SUPER®

SUPER® C7SIM-Q

USER'S MANUAL

Revision 1.0c

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WARNING: Handling of lead solder materials used in this product may expose you to lead, a chemical known to the State of California to cause birth defects and other reproductive harm.

Manual Revision: Revision 1.0c

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Preface

This manual is written for system integrators, PC technicians and knowledgable PC users. It provides information for the installation and use of the SUPER● C7SIM-Q motherboard. The C7SIM-Q supports a single Intel® Core™ i7, Core i5, Core i3 and Pentium® processor series in an LGA1156 socket. Featuring the Intel Q57 Express, the C7SIM-Q also offers substantial enhancement in price/system performance ratio in a cost-effective, small form-factor package. Please refer to our web site (http://www.supermicro.com/products/) for updates on supported processors. This product is intended to be installed and serviced by professional technicians.

Manual Organization

Chapter 1 describes the features, specifications and performance of the mainboard and provides detailed information about the chipset.

Chapter 2 provides hardware installation instructions. Read this chapter when installing the processor, memory modules and other hardware components into the system.

If you encounter any problems, see **Chapter 3**, which describes troubleshooting procedures for the video, the memory and the system setup stored in CMOS.

Chapter 4 includes an introduction to BIOS and provides detailed information on running the CMOS Setup utility.

Appendix A provides BIOS POST Messages. **Appendix B** provides Driver software installation instructions. **Appendix C** are setup instructions for the Intel Active Management Techology (AMT), and **Appendix D** describes the BIOS Recovery instructions.

Conventions Used in the Manual:

Special attention should be given to the following symbols for proper installation and to prevent damage done to the components or injury to yourself:

Warning: Important information given to ensure proper system installation, to prevent bodily injury or damage to the components.

Note: Additional Information given to differentiate various models or to ensure correct system setup.

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Chapter 4: BIOS

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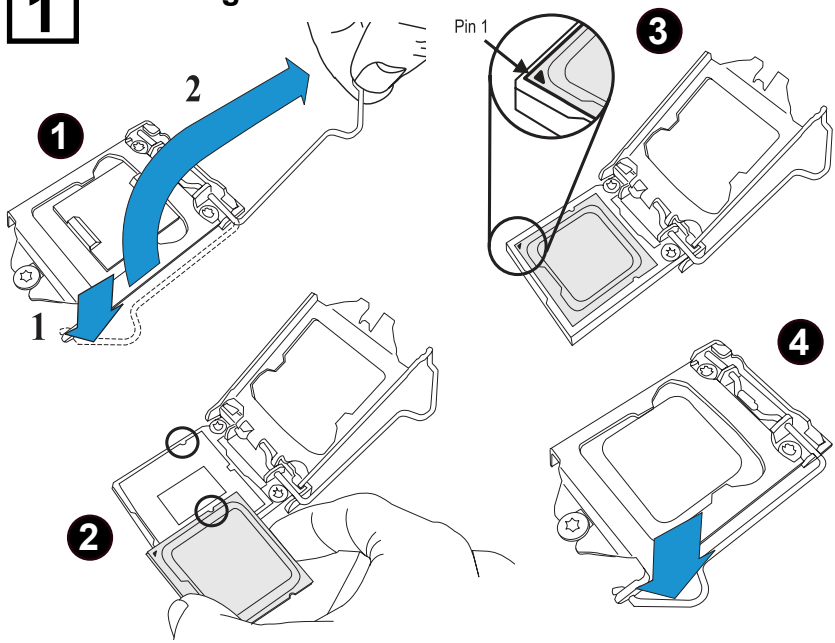
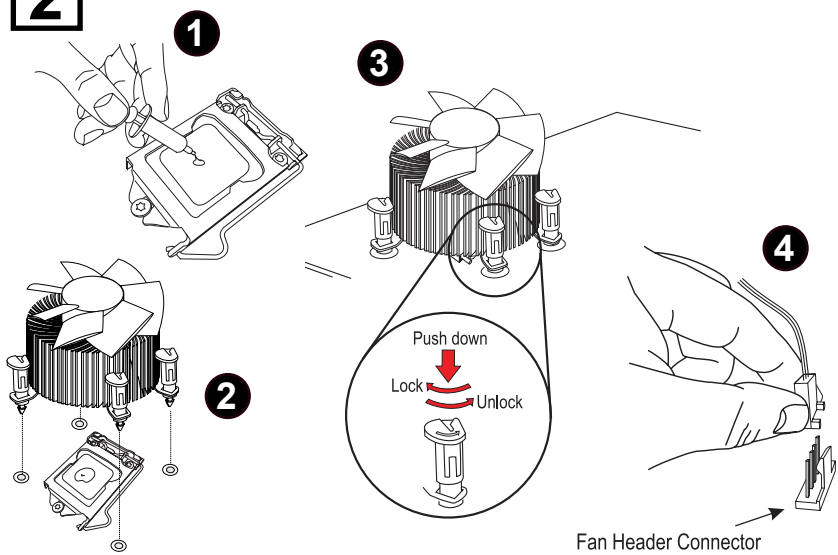
Quick-Start Guide

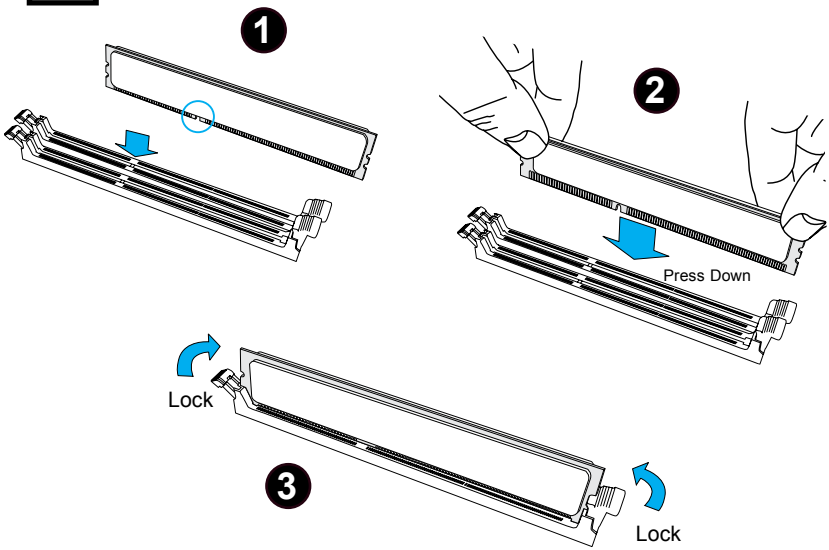
1 Installing the Processor



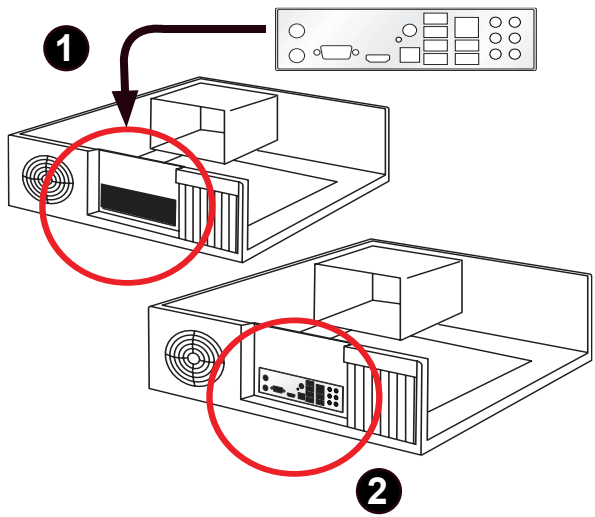
2 Installing the Heatsink and Fans



3 Installing the Memory Modules

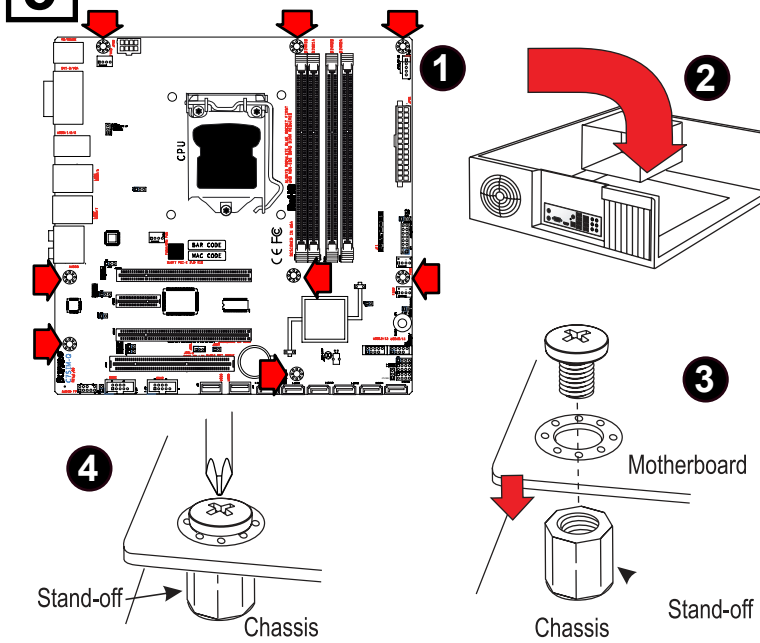


4 Installing the I/O Shield

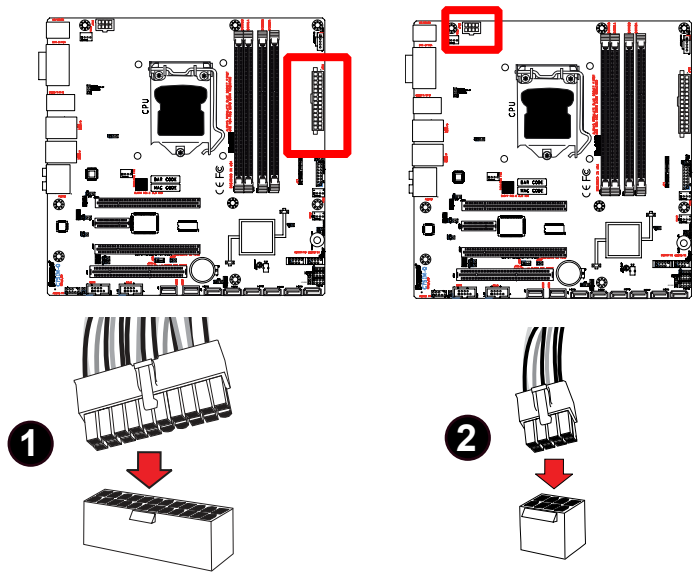


Note: The chassis image included here is for illustration purposes only.

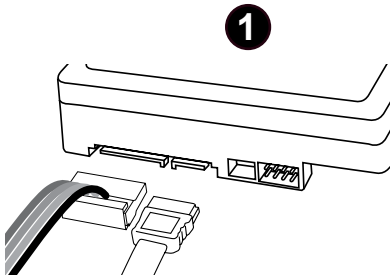
5 Installing the Motherboard



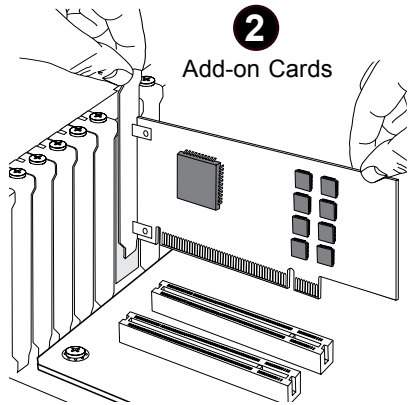
6 Connecting the Power Supply



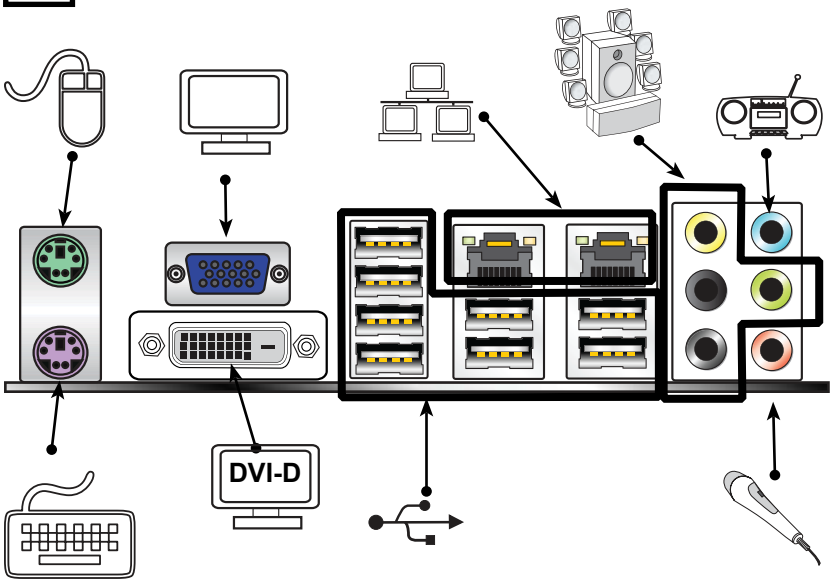
7 Installing Internal Peripherals



SATA Drives



8 Installing External Peripherals



Chapter 1

Introduction

1-1 Overview

Checklist

Congratulations on purchasing your computer motherboard from an acknowledged leader in the industry. Supermicro boards are designed with the utmost attention to detail to provide you with the highest standards in quality and performance.

Please check that the following items have all been included with your motherboard. If anything listed here is damaged or missing, contact your retailer.

All of the following items are included in the Retail Box Only:

One (1) Supermicro Mainboard

Four (4) SATA cables (CBL-0044L)

One (1) I/O Shield (MCP-260-00033-ON)

One (1) Supermicro CD containing drivers and utilities

One (1) User's/BIOS Manual (MNL-1174)

Contacting Supermicro

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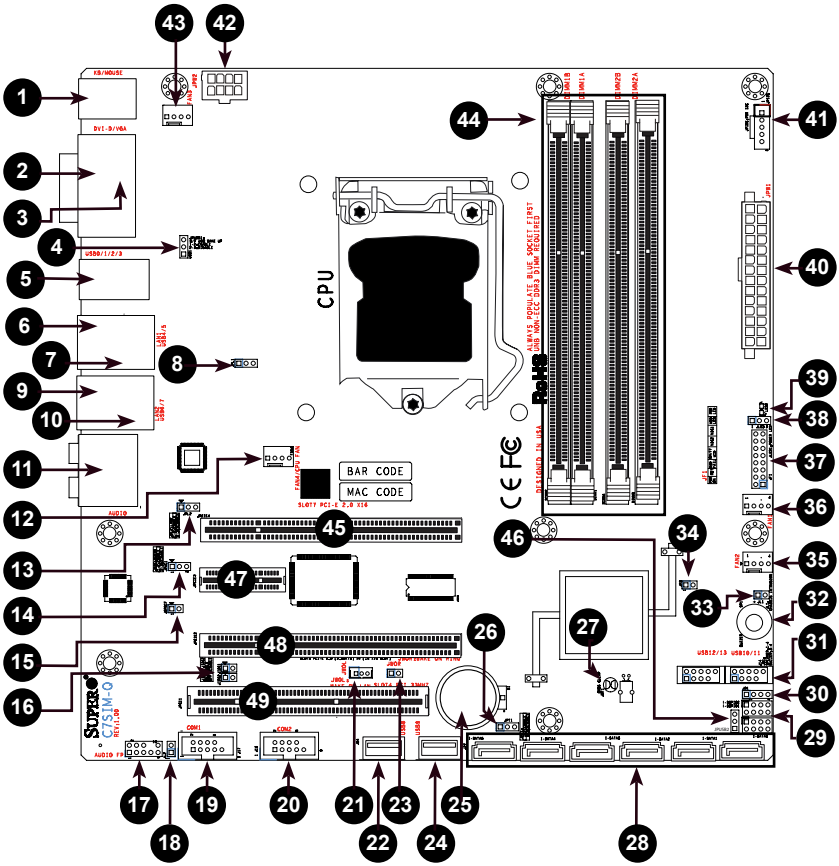
SUPERMICRO C7SIM-Q Image

Note: *All pictures and drawings shown in this manual were based upon the latest PCB Revision available at the time of publishing of the manual. The motherboard you've received may or may not look exactly the same as the one shown in this manual.*

Motherboard Layout



Important Notes to the User

- Jumpers not indicated are for test purposes only.
- See Chapter 2 for detailed information on jumpers, I/O ports and JF1 front panel connections.
- "■" indicates the location of "Pin 1.'

C7SIM-Q Quick Reference

Number	Connectors	Description
40	JPW1	ATX 24-Pin Power Connector
19,20	COM1, COM2	Serial Port 1 & 2 Headers
44	DIMM 1A, 2A, 1B, 2B	Memory Slots
12,35,36,43	Fans 4,2,1,3	Fan 4: CPU Fan, Fan 1/2/3: Chassis Fan Headers
29	T-SGPIO-0/1	Serial General Purpose IO headers (for SATA)
37	JF1	FP Control Panel Header
33	JL1	Chassis Intrusion Header
38	JLED	Onboard Power LED Connector
2	VGA	Video/Graphics Connector
21	JWOL	Wake-on-LAN Header
23	JWOR	Wake-on-Ring Header
32	SPK	Onboard Speaker/Buzzer
3	DVI	Digital Visual Interface (DVI-D)
17	J5	Front Panel Audio Header Connector
1	J8	PS/2 Keyboard/Mouse
42	JPW2	12V 8-Pin Power Connector
11	J6	Back Panel Audio Ports
6	LAN1	RJ45 Connector for LAN1
9	LAN2	RJ45 Connector for LAN2
39	LED2	Standby Power LED Indicator
28	SATA 0,1,2,3,4,5	SATA Connectors
45	JPCIE4	PCI-E 2.0 x16 Slot
47	JPCIE3	PCI-E x1 Slot
48	JPCIE2	PCI-E 2.0 x4 (in x16 Slot)
49	JPCIE1	PCI-32 (5V) Slot
5	USB 0, 1, 2, 3	(Back Panel) USB Ports
7	USB 4/5	(Back Panel) USB Ports
10	USB 6/7	(Back Panel) USB Ports
22,24	USB 8, 9	Type A USB Ports
31	USB 10/11, 12/13	Front Panel USB Headers
41	JPI2C	PWR supply (I^2C) System Management Bus
25	BATT	Onboard Battery
15	JS/PDIF	S/PDIF Header

Number	Jumpers	Description	Default Setting
27	JBT1	CMOS Clear	(See Chapter 2)
16	JI²C1/JI²C2	SMB to PCI Slots	Open/Open (Disabled)
14	JPAC	Audio Enable	Pins 1-2 (Enabled)
4, 46	JPUSB1, JPUSB2	USB Wake-up Enable (JPUSB1: Back Panel, JPUSB2: Front Panel)	Pins 1-2 (Enabled)
30	JD1	External Buzzer/Speaker	**Pins 3-4 (Internal Buzzer)** Pins 1-4 (External Speaker)
8	JPL1	LAN1 Enable/Disable	Pins 1-2 (Enabled)
13	JPL2	LAN2 Enable/Disable	Pins 1-2 (Enabled)
26	JPT1	Trusted Platform Module Enable	Pins 1-2 (Enabled) **Pins 2-3 (Disabled)**
34	JP3	Intel Management Engine	Open (Enabled)
18	JL2	AC97/HD Audio Selector (Front Panel)	**Open (HD Audio)** Closed (AC97)

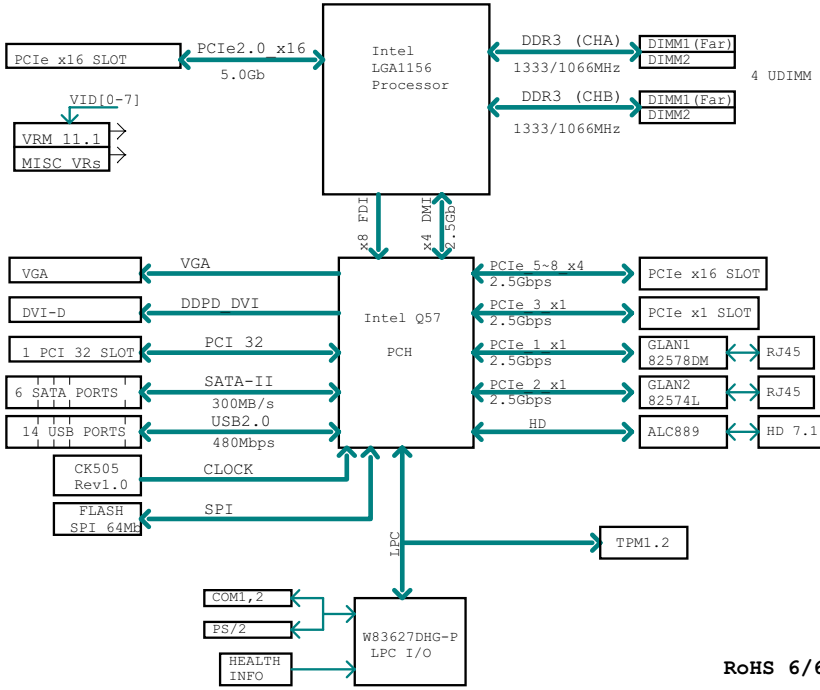
Motherboard Features

CPU	Single Intel® Core™ i7, Core i5, Core i3 and Pentium® series processor in an LGA1156 socket.	
Memory	Four (4) 240-pin, DDR3 SDRAM DIMM sockets with support for up to 16GB of UDIMM memory (Non-ECC/DDR3 1333/1066/800 MHz memory only.)	
	DIMM sizes	
	UDIMM	1GB, 2GB, and 4GB
Chipset	Intel Q57 Express Chipset	
Expansion Slots	One (1) PCI-Express 2.0 x16	
	One (1) PCI-Express 2.0 x4 (in x16 slot)	
	One (1) PCI-Express 2.0 x1	
	One (1) 32-bit PCI 33MHz	
I/O Devices	**SATA Connections**	
	SATA Ports	Six (6)
	USB Device Connectors	
	Four (4) USB 2.0/1.0 ports in two on-board headers	
	Eight (8) rear USB 2.0/1.0 ports (back panel)	
	Two (2) on-board Type A USB ports (2.0/1.0)	
	Network Connections	
	Two LAN Ports: One (1) RJ45 10/100/1000 Ethernet port (LAN1, Intel 82578DM) and One (1) RJ45 10/100/1000 Ethernet port (LAN2, Intel 82574L)	
	Keyboard/Mouse	
	PS/2 Keyboard/Mouse ports (back panel)	
	Serial (COM) Ports	
	Two (2) 16550 Fast UART serial headers (on-board)	
	Audio	
	Six (6) I/O Jacks for High Definition audio support (HD 7.1), One (1) S/PDIF header	
	Video and Graphics	
	One (1) Digital Visual Port (DVI-D) port	
	One (1) back panel VGA connector	
BIOS	32 Mb SPI AMI BIOS® SM Flash BIOS	

	Plug and Play (PnP), APM 1.2, PCI 2.3, ACPI 1.0/2.0, USB Keyboard Support
PC Health Monitoring	Onboard voltage monitors for CPU core voltage, memory voltage, +1.8V, +3.3V, +5 +/-12V, +3.3V standby, +5V standby, Vbat (battery voltage), HT, Memory, Chipset.
	Fan status monitor with firmware for 4-pin fan speed control
	CPU 4-Phase-switching voltage regulator
	SuperDoctor III, Watch Dog, NMI
	Power-on mode control for recovery from AC power loss
	System resource alert via Supero Doctor III
	Auto-switching voltage regulator for the CPU core
	CPU Thermal Trip support
	Thermal Monitor 2 (TM2) support
ACPI Features	Slow blinking LED for suspend state indicator
	BIOS support for USB keyboard
	Internal/External modem ring-on
Other Features	Trusted Platform Module (TPM 1.2) support
	Wake-on-LAN (WOL)
	Wake-on-Ring (WOR)
	Suspend-to-RAM
	Supports VRD 11.1
	Intel® Active Management Technology (AMT)
	Intel® vPro™ Technology
	Onboard +5V Standby Power Warning LED
	RoHS 6/6 compliant
CD Utilities	BIOS flash upgrade utility
	Drivers and software utilities for the Intel Q57 chipset
Dimensions	Micro ATX form factor, 9.6" x 9.6" (243.8 mm x 243.8 mm)

Note: Motherboard specifications listed above are subject to change without notice.

Block Diagram



C7SIM-Q System Block Diagram

Note: This is a general block diagram and may not exactly represent the features on your motherboard. See the following pages for the actual specifications of each motherboard.

1-2 Chipset Overview

The C7SIM-Q supports the Intel® Core™ i7, Core i5, Core i3 and Pentium® processor series for the LGA 1156 socket. Built upon the functionality and the capability of the single-chip Intel Q57 Express chipset, the C7SIM-Q motherboard provides the performance and feature set required for single-processor-based systems with configuration options optimized for Small Office/Home Office (SOHO) computing platforms.

The high-speed Direct Media Interface (DMI) featured in the Intel Q57 chipset enables the C7SIM-Q motherboard to offer a high-speed Direct Media Interface (DMI) for chip-to-chip true isochronous communication with the processor. This feature allows the motherboard to achieve up to 10 Gb/s of software-transparent data transfer on each direction, achieving better performance than comparable systems. The C7SIM-Q also features Function Disable, Intruder Detect, and a TCO timer to enable the system to recover from a software/hardware lock.

Intel Q57 Express Chipset Features

- Active Management Technology
- Anti-Theft Technology
- Remote PC Assist
- Direct Media Interface (up 10 Gb/s transfer, Full Duplex)
- Intel® Matrix Storage Technology and Intel Rapid Storage Technology
- Dual NAND Interface
- Intel I/O Virtualization (VT-d) Support
- Intel Trusted Execution Technology Support
- PCI Express 2.0 Interface (up to 5.0 GT/s)
- SATA Controller (up to 3G/s)
- Advanced Host Controller Interface (AHCI)

1-3 PC Health Monitoring

This section describes the PC health monitoring features of the C7SIM-Q. These features are supported by an onboard System Hardware Monitor chip.

Recovery from AC Power Loss

BIOS provides a setting for you to determine how the system will respond when AC power is lost and then restored to the system. You can choose for the system to remain powered off (in which case you must press the power switch to turn it back on) or for it to automatically return to a power on state. See the Power Lost Control setting in the BIOS chapter of this manual to change this setting. The default setting is **Last State**.

Onboard Voltage Monitoring

The onboard voltage monitor will scan the following voltages continuously: CPU core, +1.8V, +3.3V, +5V, +/-12V, +3.3V Stdby, +5V Stdby, VBAT, HT, Memory, Chipset. Once a voltage becomes unstable, it will give a warning or send an error message to the screen. The user can adjust the voltage thresholds to define the sensitivity of the voltage monitor by using SD III.

Fan Status Monitor with Software

PC health monitoring can check the RPM status of the cooling fans via Supero Doctor III.

CPU Overheat LED and Control

This feature is available when the user enables the CPU overheat warning feature in the BIOS. This allows the user to define an overheat temperature. When this temperature reaches this pre-defined overheat threshold, the CPU thermal trip feature will be activated and send a signal to the buzzer and, at the same time, the CPU speed will be decreased.

1-4 Power Configuration Settings

This section describes the features of your motherboard that deal with power and power settings.

Slow Blinking LED for Suspend-State Indicator

When the CPU goes into a suspend state, the chassis power LED will start blinking to indicate that the CPU is in the suspend mode. When the user presses any key, the CPU will wake-up and the LED indicator will automatically stop blinking and remain on.

BIOS Support for USB Keyboard

If the USB keyboard is the only keyboard in the system, it will function as a normal keyboard during system bootup.

Main Switch Override Mechanism

When an ATX power supply is used, the power button can function as a system suspend button. When the user presses the power button, the system will enter a SoftOff state. The monitor will be suspended, and the hard drive will spin down. Press the power button again to wake-up the whole system. During the SoftOff state, the ATX power supply provides power to the system to keep the required circuitry "alive". In case the system malfunctions and you want to turn off the power, just press and hold the power button for 4 seconds. The power will turn off and no power will be provided to the motherboard.

1-5 Power Supply

As with all computer products, a stable power source is necessary for proper and reliable operation. It is even more important for processors that have high CPU clock rates of 1 GHz and faster.

The SUPER C7SIM-Q accommodates ATX12V standard power supplies. Although most power supplies generally meet the specifications required by the CPU, some are inadequate. A 2-Amp of current supply on a 5V Standby rail is strongly recommended.

It is strongly recommended that you use a high quality power supply that meets ATX12V standard power supply Specification 1.1 or above. It is also required that the 12V 8-pin power connection (JPW2) be used for adequate power supply. In areas where noisy power transmission is present, you may choose to install a line filter to shield the computer from noise. It is recommended that you also install a power surge protector to help avoid problems caused by power surges.

1-6 Super I/O

The C7SIM-Q provides two onboard high-speed, 16550-compatible (UART) serial communication headers. Each UART includes a 16-byte send/receive FIFO, a programmable baud rate generator, complete modem control capability and a processor interrupt system. Both UARTs provide legacy speed with baud rate of up to 115.2 Kbps as well as an advanced speed with baud rates of 250 K, 500 K, or 1 Mb/s, which support higher speed modems.

The Super I/O provides functions that comply with ACPI (Advanced Configuration and Power Interface), which includes support of legacy and ACPI power management through a SMI or SCI function pin. It also features auto power management to reduce power consumption.

1-7 Intel® vPro™ Technology

Intel vPro technology is a set of hardware and software elements built into a PC's motherboard and other hardware. It is a combination of processor technologies, hardware enhancements, management features, and security technologies that allow remote access to the PC for monitoring, maintenance, and management. Intel vPro allows the user to run these features independently from the state of the operating system (OS), or power state of the PC. It is intended to help businesses gain critical maintenance and servicing capabilities, security enhancements, and system cost benefits.

PCs with vPro have three main elements: 1) a processor with vPro support; 2) integrated components to reduce the number of discrete components in the system; and 3) hardware-based management and security technology, such as Intel AMT which is built into this motherboard.

Intel vPro elements supported by the C7SIM-Q motherboard include:

Intel Active Management Technology (Intel AMT)

Intel Active Management Technology (Intel AMT) is a set of hardware-based features that allow remote access to the PC for management and security tasks, regardless whether an OS is down or the PC is powered off. It includes Remote

configuration technology for AMT that enable a user to configure "bare-bones" systems before the OS and/or software management agents are installed.

Intel Trusted Execution Technology (Intel TXT)

Intel Trusted Execution Technology (Intel TXT) is used to verify a launch environment. It establishes the root of trust, which allows software to establish a chain of trust for virtualized environments. Intel TXT also protects secrets during power transitions for both orderly and disorderly shutdowns.

Intel Virtualization Technology (Intel VT)

Intel Virtualization Technology (Intel VT) is a hardware-based technology. Intel VT lets you run multiple Operating Systems on the same PC, or run a specialized or critical application in a separate space (a virtual PC on the physical system) in order to help protect the application, or privacy of sensitive information.

Truste Platform Module (TPM) Support (v. 1.2)

Support for Microsoft Windows Vista, including Microsoft Windows Vista BitLocker with an industry-standard Trusted Platform Module.

For more information on Intel vPro, please visit the Intel vPro Technology section at Intel's website (http://www.intel.com/technology/vpro/index.htm).

Chapter 2

Installation

2-1 Electro-Static Sensitive Devices

Electro-static Discharge (ESD) can damage electronic components. To prevent damage to your system board, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing the board from the antistatic bag.
- Handle the board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.
- Use only the correct type of onboard CMOS battery as specified by the manufacturer. Do not install the onboard battery upside down to avoid possible explosion.

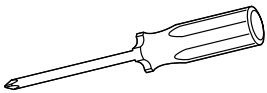
Unpacking

The motherboard is shipped in antistatic packaging to avoid static damage. When unpacking the board, make sure that the person handling it is static protected.

2-2 Motherboard Installation

All motherboards have standard mounting holes to fit different types of chassis. Make sure that the locations of all the mounting holes for both motherboard and chassis match. Although a chassis may have both plastic and metal mounting fasteners, metal ones are highly recommended because they ground the motherboard to the chassis. Make sure that the metal standoffs click in or are screwed in tightly. Then use a screwdriver to secure the motherboard onto the motherboard tray.

Tools Needed



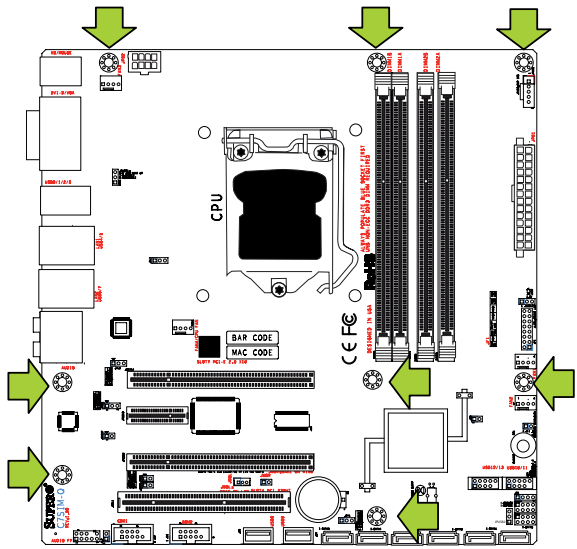
Philips Screwdriver

Pan head screws (8 pieces)

Stand Offs
(Only if needed, up to 8 pieces)

Location of Mounting Holes

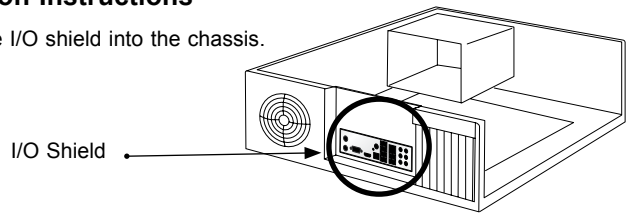
There are eight (8) mounting holes on this motherboard indicated by the arrows.



Caution: 1) To avoid damaging the motherboard and its components, please do not use a force greater than 8 lb/inch on each mounting screw during motherboard installation. 2) Some components are very close to the mounting holes. Please take precautionary measures to prevent damage to these components when installing the motherboard to the chassis.

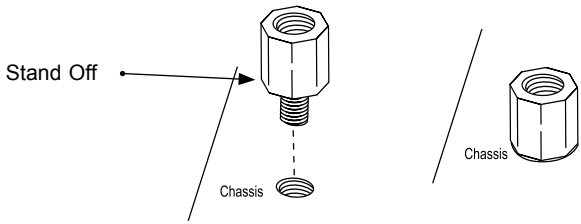
Installation Instructions

1 Install the I/O shield into the chassis.



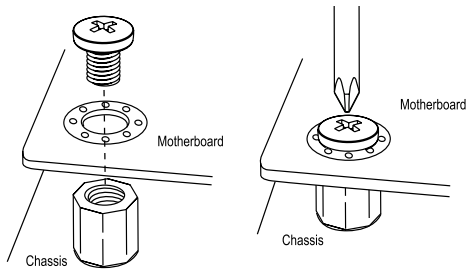
2 Locate the mounting holes on the motherboard. Refer to the layout on the previous page for mounting hole locations.

3 Locate the matching mounting holes on the chassis. Install standoffs in the chassis as needed. Align the mounting holes on the motherboard against the mounting holes on the chassis.



4 Install the motherboard into the chassis carefully to avoid damage to motherboard components.

5 Insert a Pan head #6 screw into a mounting hole on the motherboard and its matching mounting hole on the chassis, using the Philips screwdriver.



6 Repeat Step 4 to insert #6 screws into all mounting holes.

7 Make sure that the motherboard is securely placed in the chassis.

2-3 Processor and Heatsink Installation

Warning: When handling the processor package, avoid placing direct pressure on the label area of fan.

Notes:

Always connect the power cord last and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor into the CPU socket before you install the CPU heatsink.

If you buy a CPU separately, make sure that you use an Intel-certified multi-directional heatsink only.

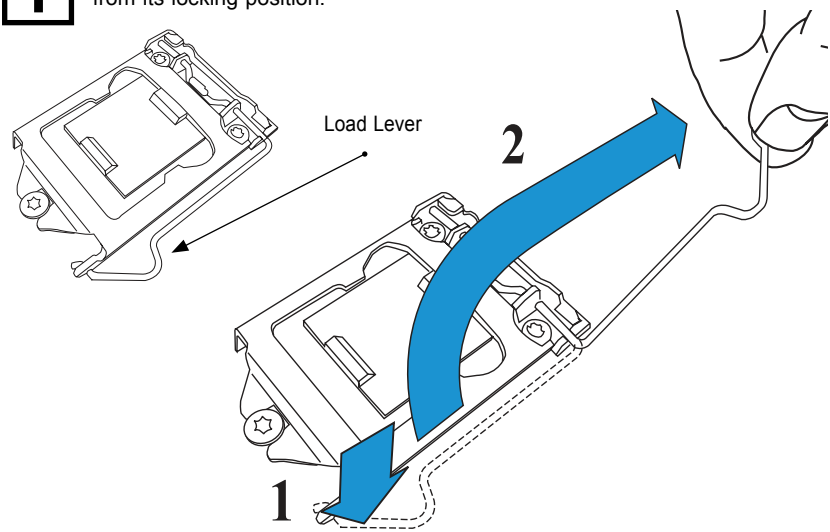
Make sure to install the serverboard into the chassis before you install the CPU heatsinks.

When receiving a serverboard without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.

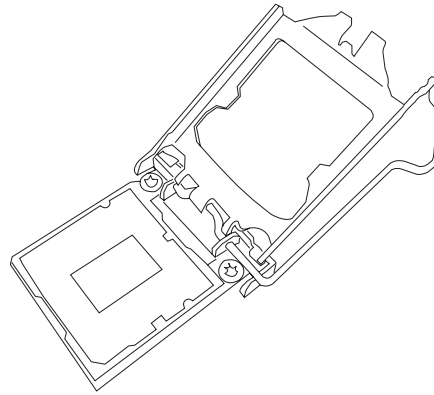
Refer to the Supermicro web site for updates on CPU support.

Installing the LGA1156 Processor

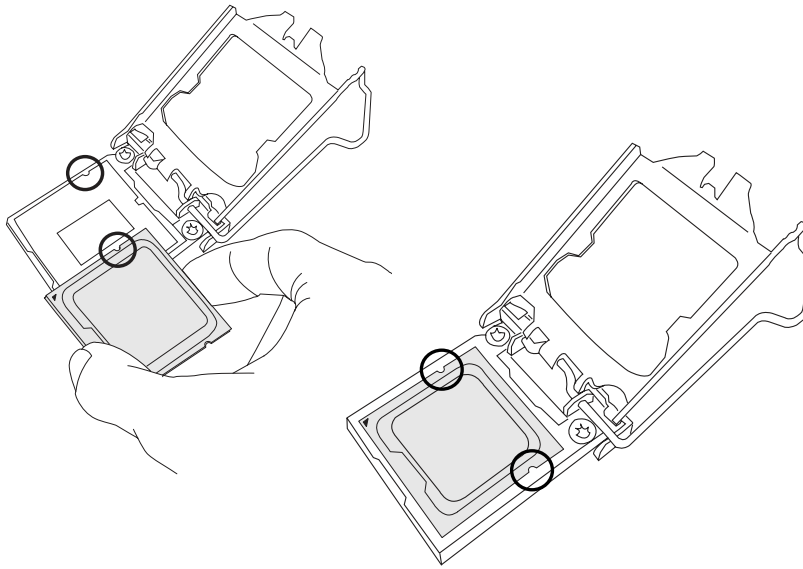
1 Press the load lever to release the load plate, which covers the CPU socket, from its locking position.



2 Gently lift the load lever to open the load plate. Remove the plastic cap.

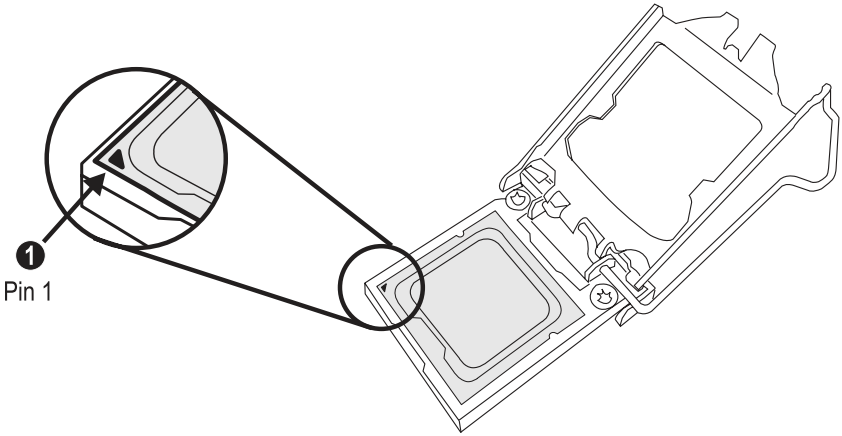


3 Use your thumb and your index finger to hold the CPU at the top center edge and the bottom center edge of the CPU.

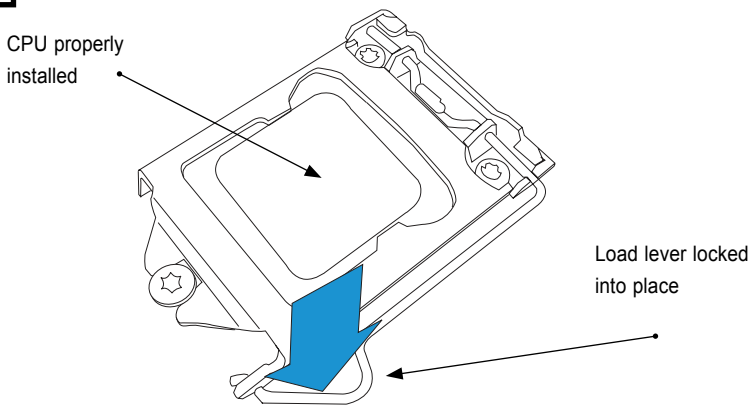


4 Align the CPU key that is the semi-circle cutouts against the socket keys. Once the CPU key is aligned, carefully lower the CPU straight down to the socket (Do not drop the CPU on the socket. Do not move the CPU horizontally or vertically). Do not rub the CPU against the surface or against any pins of the socket to avoid damage to the CPU or the socket.) With the CPU inside

the socket, inspect the four corners of the CPU to make sure that the CPU is properly installed.



5 Use your thumb to gently push the load lever down to the lever lock.



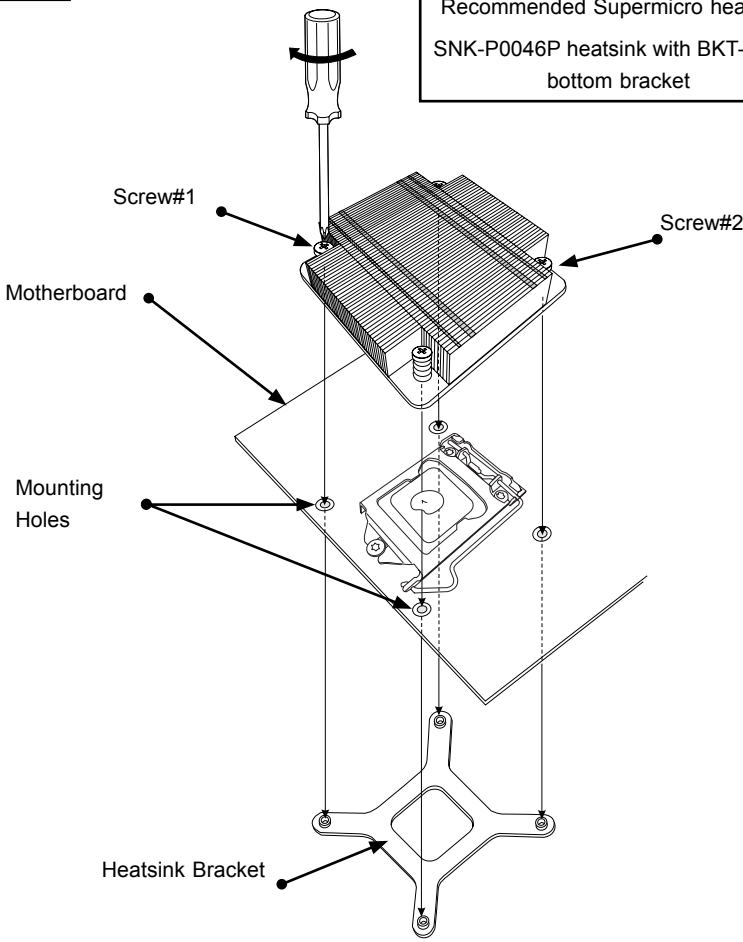
Warning: The CPU will only seat inside the socket in one direction. Make sure it is properly inserted before closing the load plate. If it doesn't close properly, do not force it as it may damage your CPU. Instead, open the load plate again and double-check if the CPU is aligned properly.

Installing a Passive CPU Heatsink

1. Do not apply any thermal grease to the heatsink or the CPU die for the required amount has already been applied.
2. Place the heatsink on top of the CPU so that the four mounting holes are aligned with those on the Motherboard and the Heatsink Bracket underneath.
3. Screw in two diagonal screws (i.e., the #1 and the #2 screws) until just snug (do not over-tighten the screws to avoid possible damage to the CPU.)
4. Finish the installation by fully tightening all four screws.

Recommended Supermicro heatsink:

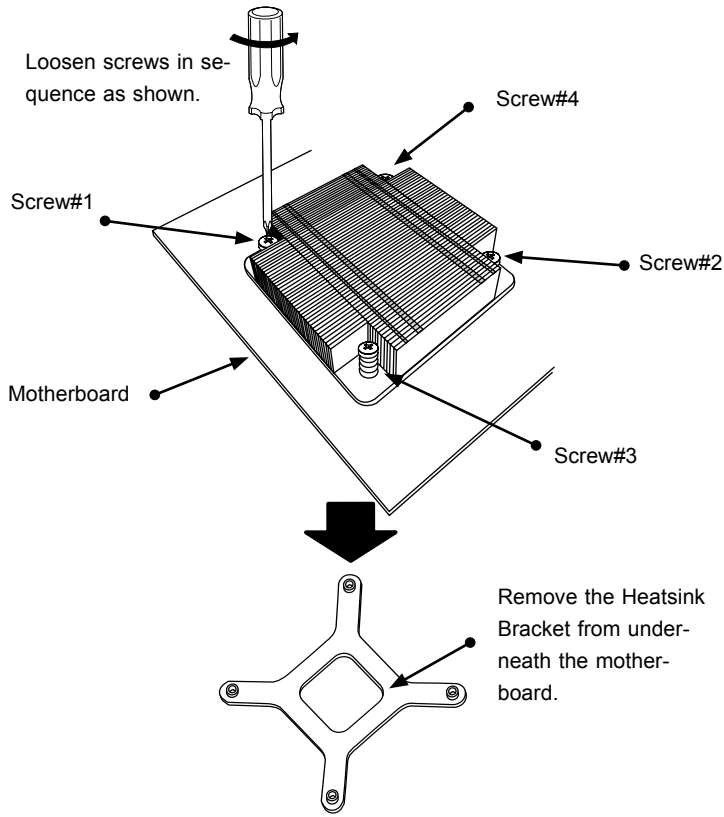
SNK-P0046P heatsink with BKT-0028L bottom bracket



Removing the Heatsink

Warning: We do not recommend that the CPU or the heatsink be removed. However, if you do need to uninstall the heatsink, please follow the instructions below to uninstall the heatsink to prevent damage done to the CPU or the CPU socket.

1. Unscrew the heatsink screws from the motherboard in the sequence as shown in the illustration below.
2. Gently wriggle the heatsink to loosen it from the CPU. (Do not use excessive force when wriggling the heatsink!!)
3. Once the CPU is loosened, remove the heatsink from the CPU socket.
4. Clean the surface of the CPU and the heatsink, removing the used thermal grease. Reapply the proper amount of thermal grease on the surface before re-installing the CPU and the heatsink.



Installing an Active Fan CPU Heatsink

1 Locate the CPU Fan power connector on the motherboard.

2 Position the heatsink so that the heatsink fan wires are closest to the CPU fan power connector and are not interfered with other components.

3 Inspect the CPU Fan wires to make sure that the wires are routed through the bottom of the heatsink.

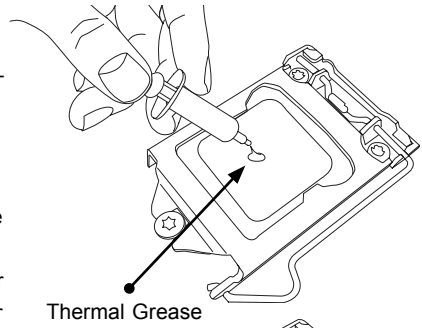
4 Remove the thin layer of the protective film from the copper core of the heatsink.

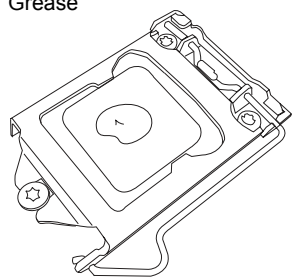
Warning: CPU overheat may occur if the protective film is not removed from the heatsink.

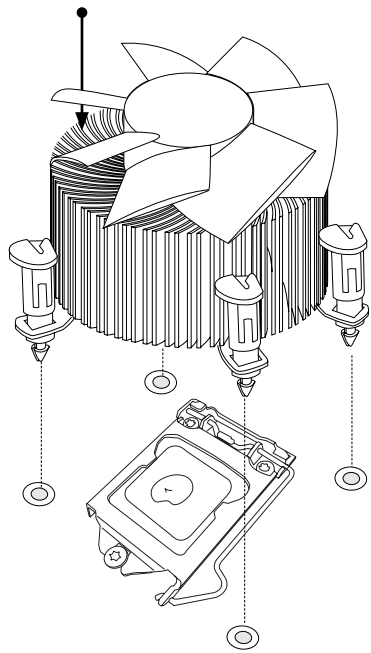
5 Apply the proper amount of thermal grease on the CPU.

Note: if your heatsink came with a thermal pad, please ignore this step.

6 If necessary, rearrange the wires to make sure that the wires are not pinched between the heatsink and the CPU. Also make sure to keep clearance between the fan wires and the fins of the heatsink.

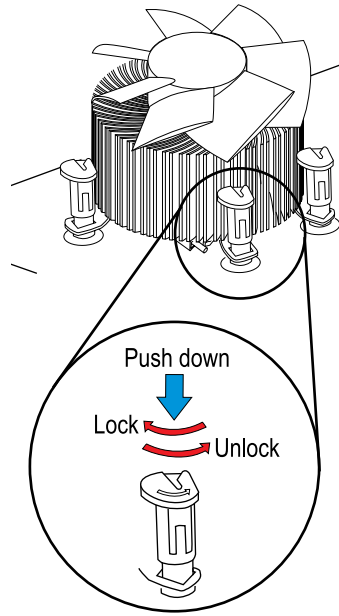




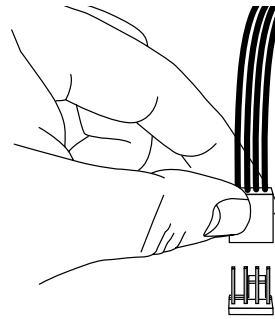


7 Align the four heatsink fasteners with the mounting holes on the motherboard. Gently push the pairs of diagonal fasteners (#1 & #2, and #3 & #4) into the mounting holes until you hear a click. (**Note:** Make sure to orient each fastener so that the narrow end of the groove is pointing outward.)

8 Repeat Step 7 to insert all four heatsink fasteners into the mounting holes.



9 Once all four fasteners are securely inserted into the mounting holes and the heatsink is properly installed on the motherboard, connect the heatsink fan wires to the CPU Fan connector.



Recommended Supermicro heatsink:

SNK-P0046A4 active heatsink

Removing the Heatsink

Warning: We do not recommend that the CPU or the heatsink be removed. However, if you do need to remove the heatsink, please follow the instructions below to uninstall the heatsink and prevent damage to the CPU or other components.

Active Heatsink Removal

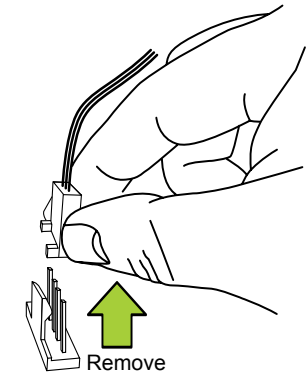
1 Unplug the power cord from the power supply.

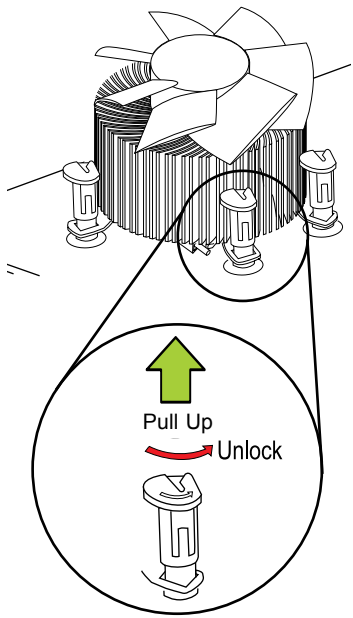
2 Disconnect the heatsink fan wires from the CPU fan header.

3 Use your finger tips to gently press on the fastener cap and turn it counter-clockwise to make a 1/4 (90^0) turn, and then pull the fastener upward to loosen it.

4 Repeat Step 3 to loosen all fasteners from the mounting holes.

5 With all fasteners loosened, remove the heatsink from the CPU.





2-4 System Memory

CAUTION

Exercise extreme care when installing or removing DIMM modules to prevent any possible damage.

Note: Check the Supermicro website for a list of memory modules that have been validated with the C7SIM-Q motherboard.

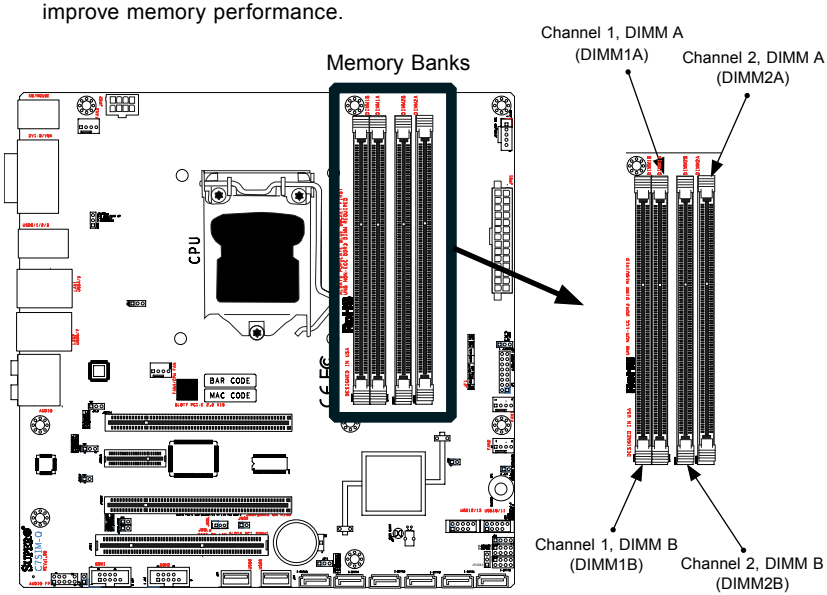
How to Install DIMMs

1. Insert the desired number of DIMMs into the memory slots, starting with DIMM1A (Channel 1, DIMMA - see the Figure below), then DIMM2A, DIMM1B & DIMM2B. Insert each DIMM module vertically into its slot. Pay attention to the notch along the bottom of the module to prevent incorrect DIMM module installation.

2. Gently press down on the DIMM module until it snaps into place in the slot. Repeat step 1 to install DIMM1B/DIMM if needed. See Page 2-13 for details.

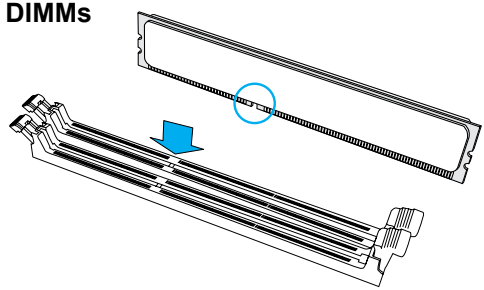
Memory Support

The C7SIM-Q supports up to 16GB of DDR3 Non-ECC UDIMMs (1333/1066/800 MHz) in 4 DIMM slots. Populating these DIMM slots with a pair of memory modules of the same type and same size will result in interleaved memory, which will improve memory performance.

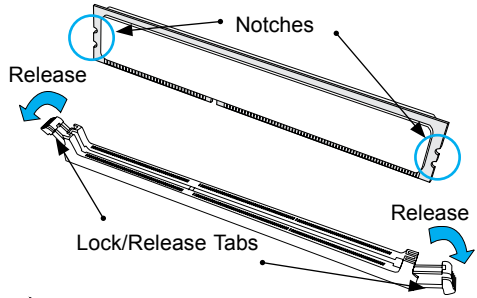


Installing and Removing DIMMs

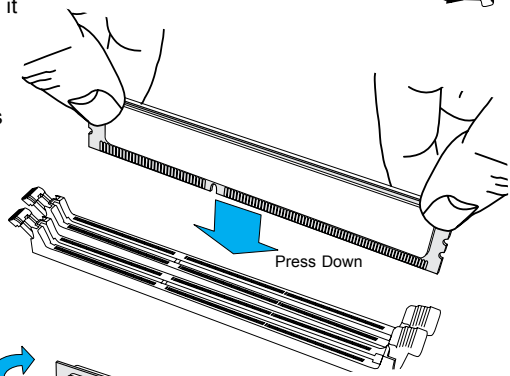
1 Position the bottom key of the DIMM module so it aligns with the receptive point on the slot.



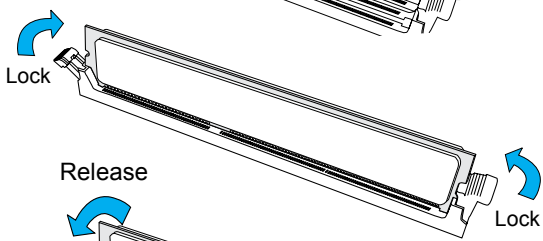
2 Push the Lock/Release tabs to their Release positions. Make sure that the notches on a DIMM module align with the Lock/Release tabs on the memory slot as it is pressed in.



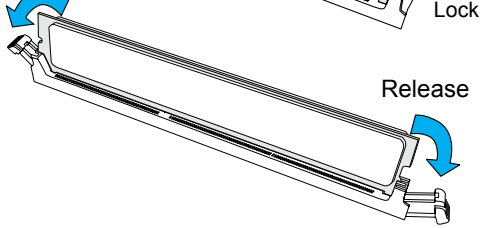
3 Insert the DIMM module vertically and press down until the module snaps into place.



4 When the module is properlly inserted, the Lock/Release tabs will automatically secure the DIMM module, locking it into place.



5 **To Remove:**
Use your thumbs to gently push the Lock/Release tabs near both ends of the module. Pull the DIMM module upwards.



Note: Due to memory allocation to system devices, the amount of memory that remains available for operational use will be reduced when 4 GB of RAM is used. The reduction in memory availability is disproportional.

For Microsoft Windows users: Microsoft implemented a design change in Windows XP with Service Pack 2 (SP2) and Windows Vista. This change is specific to the Physical Address Extension (PAE) mode behavior which improves driver compatibility. For more information, please read the following article at Microsoft's Knowledge Base website at: http://support.microsoft.com/kb/888137.

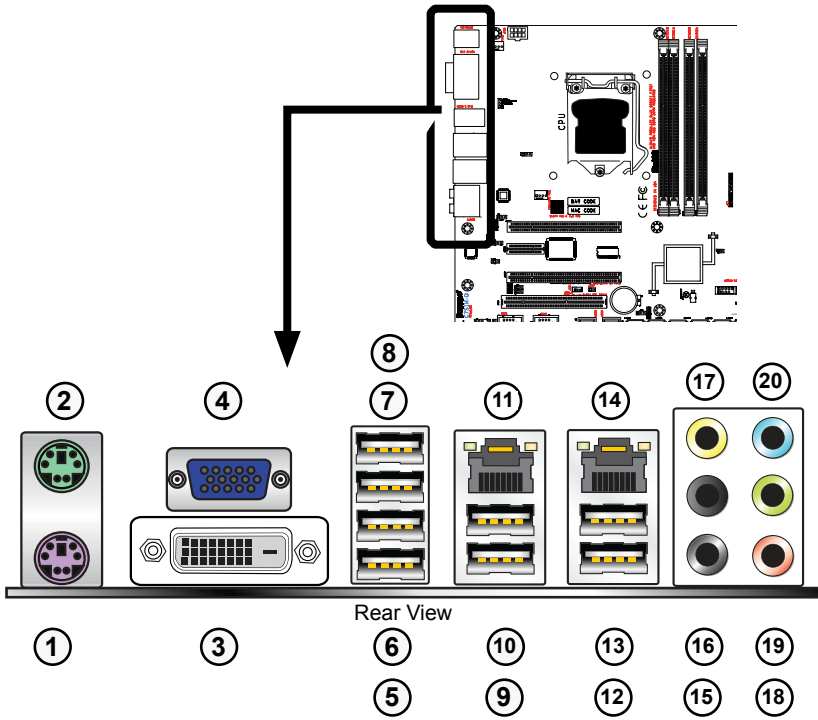
Possible System Memory Allocation & Availability

System Device	Size	Physical Memory Remaining (-Available) (4 GB Total System Memory)
Firmware Hub flash memory (System BIOS)	1 MB	3.99
Local APIC	4 KB	3.99
Area Reserved for the chipset	2 MB	3.99
I/O APIC (4 Kbytes)	4 KB	3.99
PCI Enumeration Area 1	256 MB	3.76
PCI Express (256 MB)	256 MB	3.51
PCI Enumeration Area 2 (if needed) -Aligned on 256-MB boundary-	512 MB	3.01
VGA Memory	16 MB	2.85
TSEG	1 MB	2.84
Memory available to OS and other applications		2.84

2-5 Control Panel Connectors/IO Ports

The I/O ports are color coded in conformance with the PC 99 specification. See Figure below for the colors and locations of the various I/O ports.

1. Back Panel Connectors/IO Ports



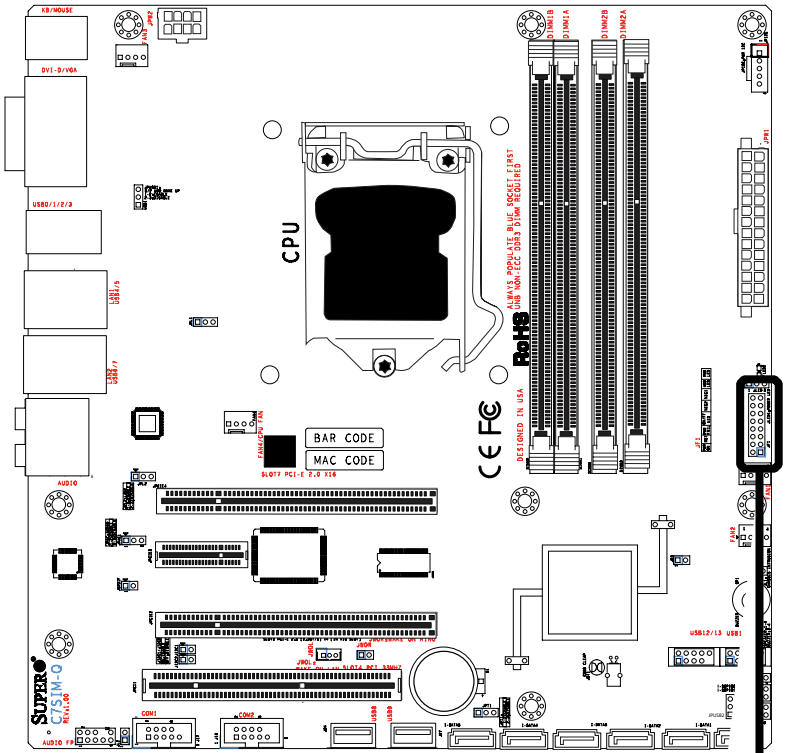
Back Panel I/O Port Locations and Definitions

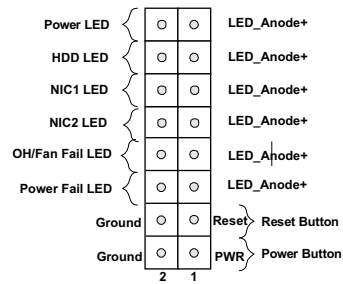
Back Panel Connectors

1. Keyboard (Purple)
2. PS/2 Mouse (Green)
3. DVI-D Port
4. VGA
5. USB Port 0
6. USB Port 1
7. USB Port 2
8. USB Port 3
9. USB Port 4
10. USB Port 5
11. LAN 1 Port
12. USB Port 6
13. USB Port 7
14. LAN 2 Port
15. Side Surround (Grey)
16. Back Surround (Black)
17. Center/Subwoofer (LFE) (Orange)
18. Microphone-In (Pink)
19. Front (Green)
20. Line-In (Blue)

2. Front Control Panel

JF1 contains header pins for various buttons and indicators that are normally located on a control panel at the front of the chassis. These connectors are designed specifically for use with Super Micro server chassis. See Figure below for the descriptions of the various control panel buttons and LED indicators. Refer to the following section for descriptions and pin definitions.





JF1 Header Pins

3. Front Control Panel Pin Definitions

Power LED

The Power LED connection is located on pins 15 and 16 of JF1. Refer to the table on the right for pin definitions.

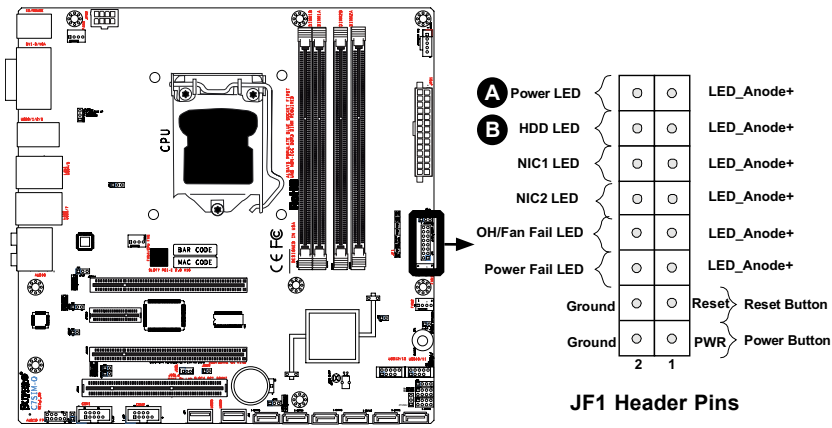
Power LED Pin Definitions (JF1)	
Pin#	Definition
15	LED_Anode+
16	PWR LED Signal

HDD LED

The HDD LED connection is located on pins 13 and 14 of JF1. Attach a hard drive LED cable here to display disk activity (for any hard drives on the system, including SAS and Serial ATA). See the table on the right for pin definitions.

HDD LED Pin Definitions (JF1)	
Pin#	Definition
13	LED_Anode+
14	HD Active

A PWR LED connector
B HDD LED connector



JF1 Header Pins

NIC1/NIC2 Indicator

The NIC1 and NIC2 (Network Interface Controller) LED connection for the GLAN ports are located on pins 11 & 12, and 9 & 10 of JF1. Attach the NIC LED cables to display network activity. Refer to the table on the right for pin definitions.

Overheat/Fan Fail LED (OH)

Connect an LED to the OH/Fan Fail connection on pins 7 and 8 of JF1 to provide advanced warnings of chassis overheating or fan failure. Refer to the table on the right for pin definitions.

Power Fail LED

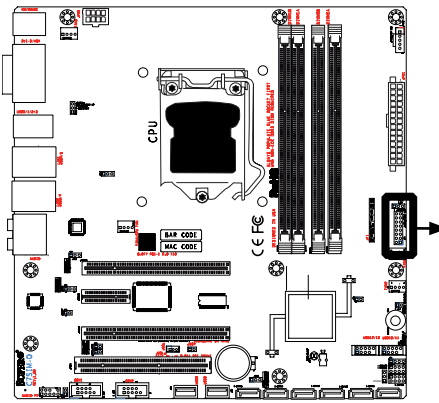
Connect an LED to the Power Fail connection on pins 5 and 6 of JF1 to provide warnings of power failure. Refer to the table on the right for pin definitions.

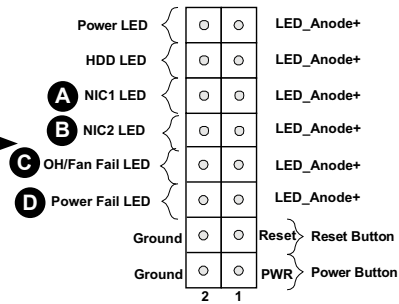
GLAN 1 LED Pin Definitions (JF1)	
Pin#	Definition
11	LED_Anode+
12	NIC1 LED Signal

OH/Fan Fail LED Pin Definitions (JF1)	
Pin#	Definition
7	LED_Anode+
8	OH/Fan Fail LED Signal

OH/Fan Fail Indicator Status	
State	Definition
Off	Normal
On	Overheat
Flash-ing	Fan Fail

A NIC1 LED
B NIC2 LED
C OH/FF LED
D Power Fail





JF1 Header Pins

Reset Button

The Reset Button connection is located on pins 3 and 4 of JF1. Attach it to a hardware reset switch on the computer case. Refer to the table on the right for pin definitions.

Reset Button Pin Definitions (JF1)	
Pin#	Definition
3	Reset
4	Ground

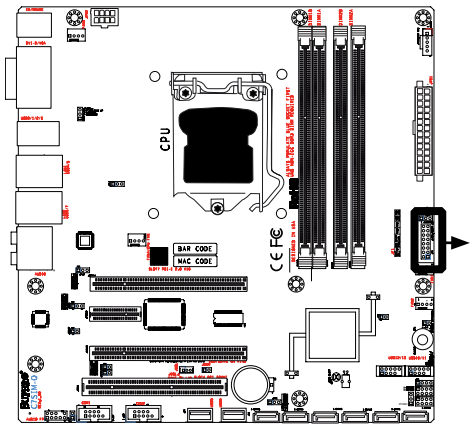
Power Button

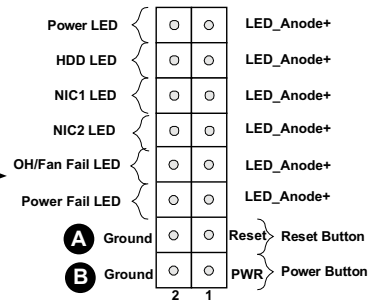
The Power Button connection is located on pins 1 and 2 of JF1. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button (with a setting in the BIOS - see Chapter 4). To turn off the power when the system is set to suspend mode, press the button for at least 4 seconds. Refer to the table on the right for pin definitions.

Power Button Pin Definitions (JF1)	
Pin#	Definition
1	Signal
2	+3V Standby

Note: *Do not close or short Pins 1 & 2 since this will cause the system to continuously reboot.*

A Reset
B PWR Button





JF1 Header Pins

2-6 Connecting Cables

ATX/Auxiliary Power Connectors

A 24-pin main power connector is located at JPW1. This power connector meets the SSI EPS 12V specification. See the table on the right for pin definitions.

ATX Power 24-pin Connector Pin Definitions

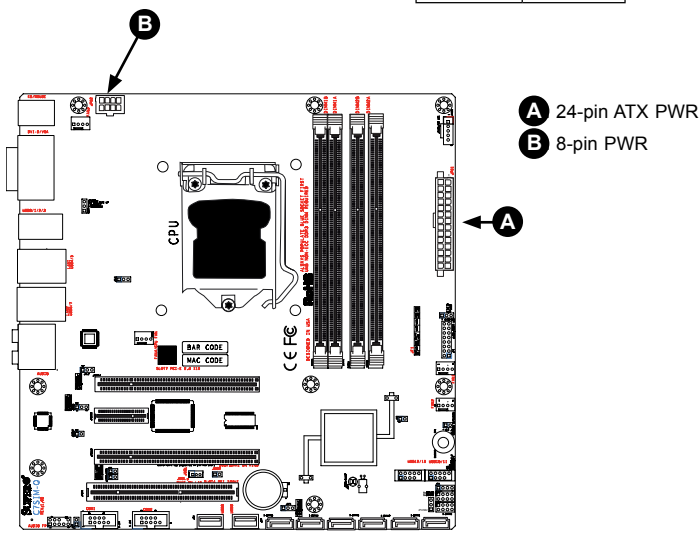
Pin#	Definition	Pin #	Definition
13	+3.3V	1	+3.3V
14	-12V	2	+3.3V
15	COM	3	COM
16	PS_ON	4	+5V
17	COM	5	COM
18	COM	6	+5V
19	COM	7	COM
20	Res (NC)	8	PWR_OK
21	+5V	9	5VSB
22	+5V	10	+12V
23	+5V	11	+12V
24	COM	12	+3.3V

8-Pin Auxiliary Power Connector

In addition to the ATX main power, the 8-pin 12V power connector located at JPW2 is also required to provide power to the South Bridge, North Bridge and all VRMs. See the table on the right for pin definitions.

12V 8-pin Power Connector Pin Definitions

Pins	Definition
1 through 4	Ground
5 through 8	+12V



Universal Serial Bus (USB)

There are 14 USB 2.0 (Universal Serial Bus) ports/headers on the motherboard. Eight (8) of them are back panel USB ports (USB 0/1/2/3, USB 4/5 and USB 6/7). There are also four (4) headers that can be used for front panel connections (USB 10/11, USB 12/13), and two (2) vertical "Type A" USB ports (USB 8 and USB 9). See the tables on the right for pin definitions.

Front Panel USB (10/11/12/13) and Front-Accessible Onboard USB (8/9) Connections

Pin #	Definition	Pin #	Definition
1	+5V	1	+5V
2	PO-	2	PO-
3	PO+	3	PO+
4	Ground	4	Ground
5	Key	5	No connection

Chassis Intrusion Pin Definitions (JL1)

Pin#	Definition
1	Intrusion Input
2	Ground

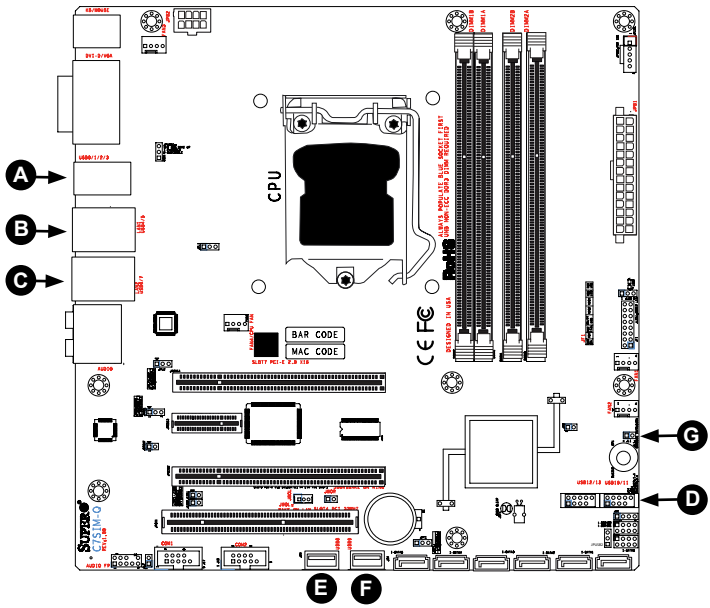
Back Panel USB (0/1/2/3/4/5/6/7)

Pin#	Definitions
1	+5V
2	PO-
3	PO+
4	Ground
5	N/A

Chassis Intrusion

A Chassis Intrusion header is located at JL1 on the motherboard. Attach an appropriate cable from the chassis to inform you of a chassis intrusion when it is opened.

- **A** Back panel USB Ports 0/1/2/3
- **B** Back panel USB Ports 4/5
- **C** Back panel USB Ports 6/7
- **D** Front Panel USB 10/11, USB 12/13
- **E** USB port 8 (Type A)
- **F** USB port 9 (Type A)
- **G** Chassis Intrusion



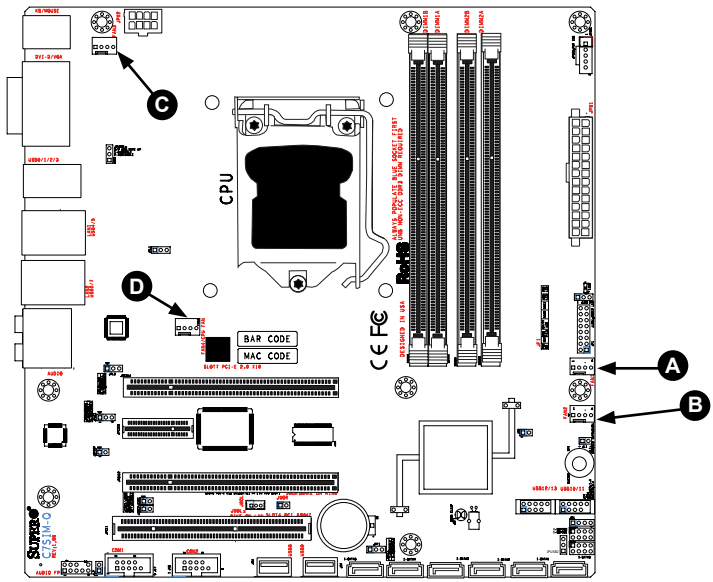
Fan Headers

The C7SIM-Q has four chassis fan headers (Fan 1 to Fan 4). Fan 4 is the CPU Fan. Fan 1 to Fan 3 are system/chassis fans.

Note: *Pins 1-3 of a 4-pin fan headers are backward compatible with the traditional 3-pin fans.) See the table on the right for pin definitions. *The onboard fan speeds are controlled by Thermal Management via BIOS Hardware Monitoring in the Advanced Setting. (Default: Disabled. When using Thermal Management settings, please use all 3-pin fans or all 4-pin fans on the motherboard.)*

Fan Header Pin Definitions (Fan1-3)	
Pin#	Definition
1	Ground
2	+12V
3	Tachometer
4	PWR Modulation

- A Fan 1
- B Fan 2
- C Fan 3
- D Fan 4 (CPU Fan)



ATX PS/2 Keyboard and PS/2 Mouse Ports

The ATX PS/2 keyboard and the PS/2 mouse ports are located at J8. The mouse port is above the keyboard port. See the table on the right for pin definitions.

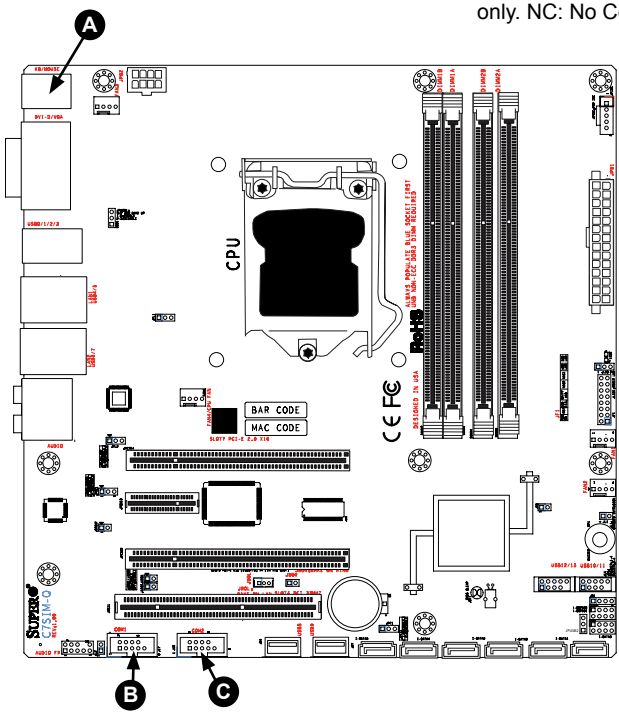
PS/2 Keyboard and Mouse Port Pin Definitions	
Pin#	Definition
1	Data
2	NC
3	Ground
4	VCC
5	Clock
6	NC

Serial Ports

COM1 and COM2 are serial port headers. See the table on the right for pin definitions.

Serial Port Pin Definitions			
Pin #	Definition	Pin #	Definition
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	Ground	10	NC

(Pin 10 is available on COM2 only. NC: No Connection.)



A Keyboard/Mouse
B COM1
C COM2

Wake-On-Ring

The Wake-On-Ring header is designated JWOR. This function allows your computer to "wake-up" when receiving an incoming call when in the suspend state. See the table on the right for pin definitions. You must have a Wake-On-Ring card and cable to use this feature.

Wake-On-Ring Pin Definitions (JWOR)

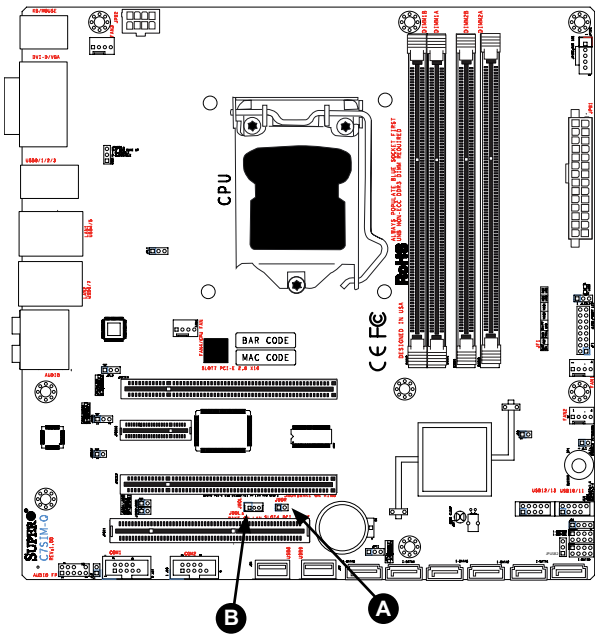
Pin#	Definition
1	Ground
2	Wake-up

Wake-On-LAN

The Wake-On-LAN header is located at JWOL on the motherboard. See the table on the right for pin definitions.

Wake-On-LAN Pin Definitions (JWOL)

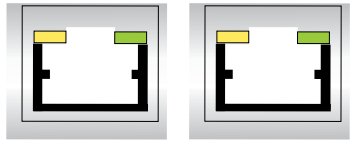
Pin#	Definition
1	+5V Standby
2	Ground
3	Wake-up



A WOR
B WOL

LAN 1 and LAN 2 (Gigabit Ethernet Ports)

Two (2) built-in 100/1000 LAN ports are located on the I/O backpanel. These ports accept RJ45 type cables.



LAN1 / LAN2

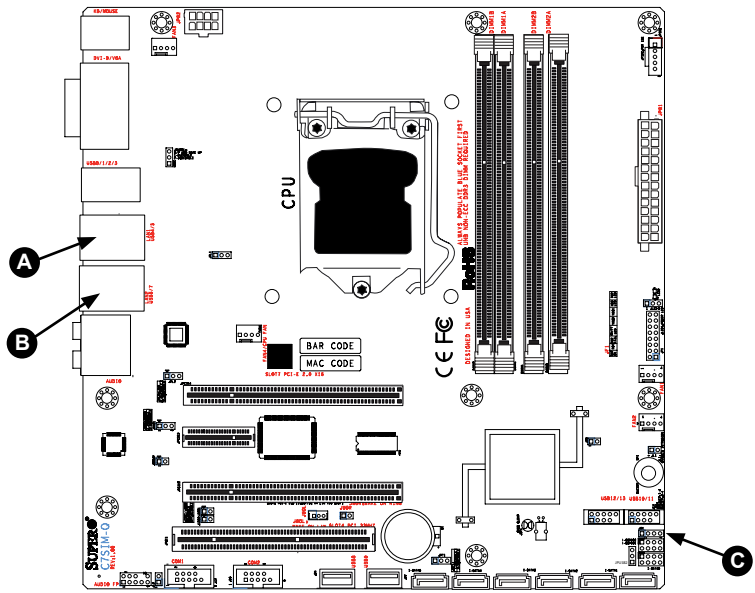
Speaker

A Speaker/Buzzer header is located on the motherboard. See the table on the right for speaker pin definitions.

Note: *The speaker connector pins are for use with an external speaker. If you wish to use the onboard speaker, you should close pins 3-4 with a jumper.*

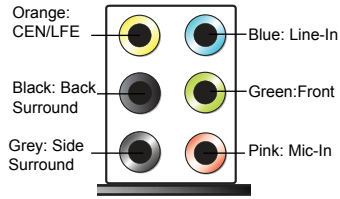
Speaker Connector (J9)	
Pin Setting	Definition
Pins 3-4	Internal Speaker
Pins 1-4	External Speaker

A LAN 1
B LAN 2
C Speaker/Buzzer



High Definition Audio (HDA)

The C7SIM-Q features a 7.1+2 Channel High Definition Audio (HDA) codec that provides 10 DAC channels, simultaneously supporting 7.1 sound playback and two channels of independent stereo sound output (multiple streaming) through the front panel stereo out for front L&R, rear L&R, center and subwoofer speakers. This feature is activated with the Advanced software in the CD-ROM that came with your motherboard. Sound is output through the Line In, Line Out and MIC jacks.

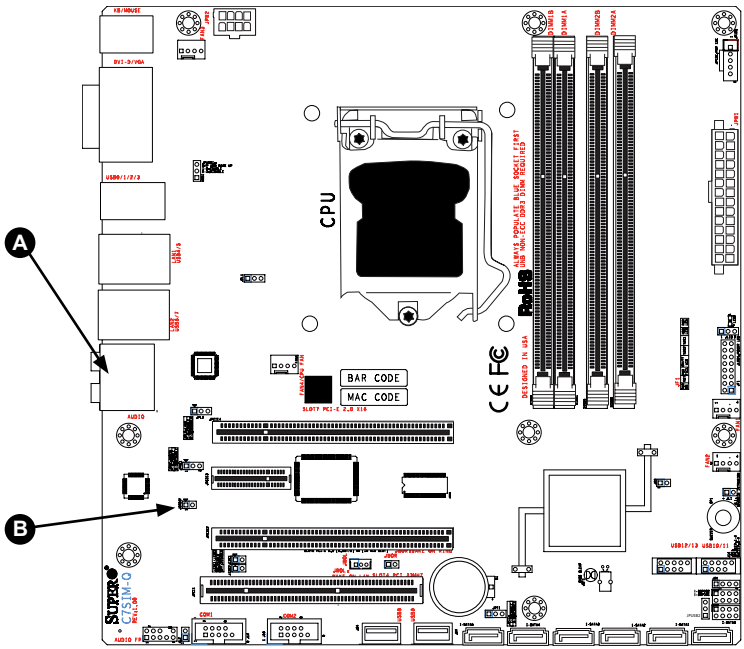


S/PDIF Header

S/PDIF (Sony®/Philips® Digital Interconnect Format) is a specification developed for carrying digital audio signals between digital devices. This header supports a 2-pin cable for CD-ROM/DVD drives (not supplied). Please do not connect 4-pin/3-wire analog cables to this port.

S/PDIF Pin Definition	
Pin#	Definition
1	S/PDIF Out
2	Ground

A HD Audio
B S/PDIF Header



Front Panel Audio Control

If supplied with our chassis, attach the Front Panel audio interface card to this header. Note that if front panel headphones are plugged in, the back panel audio output is disabled. In addition, if the front panel interface card is not connected to the front panel audio header, jumpers should be installed on the header pin pairs: 1-2, 5-6, and 9-10. If these jumpers are not installed, the back panel line out connector will be disabled and microphone input Pin 1 will be left floating, which can lead to excessive back panel microphone noise and cross talk. See the table below for pin definitions.

High Definition Fron Panel Audio

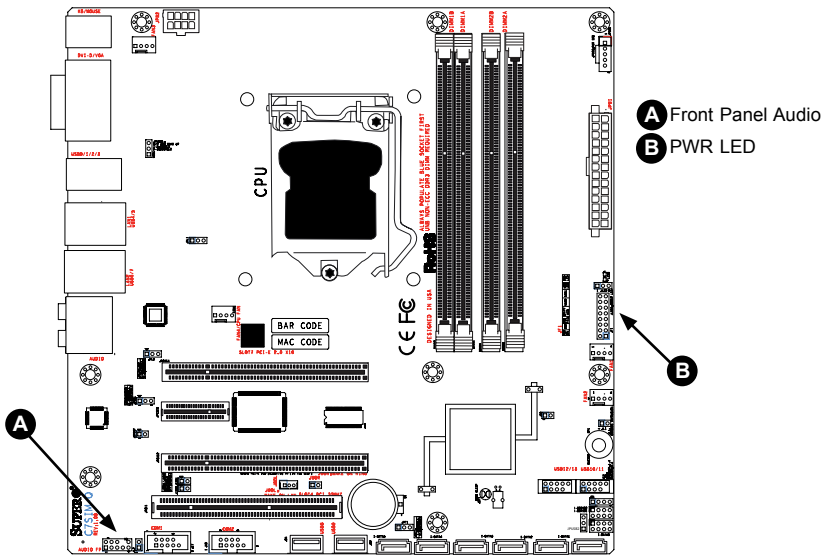
Pin#	Signal
1	MC_L
2	AUD_GND
3	MC_R
4	FP_Audio-Detect
5	Line_2_R
6	Ground
7	FP_Jack-Detect
8	Key
9	Line_2_L
3	Ground

Power LED

The Power LED connector is designated JLED. This connection is used to provide LED Indication of power supplied to the system. See the table on the right for pin definitions.

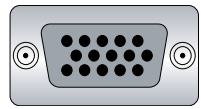
PWR LED Pin Definitions

Pin#	Definition
1	+5V
2	Key
3	Ground



VGA Port

A VGA port is located next to the Keyboard/ Mouse port on the back panel. Refer to the board layout for the location.

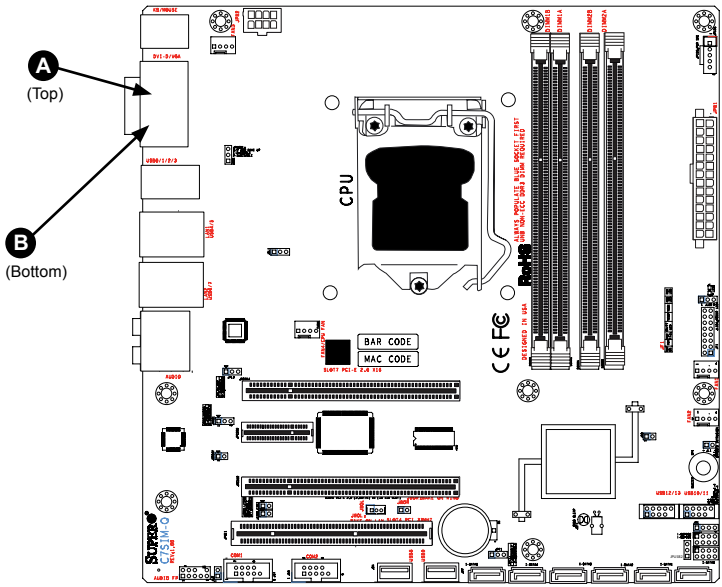


DVI-D Port

The DVI-D port (Digital Visual Interface) is a multi-pin interface designed for carrying high-resolution video signals. The DVI Port is located below the VGA Connector on the I/O backpanel. Refer to the board layout below for the location. This connector is used to display high definition video for monitors that support DVI signals.

Note: DVI-D is a connector that carry digital signals only, compared to DVI-I, which contains both analog and digital signals, and DVI-A which support analog signals only.

A VGA
B DVI-D



T-SGPIO 0/1 Headers

Two T-SGPIO (Serial-Link General Purpose Input/Output) headers are located near the SATA connectors on the motherboard. These headers are used to communicate with the enclosure management chip in the system. See the table on the right for pin definitions. Refer to the board layout below for the locations of the headers.

Serial_Link-SGPIO Pin Definitions

Pin#	Definition	Pin	Definition
1	NC	2	NC
3	Ground	4	DATA Out
5	Load	6	Ground
7	Clock	8	NC

NC: No Connections

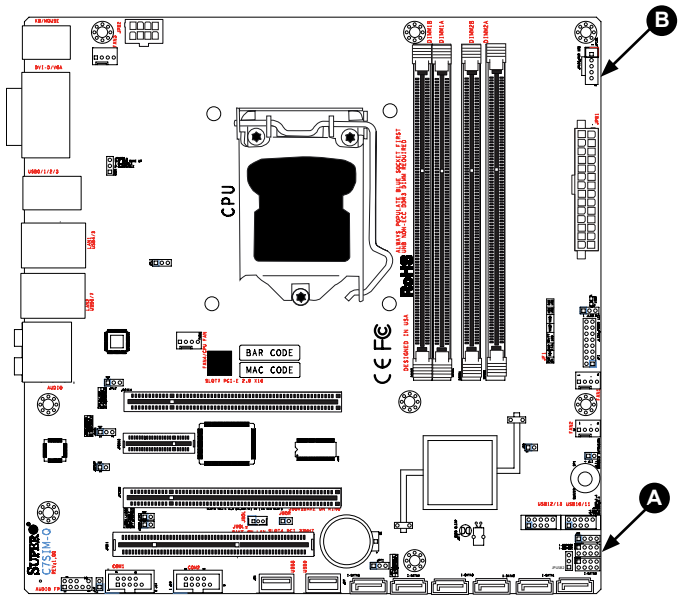
Power Supply I²C Connector

Power Supply (I²C) Connector, located at JPI²C on the motherboard monitors the status of the power supply, fan and system temperature. See the table on the right for pin definitions.

PWR Supply I²C Pin Definitions

Pin#	Definition
1	Clock
2	Data
3	PWR Fail
4	Ground
5	3.3V

A T-SGPIO
B JPI²C

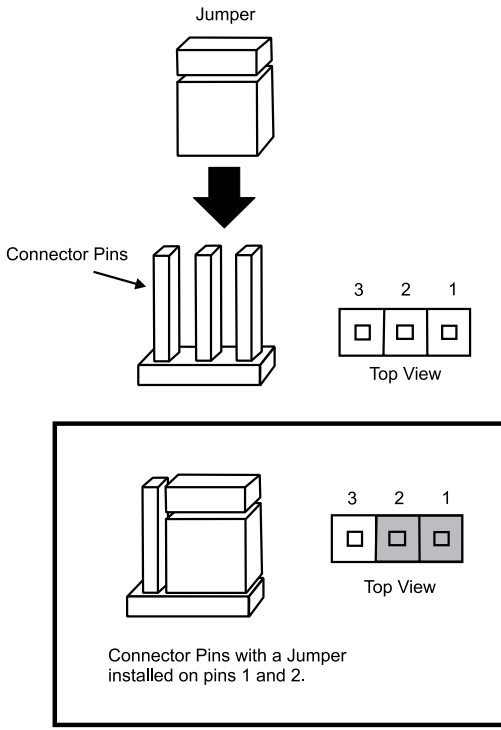


2-7 Jumper Settings

Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. See the motherboard layout pages for jumper locations.

Note: *On two pin jumpers, "Closed" means the jumper is on and "Open"* means the jumper is off the pins.



Audio Enable

JPAC enables or disables the onboard audio connections. See the table on the right for jumper settings. The default setting is Enabled.

Audio Enable (JPAC)	
Pin#	Definition
1-2	Enabled (*default)
2-3	Disabled

HD/AC97 Select

JL2 allows selection between High Definition Audio output or legacy AC97 audio. see the table on the right for jumper settings. The default setting is HD Audio.

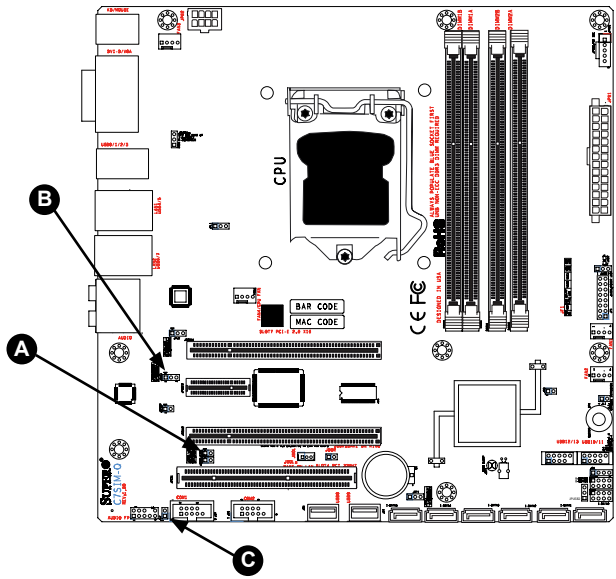
HD Audio / AC97 Audio	
Jumper Setting	Definition
Closed	AC97
Open	HD Audio (*Default)

PCI/PCI-E Slots to SMB

Jumpers JI^{2}C1/JI^{2}C2 allow you to connect PCI/PCI-Exp. Slots to the System Management Bus. The default setting is open to disable the connection. See the table on the right for jumper settings.

SMBus to PCI-X/PCI-Exp Slots Jumper Settings	
Jumper Setting	Definition
Closed	Enabled
Open	Disabled (*Default)

A JI^{2}C1 / JI^{2}C2
B Audio Enable
C HDA/AC97 Select



Speaker

On the JD1 header, Pins 3~4 are used for internal speaker. Close Pins 3~4 with a cap to use the onboard speaker. If you wish to use an external speaker, close Pins 1~4 with a cable. See the table on the right for pin definitions.

Speaker Connector Pin Definitions	
Pin Setting	Definition
Pins 3~4	Internal Speaker
Pins1~4	External Speaker

LAN Port Enable/Disable

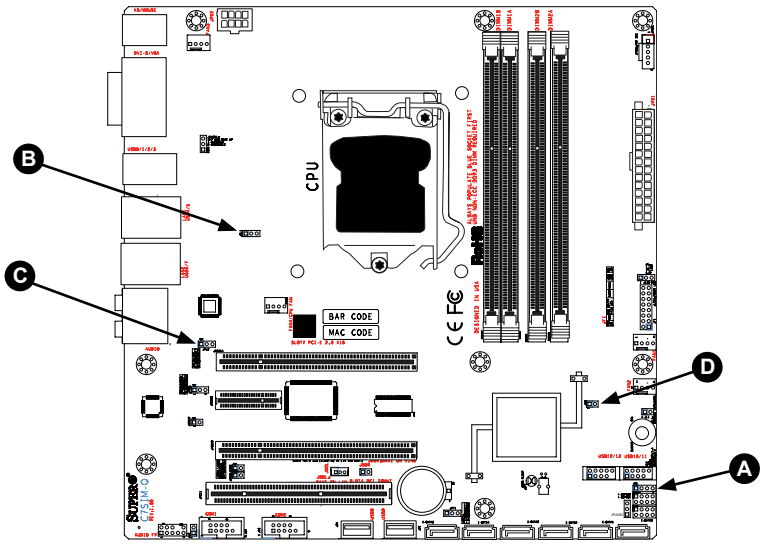
Use JPL1/JPL2 to enable or disable LAN Port 1 and LAN Port 2 on the motherboard. See the table on the right for jumper settings. The default setting is enabled.

GLAN Enable Jumper Settings	
Pin#	Definition
1-2	Enabled (default)
2-3	Disabled

Intel Management Engine (ME)

Use this jumper to enable or disable the Intel Management Engine feature of the motherboard. See the table on the right for jumper settings. The default setting is enabled.

Intel Management Engine Jumper Settings	
Jumper Setting	Definition
Closed	Enabled (*Default)
Open	Disabled



TPM Support Enable

JPT1 allows the user to enable TPM (Trusted Platform Modules) support to enhance data integrity and system security. See the table on the right for jumper settings. The default setting is disabled.

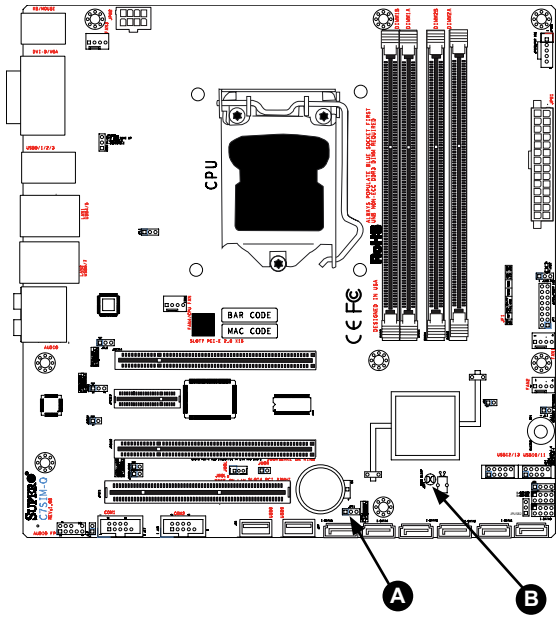
TPM Support Enable Jumper Settings	
Jumper Setting	Definition
1-2	Enabled
2-3	Disabled

A TPM enable
B Clear CMOS

Clear CMOS

JBT1 is used to clear CMOS. Instead of pins, this "jumper" consists of contact pads to prevent the accidental clearing of CMOS. To clear CMOS, use a metal object such as a small screwdriver to touch both pads at the same time to short the connection. Always remove the AC power cord from the system before clearing CMOS.

Note: For an ATX power supply, you must completely shut down the system, remove the AC power cord and then close pins 1 and 2 to clear CMOS.



USB Wake-Up

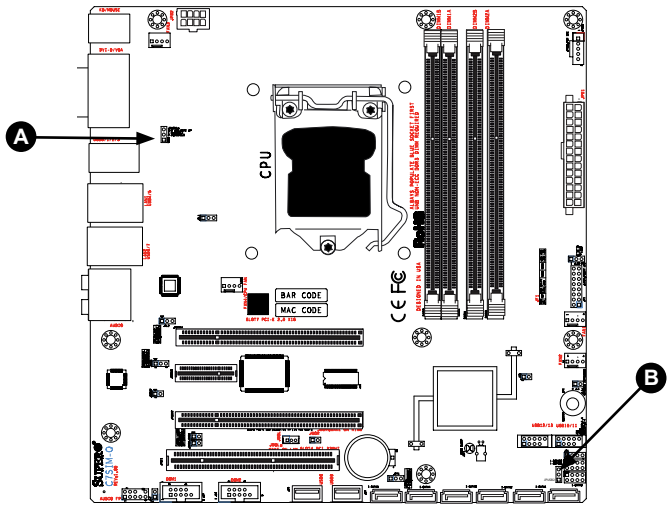
Use the JPUSB jumpers to enable the function of "System Wake-Up via USB devices", which allows you to "wake-up" the system by pressing a key on the USB or PS/2 keyboard or by clicking the USB or PS/2 mouse of your system. The JPUSB jumpers are used together with the USB Wake-Up function in the BIOS. Enable both the jumpers and the BIOS setting to allow the system to "wake-up via USB Devices". See the table on the right for jumper settings and jumper connections.

JPUSB1 (Back Panel USB Wake-up)	
Pin#	Definition
1-2	Enabled (*default)
2-3	Disabled

A JPUSB1
B JPUSB2

Note 1: *JPUSB1 is for Back Panel USB ports 0~7 and PS/2 ports, while JPUSB2 is for Front Panel USB ports 10~13.*

Note 2: *The default jumper setting for the USB ports is "Disabled". However, when the "USB Wake-Up" function is enabled in the BIOS, and the desired USB ports are enabled via the JPUSB jumper, please be sure to remove all USB devices from the USB ports whose USB jumpers are set to "Disabled" before the system goes into the standby mode.*



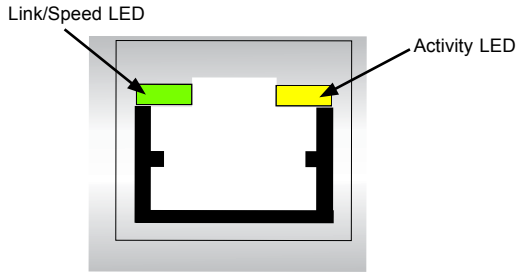
2-8 Onboard Indicators

GLAN LEDs

There are two Gigabit-LAN ports. Each of these Gigabit Ethernet LAN ports has two LEDs. The yellow LED (right) indicates activity, while the Link/Speed LED (left) may be green, amber or off to indicate the speed of the connection. See the tables at right for more information.

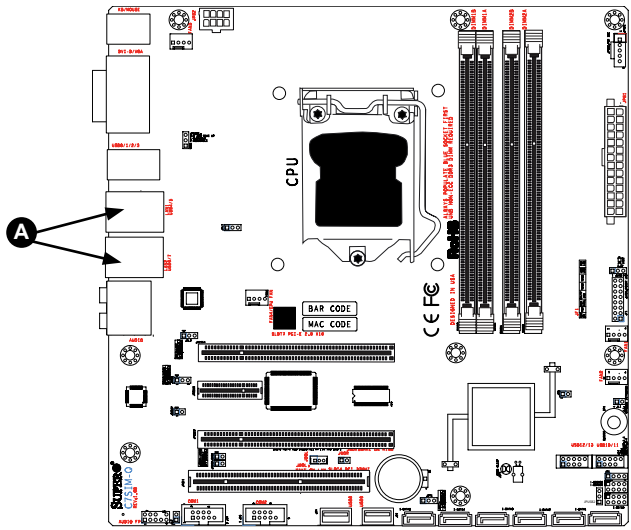
GLAN Activity LED Indicator		
Color	Status	Definition
Yellow	Flashing	Active

GLAN Link/Speed LED Indicator	
LED Color	Definition
Off	No Connection or 10 Mbps
Green (On)	100 Mbps
Amber (On)	1 Gbps



Rear View
(When viewing from the rear side of the chassis.)

A GLAN Port1 LEDs

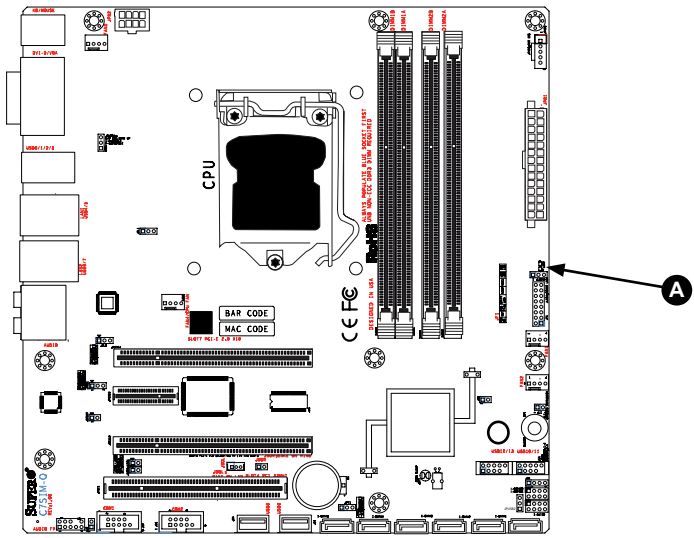


Onboard Power LED (LED2)

The Onboard 3.3V Standby Power LED is located at LED2 on the motherboard. When LED2 is off, the system is off. When the LED light is green, the system is on. When the LED is on, the Standby Power is on. Unplug the power cable before removing or installing components. See the layout below for the LED location.

Onboard PWR LED Indicator (LE1)	
LED Color	Definition
Off	System Off
On	Standby Power On
Green	System On

A Power LED



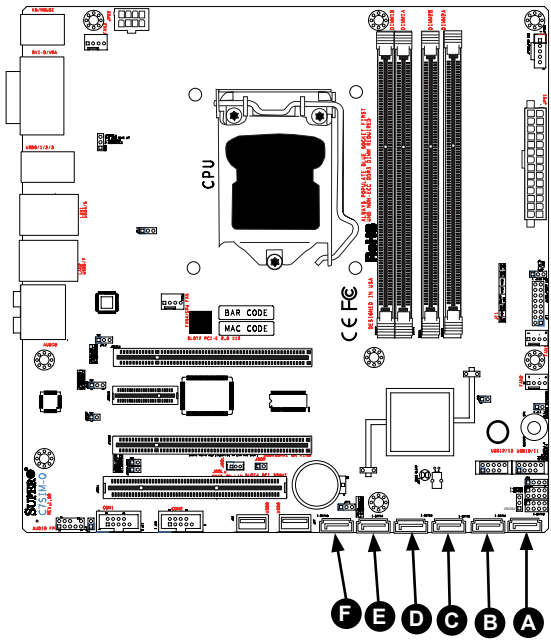
2-9 Disk Drive Connections

SATA Disk Drive Connectors

Six Serial ATA (SATA) disk drive connectors (I-SATA 0~5) are located on the motherboard. See the table on the right for pin definitions.

SATA Connectors Pin Definitions	
Pin#	Signal
1	Ground
2	SATA_TXP
3	SATA_TXN
4	Ground
5	SATA_RXN
6	SATA_RXP
7	Ground

- A I-SATA0
- B I-SATA1
- C I-SATA2
- D I-SATA3
- E I-SATA4
- F I-SATA5



Notes

Chapter 3

Troubleshooting

3-1 Troubleshooting Procedures

Use the following procedures to troubleshoot your system. If you have followed all of the procedures below and still need assistance, refer to the 'Technical Support Procedures' and/or 'Returning Merchandise for Service' section(s) in this chapter. Always disconnect the AC power cord before adding, changing or installing any hardware components.

Before Power On

1. Make sure that there are no short circuits between the motherboard and chassis.
2. Disconnect all ribbon/wire cables from the motherboard, including those for the keyboard and mouse.
3. Remove all add-on cards.
4. Install a CPU and heatsink (making sure it is fully seated), connect the chassis speaker and the power LED to the motherboard. Check all jumper settings as well.
5. Use the correct type of onboard CMOS battery as specified by the Manufacturer. Do not install the CMOS battery upside down to avoid possible explosion.
6. Make sure that the 8-pin 12v power connector at JPW2 is connected to your power supply.

No Power

1. Make sure that there are no short circuits between the motherboard and chassis.
2. Verify that all jumpers are set to their default positions.
3. Check that the 115V/230V switch on the power supply is properly set.
4. Turn the power switch on and off to test the system.
5. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one.

No Video

1. If the power is on but you have no video, remove all the add-on cards and cables.

2. Use the speaker to determine if any beep codes exist. Refer to Appendix A for details on beep codes.

Note: *If you are a system integrator, VAR or OEM, a POST diagnostics card is recommended. For I/O port 80h codes, refer to App. B.*

Memory Errors

1. Make sure that the DIMM modules are properly installed.
2. You should be using unbuffered DDR2 memory (see the next page). Also, it is recommended that you use the same memory speed for all DIMMs in the system. See Section 2-4 for memory limitations.
3. Check for bad DIMM modules or slots by swapping modules between slots and noting the results.
4. Check the power supply voltage 115V/230V switch.

Losing the System's Setup Configuration

1. Make sure that you are using a high quality power supply. A poor quality power supply may cause the system to lose the CMOS setup information. Refer to Section 1-6 for details on recommended power supplies.
2. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one.
3. If the above steps do not fix the Setup Configuration problem, contact your vendor for repairs.

3-2 Technical Support Procedures

Before contacting Technical Support, please take the following steps. Also, note that as a motherboard manufacturer, Supermicro does not sell directly to end-users, so it is best to first check with your distributor or reseller for troubleshooting services. They should know of any possible problem(s) with the specific system configuration that was sold to you.

1. Please go through the 'Troubleshooting Procedures' and 'Frequently Asked Question' (FAQ) sections in this chapter or see the FAQs on our web site (http://www.supermicro.com/support/faqs/) before contacting Technical Support.
2. BIOS upgrades can be downloaded from our web site at (http://www.supermicro.com/support/bios/).

Note: *Not all BIOS can be flashed; it depends on the modifications to the boot block code.*

3. If you still cannot resolve the problem, include the following information when contacting Super Micro for technical support:

- Motherboard model and PCB revision number
- BIOS release date/version (this can be seen on the initial display when your system first boots up)
- System configuration

  An example of a Technical Support form is on our web site at (http://www.supermicro.com/support/contact.cfm).

4. Distributors: For immediate assistance, please have your account number ready when placing a call to our technical support department. We can be reached by e-mail at support@supermicro.com, by phone at:(408) 503-8000, option 2, or by fax at (408)503-8019.

3-3 Frequently Asked Questions

Question: What type of memory does my motherboard support?

Answer: The C7SIM-Q supports **unbuffered,** non-ECC DDR3 1333/1066/800 MHz UDIMM memory modules. See Section 2-4 for details on installing memory.

Question: Why does Microsoft Windows XP (SP2) and Windows Vista show less memory than what is physically installed?

Answer: Microsoft implemented a design change in Windows XP with Service Pack 2 (SP2) and Windows Vista. This change is specific to the Physical Address Extension (PAE) mode behavior which improves driver compatibility. For more information, please read the following article at Microsoft's Knowledge Base website at: http://support.microsoft.com/kb/888137.

Question: How do I update my BIOS?

Answer: It is recommended that you **do not** upgrade your BIOS if you are not experiencing any problems with your system. Updated BIOS files are located on our web site at http://www.supermicro.com/support/bios/. Please check our BIOS warning message and the information on how to update your BIOS on our web site. Select your motherboard model and download the BIOS (.rom) file to your computer. Also, check the current BIOS revision and make sure that it is newer than your BIOS before downloading. You may choose the zip file or the .exe file. If you choose the zipped BIOS file, please unzip the BIOS file onto a bootable device or a USB pen/thumb drive. To flash the BIOS, run the batch file named "ami.bat" with the new BIOS .rom file from your bootable device or USB pen/thumb drive. Use the following format:

F:\> ami xxxxxxxx.rom <Enter>

Notes: Be sure to type in a space after "ami". The drive letter "F:\>" is used only as an example and is the drive letter of your bootable device or USB pen/ thumb drive. It may be different on your system. Always use the file named “ami.bat” to update the BIOS.

When completed, your system will automatically reboot. If you choose the .exe file, please run the .exe file under Windows to create the BIOS flash floppy disk. Insert the floppy disk into the system you wish to flash the BIOS. Then, boot the system to the floppy disk. The BIOS utility will automatically flash the BIOS without any prompts. Please note that this process may take a few minutes to complete. Do not be concerned if the screen is paused for a few minutes.

Warning: Do not shut down or reset the system while updating the BIOS to prevent possible system boot failure!

When the BIOS flashing screen is completed, the system will reboot and will show “Press F1 or F2”. At this point, you will need to load the BIOS defaults. Press <F1> to go to the BIOS setup screen, and press <F9> to load the default settings. Next, press <F10> to save and exit. The system will then reboot.

Note: The SPI BIOS chip installed on this motherboard is not removable. To repair or replace a damaged BIOS chip, please send your motherboard to RMA at Supermicro for service.

Question: I think my BIOS is corrupted. How can I recover my BIOS?

Answer: Please see Appendix D, BIOS Recovery for detailed instructions.

Question: What's on the CD that came with my motherboard?

Answer: The supplied compact disc has quite a few drivers and programs that will greatly enhance your system. We recommend that you review the CD and install the applications you need. Applications on the CD include chipset drivers for Windows and security and audio drivers.

Question: How do I utilize the onboard HD sound?

Answer: The onboard HD sound available on the C7SIM-Q can be enabled with the audio driver software that was included in your motherboard package. When activated, sound will be routed through the jacks next to the LAN Port according to the audio connection descriptions listed on Chapter 2. You must also set the HD Audio setting to "Auto" in the Advanced Chipset section of the BIOS setup.

Question: I installed my microphone correctly but I can't record any sound. What should I do?

Answer: Go to <Start>, <Programs>, <Accessories>, <Entertainment> and then <Volume Control>. Under the Properties tab, scroll down the list of devices in the menu and check the box beside "Microphone".

Question: After I have installed 4 pieces of 1GB Memory, why does the BIOS only detect about 3.145 GB of memory during POST?

Answer: The chipset does not support memory remapping, and PCI-E memory requires a large amount of memory, so there is a memory hole located around the 4GB memory address.

3-4 Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

Notes

Chapter 4

BIOS

4-1 Introduction

This chapter describes the AMI BIOS Setup Utility for the C7SIM-Q. The AMI ROM BIOS is stored in a Flash EEPROM and can be easily updated. This chapter describes the basic navigation of the AMI BIOS Setup Utility setup screens.

Note: For instructions on BIOS recovery, please refer to the instruction guide posted at http://www.supermicro.com/support/manuals/.

Starting BIOS Setup Utility

To enter the AMI BIOS Setup Utility screens, press the <Delete> key while the system is booting up.

Note: In most cases, the <Delete> key is used to invoke the AMI BIOS setup screen. There are a few cases when other keys are used, such as <F1>, <F2>, etc.

Each main BIOS menu option is described in this manual. The Main BIOS setup menu screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured. Options in blue can be configured by the user. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it. (**Note**: the AMI BIOS has default text messages built in. Supermicro retains the option to include, omit, or change any of these text messages.)

The AMI BIOS Setup Utility uses a key-based navigation system called "hot keys". Most of the AMI BIOS setup utility "hot keys" can be used at any time during the setup navigation process. These keys include <F1>, <F10>, <Enter>, <ESC>, arrow keys, etc.

Note: Options printed in **Bold** are default settings.

How To Change the Configuration Data

The configuration data that determines the system parameters may be changed by entering the AMI BIOS Setup utility. This Setup utility can be accessed by pressing <Del> at the appropriate time during system boot.

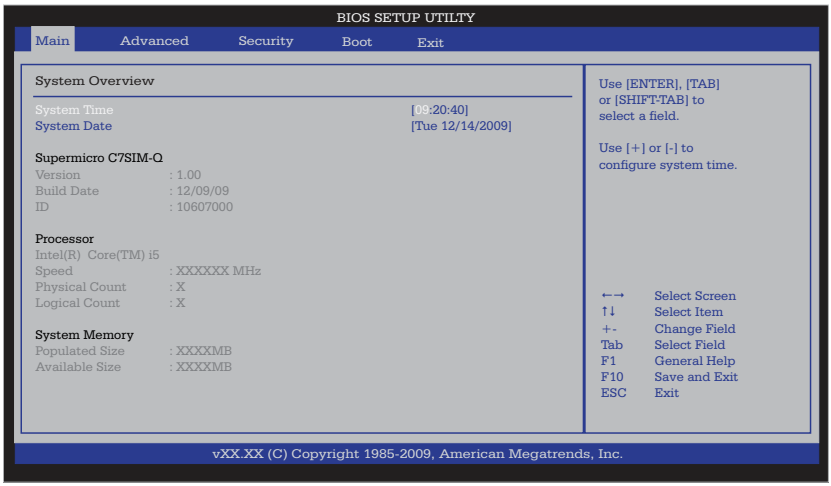
How to Start the Setup Utility

Normally, the only visible Power-On Self-Test (POST) routine is the memory test. As the memory is being tested, press the <Delete> key to enter the main menu of the AMI BIOS Setup Utility. From the main menu, you can access the other setup screens. An AMI BIOS identification string is displayed at the left bottom corner of the screen, below the copyright message.

Warning! Do not upgrade the BIOS unless your system has a BIOS-related issue. Flashing the wrong BIOS can cause irreparable damage to the system. In no event shall Supermicro be liable for direct, indirect, special, incidental, or consequential damages arising from a BIOS update. If you have to update the BIOS, do not shut down or reset the system while the BIOS is updating. This is to avoid possible boot failure.

4-2 Main Setup

When you first enter the AMI BIOS Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab on the top of the screen. The Main BIOS Setup screen is shown below.



System Overview: The following BIOS information will be displayed:

System Time/System Date

Use this option to change the system time and date. Highlight *System Time* or *System Date* using the arrow keys. Enter new values through the keyboard. Press the <Tab> key or the arrow keys to move between fields. The date must be entered in Day MM/DD/YY format. The time is entered in HH:MM:SS format. (**Note:** The time is in the 24-hour format. For example, 5:30 P.M. appears as 17:30:00.)

Supermicro C7SIM-Q

Version

Build Date

Processor

The AMI BIOS will automatically display the status of processor as shown below:

Type of Processor

Speed

Physical Count

Logical Count

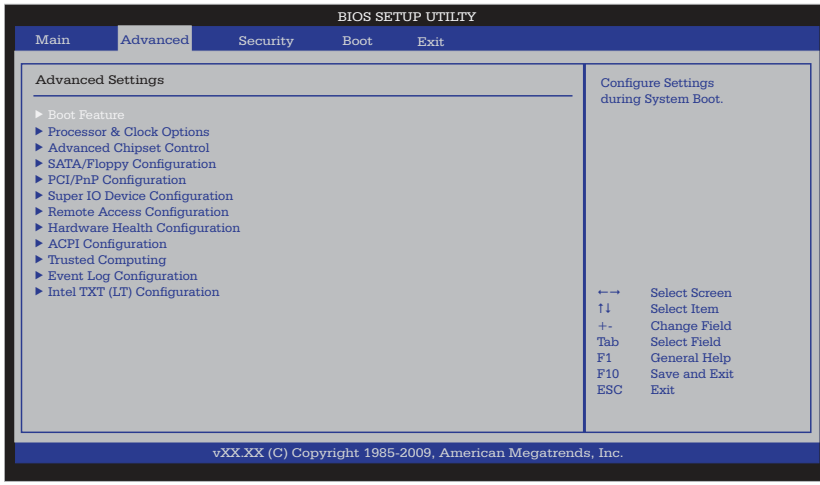
System Memory

This displays the size of memory available in the system:

Populated Size

4-3 Advanced Setup Configurations

Use the arrow keys to select Boot Setup and hit <Enter> to access the submenu items:



▶BOOT Feature

Quick Boot

If Enabled, this option will skip certain tests during POST to reduce the time needed for system boot. The options are **Enabled** and Disabled.

Quiet Boot

This option allows the bootup screen options to be modified between POST messages or the OEM logo. Select Disabled to display the POST messages. Select Enabled to display the OEM logo instead of the normal POST messages. The options are **Enabled** and Disabled.

AddOn ROM Display Mode

This sets the display mode for Option ROM. The options are **Force BIOS** and Keep Current.

Bootup Num-Lock

This feature selects the Power-on state for Numlock key. The options are Off and **On**.

PS/2 Mouse Support

This feature enables support for the PS/2 mouse. The options are Disabled, Enabled and **Auto.**

Wait For 'F1' If Error

This forces the system to wait until the 'F1' key is pressed if an error occurs. The options are Disabled and **Enabled**.

Unsupported CPU/Memory Check

This feature displays a warning message when an unsupported CPU or memory is installed. The options are **Enabled** and Disabled.

Hit 'Del' Message Display

This feature displays "Press DEL to run Setup" during POST. The options are **Enabled** and Disabled.

Watch Dog Function

If enabled, the Watch Dog Timer will allow the system to reboot when it is inactive for more than 5 minutes. The options are Enabled and **Disabled.**

Power Button Function

This setting allows you to decide if the power button will turn off the system instantly or wait for 4 seconds when it is pressed. The options are **Instant Off** and 4 Seconds Override.

Restore on AC Power Loss

Use this feature to set the power state after a power outage. Select Power-Off for the system power to remain off after a power loss. Select Power-On for the system power to be turned on after a power loss. Select Last State to allow the system to resume its last state before a power loss. The options are Power-On, Power-Off and **Last State**.

Interrupt 19 Capture

Interrupt 19 is the software interrupt that handles the boot disk function. When this item is set to Enabled, the ROM BIOS of the host adaptors will "capture" Interrupt 19 at boot and allow the drives that are attached to these host adaptors to function as bootable disks. If this item is set to Disabled, the ROM BIOS of the host adaptors will not capture Interrupt 19, and the drives attached to these adaptors will not function as bootable devices. The options are **Enabled** and Disabled.

EUP Support

EuP, or Energy Using Product is a European energy-saving specification that sets a standard on the maximum total power consumption on electrical products. Select Enabled to activate EUP support, select **Disabled** for normal S5 sleep mode (system wakeup capability).

Resume on RTC Alarm

This feature enables or disables the RTC to generate a wake event. The options are Enabled and **Disabled**. If this is set to Enabled, the following appears:

RTC Alarm Date (Days) - select using the [-] or [+] keys to select from Every Day through 1-31.

RTC Alarm Time [HH:MM:SS] - Use [ENTER], [TAB] or [SHIFT-TAB] to select a field. Use the [+] or [-] keys to select.

▶Processor & Clock Options

Warning: Take Caution when changing the Advanced settings. An incorrect value, a very high DRAM frequency or incorrect DRAM timing may cause system to become unstable. When this occurs, revert to the default setting.

CPU Ratio

This feature allows the user to use the CPU clock multiplier to multiply CPU speed in order to enhance performance. Select Manual to Manually set the multiplier setting. Select Auto for the BIOS to automatically select the CPU multiplier setting for your system. The options are **Auto** and Manual.

Clock Spread Spectrum

Select Enable to use the feature of Clock Spectrum, which will allow the BIOS to monitor and attempt to reduce the level of Electromagnetic Interference caused by the components whenever needed. Select Disabled to enhance system stability. The options are **Disabled** and Enabled.

Hardware Prefetcher (Available when supported by the CPU)

If set to Enabled, the hardware prefetcher will pre fetch streams of data and instructions from the main memory to the L2 cache in the forward or backward manner to improve CPU performance. The options are Disabled and **Enabled**.

Adjacent Cache Line Prefetch (Available when supported by the CPU)

The CPU prefetches the cache line for 64 bytes if this option is set to Disabled. The CPU prefetches both cache lines for 128 bytes as comprised if **Enabled**.

MPS and ACPI MADT Ordering

This feature allows the user to choose the method of ordering for the Multiple APIC Description Table (MADT). Select Modern Ordering if you have Microsoft Windows XP and later version of the OS. Select Legacy Ordering if you use Windows 2000 or earlier version of the OS. The options are **Modern Ordering** and Legacy Ordering.

Intel® Virtualization Technology (Available when supported by the CPU)

Select Enabled to use the feature of Virtualization Technology to allow one platform to run multiple operating systems and applications in independent partitions, creating multiple "virtual" systems in one physical computer. The options are **Enabled** and Disabled. **Note**: If there is any change to this setting, you will need to power off and restart the system for the change to take effect. Please refer to Intel's web site for detailed information.

Execute-Disable Bit Capability (Available when supported by the OS and the CPU)

Set to Enabled to enable the Execute Disable Bit which will allow the processor to designate areas in the system memory where an application code can execute and where it cannot, thus preventing a worm or a virus from flooding illegal codes to overwhelm the processor or damage the system during an attack. The default is **Enabled**. (Refer to Intel and Microsoft Web Sites for more information.)

Simultaneous Multi-Threading (Available when supported by the CPU)

Set to Enabled to use the Hyper-Threading Technology, which will result in increased CPU performance. The options are Disabled and **Enabled.**

Active Processor Cores

Set to Enabled to use a processor's Second Core and beyond. (Please refer to Intel's web site for more information.) The options are **All,** 1, 2, 3 and 4.

Intel® EIST Technology

EIST (Enhanced Intel SpeedStep Technology) allows the system to automatically adjust processor voltage and core frequency in an effort to reduce power consumption and heat dissipation. **Please refer to Intel's web site for detailed information.** The options are Disabled and **Enabled**.

Intel® Turbo Boost Technology (Available if Intel® EIST technology is Enabled)

This feature allows processor cores to run faster than marked frequency in specific conditions. The options are Disabled and **Enabled.**

C1E Support

Select Enabled to use the "Enhanced Halt State" feature. C1E significantly reduces the CPU's power consumption by reducing the CPU's clock cycle and voltage during a "Halt State." The options are Disabled and **Enabled**.

Intel® C-STATE Tech

If enabled, C-State is set by the system automatically to either C2, C3 or C4 state. The options are Default and **Enabled**.

C-State package limit setting

If set to Auto, the AMI BIOS will automatically set the limit on the C-State package register. The options are **Auto**, C1, C3, C6 and C7.

C1 Auto Demotion

When enabled, the CPU will conditionally demote C3, C6 or C7 requests to C1 based on un-core auto-demote information. The options are Disabled and **Enabled.**

C3 Auto Demotion

When enabled, the CPU will conditionally demote C6 or C7 requests to C3 based on un-core auto-demote information. The options are Disabled and **Enabled.**

▶Advanced Chipset Control

The items included in the Advanced Settings submenu are listed below.

IGD Graphics Mode Select (Available when supported by the CPU)

This feature enables the Internal Graphics Device (IGD). The options are Disabled, **Enabled 32MB**, Enabled 64MB, and Enabled 128MB.

DVMT Mode Select (Enabled if supported by the CPU)

This feature appears if Dynamic Video Memory Technology is supported by the CPU.

DVMT/FIXED Memory

This feature selects the amount of fixed memory to be used or select DVMT. The options are 128MB, **256MB** and Maximum DVMT.

Memory Remap Feature

When enabled, this feature allows the remapping of everlapped PCI memory above the total physical memory. The settings are **Enabled** and Disabled.

Frontside Audio Mode

Select **HD Audio** for High Definition Audio or AC'97 for legacy audio for the front panel audio ports.

Intel VT-d

Select Enabled to enable Intel's Virtualization Technology support for Direct I/O VT-d by reporting the I/O device assignments to VMM through the DMAR ACPI Tables. This feature offers fully-protected I/O resource-sharing across the Intel platforms,

providing the user with greater reliability, security and availability in networking and data-sharing. The settings are Enabled and **Disabled**.

Active State Power Management

Select Enabled to start Active-State Power Management for signal transactions between L0 and L1 Links on the PCI Express Bus. This maximizes power-saving and transaction speed. The options are Enabled and **Disabled**.

Route Port 80h Cycles to

This feature allows the user to decide which bus to send debug information to. The options are Disabled, **PCI** and LPC.

USB Functions

This feature allows the user to decide the number of onboard USB ports to be enabled. The Options are: Disabled and **Enabled**.

Legacy USB Support (available if USB Functions above is Enabled)

Select Enabled to use Legacy USB devices. If this item is set to Auto, Legacy USB support will be automatically enabled if a legacy USB device is installed on the motherboard, and vise versa. The settings are Disabled, Enabled and **Auto**.

▶SATA Configuration

When this submenu is selected, the AMI BIOS automatically detects the presence of the IDE Devices and displays the following items:

SATA#1 Configuration

If Compatible is selected, it sets SATA#1 to legacy compatibility mode, selecting Enhanced will set SATA#1 to native SATA mode. The options are Disabled, Compatible, **Enhanced.**

Configure SATA as

This feature allows the user to select the drive type for SATA#1. The options are **IDE**, RAID and AHCI.

SATA#2 Configuration (Available if IDE is enabled under "Configure SATA#1 as" above)

Selecting Enhanced will set SATA#2 to native SATA mode. The options are Disabled and **Enhanced**

IDE Detect Timeout (sec)

Use this feature to set the time-out value for the BIOS to detect the ATA, ATAPI devices installed in the system. The options are 0 (sec), 5, 10, 15, 20, 25, 30, and **35**.

SATA 0 ~ 5

These settings allow the user to set the parameters of the disc storage devices attached to the SATA ports. Press <Enter> to activate the following submenu screen for detailed options of these items. Set the correct configurations accordingly. The items included in the submenu are:

Type

Use this item to select the type of device connected to the system. The options are Not Installed, **Auto**, CD/DVD and ARMD.

LBA/Large Mode

LBA (Logical Block Addressing) is a method of addressing data on a disk drive. In the LBA mode, the maximum drive capacity is 137 GB. For drive capacities over 137 GB, your system must be equipped with a 48-bit LBA mode addressing. If not, contact your manufacturer or install an ATA/133 IDE controller card that supports 48-bit LBA mode. The options are Disabled and **Auto**.

Block (Multi-Sector Transfer)

Block Mode boosts the 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. Select Disabled to allow data to be transferred from and to the device one sector at a time. Select Auto to allow data transfer from and to the device occur multiple sectors at a time if the device supports it. The options are **Auto** and Disabled.

PIO Mode

The IDE PIO (Programmable I/O) Mode programs timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases. The options are **Auto**, 0, 1, 2, 3, and 4.

Select Auto to allow the AMI BIOS to automatically detect the PIO mode. Use this value if the IDE disk drive support cannot be determined.

Select 0 to allow the AMI BIOS to use PIO mode 0. It has a data transfer rate of 3.3 MBs.

Select 1 to allow the AMI BIOS to use PIO mode 1. It has a data transfer rate of 5.2 MBs.

Select 2 to allow the AMI BIOS to use PIO mode 2. It has a data transfer rate of 8.3 MBs.

Select 3 to allow the AMI BIOS to use PIO mode 3. It has a data transfer rate of 11.1 MBs.

Select 4 to allow the AMI BIOS to use PIO mode 4. It has a data transfer bandwidth of 32-Bits. Select Enabled to enable 32-Bit data transfer.

DMA Mode

Select Auto to allow the BIOS to automatically detect IDE DMA mode when the IDE disk drive support cannot be determined.

Select SWDMA0 to allow the BIOS to use Single Word DMA mode 0. It has a data transfer rate of 2.1 MBs.

Select SWDMA1 to allow the BIOS to use Single Word DMA mode 1. It has a data transfer rate of 4.2 MBs.

Select SWDMA2 to allow the BIOS to use Single Word DMA mode 2. It has a data transfer rate of 8.3 MBs.

Select MWDMA0 to allow the BIOS to use Multi Word DMA mode 0. It has a data transfer rate of 4.2 MBs.

Select MWDMA1 to allow the BIOS to use Multi Word DMA mode 1. It has a data transfer rate of 13.3 MBs.

Select MWDMA2 to allow the BIOS to use Multi-Word DMA mode 2. It has a data transfer rate of 16.6 MBs.

Select UDMA0 to allow the BIOS to use Ultra DMA mode 0. It has a data transfer rate of 16.6 MBs. It has the same transfer rate as PIO mode 4 and Multi Word DMA mode 2.

Select UDMA1 to allow the BIOS to use Ultra DMA mode 1. It has a data transfer rate of 25 MBs.

Select UDMA2 to allow the BIOS to use Ultra DMA mode 2. It has a data transfer rate of 33.3 MBs.

Select UDMA3 to allow the BIOS to use Ultra DMA mode 3. It has a data transfer rate of 66.6 MBs.

Select UDMA4 to allow the BIOS to use Ultra DMA mode 4 . It has a data transfer rate of 100 MBs.

The options are **Auto**, SWDMAn, MWDMAn, and UDMAn.

S.M.A.R.T. For Hard disk drives

Self-Monitoring Analysis and Reporting Technology (SMART) can help predict impending drive failures. Select Auto to allow the AMI BIOS to automatically de-

tect hard disk drive support. Select Disabled to prevent the AMI BIOS from using the S.M.A.R.T. Select Enabled to allow the AMI BIOS to use the S.M.A.R.T. to support hard drive disk. The options are Disabled, Enabled, and **Auto**.

32-Bit Data Transfer

Select Enable to enable the function of 32-bit IDE data transfer. The options are **Enabled** and Disabled.

▶PCI/PnP Configuration

This feature allows the user to set the PCI/PnP configurations for the following items:

Clear NVRAM

This feature clears the NVRAM during system boot. The options are **No** and Yes.

Plug & Play OS

Selecting Yes allows the OS to configure Plug & Play devices. (This is not required for system boot if your system has an OS that supports Plug & Play.) Select **No** to allow the AMI BIOS to configure all devices in the system.

PCI Latency Timer

This feature sets the latency Timer of each PCI device installed on a PCI bus. Select 64 to set the PCI latency to 64 PCI clock cycles. The options are 32, **64**, 96, 128, 160, 192, 224 and 248.

PCI IDE Bus Master

When enabled, the BIOS uses PCI bus mastering for reading/writing to IDE drives. The options are Disabled and **Enabled**.

ROM Scan Ordering

This item determines what kind of option ROM to activate over another. The options are **Onboard First** and Add-on First.

PCI Slot 4, PCIe Slot 5~7 OPROM

Use this feature to enable or disable PCI/PCIe slot Option ROMs. The options are Disabled and **Enabled.**

Onboard LAN1 Option ROM Select

This feature selects whether to load the iSCSI or PXE onboard LAN option ROM. The options are iSCSI and **PXE**.

Load Onboard LAN1 Option ROM/Load Onboard LAN2 Option ROM

This feature is to enable or disable the onboard option ROMs. The options are **Disabled** and Enabled.

Boot Graphics Adapter Priority

Use the feature to select the graphics controller to be used as the primary boot device. The options are Onboard VGA and **Other**.

▶Super IO Device Configuration

Serial Port1 Address/ Serial Port2 Address

This option specifies the base I/O port address and the Interrupt Request address of Serial Port 1 and Serial Port 2. Select Disabled to prevent the serial port from accessing any system resources. When this option is set to Disabled, the serial port physically becomes unavailable. Select 3F8/IRQ4 to allow the serial port to use 3F8 as its I/O port address and IRQ 4 for the interrupt address. The options for Serial Port1 are Disabled, **3F8/IRQ4**, 2E8/IRQ3. The options for Serial Port2 are Disabled, 2F8/IRQ3, **3E8/IRQ4** and 2E8/IRQ3.

▶Remote Access Configuration

Remote Access

This allows the user to enable the Remote Access feature. The options are **Disabled** and Enabled.

If Remote Access is set to Enabled, the following items will display:

Serial Port Number

This feature allows the user to decide which serial port to be used for Console Redirection. The options are **COM 1** and COM 2.

Base Address, IRQ: 3F8h, 4 [COM1], 2F8h, 3 [COM 2]

Serial Port Mode

This feature allows the user to set the serial port mode for Console Redirection. The options are **115200 8, n 1**; 57600 8, n, 1; 38400 8, n, 1; 19200 8, n, 1; and 9600 8, n, 1.

Flow Control

This feature allows the user to set the flow control for Console Redirection. The options are **None**, Hardware, and Software.

Redirection After BIOS POST

Select Disabled to turn off Console Redirection after Power-On Self-Test (POST). Select Always to keep Console Redirection active all the time after POST. (Note: This setting may not be supported by some operating systems.) Select Boot Loader to keep Console Redirection active during POST and Boot Loader. The options are Disabled, Boot Loader, and **Always**.

Terminal Type

This feature allows the user to select the target terminal type for Console Redirection. The options are **ANSI**, VT100, and VT-UTF8.

VT-UTF8 Combo Key Support

This is a terminal keyboard definition that provides a way to send commands from a remote console. Available options are **Enabled** and Disabled.

Sredir Memory Display Delay

This feature defines the length of time in seconds to display memory information. The options are **No Delay,** Delay 1 Sec, Delay 2 Sec, and Delay 4 Sec.

▶Hardware Health Configuration

This feature allows the user to monitor Hardware Health of the system and review the status of each item when displayed.

CPU Overheat Alarm

This option allows the user to select the CPU Overheat Alarm setting which determines when the CPU OH alarm will be activated to provide warning of possible CPU overheat.

Warning: Any temperature that exceeds the CPU threshold temperature predefined by the CPU manufacturer may result in CPU overheat or system instability. When the CPU temperature reaches this predefined threshold, the CPU and system cooling fans will run at full speed.

The options are:

- The Early Alarm: Select this setting if you want the CPU overheat alarm (including the LED and the buzzer) to be triggered as soon as the CPU temperature reaches the CPU overheat threshold as predefined by the CPU manufacturer.

- **The Default Alarm**: Select this setting if you want the CPU overheat alarm (including the LED and the buzzer) to be triggered when the CPU temperature reaches about 5ºC above the threshold temperature as predefined by the CPU manufacturer to give the CPU and system fans additional time needed for CPU

and system cooling. In both the alarms above, please take immediate action as shown below.

CPU Temperature

The CPU Temperature feature will display the CPU temperature status as detected by the BIOS:

Low – This level is considered as the 'normal' operating state. The CPU temperature is well below the CPU 'Temperature Tolerance'. The motherboard fans and CPU will run normally as configured in the BIOS (Fan Speed Control).

User intervention: No action required.

Medium – The processor is running warmer. This is a 'precautionary' level and generally means that there may be factors contributing to this condition, but the CPU is still within its normal operating state and below the CPU 'Temperature Tolerance'. The motherboard fans and CPU will run normally as configured in the BIOS. The fans may adjust to a faster speed depending on the Fan Speed Control settings.

User intervention: No action is required. However, consider checking the CPU fans and the chassis ventilation for blockage.

High – The processor is running hot. This is a 'caution' level since the CPU's 'Temperature Tolerance' has been reached (or has been exceeded) and may activate an overheat alarm:

The Default Alarm – the Overheat LED and system buzzer will activate if the High condition continues for some time after it is reached. The CPU fan will run at full speed to bring the CPU temperature down. If the CPU temperature still increases even with the CPU fan running at full speed, the system buzzer will activate and the Overheat LED will turn on.

The Early Alarm – the Overheat LED and system buzzer will be activated exactly when the High level is reached. The CPU fan will run at full speed to bring the CPU temperature down.

Note: In both the alarms above, please take immediate action as shown below. See CPU Overheat Alarm to modify the above alarm settings.

User intervention: If the system buzzer and Overheat LED has activated, take action immediately by checking the system fans, chassis ventilation and room temperature to correct any problems. Note: the system may shut down if it continues for a long period to prevent damage to the CPU.

Notes: The CPU thermal technology that reports absolute temperatures (Celsius/Fahrenheit) has been upgraded to a more advanced feature by Intel in its newer processors. The basic concept is that each CPU is embedded by a unique temperature information that the motherboard can read. This

'Temperature Threshold' or 'Temperature Tolerance' has been assigned at the factory and is the baseline by which the motherboard takes action during different CPU temperature conditions (i.e., by increasing CPU Fan speed, triggering the Overheat Alarm, etc). Since CPUs can have different 'Temperature Tolerances', the installed CPU can now send its 'Temperature Tolerance' to the motherboard resulting in better CPU thermal management.

Supermicro has leveraged this feature by assigning a temperature status to certain thermal conditions in the processor (Low, Medium and High). This makes it easier for the user to understand the CPU's temperature status, rather than by just simply seeing a temperature reading (i.e., 25°C).

The information provided above is for your reference only. For more information on thermal management, please refer to Intel's Web site at www.Intel.com.

System Temperature

This feature displays the absolute system temperature (i.e., 34°C).

Fan1 ~ Fan4 Reading

This feature displays the fan speed readings from fan interfaces Fan1 through Fan5.

Fan Speed Control Modes

This feature allows the user to decide how the system controls the speeds of the onboard fans. The CPU temperature and the fan speed are correlative. When the CPU on-die temperature increases, the fan speed will also increase for effective system cooling. Select Full Speed to allow the onboard fans to run at full speed (of 100% Pulse Width Modulation Duty Cycle) for maximum cooling. The Full Speed setting is recommended for special system configuration or debugging. Select Performance for the onboard fans to run at 70% of the Initial PWM Cycle for better system cooling. The Performance setting is recommended for high-power-consuming and high-density systems. Select Balanced for the onboard fans to run at 50% of the Initial PWM Cycle in order to balance the needs between system cooling and power saving. The Balanced setting is recommended for regular systems with normal hardware configurations. Select Energy Saving for the onboard fans to run at 30% of the Initial PWM Cycle for best power efficiency and maximum quietness. The Options are: Full Speed (@100% of PWM Cycle), Performance (@70% of PWM Cycle), **Balanced (@50% of PWM Cycle)**, and Energy Saving (@30% of PWM Cycle).

CPU Vcore, AVCC, 3.3Vcc, 12V, V_DIMM, 5V, CPU VTT, 3.3Vsb, and Vbat

This feature displays the voltage readings for the described components.

▶ACPI Configuration

Use this section to configure the Advanced Configuration and Power Interface (ACPI) power management settings for your system.

High Performance Event Timer

Select Enabled to activate the High Performance Event Timer (HPET) that produces periodic interrupts at a much higher frequency than a Real-time Clock (RTC) does in synchronizing multimedia streams, providing smooth playback and reducing the dependency on other timestamp calculation devices, such as an x86 RDTSC Instruction embedded in the CPU. The High Performance Event Timer is used to replace the 8254 Programmable Interval Timer. The options are **Enabled** and Disabled.

PS2 KB/MS Wakeup

This feature is used to awaken the system from Standby mode by a PS/2 mouse or PS/2 keyboard. This must be enabled in the system level and Operating System (O/S) as well, if supported).

S1 (OS Control) - Enables system wake up from S1 (default).

S5 (OS Control) - Enables system wake up from S1/S3/S4/S5.

Force Enabled - Wake up support is always enabled regardless whether it is disabled in the O/S.

Force Disabled - Wake up support is always disabled regardless whether it is enabled in the O/S.

Wake on Ring Support

This feature allows support for system wake up if a ring signal is detected through an optional modem. The selections are **Disabled** and Enabled.

ACPI Aware O/S

Enable ACPI support if it is supported by the OS to control ACPI through the Operating System. Otherwise, disable this feature. The options are **Yes** and No.

Suspend Mode

This setting allows the user to configure the ACPI (Advanced Configuration and Power Interface) state for the system when it is in the Suspend mode. The options are **S1 (POS)**, S3 (STR) and Auto.

ACPI APIC Support

Select Enabled to include the ACPI APIC Table Pointer in the RSDT (Root System Description Table) pointer list. The options are **Enabled** and Disabled.

APIC ACPI SCI IRQ

When this item is set to Enabled, APIC ACPI SCI IRQ is supported by the system. The options are Enabled and **Disabled**.

Headless Mode

This feature is used to enable the system to function without a keyboard, monitor or mouse attached The options are Enabled and **Disabled**.

ACPI Version Features

The options are ACPI v1.0, **ACPI v2.0** and ACPI v3.0. Please refer to ACPI's website for further explanation: http://www.acpi.info/

▶Trusted Computing

TCG/TPM Support

Select Yes to enable support for trusted platforms (TPM 1.1/1.2) and allow the BIOS to automatically download the drivers needed to provide support for the platforms specified. The options are Yes and **No**.

TPM Owner

This feature enables or disables the installation of, or Clears TPM ownership. The options are **Don't Change**, Enable Install, Disable Install and Clear.

Execute TPM Command

This feature enables or disables the sending of commands to the TPM. The options are **Don't Change**, Enabled and Disabled.

Clearing the TPM

Press <Enter> to clear the TPM memory. This will erase all information related to TPM support.

If TCG/TPM Support is set to Yes, the TPM Status will display:

TPM Enable/Disable Status

TPM Owner Status

▶Event Log Configuration

View Event Log

Use this option to view the System Event Log.

Mark all events as read

This option marks all events as read. The options are OK and Cancel.

Clear event log

This option clears the Event Log memory of all messages. The options are OK and **Cancel.**

PCIE Error Log

Use this option to enable logging of errors encountered in the system's PCIe bus. The options are Yes and **No.**

▶ME Subsystem Configuration

BootBlock HECI Message

Enable this option to allow Boot Block HECI messaging between the systemBIOS and the ME firmware. The options are **Disabled** and Enabled.

HECI Message

This feature enables or disables the HECI message. The options are Disabled and **Enabled**.

End of Post S5 HECI Message

Enable this option to allow HECI messaging when the system is in the off (S5) state. The options are Disabled and **Enabled**.

ME HECI Configuration

The Host Embedded Controller Interface (HECI) is used for Active Management Technology (AMT), which allows communication with the Management Engine (ME).

ME-HECI

This option enables or disables HECI. The settings are **Enabled** and Disabled.

ME-IDER

Use this feature to enable or disable IDE Redirection on a system that supports AMT. The settings are Enabled and **Disabled**.

ME-KT

Use this feature to enable or disable Keyboard and Text redirection (KT) on a system that supports AMT. The settings are Enabled and **Disabled**.

Management Engine Version

This displays the ME firmware version and is for informational purposes only.

ME Firmware Image ReFlash

Enable this option to allow the reflashing of the ME firmware. The options are **Disabled** and Enabled.

▶Intel® AMT Configuration

Intel AMT Support

This option enables Intel AMT support. The options are **Enabled** and Disabled.

Force IDER

This option enables IDE Redirection. The options are **Disabled**, IDER Pri. Master, IDER Pri. Slave, IDER Sec. Master and IDER Sec. Slave.

Force SOL

This option enables Serial Over LAN (SOL) redirection. The options are **Disabled**, and Enabled.

Unconfigure AMT/ME

This option resets the Intel Active Management Technology/Management Engine to its default values. The options are **Disabled**, and Enabled.

Activate Remot Assistance

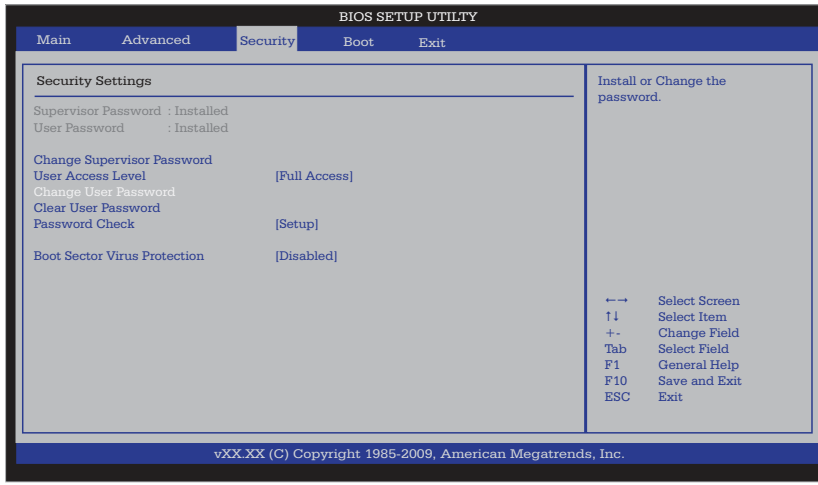
The options are **Disabled**, and Enabled.

MEBx Ctrl+P Delay (Seconds)

This option sets the delay (in seconds) during boot when the user can enter the ME BIOS extension (MEBx) . The options are from 0~255.

4-4 Security Settings

The AMI BIOS provides a Supervisor and a User password. If you use both passwords, the Supervisor password must be set first.



Supervisor Password

This item indicates if a supervisor password has been entered for the system. Clear means such a password has not been used, Set means a supervisor password has been entered for the system.

User Password:

This item indicates if a user password has been entered for the system. Clear means such a password has not been used, Set means a user password has been entered for the system.

Change Supervisor Password

Select this feature and press <Enter> to access the submenu, and enter a new Supervisor Password.

User Access Level (Available when Supervisor Password is set as above)

Select Full Access to grant full user read and write access to the Setup Utility, select View Only to allow view-only access to the Setup Utility (the fields cannot be changed), select Limited to allow only limited fields to be changed such as Date and Time, select No Access to prevent User access to the Setup Utility. The options are No Access, View Only, Limited and **Full Access**.

Change User Password

Select this feature and press <Enter> to access the submenu , and then enter a new User Password.

Clear User Password (Available only if User Password has been set)

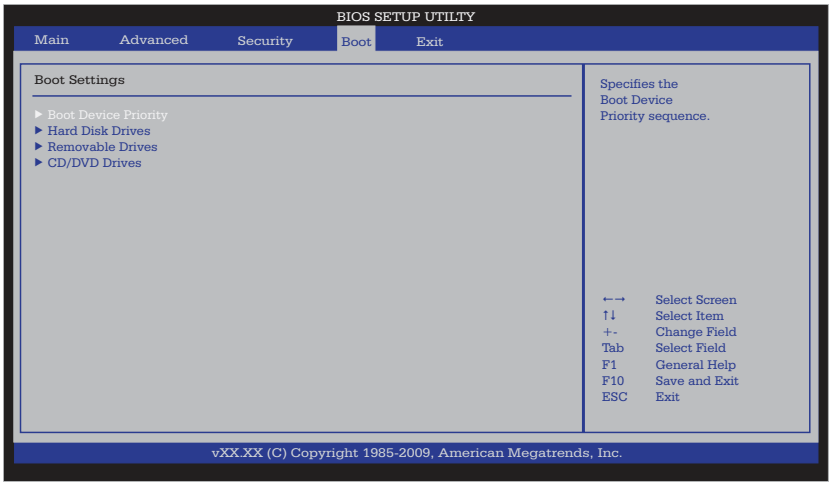
Password Check

Available options are **Setup** and Always.

Boot Sector Virus Protection

When Enabled, the AMI BOIS displays a warning when any program (or virus) issues a Disk Format command or attempts to write to the boot sector of the hard disk drive. The options are Enabled and **Disabled**.

4-5 Boot Settings



Use this feature to configure Boot Settings:

▶Boot Device Priority

This feature allows the user to specify the sequence of priority for the Boot Device. The settings are 1st boot device, 2nd boot device, 3rd boot device, 4th boot device, 5th boot device and Disabled.

- 1st Boot Device - 1st Floppy Drive
- 2nd Boot Device - [USB: XXXXXXXXX]
- 3rd Boot Device - [SATA: XXXXXXXXX]
- 4th Boot Device - [Network: XXXXXXXXX]
- 5th Boot Device - [Network: XXXXXXXXX]

▶Hard Disk Drives

This feature allows the user to specify the sequence of priority from the available Hard Drives.

- 1st Drive [SATA: XXXXXXXXXX]
- 2nd Drive [SATA: XXXXXXXXXX]

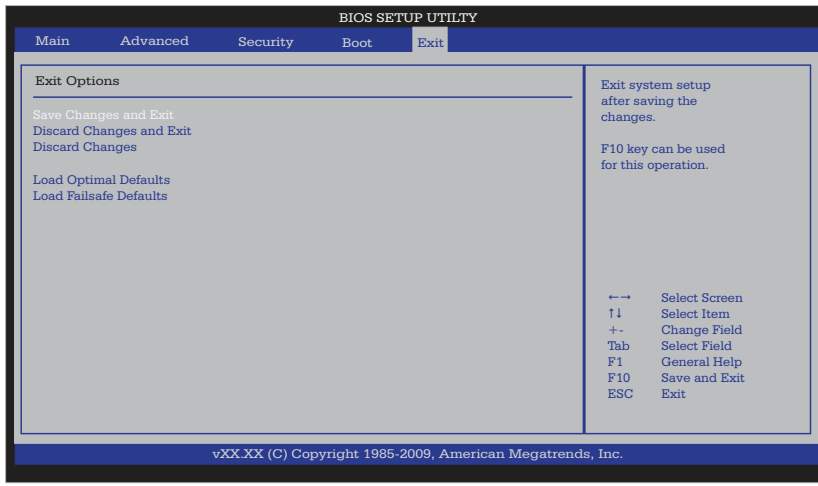
▶Removable Drives

This feature allows the user to specify the boot sequence from available Removable Drives. The settings are 1st boot device, 2nd boot device, and Disabled.

- 1st Drive
- 2nd Drive - [USB: XXXXXXXXX]

Retry Boot Devices

Select this option to retry booting from the configured boot devices if the systems fail to boot initially. The options are **Disabled** and Enabled.



4-6 Exit Options

Select the Exit tab from the AMI BIOS Setup Utility screen to enter the Exit BIOS Setup screen.

Save Changes and Exit

When you have completed the system configuration changes, select this option to leave the BIOS Setup Utility and reboot the computer, so the new system configuration parameters can take effect. Select Save Changes and Exit from the Exit menu and press <Enter>.

Discard Changes and Exit

Select this option to quit the BIOS Setup without making any permanent changes to the system configuration, and reboot the computer. Select Discard Changes and Exit from the Exit menu and press <Enter>.

Discard Changes

Select this option and press <Enter> to discard all the changes and return to the AMI BIOS Utility Program.

Load Optimal Defaults

To set this feature, select Load Optimal Defaults from the Exit menu and press <Enter>. Then, select OK to allow the AMI BIOS to automatically load Optimal Defaults to the BIOS Settings. The Optimal settings are designed for maximum system performance, but may not work best for all computer applications.

Load Fail-Safe Defaults

To set this feature, select Load Fail-Safe Defaults from the Exit menu and press <Enter>. The Fail-Safe settings are designed for maximum system stability, but not for maximum performance.

Appendix A

BIOS Error Beep Codes

During the POST (Power-On Self-Test) routines, which are performed each time the system is powered on, errors may occur.

Non-fatal errors are those which, in most cases, allow the system to continue the boot-up process. The error messages normally appear on the screen.

Fatal errors are those which will not allow the system to continue the boot-up procedure. If a fatal error occurs, you should consult with your system manufacturer for possible repairs.

These fatal errors are usually communicated through a series of audible beeps. The numbers on the fatal error list, on the following page, correspond to the number of beeps for the corresponding error.

BIOS Error Beep Codes

Beep Code	Error Message	Description
1 beep	Refresh	Circuits have been reset. (Ready to power up)
5 short beeps, 1 long beep	Memory error	No memory detected in the system
1 long beep, 8 short beeps	No VGA	The installed CPU does not have a graphics engine or an external VGA card is not present
1 continuous beep (with the front panel OH LED on)	System Overheat	1 continuous beep with the front panel OH LED on

Notes

Appendix B

Software Installation Instructions

A. Installing Drivers

After you've installed the Windows Operating System, a screen as shown below will appear. You are ready to install software programs and drivers that have not yet been installed. To install these software programs and drivers, click the icons to the right of these items. **(Note: T**o install the Windows Operating System, please refer to the instructions posted on our website at http://www.supermicro.com/support/manuals/.)

Driver/Tool Installation Display Screen

Notes:

1. Click the icons showing a hand writing on the paper to view the readme files for each item. Click a computer icon to the right of an item to install an item (from top to the bottom) one at a time. **After installing each item, you must re-boot the system before proceeding with the next item on the list.** The bottom icon with a CD on it allows you to view the entire contents of the CD.

B. Configuring Supero Doctor III

The Supero Doctor III program is a Web-based management tool that supports remote management capability. It includes Remote and Local Management tools. The local management is called the SD III Client. The Supero Doctor III program included on the CDROM that came with your motherboard allows you to monitor the environment and operations of your system. Supero Doctor III displays crucial system information such as CPU temperature, system voltages and fan status. See the Figure below for a display of the Supero Doctor III interface.

Note 1: Both default user name and password are ADMIN.

Note 2: In the Windows OS environment, the Supero Doctor III settings take precedence over the BIOS settings. When first installed, Supero Doctor III adopts the temperature threshold settings previously set in the BIOS. Any subsequent changes to these thresholds must be made within Supero Doctor, since the SD III settings override the BIOS settings. For the Windows OS to adopt the BIOS temperature threshold settings, please change the SDIII settings to be the same as those set in the BIOS.

Supero Doctor III Interface Display Screen-I (Health Information)

Supero Doctor III Interface Display Screen-II (Remote Control)

Note: SD III Software Revision 1.0 can be downloaded from our Web site at: ftp://ftp.supermicro.com/utility/Supero_Doctor_III/. You can also download SDIII User's Guide at: http://www.supermicro.com/PRODUCT/Manuals/SDIII/User-Guide.pdf. For Linux, we will still recommend that you use Supero Doctor II.

Notes

Appendix C

Intel® AMT Management Engine Setup

This section describes how to setup the Intel Active Management Technology (AMT) Engine using the Intel Management Engine BIOS Extension.

Intel Active Management Technology

The AMT feature built into this motherboard, combined with Intel processors that feature Intel's vPro technology and a third party software management application, provides corporate IT organizations with new capabilities for tamper-resistant remote troubleshooting. Intel AMT is part of the Intel Management Engine built into PCs with Intel vPro technology. In this particular motherboard, you may enter AMT setup by accessing the Intel Management Engine interface immediately after POST.

Key Features

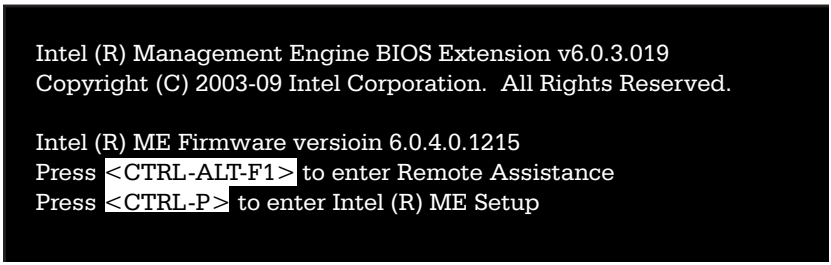
- Management over the Network (LAN, WLAN)
- Encrypted software updates
- Capable of Remote Inventory of Assets (Hardware / Software)
- Console redirection via SOL (Serial Over LAN)
- Dedicated flash memory
- Remote Diagnostic and Repair, even if the hardware is off

Requirements

- An Intel processor that supports vPro Technology
- IP Networking with connectivity
- A third party management application

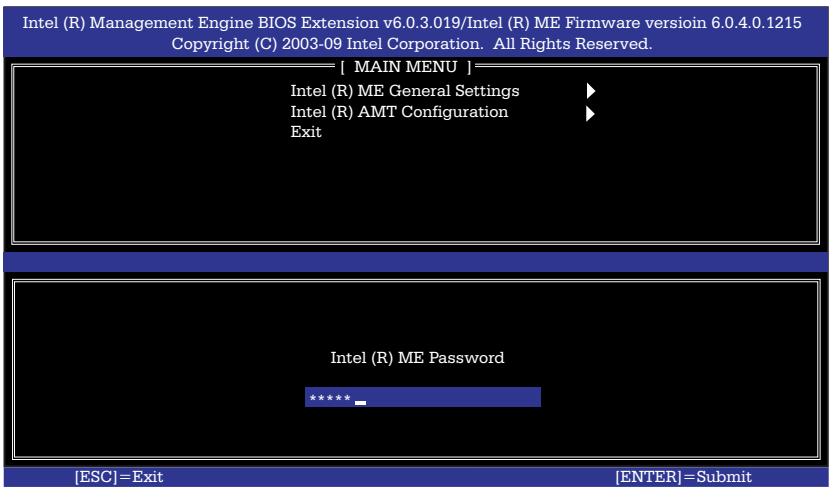
Setup

1. Immediately after POST, press <Ctrl-P> to enter the AMT configuration.



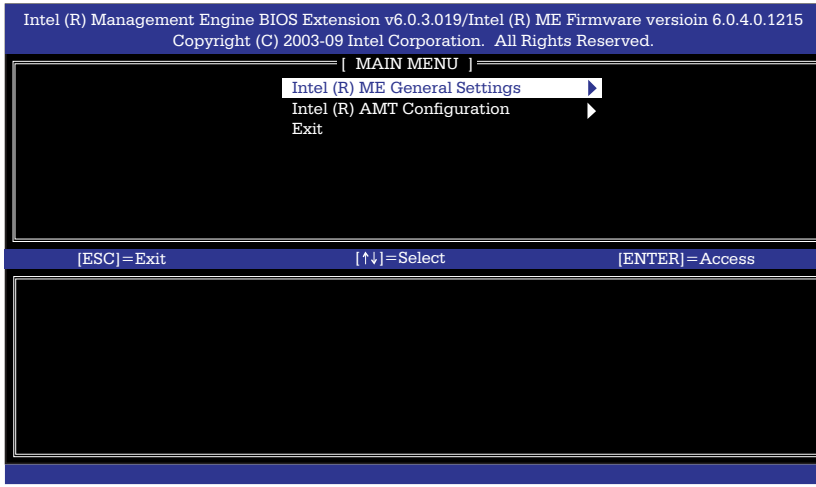
2. To log into the Intel Management Engine (ME), enter the password. If this is your first login, the default password is "admin". Intel ME will then prompt you to generate a new password. Please enter it twice to confirm the password. Please note the following password guidelines:

- Password length must be between 8 and 32 characters long
- Must contain both upper and lower case Latin characters
- Must have at least one numeric character
- Must have at least one ASCII non-alphanumeric character (!, @, #, $, %, ^, &, *)



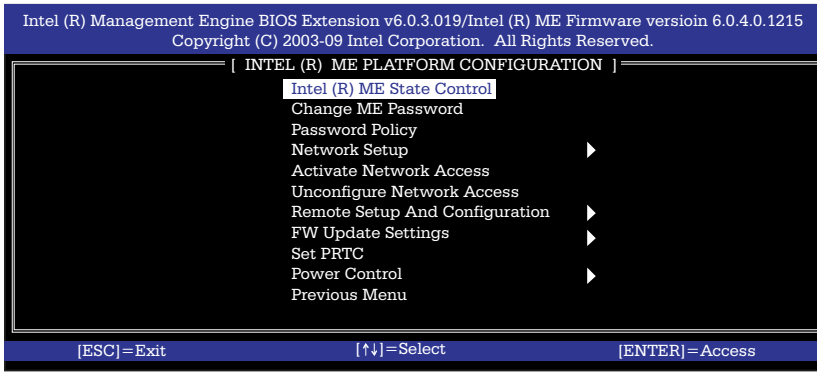
If you see the following message: "Error - Intel(R) ME password change rejected", then you are using a weak password. Please enter a different password.

3. Select "Intel® ME General Settings" at the MAIN MENU.



4. Select "Intel® ME State Control", and set this to "Enabled." Press <Enter>. The system will now reboot.

Intel® ME Platform Configuration



Note: The menu items list has been extended to the bottom for illustration purposes.

Intel ME State Control

Disabling the Intel ME through the MEBX prevents the Intel ME code from executing. This allows an IT technician to eliminate the Intel ME as the potential problem. This is used primarily for debugging purposes. The options are **Enable** and Disable.

Change ME Password

At the prompt, enter your new password. Please be aware of the password guideline as described on page C-2.

Password Policy

Intel ME has two passwords: The Intel MEBx password, which is entered when physically in front of the system, and the network password, which is entered across a network. Both are the same by default until the network password is changed. Once the network password is changed, these passwords will always be separate.

Options:

- Default Password - If the default password has not been changed yet, the Intel MEBx password can be changed via the network interface.
- During Setup and Configuration - The Intel MEBx password can only be changed during setup. Once the setup and configuration is finished, it can no longer be changed through the network interface.
- Anytime - The Intel MEBx password can be changed via the network interface anytime.

Network Setup

Intel® ME Network Name Settings

- Host Name - This will be the host name of the machine.
- Domain Name - A domain name where the machine belongs to.
- Shared/Dedicated FQDN - This determines if the FQDN (Fully Qualified Domain Name) is shared with the host and the same as the operating system machine or is unique to the Intel ME.
- Dynamic DNS Update - This option will enable Intel ME to actively try to register its IP addresses and FQDN in DNS using the Dynamic DNS Update protocol.

TCP/IP Settings

Wired LAN IPV4 Configuration

- DHCP Mode - Enables DHCP (Dynamic Host and Configuration Protocol). This allows the Intel ME to confgure its network settings such as IP Address, Subnet Mask, Gateway, via the DHCP server in the network.

  If DHCP is disabled (Static IP mode), the following options are available:

  - IPV4 address - enter a valid IP address here.
  - Subnet Mask - i.e., 255.255.255.0
  - Default Gateway Address - enter your network's gateway IP address.
  - Preferred DNS Address - the DNS server your network uses.
  - Alternate DNS Address - a secondary DNS server your network uses.

Wired LAN IPV6 Configuration

If Wired LAN IPV6 feature is enabled, the following options are available:

- IPV6 Interface ID Type - The auto-configured IPv6 address consists of two parts, the IPv6 Prefix set by the IPv6 router is the first and the interface ID is following part (64 bits each).

  Random ID - The IPv6 Interface ID is generated using a random number as described in RFC 3041.

  Intel ID - The IPv6 Interface ID is automatically generated using the network interface's MAC address.

Manual ID - The IPv6 Interface ID is set manually. Selecting this type requires that the Manual Interface ID is set with a valid value.

- IPV6 Address - Enter the IPV6 address.
- IPV6 Default Router - Enter the IPV6 address of the network router this interface will use.
- Preferred DNS IPV6 Address - the DNS server your network uses.
- Alternate DNS IPV6 Address - a secondary DNS server your network uses.

Activate Network Access

This option causes the Intel ME to enable if all required settings are configured.

Unconfigure Network Access

This option causes the Intel ME to reset provisioning and unconfigure network access.

For More Information

The preceding is the initial setup for the Intel ME. For more in-depth information and advanced provisioning options please visit the following sections at the following official Intel websites:

- http://www.intel.com
- http://software.intel.com/en-us/videos/whats-special-about-amt/
- http://www.intel.com/technology/platform-technology/intel-amt/

For complete documentation of the setup procedure, a 111-page Intel® Management Engine BIOS Extension (Intel® MEBX) PDF manual may be downloaded from Intel's vproexpert.com website at:

http://www.vproexpert.com/docs/IntelMEBx_Users_Guide_Intel%20AMT6_rev1.2.pdf

Appendix D - BIOS Recovery

The recovery procedure described in this section is to be used only when you are advised by your Supermicro Technical Support representative, or in cases of emergencies where the system no longer can boot due to a corrupted BIOS. DO NOT re-program (re-flash) the BIOS if your system is running properly.

D-1 Recovery Process from a USB Device (Recommended Method)

If the BIOS file is corrupted and the system is not able to boot up, this feature will allow you to recover the BIOS image using a USB-attached device. A USB Flash Drive may be used for this purpose. Please note that a USB Hard Disk drive is NOT supported and COM1 is the only serial port recognized. Below is a two-part procedure to recover the BIOS:

Part 1: Boot Sector Recovery Process

1. Using a different system, download and copy the correct BIOS binary image into a USB flash device's Root "\" Directory. Rename the downloaded file to "super.rom", so the recovery process can recognize and read the BIOS binary file.

2. Insert the USB device that contains the new BIOS binary image (“super.rom”) and power the system down.

3. While powering on the system, press and hold <Ctrl> and <Home> simultaneously on your keyboard until the USB device's LED indicator comes on. This will take a few seconds or up to one minute.

4. Once the USB device's LED is on, release the <Ctrl> and <Home> keys. The system may generate beep codes to indicate that the BIOS ROM firmware is being reprogrammed. The screen will also display a message as shown below. DO NOT INTERRUPT THIS PROCESS!

5. When the Boot Sector Recovery Process is complete, the system will reboot automatically and you will see a checksum error on your screen.

Part 2 - BIOS Reprogramming (Re-Flashing)

After completing the Boot Sector Recovery Process, you will need to reprogram ("re-flash") the proper BIOS binary file again into the BIOS ROM in order to have the correct BIOS file loaded by the system. For details on how to flash/re-flash a BIOS, please check our website for "Update your BIOS", or see the section 3-3 (FAQ) of this manual. DO NOT INTERRUPT THIS PROCESS!

When completed, the system will reboot automatically, and you will see a checksum error again.

Press "F1" to go to setup. Press "F9" to load the defaults and then press "F10" to save and exit.

If your system still does not boot up after performing the above procedure, then there may be other issues with your motherboard. Please contact your customer service representative.

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