SUPER®

SUPER P6DKF
SUPER P6DKS/P6DKE
SUPER P6SKS/P6SKE

USER'S MANUAL

Revision 1.1

Preface

About This Manual

This manual is written for system houses, PC technicians and knowledgeable PC end users. It provides information for the installation and use of SUPER P6DKF/P6DKS/P6DKE/P6SKS/P6SKE motherboard. SUPER P6DKF/P6DKS/P6DKE supports Pentium II 300/266/233 MHz. SUPER P6SKS/P6SKE supports 200/180/166/150 MHz Pentium Pro and 300/266/233 MHz Pentium II processors.

The Pentium II processor with the Dual Independent Bus Architecture is housed in a new package technology called the Single Edge Contact (S.E.C.) cartridge. This new cartridge package and its associated "Slot 1" infrastructure will provide the headroom for future high-performance processors.

Manual Organization

Chapter 1, Introduction, describes the features, specifications and performance of the SUPER P6DKF/P6DKS/P6DKE/P6SKS/P6SKE system board, provides detailed information about the chipset, and offers warranty information.

Refer to Chapter 2, Installation, for instructions on how to install the Pentium II processor, the retention mechanism, and the heat sink support. This chapter provides you with the instructions for handling static-sensitive devices. Read this chapter when you want to install or remove SIMM memory modules and to mount the system board in the chassis. Also refer to this chapter to connect the floppy and hard disk drives, IDE interfaces, parallel port, serial ports, as well as the cables for the power supply, reset cable, Keylock/Power LED, speaker and keyboard.

If you encounter any problem, please see Chapter 3, Troubleshooting, which describes troubleshooting procedures for video, memory, and the setup configuration stored in memory. Instructions are also included on contacting a technical assistance support representative and returning merchandise for service and the BBS# for BIOS upgrades.

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Chapter 1:

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Chapter 1
Introduction

1-1   Overview

SUPER P6DKF

SUPER P6DKF is a full AT size computer system board that offers a highly optimized and more robust performance for servers and high-end workstations. Based on the Intel 440FX chipset, it supports dual Pentium® II 233/266/300 MHz or higher processors, up to 1 GB FPM and EDO memory, 5 PCI, and 4 ISA slots.

Figure 1-1. SUPER P6DKF Motherboard Picture

SUPER P6DKS

SUPER P6DKS is an ATX size motherboard that supports dual Pentium II 233/266/300 MHz or higher processors. It has an on-board Adaptec 2940 Ultra Wide SCSI controller with fast data transfer rate of up to 40 MB/s. This solution lowers the total cost of ownership while providing an extra PCI slot to accommodate future growth.

Figure 1-2. SUPER P6DKS Motherboard Picture

SUPER P6DKE

SUPER P6DKE is similar to SUPER P6DKS without the on-board Adaptec SCSI controller. It is an ATX size motherboard that supports dual Pentium II 233/266/300 MHz or higher processors and can accommodate a total of 1 GB FPM or EDO memory. It comes with four PCI bus mastering slots and four ISA slots.

Figure 1-3. SUPER P6DKE Motherboard Picture

SUPER P6SKS/P6SKE

SUPER P6SKS/P6SKE is a function-enhanced ATX 2.01-compliant motherboard. Its unique design supports both Pentium Pro and Pentium II processors. SUPER P6SKS/P6SKE incorporates the Intel 440FX chipset. A "Slot 1" socket is available for a Pentium II processor and a Socket 8 for a Pentium Pro processor. It supports up to 768 MB memory, 4 PCI and 4 ISA slots. SUPER P6SKS has an on-board SCSI controller which is 100% compatible with an Adaptec 2940 UW. SUPER P6SKE does not have an on-board SCSI.

Figure 1-4. SUPER P6SKS Motherboard Picture

J83 PS/2 MOUSE
J81 AT KB
J82 PS/2 KB
J20 5V POWER
J818 COM1
J824 COM2

J28 J29 J31 J32
J88 J86
J27 J37 J38 J39 J40
J36 J35
USB2 USB1
J84 PS/2 MOUSE
J817 PARALLEL

Bank3
Bank3
Bank2
Bank2
Bank1
Bank1
Bank0
Bank0

JP881 Ext Battery
J208 Power +5V Extra

J27C

JP27
JP26
U6

J834

J831 J833 J832 JP42
U13 U5
K1 K2

J830

U834 U831
J12 J11
JP884
JP15

BIOS IDE 2 IDE 1

J827
J828
J829

Slot 1 Slot 2
J2 VRM 2

JP20 KEYLOCK
JP880
JP13

J22 SPEAKER
BT1 BATTERY
JP38

J38 J85 FLOPPY
J23 HD LED
JP36 JP37 JP32 JP31 JP30 JP29

JP39 SMI SW
JP97
JP89 ALARM JP88
JP94

JP21 RESET
JP95 JP92 JP93 JP90
JP91

JP96 IR CON
FAN1 JP35 JP34 FAN2
J1 VR3 VR4
JP23 JP22

VRM 1 J21 3V SUPPLY

SUPER ●® P6DKF

———— Manufacturer Settings ————

J86:	1-2	JP15:	2-3
J88:	1-2	JP26:	OFF
J827:	ON	JP27:	ON
J828:	ON	JP38:	OFF
J829:	ON	JP88:	OFF
JP13:	2-3	JP95:	2-3
JP880:	1-2 (default)	JP884:	OFF
	2-3 CMOS Clear		
JP42:	ON (ISA CLK=PCI CLK/4)		
	OFF (ISA CLK=PCI CLK/3)		

———————————————————————

—————Pentium II CPU Speed—————

	233	266	300	333	366	400
JP29	OFF	ON	OFF	ON	OFF	ON
JP30	OFF	ON	ON	OFF	OFF	ON
JP31	ON	OFF	OFF	OFF	OFF	ON
JP32	ON	ON	ON	ON	ON	OFF
JP36	OFF	OFF	OFF	OFF	OFF	OFF
JP37	ON	ON	ON	ON	ON	ON

Figure 1-5. SUPER P6DKF Motherboard Layout

Figure 1-6. SUPER P6DKS Motherboard Layout

Figure 1-7. SUPER P6DKE Motherboard Layout

——————— Manufacturer Settings ———————

J86:	1-2	JP13:	2-3
J88:	1-2	JP15:	2-3
J827:	ON	JP26:	OFF
J828:	ON	JP27:	ON
J829:	ON	JP38:	OFF
JP884:	OFF	JP88:	ON
JP880:	1-2 (default)	JP95:	2-3
	2-3 CMOS Clear		

To clear the CMOS completely,
disconnect the power source.

JP42: ON (ISA CLK=PCI CLK/4)
       OFF (ISA CLK=PCI CLK/3)

————Pentium II CPU Speed—————

	233	266	300
JP29	OFF	ON	OFF
JP30	OFF	ON	ON
JP31	ON	OFF	OFF
JP32	ON	ON	ON
JP36	OFF	OFF	OFF
JP37	ON	ON	ON

Figure 1-8. SUPER P6SKS Motherboard Layout

——————— Manufacturer Settings ———————

J86:	1-2	JP15:	2-3
J88:	1-2	JP26:	OFF
J827:	ON	JP27:	ON
J828:	ON	JP38:	OFF
J829:	ON	JP88:	ON
JA4:	OFF	JP95:	2-3

JP884: OFF (Pentium II)
        ON (Pentium Pro)
JP880: 1-2 (default)
        2-3 CMOS Clear
        To clear the CMOS completely,
        disconnect the power source.
JP42: ON (ISA CLK=PCI CLK/4)
      OFF (ISA CLK=PCI CLK/3)

————Pentium Pro CPU Speed————

	150	166	180	200
JP29	OFF	OFF	ON	ON
JP30	ON	ON	OFF	OFF
JP31	ON	ON	ON	ON
JP32	ON	ON	ON	ON
JP36	ON	OFF	ON	OFF
JP37	OFF	OFF	OFF	ON

————Pentium II CPU Speed————

	233	266	300
JP29	OFF	ON	OFF
JP30	OFF	ON	ON
JP31	ON	OFF	OFF
JP32	ON	ON	ON
JP36	OFF	OFF	OFF
JP37	ON	ON	ON

Figure 1-9. SUPER P6SKE Motherboard Layout

——— Manufacturer Settings ———

J86:	1-2	JP15:	2-3
J88:	1-2	JP26:	OFF
J827:	ON	JP27:	ON
J828:	ON	JP38:	OFF
J829:	ON	JP88:	ON
JP95:	2-3		

JP884: OFF (Pentium II)
          ON (Pentium Pro)
JP880: 1-2 (default)
          2-3 CMOS Clear
          To clear the CMOS completely,
          disconnect the power source.
JP42: ON (ISA CLK=PCI CLK/4)
          OFF (ISA CLK=PCI CLK/3)

———Pentium Pro CPU Speed———

	150	166	180	200
JP29	OFF	OFF	ON	ON
JP30	ON	ON	OFF	OFF
JP31	ON	ON	ON	ON
JP32	ON	ON	ON	ON
JP36	ON	OFF	ON	OFF
JP37	OFF	ON	OFF	ON

———Pentium II CPU Speed———

	233	266	300
JP29	OFF	ON	OFF
JP30	OFF	ON	ON
JP31	ON	OFF	OFF
JP32	ON	ON	ON
JP36	OFF	OFF	OFF
JP37	ON	ON	ON

SUPER P6DKF Features

The following list covers the general features of SUPER P6DKF:

CPU
• Dual Pentium II processor 233/266/300 MHz

Memory
• 1 GB Fast Page DRAM, ECC or EDO
• Error Checking and Correction and Parity Checking support

Chipset
• Intel 440FX

Expansion Slots
• 5 PCI slots
• 4 ISA slots

BIOS
• AMI® Flash BIOS
• DMI 2.0, Plug and Play (PnP), and boot block support

On-Board I/O
• 2 EIDE interfaces support Mode 4
• 1 floppy interface
• 2 Fast UART 16550 serial ports
• EPP (Enhanced Parallel Port) and ECP (Extended Capabilities Port) parallel port
• PS/2 mouse and PS/2 keyboard
• Infra-red port
• 2 USB ports
• System Management Port

System Overheat Temperature Control
• Built-in alarm
• Back-up fan controller

Dimensions
• Full AT

Made in USA

SUPER P6DKS Features

The following list covers the general features of SUPER P6DKS:

CPU
- Dual Pentium II processor 233/266/300 MHz

Memory
- 1 GB Fast Page DRAM, ECC or EDO
- Error Checking and Correction and Parity Checking support

Chipset
- Intel 440FX

Expansion Slots
- 4 PCI slots and 4 ISA slots

BIOS
- AMI® Flash BIOS
- DMI 2.0, Plug and Play (PnP), and boot block support

On-Board I/O
- Internal/External Ultra-Wide 68-pin 16-bit SCSI connector and 50-pin 8-bit Internal connector
- 2 EIDE interfaces support Mode 4
- 1 floppy interface
- 2 Fast UART 16550 serial ports
- EPP (Enhanced Parallel Port) and ECP (Extended Capabilities Port) parallel port
- PS/2 mouse and PS/2 keyboard
- Infra-red port
- 2 USB ports
- System Management Port

System Overheat Temperature Control
- Built-in alarm
- Back-up fan controller

Dimensions
- ATX

Made in USA

SUPER P6DKE Features

The following list covers the general features of SUPER P6DKE:

CPU
- Dual Pentium II processor 233/266/300 MHz

Memory
- 1 GB Fast Page DRAM, ECC or EDO
- Error Checking and Correction and Parity Checking support

Chipset
- Intel 440FX

Expansion Slots
- 4 PCI slots and 4 ISA slots

BIOS
- AMI® Flash BIOS
- DMI 2.0, Plug and Play (PnP), and boot block support

On-Board I/O
- 2 EIDE interfaces support Mode 4
- 1 floppy interface
- 2 Fast UART 16550 serial ports
- EPP (Enhanced Parallel Port) and ECP (Extended Capabilities Port) parallel port
- PS/2 mouse and PS/2 keyboard
- Infra-red port
- 2 USB ports
- System Management Port

System Overheat Temperature Control
- Built-in alarm
- Back-up fan controller

Dimensions
- ATX

Made in USA

SUPER P6SKS Features

The following list covers the general features of SUPER P6SKS:

CPU
• Single Pentium Pro 150/166/180/200 MHz or Single Pentium II processor 233/266/300 MHz

Memory
• 768 MB Fast Page DRAM, ECC or EDO
• Error Checking and Correction and Parity Checking support

Chipset
• Intel 440FX

Expansion Slots
• 4 PCI slots and 4 ISA slots

BIOS
• AMI® Flash BIOS
• DMI 2.0, Plug and Play (PnP), and boot block support

On-Board I/O
• Internal/External Ultra-Wide 68-pin 16-bit SCSI connector and 50-pin 8-bit Internal connector
• 2 EIDE interfaces support Mode 4
• 1 floppy interface
• 2 Fast UART 16550 serial ports
• EPP (Enhanced Parallel Port) and ECP (Extended Capabilities Port) parallel port
• PS/2 mouse and PS/2 keyboard
• Infra-red port
• 2 USB ports
• System Management Port

System Overheat Temperature Control
• Built-in alarm
• Back-up fan controller

Dimensions
• ATX

Made in USA

SUPER P6SKE Features

The following list covers the general features of SUPER P6SKE:

CPU
- Single Pentium Pro 150/166/180/200 MHz or Single Pentium II processor 233/266/300 MHz or higher

Memory
- 768 MB Fast Page DRAM, ECC or EDO
- Error Checking and Correction and Parity Checking support

Chipset
- Intel 440FX

Expansion Slots
- 4 PCI slots and 4 ISA slots

BIOS
- AMI® Flash BIOS
- DMI 2.0, Plug and Play (PnP), and boot block support

On-Board I/O
- 2 EIDE interfaces support Mode 4
- 1 floppy interface
- 2 Fast UART 16550 serial ports
- EPP (Enhanced Parallel Port) and ECP (Extended Capabilities Port) parallel port
- PS/2 mouse and PS/2 keyboard
- Infra-red port
- 2 USB ports
- System Management Port

System Overheat Temperature Control
- Built-in alarm
- Back-up fan controller

Dimensions
- ATX

Made in USA

1-2   Power Supply

As with all computer products, a stable power source is necessary for proper and reliable operation. It is even more important for high CPU clock rates like 200, 180, 166, 150 MHz Pentium Pro processors and 300, 266, 233 MHz Pentium II processors.

SUPER P6DKS/P6DKE/P6SKS/P6SKE accommodates ATX or AT 3V power supplies. SUPER P6DKF accommodates AT 5V power supplies. Although most power supplies generally meet the specifications required by the CPU, some power supplies are not adequate. To obtain the highest system reliability, be certain that your 5V power supply provides +5 VDC with a voltage range between +4.95 VDC (minimum) and +5.25 VDC (maximum).

It is highly recommended that you use a high quality power supply. Additionally, in areas where noisy power transmission is present, you may choose to install a line filter to separate noise from the computer. You can also install a power surge protector to help avoid problems caused by power surges.

1-3   Chipset Overview

The Intel 440FX chipset employs improved integration to deliver higher performance for Pentium Pro and Pentium II processor based systems.

The chipset is compliant to the PCI Rev. 2.1 specification. It features a 3-chip implementation which includes a PCI and memory controller (82441FX PMC), data bus accelerator (82442FX DBX) and PCI/ISA/IDE accelerator (82371SB PIIX3). The memory controller provides capability for auto-detection of ECC/EDO/FPM DRAM type installed in the system. It also provides data integrity features including ECC in the memory array and parity error detection.

1-4   National Semiconductor Super I/O Controller

The National Semiconductor 87306/87307 Super I/O Controller in-corporates an IDE control logic, two full function serial ports, an IEEE 1284 parallel port, industry standard floppy disk controller with 16 byte FIFO, Real Time Clock and an 8042 compatible keyboard controller all in one chip.

The IDE interfaces provide up to Mode 4 support. The two serial ports are software compatible with the Fast UART 16550. The parallel port is EPP (Enhanced Parallel Port) and ECP (Extended Capabilities Port) compatible, including level 2 support. It includes a protection circuit against damage caused when the printer is powered up. EPP mode provides for greater throughput than Compatible or Extended modes by supporting faster transfer rates and a mechanism that allows the host to address peripheral device registers directly. Faster transfers are achieved by automatically generating the address and data strobes. EPP is compatible with both Compatible and Extended mode parallel-port devices.

1-5   AIC 7880 SCSI Controller

SUPER P6DKS/P6SKS has an on-board SCSI controller which is 100% compatible with an Adaptec 2940UW. Connectors include a 68-pin 16-bit external SCSI connector (JA5), a 68-pin 16-bit internal SCSI connector (JA1) and a 50-pin 8-bit internal SCSI connector (JA2). You can connect up to 15 devices (seven 8-bit internal and eight 16-bit internal or external SCSI devices, or 15 Wide internal and external SCSI devices).

When Fast SCSI devices are connected, the total length of all cables (internal and external) must not exceed 3 meters (9.8 ft) to ensure reliable operation. If no Fast SCSI devices are connected, the total length of all cables must not exceed 6 meters (19.7 ft).

1-6 System Overheat Thermal Control

A back-up cooling fan can be hooked up to JP91, JP92 or JP93.   If the power supply fan or the processor cooling fan goes down, the circuitry will detect an overheat temperature depending on the user setting. It will then trigger the backup cooling fan, alarm or LED. The alarm can be turned on or off using JP88. Enable the buzzer with JP88 on. Disable the buzzer with JP88 off. The user can set the temperature range using JP95. Please refer to Table 2-14, Table 2-15 and Table 2-16 for the settings. A buzzer is connected on JP89 that will sound off that it is time to replace the power sup-ply fan or the CPU cooling fan. You can also hook up an LED to JP90 to notify of system overheating. It is important that the back-up cooling fan be installed correctly in such a way that it will not only cool down the processor but the whole system as well.

1-7 Warranty, Technical Support, and Service

The manufacturer will repair or exchange any unit or parts free of charge due to manufacturing defects for one year (12 months) from the original invoice date of purchase.

Parts

Defective parts will be exchanged or repaired within one year (12 months) from the manufacturer's original invoice purchase date.

BIOS

The manufacturer will exchange the BIOS (shipping and handling excluded) due to existing incompatibility issues within one year from the manufacturer's original invoice purchase date.

Labor

Mail-in or carry-in service is available for one year (12 months) from the manufacturer's original invoice purchase date.

### Returns

If you must return products for any reason, refer to Chapter 3 in this manual, "Returning Merchandise for Service."

Chapter 2
Installation

2-1 Pentium II Processor Installation

1. Check the Intel boxed processor kit for the following items: the processor with the fan heatsink attached, two black plastic pegs, two black plastic supports, and one power cable.

2. Install the retention mechanism attach mount under the motherboard. Do this before mounting the motherboard into the chassis. Do not screw too tight. Mount the two black plastic pegs onto the motherboard (Figure 2.1). These pegs will be used to attach the fan heatsink supports. Notice that one hole and the base of one peg are larger than the other hole and peg base. Push each peg into its hole firmly until you hear it "click" into place.

Figure 2-1. Mounting the Pegs

Retention
Mechanism

Large peg and hole
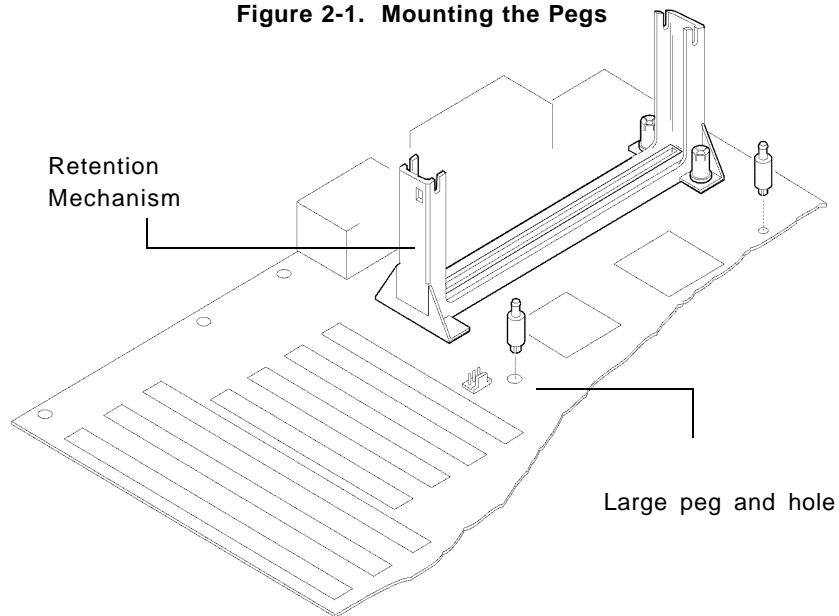
3. Slide a black plastic support onto each end of the fan heatsink, making sure that the hole and clip are on the outside edge of the support. If the supports are reversed, the holes will not line up with the pegs on the motherboard. Slide each support toward the center of the processor until the support is seated in the outside groove in the fan housing.

Figure 2-2. Support for Fan Heatsink

Top of processor

Groove in fan housing

Hole and clip on outside edge
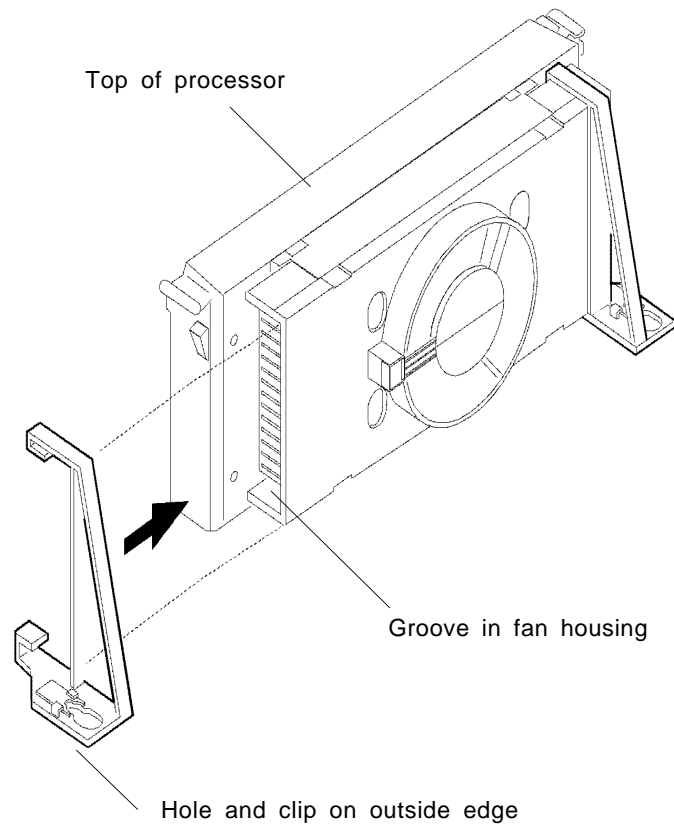
4. Slid the clip (A) on each support toward the processor, exposing the hole that will fit over the peg on the motherboard. Push the latches (B) on the processor toward the center of the processor until they click into place.

5. Hold the processor so that the fan shroud is facing toward the pegs on the motherboard. Slide the processor (C) into the retention mechanism and slide the supports onto the pegs. Ensure that the pegs on the motherboard slide into the holes in the heatsink support and that the alignment notch in the SEC cartridge fits over the plug in Slot 1. Push the processor down firmly, with even pressure on both sides of the top, until it is seated.

Figure 2-3. Retention Mechanism

B

C

A

Do not screw too tight!
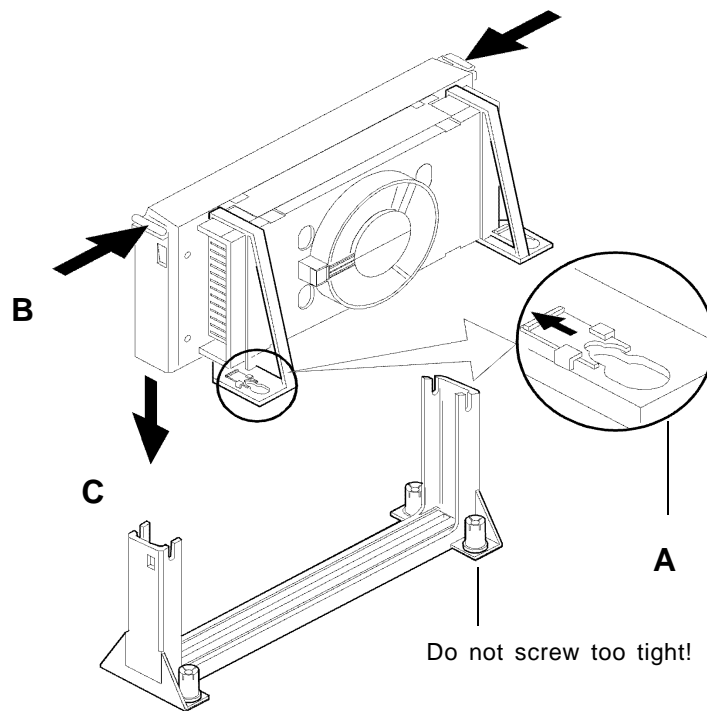
6. Slide the clips on the supports (A) forward until they click into place to hold the pegs securely. Apply slight pressure on the peg and push the peg toward the clip while pushing the clip forward. Push the latches on the processor (B) outward until they click into place in the retention mechanism. The latches must be secured for proper electrical connection of the processor.

7. Attach the small end of the power cable (C) to the three-pin connector on the processor, then attach the large end to the three-pin connector on the motherboard.

Figure 2-4. Attaching the Power Cable
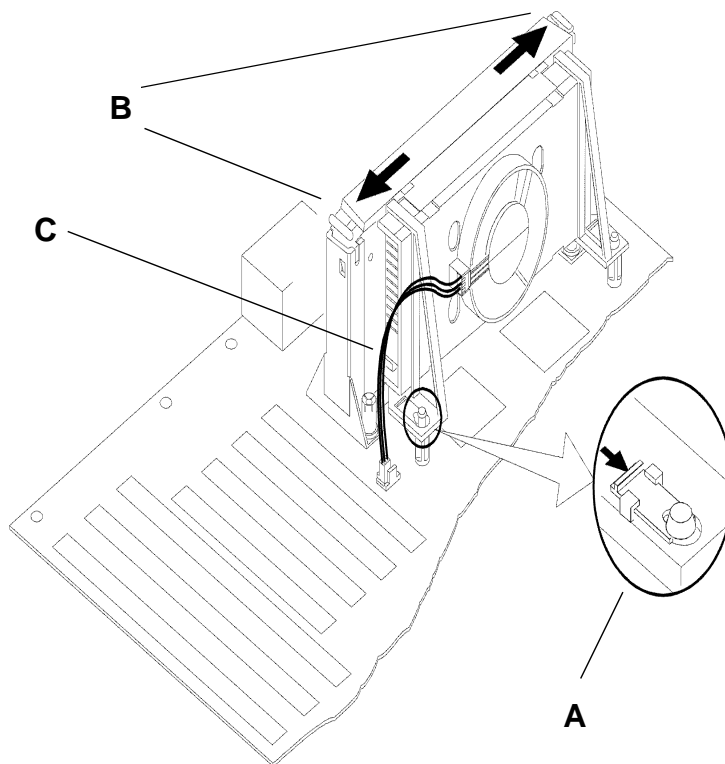
OEM Pentium II and Heat Sink Support

The heat sink support shown on Figure 2-5 consists of a top bar, a base bar, four posts on the top bar and two posts on the base bar. The two posts on the base snaps into the motherboard. Install the two pins into the base bar. Insert the Pentium II with the heat sink on it into Slot 1. Install the top support bar. The four top posts should be close to Slot 1. The bottommost row of fins in the heat sink should fit between the top support bar and the bottom support bar as shown in Figure 2-6.

Figure 2-5. Heat Sink Support
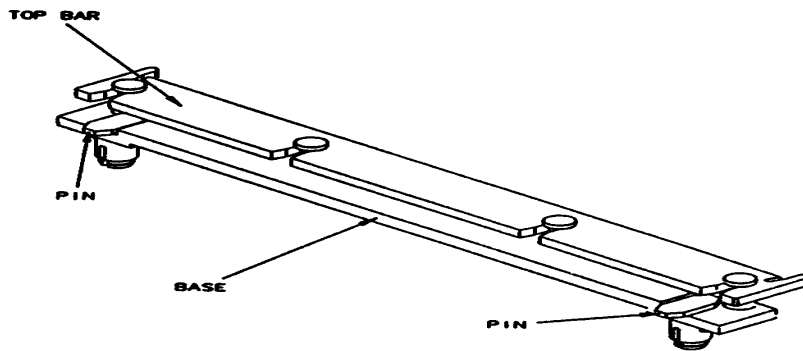
Figure 2-6. Pentium II Heat Sink
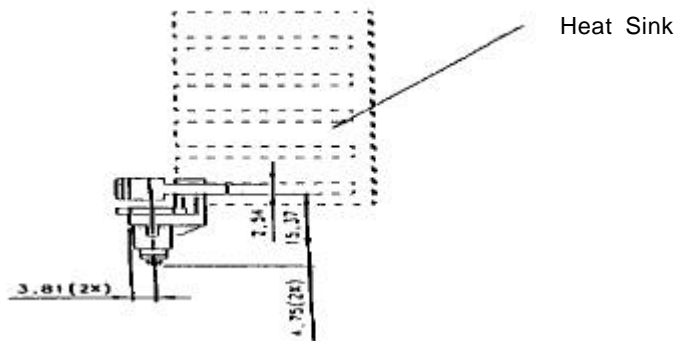
Removing the Pentium II Processor

To remove the Pentium II processor from the motherboard, follow these steps (the reverse of the installation process).

1. Disconnect the fan power cable from the motherboard. It is recommended to leave the cable connected to the processor.

2. Slide the clips on the supports backward to release the pegs in the motherboard. Push the latches on the processor toward the center of the processor until they click into place.

3. Lift one end of the processor until it is freed from Slot 1. Lift the other end of the processor until it is freed from Slot 1. Lift the entire processor (with the fan heatsink supports attached) until it is free from the retention mechanism.

4. Remove the heatsink support pegs from the motherboard and discard them. With one hand, squeeze together the two halves of the peg on the bottom side of the motherboard. With the other hand, pull the peg out of the hole in the motherboard. Do not reuse the pegs.

When handling the Pentium II processor, avoid placing direct pressure on the label area of the fan.

When removing the Pentium II processor, avoid pressing down on the motherboard or components. Instead, press down on the plastic connectors.

2-2   Static-Sensitive Devices

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

Precautions

- Use a grounded wrist strap designed for static discharge.
- Touch a grounded metal object before you remove the board from the anti-static bag.
- Handle the board by its edges only; do not touch its components, peripheral chips, memory modules, or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the system board and peripherals back into their anti-static bags when not in use.
- Be sure your computer system's chassis allows excellent conductive contacts between its power supply, case, mounting fasteners, and the system board for grounding purposes.

Unpacking

The system board is shipped in anti-static packaging to avoid static damage. When unpacking the board, be sure the person handling the board is static-protected.

2-3 Changing the CPU Speed

To change the CPU speed for a Pentium Pro or a Pentium II processor, change the jumpers shown on Table 2-1 and Table 2-2.

Table 2-1. Pentium Pro Speed Selection

	150	166	180	200
JP29	OFF	OFF	ON	ON
JP30	ON	ON	OFF	OFF
JP31	ON	ON	ON	ON
JP32	ON	ON	ON	ON
JP36	ON	OFF	ON	OFF
JP37	OFF	ON	OFF	ON

Table 2-2. Pentium II Speed Selection

	233	266	300
JP29	OFF	ON	OFF
JP30	OFF	ON	ON
JP31	ON	OFF	OFF
JP32	ON	ON	ON
JP36	OFF	OFF	OFF
JP37	ON	ON	ON

Turbo Function

There are no jumpers for turbo switch and turbo LED. By default, all the motherboards are in turbo mode.

2-4 Mounting the Motherboard in the Chassis

All the motherboards have standard mounting holes to fit all different types of chassis. Chassis may come with a variety of mounting fasteners, made of metal or plastic. Although a chassis may have both metal and plastic fasteners, metal fasteners are the most highly recommended because they ground the system board to the chassis. Therefore, use as many metal fasteners as possible for better grounding.

2-5 Connecting Cables

Power Supply Connectors

After you have securely mounted the motherboard to the chassis, you are ready to connect the cables. Attach power supply cables to J20 for a 5V power supply, J21 for ATX power or J21A for a 3.3V power supply. The +3.3V power supply is for 3.3V PCI add-on cards or CPU power support when 3.3V CPU is used. Do not force the cables, but make sure they are fully seated. The two black wires on each power cable (J20) sit next to each other when correctly installed. See Table 2-3, Table 2-4, and Table 2-5 for pin definitions of a 3.3V power supply, 5V power supply and ATX power supply.

Table 2-3. 3.3V Power Supply Connector Pin Definitions

Connector Number	Pin Number	Function
J21A	1	Ground (Black wire to be connected)
	2	Ground (Black wire to be connected)
	3	Ground (Black wire to be connected)
	4	+3.3 VCC
	5	+3.3 VCC
	6	+3.3 VCC

Table 2-4. 5V Power Supply Connector Pin Definitions

Connector Number	Pin Number	Function
J20	1	Power Good (Power on reset, TTL signal)
	2	+5 VCC
	3	+12 VCC
	4	-12 VCC
	5	Ground (Black wire to be connected)
	6	Ground (Black wire to be connected)
	7	Ground (Black wire to be connected)
	8	Ground (Black wire to be connected)
	9	-5 VCC
	10	+5 VCC
	11	+5 VCC
	12	+5 VCC

Table 2-5. ATX Power Supply Connector Pin Definitions

Connector Number	Pin Number	Function	Pin Number	Function
J21	1	3.3V	11	3.3V
	2	3.3V	12	-12V
	3	COM	13	COM
	4	5V	14	PS-ON
	5	COM	15	COM
	6	5V	16	COM
	7	COM	17	COM
	8	PW-OK	18	-5V
	9	5VSB	19	5V
	10	12V	20	5V

PW_ON Connector (P6DKS/P6DKE/P6SKS/P6SKE only)

JP882 is for the ATX power supply switch.   Momentary contacting pins 1 & 2 will power on/off the system.   See Table 2-6 for pin definitions of JP882, PW_ON connector.

Table 2-6. PW_ON Connector Pin Definitions

Pin Number	Definition
1	PW_ON
2	Ground
3	Ground
4	+5V SB

Infra-Red Connector

JP96 is for the Infra-Red connector.   See Table 2-7 for pin definitions of JP96.

Table 2-7. Infra-Red Pin Definitions

Pin Number	Definition
1	+5 V
2	Key
3	IR_RX
4	Ground
5	IR_TX

Reset Cable Connector

The reset cable connector JP21 has two pins. The connector attaches to the hardware Reset switch on the computer case. See Table 2-8 for pin definitions

Table 2-8. Reset Pin Definitions

Pin Number	Definition
1	Reset
2	Ground

Keylock/Power LED Cable Connector

The keylock/power LED cable connector JP20 has five pins. See Table 2-9 for pin definitions. Pins 1 and 3 are for the power LED. Pins 4 and 5 are for the keylock.

Table 2-9. Keylock/Power LED Pin Definitions

Pin Number	Function	Definition
1	+	Red wire, LED power
2	Key	No connection
3	GND	Black wire
4		Keyboard inhibit
5	GND	Black wire

Hard Drive LED

The hard drive LED J23 has four pins. Attach the hard drive LED cable onto pins 1 and 2. See Table 2-10 for pin definitions.

Table 2-10. Hard Drive LED Pin Definitions

Pin Number	Function
1	+5V
2	Key
3	HD Active
4	+5V

Speaker Cable Connector

The speaker cable connector J22 has four pins. See Table 2-11 for pin definitions.

Table 2-11. Speaker Connector Pin Definitions

Pin Number	Function	Definition
1	+	Red wire, speaker data
2	Key	No connection
3	VCC	Speaker data
4	GND	Black wire

SCSI LED

The SCSI LED JA3 has four pins. See Table 2-12 for pin definitions.

Table 2-12. SCSI LED Pin Definitions

Pin Number	Function
1	+5V
2	Control
3	Control
4	+5V

Back-up Cooling Fan and Buzzer Connectors*

Connect the back-up cooling fan to JP91, JP92 or JP93 and the buzzer to JP89. See Table 2-13 for pin definitions.

Table 2-13. Back-up Cooling Fan and Buzzer Connectors

Pin Number	Definition
1	+12 V
2	GND

* Caution: These connectors are DC direct.

Thermal Control Connector

Use the settings on Table 2-14, Table 2-15, and Table 2-16 to set the system temperature condition for JP95. Once the temperature cools down, the back-up fan will automatically shut down.

Table 2-14. Thermal Control for SUPER P6DKF/P6DKS/P6DKE

Setting	Turn on (°C)
1-2	41
2-3	46

Table 2-15. Thermal Control for SUPER P6SKS/P6SKE Pentium II Processor

Setting	Turn on (°C)
1-2	46
2-3	68

Table 2-16. Thermal Control for SUPER P6SKS/P6SKE Pentium Pro Processor

Setting	Turn on (°C)
1-2	46
2-3	68

Use the settings on Table 2-17 to enable or disable the buzzer for system overheat temperature control. The overheat LED is located on JP90.

Table 2-17. JP88 Buzzer Control

Setting	Function
ON	Standby
OFF	Disable

Table 2-18. JP90 Overheat LED

Pin Number	Function
1	+5V
2	GND

ATX PS/2 Keyboard and PS/2 Mouse Ports

The ATX PS/2 keyboard and the PS/2 mouse are located on J82. See Table 2-19 for pin definitions.

Table 2-19. PS/2 Keyboard and Mouse Pin Definitions

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

Universal Serial Bus

The Universal Serial Bus is located on J34 for SUPER P6DKS/P6DKE/P6SKS/P6SKE. It is located on J35 and J36 for SUPER P6DKF. See Table 2-20 for pin definitions.

Table 2-20. J35 and J36 USB Pin Definitions

Pin Number	J35 Function	Pin Number	J36 Function
1	+5V	1	+5V
2	P0-	2	P0-
3	P0+	3	P0+
4	GND	4	GND
5	N/A	5	Key

ATX Serial Ports

ATX serial port COM1 is located on J818 and serial port COM2 is located on J824 for SUPER P6DKS, P6DKE, P6SKS and P6SKE motherboards. See Table 2-21 for pin definitions.

Table 2-21. Serial Ports Pin Definitions

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

Serial Ports

Serial ports COM1 and COM2 for SUPER P6DKF are located on J818 and J824, respectively. See Table 2-22 for pin definitions.

Table 2-22. Serial Ports Pin Definitions

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

CMOS Clear

Refer to Table 2-23 for instructions on how to clear the CMOS. **For ATX power supply, you need to completely shut down the system, then use JP880 to clear the CMOS.** Do not use the PW_ON connector to clear the CMOS.

Table 2-23. CMOS Clear Pin Definitions

Connector Number	Jumper Position	Function
JP2	1-2 2-3	Normal CMOS Clear

External Battery

Connect an external battery to JP881. Refer to Table 2-24 for pin definitions.

Table 2-24. External Battery Pin Definitions

Pin Number	Function
1	+3 V
2	NC
3	NC
4	Ground

2-6 Installing/Removing the SIMM Modules

SUPER P6SKS/P6SKE can accommodate a maximum of 768MB of on-board memory, using standard 72-pin SIMM memory modules. SUPER P6DKF/P6DKS/P6DKE can accommodate a maximum of 1 GB. You can use any 1 MB, 2 MB, 4 MB, 8MB, 16MB or 32MB Fast Page Mode, EDO or ECC SIMM modules. You can use 32-bit or 36-bit memories.

There are no jumpers to configure the on-board memory. Two slots of memory totaling 8 MB are required for a minimum system configuration. These two slots of memory must contain two 72-pin single-sided or double-sided SIMM modules. Memory timing requires 70ns or faster.

Refer to Figure 2-7 and the instructions below for installing or removing SIMM modules.

CAUTION

Exercise extreme care when installing or removing the
SIMM modules to prevent any possible damages.

SIMM Module Installation

1. Insert SIMM modules in Bank 0 through Bank 3 as required for the desired system memory.
2. Insert each SIMM module into its socket at an angle away from the CPU sockets. The component side of the SIMM modules must face the CPU sockets.
3. Gently press the SIMM module in the direction of the CPU sockets until it snaps upright into place in the socket.

To Remove:
Use your thumb to gently push the edge of the socket and release the module. Do this on both sides for each module.

To Install:
Insert at an angle, then snap upright into place.
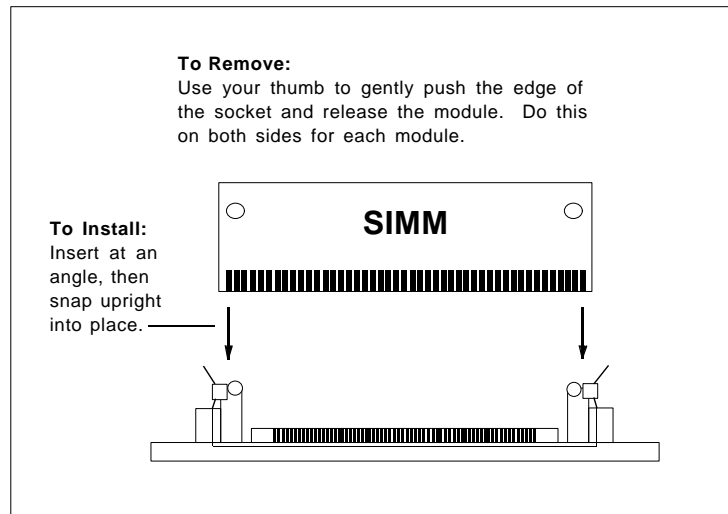
SIMM

Figure 2-7. Installing/Removing a SIMM Memory Module

Removing SIMM Modules

1. Remove SIMM modules in correct descending order — from Bank 3 through Bank 0.
2. Gently push the edge of the sockets to the side to release the module. Remove one side of the SIMM module first, and then the other side, to prevent breaking the socket.

2-7 Connecting Parallel, Floppy and Hard Disk Drives

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

- The floppy disk drive cable has seven twisted wires.
- A red mark on a wire typically designates the location of pin 1.
- A single floppy disk drive ribbon cable has 34 wires and two connectors to provide for two floppy disk drives. The connector with twisted wires always connects to drive A, and the connector that does not have the twisted wires always connects to drive B.
- An IDE hard disk drive requires a data ribbon cable with 40 wires, and a SCSI hard disk drive requires a SCSI ribbon cable with 50 wires. A wide SCSI hard disk drive requires a SCSI ribbon cable with 68 wires.
- A single IDE hard disk drive cable has two connectors to provide for two drives. To select an IDE disk drive as C, you would normally set the drive select jumper on the drive to DS1. To select an IDE disk drive as D, you would normally set the drive select jumper on the drive to DS2. Consult the documentation that came with your disk drive for details on actual jumper locations and settings.
- A single SCSI ribbon cable typically has three connectors to provide for two hard disk drives and the SCSI adapter. (Note: most SCSI hard drives are single-ended SCSI devices.) The SCSI ID is determined by jumpers or a switch on the SCSI device. The last internal (and external) SCSI device cabled to the SCSI adapter must be terminated.
- Some drives require a special controller card. Read your disk drive manual for details.

Parallel Port Connector

The parallel port is located on J817. See Table 2-25 for pin definitions.

Table 2-25. Parallel 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	ACJ-	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	NC

Floppy Connector

The floppy connector is located on J85. See Table 2-26 for pin definitions.

Table 2-26. 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

IDE Interfaces

There are no jumpers to configure the on-board IDE interfaces J11
and J12. Refer to Table 2-27 for the pin definitions.

Table 2-27. 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

SCSI Connectors (P6DKS and P6SKS only)

There are no jumpers to configure the on-board SCSI interfaces JA1, JA2 and JA5. Refer to Table 2-28 for the pin definitions for JA2 . Refer to Table 2-29 for the pin definitions for JA1 and JA5.

Table 2-28. 50-pin SCSI Connector Pin Definitions

Pin Number	Function	Pin Number	Function
1	GND	26	-DB (0)
2	GND	27	-DB (1)
3	GND	28	-DB (2)
4	GND	29	-DB (3)
5	GND	30	-DB (4)
6	GND	31	-DB (5)
7	GND	32	-DB (6)
8	GND	33	-DB (7)
9	GND	34	-DB (P)
10	GND	35	GND
11	GND	36	GND
12	Reserved	37	Reserved
13	Open	38	Termpwr
14	Reserved	39	Reserved
15	GND	40	GND
16	GND	41	-ATN
17	GND	42	GND
18	GND	43	-BSY
19	GND	44	-ACK
20	GND	45	-RST
21	GND	46	-MSG
22	GND	47	-SEL
23	GND	48	-C/D
24	GND	49	-REQ
25	GND	50	-I/O

Table 2-29. 68-pin SCSI Connector Pin Definitions

Pin Number	Function	Pin Number	Function
1	GND	35	GND
2	GND	36	-DB (8)
3	GND	37	-DB (9)
4	GND	38	-DB (10)
5	GND	39	-DB (11)
6	GND	40	-DB (12)
7	GND	41	-DB (13)
8	GND	42	-DB (14)
9	GND	43	-DB (15)
10	GND	44	-DB (P1)
11	GND	45	-ACKB
12	GND	46	GND
13	GND	47	-REQB
14	GND	48	-DB (16)
15	GND	49	-DB (17)
16	GND	50	-DB (18)
17	Termpwrb	51	Termpwrb
18	Termpwrb	52	Termpwrb
19	GND	53	-DB (19)
20	GND	54	-DB (20)
21	GND	55	-DB (21)
22	GND	56	-DB (22)
23	GND	57	-DB (23)
24	GND	58	-DB (P2)
25	GND	59	-DB (24)
26	GND	60	-DB (25)
27	GND	61	-DB (26)
28	GND	62	-DB (27)
29	GND	63	-DB (28)
30	GND	64	-DB (29)
31	GND	65	-DB (30)
32	GND	66	-DB (31)
33	GND	67	-DB (P3)
34	GND	68	GND

Chapter 3
Troubleshooting

3-1   Troubleshooting Procedures

Use the following procedures to troubleshoot your system. If you have followed all of the procedures below and still need assistance, refer to the 'Technical Support Procedures' and/or 'Returning Merchandise for Service' section(s) in this chapter.

No Video

Use the following steps for troubleshooting your system configuration.

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

2.   Check for shorted connections, especially under the motherboard.

3.   Check the jumpers settings, clock speed, and voltage settings.

4.   Use the speaker to determine if any beep codes exist. Refer to Appendix C of the AMI BIOS Reference Manual for details about beep codes.
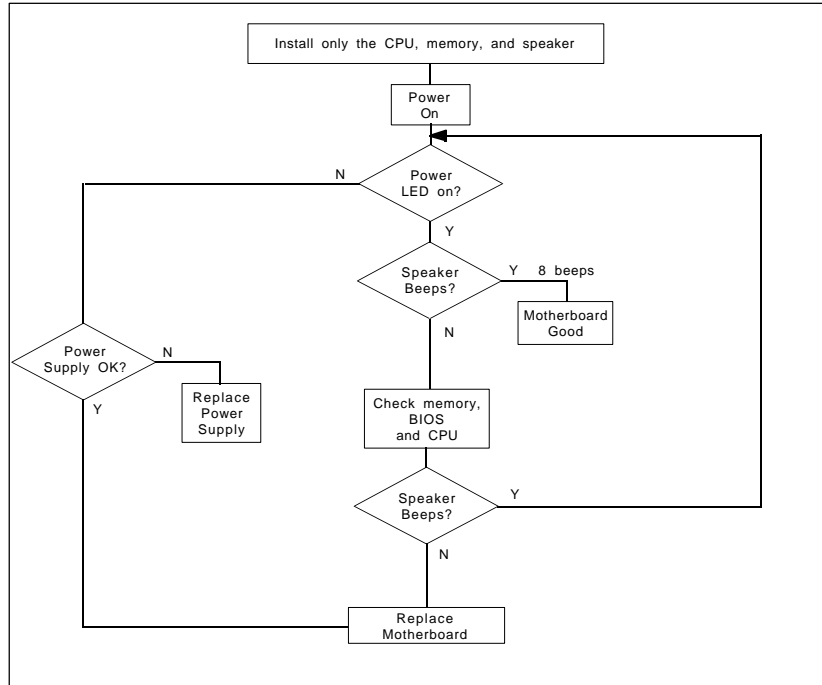
Figure 3-1. Troubleshooting Flowchart

NOTE

If you are a system integrator, VAR or OEM, a POST
diagnostics card is recommended for port 80h codes.
Refer to Appendix D.

Memory Error

If you encounter memory error, follow the procedures below.

1. Check to determine if SIMM modules are improperly installed.
2. Make sure that different types of SIMMs have not been
    installed in different banks (e.g., a mixture of 2MB x 36 and 1
    MB x 36 SIMMs in Banks 0).
3. Determine if different speeds of SIMMs have been installed in
    the same or different banks, and the BIOS setup is configured
    for the fastest speed of RAM used. It is recommended to use
    the same RAM speed for SIMMs in different banks.
4. Check for bad SIMM modules or chips.

Losing the System's Setup Configuration

1. Ensure that you are using a high quality power supply. A poor
    quality power supply may cause the system to lose CMOS
    setup. Refer to Chapter 1 of this manual for details.
2. If the above step does not fix the Setup Configuration prob-
    lem, contact your vendor for repair.

3-2   Technical Support Procedures

1. Go through the 'Troubleshooting Procedures' section in this chapter of the manual before calling Technical Support.
2. BIOS upgrades can be downloaded from the SUPER BBS# (408) 895-2022, 24 hours a day, using 1200-14400 baud, 8 data bits, 1 stop bit and no parity. BIOS upgrades can also be downloaded from our web site at http://www.supermicro.com.

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

3. If you still cannot get the problem resolved, have the following information ready before you call for technical support:

   • BIOS release date/version
   • System board serial number
   • Product model name
   • Invoice number and date
   • System configuration

3-3   Returning Merchandise for Service

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

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

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