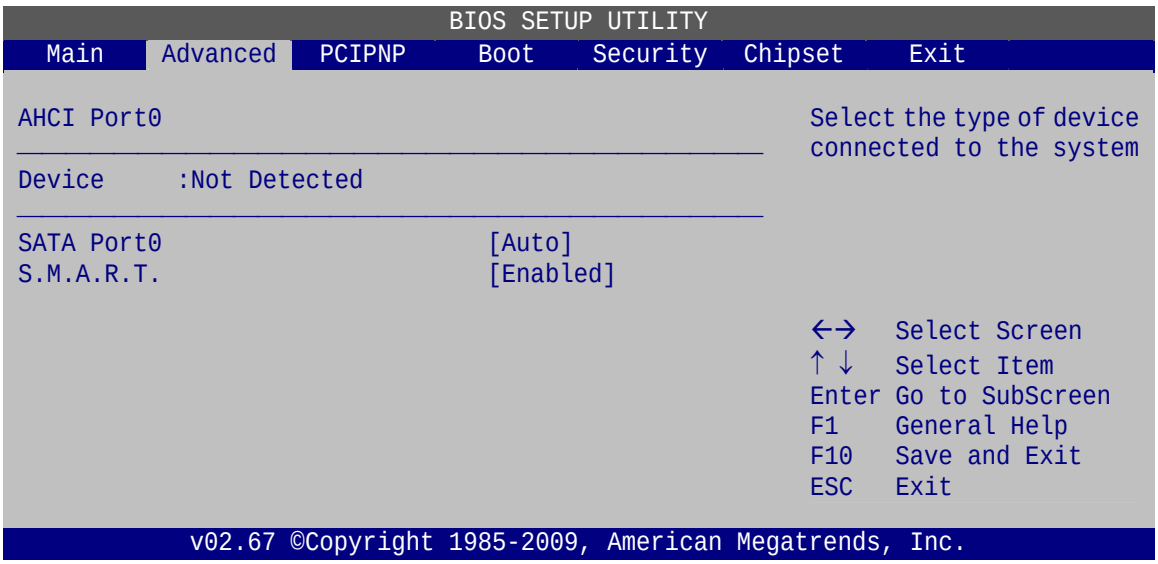
BIOS Menu 12: AHCI Configuration

➔ **AHCI Port n [Not Detected]**

Use the **AHCI Port n** BIOS option to check what AHCI (Advanced Host Controller Interface) devices are detected to a specified SATA drive connector. If a device is detected, selecting the BIOS option, e.g. "**AHCI Port 3**" opens a new window.

5.3.9.1 AHCI Port n

Use the **AHCI Port n** configuration menu (**BIOS Menu 13**) to configure the drive connected to SATA connector n.



BIOS Menu 13: AHCI Port n Configuration Menu

➔ **SATA Port n [Auto]**

Use the **SATA Port n** option to enable the system to auto-detect the type of drive connected to SATA drive connector n.

➔ **S.M.A.R.T [Enabled]**

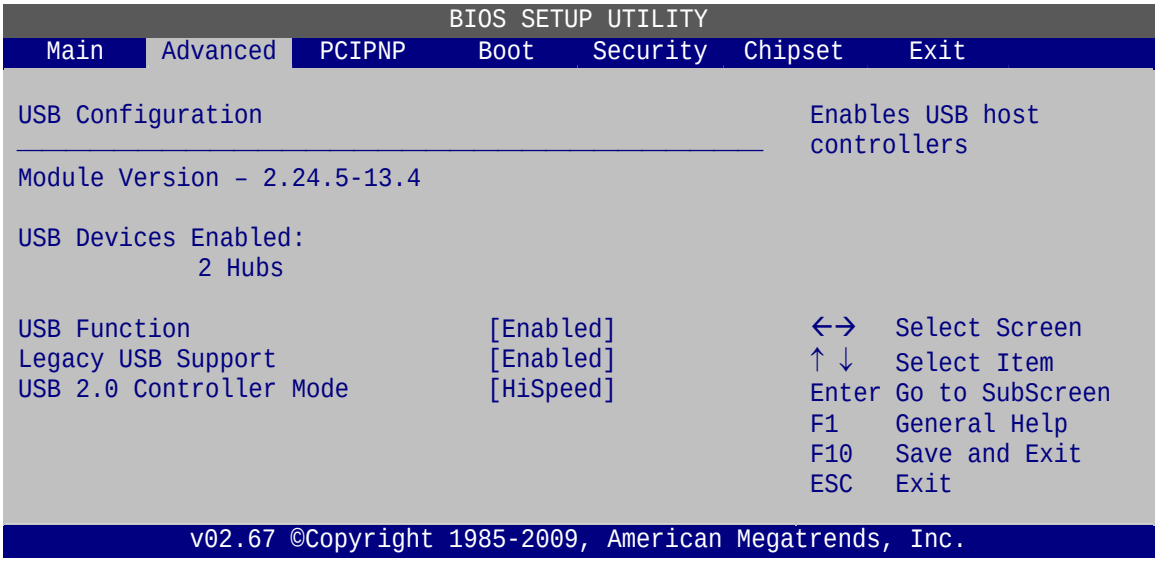
Use the **S.M.A.R.T** option to enable S.M.A.R.T (Self-Monitoring, Analysis, and Reporting Technology) on the drive connected to SATA drive connector n.

➔ **Enabled** **DEFAULT** S.M.A.R.T is enabled on the drive connected to SATA drive connector n on the system

➔ **Disabled** S.M.A.R.T is disabled on the drive connected to SATA drive connector n on the system

5.3.10 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 14**) to read USB configuration information and configure the USB settings.



BIOS Menu 14: USB Configuration

➔ **USB Configuration**

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

- Module Version: x.xxxxx.xxxxx

➔ **USB Devices Enabled**

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

➔ **USB Function [Enabled]**

Use the **USB Function** BIOS option to enable or disable USB function support.

➔ **Enabled** **DEFAULT** USB function support enabled

➔ **Disabled** USB function support disabled

➔ **Legacy USB Support [Enabled]**

Use the **Legacy USB Support** BIOS option to enable USB mouse and USB keyboard support.

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

➔ **Disabled** Legacy USB support disabled

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

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

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

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

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

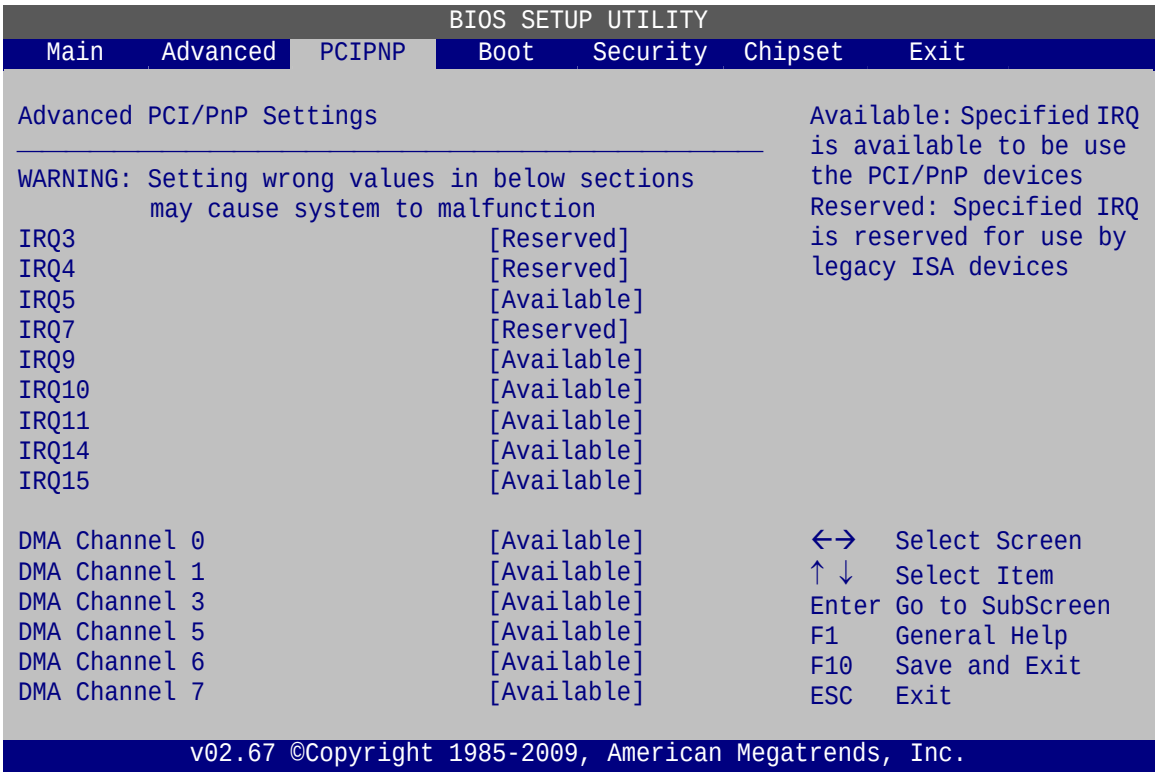
➔ **HiSpeed** **DEFAULT** The controller is capable of operating at 480 Mb/s

5.4 PCI/PnP

Use the **PCI/PnP** menu (**BIOS Menu 15**) to configure advanced PCI and PnP settings.

WARNING!

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



BIOS Menu 15: PCI/PnP Configuration

➔ **IRQ# [Available]**

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

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

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

Available IRQ addresses are:

- IRQ3
- IRQ4
- IRQ5
- IRQ7
- IRQ9

- IRQ10
- IRQ 11
- IRQ 14
- IRQ 15

➔ **DMA Channel# [Available]**

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

➔ **Available**	**DEFAULT**	The specified DMA is available to be used by PCI/PnP devices
➔ **Reserved**		The specified DMA is reserved for use by Legacy ISA devices

Available DMA Channels are:

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

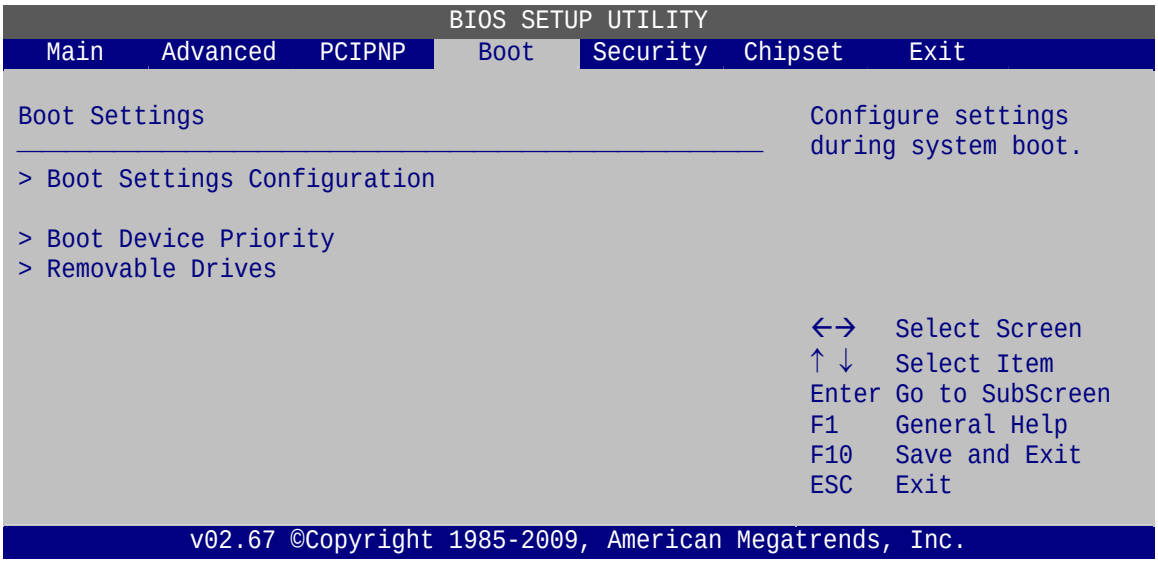
➔ **Reserved Memory Size [Disabled]**

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

➔ **Disabled**	**DEFAULT**	No memory block reserved for legacy ISA devices
➔ **16K**		16 KB reserved for legacy ISA devices
➔ **32K**		32 KB reserved for legacy ISA devices
➔ **64K**		54 KB reserved for legacy ISA devices

5.5 Boot

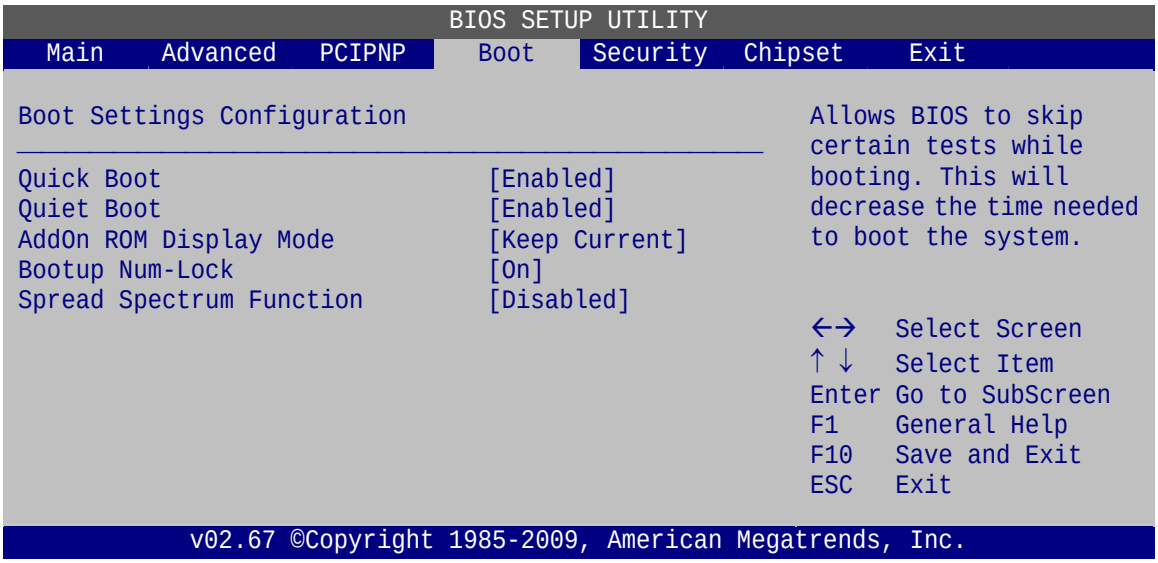
Use the **Boot** menu (**BIOS Menu 16**) to configure system boot options.



BIOS Menu 16: Boot

5.5.1 Boot Settings Configuration

Use the **Boot Settings Configuration** menu (**BIOS Menu 17**) to configure advanced system boot options.



BIOS Menu 17: Boot Settings Configuration

➔ **Quick Boot [Enabled]**

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

➔ **Disabled**		No POST procedures are skipped
➔ **Enabled**	**DEFAULT**	Some POST procedures are skipped to decrease the system boot time

➔ **Quiet Boot [Enabled]**

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

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

➔ **AddOn ROM Display Mode [Keep Current]**

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

➔ **Force BIOS**		The system forces third party BIOS to display during system boot.
➔ **Keep Current**	**DEFAULT**	The system displays normal information during system boot.

➔ **Bootup Num-Lock [On]**

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

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

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

➔ **Spread Spectrum Function [Disabled]**

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

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

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

5.5.2 Boot Device Priority

Use the **Boot Device Priority** menu (**BIOS Menu 18**) to specify the boot sequence from the available devices. The drive sequence also depends on the boot sequence in the individual device section.

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

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

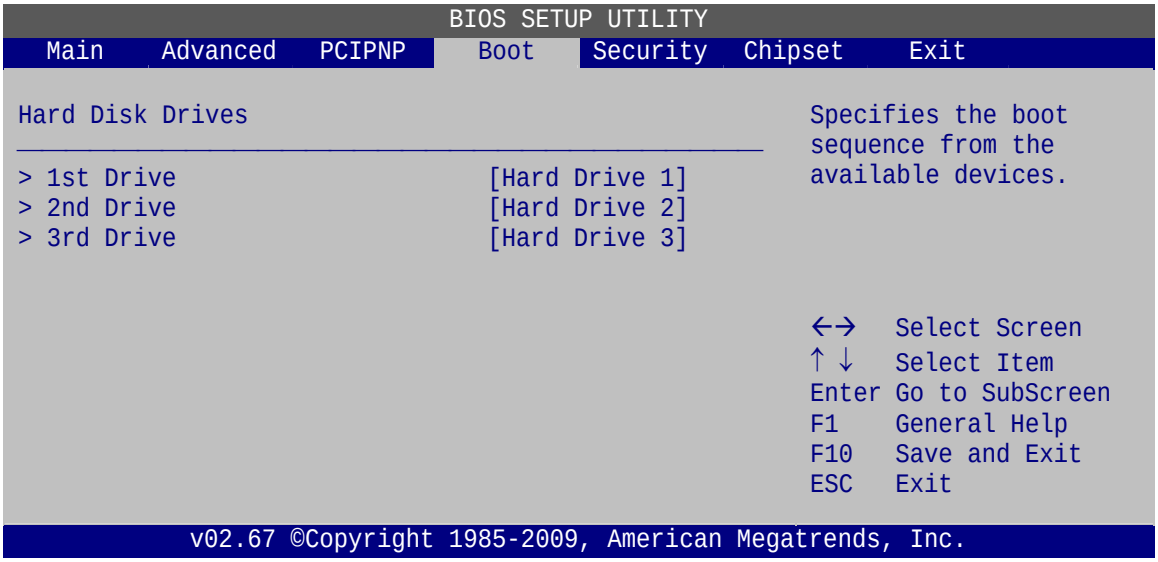

                                                  ←→   Select Screen
                                                  ↑ ↓   Select Item
                                                  Enter Go to SubScreen
                                                  F1    General Help
                                                  F10   Save and Exit
  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

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```

BIOS Menu 18: Boot Device Priority Settings

5.5.3 Hard Disk Drives

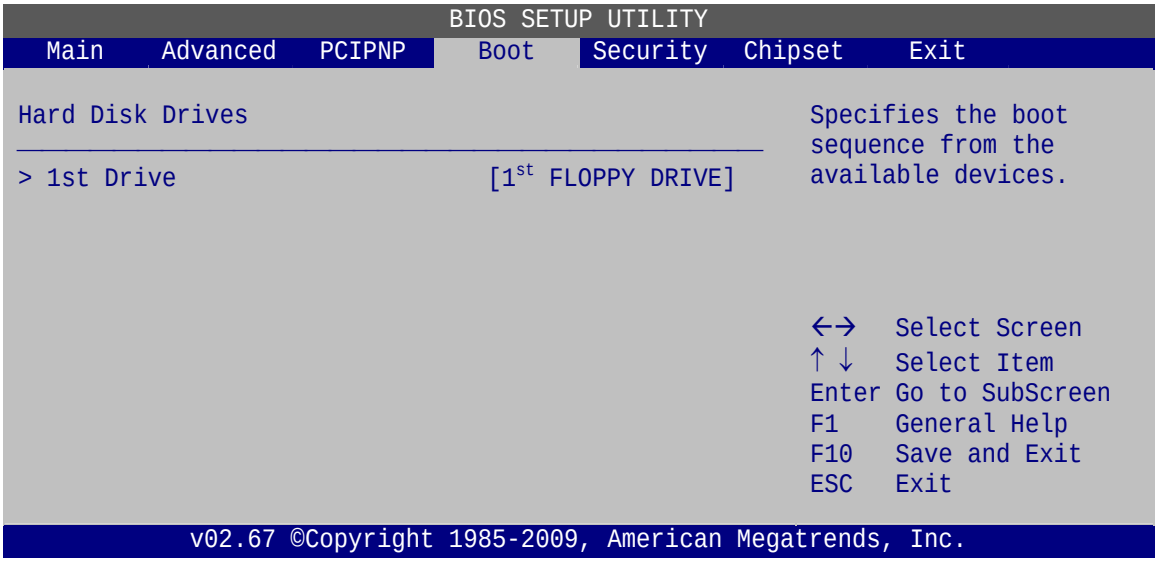
Use the **Hard Disk Drives** menu to specify the boot sequence of the available HDDs. Only installed hard drives are shown.



BIOS Menu 19: Hard Disk Drives

5.5.4 Removable Drives

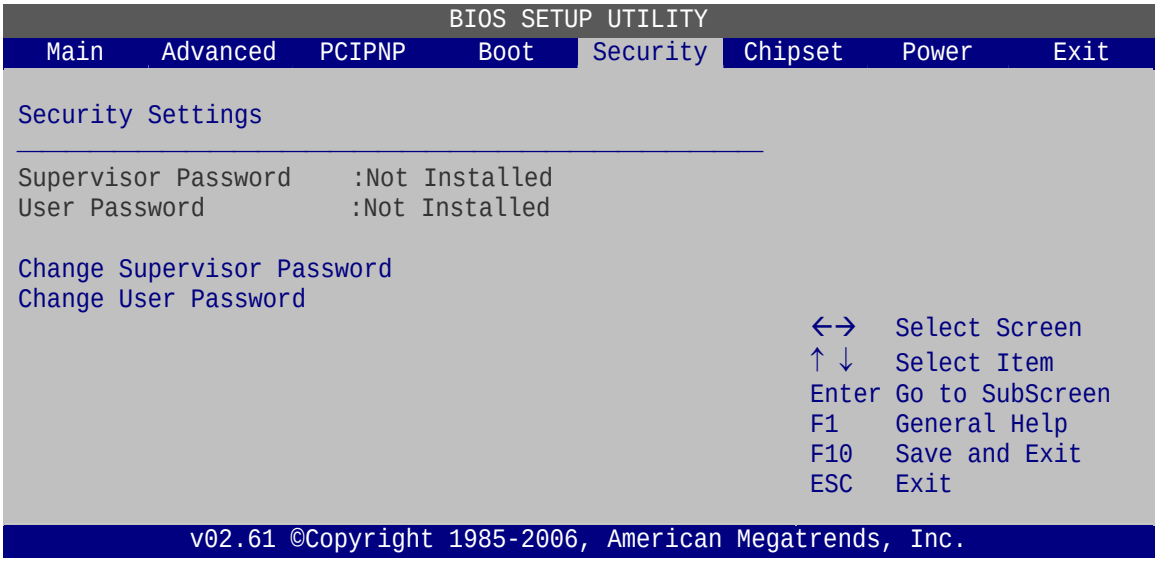
Use the **Removable Drives** menu (**BIOS Menu 20**) to specify the boot sequence of the removable drives. Only connected drives are shown.



BIOS Menu 20: Removable Drives

5.6 Security

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



BIOS Menu 21: Security

➔ **Change Supervisor Password**

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

➔ **Change User Password**

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

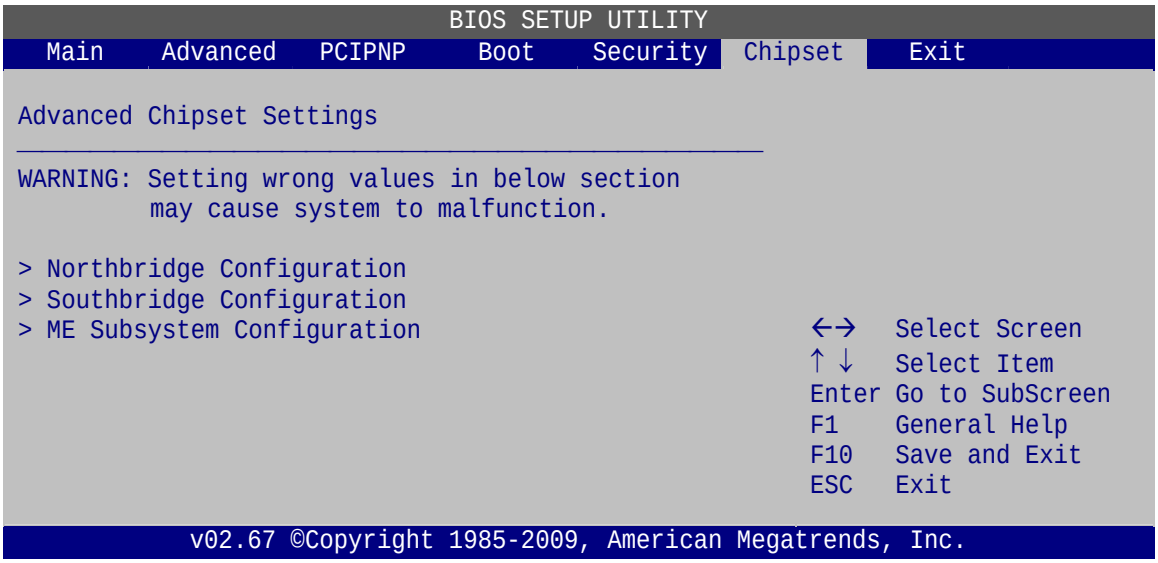
5.7 Chipset

Use the **Chipset** menu (**BIOS Menu 22**) to access the Northbridge and Southbridge configuration menus.



WARNING!

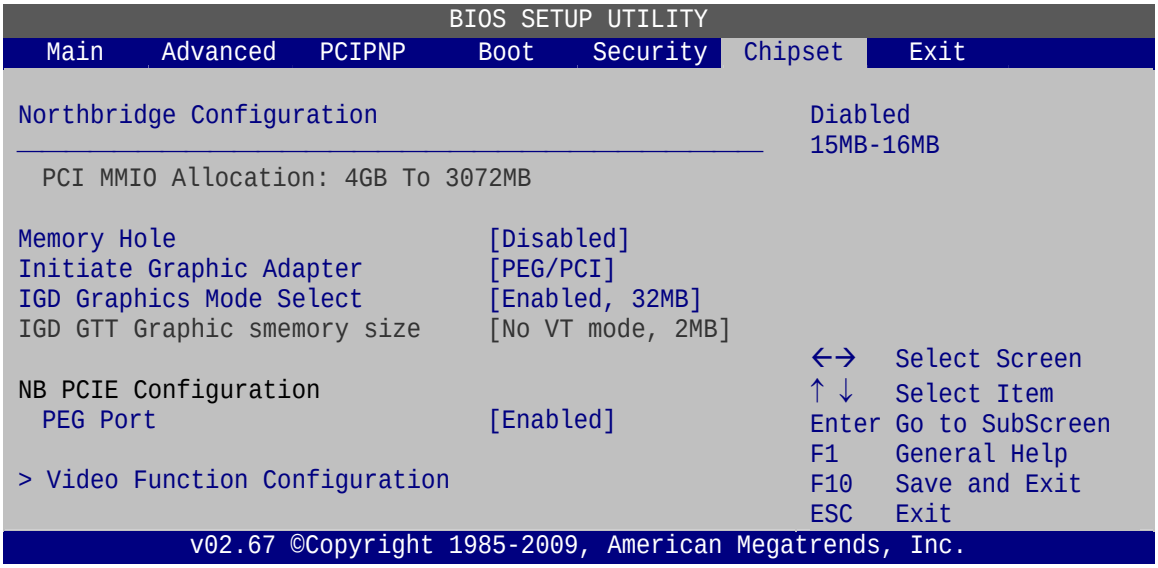
Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.



BIOS Menu 22: Chipset

5.7.1 Northbridge Configuration

Use the **Northbridge Chipset Configuration** menu (**BIOS Menu 23**) to configure the Northbridge chipset.



BIOS Menu 23: Northbridge Chipset Configuration

➔ **Memory Hole [Disabled]**

Use the **Memory Hole** option to reserve memory space between 15 MB and 16 MB for ISA expansion cards that require a specified area of memory to work properly. If an older ISA expansion card is used, please refer to the documentation that came with the card to see if it is necessary to reserve the space.

➔ **Disabled**	**DEFAULT**	Memory is not reserved for ISA expansion cards
➔ **15 MB–16 MB**		Between 15 MB and 16 MB of memory is reserved for ISA expansion cards

➔ **Initiate Graphic Adapter [PEG/PCI]**

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

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

➔ **IGD Graphics Mode Select [Enable, 32MB]**

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

➔ **Disable**		
➔ **Enable, 32MB**	**DEFAULT**	32 MB of memory used by internal graphics device
➔ **Enable, 64MB**		64 MB of memory used by internal graphics device
➔ **Enable, 128MB**		128 MB of memory used by internal graphics device

➔ **PEG Port [Enabled]**

Use the **PEG Port** option to enable or disable the PCI Express port.

➔ **Enabled**	**DEFAULT**	PEG card functions normally.
➔ **Disabled**		Installed PEG cards cannot function.

5.7.1.1 Video Function Configuration

Use the **Video Function Configuration** menu to configure the video device connected to the system.

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

Video Function Configuration                      DVMT Mode
_____________________________________________________________

DVMT Mode Select                [DVMT Mode]
  DVMT/Fixed Memory             [256 MB]




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

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```

BIOS Menu 24: Video Function Configuration

➔ **DVMT Mode Select [DVMT Mode]**

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

➔ **DVMT Mode**	**DEFAULT**	Graphics memory is dynamically allocated according to the system and graphics needs.

➔ **DVMT/FIXED Memory [256 MB]**

Use the **DVMT/FIXED Memory** option to specify the maximum amount of memory that can be allocated as graphics memory. This option can only be configured for if **DVMT**

Mode or **Fixed Mode** is selected in the **DVMT Mode Selec**t option. If **Combo Mode** is selected, the maximum amount of graphics memory is 128 MB. Configuration options are listed below.

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

5.7.2 Southbridge Configuration

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

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

Southbridge Configuration                              Disabled
_____________________________________________________  Enabled
ASF Support                     [Enabled]
I82578DM Controller             [Enabled]
  GbE LAN Boot                  [Disabled]
  GbE Wake Up From S5           [Disabled]
HAD Controller                  [Enabled]

Restore on AC Power Loss        [Last State]
Resume on Keyboard/Mouse        [Enabled]
Resume on PCI-Express Wake#     [Enabled]
PME Resume                      [Disabled]
RI Resume                       [Disabled]
RTC Resume                      [Disabled]

PCIE Ports Configuration                        ←→   Select Screen
  PCIE Port 0                   [Enabled]       ↑ ↓  Select Item
  PCIE Port 1                   [Enabled]       Enter Go to SubScreen
  PCIE Port 2                   [Enabled]       F1    General Help
  PCIE Port 3                   [Enabled]       F10   Save and Exit
I82574L Controller              [Enabled]       ESC   Exit
  I82574L LAN Boot              [Disabled]
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```

BIOS Menu 25: Southbridge Chipset Configuration

➔ **ASF Support [Enabled]**

Use the **ASF Support** BIOS option to control the system's ability to connect to a remote management server.

➔ **Disabled** The system will not communicate with a remote management server.

➔ **Enabled** **DEFAULT** The Alert Standard Format (ASF) controller is activated and can communicate with a remote management server.

➔ **GbE LAN Boot (82578DM) [Disabled]**

Use the **GbE LAN Boot** option to enable the Intel® 82578DM GbE controller to boot the system.

➔ **Enabled** Can be booted from a remote system through the Intel® 82578DM GbE controller

➔ **Disabled** **DEFAULT** Cannot be booted from a remote system through the Intel® 82578DM GbE controller

➔ **GbE Wake Up From S5 [Disabled]**

Use the **GbE Wake Up From S5** option to enable the Intel® 82578DM GbE controller to wake up from S5 state.

➔ **Enabled** Can wake-up from S5 state through the Intel® 82578DM GbE controller

➔ **Disabled** **DEFAULT** Cannot wake-up from S5 state through the Intel® 82578DM GbE controller

➔ **HDA Controller [Enabled]**

The **HDA Controller** option enables or disables the High Definition Audio controller.

➔ **Enabled** **DEFAULT** The High Definition Audio controller is enabled.

➔ **Disabled** The on-board High Definition Audio controller is disabled.

➔ **Restore on AC Power Loss [Last State]**

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

➔ **Resume on Keyboard/Mouse [Enabled]**

Use the **Resume on Keyboard/Mouse** BIOS option to enable activity on either the keyboard or mouse to rouse the system from a suspend or standby state. That is, the system is roused when the mouse is moved or a button on the keyboard is pressed.

➔ **Disabled**		Wake event not generated by activity on the keyboard or mouse
➔ **Resume On KeyBoard**		Wake event generated by activity on the keyboard
➔ **Resume On Mouse**		Wake event generated by activity on the mouse
➔ **Enabled**	**DEFAULT**	Wake event generated by activity on the keyboard or mouse

➔ **Resume on PCI-Express WAKE# [Enabled]**

The **Resume on PCI-Express WAKE#** BIOS option specifies if the system is roused from a suspended or standby state when there is activity on the PCI-Express bus.

➔ **Enabled**	**DEFAULT**	Wake event generated by PCI-Express activity
➔ **Disabled**		Wake event not generated by PCI-Express activity

➔ **PME Resume on [Disabled]**

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

➔ **Disabled**	**DEFAULT**	Wake event not generated by PCI PME controller activity
➔ **Enabled**		Wake event generated by PCI PME controller activity

➔ **RI Resume on Ring [Disabled]**

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

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

➔ **RTC Resume [Disabled]**

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

➔ **Disabled**	**DEFAULT**	The real time clock (RTC) cannot generate a wake event
➔ **Enabled**		If selected, the following appears with values that can be selected: RTC Alarm Date (Days) RTC Alarm Time After setting the alarm, the computer turns itself on from a suspend state when the alarm goes off.

➔ **PCIE Port n [Enabled]**

Use the **PCIE Port n** option to determine enable or disable the nth PCI Express port.

➔ **Enabled** **DEFAULT** nth PCI Express port enabled.

➔ **Disabled** nth PCI Express port disabled.

➔ **I82574L Controller [Enabled]**

Use the **I82574L Controller** option to enable the Intel® 82574L GbE controller.

➔ **Enabled** **DEFAULT** The Intel® 82574L GbE controller is enabled.

➔ **Disabled** The Intel® 82574L GbE controller is disabled.

➔ **I82574L LAN Boot [Disabled]**

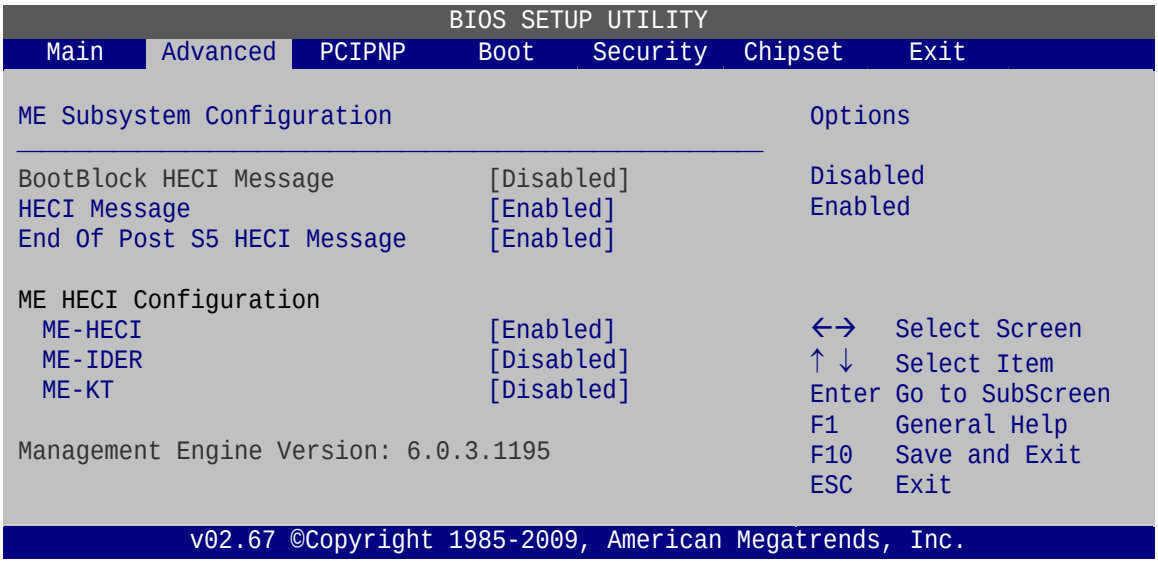
Use the **I82574L LAN Boot** option to enable the Intel® 82574L GbE controller to boot the system.

➔ **Disabled** **DEFAULT** Cannot be booted from a remote system through the Intel® 82574L GbE controller

➔ **Enabled** Can be booted from a remote system through the Intel® 82574L GbE controller

5.7.3 ME Subsystem Configuration

The **ME Subsystem Configuration** menu (**BIOS Menu 25**) allows the AMT subsystem (Management Engine, ME) and Host Embedded Controller Interface (HECI) driver options to be configured.



BIOS Menu 26: ME Subsystem Configuration

➔ **BootBlock HECI Message [Enabled]**

The **BootBlock HECI Message** option is enabled by default and can not be changed.

➔ **HECI Message [Enabled]**

Use the **HECI Message** BIOS option to enable or disable HECI message.

➔	**Disabled**		The HECI message disabled.
➔	**Enabled**	**DEFAULT**	The HECI message enabled.

➔ **End Of Post S5 HECI Message [Enabled]**

Use the **End Of Post S5 HECI Message** option to enable or disable HECI message when the system is in the off (S5) state.

➔	**Disabled**		The HECI message is disabled when the system is off.
➔	**Enabled**	**DEFAULT**	The HECI message enabled when the system is off.

➔ **ME-HECI [Enabled]**

The **ME-HECI** option is enabled by default and can not be changed.

➔ **ME-IDER [Disabled]**

Use the **ME-IDER** option to enable or disable the IDE-Redirection (IDE-R) function on an AMT-capable system.

➔ **Disabled**	**DEFAULT**	The IDE-R function is disabled.
➔ **Enabled**		The IDE-R function allows an AMT-capable client system to access IDE devices and load OS from a management system. When an IDE-R session is established, the virtual drives are shown in the system.

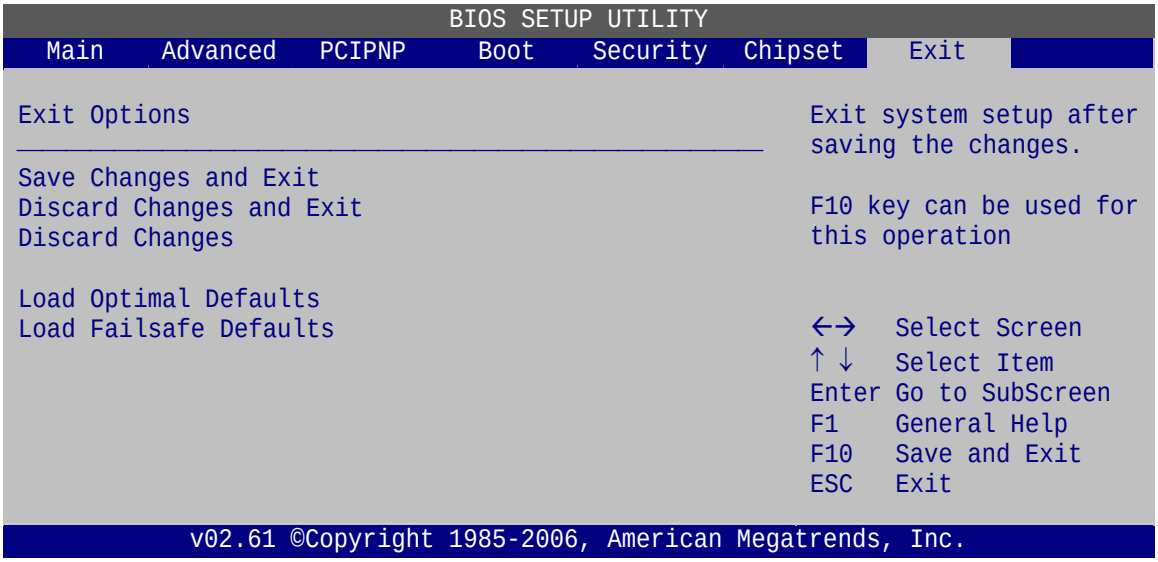
➔ **ME-KT [Disabled]**

Use the **ME-KT** option to enable or disable the Keyboard and Text redirection (KT) function on an AMT-capable system. KT is also known as Serial-Over-Lan (SOL).

➔ **Disabled**	**DEFAULT**	The KT function of the ME is disabled.
➔ **Enabled**		The KT function allows a management system to control an Intel® AMT client system remotely. The keyboard interface of a managed client system, such as BIOS menu, is displayed through the management system.

5.8 Exit

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



BIOS Menu 27:Exit

➔ **Save Changes and Exit**

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

➔ **Discard Changes and Exit**

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

➔ **Discard Changes**

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

➔ **Load Optimal Defaults**

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

➔ **Load Failsafe Defaults**

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

Appendix

A

Intel® AMT Configuration

A.1 Intel® AMT Setup Procedure

The PCIE-Q57A 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 DIMM.

Step 2: Connect an Ethernet cable to the RJ-45 connector labeled LAN2.

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

Intel AMT Configuration [Advanced]

ME Subsystem Configuration [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 PCIE-Q57A 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**.

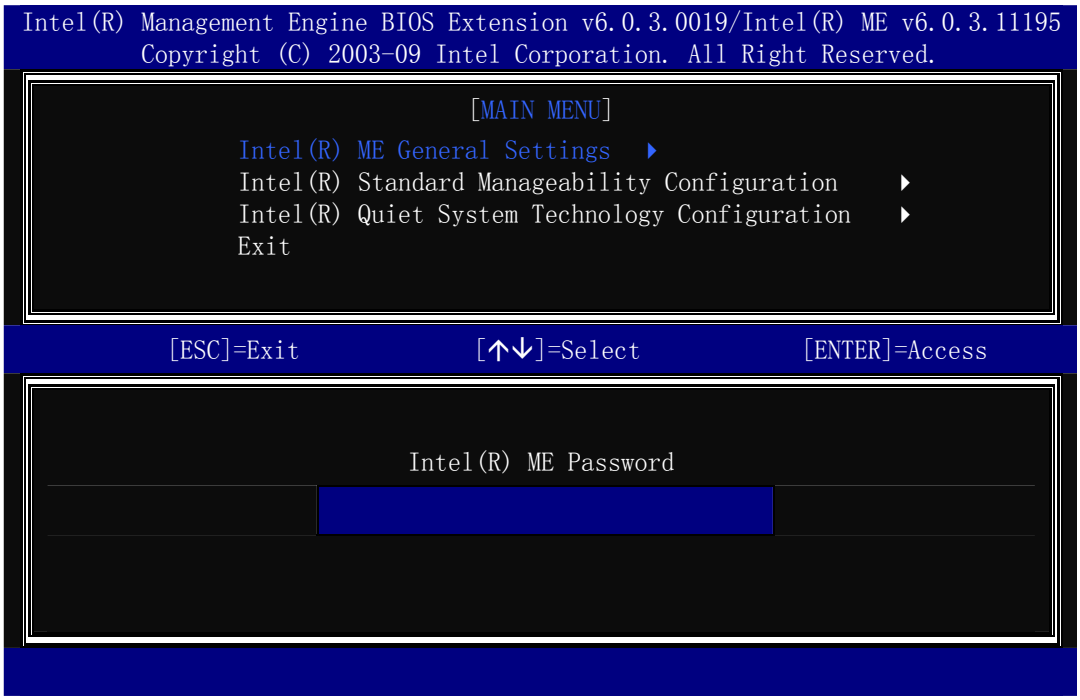


Figure A-2: Intel® Current ME Password

Step 3: Please change default password before continuing (**Figure A-3**). Intel® ME passwords must be between 8 and 32 characters long, have at least one upper case character, one lower case character, one number, and a special character (for example: !, @, #, $, %, ^, &, *). The legal password could be **iEi123@#**

Step 4: Verify the new password by entering again.

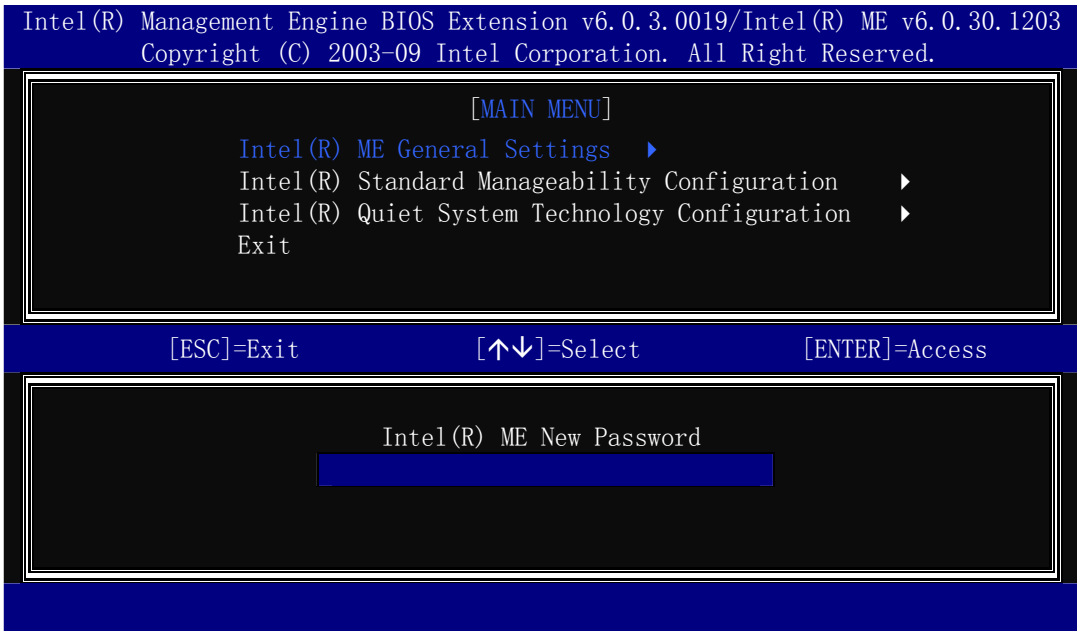


Figure A-3: Intel® ME New Password

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

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Appendix

C

One Key Recovery

C.1 One Key Recovery Introduction

The IEI one key recovery is an easy-to-use front end for the Norton Ghost system backup and recovery tool. 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!

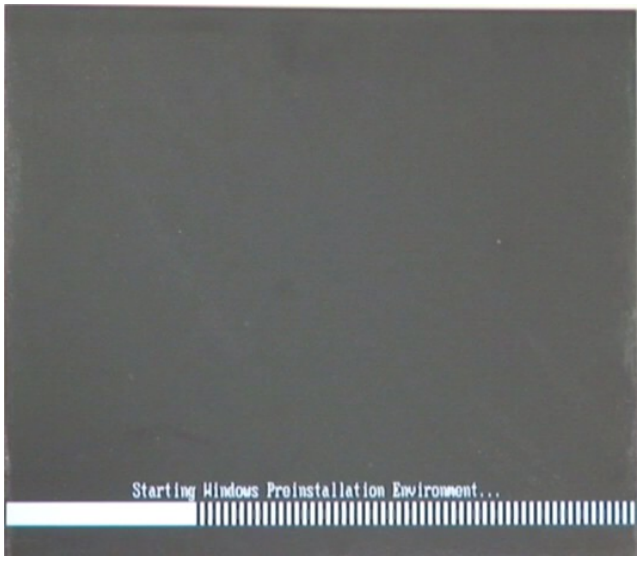


Figure C-2: Launching the Recovery Tool

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

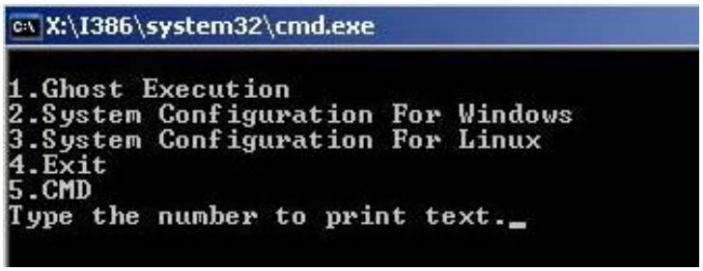


Figure C-3: Recovery Tool Setup Menu

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

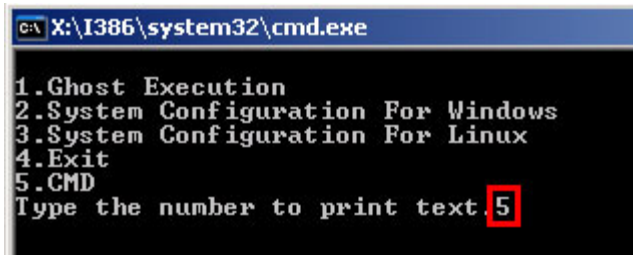


Figure C-4: Command Mode

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

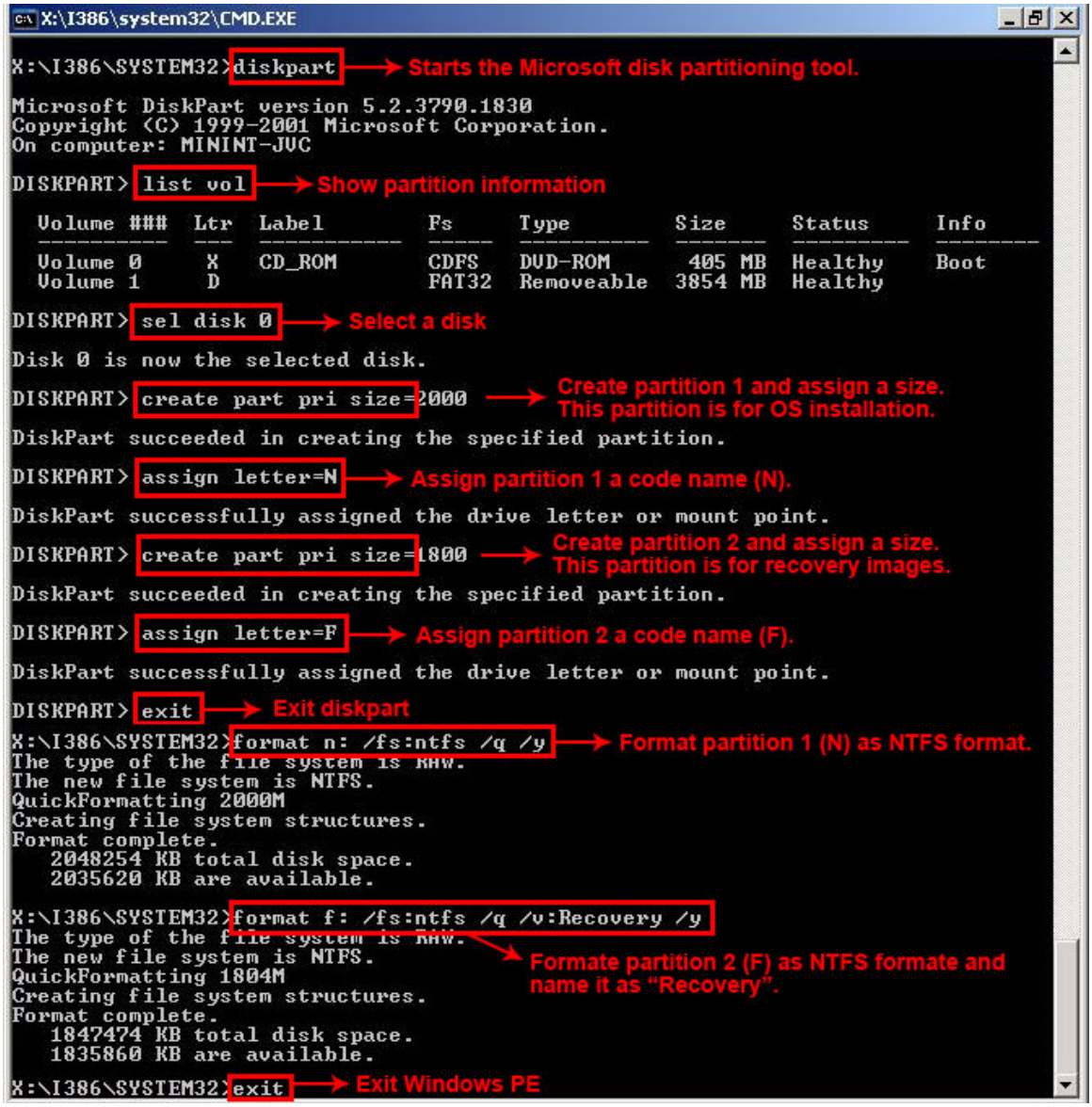
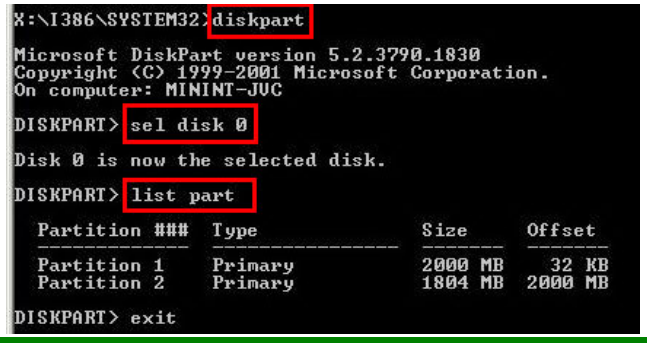


Figure C-5: Partition Creation Commands

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!

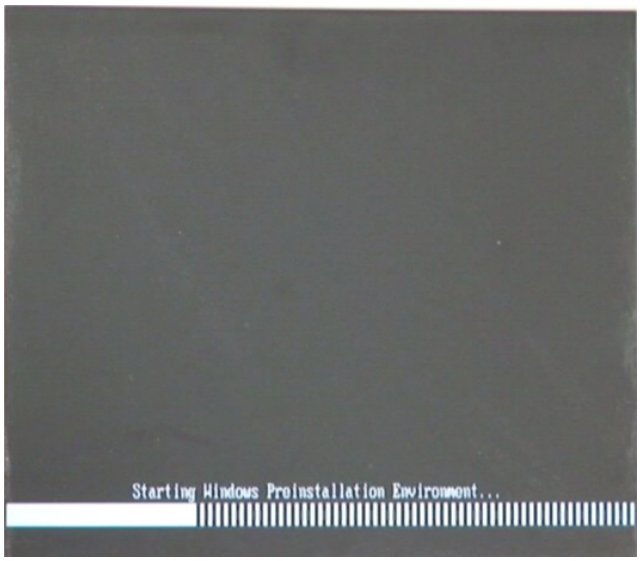


Figure C-6: Launching the Recovery Tool

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

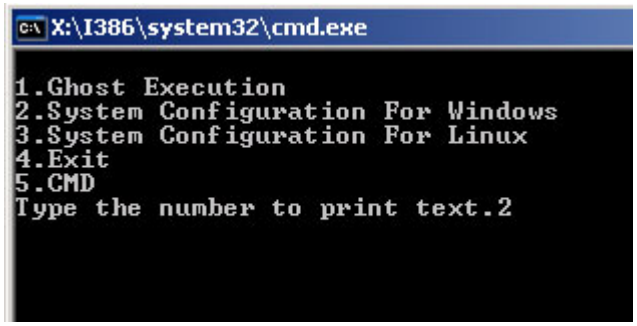


Figure C-7: System Configuration for Windows

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.

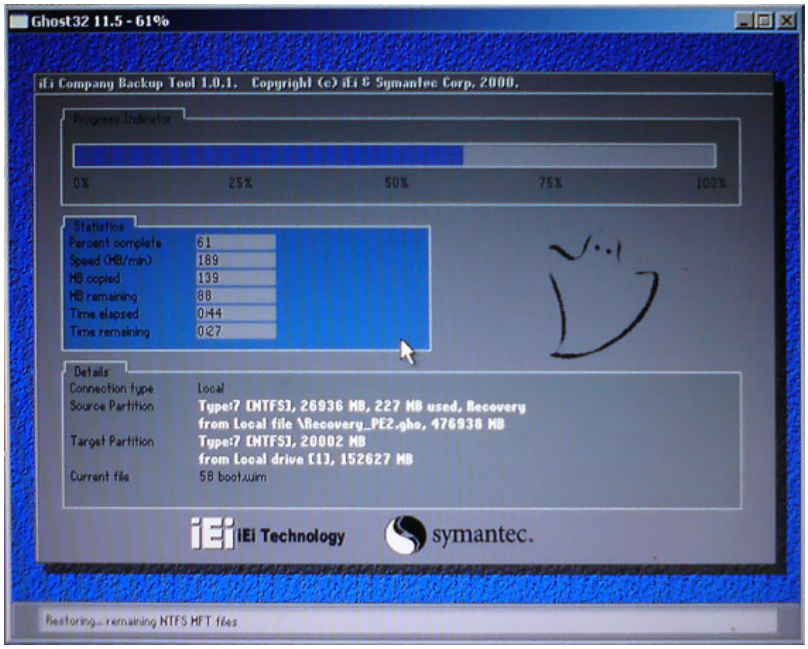


Figure C-8: Build-up Recovery Partition

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

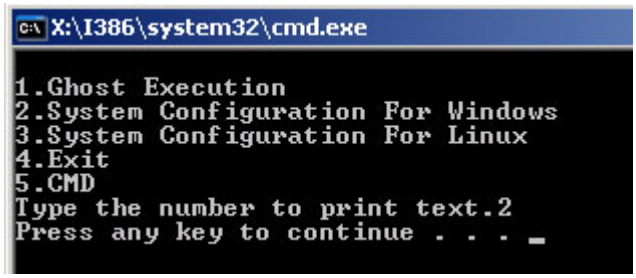


Figure C-9: Press any key to continue

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.

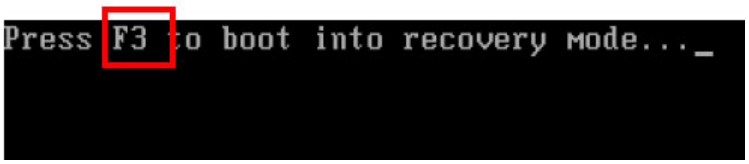


Figure C-10: Press F3 to Boot into Recovery Mode

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

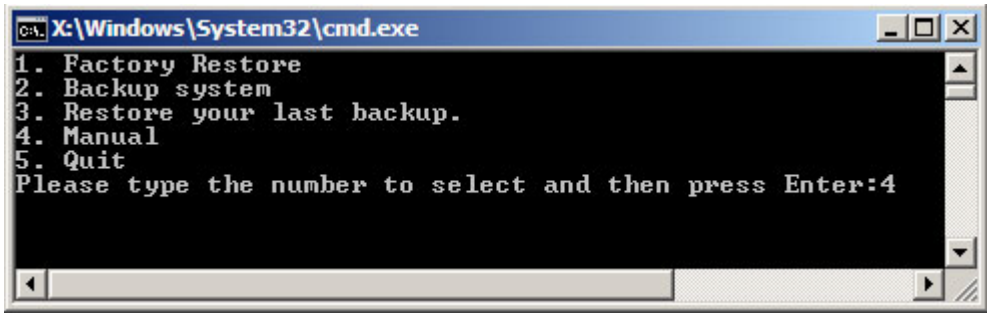


Figure C-11: Recovery Tool Menu

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

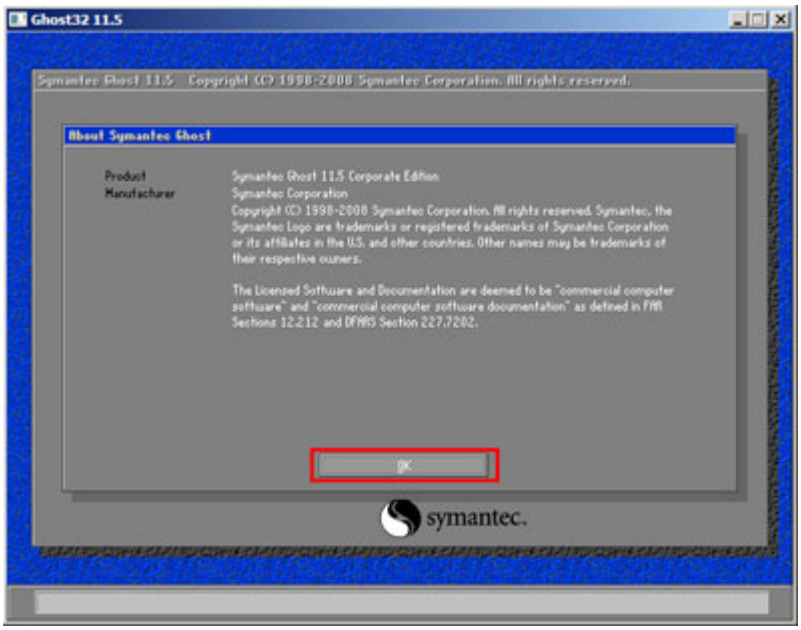


Figure C-12: About Symantec Ghost Window

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

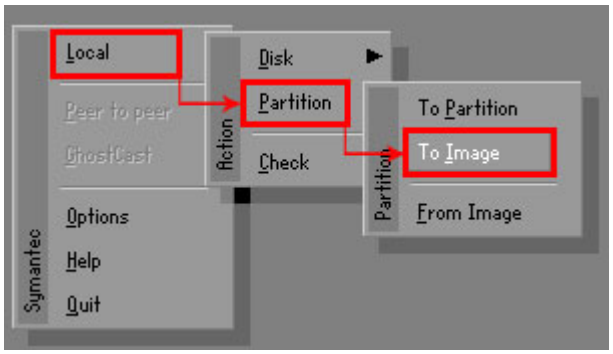


Figure C-13: Symantec Ghost Path

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

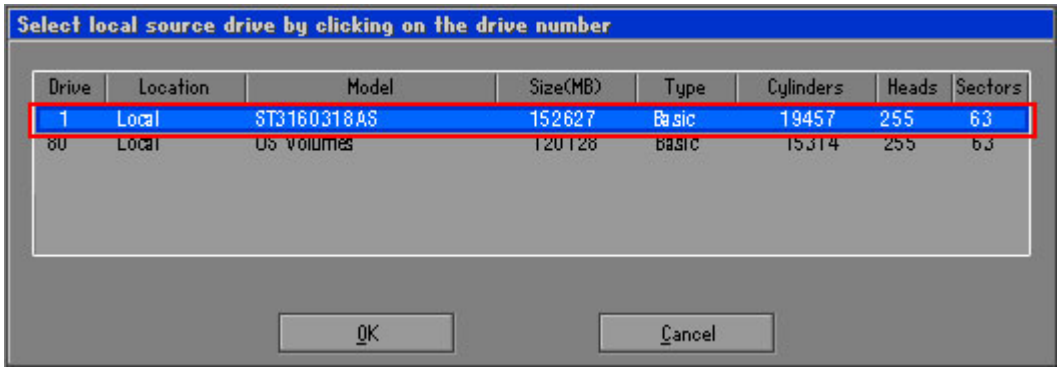


Figure C-14: Select a Local Source Drive

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

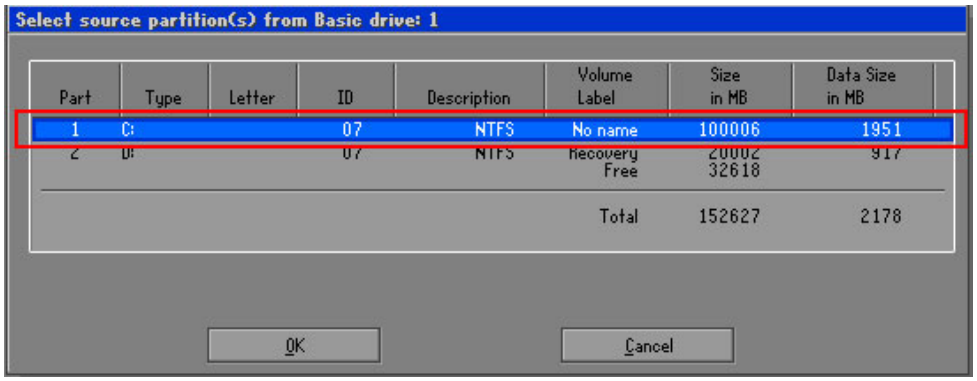


Figure C-15: Select a Source Partition from Basic Drive

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

WARNING:

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

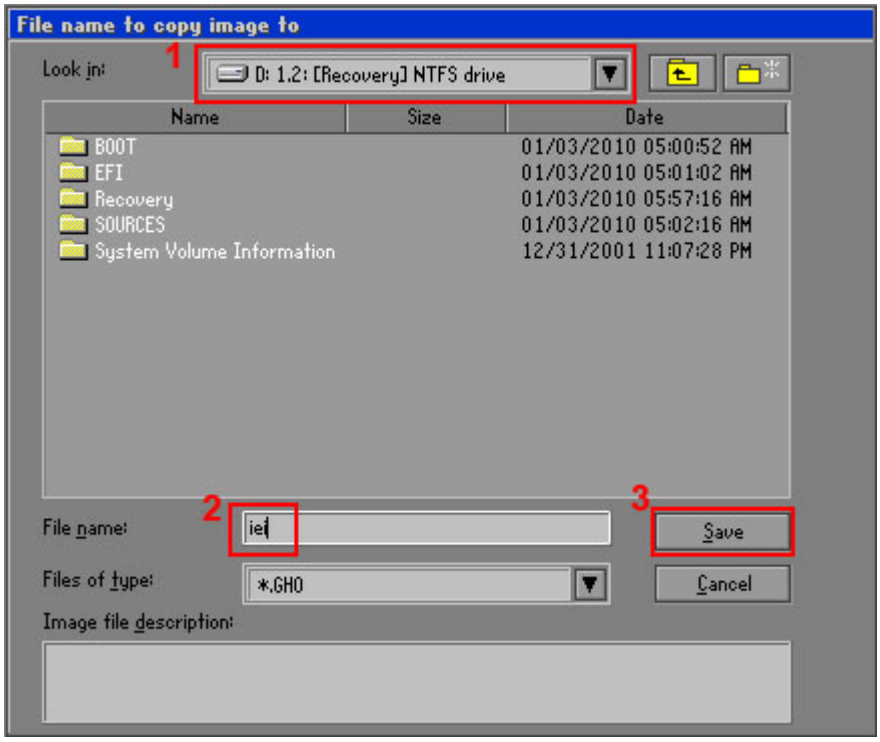


Figure C-16: File Name to Copy Image to

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

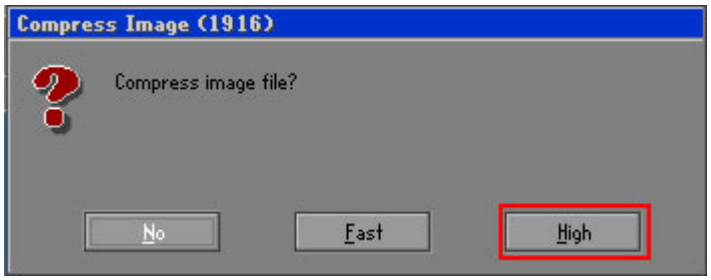


Figure C-17: Compress Image

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

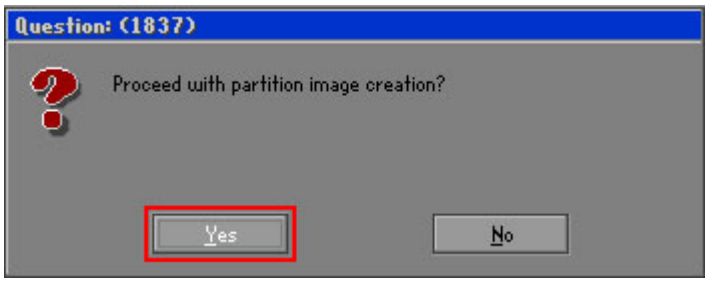


Figure C-18: Image Creation Confirmation

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

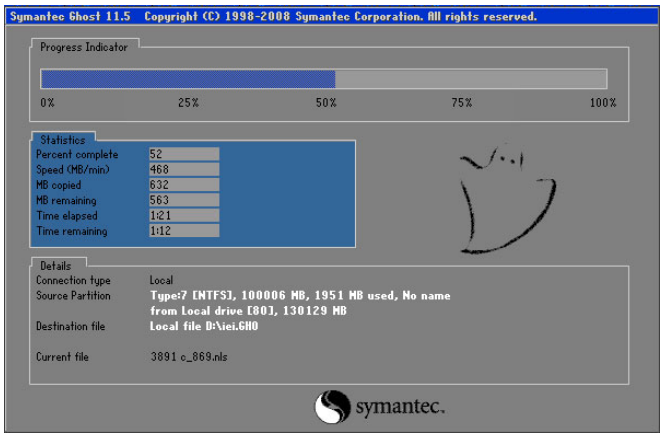


Figure C-19: Image Creation Complete

Step 11: When the image creation completes, a screen prompts as shown in **Figure C-20**. Click **Continue** and close the Ghost window to exit the program.

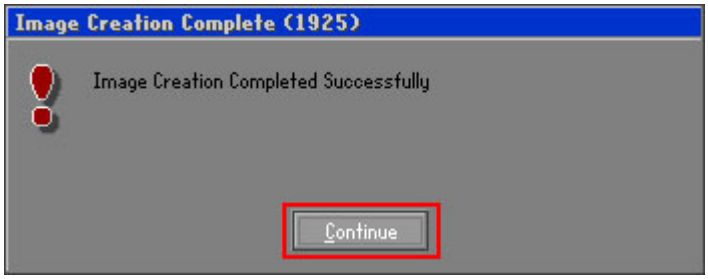


Figure C-20: Image Creation Complete

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

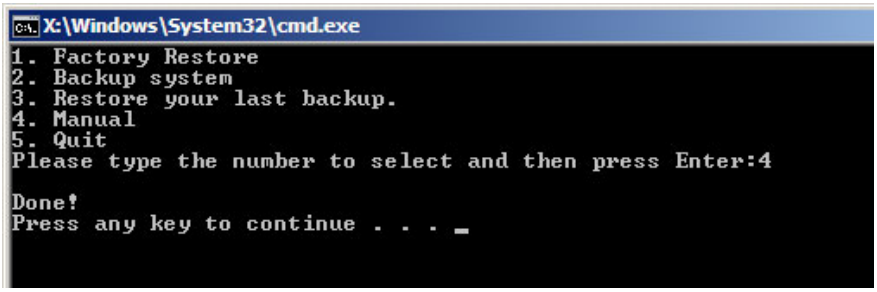


Figure C-21: Press Any Key to Continue

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.

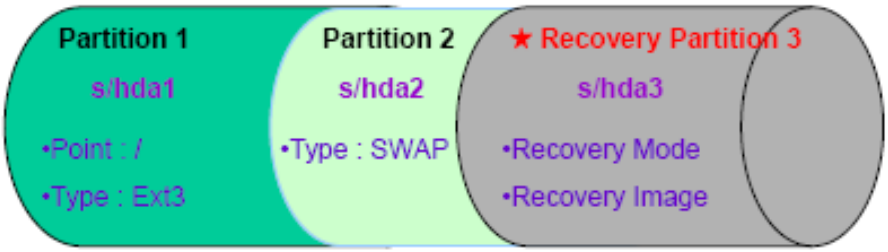


Figure C-22: Partitions for Linux

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.

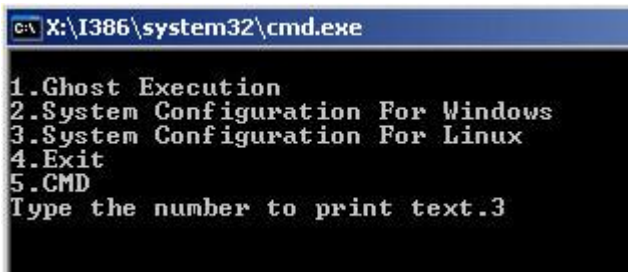


Figure C-23: System Configuration for Linux

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

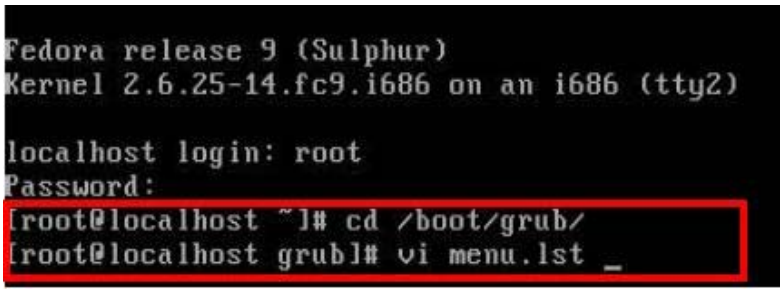
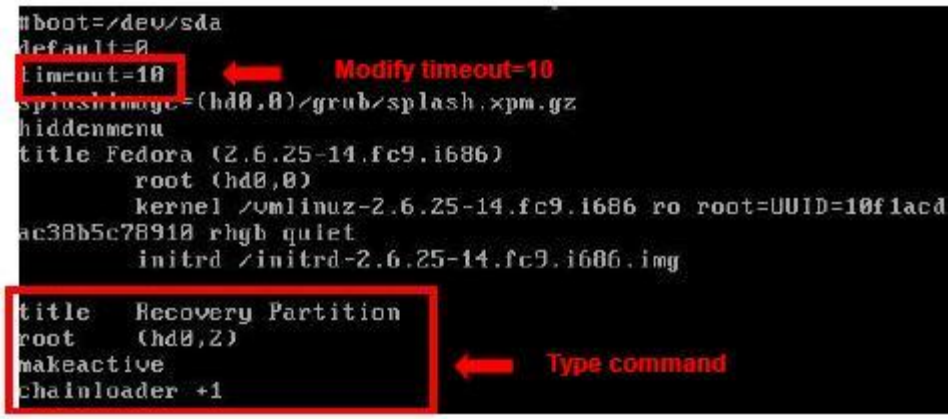


Figure C-24: Access menu.lst in Linux (Text Mode)

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**)

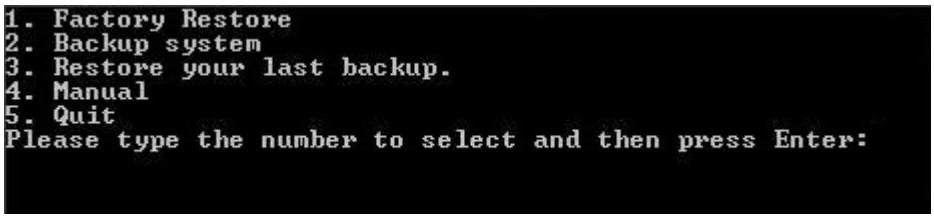


Figure C-25: Recovery Tool Menu

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:

6. **Factory Restore**: Restore the factory default image (iei.GHO) created in **Section C.2.5**.
7. **Backup system**: Create a system backup image (iei_user.GHO) which will be saved in the hidden partition.
8. **Restore your last backup**: Restore the last system backup image
9. **Manual**: Enter the Symantec Ghost window to configure manually.
10. **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.

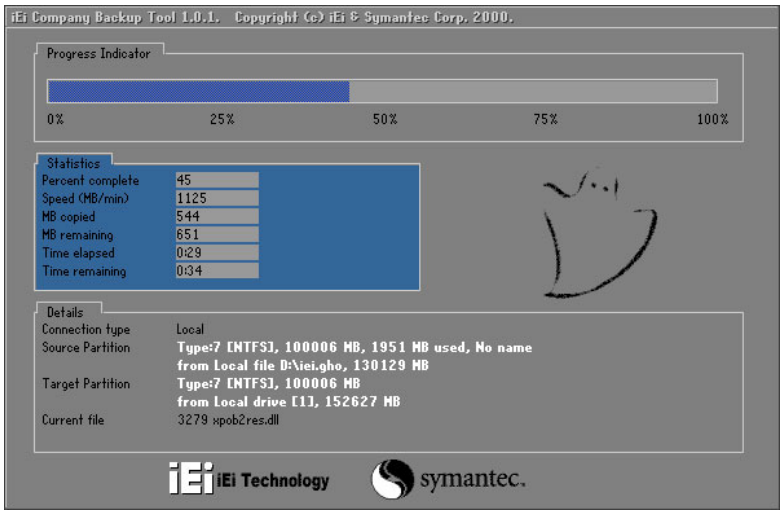


Figure C-27: Restore Factory Default

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

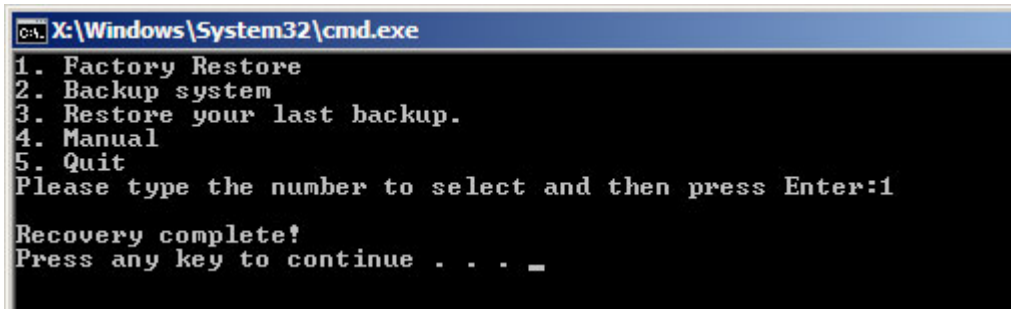


Figure C-28: Recovery Complete Window

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.

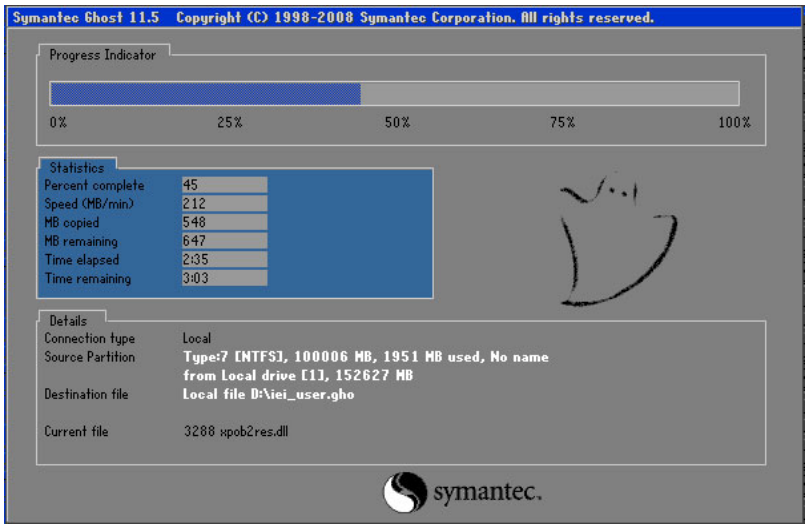


Figure C-29: Backup System

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

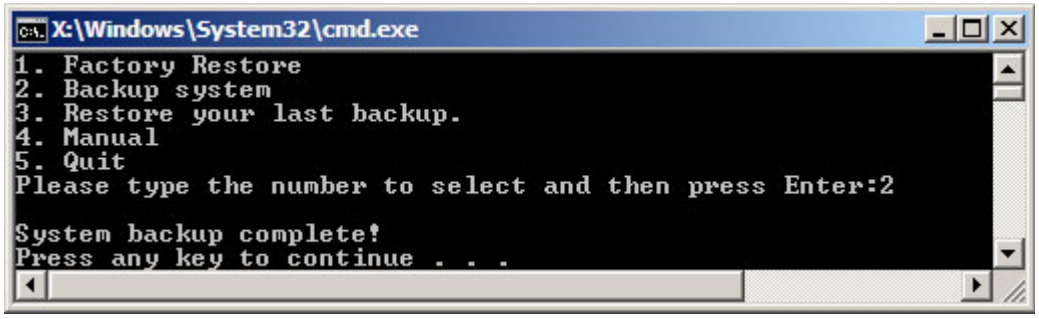


Figure C-30: System Backup Complete Window

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).

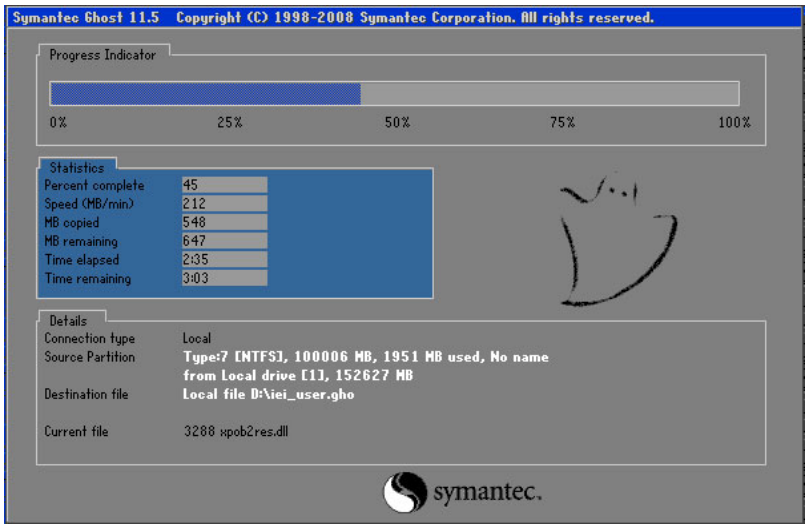


Figure C-31: Restore Backup

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

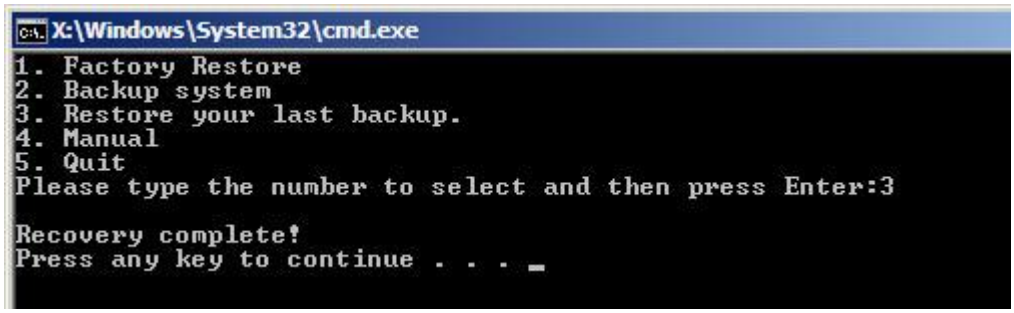


Figure C-32: Restore System Backup Complete Window

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.

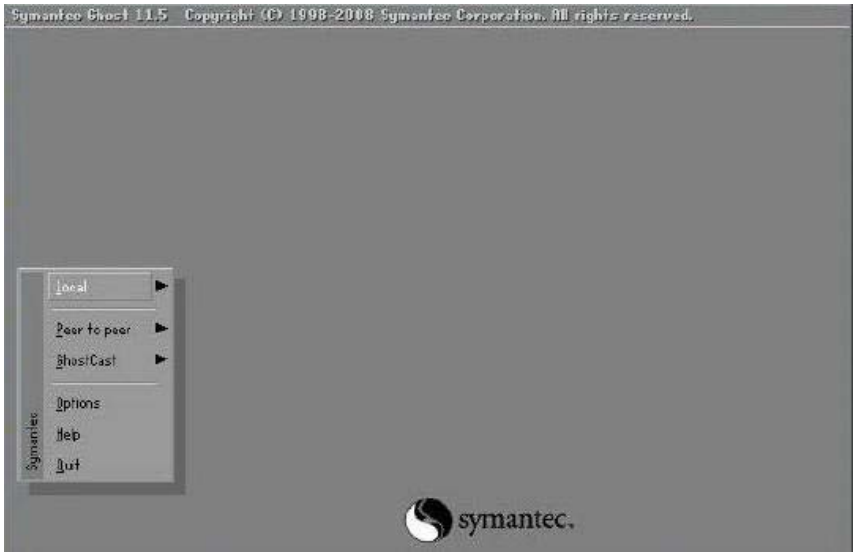


Figure C-33: Symantec Ghost Window

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

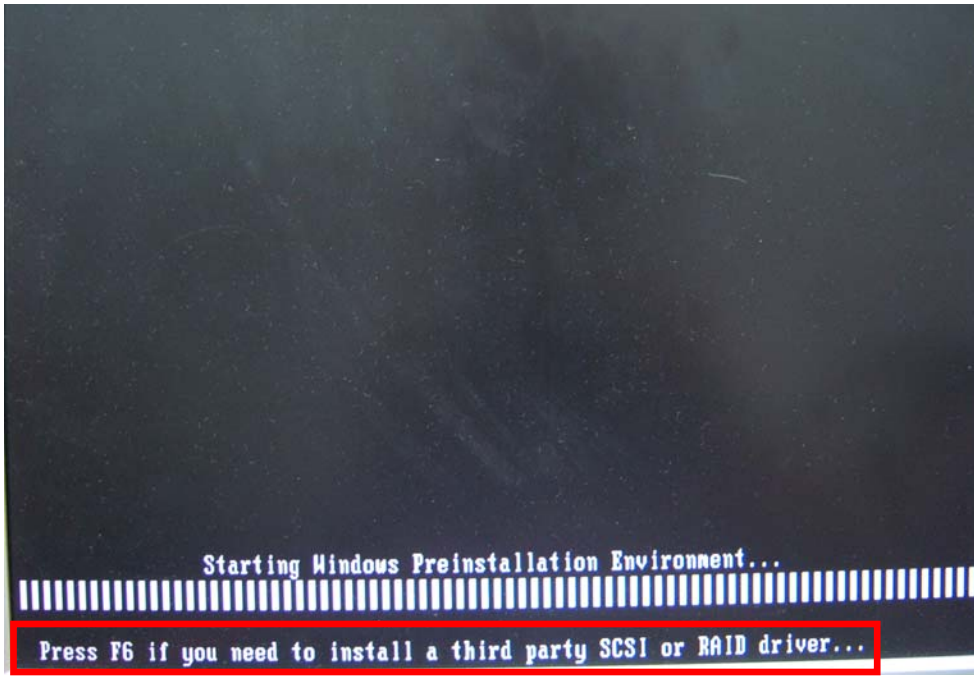
When the system uses AHCI mode or some specific SATA controllers such as ALi M5283 or VIA VT6421A, the SATA RAID/AHCI driver must be installed before using one key recovery. Please follow the steps below to install the SATA RAID/AHCI driver.

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.

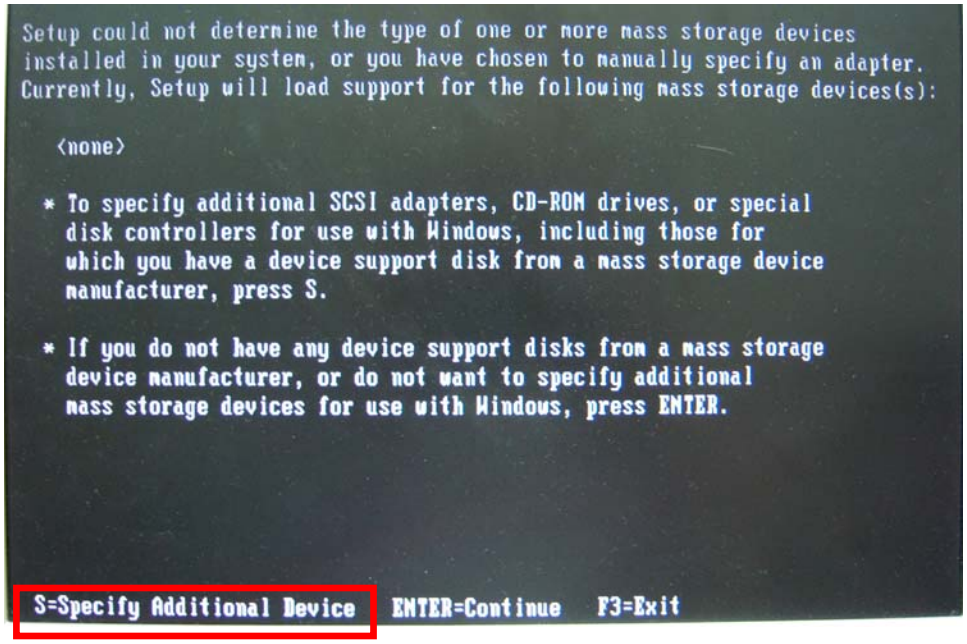
Step 2: Connect the USB floppy disk drive to the system.

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

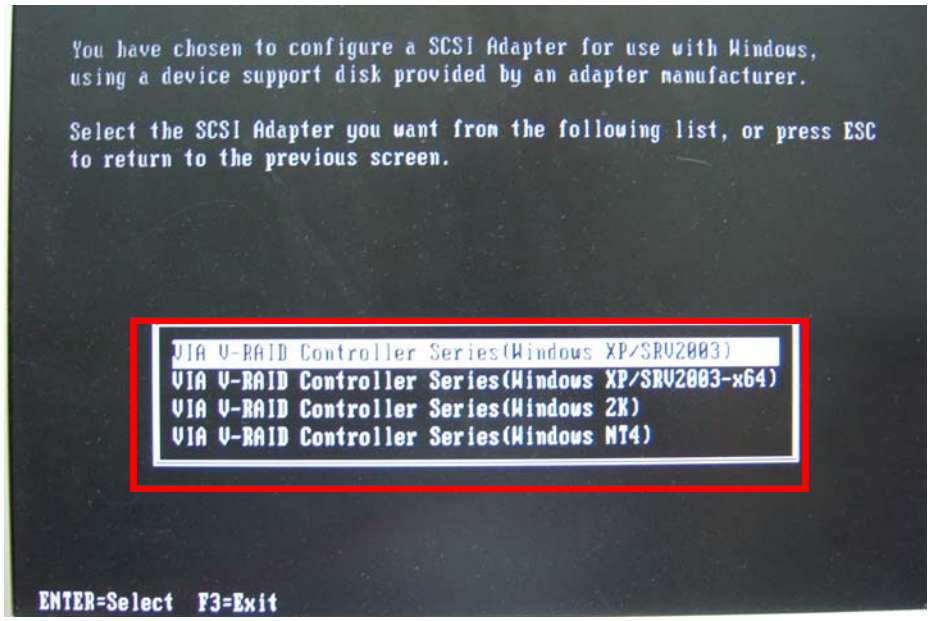
Step 4: When launching the recovery tool, press <**F6**>.



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

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

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。

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