ASUS® P3V133

PC133 Motherboard

USER'S MANUAL

USER'S NOTICE

The product name and revision number are both printed on the product itself. Manual revisions are released for each product design represented by the digit before and after the period of the manual revision number. Manual updates are represented by the third digit in the manual revision number.

For previous or updated manuals, BIOS, drivers, or product release information, contact ASUS at http://www.asus.com.tw or through any of the means indicated on the following page.

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Manual Revision:	**1.02 E507**
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FCC & DOC COMPLIANCE

Federal Communications Commission Statement

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING! Any changes or modifications to this product not expressly approved by the manufacturer could void any assurances of safety or performance and could result in violation of Part 15 of the FCC Rules.

Reprinted from the Code of Federal Regulations #47, part 15.193, 1993. Washington DC: Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

1. INTRODUCTION

1.1 How This Manual Is Organized

This manual is divided into the following sections:

1. INTRODUCTION	Manual information and checklist
2. FEATURES	Production information and specifications
3. HARDWARE SETUP	Instructions on setting up the motherboard.
4. BIOS SETUP	Instructions on setting up the BIOS
5. SOFTWARE SETUP	Instructions on setting up the included software
6. SOFTWARE REFERENCE	Reference material for the included software
7. APPENDIX	Optional items and general reference

1.2 Item Checklist

Check that your package is complete. If you discover damaged or missing items, contact your retailer.

- ☑ (1) ASUS Motherboard
- ☑ (1) Universal Retention Mechanism for SECC2/SECC/SEPP processors
- ☑ (1) Ribbon cable for master and slave UltraDMA/66 or UltraDMA/33 IDE drives
- ☑ (1) Ribbon cable for (1) 5.25" and (2) 3.5" floppy disk drives
- ☑ (1) Bag of spare jumper caps
- ☑ (1) Support CD with drivers and utilities
- ☑ (1) This Motherboard User's Manual

- ☐ ASUS IrDA-compliant infrared module (optional)
- ☐ ASUS S370 Series CPU cards (optional)
- ☐ ASUS PCI-L101 Wake-On-LAN 10/100 Ethernet Card (optional)

2.1 The ASUS P3V133

The ASUS P3V133 motherboard is carefully designed for the demanding PC user who wants advanced features processed by the fastest processors.

2.1.1 Specifications

- **Latest Intel Processor Support**

Intel Pentium® III	100MHz FSB, Katmai core	SECC2
Intel Pentium® III B	133MHz FSB, Katmai core	SECC2
Intel Pentium® III E	100MHz FSB, Coppermine core	SECC2
Intel Pentium® III EB	133MHz FSB, Coppermine core	SECC2
Intel Pentium® II	100MHz/66MHz FSB	SECC
Intel Celeron™ III	66MHz FSB	SEPP

- **VIA Apollo Pro133 Chipset:** Features the VIA VT82C693A system controller and VIA VT82C596B PCI to ISA bridge with support for AGP 2x mode; 133/100/66MHz Front Side Bus (FSB); and UltraDMA/66 / UltraDMA/33.
- **PC133 Memory / VCM Support:** Equipped with three Dual Inline Memory Module (DIMM) sockets to support Intel PC133/PC100-compliant (8, 16, 32, 64, 128, 256, or 512MB) or NEC's Virtual Channel (VC) SDRAMs up to 1.5GB. VC SDRAMs is a new DRAM core architecture that dramatically improves the memory system's ability to service multimedia requirements.
- **Multi-Cache:** Supports processors with 512, 256, 128, or 0KB Pipelined Burst Level 2 cache.
- **AGP Slot:** Supports AGP cards for high performance, component level interconnection targeted at 3D graphical applications supporting 133MHz 2X mode.
- **UltraDMA/66 Support:** Comes with an onboard PCI Bus Master IDE controller with two connectors that support four IDE devices on two channels. Supports UltraDMA/66, UltraDMA/33, PIO Modes 3 & 4 and Bus Master IDE DMA Mode 2, and Enhanced IDE devices, such as DVD-ROM, CD-ROM, CD-R/RW, LS-120, and Tape Backup drives.
- **Wake-On-LAN Connector:** Supports Wake-On-LAN activity through an optional ASUS PCI-L101 10/100 Fast Ethernet PCI card (see *7. Appendix*).
- **Wake-On-Ring Connector:** Supports Wake-On-Ring activity through a PCI modem card that supports a WOR connector.
- **PC Health Monitoring:** Provides an easy way to examine and manage system status information, such as CPU and systerm voltages, temperatures, and fan status through the onboard hardware ASUS ASIC and the bundled ASUS PC Probe.

- **SMBus:** Features the System Management Bus interface, which is used to physically transport commands and information between SMBus devices.
- **PCI/ISA Expansion Slots:** Provides four 32-bit PCI (Rev. 2.2) expansion slots, which can support Bus Master PCI cards, such as SCSI or LAN cards (PCI supports up to 133MB/s maximum throughput) and three 16-bit ISA slots.
- **Super Multi-I/O:** Provides two high-speed UART compatible serial ports and one parallel port with EPP and ECP capabilities. UART2 can also be directed from COM2 to the Infrared Module for wireless connections.
- **Enhanced ACPI & Anti-Boot Virus Protection:** Programmable BIOS (Flash EEPROM), offering enhanced ACPI for Windows 98 compatibility, built-in firmware-based virus protection, and autodetection of most devices for virtually automatic setup.
- **IrDA:** Supports an optional infrared port module for wireless interface.
- **Concurrent PCI:** Concurrent PCI allows multiple PCI transfers from PCI master busses to the memory and processor.
- **Universal Retention Mechanism:** Supports a Pentium®III / II processor packaged in a Single Edge Contact Cartridge (SECC2/SECC) or a Celeron™ processor packaged in a Single Edge Processor Package (SEPP).
- **Smart BIOS:** 2MB firmware provides Vcore and CPU/SDRAM frequency adjustments, boot block write protection, and HD/SCSI/MO/ZIP/CD/Floppy boot selection.
- **Integrated Infrared Support:** Integrated IR supports an optional remote control package for wireless interfacing with external peripherals, personal gadgets, or an optional remote controller.

2.1.2Special Features

- **ACPI Ready:** Advanced Configuration Power Interface (ACPI) provides more Energy Saving Features for operating systems that support OS Direct Power Management (OSPM) functionality. With these features implemented in the OS, PCs can be ready around the clock, yet satisfy all the energy saving standards. To fully utilize the benefits of ACPI, an ACPI-supported OS, such as Windows 98 must be used.
- **Easy Installation:** Incorporates BIOS that supports autodetection of hard disk drives, PS/2 mouse, and Plug and Play devices to make the setup of hard disk drives, expansion cards, and other devices virtually automatic.
- **PC'98 Compliant:** Both the BIOS and hardware levels of ASUS smart series motherboards meet PC'98 compliancy. The new PC'98 requirements for systems and components are based on the following high-level goals: Support for Plug and Play compatibility and power management for configuring and managing all system components, and 32-bit device drivers and installation procedures for Windows 95/98/NT.
- **Symbios SCSI BIOS:** Supports optional ASUS SCSI controller cards through the onboard SYMBIOS firmware.

2.1.3Performance Features

- **Concurrent PCI:** Concurrent PCI allows multiple PCI transfers from PCI master busses to the memory and processor.
- **High-Speed Data Transfer Interface:** IDE transfers using UltraDMA/33 Bus Master IDE can handle rates up to 33MB/s. This motherboard with its chipset and support for UltraDMA/66 doubles the UltraDMA/33 burst transfer rate to 66.6MB/s. UltraDMA/66 is backward compatible with both DMA/33 and DMA and with existing DMA devices and systems so there is no need to upgrade current EIDE/IDE drives and host systems. (UltraDMA/66 requires a 40-pin 80-conductor cable to be enabled and/or for UltraDMA Mode 4.)
- **SDRAM Optimized Performance:** Supports the new generation memory - Synchronous Dynamic Random Access Memory (SDRAM) which increases the data transfer rate to 1066MB/s max using PC133-compliant SDRAM.

2.1.4Intelligence

- **Auto Fan Off:** The system fans will power off automatically **even in sleep mode**. This function reduces both energy consumption and **system noise**, and is an important feature in implementing silent PC systems.
- **Dual Function Power Button:** Pushing the power button for less than 4 seconds when the system is in the working state places the system into one of two states: sleep mode or soft-off mode, depending on the BIOS or OS setting (see **PWR Button < 4 Secs** in ***4.5 Power Menu***). When the power button is pressed for more than 4 seconds, the system enters the soft-off mode regardless of the BIOS setting.
- **Fan Status Monitoring and Alarm:** To prevent system overheat and system damage, the CPU, power supply, and system fans can be monitored for RPM and failure. All fans are set for its normal RPM range and alarm thresholds.
- **PS/2 Keyboard/Mouse Power Up:** Keyboard/Mouse Power Up can be enabled or disabled to allow the computer to be powered on by either pressing the space bar, Ctrl-Esc, or Power keys (see ***4.5.1 Power Up Control***).
- **Message LED (requires ACPI OS support):** Turbo LEDs now act as information providers. Through the way a particular LED illuminates, the user can determine if there are messages waiting in the mailbox. A simple glimpse provides useful information to the user.
- **Remote Ring On (requires modem):** This allows a computer to be turned on remotely through an internal or external modem. With this benefit on-hand, users can access vital information from their computers from anywhere in the world!
- **System Resources Alert:** Today's operating systems such as Windows 95/98/NT and OS/2, require much more memory and hard drive space to present enormous user interfaces and run large applications. The system resource monitor will warn the user before the system resources are used up to prevent possible application crashes. Suggestions will give the user information on managing their limited resources more efficiently.
- **Temperature Monitoring and Alert:** CPU temperature is monitored by the ASUS ASIC through the CPU's internal thermal diode (on Pentium III, Pentium II (Deschutes), and PPGA370 Celeron in conjunction with the ASUS S370-D or S370-L CPU card) to prevent system overheat and system damage.
- **Voltage Monitoring and Alert:** System voltage levels are monitored to ensure stable voltage to critical motherboard components. Voltage specifications are more critical for future processors, so monitoring is necessary to ensure proper system configuration and management.
- **Chassis Intrusion Detection:** Supports chassis-intrusion monitoring through the ASUS ASIC. A chassis intrusion event is kept in memory on battery power for more protection.

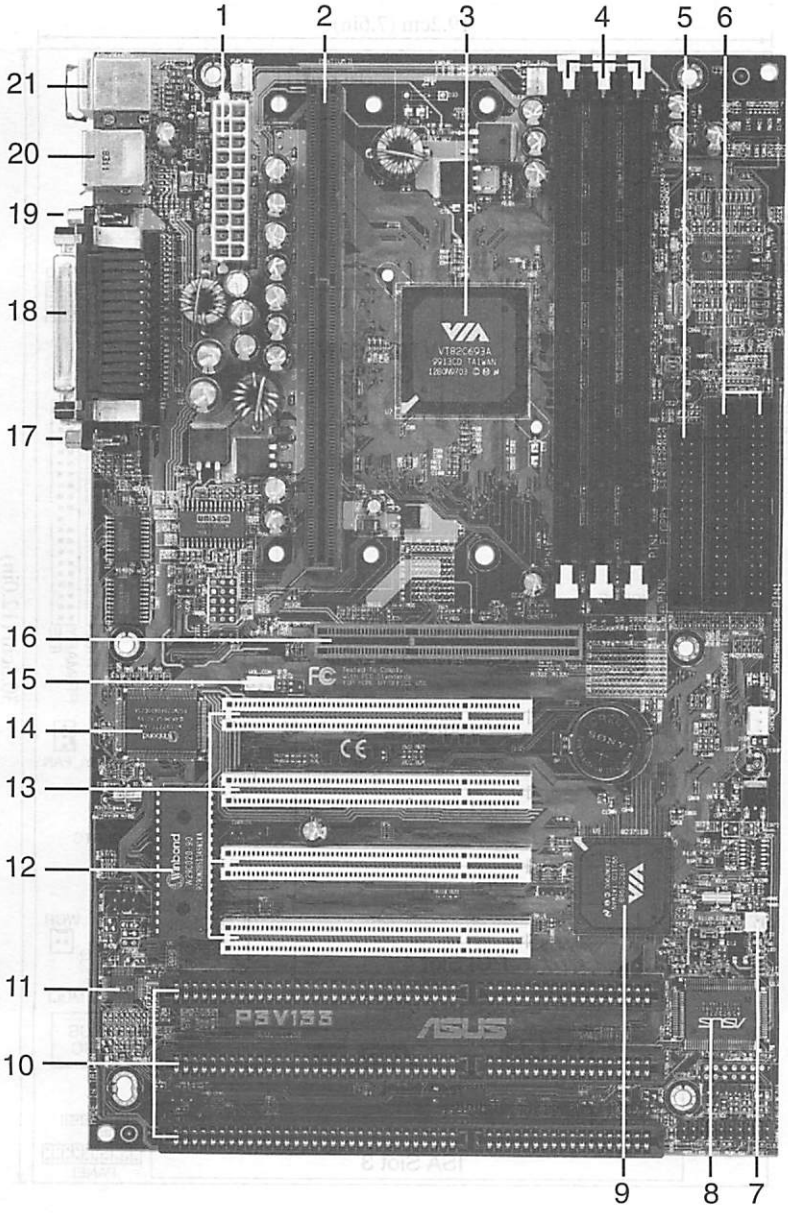
2.2 P3V133 Motherboard Components

See opposite page for locations.

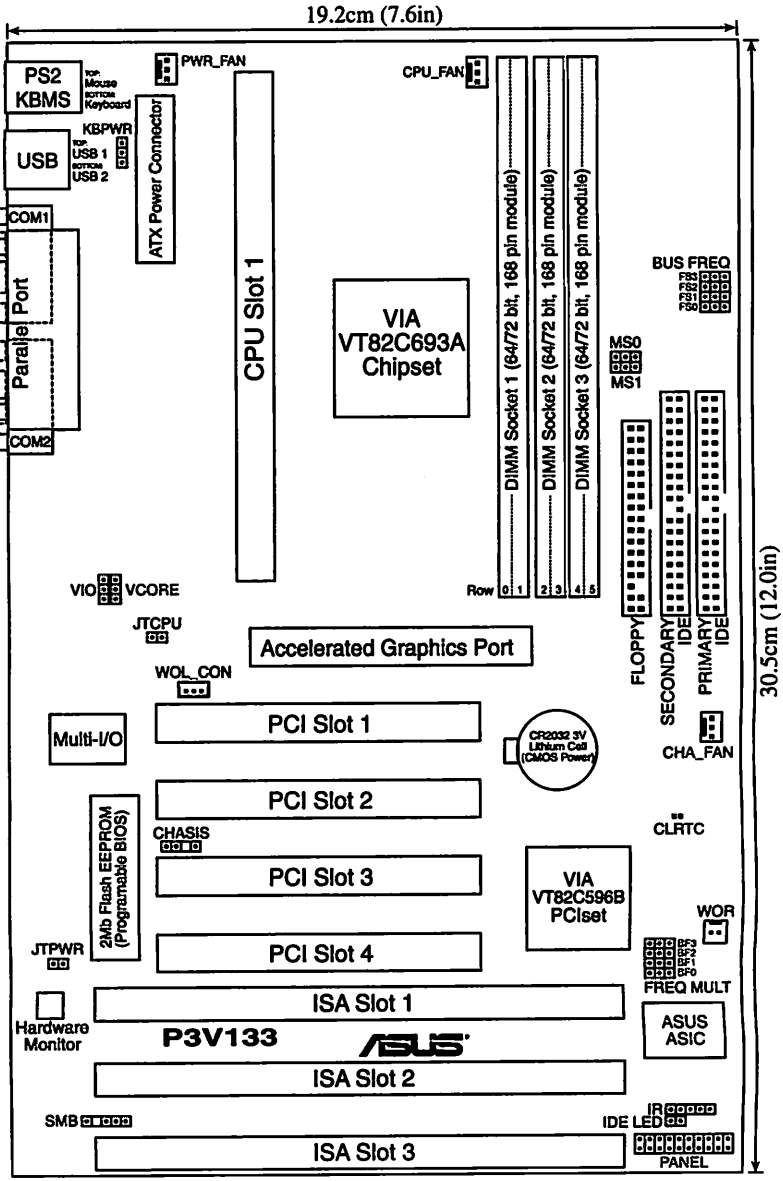
		Location
Processor Support	Slot 1 for Coppermine/Katmai/Mendecino Processors	2
	66MHz to 150MHz bus support	
	(16 external clock settings)	
Chipsets	VIA VT82C693A System Controller	3
	VIA VT82C596B PCI to ISA Bridge	9
	2 Mbit Programmable Flash EEPROM	12
	Multi-I/O and Keyboard Controller	14
Main Memory	Maximum 1.5GB support	
	3 DIMM Sockets	4
	PC133 SDRAM support	
Expansion Slots	4 PCI Slots	13
	3 ISA Slot	10
	1 Accelerated Graphics Port (AGP) Slot	16
System I/O	2 IDE Connectors (UltraDMA33 Support)	6
	1 Floppy Disk Driver Connector	5
	1 Serial COM1 Connector	19
	1 Serial COM2 Connector	17
	1 Parallel Port Connector	18
	2 USB Connectors	20
	1 PS/2 Mouse Connector	(Top) 21
	1 PS/2 Keyboard Connector	(Bottom) 21
3D Graphics	VIA VT82C693A System Controller	3
Network Feature	Wake-On-LAN Connector	15
	Wake-On-Ring Connector	7
Hardware Monitoring	Hardware Monitor	11
	3 Fan Power and Speed Monitoring Connectors	
Power	ATX Power Supply Connector	1
Form Factor	ATX, 19.2cm x 30.5cm (7.6" x 12")	

2. FEATURES

P3V133 Motherboard Components Locations



3.1 P3V133 Motherboard Layout



3.2 Layout Contents

*The optional onboard hardware monitor uses the address 290H-297H so legacy ISA cards must not use this address otherwise conflicts will occur.

3.3 Hardware Setup Steps

Before using your computer, you must complete the following steps:

1. **Check Motherboard Settings**
2. **Install Memory Modules**
3. **Install the Central Processing Unit (CPU)**
4. **Install Expansion Cards**
5. **Connect Ribbon Cables, Panel Wires, and Power Supply**
6. **Setup the BIOS Software**

3.4 Motherboard Settings

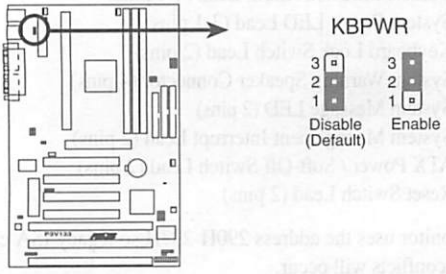
This section explains in detail how to change your motherboard's function settings through the use of switches and/or jumpers.

WARNING! Computer motherboards and expansion cards contain very delicate Integrated Circuit (IC) chips. To protect them against damage from static electricity, you should follow some precautions whenever you work on your computer.

1. Unplug your computer when working on the inside.
2. Use a grounded wrist strap before handling computer components. If you do not have one, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case.
3. Hold components by the edges and try not to touch the IC chips, leads or connectors, or other components.
4. Place components on a grounded antistatic pad or on the bag that came with the component whenever the components are separated from the system.

Jumpers

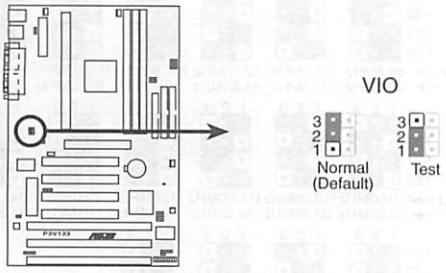
1. **Keyboard Power Up Setting (KBPWR)**
   This allows you to disable or enable the keyboard power up function. Set to *Enable* if you want to use your keyboard (by pressing <Spacebar>) to power up your computer. This feature requires an ATX power supply that can supply at least 300mA on the +5VSB lead. The default is set to *Disable* because not all computers have the appropriate ATX power supply. Your computer will not function if you set this to *Enable* and if you do not have the right ATX power supply.



P3V133 Keyboard Power Up

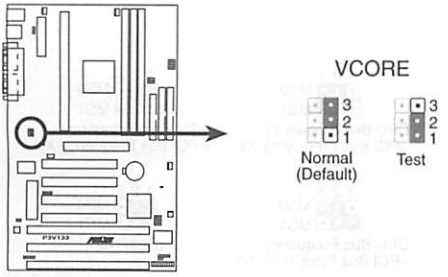
2. **I/O Voltage Setting (VIO)**
This jumper allows you to select the voltage supplied to the DRAM, chipset, AGP, and the CPU's I/O buffer.

IMPORTANT: Setting this jumper to *Test* may reduce system life. Leave on default setting of *Normal*.



P3V133 Input/Output Voltage Selection

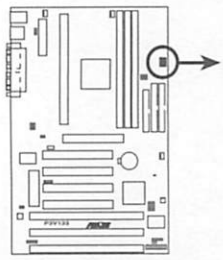
3. **Voltage Regulator Output Setting (VCORE)**
This jumper sets the core voltage supplied to the microprocessor.



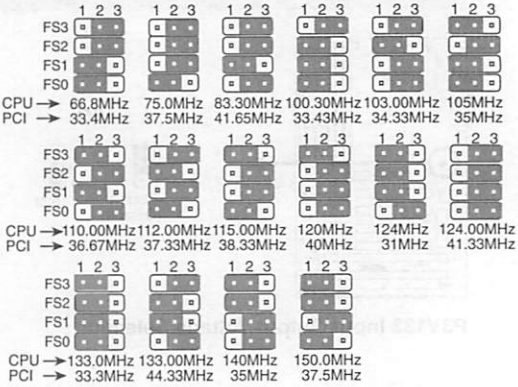
P3V133 CPU Core Voltage Selection

WARNING! Using a higher voltage *Test* may help when overclocking but may result in the shortening of your computer component's life. It is strongly recommended that you leave both the VIO and VCORE jumpers on their default settings.

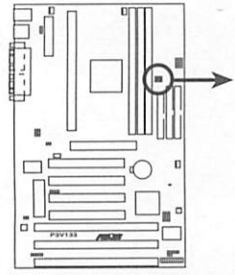
4. **CPU Bus Frequency Selection (FS0, FS1, FS2, FS3)**
This option tells the clock generator what frequency to send to the CPU, DRAM, and motherboard chipset. This allows the selection of the CPU's *External* frequency (or *BUS Clock*). The BUS Clock multiplied by the BUS Multiple equals the CPU's *Internal* frequency (the advertised CPU speed).

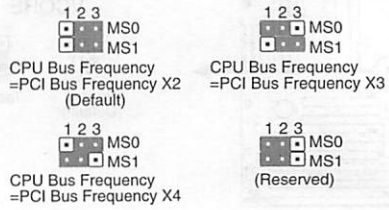


P3V133 CPU External Frequency Selection



5. **CPU:PCI Bus Frequency Multiple Selection (MS0, MS1)**
This option sets the frequency ratio between the CPU bus frequency and the PCI bus frequency. The default sets the CPU bus frequency to be twice of the PCI bus frequency.

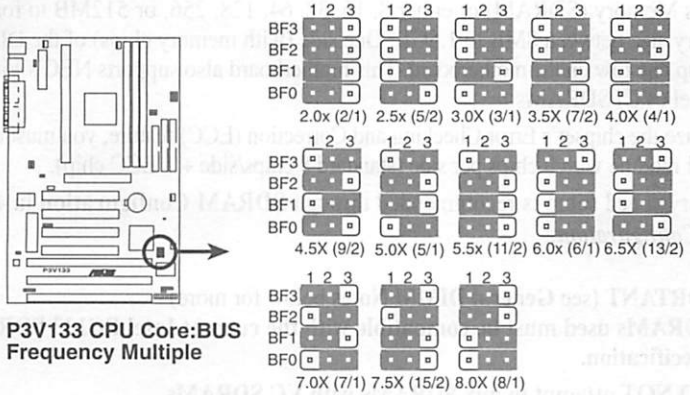




P3V133 CPU:PCI Frequency Multiple Selection

IMPORTANT: The *CPU:PCI Bus Frequency Multiple* must be set in conjunction with the *CPU Bus Frequency*. Otherwise, your system will not start. For example, if your CPU's Bus Frequency is 66MHz, the CPU:PCI Bus Frequency Multiple should be 2-3 (MS0), 2-3 (MS1), unless otherwise indicated. See table on opposite page for the combinations.

6. **CPU Core:BUS Frequency Multiple (BF0, BF1, BF2, BF3)**
This option sets the frequency multiple between the *Internal* frequency of the CPU and the CPU's *External* frequency. These must be set in conjunction with the *CPU Bus Frequency.*



P3V133 CPU Core:BUS Frequency Multiple

Set the jumpers by the Internal speed of your processor as follows:

				(CPU BUS Freq.)				(Freq. Multiple)				CPU:PCI	
Intel CPU Model	Freq.	Mult.	BUS F.	FS0	FS1	FS2	FS3	BF0	BF1	BF2	BF3	MS0	MS1
Pentium III	733MHz	5.5x	133MHz	[1-2]	[1-2]	[1-2]	[1-2]	[1-2]	[1-2]	[1-2]	[2-3]	[2-3]	[1-2]
Pentium III	667MHz	5.0x	133MHz	[1-2]	[1-2]	[1-2]	[1-2]	[2-3]	[1-2]	[1-2]	[2-3]	[2-3]	[1-2]
Pentium III	700MHz	7.0x	100MHz	[1-2]	[1-2]	[1-2]	[2-3]	[2-3]	[1-2]	[2-3]	[1-2]	[1-2]	[2-3]
Pentium III	650MHz	6.5x	100MHz	[1-2]	[1-2]	[1-2]	[2-3]	[1-2]	[2-3]	[2-3]	[1-2]	[1-2]	[2-3]
Pentium III	600MHz	6.0x	100MHz	[1-2]	[1-2]	[1-2]	[2-3]	[2-3]	[2-3]	[2-3]	[1-2]	[1-2]	[2-3]
Pentium III	550MHz	5.5x	100MHz	[1-2]	[1-2]	[1-2]	[2-3]	[1-2]	[1-2]	[1-2]	[2-3]	[1-2]	[2-3]
Pentium III	500MHz	5.0x	100MHz	[1-2]	[1-2]	[1-2]	[2-3]	[2-3]	[1-2]	[1-2]	[2-3]	[1-2]	[2-3]
Pentium II/III	450MHz	4.5x	100MHz	[1-2]	[1-2]	[1-2]	[2-3]	[1-2]	[2-3]	[1-2]	[2-3]	[1-2]	[2-3]
Pentium II	400MHz	4.0x	100MHz	[1-2]	[1-2]	[1-2]	[2-3]	[2-3]	[2-3]	[1-2]	[2-3]	[1-2]	[2-3]
Pentium II	350MHz	3.5x	100MHz	[1-2]	[1-2]	[1-2]	[2-3]	[1-2]	[1-2]	[2-3]	[2-3]	[1-2]	[2-3]
Celeron	466MHz	7.0x	66MHz	[1-2]	[1-2]	[2-3]	[2-3]	[2-3]	[1-2]	[2-3]	[1-2]	[2-3]	[2-3]
Celeron	433MHz	6.5x	66MHz	[1-2]	[1-2]	[2-3]	[2-3]	[1-2]	[2-3]	[2-3]	[1-2]	[2-3]	[2-3]
Celeron	400MHz	6.0x	66MHz	[1-2]	[1-2]	[2-3]	[2-3]	[2-3]	[2-3]	[2-3]	[1-2]	[2-3]	[2-3]
Pentium II/Celeron	333MHz	5.0x	66MHz	[1-2]	[1-2]	[2-3]	[2-3]	[2-3]	[1-2]	[1-2]	[2-3]	[2-3]	[2-3]
Pentium II/Celeron	300MHz	4.5x	66MHz	[1-2]	[1-2]	[2-3]	[2-3]	[1-2]	[2-3]	[1-2]	[2-3]	[2-3]	[2-3]
Pentium II/Celeron	266MHz	4.0x	66MHz	[1-2]	[1-2]	[2-3]	[2-3]	[2-3]	[2-3]	[1-2]	[2-3]	[2-3]	[2-3]
Pentium II	233MHz	3.5x	66MHz	[1-2]	[1-2]	[2-3]	[2-3]	[1-2]	[1-2]	[2-3]	[2-3]	[2-3]	[2-3]

For updated processor settings, visit the ASUS web site (see **ASUS CONTACT INFORMATION**)

NOTE: Overclocking your processor is not recommended. It may result in a slower speed. Voltage Regulator Output Selection (VID) is not required for Pentium III/II processors because they send VID signals directly to the onboard power regulator.

3.5 System Memory (DIMM)

This motherboard uses only Dual Inline Memory Modules (DIMMs). Three sockets are available for **3.3Volt** (power level) unbuffered Synchronous Dynamic Random Access Memory (SDRAM) of either 8, 16, 32, 64, 128, 256, or 512MB to form a memory size between 8MB to 1.5GB. One side (with memory chips) of the DIMM takes up one row on the motherboard. This motherboard also supports NEC's Virtual Channel (VC) SDRAMs.

To utilize the chipset's Error Checking and Correction (ECC) feature, you must use a DIMM module with 9 chips per side (standard 8 chips/side + 1 ECC chip).

Memory speed setup is recommended through **SDRAM Configuration** in ***4.4.1 Chip Configuration***.

IMPORTANT (see **General DIMM Notes** below for more)

- **SDRAMs used must be compatible with the current Intel PC133 SDRAM specification.**
- **DO NOT attempt to mix SDRAMs with VC SDRAMs.**

Install memory in any combination as follows:

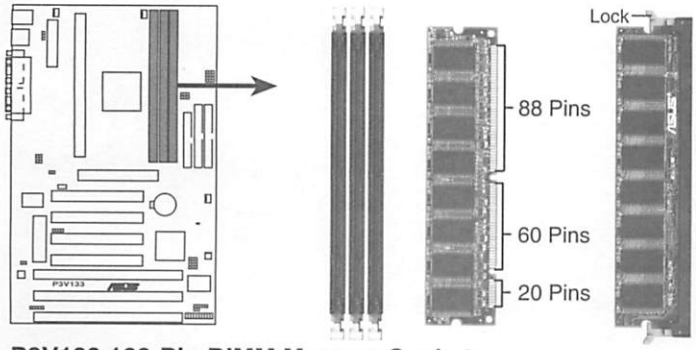
DIMM Location	168-pin DIMM		Total Memory
Socket 1 (Rows 0&1)	SDRAM 8, 16, 32, 64, 128, 256, 512MB	x1	
Socket 2 (Rows 2&3)	SDRAM 8, 16, 32, 64, 128, 256, 512MB	x1	
Socket 3 (Rows 4&5)	SDRAM 8, 16, 32, 64, 128, 256, 512MB	x1	
	Total System Memory (Max 1.5GB)	=	

NOTES

- **DIMMs that have more than 18 chips are not supported on this motherboard.**
- **For the system CPU bus to operate 100MHz, use only PC100-compliant DIMMs.**
- ASUS motherboards support SPD (Serial Presence Detect) DIMMs. This is the memory of choice for best performance vs. stability.
- SDRAM chips are generally thinner with higher pin density than EDO (Extended Data Output) chips.
- BIOS shows SDRAM memory on bootup screen.
- Single-sided DIMMs come in 16, 32, 64, 128, or 256MB; double-sided come in 32, 64, 128, 256, or 512MB.

DIMM Memory Installation Procedures:

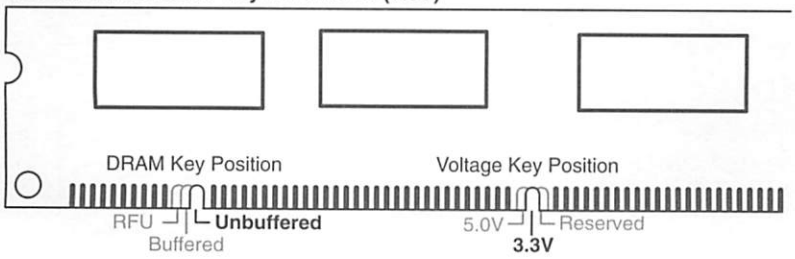
Insert the module(s) as shown. Because the number of pins are different on either side of the breaks, the module will only fit in the orientation as shown. DRAM SIMM modules have the same pin contacts on both sides. SDRAM DIMMs have different pin contacts on each side and therefore have a higher pin density.



P3V133 168-Pin DIMM Memory Sockets

The DIMMs must be 3.3Volt unbuffered SDRAMs. To determine the DIMM type, check the notches on the DIMMs (see figure below).

168-Pin DIMM Notch Key Definitions (3.3V)



The notches on the DIMM will shift between left, center, or right to identify the type and also to prevent the wrong type from being inserted into the DIMM slot on the motherboard. You must tell your retailer the correct DIMM type before purchasing. This motherboard supports four clock signals.

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3.6 Central Processing Unit (CPU)

NOTE: The following pictures are provided for reference purposes only. The appearance of your retention mechanism and fan may be different from the following examples.

Your motherboard provides a Slot 1 connector for a Pentium® III processor packaged in a Single Edge Contact Cartridge 2 (SECC2), a Pentium® II processor packaged in SECC, or a Celeron™ processor packaged in a Single Edge Processor Package (SEPP). An ASUS S370-133 CPU card can allow Socket 370 processors to be used on any ASUS motherboard with the Slot 1 connector (See ***7.1 ASUS S370-133 CPU Card*** for instructions on using this card).

Pentium II processor packaged in an SECC with heatsink and fan (top view)

Pentium III (in an SECC2) with heatsink and fan
NOTE: The SEPP fan (for Celeron processors) is similar to SECC2 fan except that the clamping design is different.

3.6.1 Quick CPU Installation Procedure

1. Attach the heatsink to the processor with thermal grease and retention clip. The recommended heatsinks (see section on recommended heatsinks for Pentium III / II processors for more information) for the boxed Pentium III / II and Celeron processors are those with three-pin fans that can be connected to the fan connectors on the motherboard.

WARNING! Be sure that there is sufficient air circulation across the processor's heatsink by regularly checking that your CPU fan is working. Without sufficient circulation, the processor could overheat and damage both the processor and the motherboard. You may install an auxiliary chassis fan, if necessary.

2. Install the Universal Retention Mechanism onto the motherboard.
3. Insert the processor.

3.6.2 Attaching the Heatsink

NOTE: If provided, you should follow the heatsink attachment instructions that came with your heatsink or processor. The following steps are provided only as a general guide and may not reflect those for your heatsink.

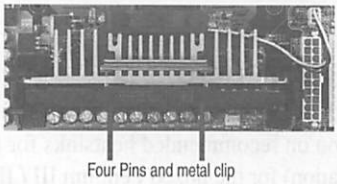
1. Attach the heatsink to the processor core with a good quality thermal interface material.
2. Mount the heatsink to the processor package.

Using SECC fan with Pentium® II

Push the two lock arms one direction to clamp the heatsink onto the processor and the other direction to release.

Using SECC2 fan with Pentium® III

Insert the four heatsink's pins through the holes of the SECC2. Place the metal clip on the ends of the pins and slide until it locks into place.



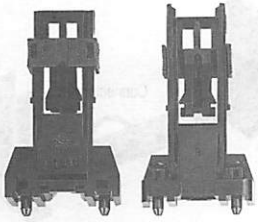
NOTE: The SEPP heatsink and fan (for Intel Celeron processors) is similar to the SECC2 heatsink and fan except that the clamping design is different.

WARNING! Make sure the heatsink is mounted tightly against the SECC2, SECC, or SEPP; otherwise, the CPU will overheat. You may install an auxiliary fan to provide adequate circulation across the processor's passive heatsink.

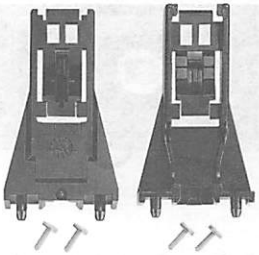
3.6.3 Installing the Universal Retention Mechanism

Your motherboard comes with a set of Universal Retention Mechanism (URM), which supports Pentium III / II and Celeron processors. There are two types of URMs: (A) With Integrated Retainer Pins and (B) With Separate Retainer Pins.

URM (A)

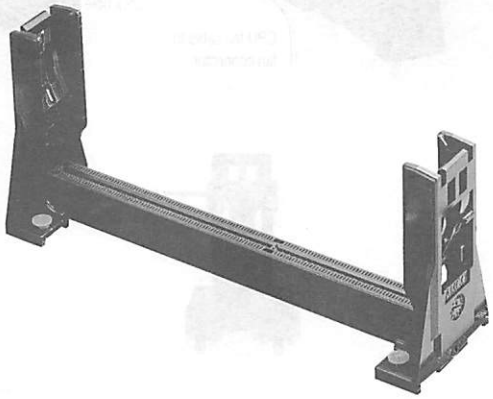


URM (B)



1. Place the motherboard on the anti-static foam that was shipped with the motherboard. Do not place the motherboard on a hard surface while installing the URM as the black fastener sleeves must protrude through the bottom of the motherboard.
2. Locate the Slot 1 connector on the motherboard.
3. Position the retention mechanism on either side of the Slot 1 connector.
4. Making sure that the top retainer pins are not pushed in, press down on the retention brackets until the black fastener sleeves fit snugly against the board.

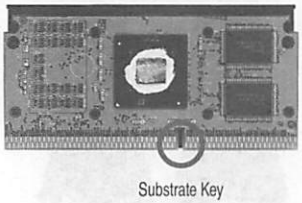
5. Push the four retainer pins completely down into the black fastener sleeves until the head of each pin is securely seated.

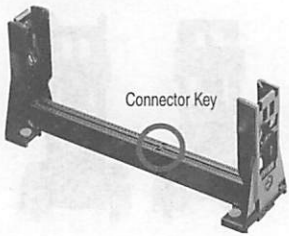


3.6.4 Installing the Processor

NOTE: The following steps assume that you have already attached the heatsink and installed the URM into your motherboard.

1. Make sure that the processor substrate key is aligned with the Slot 1 connector key.



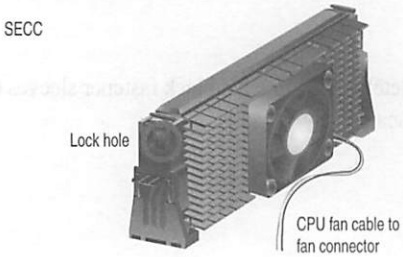


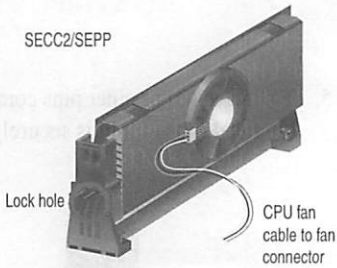
2. Push down firmly but gently the SECC2/SECC/SEPP into the URM until it snaps into place.

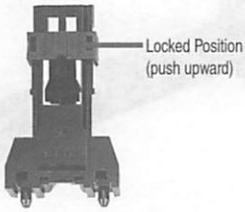
NOTE: The processor edge fingers must be kept parallel to the connector or else misalignment will occur.

SECC for Pentium II only: Secure the SECC in place by pushing the two SECC locks outward so that the locks show through the retention mechanism's lock holes.

SECC2/SEPP: When engaged, the T-bars lock into the slots at the two ends of the SECC2/SEPP heatsink.

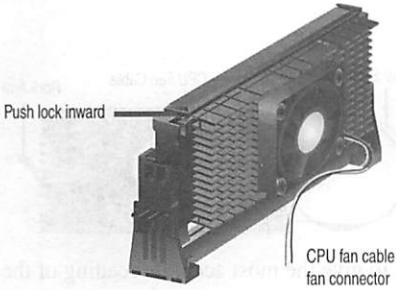


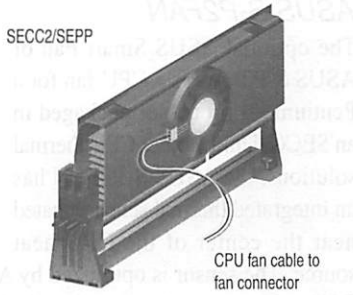




3.6.5 Removing the Processor

SECC: Push the SECC's two locks inward to disengage the latch feature and firmly lift the SECC assembly out of the URM.





SECC2/SEPP:

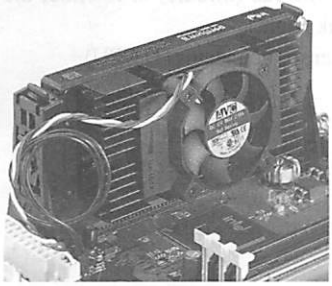
URM (A): Unlock the URM by pushing the two locks down and then pull the SECC2/SEPP assembly out.

URM (B): Place one hand on the heatsink and your other thumb on the top of one of the URMs. Push the URM away from the assembly with your thumb while you rotate the processor out of the slot 1 connector with the other.

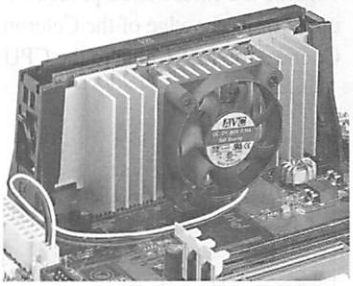
CAUTION! You may wear gloves to protect your hands from the sharp edges when removing SECC2/SEPP processors.

3.6.6 Recommended Heatsinks for Slot 1 Processors

The recommended heatsinks for the Slot 1 processors are those with three-pin fans, such as the ASUS Smart Fan, that can be connected to the motherboard's CPU fan connector. These heatsinks dissipate heat more efficiently and with an optional hardware monitor, they can monitor the fan's RPM and use the alert function with the Intel LANDesk Client Manager (LDCM) or the ASUS PC Probe software.



SECC Heatsink & Fan



SECC2 Heatsink & Fan

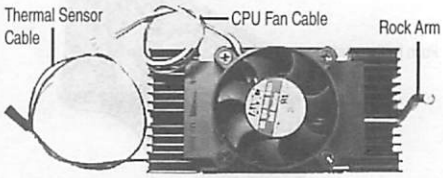
NOTE: The SEPP heatsink and fan (for Intel Celeron processors) is similar to the SECC2 heatsink and fan except that the clamping design is different.

3.6.7 ASUS Smart Thermal Solutions

ASUS provides two smart solutions to Slot 1 CPU thermal problems: the **ASUS Smart Fan** or **ASUS S-P2FAN** and the **ASUS P2T-Cable**.

ASUS S-P2FAN

The optional ASUS Smart Fan or ASUS S-P2FAN is a CPU fan for a Pentium® II processor packaged in an SECC. Unlike other CPU thermal solutions, the ASUS S-P2FAN has an integrated thermal sensor located near the center of the CPU heat source. The sensor is optimized by ASUS to give the most accurate reading of the CPU temperature, thus provides the best protection to your computer system.

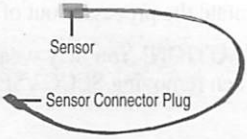


To Use the ASUS S-P2FAN

See ***3.6.2 Attaching the Heatsink*** for the relevant procedures. Note that the S-P2FAN comes with a rock arm design for easy FAN/CPU installation.

ASUS P2T-Cable

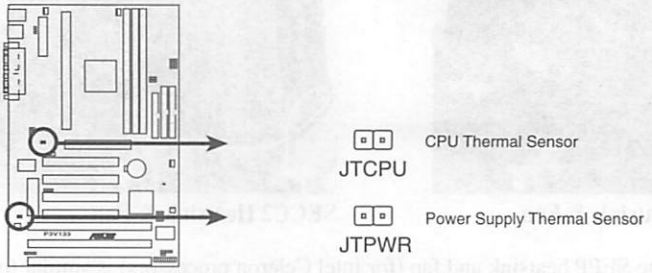
The optional ASUS P2T-Cable can be used for a Pentium® III / II processor packaged in an SECC/SECC2 or a Celeron™ processor packaged in an SEPP.



WARNING! Do not insert the sensor between the processor and heatsink, otherwise, it will cause damage to the P2T-Cable.

To Use the ASUS P2T-Cable

1. Simply peel off the tab from the sensor and then stick the sensor near the middle edge of the Intel boxed processor heatsink with fan (middle) or to either the upper or lower edge of the Celeron™ heatsink (right).
2. Connect the P2T-Cable to the CPU thermal sensor connector (JTCPU).



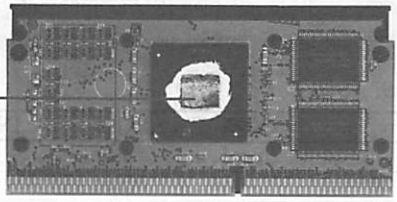
P3V133 Thermal Sensor Connectors

3.6.8 Precautions

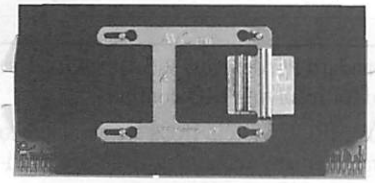
Operating a processor at temperatures above its maximum specified operating temperature will shorten the processor lifetime and may cause unreliable operation. To prevent system overheat and/or damage, it is important to have accurate temperature readings of the processor core (the main source of power dissipation) for system thermal management. Included inside Pentium III, Pentium II (Deschutes), FC-PGA370 Celeron, and PPGA370 Celeron processors is a thermal sensor that is connected to the internal thermal diode.

Unlike other motherboards, this motherboard was designed to acquire thermal data directly from the processor thermal diode. Therefore, the CPU temperature reported may be higher than those from motherboards that take readings from thermal sensors external to the processor. This is not a cause for alarm. If, however, the BIOS and/or your hardware monitoring program is reporting a CPU temperature above the threshold, check the following:

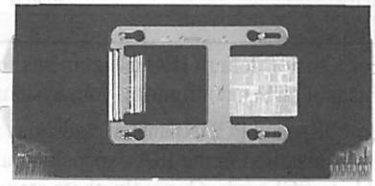
1. An Intel recommended fan heatsink is used.
2. Good quality thermal interface material is used.
3. The heatsink is correctly installed onto the processor with a strong retention clip.
4. There is no visible gap between the processor die and heatsink.



Example of a correctly installed retention clip



Example of an incorrectly installed retention clip



3.7 Expansion Cards

WARNING! Unplug your power supply when adding or removing expansion cards or other system components. Failure to do so may cause severe damage to both your motherboard and expansion cards.

Expansion Card Installation Procedure

1. Read the documentation for your expansion card and make any necessary hardware or software settings for your expansion card, such as jumpers.
2. Remove your computer system's cover and the bracket plate on the slot you intend to use. Keep the bracket for possible future use.
3. Carefully align the card's connectors and press firmly.
4. Secure the card on the slot with the screw you removed above.
5. Replace the computer system's cover.
6. Set up the BIOS if necessary
   (such as *IRQ xx Used By ISA: Yes* in ***4.4.3 PCI Configuration***)
7. Install the necessary software drivers for your expansion card.

Assigning IRQs for Expansion Cards

Some expansion cards need an IRQ to operate. Generally, an IRQ must be exclusively assigned to one use. In a standard design, there are 16 IRQs available but most of them are already in use, leaving 6 IRQs free for expansion cards. If your motherboard has **PCI** audio onboard, an additional IRQ will be used. If your motherboard also has **MIDI** enabled, another IRQ will be used, leaving 4 IRQs free.

IMPORTANT: If using PCI cards on shared slots, make sure that the drivers support "Share IRQ" or that the cards do not need IRQ assignments. Conflicts will arise between the two PCI groups that will make the system unstable or cards inoperable.

Interrupt Request Table

	INT-A	INT-B	INT-C	INT-D
PCI slot 1	shared	--	--	--
PCI slot 2	--	shared	--	--
PCI slot 3	--	--	shared	--
PCI slot 4	--	--	--	shared
AGP	shared	----	--	--
USB	--	--	--	shared

For a list of default IRQ assignments for standard PC devices, see *Appendix*. Use this table when configuring your system and for resolving IRQ conflicts.

Both ISA and PCI expansion cards may require IRQs. System IRQs are available to cards installed in the ISA expansion bus first, then any remaining IRQs are available to PCI cards. Currently, there are two types of ISA cards.

The original ISA expansion card design, now referred to as legacy ISA cards, requires that you configure the card's jumpers manually and then install it in any available slot on the ISA bus. To see a map of your used and free IRQs in Windows 98, the **Control Panel** icon in **My Computer**, contains a **System** icon, which gives

you a **Device Manager** tab. Double-clicking on a specific hardware device gives you the **Resources** tab which shows the Interrupt number and address. Double-click **Computer** to see all the interrupts and addresses for your system. Make sure that no two devices use the same IRQ or your computer will experience problems when those two devices are in use at the same time.

To simplify this process, this motherboard complies with the Plug and Play (PNP) specification which was developed to allow automatic system configuration whenever a PNP-compliant card is added to the system. For PNP cards, IRQs are assigned automatically from those available.

If the system has both legacy and PNP ISA cards installed, IRQs are assigned to PNP cards from those not used by legacy cards. The PCI and PNP configuration of the BIOS setup utility can be used to indicate which IRQs are being used by legacy cards. For older legacy cards that do not work with the BIOS, you can contact your vendor for an ISA Configuration Utility.

An IRQ number is automatically assigned to PCI expansion cards after those used by legacy and PNP ISA cards. In the PCI bus design, the BIOS automatically assigns an IRQ to PCI cards that require an IRQ. To install a PCI card, you need to set the INT (interrupt) assignment. Since all the PCI slots on this motherboard use an INTA #, be sure that the jumpers on your PCI cards are set to INTA.

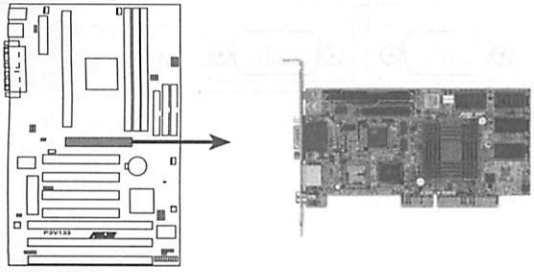
Assigning DMA Channels for ISA Cards

Some ISA cards, both legacy and PNP, may also need to use a DMA (Direct Memory Access) channel. DMA assignments for this motherboard are handled the same way as the IRQ assignment process described earlier. You can select a DMA channel in the PCI and PNP configuration section of the BIOS Setup utility.

IMPORTANT: To avoid conflicts, reserve the necessary IRQs and DMAs for legacy ISA cards (see ***4.4.3 PCI Configuration***. Choose *Yes* in *IRQ xx Used By ISA* and *DMA x Used By ISA* for those IRQs and DMAs you want to reserve).

Accelerated Graphics Port (AGP)

This motherboard provides an accelerated graphics port (AGP) slot to support a new generation of graphics cards with ultra-high memory bandwidth, such as an AGP graphics accelerator.



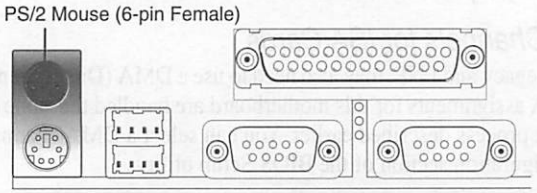
P3V133 Accelerated Graphics Port (AGP)

3.8 External Connectors

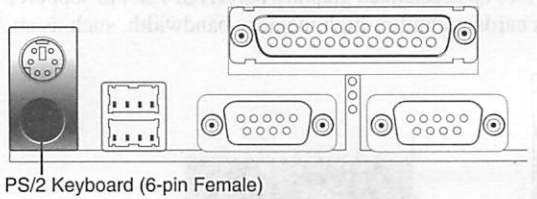
WARNING! Some pins are used for connectors or power sources. These are clearly distinguished from jumpers in the motherboard layout. Placing jumper caps over these connectors will cause damage to your motherboard.

IMPORTANT: Ribbon cables should always be connected with the red stripe on the Pin 1 side of the connector. The four corners of the connectors are labeled on the motherboard. Pin 1 is the side closest to the power connector on hard drives and floppy drives. IDE ribbon cable must be less than 46 cm (18 in), with the second drive connector no more than 15 cm (6 in) from the first connector.

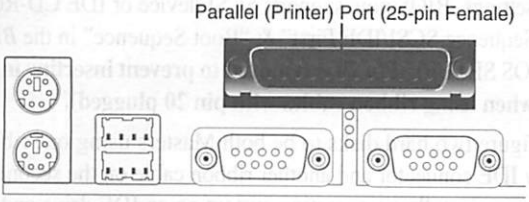
1. **PS/2 Mouse Connector (6-pin female)**
   The system will direct IRQ12 to the PS/2 mouse if one is detected. If not detected, expansion cards can use IRQ12. See "PS/2 Mouse Control" in *BIOS Features Setup* of BIOS SETUP.



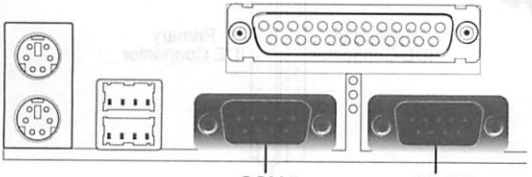
2. **PS/2 Keyboard Connector (6-pin female)**
   This connection is for a standard keyboard using an PS/2 plug (mini DIN). **This connector will not allow standard AT size (large DIN) keyboard plugs. You may use a DIN to mini DIN adapter on standard AT keyboards.**



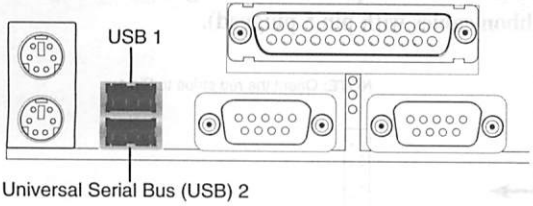
3. Parallel Port Connector (25-pin female)
You can enable the parallel port and choose the IRQ through "Onboard Parallel Port" in *Chipset Features Setup* of BIOS SETUP. **NOTE**: Serial printers must be connected to the serial port.



4. Serial Port COM1 and COM2 Connectors (Two 9-pin male)
The two serial ports can be used for pointing devices or other serial devices. See "Onboard Serial Port" in *Chipset Features Setup* of BIOS SETUP.

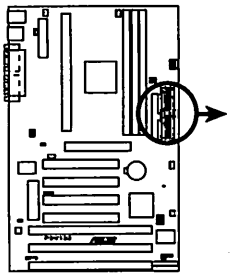


5. Universal Serial BUS Port Connectors 1 & 2 (Two 4-pin female)
Two USB ports are available for connecting USB devices.

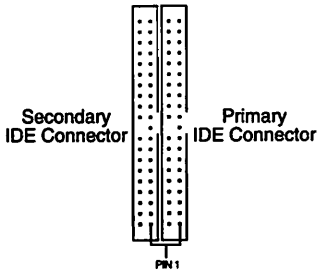


6. **Primary / Secondary IDE Connectors (Two 40-1pin IDE)**
These connectors support the provided IDE hard disk ribbon cable. After connecting the single end to the board, connect the two plugs at the other end to your hard disk(s). If you install two hard disks, you must configure the second drive to Slave mode by setting its jumper accordingly. Refer to the documentation of your hard disk for the jumper settings. BIOS now supports SCSI device or IDE CD-ROM bootup (see "HDD Sequence SCSI/IDE First" & "Boot Sequence" in the *BIOS Features Setup* of BIOS SETUP) **(Pin 20 is removed to prevent inserting in the wrong orientation when using ribbon cables with pin 20 plugged).**

TIP: You may configure two hard disks to be both Masters using one ribbon cable on the primary IDE connector and another ribbon cable on the secondary IDE connector. You may install one operating system on an IDE drive and another on a SCSI drive and select the boot disk through BIOS Features Setup.

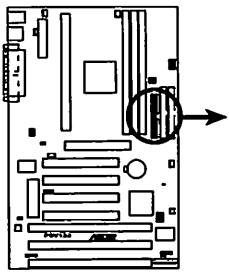


NOTE: Orient the red stripe to PIN 1.

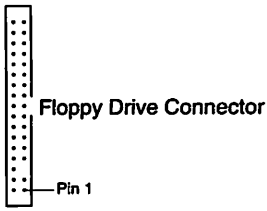


P3V133 IDE Connectors

7. **Floppy Disk Drive Connector (34-1pin FLOPPY)**
This connector supports the provided floppy disk drive ribbon cable. After connecting the single end to the board, connect the two plugs on the other end to the floppy drives. **(Pin 5 is removed to prevent inserting in the wrong orientation when using ribbon cables with pin 5 plugged).**



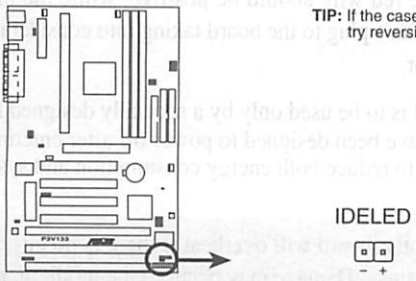
NOTE: Orient the red stripe to Pin 1.



P3V133 Floppy Disk Drive Connector

8. IDE Device Activity LED (2-pin IDELED)

This connector supplies power to the cabinet's IDE device activity LED. Read and write activity by devices connected to the Primary or Secondary IDE connectors will cause the LED to light up.

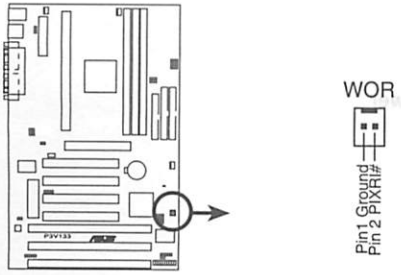


P3V133 IDE Activity LED

9. Wake-On-Ring Connector (2-pin WOR)

This connector connects to internal modem cards with a Wake-On-Ring output. The connector powers up the system when a ringup packet or signal is received through the internal modem card. **NOTE:** For external modems, Wake-On-Ring is detected through the COM port.

IMPORTANT: This feature requires that the PWR UP On Modem Act Power Up Control is set to Enabled (see Power Management Setup under BIOS SETUP).

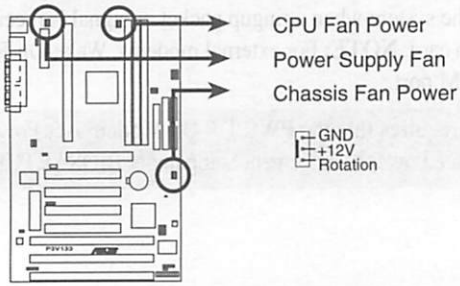


P3V133 Wake-On-Ring Connector

10. Chassis/CPU/Power Supply Fan Connectors (3-pin CHA_,CPU_,PWR_FAN)
These connectors support cooling fans of 500mA (6W) or less. Orientate the fans so that the heat sink fins allow airflow to go across the onboard heat sink(s) instead of the expansion slots. Depending on the fan manufacturer, the wiring and plug may be different. The red wire should be positive, while the black should be ground. Connect the fan's plug to the board taking into consideration the polarity of the this connector.

NOTES: The "Rotation" signal is to be used only by a specially designed fan with rotation signal. The fans have been designed to power off after entering the sleep/soft-off mode. This is to reduce both energy consumption and system noise.

WARNING! The CPU and/or motherboard will overheat if there is no airflow across the CPU and onboard heatsinks. Damage may occur to the motherboard and/or the CPU fan if these pins are incorrectly used. **These are not jumpers, do not place jumper caps over these pins.**

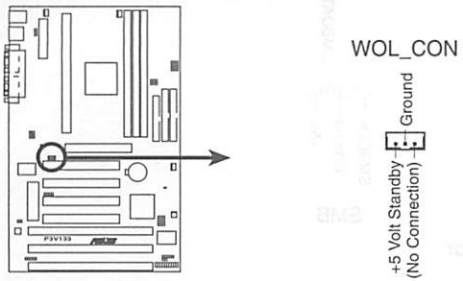


P3V133 12Volt Cooling Fan Power

11. Wake-On-LAN Connector (3-pin WOL_CON)

The WOL_CON connector powers up the system when a wake-up packet or signal is received from the network through an optional PCI-L101 LAN card.

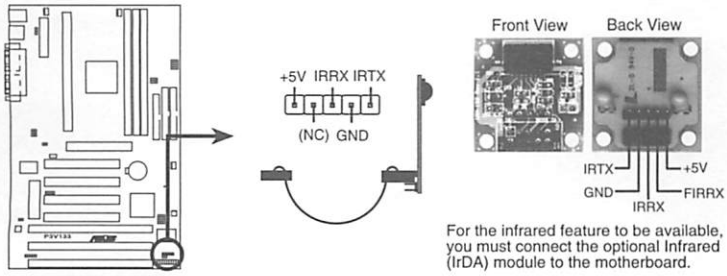
IMPORTANT: This feature requires that the **Wake-On-LAN *Power Up Control*** is set to *Enabled* (see *Power Management Setup* under BIOS SETUP) and that your system has an ATX power supply with at least 720mA +5V standby power.



P3V133 Wake on LAN Connector

12. IrDA-Compliant Infrared Module Connector (5-pin IR)

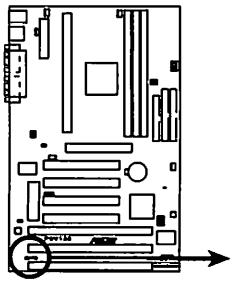
This connector supports the optional wireless transmitting and receiving infrared module. This module mounts to a small opening on system cases that support this feature. You must also configure the setting through "UART2 Use Infrared" in *Chipset Features Setup* to select whether UART2 is directed for use with COM2 or IrDA. Use the five pins as shown on the Back View and connect a ribbon cable from the module to the motherboard according to the pin definitions.

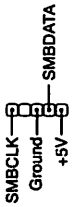


P3V133 Infrared Module Connector

13. SMBus Connector (5-1 pin SMB)

This connector allows you to connect SMBus devices. SMBus devices communicate by means of the SMBus with an SMBus host and/or other SMBus devices. The SMBus or System Management Bus is a specific implementation of an I²C bus, which is a multi-master bus, that is, multiple chips can be connected to the same bus and each one can act as a master by initiating data transfer.



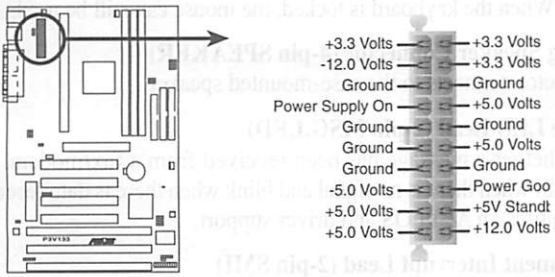


SMB

P3V133 SMBus Connector

14. ATX Power Supply Connector (20-pin ATXPWR)

This connector connects to an ATX power supply. The plug from the power supply will only insert in one orientation because of the different hole sizes. Find the proper orientation and push down firmly but gently making sure that the pins are aligned.



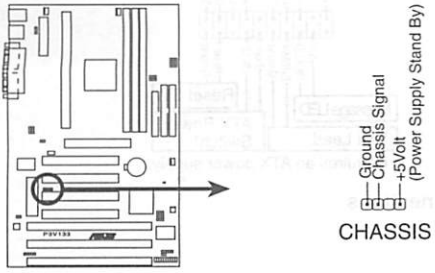
P3V133 ATX Power Connector

IMPORTANT: Make sure that your ATX power supply can supply at least 10mA on the 5-volt standby lead (5VSB). You may experience difficulty in powering on your system if your power supply cannot support the load. For Wake-On-LAN support, your ATX power supply must supply at least 720mA +5VSB.

15. Chassis Intrusion Alarm Lead (optional) (4-1 pin CHASIS)

This requires an external detection mechanism such as a chassis intrusion monitor/sensor or microswitch. The sensor is triggered when a high level signal is sent to the Chassis Signal lead, which occurs when a panel switch or light detector is triggered. This function requires the optional CIDB chassis sensor module to be installed (See *7. APPENDIX*).

NOTE: When the chassis is opened, connect/short the Chassis Signal pin to the +5VSB pin. When the chassis is closed, connect/short the Chassis Signal pin to the Ground pin.



P3V133 Chassis Open Alarm Lead

16. System Power LED Lead (3-1 pin PWR.LED)
This 3-1 pin connector connects to the system power LED, which lights when the system is powered on and blinks when it is in sleep or soft-off mode.

17. Keyboard Lock Switch Lead (2-pin KEYLOCK)
This 2-pin connector connects to the case-mounted key switch to allow keyboard locking. **NOTE:** When the keyboard is locked, the mouse can still be used.

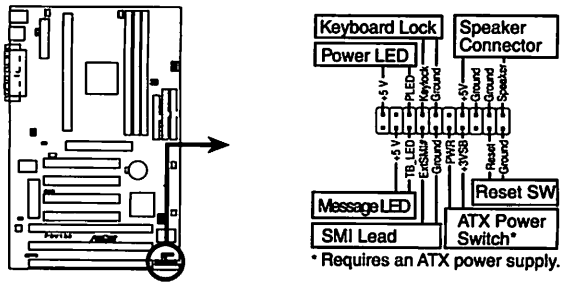
18. System Warning Speaker Connector (4-pin SPEAKER)
This 4-pin connector connects to the case-mounted speaker.

19. System Message LED Lead (2-pin MSG.LED)
This indicates whether a message has been received from a fax/modem. The LED will remain lit when there is no signal and blink when there is data received. This function requires an ACPI OS and driver support.

20. System Management Interrupt Lead (2-pin SMI)
This allows the user to manually place the system into a suspend mode or "Green" mode where system activity will be instantly decreased to save electricity and expand the life of certain components when the system is not in use. This 2-pin connector (see the preceding figure) connects to the case-mounted suspend switch.

21. ATX Power Switch / Soft-Off Switch Lead (2-pin PWR.SW)
The system power is controlled by a momentary switch connected to this lead. Pushing the button once will switch the system between ON and SLEEP or ON and SOFT OFF, depending on your BIOS or OS setting. Pushing the switch while in the ON mode for more than 4 seconds will turn the system off. The system power LED shows the status of the system's power.

22. Reset Switch Lead (2-pin RESET)
This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting to prolong the life of the system's power supply.



P3V133 System Panel Connections

3.9 Starting Up the First Time

1. After all connections are made, close the system case cover.
2. Be sure that all switches are off (in some systems, marked with O).
3. Connect the power supply cord to the power supply located on the back of your system case according to your system user's manual.
4. Connect the power cord to a power outlet that is equipped with a surge protector.
5. You may then turn on your devices in the following order:
   a. Your monitor
   b. External SCSI devices (starting with the last device on the chain)
   c. Your system power
      For ATX power supplies, you need to switch ON the power supply if a switch is provided as well as press the ATX power switch on the front of the case.
6. The power LED on the front panel of the system case will light. For ATX power supplies, the system LED will light when the ATX power switch is pressed. The LED on the monitor may light up or switch between orange and green after the system's if it complies with "green" standards or if it has a power standby feature. The system will then run power-on tests. While the tests are running, additional messages will appear on the screen. If you do not see anything within 30 seconds from the time you turn on the power, the system may have failed a power-on test. Check your jumper settings and connections again or call your retailer for assistance.

Award BIOS Beep Codes

Beep	Meaning
One short beep when displaying logo	No error during POST
Long beeps in an endless loop	No DRAM installed or detected
One long beep followed by three short beeps	Video card not found or video card memory bad
High frequency beeps when system is working	CPU overheated System running at a lower frequency

7. During power-on, hold down <Delete> to enter BIOS setup. Follow the instructions in *4. BIOS SETUP*.

* **Powering Off your computer:** You must first exit or shut down your operating system before switching off the power switch. For ATX power supplies, you can press the ATX power switch after exiting or shutting down your operating system. If you use Windows 95/98, click the **Start** button, click **Shut Down**, and then click **Shut down the computer?**. The power supply should turn off after Windows shuts down.

NOTE: The message "You can now safely turn off your computer" will not appear when shutting down with ATX power supplies.

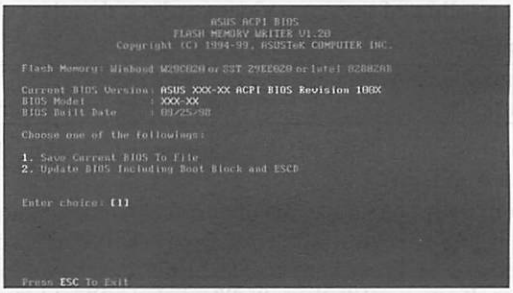
4.1 Managing and Updating Your BIOS

4.1.1 Upon First Use of the Computer System

It is recommended that you save a copy of the original motherboard BIOS along with a Flash Memory Writer utility (AFLASH.EXE) to a bootable floppy disk in case you need to reinstall the BIOS later. **AFLASH.EXE** is a Flash Memory Writer utility that updates the BIOS by uploading a new BIOS file to the programmable flash ROM on the motherboard. This file works only in DOS mode. To determine the BIOS version of your motherboard, check the last four numbers of the code displayed on the upper left-hand corner of your screen during bootup. Larger numbers represent a newer BIOS file.

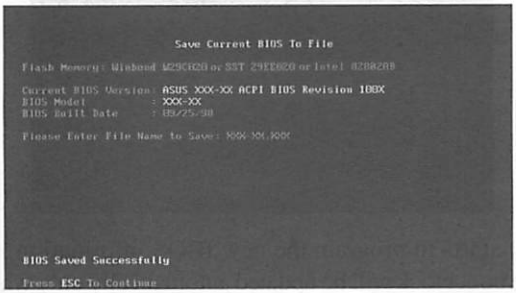
1. Type **FORMAT A:/S** at the DOS prompt to create a bootable system floppy disk. **DO NOT** copy AUTOEXEC.BAT & CONFIG.SYS to the disk.
2. Type **COPY D:\AFLASH\AFLASH.EXE A:** (assuming D is your CD-ROM drive) to copy AFLASH.EXE to the just created boot disk.

   NOTE: AFLASH works only in DOS mode. It will not work with DOS prompt in Windows and will not work with certain memory drivers that may be loaded when you boot from your hard drive. It is recommended that you reboot using a floppy.
3. Reboot your computer from the floppy disk. **NOTE:** BIOS setup must specify "Floppy" as the first item in the boot sequence.
4. In DOS mode, type **A:\AFLASH <Enter>** to run AFLASH.



IMPORTANT! If "unknown" is displayed after **Flash Memory:**, the memory chip is either not programmable or is not supported by the ACPI BIOS and therefore, cannot be programmed by the Flash Memory Writer utility.

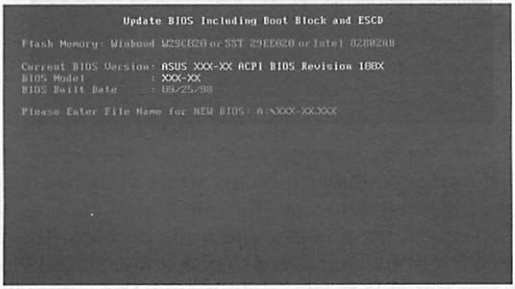
5. Select **1. Save Current BIOS to File** from the Main menu and press <Enter>. The **Save Current BIOS To File** screen appears.



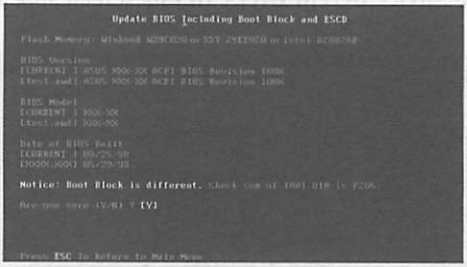
6. Type a filename and the path, for example, **A:\XXX-XX.XXX** and then press <Enter>.

4.1.2 Updating BIOS Procedures (only when necessary)

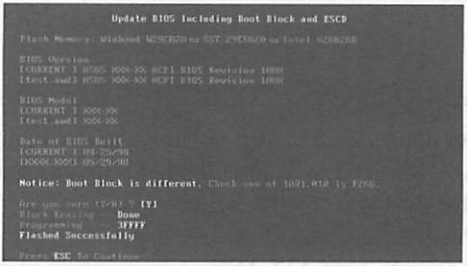
1. Download an updated ASUS BIOS file from the Internet (WWW or FTP) (see ASUS CONTACT INFORMATION on page 3 for details) and save to the disk you created earlier.
2. Boot from the disk you created earlier.
3. At the "A:\" prompt, type **AFLASH** and then press <Enter>.
4. At the **Main Menu**, type **2** and then press <Enter>. The **Update BIOS Including Boot Block and ESCD** screen appears.
5. Type the filename of your new BIOS and the path, for example, **A:\XXX-XX.XXX**, and then press <Enter>.
   NOTE: To cancel this operation, press <Enter>.



6. When prompted to confirm the BIOS update, press **Y** to start the update.



7. The utility starts to program the new BIOS information into the flash ROM. The boot block will be updated automatically only when necessary. This will minimize the chance of a failed updating. When the programming is finished, *Flashed Successfully* will be displayed.



8. Follow the onscreen instructions to continue.

WARNING! If you encounter problems while updating the new BIOS, DO NOT turn off your system since this might prevent your system from booting up. Just repeat the process, and if the problem still persists, update the original BIOS file you saved to disk above. If the Flash Memory Writer utility was not able to successfully update a complete BIOS file, your system may not be able to boot up. If this happens, your system will need servicing.