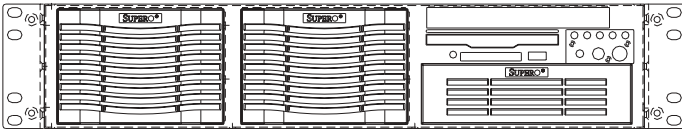


SUPERO®

SUPERSERVER 6021i



USER'S MANUAL

Revision 1.0b

The information in this User's Manual has been carefully reviewed and is believed to be accurate. The vendor assumes no responsibility for any inaccuracies that may be contained in this document, makes no commitment to update or to keep current the information in this manual, or to notify any person or organization of the updates. **Please Note: For the most up-to-date version of this manual, please see our web site at www.supermicro.com.**

SUPERMICRO COMPUTER reserves the right to make changes to the product described in this manual at any time and without notice. This product, including software, if any, and documentation may not, in whole or in part, be copied, photocopied, reproduced, translated or reduced to any medium or machine without prior written consent.

IN NO EVENT WILL SUPERMICRO COMPUTER BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, SPECULATIVE OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OR INABILITY TO USE THIS PRODUCT OR DOCUMENTATION, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN PARTICULAR, THE VENDOR SHALL NOT HAVE LIABILITY FOR ANY HARDWARE, SOFTWARE, OR DATA STORED OR USED WITH THE PRODUCT, INCLUDING THE COSTS OF REPAIRING, REPLACING, INTEGRATING, INSTALLING OR RECOVERING SUCH HARDWARE, SOFTWARE, OR DATA.

Any disputes arising between manufacturer and customer shall be governed by the laws of Santa Clara County in the State of California, USA. The State of California, County of Santa Clara shall be the exclusive venue for the resolution of any such disputes. Supermicro's total liability for all claims will not exceed the price paid for the hardware product.

Unless you request and receive written permission from SUPER MICRO COMPUTER, you may not copy any part of this document.

Information in this document is subject to change without notice. Other products and companies referred to herein are trademarks or registered trademarks of their respective companies or mark holders.

Copyright © 2003 by SUPER MICRO COMPUTER INC.
All rights reserved.

Printed in the United States of America.

Preface

About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SuperServer 6021i. Installation and maintenance should be performed by experienced technicians only.

The SuperServer 6021i is a high-end dual processor 2U rackmount server based on the SC822 2U rackmount server chassis and the P3TDDE, a dual processor motherboard that supports single or dual Intel Pentium® III FCPGA 500 MHz - 1.40 GHz processors and single or dual low power Pentium® III processors at front bus speeds of 133 and 100 MHz and up to 4 GB SDRAM main memory. CPU watchdog capability is also supported.

Manual Organization

Chapter 1: Introduction

The first chapter provides a checklist of the main components included with the server system and describes the main features of the SUPER P3TDDE mainboard and the SC822 chassis, which make up the SuperServer 6021i.

Chapter 2: Server Installation

This chapter describes the steps necessary to install the SuperServer 6021i into a rack and check out the server configuration prior to powering up the system. If your server was ordered without processor and memory components, this chapter will refer you to the appropriate sections of the manual for their installation.

Chapter 3: System Interface

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

Chapter 4: System Safety

You should thoroughly familiarize yourself with this chapter for a general overview of safety precautions that should be followed when installing and servicing the SuperServer 6021i.

Chapter 5: Advanced Motherboard Setup

Chapter 5 provides detailed information on the P3TDDE motherboard, including the locations and functions of connections, headers, jumpers, DIP switches and IRQs. Refer to this chapter when adding or removing processors or main memory and when reconfiguring the motherboard.

Chapter 6: Advanced Chassis Setup

Refer to Chapter 6 for detailed information on the SC822 2U rackmount server chassis. You should follow the procedures given in this chapter when installing, removing or reconfiguring SCSI or peripheral drives and when replacing system power supply units and cooling fans.

Chapter 7: BIOS

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

Appendix A: AwardBIOS POST Messages

Appendix B: AwardBIOS POST Codes

Appendix C: AwardBIOS Error Beep Codes

Appendix D: System Specifications

Notes

Table of Contents

Preface

About This Manual	iii
Manual Organization	iii

Chapter 1: Introduction to the SuperServer 6021i

1-1 Overview	1-1
1-2 Mainboard Features	1-2
1-3 Server Chassis Features	1-4
1-4 Contacting Supermicro	1-6

Chapter 2: Server Installation

2-1 Overview	2-1
2-2 Unpacking the SuperServer 6021i	2-1
2-3 Preparing for Setup	2-1
Choosing a Setup Location	2-2
Rack Precautions	2-2
Server Precautions	2-2
2-4 Installing the SuperServer 6021i into a Rack	2-3
Identifying the Sections of the Rack Rails	2-3
Installing the Chassis Rails	2-4
Installing the Rack Rails	2-4
Installing the Server into the Rack	2-5
Installing the Server into a Telco Rack	2-6
2-5 Checking the Motherboard Setup	2-7
2-6 Checking the Drive Bay Setup	2-9

Chapter 3: System Interface

3-1 Overview	3-1
3-2 Control Panel Buttons	3-1
Reset	3-1
Power	3-1
3-3 Control Panel LEDs	3-2
Overheat	3-2
NIC2	3-2
NIC1	3-2
HDD	3-2
Power	3-3

3-4	SCSI Drive Carrier LEDs	3-3
3-5	Motherboard LED	3-3

Chapter 4: System Safety

4-1	Electrical Safety Precautions	4-1
4-2	General Safety Precautions	4-2
4-3	ESD Precautions	4-3
4-4	Operating Precautions	4-3

Chapter 5: Advanced Motherboard Setup

5-1	Handling the P3TDDE Motherboard	5-1
5-2	Motherboard Installation	5-2
5-3	Connecting Cables	5-3
	Connecting Data Cables	5-3
	Connecting Power Cables	5-3
	Connecting the Control Panel	5-4
5-4	I/O Ports	5-5
5-5	Installing Processors	5-5
5-6	Installing Memory	5-8
5-7	Adding PCI Cards	5-9
	Super P3TDDE Layout	5-11
	Super P3TDDE Quick Reference	5-12
5-8	Connector Definitions	5-12
	Power Supply Connectors	5-13
	Infrared Connectorl	5-14
	Power_On Connector	5-14
	Reset Connector	5-14
	Overheat LED	5-14
	IDE RAID LED	5-15
	NIC LED	5-15
	IDE LED	5-15
	Power LED Connector	5-15
	PW_LED Connector	5-15
	RAID_LED Connector	5-16
	Speaker Connector	5-16
	Universal Serial Bus (USB)	5-16
	Serial Ports	5-17
	Wake On LAN (WOL)	5-17
	Wake On Ring (WOM)	5-17
	Fan Headers	5-17

5-9	Jumper Settings	5-18
	Explanation of Jumpers	5-18
	Front Side Bus Speed	5-18
	CMOS Clear	5-19
	Keyboard Wakeup	5-19
	Onboard IDE RAID	5-20
5-10	Parallel Port, ACP, AGP and Floppy/HardDisk Drive Connections	5-20
	Parallel Port Connector	5-21
	Floppy Connector	5-21
	IDE Connectors	5-21
	4x AGP Pro Slot	5-22
5-11	Installing Software Drivers	5-20

Chapter 6: Advanced Chassis Setup

6-1	Static-Sensitive Devices	6-1
6-2	Control Panel	6-2
6-3	System Fans	6-3
	System Fan Failure	6-3
	Replacing System Cooling Fans	6-3
6-4	Drive Bay Installation/Removal	6-4
	Accessing the Drive Bays	6-4
	IDE Drive Installation	6-5
	CD-ROM and Floppy Drive Installation	6-7
6-5	Power Supply	6-8
	Power Supply Failure	6-8
	Removing/Replacing the Power Supply	6-8

Chapter 7: BIOS

7-1	Introduction	7-1
7-2	Running Setup	7-2
7-3	Main BIOS Setup	7-2
	The Main BIOS Setup Menu	7-3
7-4	Advanced BIOS Setup	7-6
	Advanced BIOS Features	7-6
	Advanced Chipset Features	7-8
	Integrated Peripherals	7-11
	Hardware Monitors	7-14
	Processor Features	7-15

PnP/PCI Configurations 7-16
Power Management 7-18
Boot-up Devices 7-21
Security Setup 7-23
Exit Setup 7-25

Appendices:

Appendix A: AwardBIOS POST Messages A-1
Appendix B: AwardBIOS POSTCodes B-1
Appendix C: AwardBIOS Error BeepCodes C-1
Appendix D: System Specifications D-1

Notes

Chapter 1

Introduction to the SuperServer 6021i

1-1 Overview

The Supermicro SuperServer 6021i is a high-end dual processor, 2U rackmount server that features some of the most advanced technology currently available. The SuperServer 6021i is comprised of two main subsystems: the SC822S-300LP 2U rackmount chassis and the P3TDDE dual 370-pin Pentium III Tualatin processor mainboard. Please refer to our web site for information on operating systems that have been certified for use with the SuperServer 6021i. (www.supermicro.com)

In addition to the mainboard and chassis, various hardware components may have been included with your SuperServer 6021i, as listed below:

- Up to two (2) 370-pin Pentium III Tualatin processors (optional)
- Two (2) CPU heat sinks (SNK-030, optional)
- Up to 4 GB ECC registered SDRAM main memory (optional)
- One (1) 3.5" floppy drive
- One (1) slim drive bay (options: Beige CDM-001 - Black CDM-002)
- One (1) 5.25" drive bay
- One (1) 8MB 4xAGP ATI Rage XL low profile video card
- Rackmount hardware (with screws):
 - Two (2) rack rail assemblies
 - Six (6) brackets for mounting the rack rails to a rack/telco rack
- One (1) CD-ROM containing drivers and utilities:
 - Intel LANDesk Client Manager
 - ATI Rage XL 8MB PCI graphics controller driver
 - LAN driver
- SuperServer 6021i User's Manual

1-2 Mainboard Features

At the heart of the SuperServer 6021i lies the P3TDDE, a dual processor motherboard designed to provide maximum performance. Below are the main features of the P3TDDE.

Chipset

The P3TDDE is based on the VIA Apollo Pro 266T chipset, which is a high-performance core logic chipset that consists of a North Bridge and a South Bridge. See Figure 1-1 for a block diagram of the chipset.

The North Bridge includes an integrated main memory subsystem and a dual channel PCI bus that bridges the processor bus to a 32-bit PCI bus. The North Bridge also packs and unpacks data for PCI accesses, which reserves more processor bandwidth for the multiprocessor motherboard.

The South Bridge provides various integrated functions, including the PCI to ISA bridge and support for UDMA100, security (passwords and system protection), Plug & Play, USBs, power management, interrupt controllers and the SMBus.

Processors

The P3TDDE supports single or dual Pentium III Tualatin 500 MHz - 1.40 GHz processors with a 100 or 133 MHz FSB. Please refer to the support section of our web site for a complete listing of supported processors: < <http://www.supermicro.com/TechSupport.htm> >.

Memory

The P3TDDE has 4 DIMM slots that can support up to 4 GB of ECC registered PC133 and PC100 SDRAM. Module sizes of 128MB, 256MB, 512MB and 1 GB may be used to populate the DIMM slots.

PCI Expansion Slots

The P3TDDE has five 32-bit 33 MHz PCI slots.

4xAGP Pro Slot

The P3TDDE includes a 4xAGP Pro slot, which provides for advanced video capabilities of AGP, 2xAGP, 4xAGP, and 4xAGP Pro.

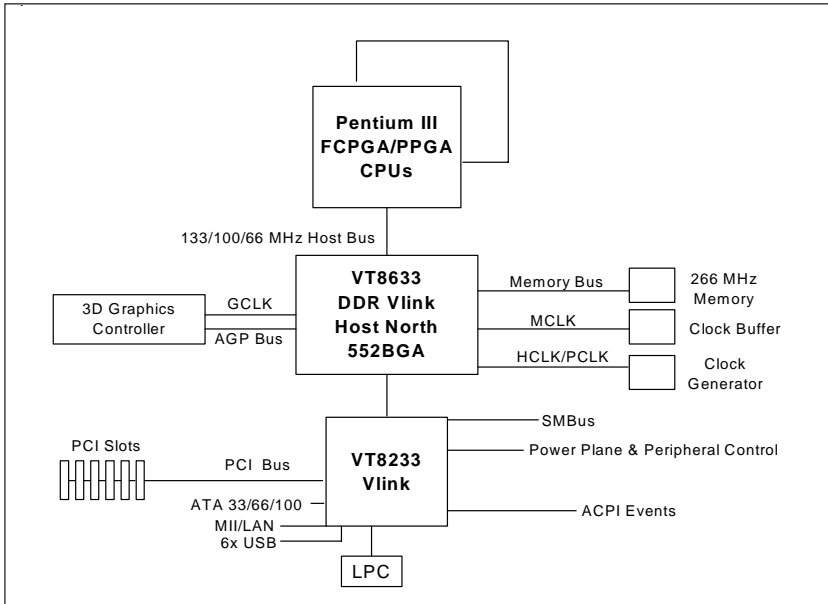
Onboard Controllers/Ports

One floppy drive controller and two onboard IDE controllers support from one up to four hard disk drives or ATAPI devices total. The IDE RAID controller with two EIDE RAID ports also support from one to four hard disk drives total (please see above). Onboard I/O ports include two COM ports, two USB ports and two USB headers, one parallel port, PS/2 mouse and keyboard ports and one 10/100 MB Intel 82559 Ethernet (NIC) port.

Other Features

Other onboard features that promote system health include seven voltage monitors, two CPU temperature sensors, four fan speed sensors, a chassis intrusion header, auto-switching voltage regulators, chassis and CPU overheat sensors, BIOS virus protection and BIOS rescue.

Figure 1-1. VIA Apollo Pro 266T Chipset: System Block Diagram



1-3 Server Chassis Features

The SuperServer 6021i is a high-end, low-cost, scaleable 2U rackmount server platform designed with today's most state-of-the-art features. The following is a general outline of the main features of the SC822 chassis.

System Power

When configured as a SuperSever 6021i, the SC822 chassis includes a 300W power supply.

IDE Subsystem

The IDE subsystem supports two IDE channel hard drives. (Any standard 1" drives are supported.) The IDE drives are not hot-swap units. The P3TDDE also provides two IDE channels of IDE RAID onboard.

Control Panel

The SC822's control panel provides important system monitoring and control information. LEDs indicate power on, network activity, hard disk drive activity and system overheat conditions. The control panel also includes a main power button and a system reset button.

I/O Shield

The SC822 is a 2U rackmount chassis. Its I/O shield provides seven motherboard low profile expansion slot, one COM port (the other is internal), two USB ports, PS/2 mouse and keyboard ports, and one Ethernet port. (See Figure 1-2.)

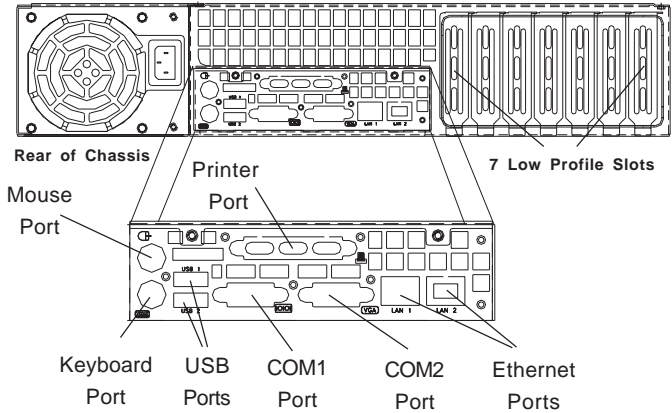


Figure 1-2. I/O Shield

Cooling System

The SC822 chassis has an innovative cooling design that includes four 8-cm redundant system cooling (intake) fans. The fans plug into chassis fan connectors that located behind the HDD drive bays and operate at full rpm continuously. If they break down, the ambient air temperature inside the chassis will rise and activate an overheat LED.

1-4 Contacting Supermicro

Headquarters

Address: SuperMicro Computer, Inc.
980 Rock Ave.
San Jose, CA 95131 U.S.A.

Tel: +1 (408) 503-8000

Fax: +1 (408) 503-8008

Email: marketing@supermicro.com (General Information)
support@supermicro.com (Technical Support)

Web Site: www.supermicro.com

Europe

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

Tel: +31 (0) 73-6400390

Fax: +31 (0) 73-6416525

Email: sales@supermicro.nl (General Information)
support@supermicro.nl (Technical Support)
rma@supermicro.nl (Customer Support)

Asia-Pacific

Address: SuperMicro, Taiwan
D5, 4F, No. 16 Chien-Ba Road
Chung-Ho 235, Taipei Hsien, Taiwan, R.O.C.

Tel: +886-(2) 8226-3990

Fax: +886-(2) 8226-3991

Web Site: www.supermicro.com.tw

Technical Support:

Email: support@supermicro.com.tw

Tel: 886-2-8228-1366, ext.132 or 139

Chapter 2

Server Installation

2-1 Overview

This chapter provides a quick setup checklist to get your SuperServer 6021i up and running. Following these steps in the order given should enable you to have the system operational within a minimum amount of time. This quick setup assumes that your SuperServer 6021i system has come to you with the processors and memory preinstalled. If your system is not already fully integrated with a motherboard, processors, system memory, etc., please turn to the chapter or section noted in each step for details on installing specific components.

2-2 Unpacking the SuperServer 6021i

You should inspect the box the SuperServer 6021i was shipped in and note if it was damaged in any way. If the server itself shows damage you should file a damage claim with the carrier who delivered it.

Decide on a suitable location for the rack unit that will hold the SuperServer 6021i. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. You will also need it placed near a grounded power outlet. Read the Rack and Server Precautions in the next section.

2-3 Preparing for Setup

The box the SuperServer 6021i was shipped in should include two sets of rail assemblies, two rail mounting brackets and the mounting screws you will need to install the system into the rack. Follow the steps in the order given to complete the installation process in a minimum amount of time. Please read this section in its entirety before you begin the installation procedure outlined in the sections that follow.

Choosing a Setup Location:

- Leave enough clearance in front of the rack to enable you to open the chassis top cover completely (~25 inches).
- Leave approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and ease in servicing.



Warnings and Precautions!



Rack Precautions:

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.
- In single rack installations, stabilizers should be attached to the rack.
- In multiple rack installations, the racks should be coupled together.
- Always make certain that the rack is stable before extending a component from the rack.
 - You should extend only one component at a time - extending two or more simultaneously may cause the rack to become unstable.

Server Precautions:

- Review the electrical and general safety precautions in Chapter 4.
- Determine the placement of each component in the rack *before* you install the rails.
- Install the heaviest server components on the bottom of the rack first, and then work upward.
 - Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow the IDE drives and power supply units to cool before touching them.
- Always keep the rack's front door and all panels and components on the servers closed when not servicing to maintain proper cooling.

2-4 Installing the SuperServer 6021i into a Rack

This section provides information on installing the SuperServer 6021i into a rack unit. If the 6021i has already been mounted into a rack, you can skip ahead to Sections 2-5 and 2-6. There are a variety of rack units on the market, which may mean the assembly procedure will differ slightly. The following is a guideline for installing the 6021i into a rack with the rack rails provided. You should also refer to the installation instructions that came with the rack unit you are using.

Identifying the Sections of the Rack Rails:

You should have received two rack rail assemblies with the SuperServer 6021i. Each of these assemblies consist of three sections: an inner fixed chassis rail that secures to the 6021i (A) and an outer fixed rack rail that secures directly to the rack itself (B). A sliding rail guide sandwiched between the two should remain attached to the fixed rack rail. (See Figure 2-1.) The A and B rails must be detached from each other to install.

To remove the fixed chassis rail (A), pull it out as far as possible - you should hear a "click" sound as a locking tab emerges from inside the rail assembly and locks the inner rail. Then depress the locking tab to pull the inner rail completely out. Do this for both the left and right side rack rail assemblies.

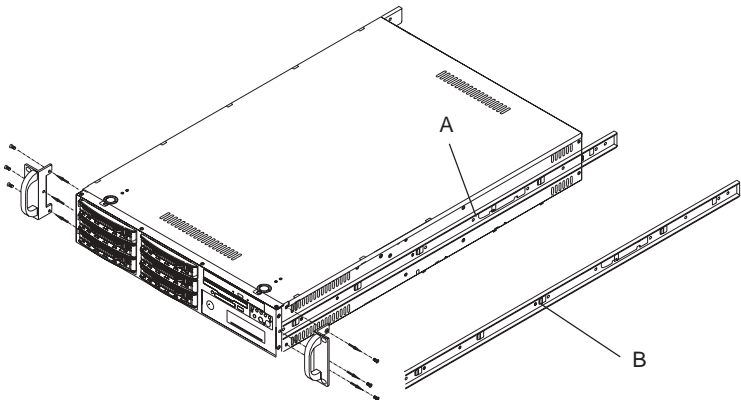


Figure 2-1. Identifying the Sections of the Rack Rails

Installing the Chassis Rails:

Remove the handles on the 6021i chassis (see Figure 2-1) and position the fixed chassis rail sections along the side of the 6021i chassis making sure the two screw holes line up. Note that these two rails are left/right specific. Slide the rails on to the hooks on both sides of the chassis. Screw the rail securely to the side of the chassis, and then reinstall the chassis handle (see Figure 2-2). Repeat this procedure for the other rail on the other side of the chassis. You will also need to attach the rail brackets when installing into a telco rack.

Locking Tabs: As you have seen, both chassis rails have a locking tab, which serves two functions. The first is to lock the server into place when installed and pushed fully into the rack, which is its normal position. Secondly, these tabs also lock the server in place when fully extended from the rack. This prevents the server from coming completely out of the rack when you pull it out for servicing.

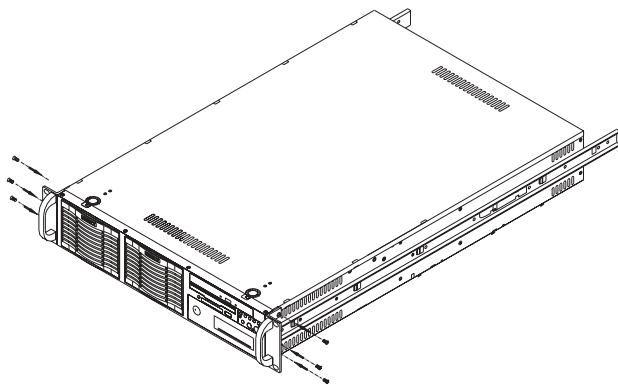


Figure 2-2. Installing Chassis Rails

Installing the Rack Rails:

Determine where you want to place the SuperServer 6021i in the rack. (See Rack and Server Precautions in Section 2-3.) Position the fixed rack rail/sliding rail guide assemblies at the desired location in the rack, keeping the sliding rail guide facing the inside of the rack. Screw the assembly securely to the rack using the brackets provided. Attach the

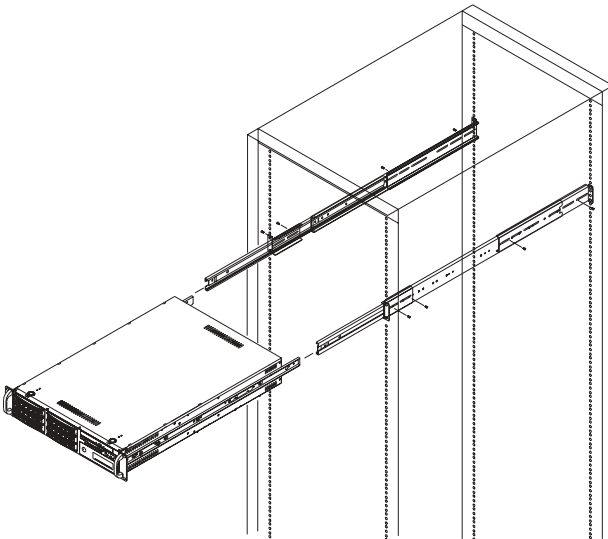
other assembly to the other side of the rack, making both are at the exact same height and with the rail guides facing inward.

Installing the Server into the Rack:

You should now have rails attached to both the chassis and the rack unit. The next step is to install the server into the chassis. Do this by lining up the rear of the chassis rails with the front of the rack rails. Slide the chassis rails into the rack rails, keeping the pressure even on both sides (you may have to depress the locking tabs when inserting). See Figure 2-3.

When the server has been pushed completely into the rack, you should hear the locking tabs "click". Finish by inserting and tightening the thumbscrews that hold the front of the server to the rack.

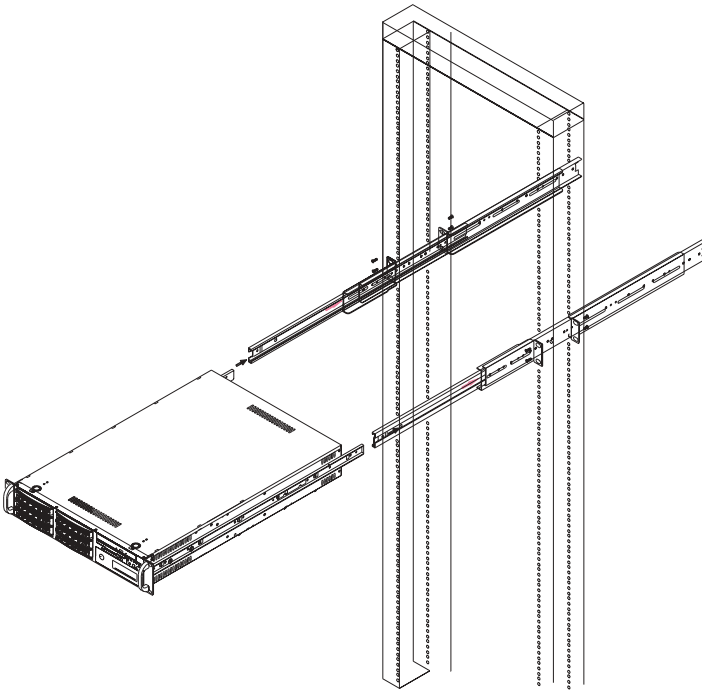
Figure 2-3. Installing the Server into a Rack



Installing the Server into a Telco Rack:

If you are installing the SuperServer 6021i into a Telco type rack, follow the directions given on the previous pages for rack installation. The only difference in the installation procedure will be the positioning of the rack brackets to the rack. They should be spaced apart just enough to accommodate the width of the telco rack.

Figure 2-4. Installing the Server into a Telco Rack



2-5 Checking the Motherboard Setup

After you install the 6021i in the rack, you will need to open the unit to make sure the motherboard is properly installed and all the connections have been made.

1. Accessing the inside of the 6021i (see Figure 2-5):

First, release the retention screws that secure the unit to the rack. Grasp the two handles on either side and pull the unit straight out until it locks (you will hear a "click"). Next, depress the two buttons on the top of the chassis to release the top cover. There is a large rectangular recess in the middle front of the top cover to help you push the cover away from you until it stops. You can then lift the top cover from the chassis to gain full access to the inside of the server.

2. Check the CPUs (processors):

You should have one or two processors already installed into the system board. Each processor should have its own heatsink attached. See Section 5-5 for instructions on processor installation.

3. Verify the proper CPU core/bus ratio setting:

You need to verify that the CPU core/bus ratio as set with DIP Switch 1 matches the speed of your installed processors. This DIP Switch is defaulted to 5.5, which corresponds to 550 MHz processors running on a 100 MHz front side bus (FSB). If the setting is different or if you are using processors of a different speed, you may need to change this setting. (See Section 5-9 for setting the core/bus ratio with DIP Switch 1.) This speed can also be set in BIOS.

4. Check the system memory:

Your 6021i server system may have come with system memory already installed. Make sure all DIMMs are fully seated in their slots. For details on adding system memory, refer to Section 5-6.

5. Installing add-on cards:

If desired, you can install an add-on card to the system. See Section 5-7 for details on installing a PCI add-on card.

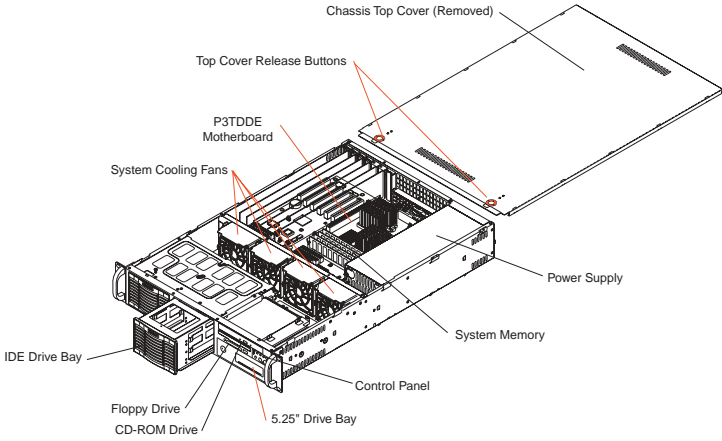


Figure 2-5. Accessing the Inside of the SuperServer 6021i (with one IDE drive bay removed)

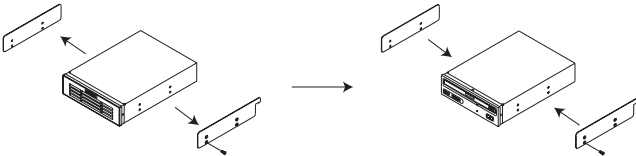


Figure 2-6. Removing the 5.25" drive bay rails and installing them on the new component (CD-ROM as an example)

6. Check all cable connections and airflow:

Make sure all power and data cables are properly connected and not blocking airflow. See Section 5-3 for details on cable connections. Also, check the air seals for damage. The air seals are located under the blower fan and beneath the frame cross section that separates the drive bay area from the motherboard area of the chassis.

2-6 Checking the Drive Bay Setup

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

1. Accessing the drive bays:

All drives can be accessed from the front of the server. For servicing the CD-ROM and floppy drives, you will need to remove the top chassis cover. The IDE disk drives can be installed and removed from the front of the chassis without removing the top chassis cover. The 5.25" drive bay cover can be removed by pressing the tab on the corner of the drive bay and then push the bay outward from inside.

2. Installing components into the 5.25" drive bay:

Remove the drive bay cover by pressing the tab as described in the previous section. Remove the drive bay rails as shown in Figure 2-6. Install the rails onto the new component and then slide the new component into the drive bay until you hear a clicking sound from the tab.

3. Installing CD-ROM and floppy disk drives:

Refer to Section 6-4 if you need to reinstall a CD-ROM and/or floppy disk drive to the system.

4. Check the IDE disk drives:

Depending upon your system's configuration, your system may have one drive already installed. If you need to install an IDE drive, please refer to Section 6-4. Be certain that the server's electrical power is "off" before attempting to change an IDE hard disk drive -- they are not hot-swappable.

5. Check the airflow:

Airflow is provided by three, 8-cm, redundant, cooling fans -- plus one hot spare fan. The system component layout was carefully designed to promote sufficient airflow through the 2U rackmount space. Also note that all power and data cables have been routed in such a way that they do not block the airflow generated by the fans.

6. Supplying power to the system:

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

Chapter 3

System Interface

3-1 Overview

There are several LEDs on the control panel as well as others on the IDE drive carriers and the motherboard to keep you constantly informed of the overall status of the system as well as the activity and health of specific components. There are also two buttons on the chassis control panel and an on/off switch on the power supply. This chapter explains the meanings of all LED indicators and the appropriate response you may need to take.

3-2 Control Panel Buttons

There are two push-button buttons located on the front of the chassis. These are (in order from left to right) a reset button and a power on/off button.



- **RESET:** The reset switch reboots the system.



- **POWER:** This is the main power switch, which is used to apply or turn off the main system power. Turning off system power with this button removes the main power but keeps standby power supplied to the system. (See also the power supply on/off switch in Section 3-5.)

3-3 Control Panel LEDs

The control panel located on the front of the SC822 chassis has five LEDs. These LEDs provide you with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action you may need to take.



- **Overheat:** Indicates an overheat condition in the chassis. This may be caused by cables obstructing the airflow in the system, or the ambient room temperature being too warm. You should also check to make sure that the chassis cover is installed and that all fans are present and operating normally. Make certain that the heat sinks are installed properly (see section 5-5 and figure 5-4) and make certain that the chassis top cover is in place during server operation to assure proper cooling air circulation.



NIC1

- **NIC1:** Indicates network activity on LAN1 when flashing.



- **HDD:** Indicates IDE channel activity. On the SuperServer 6021i, this light indicates CD-ROM drive activity when flashing.



- **Power:** Indicates power is being supplied to the system's power supply units. This LED should normally be illuminated when the system is operating.

3-4 Motherboard LED

There is only one LED on the motherboard. When illuminated, it indicates that system power is present on the motherboard. This LED is located in the corner of the P3TDDE near the IDE #1 connector.

Notes

Chapter 4

System Safety

4-1 Electrical Safety Precautions



Basic electrical safety precautions should be followed to protect yourself from harm and the SuperServer 6021i from damage:

- Be aware of the locations of the power on/off switch on the chassis as well as the room's emergency power-off switch, disconnection switch or electrical outlet. If an electrical accident occurs, you can then quickly remove power from the system.
- Do not work alone when working with high voltage components.
- Power should always be disconnected from the system when removing or installing main system components, such as the motherboard, memory modules and IDE and floppy drives. When disconnecting power, you should first power down the system with the operating system first and then unplug the power cords of all the power supply units in the system.
- When working around exposed electrical circuits, another person who is familiar with the power-off controls should be nearby to switch off the power if necessary.
- Use only one hand when working with powered-on electrical equipment. This is to avoid making a complete circuit, which will cause electrical shock. Use extreme caution when using metal tools, which can easily damage any electrical components or circuit boards they come into contact with.
- Do not use mats designed to decrease static electrical discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.
- The power supply power cords must include a grounding plug and must be plugged into grounded electrical outlets.

- **Motherboard Battery: CAUTION** - There is a danger of explosion if the onboard battery (located near the IDE#1 connector) is installed upside down, which will reverse its polarities. This battery must be replaced only with the same or an equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.
- **CD-ROM Laser: CAUTION** - this server may have come equipped with a CD-ROM drive. To prevent direct exposure to the laser beam and hazardous radiation exposure, do not open the enclosure or use the unit in any unconventional way.

4-2 General Safety Precautions



Follow these rules to ensure general safety:

- Keep the area around the SuperServer 6021i clean and free of clutter.
- The SuperServer 6021i weighs approximately 54 lbs (24.2 kg) when fully loaded. When lifting the system, two people at either end should lift slowly with their feet spread out to distribute the weight. Always keep your back straight and lift with your legs.
- Place the chassis top cover and any system components that have been removed away from the system or on a table so that they won't accidentally be stepped on.
- While working on the system, do not wear loose clothing such as neckties and unbuttoned shirt sleeves, which can come into contact with electrical circuits or be pulled into a cooling fan.
- Remove any jewelry or metal objects from your body, which are excellent metal conductors that can create short circuits and harm you if they come into contact with printed circuit boards or areas where power is present.
- After accessing the inside of the system, close the system back up and secure it to the rack unit with the retention screws after ensuring that all connections have been made.

4-3 ESD Precautions



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

- Use a grounded wrist strap designed to prevent static discharge.
- Keep all components and printed circuit boards (PCBs) in their antistatic bags until ready for use.
- Touch a grounded metal object before removing the board from the antistatic bag.
- Do not let components or PCBs come into contact with your clothing, which may retain a charge even if you are wearing a wrist strap.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.
- When handling chips or modules, avoid touching their pins.
- Put the 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.

4-4 Operating Precautions



Care must be taken to assure that the chassis cover is in place when the 6021i is operating to assure proper cooling. Out of warranty damage to the 6021i system can occur if this practice is not strictly followed.

Chapter 5

Advanced Motherboard Setup

This chapter covers the steps required to install the P3TDDE motherboard into the SC822 chassis, connect the data and power cables and install add-on cards. All motherboard jumpers and connections are also described. A layout and quick reference chart are on pages 5-11 and 5-12. Remember to close the chassis completely when you have finished working with the motherboard to protect and cool the system better.

Tools Required

The only tools you will need to install the P3TDDE into the SC822 chassis are a long and short Phillips screwdriver.

5-1 Handling the P3TDDE Motherboard

Static electrical discharge can damage electronic components. To prevent damage to any printed circuit boards (PCBs), it is important to handle them very carefully (see previous chapter). Also note that the size and weight of the motherboard can cause it to bend if handled improperly, which may result in damage. To prevent the motherboard from bending, keep one hand under the center of the board to support it when handling. The following measures are generally sufficient to protect your equipment from static discharge.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing any board from its anti-static bag.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard, add-on cards and peripherals back into their anti-static bags when not in use.

Unpacking

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

5-2 Motherboard Installation

This section explains the first step of physically mounting the P3TDDE into the SC822 chassis. Following the steps in the order given will eliminate the most common problems encountered in such an installation. To remove the motherboard, follow the procedure in reverse order.

1. Accessing the inside of the 6021i (see Figure 2-5):

Two release buttons are located on the top cover of the chassis. Depressing both of these buttons while pushing the cover away from you until it stops. You can then lift the top cover from the chassis to gain full access to the inside of the server. (If already installed in a rack, you must first release the retention screws that secure the unit to the rack. Then grasp the two handles on either side and pull the unit straight out until the rails lock into place.)

2. Check compatibility of motherboard ports and I/O shield:

The P3TDDE requires a chassis big enough to support an 11.6" x 11.2" (294.64 mm x 284.48 mm) full ATX motherboard, such as Supermicro's SC822 2U rackmount. Make certain that the I/O ports on the motherboard properly align with their respective holes in the I/O shield at the back of the chassis.

3. Mounting the motherboard onto the motherboard tray:

Carefully mount the motherboard to the motherboard tray by aligning the board holes with the raised metal standoffs that are visible on the bottom of the chassis. Insert screws into all the mounting holes on your motherboard that line up with the standoffs and tighten until snug (if you screw them in too tight, you might strip the threads). Metal screws provide an electrical contact to the motherboard ground to provide a continuous ground for the system.

5-3 Connecting Cables

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

Connecting Data Cables

The ribbon cables used to transfer data from the peripheral devices have been carefully routed to prevent them from blocking the flow of cooling air that moves through the system from front to back. If you need to disconnect any of these cables, you should take care to keep them routed as they were originally after reconnecting them (make sure the red wires connect to the pin 1 locations). The following data cables (with their locations noted) should be connected. (See the layout on page 5-10 for connector locations.)

- Two (2) IDE Device Cables (J23 and J24)
- Floppy Drive Cable (J26)
- Control Panel Cable (JF1, see next page)

Connecting Power Cables

The P3TDDE has a 24-pin primary power supply connector designated "ATX Power" for connection to the ATX power supply. The ATX Power connector also is keyed to accept 20-pin power connectors if the power supply you are using has that type. See Section 5-8 for power connector pin definitions. An ATX auxiliary 6-pin power connector is also required.

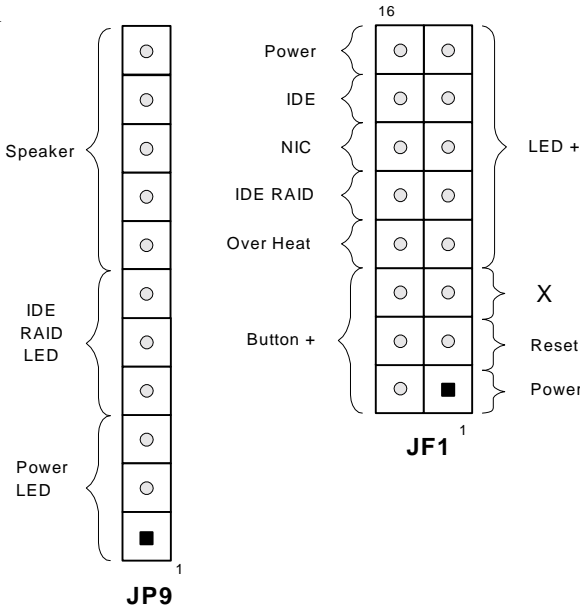
Connecting the Control Panel

JF1 and JF2 contain header pins for various front control panel connectors. See Figure 5-1 for the pin locations of the various front control panel buttons and LED indicators. Please note that even and odd numbered pins are on opposite sides of each header.

All JF2 wires have been bundled into single ribbon cable to simplify their connection. Make sure the red wire plugs into pin 1 as marked on the board. The other end connects to the Control Panel printed circuit board, located just behind the system status LEDs in the chassis. The control signals are all on the even numbered pins.

See pages 5-14 to 5-15 for details and pin descriptions of JF1 and Figure 5-1 for JF1 pin descriptions.

Figure 5-1. P3TDDE Front Control Panel Header Pins



5-4 I/O Ports

The I/O ports are color coded in conformance with the PC99 specification. See Figure 5-2 below for the colors and locations of the various I/O ports.

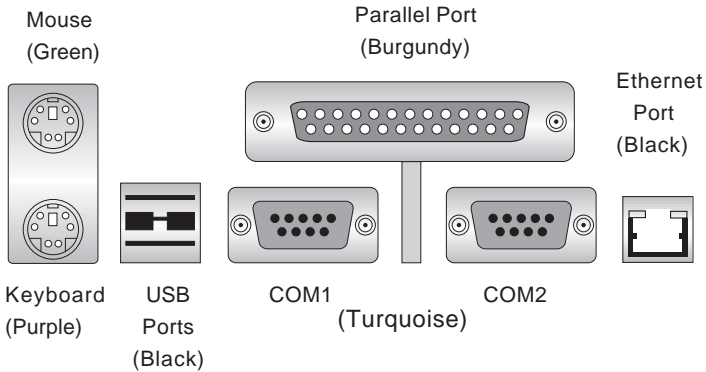


Figure 5-2. P3TDDE Rear Panel I/O Ports

5-5 Installing Processors



Avoid placing direct pressure to the top of the processor package. Always connect the power cord last and always remove it before adding, removing or changing any hardware components.

1. Installing the FCPGA processors:

The P3TDDE has two 370-pin sockets, which support single or dual Intel Pentium® III FCPGA 500 MHz - 1.40 GHz processors and single or dual low power Pentium® III processors at front bus speeds of 100 and 133 MHz. Lift the lever on the FCPGA socket and insert the processor keeping the notched corner oriented toward pin one on the socket. Make sure the processor is fully seated in the socket and then close the lever. You can also install a single processor on the motherboard without changing any jumper settings. (See Figure 5-3 for views of a 370-pin FCPGA socket before and after processor installation.)

Figure 5-3. FCPGA Socket: Empty and with Processor Installed (Low Power Pentium III shown)

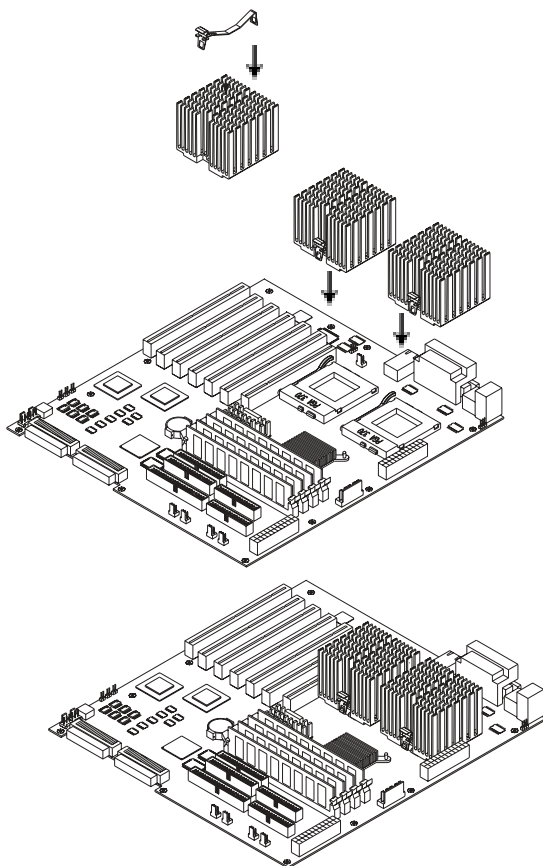


2. Attaching heat sinks to the processors:

Two passive heat sinks (one for each processor) have been included with your SuperServer 6021i. Secure a heat sink to each processor with a suitable thermal compound to conduct the heat from the processor to the heat sink in the best manner. Make certain that you apply the compound evenly and that good contact is made between the CPU chip (the die) and the heat sink. Insufficient contact or improper types of heat sinks and thermal compounds can cause the processor to overheat, which may crash the system. See figure 5-4 for heat sink installation diagrams.

3. Removing the processors:

To remove the processors from the motherboard, simply follow the installation process in reverse order.



**Figure 5-4. Heat Sink Installation
(Reference Only)**

5-6 Installing Memory



CAUTION! Exercise extreme care when installing or removing DIMM modules to prevent any possible damage. The MEC must be populated in the manner described in Step 2 below.

Note: Check the Supermicro web site for recommended memory modules:
http://www.supermicro.com/TECHSUPPORT/FAQs/Memory_vendors.htm

CAUTION

Exercise extreme care when installing or removing DIMM modules to prevent any possible damage. Also note that the memory is interleaved to improve performance (see step 1).

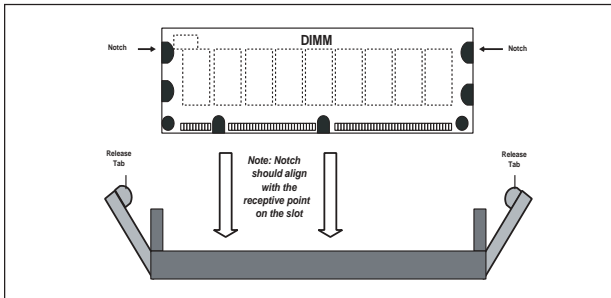
DIMM Installation (See Figure 2-2)

1. Insert either two or four DIMMs as required for the desired system memory. The memory is non-interleaved.
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 module incorrectly.
3. Gently press down on the DIMM module until it snaps into place in the slot. Repeat for all modules (see step 1 above).

Support

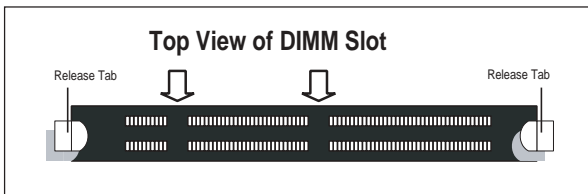
The P3TDDE only supports ECC registered SDRAM memory. PC133 and PC100 memory are both supported at their respective speeds. However, the memory bus is synchronized to the front side bus speed, so using PC100 with a 133 MHz FSB or using PC133 with a 100 MHz FSB, will result in 100 MHz memory speed operation in either case.

Figure 5-5a. Side View of DIMM Installation into Slot



To Install: Insert module vertically and press down until it snaps into place. Pay attention to the bottom notches. **To Remove:** Use your thumbs to gently push each release tab outward to free the DIMM from the slot.

Figure 5-5b. Top View of DIMM Installation into Slot



To Remove: Use your thumbs to gently push each release tab outward. This should release the DIMM from the slot.

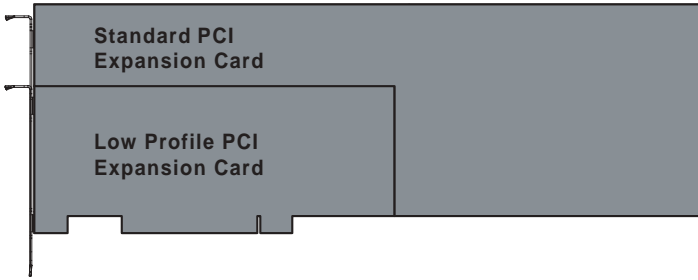
5-7 Adding PCI Cards

1. 32-bit PCI slots:

The 6021i system board has five 32-bit, 33 MHz 5V PCI slots that require **low profile PCI cards** to fit inside the Supermicro SC822 chassis - see figures 5-6a and 5-6b.

2. 32-bit PCI card installation:

Before installing a PCI add-on card, make sure you choose the correct **low profile** card for the type of PCI card you are installing (see step 1, above). Begin by removing the I/O shield for the PCI slot. Insert the PCI card into the PCI slot on the motherboard, pushing down with your thumbs evenly on both sides of the card. Finish by using a screw to secure the top of the card shield to the chassis. The I/O shield protects the motherboard and its components from EMI (electromagnetic interference) and aids in proper ventilation, so make sure there is always a shield covering each slot.



Standard PCI and Low Profile PCI Expansion Card Comparison

Figure 5-6a. Low Profile versus Standard PCI Card Form Factor

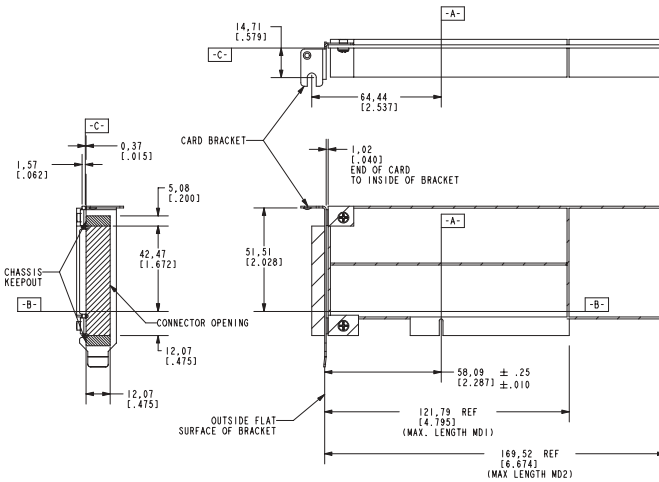
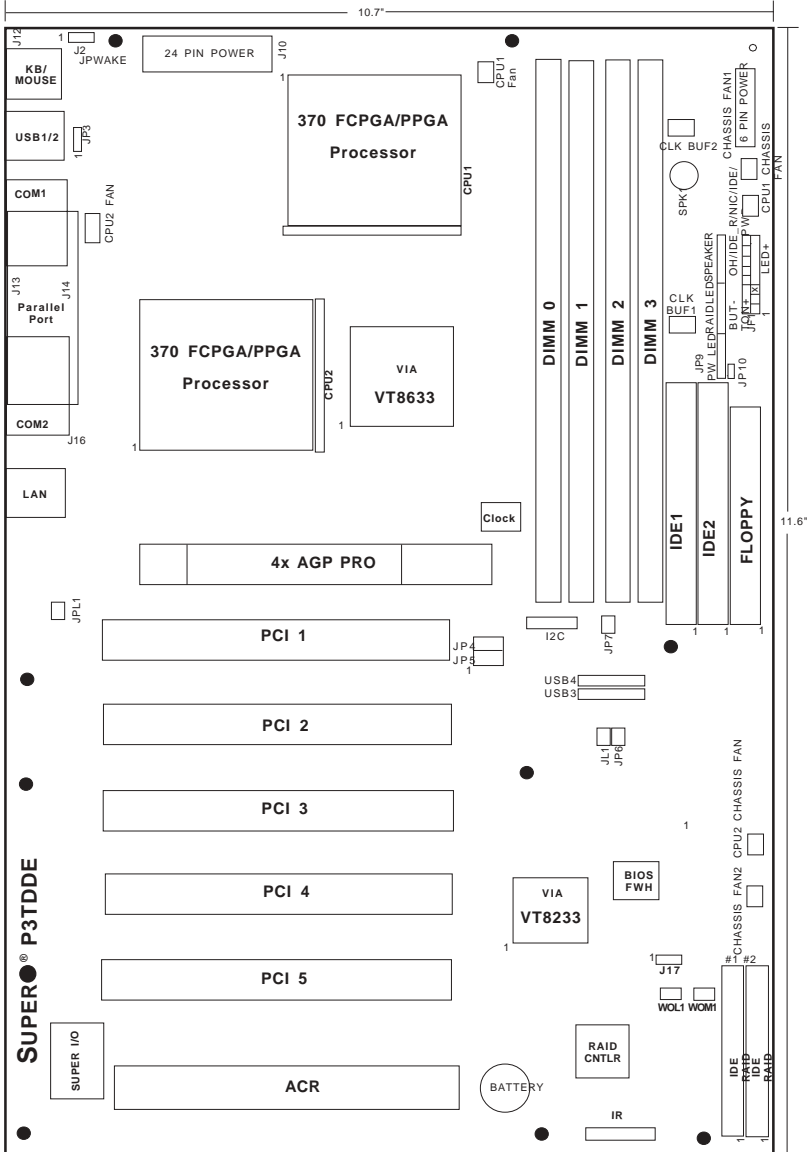


Figure 5-6b. Low Profile PCI Card Dimensions

Figure 5-7. SUPER P3TDDE Layout (not drawn to scale)



Also see the figure on page 5-5 for the locations of the I/O ports and 5-4 for the Front Control Panel (JF1 and JF2) connectors.

P3TDDE Quick Reference

<u>Jumpers</u>	<u>Description</u>	<u>Default Setting</u>
JBT1	CMOS Clear	Pins 1-2 (Normal)
JPWAKE	Keyboard Wake-Up	Pins 1-2 (Disabled)
JPL1	LAN Enable/Disable	Pins 1-2 (Enabled)
JP4, JP5	Front Side Bus Speed	Both: Pins 1-2 (Auto)
JP6	Fan Detection Select	Open (Overheat)
JP7	Fan Detection Select	Closed (CPU Fans)
JP10	Watch Dog Enable	Open (Disabled)
J17	Onboard IDE RAID	Pins 2-3 (Disabled)

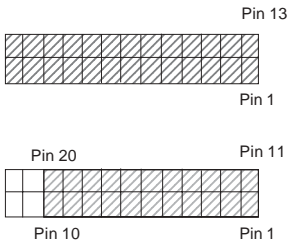
<u>Connectors</u>	<u>Description</u>
COM1/COM2	COM1/COM2 Serial Port Connectors
CPU FAN1/2 CPU	Fan Headers
CPU1/2 CHASSIS FAN	Overheat Fan Header
CPU CHASSIS FAN1/2	Chassis Fan Header
DIMM 0/1/2/3	SDRAM Memory slots
D11, D12	IDE RAID Drive #1/2 Connectors
IDE1, IDE2	IDE Hard Disk Drive #1/2 Connectors
JF1	Front Control Panel Connector
JL1	Chassis Intrusion Header
JP1	Floppy Disk Drive Connector
JP8	I2C
JP9	PW_LED, RAID LED & Speaker
J10	ATX 24-Pin Power Connector
J12	PS/2 Keyboard/Mouse
J16	Parallel Printer Port
J18	Infrared Device Header
J19	6-Pin Power Connector
WOM1	Wake-On-Ring Header
WOL1	Wake-on-LAN Header
USB1/2, JUSB1 (USB3/4)	Universal Serial Bus Ports

***Note: Please refer to Chapter 5 for detailed information on jumper settings and pin definitions.**

5-8 Connector Definitions

Power Supply Connector

The primary power supply connector on the P3TDDE meets the SSI (Superset ATX) 24-pin specifications; however, it also supports an ATX 20-pin connector. Thus, both 20-pin ATX and 24-pin SSI connectors can be installed on the P3TDDE as long as the PS connector is correctly oriented. (Make sure that pin 1 of the PS connector is seated on pin 1 of the header of J10). If a 24-pin connector is used, please refer to Table 5-1a for pin definitions. (Also see Figure A below for connector orientation). If a 20-pin connector is used, please refer to Table 5-1b for pin definitions. (Also see Figure B below for connector orientation).



6-Pin Power Connector

Please refer to Table 5-2 for pin definitions for the 6-Pin connector J19.

Table 5-1a
ATX Power Supply 24-pin Connector
Pin Definitions (ATX POWER)

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

Table5-1b
ATX Power Supply 20-pin Connector

Pin Number	Definition	Pin #	Definition
11	+3.3V	1	+3.3V
12	-12V	2	+3.3V
13	COM	3	COM
14	PS_ON	4	+5V
15	COM	5	COM
16	COM	6	+5V
17	COM	7	COM
18	-5V	8	PW-OK
19	+5V	9	5VSB
20	+5V	10	+12V

Table 5-1c
PWR Supply Color Definition

Color	Definition
Orange	+3.3V
Black	Com
Red	5V
White	Power OK
Yellow	+12V
Purple	5V standby
Brown	-5V
(For Reference only)	

Table 5-2
6-Pin Power Connector

Pin Number	Definition
1	GND
2	GND
3	GND
4	+3.3V
5	+3.3V
6	+5V

Infrared Connector

See Table 5-3 for pin definitions (J18). See the Technical Support section of our web page for information on the infrared devices you can connect to the system.

**Table 5-3
Infrared Pin
Definitions**

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

IR Connector J18

PW_ON Connector

The PW_ON connectors are located on pins 1 and 2 of JF1. 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 5-4 for pin definitions.

**Table 5-4
PW_ON Connector
Pin Definitions**

Pin Number	Definition
1	PW_ON
2	Power

(JF1)

Reset Connector

The reset connectors are located on pins 3 and 4 of JF1. This connector attaches to the hardware reset switch on the computer case. See Table 5-5 for pin definitions.

**Table 5-5
Reset Pin
Definitions**

Pin number	Definition
3	Ground
4	Reset

JF1

OverHeat LED

The IDE LED are located on pins 1-4 of JF2. Attach the hard drive LED cable to pins 1 and 2. See Table 5-6 for pin definitions.

**Table 5-6
Over Heat LED
Pin Definitions**

Pin Number	Definition
7	12VDC
8	OH Active

JF1

IDE RAID LED

The IDE LED are located on pins 1-4 of JF1. Attach the hard drive LED cable to pins 9 and 10. See Table 5-7 for pin definitions.

Table 5-7
IDE RAID LED
Pin Definitions

Pin Number	Definition
9	12VDC
10	IDE RAID Active

JF1

NIC LED

The IDE LED are located on pins 1-4 of JF1. Attach the hard drive LED cable to pins 11 and 12. See Table 5-8 for pin definitions.

Table 5-8
NIC LED
Pin Definitions

Pin Number	Definition
11	12VDC
12	NIC Active

JF1

IDE LED

The IDE LED are located on pins 1-4 of JF1. Attach the hard drive LED cable to pins 13 and 14. See Table 5-9 for pin definitions.

Table 5-9
IDE LED
Pin Definitions

Pin Number	Definition
13	12VDC
14	IDE Active

JF1

Power LED Connector

The power LED connector is located on pins 5 to 7 of JF2. See Table 5-10 for pin definitions

Table 5-10
PWR LED
Pin Definitions

Pin Number	Definition
15	12VDC
16	PWR Active

JF1

PW_LED Connector

The PW_LED connector is located on pins 1 through 3 of JP9. Please see Table 5-11 for pin definitions.

Table 5-11
PW_LED
Pin Definitions

Pin Number	Definition
1	+5V Pull-Up
2	PW_Signal
3	PW_Signal

JP9

RAID_LED Connector

The PW_LED connector is located on pins 1 through 3 of JP9. See Table 5-12 for pin definitions.

**Table 5-12
RAID_LED
Pin Definitions**

Pin Number	Definition
1	+5V Pull-Up
2	RAID_Signal
3	RAID_Signal

JP9

Speaker Connector

The speaker connectors are located on pins 7-11 of JF9. See Table 5-13 for pin definitions. Pins 10-11 "Enable" onboard speaker. External speakers connect to pins 8 and 11 of JF9.

**Table 5-13
Speaker
Pin Definitions**

Pin Number	Definition
7	Spkr (+) Pull-Up
8	Spkr (+) Pull-Up
9	NC
10	Onboard Spkr (-)
11	Spkr (-) Signal

JP9

ATX PS/2 Keyboard and PS/2 Mouse Ports

The ATX PS/2 keyboard and the PS/2 mouse are located on J12. See Table 5-14 for pin definitions. (The mouse port is above the keyboard port. See Figure 2-3 for locations.)

**Table 5-14
PS/2 Keyboard and Mouse Port
Pin Definitions**

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

J12

Universal Serial Bus (USB)

Four Universal Serial Bus connectors and headers are located on USB1 and JUSB1. The USB1 is located next to the PS/Mouse connector and the JUSB1 is located close to SDRAM slots. See Table 5-15 for pin definitions.

**Table 5-15
Universal Serial Bus Pin Definitions
USB1 USB2**

USB1		USB2	
Pin Number	Definition	Pin Number	Definition
1	+5V	1	+5V
2	P0-	2	P0-
3	P0+	3	P0+
4	Ground	4	Ground

USB1

USB3

USB4

USB3		USB4	
Pin Number	Definition	Pin Number	Definition
1	+5V	1	+5V
2	P0-	2	P0-
3	P0+	3	P0+
4	Ground	4	Ground
5	Ground	5	Ground

JUSB1

Serial Ports

Two connectors, for the COM1 and COM2 serial ports, are provided on your board. See Table 5-16 for pin definitions for the connectors (J13, J14). A 10-pin serial ribbon cable is required if connecting a device to a COM header.

Table 5-16
Serial Port (COM)
Pin Definitions

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

J13/ J14

Wake-On-LAN (WOL)

The Wake-On-LAN header is located on WOL1. Refer to Table 5-17 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 5-17
Wake-On-LAN (WOL)
Pin Definitions

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

WOL1

Wake-On-Ring (WOM)

The Wake-On-Ring header is located on WOM1. Refer to Table 5-18 for pin definitions. You must enable the Ring Wake-Up setting in BIOS to use this function. (You must also have a modem card with a Wake-on-Ring connector and cable to use this feature.) Both 2-pin and 3-pin WOM headers are provided.

Table 5-18
Wake-On-Ring (WOM)
Pin Definitions

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

Pin Number	Definition
1	Ground
2	Wake-up

WOM1

Fan Headers*

The six CPU and chassis fan headers are designated CPU1/2 FAN, CPU1/2 CHASSIS FAN and CHASSIS FAN 1/2. Refer to Table 5-19 for pin definitions.

Table 5-19
Fan Header
Pin Definitions

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

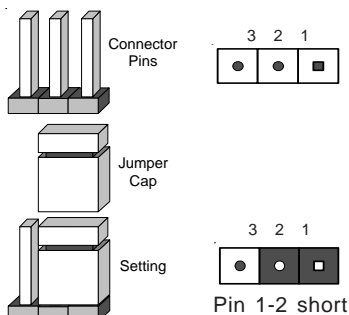
* Caution: These fan headers are DC power.

*Note: NC indicates "no connection".

5-9 Jumper Settings

Explanation of Jumpers

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



Front Side Bus Speed

The FSB speed is set with JP4 and JP5. Table 5-20 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 5-20
Front Side Bus Speed Jumper Settings

JP4	JP5	FSB Speed
1-2	1-2	Auto
2-3	2-3	66 MHz
2-3	Open	100 MHz
Open	Open	133 MHz

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

(JP4, JP5)

CMOS Clear

Refer to Table 5-21 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 5-21
CMOS Clear Jumper Settings

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

JBT1

Keyboard Wake-Up

The JPWAKE jumper (JP2) 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 awakened up by depressing a key on the keyboard. See Table 5-22 for jumper settings.

Note: Your power supply must meet ATX specification 2.01 or higher and supply 720 mA of standby power to use this feature.

Table 5-22
Keyboard Wake-Up Jumper Settings

Jumper Position	Definition
1-2	Disabled
2-3	Enabled

JPWAKE (JP2)

Watch Dog Enable

This jumper is used to enable or disable the Watch Dog function. This jumper is used together with the Watch Dog enable function in BIOS. Enable both the jumper and the BIOS setting to use the Watch Dog feature. See the table on the right for pin definitions.

Watch Dog Enable Jumper Settings (JP10)

Jumper Position	Definition
Open	Disabled
Closed	Enabled

Onboard IDE RAID

J17 gives you the option of disabling/enabling the onboard IDE RAID. See Table 5-23 for pin definitions.

Jumper Position	Definition
1-2	Enabled
2-3	Disabled

(J17)

Position 1-2

Position 2-3

Enabled

Disabled

5-10 Parallel Port, ACP, AGP and Floppy/Hard Disk Drive Connections

Note the following when connecting 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 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 5-24
Parallel (Printer) Port Pin Definitions

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

J16

Floppy Connector

The floppy connector is located on JP1. See Table 5-25 for pin definitions.

Parallel Port Connector

The parallel port is located on J16. See Table 5-24 for pin definitions.

Table 5-25
Floppy Connector Pin Definitions

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

JP1

Table 5-26
IDE Connector Pin Definitions

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 #1 / IDE #2

IDE Connectors

There are no jumpers to configure the onboard IDE interfaces IDE1 and IDE2. Refer to Table 5-26 for pin definitions. You must use the ATA100/66 cable included with your system to benefit from the ATA100/66 technology.

4x AGP Pro Slot

The 4x 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.



5-11 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 5-8 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.)

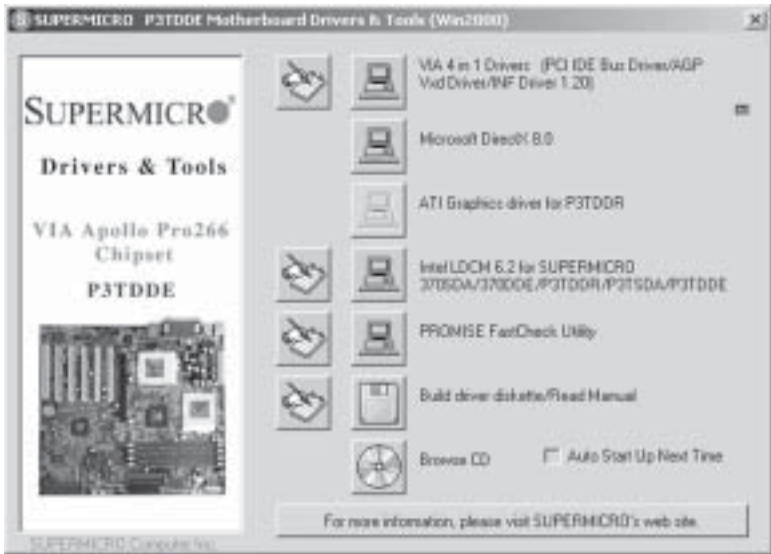


Figure 5-8. Driver/Tool Installation Display Screen

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.** The bottom icon with a CD on it allows you to view the entire contents of the CD.

Notes

Chapter 6

Advanced Chassis Setup

This chapter covers the steps required to install components and perform maintenance on the SC822 chassis. For component installation, follow the steps in the order given to eliminate the most common problems encountered. If some steps are unnecessary, skip ahead to the step that follows.

Tools Required

The only tool you will need to install components and perform maintenance is a Philips screwdriver.

6-1 Static-Sensitive Devices

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

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing any board from its anti-static bag.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard, add-on cards and peripherals back into their anti-static 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.

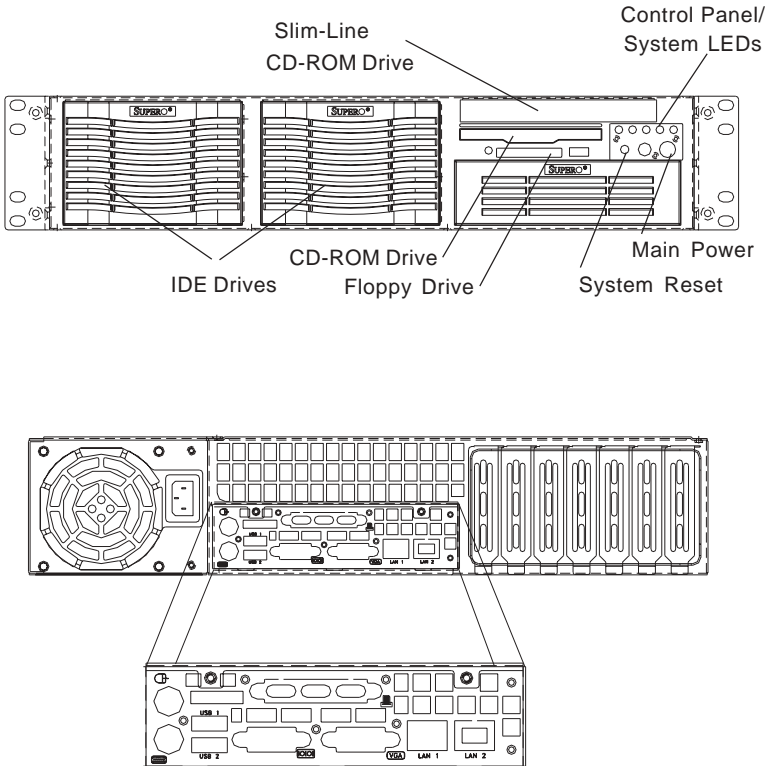


Figure 6-1. Chassis Front and Rear Views

6-2 Control Panel

The control panel (located on the front of the chassis) must be connected to the JF1 connector on the motherboard to provide you with system status indications. A ribbon cable has bundled these wires together to simplify the connection. Connect the cable from JF1 on the motherboard to JP4 on the Control Panel PCB (printed circuit board). Make sure the red wire plugs into pin 1 on both JF1 and JP4. Pull all excess cabling out of the airflow path. The LEDs inform you of system status. See "Chapter 3: System Interface" for details on the LEDs and the control panel buttons. Details on JF1 can be found in the "Chapter 5: Advanced Motherboard Installation."

6-3 System Fans

Four 8-cm fans provide all the cooling needed for the SuperServer 6021i. Only three chassis fans operate in the normal condition, as the fourth fan is a hot stand-by over heat fan which operates only upon the failure of one of the three chassis fans. It is very important that the chassis top cover is properly installed and making a good seal in order for the cooling air to circulate properly through the chassis. See Figure 6-3.

System Fan Failure

The fans run at 3400 rpm. If a fan fails, the ambient air temperature in the chassis will rise and activate the overheat LED on the control panel. Replace any failed fan immediately. The hot plug fans will start to function upon connection to its fan header on the P3TDDE motherboard.

Replacing System Cooling Fans

1. Removing a fan:

Remove the chassis cover. Press the tabs on the top of the fan housing and remove the fan and its housing. The system power need not be shut down since the fans are all hot-pluggable on the P3TDDE motherboard.

2. Installing a new fan:

Replace the failed fan with an identical 8-CM, 12 volt fan (available from Supermicro). Position the new fan at its proper place in the chassis, by fitting the fan with its housing onto the fan mounts in the chassis. A "click" can be heard if the fan in its housing is properly installed. If the system power is on, the fan will start immediately upon being connected to its header on the P3TDDE motherboard, with its hot-changeable fan feature.

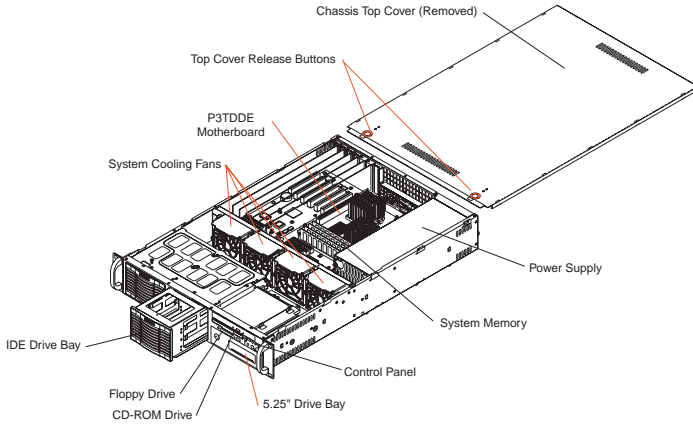


Figure 6-3. System Cooling Fans

6-4 Drive Bay Installation/Removal

Accessing the Drive Bays

CD-ROM/Floppy Disk Drive: For installing/removing the CD-ROM or floppy disk drive, you will need to gain access to the inside of the 6021i by removing the top cover of the chassis. Proceed to the "CD-ROM and Floppy Drive Installation" section later in this chapter for instructions.

IDE Drive Installation

1. Mounting an IDE drive in a drive carrier:

The IDE drives are mounted in drive bays to simplify their installation and removal from the chassis. These bays also help promote proper airflow for the IDE drives. For this reason, even empty bays without IDE drives installed must remain in the chassis.

To add a new IDE drive, remove the chassis top cover, remove IDE data and power cables, remove the IDE drive bay retaining screw, and reach inside to push the drive bay forward and out of the chassis -- then install a drive into the carrier with the printed circuit board side toward the bay's bottom so that the mounting holes align with those in the carrier. Secure the drive to the carrier with four screws, as shown in Figure 6-4. Replace the IDE drive bay back in the chassis, connect the IDE data and power cables, and replace the chassis top cover.

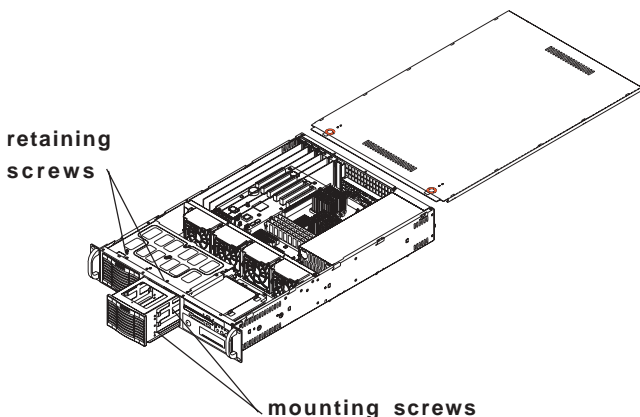


Figure 6-4. Mounting a IDE Drive in a Drive Bay



Use caution when working around the IDE drives. Do not touch the drive pinouts or printed circuit board with any metal objects and make sure no ribbon cables obstruct the holes in the drive bay, which could obstruct proper airflow.



Important: Regardless of how many IDE hard drives are installed, all IDE drive bays must remain in the chassis for proper airflow.

2. Installing/removing IDE drives:

The IDE drive bays are located in the front of the chassis, making it easily accessible for installation and removal. An IDE drive is not a hot-swap unit, meaning that it can not be installed and removed while the system is running. To remove an IDE drive, first switch the electrical power to the unit "off", then remove the IDE drive bay as in the reverse of (1), above (see Figure 6-5).

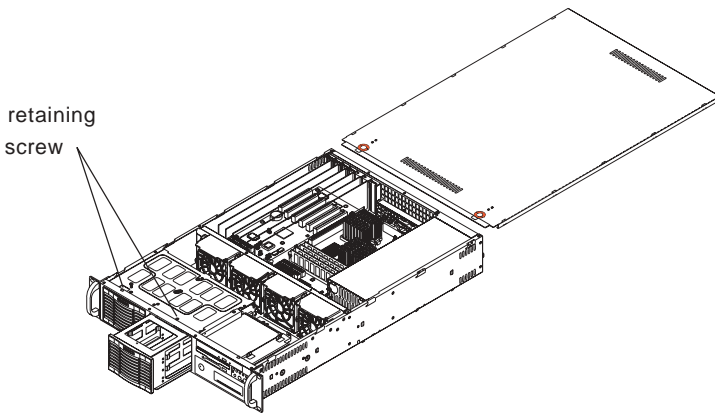


Figure 6-5. Removing IDE Drives

Important: All of the IDE drive bays require power to be "off" to add or remove IDE hard disk drives.



IDE Power Cables

IDE power cables should be routed so that they do not block the airflow through the chassis. There is a 4-pin connector for the power cables.

IDE Backplane

The IDE drives plug into a backplane that provides power. The IDE backplane is already preconfigured, so it has no jumpers or switches.

CD-ROM and Floppy Drive Installation

The top cover of the chassis must be opened to gain full access to the CD-ROM and floppy drive bays. The 6021i accommodates only slim-line 5.25-inch CD-ROM drives. Side mounting brackets are typically needed to mount a slim-line CD-ROM drive in a 6021i server.

First, release the retention screws that secure the server unit to the rack. Grasp the two handles on either side and pull the unit straight out until it locks (you will hear a "click"). Next, depress the two buttons on the top of the chassis to release the top cover and at the same time, push the cover away from you until it stops. You can then lift the top cover from the chassis to gain full access to the inside of the server. You must power down the system before installing or removing floppy or IDE components.

Drives mount on rails and should "click" into place to be correctly and fully installed in their bays.

- The floppy disk drive cable has seven twisted wires.
- A color mark on a cable 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.

6-5 Power Supply

The SuperServer 6021i has a single 300 watt power supply. This power supply has an auto-switching capability, which enables it to sense and operate with either 110 or 220 volt inputs automatically. A power on/off switch is located at the back of the power supply. Turning this power switch to the off position will remove both main and standby power from the system.

Power Supply Failure

If the power supply unit fails, the system will shut down and you will need to replace the power supply unit. Replacement units can be ordered directly from Supermicro. See contact information in the Preface.

Removing/Replacing the Power Supply

1. Removing the power supply:

First unplug the power cord from the system. remove the chassis cover by pressing the two release buttons on the top of the chassis, near the front, and push the chassis top rearward about one inch. To remove the failed power unit, unplug the power cord that connects to the power supply. Then, remove all screws that connect the power supply to the chassis (two at the rear, two at the side, and one on the bottom). The power supply can then be lifted straight upward from the chassis.

2. Installing a new power supply:

Replace the failed unit with another unit of the same input voltage, voltage outputs and Wattage. It is highly recommended to replace it with exactly the same model power supply. Carefully insert the new unit into position in the chassis and secure it with the five screws, as in the paragraph above. Before reconnecting the power cord, make certain that the power switch on the power supply is in the "off" position. Then reconnect the power cord, replace the chassis top cover and reposition the unit back into the rack. Finish by turning the power switch on the power supply "on", and then depress the power button on the chassis front panel.

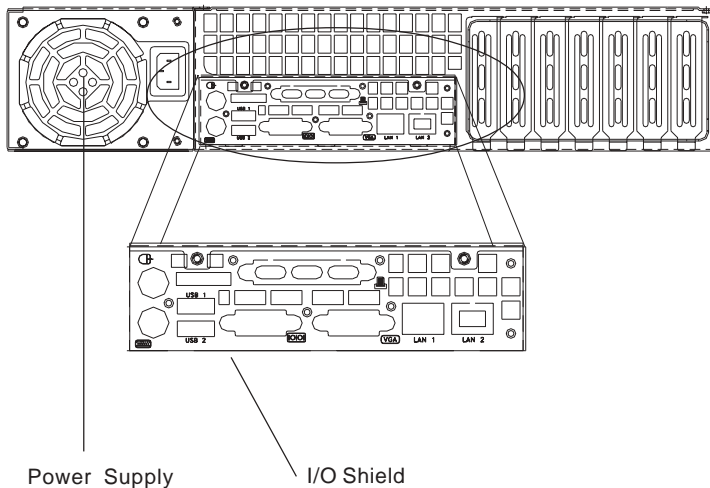


Figure 6-6. Chassis Rear View

Notes

Chapter 7

BIOS

7-1 Introduction

This chapter describes the Award BIOS for the P3TDDE. The Award ROM BIOS is stored in a Flash chip and can be easily upgraded using a floppy disk-based program.

Note: Due to periodic changes to the 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 the Supermicro web site (at <http://www.supermicro.com>) for any changes to BIOS that may not be 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 AwardBIOS Flash chip stores the system parameters, such type of disk drives, video displays, etc. in the CMOS. The CMOS memory requires very little electrical power. When the computer is turned off, a back-up battery provides power to the BIOS Flash chip, enabling it to retain system parameters. Each time the computer is powered-on the computer is configured with the values stored in the BIOS ROM by the system BIOS, which gains control at boot-up.

How To Change the Configuration Data

The CMOS information that determines the system parameters may be changed by entering the BIOS Setup utility. This Setup utility can be accessed by pressing at the appropriate time during system boot, see below.

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 7-3 gives detailed descriptions of each parameter setting in the Setup utility.

7-2 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 Main BIOS 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).

When you first power on the computer, the AwardBIOS™ is immediately activated.

While the BIOS is in control, the Setup program can be activated in one of two ways:

1. By pressing immediately after turning the system on, or
2. When the message shown below appears briefly at the bottom of the screen during the POST (Power On Self-Test), press the key to activate the Main Setup Menu:

Press DEL to enter SETUP

7-3 Main BIOS Setup

All Main Setup options are described in this section. The Main BIOS Setup screen is displayed below.

Use the Up/Down arrow keys or the <Tab> key to move among the different settings in the above menu.

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

Main BIOS Setup Menu



Main Setup Features

Date/Time

Set the system date and time. Key in the correct information in the fields when the options of "Month, DD, YYYY" and "HH:MM:SS" appear in the screen. Press the <Enter> key to save the data.

Drive A/Drive B

These options allow the user to set the type of floppy disk drive installed in the system. The settings are: "None", "360K, 5.25in", "1.2M, 5.25in", "720K, 3.5in", "1.44M, 3.5in", "2.88M, 3.5in".

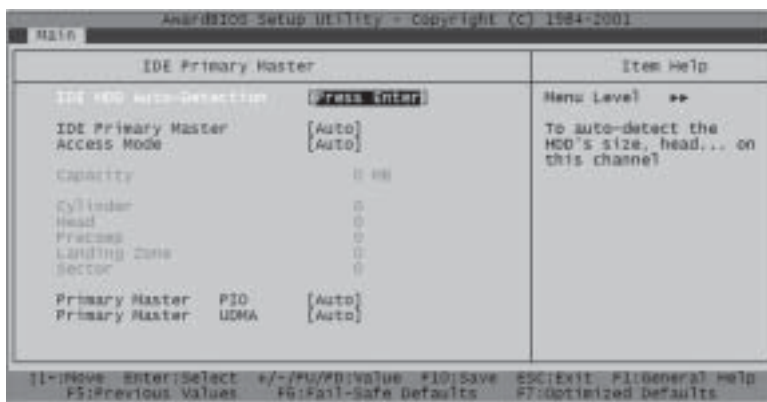
Swap Floppy Drive

These options allow the user to swap the names of floppy disk drives installed in the system, should there be two floppy disk drives installed on the main board. The settings are: "Disabled" and "Enabled." The default setting is "Disabled".

IDE Primary Master/IDE Primary Slave/IDE Secondary Master/IDE Secondary Slave

These options allow the user to set the parameters of the IDE Primary Master/Slave and IDE Secondary Master/Slave slots. Hit <Enter> to activate the following sub-menu screen for detailed options of these items. Set the

correct configurations accordingly. The items included in the sub-menu are:



IDE HDD Auto-Detection

Press the <Enter> key to activate the "IDE HDD Auto-Detection" function to automatically detect the parameters of the IDE hard disk drives installed in the system, such as the sizes of the hard drives.

IDE Primary Master

This option allows the user to determine the manner in which the AwardBIOS sets the settings for the IDE Primary Master Device. The settings are "None", **"Auto"** and "Manual".

Access Mode

This item determines the location through which the AwardBIOS access the IDE Primary Master Device. The settings are "CHS", "LBA", "Large" and **"Auto"**.

IDE Primary Master PIO / IDE Primary Slave PIO / IDE Secondary Master PIO / IDE Secondary Slave PIO

This IDE PIO (Programmed Input/Output) field allows you to set a PIO mode (0-4) for the IDE Primary device designated Mode 0 through Mode 4. Each increase in mode number indicates a corresponding increase in performance. The settings are "Auto", "Mode 0", "Mode 1", "Mode 2", "Mode3", "Mode 4" and **"Auto"**.

IDE Primary Master UDMA / IDE Primary Slave UDMA / IDE Secondary Master UDMA / IDE Secondary Slave UDMA

This option is available only when your IDE hard drive supports Ultra DMA/33 and the operating environment also includes a DMA drive (Windows 95 OSR2 or a third-party IDE bus master driver). If your IDE hard drive and your system software both support Ultra DMA/33, select "Auto" to enable BIOS support. The settings are "**Auto**", and "Disabled".

Video

This option allows the user to select the setting for the default video device. The settings are "**EGA/VGA**", "CGA 40", "CGA 80", and "MONO".

HaltOn

This option allows the user to select the situation in which you want the BIOS to stop the POST process and notify you about the status of the system. The settings are "All Errors", "No Errors", "**All, but Keyboard**", "All, but Diskette" and "All, but Disk/Key".

Base Memory

This field displays the amount of conventional memory detected during boot-up. This is normally set to "640K".

Extended Memory

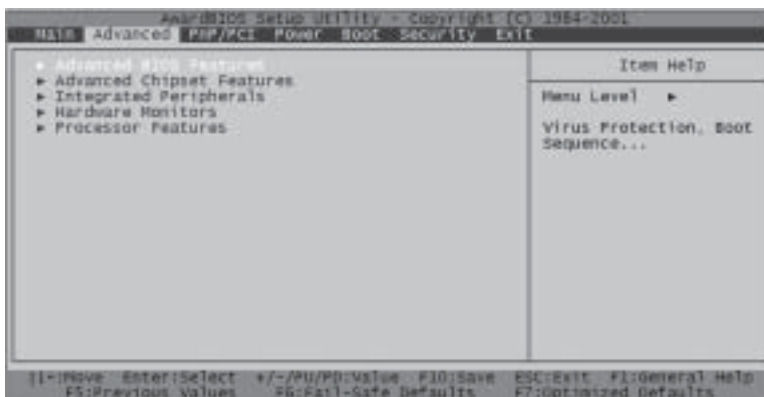
This feature displays the amount of extended memory detected during boot-up. This is normally set to "65535K".

Total Memory

This feature displays the amount of total memory available in the system. This is normally set to "1024K".

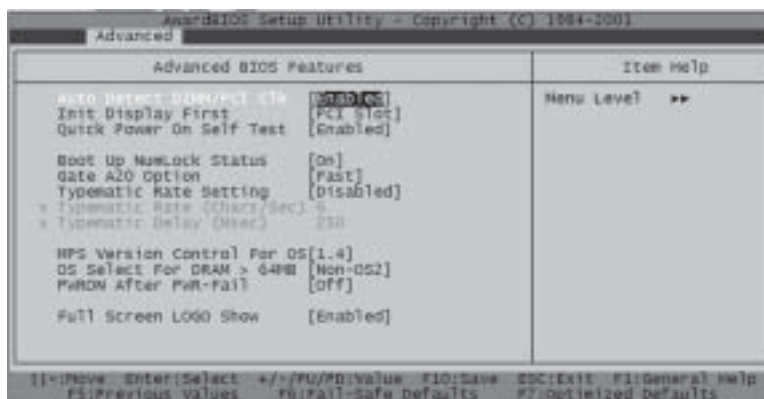
7-4 Advanced BIOS Setup

Choose the Advanced BIOS Setup from the Award BIOS Setup Utility main menu with the <Left> and <Right> arrow keys. You should see the display shown below. Select one of the items in the left frame of the screen 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.



7-4.1 Advanced BIOS Features

When the required item in the "Advanced BIOS Features" is highlighted, press the <Enter> key to activate the selection, as shown below:



Auto Detect DIMM/PCI CLK

If enabled, this feature will allow the BIOS automatically to detect the status of the DIMM/PCI clock. The settings are "**Enabled**" and "Disabled."

Init Display First

This option allows the user to determine which display device will first be activated when the system boots up -- either a installed in the PCI slot or a device installed in the AGP slot. The settings are "PCI slot" and "**AGP**".

Quick Power-On Self Test

If enabled, this feature will speed up the process of POST (Power On Self Test) after the computer is switched on. The settings are "Enabled" and "**Disabled**". If "Disabled", the POST procedure will take place at its normal speed.

Boot Up NumLock Status

This option enables the system to check the status of the NumLock key during boot-up. The settings are "**On**" and "Off".

Gate A20 Option

This option allows the user to determine if the chipset or the keyboard controller should have the control over Gate A20. The settings are "Normal" or "**Fast**". If set to "Normal", a pin in the keyboard controller controls Gate A20. If "Fast" is selected, the chipset will have the control over Gate A20.

Typematic Rate Setting

Key strokes repeat at a rate pre-determined by the keyboard controller. The key stroke repeating rate is called the typematic rate. If "Enabled", this option allows the user to set the "Typematic Rate" of the system. If "Disabled", the user will not be allowed to set the "Typematic Rate." The settings are "Enabled" and "**Disabled**". (When disabled, "Typematic Rate" and "Typematic Delay" will not be displayed.)

Typematic Rate (Chars/Sec)

If enabled, the option allows the user to set the number of times a key stroke repeats itself in a second when the key is held down. The settings are "6", "8", "10", "12", "15", "20", "24" and "30".

Typematic Delay

The option sets the delay time after a key is held down before it begins to repeat the keystroke. The settings are "250", "500", "750" and "1000".

MPS Version Control for OS

This option sets the modes of the MPS Version Control for the operating system. The settings are "1.4" and "1.1".

OS Select For DRAM > 64MB

The option allows the user to select the operating system that requires a DRAM memory greater than 64 MB in order to function properly. The settings are "OS2", and "Non OS2".

Power On after PWR Fail

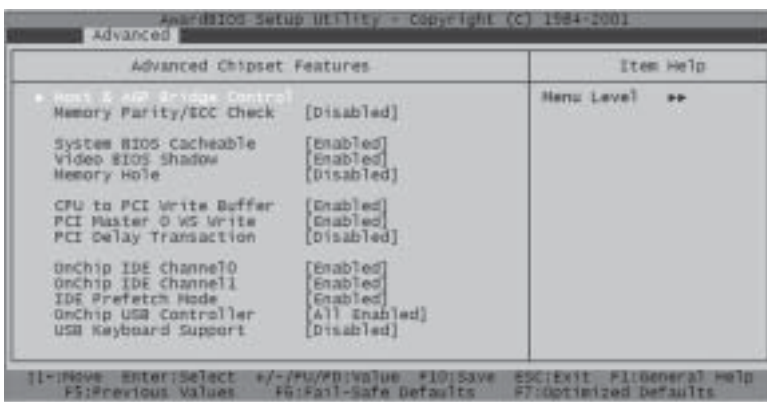
This option allows the user to determine if the system's power will be automatically turned "on" or remain "off" after power is restored after an outage. The settings are "On", "Off" and "Former Status".

7-4.2 Advanced Chipset Features



This section documents the functions that the AwardBIOS provides the user in configuring the system based upon the special features offered by the VIA Apollo 266 chipset. The VIA Apollo 266 chipset manages the operations of major components of the board, such as the bus speed of the CPU, access to the memory and the communication between the PCI slots and the CPU. Normally, the default settings for the Advanced Chipset Features listed in the section are pre-configured by the manufacturer for optimal system performance. It is not recommended that the user alter the default settings. This section is provided as an emergency measure for the user to restore the functions of the system when the critical data stored in the BIOS is lost.

When the desired item in "Advanced Chipset Features" is highlighted, press the <Enter> key to access its settings.



Host & AGP Bridge Control

This section documents the AwardBIOS management of the bus links between the host and bridge devices.

Memory Parity / ECC Check

Select "Enabled" only if the system DRAM contains parity to add a parity check to the boot-up memory tests. The settings are "Enabled" and Disabled".

System BIOS Cacheable

If enabled, the system BIOS information stored in the BIOS ROM (Read Only Memory) chip will be written and temporarily stored in the "cacheable" section of the memory, so the CPU has faster access to the information. The settings are "**Enabled**" or "Disabled".

Video BIOS Cacheable

If enabled, the Video BIOS information stored in the BIOS ROM (Read Only Memory) chip will be written and temporarily stored in the "cacheable" section of the memory for faster access. The settings are "**Enabled**" and "Disabled".

Memory Hole

To improve the performance of the system, a certain section of the memory will be reserved for the use of the devices installed in the PCI slots. This section of memory must be mapped into the memory space below 16 MB. The settings are "15M-16M" and "**Disabled**".

CPU to PCI Write Buffer

To improve the performance of the system, a certain section of the memory will be designated as "Write Buffer" to temporarily store the data CPU writes to PCI to provide faster access. This information can be exe.codes or operational instructions for the system. The settings are "**Enabled**" and "Disabled".

PCI Master 0 WS Write

If enabled, the transmission of PCI Master Write PCI Master Write signals will have no delays. The settings are "**Enabled**" and "Disabled".

PCI Delayed Transition

If enabled, the PCI signal transition will be delayed. The settings are "Enabled" and "**Disabled**".

On-Chip IDE Channel 10

If enabled, BIOS support of onchip IDE 10 will be activated. The settings are "**Enabled**" and "Disabled".

OnChip IDE Channel 11

If enabled, BIOS support of onchip IDE 11 will be activated. The settings are "**Enabled**" and "Disabled".

IDE Prefetch Mode

If enabled, the IDE Prefetch Mode function will be activated. The settings are "**Enabled**" and "Disabled".

On-Chip AC97 Modem

If enabled, this option allows the user to activate the BIOS support of On-Chip MC 97 Modem. The settings are "**Disabled**" and "Enabled".

On-Chip AC97 Modem

If enabled, this option allows the user to activate the BIOS support of On-Chip MC 97 Modem. The settings are "**Disabled**" and "Enabled".

On-Chip LAN Controller

If enabled, this option allows the user to activate the BIOS support of On-Chip LAN Controller. The settings are "**Disabled**" and "Enabled".

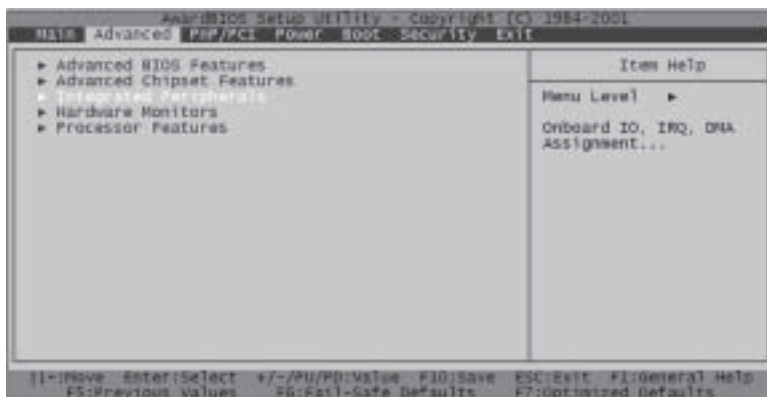
On-Chip USB Controller

If enabled, this option will allow the user to activate the BIOS support of On-Chip USB Controllers. The settings are "All Disabled", "**All Enabled**", "1&2 USB Ports", "2&3 USB Ports", "1 USB Port", "2 USB Port" and "3USB port".

USB Keyboard Support

If enabled, this option allows the user to activate the BIOS support of the On-Chip USB Keyboard Controller. The settings are: "**Disabled**" and "Enabled".

7-4.3 Integrated Peripherals



When the item "Integrated Peripherals" is highlighted, hit the <Enter> key to activate the sub-menu screen. When the above menu appears, select the items and press the <Enter> key to display the options.

Onboard FDC Controller

Select "Enabled" if your system has a floppy disk controller (FDC) installed on the main board and you wish to use it. The settings are "**Enabled**" and "Disabled".

Onboard Serial Port 1 / Port 2

This option allows the user to set the address and the corresponding IRQ for the Serial Port1 and Serial Port 2. The settings are "Disabled", "3F8/IRQ4", "2F8/IRQ3", "3E8/IRQ4", "2E8/IRQ3" and "Auto." The default setting for Serial Port1 is "3F8/IRQ4" and the default for Port 2 is "2F8/IRQ3".

UART Mode Select

This option allows the user to select the UART mode for BIOS. The settings are "IrDA", "ASKIR" and "**Normal**".

RxD, TxD Active

This option allows the user to set the settings for the function of "RxD, TxD Active." The settings are "Hi, Hi", "**Hi, Lo**", "Lo, Hi" and "Lo, Lo".

IR Transmission Delay

If "Enabled", the transmission of IR (infrared) signals will be delayed. The settings are "**Enabled**" and "Disabled".

UR2 Duplex Mode

This option sets the UR2 Duplex Mode. The settings are "Full" and "**Half**".

Use IR Pins

This item is used to change the Use IR Pins setting. The settings are "RxD2, TxD2" and "**IR-Rx2Tx2**".

Onboard Parallel Port

This option allows the user to set the address and the corresponding IRQ for the onboard parallel port. The settings are "Disabled", "**378/IRQ7**", "278/IRQ5" and "3BC/IRQ7".

Parallel Port Mode

This option sets the mode for the onboard parallel port. The settings are "SPP", "EPP", "**ECP**" and "ECP+EPP".

EPP Mode Select

This option allows the user to select the EPP mode. The settings are "EPP 1.9" and "**EPP 1.7**".

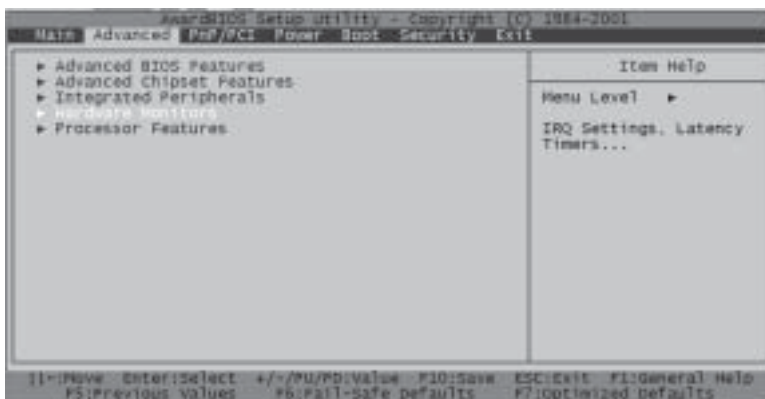
ECP Mode Use DMA

This option allows the user to select the ECP use DMA mode. The settings are "1" and "**3**".

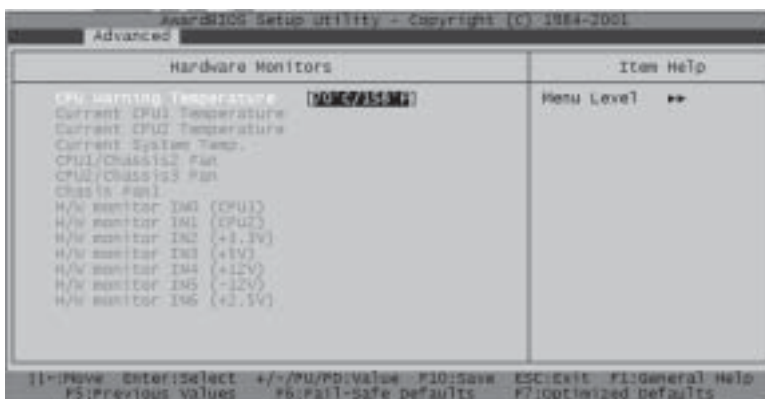
Watch Dog Feature

This option allows the user to enable or disable the Watch Dog Feature. The settings are "Enabled" and "**Disabled**".

7-4.4 Hardware Monitors



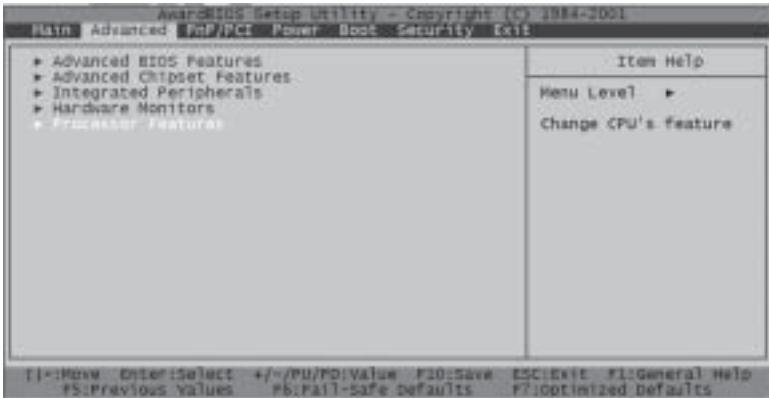
When the item "Hardware Monitors" is highlighted, press the <Enter> key to activate the sub-menu.



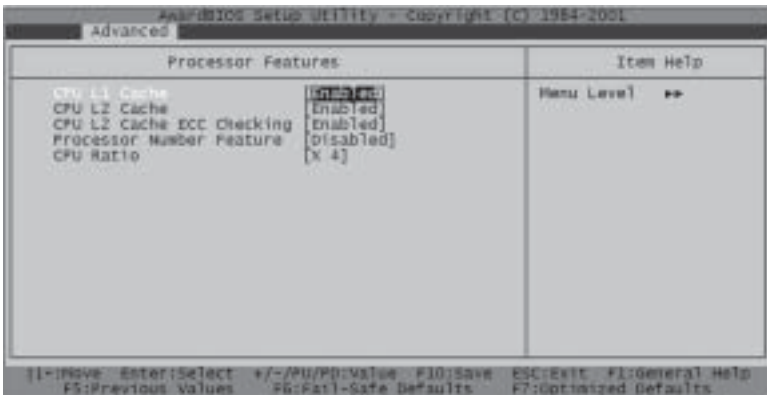
CPU Warning Temperatures

This item allows the user to set the CPU temperature threshold. When the CPU temperature reaches the threshold temperature set by the user, the alarm will sound and a warning message will be displayed on the screen. The settings are "Disabled", "60°C/140°F", "65°C/149°F", "70°C/158°F", "75°C/167°F", "80°C/176°F", "**85°C/185°F**" and 90C/194F".

7-4.5 Processor Features



When the item "Processor Features" is highlighted, press the <Enter> key to activate the sub-menu as seen below.



CPU L1 & L2 Cache

Set this option to "Enabled" to activate the CPU L1 and L2 cache. The settings are "Disabled" and "**Enabled**".

CPU L2 Cache ECC Check

Set this option to "Enabled" to activate ECC Checking to take place with the CPU L2 Cache. The settings are "Disabled" and "**Enabled**".

Processor Number Feature

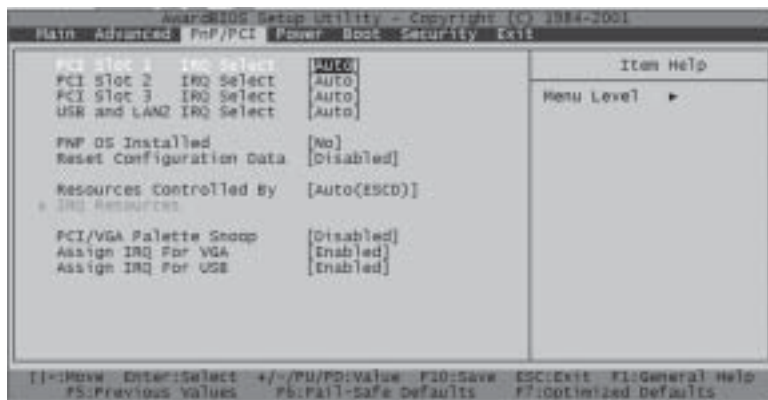
Set this option to "Enabled" to enable the reporting of your computer system's CPU ID numbers. The settings are "Enabled" and "**Disabled**".

CPU Clock Ratio

This option allows the user to set the CPU Clock Ratio. The settings are "x3", "x3.5", "x4", "x4.5", "x5", "x5.5", "x6", "x6.5", "x7", "x7.5", "x8", "x8.5", "x9", "x9.5", "x10", "x10.5", "x11", "x11.5", "x12", "**x13**", "x14", "x15" and "16."

7-5 PnP/PCI Configurations

With the item "PnP/PCI" highlighted on the main menu bar, press the <Enter> key to activate the following screen:



PCI Slot 1/5, 2, 3, and 4 IRQ Select

The IRQ for the various PCI slots can be configured manually. The settings are "**Auto**", "3", "4", "5", "7", "9", "10", "11", "12", "14" and "15".

PNP OS Installed

Select "Yes" if you are using an operating system that supports Plug and Play solutions. Select "**No**" if you need the BIOS to configure non-boot devices.

Reset Configuration Data

If you have installed a new add-on device and it has caused conflicts in system configuration that results in a system boot-up failure, then select "Enabled" to reset "Extended System Configuration Data" (ESCD) for the OS to reboot the system. The settings are "Enabled" and "**Disabled**".

Resources Controlled By

AwardBIOS can automatically configure all the boot devices and all Plug and Play compatible devices. However, if this item is set to "Auto (ESCD)", the user will not be able to set the IRQ DMA and memory address since the Award BIOS will automatically assign the values to these fields. The settings are "**AUTO (ESCD)**" and "Manual."

PCI/VGA Palette Snoop

For best system performance, this item has been preset to "Disabled" by the manufacturer. The settings are "Enabled" and "**Disabled**".

Assign IRQ for VGA

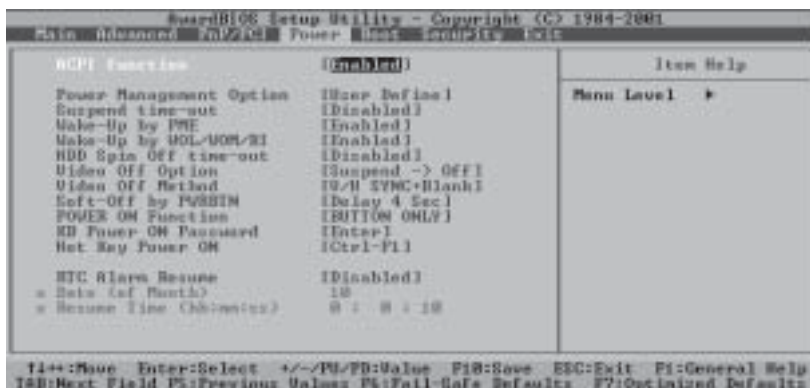
If "Enabled", you allow AwardBIOS to assign an IRQ for the VGA devices. The settings are "**Enabled**" and "Disabled".

Assign IRQ for USB

If "Enabled", you allow the AwardBIOS to assign IRQ for the USB devices. The settings are "**Enabled**" and "Disabled".

7-6 Power Management

When the Item "Power" is highlighted on the main menu bar, hit the <Enter> key to activate the following screen:



ACPI Function

This item allows you to enable and disable the functions included in the Advanced Configuration and Power Management software. The settings are **"Enabled"** and **"Disabled"**.

Power Management Option

This option sets the power saving level for the system, especially for HDD Power Down, Doze Mode and Suspend Mode. The settings are **"User Define"**, **"Min. Saving"** and **"Max. Saving"**.

Suspend Mode

This item sets the system suspend time-out mode. The settings are **"Disabled"**, **"1 Min"**, **"2 Min"**, **"4 Min"**, **"6 Min"**, **"8 Min"**, **"10 Min"**, **"20 Min"**, **"30 Min"**, **"40 Min"** and **1 Hr"**.

Wake-Up by PME

If **"Enabled"**, the user is able to **"wake up"** the system by a Power Management Event. The settings are **"Enabled"** and **"Disabled"**.

Wake-Up by WOL/ WOM / RI

Select "Enabled" to allow BIOS to activate the Modem Ring Resume function. The settings are "**Enabled**" and "Disabled".

HDD Spin Off Timeout

If "Enabled", this option will allow the AwardBIOS to power-down the hard disk drive after a time delay to avoid losing data. The settings are "**Disabled**", and "1 min" through "15 min" in one minute increments.

Video Off Option

This option sets the status of the video device and monitor when the system is in the Suspend Mode. When set to "Always On", the video device and the monitor will always be on when the system is in the suspend mode. When the option is set to "**Suspend-Off**", the video device and the monitor will be turned off when the system is in the suspend mode.

Video Off Method

This item determines the manner in which the monitor is turned off. The settings are "Blank Screen", "V/H SYNC+Blank" and "DPMS". Select "**V/H SYNC+Blank**" to turn off the vertical and horizontal synchronization ports and the monitor. Select "Blank Screen" to turn off the video buffer and the monitor. Select "DPMS" to initiate display power management signals.

Soft-off by PWR-BTTN

This item determines the system's "Soft-off" mode when the user presses the power-button. The settings are "**Instant-off**" and "Delay 4 Sec".

Power On Function

This setting allows the user to determine the method by which the system activates the power on function. The settings are "Password", "Hot Key", "Mouse Left", "Mouse Right", "Any key", "**BUTTON ONLY**" and "Keyboard 98."

KB Power On Password

This item allows the user to set the password to activate the power on function through keyboard. Press the <Enter> key to enter the password.

Hot Key Power On

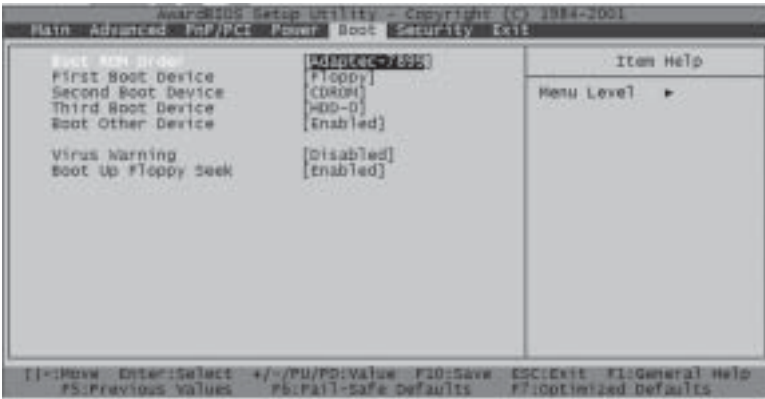
This option allows the user to set the hot key to activate the power on function. The settings are "**Ctrl F1**", "Ctrl-F2", "Ctrl-F3", "Ctrl-F4", "Ctrl-F5", "Ctrl-F6", "Ctrl-F7", "Ctrl-F8", "Ctrl-F9", "Ctrl-F10", "Ctrl-F11" and "Ctrl-F12".

RTC Alarm Resume

If "Enabled", this option will allow AwardBIOS to resume the RTC (Real Time Clock) Alarm activities. The default settings are "Enabled" and "**Disabled**".

7-7 Boot-up Devices

When the Item "Boot" is highlighted on the main menu bar, press the <Enter> key to activate the following screen:



AwardBIOS attempts to load the operating system from devices specified by the users in a user-specified sequence.

First Boot Device

This item allows the user to select the first boot-up device. The settings are "**Floppy**", "LS120", "HDD-0", "SCSI", "CDROM", "HDD-1", "HDD-2", "HDD-3", "ZIP100", "USB-HDD", "USB-ZIP", "USB-CDROM", "USB-HDD", "LAN" and "Disabled".

Second Boot Device

This item allows the user to select the second boot-up device. The settings are "Floppy", "LS120", "HDD-0", "SCSI", "**CDROM**", "HDD-1", "HDD-2", "HDD-3", "ZIP100", "USB-HDD", "USB-ZIP", "USB-CDROM", "USB-HDD", "LAN" and "Disabled".

Third Boot Device

This item allows the user to select the third boot-up device. The settings are "Floppy", "LS120", "**HDD-0**", "SCSI", "CDROM", "HDD-1", "HDD-2", "HDD-3", "ZIP100", "USB-HDD", "USB-ZIP", "USB-CDROM", "USB-HDD", "LAN" and "Disabled".

Boot Other Device

If enabled, this option enables the BIOS to load the OS from another device rather than the ones that have been specified as the first, second and third boot-up devices. The settings are "**Enabled**" and "Disabled".

Onboard LAN Boot ROM

This setting determines whether the boot ROM BIOS of the onboard LAN chip is called. The settings are "Enabled" and "**Disabled**".

Virus Warning

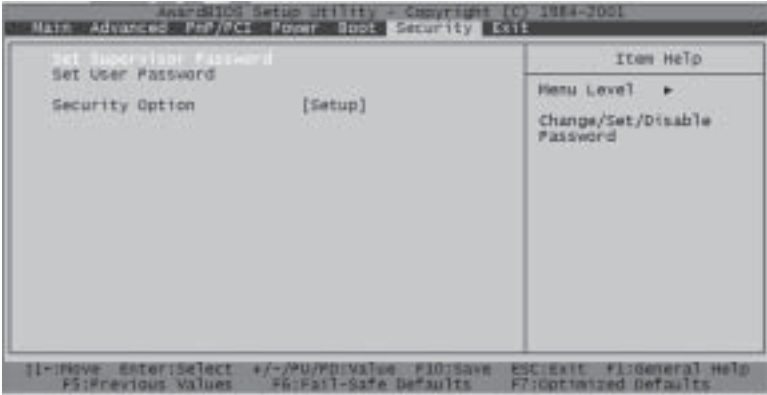
This item allows the user to choose the Virus Warning feature for the IDE Hard Drive Disk boot sector protection. If this function is enabled and someone attempts to write data into this area, the BIOS will display a warning message and an audible alarm will be activated. The settings are "Enabled" and "**Disabled**."

Boot Up Floppy Seek

Set this option to "Enabled" to allow the BIOS to test floppy drives to determine whether they have 40 tracks or 80 tracks. The settings are "**Enabled**" and "Disabled."

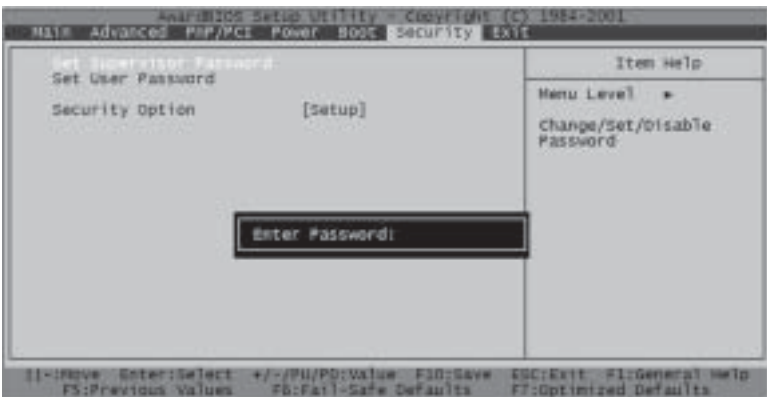
7-8 Security Setup

When the Item "Security" is highlighted on the main menu bar, hit the <Enter> key to activate the following screen:



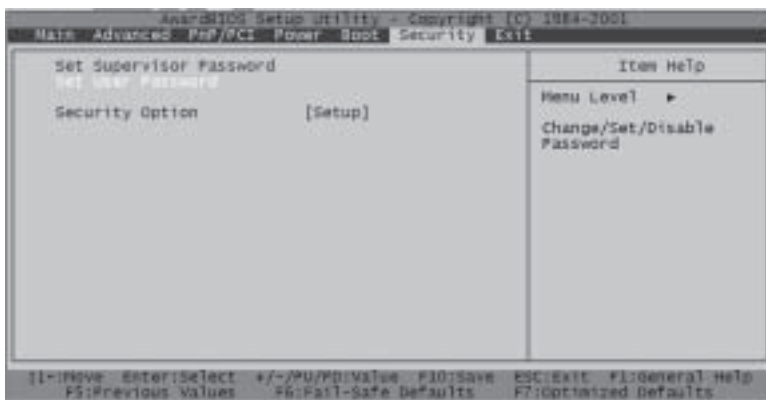
Set Supervisor's Password

When the item "Set Supervisor Password" is highlighted on the above screen, press the <Enter> key to activate the following screen. When prompted, type in Supervisor's password in the dialogue box to set or to change Supervisor's Password.



Set User's Password

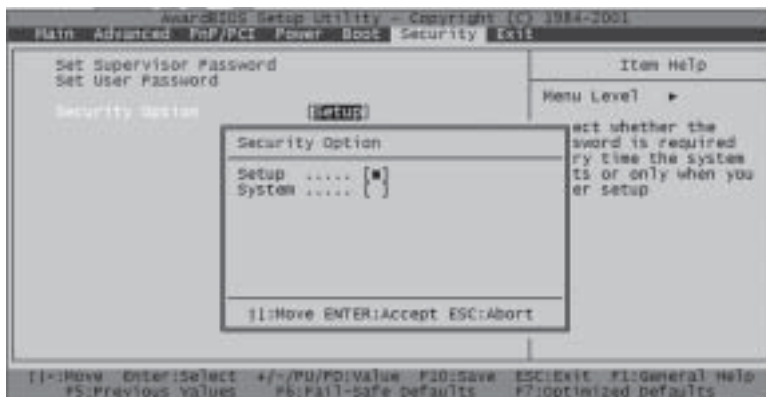
When the item "Set User's Password" is highlighted on the Security Main Menu, press the <Enter> key to activate the following screen. When prompted, type in User's password in the dialogue box to set or to change the User's Password.



Security Option

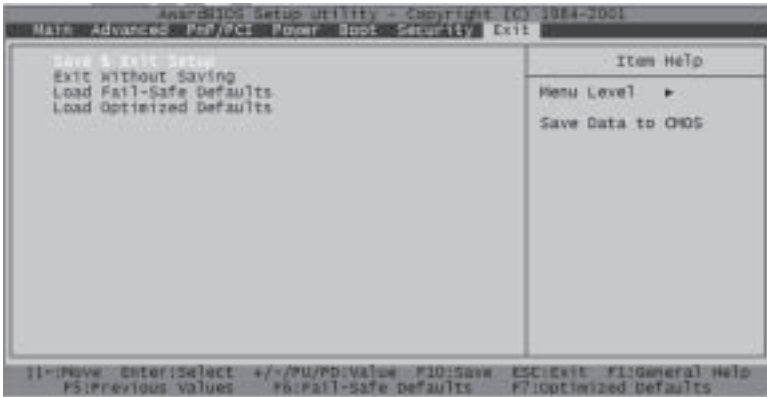
When the item "Security Option" is highlighted on the Security Main Menu, press the <Enter> key to activate the screen shown below.

This option allows the user to determine if the password is required every time the system boots up or only when you enter the CMOS setup. The settings are "System" and "Setup".



7-9 Exit Setup

Select "Exit" from the Main Menu bar and press the <Enter> key to activate the following screen:



Save & Exit Setup

If you highlight the letter "Y" and press <Enter>, you will save any changes you've made in the BIOS program (CMOS) before you exit. Your system should then continue with the boot-up procedure. The options are "Y", and "N".

Exit without Saving

If you highlight the letter "Y" and press <Enter>, any changes you've made in the CMOS will not be saved when you exit the CMOS Setup. Your system should then continue with the boot-up procedure.

Load Fail-Safe Defaults

Press the key "Y" to load the BIOS Fail-Safe default values for the most stable system operation. The settings are "Yes" and "No".

Load Optimal Defaults

Press the key "Y" to load the default values for the optimal system performance. The settings are "Yes" and "No".

Notes

Appendix A

AwardBIOS POST Messages

During the Power On Self-Test (POST), if the BIOS detects an error and correction is needed, then, the BIOS will activate the alarm or display a message.

If a message is displayed, it will be accompanied by the following:

PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP

POST Beep Codes

Currently, there are several kinds of beep codes in the Award BIOS. For example, a single long beep followed by two short beeps indicates that a video error has occurred and that the BIOS cannot initialize the video screen to display any additional information. A single long beep that sounds repeatedly indicates that an error has occurred in Rambus error has occurred. Refer to Appendix C for a complete list of beep codes.

Error Messages

One or more of the following messages may be displayed if the BIOS detects an error during the POST routine. This list includes messages for both the ISA and the EISA BIOS.

CMOS BATTERY HAS FAILED

CMOS battery is no longer functional. It should be replaced.

CMOS CHECKSUM ERROR

The CMOS checksum is incorrect. This can indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.

DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER

No boot device was found. This could mean that either a boot drive was not detected or the drive does not contain proper system boot files. Insert a system disk into Drive A: and press <Enter>. If you assumed the system would boot from the hard drive, make sure the controller is inserted correctly and all cables are properly attached. Also be sure the disk is formatted as a boot device. Then reboot the system.

DISKETTE DRIVES OR TYPES MISMATCH ERROR - RUN SETUP

Type of diskette drive installed in the system is different from the CMOS definition. Run Setup to reconfigure the drive type correctly.

DISPLAY SWITCH IS SET INCORRECTLY

Display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct, and then either turn off the system and change the jumper, or enter Setup and change the VIDEO selection.

DISPLAY TYPE HAS CHANGED SINCE LAST BOOT

Since last powering off the system, the display adapter has been changed. You must configure the system for the new display type.

ERROR ENCOUNTERED INITIALIZING HARD DRIVE

Hard drive cannot be initialized. Be sure the adapter is installed correctly and all cables are correctly and firmly attached. Also be sure the correct hard drive type is selected in Setup.

ERROR INITIALIZING HARD DISK CONTROLLER

Cannot initialize controller. Make sure the cord is correctly and firmly installed in the bus. Be sure the correct hard drive type is selected in Setup. Also check to see if any jumper needs to be set correctly on the hard drive.

FLOPPY DISK CNTRLR ERROR OR NO CNTRLR PRESENT

Cannot find or initialize the floppy drive controller. make sure the controller is installed correctly and firmly. If there are no floppy drives installed, be sure the Diskette Drive selection in Setup is set to NONE.

KEYBOARD ERROR OR NO KEYBOARD PRESENT

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot.

Memory Address Error at ...

Indicates a memory address error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

Memory parity Error at ...

Indicates a memory parity error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

Memory Verify Error at ...

Indicates an error verifying a value already written to memory. Use the location along with your system's memory map to locate the bad chip.

OFFENDING ADDRESS NOT FOUND

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem cannot be isolated.

OFFENDING SEGMENT:

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem has been isolated.

PRESS A KEY TO REBOOT

This will be displayed at the bottom screen when an error occurs that requires you to reboot. Press any key and the system will reboot.

PRESS F1 TO DISABLE NMI, F2 TO REBOOT

When BIOS detects a Non-maskable Interrupt condition during boot, this will allow you to disable the NMI and continue to boot, or you can reboot the system with the NMI enabled.

RAM PARITY ERROR - CHECKING FOR SEGMENT ...

Indicates a parity error in Random Access Memory.

SYSTEM HALTED, (CTRL-ALT-DEL) TO REBOOT ...

Indicates the present boot attempt has been aborted and the system must be rebooted. Press and hold down the CTRL and ALT keys and press DEL.

FLOPPY DISK(S) fail (80) → Unable to reset floppy subsystem.

FLOPPY DISK(S) fail (40) → Floppy Type mismatch.

Hard Disk(s) fail (80) → HDD reset failed

Hard Disk(s) fail (40) → **HDD controller diagnostics failed.**

Hard Disk(s) fail (20) → **HDD initialization error.**

Hard Disk(s) fail (10) → **Unable to recalibrate fixed disk.**

Hard Disk(s) fail (08) → **Sector Verify failed.**

Keyboard is locked out - Unlock the key.

BIOS detect the keyboard is locked. P17 of keyboard controller is pulled low.

Keyboard error or no keyboard present.

Cannot initialize the keyboard. Make sure that the keyboard is attached correctly and no keys are being pressed during the boot.

Manufacturing POST loop.

System will repeat POST procedure infinitely while the P15 of keyboard controller is pull low. This is also used for M/B burn in test.

BIOS ROM checksum error - System halted.

The checksum of ROM address F0000H-FFFFFFH is bad.

Memory test fail..

BIOS reports the memory test fail if the onboard memory is tested error.

Appendix B

AwardBIOS POST Codes

This section lists the POST (Power On Self Testing) Codes for the Award BIOS.

POST (hex)	Description
CFh	Test CMOS R/W functionality.
C0h	Early chipset initialization: -Disable shadow RAM -Disable L2 cache (socket 7 or below) -Program basic chipset registers
C1h	Detect memory -Auto-detection of DRAM size, type and ECC. -Auto-detection of L2 cache (socket 7 or below)
C3h	Expand compressed BIOS code to DRAM
C5h	Call chipset hook to copy BIOS back to E000 & F000 shadow RAM.
0h1	Expand the Xgroup codes locating in physical address 1000:0
02h	Reserved
03h	Initial Superio_Early_Init switch.
04h	Reserved
05h	1. Blank out screen 2. Clear CMOS error flag
06h	Reserved
07h	1. Clear 8042 interface 2. Initialize 8042 self-test
08h	1. Test special keyboard controller for Winbond 977 series Super I/O chips. 2. Enable keyboard interface.
09h	Reserved
0Ah	<ul style="list-style-type: none"> ● Disable PS/2 mouse interface (optional). ● Auto detect ports for keyboard & mouse followed by a port & interface swap (optional). ● Reset keyboard for Winbond 977 series Super I/O chips.
0Bh	Reserved
0Ch	Reserved
0Dh	Reserved
0Eh	Test F000h segment shadow to see whether it is R/W-able or not. If test fails, keep beeping the speaker.

Debug LED Codes (hex codes displayed by onboard LEDs D16, D17, D18)

POST Code	Hex Code	Description
C1h	001b	Memory Detection
05h	010b	BIOS Shadowing
07h	011b	KBC Initialization
0Eh	100b	Shadow RAM Test
14h	101b	Chipset Defaults Loaded
26h	110b	Clock Generator Configured
2Bh	111b	Video Initialization
52h	000b	Just Clear LEDs

POST (hex) Description

0Fh	Reserved
10h	Auto detect flash type to load appropriate flash R/W codes into the run time area in F000 for ESCD & DMI support.
11h	Reserved
12h	Use walking 1's algorithm to check out interface in CMOS circuitry. Also set real-time clock power status, and then check for override.
13h	Reserved
14h	Program chipset default values into chipset. Chipset default values are MODBINable by OEM customers.
15h	Reserved
16h	Initial Early_Init_Onboard_Generator switch.
17h	Reserved
18h	Detect CPU information including brand, SMI type (Cyrix or Intel) and CPU level (586 or 686).
19h	Reserved
1Ah	Reserved
1Bh	Initial interrupts vector table. If no special specified, all H/W interrupts are directed to SPURIOUS_INT_HDLR & S/W interrupts to SPURIOUS_soft_HDLR.
1Ch	Reserved
1Dh	Initial EARLY_PM_INIT switch.
1Eh	Reserved
1Fh	Load keyboard matrix (notebook platform)
20h	Reserved
21h	HPM initialization (notebook platform)
22h	Reserved
23h	<ol style="list-style-type: none"> 1. Check validity of RTC value: e.g. a value of 5Ah is an invalid value for RTC minute. 2. Load CMOS settings into BIOS stack. If CMOS checksum fails, use default value instead. 3. Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information. 4. Onboard clock generator initialization. Disable respective clock resource to empty PCI & DIMM slots. 5. Early PCI initialization: <ul style="list-style-type: none"> -Enumerate PCI bus number -Assign memory & I/O resource -Search for a valid VGA device & VGA BIOS, and put it into C000:0.
24h	Reserved
25h	Reserved
26h	Reserved
27h	Initialize INT 09 buffer
28h	Reserved
29h	<ul style="list-style-type: none"> ● Program CPU internal MTRR (P6 & PII) for 0-640K memory address. ● Initialize the APIC for Pentium class CPU. ● Program early chipset according to CMOS setup. Example: onboard IDE controller. ● Measure CPU speed. ● Invoke video BIOS.
2Ah	Reserved
2Bh	Reserved
2Ch	Reserved

POST (hex)	Description
2Dh	1. Initialize multi-language 2. Put information on screen display, including Award title, CPU type, CPU speed
2Eh	Reserved
2Fh	Reserved
30h	Reserved
31h	Reserved
32h	Reserved
33h	Reset keyboard except Winbond 977 series Super I/O chips.
34h	Reserved
35h	Reserved
36h	Reserved
37h	Reserved
38h	Reserved
39h	Reserved
3Ah	Reserved
3Bh	Reserved
3Ch	Test 8254
3Dh	Reserved
3Eh	Test 8259 interrupt mask bits for channel 1.
3Fh	Reserved
40h	Test 8259 interrupt mask bits for channel 2.
41h	Reserved
42h	Reserved
43h	Test 8259 functionality.
44h	Reserved
45h	Reserved
46h	Reserved
47h	Initialize EISA slot
48h	Reserved
49h	1. Calculate total memory by testing the last double word of each 64K page. 2. Program writes allocation for AMD K5 CPU.
4Ah	Reserved
4Bh	Reserved
4Ch	Reserved
4Dh	Reserved
4Eh	1. Program MTRR of M1 CPU 2. Initialize L2 cache for P6 class CPU & program CPU with proper cacheable range. 3. Initialize the APIC for P6 class CPU. 4. On MP platform, adjust the cacheable range to smaller one in case the cacheable ranges between each CPU are not identical.
4Fh	Reserved
50h	Initialize USB
51h	Reserved
52h	Test all memory (clear all extended memory to 0)
53h	Reserved
54h	Reserved
55h	Display number of processors (multi-processor platform)
56h	Reserved
57h	1. Display PnP logo 2. Early ISA PnP initialization -Assign CSN to every ISA PnP device.

POST (hex)	Description
58h	Reserved
59h	Initialize the combined Trend Anti-Virus code.
5Ah	Reserved
5Bh	(Optional Feature) Show message for entering AWDFLASH.EXE from FDD (optional)
5Ch	Reserved
5Dh	1. Initialize Init_Onboard_Super_IO switch. 2. Initialize Init_Onboard_AUDIO switch.
5Eh	Reserved
5Fh	Reserved
60h	Okay to enter Setup utility; i.e. not until this POST stage can users enter the CMOS setup utility.
61h	Reserved
62h	Reserved
63h	Reserved
64h	Reserved
65h	Initialize PS/2 Mouse
66h	Reserved
67h	Prepare memory size information for function call: INT 15h ax=E820h
68h	Reserved
69h	Turn on L2 cache
6Ah	Reserved
6Bh	Program chipset registers according to items described in Setup & Auto-configuration table.
6Ch	Reserved
6Dh	1. Assign resources to all ISA PnP devices. 2. Auto assign ports to onboard COM ports if the corresponding item in Setup is set to "AUTO".
6Eh	Reserved
6Fh	1. Initialize floppy controller 2. Set up floppy related fields in 40:hardware.
70h	Reserved
71h	Reserved
72h	Reserved
73h	(Optional Feature) Enter AWDFLASH.EXE if : -AWDFLASH is found in floppy drive. -ALT+F2 is pressed
74h	Reserved
75h	Detect & install all IDE devices: HDD, LS120, ZIP, CDROM.....
76h	Reserved
77h	Detect serial ports & parallel ports.
78h	Reserved
79h	Reserved
7Ah	Detect & install co-processor
7Bh	Reserved
7Ch	Reserved
7Dh	Reserved
7Eh	Reserved
7Fh	1. Switch back to text mode if full screen logo is supported. -If errors occur, report errors & wait for keys -If no errors occur or F1 key is pressed to continue: •Clear EPA or customization logo.

POST (hex)	Description
80h	Reserved
81h	Reserved
82h	<ol style="list-style-type: none"> 1. Call chipset power management hook. 2. Recover the text font used by EPA logo (not for full screen logo) 3. If password is set, ask for password.
83h	Save all data in stack back to CMOS
84h	Initialize ISA PnP boot devices
85h	<ol style="list-style-type: none"> 1. USB final Initialization 2. NET PC: Build SYSID structure 3. Switch screen back to text mode 4. Set up ACPI table at top of memory. 5. Invoke ISA adapter ROMs 6. Assign IRQs to PCI devices 7. Initialize APM 8. Clear noise of IRQs.
86h	Reserved
87h	Reserved
88h	Reserved
89h	Reserved
90h	Reserved
91h	Reserved
92h	Reserved
93h	Read HDD boot sector information for Trend Anti-Virus code
94h	<ol style="list-style-type: none"> 1. Enable L2 cache 2. Program boot up speed 3. Chipset final initialization. 4. Power management final initialization 5. Clear screen & display summary table 6. Program K6 write allocation 7. Program P6 class write combining
95h	<ol style="list-style-type: none"> 1. Program daylight saving 2. Update keyboard LED & typematic rate
96h	<ol style="list-style-type: none"> 1. Build MP table 2. Build & update ESCD 3. Set CMOS century to 20h or 19h 4. Load CMOS time into DOS timer tick 5. Build MSIRQ routing table.
FFh	Boot attempt (INT 19h)

Notes

Appendix C

AwardBIOS Error Beep Codes

This section lists the Award BIOS Error Beep Codes.

Beep Code	Error Message Description
1 short beep	System boot.
2 short beeps	Incorrect CMOS setting.
1 long + 1 short	DRAM error.
1 long + 2 short	VGA error.
1 long + 3 short	Keyboard error.
1 long + 9 short	ROM error.
Long beeps	Memory module error.
High beeps	Power error.

Notes

Appendix D

System Specifications

Processors

Single or dual Pentium® III FCPGA 500 MHz - 1.40 GHz processors and low power single or dual Pentium® III processors at front bus speeds of 133 and 100 MHz.

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

Chipset

Via Apollo Pro 266T

Memory Capacity

Four 168-pin DIMM sockets supporting up to 4 GB ECC registered SDRAM

Operating Systems Supported

Windows NT, Windows 2000, Solaris, Netware, SCO UNIX and Linux

Peripheral Bays

One (1) 3.5" floppy drive

One (1) slim CD-ROM drive

One (1) 5.25" drive bay

Six (6) drive bays to house six (6) standard 1" 80-pin IDE drives

Expansion Slots

Five (5) 32-bit, 33 MHz PCI slots (low profile)

One (1) 4xAGP Pro slot (low profile)

One (1) ACR slot

Motherboard

P3TDDE (Extended ATX form factor)

Dimensions (W x D): 11.6" x 10.7" (295 x 272 mm)

Chassis

Model: SC822-300LP

Form Factor: 2U rackmount or tower

Dimensions (W x H x D): 16.7" x 3.5" x 25.7" (425 x 88 x 652 mm)

Weight

Net (Bare Bone): ~52 lbs.

System Cooling

Three (3) 8-cm chassis cooling fans (hot-swappable)

One (1) 8-cm standby chassis cooling fan (hot-swappable, max. current = .035 amps/ea. or 1.2 amps/set of four)

One (1) 12-cm exhaust fan (non hot-swappable)

System Input Requirements

AC Input Voltage: 100-240 VAC auto-range

Rated Input Current: 10A (115V) to 5A (230V)

Rated Input Frequency: 50 to 60 Hz

Power Supply

Rated Output Power: 300W (Model# SP302-2C)

Rated Output Voltages: +3.3V (20A), +5V (30A), +12V (15A), +5Vsb (2A)

Operating Environment

Operating Temperature: 0 to +35 degrees C

Non-operating Temperature: -35 to +60 degrees C

Operating Relative Humidity: 5-90%, (non-condensing)

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

Regulatory Compliance

Electromagnetic Emissions: FCC Class B, EN 55022 Class B, EN 61000-3-2 & -3-3, CISPR 22 Class B

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

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

Notes