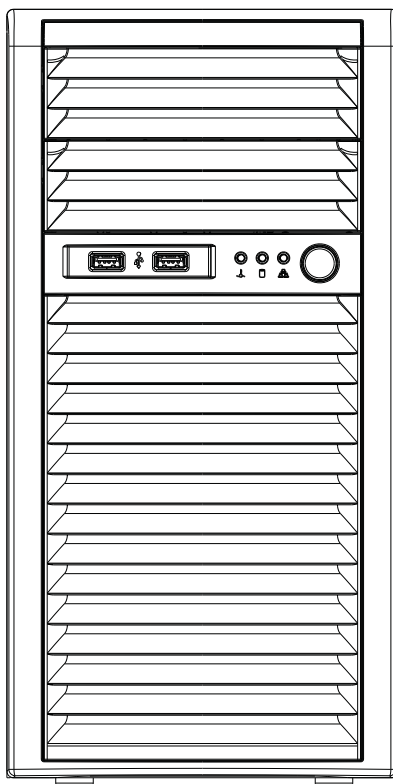


# SUPERO®

## SuperServer

### 5037C-T



## USER'S MANUAL

Revision 1.0

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Manual Revision 1.0  
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# 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-T. Installation and maintenance shall be performed by experienced technicians only.

The SuperServer 5037C-T is a single processor system based on the SC732i-500B mid-tower chassis and the Super X9SCA 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 X9SCA motherboard and the SC732i-500B 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-T.

### Chapter 5: Advanced Motherboard Setup

Chapter 5 provides detailed information on the X9SCA 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 SC732i-500B 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**

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# Notes



# Chapter 1

## Introduction

### 1-1 Overview

The SuperServer 5037C-T is a high-end server comprised of two main subsystems: the SC732i-500B mid-tower chassis and the X9SCA motherboard. Please refer to our web site for information on operating systems that have been certified for use with the SuperServer 5037C-T ([www.supermicro.com](http://www.supermicro.com)).

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

- One 12-cm whisper-quiet exhaust fan (FAN-0124L4)
- Four 3.5" HDD carriers (MCP-220-73101-0B)
- Four SATA cables (CBL-0044L)
- One SuperServer 5037C-T User's Manual

#### Optional Components

- Active heatsink (SNK-P0046A4)
- One 5.25" DVD-ROM drive (DVM-LITE-DVDRW-HBT)

## 1-2 Motherboard Features

At the heart of the SuperServer 5037C-T lies the X9SCA, a single processor motherboard based on Intel's C204 chipset. Below are the main features of the X9SCA (see Figure 1-1 for a block diagram of the chipset).

### Processors

The X9SCA supports a 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 X9SCA 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 X9SCA to provide a six-port SATA subsystem, which is RAID 0, 1, 5 and 10 supported (RAID 5 supported with Windows OS only). Two are SATA 3.0 ports and four are SATA 2.0 ports. 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 X9SCA 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 SC732i-500B is a mid-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 SC732i-500B chassis.

### **System Power**

The SC732i-500B features a high-efficiency 500W power supply with PFC. 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 power, network activity, hard disk drive activity and overheat conditions. The control panel also includes a main power button and two USB 2.0 ports.

### **I/O Backplane**

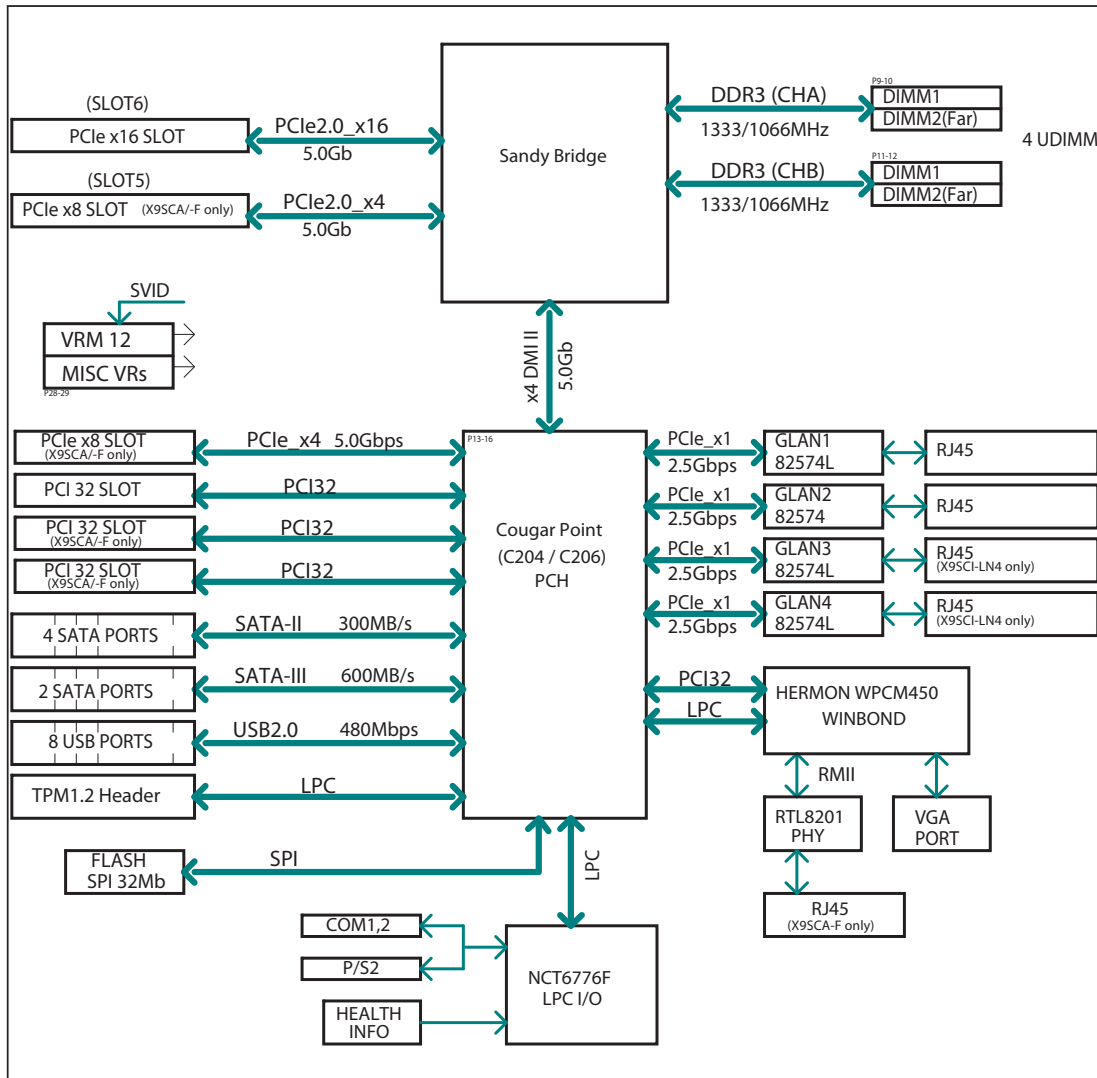
The I/O backplane includes two COM ports, two USB 2.0 ports, PS/2 mouse and keyboard ports and two gigabit Ethernet ports. Four standard size PCI expansion cards (the maximum number supported by the motherboard) may be added to the system.

### **Cooling System**

The SC732i-500B chassis includes one whisper-quiet 12-cm exhaust fan located at the rear of the chassis.

**Figure 1-1. Intel C204 Chipset:  
System Block Diagram**

Note: This is a general block diagram. Please see Chapter 5 for details.



## 1-4 Contacting Supermicro

### Headquarters

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Tel: +886-(2) 8226-3990

Fax: +886-(2) 8226-3991

Web Site: www.supermicro.com.tw

Technical Support:

Email: support@supermicro.com.tw

Tel: 886-2-8226-5990

**Notes**

# Chapter 2

## System Setup

### 2-1 Overview

This chapter provides a quick setup checklist to get your SuperServer 5037C-T 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-T 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-T. 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 System Access

You may need to access the inside of the system for system configuration or maintenance.

The SC732 features two removable side covers, allowing easy access to the chassis interior.

### ***Removing the Side Covers***

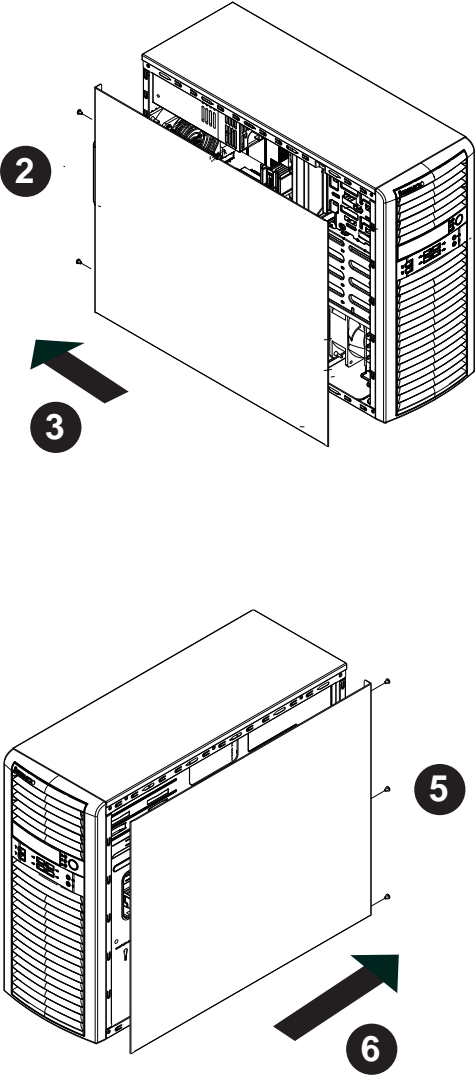
1. Disconnect the chassis from any power source.
2. Remove the two screws securing the left side cover to the chassis.
3. Slide the left cover toward the rear of the chassis.
4. Lift the left cover from the chassis.
5. Remove the three screws securing the right side cover to the chassis.
6. Slide the right cover toward the rear of the chassis.
7. Lift the right cover from the chassis.
8. 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.
9. 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).



**Warning:** 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 2-1. Accessing the Inside of the System



# Notes

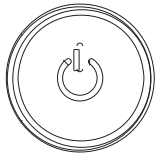
# Chapter 3

## 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. When power is on this button will be illuminated by a blue LED, Turning off system power with this button removes the main power but keeps standby power supplied to the system. Therefore, you must unplug the system from its power source before servicing.

### 3-3 Control Panel LEDs

The control panel located on the front of the SC732i-500B chassis has three 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.



## **NIC**

Indicates network activity on a 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.

# Chapter 4

## System Safety

### 4-1 Electrical Safety Precautions



Note: power should always be disconnected before performing any service on the system.

Basic electrical safety precautions shall be followed to protect yourself from harm and the SuperServer 5037C-T 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 installing 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 necessary.
- 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 polarities (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-T clean and free of clutter.
- The SuperServer 5037C-T weighs approximately 24 lbs. (10.9 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 before contact is made to protect your equipment from ESD:

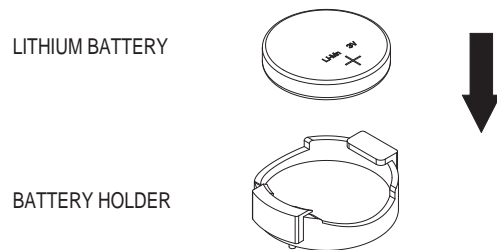
- Use a grounded wrist strap designed to prevent static discharge.
- Keep all components and printed circuit boards (PCBs) in their antistatic bags until ready for use.
- Touch a grounded metal object before removing the board from the antistatic bag.
- Do not let components or PCBs come into contact 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-T 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**



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 X9SCA 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. Remember to close the chassis completely when you have finished working on the motherboard to protect and cool the system sufficiently.

#### 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.

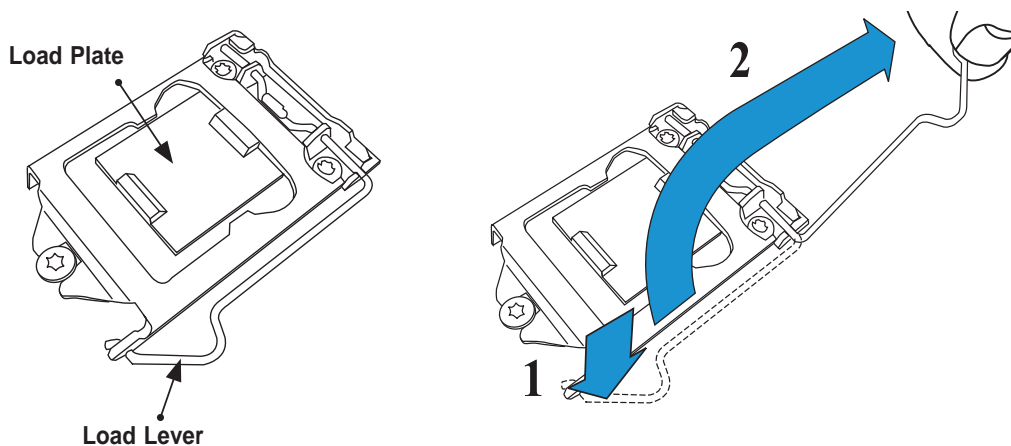
## 5-2 Processor and Heatsink Installation

### Notes:

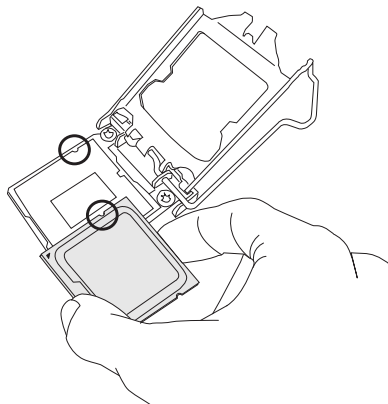
- Always connect the power cord last and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor into the CPU socket before you install the CPU heatsink.
- If you buy a CPU separately, make sure that you use an Intel-certified multi-directional heatsink only.
- Make sure to install the serverboard into the chassis before you install the CPU heatsinks.
- When receiving a serverboard without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.
- Refer to the Supermicro web site for updates on CPU support.

### Installing the 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.



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.



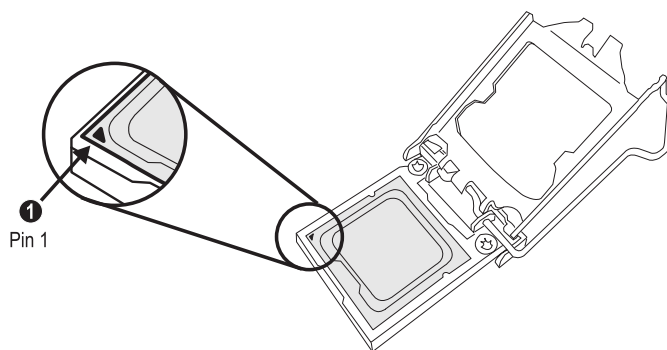
4. Align the CPU key (the semi-circle cutouts) against the socket keys. Once aligned, carefully lower the CPU straight down to the socket. (Do not drop the CPU on the socket. Do not move the CPU horizontally or vertically.)

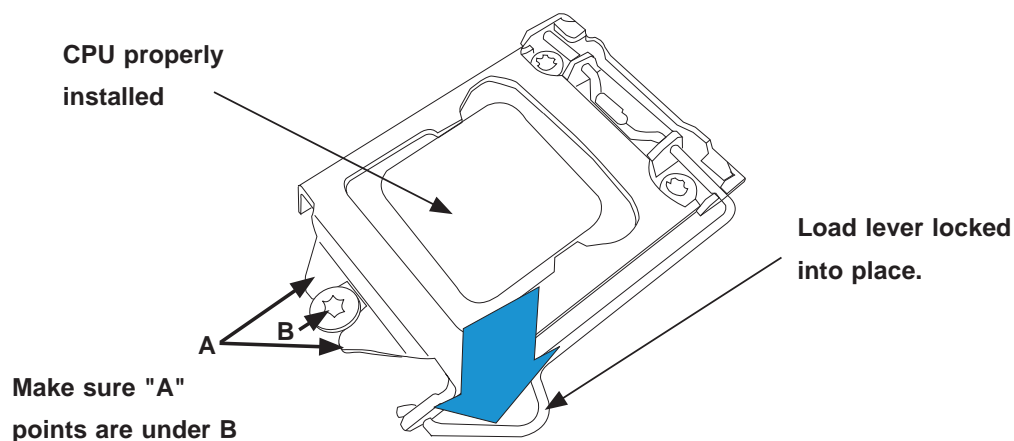
Do not rub the CPU against the surface or against any pins of the socket to avoid damage to the CPU or the socket.)

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.





**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.

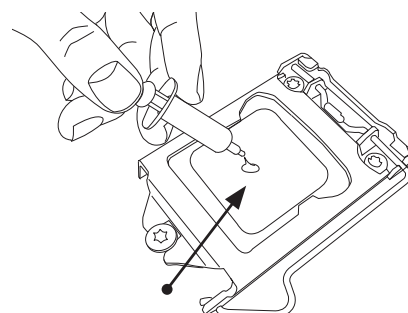


**Warning:** CPU may overheat if the protective film is not removed from the heatsink.

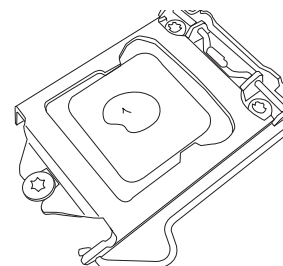
5. Apply the proper amount of thermal grease on the CPU.

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

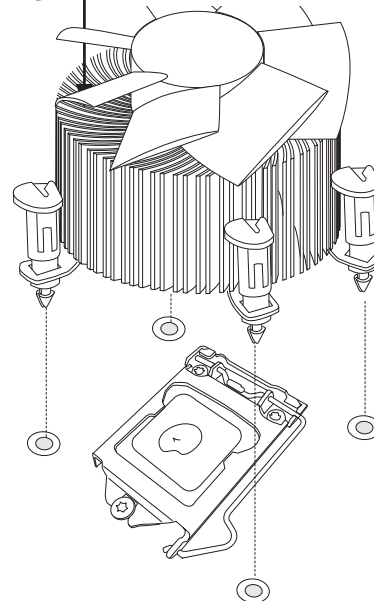
6. If necessary, rearrange the wires to make sure that the wires are not pinched between the heatsink and the CPU. Also make sure to keep clearance between the fan wires and the fins of the heatsink.



**Thermal Grease**

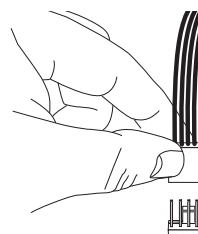
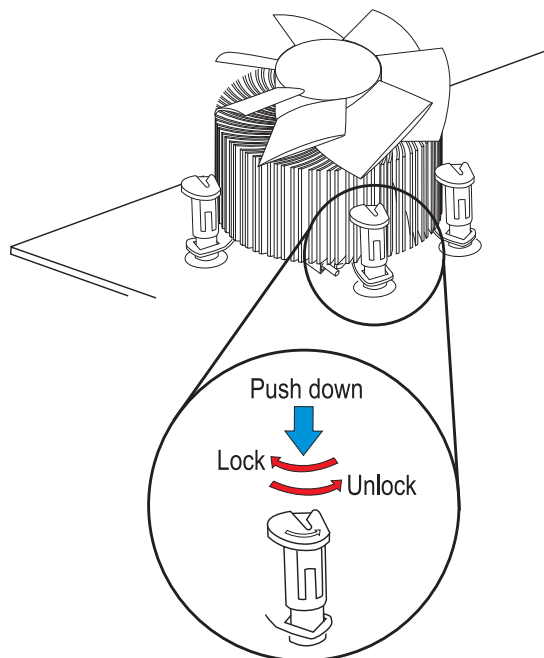


**Heatsink  
Fins**



**Recommended heatsink:  
Supermicro p/n  
SNK-P0046A4 (active heatsink)**

1. Align the four heatsink fasteners with the mounting holes on the motherboard. Gently push the pairs of diagonal fasteners (#1 & #2, and #3 & #4) into the mounting holes until you hear a click. 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.



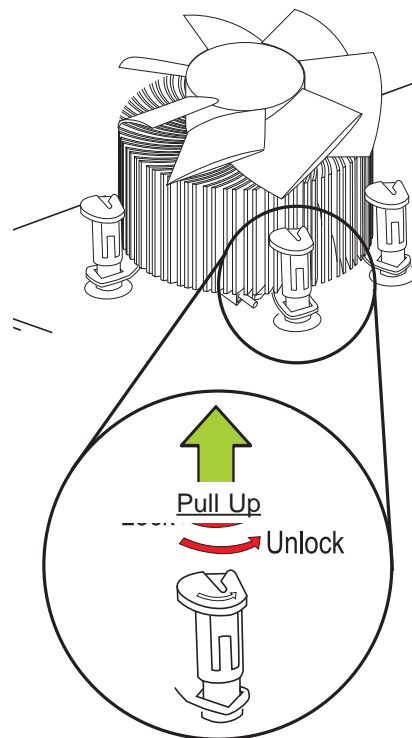
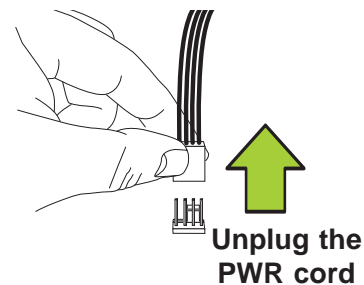
## Removing the Heatsink



**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 (90°) 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.



## 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 X9SCA 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

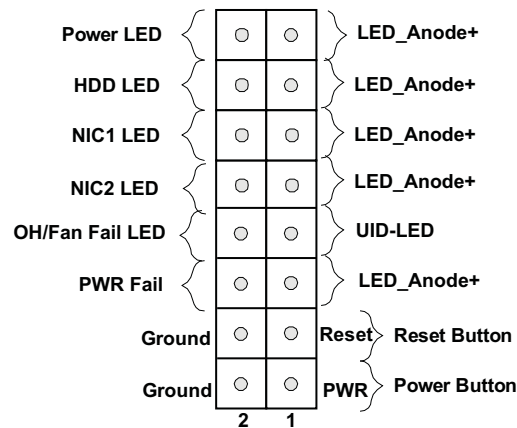
JF1 contains header pins for various front control panel connectors. See Figure 5-1 for the pin locations of the various front control panel buttons and LED indicators. Please note that even and odd numbered pins are on opposite sides of each header.



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.

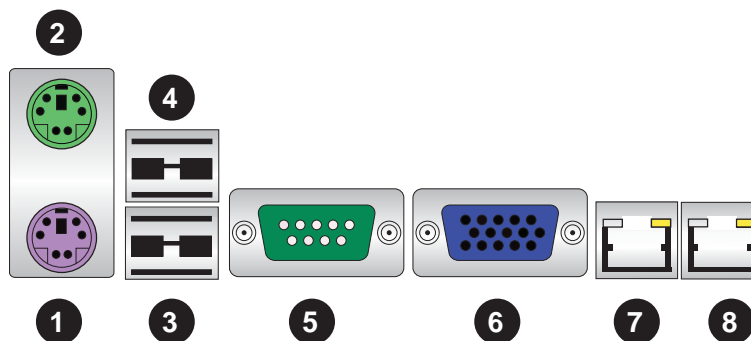
**Figure 5-1. Front Control Panel Header Pins (JF1)**



## 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 X9SCA 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

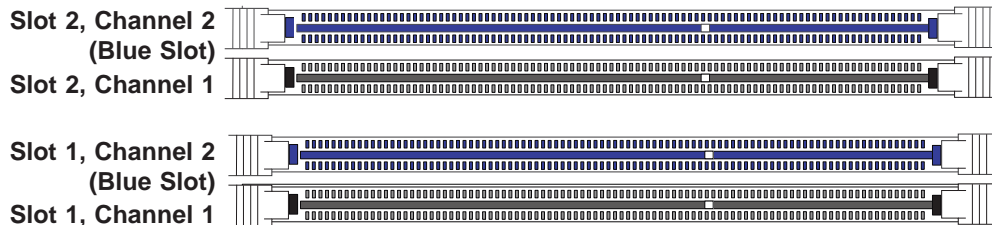
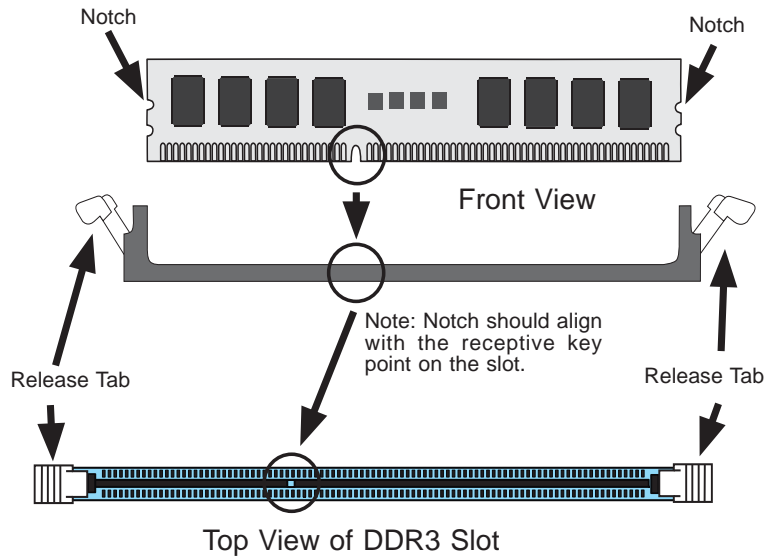


Figure 5-3. Installing DIMM into Slot

**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.



**Notes:** 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 Expansion Cards

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

### *Installing Expansion Cards*

1. Disconnect the chassis from any power source.
2. Depress the release latch which holds the protective bracket (B) and secures the add-on card brackets to the chassis.
3. Lower the protective bracket over the top of the expansion card dummy brackets as shown in the lower illustration.
4. Remove the expansion card dummy brackets from their slots.
5. Simultaneously, slide the expansion card and its bracket into the slot on the chassis, and insert the expansion card into its slot on the motherboard.
6. If desired, screws can be used to secure the expansion card into the chassis.
7. Close the protective bracket over the tops of the expansion card brackets.

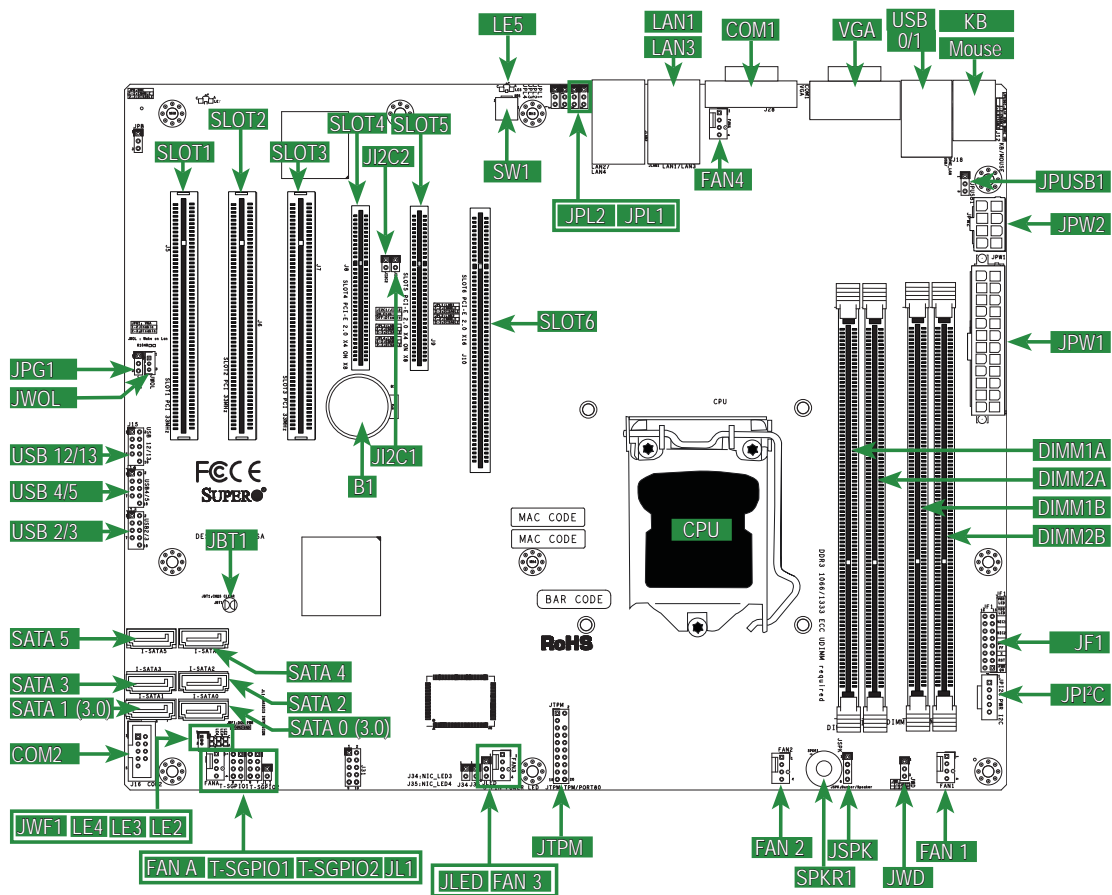
### *Full-Height, Full-Length Expansion Card Setup*

The SC732 chassis includes clips to accommodate the use of full-height, full-length expansion cards. These clips support and stabilize the cards, preventing them from contacting any other surfaces.

1. Locate the card holders, which are located on the opposite side of the chassis from the add-on card brackets (at front of chassis).
2. Begin by installing the card as described in the previous section.
3. Push the card holder all the way down onto the end of the card to secure it in the chassis.

## 5-7 Motherboard Details

Figure 5-4. SUPER X9SCA Layout



**Note:** items not listed below are not included on the X9SCA motherboard.

Jumper	Description	Default
JBT1	CMOS Clear	See Section 5-9
JI2C1/JI2C2	SMB to PCI Slots	See Section 5-9
JPG1	Onboard VGA Enable/Disable	Pins 1-2 (Enabled)
JPL1/JPL2	LAN1/LAN2 Enable/Disable	Pins 1-2 (Enabled)
JUSB1	Rear USB 0/1 Wake-Up Enable/Disable	Pins 1-2 (Enabled)
JWD	Watch Dog Timer Enable/Disable	Pins 1-2 (Reset)

LED	Description	State/Status
LE2	Onboard Power On LED	Solid Green: System On
LE3	Unsupported Memory Indicator	Blinking Yellow: Unsupported Memory
LE4	Onboard Standby PWR LED	Solid Green: Standby Power On
LE5	UID (Unit ID) LED	Solid Blue: UID On

Connector	Description
B1	Onboard Battery
COM1, COM2	COM1 Backpanel Serial Port, COM2 Serial Port Header
BIOS	SPI BIOS
Fans 1~4, Fan A	System/CPU Fan Headers
JF1	Front Panel Control Header
JL1	Chassis Intrusion Header
JLED1	Power LED Indicator Header
JPW1	24-pin ATX Main Power Connector (Required)
JPW2	+12V 8-pin CPU power Connector (Required)
KB, Mouse	Keyboard/Mouse Connectors
LAN1/LAN2	Gigabit (RJ45) Ports
SATA 0/1	Serial ATA 3.0 Ports 0/1 (6Mb/s)
SATA 2~5	Serial ATA 2.0 Ports 2~5 (3Mb/s)
JPI <sup>2</sup> C	PWR supply (I <sup>2</sup> C) System Management Bus
JSPK	Speaker Header (Pins 3/4: Internal, 1~4:External)
JTPM	Trusted Platform Module (TPM) Header
JWF1	SATA DOM (Disk On Module) Power Connector
JWOL	Wake On LAN Header
SPKR1	Internal Speaker/Buzzer
T-SGPIO-1/2	Serial Link General Purpose I/O Headers (5V Gen1/Gen 2)
USB0/1	Backpanel USB 0/1
USB2/3, USB4/5, USB 12/13	Front Accessible USB Connections (via 3 Headers)
VGA	Onboard Video Port
DIMM 1A, 2A, 1B, 2B	1066/1333 DDR3 DIMM Slots (ECC, Unbuffered type is required)
SW1	Unit ID Switch to turn on UID LED (LE5)
Slot 1~3	33MHz PCI Slots (Slot 2/3 are not available on the X9SCi series)
Slot 4~5	PCI-Express Slots x4 in x8 (Not available on the X9SCi series)
Slot 6	PCI-Express Slot x16

## 5-8 Connector Definitions

### 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.

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

### 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 configured 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 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, 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 Con- nection	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	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 X9SCA 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	+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 I<sup>2</sup>C Connector

The Power Supply (I<sup>2</sup>C) connector is located at JPI<sup>2</sup>C 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 I <sup>2</sup> C 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

The Disk-On-Module (DOM) power connector, located at JWF1, provides 5V (Gen1/Gen) power to a solid\_state DOM storage device connected to one of the SATA ports. See the table on the right for pin definitions.

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

### Unit ID Switch

The rear UID switch, the rear UID LED and front UID LED on JF1 are designed to work together. When the user pushes the rear UID switch, the blue backpanel UID LED (LE5) and front UID LED will turn on. Push the rear UID switch again to turn off both LEDs. This provides easy identification of a system unit that may be in need of service.

UID Switch	
Pin#	Definition
1	Ground
2	Ground
3	Button In
4	Ground

### Wake-On-LAN (JWOL)

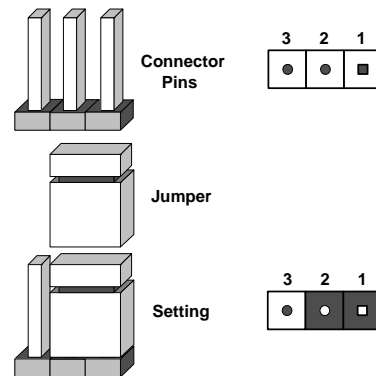
The Wake-On-LAN header is located at JWOL on the motherboard. See the table on the right for pin definitions. (You must also have a LAN card with a Wake-On-LAN connector and cable to use this feature.)

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

## 5-9 Jumper Settings

### Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. See the 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 JI<sup>2</sup>C1/JI<sup>2</sup>C2 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, respectively. 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 JPU<sup>S</sup>B1 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

### 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 Gigabit 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 Power LED (LE2)

An onboard Power LED is located at LE2 on the motherboard. This LED will be on when the system is running.

Onboard PWR LED Status	
Status	Definition
Off	System Off (Soft Switch)
On	System is Running

### Onboard Standby Power LED (LE4)

An onboard Standby Power LED is located at LE4. This LED will be on whenever the AC power cable is connected and the power supply hard switch is on. Make sure to disconnect the power cable before removing or installing any components.

Onboard Standby PWR LED Status	
Status	Definition
Off	Power Supply is Off (Hard Switch)
On	Power Supply is On (Hard Switch).

### Rear UID LED (LE5)

The rear UID LED is located at LE5 on the backpanel. This LED is used in conjunction with the rear UID switch to provide easy identification of a system in a stack.

Rear UID LED Indication	
Blue: Solid	UID Toggled On

### Unsupported Memory LED (LE3)

LE3 is located next to LE2. When LE3 blinks, it is an indication/warning that unsupported memory is installed in one (or more) of the memory slots.

Unsupported Memory LED Indicator Indication	
Yellow: Blinking	Unsupported Memory is Installed

## 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 (6 Gb/s) while ports 2 through 5 support SATA2 (3 Gb/s).

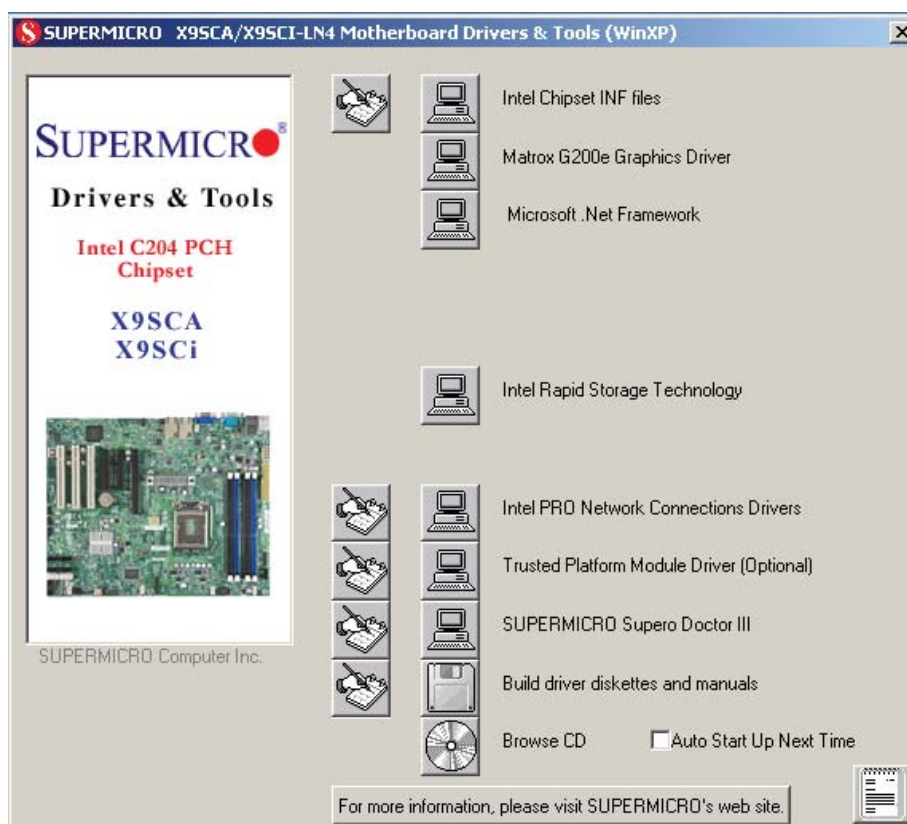
SATA Port Pin Definitions (SATA0 ~ SATA5)	
Pin #	Definition
1	Ground
2	TXP
3	TXN
4	Ground
5	RXN
6	RXP
7	Ground



## 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.

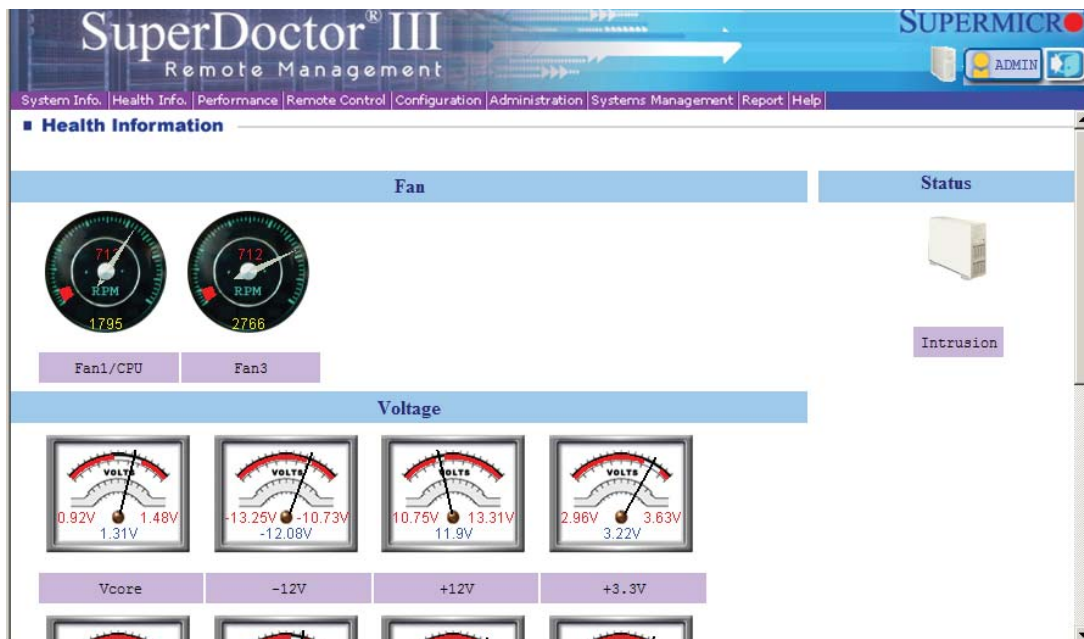
## SuperDoctor III

The SuperDoctor® 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 SuperDoctor III program included on the CD-ROM that came with your motherboard allows you to monitor the environment and operations of your system. SuperDoctor III displays crucial system information such as CPU temperature, system voltages and fan status. See the Figure below for a display of the SuperDoctor III interface.

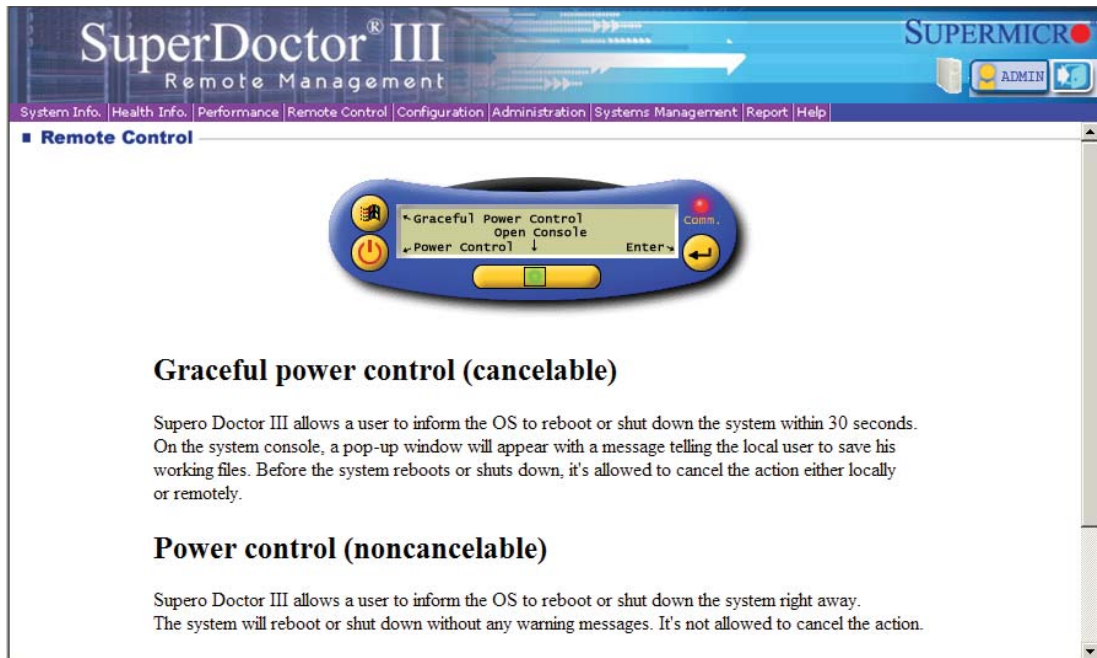
**Note:** The default User Name and Password for SuperDoctor III is ADMIN / ADMIN.

**Note:** When SuperDoctor 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 SuperDoctor, as the SuperDoctor settings override the BIOS settings. To set the BIOS temperature threshold settings again, you would first need to uninstall SuperDoctor.

SuperDoctor III Interface Display Screen (Health Information)



## SuperDoctor III Interface Display Screen (Remote Control)



Note: The SuperDoctor III program and User's Manual can be downloaded from the Supermicro web site at <http://www.supermicro.com/products/accessories/software/SuperDoctorIII.cfm>.

For Linux, we recommend using SuperDoctor II.

## Notes

## Chapter 6

# Advanced Chassis Setup

This chapter covers the steps required to install components and perform simple maintenance on the SC732i-500B 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.

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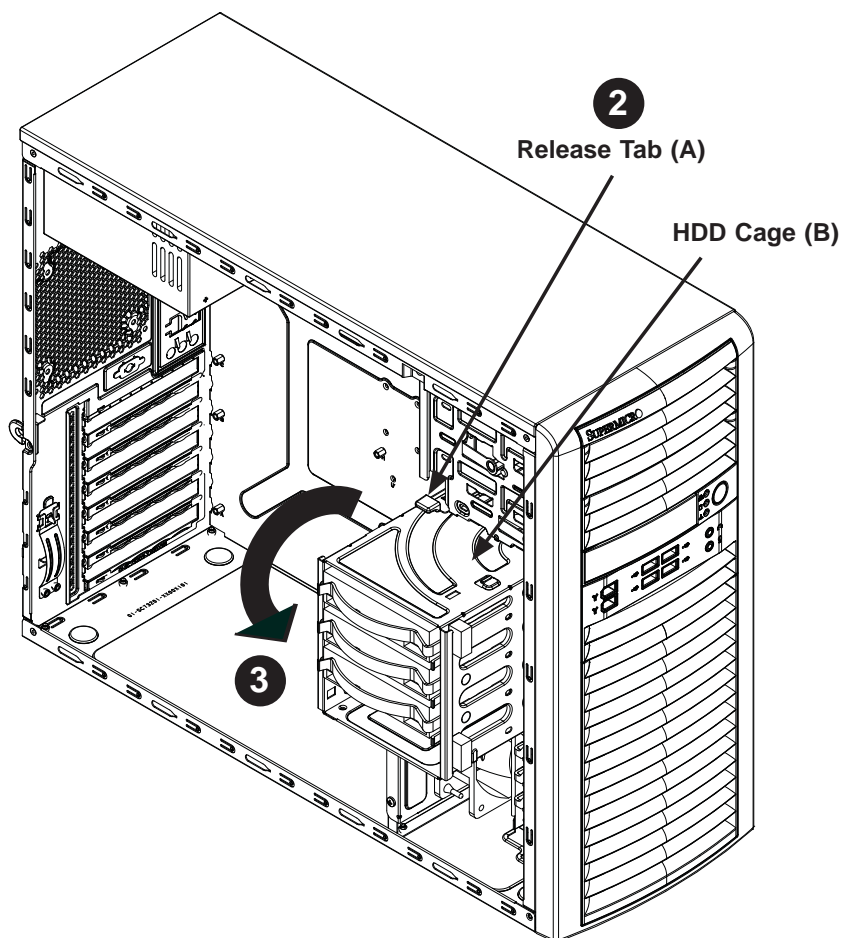
## 6-2 Rotating the Hard Drive Cage

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. The side chassis panels must be removed to access the inside of the chassis - refer to Chapter 2 for instructions on removing the panels.

### *Rotating the Hard Drive Cage*

1. Disconnect the chassis from any power source.
2. Lift the release tab (A).
3. Rotate the hard disk drive cage (B) outward.

**Figure 6-1. Rotating the Hard Drive Cage**



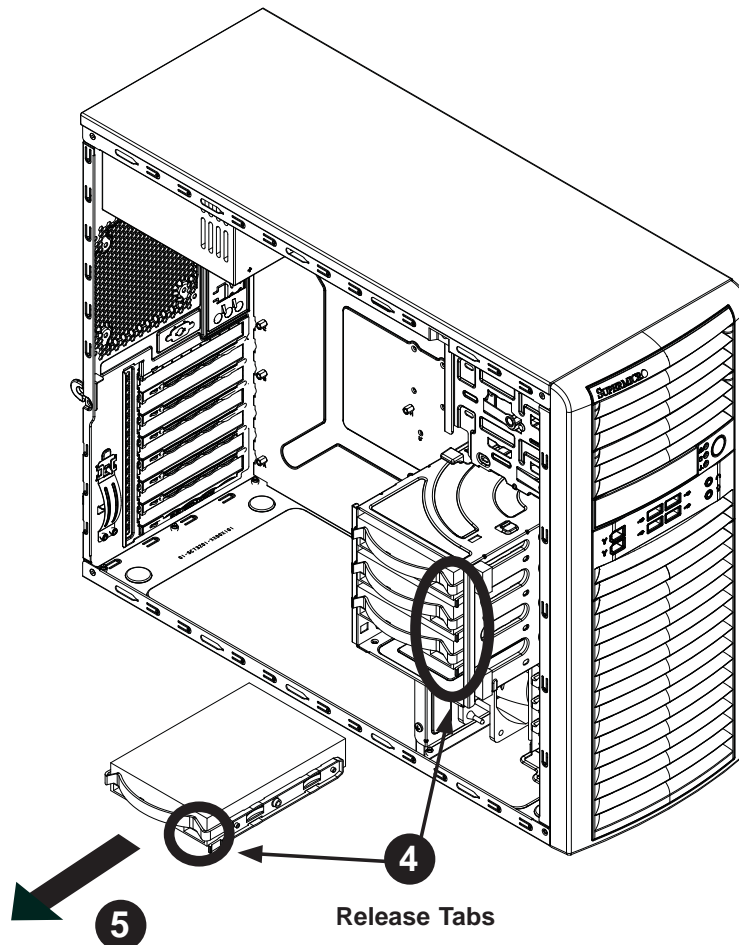
## 6-3 Removing and Installing Hard Drives

The SC732 chassis must be powered-down before hard drives can be removed from the hard drive carriers.

### *Removing and Installing 3.5" Hard Drives*

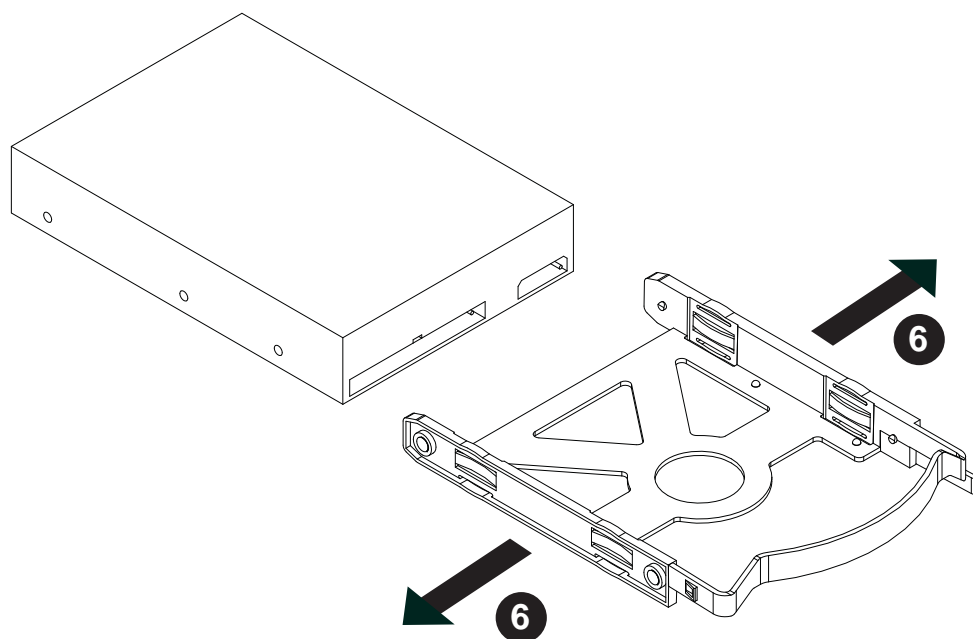
1. Disconnect the system from any power source.
2. Rotate the hard drive cage outward 90 degrees as described in the previous-section.
3. Disconnect all cables from the hard drive.
4. Press the release tab on the side of the hard drive carrier that is to be removed from the hard drive cage.
5. Gently slide the hard drive carrier out of the cage.

**Figure 6-2. Removing a Hard Drive Carrier from the Hard Drive Cage**



6. If a hard drive is already present, remove it by carefully pulling the sides of the hard drive carrier outward.
7. Remove the hard drive from the hard drive carrier.

**Figure 6-3. Removing a Hard Drive from the Carrier**

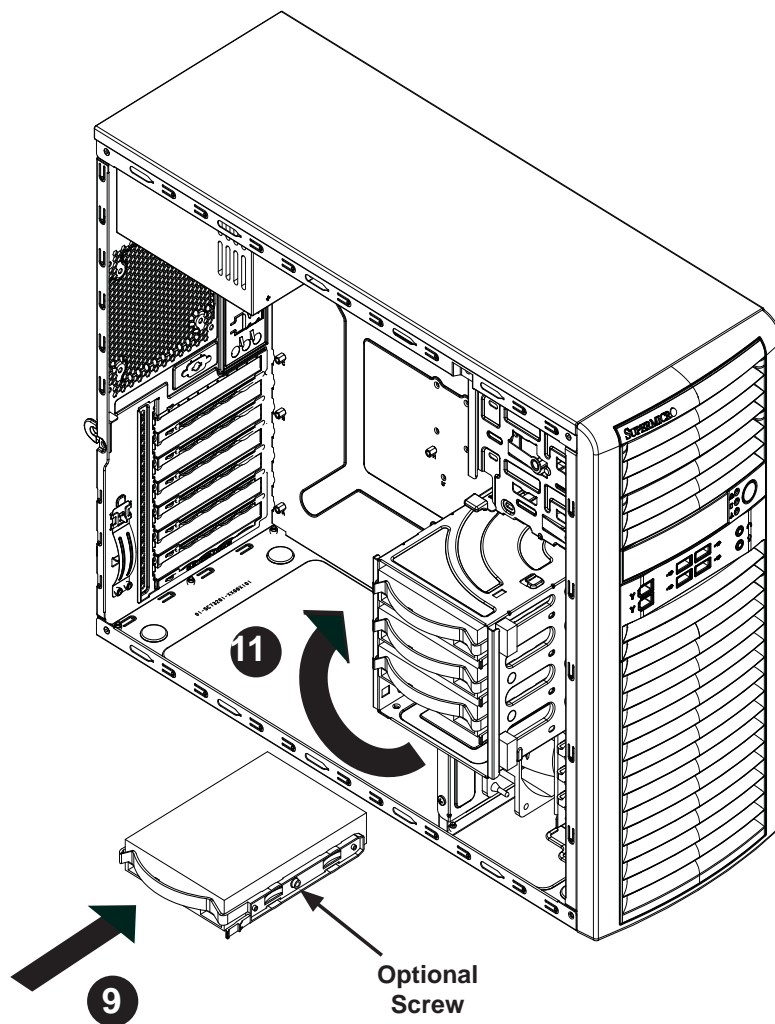


Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro Web site at <http://www.supermicro.com/products/nfo/files/storage/SAS-1-CompList-110909.pdf>

8. Insert the new hard drive into the hard drive carrier.
9. Insert the hard drive carrier into the hard drive cage, sliding it towards the back of the the hard drive cage until it clicks into a locked position.
10. If desired, each hard drive carrier may be secured to the exterior of the hard drive cage using one optional screw.
11. Rotate the hard drive cage 90 degrees inward, returning it to the closed, operational position in the chassis.
12. Connect the related cables to the hard drives.



Figure 6-4. Installing a Hard Drive Carrier into the Hard Drive Cage



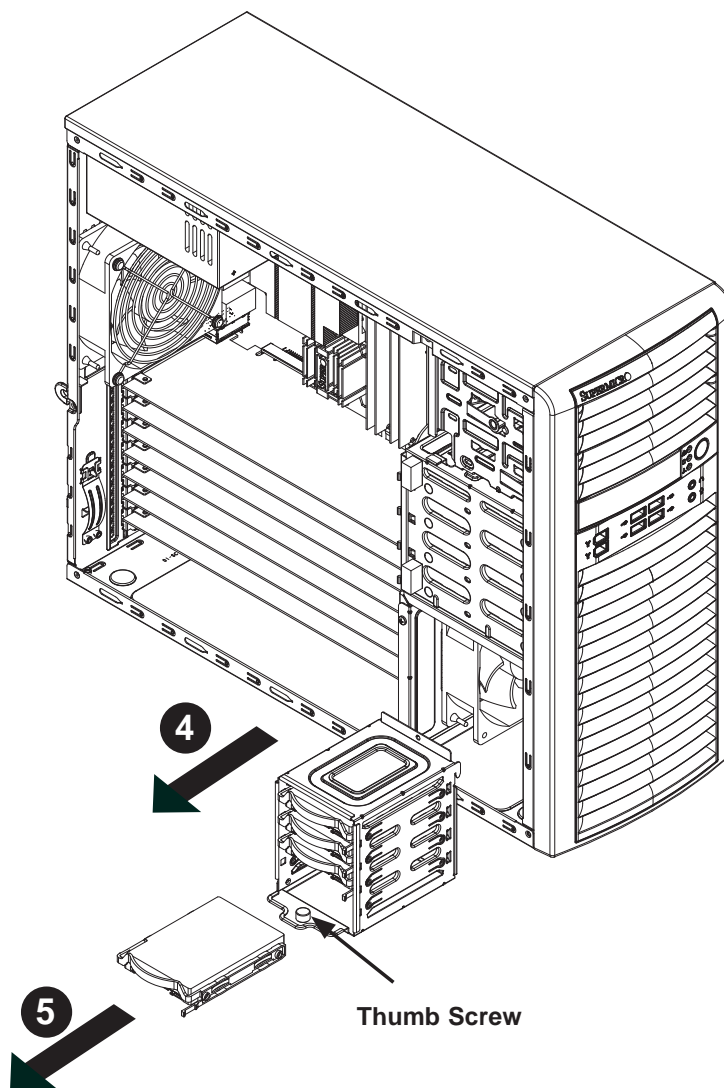
## 6-4 Removing and Installing 2.5" Hard Drives

The SC732 chassis must be powered-down before hard drives can be removed from the system. Adding these drives is optional.

### ***Removing and Installing 2.5" Hard Drives***

1. Disconnect the chassis from any power source.
2. Loosen the thumb screw securing the 2.5" hard drive cage to the chassis.
3. Disconnect all cables from the hard drive.
4. Slide the 2.5" hard drive cage out of the chassis.

Figure 6-5. Removing the 2.5" Hard Drives



5. If a hard drive is already present, remove it by carefully pulling the sides of the hard drive carrier outward.
6. Remove the hard drive from the hard drive carrier.
7. Insert the new hard drive into the hard drive carrier.
8. Insert the hard drive carrier into the hard drive cage, sliding it towards the back of the the hard drive cage until it clicks into a locked position.
9. Slide the 2.5" hard drive cage back into the chassis and tighten the thumb screw to secure the cage.
10. Connect the related cables to the hard drive

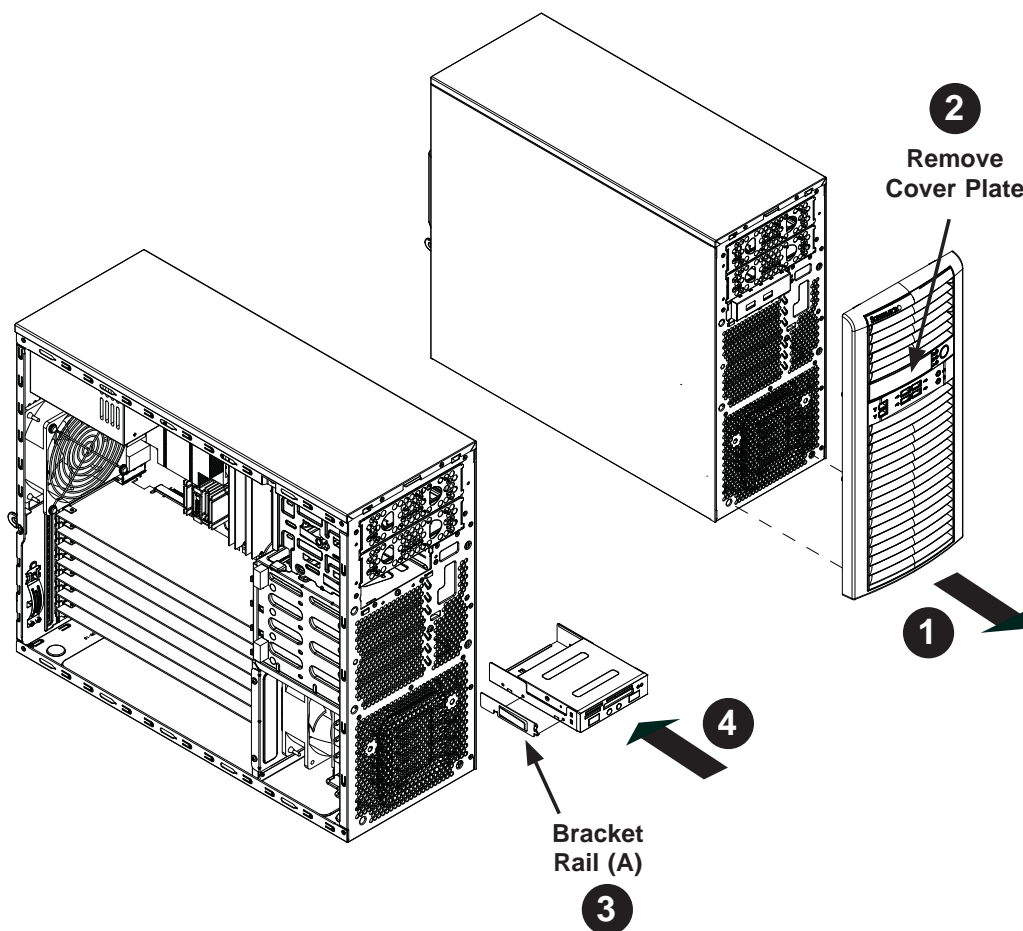
## 6-5 Installing a 3.5" Device

The SC732 chassis has one 3.5" device slot, which supports an optional device, such as an all-in-one card reader.

### *Installing a 3.5" Device*

1. Remove the front bezel from the chassis by lifting it upwards from the bottom, and pulling off the front of the chassis.
2. Remove the cover plate from the 3.5" device slot on the front of the chassis.
3. Install the bracket rail (A) onto one side of the 3.5" device, by inserting the pins of the bracket into the mounting holes on the sides of the optical device.
4. Slide the 3.5" device into the chassis.
5. Replace the bezel by inserting the front bezel tabs into the mounting holes on the front of the chassis.

Figure 6-6. Installing a 3.5" Device



## 6-6 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.

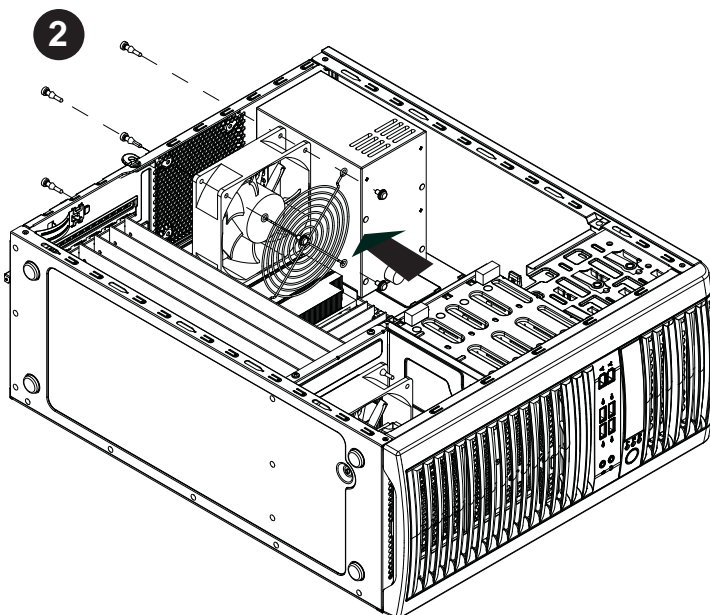
### Fan Failure

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

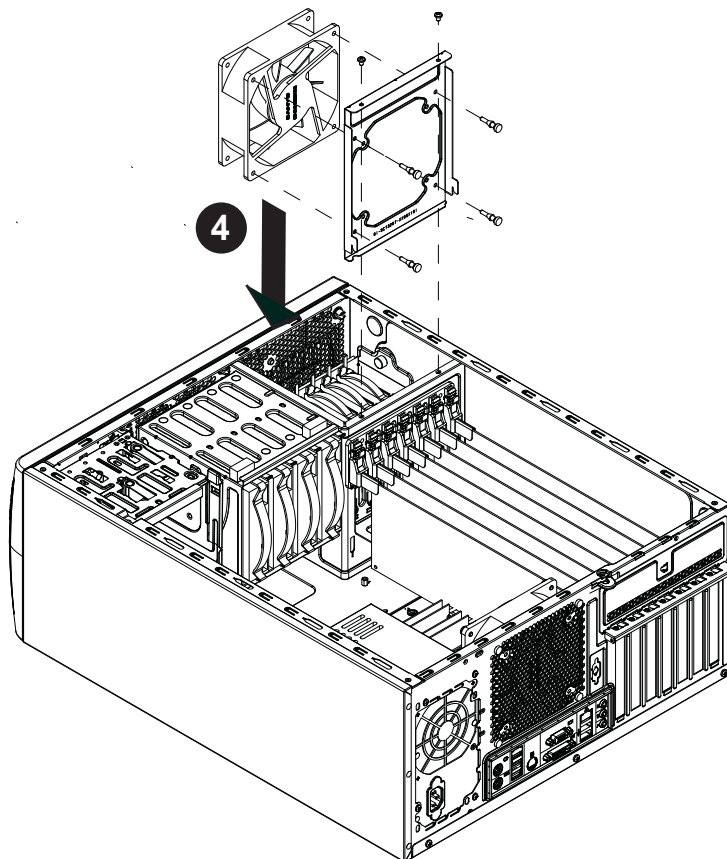
1. Power down the server and disconnect it from the power source.
2. Remove the left chassis cover as described in Section 6-4.
3. Insert the four rubber pins through mounting holes in the rear of the chassis and through the mounting holes in the rear fan.
4. Pull the rubber pins through the mounting holes of the fan to secure the fan to the chassis.
5. Connect the fan cable to the motherboard.

Figure 6-7. Replacing the System Fan



***Installing the Front Cooling Fan (Optional)***

1. Power down the server and disconnect it from the power source.
2. Insert the four rubber pins through the front fan bracket and into the mounting holes in the front fan.
3. Pull the rubber pins through the mounting holes of the system fan to secure the fan to the chassis.
4. Lower the fan into the chassis, aligning the holes at the top of the front fan bracket with the holes in the chassis.
5. Secure the fan to the chassis using the two screws provided.
6. Connect the fan cable to the motherboard.

**Figure 6-8. Installing the Front Cooling Fan (Optional)**

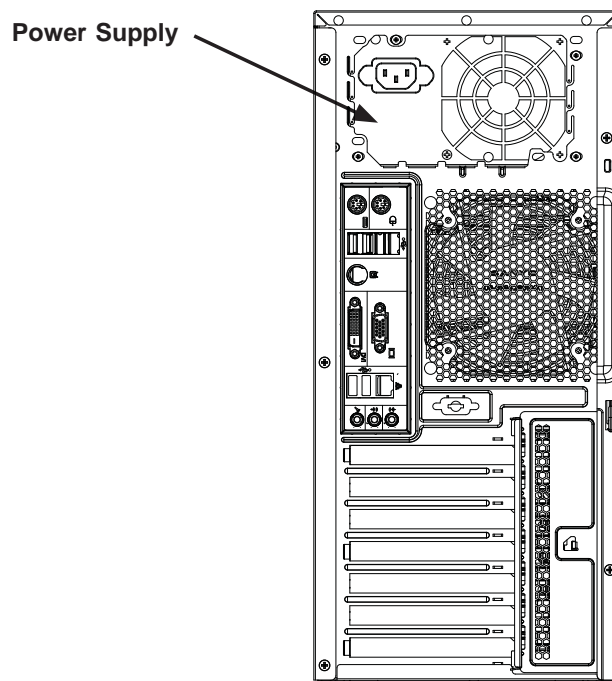
## 6-7 Power Supply

The SC731 chassis includes a 500 watt power supply, which has the capability to automatically sense and operate with an input voltage of 100 to 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, which 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. Plug the AC power cord back into the module and reconnect the motherboard cables.
7. Power-up the system.

**Figure 6-9. Removing the Power Supply**



# Chapter 7

## BIOS

### 7-1 Introduction

This chapter describes the AMI BIOS Setup Utility for the X9SCi-LN4/X9SCi-LN4F/X9SCA/X9SCA-F. (Some settings may not appear on the X9SCA motherboard.) 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

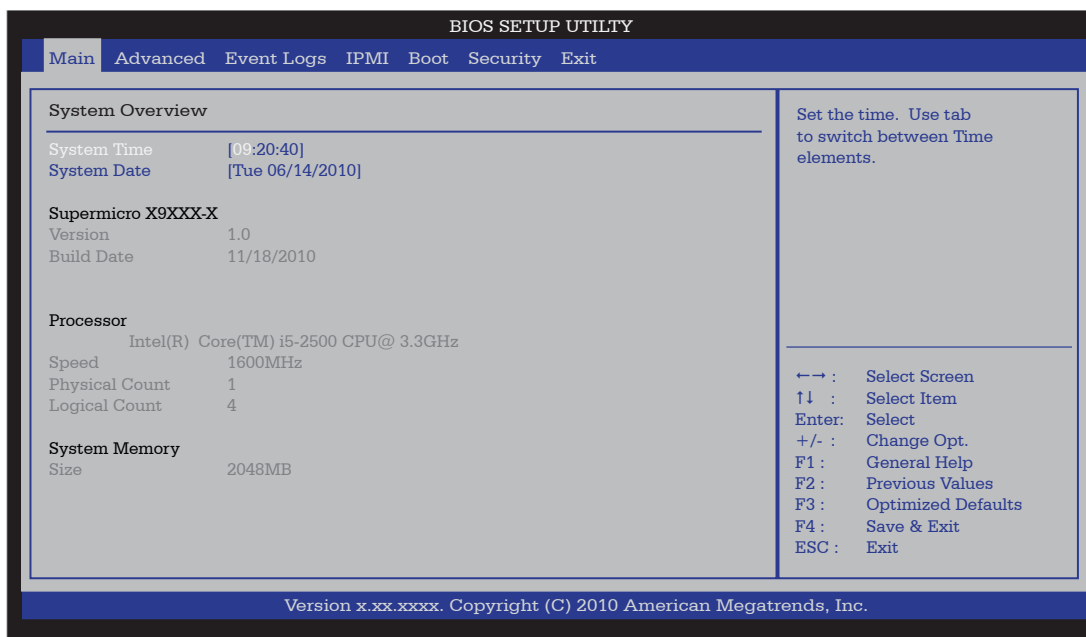
Normally, the only visible Power-On Self-Test (POST) routine is the memory test. As the memory is being tested, press the <Delete> key to enter the main menu of the AMI BIOS Setup Utility. From the main menu, you can access the other setup screens. An AMI BIOS identification string is displayed at the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





**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 X9SCi-LN4/X9SCi-LN4F/X9SCA/X9SCA-F

Version

Build Date

### **Processor**

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

Processor

Speed

Physical Count

Logical Count

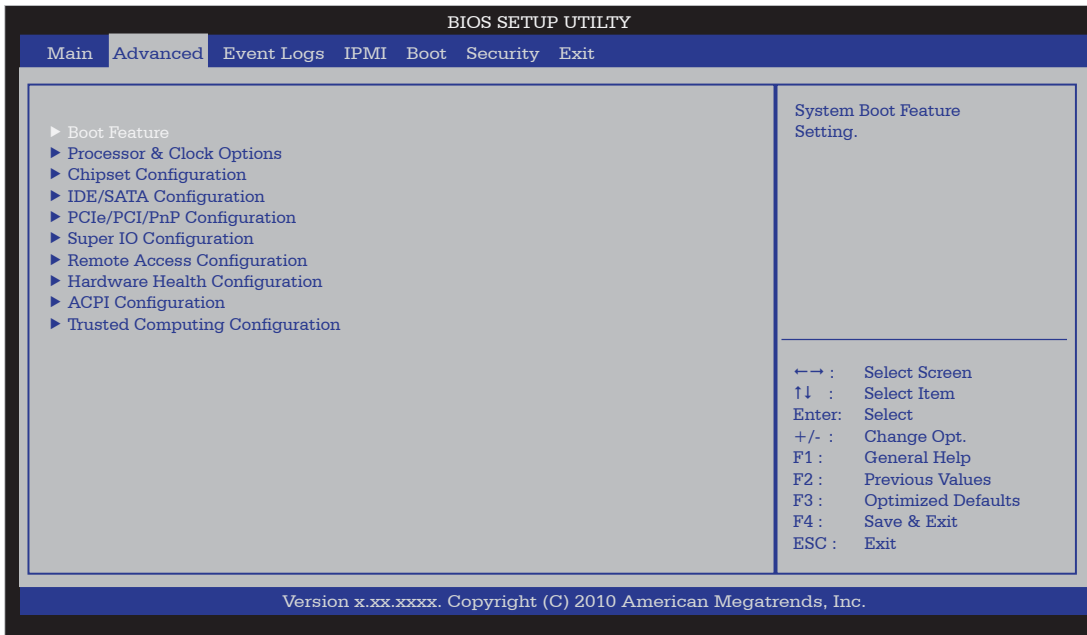
### **System Memory**

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:



### ►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 instantly 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**.

### **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.

### **Clock Spread Spectrum**

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

### **Hardware Prefetcher (Available when supported by the CPU)**

If set to Enabled, the hardware 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® 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 efficient, 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**.

#### **►Integrated IO Configuration**

This item displays the current IO chipset 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.

**USB Functionst**

This feature enables configuration of USB parameters. The options are **Enabled**, and Disabled. If set to Enabled, the follow options appear:

### 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 applications. 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 Aggressive 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**.

## **►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**.

## **►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 **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

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](http://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 Precision 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 and **S1 (POS)**.

### 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

### Smbios Event Log

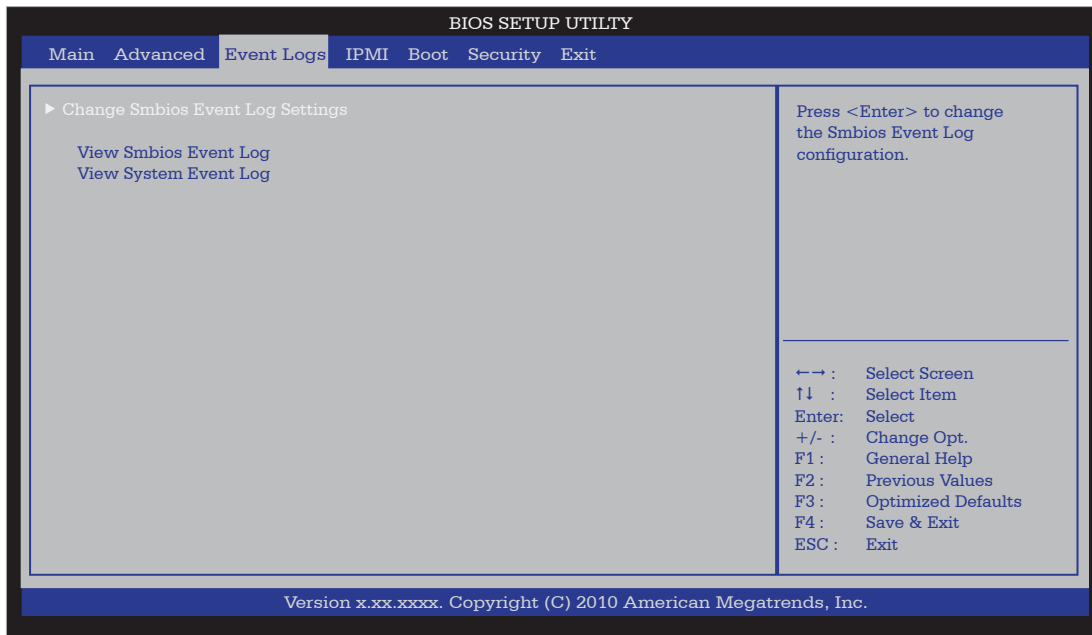
Change this item to enable or disable all features of the Smbios Event Logging during boot. The options are **Enabled** and Disabled.

### 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 occurrences 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 (X9SCi-LN4F, X9SCA-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](http://www.intel.com).

### 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

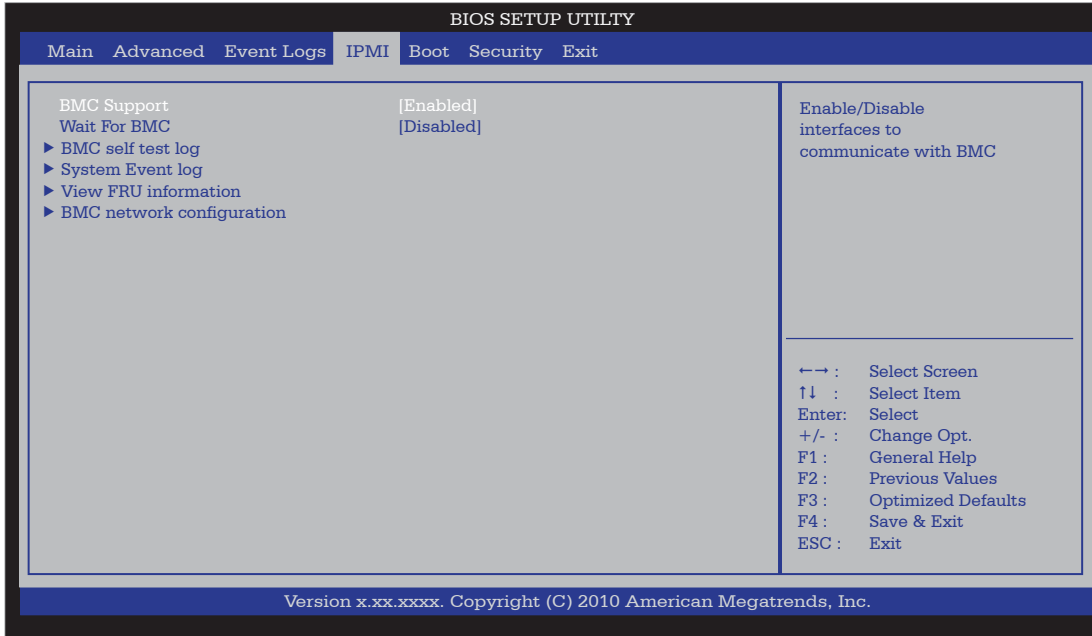
If enabled, the system will wait for a BMC response after the AC power is turned on. It takes around 30 seconds to initialize Host to BMC interfaces. The options are **Disabled** and Enabled.

► **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 System 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 "Static". 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.

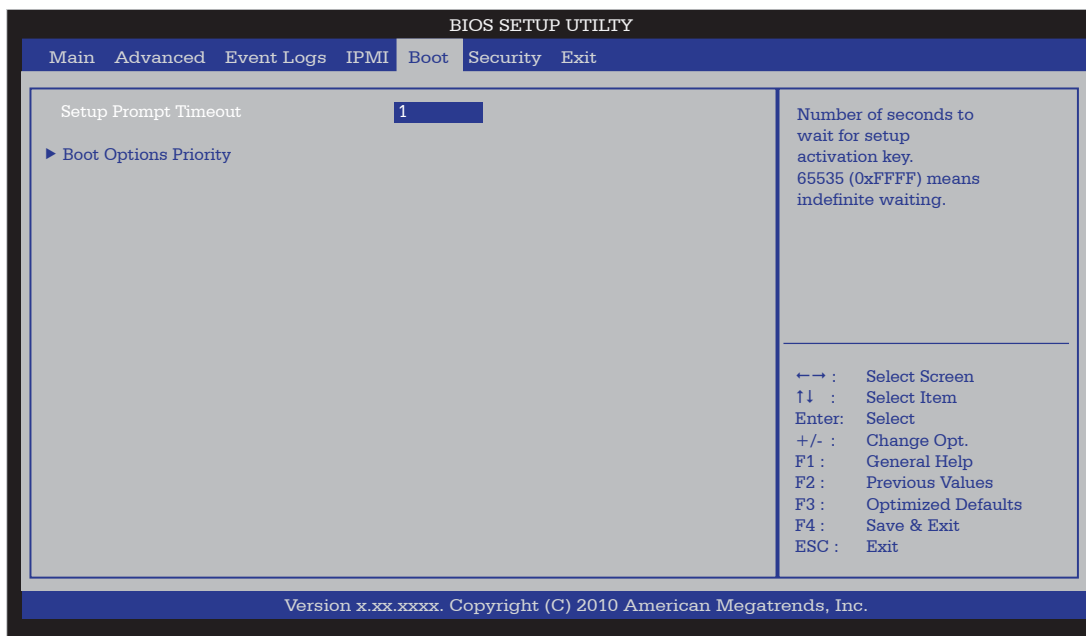
**Subnet Mask** - Subnet masks tell the network which subnet this machine belongs to. The value of each three-digit number separated by dots should not exceed 255.

**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



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.

### ▶ Delete Boot Option

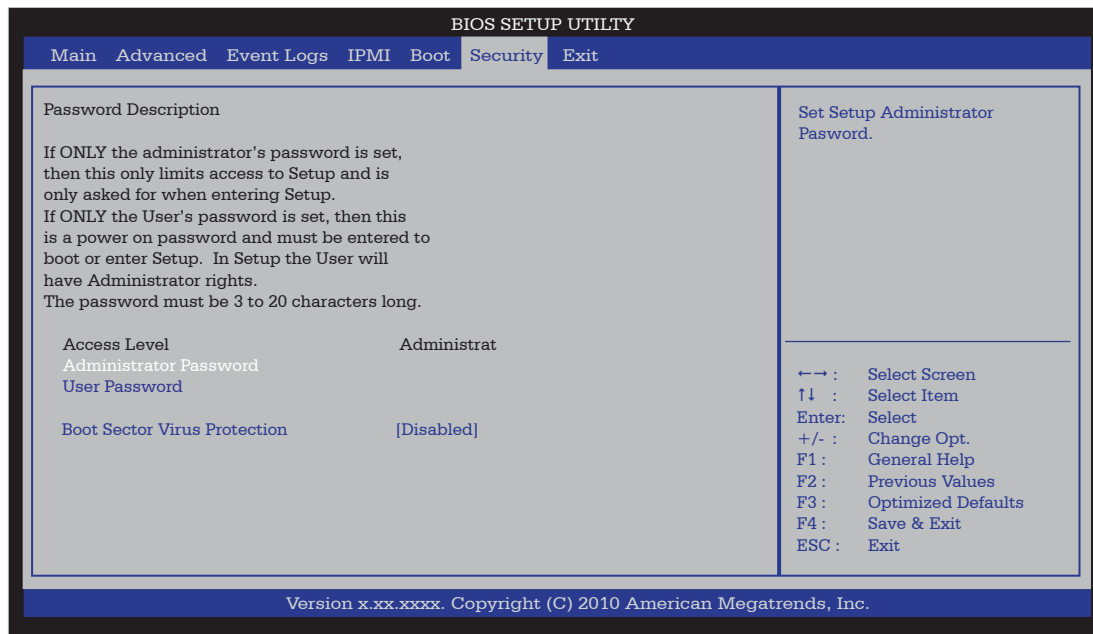
This feature allows the user to delete a previously defined boot device from which the systems boots from during startup.

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

The settings are **Built-in EFI Shell**, and [any pre defined boot device]



## 7-7 Security Settings



- 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.

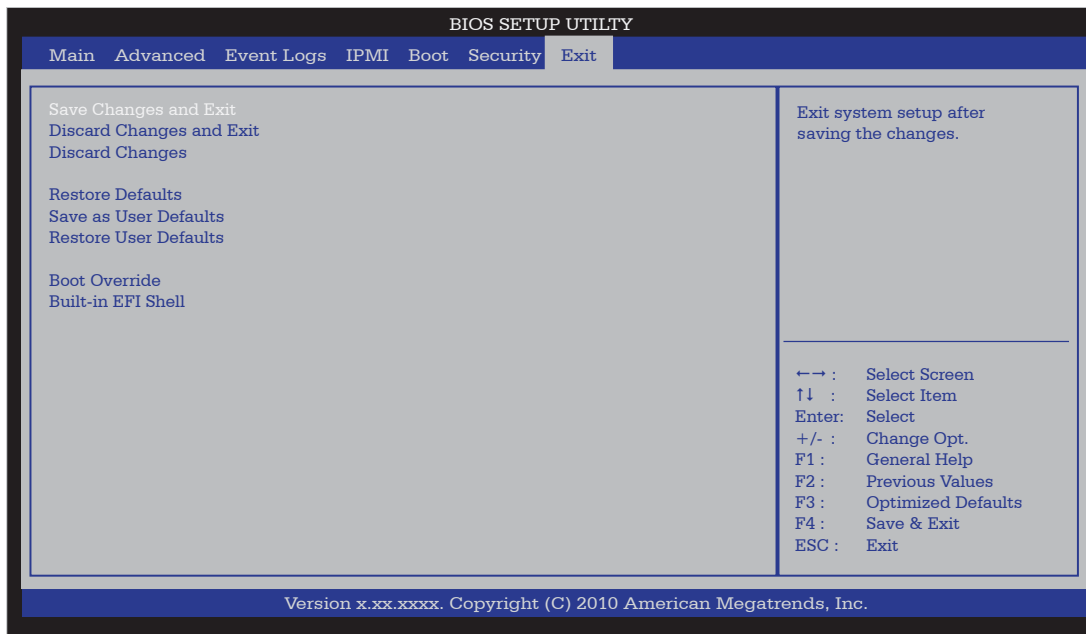
### User Password:

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



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

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## 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 C204

#### 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 SATA, 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-E 2.0 x16, two PCI-E 2.0 x4 (in x8 slots) and three 33 MHz PCI slots

#### Serverboard

X9SCA (ATX form factor)

Dimensions: 12 x 9.6 in (305 x 244 mm)

#### Chassis

SC732i-500B (Mini-tower)

Dimensions: (WxHxD) 7.6 x 16.7 x 20.7 in. (193 x 424 x 426 mm)

## **Weight**

Gross (Bare Bone): 24 lbs. (10.9 kg.)

## **System Cooling**

One whisper-quiet 12-cm exhaust fan

## **System Input Requirements**

AC Input Voltage: 100-240 VAC

Rated Input Current: 7A (115V) to 3.5A (240V)

Rated Input Frequency: 50/60 Hz

## **Power Supply**

Rated Output Power: 500W (Part# PWS-502-PQ)

Rated Output Voltages: +3.3V (15A), +5V (20A), +12V (17A), -12V (0.5A), +5Vsb (3A)

## **Operating Environment**

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

Non-operating Temperature: -40° to 70° C (-40° to 158° 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](http://www.dtsc.ca.gov/hazardouswaste/perchlorate)"



## Notes

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