



A7V333

User Guide

Motherboard

Product Name: **A7V333**
Manual Revision: **1.00 E956**
Release Date: **February 2002**

Copyright © 2002 ASUSTeK COMPUTER INC. All Rights Reserved.

No part of this manual, including the products and software described in it, may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language in any form or by any means, except documentation kept by the purchaser for backup purposes, without the express written permission of ASUSTeK COMPUTER INC. ("ASUS").

Product warranty or service will not be extended if: (1) the product is repaired, modified or altered, unless such repair, modification or alteration is authorized in writing by ASUS; or (2) the serial number of the product is defaced or missing.

Products and corporate names appearing in this manual may or may not be registered trademarks or copyrights of their respective companies, and are used only for identification or explanation and to the owners' benefit, without intent to infringe.

- Intel and Pentium are registered trademarks of Intel Corporation.
- VIA is a registered trademark of VIA Technologies, Inc.
- 3Com is a registered trademark of 3Com Corporation.
- C-Media is a registered trademark of C-Media Electronics Inc.
- Windows and MS-DOS are registered trademarks of Microsoft Corporation.
- Adobe and Acrobat are registered trademarks of Adobe Systems Incorporated.
- Trend and ChipAwayVirus are trademarks of Trend Micro, Inc.
- Symbios is a registered trademark of Symbios Logic Corporation.
- nVidia is a registered trademark of NVIDIA Corporation.

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> or through any of the means indicated on the following page.

ASUS PROVIDES THIS MANUAL "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL ASUS, ITS DIRECTORS, OFFICERS, EMPLOYEES OR AGENTS BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES (INCLUDING DAMAGES FOR LOSS OF PROFITS, LOSS OF BUSINESS, LOSS OF USE OR DATA, INTERRUPTION OF BUSINESS AND THE LIKE), EVEN IF ASUS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES ARISING FROM ANY DEFECT OR ERROR IN THIS MANUAL OR PRODUCT.

SPECIFICATIONS AND INFORMATION CONTAINED IN THIS MANUAL ARE FURNISHED FOR INFORMATIONAL USE ONLY, AND ARE SUBJECT TO CHANGE AT ANY TIME WITHOUT NOTICE, AND SHOULD NOT BE CONSTRUED AS A COMMITMENT BY ASUS. ASUS ASSUMES NO RESPONSIBILITY OR LIABILITY FOR ANY ERRORS OR INACCURACIES THAT MAY APPEAR IN THIS MANUAL, INCLUDING THE PRODUCTS AND SOFTWARE DESCRIBED IN IT.

About this guide

This user manual contains complete information for installing the ASUS A7V333 motherboard.

How this guide is organized

- **Chapter 1: Product introduction.** A summary of product features and special attributes of new technologies.
- **Chapter 2: Hardware information.** A list of hardware setup procedures and descriptions of all jumpers and connectors on the motherboard.
- **Chapter 3: Powering up.** Describes the power up sequence with information on BIOS beep codes.
- **Chapter 4: BIOS setup.** How to change system settings using onboard BIOS firmware. Detailed descriptions of the BIOS parameters are supplied.
- **Chapter 5: Software support.** A summary of contents on the motherboard support CD ROM.
- **Appendix and Glossary.** Optional components and technical definitions.
- **Index**

Conventions used in this guide

To make sure that you perform set-up tasks properly, take note of the following symbols used throughout this manual.



WARNING! Information to prevent injury to yourself.



CAUTION! Information to prevent damage to the components.



IMPORTANT! Information that you **MUST** follow to complete a task.



NOTE! Tips and helpful information.

Contents

About this guide	iii
How this guide is organized	iii
Conventions used in this guide	iii
Safety information	vi
FCC/CDC statements	vii
ASUS contact information	viii
Chapter 1: Product introduction	1
Welcome!	1
1.1 Package contents	1
1.2 Core Specifications	2
1.3 Special Features	3
1.4 Motherboard Components	4
1.4.1 Component Locations	5
Chapter 2: Hardware information	1
2.1 Motherboard installation	7
2.1.1 Placement direction	7
2.1.2 Screw holes	7
2.2 Motherboard layout	8
2.2.1 Layout contents	9
2.3 Before you proceed	11
2.4 Central Processing Unit (CPU)	12
2.4.1 Overview	12
2.4.2 Installing the CPU	13
2.5 System memory	14
2.5.1 Overview	14
2.5.2 Memory configurations	15
2.5.3 Installing a DIMM	15
2.6 Expansion slots	16
2.6.1 Installing an expansion card	16
2.6.2 Configuring an expansion card	16
2.6.3 PCI slots	18
2.6.4 AGP slot	18
2.7 Switches and jumpers	19
2.8 Connectors	29
Chapter 3: Powering up	1
3.1 Starting up for the first time	45
3.2 Vocal POST Messages	46

Contents

3.3	Powering off the computer	48
Chapter 4: BIOS setup		1
4.1	Managing and updating your BIOS	49
4.1.1	Using the computer system for the first time	49
4.1.2	Updating BIOS procedures	51
4.2	BIOS Setup program	53
4.2.1	BIOS menu bar	54
4.2.2	Legend bar	54
4.3	Main Menu	56
4.3.1	Primary and Secondary Master/Slave	57
4.3.2	Keyboard Features	61
4.4	Advanced Menu	63
4.4.1	Chip Configuration	65
4.4.2	I/O Device Configuration	68
4.4.3	PCI Configuration	70
4.5	Power Menu	73
4.5.1	Power Up Control	75
4.5.2	Hardware Monitor	77
4.6	Boot Menu	78
4.7	Exit Menu	80
Chapter 5: Software support		1
5.1	Install an operating system	83
5.2	Support CD information	83
5.3	A7V333 Motherboard Support CD	84
5.4	Using the Promise Chip for RAID 0 or 1	86
5.5	Manual Installation of IDE/RAID Drivers	93
5.4	ASUS PC Probe	94
5.5	ASUS Live Update	99
5.6	3Deep Color Tuner	100
5.7	Winbond Voice Editor	102
5.8	ITE GSM Editor	106
Glossary		111
Index		115

Safety information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. Disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the voltage available in your area.
- If the power supply is broken, contact a qualified service technician or your retailer.

Operational safety

- Before installing the motherboard and adding new devices, carefully read all the manuals that came with the package.
- Before use ensure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact the dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Mount the motherboard inside a standard PC enclosure.
- If you encounter technical problems with the product, contact a qualified service technician or the dealer.

FCC/CDC statements

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:

- Reorient 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.



The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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.

ASUS contact information

ASUSTeK COMPUTER INC. (Asia-Pacific)

Marketing

Address: 150 Li-Te Road, Peitou, Taipei, Taiwan 112
Telephone: +886-2-2894-3447
Fax: +886-2-2894-3449
Email: info@asus.com.tw

Technical Support

Tel (English): +886-2-2890-7123
Tel (Chinese): +886-2-2890-7113
Fax: +886-2-2890-7698
Email: tsd@asus.com.tw
Newsgroup: cscnews.asus.com.tw
WWW: www.asus.com.tw
FTP: ftp.asus.com.tw/pub/ASUS

ASUS COMPUTER INTERNATIONAL (America)

Marketing

Address: 6737 Mowry Avenue, Mowry Business Center, Building 2
Newark, CA 94560, USA
Fax: +1-510-608-4555
Email: info-usa@asus.com.tw

Technical Support

Fax: +1-510-608-4555
BBS: +1-510-739-3774
Email: tsd@asus.com
WWW: www.asus.com
FTP: ftp.asus.com/pub/ASUS

ASUS COMPUTER GmbH (Europe)

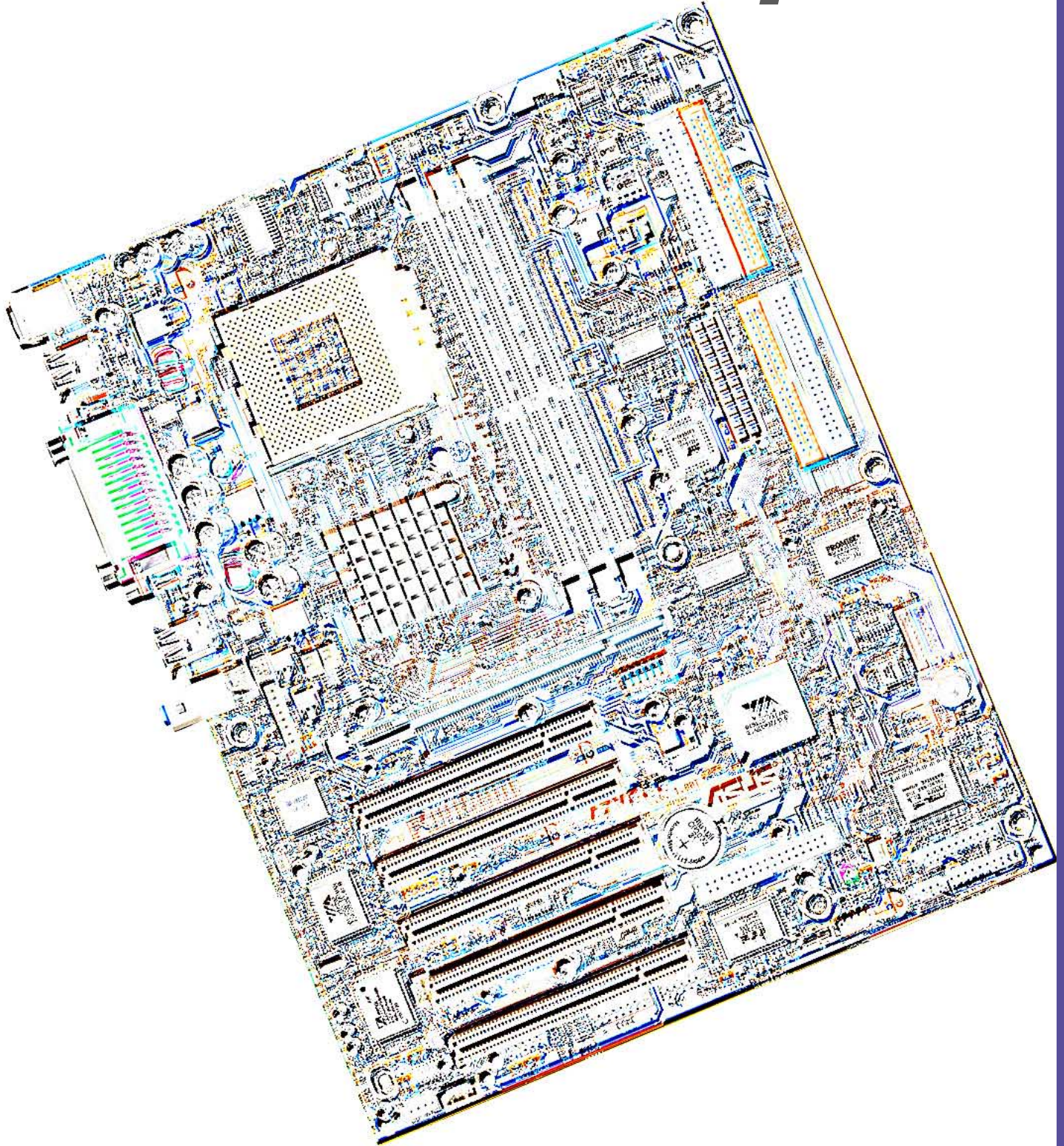
Marketing

Address: Harkortstr. 25, 40880 Ratingen, BRD, Germany
Fax: +49-2102-442066
Email: sales@asuscom.de (for marketing requests only)

Technical Support

Hotline: MB/Others: +49-2102-9599-0
Notebook: +49-2102-9599-10
Fax: +49-2102-9599-11
Support (Email): www.asuscom.de/de/support (for online support)
WWW: www.asuscom.de
FTP: ftp.asuscom.de/pub/ASUSCOM

Chapter 1



Product introduction

Welcome!

Thank you for buying the ASUS® A7V333 motherboard!

The A7V333 is powered by AMD® Athlon™, Athlon™ XP and Duron™ processors and supplies advanced features to ensure long-lasting, superlative performance. The ASUS® A7V333 motherboard is the prime choice for home PCs and workstations.

- ~ CPU Thermal Protection
- ~ Up to 3GB of system memory of the latest DDR RAM
- ~ High-resolution graphics via an AGP 4X slot
- ~ Digital Audio Interface for 3D sound
- ~ Promise IDE RAID 0/1 Controller onboard
- ~ 1394 Interface ready
- ~ Memory Stick™ & Secure Digital™ memory support.
- ~ Four USB 2.0 ports
- ~ UltraDMA 133 data rates

The A7V333 is the perfect vehicle to get ahead in the world of power computing!

1.1 Package contents

Check your A7V333 package for the following items.

- ✓ ASUS A7V333 motherboard (ATX form factor: 12.0 in x 9.6 in)
- ✓ ASUS A7V333 support CD
- ✓ ASUS 2-port USB/Game Port module
- ✓ 80-conductor ribbon cable for UltraDMA/33/66/100 IDE drives
- ✓ 40-conductor IDE cable
- ✓ Ribbon cable for a 3.5-inch floppy drive
- ✓ Bag of extra jumper caps
- ✓ User Guide



If any of the above items is damaged or missing, contact your retailer.

1.2 Core Specifications

The A7V333 motherboard is designed and assembled according to the highest standards. This ASUS motherboard represents the latest advances and offers users the finest componentry available today...

AMD® Athlon™ / Athlon™ XP and Duron™ Socket A (462) Processor

North Bridge Chipset: the VIA® KT333 supports AGP 4X/2X mode, 133/100MHz Front Side Bus, and the fastest 333/266/200MHz memory bus.

South Bridge Chipset: the VIA® VT8233A integrated peripheral controller supports UltraDMA133/100/66/33 for burst mode data transfer rates of up to 133MB/sec, and USB controller with two root hubs for four USB ports.

PC2700 / PC2100 / PC1600 DDR Support: Equipped with three Double Data Rate Dual Inline Memory Module (DDR DIMM) sockets to support up to 3GB of DDR333 SDRAM, the newest memory standard with the highest bandwidth and lowest latency currently available. DDR memory technology increases performance by executing two process actions per clock cycle.

UltraDMA/133 Support: Comes with an onboard PCI Bus Master IDE controller with two connectors that support four IDE devices on two channels. Supports UltraDMA133/100/66/33, PIO Modes 3 & 4, 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.

Multi-I/O Chipset: Offers complete support for a variety of I/O functions. 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. The Super I/O controller supports a floppy disk drive, PS/2 keyboard, and PS/2 mouse.

Smart BIOS: 2Mb firmware enables Vcore and CPU/DDR SDRAM frequency adjustments, boot block write protection, and HD/SCSI/MO/ZIP/CD/Floppy boot selection.

Expansion: One AGP PRO 4X, four USB 2.0 ports, four USB 1.1 ports, five PCI slots, SPDIF digital audio connector, 1394 header, game connector, MS & SD headers, iPanel connector, front audio panel connector, smart card connector, infrared port.

Connections: Parallel Port, PS/2 mouse Port, PS/2 keyboard, 4 USB ports, Microphone, Line In Jack, Line Out Jack, Standard ATX power.

1.3 Special Features

Easy Overclocking

- Quickly adjust CPU frequency multiples with BIOS in JumperFree™ Mode
- Adjustable FSB/MEM/PCI frequency ratio
- Stepless Frequency Selection (SFS) for fine-tuning system bus frequency from at 1MHz increments
- Optimal system performance available with BIOS built-in Turbo Mode
- Adjustable Vcore Voltage and VIO
- Alternatively, *easy-to-use DIP switches* permit manual adjustment of the processor external/internal frequency settings.

C.O.P (CPU Overheating Protection): With AMD® Athlon XP™ installed, the motherboard offers automatic CPU Overheating Protection to prolong the life of the entire system. If the CPU temperature exceeds the set criteria, the PC shuts down automatically.

Temperature, Fan and Voltage Monitoring: CPU temperature is monitored by the ASUS ASIC through the CPU's internal thermal diode to prevent overheating and damage. The CPU and system fans can be monitored for RPM and failure. System voltage levels are monitored to ensure stable voltage to critical motherboard components.

ACPI Ready: Advanced Configuration Power Interface (ACPI) provides more Energy Saving Features for operating systems that support OS Direct Power Management (OSPM).

Concurrent PCI: Concurrent PCI allows multiple PCI transfers from PCI master busses to the memory and processor.

Auto Fan Off: The system fans powers off automatically even in sleep mode.

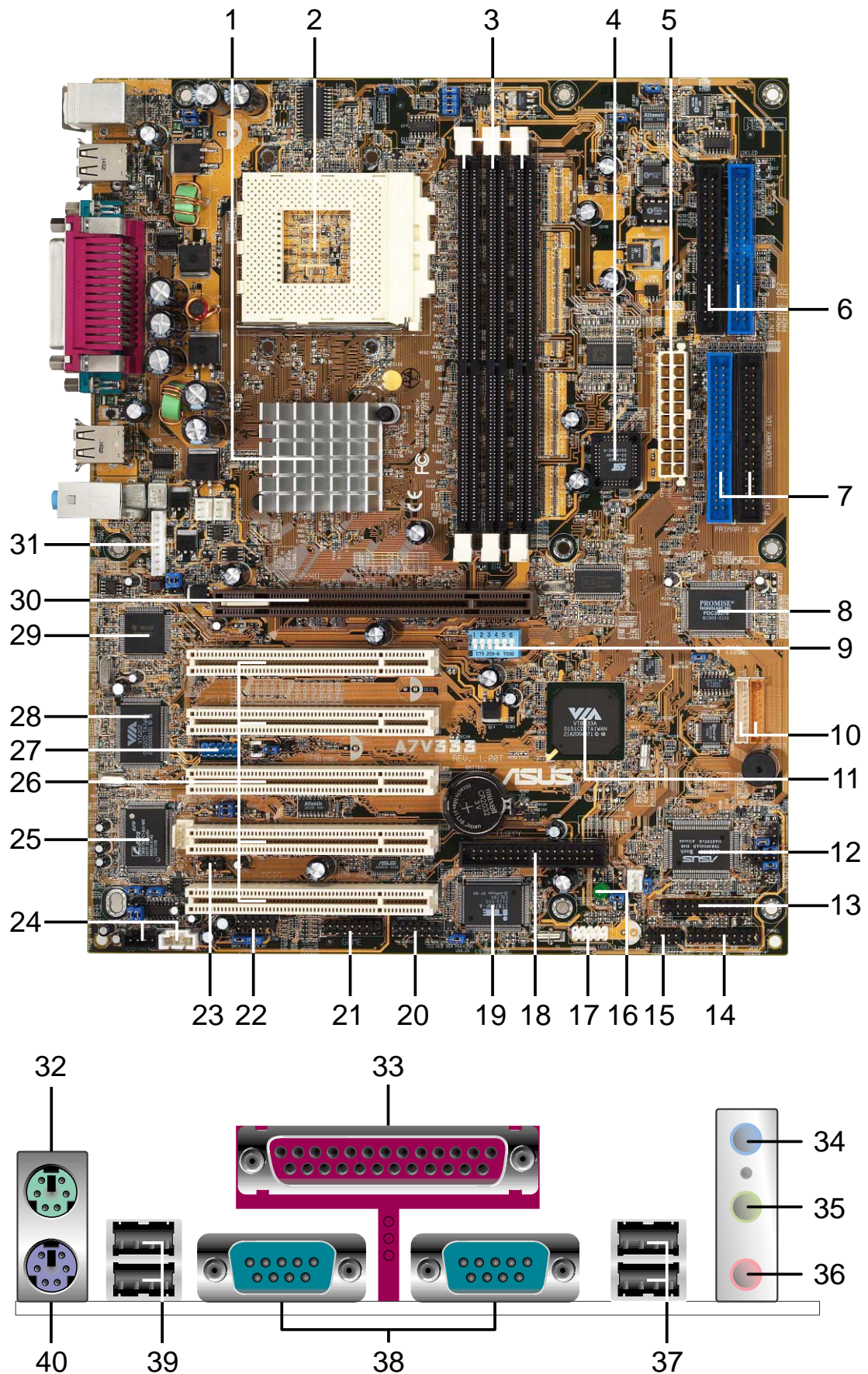
Dual Function Power Button: Push the power button for less than 4 seconds when the system is operating places the system into sleep or soft-off modes, depending on the BIOS or OS setting. If the power button is pressed for more than 4 seconds, the system enters the soft-off mode regardless of the BIOS setting.

1.4 Motherboard Components

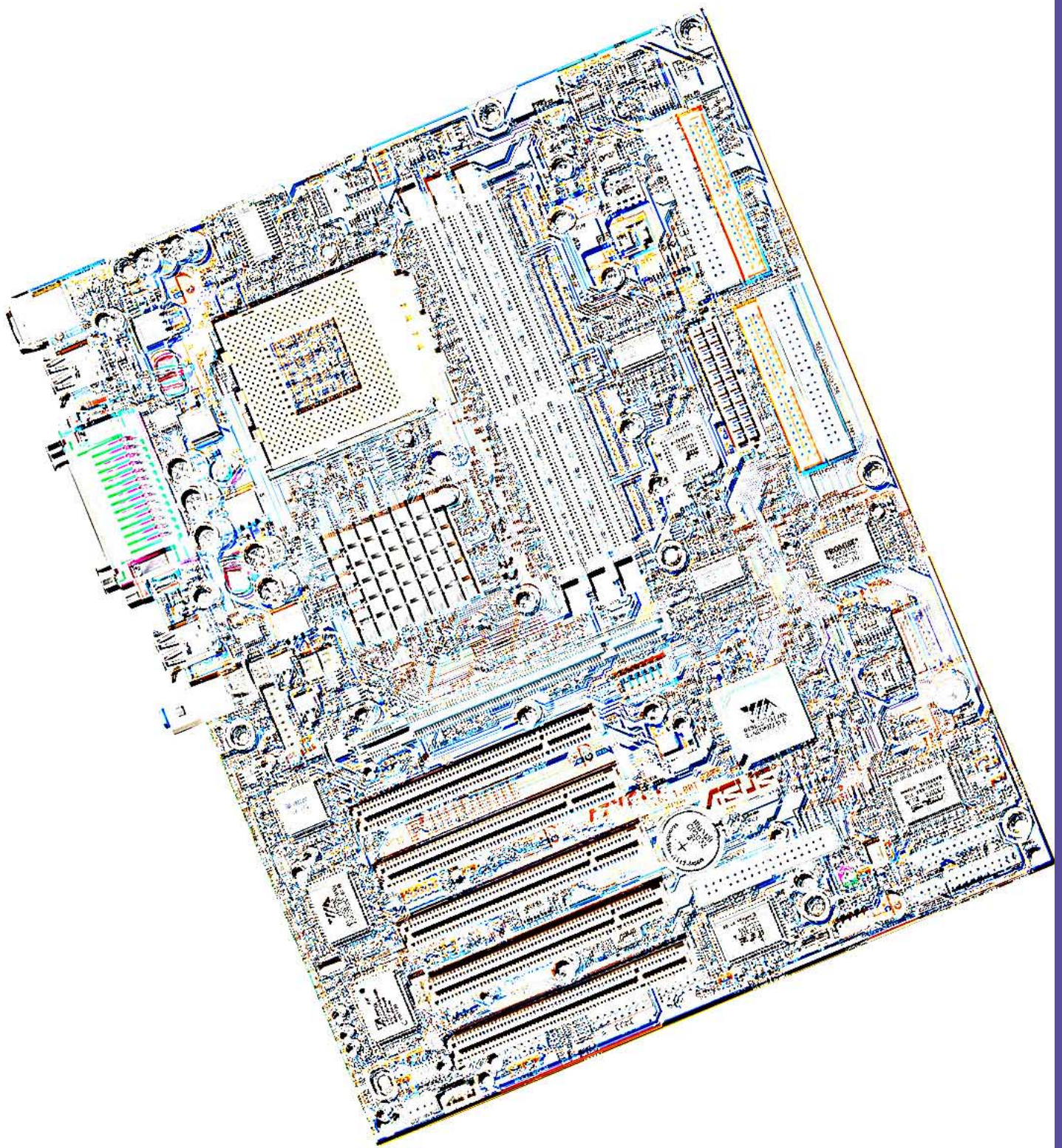
Before installing the A7V333 motherboard, take time to familiarize yourself with its configuration: understanding the motherboard makes upgrading easy. Sufficient knowledge of specifications prevents accidental damage.

	Location
Processor Support	Socket A for AMD® Athlon™ and Duron™ Processors 2
	Feature Setting DIP Switches 9
Chipsets	VIA® KT333 North Bridge 1
	2Mbit Programmable Flash EEPROM 4
	VIA® VT8233A South Bridge 11
	Promise IDE RAID 0/1 Controller (<i>Optional</i>) 8
	Multi-I/O Controller 19
	USB 2.0 Controller 28
	1394 Controller (<i>Optional</i>) 29
Main Memory	3 DDR DIMM Sockets (3GB) 3
Expansion Slots	5 PCI Slots 26
	1 Accelerated Graphics Port (AGP) 4X Slot 30
System I/O	1 Floppy Disk Drive Connector 18
	2 IDE Connectors (<i>Optional</i> Promise RAID Support) 6
	2 IDE Connectors (UltraDMA/133 Support) 7
	MS / SD Connector 10
	1 Panel Connector 14
	1 Infrared Connector 15
	USB Headers (Ports 2_3) 17
	USB Headers (Ports 20_34) 27
	Smart Card Connector 20
	Game Connector 21
	ASUS iPanel Connector 13
	1394 Header 31
	1 Parallel Port 33
	2 Serial Ports (COM1/COM2) 38
	USB 2.0 Connectors 37
	USB 1.1 Connectors 39
	1 PS/2 Mouse Connector (green) 32
	1 PS/2 Keyboard Connector (purple) 40
Hardware Monitoring	System Voltage Monitor (integrated in ASUS ASIC) 12
Special Feature	Onboard LED 16
Audio Features	(on audio models only)
	SPDIF Digital Audio Connector 23
	Audio Connectors 24
	Audio Controller Chipset 25
	1 ASUS Front Audio Panel Connector 22
	1 Line Out Connector (lime) 35
	1 Line In Connector (light blue) 34
	1 Microphone Connector (pink) 36
Power	ATX Power Supply Connector 5
Form Factor	ATX

1.4.1 Component Locations



Chapter 2



Hardware information

2.1 Motherboard installation

The A7V333 uses the ATX form factor, measuring 24.5 cm (9.6 in.) x 30.5 cm (12 in.) - a standard fit for most large chassis.



WARNING! Unplug the power cord before installing the motherboard. Failure to do so may cause you physical injury and damage motherboard components.

2.1.1 Placement direction

When installing the motherboard, take care to orient the chassis correctly: The edge with external ports goes to the rear part of the chassis. Refer to the image below. It may be more convenient to install major cables, the CPU and modular components before fixing the motherboard inside the case frame.

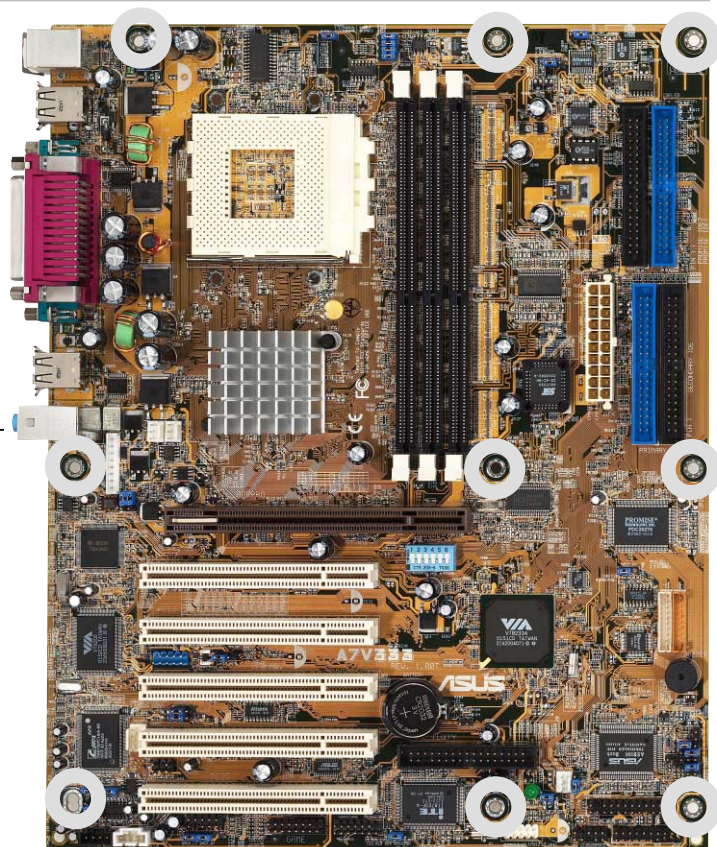
2.1.2 Screw holes

Place nine screws into the holes indicated by circles to secure the motherboard to the chassis.

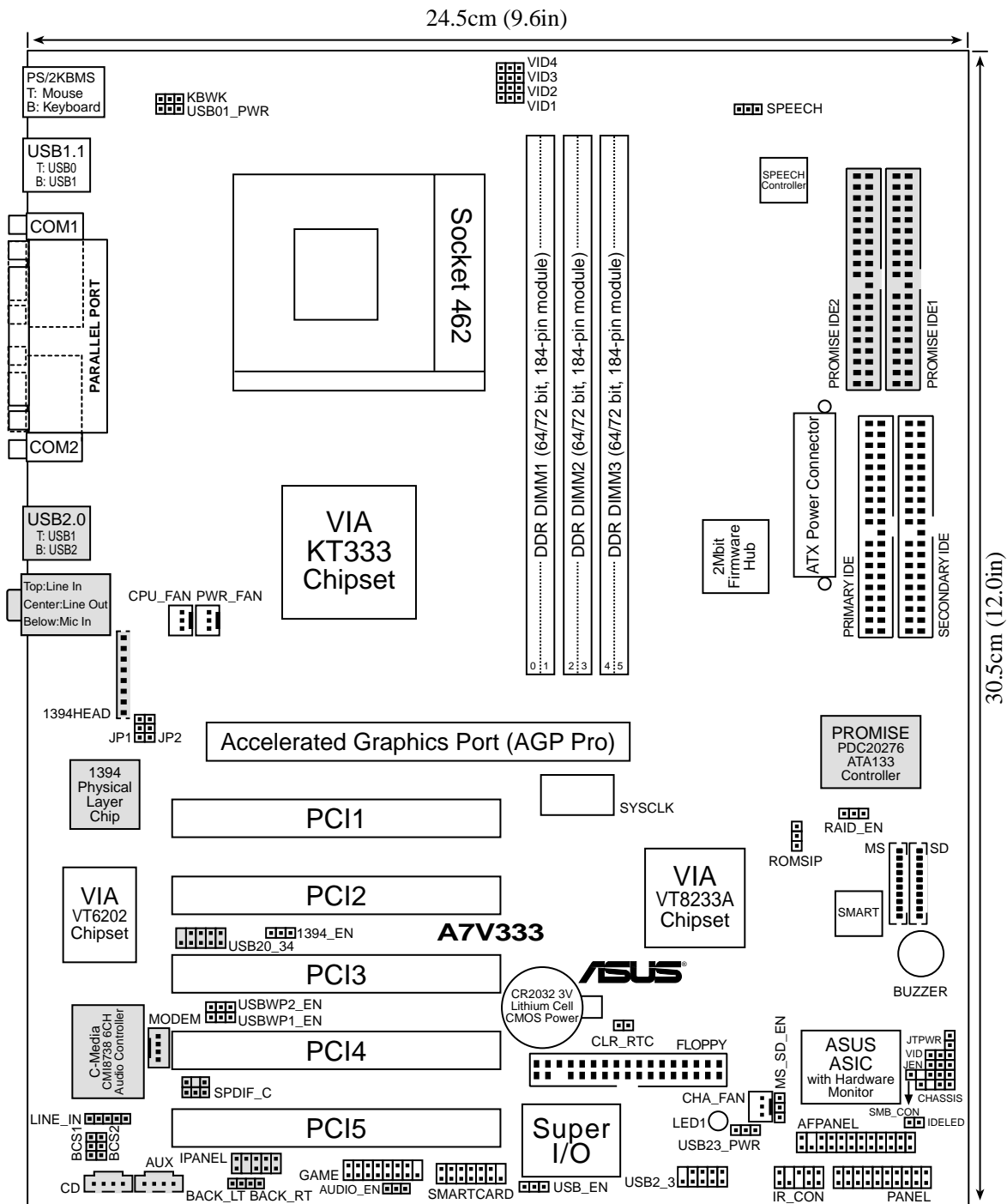


CAUTION! Do not overtighten the screws! Doing so may damage the motherboard.

Place this side towards the rear of the chassis



2.2 Motherboard layout



Optional components are grayed in the above motherboard layout.

2.2.1 Layout contents

CPU, Memory and Expansion Slots

- | | |
|------------------|--------------------------------------|
| 1) Socket 462 | p. 12 CPU Support |
| 2) DIMM 1/2/3 | p. 14 System Memory Support |
| 3) PCI 1/2/3/4/5 | p. 16 32-bit PCI Bus Expansion Slots |
| 4) AGP PRO | p. 18 Accelerated Graphics Slot |

Motherboard Settings (Switches and Jumpers)

- | | |
|-----------------------|---|
| 1) JEN | p. 19 JumperFree Mode Setting (Disable/Enable) |
| 2) DIP_SW | p. 20 CPU External Frequency Selection (Switches 1–6) |
| 3) RAID_EN | p. 21 RAID Controller (Enable/Disable) |
| 4) ROMSIP | p. 21 ROM Setting (Hardware/Software) |
| 5) VID1-4 | p. 22 Voltage Regulator Output Setting (1.85-1.675 volts) |
| 6) VID | p. 22 Voltage Regulator Output Limit (Limit/Unlimited) |
| 7) KBWK | p. 23 Keyboard Wake Up (Enable/Disable) |
| 8) USB_EN | p. 24 USB 2.0 Compliant Device Enable (Disable/Enable) |
| 9) USBWP2 & 1_EN | p. 24 USB Wakeup Enable (Disable/Enable) |
| 10) USB01_,23_,45_PWR | p. 25 USB Device Wake-up (Disable/Enable) |
| 11) 1394_En | p. 26 IEEE-1394 Device Enable (Enable/Disable) |
| 12) MS_SD_EN | p. 26 MS SD Device Enable (Enable/Disable) |
| 13) BCS1, BCS2 | p. 27 Bass Center Setting (CENTER/BASS, BASS/CENTER) |
| 14) SPEECH | p. 27 Speaker Selector (Buzzer/Back Panel) |
| 15) AUDIO_EN | p. 28 Audio Setting (Enable/Disable) |
| 16) CLR_RTC | p. 28 Clear RTC RAM |

Connectors

- | | |
|--|---|
| 1) PS2KBMS | p. 29 PS/2 Mouse Port (6 pin female) |
| 2) PS2KBMS | p. 29 PS/2 Keyboard Port (6 pin female) |
| 3) USB | p. 30 Universal Serial Bus Ports 0, 1, 2 & 3 (Two 4 pin female) |
| 4) PRINTER | p. 30 Parallel Port (25 pin female) |
| 5) COM1/COM2 | p. 30 Serial Ports (9 pin /10-1 pin male) |
| 6) AUDIO | p. 31 Audio Connectors (Three 1/8" AUDIO) (<i>optional</i>) |
| 7) IDELED | p. 32 IDE Activity LED (2 pin) |
| 8) FLOPPY | p. 32 Floppy Disk Drive Connector (34-1 pin) |
| 9) PRIMARY / SEC. IDE
PROMISE 1 / 2 IDE | p. 33 IDE Connectors (Four 40-1 pin) |
| 10) CPU_,PWR_,CHA_FAN | p. 34 CPU, Power, and Chassis Fan Connectors (Three 3 pin) |
| 11) IR_CON | p. 35 Infrared Module Connector (10-1 pin) |
| 12) AFPANEL | p. 35 ASUS iPanel Connector (24-1 pin) |

13) ATXPWR	p. 36 ATX Power Supply Connector (20 pin)
14) SMB	p. 36 SMBus Connector (5-1 pin)
15) CD / AUX / MODEM	p. 37 Internal Audio Connectors (Three 4-1 pin) (<i>optional</i>)
16) JTPWR	p. 34 Power Supply Thermal Sensor Connector (2 pin)
17) SMARTCARD	p. 38 Smart Card Reader Connector (14-1 pin)
18) SD, MS	p. 38 SD and MS Connectors (Two 10 pin)
19) GAME	p. 39 Game Connector (16-1 pin)
20) SPDIF_C	p. 39 Digital Audio Interfaces (2 pin)
21) USB20_34, USB2_3	p. 40 USB Headers (Two 10-1 pin)
22) CHASSIS	p. 41 Chassis Open Alarm Lead (2 pin)
23) BACK_LT / BACK_RT	p. 42 Line-out Selector Jumpers (4 pin)
24) LINE_IN	p. 42 Audio Input Line In Header (5 pin)
25) IPANEL	p. 43 ASUS Front Panel Audio Connector (10-1 pin)
26) 1394HEAD	p. 43 IEEE-1394 Header (8 pin)
27) PLED (PANEL)	p. 44 System Power LED Lead (3-1 pin)
28) KEYLOCK (PANEL)	p. 44 System Keyboard Lock Switch Lead (2 pin)
29) SPEAKER (PANEL)	p. 44 System Warning Speaker Lead (4 pin)
30) MLED (PANEL)	p. 44 System Message LED Lead (2 pin)
31) SMI (PANEL)	p. 44 System Management Interrupt Lead (2 pin)
32) PWR (PANEL)	p. 44 ATX / Soft-Off Switch Lead (2 pin)
33) RESET (PANEL)	p. 44 Reset Switch Lead (2 pin)

2.3 Before you proceed

Take note of the following precautions before you install motherboard components or change any motherboard settings.

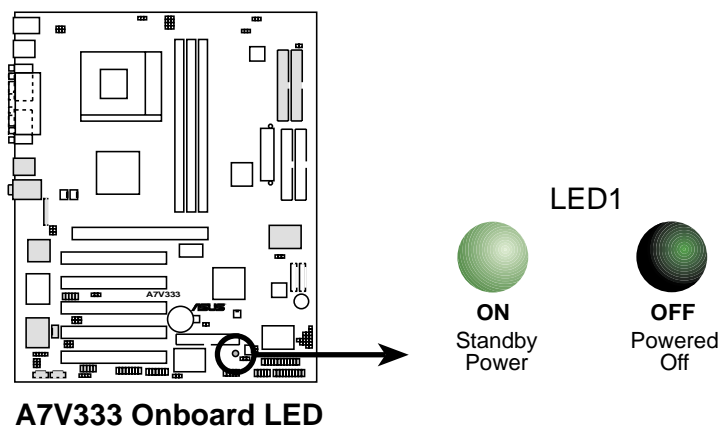
CAUTION!



1. Unplug the power cord from the wall socket before touching any component.
2. Use a grounded wrist strap or touch a safely grounded object or to a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity.
3. Hold components by the edges and do not touch the ICs on them.
4. Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.
5. **Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply.** Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.



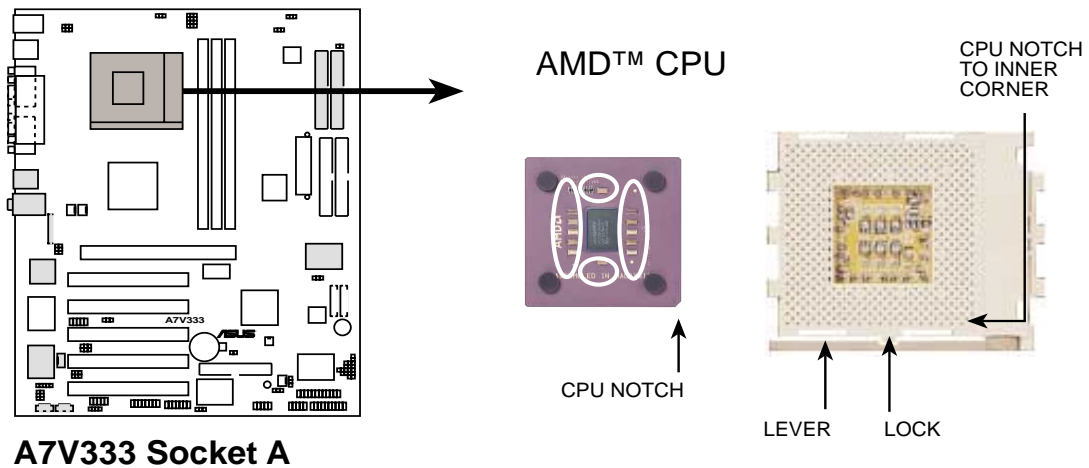
NOTE! When lit, the onboard LED indicates that the system is ON, in sleep mode or in soft-off mode, not powered OFF. See the illustration below.



2.4 Central Processing Unit (CPU)

2.4.1 Overview

The motherboard provides a Socket A (462) for CPU installation. AMD processors offer gigahertz speeds to support all the latest computing platforms and applications. The A7V333 supports Athlon™ XP processors with “QuantiSpeed” data processing, large data caches, 3D enhancements and 266MHz bus speeds.



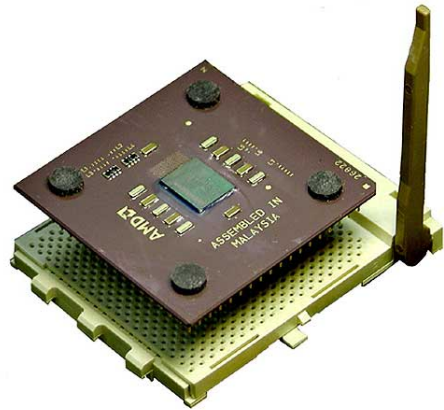
Each AMD CPU has a “marked” corner. This corner is indicated with a notch, and/or a golden square or triangle. Refer to this indicator while orienting the CPU. See the next section for installation details.

A fan and heatsink should be attached to the CPU to prevent overheating.

2.4.2 Installing the CPU

Follow these steps to install a CPU:

1. Locate the Socket 462 and open it by pulling the lever gently sideways away from the socket. Then lift the lever upwards. The socket lever must be fully opened (90 to 100 degrees).
2. Insert the CPU with the correct orientation. The **notched or golden corner** of the CPU must be oriented toward the inner corner of the socket base nearest to the lever hinge.



CAUTION! The CPU should drop easily into place. **Do not force the CPU** into the socket to avoid bending the pins. If the CPU does not fit, check its alignment and look for bent pins.

4. Once completely inserted, press the CPU firmly and close the socket lever until it snaps shut.
5. Place the CPU fan and heatsink on the CPU. The heatsink should entirely cover the CPU. Carefully attach the heatsink locking brace to the plastic clips on the socket base. With the added weight of the CPU fan and heatsink locking brace, no extra force is required to keep the CPU in place



CAUTION! Take care not to scrape the motherboard surface when mounting a clamp-style processor fan, or else damage may occur. When mounting a heatsink onto your CPU, make sure that exposed CPU capacitors do not touch the heatsink, or damage may occur!



NOTE! Do not neglect to set the correct Bus Frequency and leave the CPU Multiple setting at default to avoid start-up problems.

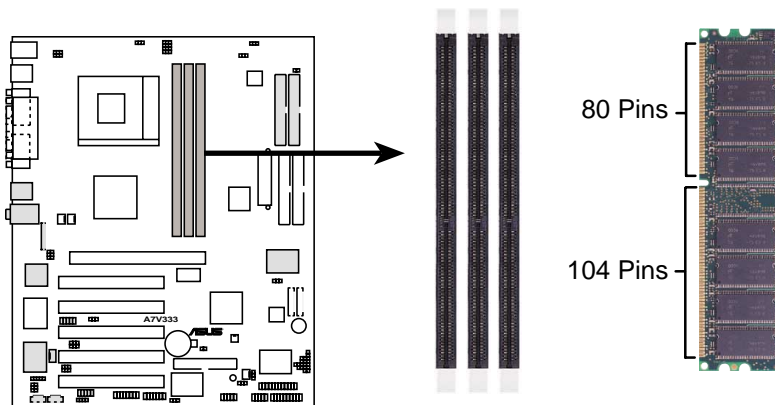
2.5 System memory

2.5.1 Overview

This motherboard uses *only* **Double Data Rate** (DDR) Synchronous Dynamic Random Access Memory (SDRAM) Dual Inline Memory Modules (DIMMs). These sockets support up to 3GB system memory using non-ECC 200/266/333MHz DIMMs.

Each DIMM socket/module is two-sided: each side defines one “row” of memory. DIMMs come in combinations of single or double-sided types ranging through 64MB, 128MB, 256MB, 512MB and 1GB to form a total memory size of *64MB to 3GB*.

~ **Three (3)** sockets are available for both 333MHz-PC2700, 266MHz-PC2100 or 200MHz-PC1600 DDR DIMMs to form a memory size of *64MB to 3GB*.



A7V333 184-Pin DDR DIMM Sockets



CAUTION! DIMMs are keyed to fit into notches with only one direction. **DO NOT** force a DIMM into a socket to avoid damaging the DIMM.



- **DIMMs with more than 18 chips are not supported.**
- ASUS motherboards support SPD (Serial Presence Detect) DIMMs. This is the memory of choice for best performance vs. stability
- BIOS shows DDR SDRAM memory on bootup screen.
- This motherboard supports three pairs of differential clock signals per DIMM.

2.5.2 Memory configurations

Install DIMMs in any of the following combinations.

DIMM Location	184-pin DIMM (DDR)	Total Memory
Socket 1 (Rows 0&1)	64MB, 128MB, 256MB, 512MB, 1GB x1	
Socket 2 (Rows 2&3)	64MB, 128MB, 256MB, 512MB, 1GB x1	
Socket 3 (Rows 4&5)	64MB, 128MB, 256MB, 512MB, 1GB x1	
Total system memory (Max. 3GB)		=

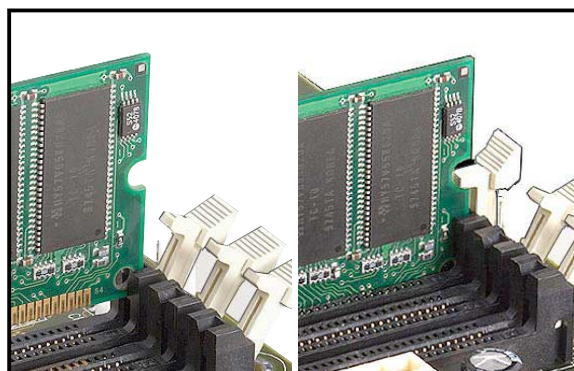
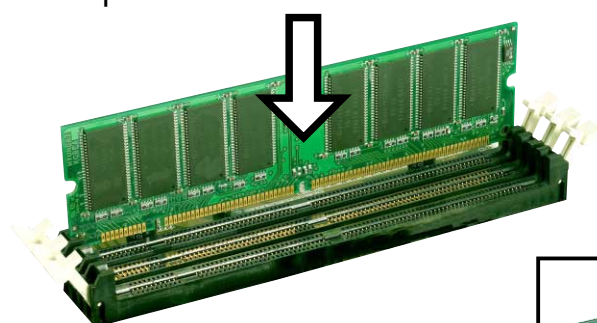
2.5.3 Installing a DIMM



CAUTION! Make sure to unplug the power supply before adding or removing DIMMs or other system components. Failure to do so may cause severe damage to both the motherboard and the components.

Installing a DIMM:

1. Unlock a DIMM socket by pressing the retaining clips outward.
2. Align a DIMM on the socket such that the notches on the DIMM exactly match the notches in the socket.
3. Firmly insert the DIMM into the socket until the retaining clips snap back in place.



Unlocked Retaining Clip

Locked Retaining Clip

2.6 Expansion slots

The motherboard has two PCI slot and one Accelerated Graphics Port (AGP) slot.. The following sub-sections describe the slots and the expansion cards that they support.

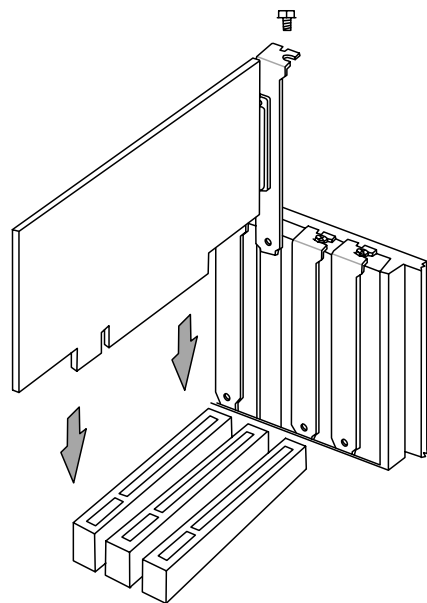


WARNING! Unplug your power supply when adding or removing expansion cards or other system components. Failure to do so may cause you physical injury and damage motherboard components.

2.6.1 Installing an expansion card

Follow these steps to install an expansion card.

1. Before installing the expansion card, read the documentation that came with it and make the necessary hardware settings.
2. Remove the system unit cover (if your motherboard is already installed in a chassis).
3. Remove the bracket opposite the PCI slot. Keep the screw for later use.
4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.
5. Secure the card to the chassis with the screw you removed earlier.
6. Replace the system cover.
7. Set up the BIOS if necessary.
8. Install the necessary software drivers for your expansion card.



2.6.2 Configuring an expansion card

Some expansion cards need an IRQ to operate. Generally, an IRQ must be exclusively assigned to one function at a time. In a standard design configuration, 16 IRQs are available but most are already in use. Normally, 6 IRQs are free for expansion cards. If the 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. Sometimes IRQs are “shared” by more than one function; in this case, IRQ assignments are swapped automatically or adjusted through the BIOS firmware.



IMPORTANT! When using PCI cards on shared slots, ensure that the drivers support “Share IRQ” or that the cards do not need IRQ assignments. Otherwise, conflicts will arise between the two PCI groups, making the system unstable and the card inoperative.

Standard Interrupt Assignments

IRQ	Priority	Standard Function
0	1	System Timer
1	2	Keyboard Controller
2	N/A	Programmable Interrupt
3*	11	Communications Port (COM2)
4*	12	Communications Port (COM1)
5*	13	Sound Card (sometimes LPT2)
6	14	Floppy Disk Controller
7*	15	Printer Port (LPT1)
8	3	System CMOS/Real Time Clock
9*	4	ACPI Mode when used
10*	5	IRQ Holder for PCI Steering
11*	6	IRQ Holder for PCI Steering
12*	7	PS/2 Compatible Mouse Port
13	8	Numeric Data Processor
14*	9	Primary IDE Channel
15*	10	Secondary IDE Channel

*These IRQs are usually available for ISA or PCI devices.

Interrupt Request Table for this Motherboard

This table lists the default IRQ assignments: they are applicable only for OS Win98, WinME; for WinXP, system runs in APIC mode by default.

	A	B	C	D
PCI slot 1	—	—	—	shared
PCI slot 2	shared	—	—	—
PCI slot 3	—	shared	—	—
PCI slot 4	—	—	shared	—
PCI slot 5	—	—	—	shared
Onboard USB controller HC0	—	—	—	shared
Onboard USB controller HC1	—	—	—	shared
AGP	shared	—	—	—
Onboard Audio	—	shared	—	—
USB 2.0	—	—	—	shared
Promise	—	—	—	shared
TI 1394	—	shared	—	—

2.6.3 PCI slots

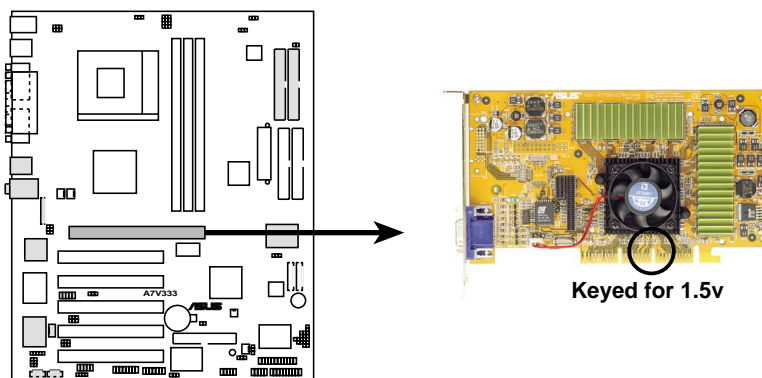
Five 32-bit PCI slots are available on this motherboard. The slots support PCI cards such as a LAN card, SCSI card, USB card, and other cards that comply with PCI specifications.

This figure shows a typical PCI card installed into a slot:



2.6.4 AGP PRO slot

This motherboard provides an Accelerated Graphics Port (AGP PRO) slot to support AGP graphics cards. Take note of the notches on the card golden fingers to ensure that they fit the AGP slot on your motherboard. Below is an example of a +1.5V AGP card.



A7V333 Accelerated Graphics Port (AGP)

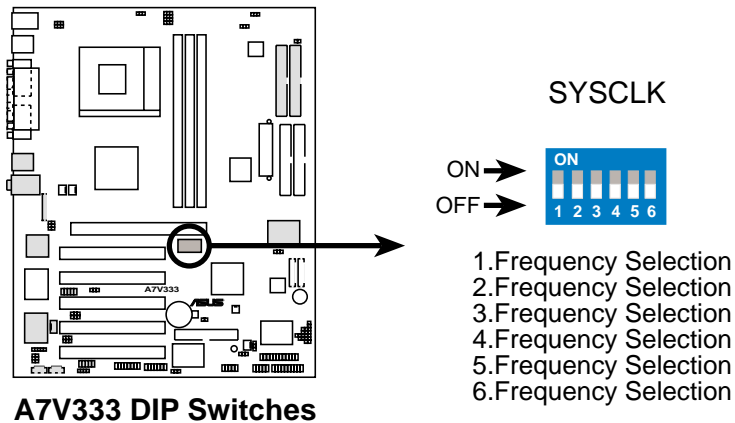


CAUTION! To avoid damaging your AGP/AGP Pro graphics card, your computer's power supply should be unplugged before inserting your graphics card into the slot.

2.7 Switches and jumpers

Motherboard Frequency Settings (DIP Switches)

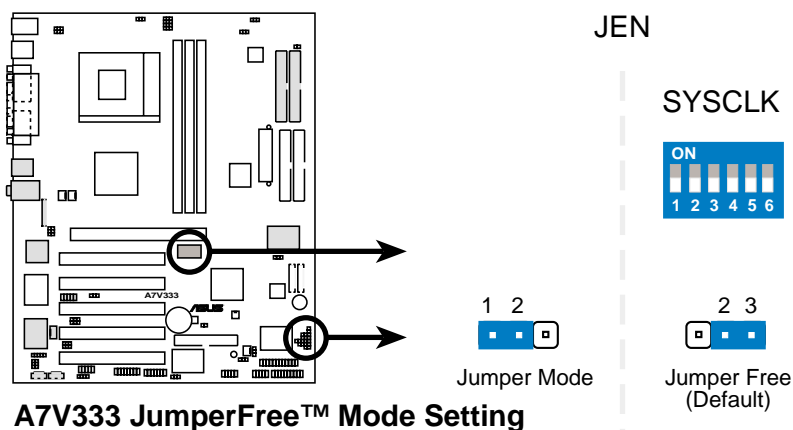
The motherboard has five PCI slots and one Accelerated Graphics Port (AGP) slot. The following sub-sections describe the slots and the expansion cards that they support.



IMPORTANT! To use the DSW switches to make changes to speed settings, the JEN jumper must be reset to pins 1-2 (jumper mode). Otherwise, setting the DSW switches does not produce any effect.

1) JumperFree™ Mode (3 pin JEN)

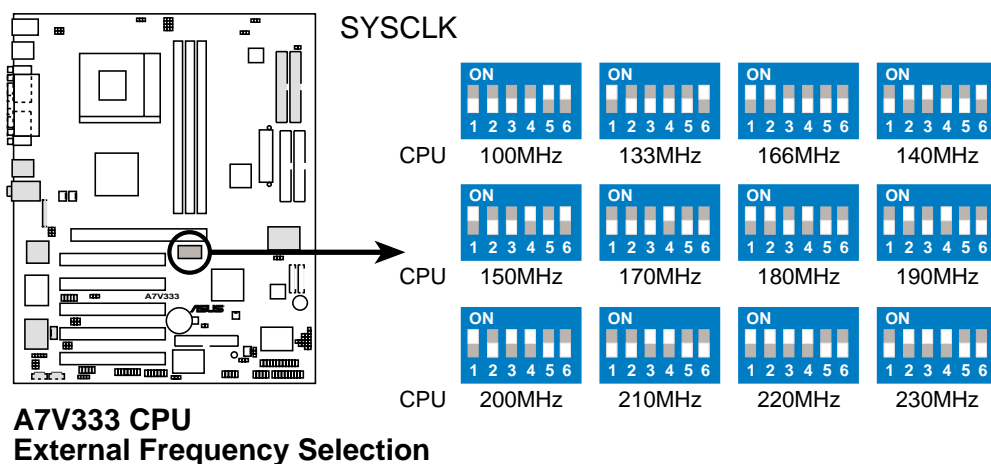
This jumper allows you to enable or disable the JumperFree™ mode. The JumperFree™ mode allows processor settings to be made through the BIOS setup.



NOTE! The JEN jumper is set in conjunction with the DIP switches. In JumperFree™ mode, set all DIP switches (DIP_SW) to OFF.

2) CPU External Frequency Selection (DIP_SW Switches 1–4)

This option tells the clock generator what frequency to send to the CPU, DRAM, and the PCI bus. This allows the selection of the CPU's *External* frequency (or *BUS Clock*). The BUS Clock multiplied by the Frequency Multiple equals the CPU's *Internal* frequency (the advertised CPU speed).



Frequency Table

DSW

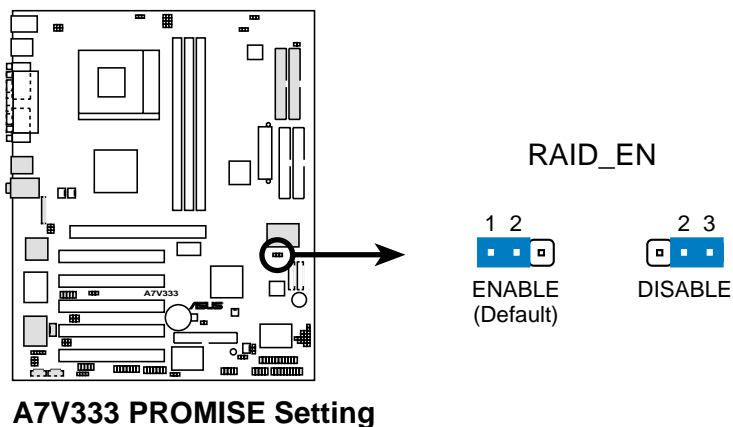
CPU MHz	1	2	3	4	5	6
100	[OFF]	[OFF]	[OFF]	[OFF]	[ON]	[ON]
133	[ON]	[OFF]	[OFF]	[OFF]	[OFF]	[ON]
166	[ON]	[ON]	[OFF]	[OFF]	[OFF]	[OFF]
140	[OFF]	[ON]	[ON]	[OFF]	[OFF]	[ON]
150	[ON]	[OFF]	[OFF]	[ON]	[OFF]	[ON]
170	[OFF]	[OFF]	[OFF]	[ON]	[OFF]	[OFF]
180	[ON]	[ON]	[OFF]	[ON]	[OFF]	[OFF]
190	[OFF]	[ON]	[OFF]	[ON]	[OFF]	[OFF]
200	[ON]	[OFF]	[ON]	[ON]	[OFF]	[OFF]
210	[OFF]	[OFF]	[ON]	[ON]	[OFF]	[OFF]
220	[ON]	[ON]	[ON]	[ON]	[OFF]	[OFF]
230	[OFF]	[ON]	[ON]	[ON]	[OFF]	[OFF]



WARNING! Set the SYSCLK frequency only to the recommended settings. Frequencies other than the recommended CPU bus frequencies are not guaranteed to be stable. Overclocking the processor is not recommended. It may result in a slower speed.

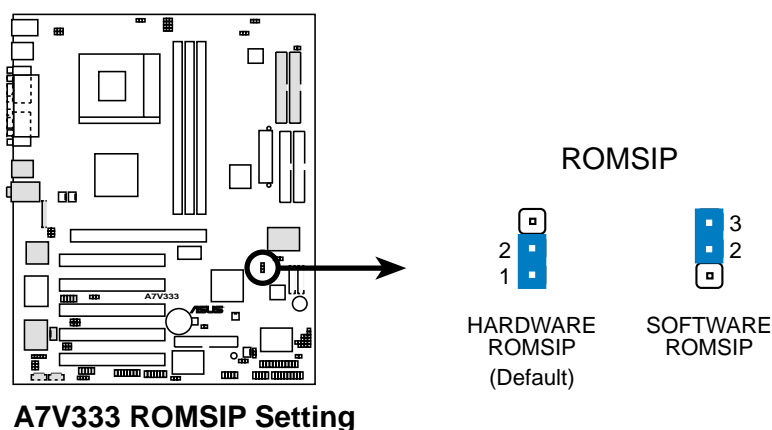
3) RAID Controller (3 pin RAID_EN)

This jumper enables or disables the Promise IDE-RAID controller. The default setting, [1-2], enables both the IDE 133 and RAID functions. To disable it, reset the jumper cap to [2-3]. This jumper overrides all BIOS settings.



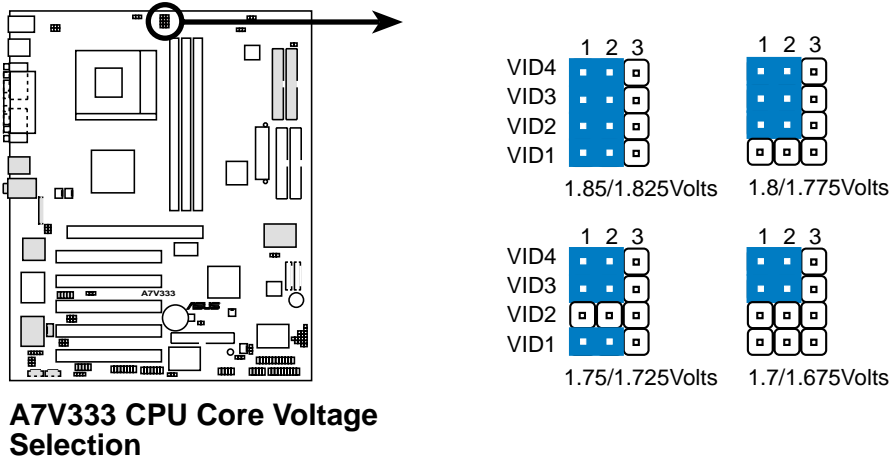
4) ROM Setting (3 pin ROMSIP)

This jumper selects the source for data to set functional parameters for the CPU. The default setting, [1-2], enables preset ROM data access from the chip. Resetting the jumper to [2-3] enables the use of BIOS to set CPU parameters.



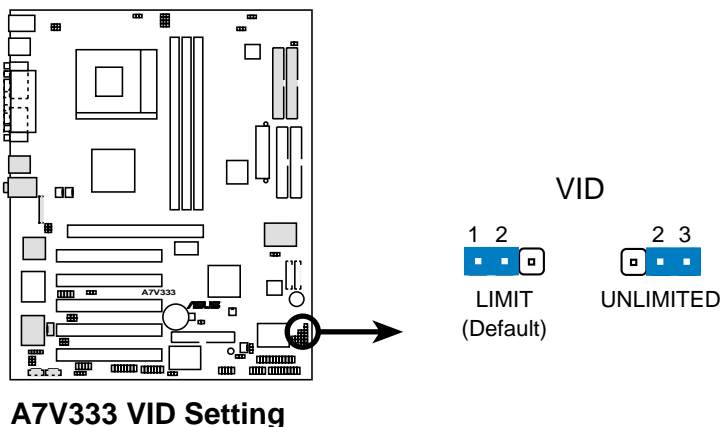
5) Voltage Regulator Output Setting (4x3 pin VID1 - 4)

This jumpers allow you to manually adjust the CPU core voltage. It is recommended to use the *CPU Default* (all jumpers [1-2]) as the setting for CPU core voltage. *CPU Default* means that the Vcore is generated according to the CPU-VID design configuration. For each jumper setting, there are two voltage options, depending on the CPU used.



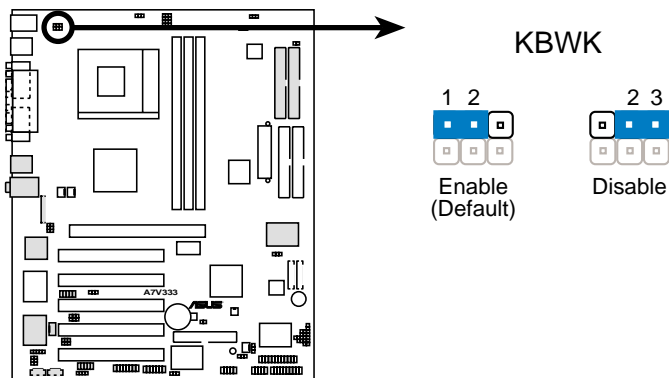
6) Voltage Regulator Output Limit (3 pin VID)

This jumpers offers extra security and control over the VID core voltage settings. The default setting limits the voltage output to the default, and does not allow any excess voltage emission to occur. Resetting the jumper to [2-3] does not restrict voltage.



7) Keyboard Wake Up (3 pin KBWK)

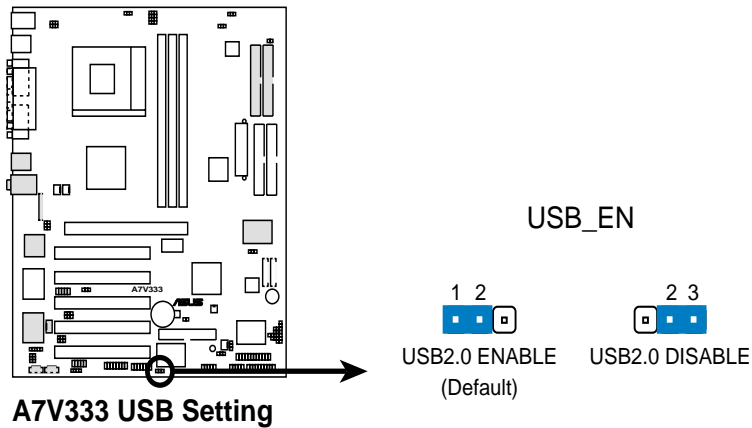
This allows you to disable or enable the keyboard power up function. Set this jumper to *Enable* if you wish to use your keyboard (by pressing <Spacebar>) to power up your computer. This feature requires an ATX power supply that can supply at least 300mA on the +5VSB lead. The default is set to *Enable*. (The computer will not power ON if you set this to *Enable* but do not have the correct ATX power supply. **NOTE:** This jumper must be set in conjunction with *Wake On PS2 KB/PS2 Mouse/CIR* in 4.5.1 *Power Up Control*.)



A7V266-E Keyboard Wake Up

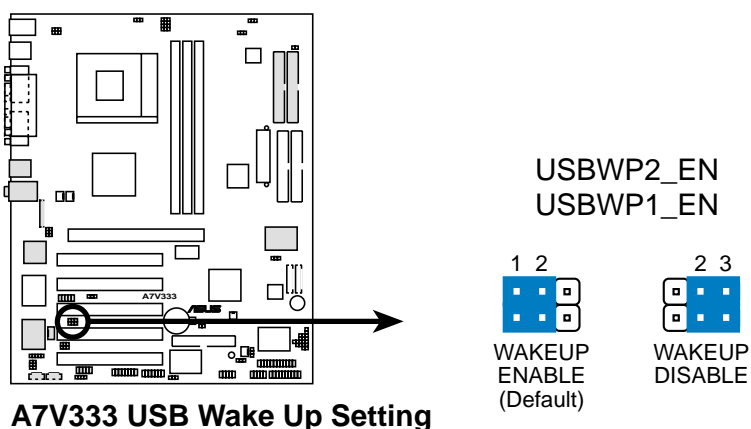
8) USB 2.0 Compliant Device Enable (3 pin USB)

This jumper enables or disables the Universal Serial Bus (USB) 2.0 capability. The default is set to enable [1-2] for use with USB 2.0 compliant devices. NOTE: This jumper activates rear panel ports USB20_12.



9) USB Wakeup Enable (2x3 pin USBWP2_EN, USBWP1_EN)

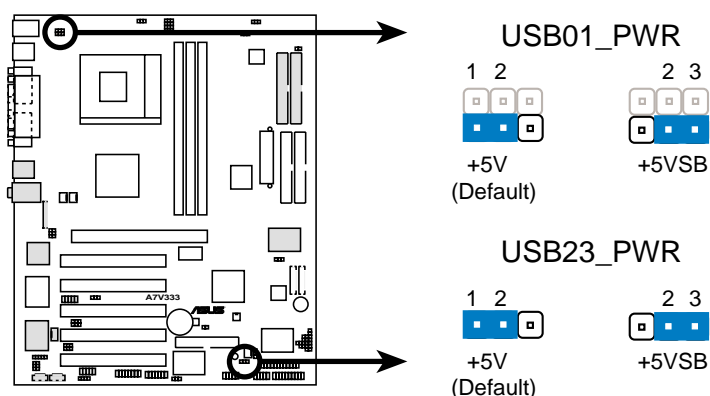
By default, these jumpers enable Wakeup power to the USB ports. The circuit facilitates external power up from a USB device source. Switching the jumper caps to [2-3] disables all device wakeup power to the USB ports.



10) USB Device Wake-up (2x3 pin USB01_PWR/USB23_PWR)

Set these jumpers to +5V to allow wake up from the S1 sleep state (CPU stopped; RAM refreshed; system running in low power mode) using the connected USB devices. Set to +5VSB to allow wake up from S3 sleep state (no power to CPU; RAM in slow refresh; power supply in reduced power mode). The default setting for the three jumpers is 1-2 to select +5V (because not all computers have the appropriate power supply).

The USB01_PWR jumper activates the rear panel USB ports. The USB23_PWR jumper activates the internal header, USB2_3.



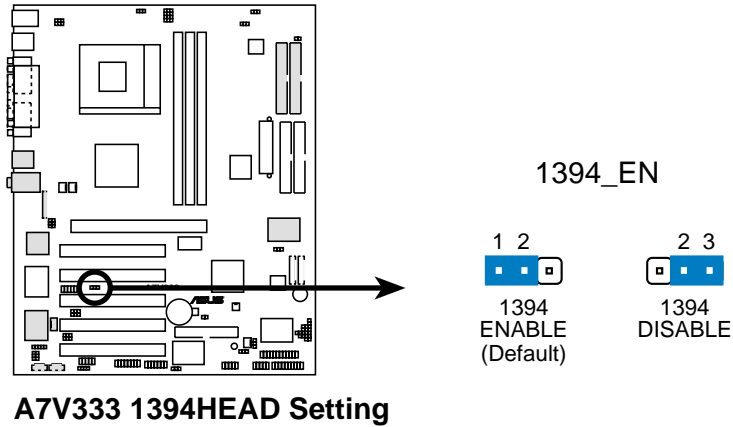
A7V333 USB Device Wake Up



NOTE! This feature requires an ATX power supply that can supply at least 2A on the +5VSB lead when these jumpers are set to +5VSB. Otherwise, the system does not power up. The total current consumed must NOT exceed the power supply capability (+5VSB) whether under normal working conditions or in sleep mode.

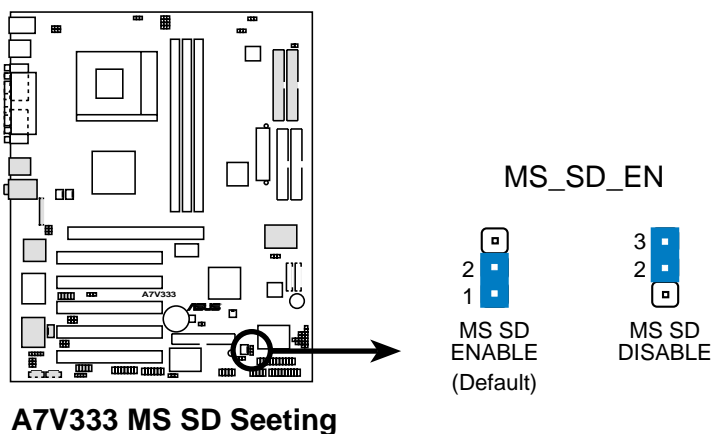
11) IEEE-1394 Device Enable (3 pin 1394_En)

This jumper opens the circuit to the 1394 headers. By default, [1-2] the circuit is already open. Set to pins [2-3] to disable power to the 1394 header.



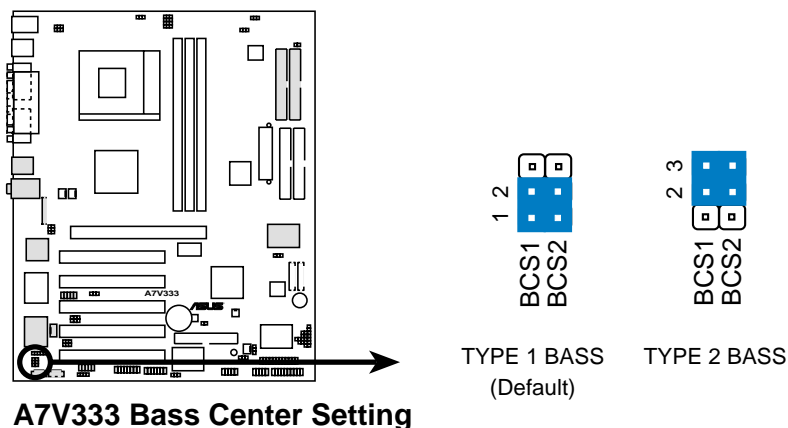
12) MS SD Device Enable (3 pin MS_SD_EN)

This jumper opens the circuit to the MS SD headers. By default, [1-2] the circuit is already open. Set to pins [2-3] to disable power to the MS SD header.



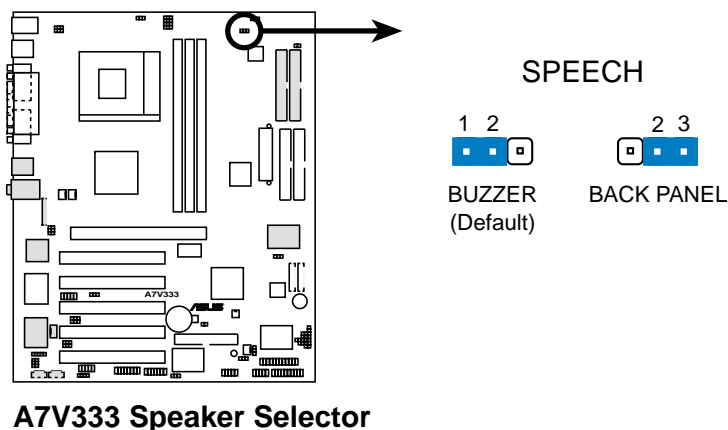
13) Bass Center Setting (2x3 pin CENTER/BASS, BASS/CENTER)

Use these jumpers in conjunction with the C-Media PCI Audio Driver and to adjust output for 4 or 6 speaker audio. No audio standard exists for the three pick-up surfaces on male audio jacks, therefore it may be necessary to switch jumpers from the default position, type 1, to type 2, in order to reroute signals among the internal leads in the Line-In, Line-Out, Mic female sockets. Make sure a test is made using the Audio Driver software setup available on the Support CD.



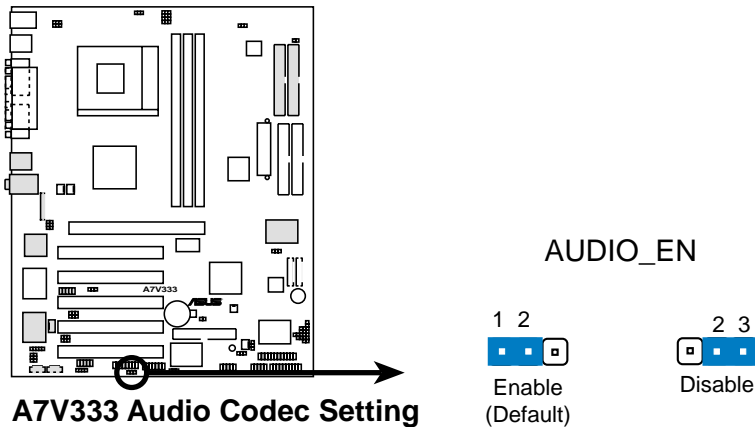
14) Speaker Selector (3 pin SPEECH)

This jumper specifies which speaker to use for the ASUS POST Reporter function. Set to pins [1-2] to use the internal buzzer (usually included in the chassis). Set to pins [2-3] to feed an external speaker to the Line-out jack (lime color).



15) Audio Setting (3 pin Audio_En)

The onboard 6 channel audio chip may be enabled or disabled using these jumpers. The default, [1-2], enables the audio setting. Disable the onboard audio system if using a PCI audio card on any of the expansion slots.

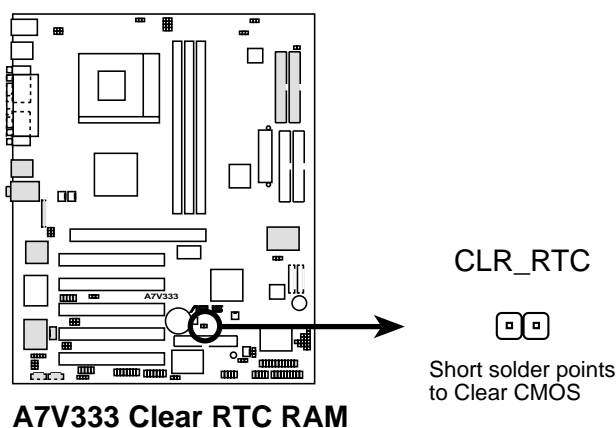


16) Clear RTC RAM (CLR_RTC)

This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The RAM data in CMOS is powered by the onboard button cell battery.

To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.
2. Remove the battery.
3. Short the two solder points by touching a conductive metal object to both points, like a paperclip or a screwdriver head.
4. Re-install the battery.
5. Plug the power cord and turn ON the computer.
6. Hold down the key during the boot process and enter BIOS setup to re-enter data.



2.8 Connectors

This section describes and illustrates the internal connectors on the motherboard.



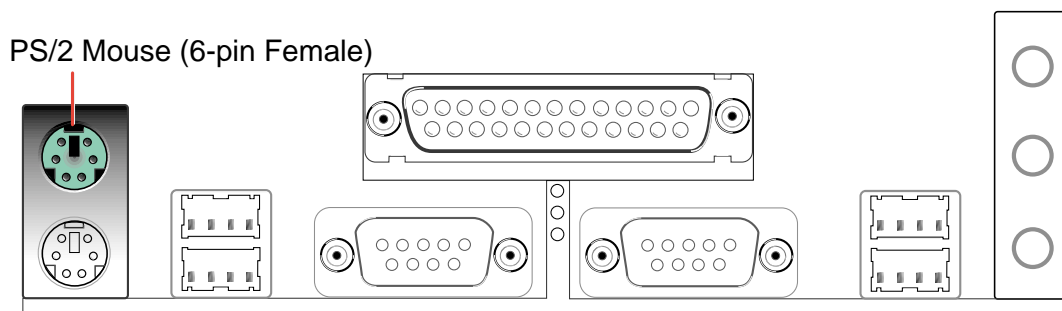
WARNING! Some pins are used for connectors or power sources. These are clearly distinguished from jumpers in the Motherboard Layout. Placing jumper caps over these connector pins will cause damage to your motherboard.



IMPORTANT! Ribbon cables should always be connected with the red stripe to Pin 1 in the connector socket.

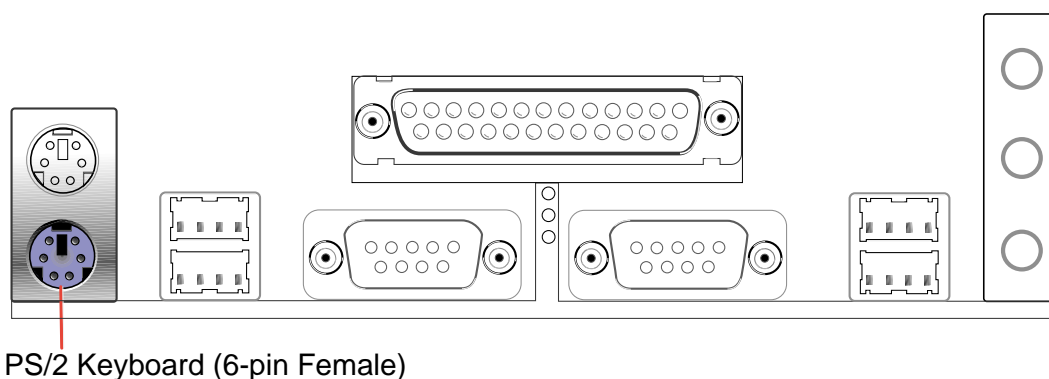
1) PS/2 Mouse Port (Green 6-pin PS2KBMS)

The system automatically directs IRQ12 to the PS/2 mouse if one is detected. If no mouse is detected, IRQ12 become available to expansion cards. See **PS/2 Mouse Function Control** in **4.4 Advanced Menu**.



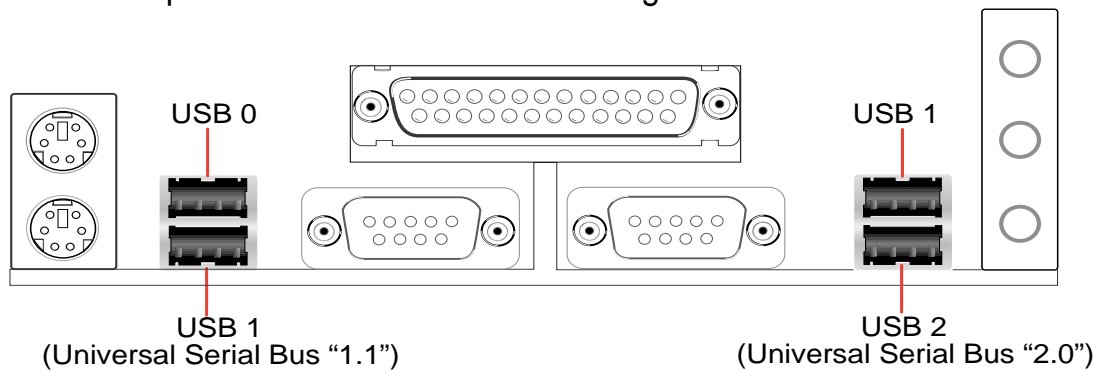
2) PS/2 Keyboard Port (Purple 6-pin PS2KBMS)

This connection is for a standard keyboard using an PS/2 plug (mini DIN). This connector does not allow standard AT size (large DIN) keyboard plugs. You may use a DIN to mini DIN adapter on standard AT keyboards.



3) Universal Serial Bus Ports 0, 1, 2 & 3 (Black two 4-pin USB)

Four USB ports are available for connecting USB devices.

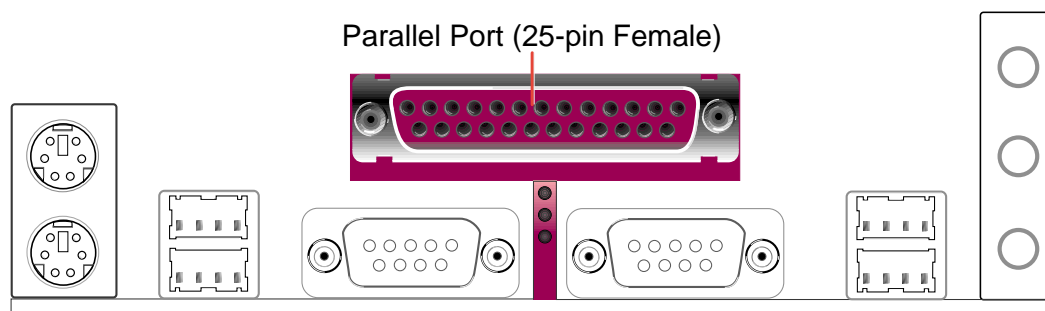


4) Parallel Port (Burgundy 25-pin PRINTER)

You can enable the parallel port and choose the IRQ through **Onboard Parallel Port** (see **4.4.2 I/O Device Configuration**).

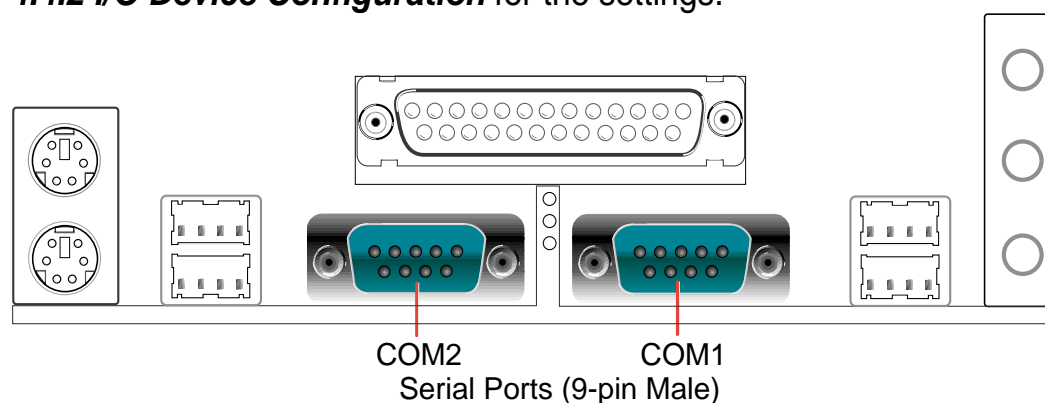


NOTE! Serial printers must be connected to the serial port.



5) Serial Ports (Teal/Turquoise 9-pin COM1 / 9-pin COM2)

Two serial ports can be used for pointing devices or other serial devices. To enable these ports, see **Onboard Serial Port 1 / Onboard Serial Port 2** in **4.4.2 I/O Device Configuration** for the settings.

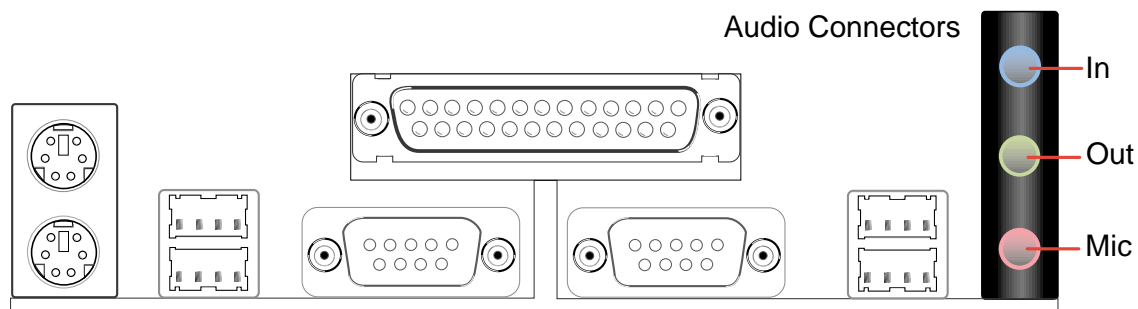


6) Audio Connectors (Three 1/8" AUDIO) (optional)

The **Line Out** (lime) connects a headphone or speakers. The **Line In** (light blue) connects a tape players or other audio sources. The **Mic** (pink) connects a microphone.

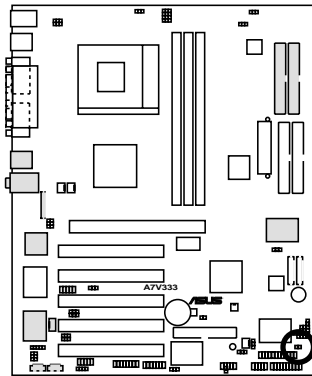


NOTE! The functions of the audio connectors Line Out, Line In, and Mic change when the 6-channel audio feature is enabled. Refer to **Chapter 5. SOFTWARE SETUP**.



7) IDE Activity LED (2-pin IDELED)

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



A7V333 IDE Activity LED

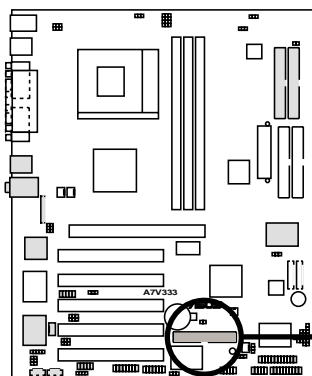
TIP: If the case-mounted LED does not light, try reversing the 2-pin plug.

IDELED



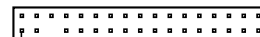
8) Floppy Disk Drive Connector (34-1 pin FLOPPY)

This connector supports the provided floppy 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).**



A7V333 Floppy Disk Drive Connector

FLOPPY



PIN 1

NOTE: Orient the red markings on the floppy ribbon cable to PIN 1.

9) Primary (Blue) / Secondary (Black) IDE Connectors

(40-pin PRIMARY IDE and SECONDARY IDE)

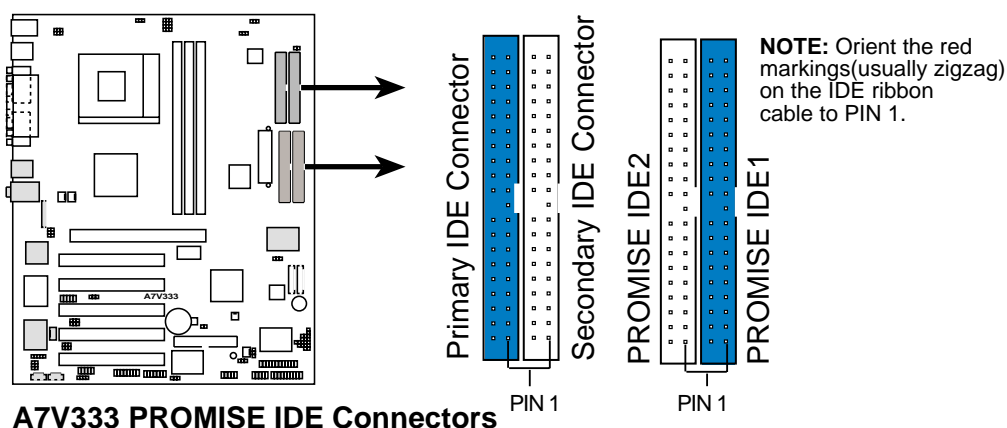
(40-pin PROMISE IDE1 and PROMISE2 IDE)

The Primary and Secondary IDE connectors support the IDE hard disk ribbon cables supplied with the motherboard. Connect the cable's blue connector to the motherboard's primary IDE connector (recommended) or the secondary IDE connector. Connect the opposite end of the cable to your UltraDMA133/100/66 device (hard disk drive). If a second hard disk drive is connected, you may reset its jumper to Slave or Master/Slave mode. Non-UltraDMA133/100/66 devices should be connected to the secondary IDE connector. BIOS supports specific device bootup (**see 4.6 Boot Menu.**) UltraDMA/133 is backward compatible with DMA100/66/33 and with all with existing DMA devices and systems.

~ The A7V333 motherboard is supplied with two extra onboard IDE connectors: one Promise IDE1 and one Promise IDE2. Use them to setup the RAID 0 or 1 arrays and to support extra ATAPI devices. A total of eight hard-disks, two on each IDE connector, can be connected to the A7V333; but, only two can function in a RAID array. **See 5.4 Software Setup** for more information about setting up a RAID array.

NOTE! For high-performance and RAID 0 or 1 set ups, always setup two hard disks with *two separate* ribbon cables, one for the primary IDE connector and another for the secondary IDE connector. Usually, both disks must be set to the Master settings. Also, you may install one operating system on an IDE drive and another on a SCSI drive and select the boot disk through BIOS. (*See 4.6 Boot Menu.*) Do not connect any other types of IDE devices to the Promise IDE connectors; they support hard disk drive devices only.

IMPORTANT! UltraDMA100 and UltraDMA133 IDE devices require a 40-pin 80-conductor cable and RAID arrays *only operate* with such cables.

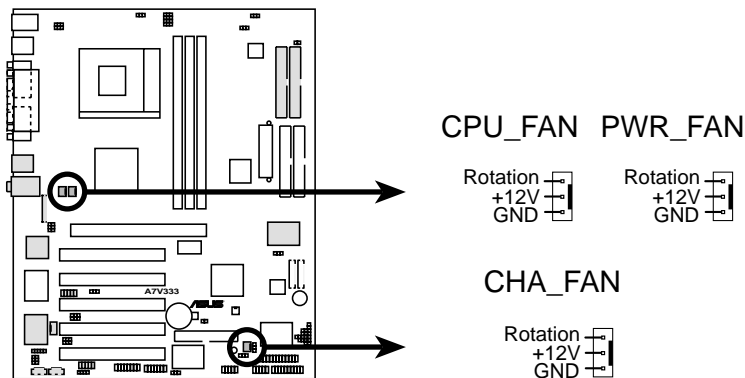


10) CPU Fan, Power Fan, and Chassis Fan Connectors (3x3 pin CPU_, PWR_, CHA_FAN)

Three fan connectors support cooling fans of 350mA (4.2 Watts) or less. Orient the fans so that airflow flows across the onboard heat sinks instead of expansion slots. The fan wiring and plug vary depending on the type employed. Connect the fan cable to the connector, ensuring that the black wire matches the ground pin. (Use the "Rotation" signal only with a specially designed fan with a rotation signal. You can monitor the Rotations Per Minute (RPM) using ASUS PC Probe (see **6. SOFTWARE REFERENCE**).



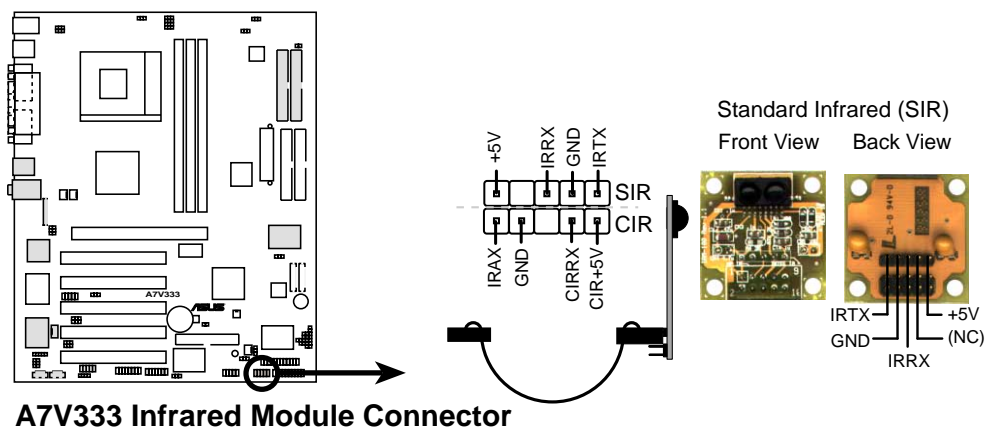
WARNING! Make sure to connect the fan cables to the fan connectors. Lack of sufficient airflow within the system could cause damage to the motherboard. **These are not jumpers, do not place jumper caps over these connectors!**



A7V333 12-Volt Fan Connectors

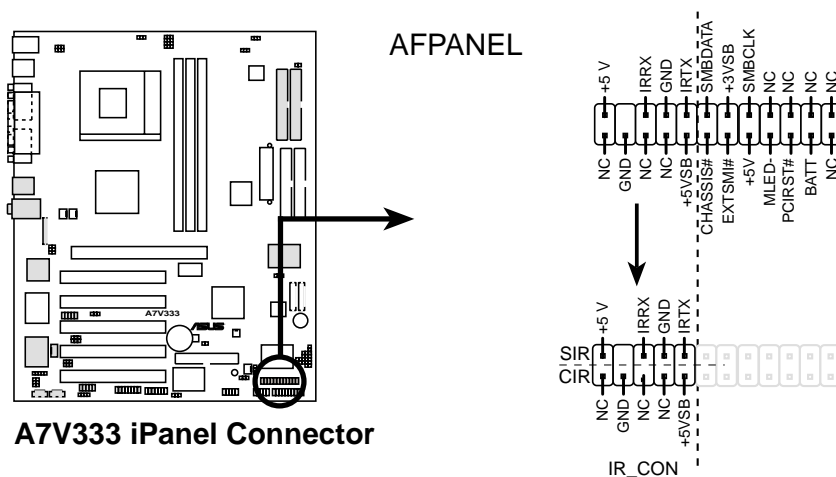
11) Infrared Module Connector (10-1 pin IR_CON)

This connector supports an optional wireless transmitting and receiving infrared module. This module mounts to a small opening on system cases that support it. Configure the IR setting through **UART2 Use Infrared** to select whether UART2 is directed for use with COM2 or IrDA (see **4.4.2 I/O Device Configuration**). Use the five pins as shown and connect a ribbon cable from the module to the motherboard SIR connector according to the pin definitions. (A SIR module does not come with the motherboard package. The CIR module is currently unavailable.)



12) ASUS iPanel Connector (24-1 pin AFPANEL)

This connector supports an optional ASUS iPanel, an easy to access drive bay with front I/O ports, status LEDs, and space reserved for a hard disk drive. Alternatively, if not using an ASUS iPanel, connect an optional wireless transmitting and receiving infrared module to the SIR connector, or an optional consumer infrared connector set for wireless transmitting/remote control functions through one external infrared module.

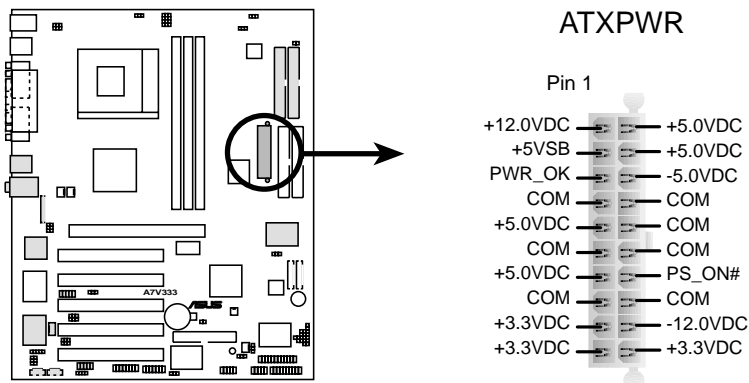


13) Power Supply Connectors (20-pin block ATXPWR)

This connector supports an ATX 12V power supply. The plug from the power supply fits in only one orientation. Push down firmly ensuring that the pins are aligned.



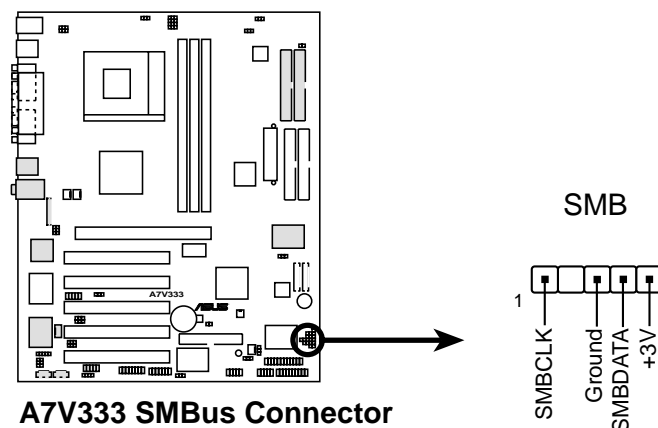
IMPORTANT! Make sure that the ATX 12V power supply (minimum recommended wattage: 230W) can supply at least 10mA on the +5-volt standby lead (+5VSB). The system may become unstable and may experience difficulty powering up if the power supply is inadequate. For Wake-On-LAN support, the ATX power supply must supply at least 720mA +5VSB.



A7V333 ATX Power Connectors

14) SMBus Connector (5-1 pin SMB)

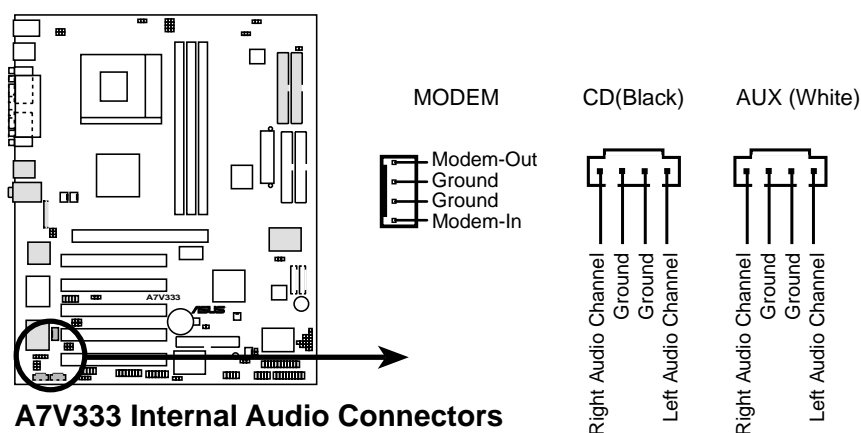
This connector supports SMBus (System Management Bus) devices. SMBus devices communicate by means of the SMBus with an SMBus host and/or other SMBus devices. SMBus is a multi-device bus that permits multiple chips to connect to the same bus and enable each one to act as a master by initiating data transfer.



A7V333 SMBus Connector

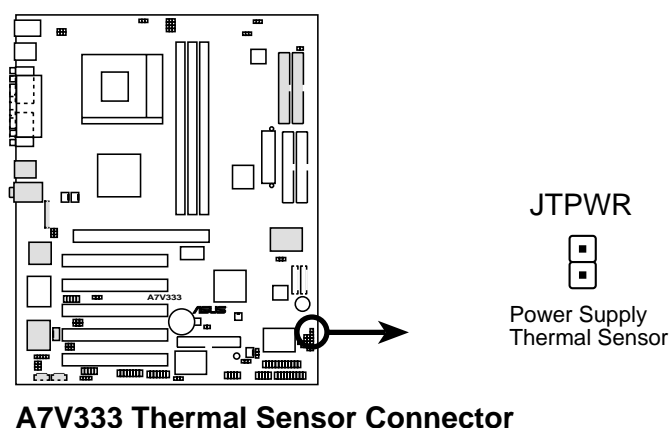
15) Internal Audio Connectors (4-1 pin CD, AUX, MODEM) (optional)

These connectors allow you to receive stereo audio input from sound sources as a CD-ROM, TV tuner, or MPEG card. The MODEM connector allows the onboard audio to interface with a voice modem card with a similar connector. It also allows the sharing of mono_in (such as a phone) and a mono_out (such as a speaker) between the audio and a voice modem card.



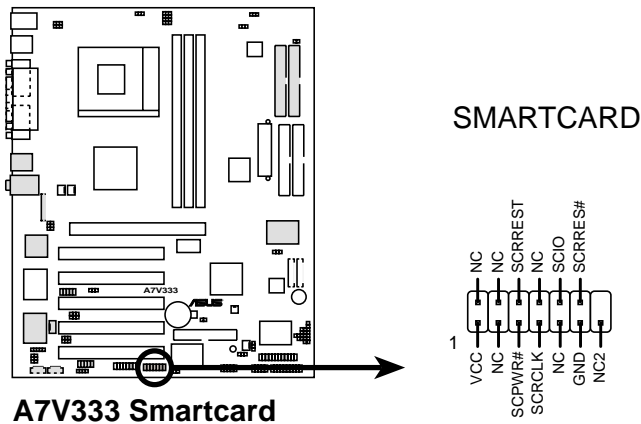
16) Power Supply Thermal Sensor Connector (2 pin JTPWR)

If you have a power supply with thermal monitoring, connect its thermal sensor cable to this connector.



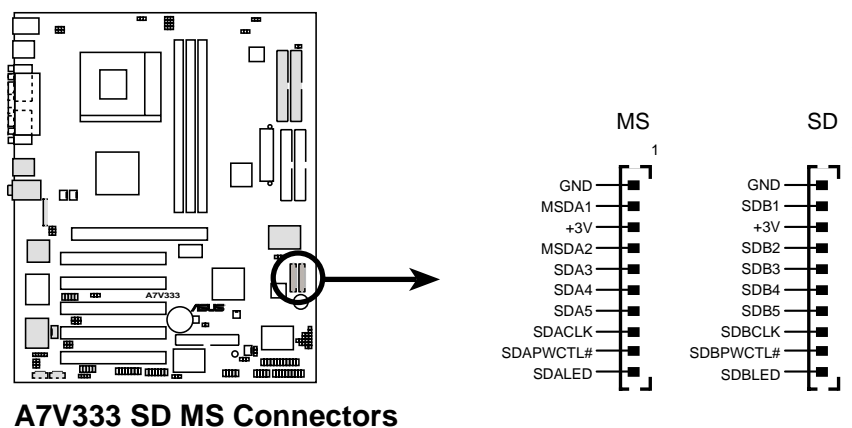
17) Smart Card Reader Connector (14-1 pin SMARTCARD)

This connector accommodates a Smart Card Reader that allows you to conveniently make transactions such as financial, health care, telephony, or traveling services through a Smart Card user interface software. When using this connector, configure the **UART2 Use As** parameter in BIOS to set UART2 for use with Smart Card. See Advanced BIOS sub-menu, “I/O Device Configuration” for details.



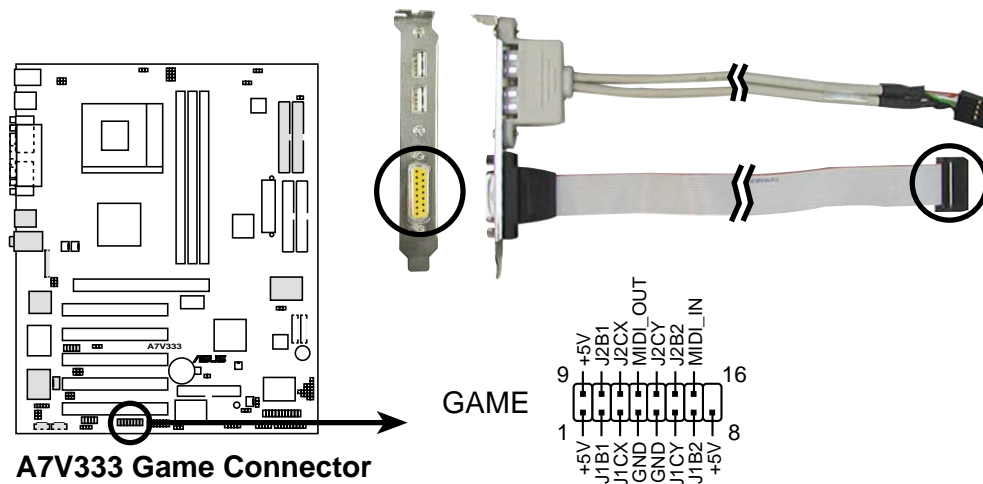
18) SD and MS Connector (14-1 pin SD, MS)

These connectors support sophisticated memory devices: Secure Digital (SD) memory card and Memory Sticks (MS). They facilitate fast and secure downloading of all types of digital files. The SD and MS media may also be used to record photos, music and movies.



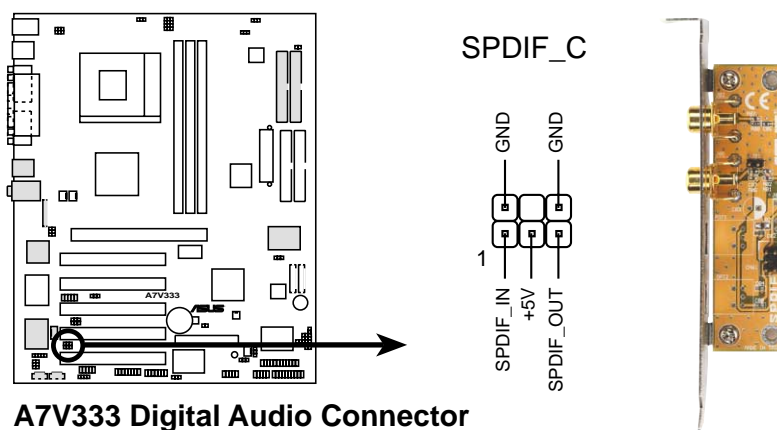
19) Game Connector (16-1 pin GAME)

This connector supports an external game port. An example of a PCI game port is illustrated.



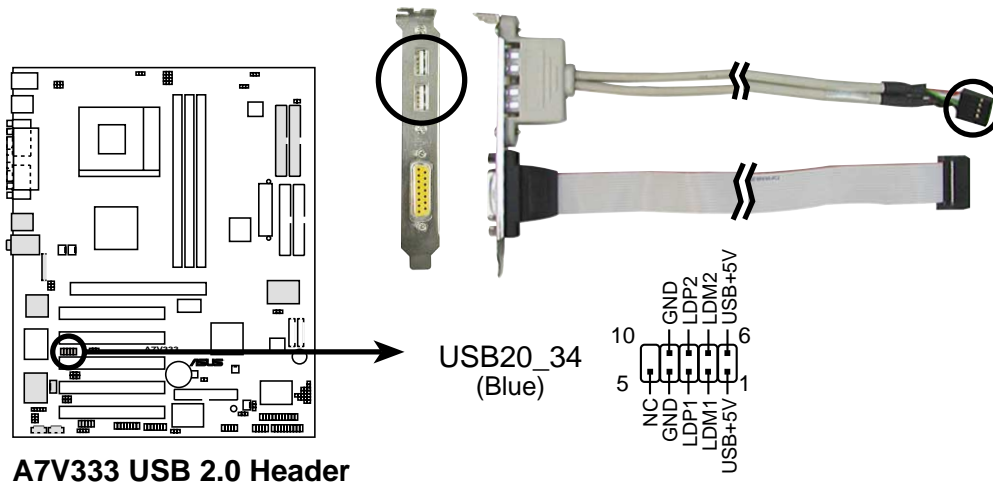
20) Digital Audio Interfaces (6-1 pin SPDIF_C)

These connectors supply an SPDIF audio cable that outputs digital instead of analog sound from CD-ROM, DVD-ROM, CD-RW, and advanced sound cards such as SoundBlaster Live. (The SPDIF module is not included in this product.)

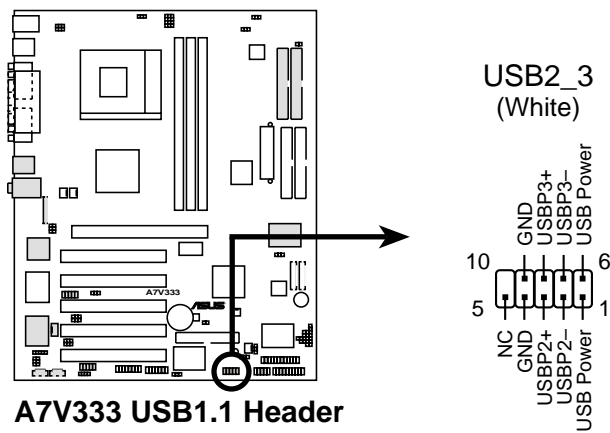


21) USB Headers (10-1 pin USB20_34, USB2_3)

If the USB port connectors on the back panel are inadequate, two USB headers are available for four additional USB port connectors. Connect a 2-port USB connector set to a USB header and mount the USB bracket to an open slot in the chassis.



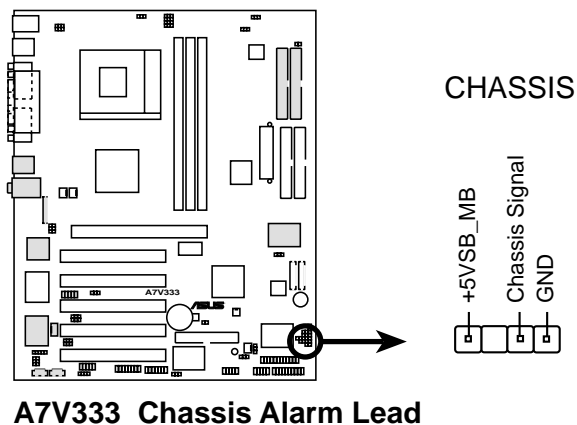
A7V333 USB 2.0 Header



A7V333 USB1.1 Header

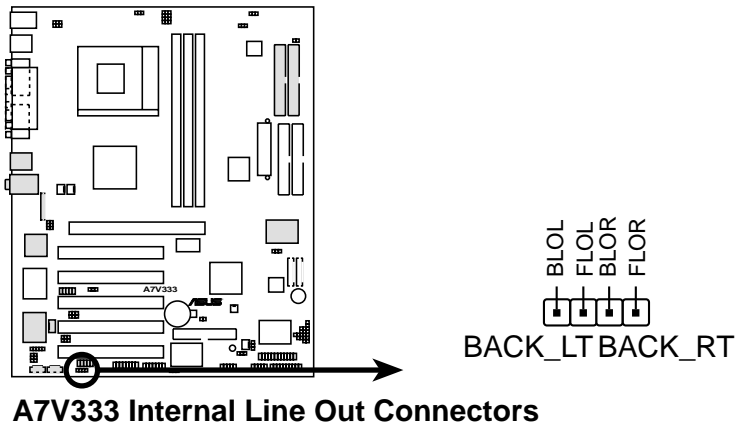
22) Chassis Open Alarm Lead (4 pin CHASSIS)

This lead is intended for a chassis designed to support intrusion detection. The lead requires an external detection mechanism such as a chassis intrusion monitor/sensor or microswitch. When any chassis component is removed, the sensor is triggered and a high-level signal is sent to this lead to record a chassis intrusion event. The event is then be processed by software such as LDCM. When not using the chassis intrusion lead, place a jumper cap over the pins to close the circuit. Removing the jumper cap will prevent the system from booting up.



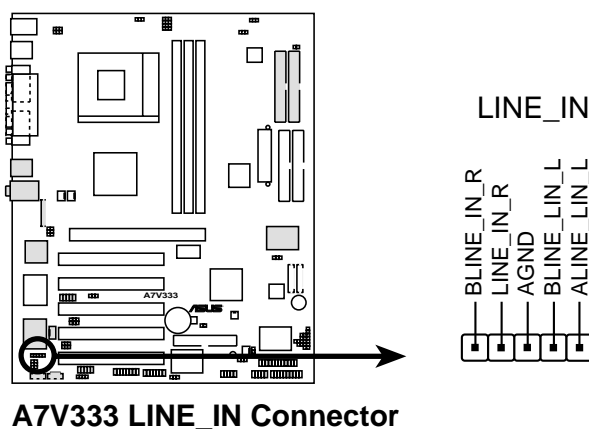
23) Line-out Selector Jumpers (4 pin BACK_LT / BACK_RT)

By default, these jumpers are shorted (jumpers on) to route the signal from the audio controller to the rear panel Line Out jack to make it available for audio out devices such as speakers or a headphone. If you connect the Intel Front Panel audio cable to the IPANEL connector (see next page), then remove the caps from these two jumpers to permit automatic switching of audio signals between the rear panel Line Out jack and the Intel audio cable.



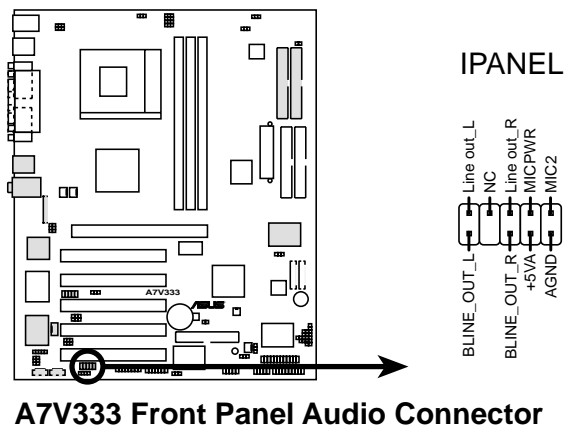
24) Audio Input Line In Header (LINE_IN)

This connector supports audio input on left and right stereo audio channels.
NOTE: The motherboard ships with Jumper caps over pins 1-2 and 4-5. Remove them **only** when making audio input connections.



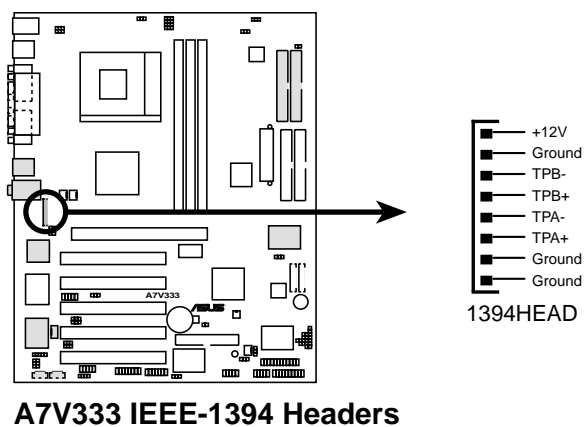
25) ASUS Front Audio Connector (10-1 pin IPANEL)

Connect the audio cable to this for front panel audio control.

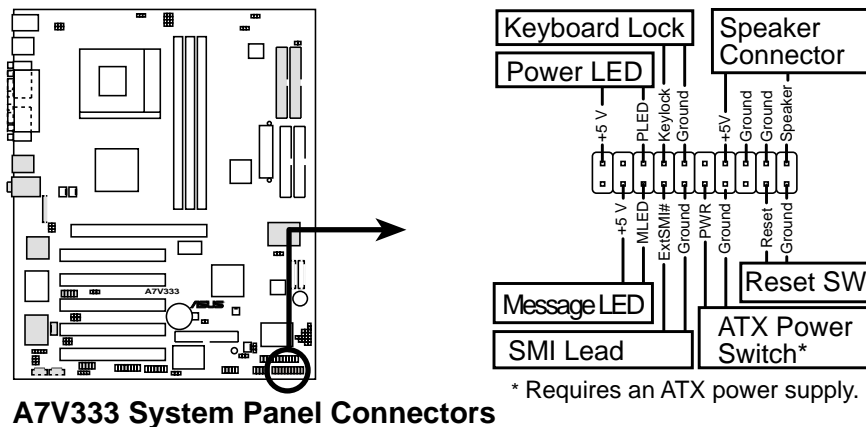


26) IEEE-1394 Header (8-pin 1394HEAD) (Optional)

This header supports an IEEE-1394 serial connector cable set that mounts to a standard expansion slot in the computer case. 1394-compliant internal fixed disk drives may also be connected to these headers.



The following 20-pin PANEL illustration is for items 27-33.



27) System Power LED Lead (3-1 pin PLED)

This 3-1 pin connector supplies the system power LED. The LED lights up when the system power is on, and the LED blinks when the system is in sleep or soft-off mode.

28) Keyboard Lock Switch Lead (2 pin KEYLOCK)

This 2-pin connector supplies the case-mounted key switch for keyboard locking.

29) System Warning Speaker Lead (4 pin SPEAKER)

This 4-pin connector supplies the case-mounted speaker to sound system beeps and warnings.

30) System Message LED Lead (2 pin MLED)

This 2-pin connector supports the system message LED to indicate receipt of messages from a fax/modem. The normal status for this LED is ON, when there is no incoming data signal. The LED blinks when data is received. The system message LED feature requires an ACPI OS and driver support.

31) System Management Interrupt Lead (2 pin SMI)

This 2-pin connector permits switching to suspend mode, or “Green” mode, in which system activity is instantly decreased to save power and to expand the life of certain system components. Attach the case-mounted suspend switch this 2-pin connector.

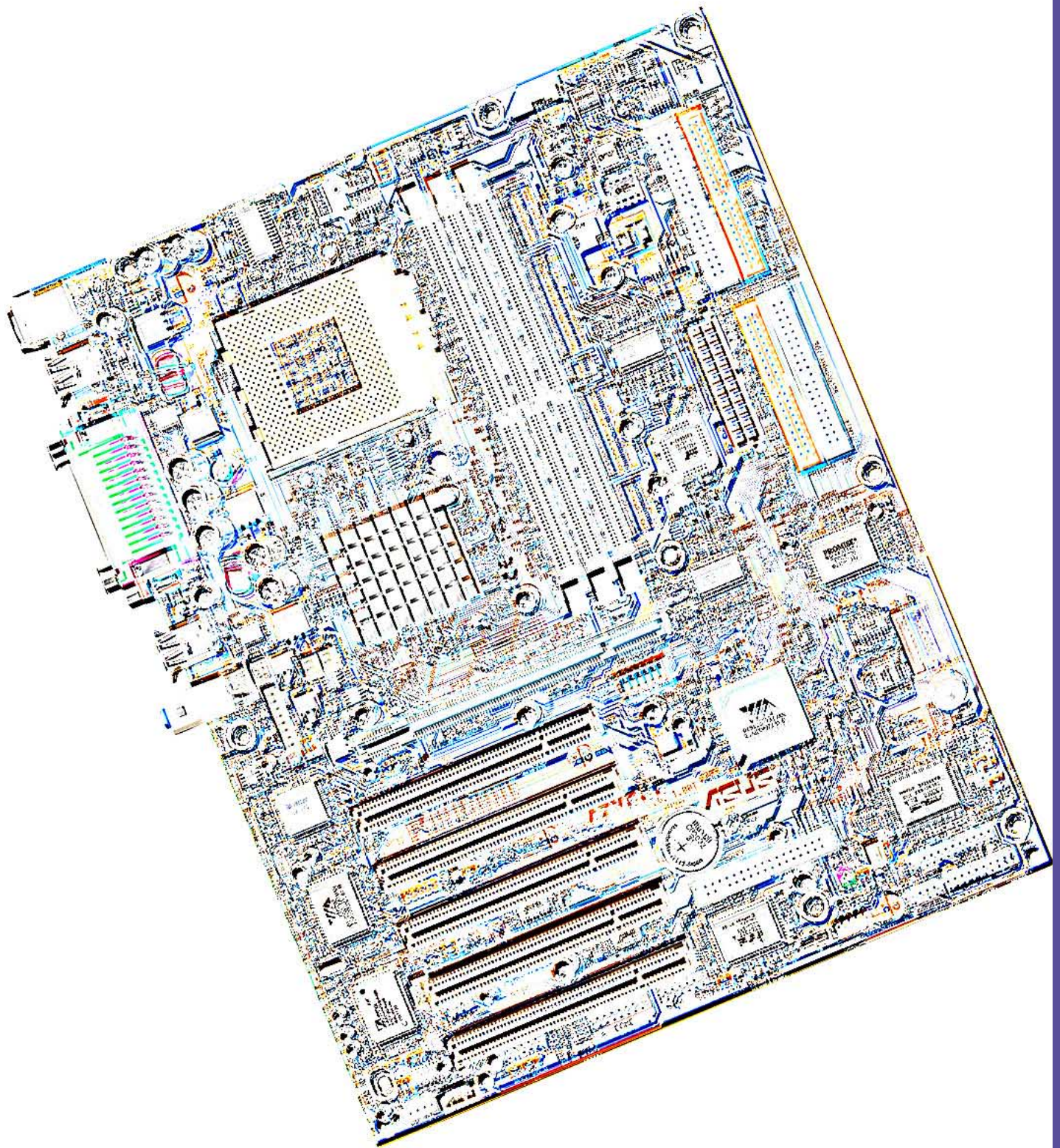
32) ATX Power Switch / Soft-Off Switch Lead (2 pin PWR)

The system power is controlled by a momentary switch attached to this connector. Pressing the button switches the system between ON and SLEEP, or ON and SOFT OFF, depending on the BIOS or OS settings. Pressing the button while in the ON mode for more than 4 seconds turns the system off.

33) Reset Switch Lead (2-pin RESET)

This 2-pin connector supports the case-mounted reset switch for rebooting the system without turning off the power switch.

Chapter 3



Powering up

3.1 Starting up for the first time

1. After making all the connections, replace the system case cover.
2. Be sure that all switches are off.
3. Connect the power cord to the power connector at the back of the system chassis.
4. Connect the power cord to a power outlet that is equipped with a surge protector.
5. Turn on the devices in the following order:
 - a. Monitor
 - b. External SCSI devices (starting with the last device on the chain)
 - c. System power (if you are using an ATX power supply, you need to switch on the power supply as well as press the ATX power switch on the front of the chassis).
6. After applying power, the power LED on the system front panel case lights up. For ATX power supplies, the system LED lights up when you press the ATX power switch. If your monitor complies with “green” standards or if it has a “power standby” feature, the monitor LED may light up or switch between orange and green after the system LED turns on. The system then runs the power-on tests. While the tests are running, the BIOS beeps or additional messages appear on the screen. If you do not see anything within 30 seconds from the time you turned on the power, the system may have failed a power-on test. Check the jumper settings and connections 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



You will not hear the BIOS beeps when the ASUS POST Reporter is enabled. You will hear the vocal POST messages instead.

7. At power on, hold down <Delete> to enter BIOS Setup. Follow the instructions in Chapter 4.

3.2 Vocal POST Messages

This motherboard includes the Winbond speech controller to support a special feature called the ASUS POST Reporter™. This feature gives you vocal POST messages and alerts to inform you of system events and boot status. In case of a boot failure, you will hear the specific cause of the problem.

These POST messages are customizable using the Winbond Voice Editor software that came with your package. You can record your own messages to replace the default messages.

Following is a list of the default POST messages and their corresponding actions, if any.

POST Voice Message	Action
No CPU installed	<ul style="list-style-type: none">• Install an Intel Pentium 4 478/Northwood Processor into the CPU socket.
System failed CPU test	<ul style="list-style-type: none">• Check the CPU if properly installed.• Call ASUS technical support for assistance. See the “ASUS contact information” on page x.
System failed memory test	<ul style="list-style-type: none">• Install 168-pin unbuffered PC133 DIMMs into the DIMM sockets.• Check if the DIMMs on the DIMM sockets are properly installed.• Make sure that your DIMMs are not defective.• Refer to section “2.3 System memory” for instruction on installing a DIMM.
System failed VGA test	<ul style="list-style-type: none">• Install a PCI VGA card into one of the PCI slots, or a 1.5V AGP card into the AGP slot.• Make sure that your VGA/AGP card is not defective.
System failed due to CPU over-clocking	<ul style="list-style-type: none">• In JumperFree mode, check your CPU settings in BIOS and make sure you only set to the recommended settings. See section “4.4 Advanced menu.”• In jumper mode, refer to section “2.7 Switches and jumpers.”

POST Message	Action
No keyboard detected	<ul style="list-style-type: none"> • Check your keyboard if properly connected to the purple PS/2 connector on the rear panel. • See section “1.3.1 Identifying the motherboard components” for the location of the connector.
No floppy disk detected	<ul style="list-style-type: none"> • Make sure you have connected a floppy disk to the floppy disk connector on the motherboard. • See section “2.8 Connectors.”
No IDE hard disk detected	<ul style="list-style-type: none"> • Make sure you have connected an IDE hard disk drive to the one of the IDE connectors on the motherboard. • See section “2.8 Connectors.”
CPU temperature too high	<ul style="list-style-type: none"> • Check CPU fan if working properly.
CPU fan failed	<ul style="list-style-type: none"> • Check the CPU fan and make sure it turns on after you applied power to the system.
CPU voltage out of range	<ul style="list-style-type: none"> • Check your power supply and make sure it is not defective. • Call ASUS technical support for assistance. See the “ASUS contact information” on page x.
System completed Power-On Self Test	<ul style="list-style-type: none"> • No action required
Computer now booting from operating system	<ul style="list-style-type: none"> • No action required



You may disable the ASUS POST Reporter in the BIOS setup. See section “4.4.2 I/O Device Configuration”.

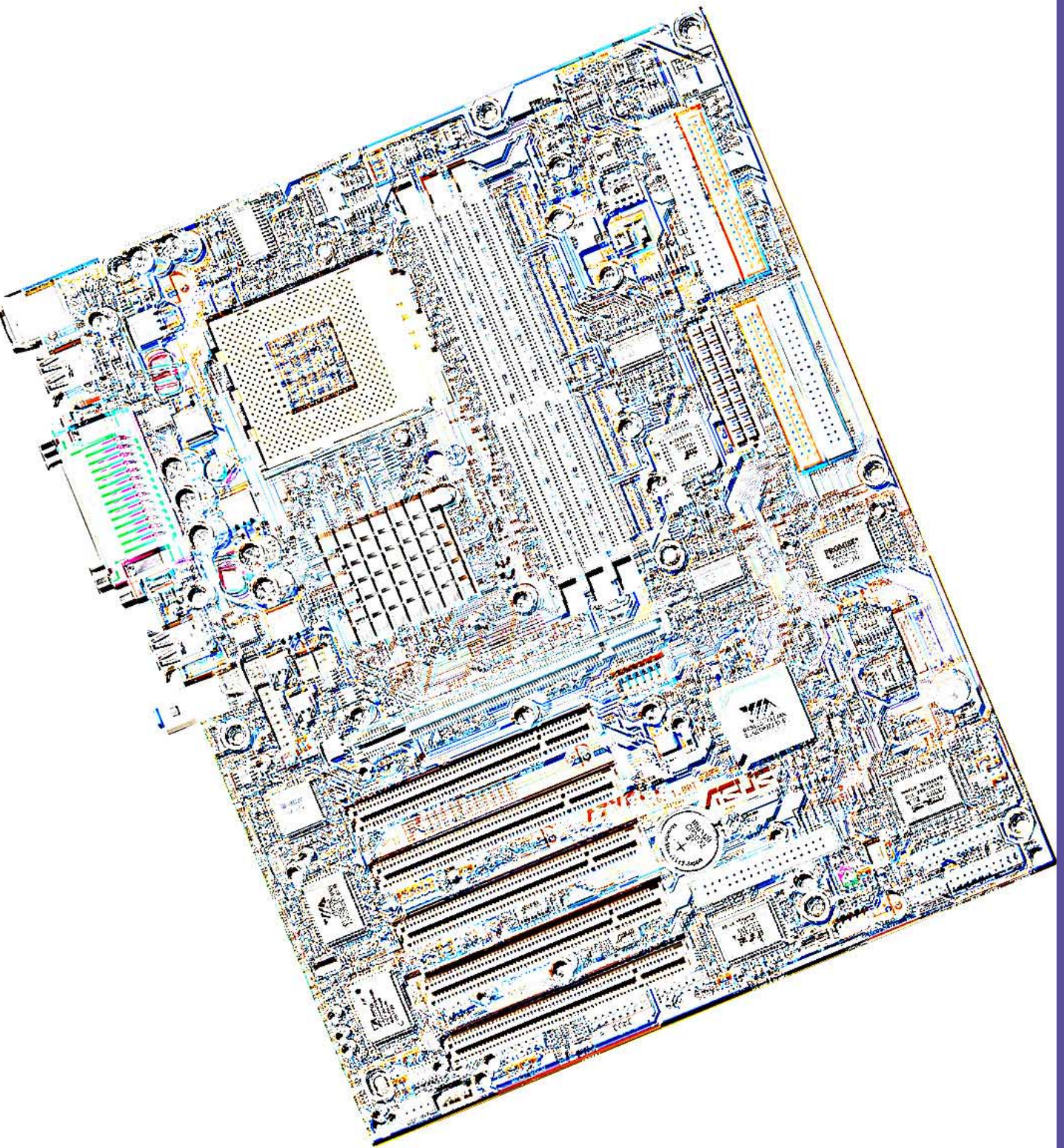
3.3 Powering off the computer

You must first exit the operating system and shut down the system before switching off the power. For ATX power supplies, you can press the ATX power switch after exiting or shutting down the operating system. If you use Windows 95/98/2000/XP, click the Start button, click Shut Down, then click the OK button to shut down the computer. The power supply should turn off after Windows shuts down.



The message “You can now safely turn off your computer” does not appear when shutting down with ATX power supplies.

Chapter 4



BIOS setup

4.1 Managing and updating your BIOS

4.1.1 Using the computer system for the first time

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 disk. DO NOT copy `AUTOEXEC.BAT` and `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 boot disk you created.



NOTE! AFLASH works only in DOS mode. It does not work in the DOS prompt within Windows, and does not work with certain memory drivers that may be loaded when you boot from the hard drive. It is recommended that you reboot using a floppy disk.

3. Reboot the 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.

```
ASUS ACPI BIOS
FLASH MEMORY WRITER V1.29
Copyright (C) 1994-99, ASUSTeK COMPUTER INC.

Flash Memory: Winbond W29C020 or SST 29EE020 or Intel B2802AB

Current BIOS Version: ASUS XXX-XX ACPI BIOS Revision 100X
BIOS Model           : XXX-XX
BIOS Built Date      : 09/25/98

Choose one of the followings:
1. Save Current BIOS To File
2. Update BIOS Including Boot Block and ESCD

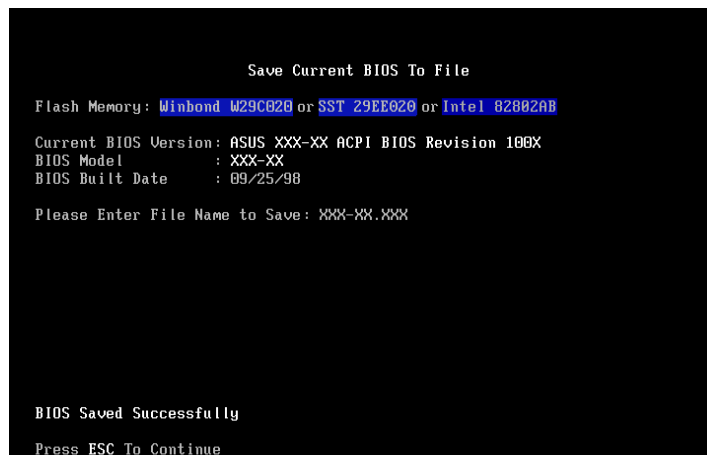
Enter choice: [1]

Press ESC To Exit
```



IMPORTANT! If the word “unknown” appears 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, then press <Enter>.

4.1.2 Updating BIOS procedures



CAUTION! Update the BIOS only if you have problems with the motherboard and you are sure that the new BIOS revision will solve your problems. Careless updating may result to more problems with the motherboard!

1. FTP) (see ASUS CONTACT INFORMATION on page x for details) and save to the boot floppy disk you created earlier.
2. Boot from the floppy disk.
3. At the "A:\:" prompt, type AFLASH and then press <Enter>.
4. At the Main Menu, type 2 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, then press <Enter>.

To cancel this operation, press <Enter>.

```
Update BIOS Including Boot Block and ESCD
Flash Memory: Winbond W29C020 or SST 29EE020 or Intel 82802AB
Current BIOS Version: ASUS XXX-XX ACPI BIOS Revision 100X
BIOS Model          : XXX-XX
BIOS Built Date     : 09/25/98
Please Enter File Name for NEW BIOS: A:\XXX-XX.XXX
```

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

```
Update BIOS Including Boot Block and ESCD
Flash Memory: Winbond W29C020 or SST 29EE020 or Intel 82802AB
BIOS Version
[CURRENT ] ASUS XXX-XX ACPI BIOS Revision 100X
[test.awd] ASUS XXX-XX ACPI BIOS Revision 100X
BIOS Model
[CURRENT ] XXX-XX
[test.awd] XXX-XX
Date of BIOS Built
[CURRENT ] 09/25/98
[XXXX.XXX] 05/29/00
Check sum of 1001.010 is F266.
Are you sure (Y/N) ? [Y]
Press ESC To Return to Main Menu
```

7. The utility starts to program the new BIOS information into the Flash ROM. The boot block is updated automatically only when necessary. This minimizes the possibility of boot problems in case of update failures. When the programming is done, the message “*Flashed Successfully*” appears.

```
Update BIOS Including Boot Block and ESCD
Flash Memory: Winbond W29C020 or SST 29EE020 or Intel 82802AB
BIOS Version
[CURRENT] ASUS XXX-XX ACPI BIOS Revision 100X
[test.awd] ASUS XXX-XX ACPI BIOS Revision 100X
BIOS Model
[CURRENT] XXX-XX
[test.awd] XXX-XX
Date of BIOS Built
[CURRENT] 09/25/99
[XXXX.XXX] 05/29/00
Check sum of 1001.010 is F266.
Are you sure (Y/N) ? [Y]
Block Erasing -- Done
Programming -- 3FFF
Flashed Successfully
Press ESC To Continue
```

8. Follow the onscreen instructions to continue.

```
ASUS ACPI BIOS
FLASH MEMORY WRITER V1.29
Copyright (C) 1994-99, ASUSTeK COMPUTER INC.
Flash Memory: Winbond W29C020 or SST 29EE020 or Intel 82802AB
Current BIOS Version: ASUS XXX-XX ACPI BIOS Revision 100X
BIOS Model : XXX-XX
BIOS Built Date : 05/29/99
Choose one of the followings:
1. Save Current BIOS To File
2. Update BIOS Including Boot Block and ESCD
Enter choice: [1]
You have flashed the EPROM: It is recommended that you turn off
the power, enter SETUP and LOAD Setup Defaults to have CMOS
updated with new BIOS when exits.
Press ESC To Exit
```



WARNING! If you encounter problems while updating the new BIOS, DO NOT turn off the system because this may cause boot problems. Just repeat the process, and if the problem persists, load the original BIOS file you saved to the boot disk. If the Flash Memory Writer utility is not able to successfully update a complete BIOS file, the system may not boot. If this happens, call the ASUS service center for support.

4.2 BIOS Setup program

This motherboard supports a programmable EEPROM that you can update using the provided utility described in section “4.1 Managing and updating your BIOS.”

Use the BIOS Setup program when you are installing a motherboard, reconfiguring your system, or prompted to “Run Setup”. This section explains how to configure your system using this utility.

Even if you are not prompted to use the Setup program, you may want to change the configuration of your computer in the future. For example, you may want to enable the security password feature or make changes to the power management settings. This requires you to reconfigure your system using the BIOS Setup program so that the computer can recognize these changes and record them in the CMOS RAM of the EEPROM.

The EEPROM on the motherboard stores the Setup utility. When you start up the computer, the system provides you with the opportunity to run this program. Press <Delete> during the Power-On Self Test (POST) to enter the Setup utility, otherwise, POST continues with its test routines.

If you wish to enter Setup after POST, restart the system by pressing <Ctrl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You can also restart by turning the system off and then back on. Do this last option only if the first two failed.

The Setup program is designed to make it as easy to use as possible. It is a menu-driven program, which means you can scroll through the various sub-menus and make your selections among the predetermined choices.



NOTE! Because the BIOS software is constantly being updated, the following BIOS setup screens and descriptions are for reference purposes only, and may not exactly match what you see on your screen.

4.2.1 BIOS menu bar

The top of the screen has a menu bar with the following selections:

- MAIN** Use this menu to make changes to the basic system configuration.
- ADVANCED** Use this menu to enable and make changes to the advanced features.
- POWER** Use this menu to configure and enable Power Management features.
- BOOT** Use this menu to configure the default system device used to locate and load the Operating System.
- EXIT** Use this menu to exit the current menu or to exit the Setup program.

To access the menu bar items, press the right or left arrow key on the keyboard until the desired item is highlighted.

4.2.2 Legend bar

At the bottom of the Setup screen is a legend bar. The keys in the legend bar allow you to navigate through the various setup menus. The following table lists the keys found in the legend bar with their corresponding functions.

Navigation Key(s)	Function Description
<F1> or <Alt + H>	Displays the General Help screen from anywhere in the BIOS Setup
<Esc>	Jumps to the Exit menu or returns to the main menu from a sub-menu
Left or Right arrow	Selects the menu item to the left or right
Up or Down arrow	Moves the highlight up or down between fields
- (minus key)	Scrolls backward through the values for the highlighted field
+ (plus key) or spacebar	Scrolls forward through the values for the highlighted field
<Enter>	Brings up a selection menu for the highlighted field
<Home> or <PgUp>	Moves the cursor to the first field
<End> or <PgDn>	Moves the cursor to the last field
<F5>	Resets the current screen to its Setup Defaults
<F10>	Saves changes and exits Setup

General help

In addition to the Item Specific Help window, the BIOS setup program also provides a General Help screen. You may launch this screen from any menu by simply pressing <F1> or the <Alt> + <H> combination. The General Help screen lists the legend keys and their corresponding functions.

Saving changes and exiting the Setup program

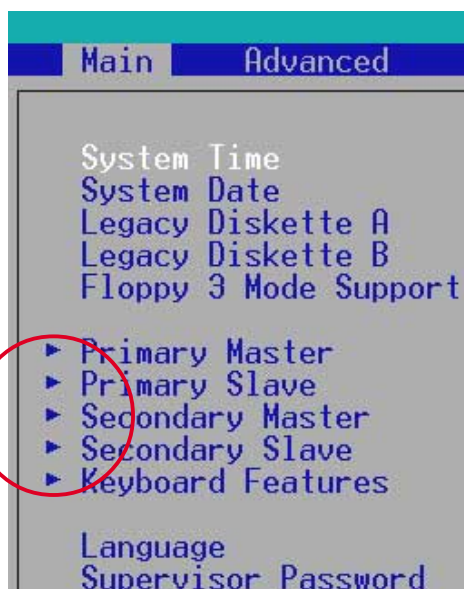
See “4.7 Exit Menu” for detailed information on saving changes and exiting the setup program.

Scroll bar

When a scroll bar appears to the right of a help window, it indicates that there is more information to be displayed that will not fit in the window. Use <PgUp> and <PgDn> or the up and down arrow keys to scroll through the entire help document. Press <Home> to display the first page, press <End> to go to the last page. To exit the help window, press <Enter> or <Esc>.

Sub-menu

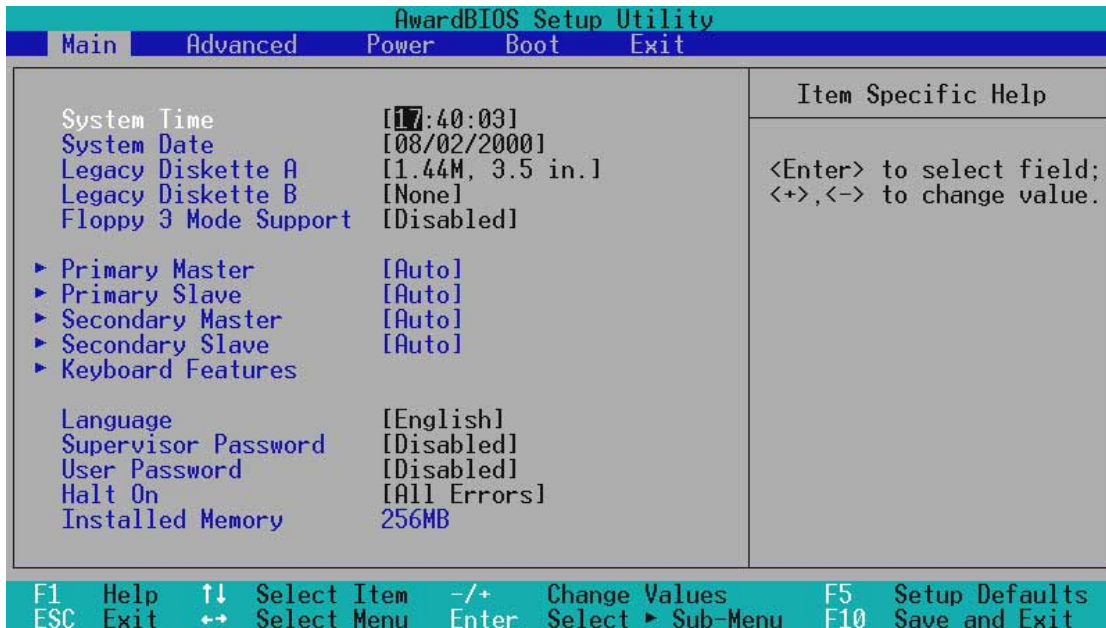
Note that a right pointer symbol (as shown on the left) appears to the left of certain fields. This pointer indicates that you can display a sub-menu from this field. A sub-menu contains additional options for a field parameter. To display a sub-menu, move the highlight to the field and press <Enter>. The sub-menu appears. Use the legend keys to enter values and move from field to field within a sub-menu as you would within a menu. Use the <Esc> key to return to the main menu. Take some time to familiarize yourself with the legend keys and their corresponding functions.



Practice navigating through the various menus and sub-menus. If you accidentally make unwanted changes to any of the fields, use the set default hot key <F5> to load the Setup default values. While moving around through the Setup program, note that explanations appear in the Item Specific Help window located to the right of each menu. This window displays the help text for the currently highlighted field.

4.3 Main Menu

When you enter the Setup program, the following screen appears.



System Time [XX:XX:XX]

Sets the system to the time that you specify (usually the current time). The format is hour, minute, second. Valid values for hour, minute and second are Hour: (00 to 23), Minute: (00 to 59), Second: (00 to 59). Use the <Tab> or <Shift> + <Tab> keys to move between the hour, minute, and second fields.

System Date [XX/XX/XXXX]

Sets the system to the date that you specify (usually the current date). The format is month, day, year. Valid values for month, day, and year are Month: (1 to 12), Day: (1 to 31), Year: (up to 2084). Use the <Tab> or <Shift> + <Tab> keys to move between the month, day, and year fields.

Legacy Diskette A [1.44M, 3.5 in.]

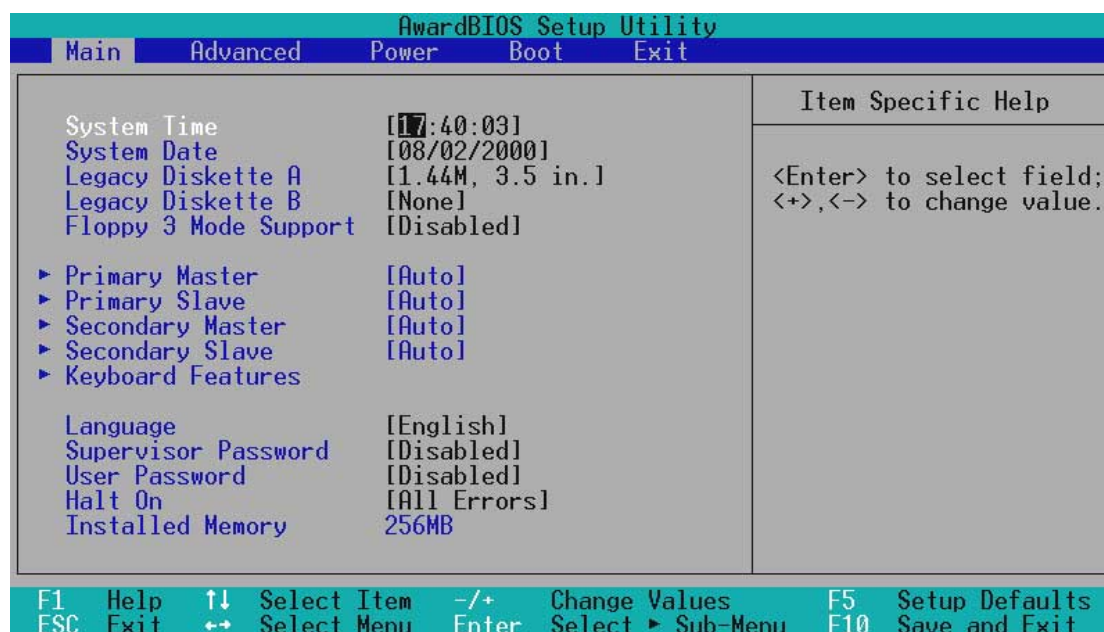
Legacy Diskette B [None]

Sets the type of floppy drive installed. Configuration options: [None] [360K, 5.25 in.] [1.2M, 5.25 in.] [720K, 3.5 in.] [1.44M, 3.5 in.] [2.88M, 3.5 in.]

Floppy 3 Mode Support [Disabled]

This is required to support older Japanese floppy drives. The Floppy 3 Mode feature allows reading and writing of 1.2MB (as opposed to 1.44MB) on a 3.5-inch diskette. Configuration options: [Disabled] [Enabled]

4.3.1 Primary and Secondary Master/Slave



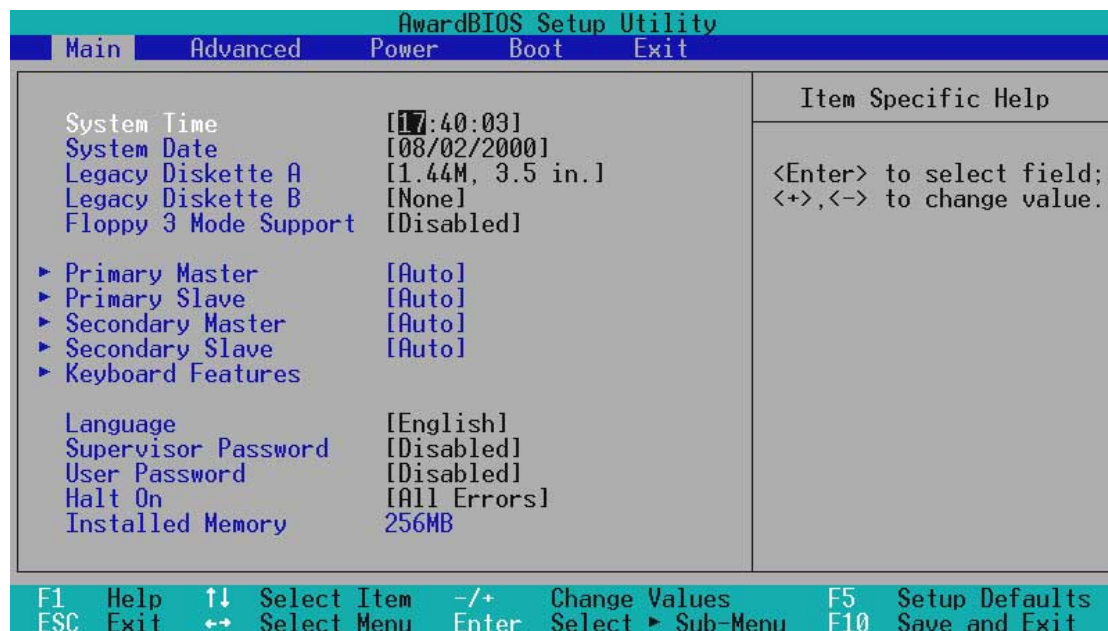
Type [Auto]

Select [Auto] to automatically detect an IDE hard disk drive. If automatic detection is successful, Setup automatically fills in the correct values for the remaining fields on this sub-menu. If automatic detection fails, this may be because the hard disk drive is too old or too new. If the hard disk was already formatted on an older system, Setup may detect incorrect parameters. In these cases, select [User Type HDD] to manually enter the IDE hard disk drive parameters. Refer to the next section for details.



CAUTION! Before attempting to configure a hard disk drive, make sure you have the correct configuration information supplied by the drive manufacturer. Incorrect settings may cause the system to fail to recognize the installed hard disk.

[User Type HDD]



Manually enter the number of cylinders, heads and sectors per track for the drive. Refer to the drive documentation or on the drive label for this information.



NOTE! After entering the IDE hard disk drive information into BIOS, use a disk utility, such as FDISK, to partition and format new IDE hard disk drives. This is necessary so that you can write or read data from the hard disk. Make sure to set the partition of the Primary IDE hard disk drives to active.

If no drive is installed or if you are removing a drive and not replacing it, select [None].

Other options for the Type field are:

[CD-ROM] - for IDE CD-ROM drives

[LS-120] - for LS-120 compatible floppy disk drives

[ZIP] - for ZIP-compatible disk drives

[MO] - for IDE magneto optical disk drives

[Other ATAPI Device] - for IDE devices not listed here

After making your selections on this sub-menu, press the <Esc> key to return to the Main menu. When the Main menu appears, the hard disk drive field displays the size for the hard disk drive that you configured.

Translation Method [LBA]

Select the hard disk drive type in this field. When Logical Block Addressing (LBA) is enabled, the 28-bit addressing of the hard drive is used without regard for cylinders, heads, or sectors. Note that LBA Mode is necessary for drives with more than 504MB storage capacity. Configuration options: [LBA] [LARGE] [Normal] [Match Partition Table] [Manual]

Cylinders

This field configures the number of cylinders. Refer to the drive documentation to determine the correct value. To make changes to this field, set the Type field to [User Type HDD] and the Translation Method field to [Manual].

Head

This field configures the number of read/write heads. Refer to the drive documentation to determine the correct value. To make changes to this field, set the Type field to [User Type HDD] and the Translation Method field to [Manual].

Sector

This field configures the number of sectors per track. Refer to the drive documentation to determine the correct value. To make changes to this field, set the Type field to [User Type HDD] and the Translation Method field to [Manual].

CHS Capacity

This field shows the drive's maximum CHS capacity as calculated by the BIOS based on the drive information you entered.

Maximum LBA Capacity

This field shows the drive's maximum LBA capacity as calculated by the BIOS based on the drive information you entered.

Multi-Sector Transfers [Maximum]

This option automatically sets the number of sectors per block to the highest number that the drive supports. Note that when this field is automatically configured, the set value may not always be the fastest value for the drive. You may also manually configure this field. Refer to the documentation that came with the hard drive to determine the optimum value and set it manually. To make changes to this field, set the Type field to [User Type HDD]. Configuration options: [Disabled] [2 Sectors] [4 Sectors] [8 Sectors] [16 Sectors] [32 Sectors] [Maximum]

SMART Monitoring [Disabled]

This field allows you to enable or disable the S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) system that utilizes internal hard disk drive monitoring technology. This parameter is normally disabled because the resources used in the SMART monitoring feature may decrease system performance. Configuration options: [Disabled] [Enabled]

PIO Mode [0]

This option lets you set a PIO (Programmed Input/Output) mode for the IDE device. Modes 0 through 4 provide successive increase in performance. Configuration options: [0] [1] [2] [3] [4]

Ultra DMA Mode [Disabled]

Ultra DMA capability allows improved transfer speeds and data integrity for compatible IDE devices. Set to [Disabled] to suppress Ultra DMA capability. To make changes to this field, set the Type field to [User Type HDD]. Configuration options: [0] [1] [2] [3] [4] [5] [Disabled]

4.3.2 Keyboard Features

AwardBIOS Setup Utility	
Main	
Keyboard Features	Item Specific Help
Boot Up NumLock Status [On] Keyboard Auto-Repeat Rate [12/Sec] Keyboard Auto-Repeat Delay [1/4 Sec]	Select Power-on state for Numlock

F1 Help ↑↓ Select Item -/+ Change Values F5 Setup Defaults
ESC Exit ↔ Select Menu Enter Select ► Sub-Menu F10 Save and Exit

Boot Up NumLock Status [On]

This field enables users to activate the Number Lock function upon system boot. Configuration options: [Off] [On]

Keyboard Auto-Repeat Rate [12/Sec]

This controls the speed at which the system registers repeated keystrokes. Options range from 6 to 30 characters per second. Configuration options: [6/Sec] [8/Sec] [10/Sec] [12/Sec] [15/Sec] [20/Sec] [24/Sec] [30/Sec]

Keyboard Auto-Repeat Delay [1/4 Sec]

This field sets the time interval for displaying the first and second characters. Configuration options: [1/4 Sec] [1/2 Sec] [3/4 Sec] [1 Sec]

Language [English]

This field displays the BIOS language version.

Supervisor Password [Disabled] / User Password [Disabled]

These fields allow you to set passwords. To set a password, highlight the appropriate field and press <Enter>. Type in a password then press <Enter>. You can type up to eight alphanumeric characters. Symbols and other characters are ignored. To confirm the password, type the password again and press <Enter>. The password is now set to [Enabled]. This password allows full access to the BIOS Setup menus. To clear the password, highlight this field and press <Enter>. The same dialog box as above appears. Press <Enter>. The password is set to [Disabled].

A note about passwords

The BIOS Setup program allows you to specify passwords in the Main menu. The passwords control access to the BIOS during system startup. Passwords are not case sensitive, meaning, passwords typed in either uppercase or lowercase letters are accepted. The BIOS Setup program allows you to specify two different passwords: a Supervisor password and a User password. If you did not set a Supervisor password, anyone can access the BIOS Setup program. If you did, the Supervisor password is required to enter the BIOS Setup program and to gain full access to the configuration fields.

Forgot the password?

If you forget your password, you can clear it by erasing the CMOS Real Time Clock (RTC) RAM. The RAM data containing the password information is powered by the onboard button cell battery. See section “2.7 Switches and jumpers” for information on how to erase the RTC RAM.

Halt On [All Errors]

This field specifies the types of errors that will cause the system to halt. Configuration options: [All Errors] [No Error] [All but Keyboard] [All but Disk] [All but Disk/Keyboard]

Installed Memory [XXX MB]

This field automatically displays the amount of conventional memory detected by the system during the boot process.

4.4 Advanced Menu

AwardBIOS Setup Utility			
Main	Advanced	Power	Boot Exit
CPU Speed	[Manual]		Item Specific Help To make changes to the first 4 fields, the motherboard must be set to jumperfree mode. To set the following 2 fields, the CPU speed must be set to [Manual]. If the frequency multiple or bus frequency are adjusted too high, the system may hang. Please turn off the system and then restart to set the CPU settings.
CPU Frequency Multiple	[5.0x]		
CPU/PCI Frequency (MHz)	[100/33]		
CPU/Memory Frequency Ratio	[Auto]		
CPU Vcore Setting	[Auto]		
CPU Vcore	[1.850V]		
CPU Level 1 Cache	[Enabled]		
CPU Level 2 Cache	[Enabled]		
PS/2 Mouse Function Control	[Auto]		
USB Legacy Support	[Auto]		
OS/2 Onboard Memory > 64M	[Disabled]		
▶ Chip Configuration			
▶ I/O Device Configuration			
▶ PCI Configuration			
F1 Help	↑↓ Select Item	-/+ Change Values	F5 Setup Defaults
ESC Exit	↔ Select Menu	Enter Select ▶ Sub-Menu	F10 Save and Exit

CPU Speed [Manual]

When the motherboard is set to JumperFree™ mode, this field allows you to select the internal frequency of the CPU. Select [Manual] if you want to make changes to the two subsequent fields. Note that selecting a frequency higher than the CPU manufacturer recommends may cause the system to hang or crash.

CPU Frequency Multiple (when CPU Speed is set to [Manual])

This field applies to unlocked processors only. If your processor frequency multiple is locked, you cannot access this field. This field sets the frequency multiple between the CPU's internal frequency (CPU speed) and external frequency. Set this field in conjunction with CPU Frequency (MHz) to match the speed of the CPU. Configuration options: [5.0X]..[14.0X]

CPU/PCI Frequency (MHz) (when CPU Speed is set to [Manual])

This feature tells the clock generator what frequency to send to the system bus and PCI bus. The bus frequency (external frequency) multiplied by the bus multiple equals the CPU speed. Configuration options: [100:33]... [227:45]

CPU/Memory Frequency Ratio [Auto]

This field determines whether the memory clock frequency is set to be in synchronous or asynchronous mode with respect to the system frequency. If available, the options that appear in the popup menu vary according to the CPU Frequency (MHz). Configuration options: [Auto]

CPU VCore Setting [Auto]

This field determines if the CPU Vcore is automatically scaled or set manually by the user. The default for this field is [Auto], so the CPU vcore voltage is set for maximum performance without stressing the CPU. Configuration options: [Manual] [Auto]

CPU VCore [1.850V]

When the CPU VCore Setting parameter is set to [Manual], this item allows you to select a specific CPU core voltage. This field is not accessible when the CPU VCore Setting parameter is set to [Auto]. Configuration options: [1.100V] ...[1.850V]



CAUTION! Refer to the CPU documentation before setting this field. A very high core voltage may severely damage the CPU.

CPU Level 1 Cache, CPU Level 2 Cache [Enabled]

These fields allow you to choose from the default of [Enabled] or choose [Disabled] to turn on or off the CPU Level 1 and Level 2 built-in cache. Configuration options: [Disabled] [Enabled]

PS/2 Mouse Function Control [Auto]

The default setting [Auto] allows the system to detect a PS/2 mouse at startup. If a mouse is detected, the BIOS assigns IRQ12 to the PS/2 mouse. Otherwise, IRQ12 can be used for expansion cards. When you set this field to [Enabled], BIOS reserves IRQ12, whether or not a PS/2 mouse is detected at startup. Configuration options: [Enabled] [Auto]

USB Legacy Support [Auto]

This motherboard supports Universal Serial Bus (USB) devices. The default of [Auto] allows the system to detect a USB device at startup. If detected, the USB controller legacy mode is enabled. If not detected, the USB controller legacy mode is disabled. When you set this field to [Disabled], the USB controller legacy mode is disabled whether or not you are using a USB device. Configuration options: [Disabled] [Enabled] [Auto]

OS/2 Onboard Memory > 64M [Disabled]

When using OS/2 operating systems with installed DRAM of greater than 64MB, you need to set this option to [Enabled]. Otherwise, leave to the default setting [Disabled]. Configuration options: [Disabled] [Enabled]

4.4.1 Chip Configuration

AwardBIOS Setup Utility		
Advanced		Item Specific Help
Chip Configuration		
SDRAM Configuration	[By SPD]	<p><Enter> to select SDRAM configuration. [By SPD] is recommended. [User Defined] allows you to set each configuration on your own.</p>
SDRAM CAS Latency	[2.5T(DDR)]	
SDRAM RAS to CAS Delay	[3T]	
SDRAM RAS Precharge Time	[3T]	
SDRAM Active Precharge Delay	[6T]	
SDRAM Bank Interleave	[Auto]	
Graphics Aperture Size	[64MB]	
AGP Capability	[4X Mode]	
AGP Drive Strength	[Auto]	
AGP Drive N Control	[E]	
AGP Drive P Control	[F]	
AGP performance control	[Disabled]	
AGP Fast Write Control	[Disabled]	
Video Memory Cache Mode	[UC]	
Memory Hole Mt 15M-16M	[Disabled]	
PCI 2.1 Latency Compliant	[Disabled]	
Onboard PCI IDE	[Both]	
S2K Bus Driving Strength	[Auto]	
S2K Strobe P Control	[2]	
S2K Strobe N Control	[3]	
DQS Driving Strength	[Auto]	
DQS P Control	[2]	
DQS N Control	[E]	
DQS output delay control	[Auto]	
DQS output delay 4 MSB	[E]	
DQS output delay 4 LSB	[2]	
DQS input delay control	[Auto]	
DQS input delay 4 MSB	[E]	
DQS input delay 4 LSB	[2]	

F1 Help ↑↓ Select Item -/+ Change Values F5 Setup Defaults
 ESC Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

(Scroll down to view all items on the menu.)

SDRAM Configuration [By SPD]

This parameter allows you to set the optimal timings for items 2–5, depending on the memory modules that you are using. The default setting is [By SPD], which configures items 2–5 by reading the contents in the SPD (Serial Presence Detect) device. The EEPROM on the memory module stores critical information about the module, such as memory type, size, speed, voltage interface, and module banks. Configuration options: [User Defined] [By SPD]



NOTE! The following 5 SDRAM parameters appear only when you set the SDRAM Configuration to [User Defined].

SDRAM CAS Latency [2.5T(DDR)/3T(SDR)]

This item controls the latency between the SDRAM read command and the time the data actually becomes available.

SDRAM RAS to CAS Delay [3T]

This item controls the latency between the SDRAM active command and the read/write command.

SDRAM RAS Precharge Time [3T]

This item controls the idle clocks after issuing a precharge command to the SDRAM.

SDRAM Active to Precharge Delay [6T]

This item controls the number of SDRAM clocks used for SDRAM parameters.

SDRAM Bank Interleave [Auto]

Configuration options: [None] [2 banks] [4 banks] [Auto]

Graphics Aperture Size [64MB]

This feature allows you to select the size of mapped memory for AGP graphic data. Configuration options: [4MB] [8MB] [16MB] [32MB] [64MB] [128MB] [256MB]

AGP Capability [4X Mode]

This motherboard supports the AGP 4X interface that transfers video data at 1066MB/s. AGP 4X is backward-compatible, so you may keep the default [4X Mode] even if you are using an AGP 1X video card. When set to [1X Mode], the AGP interface only provides a peak data throughput of 266MB/s even if you are using an AGP 4x card.

Configuration options: [1X Mode] [4X Mode]

AGP Drive Strength [Auto]

Configuration options: [Auto] [Manual]

AGP Drive N Control [E]

Useful test parameters. Configuration options: [Auto] [Manual]

AGP Drive P Control [F]

Useful test parameters. Configuration options: [Auto] [Manual]

Video Memory Cache Mode [UC]

USWC (uncacheable, speculative write combining) is a new cache technology for the video memory of the processor. It can greatly improve the display speed by caching the display data. You must set this to UC (uncacheable) if your display card does not support this feature, otherwise the system may not boot. Configuration options: [UC] [USWC]

Memory Hole At 15M-16M [Disabled]

This field allows you to reserve an address space for ISA expansion cards. Setting the address space to a particular setting makes that memory space unavailable to other system components. Expansion cards can only access memory up to 16MB. Configuration options: [Disabled] [Enabled]

PCI 2.1 Latency Compliant [Disabled]

Configuration options: [Enabled] [Disabled]

Onboard PCI IDE Controller [Both]

This field allows you to enable either the primary IDE channel or secondary IDE channel, or both. You can also set both channels to [Disabled].

Configuration options: [Both] [Primary] [Secondary] [Disabled]

S2K Bus Driving Strength [Auto]

Configuration options: [Auto] [Manual]

S2K Strobe P Control [2]

S2K Strobe N Control [3]

Useful test parameters. Configuration options: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F]

DQS Driving Strength [Auto]

Useful test parameters. Configuration options: [Auto] [Manual]

DQS P Contol [2]

DQS N Contol [E]

Useful test parameters. Configuration options: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F]

DQS output delay contol [Auto]

Useful test parameters. Configuration options: [Auto] [Manual]

DQS output delay 4MSB [E]

DQS output delay 4LSB [2]

Useful test parameters. Configuration options: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F]

DQS input delay contol [Auto]

Useful test parameters. Configuration options: [Auto] [Manual]

DQS input delay 4MSB [E]

DQS input delay 4LSB [2]

Useful test parameters. Configuration options: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F]

4.4.2 I/O Device Configuration

I/O Device Configuration		Item Specific Help
Onboard FDC Swap A & B	[No Swap]	<Enter> to select whether or not to switch drive letter assignments.
Floppy Disk Access Control	[R/W]	
Onboard Serial Port 1	[3F8H/IRQ4]	
Onboard Serial Port 2	[2F8H/IRQ3]	
UART2 Function Selection	[COM2]	
Onboard Parallel Port	[378H/IRQ7]	
Parallel Port Mode	[ECP+EPP]	
ECP DMA Select	[3]	
Onboard Card Reader Type	[Disabled]	
Speech POST Reporter	[Enabled]	

F1	Help	↑↓	Select Item	-/+	Change Values	F5	Setup Defaults
ESC	Exit	↔	Select Menu	Enter	Select ► Sub-Menu	F10	Save and Exit

Onboard FDC Swap A & B [No Swap]

This field reverses the hardware drive letter assignments of floppy disk drivers. Configuration options: [No Swap] [Swap AB]

Floppy Disk Access Control [R/W]

This field sets the capacity of the floppy disk drivers to read and/or write. Configuration options: [R/W] [Read only]

Onboard Serial Port 1 [3F8H/IRQ4]

Onboard Serial Port 2 [2F8H/IRQ3]

These fields set the addresses for the onboard serial connectors. Serial Port 1 and Serial Port 2 must have different addresses. Configuration options: [3F8H/IRQ4] [2F8H/IRQ3] [3E8H/IRQ4] [2E8H/IRQ10] [Disabled]

UART2 Function Selection [COM2]

This field selects the device on which to assign UART2. Configuration options: [COM2] [Standard Infrared] [Smart Card Reader]

Onboard Parallel Port [378H/IRQ7]

This field sets the address of the onboard parallel port connector. If you disable this field, the Parallel Port Mode and ECP DMA Select configurations are not available. Configuration options: [Disabled] [378H/IRQ7] [278H/IRQ5]

Parallel Port Mode [ECP+EPP]

This field sets the operation mode of the parallel port. [Normal] allows normal-speed operation but in one direction only; [EPP] allows bidirectional parallel port operation; [ECP] allows the parallel port to operate in bidirectional DMA mode; [ECP+EPP] allows normal speed operation in a two-way mode. Configuration options: [Normal] [EPP] [ECP] [ECP+EPP]

ECP DMA Select [3]

This field configures the parallel port DMA channel for the selected ECP mode. This selection is available only if you select [ECP] or [ECP+EPP] in Parallel Port Mode above. Configuration options: [1] [3]

Onboard Card Reader Type [Disabled]

This field enables or disables two different types of external memory media devices: memory stick and secure digital. Configuration options: [Memory Stick] [Secure Digital] [Disabled].

Speech POST Reporter [Enabled]

This field enables or disables the ASUS POST Reporter™ feature. More information is available in section 3.2, Vocal POST Messages. Configuration options: [Enabled] [Disabled].

4.4.3 PCI Configuration

AwardBIOS Setup Utility	
Advanced	
PCI Configuration	Item Specific Help
Slot 1/5 IRQ [Auto]	<Enter> to select an IRQ.
Slot 2 IRQ [Auto]	
Slot 3 IRQ [Auto]	
Slot 4 IRQ [Auto]	
PCI/VGA Palette Snoop [Disabled]	
PCI Latency Timer [32]	
USB Function [Enabled]	
Primary VGA BIOS [PCI VGA Card]	
▶ PCI IRQ Resource Exclusion [No]	
Onboard ATA device First [No]	

F1 Help	↑↓ Select Item	-/+ Change Values	F5 Setup Defaults
ESC Exit	↔ Select Menu	Enter Select ▶ Sub-Menu	F10 Save and Exit

Slot 1/5, 2, 3, 4 IRQ [Auto]

These fields automatically assign the IRQ for each PCI slot. The default setting for each field is [Auto], which utilizes auto-routing to determine IRQ assignments. Configuration options: [Auto] [NA] [3] [4] [5] [7] [9] [10] [11] [12] [14] [15]

PCI/VGA Palette Snoop [Disabled]

Some non-standard VGA cards, like graphics accelerators or MPEG video cards, may not show colors properly. Setting this field to [Enabled] corrects this problem. If you are using standard VGA cards, leave this field to the default setting [Disabled]. Configuration options: [Disabled] [Enabled]

PCI Latency Timer [32]

Leave this field to the default setting [32] for best performance and stability.

USB Function [Enabled]

Set this field to [Enabled] if you want to use Universal Serial Bus (USB) devices. Configuration options: [Disabled] [Enabled]

Primary VGA BIOS [PCI VGA Card]

This field allows you to select the primary graphics card. Configuration options: [PCI VGA Card] [AGP VGA Card]

4.4.3.1 Onboard PCI Devices Control

AwardBIOS Setup Utility	
Advanced	
Onboard PCI Devices Control	Item Specific Help
Onboard PCI Audio [Enabled]	<Enter> to enable or disable.

F1 Help ↑↓ Select Item -/+ Change Values F5 Setup Defaults
ESC Exit ↔ Select Menu Enter Select ► Sub-Menu F10 Save and Exit

Onboard PCI Audio [Enabled]

[Auto] allows the BIOS to detect whether you are using any audio device. If an audio device is detected, the onboard audio controller is enabled; if no audio device is detected, the controller is disabled. If there are conflicts with the onboard modem/audio controller, set the appropriate field to [Disabled]. Configuration options: [Disabled] [Enabled]

4.4.3.2 PCI IRQ Resource Exclusion

AwardBIOS Setup Utility		
Advanced		
PCI IRQ Resource Exclusion	Item Specific Help	
IRQ 3 Reserved	[No/ICU]	Select [Yes] if this IRQ is required by a legacy ISA card and you are not using ICU; otherwise, select [No/ICU].
IRQ 4 Reserved	[No/ICU]	
IRQ 5 Reserved	[No/ICU]	
IRQ 7 Reserved	[No/ICU]	
IRQ 9 Reserved	[No/ICU]	
IRQ 10 Reserved	[No/ICU]	
IRQ 11 Reserved	[No/ICU]	
IRQ 12 Reserved	[No/ICU]	
IRQ 14 Reserved	[No/ICU]	
IRQ 15 Reserved	[No/ICU]	

F1 Help ↑↓ Select Item -/+ Change Values F5 Setup Defaults
ESC Exit ↔ Select Menu Enter Select ► Sub-Menu F10 Save and Exit

IRQ XX Used By ISA [No/ICU]

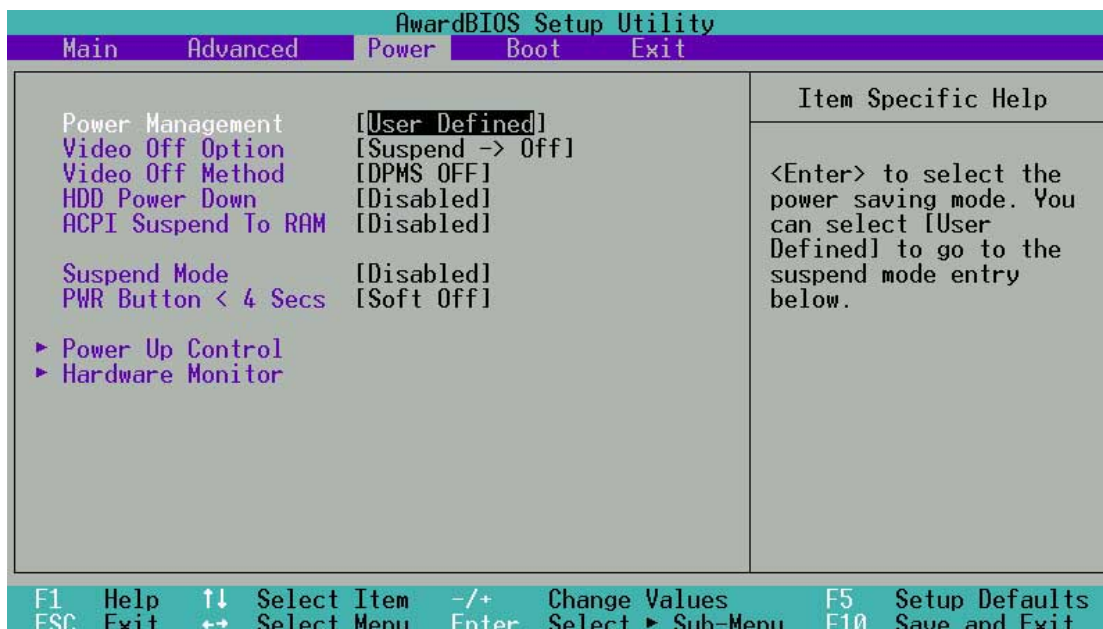
These fields indicate whether or not the displayed IRQ for each field is being used by a legacy (non-PnP) ISA card. The setting [No/ICU] for an IRQ field indicates that you are using the ISA Configuration Utility (ICU), and that this particular IRQ is NOT required by a legacy ISA card. Set the IRQ field to [Yes] if you install a legacy ISA card that requires a unique IRQ and you are NOT using ICU. Configuration options: [No/ICU] [Yes]

Onboard ATA Device First [No]

The default is [No]. Configuration options: [Yes] [No]

4.5 Power Menu

The Power menu allows you to reduce power consumption. This feature turns off the video display and shuts down the hard disk after a period of inactivity.



Power Management [User Defined]

This field allows you to activate or deactivate the automatic power saving features. When set to [Disabled], the power management features do not function regardless of the other settings on this menu. The [User Defined] option allows you to set the period of inactivity before the system enters suspend mode. Refer to “Suspend Mode” later in this section.

When set to [Max Saving], system power is conserved to its greatest amount. This setting automatically puts the system into suspend mode after a brief period of system inactivity. [Min Saving] allows the least power saving as the system enters suspend mode only after a long period of inactivity. Configuration options: [User Defined] [Disabled] [Min Saving] [Max Saving]



IMPORTANT! You should install the Advanced Power Management (APM) utility to keep the system time updated even when the computer enters suspend mode. In Windows 3.x and Windows 95, you need to install Windows with the APM feature. In Windows 98 or later, APM is automatically installed as indicated by a battery and power cord icon labeled “Power Management” in the Control Panel. Select the item “Advanced” in the Power Management Properties dialog box.

Video Off Option [Suspend -> Off]

This field determines when to activate the video off feature for monitor power management. Configuration options: [Always On] [Suspend -> Off]

Video Off Method [DPMS OFF]

This field defines the video off features. The Display Power Management System (DPMS) feature allows the BIOS to control the video display card if it supports the DPMS feature. [Blank Screen] only blanks the screen. Use this for monitors without power management or “green” features.



NOTE! Even if installed, your screen saver does not display when you select [Blank Screen] for the above field.

[V/H SYNC+Blank] blanks the screen and turns off vertical and horizontal scanning. Configuration options: [Blank Screen] [V/H SYNC+Blank] [DPMS Standby] [DPMS Suspend] [DPMS OFF] [DPMS Reduce ON]

HDD Power Down [Disabled]

Shuts down any IDE hard disk drives in the system after a period of inactivity as set in this user-configurable field. This feature does not affect SCSI hard drives. Configuration options: [Disabled] [1 Min] [2 Min] [3 Min]...[15 Min]

ACPI Suspend-to-RAM [Disabled]

This field allows you to enable or disable the ACPI Suspend-to-RAM feature. To support this feature, the +5VSB of the power supply should have the capacity to provide more than 720mA current. Configuration options: [Disabled] [Enabled]

Suspend Mode [Disabled]

Sets the time period before the system goes into suspend mode. Configuration options: [Disabled] [1~2 Min] [2~3 Min] [4~5 min] [8~9 Min] [20 Min] [30 Min]

PWR Button < 4 Secs [Soft Off]

When set to [Soft off], the ATX switch can be used as a normal system power-off button when pressed for less than 4 seconds. [Suspend] allows the button to have a dual function where pressing less than 4 seconds puts the system in sleep mode. Regardless of the setting, holding the ATX switch for more than 4 seconds powers off the system. Configuration options: [Soft off] [Suspend]

4.5.1 Power Up Control

AwardBIOS Setup Utility	
Power	
Power Up Control	Item Specific Help
AC Power Loss Restart [Disabled]	<Enter> to select whether or not to restart the system after AC power loss.
Wake/Power Up On Ext. Modem [Disabled]	
Power Up On PCI Card [Disabled]	
Power On By PS/2 Keyboard [Disabled]	
Power On By PS/2 Mouse [Disabled]	
Automatic Power Up [Disabled]	
F1 Help ↑↓ Select Item -/+ Change Values F5 Setup Defaults	
ESC Exit ↔ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit	

AC PWR Loss Restart [Disabled]

This allows you to set whether or not to reboot the system after power interruptions. [Disabled] leaves your system off while [Enabled] reboots the system. [Previous State] sets the system back to the state it was before the power interruption. Configuration options: [Disabled] [Enabled] [Previous State]

Wake/Power Up On Ext. Modem [Disabled]

The computer may be powered up the computer if the external modem receives a call while the system is in Soft-off mode. Configuration options: [Disabled] [Enabled]



NOTE! The computer cannot receive or transmit data until the computer and applications are fully running. Thus, connection cannot be made on the first try. Turning an external modem off and then back on while the computer is off sends an initialization string that turns system power on.

Power Up On PCI Card [Disabled]

When set to [Enabled], the system through a network or a PCI modem. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled]

Power On By PS/2 Keyboard [Disabled]

This parameter allows you to use specific keys on the keyboard to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Space Bar] [Ctrl-Esc] [Power Key]

Power On By PS/2 Mouse [Disabled]

When set to [Enabled], this parameter allows you to use the PS/2 mouse to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled]

Automatic Power Up [Disabled]

This allows an unattended or automatic system power up. You may configure your system to power up at a certain time of the day by selecting [Everyday] or at a certain time and day by selecting [By Date]. Configuration options: [Disabled] [Everyday] [By Date]

4.5.2 Hardware Monitor

AwardBIOS Setup Utility	
Power	
Hardware Monitor	Item Specific Help
MB Temperature 33°C/91°F CPU Temperature 60°C/140°F POWER Temperature [N/A] CPU Fan Speed 5500RPM POWER Fan Speed [N/A] CHASSIS Fan Speed [N/A] VCORE Voltage 1.85V +3.3V Voltage 3.36V +5V Voltage 4.89V +12V Voltage 12.46V	<Enter> to switch between monitoring or ignoring.
F1 Help ↑↓ Select Item -/+ Change Values F5 Setup Defaults ESC Exit ↔ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit	

MB Temperature [xxxC/xxxF]

CPU Temperature [xxxC/xxxF]

POWER Temperature [N/A]

The onboard hardware monitor automatically detects the MB (motherboard) and CPU temperatures.

CPU Fan Speed [xxxxRPM]

POWER Fan Speed [N/A]

CHASSIS Fan Speed [N/A]

The onboard hardware monitor automatically detects the CPU and chassis fan speeds in rotations per minute (RPM).

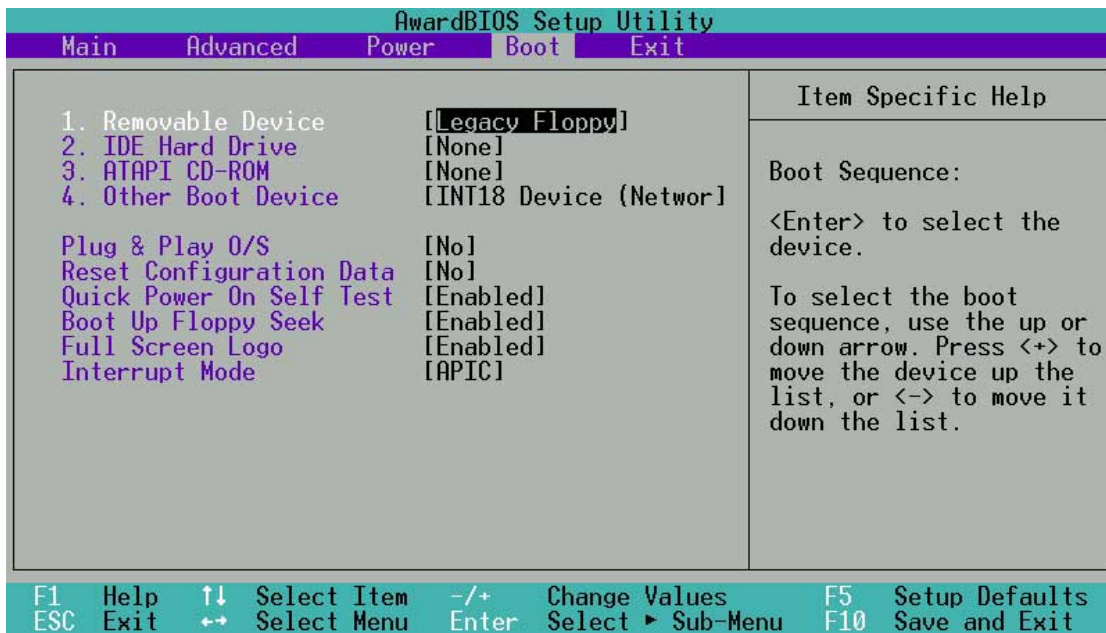
VCORE Voltage, +3.3V Voltage, +5V Voltage, +12V Voltage

The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators.



NOTE! If any of the monitored items is out of range, the following error message appears: “Hardware Monitor found an error. Enter Power setup menu for details”. You will then be prompted to “Press F1 to continue or DEL to enter SETUP”.

4.6 Boot Menu



Boot Sequence

The Boot menu allows you to select among the four possible types of boot devices listed using the up and down arrow keys. By using the <+> or <Space> key, you can promote devices and by using the <-> key, you can demote devices. Promotion or demotion of devices alters the priority which the system uses to search for a boot device on system power up. Configuration fields include Removable Devices, IDE Hard Drive, ATAPI CD-ROM, and Other Boot Device.

Removable Device [Legacy Floppy]

Configuration options: [Disabled] [Legacy Floppy] [LS-120] [ZIP] [ATAPIMO]

IDE Hard Drive

This field allows you to select which IDE hard disk drive to use in the boot sequence. Pressing [Enter] will show the product IDs of all connected IDE hard disk drives.

ATAPI CD-ROM

This field allows you to select which ATAPI CD-ROM drive to use in the boot sequence. Pressing [Enter] will show the product IDs of all your connected ATAPI CD-ROM drives.

Other Boot Device Select [INT18 Device (Network)]

Configuration options: [Disabled] [SCSI Boot Device] [INT18 Device (Network)]

Plug & Play O/S [No]

This field allows you to use a Plug-and-Play (PnP) operating system to configure the PCI bus slots instead of using the BIOS. When [Yes] is selected, interrupts may be reassigned by the OS. If you installed a non-PnP OS or if you want to prevent reassigning of interrupt settings, keep the default setting [No]. Configuration options: [No] [Yes]

Reset Configuration Data [No]

The Extended System Configuration Data (ESCD) contain information about non-PnP devices. It also holds the complete record of how the system was configured the last time it was booted. Select [Yes] if you want to clear these data during the Power-On-Self-Test (POST). Configuration options: [Disabled] [Enabled]

Quick Power On Self Test [Enabled]

This field speeds up the Power-On-Self Test (POST) routine by skipping retesting a second, third, and fourth time. Configuration options: [Disabled] [Enabled]

Boot Up Floppy Seek [Enabled]

If enabled, this field speeds up the Power On Self Test (POST) routine by skipping and retesting a second, third and fourth time. Configuration options: [Disabled] [Enabled]

Full Screen Logo [Enabled]

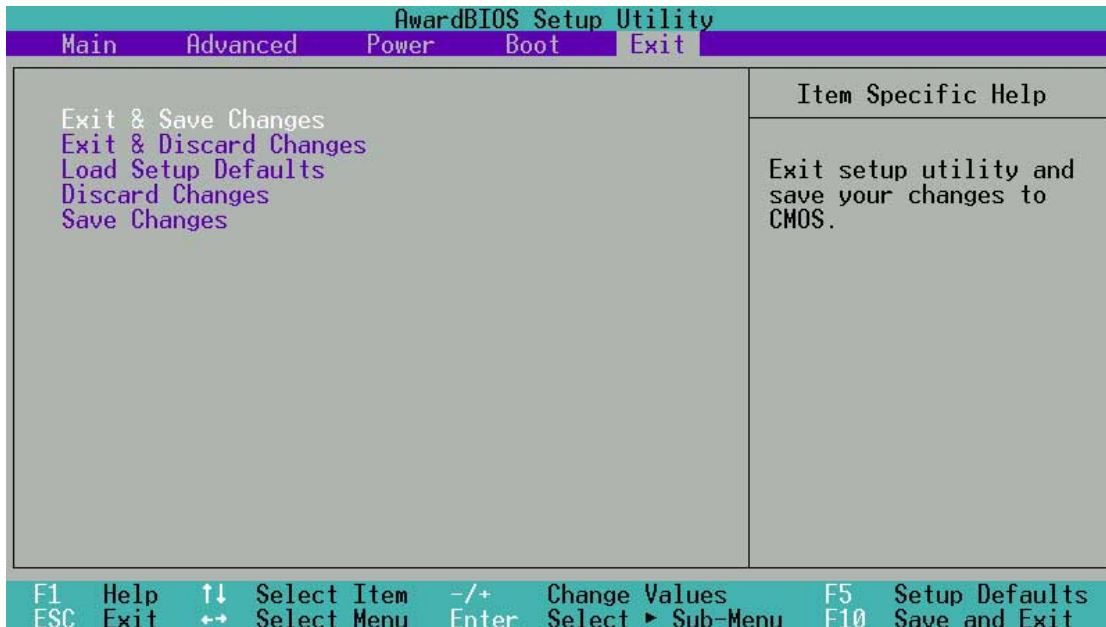
When enabled, the BIOS displays the characteristic A7V333 Bios screen. Configuration options: [Disabled] [Enabled]

Interrupt Mode [APIC]

Select between new APIC or PIC. Configuration options: [APIC] [PIC]

4.7 Exit Menu

When you have made all of your selections from the various menus in the Setup program, save your changes and exit Setup. Select Exit from the menu bar to display the following menu.



NOTE! Pressing <Esc> does not immediately exit this menu. Select one of the options from this menu or <F10> from the legend bar to exit.

Exit Saving Changes

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved to the CMOS RAM. The CMOS RAM is sustained by an onboard backup battery and stays on even when the PC is turned off. When you select this option, a confirmation window appears. Select [Yes] to save changes and exit.



NOTE! If you attempt to exit the Setup program without saving your changes, the program prompts you with a message asking if you want to save your changes before exiting. Pressing <Enter> saves the changes while exiting.

Exit Discarding Changes

Select this option only if you do not want to save the changes that you made to the Setup program. If you made changes to fields other than system date, system time, and password, the BIOS asks for a confirmation before exiting.

Load Setup Defaults

This option allows you to load the default values for each of the parameters on the Setup menus. When you select this option or if you press <F5>, a confirmation window appears. Select [Yes] to load default values. Select Exit Saving Changes or make other changes before saving the values to the non-volatile RAM.

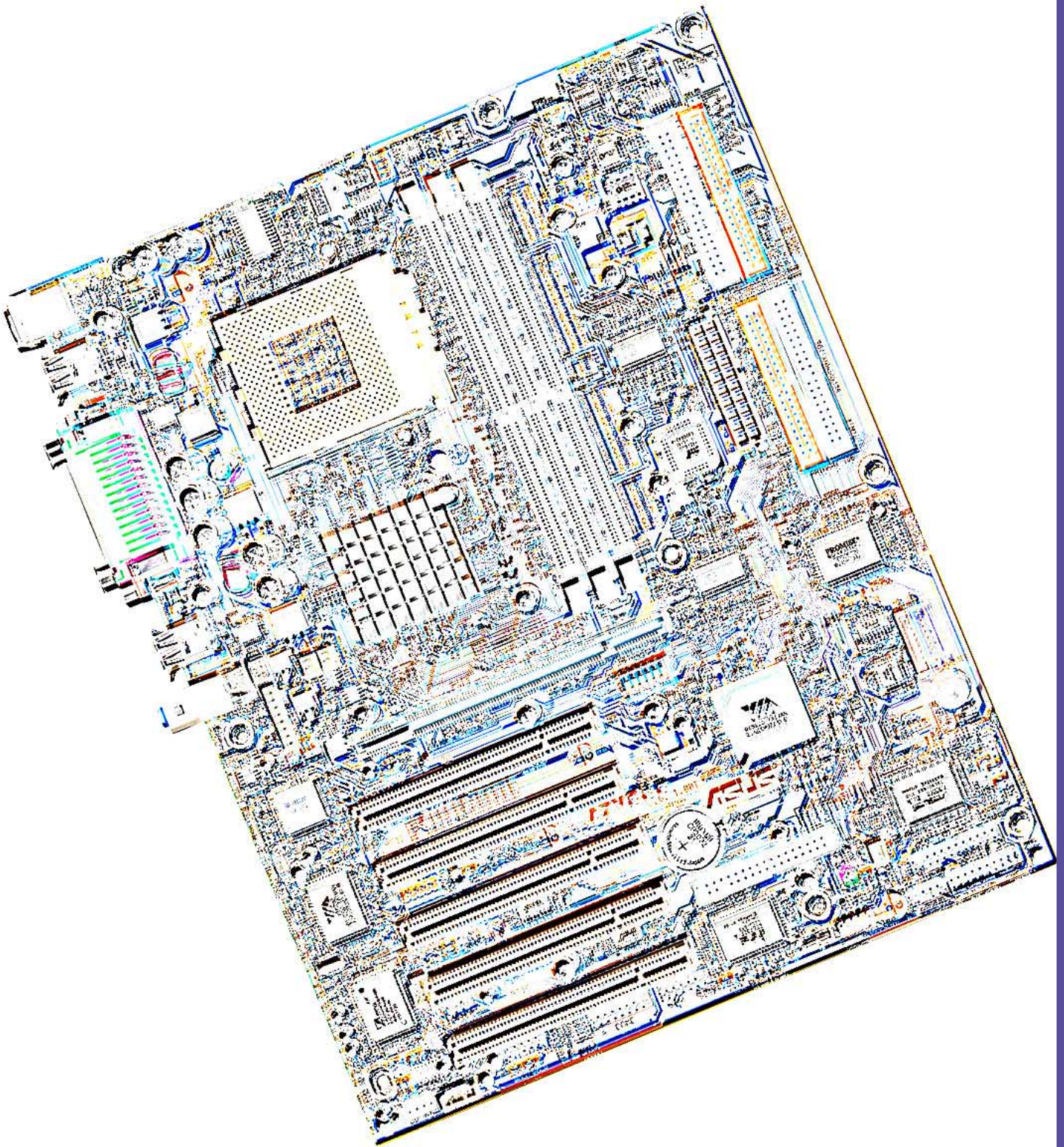
Discard Changes

This option allows you to discard the selections you made and restore the previously saved values. After selecting this option, a confirmation appears. Select [Yes] to discard any changes and load the previously saved values.

Save Changes

This option saves your selections without exiting the Setup program. You can then return to other menus and make further changes. After you select this option, a confirmation window appears. Select [Yes] to save any changes to the non-volatile RAM.

Chapter 5



Software support

5.1 Install an operating system

This motherboard supports Windows 98/ME/NT/2000/XP and OS/2 operating system (OS). Always install the latest OS version and corresponding updates so you can maximize the features of your hardware.

5.1.1 Windows 98 first time installation

When you start Windows for the first time after installing the motherboard, Windows 98 detects all Plug-n-Play devices. Follow the **Add New Hardware** wizard to install the necessary device drivers. When prompted to restart, select **No**. Refer to the following sections in this chapter to install the software and drivers contained in the support CD.



NOTE! Because motherboard settings and hardware options vary, use the setup procedures presented in this chapter for general reference only. Refer to your OS documentation for more information.

5.2 Support CD information

The support CD that came with the motherboard contains useful software and several utility drivers that enhance the motherboard features.



NOTE! The contents of the support CD are subject to change at any time without notice. Visit the ASUS website for updates.

5.2.1 Running the support CD

To begin using the support CD, simply insert the CD into your CD-ROM drive. The CD automatically displays the welcome screen and the installation menus if Autorun is enabled in your computer.

5.3 A7V333 Motherboard Support CD

NOTE: The support CD contents are subject to change without notice.

To begin using your support CD disc, just insert it into your CD-ROM drive and the support CD installation menu should appear. If the menu does not appear, double-click or run D:\ASSETUP.EXE (assuming that your CD-ROM drive is drive D:).

5.3.1 Installation Menu



- **VIA 4 in 1 drivers:** Installs PCI Bus Master IDE Driver, VIA AGP Driver, VIA INF Driver, and IRQ Routing Driver.
- **C-Media PCI Audio Driver and Application:** Installs the drivers for the C-Media Audio Driver and the sound system to support the C-Media Audio Chip and HRTF 3D Audio circuitry.
- **Realtek RTL 8139C PCI Fast Ethernet NIC Driver:** Installs the Realtek fast ethernet network controller driver.
- **Promise FastTrak133 Controller:** Installs the Promise FastTrak133 IDE/RAID Controller Driver.
- **ASUS PC Probe Vx.xx:** Installs a smart utility to monitor your computer's fan, temperature, and voltages.
- **ASUS Update Vx.xx:** Installs a program that can help you update BIOS or download a BIOS image file.
- **Microsoft DirectX Driver:** Installs basic drivers to enable compatibility with audio and other special functions.
- **PC-Cillin 2000 Vx.xx:** Installs the PC-cillin virus protection software. View online help for more information.
- **ADOBE Acrobat Reader Vx.xx:** Installs the Adobe Acrobat Reader software necessary to view user's manuals saved in PDF format. Updated or other language versions of this motherboard's manual is available in PDF format at any of our web sites.
- **Cyberlink Video and Audio Applications:** Installs Cyberlink PowerPlayer SE and Cyberlink VideoLive Mail.

(CLICK RIGHT ARROW ON THE LOWER-RIGHT CORNER)

- **ASUS Screen Saver:** Installs a nifty ASUS screen saver.
- **ITE GSM Editor:** Installs the GSM SIM card editing application.
- **Winbond Voice Editor:** Installs an application to record and customize audio “wave” files for use with the ASUS Post Reporter™.
- **E-Color 3Deep:** Installs graphical driver and an application for tuning the quality of color output from CRT and LCD monitors.
- **Show Motherboard Information:** Allows you to view information about your motherboard, such as product name, BIOS version, and CPU.
- **Browse Support CD:** Allows you to view the contents of the CD.
- **ReadMe:** Allows you to view the support CD file list and contact information.
- **Exit:** Exits the CD installation menu.



NOTE: It is not advisable to install any software contained on the support CD which does not appear on the setup menu. The *ITE GSM Editor* will only appear if you have adjusted the *I/O Device Configuration* sub-menu in the *Advanced BIOS*, go to the *UART2* field and select *Smart Card Read*.

5.4 Using the Promise Chip for RAID 0 or 1

The Promise® chip, PDC20276, onboard the A7V333, offers a high performance Redundant Array of Independent Disks (RAID) configuration that supports only UltraDMA-133/100/66/33, EIDE or FastATA-2 hard disks. After connecting two hard disks to the motherboard, activating either RAID 0 or 1 function is easily configured through the MBFastTrak133™ “Lite” firmware BIOS during boot up. In addition, the support CD permits installation of system drivers according to the Operating System (OS) on your computer. Read through this section in its entirety before setting up a new RAID system.

RAID 0 is also known as “data striping.” Striping optimizes two identical hard disk drives to read and write data in parallel, interleaved stacks. Two hard disks perform the same work as a single drive, and at a sustained data transfer rate double that of a single disk alone. The main advantage of a RAID 0 array is to improve the Speed Performance of data access and storage. With FAT32 and NTFS partitioning, the array will be addressed as one large volume.

RAID 1 is also known as “data mirroring.” Mirroring optimizes two identical hard disk drives to copy all data from one hard disk drive to the other and vice versa. As new data is written, it is duplicated onto both disks using a parallel write process. The main advantage of RAID 1 is that it greatly increases Fault Tolerance of the entire system, especially if each hard disk is connected separately to both ATA-133 IDE channels available on the A7V333. Should one hard disk suffer mechanical trouble, all system data will be preserved on the other drive.



IMPORTANT! Before setting up your new RAID array, verify the status of your hard disks. It is possible to use a pre-existing hard disk for RAID 0 only if the data is backed up before configuring the array as all hard disk data will be lost during the set up. RAID 0 requires at least two hard disks for optimal results. It is possible to use a pre-existing hard disk for RAID 1 to duplicate the source data; also, RAID 1 can set up two or more new disks. The Promise® chip, the FastTrak™ “Lite” BIOS and the FastBuild™ Utility on the A7V333 permit only two disks to be configured in RAID 0 or RAID 1 pairs and combinations; a third, “hot” spare hard disk may be used to support a RAID 1 array; (see the end of this section for more detail). For optimal performance, install only identical hard disks of the same model and storage capacity. Use only UltraDMA-100/66 compatible IDE cables and connectors. The Promise® chip also supports UltraDMA-133 specifications of up to 133 MB/sec per disk, with or without multiple disk arrays up to four hard disks.

5.4.1 Installing the Hard Disks

The RAID 0 setting allows users to reformat two hard disks with the same new OS simultaneously. RAID 1 arrays can use a pre-existing hard disk along with a blank hard disk, or two new hard disks.

1. Install the first and second hard disk into the hard disk bays of your system. Connect each hard disk drive with a separate *UltraDMA/100* cable, one to the Promise IDE1 connector, and the other to the Promise IDE2 connector onboard the A7V333. NOTE: Do not connect any other types of IDE devices to the Promise IDE connectors; they support hard disk drive devices only.
2. Connect the power cables to the hard disks.
3. Make sure the RAID_EN jumper is reset to [1-2] and, if available, ensure the BIOS settings in the *Advanced PCI Configuration* sub-menu are set to enable RAID arrays: "SCSI/ATA100 Boot Sequence" field should be set to [ATA100/SCSI] and the "Load Onboard ATA BIOS" field should be set to [Auto].
4. Boot-up the PC.

5.4.2 Enter FastTrak100 BIOS and FastBuild Utility

1. Boot-up your computer once more. If this is the first time you have booted with two hard disks correctly installed, then *MBFastTrak133™ "Lite"* BIOS scans the IDE drives and displays this screen:

```
MBFastTrak133 (tm) "Lite" BIOS
(c) 1995-2000 Promise Technology, Inc. All Rights Reserved.

No Array is defined . . .

Press <Ctrl-F> to enter FastBuild (tm) Utility or
Press <ESC> to continue booting . . .
```

2. Press <Ctrl-F> keys to display the *FastBuild™ Utility Main Menu*:

```
FastBuild (tm) Utility 1.31 (c) 1996-2000 Promise Technology, Inc.
[ Main Menu ]

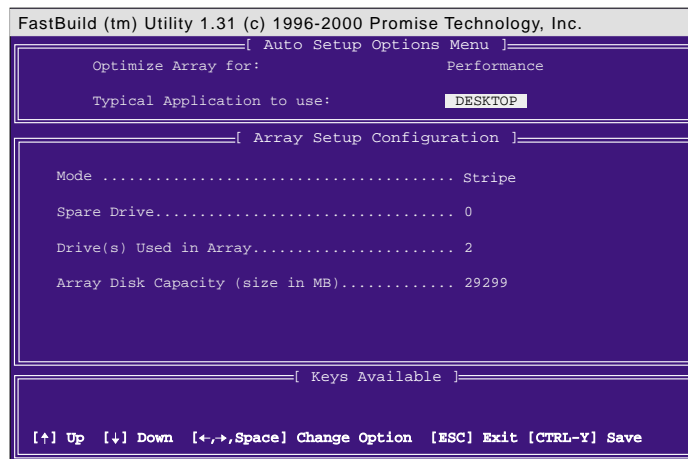
Auto Setup . . . . . [ 1 ]
View Drive Assignments . . . . [ 2 ]
View Array . . . . . [ 3 ]
Delete Array . . . . . [ 4 ]
Rebuild Array. . . . . [ 5 ]
Controller Configuration . . . [ 6 ]

[ Keys Available ]

Press 1..6 to select Option [ESC] Exit
```

5.4.3 Creating a RAID 0 Array

1. In the FastBuild™ Utility Main Menu, select Auto Setup [1]. The screen below is displayed. The Auto Setup Options Menu configures hard disks for RAID 0 and RAID 1 arrays. These selections assign all available drives that are appropriate for the new array and configures data formats and the IDE channels.



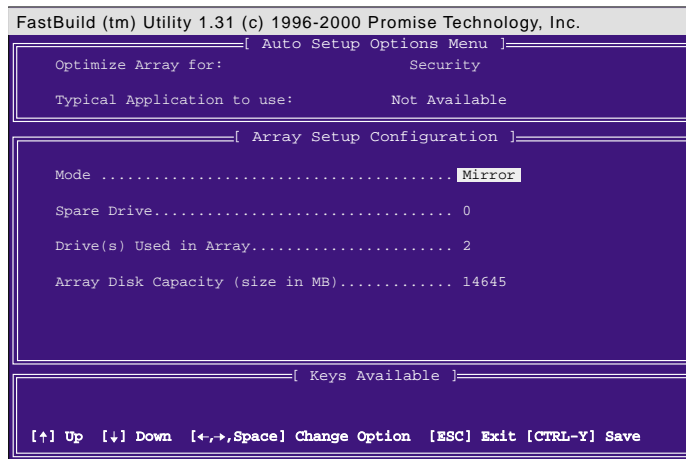
2. Go to the field *Optimize Array for:* and select *Performance* using the arrow and space keys. The Mode field displays *Stripe*.
3. Then go to the Typical Application Menu. Three options are available: *A/V Editing*, *DESKTOP*, or *Server*. These selections determine how data blocks are managed to enhance performance. *A/V Editing* is intended for audio/video applications, or similar programs that require larger file transfers; *Desktop* combines large and small file sizes; *Server* is for numerous file transfers.
4. After making the selection, use <Ctrl-Y> to save it. *FastBuild™* automatically constructs the RAID 0 array.
5. Then the command appears: "Press Any Key to Reboot." Reboot the system and the *MBFastTrak133™* "Lite" BIOS checks and displays the status of the new array:

```
MBFastTrak133 (tm) "Lite" BIOS
(c) 1995-2000 Promise Technology, Inc. All Rights Reserved.
-----
ID      MODE          SIZE      TRACK-MAPPING  STATUS
-----
1*     2+0 Stripe     3257M     723/192/48     Functional
-----
Press <Ctrl-F> to enter FastBuild (tm) Utility
```

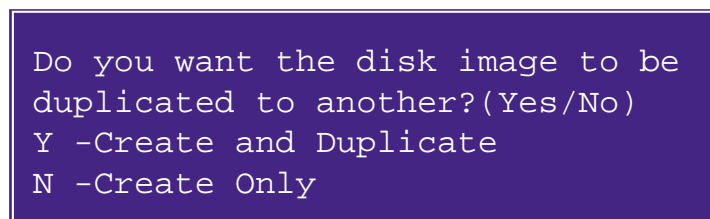
6. To finish installation of your new Operating System to the RAID 0 array, reboot with a floppy disk to format the hard disks with the FDISK command and then install the OS from a CD; alternatively, with a bootable OS CD, you may install the new OS automatically. As you install the OS, the system always treats the RAID 0 array of hard disks as if they are a single drive unit.

5.4.4 Creating a RAID 1 Array

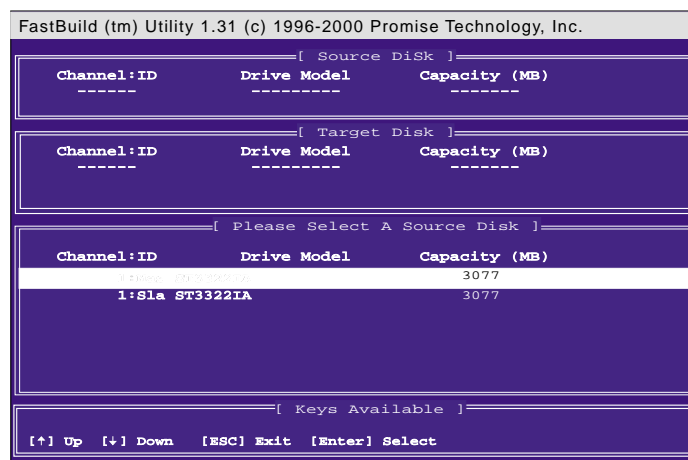
1. In the *FastBuild™* Utility Main Menu, select *Auto Setup* [1].



2. Go to the field *Optimize Array for:* and select *Security*. The *Mode* field displays *Mirror*.
3. After making the selection, use <Ctrl-Y> to save it. *FastBuild™* offers a choice between two options. Use <Y> for *Create and Duplicate* to mirror a pre-existing hard disk formatted with data that you want to save on both hard disks; (Go to step 4.) Use <N> for *Create Only* if using two new hard disks to configure a new RAID 1 mirrored array; (Go to step 6.)



4. If selecting <Y>, for *Create and Duplicate*, this screen will be displayed:



5. The utility prompts: Please Select A Source Disk. Choose the pre-existing hard disk as the source and then a new, blank hard disk as the target. Then select <Ctrl-Y> to save the selection. The utility prompts a choice between <Y> to continue and <N> to stop and escape. Choosing <Y> begins to duplicate the source hard disk onto the target hard disk.
6. To configure two new blank hard disks in a RAID 1 array, choose <N> for Create Only; (At step 3). The FastBuild™ utility configures the RAID 1 array and a message appears: Array has been created... <Press Any Key to REBOOT>
7. Rebooting the system allows the MBFastTrak133™ “Lite” BIOS to display the status of your new array:

```

MBFastTrak133 (tm) "Lite" BIOS
(c) 1995-2000 Promise Technology, Inc. All Rights Reserved.

ID      MODE          SIZE    TRACK-MAPPING  STATUS
-----
1*      1x2 Mirror     1628M   827/64/63      Functional

Press <Ctrl-F> to enter FastBuild (tm) Utility

```

8. If duplicating an original Operating System to another new hard disk, the system will start up automatically. If creating a brand new RAID 1 array only, it will be necessary to install a new OS. Reboot with a rescue floppy disk to format the hard disks with the FDISK command and then install the OS from a CD; alternatively, with a bootable OS CD, install the new OS automatically.

NOTES for Troubleshooting Array Set Ups: Always use two separate UltraDMA/100 cables for linking each of two hard disks to the Primary ATA-100 and the Secondary ATA-100 connectors. Usually, a two disk array will set up properly if both sets of hard disk jumpers are set to *Master*. However, it may be necessary to reset the jumpers on each of the hard disks; in such cases, try *Master* for the *Source* disk, and *Master/Slave* or *Slave* for the *Target* disk. Also, if a Source hard disk larger than the Target disk is selected, the *FastBuild*™ utility suggests using a larger or equal size disk for the Target instead. During reboots after configuring a RAID array, the IDE scan process determines if the system is working okay. Normally the *MBFastTrak133*™ “Lite” BIOS displays system status as *Functional* after rebooting the new RAID array. However, two warnings may appear: *Critical* indicates that one or more drives in the array are not functional, or are disconnected. In this case, enter the *FastBuild*™ Utility to diagnose the problem and replace the faulty drive. The second warning, *Offline*, indicates that one hard disks in a striped array has failed, cannot be detected, or has become disconnected. In this case, adjust or replace the hard disk if necessary and rebuild data from a back-up source.



5.4.5 Other FastBuild Utility Commands

Command options 3-6 on the *FastBuild™ Utility Main Menu* are not required for setting up an array, but they are useful for reconfiguring an array:

View Array (3): View the drive assignments of hard disks in an array.

Delete Array (4): Deletes an array to reconfigure the system. Deleting an array does not remove information on the hard disks. If an array is deleted by mistake, recover it immediately by redefining it as the deleted array.

Rebuild Array (5): This command restores the array and system data after faults on RAID 1 arrays. Follow the steps below to rebuild and restore data in the array:

1. On boot-up, an error message notifies of a system failure.
2. Press <Ctrl-F> keys to enter the FastBuild™ Main Menu.
3. Select <3> for View Array to verify the ID of the defunct hard disk.
4. Power off the system and replace the hard disk with an identical model.
5. Reboot and enter the FastBuild™ Main Menu again.
6. Select <5> for Rebuild Array. The malfunctioning array is highlighted. Press <Enter> to select it:

```
FastBuild (tm) Utility 1.31 (c) 1996-2000 Promise Technology, Inc.
[ Rebuild Array Menu ]
-----
Array No   RAID Mode   Total Drv   Capacity   Status
-----
Array 1    Mirror      2           1628      Critical
Array 2    -----
Array 3    -----
Array 4    -----
-----
[ Keys Available ]
-----
[↑] Up [↓] Down [ESC] Exit [Enter] Select
```

7. Select the replacement drive. Press <Enter>:

```
FastBuild (tm) Utility 1.31 (c) 1996-2000 Promise Technology, Inc.
[ Rebuild Array Menu ]
-----
Array No   RAID Mode   Total Drv   Status
-----
Array 1    Mirror      2           Critical
Stripe Block: Not Available
-----
[ Select Drive for Rebuild ]
-----
Channel: ID   Drive Model   Capacity (MB)
-----
1: Slave     ST3322IA     3077
-----
[ Keys Available ]
-----
[↑] Up [↓] Down [ESC] Exit [Enter] Select
```

8. Confirm the command to copy data from the intact source hard disk onto a new replacement hard disk. A progress gauge displays the copy progress for the duration of the task.
9. After the rebuild is complete, the user is prompted to reboot the system. Controller Configuration (6): Default for Controller Configuration is: [enabled].

5.4.6 Alternative Set Ups and Other Details

Hot Spares

A hot spare hard disk may be installed to support a RAID 1 array. This spare hard disk must share one of the Ultra-DMA/100 cables attached to either of the hard disks active in a RAID 1 array. In the event of a failure of either active hard disk in the array, the “Lite” BIOS detects the hot spare and automatically rebuilds the mirrored data from the functional hard disk. The FastBuild Utility will report a warning message after such a hard disk failure; it may indicate that the good hard disk and the hot spare are connected to the same cable, so then it will be necessary to transfer the hot spare to the other cable and reboot again.

Use Both ATA-100 Connectors

Optimal performance for RAID 0 and 1 arrays require that each hard disk be connected to separate IDE channels; the first hard disk should be connected to the Primary ATA-100 connector and the second hard disk, to the Secondary ATA-100 connector.

Adding Extra Hard Disks

The A7V333 is supplied with two additional Primary IDE and Secondary IDE connectors. Only two hard disks connected to the Primary and Secondary ATA-133 IDE connectors can function in a RAID 0 or RAID 1 array. Extra hard disks may be connected to the system using the onboard IDE connectors, but such disks cannot be configured in a RAID array. In principle, up to eight hard disks or other IDE devices may connect to the A7V333. Whether an array is set up or not, all hard disks connected to the A7V333 will function at the ATA-133 protocol.

Use ATA-133/100, High-RPM Hard Disks with Identical Storage Capacity

The fastest available hard disks should be used in the RAID 0 array to maximize performance. Slower hard disks may be used; however, the RAID 0 array can only double the speed of particular hard disks. Since you can achieve better performance with a single ATA-133 hard disk than with two ATA-33 disks in a RAID 0 array, it is more effective to install two ATA-133 or ATA-100 high-RPM hard disks for an array. Hard disks used for both RAID 0 and 1 arrays should always have the same storage capacity because the RAID protocol automatically formats both disks to use only up to the maximum write space available on the smaller of two different hard disks.

5.5 Manual Installation of IDE/RAID Drivers

The A7V333 support CD contains several IDE and RAID 0 or 1 drivers in the Promise folder, including Windows, NetWare and Nt4. Below follow two popular OS installations. The others are available on the support CD.

5.5.1 Win9x-ME Promise® MBFastTrak133™ Speed BIOS

1. Ensure the Support CD-ROM is in the CD Drive and press “Start” button.
2. Move highlight bar to “Settings” and select “Control Panel”.
3. Double click on “System” icon.
4. Select “Device Manager” page.
5. View device by type and find “Other devices” node.
4. Select the “PCI Mass Storage Controller” node and then click “Properties.”
6. Please select [General] page to reinstall driver or select [Driver] page to update the driver.
7. Follow the instruction to insert your Windows CD or ASUS support CD to install the driver.

(Driver Location: {CD-ROM driver}:\Promise\Raid0or1\Win9x-ME)

5.5.2 Win2000 Promise® MBFastTrak133™ Lite Driver

1. Right click “My Computer” icon on the desktop. Select “Properties” when the menu appears. Or you can Press “Start” button. Move highlight bar to “Settings” and select: “Control Panel”. Double click on “System” icon.
2. Select “Hardware” page and then click [Device Manager] button.
3. View device by type and find “Other devices” node.
4. Right Click the “Mass Storage Controller” node.
5. When the menu appears, click the “Properties” item.
6. Please select select [Driver] page to update driver.
7. Press Next while “Upgrade Device Driver Wizard” window appears.
8. Choose “Select for a suitable driver for my device(recommended)” option and then press Next.
9. Select “Specify a location” check box.
10. Type or browse the path {CD-ROM Drive}: \Promise \Raid0or1 \Win2000 to the driver and click OK.
11. Press Next.
12. Press Yes.
13. Finally, press Finish to complete the installation.
14. Please restart you computer for these changes to take effect.

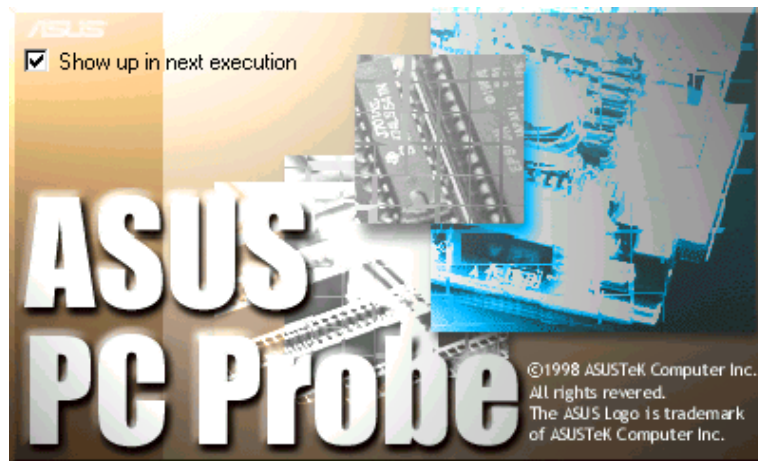
(Driver Location: {CD-ROM driver}:\Promise\Raid0or1\Win2000)

5.4 ASUS PC Probe


ASUS PC Probe is a convenient utility to continuously monitor your computer system's vital components, such as fan rotations, Voltages, and temperatures. It also has a utility that lets you review useful information about your computer, such as hard disk space, memory usage, and CPU type, CPU speed, and internal/external frequencies through the DMI Explorer.

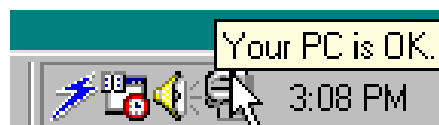
5.4.1 Starting ASUS PC Probe

When ASUS PC Probe starts, a splash screen appears allowing you to select whether or not to show the screen the next time you open PC Probe. To bypass this startup screen, clear the **Show up in next execution** check box.



To start **ASUS PC Probe**, click the Windows **Start** button, point to **Programs**, and then **ASUS Utility**, and then click **Probe Vx.xx**.

The PC Probe icon  will appear on the taskbar's system tray indicating that ASUS PC Probe is running. Clicking the icon will allow you to see the status of your PC.

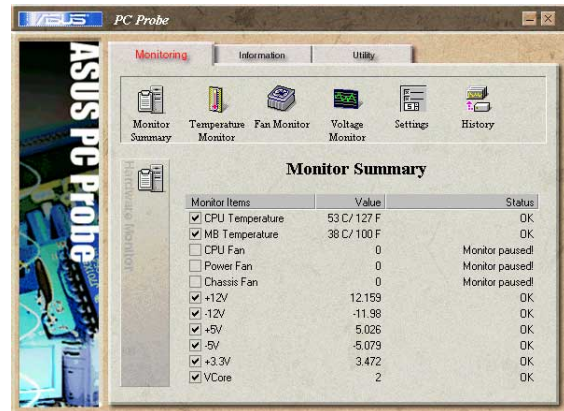


5.4.2 Using ASUS PC Probe

Monitoring

Monitor Summary

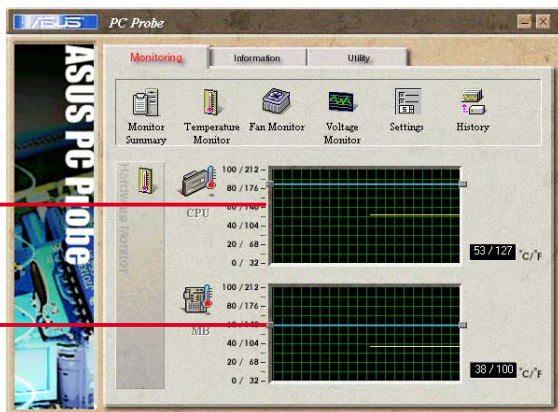
Shows a summary of the items being monitored.



Temperature Monitor

Shows the PC's temperature.

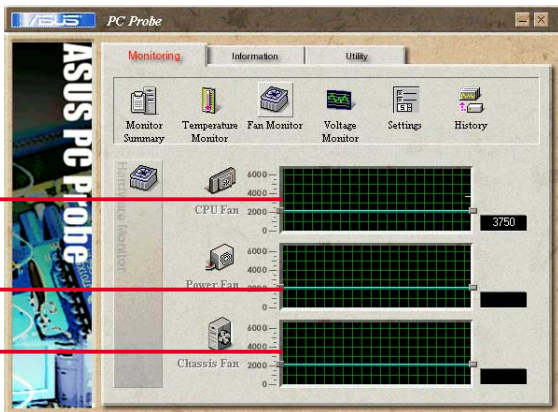
Temperature Warning threshold adjustment
(Move the slider up to increase the threshold level or down to decrease the threshold level)



Fan Monitor

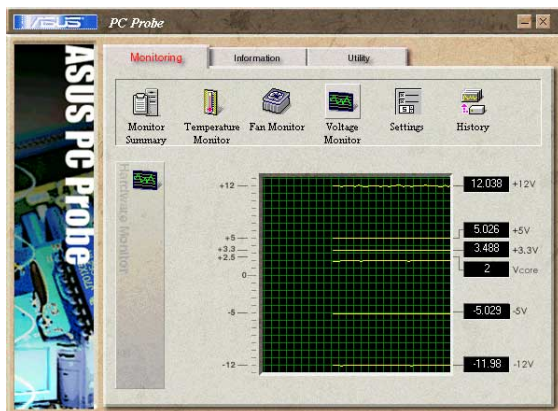
Shows the PC's fan rotation.

Fan Warning threshold adjustment
(Move the slider up to increase the threshold level or down to decrease the threshold level)



Voltage Monitor

Shows the PC's voltages.



Settings

Lets you set threshold levels and polling intervals or refresh times of the PC's temperature, fan rotation, and voltages.



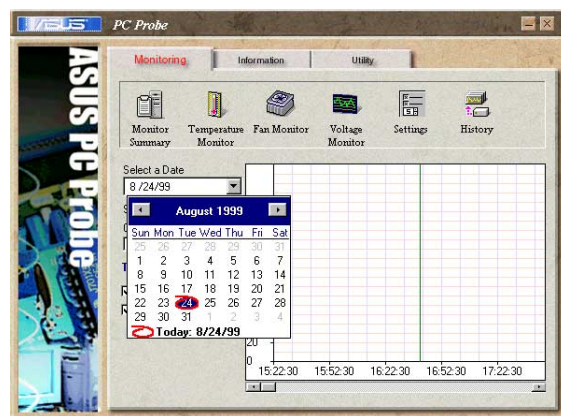
CPU Cooling System Setup

Lets you select when to enable software CPU cooling. When **When CPU Overheated** is selected, the CPU cooling system is enabled whenever the CPU temperature reaches the threshold value.



History

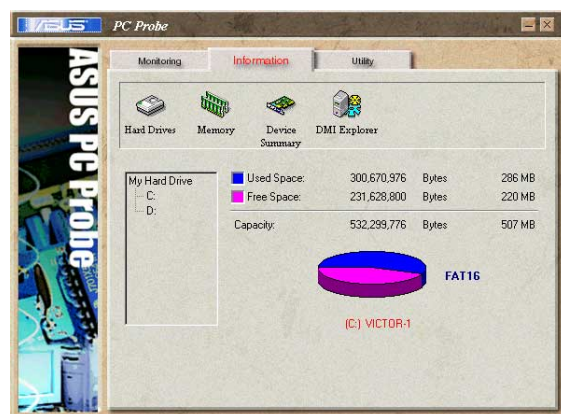
Lets you record the current monitoring activity of a certain component of your PC for future reference.



Information

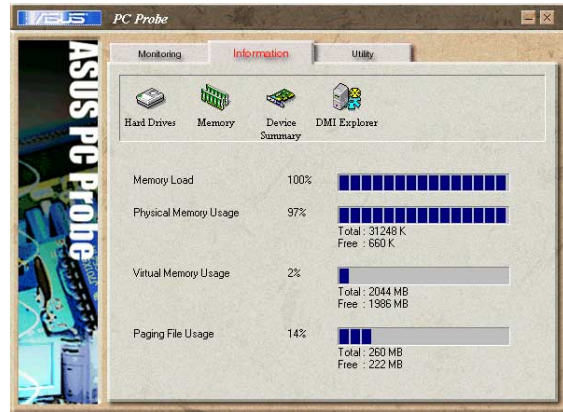
Hard Drives

Shows the used and free space of the PC's hard disk drives and the file allocation table or file system used.



Memory

Shows the PC's memory load, memory usage, and paging file usage.



Device Summary

Shows a summary of devices in your PC.



DMI Explorer

Shows information pertinent to the PC, such as CPU type, CPU speed, and internal/external frequencies, and memory size.



Utility

Lets you run programs outside of the ASUS Probe modules. To run a program, click **Execute Program**.

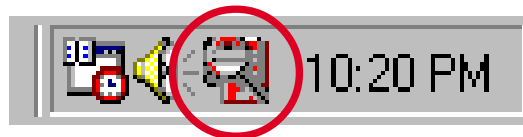


5.4.3 ASUS PC Probe Task Bar Icon

Right-clicking the PC Probe icon will bring up a menu to open or exit ASUS PC Probe and pause or resume all system monitoring.



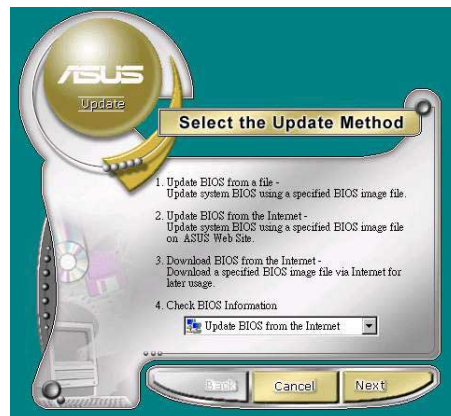
When the ASUS PC Probe senses a problem with your PC, portions of the ASUS PC Probe icon changes to red, the PC speaker beeps, and the ASUS PC Probe monitor is displayed.



5.5 ASUS Live Update

ASUS LiveUpdate is a utility that allows you to update your motherboard's BIOS and drivers. The use of this utility requires that you are properly connected to the Internet through an Internet Service Provider (ISP).

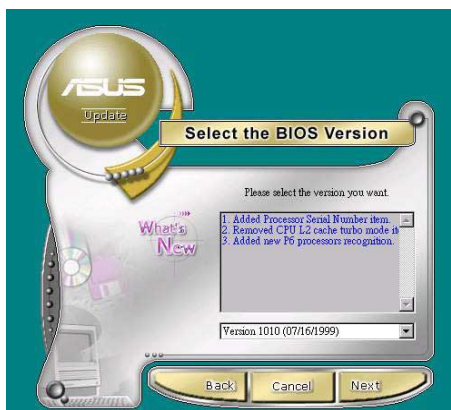
1. Start ASUS Update. Launch the utility from your Windows Start menu: Programs/AsusUpdate.
2. Select an update method.



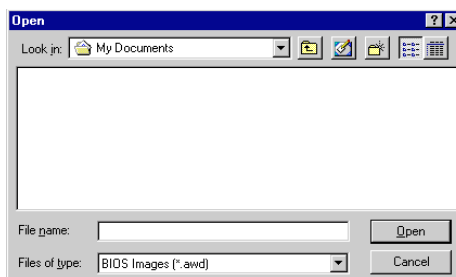
3. If you selected "downloading from the Internet," you will need to select an Internet site. Choose the site that is closest to you or click Auto Select.



4. From the FTP site, select the BIOS version that you wish to download. Click Next.



5. Follow the instructions on the succeeding screens to complete the update process. If you selected the option to update the BIOS from a file, a window pops up prompting you to locate the file. Select the file, click Save, then follow the screen instructions to complete the update process.



5.6 3Deep Color Tuner

The 3-Deep color tuner is designed to match your CRT or LCD color monitor to maximize the color quality of all graphical applications. Users may also tune their internet applications to match “true” internet source colors with the color displayed on the monitor.

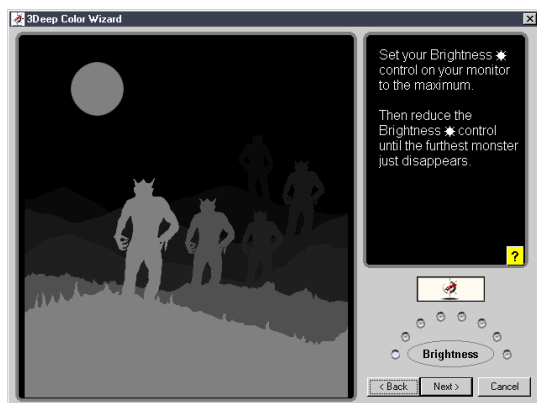
Simply run the setup program from the start menu and follow the instructions on the various setup/test screens.

5.6.1 3Deep Color Tuning

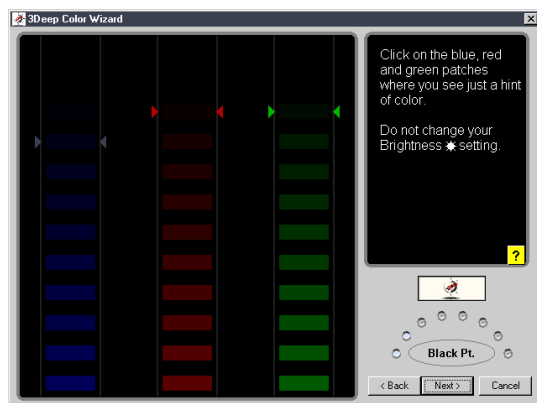
1. Select the type of monitor connected to the computer, either **CRT** or **LCD**.



2. Follow the instructions to manually adjust the **brightness** level of the monitor.

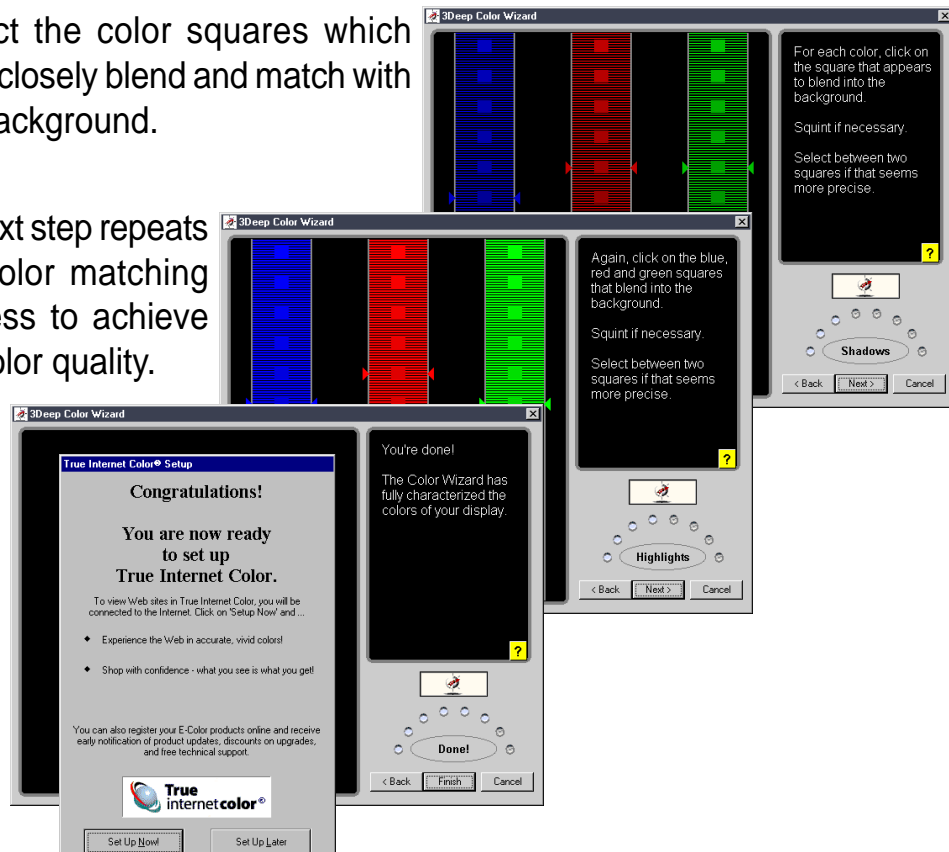


3. Select the faintest of the three colors: **blue**, **red** and **green**.



4. Select the color squares which most closely blend and match with the background.

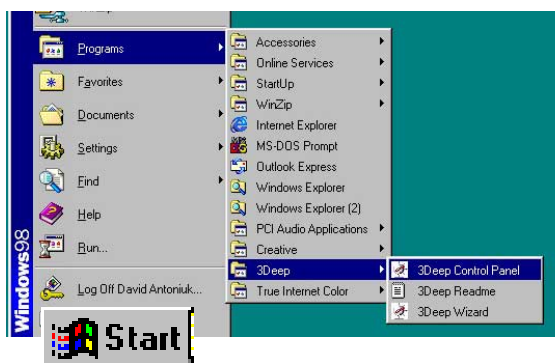
5. The next step repeats the color matching process to achieve full color quality.



6. The tuning process is complete. Click on the bottom left button to connect to the internet and follow the instructions.

5.6.2 The 3Deep Control Panel

Using the Windows **Start** button, activate the **3Deep Control Panel** program from the **3Deep Applications** group on the **Main Program** menu. The control panel offers access to the **Color Wizard** tuning program, a **Game Gamma** setting and a **Tweak** slider for brightness adjustment.



5.7 Winbond Voice Editor

The Winbond Voice Editor software allows you to customize the vocal POST messages. Install the software from the software menu in the support CD. See section “5.2.3 Software menu”.



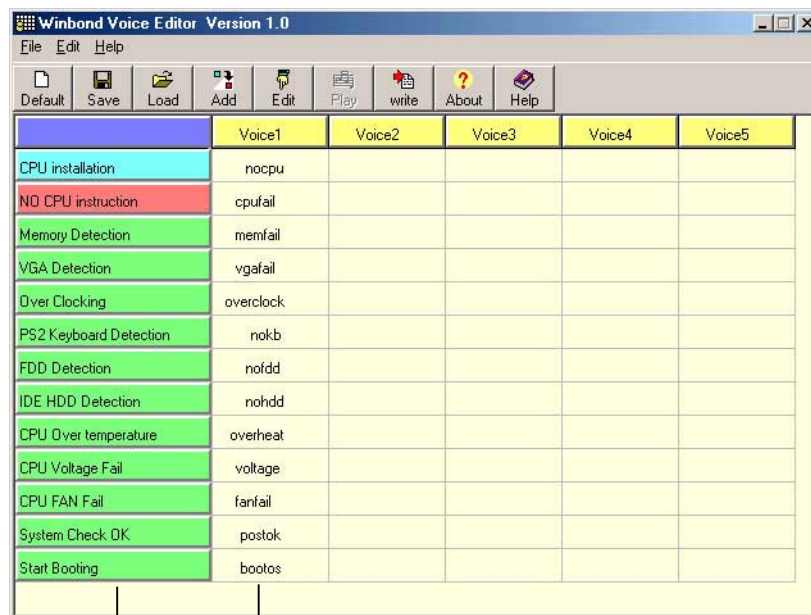
To avoid conflicts, do not run the Winbond Voice Editor while running the ASUS PC Probe.

Follow these steps to use the Winbond Voice Editor.

Launching the program

Launch the program either from the Winbond Voice Editor icon on your desktop, or from the Windows Start menu, **Programs/Winbond Voice Editor/Voice Editor**.

The Winbond Voice Editor screen appears.



POST Events

Default Messages

Playing the default wave files

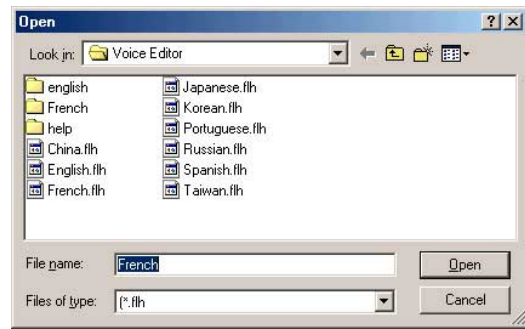
To play the default wave files, simply click on a POST event on the left side of the screen, then click the Play button.



The default language setting is English.

Changing the default language

1. Click on the Load button. a window showing the available languages appears.
2. Select your desired language then click Open. The event messages for the language you selected appear on the Voice Editor screen.



For some languages, not all events have a corresponding message due to file size constraints.

3. Click on the Write button to update the EEPROM.
4. Click Yes on the confirmation window that appears.



The next time you boot your computer, the POST messages are announced in the language that you selected .

Customizing your POST messages

If your language is not in the selection or if you wish to record your own POST messages to replace the pre-installed wave files, you may easily do so.

Follow these steps to customize your POST messages.

1. Launch the Voice Editor and take note of the list of POST events on the leftmost column of the screen.
2. Prepare your message for each event.



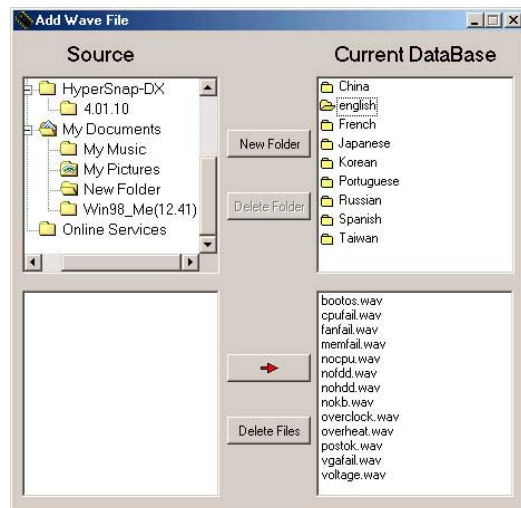
The total compressed size for all the wave files must not exceed 1Mbit, so make your messages as short as possible.

3. Use a recording software, such as Windows Recorder, to record your messages.
4. Save the messages as wave files (.WAV). It is recommended that you save your files in low quality to keep them small. For example, use 8-bit, mono quality at 22Khz sampling rate.

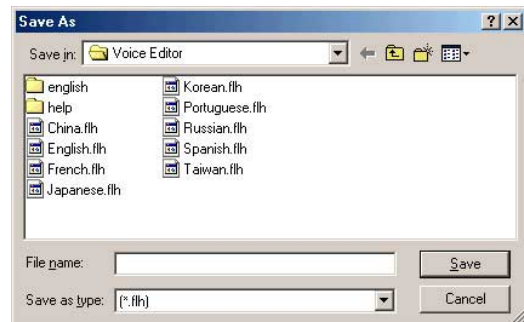
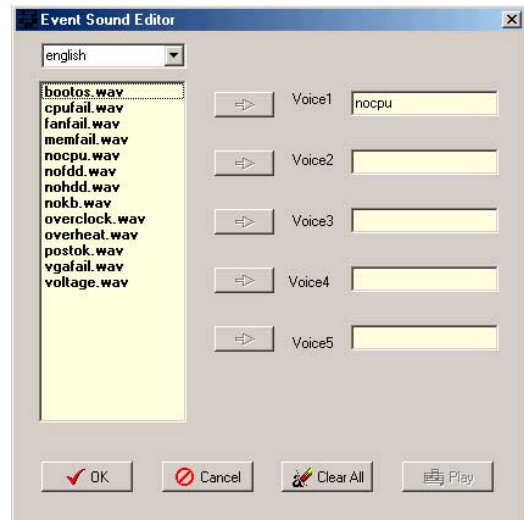


You may want to create a separate folder for your wave files so you can locate them easily in one place.

5. From the Voice Editor screen, click on the Add button to display the Add Wave File window.
6. Copy the wave files that you recorded to the database. Close the window when done.



7. Click a POST event on the Voice Editor screen, then on the Edit button. The Event Sound Editor window appears.
8. Locate and select your wave file for the event then click on the arrow opposite Voice1. The file you selected appears on the space next to it.
9. Click OK to return to the Voice Editor screen.
10. Do steps 7 to 9 for the other events.
11. When done, click the Save button. A window appears prompting you to save your configuration.
12. Type a file name with a **.flh** extension, then click Save.
13. Click on the Write button to compress the file and copy into the EEPROM.
14. Click Yes on the confirmation window that appears.



If you receive an error message telling you that the files exceed the total allowable size, do one or all of the following.

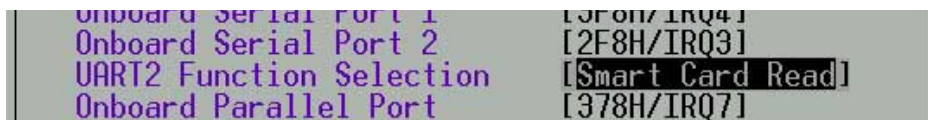
- Try to modify your messages to make them shorter
- Save the wave files at a lower quality
- Skip lesser used events like FDD Detection, IDE HDD Detection, etc.

5.8 ITE GSM Editor

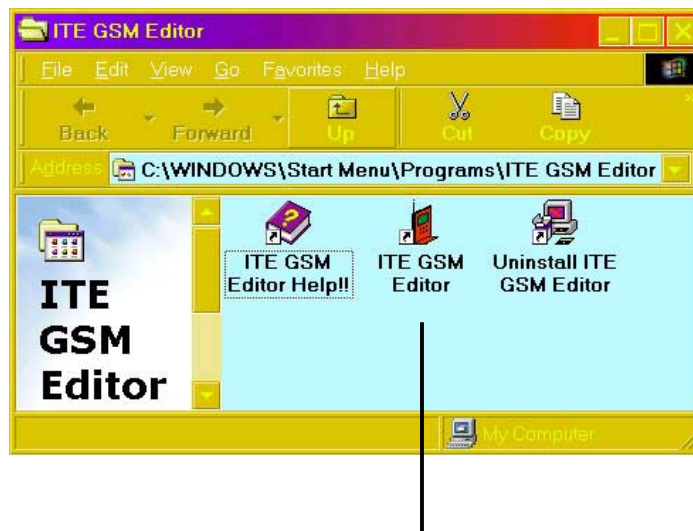
The *ITE GSM Editor* is a useful application for editing and managing the data contained on a *GSM cell phone SIM card chip*. This unique software supports access of the SIM card “phone book.” The editor helps you to add or delete data including new names and phone numbers. The software also enables advanced PIN management that includes changing the PIN plus card-lock unblocking.

Setting Up ITE GSM Editor

Connect a *smart card reader* to the A7V333; (refer to *page 38* in *Hardware Setup* for the *connector* location.) Boot-up the PC and enter BIOS (press) to change the configuration to accept smart card hardware: in the *Advanced BIOS* menu select the *I/O Device Configuration* sub-menu, go to *UART2 Function Selection* and choose *Smart Card Read*, save and exit.



Finish booting up. Insert the ASUS Support CD and click on the selection: *ITE GSM Editor*. The software is auto-installed to the program directory. The new program group appears:



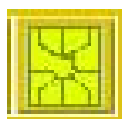
Click on the *ITE GSM Editor* icon to start-up the program.

The ITE GSM menu:



Using the basic ITE GSM Editor:

1. Carefully remove the SIM chip from your mobile phone and insert it into the card reader. The most convenient method is to use a conversion card: slip the SIM chip into the conversion card and then insert it into the card reader.
2. To access the phone book contained in the SIM card, either click the chip icon:



Or, double click the SIM Card:



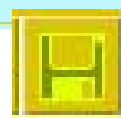
3. To edit data, select the field and double click it, or press <Enter>. Type in the name and number:



4. The data appears in the field:

No.	Name	Phone No.
1	John Doe	0912345678
2		
3		

5. To save data to the SIM chip, click the save icon:



Using the Command field:

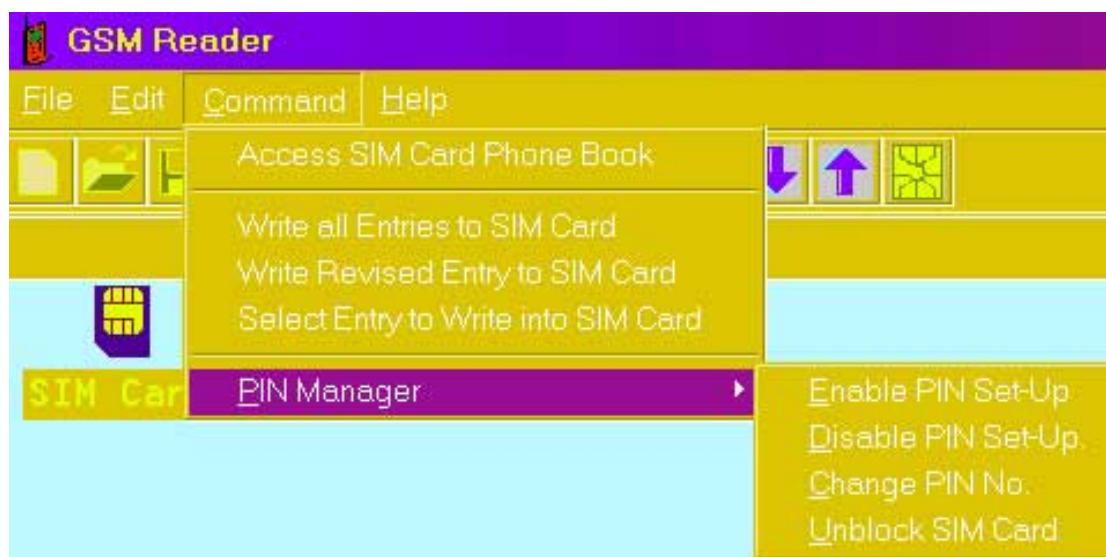


1. **Write All Entries into SIM Card**, and the program writes all new data appearing in the fields onto the SIM card.
2. **Write Revised Entry into SIM Card**, and the program writes all updated entries into the existing SIM card phone book. After revising the data, an icon appears in front of the serial number indicated.
3. **Select Entry to Write into SIM Card**, and the program writes the selected data from the open file into the SIM card database. Users can select multiple entries by pressing <Ctrl> and mouse-selecting the data fields simultaneously.



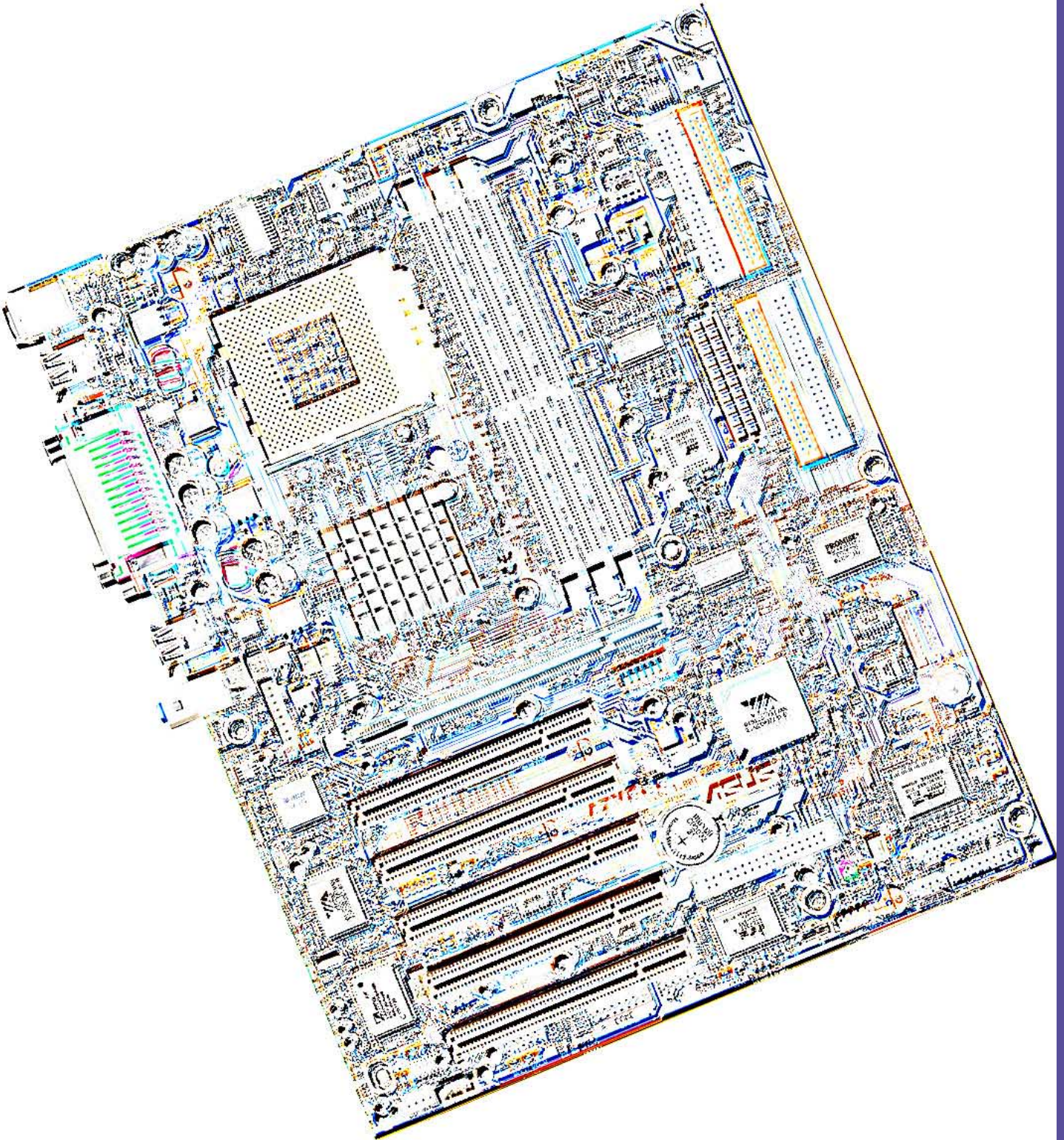
Phone number entries may be comprised of: "1, 2, 3, 4, 5, 6, 7, 8, 9, #, *, C, or +". Pressing "C" commands the dialer to pause for three seconds before dialing the next digit; the "C" code is useful for dialing extension numbers. Pressing "+" indicates the international head code.

Using the PIN Manager:



1. **Enable PIN Set-Up:** This function is used to set the PIN. This function is effective only if the *PIN set-up is disabled* and the *SIM card is not blocked*. First enter the PIN set previously to enable the PIN set-up function. New users may find the default PIN in the SIM card user manual. If the correct PIN numbers are entered, the SIM card can be reset. If three consecutive attempts to enter the PIN *fail*, the SIM card is automatically *blocked*.
2. **Disable PIN Set-Up:** This function is used to disable the personal identification number (PIN) set-up. It is effective only when the PIN set-up is enabled and the SIM chip is not blocked. Users should first enter the current PIN to disable the PIN set-up. If the correct PIN numbers are entered, the SIM chip can be reset. If three consecutive attempts to enter the PIN *fail*, the SIM chip is automatically *blocked*.
3. **Unblock SIM Card:** If the SIM chip is locked up, follow the steps below to unlock it:
 - Step 1:* To unblock, enter the PUK (Personal Unblocking Key) consult the SIM chip support documentation for the key code. If the PUK code is not supplied, contact the system operator/dealer.
 - Step 2:* Enter a new PIN.

Glossary



1394

1394 is the IEEE designation for a high performance serial bus that offers data transfers at 100/200/400 Mbps. This serial bus defines both a back plane physical layer and a point-to-point cable-connected virtual bus. The primary application of the cable version is the integration of I/O connectivity at the back panel of personal computers using a low-cost, scalable, high-speed serial interface. The 1394 standard also provides new services such as live connect/disconnect capability for external devices including disk drives, printers and hand-held peripherals such as scanners and cameras. This is a new standard to complement the slower USB interface and to compete with the more expensive SCSI interface.

AC97 (Audio Codec '97)

AC '97 is the next step in enabling PCs with audio quality comparable to consumer electronics devices. The specification defines new cost-effective options to help integrate the components necessary to support next-generation audio-intensive PC applications such as DVD, 3-D multiplayer gaming and interactive music. The specification also defines new extensions supporting modem and docking to help both desktop and mobile manufacturers adopt these new technologies more quickly and cost-effectively. This specification uses software emulation to compete with the PCI SoundBlaster specification.

ACPI (Advanced Configuration and Power Interface)

The ACPI specification defines a cross-platform interface designed to support many operating systems. ACPI defines a flexible and abstract hardware interface that provides a standard way to integrate power management features throughout a PC system, including hardware, operating system and application software. This enables the system to automatically turn ON and OFF peripherals such as CD-ROMs, network cards, hard disk drives, and printers, as well as consumer devices connected to the PC such as VCRs, TVs, phones, and stereos. With this technology, peripherals will also be able to activate the PC. For example, inserting a tape into a VCR can turn on the PC, which could then activate a large-screen TV and high-fidelity sound system.

AGP (Accelerated Graphics Port)

An interface specification that enables high-performance 3D graphics on mainstream PCs. AGP was designed to offer the necessary bandwidth and latency to perform texture mapping directly from system memory.

Bus	Bus Frequency	Bandwidth	Data Transfer Rate
PCI	33MHz	33MHz	133MByte/sec
AGP 1X	66MHz	66MHz	266MByte/sec
AGP 2X	66MHz	133MHz	512MByte/sec
AGP 4X	66MHz	266MHz	1024MByte/sec

Backup. A copy of a file, directory, or volume on a separate storage device from the original. This copy is for the purpose of data retrieval in case the original is accidentally erased, damaged, or destroyed.

BIOS (Basic Input/Output System)

BIOS is a set of routines that affect how the computer transfers data between computer components, such as memory, disks, and the display adapter. The BIOS instructions are built into the computer's read-only memory. BIOS parameters can be configured by the user through the BIOS Setup program. The BIOS can be updated using the provided utility to copy a new BIOS file into the EEPROM.

Bit (Binary Digit)

A bit is the basic unit of digital data used by the computer. A bit equals either: 0 or 1.

Boot

Boot means to start the computer operating system by loading it into system memory. When the manual instructs you to "boot" your system (or computer), it means to turn ON your computer. "Reboot" means to restart your computer. When using Windows 95 or later, selecting "Restart" from "Start | Shut Down..." will reboot your computer.

Bus Master IDE

PIO (Programmable I/O) IDE requires that the CPU be involved in IDE access and waiting for mechanical events. Bus master IDE transfers data to/from the memory without interrupting the CPU. Bus master IDE driver and bus master IDE hard disk drives are required to support bus master IDE mode.

Byte (Binary Term)

One byte is a group of eight contiguous bits. A byte is used to represent a single alphanumeric character, punctuation mark, or other symbol.

Cache Memory. A type of RAM that allows a faster from the CPU than a regular RAM. The cache memory eliminates the CPU wait state. When the CPU reads data from the main memory, a copy of this data is stored in the cache memory. The next time the same address, the data is transferred from the cache memory instead of from the main memory.

CODEC (Compressor/Decompressor). A software component that translates video or audio between its uncompressed form and the compressed form in which it is stored.

COM Port

COM is a logical device name used by to designate the computer serial ports. Pointing devices, modems, and infrared modules can be connected to COM ports. Each COM port is configured to use a different IRQ and address assignment.

Concurrent PCI

Concurrent PCI maximizes system performance with simultaneous CPU, PCI and ISA bus activities. It includes multi-transaction timing, enhanced write performance, a passive release mechanism and support for PCI 2.1 compliant delayed transactions. Concurrent PCI provides increased bandwidth, reduced system latencies, improves video and audio performance, and improves processing of host based applications.

CPU (Central Processing Unit)

The CPU, sometimes called "Processor," actually functions as the "brain" of the computer. It interprets and executes program commands and processes data stored in memory. Currently, there are socket 370 (for Pentium III FC-PGA and Celeron-PPGA), socket 7 (for Pentium, AMD, Cyrix, IBM), slot 1 (for Pentium II and III), slot 2 (for Xeon), and slot A (for AMD) processors.

Device Driver

A device driver is a special set of instructions that allows the computer's operating system to communicate with devices such as VGA, audio, printer, or modem.

DOS (Disk Operating System)

DOS is the foundation on which all other programs and software applications operate, including Windows. DOS is responsible for allocating system resources such as memory, CPU time, disk space, and access to peripheral devices. For this reason, DOS constitutes the basic interface between you and your computer.

DRAM (Dynamic Random Access Memory)

A type of RAM that requires refresh cycles to prevent the loss of the data stored in it. There are several different types of DRAM such as, EDO DRAM (Extended Data Output DRAM), SDRAM (Synchronous DRAM), and RDRAM (Rambus DRAM) and DDR DRAM, (Double-Data Rate DRAM).

Flash ROM

non-volatile memory device that retains its data even when power is removed. This device is similar to EPROM, but unlike EPROM which can be erased only using an ultra-violet light, flash ROM can be electrically erased. Flash ROM is normally used for system BIOS, which initiates hardware devices and sets up necessary parameters for the OS. Since the flash ROM contents can be modified, users can easily update the BIOS..

IDE (Integrated Drive Electronics)

IDE devices integrate the drive control circuitry directly on the drive itself, eliminating the need for a separate adapter card (in the case for SCSI devices). UltraDMA/33 IDE devices can achieve up to 33MB/Sec transfer.

I/O (Input/Output)

The data transfers from the input devices like a keyboard, mouse, or scanner, to the output devices like a printer or the monitor screen.

I/O Address

The specific memory location for a particular device. Two devices cannot share the same I/O address space.

IrDA (Infrared Data Association)

An international organization that creates and promotes inter-operable, low cost, infrared data interconnection standards that support a walk-up, point-to-point model. The IrDA protocol is designed to support transmission of data between two devices over short-range point-to-point infrared at speeds between 9.6Kbps and 4Mbps.

ISP (Internet Service Provider)

A company that provides customer access to the Internet and the World Wide Web for a fee. The ISP also provides Internet utilities and services like e-mail, newsgroup, weather reports, and a host of others. The user can connect to the ISP using a modem installed in the computer and connected to a phone line.

LPT Port (Line Printer Port)

Logical device name reserved by DOS for the computer parallel ports. Each LPT port is configured to use a different IRQ and address assignment.

MMX

A set of 57 new instructions designed to accelerate multimedia and communications applications, such as 3D video, 3D sound, video conference.

Modem

A device that allows a computer to talk to another computer through the phone system.

Network

An interconnected computer system linked by telephone wires, or other means.

OnNow

The OnNow design initiative is a comprehensive, system-wide approach to system and device power control. OnNow is a term for PC that is always ON but appears OFF and responds immediately to user or other requests. The OnNow design initiative involves changes that will occur in the Microsoft Windows operating system, device drivers, hardware, and applications, and also relies on the changes defined in the Advanced Configuration and Power Interface (ACPI) specification.

PC100/133

This is an industry-standard designation for memory capacity as a measure of the speed of the memory bus. New platform requirements ensure that memory does not become a bottleneck to system performance.

PCI Bus (Peripheral Component Interconnect Local Bus)

PCI bus is a standard specification that defines a 32-bit data bus interface.

PCI Bus Master

The PCI Bus Master can perform data transfer without local CPU help and the CPU can be treated as one of the Bus Masters. PCI 2.1 supports concurrent PCI operation to allow the local CPU and bus master to work simultaneously.

POST (Power On Self Test)

Powering on the computer initiates the POST, a series of software-controlled diagnostic tests. The POST checks system memory, the motherboard circuitry, the display, the keyboard, the diskette drive, and other I/O devices.

PS/2 Port

PS/2 ports are based on IBM Micro Channel Architecture. This type of architecture transfers data through a 16-bit or 32-bit bus. A PS/2 mouse and/or keyboard may be used on ATX motherboards.

RDRAM (Rambus DRAM)

Developed by Rambus, Inc., this type of memory can deliver up to 1.6GB of data per second. RDRAM is the first interface standard that can be directly implemented on high performance VLSI components such as, CMOS DRAMs, memory controllers, and graphics/video ICs.

RAM (Random Access Memory). The computer's primary storage area used to write, store, and retrieve information and program instructions which are passed to the CPU for processing. The information in RAM can be repeatedly re-written with new data. Compared to other storage media like magnetic tape, floppy disk, and hard disk, RAM has an extraordinarily fast access rate. RAM, however, is volatile, which means that the data stored in it are lost when the system power is turned off, or if power glitches occur. See also DRAM and SDRAM.

ROM (Read Only Memory)

ROM is nonvolatile memory used to store permanent programs (called firmware) used in certain computer components. Flash ROM (or EEPROM) can be reprogrammed with new programs (or BIOS).

SCSI (Small Computer System Interface)

High speed multi-threaded I/O interface defined by the X3T9.2 committee of the American National Standards Institute (ANSI) for connecting many peripheral devices. The standard started from 10MBytes/sec to 160MBytes/sec available today.

SDRAM (Synchronous DRAM)

A type of DRAM with access signals that are synchronized with the CPU clock, eliminating the delay associated with data transfers between the CPU and memory. SDRAM takes memory access away from the CPU control; internal registers in the memory accept the request, and lets the CPU do something else while the data requested is assembled for the next time the CPU talks to the memory.

SPD for SDRAM module

Serial Presence Detect (SPD) is most like an ID detect for SDRAM module, it using a EEPROM component on DIMM module for storing module configuration information inside. The Serial Presence Detect function is implemented using a 2048 bit EEPROM component. This nonvolatile storage device contains data programmed by the DIMM manufacturer that identifies the module type and various SDRAM organization and timing parameters.

System Disk

A system disk contains the core file of an operating system that boots up the operating system.

TCP/IP (Transmission Control Protocol/Internet Protocol). The communications protocol used by the UNIX system and the Internet. TCP checks for lost packets, puts the data from multiple packets into the correct order, and requests that missing or damaged packets be resent.

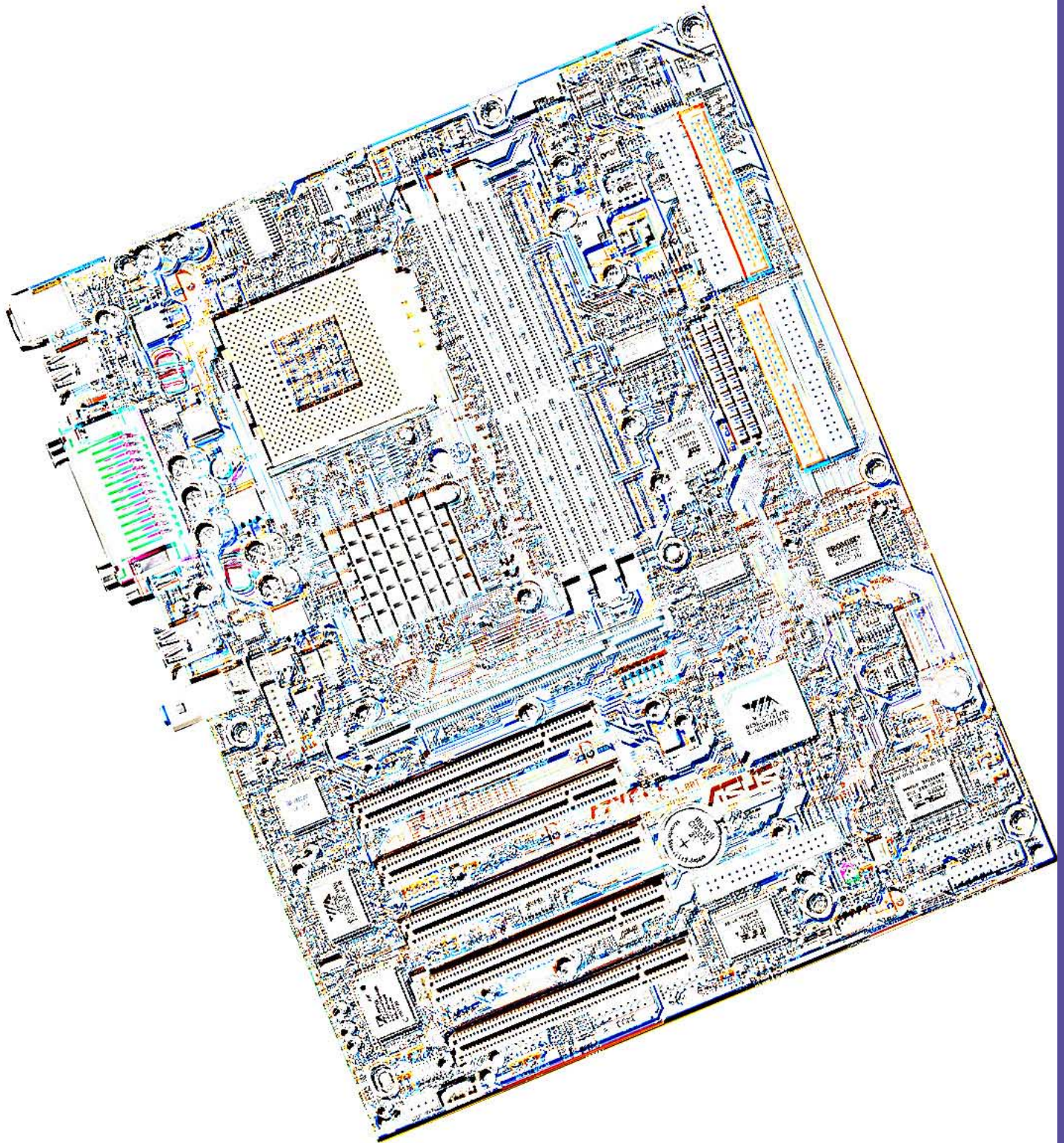
USB (Universal Serial Bus)

A 4-pin serial cable bus that allows up to 127 plug and play computer peripherals such as keyboard, mouse, joystick, scanner, printer, modem, and monitor to share a bandwidth through a host scheduled token based protocol. This allows attaching or detaching while the host and other peripherals are in operation. Supports synchronous and asynchronous transfer types over the same set of wires up to 12Mbit/sec. USB 2.0 provides twice the transfer rate compared to USB 1.0 and competes with the 1394 standard.

Wake-On-LAN

Computer will automatically wake-up upon receiving a wake-up packet through a Network interface when it is under power soft-off, suspend or sleep mode.

Index



Index

Symbols

3Deep Color Tuner
Using 101

A

ASUS PC Probe
Using 95
ASUS Update
Using 100
ATAPI CD-ROM 78
Automatic Power Up 77

B

BIOS
Advanced Menu 63
Beep Codes 45
Boot Menu 78
Boot Sequence 78
Exit Menu 80
Legend Bar 54
Main Menu 56
Menu Bar 54
Power Menu 73
Setup Defaults, loading 81
Setup Program 53
Smart BIOS 2
Sub-menu launching 55
Updating 49
BIOS Beep Codes 45
Boot Device
Selection 78
Boot Up NumLock Status 61
Boot Virus Detection 79

C

Central Processing Unit (CPU) 12
External Frequency 20
installation 13
Level 1/Level 2 Cache 64
Speed 63
Chip Configuration 65
Connectors
Audio 31
Chassis Fan 34
CPU Fan 34
Floppy Disk Drive 32, 37
HDD LED 29
IDE 33
Infrared Module 35
Internal Audio 37
Panel 44
Parallel Port 30
PS/2 Keyboard 29
PS/2 Mouse 29
Serial Port 30
Smart Card Reader 38, 39
SMBus 36
USB 30

D

DIMM
installing 15
DIP Switches 19

E

expansion card
installation 16
Expansion slots 16

F

- Floppy 3 Mode 56
- Floppy Disk Drive Connector 32, 37

H

- Hard Disk Drives (HDDs)
 - CHS Capacity 59
 - Cylinders 59
 - Heads 59
 - LBA Capacity 59
 - Primary/Secondary Master 57
 - Primary/Secondary Slave 57
 - Sectors 59
 - Types 57
- Hardware Monitor 77

I

- IDE Activity LED 32
- IDE Connectors 33
- Infrared Module Connector 35
- Interrupt Assignments 17
- IRQ assignments 17

J

- JumperFree™ Mode 19

K

- Keyboard
 - Auto-Repeat Delay 61
 - Auto-Repeat Rate 61
 - Connector 29
 - Features 61
- Keyboard Lock Switch Lead 10

L

- LAN
 - Jumper Setting 24, 25
- Legacy Diskette 56
- LiveUpdate 101
 - Using 101

M

- Motherboard
 - layout 8, 9
 - placement 7
 - screws 7
- Mouse
 - Connector 29
- Multi-Sector Transfers 59

O

- Onboard LED 10
- Operating system
 - installation 83

P

- Parallel Port 68
 - Modes 68
- Parallel Port Connector 30
- Password
 - Supervisor 62
 - User 62
- PC Probe
 - Using 95
- PCI Configuration 70
- PCI Latency Timer 70
- PCI/VGA Palette Snoop 70
- PIO Mode 60
- Plug & Play O/S 79
- POST Messages 46
- POST messages
 - customizing 105
- Power Management 73
- Power On Self Test 79
- PS/2 Keyboard 29
- PS/2 Keyboard Port 2
- PS/2 Mouse 29
 - Function Control 64
- PS/2 Mouse Port 2

R

RAID 1 or 0 86

RTC RAM

Clearing 9, 28

S

SDRAM

Active to Precharge Time 66

CAS Latency 65

Configuration 65

RAS to CAS Delay 65

Serial Ports 68

Connectors 30

slots

AGP 18

PCI 18

Smart Card Reader 38, 39

Smart Manager 107

SMART Monitoring 60

SMBus Connector 36

Support CD 83

ASUS Update 85

Main menu 84

Software menu 85

Welcome screen 83

Winbond Voice Editor 103

System Date 56

System memory

configurations 14

System Time 56

U

UART2 70

Ultra DMA Mode 60

Universal Serial Bus (USB) 30

Ports 30

USB Legacy Support 65

Using

3Deep Color Tuner 101

ASUS Update 100

LiveUpdate 101

PC Probe 95

Winbond Smart Manager 107

USWC 66

W

Winbond Smart Manager 107

