SUPER®

SuperServer 5037C-i

USER'S MANUAL

Revision 1.0

Preface

About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SuperServer 5037C-i. Installation and maintenance shall be performed by experienced technicians only.

The SuperServer 5037C-i is a single processor system based on the SC731i-300B mini-tower chassis and the Super X9SCL motherboard.

Manual Organization

Chapter 1: Introduction

The first chapter provides a checklist of the main components included with the system and describes the main features of the Super X9SCL motherboard and the SC731i-300B chassis.

Chapter 2: Installation

This chapter describes the steps necessary to setup the system. If your server was ordered without the processor and memory components, this chapter will refer you to the appropriate sections of the manual for their installation.

Chapter 3: System Interface

Refer to this chapter for details on the system interface, which includes the functions and information provided by the control panel on the chassis as well as other LEDs located throughout the system.

Chapter 4: System Safety

You should thoroughly familiarize yourself with this chapter for a general overview of safety precautions that should be followed when installing and servicing the SuperServer 5037C-i.

Chapter 5: Advanced Motherboard Setup

Chapter 5 provides detailed information on the X9SCL motherboard, including the locations and functions of connectors, headers and jumpers. Refer to this chapter

when adding or removing processors or main memory and when reconfiguring the motherboard.

Chapter 6: Advanced Chassis Setup

Refer to Chapter 6 for detailed information on the SC731i-300B chassis. You should follow the procedures given in this chapter when installing, removing or reconfiguring Serial ATA or peripheral drives and when replacing system power supply units and cooling fans.

Chapter 7: BIOS

The BIOS chapter includes an introduction to BIOS and provides detailed information on running the CMOS Setup Utility.

Appendix A: POST Error Beep Codes

Appendix B: System Specifications

Notes

Table of Contents

Chapter 5 Advanced Motherboard Setup

Chapter 1

Introduction

1-1 Overview

The SuperServer 5037C-i is a high-end server comprised of two main subsystems: the SC731i-300B mini-tower chassis and the X9SCL motherboard. Please refer to our web site for information on operating systems that have been certified for use with the SuperServer 5037C-i (www.supermicro.com).

In addition to the motherboard and chassis, various hardware components have been included with the SuperServer 5037C-i, as listed below:

*   One 9-cm exhaust fan (FAN-0108L4)

*   Four 3.5" HDD carriers (MCP-220-73101-0B)

*   One IDE cable for DVD-ROM drive (CBL-0139L)

*   Four SATA cables (CBL-0044L)

*   One SuperServer 5037C-i User's Manual

Optional

*   One active heatsink (SNK-P0046A4)

*   One intake fan (FAN-0113L4)

*   One 5.25" DVD-ROM drive (DVM-LITE-DVDRW-HBT)

1-2 Motherboard Features

At the heart of the SuperServer 5017C-MF lies the X9SCL, a single processor motherboard based on Intel's C202 chipset. Below are the main features of the X9SCL (see Figure 1-1 for a block diagram of the chipset).

Processors

The X9SCL supports a single single Intel® Xeon® E3-1200 Series processor or a Core™ i3-2100 Series processor in an LGA1155 socket. Please refer to the motherboard description pages on our web site for a complete listing of supported processors.

Memory

The X9SCL has four DIMM sockets that can support up to 32 GB of unbuffered DDR3-1333/1066 memory. Please refer to Chapter 5 for installing memory.

Serial ATA

An on-chip SATA controller is integrated into the X9SCL to provide a six-port, 3 Gb/sec Serial ATA subsystem, which is RAID 0, 1, 5 and 10 supported (RAID 5 supported with Windows OS only). The SATA drives are hot-swappable units. Note: The operating system you use must have RAID support to enable the hot-swap capability and RAID function of the SATA drives. Documentation on RAID setup guidelines can be found on our web site.

I/O Ports

The color-coded I/O ports include one COM port, a VGA (monitor) port, two USB 2.0 ports, PS/2 mouse and keyboard ports and two gigabit Ethernet ports.

Graphics Controller

The X9SCL features an integrated ATI video controller based on the Matrox G200eW graphics chip, which has 16 MB of DDR2 memory.

1-3   Chassis Features

The SC731i-300B is a mini-tower chassis with a unique design that allows most configurations to be performed without the need for tools The following is a general outline of the main features of the SC731i-300B chassis.

System Power

The SC731i-300B features a high-efficiency 300W power supply. Power must be removed from the system before servicing or replacing the power supply.

SATA Subsystem

The chassis was designed to support four SATA hard drives (these drives are not hot-swappable).

Front Control Panel

The control panel provides you with system monitoring and control. LEDs indicate network activity, hard disk drive activity and overheat conditions. The control panel also includes a main power button, which has a blue LED that illuminates when the system is powered on.

I/O Backplane

The I/O backplane includes two COM ports, two USB 2.0 ports, PS/2 mouse and keyboard ports and two gigabit Ethernet ports. Four standard size PCI expansion cards (the maximum number supported by the motherboard) may be added to the system.

Cooling System

The SC731i-300B chassis includes one whisper-quiet 9-cm exhaust fan located at the rear of the chassis and an 8-cm fan located in the power supply. Both fans operate continuously.

Figure 1-1. Intel C202 Chipset:
System Block Diagram

Note: This is a general block diagram. Please see Chapter 5 for details.
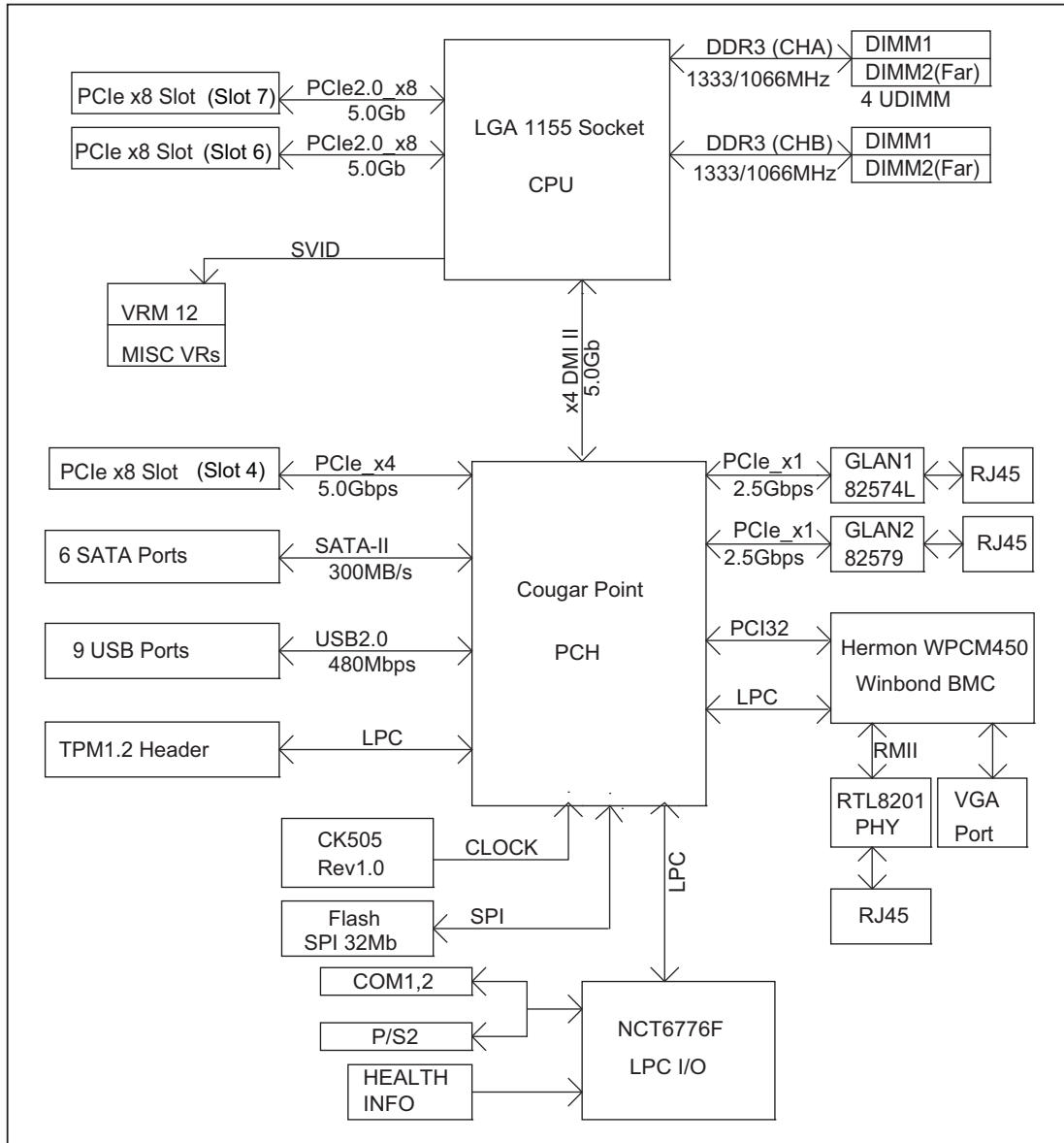
1-4   Contacting Supermicro

Headquarters

Address:	Super Micro Computer, Inc.
	980 Rock Ave.
	San Jose, CA 95131 U.S.A.
Tel:	+1 (408) 503-8000
Fax:	+1 (408) 503-8008
Email:	marketing@supermicro.com (General Information)
	support@supermicro.com (Technical Support)
Web Site:	www.supermicro.com

Europe

Address:	Super Micro Computer B.V.
	Het Sterrenbeeld 28, 5215 ML
	's-Hertogenbosch, The Netherlands
Tel:	+31 (0) 73-6400390
Fax:	+31 (0) 73-6416525
Email:	sales@supermicro.nl (General Information)
	support@supermicro.nl (Technical Support)
	rma@supermicro.nl (Customer Support)

Asia-Pacific

Address:	Super Micro Computer, Inc.
	4F, No. 232-1, Liancheng Rd.
	Chung-Ho 235, Taipei County
	Taiwan, R.O.C.
Tel:	+886-(2) 8226-3990
Fax:	+886-(2) 8226-3991
Web Site:	www.supermicro.com.tw
Technical Support:	
Email:	support@supermicro.com.tw
Tel:	886-2-8228-1366, ext.132 or 139

Notes

Chapter 2

System Setup

2-1   Overview

This chapter provides a quick setup checklist to get your SuperServer 5037C-i up and running. Following the steps in the order given should enable you to have the system operational within a minimal amount of time. If your system is not already fully integrated with a motherboard, processor, system memory etc., please turn to the chapter or section noted in each step for details on installing specific components.

2-2   Unpacking the System

You should inspect the box the SuperServer 5037C-i was shipped in and note if it was damaged in any way. If the server itself shows damage, you should file a damage claim with the carrier who delivered it.

Decide on a suitable location for setting up and operating the SuperServer 5037C-i. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. You will also need it placed near a grounded power outlet.

  Warnings and Precautions!

- Review the electrical and general safety precautions in Chapter 4.

- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.

- Allow the power supply units and Serial ATA drives to cool before touching them.

- To maintain proper cooling, always keep all chassis panels closed when not being serviced.

2-3   Setting Up the System

You should first open the left side panel (when facing the front of the chassis) to make sure the motherboard is properly installed and all connections have been made.

!

Warning: Only qualified service technicians should access the inside of the system. Except for short periods of time, do NOT operate the system without the cover in place. The chassis cover must be in place to allow proper airflow and prevent overheating.

Checking the Motherboard Setup

1. Accessing the inside of the system (Figure 2-1): Begin by disconnecting the chassis from any power source. Grasp the cover handle (A) with your fingers. Use your thumb to lift the cover latch (B). Slide the cover back, toward the rear of the chassis, then lift the cover off.

2. Check the CPU (processor): You may have a processor already installed into the system board. The processor should have its own heatsink attached. See Chapter 5 for instructions on processor installation.

3. Check the system memory: Your system may have come with system memory already installed. Make sure all DIMMs are fully seated in their slots. For details on adding system memory, refer to Chapter 5.

4. Installing add-on cards: If desired, you can install up to six add-on cards to the system. See Chapter 5 for details on installing PCI- add-on cards.

5. Check all cable connections and airflow: Make sure all power and data cables are properly connected and not blocking the airflow. See Chapter 5 for details on cable connections.

Checking the Drive Bay Setup

Next, you should check to make sure the peripheral drives and the SATA drives have been properly installed and all essential connections have been made.

1. Accessing the peripheral drive bays: To install a component to either of the two 5.25" drive bays, you will need to remove the side chassis cover. See the installation and removal sections for the peripheral drives in Chapter 6.

Figure 2-1. Accessing the Inside of the 5037C-i
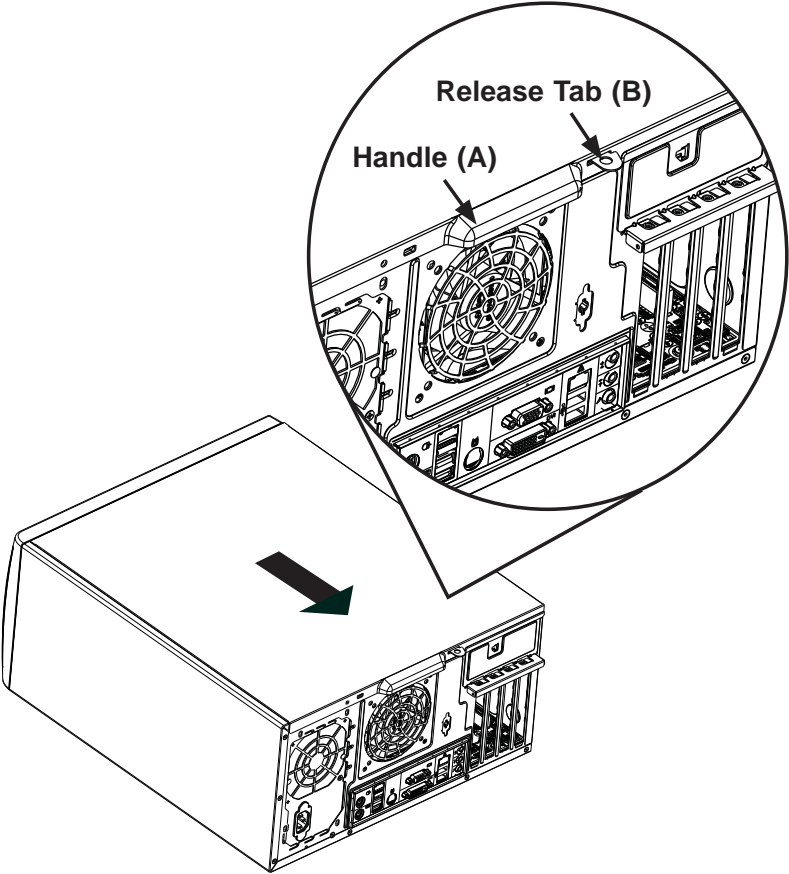
2. Check the SATA disk drives: Depending upon your system's configuration, your system may have up to four SATA drives already installed. If you need to install or remove an SATA drive, please refer to the appropriate section in Chapter 6.

3. Check the airflow: Cooling air is provided by the chassis fan and the power supply fan. The system component layout was carefully designed to promote sufficient airflow throughout the chassis. Also note that all power and data cables have been routed in such a way that they do not block the airflow generated by the fan. Please keep this in mind when rerouting or adding/ removing cables.

4. Supplying power to the system: The last thing you must do is to provide input power to the system. Plug the power cord from the power supply unit into a high-quality power strip that offers protection from electrical noise and power surges. It is recommended that you use an uninterruptible power supply (UPS).

Chapter 3

System Interface

3-1   Overview

There are four LEDs on the control panel to keep you constantly informed of the overall status of the system as well as the activity and health of specific components. The control panel also is where to find the main power on/off button.

3-2   Control Panel Button
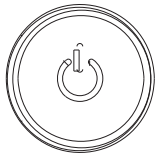
POWER

The main power switch is used to apply or remove power from the power supply to the server system. Turning off system power with this button removes the main power but keeps standby power supplied to the system. Therefore, you must unplug system before servicing.

3-3   Control Panel LEDs

The control panel located on the front of the SC731I-300B chassis has four LEDs. These LEDs provide you with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action you may need to take.

HDD

This LED indicates IDE channel activity, SATA drive and/or DVD-ROM drive activity when flashing.

3-2

NIC

Indicates network activity on the Gigabit LAN port when flashing.

Overheat/Fan Fail

When this LED flashes it indicates a fan failure. When on continuously (on and not flashing) it indicates an overheat condition, which may be caused by cables obstructing the airflow in the system or the ambient room temperature being too warm. Check the routing of the cables and make sure all fans are present and operating normally. You should also check to make sure that the chassis covers are installed. Finally, verify that the heatsinks are installed properly (see Chapter 5). This LED will remain flashing or on as long as the overheat condition exists.

Power On

A blue LED located behind the main power button is illuminated when the system is powered on and running.

Chapter 4

System Safety

4-1   Electrical Safety Precautions

!

Note: power should always be disconnected before perform-
ing any service on the system.

Basic electrical safety precautions shall be followed to protect yourself from harm
and the SuperServer 5037C-i from damage:

- Be aware of the locations of the power on/off switch on the chassis as well
  as the room's emergency power-off switch, disconnection switch or electrical
  outlet. If an electrical accident occurs, you can then quickly remove power from
  the system.

- Do not work alone when working with high voltage components.

- Power should always be disconnected from the system when removing or in-
  stalling main system components, such as the serverboard, memory modules
  and floppy drive. When disconnecting power, you should first power down the
  system with the operating system first and then unplug the power cords of all
  the power supply units in the system.

- When working around exposed electrical circuits, another person who is familiar
  with the power-off controls should be nearby to switch off the power if neces-
  sary.

- Use only one hand when working with powered-on electrical equipment. This
  is to avoid making a complete circuit, which will cause electrical shock. Use
  extreme caution when using metal tools, which can easily damage any electrical
  components or circuit boards they come into contact with.

- Do not use mats designed to decrease static electrical discharge as protection
  from electrical shock. Instead, use rubber mats that have been specifically
  designed as electrical insulators.

- The power supply power cords must include a grounding plug and must be
  plugged into grounded electrical outlets.

- Serverboard Battery: **CAUTION** - There is a danger of explosion if the onboard battery is installed upside down, which will reverse its polarites (see Figure 4-1). This battery must be replaced only with the same (CR2032) or an equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

- DVD-ROM Laser: **CAUTION** - this server may have come equipped with a DVD-ROM drive. To prevent direct exposure to the laser beam and hazardous radiation exposure, do not open the enclosure or use the unit in any unconventional way.

- Mainboard replaceable soldered-in fuses: Self-resetting PTC (Positive Temperature Coefficient) fuses on the mainboard must be replaced by trained service technicians only. The new fuse must be the same or equivalent as the one replaced. Contact technical support for details and support.

4-2   General Safety Precautions

Follow these rules to ensure general safety:

- Keep the area around the SuperServer 5037C-i clean and free of clutter.

- The SuperServer 5037C-i weighs approximately 43 lbs. (19.5 kg) when fully loaded. When lifting the system, two people at either end should lift slowly with their feet spread out to distribute the weight. Always keep your back straight and lift with your legs.

- Place the chassis top cover and any system components that have been removed away from the system or on a table so that they won't accidentally be stepped on.

- While working on the system, do not wear loose clothing such as neckties and unbuttoned shirt sleeves, which can come into contact with electrical circuits or be pulled into a cooling fan.

- Remove any jewelry or metal objects from your body, which are excellent metal conductors that can create short circuits and harm you if they come into contact with printed circuit boards or areas where power is present.

- After accessing the inside of the system, close the system back up and secure it to the rack unit with the retention screws after ensuring that all connections have been made.

4-3   ESD Precautions

Electrostatic discharge (ESD) is generated by two objects with different electrical charges coming into contact with each other. An electrical discharge is created to neutralize this difference, which can damage electronic components and printed circuit boards. The following measures are generally sufficient to neutralize this difference <u>before</u> contact is made to protect your equipment from ESD:

- Use a grounded wrist strap designed to prevent static discharge.

- Keep all components and printed circuit boards (PCBs) in their antistatic bags until ready for use.

- Touch a grounded metal object before removing the board from the antistatic bag.

- Do not let components or PCBs come into contact with your clothing, which may retain a charge even if you are wearing a wrist strap.

- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.

- When handling chips or modules, avoid touching their pins.

- Put the serverboard 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 serverboard.

4-4   Operating Precautions

Care must be taken to assure that the chassis cover is in place when the 5037C-i is operating to assure proper cooling. Out of warranty damage to the system can occur if this practice is not strictly followed.

Figure 4-1. Installing the Onboard Battery

LITHIUM BATTERY

BATTERY HOLDER
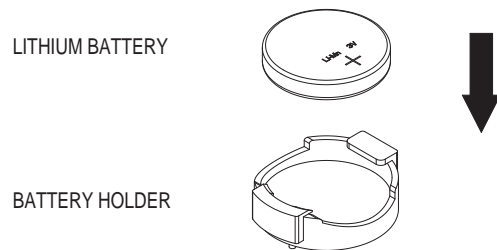
Please handle used batteries carefully. Do not damage the battery in any way; a damaged battery may release hazardous materials into the environment. Do not discard a used battery in the garbage or a public landfill. Please comply with the regulations set up by your local hazardous waste management agency to dispose of your used battery properly.

Chapter 5

Advanced Motherboard Setup

This chapter covers the steps required to install processors and heatsinks to the X9SCL motherboard, connect the data and power cables and install add-on cards. All motherboard jumpers and connections are described and a layout and quick reference chart are included in this chapter. <u>Remember to close the chassis completely when you have finished working on the motherboard to protect and cool the system sufficiently.</u>

5-1   Handling the Motherboard

Static electrical discharge can damage electronic components. To prevent damage to printed circuit boards, it is important to handle them very carefully (see Chapter 4). Also note that the size and weight of the motherboard can cause it to bend if handled improperly, which may result in damage. To prevent the motherboard from bending, keep one hand under the center of the board to support it when handling.

The following measures are generally sufficient to protect your equipment from static discharge.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.

- Touch a grounded metal object before removing any board from its antistatic bag.

- Handle a 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, add-on cards and peripherals back into their antistatic bags when not in use.

Unpacking

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

5-2   Processor and Heatsink Installation

Notes:

- Always connect the power cord last and always remove it before adding, re-moving 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 LGA1155 Processor

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

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

Load Plate

Load Lever

2

1
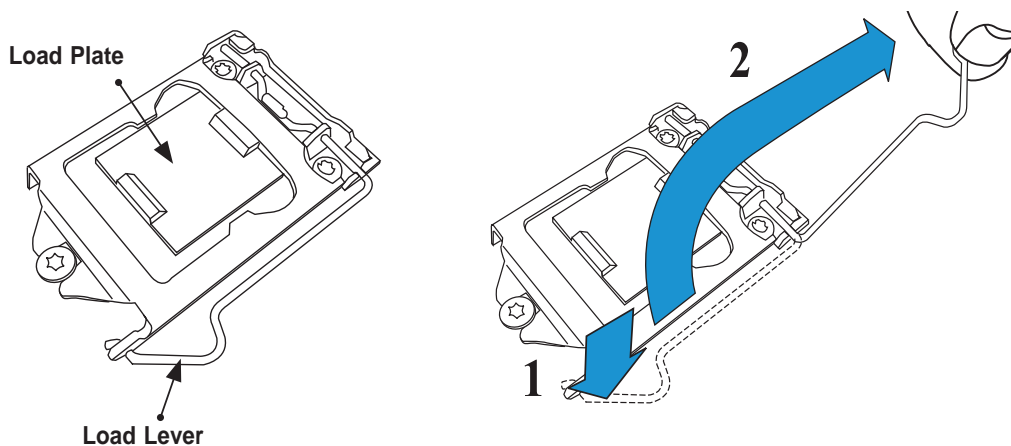
3. Use your thumb and your index finger to hold the CPU at the top center edge and the bottom center edge of the CPU.
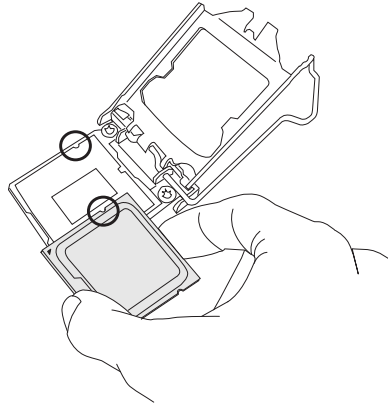
4. Align the CPU key (the semi-circle cutouts) against the socket keys. Once aligned, carefully lower the CPU straight down to the socket. (Do not drop the CPU on the socket. Do not move the CPU horizontally or vertically.

   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.

   Save the plastic PnP cap. The motherboard must be shipped with the PnP cap properly installed to protect the CPU socket pins. Shipment without the PnP cap properly installed will cause damage to the socket pins.

Pin 1

CPU properly installed

Load lever locked into place.

A   B

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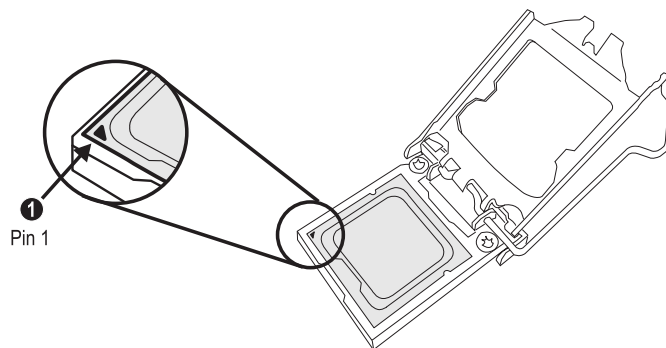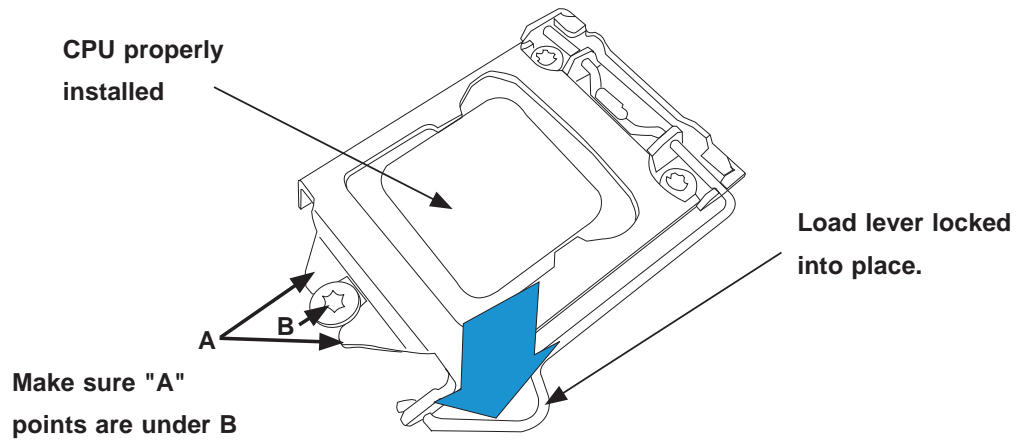
Warning: The CPU will only seat inside the socket in one direction. Make sure it is properly inserted before closing the load plate. If it doesn't close properly, do not force it as it may damage your CPU. Instead, open the load plate again and double-check that the CPU is aligned properly.

Installing an Active Fan CPU Heatsink

1. Locate the CPU Fan power connector on the motherboard. (Refer to the layout on the right for the CPU Fan location.)

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 may overheat 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.
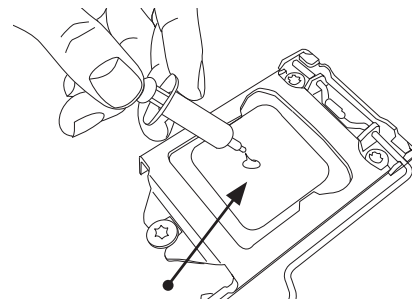
Thermal Grease
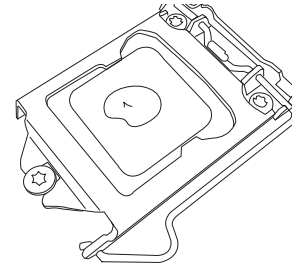
Heatsink Fins
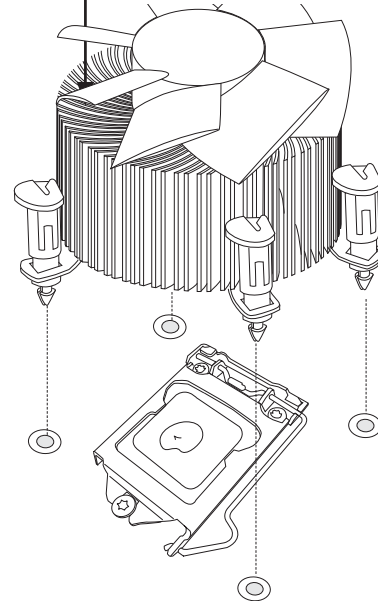
**Recommended Supermicro heatsink:
SNK-P0046A4 active heatsink**

1. Align the four heatsink fasten-
    ers 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. Also,
    make sure to orient each
    fastener so that the narrow
    end of the groove is pointing
    outward.

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

3. 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.
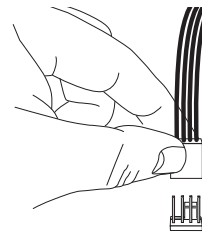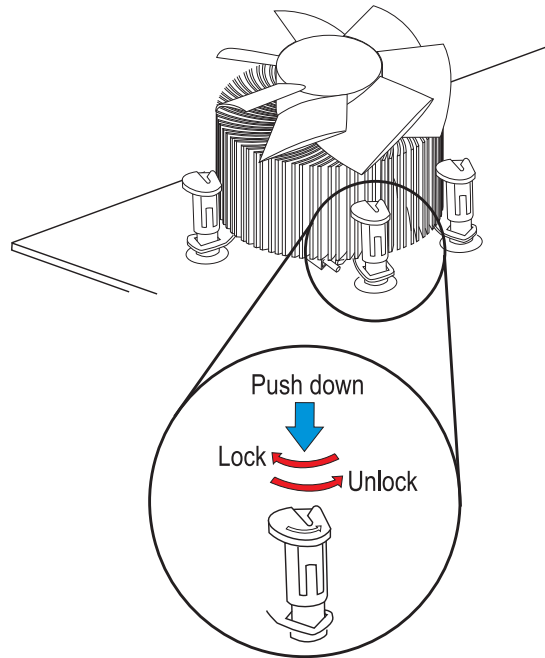
Removing the Heatsink

⚠️ **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 remove the heatsink and to prevent damage done 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 counterclockwise to make a 1/4 (90⁰) turn, and 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.

**Unplug the
PWR cord**

Pull Up

Unlock
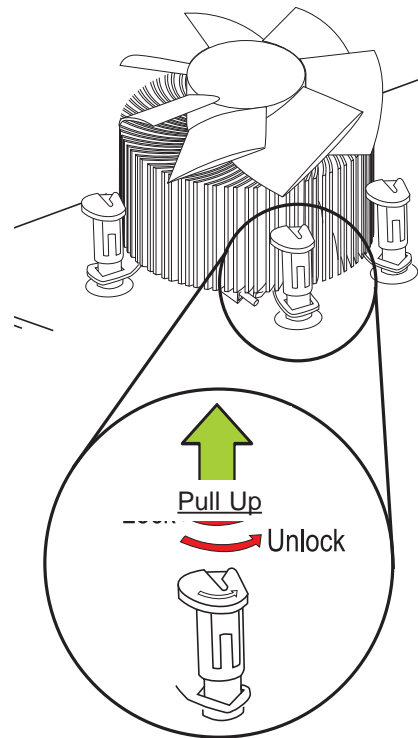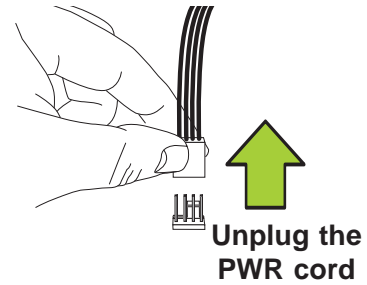
5-3 Connecting Cables

Now that the processors are installed, the next step is to connect the cables to the motherboard. These include the data (ribbon) cables for the peripherals and control panel and the power cables.

Connecting Data Cables

The cables used to transfer data from the peripheral devices have been carefully routed in preconfigured systems to prevent them from blocking the flow of cooling air that moves through the system from front to back. If you need to disconnect any of these cables, you should take care to reroute them as they were originally after reconnecting them (make sure the red wires connect to the pin 1 locations). If you are configuring the system, keep the airflow in mind when routing the cables.

The following data cables (with their motherboard connector locations noted) should be connected.

See the motherboard layout diagram in this chapter for connector locations.

- DVD-ROM Drive cable (SATA0)

- Control Panel cable (JF1, see next page)

- SATA cables (SATA1 ~ SATA5)

- SGPIO cable (T-SGPIO1 to SATA backplane)

Connecting Power Cables

The X9SCL has a 24-pin primary power supply connector designated "JPW1" for connection to the ATX power supply. Connect the appropriate connector from the power supply to JPW1 to supply power to the motherboard. See the Connector Definitions section in this chapter for power connector pin definitions.

In addition, your power supply must be connected to the 8-pin Processor Power connector at JPW2.

Connecting the Control Panel

JF1 contains header pins for various front control panel connectors. See Figure 5-1 for the pin locations of the various front control panel buttons and LED indicators. Please note that even and odd numbered pins are on opposite sides of each header.

All JF1 wires have been bundled into single keyed ribbon cable to simplify their connection. Connect one end of this cable to JF1 and the other end to the Control Panel printed circuit board, located just behind the system status LEDs in the chassis.

See the Connector Definitions section in this chapter for details and pin descriptions of JF1.

Figure 5-1. Front Control Panel Header Pins (JF1)
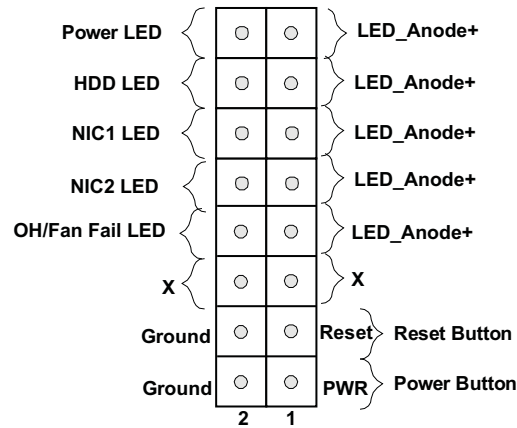
5-4 I/O Ports

The I/O ports are color coded in conformance with the PC 99 specification. See Figure 5-2 below for the colors and locations of the various I/O ports.

Figure 5-2. Rear Panel I/O Ports
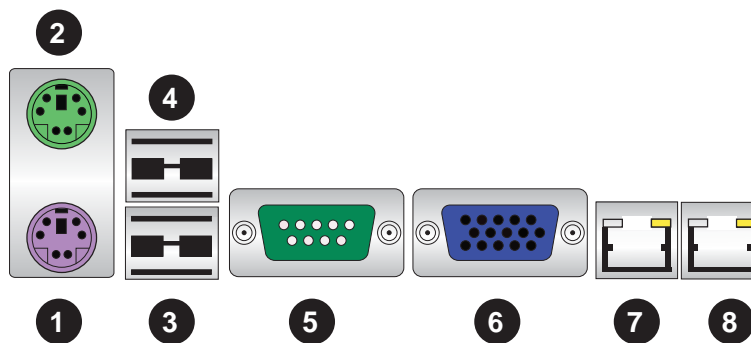
Backplane I/O Ports	
1. Keyboard (Purple)	5. COM1 Port
2. PS/2 Mouse (Green)	6. VGA Port
3. USB Port 0	7. LAN2
4. USB Port 1	8. LAN2

5-5   Installing Memory

Note: Check the Supermicro web site for recommended memory modules.

CAUTION

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

Installing DIMMs

1. Insert the desired number of DIMMs into the memory slots, starting with slots DIMM1A. Pay attention to the notch along the bottom of the module to prevent inserting the DIMM module incorrectly. See Figure 5-5.

2. Gently press down on the DIMM module until it snaps into place in the slot. Repeat fstep 1 to install to DIMM1B if needed.

Memory Support

The X9SCL supports up to 32GB of ECC unbuffered (UDIMM) DDR3-1333/1066 memory in four memory slots. Populating these slots with a pair of memory modules of the same type and same size will result in interleaved memory, which will improve memory performance. Please refer to the table below:.

DDR3 Unbuffered ECC (UDIMM) Memory				
DIMM Slots per Channel	**DIMMs Populated per Channel**	**DIMM Type**	**POR Speeds**	**Ranks per DIMM (any combination)**
2	1	Unbuffered DDR3	1066, 1333	Single Rank, Dual Rank
2	2	Unbuffered DDR3	1066, 1333	Single Rank, Dual Rank
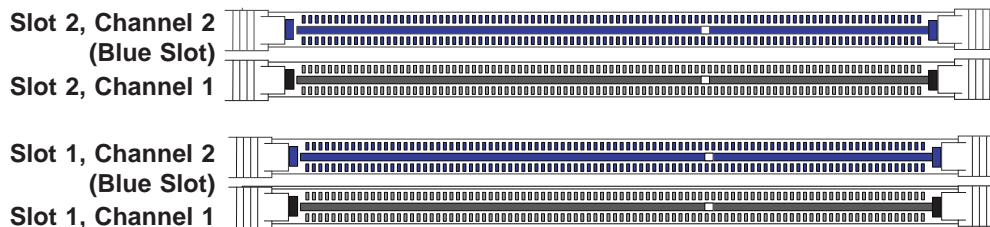
Figure 5-3. Installing DIMM into Slot

To Install: Insert module vertically and press down until it snaps into place. Pay attention to the alignment notch at the bottom.

To Remove:
Use your thumbs to gently push the release tabs near both ends of the module. This should release it from the slot.

Notch

Notch

Front View

Release Tab

Note: Notch should align with the receptive key point on the slot.

Release Tab

Top View of DDR3 Slot
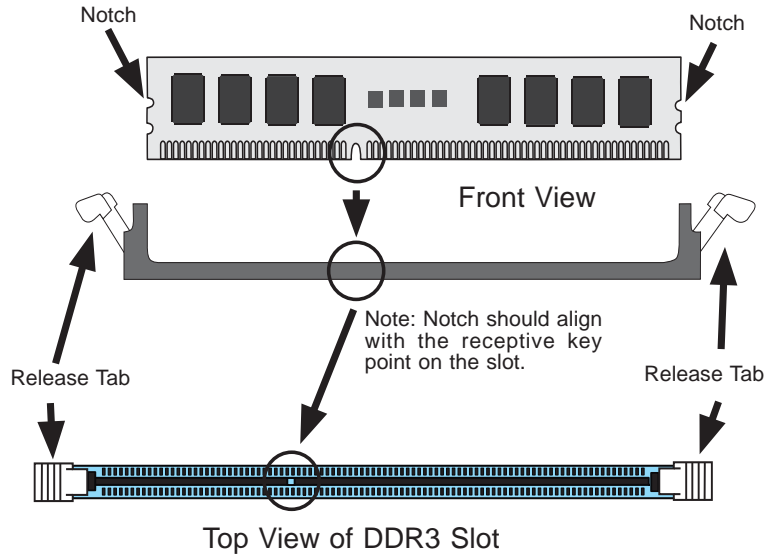
Note: Due to memory allocation to system devices, the amount of memory that remains available for operational use will be reduced when 4 GB of RAM is used. The reduction in memory availability is disproportional.

For Microsoft Windows users: Microsoft implemented a design change in the Windows XP with Service Pack 2 (SP2) and Windows Vista. This change is specific to the behavior of Physical Address Extension (PAE) mode 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

5-6   Adding PCI Cards

Four standard size PCI expansion cards (the maximum number supported by the motherboard) may be added to the 5037C-i.

PCI Card Installation

When installing a PCI add-on card, make sure you install it into a slot that supports the speed of the card.

1. Swing out the release tab on the PCI slot shield.

2. Insert the PCI card into the riser card, pushing down with your thumbs evenly on both sides of the card.

3. Finish by pushing the release tab back to its original (locked) position.

5-7   Motherboard Details

Figure 5-4. SUPER X9SCL Layout
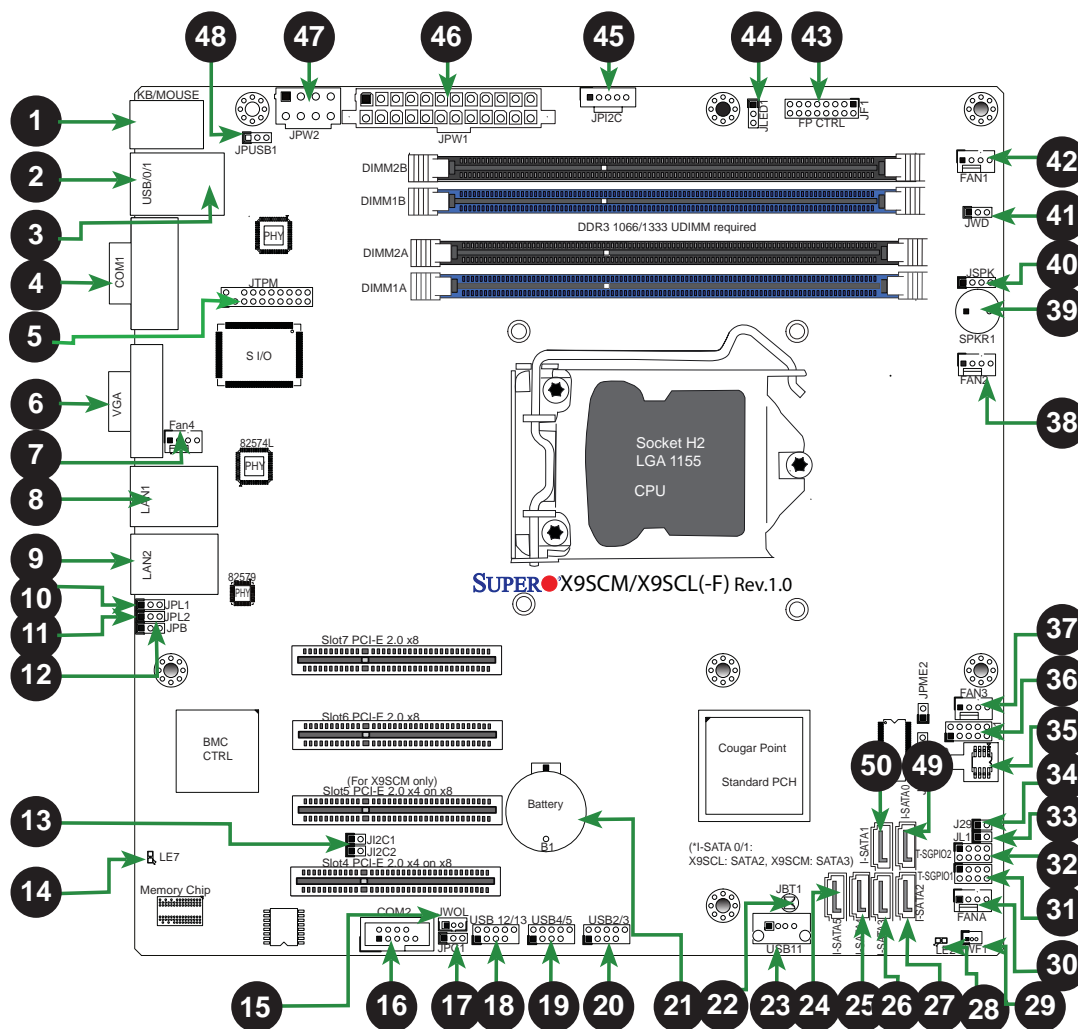
Jumpers			
Number	**Jumper**	**Description**	**Default**
34	J29	SPI Programming (internal use)	Closed (Normal)
22	JBT1	CMOS Clear	See Section 5-9
13	JI²C1/JI²C2	SMB to PCI Slots	See Section 5-9
12	JPB	BMC Enable	Pins 1-2 (Enabled)
17	JPG1	Onboard VGA Enable	Pins 1-2 (Enabled)
10,11	JPL1/JPL2	LAN1/LAN2 Enable	Pins 1-2 (Enabled)
48	JPUSB1	BP USB 0/1 Wake-Up Enable	Pins 1-2 (Enabled)
41	JWD	Watch Dog Timer Enable	Pins 1-2 (Reset)

Headers/Connectors		
Number	Connector	Description
21	B1	Onboard Battery
4,16	COM1/COM2	COM1/2 Serial Port/Header
35	BIOS	SPI BIOS
42,38,37,7,30	Fans 1~4, Fan A	System/CPU Fan Headers
36	J31	SPI Programming (internal use)
43	JF1	Front Panel Control Header
33	JL1	Chassis Intrusion Header
44	JLED1	Power LED Indicator Header
46	JPW1	24-pin ATX Main Power Connector
47	JPW2	+12V 8-pin CPU power Connector
1	KB/Mouse	Keyboard/Mouse Connectors
8,9,3	LAN1/LAN2	Gigabit (RJ45) Ports (LAN1/2)
49,50,25-7,24	I-SATA 0~5	SATA 2.0 (2/3/4/5 ports) SATA3 (0/1 ports)
45	JPI^{2}C	PWR supply (I^{2}C) System Management Bus
40	JSPK	Speaker Header
5	JTPM	Trusted Platform Module (TPM) Header
29	JWF1	SATA DOM Power Connector
15	JWOL	Wake On LAN Header
39	SPKR1	Internal Speaker/Buzzer
31, 32	T-SGPIO-1/2	Serial Link General Purpose I/O 1/2 Headers (5V Gen1/Gen 2)
2	USB0/1	Backpanel USB 0/1
20,19,18	USB2/3, USB4/5, USB12/13	Front Accessible USB Headers
23	USB11	Front Accessible Type A USB Connector
6	VGA	Onboard Video Port

LED Indicator		
Number	LED	Description
28	LE2	Onboard Standby PWR LED

5-8   Connector Definitions

ATX Power 24-pin Connector Pin Definitions (JPW1)			
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

ATX Power Connector

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

Processor 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.

Processor Power Pin Definitions (JPW2)	
Pins	Definition
1 through 4	Ground
5 through 8	+12V

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	+5V
16	Ground

HDD LED

The HDD LED connections are located on pins 13 and 14 of JF1. Attach a cable here to indicate HDD activity. See the table on the right for pin definitions.

HDD LED Pin Definitions (JF1)	
Pin#	Definition
13	+5V
14	HD Active

NIC1/NIC2 (LAN1/LAN2)

The NIC (Network Interface Controller) LED connection for LAN port 1 is located on pins 11 and 12 of JF1, and the LED connection for LAN Port 2 is on Pins 9 and 10. NIC1 LED and NIC2 LED are 2-pin NIC LED headers. Attach NIC LED cables to NIC1 LED and NIC2 LED to display network activities for LAN 1 and LAN2. Refer to the table on the right for pin definitions.

LAN1/LAN2 LED Pin Definitions (JF1)	
Pin#	Definition
9/11	Vcc
10/12	LAN Act

Overheat (OH)/Fan Fail/Front UID LED

Connect an LED cable to the Front UID and OH/Fan Fail connections on pins 7 and 8 of JF1 to display UID (Unit ID) signals or to provide advanced warnings for chassis overheat/fan failure. Refer to the table on the right for pin definitions.

OH/Fan Fail LED Pin Definitions (JF1)	
Pin#	Definition
7	Vcc/Blue UID LED
8	OH/Fan Fail LED

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

Reset Button

The Reset Button connection is located on pins 3 and 4 of JF1. Attach it to a the hardware Reset Button 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 config-ured to function as a suspend button (see BIOS Setup). To turn off the power in the 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	GND

Universal Serial Bus (USB)

Two Universal Serial Bus ports (USB 0/1) are located on the I/O backpanel and an additional six USB ports in three headers, USB2/3, 4/5, 12/13 provide front/back chassis access. USB 11 is a Type A USB connector. (USB cables are not included). See the tables on the right for pin definitions.

Back Panel USB0/1 Pin Definitions			
Pin#	Definition	Pin#	Definition
1	+5V	5	+5V
2	USB_PN1	6	USB_PN0
3	USB_PP1	7	USB_PP0
4	Ground	8	Ground

Front/Back Panel USB2/3, 11, 12/13 Pin Definitions			
USB 2/4/11/12		USB 3/5/13	
Pin #	Definition	Pin #	Definition
1	+5V	6	+5V
2	USB_PN2	7	USB_PN3
3	USB_PP2	8	USB_PP3
4	Ground	9	Ground
5	No Connection	10	Key

Serial Ports

The COM1 Port is located on the I/O backpanel. COM2 is a header located on the the motherboard. See the table on the right for pin definitions.

Serial Port Pin Definitions (COM1/COM2)			
Pin #	Definition	Pin #	Definition
1	CDC	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	Ground	10	NC

Ethernet Ports

Two Ethernet ports (LAN1/LAN2) are located next to the VGA port on the I/O back panel. These ports accept RJ45 type connectors/cables.

LAN Port Pin Definitions			
Pin#	Definition		
1	GND	9	TD0+
2	Vcc19-LAN	10	TD0
3	TD3+	11	Link 100 LED
4	TD3-	12	Link 100 LED
5	TD2+-	13	3.3V
6	TD2-	14	Act LED
7	TD1+-	15	GND
8	TD1-	16	GND

NC = No connection

Fan Headers

The X9SCL has five fan headers (Fan1 ~ Fan4 and FanA). These are all 4-pin fan headers, however pins 1-3 are backward compatible with traditional 3-pin fans. A fan speed control setting in the BIOS (Hardware Monitoring section) allows the BIOS to automatically set fan speeds based on the system temperature. Refer to the table on the right for pin definitions.

Note: Please use all 3-pin fans or all 4-pin fans on the motherboard. Do not mix 3-pin fans and 4-pin fans on the same board.

Fan Header Pin Definitions	
Pin#	Definition
1	Ground (Black)
2	2.5A/+12V (Red)
3	Tachometer
4	PWM_Control

Chassis Intrusion

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

Chassis Intrusion Pin Definitions	
Pin#	Definition
1	Intrusion Input
2	Ground

ATX PS/2 Keyboard and PS/2 Mouse Ports

The ATX PS/2 keyboard and the PS/2 mouse ports are located beside the USB ports. See the table on the right for pin definitions.

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

External Speaker

On the JSPK header, pins 3~4 are used to activate the onboard (internal) speaker. Close pins 3~4 with a jumper to use the onboard speaker. If you wish to use an external speaker, attach the external speaker's cable to pins 1~4. 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

Trusted Platform Module Header

This header is used to connect a Trusted Platform Module (TPM), available separately from a third-party vendor. A TPM is a security device that allows encryption and authentication of hard drives, disallowing access if the TPM associated with it is not installed in the system. See the table on the right for pin definitions.

Trusted Platform Module Header Pin Definitions			
Pin #	Definition	Pin #	Definition
1	LCLK	2	GND
3	LFRAME	4	No Pin
5	LRESET	6	VCC5
7	LAD3	8	LAD2
9	VCC3	10	LAD1
11	LAD0	12	GND
13	RSV0	14	RSV1
15	SB3V	16	SERIRQ
17	GND	18	CLKRUN
19	LPCPD	20	RSV2

Onboard Power LED

An onboard Power LED header is located at JLED. This Power LED header is connected to the Control Panel header (JF1) to indicate the status of system power. See the table on the right for pin definitions.

Onboard PWR LED Pin Definitions	
Pin#	Definition
1	VCC
2	No Connection
3	Connection to PWR LED in JF1

Power Supply I²C Connector

The Power Supply (I²C) connector is located at JPI²C on the motherboard. This connector 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

Wake-On-LAN

The Wake-On-LAN header is located at JWOL on the motherboard. See the table on the right for pin definitions. (You must also have a LAN card with a Wake-On-LAN connector and cable to use this feature.)

Wake-On-LAN Pin Definitions (JWOL)	
Pin#	Definition
1	+5V Standby
2	Ground
3	Wake-up

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

DOM PWR Connector

A Disk On Module (DOM) Power Connector is located at JWF1. This connector is used to provide power to auxilliary flash memory media attached to a SATA port. See the table on the right for pin definitions.

DOM PWR Connector Pin Definitions	
Pin	Definition
1	5V
2	Ground
3	Ground

T-SGPIO 1/2 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.

SGPIO Header Pin Definitions			
Pin#	Definition	Pin	Definition
2	NC	1	NC
4	Data Out	3	Ground
6	Ground	5	Load
8	NC	7	Clock

NC = No connection

5-9   Jumper Settings

Explanation of Jumpers

To modify the operation of the mother-
board, jumpers can be used to choose
between optional settings. Jumpers cre-
ate 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 diagram at
right for an example of jumping pins 1 and
2. Refer to the motherboard layout page
for jumper locations.
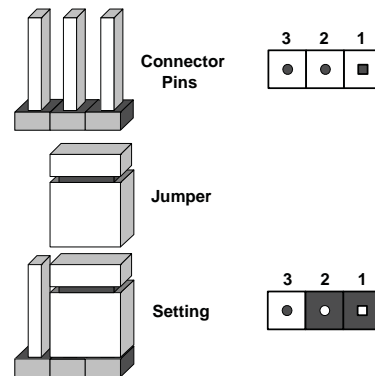
Note: On two-pin jumpers, "Closed" means
the jumper is on and "Open" means the
jumper is off the pins.

CMOS Clear

JBT1 is used to clear CMOS and will also clear any passwords. Instead of pins,
this jumper consists of contact pads to prevent accidentally clearing the contents
of CMOS.

To Clear CMOS

1.   First power down the system and unplug the power cord(s).

2.   With the power disconnected, short the CMOS pads with a metal object such
     as a small screwdriver.

3.   Remove the screwdriver (or shorting device).

4.   Reconnect the power cord(s) and power on the system.

Note: *Do not use the PW_ON connector to clear CMOS.*

VGA Enable/Disable

JPG1 allows you to enable or disable the
VGA port. The default position is on pins
1 and 2 to enable VGA. See the table on
the right for jumper settings.

VGA Enable/Disable Jumper Settings (JPG1)	
Jumper Setting	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

PCI Slot SMB Enable

Use jumpers JI²C1/JI²C2 to enable PCI SMB (System Management Bus) support to improve system management for the PCI slots. Default is disabled. See the table on the right for jumper settings.

PCI Slot SMB Enable/Disable Jumper Settings	
Jumper Setting	Definition
Closed	Enabled
Open (Default)	Disabled

LAN Port Enable/Disable

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

LAN Port En/Disable Jumper Settings	
Pin#	Definition
1-2	Enabled
2-3	Disabled

USB Wake-Up

Use the JPUSB1 jumper to wake your system by pressing a key on a USB keyboard or clicking USB mouse. This jumper is used together with the USB Wake-Up feature in the BIOS. Enable this jumper and the USB feature in the BIOS to wake-up your system via USB devices. The default setting is enabled.

USB Wake-up Jumper Settings	
Pin#	Definition
1-2	Enabled (Default)
2-3	Disabled

BMC Enable/Disable

JPB is used to enable or disable the BMC (Baseboard Management Control) chip and the onboard IPMI connection. This jumper is used together with the IPMI settings in the BIOS. The default position is on pins 1 and 2 to Enable BMC. See the table on the right for jumper settings.

BMC IPMI Enable/Disable Jumper Settings	
Settings	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

Watch Dog Enable

Watch Dog is a system monitor that can reboot the system when a software application hangs. Close pins 1-2 to reset the system if an application hangs. Close pins 2-3 to generate a non-maskable interrupt signal for the application that hangs. See the table on the right for jumper settings. Watch Dog must also be enabled in the BIOS.

Watch Dog Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Reset (default)
Pins 2-3	NMI
Open	Disabled

5-10 Onboard Indicators

LAN1/LAN2 LEDs

The Ethernet ports (located beside the VGA port) have two LEDs. On each Giga-bit LAN port, the yellow LED indicates activity when blinking while the other LED may be green, amber or off to indicate the speed of the connection. See the table on the right for the functions associated with the connection speed LED.

LAN LED Connection Speed Indicator	
LED State	Definition
Off	No connection or 10 Mb/s
Green	100 Mb/s
Amber	1 Gb/s

Onboard Standby Power LED

An Onboard Standby Power LED is located at LE2 on the motherboard. When LE2 is on, the AC power cable is connected. Make sure to disconnect the power cable before removing or installing any component.

Onboard Standby PWR LED	
LED State	Definition
Off	System Off
On	System on, or System off and PWR Cable Connected

5-11 SATA Drive Connections

SATA Ports

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

The SATA0/1 ports support SATA3 while ports 2 through 5 support SATA2.

SATA Port Pin Definitions (SATA0 ~ SATA5)	
Pin #	Definition
1	Ground
2	TXP
3	TXN
4	Ground
5	RXN
6	RXP
7	Ground

5-12 Installing Drivers

After all the hardware and operating system have been installed, you need to install certain drivers. The necessary drivers are all included on the Supermicro CD that came packaged with your motherboard. After inserting this CD into your CD-ROM drive, the display shown in Figure 5-4 should appear. (If this display does not appear, click on the My Computer icon and then on the icon representing your CD-ROM drive. Finally, double click on the S "Setup" icon.)

Figure 5-4. Driver Installation Display Screen
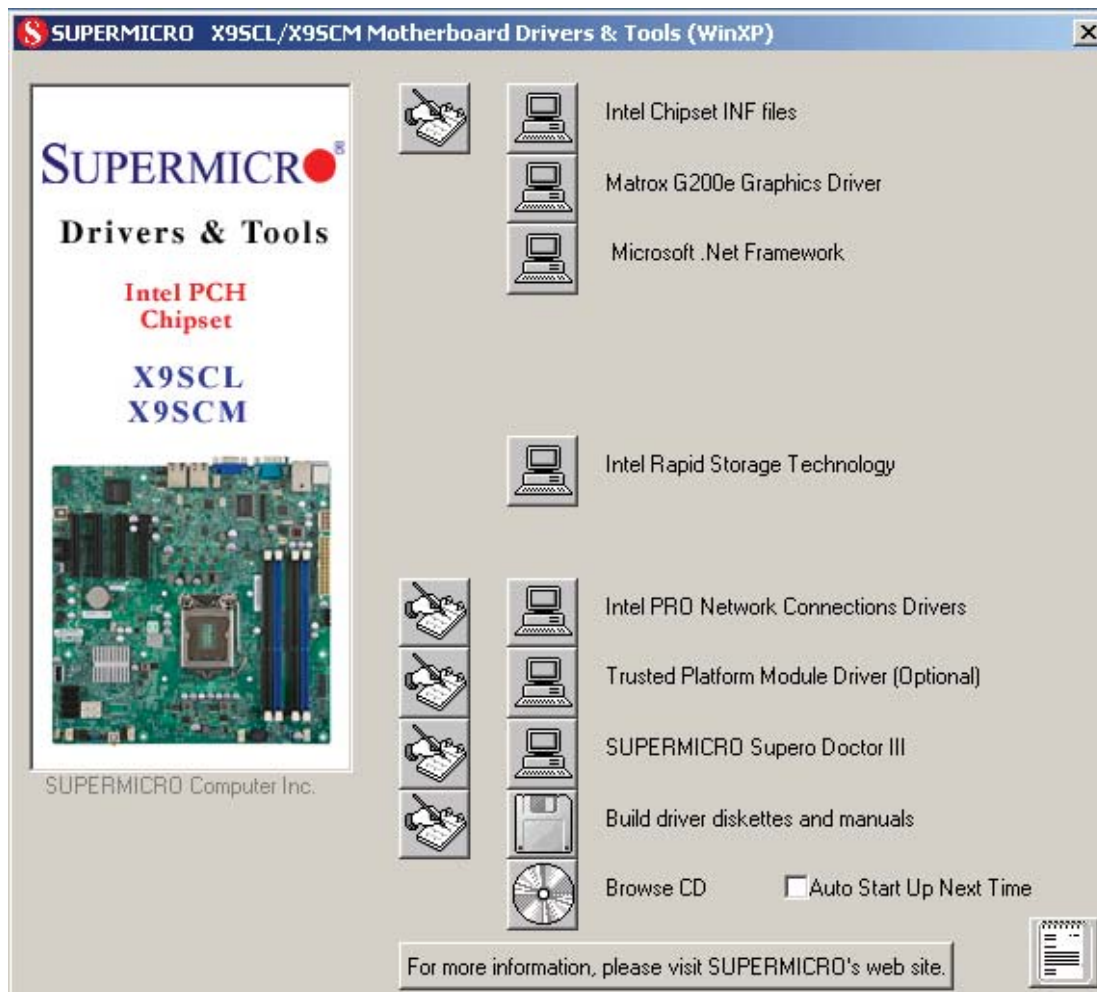
Click the icons showing a hand writing on paper to view the readme files for each item. Click the tabs to the right of these *in order from top to bottom* to install each item one at a time. **After installing each item, you must reboot the system before moving on to the next item on the list.** You should install everything here except for the SUPER Doctor utility, which is optional. The bottom icon with a CD on it allows you to view the entire contents of the CD.

Supero Doctor III

The Supero Doctor III program is a Web base management tool that supports remote management capability. It includes Remote and Local Management tools. The local management is called SD III Client. The Supero Doctor III program included on the CDROM that came with your serverboard 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: The default User Name and Password for SuperDoctor III is ADMIN / AD-MIN.

Note: When SuperDoctor III is first installed, it adopts the temperature threshold settings that have been set in BIOS. Any subsequent changes to these thresholds must be made within Super Doctor, as the Super Doctor settings override the BIOS settings. To set the BIOS temperature threshold settings again, you would first need to uninstall SuperDoctor III.

Supero Doctor III Interface Display Screen (Health Information)
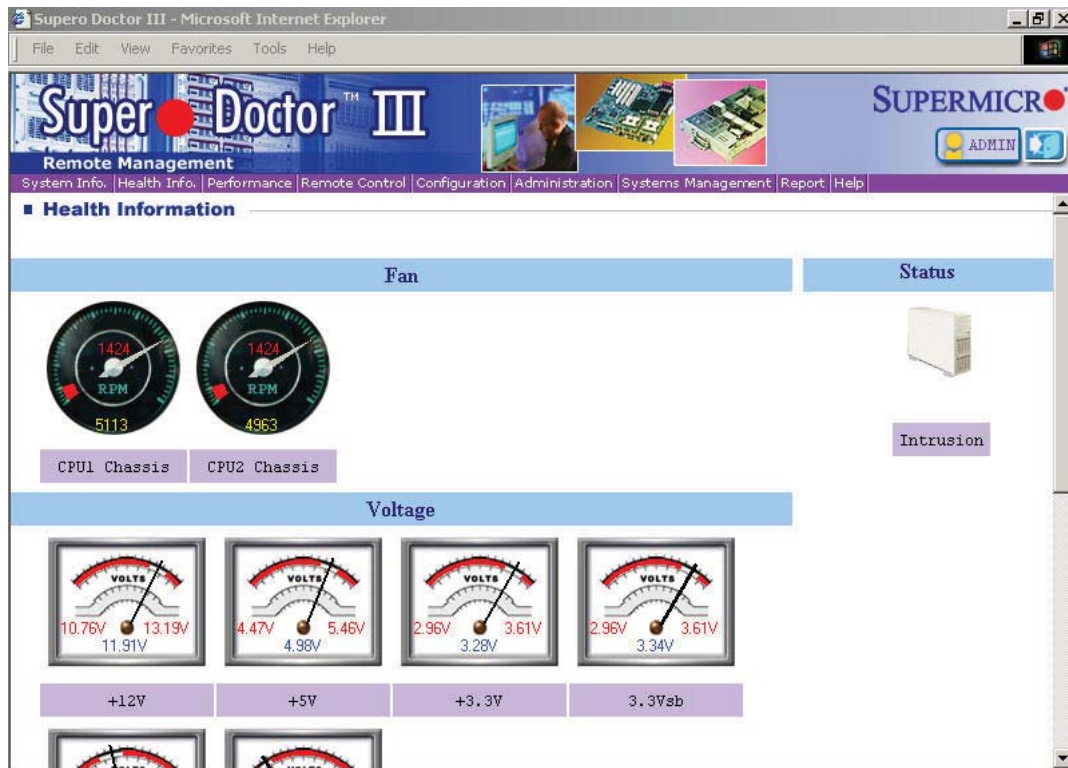
Supero Doctor III Interface Display Screen (Remote Control)

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/manuals/other/SDIII_User_Guide.pdf. For
Linux, we will still recommend Supero Doctor II.

Chapter 6

Advanced Chassis Setup

This chapter covers the steps required to install components and perform simple maintenance on the SC731i-300B chassis. Following the component installation steps in the order given will eliminate most common problems. If some steps are unnecessary, skip ahead to the next step.

Tools Required

The only tool you will need is a Philips screwdriver.

6-1   Static-Sensitive Devices

Static electrical discharge can damage electronic components. To prevent damage to any printed circuit boards (PCBs), it is important to handle them very carefully. The following measures are generally sufficient to protect your equipment from static discharge.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.

- Touch a grounded metal object before removing any board from its antistatic bag.

- Handle a 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, add-on cards 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.

Unpacking

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

6-2 Front Control Panel

The front control panel must be connected to the JF1 connector on the motherboard to provide you with system status and alarm indications. A ribbon cable has bundled these wires together to simplify this connection. <u>Connect the cable from JF1 on the motherboard (making sure the red wire plugs into pin 1) to the appropriate comnnector on the front control panel PCB (printed circuit board).</u> Pull all excess cabling over to the control panel side of the chassis.

The LEDs inform you of system status - see Figure 6-1 for details. See Chapter 5 for details on JF1.

Figure 6-1. Front Control Panel LEDs

HDD — Indicates SATA hard disk/CD-ROM drive activity.

NIC — Indicates network activity the GLAN port.

Overheat — Indicates an overheat condition or fan failure.

Power On — Indicates the system is powered on.

Figure 6-2. Chassis Rear View
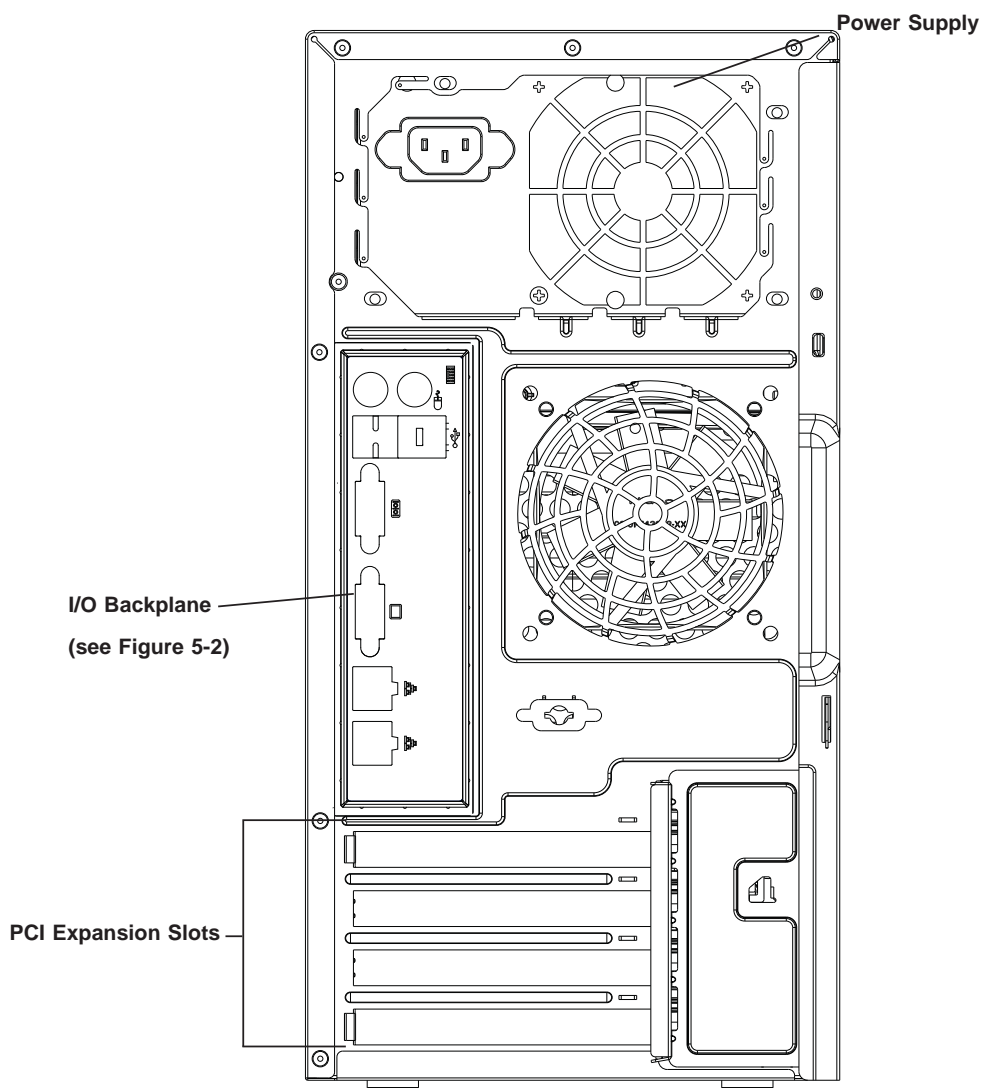
6-3   Front Bezel

A bezel may be installed to cover the front of the chassis.

Front Bezel Installation

1. Remove the dummy cover (A) on the peripheral drive bay.

2. Push the front bezel into place on the front of the chassis to complete the installation (see Figure 6-4).

1

Remove the Dummy Cover (A)

2
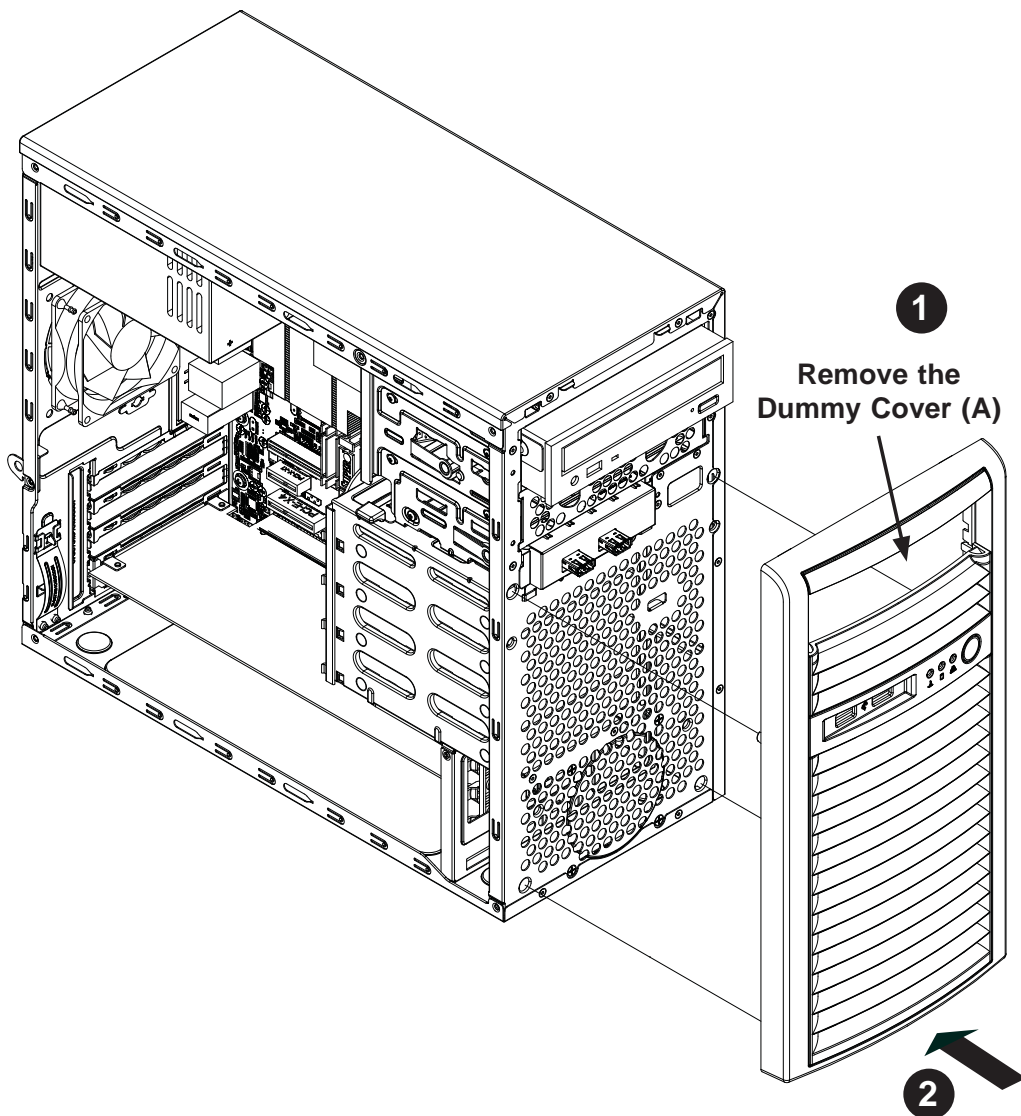
Figure 6-3: Installing the Front Bezel

6-4   Removing the Chassis Cover

The left side cover of the chassis must be removed before replacing the system fan or installing and removing hard drives.

!   **Warning:** Only qualified service technicians should access the inside of the system. Except for short periods of time, do NOT operate the system without the cover in place. The chassis cover must be in place to allow proper airflow and prevent overheating.
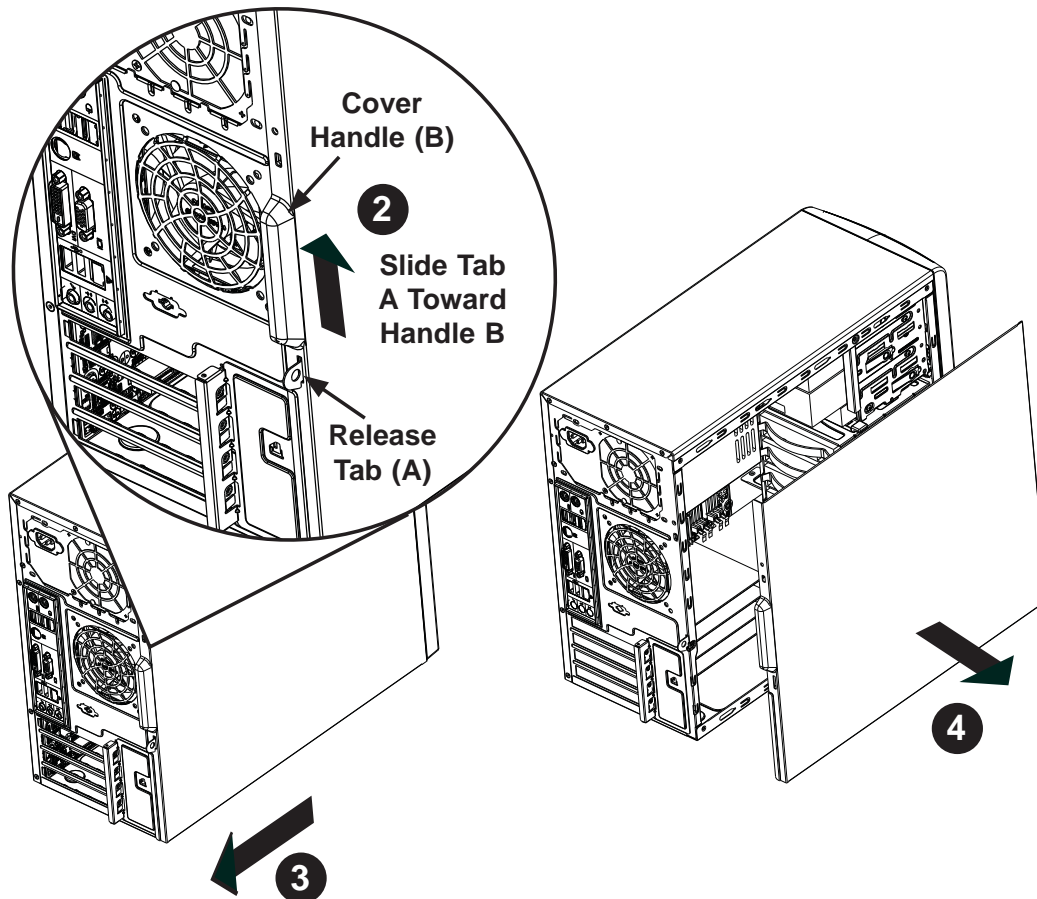
Figure 6-4: Removing the Chassis Cover

Removing the Chassis Cover:

1. Power down the server and disconnect it from the power source.

2. Slide the release tab (A) towards the cover handle (B).

3. Grasp the cover handle with your fingers and slide it toward the rear of the chassis

4. Remove the cover from the chassis.

6-5   System Fans

The SC731 includes a super quiet system fan that provides cooling for the chassis. No tools or screws are required to install the system fan.

Fan Failure

Under normal operation, the chassis fan and the power supply fan both run continuously. If the chassis fan fails, the system must be powered down before replacing it. If the power supply fan fails, the power supply itself must be replaced.

Replacing the System Fan

1.   Power down the server and disconnect it from the power source.

2.   Remove the left chassis cover as described in Section 6-4.

3.   Insert the four rubber pins into the four mounting holes surrounding the fan grill on the rear of the chassis.

4.   Place the system fan on top of the fan grill, aligning the mounting holes of the fan grill with the mounting holes of the system fan.

5.   Pull the rubber pins through the mounting holes of the system fan to secure the fan to the chassis.

Figure 6-5. Replacing the System Fan
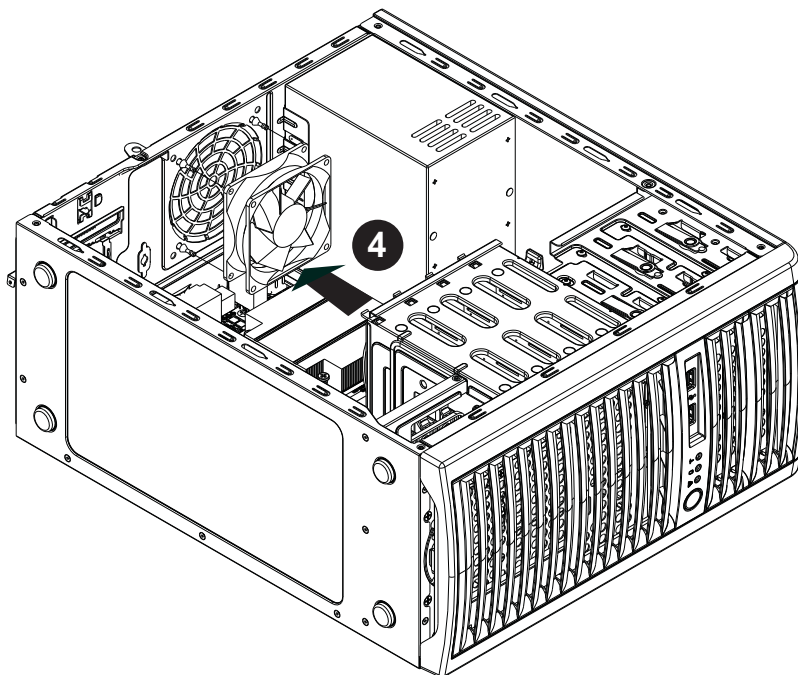
6-6   Drive Bay Installation

The SC731 chassis must be powered-down before hard drives can be removed from the hard drive carriers, which are not hot-swappable.

SATA Drives

The SATA drive IDs are preconfigured as 0 through 3 in order from bottom to top. In order to access and install components in the chassis interior, it is necessary to rotate the hard drive cage. This will provide sufficient room to install and configure the chassis components. See Figures 6-6 and 6-7.

Rotating the Hard Drive Cage

1. Power down the server and disconnect it from the power source.

2. Remove the left chassis cover as described in Section 6-4.

3. Lift the release tab (A).

4. Rotate the hard disk drive cage (B) outward.

Removing and Installing Hard Drives

1. Rotate the hard drive cage as described above.

2. Press the release tab on the side of the hard drive carrier that is to be re-moved from the hard drive cage.

3. Gently slide the hard drive carrier out of the hard drive cage. See Figure 6-6.

Mounting a SATA Drive in a Drive Carrier

1. Insert a new hard drive into a hard drive carrier by sliding it towards the back of the the hard drive cage until it clicks into a locked position.

2. Connect the power and data cables to the hard drive.

3. Rotate the hard drive cage 90 degrees inward, returning it to the closed, operational position in the chassis.

4. If desired, each hard drive may be further secured to the drive cage with an additional (optional) screw at the middle of the drive.

Release Tab (A)

HDD Cage (B)
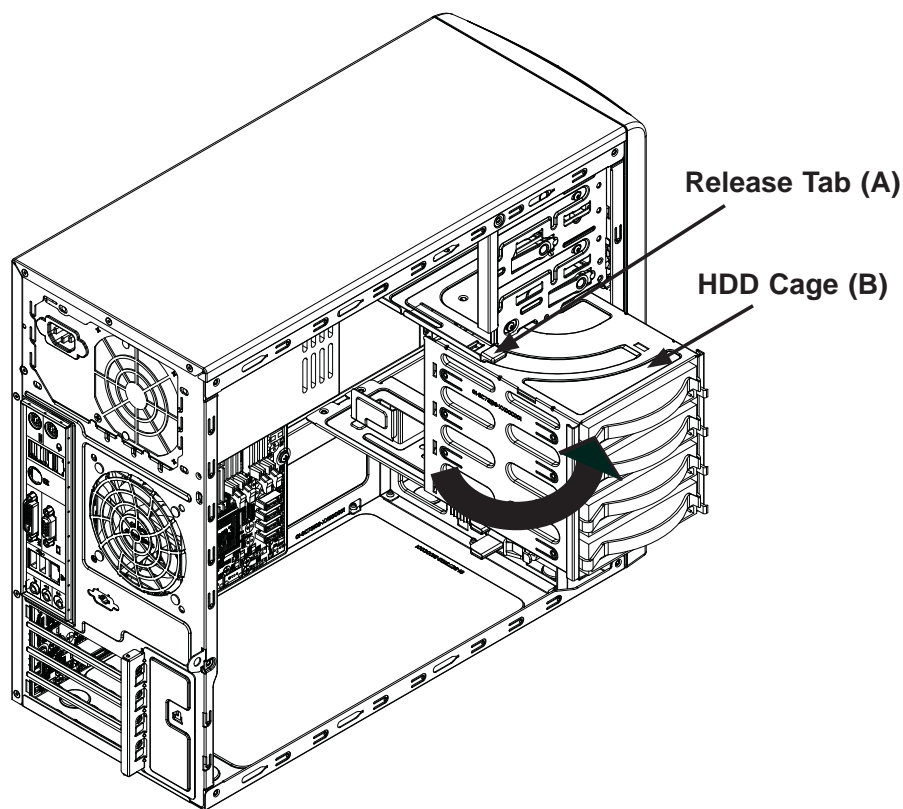
Figure 6-6: Rotating the Hard Drive Cage

3

2

Release Tabs
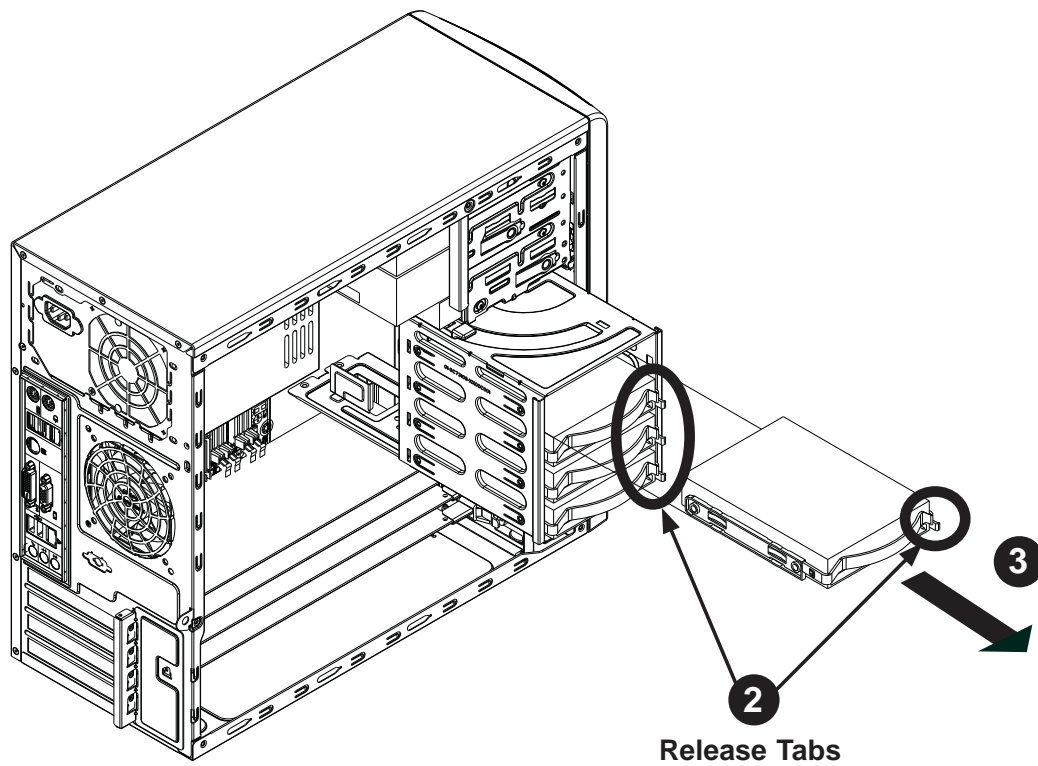
Figure 6-7: Removing a Hard Drive Carrier from the Hard Drive Cage

Installing Drives in the Optional Drive Bays

The SC731 chassis has two empty drive bays that support optional devices such as a DVD-ROM.

Installing an Optional Device

1. Power down the server and disconnect it from the power source.

2. Remove the front bezel from the chassis by lifting it upwards from the bottom, and pulling off the front of the chassis.

3. Remove the cover plate from the optical device slot on the front of the chassis.

4. Install the bracket rail (A) onto one side of the device by inserting the pins of the bracket into the mounting holes on the side of the device.

5. Slide the device into the chassis.

6. If desired, screws may be used to secure the device into chassis.

7. Attach the power and data cables to the drive.

8. Replace the chassis cover before restoring power to the system.
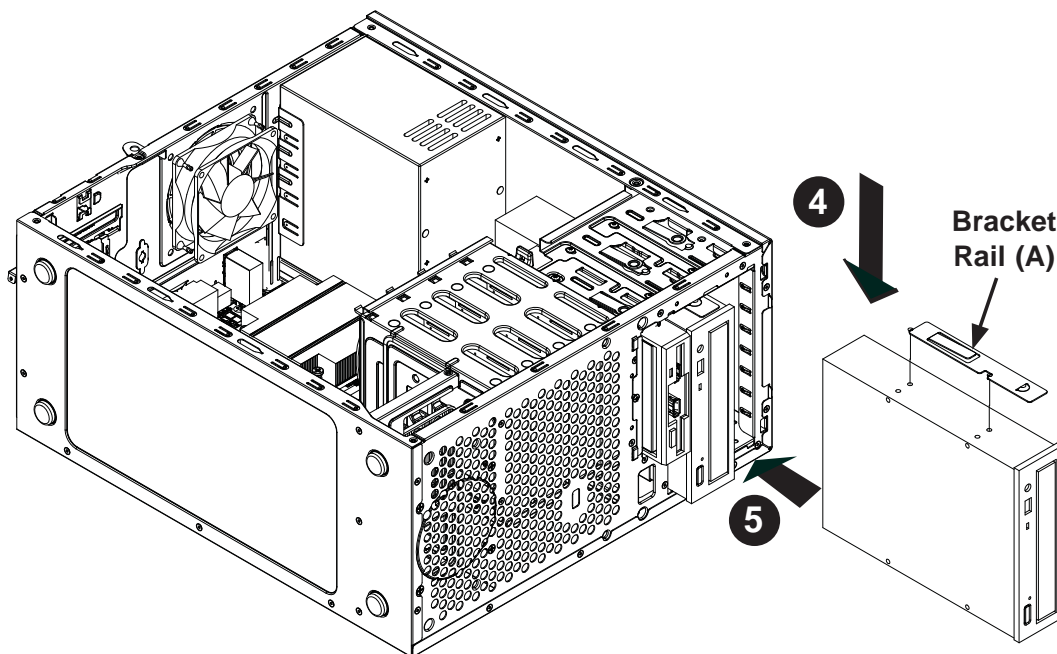
Figure 6-8: Installing an Optional Device

6-7   Power Supply

The SC731 chassis includes a 300-watt power supply. The power supply has the capability to automatically sense and operate with an input voltage of 100 or 240V AC.

If it becomes necessary to replace the power supply, follow the instructions below.

Replacing the Power Supply

1. Disconnect the chassis from any power source. Also disconnect all power cables that are connected to the motherboard.

2. Remove the screws securing the power supply to the chassis. These are located on the rear of the chassis. Set these screws aside for later use.

3. Gently lift the power supply out of the chassis.

4. Replace the failed power supply with an identical power supply model.

5. Secure the new power supply using the screws previously set aside.

6. Reconnect the power cables to the motherboard.

7. Plug the AC power cord back into the module and power up the server.

8. Finish by replacing the chassis left cover and then restoring power to the system.

Chapter 7

BIOS

7-1　Introduction

This chapter describes the AMI BIOS Setup Utility for the X9SCL. 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.

7-2   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.

```
                        BIOS SETUP UTILTY
  Main   Advanced   Event Logs   IPMI   Boot   Security   Exit
  ─────────────────────────────────────────────────────────────────
  System Overview                              Set the time.  Use tab
  ───────────────────────────────────────      to switch between Time
  System Time          [09:20:40]              elements.
  System Date          [Tue 06/14/2010]

  Supermicro X9XXX-X
  Version              1.0
  Build Date           11/18/2010


  Processor
         Intel(R)  Core(TM) i5-2500 CPU@ 3.3GHz
  Speed                1600MHz
  Physical Count       1                       ←→ :    Select Screen
  Logical Count        4                       ↑↓  :   Select Item
                                               Enter:  Select
  System Memory                                +/- :   Change Opt.
  Size                 2048MB                  F1 :    General Help
                                               F2 :    Previous Values
                                               F3 :    Optimized Defaults
                                               F4 :    Save & Exit
                                               ESC :   Exit

          Version x.xx.xxxx. Copyright (C) 2010 American Megatrends, Inc.
```

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 X9SCM/X9SCM-F/X9SCL/X9SCL-F

Version

Build Date

Processor

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

Processor

Speed

Physical Count

Logical Count

System Memory

This displays the size of memory available in the system:

Size

7-3   Advanced Setup Configurations

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

```
                        BIOS SETUP UTILTY

  Main   Advanced   Event Logs   IPMI   Boot   Security   Exit

                                                    System Boot Feature
                                                    Setting.
   ▶ Boot Feature
   ▶ Processor & Clock Options
   ▶ Chipset Configuration
   ▶ IDE/SATA Configuration
   ▶ PCIe/PCI/PnP Configuration
   ▶ Super IO Configuration
   ▶ Remote Access Configuration
   ▶ Hardware Health Configuration
   ▶ ACPI Configuration
   ▶ Trusted Computing Configuration

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

           Version x.xx.xxxx. Copyright (C) 2010 American Megatrends, Inc.
```

▶BOOT Feature

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**.

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**.

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.

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 feature controls how the system shuts down when the power button is pressed. Select 4-Second Override to force the user to press and hold the Power Button for 4 seconds before the system turns off. Select Instant Off if you want the system to instanty power off when the Power Button is pressed. The options are 4 Second Override and **Instant Off.**

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**.

VFC

This item enables or disables the VESA Feature Connector (VFC) option. The options are **Enabled** and Disabled.

Deep Sx

Select Enabled to enable Deep Sleep State support. The settings are Enabled and **Disabled.**

▶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.

Hardware Prefetcher (Available when supported by the CPU)

If set to Enabled, the hardware pre fetcher 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 fetches the cache line for 64 bytes if this option is set to Disabled. The CPU fetches both cache lines for 128 bytes as comprised if **Enabled**.

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.)

Intel® AES-NI

Set to Enabled to use the processor's Advanced Encryption Standard (AES) feature. The options are Enabled and **Disabled**.

Intel® Hyper Threading Technology

Set to Enabled to use the processor's Hyper Threading Technology feature. The options are **Enabled** and Disabled.

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 and 3.

Power Technology

This feature determines what power-saving scheme the motherboard uses. The options are Disabled, Energy Efficient and Custom. If Custom is selected, the following options become available:

> **EIST**
>
> 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.

P-STATE Coordination

This feature selects the type of coordination for the P-State of the processor. P-State is a processor operational state that reduces the processor's voltage and frequency. This makes the processor more energy effiicient, resulting in further gains. The options are **HW_ALL**, SW_ALL and SW-ANY.

CPU C3 Report, CPU C6 Report

This BIOS feature enables or disables C3 (ACPI C2) or C6 (ACPI C3) reporting to the operating system. The options are **Disabled** 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 **C0**, C1, C6, C7 and No Limit.

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

Turbo Mode

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

Long duration power limit - this is the processor power consumption limit (in Watts) during a long duration time window.

Long duration maintained - this is the time in milliseconds where the Long Duration Power Limit is maintained.

Short duration power limit - During Turbo Mode, the system may exceed the processor's default power setting and exceed the Short Duration Power limit. By increasing this value, the processor can provide better performance for a short duration.

▶**Chipset Configuration**

WARNING: Setting the wrong values in the following sections may cause the system to malfunction.

▶**CPU Bridge Configuration**

This item displays the current CPU Revision, Current CPU1 Memory Frequency, Memory Type and Memory Reference Code Revision.

Memory Frequency

This feature allows the user to select the memory speed. Under normal conditions, please set this to Auto. The options are **Auto**, Force DDR-800, Force DDR-1067, Force DDR-1333, and Force DDR-1600.

▶**North Bridge Configuration**

This item displays the current North Bridge Revision.

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**.

PCIE Maximum Payload Size

This feature selects the setting for the PCIE maximum payload size. The options are **Auto,** 128 Bytes**,** 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, and 4096 Bytes**.**

PCI Express Port

This feature enables or disables the PCI Express port. The options are Disabled, Enabled and **Auto.**

PEG Force Gen1

This feature forces Gen1 support on the PCI Express Graphics (PEG) port. The options are **Disabled**, and Enabled**.**

Detect Non-Compliant Device

This feature enables or disables the detection of a non-compliant device that is attached to the PCI Express Graphics (PEG) port. The options are **Disabled**, and Enabled**.**

▶**South Bridge Configuration**

This item displays the current South Bridge Revision.

GbE Controller

Select Enabled to enable the onboard gigabit Ethernet controller. The settings are **Enabled** and Disabled.

Wake on LAN from S5

Select Enabled to enable the capabiltiy to 'wake-up' the system from the S5 power state (Soft Off State) through the Ethernet controller. The settings are **Enabled** and Disabled.

Legacy USB Support

This feature enables support for legacy USB devices. Select Auto to disable legacy support if USB devices are not present. Select Disable to have USB devices available only for EFI applicatioins. The options are **Enabled,** Disabled and Auto.

BIOS EHCI Hand-Off

This item is for Operating Systems that does not support Enhanced Host Controller Interface (EHCI) hand-off. When enabled, EHCI ownership change will be claimed by the EHCI driver. The settings are **Enabled** and Disabled.

▶IDE/SATA Configuration

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

SATA Mode

This item selects the mode for the installed drives. The options are Disabled, IDE Mode, **AHCI Mode** and RAID Mode.

IDE Mode

The following items are displayed when IDE Mode is selected:

Serial-ATA Controller 0~1

This feature is used to activate/deactivate the SATA controller, and sets the compatibility mode. The options are Enhanced and **Compatible.** The default of Serial-ATA Controller 1 is **Enhanced**.

SATA Port0~Port5

This item displays the information detected on the installed SATA drives on the particular SATA port.

AHCI Mode

The following items are displayed when AHCI Mode is selected:

Aggressive Link Power Management

This feature Enables or Disables Agressive Link Power Management support for Cougar Point B0 stepping and later. The options are **Enabled** and Disabled.

SATA Port0~Port5

This item displays the information detected on the installed SATA drives on the particular SATA port.

Staggered Spin Up

Set this item to Enabled to enable Staggered Spin-up support. The options are Enabled and **Disabled**.

External SATA Port

Set this item to Enabled to enable eSATA support. The options are Enabled and **Disabled**.

Hot Plug

Set this item to Enabled to enable hot-plugging. The options are Enabled and **Disabled**.

RAID Mode

The following items are displayed when RAID Mode is selected:

SATA Port0~Port5

This item displays the information detected on the installed SATA drives on the particular SATA port.

Hot Plug

Set this item to Enabled to enable hot-plugging. The options are Enabled and **Disabled**.

▶PCIe/PCI/PnP Configuration

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

PCI ROM Priority

In case of multiple Option ROMs (Legacy and EFI-compatible), this feature specifies what ROM to launch. The options are **Legacy ROM** and EFI Compatible ROM.

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.

SR-IOV Support

Single Root I/O Virtualization (SR-IOV) is a specification that allows a PCIe device to appear as multiple physical devices to the system. The options are **Disabled** and Enabled.

PCI-E Slot 4, 5, 6, & 7 OPROM

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

Onboard LAN 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 Offboard VGA and **Onboard VGA**.

▶**Super IO Device Configuration**

Serial Port 1 / Serial Port 2

Select Enabled to enable the onboard serial port. The options are **Enabled** and Disabled.

Serial Port1 Settings/ Serial Port2 Settings

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**, 3E8/IRQ4, 2F8/IRQ3 and 2E8/IRQ3. The options for Serial Port2 are Disabled, 3F8/IRQ4, 3E8/IRQ4, **2F8/IRQ3**, and 2E8/IRQ3.

Serial Port 2 Mode

Use this feature to configure Serial Port 2 mode. The options are **Normal,** IrDA and ASK IR. IrDA (Infrared Data) is an industry standard for remote control devices. ASK IR (Amplitude Shifted Keying Infrared) is a protocol compatible with Sharp® branded PDAs and other infrared devices.

▶Remote Access Configuration

COM0/COM1/SOL Console Redirection

Use this feature to enable console redirection for COM0 and COM1 ports. The options are **Enabled** and Disabled. The default for all ports are Disabled.

▶Console Redirection Settings

Configure the following options for the Console Redirection Settings. The most common settings are set as default:

Terminal Type : Select **ANS**I, VT100, VT100+, or VT-UTF8

Bits per Second (BPS): 9600, 19200, 57600, or **115200**

Data Bits: **8** or 7

Parity: **None**, Even, Odd, Mark, or Space

Stop Bits: **1** or 2

Flow Control: **None** or Hardware RTS/CTS

Recorder Mode: **Disabled** or Enabled

Resolution 100x31: **Disabled** or Enabled

Legacy OS Redirection Resolution: **80x24** or 80x25

Serial Port for Out-of-Band Management / Windows Emergency Management Services (EMS)

Use this feature to enable console redirection. The options are **Enabled** and Disabled. The default is Disabled.

▶Console Redirection Settings

Configure the following options for the Console Redirection Settings. The most common settings are set as default:

Out-of-Band Mgmt Port: **COM1**, COM2, SOL, COM4

Terminal Type : Select ANSI, VT100, VT100+, or **VT-UTF8**

Bits per Second (BPS): 9600, 19200, 57600, or **115200**

Data Bits: **8** or 7

Parity: **None**, Even, Odd, Mark, or Space

Stop Bits: **1** or 2

▶Hardware Health Configuration

Fan Speed Control Mode

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. This setting is recommended for special system configuration or debugging. Select "Standard" 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. This setting is recommended for regular systems with normal hardware configurations. Select "Optimal" 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), **Standard** (@50% of PWM Cycle), and Optimal (@30% of PWM Cycle).

CPU Temperature Display Mode

This feature displays the CPU temperature detected by DTS (i.e., +34°C) or temperature status in text ("Low", "Medium" or "High"). The options are **Text Mode** or DTS.

If Text Mode is selected, the CPU Temperature Display Mode will show the CPU temperature status as follows:

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 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.

Fan1 ~ Fan4, FanA Reading

This feature displays the fan speed readings from fan interfaces Fan1 through Fan4 and FanA.

12V, VDIMM, 5VCC, -12V, AVCC, 3.3VCC, VSB, VBAT

This feature displays the current voltages of the above voltage monitors.

▶ACPI Configuration

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

High Performance Event Timers

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.

Suspend Mode

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

NUMA Support

This feature Enables the Non-Uniform Memory Access ACPI support. The options are **Enabled** and Disabled.

WHEA Support

This feature Enables the Windows Hardware Error Architecture (WHEA) support for the Windows 2008 operating system (and later versions). The options are **Enabled** and Disabled.

7-4   Event Logs

```
                            BIOS SETUP UTILTY
   Main   Advanced   Event Logs   IPMI   Boot   Security   Exit

 ▶ Change Smbios Event Log Settings                       Press <Enter> to change
                                                          the Smbios Event Log
     View Smbios Event Log                                configuration.
     View System Event Log




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

           Version x.xx.xxxx. Copyright (C) 2010 American Megatrends, Inc.
```

Smbios Event Log

Change this item to enable or disable all features of the Smbios Event Logging during boot. The options are **Enabled** and Disabled.

Erase Event Log

This option erases all logged events. The options are **No**, Yes, Next reset and Yes, Every reset.

When Log is Full

This option automatically clears the Event Log memory of all messages when it is full. The options are **Do Nothing** and Erase Immediately.

MECI

The Multiple Event Count Increment (MECI) counter counts the number of oc-curences a duplicate event must happen before the MECI counter is incremented. This is a numeric value.

METW

The Multiple Event Time Window (METW) defines number of minutes must pass between duplicate log events before MECI is incremented. This is in minutes, from 0 to 99.

7-5 IPMI Configuration (X9SCL-F/X9SCM-F Only)

Intelligent Platform Management Interface (IPMI) is a set of common interfaces that IT administrators can use to monitor system health and to manage the system as a whole. For more information on the IPMI specifications, please visit Intel's website at www.intel.com.

```
                              BIOS SETUP UTILTY
   Main   Advanced   Event Logs   IPMI   Boot   Security   Exit

   BMC Support                    [Enabled]              Enable/Disable
   Wait For BMC                   [Disabled]             interfaces to
 ▶ BMC self test log                                     communicate with BMC
 ▶ System Event log
 ▶ View FRU information
 ▶ BMC network configuration


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

             Version x.xx.xxxx. Copyright (C) 2010 American Megatrends, Inc.
```

BMC Support

This feature enables or disables the installed Baseboard Management Controller (BMC) on the motherboard. The options are **Enabled** and Disabled.

Wait For BMC

If enabled, the system will wait for a BMC response after the AC power is turned on. It takes around 30 seconds to initialize Host to BMC interfaces. The options are **Disabled** and Enabled.

▶BMC Self Test Log

This feature logs any BMC messages returned during a BMC self-test. It shows the total number of entries and will allow the viewing of each event by scrolling down.

    Erase Log - Select **Yes, On every reset** or No.

    When Log is Full - Select **Clear Log** or Do Not Log Anymore.

▶System Event Log

This feature is used to change the Sytem Event Log (SEL) configuration.

SEL Components - Change this item to enable or disable all features of System Event Logging. The options are Enabled and Disabled. When Enabled, the following can be configured:

Erase SEL - This option erases all logged SEL events. The options are No, Yes, On Next reset and Yes, On Every reset.

When SEL Full

This option automatically clears the System Event Log memory of all messages when it is full. The options are **Do Nothing** and Erase Immediately.

Log EFI Status Codes

This option enables or disables the logging of Extensible Firmware Interface (EFI) status codes. The options are Disabled, **Both**, Error Code and Progress Code.

▶**View FRU Information**

This is an informational item which displays the information pertaining to this motherboard (FRU - Field Replaceable Unit).

▶**BMC Network Configuration**

Set this feature to configure the IPMI LAN adapter with a network address.

Configuration Source

This feature selects whether the IP address, Subnet Mask and Gateway Address are automatically assigned by the network's DHCP server (Dynamic Host and Configuration Protocol) "Dynamic" or manually entered by the user "Sta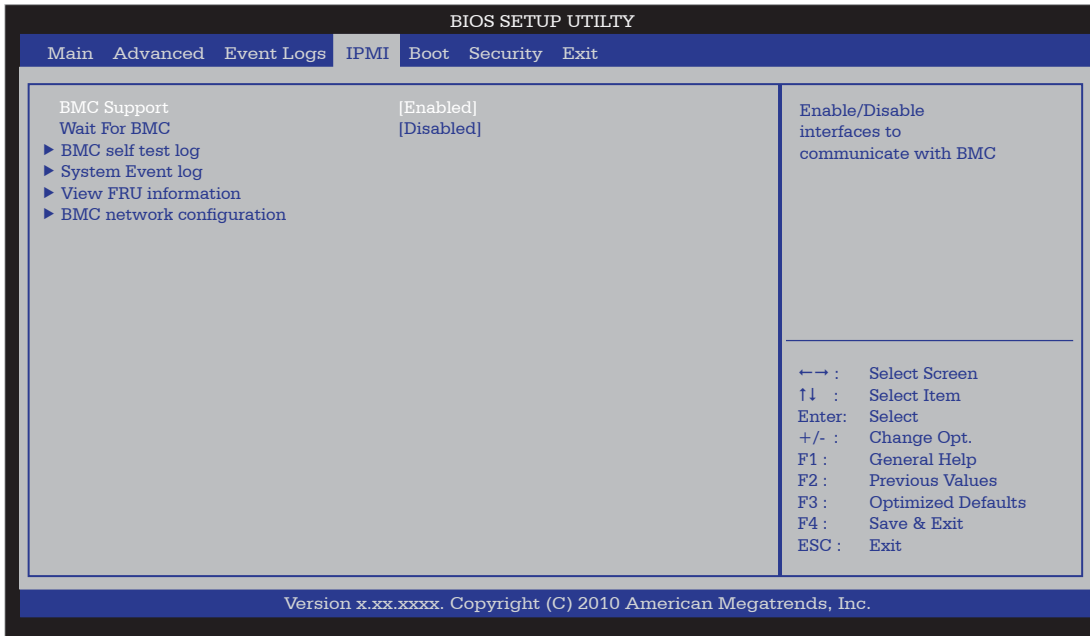tic". If Static is selected, the IP Address, Subnet Mask and Gateway Address must be manually entered below. The options are Static, Dynamic and **Do Nothing**. The following items are displayed when Static is selected:

Station IP Address - Enter the IP address for this machine. This should be in decimal and in dotted quad form (i.e., 192.168.10.253). The value of each three-digit number separated by dots should not exceed 255.

Subnet Mask - Subnet masks tell the network which subnet this machine belongs to. The value of each three-digit number separated by dots should not exceed 255.

Station MAC Address - MAC addresses are 6 two-digit hexadecimal numbers (Base 16, 0 ~ 9, A, B, C, D, E, F) separated by dots (i.e., 00.30.48.D0.D4.60).

Router IP Address - Enter the Gateway or Router address this machine will use (i.e., 192.168.10.1).

Router MAC Address - Enter the MAC address of the Router or Gateway (only if needed).

7-6   Boot Settings

```
                          BIOS SETUP UTILTY
 Main   Advanced   Event Logs   IPMI   Boot   Security   Exit

   Setup Prompt Timeout              1                      Number of seconds to
                                                            wait for setup
 ▶ Boot Options Priority                                    activation key.
                                                            65535 (0xFFFF) means
                                                            indefinite waiting.



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

          Version x.xx.xxxx. Copyright (C) 2010 American Megatrends, Inc.
```

Use this feature to configure Boot Settings:

▶Boot Options Priority

This feature allows the user to specify which devices are boot devices and the order of priority from which the systems boots from during startup.

Boot Option #1, Boot option #2, Boot Option #3, etc

The settings are **Built-in EFI Shell**, [any detected boot device] and Disabled.

7-7   Security Settings

```
                                BIOS SETUP UTILTY
 Main   Advanced   Event Logs   IPMI   Boot   Security   Exit

 Password Description                                      Set Setup Administrator
                                                          Pasword.
 If ONLY the administrator's password is set,
 then this only limits access to Setup and is
 only asked for when entering Setup.
 If ONLY the User's password is set, then this
 is a power on password and must be entered to
 boot or enter Setup.  In Setup the User will
 have Administrator rights.
 The password must be 3 to 20 characters long.

   Access Level                 Administrat
   Administrator Password                                 ←→ :    Select Screen
   User Password                                          ↑↓  :   Select Item
                                                          Enter:  Select
   Boot Sector Virus Protection      [Disabled]           +/- :   Change Opt.
                                                          F1 :    General Help
                                                          F2 :    Previous Values
                                                          F3 :    Optimized Defaults
                                                          F4 :    Save & Exit
                                                          ESC :   Exit

              Version x.xx.xxxx. Copyright (C) 2010 American Megatrends, Inc.
```
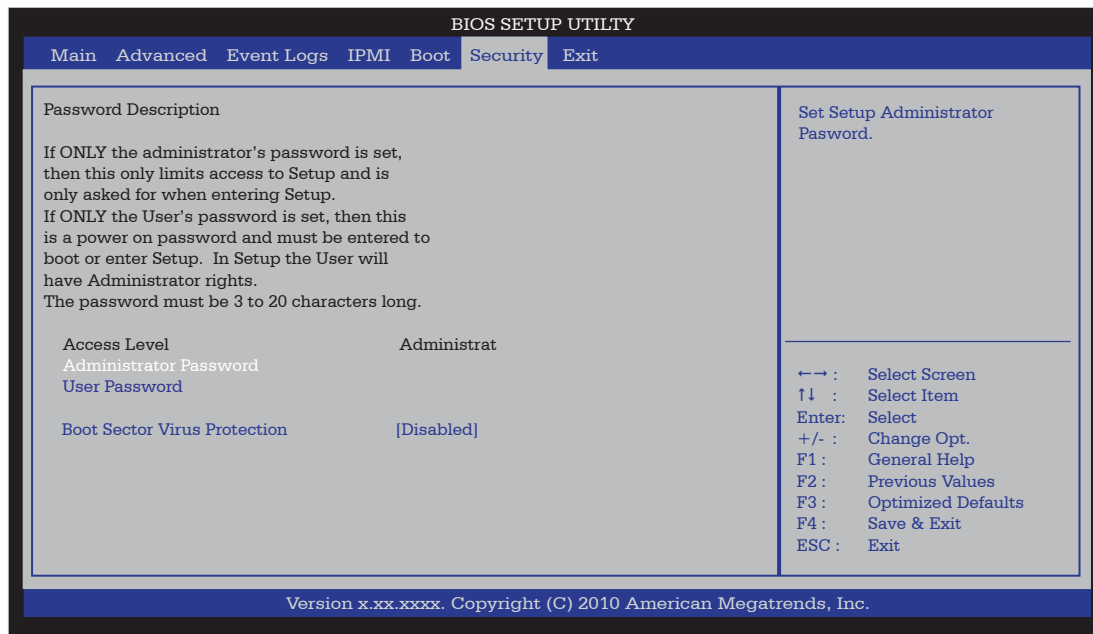
- If the Administrator password is defined ONLY - this controls access to the BIOS setup ONLY.

- If the User's password is defined ONLY - this password will need to be entered during each system startup or boot, and will also have Administrator rights in the setup.

- Passwords must be at least 3 and up to 20 characters long.

Administrator Password

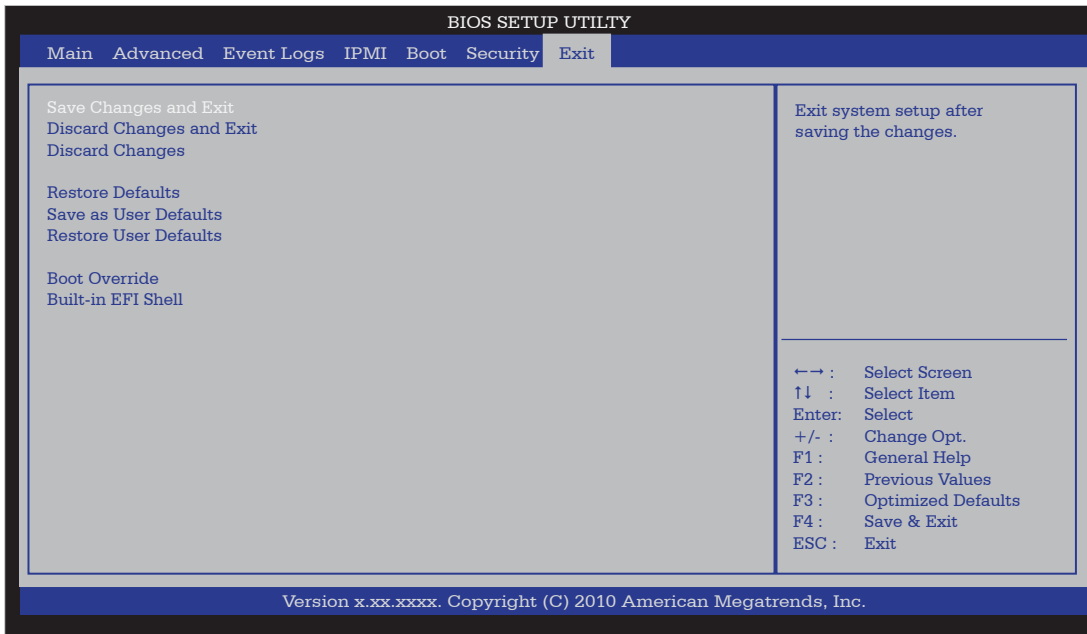Press Enter to create a new, or change an existing Administrator password.

User Password:

Press Enter to create a new, or change an existing User password.

Boot Sector Virus Protection

When Enabled, the BIOS 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**.

7-8   Exit Options

```
                              BIOS SETUP UTILTY
    Main   Advanced   Event Logs   IPMI   Boot   Security   Exit

    Save Changes and Exit                              Exit system setup after
    Discard Changes and Exit                           saving the changes.
    Discard Changes

    Restore Defaults
    Save as User Defaults
    Restore User Defaults

    Boot Override
    Built-in EFI Shell

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

              Version x.xx.xxxx. Copyright (C) 2010 American Megatrends, Inc.
```

Select the Exit tab from the 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.

Restore Defaults

To set this feature, select Restore Defaults from the Exit menu and press <Enter>. These are factory settings designed for maximum system stability, but not for maximum performance.

Save As User Defaults

To set this feature, select Save as User Defaults from the Exit menu and press <Enter>. This enables the user to save any changes to the BIOS setup for future use

Restore User Defaults

To set this feature, select Restore User Defaults from the Exit menu and press <Enter>. Use this feature to retrieve user-defined settings that were saved previously.

Boot Override

Set this feature to override a previously defined boot device. The available devices will be listed below.

Notes

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 with bootup. The error messages normally appear on the screen.

Fatal errors will not allow the system to continue to bootup. 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 correspond to the number of beeps for the corresponding error.

A-1   BIOS Error Beep Codes

BIOS Error Beep Codes		
Beep Code/LED	**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
8 beeps	Display memory read/write error	Video adapter missing or with faulty memory
OH LED On	System OH	System Overheat

Notes

Appendix B

System Specifications

Processors
Single Intel® Xeon® E3-1200 Series processor or a Core™ i3-2100 Series processor in an LGA1155 socket

Note: Please refer to our web site for a complete listing of supported processors.

Chipset
Intel C202

BIOS
64 Mb SPI AMI® Flash

Memory Capacity
Four DIMM sockets supporting up to 32 GB of unbuffered DDR3-1333/1066 memory

See the memory section in Chapter 5 for details.

SATA Controller
Intel on-chip controller for six-port Serial ATA, RAID 0, 1 5 and 10 supported (RAID 5 not supported with Linux OS, Windows only)

Drive Bays
One internal SATA hard drive. The internal drive is not hot-swappable.

PCI Expansion
One PCI-Express card (with pre-installed riser card)

Serverboard
X9SCL (Micro ATX form factor)
Dimensions: 9.6 x 9.6 in (244 x 244 mm)

Chassis
SC731I-300B (Mini-tower)
Dimensions: (WxHxD) 7.25 x 14.25 x 16.75 in. (184 x 362 x 425 mm)

Weight

Gross (Bare Bone): 16 lbs. (7.26 kg.)

System Cooling

One whisper-quiet 9-cm exhaust fan

System Input Requirements

AC Input Voltage: 100-240 VAC

Rated Input Current: 6A (115V) to 3A (240V)

Rated Input Frequency: 50/60 Hz

Power Supply

Rated Output Power: 300W (Part# PWS-303-PQ)

Rated Output Voltages: +3.3V (16A), +5V (19A), +12V (11A), -12V (0.15A), +5Vsb (2A)

Operating Environment

Operating Temperature: 10º to 35º C (50º to 95º F)

Non-operating Temperature: -40º to 70º C (-40º to 158º F)

Operating Relative Humidity: 8% to 90% (non-condensing)

Non-operating Relative Humidity: 5 to 95% (non-condensing)

Regulatory Compliance

Electromagnetic Emissions:

FCC Class A, EN 55022 Class A, EN 61000-3-2/-3-3, CISPR 22 Class A

Electromagnetic Immunity:

EN 55024/CISPR 24, (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11)

Safety:

EN 60950/IEC 60950-Compliant, UL Listed (USA), CUL Listed (Canada), TUV Certified (Germany), CE Marking (Europe)

California Best Management Practices Regulations for Perchlorate Materials: This Perchlorate warning applies only to products containing CR (Manganese Dioxide) Lithium coin cells. "Perchlorate Material-special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate"

Notes

(continued from front)

The products sold by Supermicro are not intended for and will not be used in life support systems, medical equipment, nuclear facilities or systems, aircraft, aircraft devices, aircraft/emergency communication devices or other critical systems whose failure to perform be reasonably expected to result in significant injury or loss of life or catastrophic property damage. Accordingly, Supermicro disclaims any and all liability, and should buyer use or sell such products for use in such ultra-hazardous applications, it does so entirely at its own risk. Furthermore, buyer agrees to fully indemnify, defend and hold Supermicro harmless for and against any and all claims, demands, actions, litigation, and proceedings of any kind arising out of or related to such ultra-hazardous use or sale.