

# SUPER<sup>®</sup> ●

SUPER 370SSA  
SUPER 370SSM

## USER'S MANUAL

Revision 1.1

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## Preface

### About This Manual

This manual is written for system integrators, PC technicians and knowledgeable PC users. It provides information for the installation and use of the SUPER 370SSA/370SSM motherboard. The SUPER 370SSA/370SSM supports single Pentium® III FCPGA 500 MHz-1 GHz processors and Celeron PPGA 333-500 processors at front side bus speeds of 133, 100 and 66 MHz. Please refer to the support section of our web site (<http://www.supermicro.com/TechSupport.htm>) for a complete listing of supported processors.

FCPGA Pentium III processors are housed in a 370-pin package.

### Manual Organization

**Chapter 1** includes a checklist of what should be included in your mainboard box, describes the features, specifications and performance of the SUPER 370SSA/370SSM mainboard and provides detailed information about the chipset.

**Chapter 2** begins with instructions on handling static-sensitive devices. Read this chapter when you want to install the processor and DIMM memory modules and when mounting the mainboard in the chassis. Also refer to this chapter to connect the floppy and hard disk drives, the IDE interfaces, the parallel and serial ports and the twisted wires for the power supply, the reset button, the keylock/power LED, the speaker and the keyboard.

If you encounter any problems, see **Chapter 3**, which describes troubleshooting procedures for the video, the memory and the setup configuration stored in CMOS. For quick reference, a general FAQ (Frequently Asked Questions) section is provided. Instructions are also included for contacting technical support. In addition, you can visit our web site at [www.supermicro.com/techsupport.htm](http://www.supermicro.com/techsupport.htm) for more detailed information.

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

The **Appendix** provides post diagnostic error messages.

## Notes

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## Notes



# Chapter 1

## Introduction

### 1-1 Overview

#### Checklist

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

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

One (1) Supermicro Mainboard

One (1) ATA100 ribbon cable for IDE devices (370SSA)

One (1) ATA66 ribbon cable for IDE devices (370SSM)

One (1) floppy ribbon cable for (1) 5.25-inch floppy and (2) 3.5-inch floppy drives

One (1) serial COM 2 cable (retail only)

One (1) I/O backpanel shield

One (1) Supermicro CD or diskettes containing drivers and utilities

One (1) User's/BIOS Manual

# Notes

Introduction

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## CONTACTING SUPERMICRO

### Headquarters

Address: Super Micro Computer, Inc.  
2051 Junction Avenue  
San Jose, CA 95131 U.S.A.

Tel: +1 (408) 895-2001

Fax: +1 (408) 895-2008

E-mail: [marketing@supermicro.com](mailto:marketing@supermicro.com) (General Information)  
[support@supermicro.com](mailto:support@supermicro.com) (Technical Support)

Web site: [www.supermicro.com](http://www.supermicro.com)

### European Office

Address: Super Micro Computer B.V.  
Het Sterrenbeeld 28, 5215 ML,  
's-Hertogenbosch, The Netherlands

Tel: +31 (0) 73-6400390

Fax: +31 (0) 73-6416525

E-mail: [sales@supermicro.nl](mailto:sales@supermicro.nl) (General Information)  
[support@supermicro.nl](mailto:support@supermicro.nl) (Technical Support)  
[rma@supermicro.nl](mailto:rma@supermicro.nl) (Customer Support)

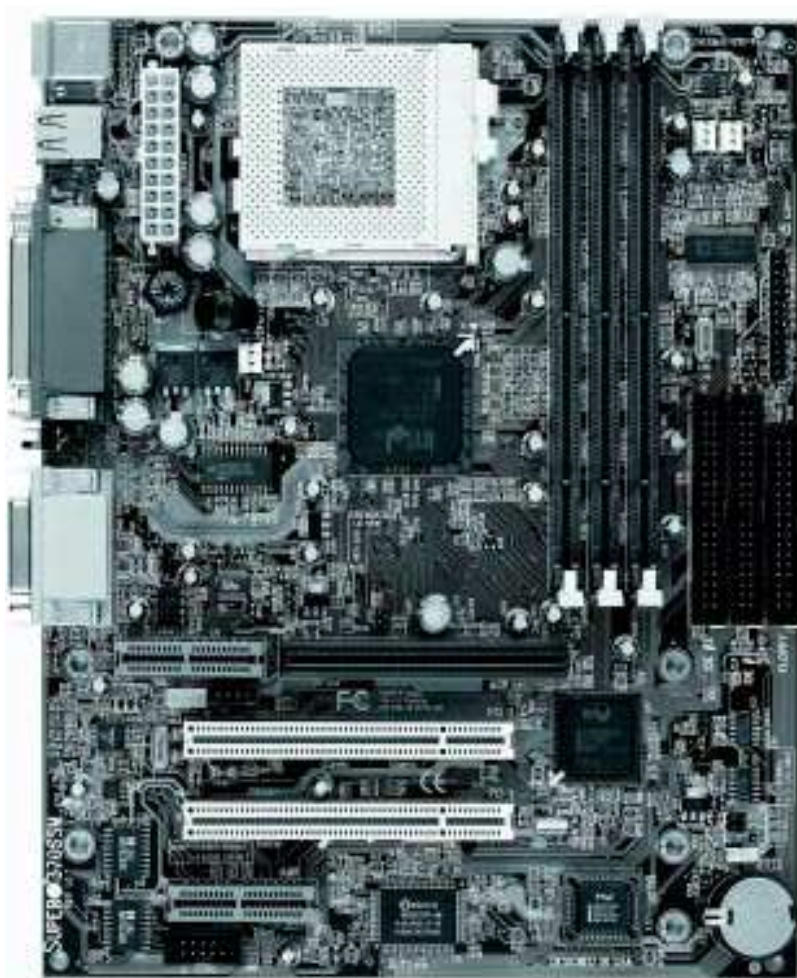
## SUPER 370SSA

Figure 1-1. SUPER 370SSA Image

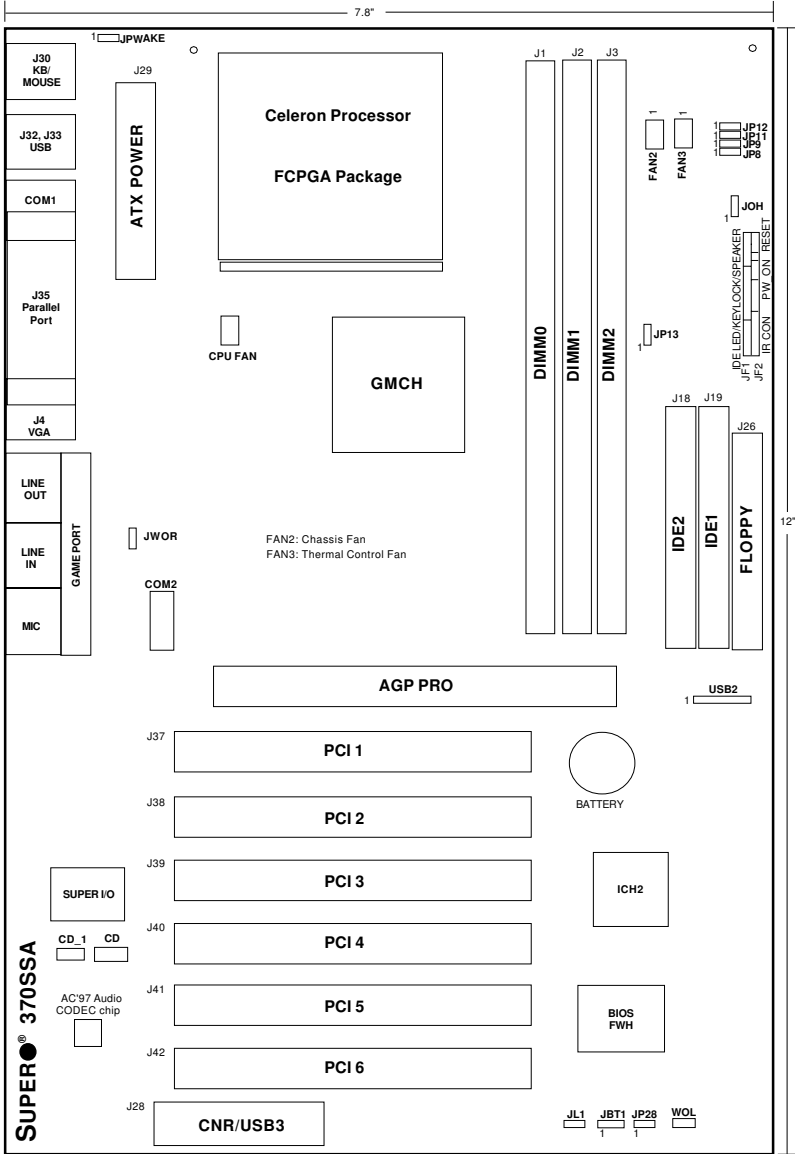


## SUPER 370SSM

Figure 1-2. SUPER 370SSM Image



**Figure 1-3. SUPER 370SSA Layout**  
(not drawn to scale)



## 370SSA Quick Reference

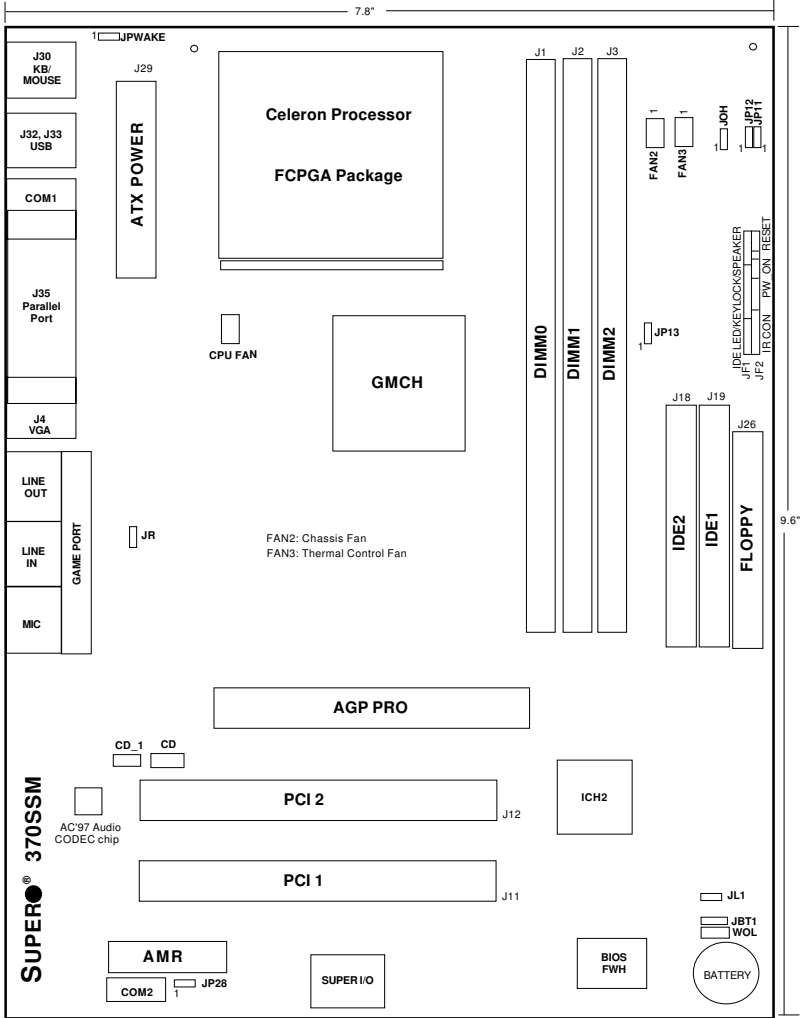
<b><u>Jumpers</u></b>	<b><u>Description</u></b>	<b><u>Default Setting</u></b>
JBT1	CMOS Clear (p. 2-12)	Pins 1-2 (Normal)
JP11/12	Front Side Bus Speed (p. 2-11)	Both: Pins 1-2 (Auto)
JP28	AC97 Audio (p. 2-12)	Pins 1-2 (Enabled)
JPWAKE	Keyboard Wake-Up	Pins 1-2 (Disabled)

<b><u>Connectors</u></b>	<b><u>Description</u></b>
CD	Audio CD Input (large connector) (p. 2-10)
CD_1	Audio CD Input (small connector) (p. 2-10)
CNR	Communications/Networking Riser (p. 2-14)
COM1/COM2	COM1/COM2 Serial Port Connector (p. 2-9)
CPU FAN	CPU Fan Header (p. 2-10)
FAN2	Chassis Fan Header (p. 2-10)
FAN3	Thermal Control Fan Header (p. 2-10)
GAME	Game Port
J1, J2, J3	Memory (DIMM) Slots (p. 2-4)
J18, J19	IDE Hard Disk Drive Connectors (p. 2-14)
JP26	Floppy Disk Drive Connector (p. 2-14)
J29	ATX Power Connector (p. 2-7)
J30	PS/2 Keyboard/Mouse (p. 2-8)
J32, J33	Universal Serial Bus Ports (p. 2-9)
J35	Parallel Printer Port (p. 2-14)
JF1, JF2	Front Control Panel (p. 2-6)
JL1	Chassis Intrusion Header (p. 2-10)
JOH	Overheat LED (p. 2-10)
JWOR	Wake-On-Ring Header (p. 2-12)
LINE IN	Audio In Connector
LINE OUT	Audio Out (Speaker) Connector
MIC	Microphone Input
USB3	Universal Serial Bus Port #3
WOL	Wake-on-LAN Header (p. 2-9)

Also see the figures on page 2-5 for the I/O ports and page 2-6 for the Front Control Panel (JF1/2) connectors.

Jumpers not indicated are for test purposes only.

Figure 1-4. SUPER 370SSM Layout  
(not drawn to scale)





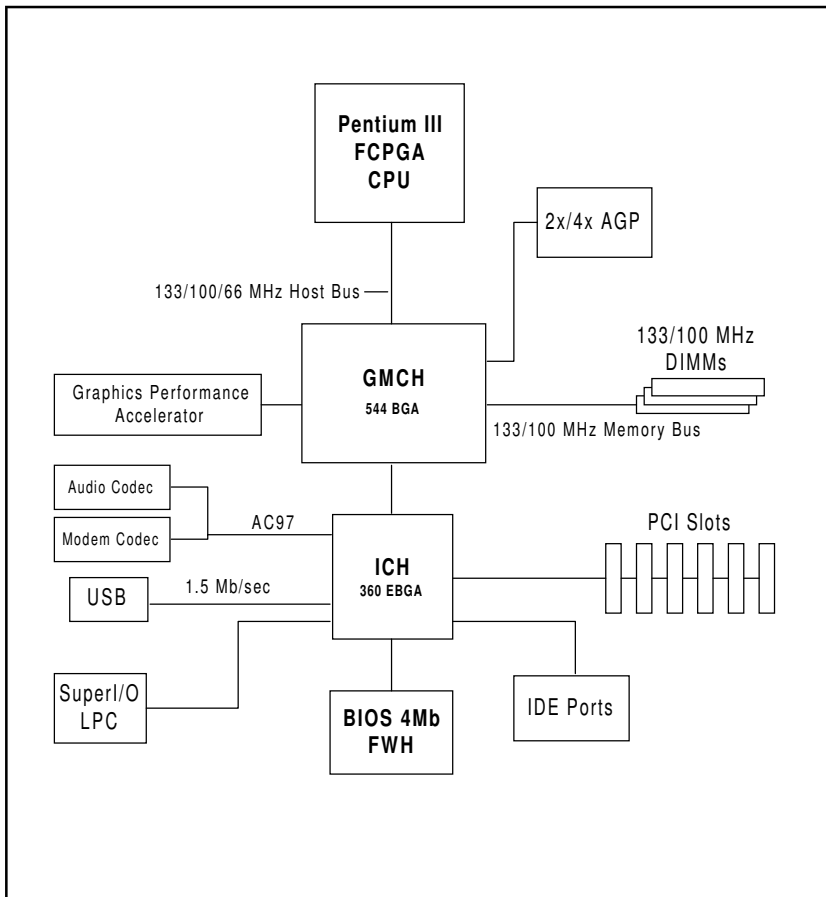
## 370SSM Quick Reference

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WOL	Wake-on-LAN Header (p. 2-9)

Also see the figures on page 2-5 for the I/O ports and page 2-6 for the Front Control Panel (JF1/2) connectors.

Jumpers not indicated are for test purposes only.



**Figure 1-5. 815 Chipset:  
System Block Diagram**

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

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## Features of the 370SSA/370SSM Motherboard

### CPU

- Single Pentium® III FCPGA 500 MHz-1 GHz processors and Celeron PPGA 333-500 MHz processors at 133/100/66 MHz front side bus speeds

**Note:** Please refer to the support section of our web site for a complete listing of supported processors. (<http://www.supermicro.com/TechSupport.htm>)

### Memory

- Three 168-pin DIMM sockets to support up to 512 MB unbuffered SDRAM. PC133 and PC100 SDRAM are fully supported.

### Chipset

- Intel 815 (370SSM)
- Intel 815E (370SSA)

### Expansion Slots

#### **370SSA:**

- Six 32-bit PCI slots
- One AGP Pro slot
- One CNR (Communications and Network Riser Card) slot
- 1 GPA (Graphics Performance Accelerator, formerly known as AIMM) slot

#### **370SSM:**

- Two 32-bit PCI slots
- One 4xAGP slot
- One AMR (Audio Modem Riser) slot
- 1 GPA (Graphics Performance Accelerator, formerly called AIMM) slot

### BIOS

- 4 Mb Firmware Hub AMI® Flash BIOS
- APM 1.2, DMI 2.1, PCI 2.2, ACPI 1.0, Plug and Play (PnP)

### PC Health Monitoring

- Seven onboard voltage monitors for CPU core, chipset voltage, +3.3V, ±5V and ±12V
- Four-fan status monitor with firmware/software on/off control
- Environmental temperature monitor and control

- CPU fan auto-off in sleep mode
- Power-up mode control for recovery from AC power loss
- System overheat LED and control
- System resource alert
- Hardware BIOS virus protection
- Auto-switching voltage regulator for the CPU core

### **ACPI/PC 98 Features**

- Microsoft OnNow
- Slow blinking LED for suspend state indicator
- BIOS support for USB keyboard
- Real-time clock wake-up alarm
- Main switch override mechanism
- External modem ring-on

### **Onboard I/O**

- 2 EIDE bus master interfaces support Ultra DMA/100 (370SSA)
- 2 EIDE bus master interfaces support Ultra DMA/66 (370SSM)
- 1 floppy port interface (up to 2.88 MB)
- 2 Fast UART 16550A compatible serial ports
- 1 EPP (Enhanced Parallel Port) and ECP (Extended Capabilities Port) supported parallel port
- PS/2 mouse and PS/2 keyboard ports
- 1 infrared port
- 4 USB (Universal Serial Bus) ports (2 USB ports on 370SSM)

### **Other**

- Selectable CPU and chassis fan speed control (set in BIOS)
- Internal/external modem ring-on
- Recovery from AC power loss control
- Wake-on-LAN (WOL)
- Multiple FSB clock frequency selections (set in BIOS)

### **CD Utilities**

- BIOS flash upgrade utility
- Drivers for 815 chipset utilities

### **Dimensions**

- SUPER 370SSA - ATX: 12" x 7.8" (305 x 198 mm)
- SUPER 370SSM - MicroATX: 9.6" x 7.8" (244 x 198 mm)

## 1-2 Chipset Overview

Intel's 815 chipset is made up of three main components: the Graphics and Memory Controller Hub (GMCH), the I/O Controller Hub (ICH) and the Firmware Hub (FWH). The GMCH integrates a 133/100/66 MHz system bus controller, a 2D/3D graphics accelerator (AGP2x/4x) discrete graphics card, a 133/100 MHz SDRAM controller and a high-speed hub architecture interface that communicates with the ICH. The ICH integrates a UDMA/100 or UDMA/66 controller, USB controllers and other I/O functions (see below). The FWH stores both system and video BIOS and includes a Random Number Generator (RNG).

### Graphics and Memory Controller Hub (GMCH)

The GMCH includes the host (CPU) interface, DRAM interface, ICH interface and 4xAGP interface for the 815 chipset. It contains advanced power management logic and supports dual channels for DRAM. The AGP 2.0 interface supports 4x data transfers and operates at a peak bandwidth of 266 MB/sec. The MCH host interface bus runs at 133/100/66 MHz.

### I/O Controller Hub (ICH/ICH2)

The ICH is the I/O Controller Hub subsystem on the 370SSM, which integrates many of the Input/Output functions of the 815 chipset, including a two-channel UDMA/66 Bus Master IDE controller. It also provides the interface to the PCI Bus and communicates with the MCH over a dedicated hub interface. The 370SSA has the more powerful ICH2, which includes UDMA/100 IDE controllers and two USB controllers that offer 24 Mbps of bandwidth across four ports. ICH2 also features an enhanced AC'97 interface that supports full surround sound for the Dolby Digital Audio used on DVDs.

### Firmware Hub (FWH)

The FWH is a component that brings added security and manageability to the PC platform infrastructure. This device includes an integrated Random Number Generator (RNG) for stronger encryption, digital signing and security protocols. The FWH stores the system BIOS and video BIOS to eliminate a redundant nonvolatile memory component.

## Recovery from AC Power Loss

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

## 1-3 Special Features

### Communication and Networking Riser (CNR - 370SSA only)

The CNR slot supports audio, modem and networking cards and provides interfaces that support multichannel audio, V.90 analog modems, home networking through a telephone line, 10/100 Ethernet-based networking and future technologies. Separating sound and communications systems from the motherboard makes them less sensitive to noise.

### Audio Modem Riser (AMR - 370SSM only)

The AMR is a new modular specification that integrates the audio/modem functions on the motherboard by assigning the analog I/O functions to a riser card. Integration of the audio/modem function enhances system capabilities while reducing costs. The AMR interface is based on an AC-link that is compliant with Intel's Audio Codec '97 version 2.1 specification.

## 1-4 PC Health Monitoring

This section describes the PC health monitoring features of the SUPER 370SSA/370SSM. Both have an onboard System Hardware Monitor chip that supports PC health monitoring.

### Seven Onboard Voltage Monitors for the CPU Core, Chipset Voltage, +3.3V, $\pm 5V$ and $\pm 12V$

The onboard voltage monitor will scan these seven voltages continuously. Once a voltage becomes unstable, it will give a warning or send an error message to the screen. Users can adjust the voltage thresholds to define the sensitivity of the voltage monitor.

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## **Three-Fan Status Monitor with Firmware/Software On/Off Control**

The PC health monitor can check the RPM status of the cooling fans. The onboard 3-pin CPU and chassis fans are controlled by the power management functions. The thermal fan is controlled by the overheat detection logic.

## **Environmental Temperature Control**

The thermal control sensor monitors the CPU temperature in real time and will turn on the thermal control fan whenever the CPU temperature exceeds a user-defined threshold. The overheat circuitry runs independently from the CPU. It can continue to monitor for overheat conditions even when the CPU is in sleep mode. Once it detects that the CPU temperature is too high, it will automatically turn on the thermal control fan to prevent any overheat damage to the CPU. The onboard chassis thermal circuitry can monitor the overall system temperature and alert users when the chassis temperature is too high.

## **CPU Fan Auto-Off in Sleep Mode**

The CPU fan activates when the power is turned on. It can be turned off when the CPU is in sleep mode. When in sleep mode, the CPU will not run at full power, thereby generating less heat.

## **CPU Overheat LED and Control**

This feature is available when the user enables the CPU overheat warning function in the BIOS. This allows the user to define an overheat temperature. When this temperature is exceeded, both the overheat fan and the warning LED are triggered.

## **System Resource Alert**

This feature is available when used with Intel's LANDesk Client Manager (optional). It is used to notify the user of certain system events. For example, if the system is running low on virtual memory and there is insufficient hard drive space for saving the data, you can be alerted of the potential problem.

## Hardware BIOS Virus Protection

The system BIOS is protected by hardware so that no virus can infect the BIOS area. The user can only change the BIOS content through the flash utility provided by SUPERMICRO. This feature can prevent viruses from infecting the BIOS area and destroying valuable data.

## Auto-Switching Voltage Regulator for the CPU Core

The auto-switching voltage regulator for the CPU core can support up to 20A current and auto-sense voltage IDs ranging from 1.3V to 3.5V. This will allow the regulator to run cooler and thus make the system more stable.

## 1-5 ACPI/PC 98 Features

ACPI stands for Advanced Configuration and Power Interface. The ACPI specification defines a flexible and abstract hardware interface that provides a standard way to integrate power management features throughout a PC system, including its hardware, operating system and application software. This enables the system to automatically turn on and off peripherals such as CD-ROMs, network cards, hard disk drives and printers. This also includes consumer devices connected to the PC such as VCRs, TVs, telephones and stereos.

In addition to enabling operating system-directed power management, ACPI provides a generic system event mechanism for Plug and Play and an operating system-independent interface for configuration control. ACPI leverages the Plug and Play BIOS data structures while providing a processor architecture-independent implementation that is compatible with both Windows 98 and Windows NT 5.0. **Note:** To utilize ACPI, you must reinstall Windows 98. To reinstall Windows 98 with ACPI, enter DOS and type "setup /p J" at the CDROM prompt (usually D:\) with the Windows 98 CD loaded. (Make sure you include the spaces after "setup" and "p".) Then hit <Enter>. You can check to see if ACPI has been properly installed by looking for it in the Device Manager, which is located in the Control Panel in Windows.

## Microsoft OnNow

The OnNow design initiative is a comprehensive, system-wide approach to system and device power control. OnNow is a term for a PC that is always on but appears to be off and responds immediately to user or other re-



quests.

### **Slow Blinking LED for Suspend-State Indicator**

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

### **BIOS Support for USB Keyboard**

If the USB keyboard is the only keyboard in the system, it keyboard will function like a normal keyboard during system boot-up.

### **Real Time Clock Wake-Up Alarm**

Although the PC may be perceived to be off when not in use, it is still capable of responding to preset wake-up events. In the BIOS, the user can set a timer to wake-up the system at a predetermined time.

### **Main Switch Override Mechanism**

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

### **External Modem Ring-On**

Wake-up events can be triggered by a device such as the external modem ringing when the system is in the SoftOff state. Note that external modem ring-on can only be used with an ATX 2.01 (or above) compliant power supply.

## Wake-On-LAN (WOL)

Wake-On-LAN is defined as the ability of a management application to remotely power up a computer that is powered off. Remote PC setup, updates and asset tracking can occur after hours and on weekends so that daily LAN traffic is kept to a minimum and users are not interrupted. The motherboards have a 3-pin header (WOL) to connect to the 3-pin header on a Network Interface Card (NIC) that has WOL capability. Wake-On-LAN must be enabled in BIOS. Note that Wake-On-Lan can only be used with an ATX 2.01 (or above) compliant power supply.

## 1-6 Power Supply

As with all computer products, a stable power source is necessary for proper and reliable operation. It is even more important for processors that have high CPU clock rates of 300 MHz and above.

The SUPER 370SSA/370SSM accommodates ATX power supplies. Although most power supplies generally meet the specifications required by the CPU, some are inadequate.

It is strongly recommended that you use a high quality power supply that meets ATX power supply Specification 2.02 or above. Additionally, in areas

where noisy power transmission is present, you may choose to install a line filter to shield the computer from noise. It is recommended that you also install a power surge protector to help avoid problems caused by power surges.

## 1-7 Super I/O

The disk drive adapter functions of the Super I/O chip include a floppy disk drive controller that is compatible with industry standard 82077/765, a data separator, write pre-compensation circuitry, decode logic, data rate selection, a clock generator, drive interface control logic and interrupt and DMA logic. The wide range of functions integrated onto the Super I/O greatly reduces the number of components required for interfacing with floppy disk drives. The Super I/O supports four 360 K, 720 K, 1.2 M, 1.44 M or 2.88 M disk drives and data transfer rates of 250 Kb/s, 500 Kb/s or 1 Mb/s.

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

The Super I/O supports one PC-compatible printer port (SPP), Bi-directional Printer Port (BPP) , Enhanced Parallel Port (EPP) or Extended Capabilities Port (ECP).

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

The IRQs, DMAs and I/O space resources of the Super I/O can flexibly adjust to meet ISA PnP requirements, which support ACPI and APM (Advanced Power Management).

# Notes

Introduction

## Chapter 2 Installation

### 2-1 Static-Sensitive Devices

Static-sensitive electrical discharge can damage electronic components. To prevent damage to your system board, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from static discharge.

#### Precautions

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

#### 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.

## 2-2 Processor Installation



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

The following pages cover the installation procedure. You should install the processor in the motherboard first, then install the motherboard in the chassis, then the memory and add-on cards, and finally the cables and drivers. Following the installation procedures in the order they appear in this chapter should eliminate the most common problems encountered when installing a system.

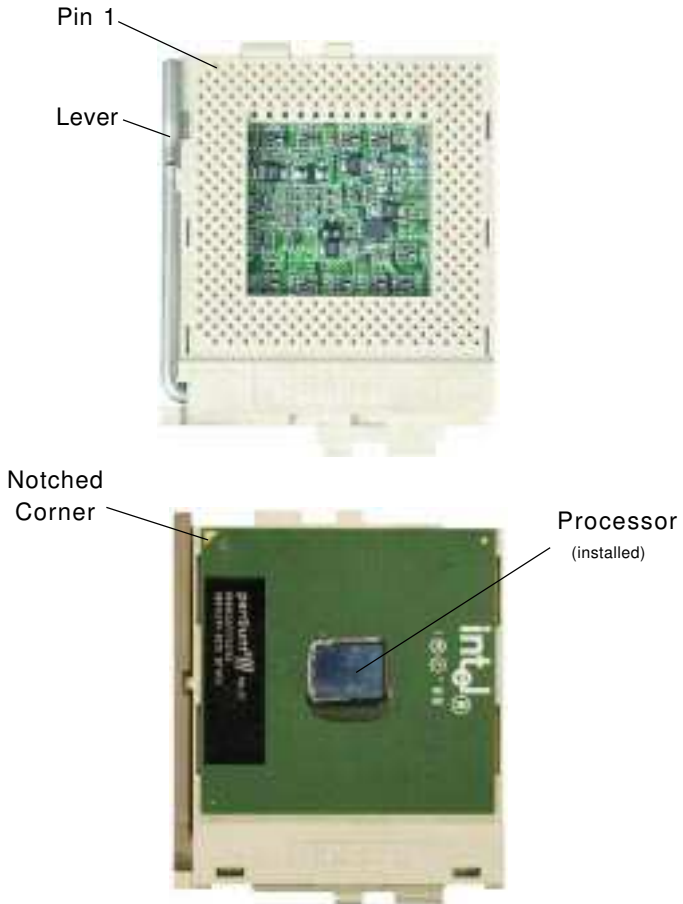
**IMPORTANT:** Always connect the power cord last and always remove it before adding, removing or changing any hardware components.

### Heat Sink

Follow the instructions that came with your processor or heat sink to attach a heat sink to the processor. Your heat sink should have a 3-pin fan, which connects to the CPU FAN header. Make sure that good contact is made between the CPU chip and the heat sink. Insufficient contact will cause the processor to overheat, which may crash the system.

### Processor

You are now ready to install the processor. Your motherboard has a 370-pin, FCPGA type socket, which supports 370-pin Pentium III FCPGA (not SEPP) and Celeron PPGA processors. Lift the lever on the FCPGA socket and install with the notched corner of the processor oriented with pin 1. Fully seat the processor into the socket and then close the lever. See Figure 2-1 for views of the FCPGA 370-pin socket before and after processor installation.



**Figure 2-1. FCPGA Socket: Empty and with Processor Installed**

## 2-3 Mounting the Motherboard in the Chassis

All motherboards have standard mounting holes to fit different types of chassis. Chassis may include a variety of mounting fasteners made of metal or plastic. Although a chassis may have both types, metal fasteners are the most highly recommended because they ground the motherboard to the chassis. For this reason, it is best to use as many metal fasteners as possible.

## 2-4 Installing DIMMs

### CAUTION

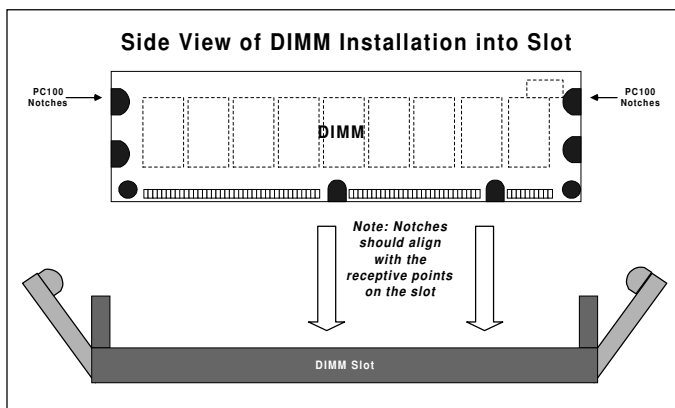
Exercise extreme care when installing or removing DIMM modules to prevent any possible damage.

#### DIMM Installation (See Figure 2-2)

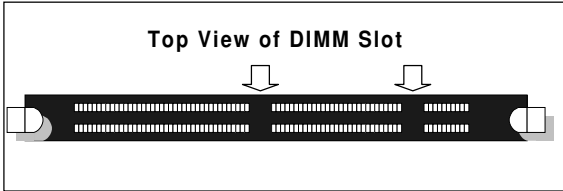
1. Insert DIMMs in Bank 0 through Bank 2 as required for the desired system memory.
2. Insert each DIMM module vertically into its slot. Pay attention to the two notches along the bottom of the module to prevent inserting the DIMM incorrectly.
3. Gently press down on the DIMM module until it snaps into place.
4. If installing only a single DIMM, you may use any Bank. The 370SSA/370SSM will support a total of 512 MB of unbuffered SDRAM in its three DIMM slots. ECC type memory is not supported. PC133 and PC100 memory are both fully supported at their respective speeds. However, if three DIMM modules are installed, the memory will run at 100 MHz, even if PC133 memory is used (this is a chipset limitation).

Figure 2-2. DIMM Installation

**To Install:**  
Insert module vertically and press down until it snaps into place. Pay attention to the two notches.



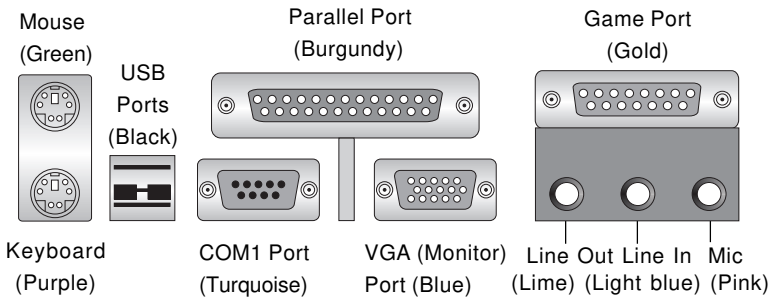




**To Remove:**  
Use your thumbs to gently push near the edge of both ends of the module. This should release it from the slot.

## 2-5 Port/Control Panel Connector Locations

The I/O ports are color coded in conformance with the PC99 specification to make setting up your system easier. See Figure 2-3 below for the colors and locations of the various I/O ports.



**Figure 2-3. I/O Port Locations and Definitions**

## Front Control Panel

JF1 and JF2 contain header pins for various front control panel connectors. See Figure 2-4 for the pin definitions of the speaker, keyboard lock, hard drive LED, infrared connector, and power on and reset button headers, which are all located on JF1 and JF2. Refer to pages 2-7 to 2-8 for details.

Installation

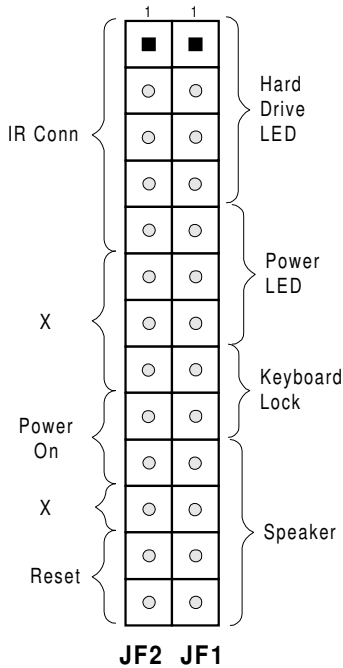


Figure 2-4. Front Control Panel Connectors

## 2-6 Connecting Cables (see previous page for locations)

### Power Supply Connector

After you have securely mounted the motherboard, memory and add-on cards, you are ready to connect the cables. Attach an ATX power supply cable to J29 by aligning the tabs on both connectors. See Table 2-1 for the pin definitions of an ATX power supply.

**Table 2-1**  
ATX Power Supply Connector  
Pin Definitions (J29)

Pin Number	Definition	Pin Number	Definition
1	3.3V	11	3.3V
2	3.3V3	12	-12V
3	Ground	13	Ground
4	5V	14	PS-ON
5	Ground	15	Ground
6	5V	16	Ground
7	Ground	17	Ground
8	PW-OK	18	-5V
9	5VSB	19	5V
10	12V	20	5V

### Infrared Connector

The infrared connector is located on pins 1-5 of JF2. See Table 2-2 for pin definitions. See the Technical Support section of our web page for information on the infrared devices you can connect to the system.

**Table 2-2**  
Infrared Pin  
Definitions  
(JF2)

Pin Number	Definition
1	+5V
2	Key
3	IRRX
4	Ground
5	IRTX

### PW\_ON Connector

The PW\_ON connector is located on pins 9 and 10 of JF2. Momentarily contacting both pins will power on/off the system. The user can also configure this button to function as a suspend button. (See the Power Button Mode setting in BIOS.) To turn off the power when set to suspend mode, hold down the power button for at least 4 seconds. See Table 2-3 for pin definitions.

**Table 2-3**  
PW\_ON Connector  
Pin Definitions  
(JF2)

Pin Number	Definition
9	PW_ON
10	Ground

## Reset Connector

The reset connector is located on pins 12 and 13 of JF2. This connector attaches to the hardware reset switch on the computer case. See Table 2-4 for pin definitions.

**Table 2-4  
Reset Pin  
Definitions  
(JF2)**

Pin Number	Definition
12	Ground
13	Reset

## Hard Drive LED

The hard drive LED is located on pins 1 to 4 of JF1. Attach the hard drive LED cable to pins 1 and 2. See Table 2-5 for pin definitions.

**Table 2-5  
Hard Drive LED Pin  
Definitions  
(JF1)**

Pin Number	Definition
1	+5V
2	HD Active
3	HD Active
4	+5V

## Keylock/Power LED Connector

The keylock/power LED connector is located on pins 5 to 9 of JF1. See Table 2-6 for pin definitions. Pins 5 through 7 are for the power LED. Pins 8 and 9 are for the keylock.

**Table 2-6  
Keylock/Power LED Pin  
Definitions (JF1)**

Pin Number	Function	Definition
5	VCC +5V	LED power
6	VCC +5V	LED power or key
7	Ground	Black wire
8		Keyboard inhibit
9	Ground	Black wire

## Speaker Connector

The speaker connector is located on pins 10 to 13 of JF1. See Table 2-7 for pin definitions.

**Table 2-7  
Speaker Connector Pin  
Definitions (JF1)**

Pin Number	Function	Definition
10	+	Red wire, Speaker data
11	Key	No connection
12		Key
13		Speaker data

## ATX PS/2 Keyboard and PS/2 Mouse Ports

The ATX PS/2 keyboard and the PS/2 mouse are located on J30. See Table 2-8 for pin definitions. (The mouse port is above the keyboard port. See Figure 2-3 for locations.)

**Table 2-8  
PS/2 Keyboard  
and Mouse Port  
Pin Definitions  
(J30)**

Pin Number	Definition
1	Data
2	NC
3	Ground
4	VCC
5	Clock
6	NC

## Universal Serial Bus (USB)

Two Universal Serial Bus connectors (USB0 and USB1) are located on J32 and J33. See Table 2-9 for pin definitions. The 370SSA also provides support for two additional USB ports: USB2 is a header located near the IDE connectors and provides easy front side chassis access (cable not included). USB3 is incorporated into the CNR slot - the CNR card you plug in here should have a USB port.

**Table 2-9**  
Universal Serial Bus Pin Definitions

J32		J33	
Pin Number	Definition	Pin Number	Definition
1	+5V	1	+5V
2	P0-	2	P0-
3	P0+	3	P0+
4	Ground	4	Ground
5	N/A	5	Key

## Serial Ports

Two connectors, for the COM1 and COM2 serial ports, are provided on your board. COM1 is located below the parallel port (see Figure 2-3) and COM2 is located just behind the Game Port. See Table 2-10 for pin definitions. A 10-pin serial ribbon cable is required if connecting a device to a COM header.

**Table 2-10**  
Serial Port Pin Definitions  
(COM1, COM2)

Pin Number	Definition	Pin Number	Definition
1	DCD	6	CTS
2	DSR	7	DTR
3	Serial In	8	RI
4	RTS	9	Ground
5	Serial Out	10	NC

## Wake-On-LAN

The Wake-On-LAN header is located on WOL. Refer to Table 2-11 for pin definitions. You must enable the LAN Wake-Up setting in BIOS to use this function. (You must also have a LAN card with a Wake-on-LAN connector and cable to use this feature.)

**Table 2-11**  
Wake-On-LAN Pin  
Definitions (WOL)

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

## CD Headers

There are two CD headers of different sizes on the motherboard for audio CD playback. You must connect an audio cable from your CD player to the header that fits your cable's connector. Refer to Table 2-12 for pin definitions.

**Table 2-12**  
Audio CD Header Pin Definitions  
(CD, CD\_1)

Pin Number	Definition
1	Right Stereo Signal
2	Ground
3	Ground
4	Left Stereo Signal

## Fan Headers\*

The CPU, chassis and thermal control fan headers are designated CPU FAN, FAN2 and FAN3, respectively. Refer to Table 2-13 for pin definitions.

**Table 2-13**  
Fan Header Pin Definitions  
(CPU FAN, FAN2, FAN3)

Pin Number	Definition
1	Ground (black)
2	+12V (red)
3	Tachometer

\* Caution: These fan headers are DC power.

## Chassis Intrusion

The Chassis Intrusion header is located on JL1. See the board layouts in Chapter 1 for its location. See Table 2-14 for pin definitions.

**Table 2-14**  
Chassis Intrusion  
Pin Definitions (JL1)

Pin Number	Definition
1	Intrusion Input
2	Ground

## Overheat LED (JOH)

The JOH header is used to connect an LED to provide warning of chassis overheating. Refer to Table 2-15 for pin definitions.

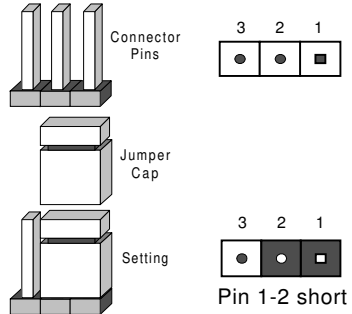
**Table 2-15**  
Overheat LED  
Pin Definitions (JOH)

Pin Number	Definition
1	12VDC
2	OH Active

## 2-7 Jumper Settings

### Explanation of Jumpers

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



### Front Side Bus Speed

The FSB speed is set with JP11 and JP12. Table 2-16 displays the settings for these two jumpers. The CPU speed can also be changed by software control in BIOS (see CPU Speed setting). The CPU Speed setting will show you the actual CPU speed for each FSB speed option selected.

**Note:** If the system does not reboot after changing the CPU speed, 1) clear CMOS and reboot (as described on the next page) and then set the correct CPU speed with the BIOS setting mentioned above.

Table 2-16  
Front Side Bus Speed Jumper Settings  
(JP11, JP12)

JP11	JP12	FSB Speed
1-2	1-2	Auto
2-3	2-3	66 MHz
Open	2-3	100 MHz
Open	Open	133 MHz

\* Note: The Auto setting allows the CPU to set the speed.

## CMOS Clear

Refer to Table 2-17 for instructions on how to clear CMOS. Always remove the AC power cord from the system before clearing CMOS.

**Note:** For an ATX power supply, you must completely shut down the system, remove the AC power cord, then use JBT1 to clear CMOS.

Replace JBT1 back to the pin 1-2 position before powering up the system again. Do not use the PW\_ON connector to clear CMOS.

**Table 2-17**  
**CMOS Clear Jumper Settings (JBT1)**

Jumper Position	Definition
1-2	Normal
2-3	CMOS Clear

## AC'97 Enable/Disable

AC'97 brings high quality audio to PCs. When enabled with JP28, audio is processed onboard and the AMR slot (370SSM only) will support modems only. The disabled setting should be selected when you wish to use an add-on card for audio either in the AMR or a PCI slot. See Table 2-18 for jumper settings.

**Table 2-18**  
**AC'97 Enable/Disable Jumper Settings (JP28)**

Jumper Position	Definition
1-2	Enabled
2-3	Disabled

## Wake-On-Ring

The Wake-On-Ring header is designated as JWOR on the 370SSA and as JR on the 370SSM. This function allows your computer to receive and be "woken up" by an incoming call when in the suspend state. Refer to Table 2-19 for pin definitions. You must also have a WOR card and cable to use WOR.

**Table 2-19**  
**Wake-On-Ring Pin Definitions (JWOR/JR)**

Pin Number	Definition
1	+5V Standby
2	Wake-up



## Keyboard Wake-Up

The JPWAKE jumper is used together with the Keyboard Wake-Up function in BIOS. Enable both the jumper and the BIOS setting to allow the system to be woken up by depressing a key on the keyboard. See Table 2-20 for jumper settings. Your power supply must meet ATX specification 2.01 or higher and supply 720 mA of standby power to use this feature.

**Table 2-20**  
Keyboard Wake-Up  
Jumper Settings  
(JPWAKE)

Jumper Position	Definition
1-2	Disabled
2-3	Enabled

## 2-8 Parallel Port, AMR, AGP and Floppy/Hard Disk Drive Connections

Use the following information to connect the floppy and hard disk drive cables.

- The floppy disk drive cable has seven twisted wires.
- A red mark on a wire typically designates the location of pin 1.
- A single floppy disk drive ribbon cable has 34 wires and two connectors to provide for two floppy disk drives. The connector with twisted wires always connects to drive A, and the connector that does not have twisted wires always connects to drive B.
- The 80-wire ATA66/100 (370SSM/370SSA) IDE hard disk drive cable that came with your system has two connectors to support two drives. This special cable should be used to take advantage of the speed this new technology offers. The blue connector connects to the onboard IDE connector interface and the other connector(s) to your hard drive(s). Consult the documentation that came with your disk drive for details on actual jumper locations and settings for the hard disk drive.

**Table 2-21**  
Parallel (Printer) Port Pin Definitions  
(J35)

Pin Number	Function	Pin Number	Function
1	Strobe-	2	Auto Feed-
3	Data Bit 0	4	Error-
5	Data Bit 1	6	Init-
7	Data Bit 2	8	SLCT IN-
9	Data Bit 3	10	GND
11	Data Bit 4	12	GND
13	Data Bit 5	14	GND
15	Data Bit 6	16	GND
17	Data Bit 7	18	GND
19	ACK	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	NC

## Parallel Port Connector

The parallel port is located on J35. See Table 2-21 for pin definitions.

## Floppy Connector

The floppy connector is located on JP26. See Table 2-22 for pin definitions.

**Table 2-22**  
Floppy Connector Pin Definitions (JP26)

Pin Number	Function	Pin Number	Function
1	GND	2	FDHDIN
3	GND	4	Reserved
5	Key	6	FDEDIN
7	GND	8	Index-
9	GND	10	Motor Enable
11	GND	12	Drive Select B-
13	GND	14	Drive Select A-
15	GND	16	Motor Enable
17	GND	18	DIR-
19	GND	20	STEP-
21	GND	22	Write Data-
23	GND	24	Write Gate-
25	GND	26	Track 00-
27	GND	28	Write Protect-
29	GND	30	Read Data-
31	GND	32	Side 1 Select-
33	GND	34	Diskette

**Table 2-23**  
IDE Connector Pin Definitions  
(J18, J19)

Pin Number	Function	Pin Number	Function
1	Reset IDE	2	GND
3	Host Data 7	4	Host Data 8
5	Host Data 6	6	Host Data 9
7	Host Data 5	8	Host Data 10
9	Host Data 4	10	Host Data 11
11	Host Data 3	12	Host Data 12
13	Host Data 2	14	Host Data 13
15	Host Data 1	16	Host Data 14
17	Host Data 0	18	Host Data 15
19	GND	20	Key
21	DRQ3	22	GND
23	I/O Write-	24	GND
25	I/O Read-	26	GND
27	IOCHRDY	28	BALE
29	DACK3-	30	GND
31	IRQ14	32	IOCS16-
33	Addr 1	34	GND
35	Addr 0	36	Addr 2
37	Chip Select 0	38	Chip Select 1-
39	Activity	40	GND

## IDE Connectors

There are no jumpers to configure the onboard IDE interfaces J18 and J19. Refer to Table 2-23 for pin definitions. You must use the ATA100/66 cable included with your system to benefit from the ATA100/66 technology.

## AMR Connector

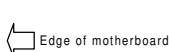
Refer to Table 2-24 for the pin definitions of the AMR connector.

Table 2-24  
AMR Connector Pin Definitions (AMR)

Pin Number	Signal	Pin Number	Signal
B1	AUDIO_MUTE#	A1	AUDIO_PWRDN
B2	GND	A2	MONO_PHONE
B3	MONO_OUT_/PC_BEEP	A3	
B4		A4	
B5		A5	
B6	PRIMARY_DN#	A6	GND
B7	-12V	A7	+5Vdual/+5VSB
B8	GND	A8	USB_OC#
B9	+12V	A9	GND
B10	GND	A10	USB+
B11	+5VD (KEY) (KEY)	A11	USB- (KEY) (KEY)
B12	GND	A12	GND
B13		A13	S/P-DIF_IN
B14		A14	GND
B15	+3.3VD	A15	+3.3Vdual/+3.3VSB
B16	GND	A16	GND
B17	AC97_SDATA_OUT	A17	AC97_SYNC
B18	AC97_RESET#	A18	GND
B19	AC97_SDATA_IN3	A19	AC97_SDATA_IN1
B20	GND	A20	GND
B21	AC97_SDATA_IN2	A21	AC97_SDATA_IN0
B22	GND	A22	GND
B23	AC97_MSTRCLK+RST	A23	AC97_BITCLK

## AGP Pro Slot

The AGP Pro slot is backward compatible with AGP and 4xAGP graphics cards, which have fewer pins than AGP Pro cards. Because of this, care must be taken when installing a graphics card into this slot, as doing so incorrectly can damage your motherboard. For AGP Pro cards, you should remove the orange sticker covering one end of the slot. For other cards, leave this sticker in place and make sure your card does not plug into the section it covers. A general rule of thumb is to make sure your card fills the center section of pins first, then the end toward the edge of the motherboard if there are more. If the I/O shield of your card is flush with the edge of the motherboard, the card should be inserted correctly.

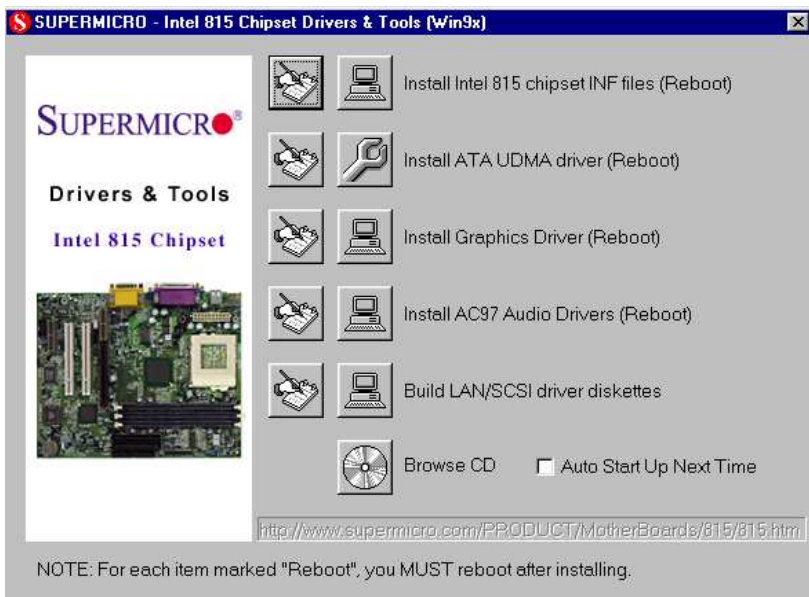


### AGP Pro Slot



## 2-9 Installing Software Drivers

After all the hardware has been installed you must install the software drivers. The necessary drivers are all included on the Supermicro CD that came packaged with your motherboard. After inserting this CD into your CDROM drive, the display shown in Figure 2-5 should appear. (If this display does not appear, click on the My Computer icon and then on the icon representing your CDROM drive. Finally, double click on the S "Setup" icon.)



**Figure 2-5. Driver/Tool 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 Security and Graphics Drivers support multiple languages. Click the arrows to pull down a menu of choices. The bottom icon with a CD on it allows you to view the entire contents of the CD.

**Note:** The memory size reported in the device manager may be less than expected because some is used by the onboard graphics. Higher screen resolutions will take up more of this memory.

---

## Chapter 3 Troubleshooting

### 3-1 Troubleshooting Procedures

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

#### Before Power On

1. Make sure no short circuits exist between the motherboard and chassis.
2. Disconnect all ribbon/wire cables from the motherboard, including those for the keyboard and mouse.
3. Remove all add-on cards.
4. Install a CPU (making sure it is fully seated) and connect the chassis speaker and the power LED to the motherboard. (Check all jumper settings as well.)

#### No Power

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

#### No Video

1. If the power is on but you have no video, remove all the add-on cards and cables.
2. Use the speaker to determine if any beep codes exist. Refer to Appendix A for details on beep codes.

---

**NOTE**

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

---

**Memory Errors**

1. Make sure the DIMM modules are properly and fully installed for the amount of memory desired.
2. Determine if different speeds of DIMMs have been installed and verify that the BIOS setup is configured for the fastest speed of memory used. It is recommended to use the same memory speed for all DIMMs in the system.
3. For DIMMs, make sure you are using PC133 or PC100 compliant, unbuffered SDRAM. EDO SDRAM is not supported.
4. Check for bad DIMM modules or slots by swapping modules between slots and noting the results.
5. Make sure all memory modules are fully seated in their slots.
6. Check the power supply voltage 115V/230V switch.

**Losing the System's Setup Configuration**

1. Check the setting of jumper JBT1. Ensure that you are using a high quality power supply. A poor quality power supply may cause the system to lose the CMOS setup information. Refer to Section 1-6 for details on recommended power supplies.
2. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one.
3. If the above steps do not fix the Setup Configuration problem, contact your vendor for repairs.

**3-2 Technical Support Procedures**

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

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

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

3. If you still cannot resolve the problem, include the following information when contacting Supermicro for technical support:
  - Motherboard model and PCB revision number
  - BIOS release date/version (this can be seen on the initial display when your system first boots up)
  - System configurationAn example of a Technical Support form is on our web site at [http://www.supermicro.com/techsupport/contact\\_support.htm](http://www.supermicro.com/techsupport/contact_support.htm).
4. Distributors: For immediate assistance, please have your account number ready when placing a call to our technical support department. We can be reached by e-mail at [support@supermicro.com](mailto:support@supermicro.com) or by fax at (408) 895-2012.

### 3-3 Frequently Asked Questions

**Question: What are the various types of memory that the 370SSA/370SSM motherboard can support?**

**Answer:** The 370SSA/370SSM has three 168-pin DIMM slots that support up to 512 MB of unbuffered 3.3V SDRAM (registered DIMMs not supported). ECC memory is not supported. The 133/100 MHz memory bus fully supports both PC133 and PC100 memory. However, if three DIMM modules are installed, the memory will run at 100 MHz, even if PC133 memory is used (this is a chipset limitation).

**Question: How do I update my BIOS?**

**Answer:** It is recommended that you **do not** upgrade your BIOS if you are experiencing no problems with your system. Updated BIOS files are located on our web site at <http://www.supermicro.com>. Please check our BIOS warning message and the info on how to update your BIOS on our web site. Also, check the current BIOS revision and make sure it is newer than your BIOS before downloading. Select your motherboard model and down-

load the BIOS file to your computer. Unzip the BIOS update file and you will find the readme.txt (flash instructions), the fwhflash.com (BIOS flash utility) and the BIOS image (xxxxxx.rom) files. Copy these files onto a bootable floppy and reboot your system. It is not necessary to set BIOS boot block protection jumpers on the motherboard. At the DOS prompt, enter the command "fwhflash." This will start the flash utility and give you an opportunity to save your current BIOS image. Flash the boot block and enter the name of the update BIOS image file.

**Note:** It is important to save your current BIOS and **rename it "super.rom"** in case you need to recover from a failed BIOS update. Select flash boot block, then enter the update BIOS image. Select "Y" to start the BIOS flash procedure and do not disturb your system until the flash utility displays that the procedure is complete. After updating your BIOS, please clear the CMOS then load Optimal Values in the BIOS.

**Question: After flashing the BIOS my system does not have video. How can I correct this?**

**Answer:** If the system does not have video after flashing your new BIOS, it indicates that the flashing procedure failed. To remedy this, first clear CMOS per the instructions in this manual and retry the BIOS flashing procedure. If you still do not have video, please use the following **BIOS Recovery Procedure**. First, make sure the JPWAKE jumper is disabled. Then, turn your system off and place the floppy disk with the saved BIOS image file (see above FAQ) in drive A. Press and hold <CTRL> and <Home> at the same time, then turn on the power with these keys pressed until your floppy drive starts reading. Your screen will remain blank until the BIOS program is done. If the system reboots correctly, then the recovery was successful. The **BIOS Recovery Procedure** will not update the boot block in your BIOS.

**Question: Do I need the CD that came with your motherboard?**

**Answer:** The supplied compact disc has quite a few drivers and programs that will greatly enhance your system. We recommend that you review the CD and install the applications you need. Applications on the CD include 815 chipset drivers for Windows and security and audio drivers.

**Question: Why can't I turn off the power using the momentary power on/off switch?**

**Answer:** The instant power off function is controlled in BIOS by the Power Button Mode setting. When the On/Off feature is enabled, the motherboard



will have instant off capabilities as long as the BIOS has control of the system. When the Standby or Suspend feature is enabled or when the BIOS is not in control such as during memory count (the first screen that appears when the system is turned on), the momentary on/off switch must be held for more than four seconds to shut down the system. This feature is required to implement the ACPI features on the motherboard.

**Question: I see some of my PCI devices sharing IRQs, but the system seems to be fine. Is this correct or not?**

**Answer:** Some PCI Bus Mastering devices can share IRQs without performance penalties. These devices are designed to work correctly while sharing IRQs. See Table 3-1 below for details on shared IRQs.

**Table 3-1. Shared IRQs**

### **370SSM**

PCI 1 shares an IRQ with the 4xAGP slot  
 PCI 2 has a dedicated IRQ (does not share)

### **370SSA**

PCI 1 shares an IRQ with PCI 5 and the AGP Pro slot  
 PCI 2 shares an IRQ with PCI 6  
 PCI 3 has a dedicated IRQ (does not share)  
 PCI 4 has a dedicated IRQ (does not share)

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

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

**Question: How do I connect the ATA66/100 cable to my IDE device(s)?**

**Answer:** The 80-wire/40-pin ATA66/100 IDE cable that came with your system has two connectors to support two drives. This special cable must be used to take advantage of the speed the ATA66/100 technology offers. Connect the blue connector to the onboard IDE header and the other connector(s) to your hard drive(s). Consult the documentation that came with your disk drive for details on actual jumper locations and settings. (The 370SSM has an ATA66 cable and the 370SSA has an ATA100 cable.)

### 3-4 Returning Merchandise for Service

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

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

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

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# Chapter 4

## BIOS

### 4-1 Introduction

This chapter describes the AMIBIOS for the 370SSA/370SSM. The AMI ROM BIOS is stored in a Flash EEPROM and can be easily upgraded using a floppy disk-based program.

**Note:** Due to periodic changes to BIOS, some settings may have been added or deleted and might not yet be recorded in this manual. Refer to the Manual Download area of our web site for any changes to BIOS that are not reflected in this manual.

#### System BIOS

The BIOS is the Basic Input Output System used in all IBM® PC, XT™, AT®, and PS/2® compatible computers. The BIOS ROM stores the system parameters, such as amount of memory, type of disk drives and video displays, etc. BIOS ROM requires very little power. When the computer is turned off, a back-up battery provides power to the BIOS ROM, enabling it to retain the system parameters. Each time the computer is powered-on, the computer is then configured with the values stored in the BIOS ROM by the system BIOS, which gains control when the computer is powered on.

#### How To Change the Configuration Data

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

#### Starting the Setup Utility

Normally, the only visible POST (Power On Self Test) routine is the memory test. As the memory is being tested, press the <Delete> key to enter the main menu of the BIOS Setup utility. From the main menu, you can access the other setup screens, such as the Chipset and Power menus. Section 4-3 gives detailed descriptions of each parameter setting in the Setup utility.

An AMIBIOS identification string is displayed at the left bottom corner of the screen, below the copyright message.

## 4-2 BIOS Features

- Supports Plug and Play V1.0A and DMI 2.1
- Supports Intel PCI (Peripheral Component Interconnect) (PME) local bus specification
- Supports Advanced Power Management (APM) specification v 1.1
- Supports ACPI
- Supports Flash ROM

AMIBIOS supports the LS120 drive made by Matsushita-Kotobuki Electronics Industries Ltd. The LS120:

- Can be used as a boot device
- Is accessible as the next available floppy drive

AMIBIOS supports PC Health Monitoring chips. When a failure occurs in a monitored activity, AMIBIOS can sound an alarm and display a message. The PC Health Monitoring chips monitor:

- CPU temperature
- Additional temperature sensors
- Chassis intrusion detector
- Five positive voltage inputs
- Two negative voltage inputs
- Three fan speed monitor inputs

## 4-3 Running Setup

*\*Optimal default settings are in bold text unless otherwise noted.*

The BIOS setup options described in this section are selected by choosing the appropriate text from the Standard Setup screen. All displayed text is described in this section, although the screen display is often all you need to understand how to set the options (see on next page).

## The Main BIOS Setup Menu

Press the <Delete> key during the POST (Power On Self Test) to enter the Main Menu of the BIOS Setup Utility. All Main Setup options are described in this section. The Main BIOS Setup screen is displayed below.

BIOS SETUP UTILITY	
Main	Advanced Chipset PCIPnP Power Boot Security Exit
AMIBIOS Version :	07.00xx
BIOS Release Date:	xx/xx/xx
BIOS Filename :	SSM70626
Processor Type :	PentiumIII™
Processor Speed :	933MHz
System Memory :	256MB
System Time	[10:10:00]
System Date	[Thu 08/24/00]
	↔ Select Screen ↑↓ Select Item +- Change Field Tab Select Field F1 General Help F10 Save and Exit ESC Exit
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Use the Up/Down arrow keys or the <Tab> key to move between the different settings in the above menu.

When the items "System Time", and "System Date" are highlighted, type in the correct time/date in the time field, and then press "Enter". The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format. The time is in also 24-hour format. For example, 5:30 a.m. appears as 05:30:00 and 5:30 p.m. as 17:30:00.

Press the <ESC> key to exit the Main Menu and use the Left/Right arrow keys to enter the the other categories of BIOS settings. The next section is described in detail to illustrate how to navigate through the menus.

**\*Note:** Items displayed in gray are preset and cannot be selected.

## 4-4 Advanced Chipset Setup

Choose Advanced BIOS Setup from the AMIBIOS Setup Utility main menu with the Left/Right arrow keys. You should see the following display. Select one of the items in the left frame of the screen, such as SuperIO Configuration, to go to the sub screen for that item. Advanced BIOS Setup options are displayed by highlighting the option using the arrow keys. All Advanced BIOS Setup options are described in this section.

BIOS SETUP UTILITY	
<b>Main</b> <u>Advanced</u> Chipset   PCIPnP   Power   Boot   Security   Exit	
Setup Warning Setting items on this screen to incorrect values may cause the system to malfunction! > SuperIO Configuration > IDE Configuration > Floppy Configuration > Event Log Configuration > System Health Monitoring Hardware	Configure SuperIO Chipset Winbond627F          ↔ Select Screen ↑↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit
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Use the Up/Down arrow keys to select the "Super I/O Configuration line.

When the "Super IO Configuration" line is highlighted, hit "ENTER" to display its menu.

The following Super IO Configuration screen will appear. Here you can select your options for the your computer's I/O (Input/Output) devices.

## Super IO Configuration

BIOS SETUP UTILITY	
Advanced	
Configure Winbond627F Serial Port(s) and Parallel P	
Serial Port1 Address	[3F8/IRQ4]
Serial Port2 Address	[2F8/IRQ3]
Serial Port IRQ	[10]
Parallel Port Address	[378]
Parallel Port Mode	[ECP]
ECP Mode DMA Channel	[3]
Parallel Port IRQ	[7]
Onboard Game/Midi Port	[200/298]
Midi Irq Select	[5]
Power Loss Control	[Always OFF]
Keyboard Wake-up Function	[Space]
	↔ Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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The Super IO Configuration includes the following items:

### Serial Port 1 Address

This option specifies the base I/O port address and Interrupt Request address of serial port 1. The settings for this item include Disabled, **3F8/IRQ4**, **3E8/IRQ4** and **2E8/IRQ3**. Select the desired setting and then press "Enter".

### Serial Port 2 Address

This option specifies the base I/O port address and Interrupt Request address of serial port 2. The settings for this item include Disabled, **2F8/IRQ3**, **3E8/IRQ4** and **2E8/IRQ3**.

### Parallel Port Address

This option specifies the I/O address used by the parallel port. The settings for this item include Disabled, **378**, **278** and **3BC**. Select your setting and then press "Enter".

### Parallel Port Mode

This option specifies the parallel port mode. The settings for this item include Normal, Bi-directional, EPP and **ECP**.

### ECP Mode DMA Channel

This option allows the user to set the setting for the ECP Mode of the DMA Channel. The settings for this item include **0**, 1 and 3.

### Parallel Port IRQ

This option allows the user to set the Parallel Port IRQ. The settings for this item include 5 and 7.

### Onboard Game/Midi Port

This option allows the user to set the Onboard Game/Midi Port. The settings for this item include Disabled, **200/298**, 200/300, 200/330, 208/300 and 208/330.

### Midi IRQ Select

This option allows the user to set the Midi IRQ. The settings for this item are **5**, 7, 9 and 10.

### Power Loss Control

This option determines how the system will react when power is reapplied after being lost unexpectedly. The settings are **Always Off** (if the system loses power unexpectedly, the computer system will keep power off until the power button is pressed), Always On (if the system loses power unexpectedly, the computer system will restore power) and Previous (if the system loses power unexpectedly, the computer system restores the system to its previous state before power was lost).

### Keyboard Wake-Up Function

Use this option to specify which key is to be depressed to wake-up the system from sleep mode. The settings are Disabled, CTRL F1, **Space** and Any Key. Disabled: This setting prevents the computer system from using the keyboard to power it on. Ctrl F1: This setting allows the computer



system to be powered on when the CTRL and F1 keys on the keyboard are pressed. **Space**: This setting allows the computer system to be powered on when the Space bar on the keyboard is pressed. This is the default setting. **Any Key**: This setting allows the computer system to be powered on when any keys on the keyboard are pressed.

## **Health Monitor Features**

The BIOS continuously monitors the health of your system by measuring certain voltage levels and temperatures.

### **CPU Overheat Warning**

This option allows you to **Enable** or **Disable** a system overheat warning signal, used to notify you in the event of a dangerous rise in heat levels.

### **CPU Overheat Warning**

This option allows you to specify the temperature threshold that, when exceeded, will trigger the overheat warning alarm.

The rest of the Health Monitor menu lists various voltages and temperatures as they are currently being measured. These include CPU temperature, CPU voltage, the rpms of the CPU, chassis and thermal control fans as well as the primary voltage levels used by the system: +3.3V, +5V, +12V and -12V.

## **IDE Configuration**

### **Onboard PCI IDE Controller**

This option allows the user to enable or disable the integrated IDE Controller. The settings include Disabled, Primary, Second and **Both**. Select "Disabled" to disable the Integrated IDE Controller. Select "Primary" to enable the Primary IDE ontrroller only. Select "Secondary" to enable the Secondary IDE Controller only. Select "Both" to enable both Primary and Secondary IDE Controllers.

### **Primary IDE Master**

When entering "Setup", BIOS automatically detects the presence of IDE devices. This displays the auto detection status of the IDE de vices. You can also manually configure the IDE drives by providing the following information:

## Type

This option sets the type of device that the AMIBIOS attempts to boot from after AMIBIOS POST is completed. The settings include Not installed, **Auto**, CDROM and ARMD. The "Auto" setting allows BIOS to automatically detect the presence of the IDE controller.

## LBA/Large Mode

LBA (Logical Block Addressing) is a method of addressing data on a disk drive. In LBA mode, the maximum drive capacity is 137 GB. The settings are Disabled and **Auto**. Select "Disabled" to disable LBA mode. Select "Auto" to enable LBA mode if your device supports it and is not already formatted with the LBA mode.

## Block (Multi-Sector Transfer) Mode

This option sets the block mode multi sector transfers option. The settings include Disabled and **Auto**. Disabled: This option prevents the BIOS from using Multi-Sector Transfer on the specified channel. The data to and from the device will occur one sector at a time. Auto: This option allows the BIOS to auto detect device support for Multi-Sector Transfers on the specified channel. If supported, this option allows the BIOS to auto detect the number of sectors per block for transfer from the hard disk drive to memory. The data transfer to and from the device will occur multiple sectors at a time (if the device supports it).

## PIO Mode

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

## DMA

This item allows the users to select the DMA mode. The settings are: **Auto**, SWDMA0, SWDMA1, SWDMA2, MWDMA0, MWDMA1, MWDMA2, UWDMA0, UWDMA1, UWDMA2, UWDMA3 and UWDMA4. Select Auto to auto de-

tect the DMA Mode. Select SWDMA0 through SWDMA2 to set single word DMA0 through DMA2. Select MWDMA0 through MWDMA2 to set Multi-word DMA0 through DMA2. Select UDMA0 through UDMA4 to set Ultra DMA0 through Ultra DMA4.

### **S.M.A.R.T.**

S.M.A.R.T stands for Self-Monitoring Analysis and Reporting Technology, a feature that can help predict impending drive failures. The settings are **Auto**, Disabled and Enabled. Select "Enabled" or "Disabled" to enable or disable the S.M.A.R.T. Select "Auto" to auto detect S.M.A.R.T.

### **32Bit Data Transfer**

The settings are **Auto**, Disabled and Enabled. Select "Enabled" or "Disabled" to enable or disable the 32-bit Data Transfer function. Select "Auto" to auto detect the 32-bit Data Transfer function.

### **ARMD Emulation**

This option is used to select the emulation used when configuring an LS120, MO (Magneto-Optical), or Iomega Zip drive. The settings are **Auto**, Floppy and HardDisk.

### **Primary IDE Slave**

When the system enters "Setup", BIOS automatically detects the presence of IDE devices. This option displays the auto detection status of IDE devices. The settings for "Primary IDE Slave" are the same as those for the "Primary IDE Master".

### **Secondary IDE Master**

This displays the status of auto detection of IDE devices. The settings for "Secondary IDE Master" are the same as those for the "Primary IDE Master".

### **Secondary IDE Slave**

This displays the status of auto detection of IDE devices. The settings for "Secondary IDE Slave" are the same as those for the "Primary IDE Master".

### Hard Disk Write Protect

This item allows the user to prevent the hard disk from being overwritten. The options are Enabled or **Disabled**. Enabled allows the drive to be used normally; read, write and erase functions can all be performed. Disabled prevents the hard disk from being erased. This function is effective only when the device can be accessed through BIOS.

### ATA(PI) Detect Timeout

Set this option to stop the system search for ATAPI devices within the specified number of seconds. The options are 0, 5, 10, 15, 20, 25, 30, and **35** (seconds). Most ATA disk drives can be detected within 5 seconds.

### ATA(PI) 80Pin Cable Detection

This option selects the mechanism for detecting the 80-pin ATA(PI) cable. Options include **Host and Device**, Host, and Device. Host: This option uses the motherboard onboard IDE controller to detect the type of IDE cable used. Device This option uses the IDE disk drive to detect the type of IDE cable used. Host & Device: This option uses both the motherboard onboard IDE controller and IDE disk drive to detect the type of IDE cable used.

## Floppy Configuration

### Floppy A

Use this option to specify which of floppy drive you have installed in the A drive. The settings are Disabled, 360 KB 5 1/4", 1.2 MB 5 1/4", 720 KB 3 1/2", **1.44 MB 3 1/2"** and 2.88 MB 3 1/2".

### Floppy B

Use this option to specify which of floppy drive you have installed in the B drive. The settings are Disabled, 360 KB 5 1/4", 1.2 MB 5 1/4", 720 KB 3 1/2", **1.44 MB 3 1/2"** and 2.88 MB 3 1/2".

### Floppy Drive Seek

Use this option to Enable or **Disable** the floppy seek routine on bootup.

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## **Boot Settings Configuration**

### **Quick Boot**

This option allows the BIOS to skip certain tests that are normally performed on boot up. You can disable the option to speed up boot time. The settings are **Disabled** and Enabled.

### **Quiet Boot**

If Disabled, this option will cause the normal POST messages to be displayed upon setup. When **Enabled**, the OEM logo is displayed instead of the POST messages.

### **Add-On ROM Display Mode**

Set this option to display add-on ROM (read-only memory) messages. The settings for this option are **Force BIOS** and Keep Current. Force BIOS allows the computer to force a third party BIOS to display during system boot. Keep Current has the system display AMIBIOS information on bootup.

### **BootUp Num Lock**

This option is used to select the status of the Number Lock function on your keyboard on bootup. The settings are **On** and Off.

### **BootUp CPU Speed**

This option is used set the CPU speed to either **High** or Low.

### **PS/2 Mouse Support**

This option specifies whether a PS/2 Mouse will be supported. Settings are **Enabled** and Disabled.

### **Typematic Rate**

Set this option to select the rate at which the computer repeats a key that is held down. Settings are **Fast** and Slow. Fast: This sets the rate the computer repeats a key to over 20 times per second. Under normal operations, this setting should not be changed. Slow: This sets the rate the computer repeats a key to under 8 times per second.

### System Keyboard

This option is to let the system know if a keyboard is **Present** or Absent.

### Primary Display

This option specifies the type of monitor display you have installed on the system. The settings are Absent, **VGA/EGA**, Color 40 x 25, Color 80 x 25 and monochrome.

### Parity Check

Use this option to either Enable or **Disable** the use of memory parity checking.

### Boot to OS/2

This option can be used to boot the system to an OS/2 operating system. The settings are **No** and Yes.

### Wait for F1 if Error

This settings for this option are **Enabled** and Disabled. Disabled: This prevents the AMIBIOS to wait on an error for user intervention. This setting should be used if there is a known reason for a BIOS error to appear. An example would be a system administrator must remote boot the system. The computer system does not have a keyboard currently attached. If this setting is set, the system will continue to bootup in to the operating system. If 'F1' is enabled, the system will wait until the BIOS setup is entered. Enabled: This option allows the system BIOS to wait for any error. If an error is detected, pressing <F1> will enter Setup and the BIOS setting can be adjusted to fix the problem. This normally happens when upgrading the hardware and not setting the BIOS to recognize it.

### Hit "Delete" Message Displayed

This option tells the system to display or not display the "Hit Delete to Enter Setup" message. The settings are **Enabled** and Disabled.

### Internal Cache

This option is for enabling or disabling the internal CPU L1 cache. Settings include Disabled, Write-Thru and **Write-Back**. Disabled: This option prevents the system from using the internal CPU L1 cache. This setting should

be used to slow the computer system down or to troubleshoot error messages. **Write-Thru:** This option allows the computer system to use the internal CPU L1 cache as Write-Through cache. Write-Through cache is slower than Write-Back cache. It performs write operations to the internal L1 CPU cache and system memory simultaneously. **Write-Back** This option allows the computer system to use the internal CPU L1 cache as Write-Back cache. Write-Back cache is faster than Write-Through cache. Write-Back cache is a caching method in which modifications to data in the cache aren't copied to the cache source until absolutely necessary. Write-back caching is available on all CPUs supported by this BIOS. With these CPUs, write operations stored in the L1 cache aren't copied to main memory until absolutely necessary. This is the default setting.

### External Cache

This option is for enabling or disabling the internal CPU L2 cache. Settings include Disabled, Write-Thru and **Write-Back**. See description above.

## Event Log Configuration

### Event Logging

This option **Enables** or Disables the logging of events. You can use this screen to select options for the Event Log Configuration Settings. You can access sub screens to view the event log and mark all events as read. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The settings are described on the following pages. The screen is shown below.

### ECC Event Logging

This option Enables or **Disables** the logging of ECC events. The events logged by AMIBIOS are post errors such as a bad BIOS, floppy errors, or hard drive errors.

### Clear All Event Logs

This option can be used to tell the system to clear the event log on the next boot up. The settings are **No** and Yes.

## 4-5 Chipset Setup

Choose Chipset Setup from the AMIBIOS Setup Utility main menu. The screen is shown below. All Chipset Setup options are described following the screen. You can use this screen to select options for the GMCH Configuration.

BIOS SETUP UTILITY	
Main	Advanced
<b>Chipset</b>	PCIPnP
Power	Boot
Security	Exit
> GMCH Configuration > ICH Configuration	
Processor Serial Number	[Disabled]
CPU Latency Timer	[Disabled]
C000,16k Shadow	[Cached/WP]
C400,16k Shadow	[Cached/WP]
C800,16k Shadow	[Disabled]
CC00,16k Shadow	[Disabled]
D000,16k Shadow	[Disabled]
D400,16k Shadow	[Disabled]
D800,16k Shadow	[Disabled]
DC00,16k Shadow	[Disabled]
	Options for MCH
	↔ Select Screen
	↑↓ Select Item
	+ - Change Option
	F1 General Help
	F10 Save and Exit
	ESC Exit
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### GMCH Configuration

You can use this screen to select options for the GMCH Configuration. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The settings are described on the following pages.

#### Primary Video Device

This option specifies the primary display device on your system. Settings include Internal, External PCI, External AGP and **Auto**. Auto: This setting allows the BIOS to select the primary video device at bootup. Internal: This setting allows the onboard video display adapter to be the primary video



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device at bootup. **External PCI:** This setting allows a PCI Display Adapter card to be the primary video device at bootup. **External AGP:** This setting allows an AGP Display Adapter to be the primary video device at bootup.

### Internal Graphics Mode Select

This option selects the mode for the internal graphics mode. Settings include Disabled, Enabled; 512 KB and **Enabled; 1 MB**. **Enabled; 1MB:** This option allows the Internal Graphic controller to allocate 1 MB of system memory for video display use. **Enabled; 512KB:** This option allows the Internal Graphic controller to allocate 512 KB of system memory for video display use. **Disabled:** This option allocates no system memory for video display use.

### Display Cache Window Size

This option sets the size of the display cache window. The settings are **64 MB** and 32 MB.

### Internal Graphics Scaling

This option allows the Internal Graphics Scaling to be manually set or automatically set. The settings for this option for this setting include Disabled, Auto and Enabled. **Auto:** This setting allows the Internal Graphics scaling to auto select itself. This setting sets the Internal Graphics scaling off. **Enabled:** This setting sets the Internal Graphics scaling on.

### Internal Graphics TV Format

This option specifies the type of TV format that will be used with the onboard graphics. The settings are **NTSC** and PAL.

### Output Device Synch/Non-Synch

This option allows you to set the output device as either **Non-Synchronous** (Asynchronous) or Synchronous. Synchronous means the output device will match the frequency of the bus speed. Asynchronous or Non-Synchronous allows data to be sent and received at a different frequency than the bus.

### Digital Device Priority

Use this option to prioritize the type(s) of display device on your system. The settings are **CRT/FP/TV**, FP/CRT/TV, CRT/TV/FP, TV/CRT/FP, FP/TV/CRT and TV/FP/CRT. (FP stands for flat panel.)

### AGP Graphics Aperture Size

This option allows you to adjust the graphics aperture size to either **64 MB** or 32 MB.

### Init Display Cache Memory

This option allows the Initial Display cache memory to be adjusted. The setting are **Enabled** and Disabled.

### Paging Mode Control

This option allows the paging mode controls to be adjusted to either **Close** or Open.

### RAS-to-CAS Latency Override

The RAS-to-CAS Override is adjusted with this option. The settings are **Disabled** and Enabled. Disabled: This option allows RAS-to-CAS. Enabled: This option overrides RAS-to-CAS. SDRAM stores information in blocks of rows and columns. RAS stands for Row Address Strobe. CAS stands for Column Address Strobe.

### CAS Latency

This option regulates the speed of the Column Address Strobe (CAS) as either Fast or **Slow**, which is higher or lower latency. CAS latency optimizes the speed at which data is accessed in a column by defining CAS latency time in 100 MHz or 133 MHz clocks (dependent on the memory bus speed). It controls the time delay (in clocks) before SDRAM starts a read command after receiving it. Reading RAS data can be read twice as fast as reading CAS. Lowering the latency can increase the speed of the SDRAM, but at the expense of stability.

### **RAS Timing**

This option regulates the speed of the Row Address Strobe (RAS) as either Fast or **Slow**. As with CAS Latency, lowering the timing can increase the speed of the SDRAM, but at the expense of stability.

### **RAS Pre-charge**

The precharge time is the number of cycles it takes for the RAS to accumulate a charge before a DRAM refresh. Insufficient recharge time may cause the DRAM to lose data. The settings are Fast and **Slow**, which is more stable.

### **System Memory Frequency**

This option allows the system memory frequency to be adjusted. The settings are 100 MHz (for PC100 memory), 133 MHz (for PC133 memory) and **Auto**, which allows the system memory frequency to auto select itself

### **SDRAM Refresh**

This option sets the refresh rate for the system memory. Settings include **Auto**, 15.6  $\mu$ S, 7.8  $\mu$ S and 128 CLKs.

### **DRAM Cycle Time (SCLKS)**

This option allows you set the DRAM cycle time to 5/7, 6/8 or **Auto**.

### **CAS Latency (SCLKS)**

This option allows you to set the CAS latency time to 3, 2 or **Auto**.

### **RAS# to CAS# Delay (SCLKS)**

The settings for this option are 3, 2 and **Auto**.

### **RAS# Precharge (SCLKS)**

This option sets the RAS# precharge time. Setting are 3, 2 and **Auto**.

### **DRAM Page Closing Policy**

The settings for this option are Close and **Open**.

## Memory Hole

Some ISA cards may require specific areas of memory to function. This can be done by choosing the 15 MB - 16 MB option to reserve the area. The settings for this option are **Disabled** and 15 MB-16 MB.

## ICH Configuration

You can use this screen to select options for the ICH Configuration. Use the up and down arrow keys to select an item, and the plus (+) and minus (-) keys to change the option setting. The settings are described on the following pages. ICH stands for I/O Controller Hub, which is a chipset on the motherboard that controls the basic I/O functions, USB ports, audio functions, modem functions, IDE channels, and PCI slots.

### Moon ISA Device Enable

This option allows a Moon ISA device to be supported. The settings are **Disabled** and Enabled. A Moon ISA device is a device that contains an Intel® PCIsset S82380AB PCI to ISA in a 160-pin MQFP chipset. This chipset is called an Intel® Moon ISA or Intel® MISA. This chipset is used to connect ISA devices to computers that do not have a physical ISA slot. The best example of this is a notebook computer (No ISA Slots) when used with a docking station (contains up to three ISA peripherals). The docking station would contain the Intel® Moon ISA chipset.

### ICH Positive Decode

This option allows the ICH Positive Decode to be set. The settings are **Disabled** and Enabled.

### CPU Bist Enable

This option allows the CPU Bist Enable to be set. The settings are **Disabled** and Enabled.

### ICH DCB Enable

This option allows the ICH DCB to be set. The settings are **Disabled** and Enabled.

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### PC/PCIB Select Enable

This option allows the PC/PCIB Select Enable to be set. The settings are **Disabled** and Enabled.

### SMBus Controller

The settings for this option are **Enabled** and Disabled.

### AC97 Audio Controller

The settings for this option are **Enabled** and Disabled.

### AC97 Modem Controller

The settings for this option are **Enabled** and Disabled.

### Sound Blaster Decode

This option is for adjusting the Sound Blaster Decode. The settings are **Disabled**, 220h-233h, 240h-253h, 260h-273h and 280h-293h.

### Microsoft Sound Decode

This option is for adjusting the Microsoft Sound Decode. The settings are **Disabled**, 530h-537h, 604h-60Bh, E80h-E87h and F40h-F47h.

### MIDI Decode

This option allows the MIDI Decode to be set. The settings are **Disabled**, 330h-331h and 300h-301h.

### Adlib Range 388h-38Bh

This option allows the Adlib Range 388h-38Bh to be set. The settings are Disabled and **Enabled**.

### Game Port

This option allows the Game Port to be set. The settings are Disabled and **Enabled**.

### LPC 4Eh-4Fh Decode

This option allows the LPC 4Eh-4Fh to be set. The settings are Disabled and **Enabled**.

### DMA-0 Type

### DMA-1 Type

### DMA-2 Type

### DMA-3 Type

### DMA-4 Type

### DMA-5 Type

### DMA-6 Type

### DMA-7 Type

This above options allow you to change the protocol for DMA-0 through DMA-7. The settings for all are PC/PCI and **LPC DMA**.

### Processor Serial Number

Intel includes a serial number in their processors to act as a unique system identifier. For privacy reasons, you can disable the release of this identifier. The settings for this option are **Disabled** and Enabled. Disabled: This setting restricts all access to the CPU serial number from your CPU. Enabled: This setting allows the operating system and applications to be able to read the CPU serial number from your CPUs. **Note:** If the CPU is a Intel® Celeron Processor, then this selection will be grayed out. Intel® Celeron Processors do not contain a processor serial number.

### CPU Latency Timer

This option allows the CPU Latency Timer to be modified. The settings for this option are **Disabled** and Enabled. Disabled: The deferrable processor cycle will be deferred immediately after receiving another ADS#. Enabled: The deferrable processor cycle will only be deferred after it has been in a “Snoop Stall” for 31 clocks and another ADS# has arrived.

---

**C000, 16k Shadow**

**C400, 16k Shadow**

**C800, 16k Shadow**

**CC00, 16k Shadow**

**D000, 16k Shadow**

**D400, 16k Shadow**

**D800, 16k Shadow**

**DC00, 16k Shadow**

These options specify how the 16 KB of video ROM at each of the above addresses is treated. When Disabled, the contents of the video ROM are not copied to RAM. When Enabled, the contents of 16 KB of video ROM beginning at the above address are copied (shadowed) from ROM to RAM for faster application. When set to Cached/WP, the contents of 16 KB of video ROM beginning at the above address are copied (shadowed) from ROM to RAM and can be written to or read from cache memory. The settings for this option are Disabled, Enabled and Cached/WP. (The optimal settings are Cached/WP for C000 and C400 and Disabled for all the other settings.

## 4-6 PCI PnP Setup

Choose PCI/PnP Setup from the AMIBIOS Setup main menu. All PCI/PnP options are described in this section. The PCI/PnP Setup screen is shown below.

BIOS SETUP UTILITY							
Main	Advanced	Chipset	PCIPnP	Power	Boot	Security	Exit
Plug & Play O/S			[No]	No: lets the BIOS configure all the devices in the system.			
Reset Config Data			[No]	Yes: lets the operating system configure Plug and Play (PnP) devices not required for boot if your system has a Plug and Play operating system.			
PCI Latency Timer			[64]				
Allocate IRQ to VGA			[Yes]				
Palette Snooping			[Disabled]				
PCI IDE BusMaster			[Disabled]				
OffBoard PCI/ISA IDE Card			[Auto]				
OffBoard PCI IDE Primary IRQ			[Disabled]				
OffBoard PCI IDE Secondary			[Disabled]				
USB Controller			[Enabled]				
Legacy USB Support			[Disabled]	↔ Select Screen			
IRQ3			[Available]	↑↓ Select Item			
IRQ4			[Available]	+- Change Option			
IRQ5			[Available]	F1 General Help			
IRQ7			[Available]	F10 Save and Exit			
IRQ9			[Available]	ESC Exit			
IRQ10			[Available]				
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### Plug & Play OS

Choose the **No** setting for computers that do not meet the Plug and Play specifications, which will allow the BIOS to configure all the devices in the system. Choosing the Yes setting lets the operating system configure PnP devices that are not required for boot up (if the system has a PnP operating system). The operating system would have the ability to change interrupt, I/O, and DMA settings. Set this option if the system is running Windows 95®, Windows 98® or Windows 2000®. Other operating systems are also PnP-aware.

### Reset Configuration Data

Choosing the Yes setting will cause the PnP configuration data in the BIOS to be cleared on the next boot up. Choosing the **No** setting does not force PnP data to be cleared on the next boot.



### PCI Latency Timer

This option specifies the latency timing of the PCI clocks for all PCI devices. Settings include 32, **64**, 96, 128, 160, 192, 224 and 248 PCI clocks.

### Allocate IRQ to PCI VGA

This option lets you allocate an interrupt request (IRQ) to the PCI VGA adapter card (if used). The settings are **Yes** and No.

### Palette Snooping

When enabled, this option informs PCI devices that an ISA graphics device is installed. The settings are **Disabled** and Enabled. This does not necessarily indicate a physical ISA adapter card. The graphics chipset can be mounted on a PCI card. Always check with your adapter card manuals first, before modifying the default settings in the BIOS.

### PCI IDE BusMaster

The settings for this option are **Disabled** and Enabled. Enable to specify that the IDE controller on the PCI bus has bus mastering capabilities.

### OffBoard PCI/ISA IDE Card

This option specifies which PCI slot has an IDE controller card installed. Settings are **Auto**, PCI slot 1, PCI slot 2, PCI slot 3, PCI slot 4, PCI slot 5 and PCI slot 6. (PCI slot numbers will be available in this option even if your motherboard does not have that slot number. If your motherboard does not have a PCI slot 5, for example, do not set this option to "PCI slot5".)

### OffBoard PCI Primary IRQ

This option specifies the primary IRQ for the PCI. Settings include **Disabled**, INTA (Interrupt A), INTB, INTC, INTD and Hardwired. Hardwired tells the BIOS that the OffBoard IDE Primary controller is a legacy device and the interrupt request channels cannot participate in PCI "Swizzle". (PCI "Swizzle" is a term used to describe IRQ sharing.)

### USB Function

The settings for this option are Disabled and **Enabled**. Disabled prevents the use of the USB ports and Enabled allows the use of the USB ports.

## Legacy USB Support

This option allows Legacy USB support. The settings are **Disabled**, **Enabled** and **Auto**. **Disabled** prevents the use of any USB device in DOS or during system boot. **Enabled** allows the use of USB devices during boot and while using DOS. The **Auto** setting auto detects USB keyboards or mice and if found, allows them to be utilized during boot and while using DOS.

**IRQ 3**

**IRQ 4**

**IRQ 5**

**IRQ 7**

**IRQ 9**

**IRQ 10**

**IRQ 11**

**IRQ 14**

**IRQ 15**

The settings for the above options are **Available** and **Reserved**. **Available** allows the specified IRQ to be available for use by PCI/PnP devices. **Reserved** means the specified IRQ is reserved for use by Legacy ISA devices.

**DMA Channel 0**

**DMA Channel 1**

**DMA Channel 3**

**DMA Channel 5**

**DMA Channel 6**

**DMA Channel 7**

Each of the above list of DMA channel setting options can be set to **Available** and **Reserved**. Available means the specified DMA channel is available for use by PCI/PnP devices. Reserved means the specified DMA channel is reserved for use by Legacy ISA devices.

### Reserved Memory Size

This option specifies the size of a memory area to be reserved for Legacy ISA adapter cards. The settings are **Disabled**, 16k, 32k and 64k.

### Reserved Memory Address

The option specifies the beginning address of the reserved memory area to be used for Legacy ISA adapter cards. The settings are C0000, C4000, **C8000**, CC000, D0000, D4000, D8000 and DC000.

## 4-7 Power Setup

Choose Power Setup from the AMIBIOS Setup main menu. All Power Setup options are described in this section. The Power Setup screen is shown below.

BIOS SETUP UTILITY							
Main	Advanced	Chipset	PCIPnP	Power	Boot	Security	Exit
ACPI Aware O/S				[No]			
Suspend to RAM Support				[Disabled]			
Repost Video on S3 Resume				[Yes]			
Power Management/APM				[Enabled]			
Standby Time Out				[Disabled]			
Suspend Power Saving				[S1]			
Suspend Time Out				[Disabled]			
Power Button Mode				[On/Off]			
AfterG3 Enable				[Disabled]			
Green PC Monitor Power State				[Suspend]	↔ Select Screen		
Video Power Down Mode				[Suspend]	↑↓ Select Item		
Hard Disk Power Down Mode				[Suspend]	+- Change Option		
Hard Disk Time Out (Minute)				[Disabled]	F1 General Help		
Display Activity				[Ignore]	F10 Save and Exit		
Manual Throttle Ratio				[50%]	ESC Exit		
THRM throttle Ratio				[50%]			
Intruder Sel				[SMI]			
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### ACPI Aware O/S

This option allows the system to utilize Intel's ACPI (Advanced Configuration and Power Interface) specification. Settings are **No** and **Yes**. DOS®, Windows 3.x®, and Windows NT® are examples of non-ACPI aware operating systems. Windows 95®, Windows 98® and Windows 2000® are examples of ACPI aware operating systems.

### Suspend to RAM Support

This allows you to enable or disable the Suspend to RAM feature. Settings are **Disabled** and **Enabled**. The Disabled setting prevents the system from saving information to main memory when in a low power state. Enabled causes the system to enter a low power state instead of being completely shut off. This allows the computer system to bootup in a few seconds. Suspend to RAM (STR) is a technology that is closely associated with the S3 state of the ACPI (Advanced Configuration and Power Interface) specification. STR allows a properly configured system to go into a low power state while saving information to main memory about the system's configuration, open applications, and active files. While in the low power (STR) state, memory remains powered to retain the system information while most other components turn off to conserve energy. Fans are turned off to provide silent operation and to minimize power consumption. Properly configured systems in STR typically can consume less than 5 watts.

### Repost Video on S3 Resume

This option determines whether or not to invoke the VGA BIOS post test when resuming from STR or the S3 state. Settings are **No** and **Yes**. (Used with ACPI only.)

### Power Management /APM

This option allows you to select using APM (Advanced Power Management). The settings are **Disabled** and **Enabled**.

### Standby Time Out

This option specifies the length of system inactivity time that should expire before the computer enters a standby power state. The settings are **Disabled**, 1Min, 5Min and 10Min.

## Suspend Power Saving Type

The settings for this option are C2 and S1. The C2 setting allows the CPU (microprocessor) to be put in a low power state. In this state, incoming interrupts wake-up the CPU (microprocessor) to process them (I/O APIC). S1 allows the system to enter the S1 POS (Power On Suspend) state. While the system is in this state, the CPU is not executing instructions, all power resources that supply system level reference of S0 are off, system memory context is maintained, devices that reference power resources that are on are on, and devices that can wake-up the system can cause the CPU to continue to execute from where it left off.

## Suspend Time Out

This option specifies the length of system inactivity while in the standby state that should expire before the computer enters a suspend power state. The settings are **Disabled**, 1Min, 5Min and 10Min.

## Power Button Mode

This option specifies how the external power button on the computer chassis functions. When set to **On/Off**, depressing the power button turns the computer on or off. When set to Suspend, depressing the power button places the computer in Suspend mode or Full On power mode. The Standby setting places the computer in Standby or Full On mode.

## After G3 Enable

This option allows AfterG3 Enable support. The settings are **Disabled** and **Enabled**. Disabled prevents the system to power on after power is applied to the system. Enabled allows the system to power on after power is applied to the system. This means that if an ATX compliant power supply is turned hard off or unplugged from the wall (power socket supplying it power), the computer system will not power back on immediately after the power cord is reattached or the hard off switch is flipped back on. The power button on the front of the chassis is usually the soft off, meaning that there is still power being supplied to the motherboard even though the system looks completely off. Hard off means that there is not power being supplied to the system at all. The only power is coming from the backup battery on the motherboard.

### Green PC Monitor Power State

This option specifies the power state that a green PC-compliant monitor enters when BIOS places it in a power saving state after the specified period of display inactivity has expired. The settings include Standby, **Suspend** and Off.

### Video Power Down Mode

This option specifies the power state that the VGA video subsystem enters after the specified period of display inactivity has expired. The settings include Disabled, Standby and **Suspend**.

### Hard Disk Power Down Mode

This option specifies the power conserving state that the hard disk drive(s) enters after the specified period of inactivity has expired. The settings include Disabled, Standby and **Suspend**.

### Hard Disk Time Out (Minutes)

This option specifies the length of hard disk inactivity time that should expire before entering the power conserving state specified in the previous setting. The settings include **Disabled** and increments of 1-15 minutes.

### Display Activity

This option specifies if BIOS is to monitor for display activity when in a power saving state. The **Ignore** setting means any display activity will not wake the system up from a power management state. The **Monitor** setting allows display activity to wake up the system from a power management state.

### Manual Throttle Ratio

When in a power management state, throttling can be used to lower power consumption and reduce heat. This option allows the CPU to operate at a reduced average power, which includes a sacrifice in performance. The settings include 87.5%, 75.0%, 62.5%, **50%**, 37.5%, 25% and 12.5%. (A setting of 75.0% means the BIOS will throttle back the CPU clock to operate 75% of the time.)

### THRM Throttle Ratio

THRM throttling is used to lower power consumption and reduce heat. The settings include 87.5%, 75.0%, 62.5%, **50%**, 37.5%, 25% and 12.5%.

### Intruder Sel

This option allows you to set the Intruder SEL setting to SCI or **SMI**. SCI stands for System Control Interrupt. This is considered to be ACPI (Advanced Configuration and Power Interface) mode. The operating system uses the SCI interrupt to process ACPI (Advanced Configuration and Power Interface) events signaled by GPEs (general Purpose Event), whether the system is asleep or awake when the event occurs. In other words, the wake event has the side effect of causing the system to wake up if it is asleep, but its primary purpose is to generate an SCI that notifies the operating system that the event has occurred. SMI stands for System Management Interrupt. This is considered to be Legacy mode. It is used to log interrupt events to operating systems that do not support ACPI (Advanced Configuration and Power Interface) and operating systems that do.

### Timer Overflow Enable

This allows the system to generate a System Management Interrupt after a specific amount of time has passed. The settings for this option are **Disabled** and Enabled.

### Thermal SMI Enable

This allows the system to generate a System Management Interrupt after a specific temperature has been exceeded. The settings for this option are **Disabled** and Enabled.

### PME SMI Enable

This allows the system to generate a System Management Interrupt after a Power Management event has occurred. The settings for this option are **Disabled** and Enabled.

### SW SMI Timer Enable

The settings for this option are **Disabled** and Enabled.

### **TCO Logic SMI Enable**

This allows the system to generate a System Management Interrupt when a century rollover occurs. The settings for this option **Disabled** and Enabled.

### **RTC Resume**

This allows you to direct the system to resume operation at a predetermined time by using the real-time clock. The settings for this option **Disabled** and Enabled.

### **RTC Alarm Date**

This allows you to input the date you want the system to resume operation according to a real-time clock wake-up. Input a number from 1 to 31 to indicate the day of the month.

### **RTC Alarm Time**

This allows you to input the time you want the system to resume operation according to a real-time clock wake-up. Input the hour and minutes as desired.

### **AC97 Logic Resume**

This allows you to wake up the system from an AC97 modem. The settings for this option **Disabled** and Enabled.

### **USB Controller Resume**

This allows you to wake up the system from a USB device. The settings for this option **Disabled** and Enabled.

### **PME Resume**

This allows you to wake up the system from a PME device. The settings for this option **Disabled** and Enabled.

### **RI Resume**

The settings for this option **Disabled** and Enabled.



## SMBUS Resume

This allows you to wake up the system from a System Management Bus device. The settings for this option **Disabled** and Enabled.

## 4-8 Boot Setup

Choose Boot Setup from the AMIBIOS Setup main menu. All Boot Setup options are described in this section. The Boot Setup screen is shown below.

BIOS SETUP UTILITY	
Main	Advanced
Chipset	PCIPnP
Power	Boot
Security	Exit
<pre> &gt; Boot Device Priority &gt; Hard Disk Drives &gt; Removable Devices &gt; ATAPI CDROM Drives </pre>	
<pre> ↔ Select Screen ↑↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit </pre>	
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### Boot Device Priority

#### 1st Boot Device

This option is used to specify the order of the boot sequence that will be followed from the available system devices. The settings for the 1st Boot Device are **Removable Device**, Hard Drive, ATAPI CDROM and LANDesk (R) Server.

### **2nd Boot Device**

The settings for the 2nd Boot Device are Removeable Device, **Hard Drive**, ATAPI CDROM and LANDesk (R) Server.

### **3rd Boot Device**

The settings for the 3rd Boot Device are Removeable Device, Hard Drive, **ATAPI CDROM** and LANDesk (R) Server.

### **4th Boot Device**

The settings for the 4th Boot Device are Removeable Device, Hard Drive, ATAPI CDROM and **LANDesk (R) Server**.

## **Hard Disk Drives**

Use this screen to view the hard drives that have been auto-detected or entered manually on your system.

## **Removeable Devices**

Use this screen to view the removeable devices that have been auto-detected or entered manually on your system.

## **ATAPI CDROM Drives**

Use this screen to view the ATAPI CDROM drives that have been auto-detected or entered manually on your system.

## 4-9 Security Setup

Choose Security Setup from the AMIBIOS Setup main menu. All Security Setup options are described in this section. The Security Setup screen is shown below.

BIOS SETUP UTILITY							
Main	Advanced	Chipset	PCIPnP	Power	Boot	Security	Exit
Supervisor Password :						Not Installed	
User Password :						Not Installed	
> Change Supervisor Password							
> Change User Password							
> Clear User Password							
Boot Sector Virus Protection						[Disabled]	
						Install or Change the password.	
						↔ Select Screen	
						↑↓ Select Item	
						Enter Go to Sub Screen	
						F1 General Help	
						F10 Save and Exit	
						ESC Exit	
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### Supervisor Password

### User Password

AMIBIOS provides both Supervisor and User password functions. If you use both passwords, the Supervisor password must be set first. The system can be configured so that all users must enter a password every time the system boots or when AMIBIOS Setup is executed, using either or both the Supervisor password or User password. The Supervisor and User passwords activate two different levels of password security. If you select password support, you are prompted for a 1 – 6 character password. Type the password on the keyboard. The password does not appear on the screen when typed. Make sure you write it down. If you forget it, you must clear CMOS and reconfigure. **Remember your Password!** Keep a record of the new password when the password is changed. If you forget the password, you must erase the system configuration information in CMOS.

### **Change Supervisor Password**

This option allows you to change a supervisor password that was entered previously.

### **Change User Password**

This option allows you to change a user password that was entered previously.

### **Clear User Password**

Use this option to clear the user password so that it is not required to be entered when the system boots up.

### **Boot Sector Virus Protection**

This option allows you to enable or disable a virus detection program to protect the boot sector of your hard disk drive. The settings for this option **Disabled** and Enabled. If Enabled, AMIBIOS will display 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.

## 4-10 Exit Setup

Choose Exit Setup from the AMIBIOS Setup main menu. All Exit Setup options are described in this section. The Exit Setup screen is shown below.

BIOS SETUP UTILITY							
Main	Advanced	Chipset	PCIPnP	Power	Boot	Security	Exit
> Exit Saving Changes > Exit Discarding Changes > Load Optimal Defaults > Load Fail-Safe Defaults > Discard Changes							Exit system setup with saving the changes.
↔ Select Screen ↑↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit							
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### Exit Saving Changes

Highlighting this setting and then pressing <Enter> will save any changes you made in the BIOS Setup program and then exit. Your system should then continue with the boot up procedure.

### Exit Discarding Changes

Highlighting this setting and then pressing <Enter> will ignore any changes you made in the BIOS Setup program and then exit. Your system should then continue with the boot up procedure.

### **Load Optimal Defaults**

Highlighting this setting and then pressing <Enter> provides the optimum performance settings for all devices and system features.

### **Load Failsafe Defaults**

Highlighting this setting and then pressing <Enter> provides the safest set of parameters for the system. Use them if the system is behaving erratically.

### **Discard Changes**

Highlighting this setting and then pressing <Enter> will ignore any changes you made in the BIOS Setup program but will not exit the BIOS Setup program.

## Appendix A

### BIOS Error Beep Codes & Messages

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

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

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

These fatal errors are usually communicated through a series of audible beeps. The numbers on the fatal error list, on the following page, correspond to the number of beeps for the corresponding error. All errors listed, with the exception of Beep Code 8, are fatal errors.

Beeps	Error message	Description
1	Refresh Failure	The memory refresh circuitry on the motherboard is faulty.
3	Base 64 KB Memory Failure	A memory failure occurred within the first 64 KB of memory.
6	8042 - Gate A20 Failure	The keyboard controller (8042) contains the Gate A20 switch which allows the CPU to operate in virtual mode. This error means that the BIOS cannot switch the CPU into protected mode.
7	Processor Exception Interrupt Error	The CPU on the motherboard generated an exception interrupt.
8	Display Memory Read/Write Error	The system video adapter is either missing or its memory is faulty. <b>Please Note:</b> This is not a fatal error.

Refer to the table on page A-3 for solutions to the error beep codes.



<b>If it beeps...</b>	<b>then ...</b>
1, or 3 times	reseat the DIMM memory. If the system still beeps, replace the memory.
6 times	reseat the keyboard controller chip. If it still beeps. If it still beeps, try a different keyboard, or replace the keyboard fuse, if the keyboard has one. If it still beeps, replace the keyboard controller
8 times	there is a memory error on the video adapter. Replace the video adapter, or the RAM on the video adapter.
9 times	the BIOS ROM chip is bad. The system probably needs a new BIOS ROM chip.
7 times	the processor must be replaced.

<b>If you hear...</b>	<b>it's because...</b>
5 short and 1 long beeps	no memory is installed
8 short and 1 long beeps	EDO memory is installed
6 short and 1 long beeps	registered or buffered memory is installed

Error Message	Information
8042 Gate -- A20 Error	Gate A20 on the keyboard controller (8042) is not working. Replace the 8042.
Address Line Short!	Error in the address decoding circuitry on the motherboard.
C: Drive Error	Hard disk drive C: does not respond. Run the Hard Disk Utility to correct this problem. Also, check the C: hard disk type in Standard Setup to make sure that the hard disk type is correct.
C: Drive Failure	Hard disk drive C: does not respond. Replace the hard disk drive.
Cache Memory Bad	Cache memory is defective. Replace it. Do Not Enable Cache!
CH-2 Timer Error	Most ISA computers include two times. There is an error in time 2.
CMOS Battery State Low	CMOS RAM is powered by a battery. The battery power is low. Replace the battery.
CMOS Checksum Failure	After CMOS RAM values are saved, a checksum value is generated for error checking. The previous value is different from the current value. Run WINBIOS Setup or AMIBIOS Setup.
CMOS System Option Not Set	The values stored in CMOS RAM are either corrupt or nonexistent. Run WINBIOS Setup or AMIBIOS Setup.
CMOS Display Type Mismatch	The video type in CMOS RAM does not match the type detected by the BIOS. Run WINBIOS Setup or AMIBIOS Setup.
CMOS Memory Size Mismatch	The amount of memory on the motherboard is different than the amount in CMOS RAM. Run WINBIOS Setup or AMIBIOS Setup.

Error Message	Information
CMOS Time and Date Not Set	Run Standard Setup to set the date and time in CMOS RAM.
D: Drive Error	Hard disk drive D: does not respond. Run the Hard Disk Utility. Also check the D: hard disk type in Standard Setup to make sure that the hard disk drive type is correct.
D: Drive Failure	Hard disk drive D: does not respond. Replace the hard disk.
Diskette Boot Failure	The boot disk in floppy drive A: is corrupt. It cannot be used to boot the computer. Use another boot disk and follow the screen instructions.
Display Switch Not Proper	Some computers require a video switch on the motherboard be set to either color or monochrome. Turn the computer off, set the switch, then power on.
DMA Error	Error in the DMA controller.
DMA #1 Error	Error in the first DMA channel.
DMA #2 Error	Error in the second DMA channel.
FDD Controller Failure	The BIOS cannot communicate with the floppy disk drive controller. Check all appropriate connections after the computer is powered down.
HDD Controller Failure	The BIOS cannot communicate with the hard disk drive controller. Check all appropriate connections after the computer is powered down.
INTR #1 Error	Interrupt channel 1 failed POST.
INTR #2 Error	Interrupt channel 2 failed POST.

Error Message	Information
Invalid Boot Diskette	The BIOS can read the disk in floppy drive A:, but cannot boot the computer. Use another boot disk.
Keyboard Is Locked... Unlock It	The keyboard lock on the computer is engaged. The computer must be unlocked to continue.
Keyboard Error	There is a timing problem with the keyboard. Set the <i>Keyboard</i> options in Standard Setup to <i>Not Installed</i> to skip the keyboard post routines.
KB/Interface Error	There is an error in the keyboard connector.
No ROM BASIC	Cannot find a bootable sector on either disk drive A: or hard disk drive C:. The BIOS calls INT 18h which generates this message. Use a bootable disk.
Off Board Parity Error	Parity error in memory installed in an expansion slot. The format is: OFF BOARD PARITY ERROR ADDR (HEX) = (XXXX) XXXX is the hex address where the error occurred. Run AMIDdiag to find and correct memory problems.
On Board Parity Error	Parity error in motherboard memory. The format is: ON BOARD PARITY ERROR ADDR (HEX) = (XXXX) XXXX is the hex address where the error occurred. Run AMIDdiag to find and correct memory problems.
Parity Error????	Parity error in system memory at an unknown address. Run AMIDdiag to find and correct memory problems.