A7V8X-X

User Guide

Motherboard

ASUS

E1198

First Edition V1

January 2003

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Notices

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.

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. If possible, 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 adpater or extension cord. These devices could interrupt the grounding circuit.

- Make sure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.

- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.

- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your 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.

- Place the product on a stable surface.

- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

About this guide

Conventions used in this guide

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

WARNING/DANGER: Information to prevent injury to yourself when trying to complete a task.

CAUTION: Information to prevent damage to the components when trying to complete a task.

IMPORTANT: Information that you MUST follow to complete a task.

NOTE: Tips and additional information to aid in completing a task.

Where to find more information

Refer to the following sources for additional information and for product and software updates.

1. **ASUS Websites**

   The ASUS websites worldwide provide updated information on ASUS hardware and software products. The ASUS websites are listed in the ASUS Contact Information on page viii.

2. **Optional Documentation**

   Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

ASUS contact information

ASUSTeK COMPUTER INC. (Asia-Pacific)

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

Technical Support

MB/Others (Tel):	+886-2-2890-7121 (English)
Notebook (Tel):	+886-2-2890-7122 (English)
Desktop/Server (Tel):	+886-2-2890-7123 (English)
Support Fax:	+886-2-2890-7698
Support Email:	tsd@asus.com.tw
Web Site:	www.asus.com.tw

ASUS COMPUTER INTERNATIONAL (America)

Address:	6737 Mowry Avenue, Mowry Business Center, Building 2, Newark, CA 94560, USA
General Fax:	+1-510-608-4555
General Email:	tmd1@asus.com

Technical Support

Support Fax:	+1-510-608-4555
General Support:	+1-502-933-8713
Web Site:	www.asus.com
Support Email:	tsd@asus.com

ASUS COMPUTER GmbH (Germany and Austria)

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

Technical Support

Support Hotline:	MB/Others: +49-2102-9599-0
Notebook (Tel):	+49-2102-9599-10
Support Fax:	+49-2102-9599-11
Support (Email):	www.asuscom.de/de/support (for online support)
Web Site:	www.asuscom.de

A7V8X-X specifications summary

CPU	Socket A for AMD Barton/Thoroughbred/Athlon XP/Athlon/ Duron 2.25+ GHz CPU
Chipset	Northbridge: VIA KT400 Southbridge: VIA VT8235
Front Side Bus (FSB)	200/266/333Mhz
Memory	3 x DDR DIMM Sockets Max. 3 GB unbuffered PC2100/1600 non-ECC DDR SDRAM (*Note: PC3200 maximum to 2 banks only. PC2700 maximum to 4 banks only.*)
Expansion slots	1 x AGP 8X 6 x PCI
IDE	2 x UltraDMA 133/100/66
Audio (optional)	ADI 1980 6-channel CODEC S/PDIF out interface
LAN (optional)	Realtek 10/100 Mbps Ethernet PHY
USB 2.0	VT8235 built-in USB 2.0 6 x USB 2.0 ports
Special Features	ASUS MyLogo ASUS EZ Flash ASUS C.P.R. (CPU Parameter Recall) Power Loss Restart ASUS Jumperfree SFS (Stepless Frequency Selection) ASUS C.O.P. (CPU Overheating Protection) CrashFree BIOS
Back Panel I/O Ports	1 x Parallel 1 x Serial 1 x S/PDIF out (on audio model only) 1 x PS/2 Keyboard 1 x PS/2 Mouse 1 x Audio I/O (on audio model only) 4 x USB 2.0 1 x RJ-45 Port (on LAN model only)
Internal I/O Connectors	CPU/Chassis FAN connector 20 pin ATX power connector IDE LED connector Chassis Intrusion GAME port (on audio model only) CD/AUX audio in (on audio model only) Front panel audio connector (on audio model only) 1 x USB 2.0 connector supports additional 2 USB 2.0 ports

(continued on the next page)

A7V8X-X specifications summary (Cont')

BIOS features	2Mb Flash ROM, Award BIOS, DMI2.0, PnP, WfM2.0, SM BIOS 2.3, TCAV, EZ Flash, ASUS MyLogo, ASUS CrashFree BIOS, ASUS JumperFree, ASUS C.P.R.
Industry standard	PCI 2.2, USB 2.0
Manageability	WfM2.0, DMI2.0, WOR, WOL, Chassis Intrusion
Form Factor	ATX form factor: 12 in x 9.6 in (30.5 cm x 24.5 cm)
Support CD contents	Device drivers ASUS PC Probe Trend Micro™ PC-cillin 2002 anti-virus software ASUS LiveUpdate Utility
Accessories	User's manual Support CD 1 x UltraDMA 133/100/66 cable FDD cable I/O shield

* Specifications are subject to change without notice.

Chapter 1

This chapter gives information about the ASUS A7V8X-X motherboard that came with the system. This chapter includes the motherboard layout, jumper settings, and connector locations.

Motherboard Info

1.1   Welcome!

Thank you for buying the ASUS® A7V8X-X motherboard!

The ASUS A7V8X-X motherboard is loaded with the most advanced technologies to deliver the maximum performance for socket A processors. This motherboard is loaded with value-added features for guaranteed consumer satisfaction. Unique ASUS features such as ASUS C.O.P., ASUS C.P.R., ASUS EZFlash, ASUS JumperFree, ASUS MyLogo, ASUS CrashFree BIOS and more are included to ensure the best user experience and value in a motherboard. For future upgrades or system reconfiguration, this chapter provides technical information about the motherboard.

Before you start installing the motherboard, and hardware devices on it, check the items in your package with the list below.

1.2   Package contents

Check your ASUS A7V8X-X package for the following items.

✓   ASUS A7V8X-X motherboard
        ATX form factor: 12 in x 9.6 in (30.5 cm x 24.5 cm)

✓   ASUS A7V8X-X series support CD

✓   1 pc. 80-conductor ribbon cable for UltraDMA/66/100/133 IDE drives

✓   Ribbon cable for a 3.5-inch floppy drive

✓   Bag of extra jumper caps

✓   User Guide

✓   I/O shield

1.3 Motherboard components

Before you install the motherboard, learn about its major components and available features to facilitate the installation and future upgrades. Refer to the succeeding pages for the component descriptions.
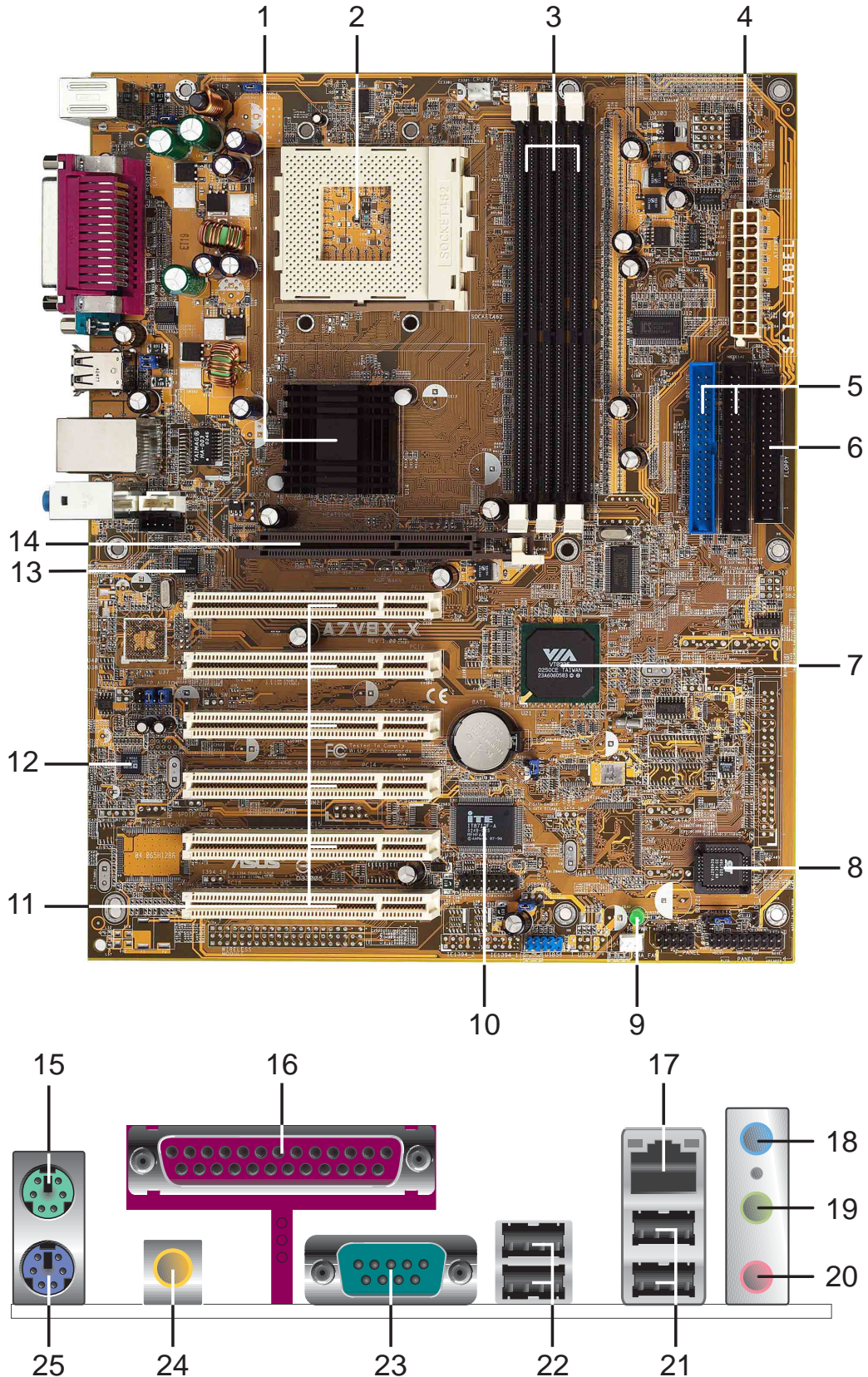
1.3.1   Core specifications

1 **North bridge controller.** The **VIA® KT400** supports AGP 8X mode, 333/266/200MHz Front Side Bus, and the latest 400/333/266/200MHz 64-bit memory bus.

2 **CPU socket.** Socket 462 (Socket A) surface mount, Zero Insertion Force (ZIF) socket for the AMD Barton/Thoroughbred/Athlon XP/Athlon/Duron Processors, with 600 MHz ~ 2.25GHz system bus. (Note: When using 333MHz FSB CPU, system memory supports DDR333 only.)

TABLE 1.3.1
FSB/DDR
Support Table

FSB	DDR 266	DDR 333	DDR 400
200/266 MHz	✓	✓	✓
333 MHz		✓	

3 **DDR DIMM sockets.** These three 184-pin DIMM sockets support up to 3GB system memory using unbuffered non-ECC PC2100/1600 DDR DIMMs. (*Note: PC2700 maximum to 4 banks only. PC3200 maximum to 2 banks only. Visit the ASUS website [www.asus.com] for the latest qualified DDR400 module list.)*

4 **ATX power connector.** This 20-pin connector connects to an ATX +12V power supply. The power supply must have at least 1A on the +5V standby lead (+5VSB).

5 **IDE connectors.** These dual-channel bus master IDE connectors support up to four Ultra DMA133/100/66, PIO Modes 3 & 4 IDE devices. Both the primary (blue) and secondary (black) connectors are slotted to prevent incorrect insertion of the IDE ribbon cable.

6 **Floppy disk connector.** This connector accommodates the provided ribbon cable for the floppy disk drive. One side of the connector is slotted to prevent incorrect insertion of the floppy disk cable.

7 **South bridge controller.** The **VIA® VT8235** integrated peripheral controller supports various I/O functions including, 2-channel ATA/133 bus master IDE controller, up to six USB 2.0 ports, LPC Super I/O interface, AC'97 interface and PCI 2.2 interface.

8 **Flash ROM.** This 2Mb firmware contains the programmable BIOS program.

9 **Standby power LED.** This LED lights up if there is a standby power on the motherboard. This LED acts as a reminder to turn off the system power before plugging or unplugging devices.

10 **Super I/O controller.** This Low Pin Count (LPC) interface provides the commonly used Super I/O functionality. The chipset supports a high-performance floppy disk controller for a 360K/720K/1.44M/2.88M floppy disk drive, a multi-mode parallel port, two standard compatible UARTs and a Flash ROM interface.

11 **PCI slots.** These six 32-bit PCI 2.2 expansion slots support bus master PCI cards like SCSI or LAN cards with 133MB/s maximum throughput.

12   **Audio CODEC .** The ADI AD1980 is an AC'97 CODEC that allows 6-channel audio playback. The audio CODEC provides six DAC channels for 5.1 surround sound, S/PDIF interface, AUX and Line In stereo inputs, integrated headphone amplifier, greater than 90dB dynamic range. *(on audio models only)*

13   **LAN PHY.** This Realtek RTL8201BL LAN PHY supports your local area networking needs. (*on LAN model only*)

14   **AGP slot.** This Accelerated Graphics Port (AGP) slot supports 1.5V AGP8X mode graphics cards for 3D graphical applications.

15   **PS/2 mouse port.** This green 6-pin connector is for a PS/2 mouse.

16   **Parallel port.** This 25-pin port connects a parallel printer, a scanner, or other devices.

17   **RJ-45 port.** This port allows connection to a Local Area Network (LAN) through a network hub. *(on LAN models only)*

18   **Line In jack.** This Line In (light blue) jack connects a tape player or other audio sources. In 6-channel mode, the function of this jack becomes Bass/Center. *(on audio models only)*

19   **Line Out jack.** This Line Out (lime) jack connects a headphone or a speaker. In 6-channel mode, the function of this jack becomes Front Speaker Out. *(on audio models only)*

20   **Microphone jack.** This Mic (pink) jack connects a microphone. In 6-channel mode, the function of this jack becomes Rear Speaker Out. *(on audio models only)*
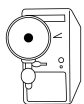
> The functions of the Line Out, Line In and Microphone jacks change when you select the 6-channel audio configuration as shown in the following table:

Audio 2, 4 or 6-channel configuration (*Note:Win98SE supports 4-channel only.*)

	Headphone/ 2-Speaker	4-Speaker	6-Speaker
Light Blue	Line In	Line In	Bass/Center
Lime	Line Out	Front Speaker Out	Front Speaker Out
Pink	Mic In	Rear Speaker Out	Rear Speaker

21   **USB 2.0 ports 3 and 4.** These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.

22   **USB 2.0 ports 1 and 2.** These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.

23   **Serial port.** This 9-pin COM1 port is for pointing devices or other serial devices.

24   **S/PDIF out port.** This port connects to external home theater systems for surround sound and enhanced 3D audio when playing DVDs or games.

25   **PS/2 keyboard port.** This purple 6-pin connector is for a PS/2 keyboard.

1.4   Special features

1.4.1   Product highlights

333MHz FSB Athlon XP CPU support

AMD's Athlon XP 2800+ and all follow-up CPUs now support 333MHz Front Side Bus (FSB) for increased application program productivity and enhanced digital media experience.

AGP 8X support

AGP 8X (AGP 3.0) is the next generation VGA interface specification that enables enhanced graphics performance with high bandwidth speeds up to 2.12 GB/s. With a bus of 533Mhz, AGP 8X is twice as fast as AGP 4X.

DDR400 (PC3200) support

DDR400 (PC3200), the latest and fastest DDR memory standard, supports bandwidth up to 3.2 GB/s to provide enhanced system performance.
(Note: PC2700 maximum to 4 banks only. PC3200 maximum to 2 banks only.)

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.

ASUS EZ Flash

With ASUS EZ Flash, you can update BIOS before entering operating system. No more DOS-based flash utility and bootable diskette required.

SoundMax Digital Audio System *(on audio models only)*

The SoundMax Digital Audio System is the industry's highest performance and most reliable audio solution for business professionals, audiophiles, musicians, and gamers. SoundMAX Digital Audio System can output 5.1 channel surround and features state-of-the-art DLS2 MIDI synthesizer with Yamaha DLSbyXG sound set, 5.1 Virtual Theater™ and supports all major game audio technologies including Microsoft DirectX™8.0, Microsoft DirectSound 3D™, A3D, MacroFX, ZoomFX, MultiDrive 5.1 and EAX. Refer to section "3.2.5 Multi-channel audio feature" on page 3-5 for more information.

C.P.R. (CPU Parameter Recall)

When the system hangs due to overclocking failure, there is no need to open the case to clear the CMOS data. Simply restart the system and the BIOS will automatically restore the CPU default setting for each parameter.

CrashFree BIOS

CrashFree BIOS allows users to restore BIOS data from a floppy diskette even when BIOS code and data are corrupted during upgrade or invaded by a virus. Unlike other competing vendors' products, ASUS motherboards now enable users to enjoy this protection feature without the need to pay for an optional ROM.

1.5   Motherboard layout

24.4cm (9.6in)

PS/2KBMS
T: Mouse
B: Keyboard

OVER_VOLT

CPU_FAN

KBPWR

Socket 462

DDR DIMM1 (64/72 bit, 184-pin module)
DDR DIMM2 (64/72 bit, 184-pin module)
DDR DIMM3 (64/72 bit, 184-pin module)

SPDIF1

PARALLEL PORT

ATX Power Connector

COM1

USBPW12
USBPW34

USB20_12

VIA
KT400
Chipset

Bottom:
USB3
USB4

Top:
RJ-45

Top:Line In
Center:Line Out
Below:Mic In

AUX

CD

0 1   2 3   4 5

Accelerated Graphics Port
(AGP)

PRI_IDE

SEC_IDE

FLOPPY

30.5cm (12.0in)

LAN
PHY

PCI Slot 1

A7V8X-X

PCI Slot 2

VIA
VT8235
Chipset

FP_AUDIO

PCI Slot 3

CR2032 3V
Lithium Cell
CMOS Power

Audio
Codec

MDC

PCI Slot 4

CLRTC

PCI Slot 5

Super
I/O

2Mbit
Firmware
Hub

IDE_LED

/ISUS

PCI Slot 6

GAME
USBPW56

SB_PWR

CHASSIS

USB56

CHA_FAN

PANEL

ASUS A7V8X-X Motherboard   **1-7**

1.6   Before you proceed

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

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 to avoid touching 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.

When lit, the green LED (SB_PWR) indicates that the system is ON, in sleep mode, or in soft-off mode, a reminder that you should shut down the system and unplug the power cable before removing or plugging in any motherboard component.

SB_PWR

ON
Standby
Power

OFF
Powered
Off

A7V8X-X Onboard LED
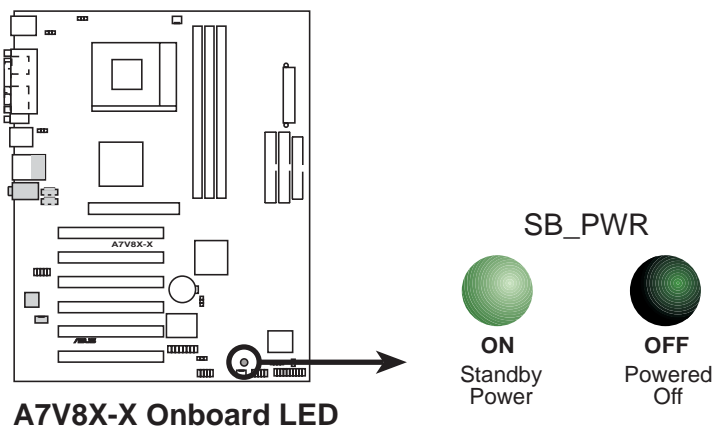
Install only 1.5V AGP cards on this motherboard to prevent damage to your AGP card or motherboard.

1.7 Motherboard installation

Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it. The motherboard uses the ATX form factor that measures 12 inches x 9.6 inches (30.5 cm x 24.5 cm).

> Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause you physical injury and damage motherboard components.

1.7.1 Placement direction

When installing the motherboard, make sure that you place it into the chassis in the correct orientation. The edge with external ports goes to the rear part of the chassis as indicated in the image below.

1.7.2 Screw holes

Place nine (9) screws into the holes indicated by circles to secure the motherboard to the chassis.

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

Place this side towards the rear of the chassis
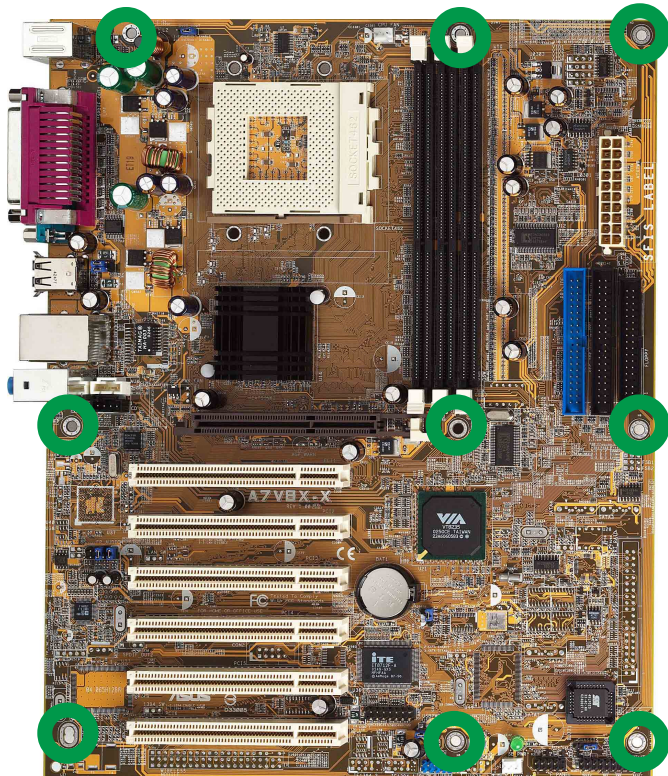
1.8 Central Processing Unit (CPU)

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 A7V8X-X supports Athlon™ XP, Athlon™, Barton™ and Duron™ processors.

A7V8X-X Socket A

AMD™ CPU

CPU NOTCH

CPU NOTCH
TO INNER
CORNER

LEVER   LOCK
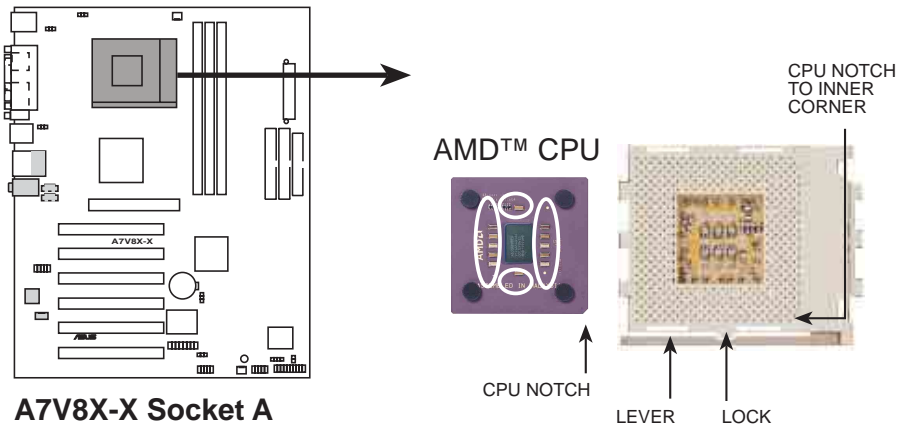
1.8.1 Installing the CPU

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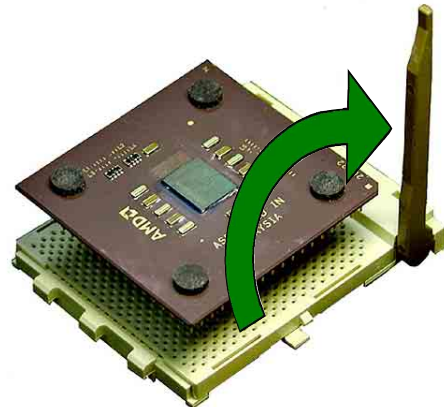
> The CPU should drop easily into place. *Do not force the CPU* into the socket to avoid bending the pins. If the CPU does not fit, check its alignment and look for bent pins.

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

1.9   System memory

The motherboard has three Double Data Rate (DDR) DIMM sockets that supports up to 3GB unbuffered non-ECC PC3200/2700/2100/1600 DDR DIMMs.

A DDR DIMM has the same physical dimensions as an SDR DIMM, but it has a 184-pin footprint compared to the 168-pin of the SDR DIMM. Also, a DDR DIMM is single notched while an SDR DIMM is double notched.
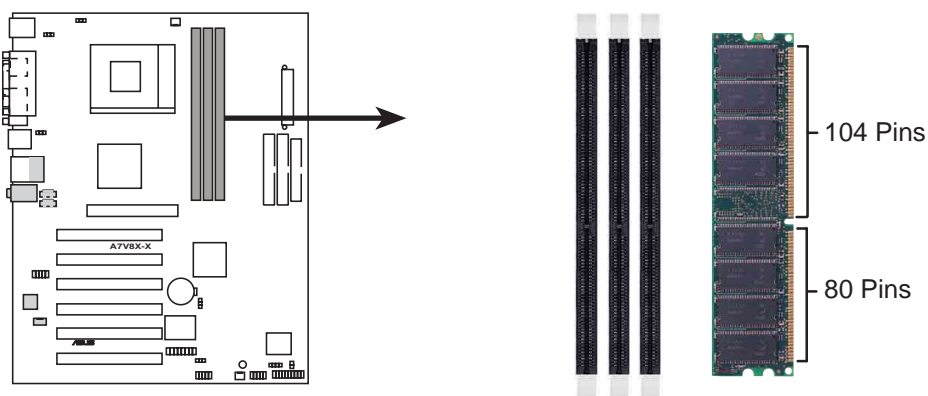
A7V8X-X 184-Pin DDR DIMM Sockets

104 Pins

80 Pins

A DDR or SDR DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a DIMM into a socket to avoid damaging the DIMM.

PC3200 maximum to 2 banks only and PC2700 maximum to 4 banks only.

1.10   Expansion slots

The A7V8X-X motherboard has six (6) expansion PCI slots and one (1) AGP 8X slot. The following sub-sections describe the slots and the expansion cards that they support.

1.10.1 Configuring an expansion card

After physically installing the expansion card, configure the card by adjusting the software settings.

1.   Turn on the system and change the necessary BIOS settings, if any.

2.   Assign an IRQ to the card. Refer to the tables below.

3.   Install the software drivers for the expansion card.

1.10.2 Standard Interrupt Assignments

IRQ	Standard Function
0	System Timer
1	Keyboard Controller
2	Programmable Interrupt Controller
3*	USB Universal Host Controller
4*	Communications Port (COM1)
5*	Onboard Audio
6	Standard Floppy Disk Controller
7*	Printer Port (LPT1)
8	System CMOS/Real Time Clock
9*	Onboard LAN
10*	USB Universal Host Controller
11*	Onboard VGA
12*	PS/2 Compatible Mouse Port
13	Numeric Data Processor
14*	Ultra ATA Controller
15*	Secondary Ultra ATA Controller

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

IRQ assignments for this motherboard

	A	B	C	D	E	F	G	H
PCI slot 1	—	—	—	shared	—	—	—	—
PCI slot 2	shared	—	—	—	—	—	—	—
PCI slot 3	—	shared	—	—	—	—	—	—
PCI slot 4	—	—	shared	—	—	—	—	—
PCI slot 5	—	—	—	shared	—	—	—	—
PCI slot 6	shared	—	—	—	—	—	—	—
AGP slot	shared	—	—	—	—	—	—	—
USB 1.1 UHCI 1	—	—	—	—	—	shared	—	—
USB 1.1 UHCI 2	—	—	—	—	—	shared	—	—
USB 1.1 UHCI 3	—	—	—	—	—	shared	—	—
USB 2.0 EHCI	—	—	—	—	—	shared	—	—
AC97 Codec	—	—	—	—	—	—	used	—
Onboard LAN	—	—	shared	—	—	—	—	—
Onboard IDE	—	—	—	—	used	—	—	—

1.10.3 AGP slot

This motherboard has an Accelerated Graphics Port (AGP) slot that supports +1.5V AGP cards only. When you buy an AGP card, make sure that you ask for one with +1.5V specification. Note the notches on the card golden fingers to ensure that they fit the AGP slot on your motherboard.
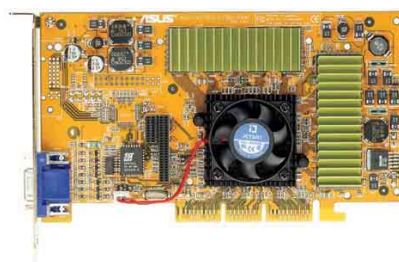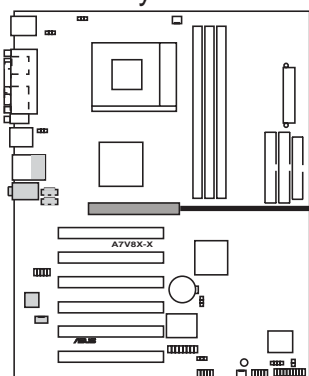
A7V8X-X Accelerated Graphics Port (AGP)

1.11 Jumpers

This section describes and illustrates the jumpers on the motherboard.

1. USB device wake-up (3-pin USBPWR12,USBPWR34,USBPWR56)

Set these jumpers to +5V to wake up the computer from S1 sleep mode (CPU stopped, DRAM refreshed, system running in low power mode) using the connected USB devices. Set to +5VSB to wake up from S3 sleep mode (no power to CPU, DRAM in slow refresh, power supply in reduced power mode). Both jumpers are set to pins 1-2 (+5V) by default because not all computers have the appropriate power supply to support this feature.

The USBPWR12 and USBPWR34 jumpers are for the rear USB ports. USBPWR56 is for the internal USB header that you can connect to the front USB ports.

This feature requires a power supply that can provide at least 1A on the +5VSB lead when these jumpers are set to +5VSB. Or, the system does not power up. The total current consumed must NOT exceed the power supply capability (+5VSB) whether under normal condition or in sleep mode.

USBPW12
USBPW34

1 2   2 3

+5V   +5VSB
(Default)

USBPW56

1 2   2 3

+5V   +5VSB
(Default)

A7V8X-X USB Device Wake Up
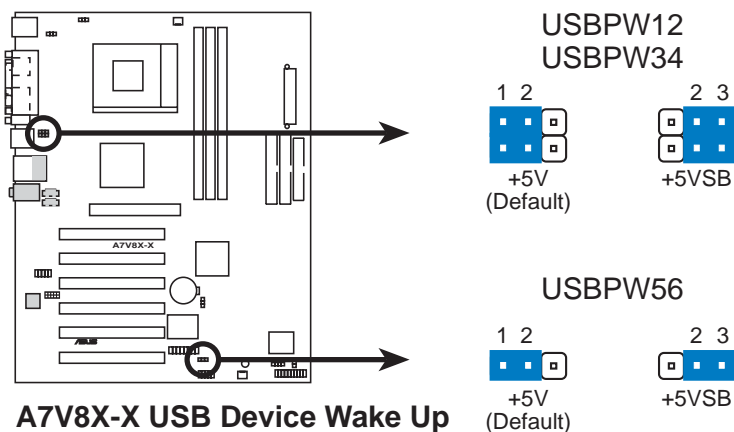
2. V$_{CORE}$ over-voltage (3-pin OVER_VOLT)

When enabled, this jumper allows CPU V$_{CORE}$ ranges of 1.7V to 2.05V.

When this jumper is disabled, V$_{CORE}$ setting has a range of +1.5V to +1.85V. You may adjust the CPU V$_{CORE}$ through the BIOS Setup.

OVER_VOLT

1 2   2 3

Enable   Disable
(Default)
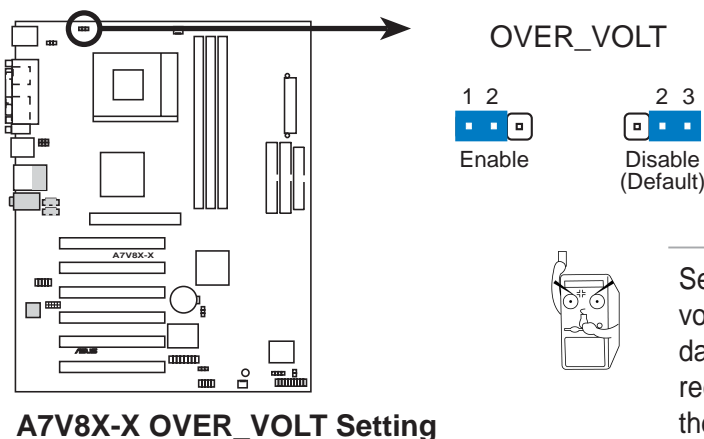
Setting to a very high core voltage may cause permanent damage to the CPU. It is recommended that you keep the default setting (Disable).

A7V8X-X OVER_VOLT Setting

3. Clear RTC RAM (CLRTC)

These jumpers allow 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 jumper by placing the jumper cap to pins [1-2] and replace it to pins [2-3] after 3 seconds.
4. Re-install the battery.
5. Plug the power cord and turn ON the computer.
6. Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data.
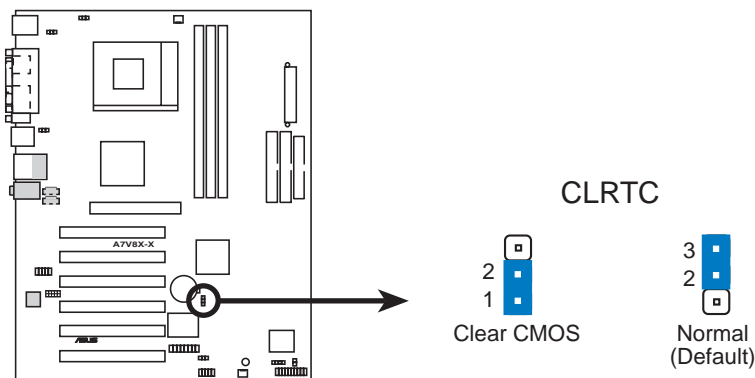
A7V8X-X Clear RTC RAM Setting

4. Keyboard power (3-pin KBPWR)

This jumper allows you to enable or disable the keyboard wake-up feature. Set this jumper to pins 2-3 (+5VSB) if you wish to wake up the computer when you press a key on the keyboard (the default value is [Disabled]). This feature requires an ATX power supply that can supply at least 1A on the +5VSB lead, and a corresponding setting in the BIOS.
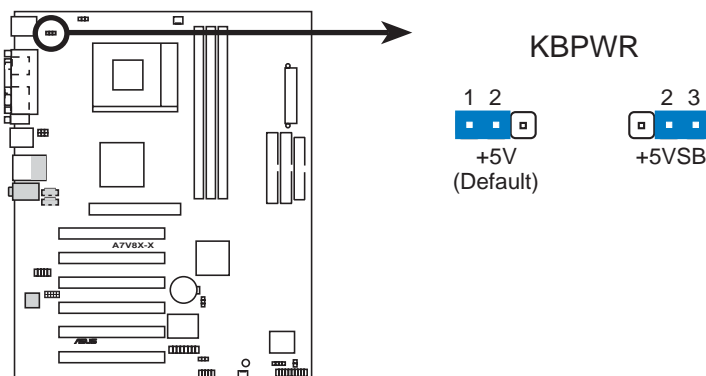
A7V8X-X Keyboard Power Setting

1.12 Connectors

This section describes and illustrates the connectors on the motherboard.

1. ATX power connectors (20-pin ATXPWR)

These connectors connect to an ATX 12V power supply. The plugs from the power supply are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.

ATXPWR

+3.3VDC	+3.3VDC
-12.0VDC	+3.3VDC
COM	COM
PS_ON#	+5.0VDC
COM	COM
COM	+5.0VDC
COM	COM
-5.0VDC	PWR_OK
+5.0VDC	+5VSB
+5.0VDC	+12.0VDC
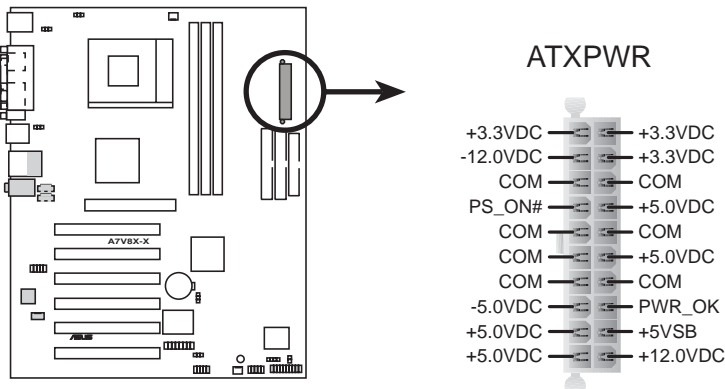
A7V8X-X ATX Power Connectors

> If you will need to replace the power supply in the future, make sure that your new ATX 12V power supply can provide 8A on the +12V lead and at least 1A on the +5-volt standby lead (+5VSB). The minimum recommended wattage is 230W, or 300W for a fully configured system. The system may become unstable and may experience difficulty powering up if the power supply is inadequate.

2. USB headers (10-1 pin USB56)

If the USB 2.0 port connectors on the back panel are inadequate, two USB headers (blue 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.

USB56

USB+6V
USB_P6-
USB_P6+
GND
NC

1

USB+5V
USB_P5-
USB_P5+
GND
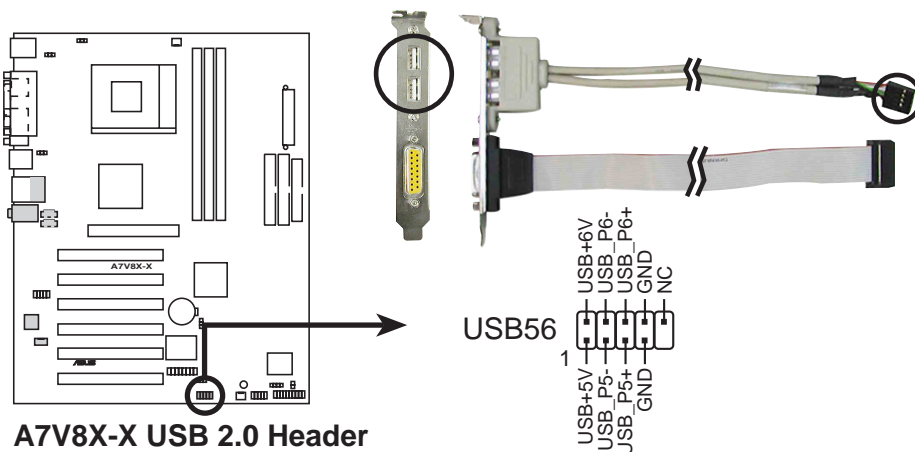
A7V8X-X USB 2.0 Header

> The USB/GAME module is not included in the package.

3. IDE connectors (40-1 pin PRI_IDE, SEC_IDE)

This connector supports the provided UltraDMA/133/100/66 IDE hard disk ribbon cable. Connect the cable's blue connector to the primary (recommended) or secondary IDE connector, then connect the gray connector to the UltraDMA/133/100/66 slave device (hard disk drive) and the black connector to the UltraDMA/133/100/66 master device. It is recommended that you connect non-UltraDMA/133/100/66 devices to the secondary IDE connector. If you install two hard disks, you must configure the second drive as a slave device by setting its jumper accordingly. Refer to the hard disk documentation for the jumper settings. BIOS supports specific device bootup. If you have more than two UltraDMA/133/100/66 devices, purchase another UltraDMA/133/100/66 cable. You may configure two hard disks to be both master devices with two ribbon cables – one for the primary IDE connector and another for the secondary IDE connector.

> Pin 20 on each IDE connector is removed to match the covered hole on the UltraDMA cable connector. This prevents incorrect orientation when you connect the cables.
>
> For UltraDMA/133/100/66 IDE devices, use an 80-conductor IDE cable.
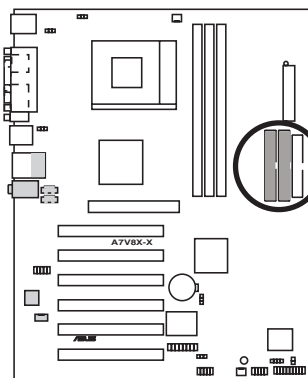
A7V8X-X IDE Connectors

PRI_IDE   SEC_IDE
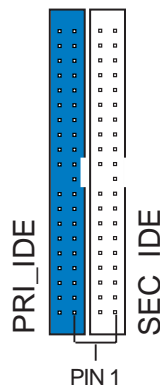
PIN 1

NOTE: Orient the red markings (usually zigzag) on the IDE ribbon cable to PIN 1.

4. MDC header (10-1 pin MDC)

This ASUS proprietary modem header accomodates an optional modem module.

A7V8X-X MDC Header

MDC

MODEM_IN
AC97_SYNC
AC97_SDIN1
GND
AC97_BITCLK

GND
+3VSB
AC97_RST#
AC97_SDOUT
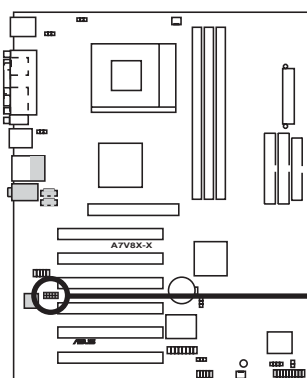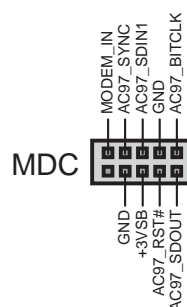
5. Floppy disk drive connector (34-1 pin FLOPPY)

This connector supports the provided floppy drive ribbon cable. After connecting one end to the motherboard, connect the other end to the floppy drive. (Pin 5 is removed to prevent incorrect insertion when using ribbon cables with pin 5 plug).
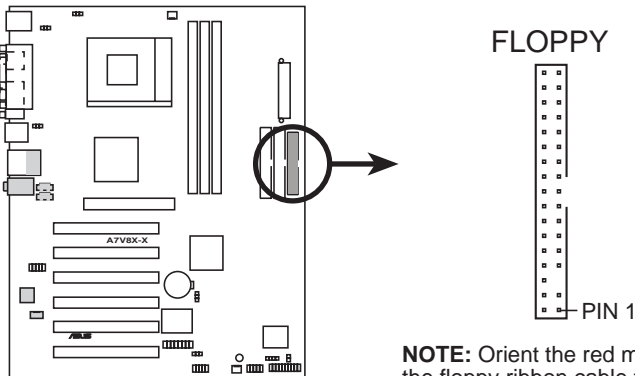
FLOPPY

PIN 1

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

A7V8X-X Floppy Disk Drive Connector

6. CPU and Chassis Fan Connectors (3-pin CPU_FAN, CHA_FAN)

The two fan connectors support cooling fans of 350mA (4.2 Watts) or a total of 1A (12W) at +12V. Orient the fans so that the heat sink fins allow air flow to go across the onboard heat sinks instead of the expansion slots. The fan wiring and plug may vary depending on the fan manufacturer. Connect the fan cable to the connector matching the black wire to the ground pin.

CPU_FAN

GND
+12V
Rotation

CHA_FAN

Rotation
+12V
GND
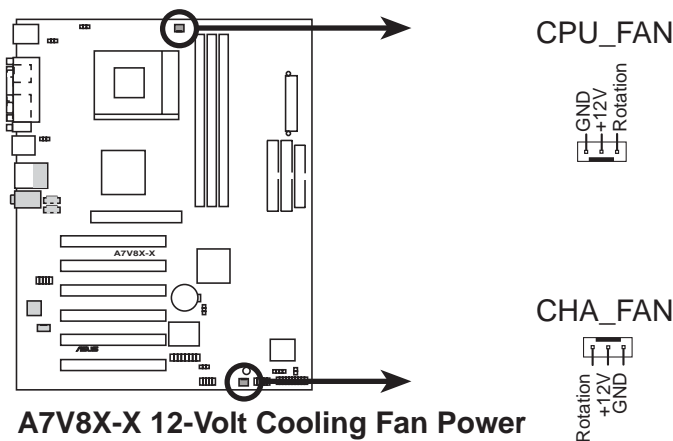
A7V8X-X 12-Volt Cooling Fan Power

Do not forget to connect the fan cables to the fan connectors. Lack of sufficient air flow within the system may damage the motherboard components. These are not jumpers! DO NOT place jumper caps on the fan connectors!

7. Internal audio connectors (4-pin AUX, CD)

These connectors allow you to receive stereo audio input from sound sources such as a CD-ROM, TV tuner, or MPEG card.

AUX (White)
CD (Black)

Left Audio Channel
Ground
Ground
Right Audio Channel

A7V8X-X Internal Audio Connectors
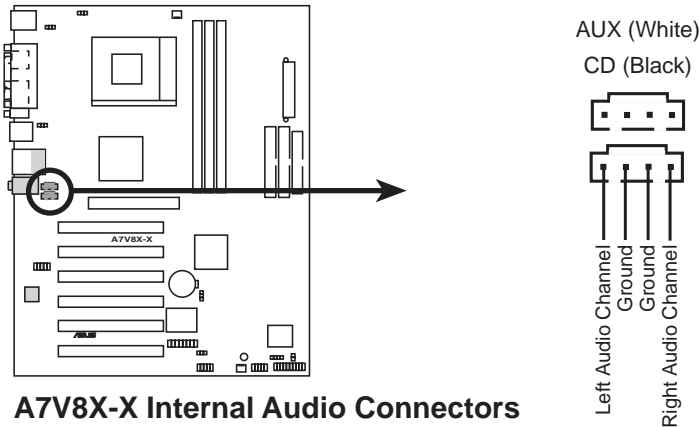
8. Front panel audio connectors (10-1 pin FP_AUDIO)

This is an interface for the Intel front panel audio cable that allow convenient connection and control of audio devices.

FP_AUDIO

AGND
+5VA
BLINE_OUT_R
BLINE_OUT_L

MIC2
MICPWR
Line out_R
NC
Line out_L

A7V8X-X Front Panel Audio Connector
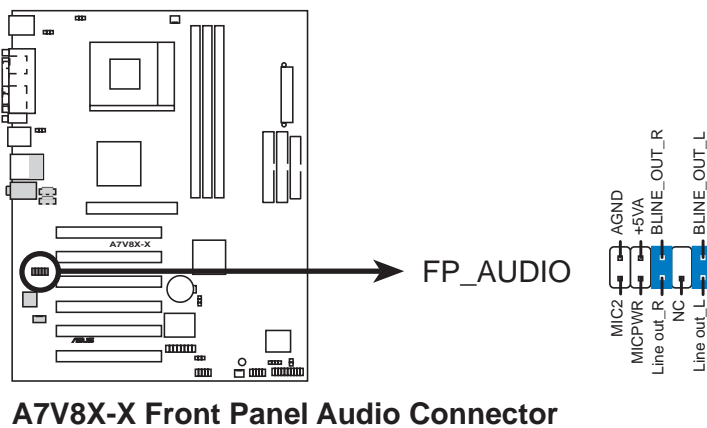
9. Hard disk connector (2-pin IDE_LED)

This 2-pin connector connects to the front panel HD LED and lights up on every read/write activity of any of the disc drives connected to the primary or secondary IDE slots.

IDE_LED

–
+

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

A7V8X-X IDE Activity LED
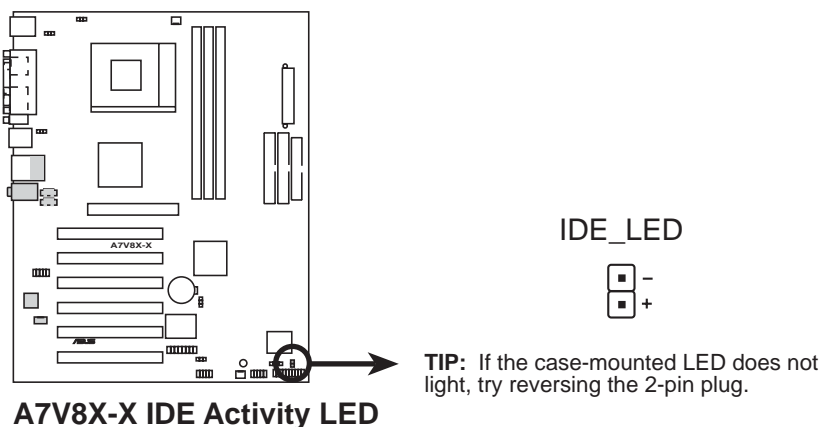
10. Chassis intrusion connector (4-1 pin CHASSIS)

This lead is for a chassis designed with intrusion detection feature. This requires an external detection mechanism such as a chassis intrusion sensor or microswitch. When you remove any chassis component, the sensor triggers and sends a high-level signal to this lead to record a chassis intrusion event.

By default, the pins labeled "Chassis Signal" and "Ground" are shorted with a jumper cap. If you wish to use the chassis intrusion detection feature, remove the jumper cap from the pins.

A7V8X-X Chassis Alarm Lead
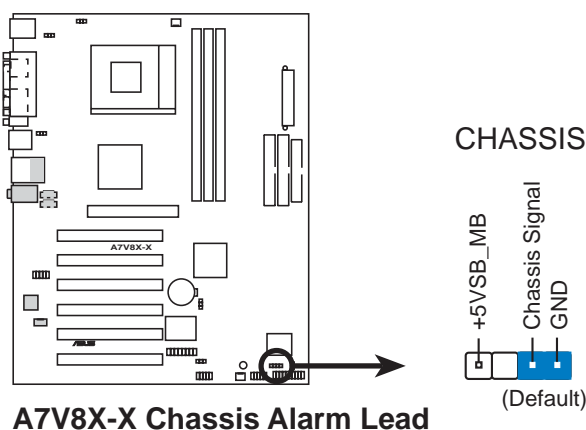
11. GAME/MIDI connector (16-1 pin GAME) *(on Audio model only)*

This connector supports a GAME/MIDI module. If your package came with the optional USB 2.0/GAME module, connect the GAME/MIDI cable to this connector. The GAME/MIDI port on the module connects a joystick or a game pad for playing games, and MIDI devices for playing or editing audio files.

A7V8X-X Game Connector
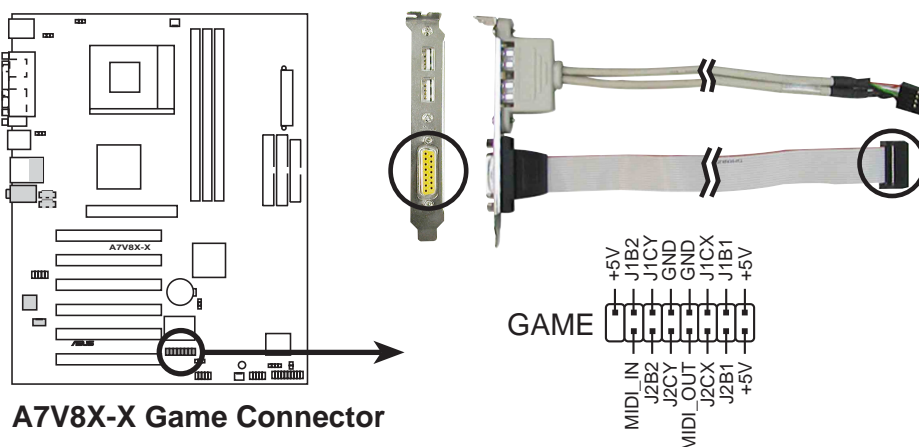
The USB/GAME module is not included in the package.

12. System panel connector (20-pin PANEL)

This connector accommodates several system front panel functions.

A7V8X-X System Panel Connectors

* Requires an ATX power supply.
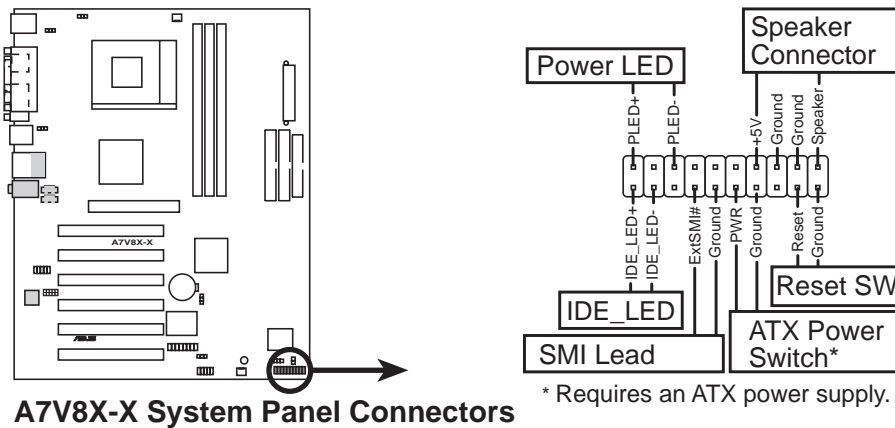
- ### System Power LED Lead (3-1 pin PLED)

  This 3-1 pin connector connects to the system power LED. The LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

- ### System Warning Speaker Lead (4-pin SPKR)

  This 4-pin connector connects to the case-mounted speaker and allows you to hear system beeps and warnings.

- ### System Management Interrupt Lead (2-pin SMI)

  This 2-pin connector allows you to manually place the system into a suspend mode, or "green" mode, where system activity is instantly decreased to save power and to expand the life of certain system components. Attach the case-mounted suspend switch to this 2-pin connector.

- ### ATX Power Switch/Soft-off Switch Lead (2-pin PWR)

  This connector connects a switch that controls the system power. Pressing the power switch turns the system between ON and SLEEP, or ON and SOFT OFF, depending on the BIOS or OS settings. Pressing the power switch while in the ON mode for more than 4 seconds turns the system OFF.

- ### Reset Switch Lead (2-pin RESET)

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

- ### Hard Disk LED (2-pin IDE_LED)

  This 2-pin connector connects to the front panel HD LED and lights up on every read/write activity of any of the disc drives connected to the primary or secondary IDE slots.

Chapter 2

This chapter gives information about the ASUS A7V8X-X Binary Input/Output System (BIOS).This chapter includes updating the BIOS using the ASUS AFLASH BIOS that is bundled with the support CD.

BIOS Information

2.1   Managing and Updating your BIOS
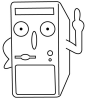
It is recommended that you save a copy of the motherboard's **original BIOS** to a bootable floppy disk in case you need to reinstall the original BIOS later.

2.1.1   Using ASUS EZ Flash to update the BIOS

The ASUS EZ Flash feature allows you to easily update the BIOS without having to go through the long process of booting from a diskette and using a DOS-based utility. The EZ Flash is built-in the BIOS firmware so it is accessible by simply pressing <Alt> + <F2> during the Power-On Self Tests (POST).

Follow these steps to update the BIOS using ASUS EZ Flash.

1. Download the latest BIOS file from the ASUS website (see ASUS contact information on page x). Save the file to a floppy disk.

Write down the BIOS file name on a piece of paper. You need to type the **exact BIOS file name** at the EZ Flash screen.

2. Reboot the computer.
3. To use EZ Flash, press <Alt> + <F2> during POST to display the following screen.

```
                    ASUS EZ Flash V1.00
          Copyright (C) 2002, ASUSTeK COMPUTER INC.

[Onboard BIOS Information]
BIOS Version    : ASUS A7V8X-X BIOS Revision 1001 Beta 003
BIOS Model      : A7V8X-X
BIOS Built Date : 12/14/02

Please Enter File Name for NEW BIOS: _
*Note: EZ Flash will copy file from A:\, Press [ESC] to reboot
```

The BIOS information in the above screen is for reference only. What you see on your screen may not be exactly the same as shown.

4. Insert the disk that contains the new BIOS file into the floppy drive. You will receive the error message, **"WARNING! Device not ready."** if you proceed to step 5 without the disk in the drive.

5. At the prompt, **"Please Enter File Name for NEW BIOS: _"**, type in the BIOS file name that you downloaded from the ASUS website, then press <Enter>. EZ Flash will automatically access drive A to look for the file name that you typed. When found, the following message appears on screen.

    If you accidentally typed in a wrong BIOS file name, the error message, **"WARNING! File not found."** appears. Press <Enter> to remove the message, then type in the correct file name. Press <Enter>.

6. At the query prompt, type **Y** to continue with the update process. Pressing **N** exits the EZ Flash screen and reboots the system without updating the BIOS. The following prompts appear if you typed **Y**.

```
[BIOS Information in File]
BIOS Version:  A7V8X-X Boot Block

WARNING! Continue to update the BIOS (Y/N)? _
```

7. Press **Y** for both items to completely update the main BIOS area and the boot block area.

```
Flash Memory:  SST 49LF004

1. Update Main BIOS area    (Y/N)? _
2. Update Boot Block area    (Y/N)? _
```

DO NOT shutdown or reset the system while updating the BIOS boot block area! Doing so may cause system boot failure.

8. When the update process is done, the message, **"Press a key to reboot"** appears. Press any key to reboot the system with the new BIOS.
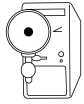
The BIOS information in the above screen is for reference only. What you see on your screen may not be exactly the same as shown.

2.1.2 Using AFLASH to update the BIOS

Creating a bootable disk

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.

AFLASH works only in DOS mode. It 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.

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 V2.0
            Copyright (C) 1994-2001  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     : 12/25/01

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
```

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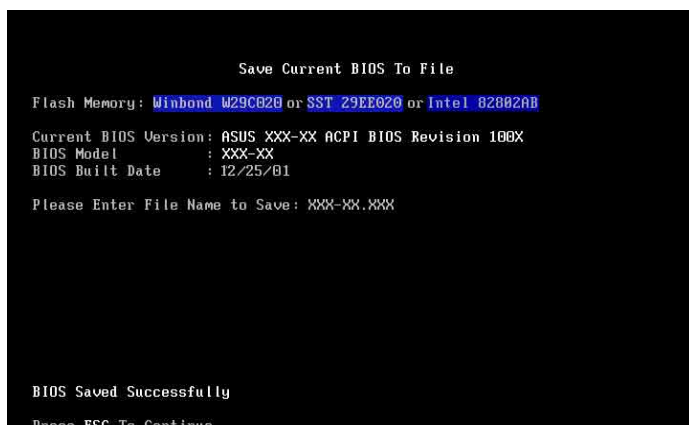
6. Type a filename and the path, for example, A:\XXX-XX.XXX, then press <Enter>.

Updating the BIOS

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

1. Download an updated ASUS BIOS file from the Internet (WWW or 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>.

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 ] 09/25/99
[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. 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 ] 12/25/01
[XXXX.XXX] 05/29/00

Check sum of 1001.010 is F266.

Are you sure (Y/N) ? [Y]
Block Erasing -- Done
Programming   -- 3FFFF
Flashed Successfully

Press ESC To Continue
```

8. Follow the onscreen instructions to continue.

```
                        ASUS ACPI BIOS
                     FLASH MEMORY WRITER V2.0
          Copyright (C) 1994-2001  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     : 12/25/01

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
```

DO NOT turn off the system while updating the BIOS. 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, call the ASUS service center for support.

2.1.3 CrashFree BIOS feature

The CrashFree BIOS feature allows you to boot the computer from a
floppy disk and update the BIOS in case the original BIOS fails or gets
corrupted.
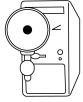
1. You must have a bootable floppy disk ready before updating the
    BIOS.

2. The bootable floppy disk could be the one that you created
    following the procedure in section 2.1.2, and should contain the
    AFLASH.EXE utility.

3. If the BIOS fails (ROM data or codes are corrupted), a message
    appears during POST indicating the failure.

To update the BIOS:

1. Turn on the computer, and when prompted, place the bootable floppy
    disk into the floppy drive, so that the computer boots from the floppy
    disk.

2. Follow the BIOS update procedure in section "2.1.2 Using AFLASH to
    update the BIOS."

2.2 BIOS Setup program

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.

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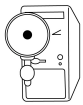
> Because the BIOS software is constantly being updated, the following BIOS setup screens and descriptions are for reference purposes only, and may not exactly match what you see on your screen.

2.2.1 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.

2.2.2 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 high-lighted 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 "2.7 Exit Menu" for detailed information on saving changes and exiting the setup program.

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
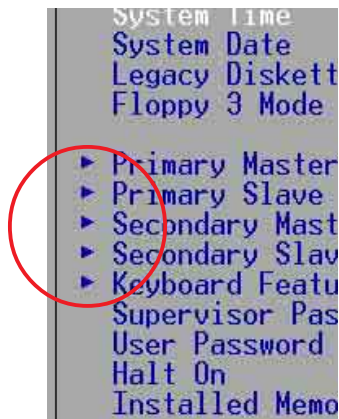
Note that a right pointer symbol (as shown on the left) appears to the left of certain fields. This pointer indicates that you can display a sub-menu from this field. A sub-menu contains additional options for a field parameter. To display a sub-menu, move the highlight to the field and press <Enter>. 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.

2.3   Main Menu

When you enter the Setup program, the following screen appears.
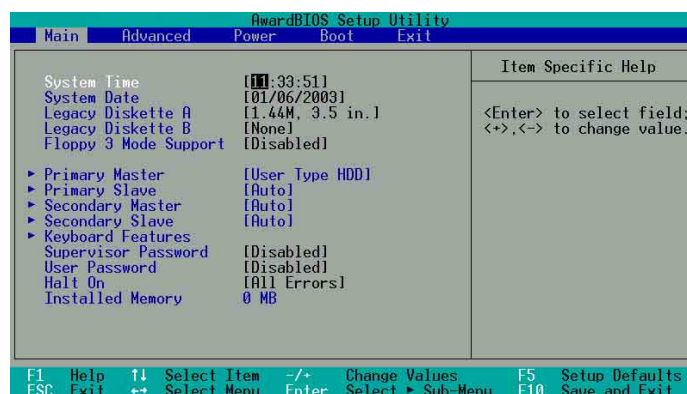
System Time [XX:XX:XX]

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 2099). Use the <Tab> or <Shift> + <Tab> keys to move between the month, day, and year fields.

Legacy Diskette A, B [1.44M, 3.5 in.]

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]

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].

Make a copy of the original BIOS on a bootable floppy disk before setting passwords. You will need to upload the BIOS file in case you erase the CMOS RAM in the future.

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. If you need to erase the CMOS RAM, unplug the all the power cables and remove the button cell battery. Re-install the battery after about 2 seconds, then power up the system. Refer to section "2.1 Managing and updating your BIOS" on how to update the BIOS.

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.

2.3.1   Primary and Secondary Master/Slave

```
                    AwardBIOS Setup Utility
  Main

        Primary Master  [Auto]                    Item Specific Help

  Type                    [Auto]            <Enter> to select the
                                            type of the IDE drive.
  Cylinders               [ 1024]           [User Type HDD] allows
  Head                    [255]             you to set each entry on
  Sector                  [63]              your own.
  CHS Capacity            8422MB
  Maximum LBA Capacity    25590MB           WARNING: Ultra DMA mode
                                            3/4/5 can be enabled
  Multi-Sector Transfers  [Maximum]         only when BIOS detects
  SMART Monitoring        [Disabled]        shielded 80-pin cable.
  PIO Mode                [4]
  ULTRA DMA Mode          [Disabled]



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

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, select [User Type HDD] to manually enter the IDE hard disk drive parameters. Refer to the next section for details.

> Before attempting to configure a hard disk drive, make sure you have the correct configuration information supplied by the drive manufacturer.

[User Type HDD]

```
                    AwardBIOS Setup Utility
  Main

        Primary Master  [User Type HDD]            Item Specific Help

  Type                    [User Type HDD]   <Enter> to select the
  Translation Method      [LBA]             type of the IDE drive.
                                            [User Type HDD] allows
  Cylinders               [ 1024]           you to set each entry on
  Head                    [255]             your own.
  Sector                  [63]
  CHS Capacity            8422MB            WARNING: Ultra DMA mode
  Maximum LBA Capacity    25590MB           3/4/5 can be enabled
                                            only when BIOS detects
  Multi-Sector Transfers  [Maximum]         shielded 80-pin cable.
  SMART Monitoring        [Disabled]
  PIO Mode                [4]
  ULTRA DMA Mode          [Disabled]



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

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

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 [4]

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] [6] [Disabled]

2.3.2   Keyboard Features
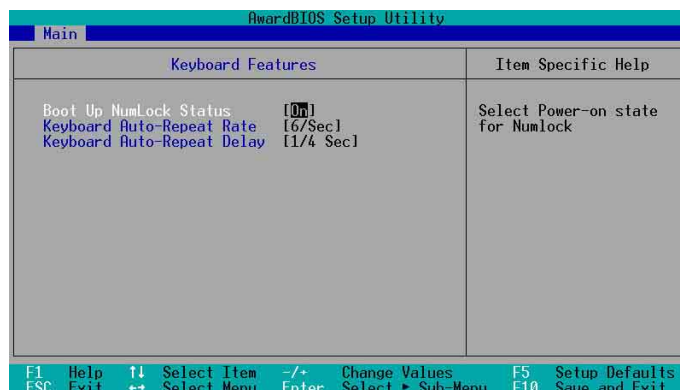
Boot Up NumLock Status [On]

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]

2.4 Advanced Menu

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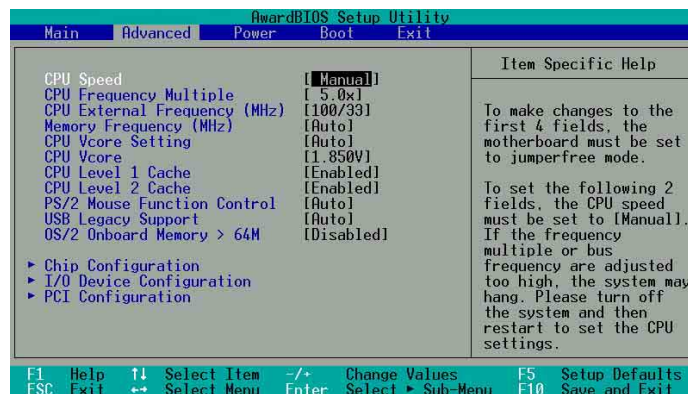
CPU Speed

This displays the current speed of the CPU installed.

CPU Frequency Multiple

This field displays frequency multiple value between the CPU's internal frequency (CPU speed) and external frequency.

CPU External Frequency (MHz)

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.

Memory Frequency (MHz)

This field determines the memory clock frequency. Configuration options: [Auto] [200] [266] [333] [400].

CPU VCore Setting [Auto]

The [Manual] setting allows you to manually select the core voltage supplied to the CPU (see next item). It is recommended that you keep the default setting [Auto] to allow the system to automatically determine the appropriate CPU core voltage.

CPU VCore

When the CPU VCore Setting parameter above is set to [Manual], the CPU VCore item allows you to select a specific CPU core voltage. This field is not accessible when the CPU VCore Setting is set to [Auto].

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

These fields allow you to choose from the default [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]

2.4.1   Chip Configuration
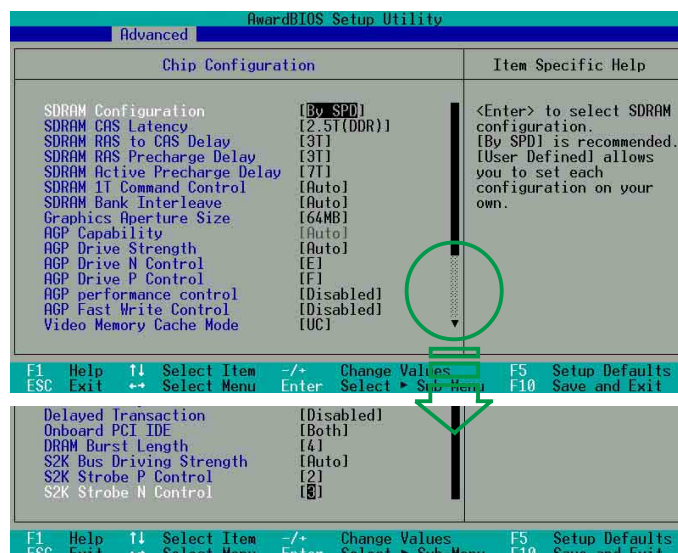
SDRAM Configuration [By SPD]

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]

> The SDRAM parameters (items 2~5) become configurable only when you set the SDRAM Configuration to [User Defined].

SDRAM CAS Latency [2.5T (DDR)]

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 DDR SDRAM active command and the read/write command.

SDRAM RAS Precharge Delay [3T]

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

SDRAM RAS Active Precharge Delay [7T]

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

SDRAM 1T Command Control [Auto]

Configuration options: [Disabled] [Enabled] [Auto]

SDRAM Bank Interleave [Auto]

Configuration options: [Disabled] [2 Bank] [4 Bank] [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] [512MB] [1024MB]

> The [1024MB] and [512MB] configuration options are available only when you use AGP 8X graphics card.

AGP Capability [8X Mode]

This motherboard supports the AGP 8X interface that enables enhanced graphics performance with high bandwidth speeds up to 2.12GB/s. AGP8X-X is backward-compatible. When set to [1X Mode], the AGP interface only provides a peak data throughput of 266MB/s even if you are using an AGP 8X card.
Configuration options: [Auto] [1X Mode] [2X Mode] [4X Mode] [8X Mode]

AGP Drive Strength [Auto]

Configuration options: [Auto] [Manual]

AGP Drive N Control [E]

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

AGP Drive P Control [F]

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

AGP performance control [Disabled]

Configuration options: [Disabled] [Enabled]

AGP Fast Write control [Disabled]

Configuration options: [Disabled] [Enabled]

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]

Delayed Transaction [Disabled]

When set to [Enabled], this feature frees the PCI bus when the CPU is accessing 8-bit ISA cards. This process normally consumes about 50-60 PCI clocks without PCI delayed transaction. Set this field to [Disabled] when using ISA cards that are not PCI 2.1 compliant. Configuration options: [Enabled] [Disabled]

Onboard PCI IDE [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]

DRAM Burst Length

Configuration options: [4] [Auto]

S2K Bus Driving Strength
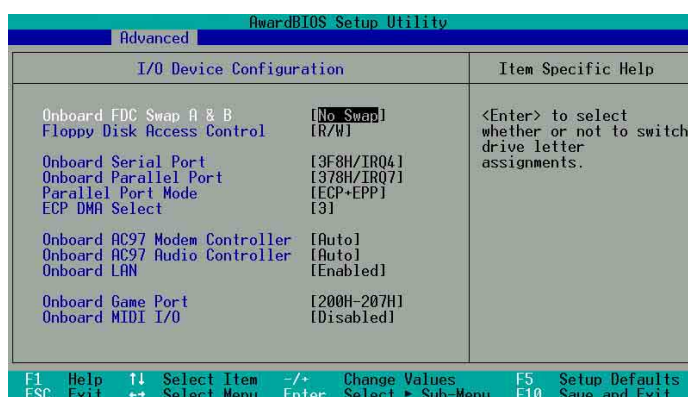
Configuration options: [Auto] [Manual]

S2K Strobe P Control

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

S2K Strobe N Control

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

2.4.2   I/O Device Configuration


```
                        AwardBIOS Setup Utility
    Advanced

        I/O Device Configuration                    Item Specific Help

  Onboard FDC Swap A & B        [No Swap]        <Enter> to select
  Floppy Disk Access Control    [R/W]            whether or not to switch
                                                 drive letter
  Onboard Serial Port           [3F8H/IRQ4]      assignments.
  Onboard Parallel Port         [378H/IRQ7]
  Parallel Port Mode            [ECP+EPP]
  ECP DMA Select                [3]

  Onboard AC97 Modem Controller [Auto]
  Onboard AC97 Audio Controller [Auto]
  Onboard LAN                   [Enabled]

  Onboard Game Port             [200H-207H]
  Onboard MIDI I/O              [Disabled]



  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]

These fields set option to switch drive letter assignments. Configuration Options: [No Swap] [Swap AB]

Floppy Disk Access Control [R/W]

When set to [Read Only], this parameter protects files from being copied to floppy disks by allowing reads from, but not writes to, the floppy disk drive. The default setting [R/W] allows both reads and writes. Configuration options: [R/W] [Read Only]

Onboard Serial Port [3F8H/IRQ4]

This field allows you to set the address for the onboard serial connector.

Onboard Parallel Port [378H/IRQ7]

This field allows you to set 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 allows you to set 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 allows you to configure 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 AC97 Modem Controller [Auto]

These fields allow you to enable or disable the onboard AC97 modem controller. Configuration options: [Auto] [Disabled]

Onboard AC97 Audio Controller [Auto]

These fields allow you to enable or disable the onboard AC97 audio controller. Configuration options: [Auto] [Disabled]

Onboard LAN [Enabled]

This field allows you to enable or disable the onboard LAN Boot ROM. Configuration options: [Disabled] [Enabled]
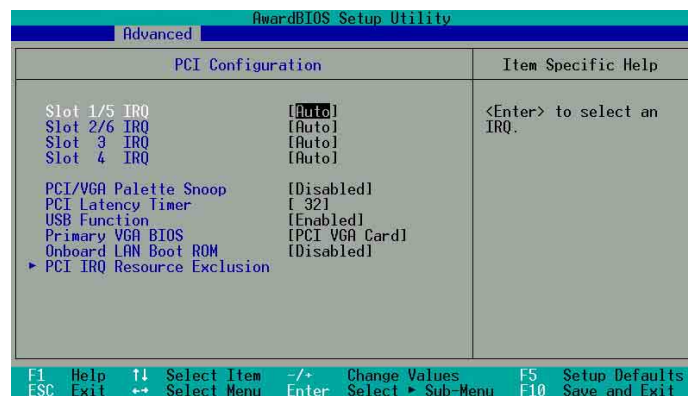
Onboard Game Port [200H-207H]

These fields allow you to set the addresses for the onboard game connectors. Game ports must have different addresses. Configuration options: [200H/207H] [208H-20FH] [Disabled]

Onboard MIDI I/O [Disabled]

This field allows you to select the I/O address for the MIDI port. Configuration options: [Disabled] [330H-331H] [300H-301H]

2.4.3   PCI Configuration

```
                        AwardBIOS Setup Utility
            Advanced

                    PCI Configuration                    Item Specific Help

           Slot 1/5 IRQ               [Auto]              <Enter> to select an
           Slot 2/6 IRQ              [Auto]              IRQ.
           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]
           Onboard LAN Boot ROM      [Disabled]
         ▶ PCI IRQ Resource Exclusion



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

Slot 1/5, Slot 2/6, Slot 3, Slot 4, Slot 6 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]

This field allows you to select the USB port that you wish to activate. Configuration options: [Disabled] [Enabled]
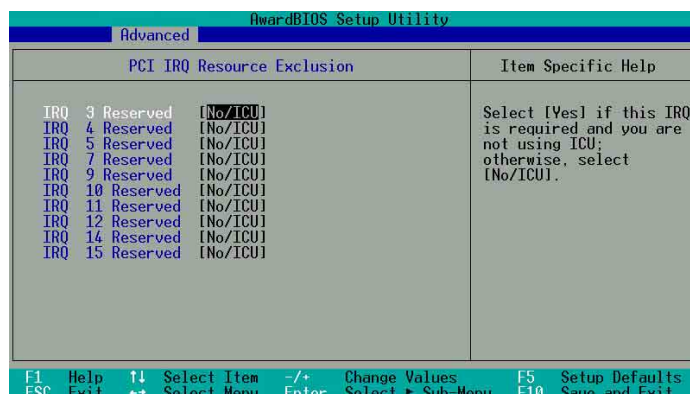
Primary VGA BIOS [PCI VGA Card]

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

Onboard LAN Boot ROM [Disabled]

This field allows you to enable or disable the onboard LAN Boot ROM. Configuration options: [Disabled] [Enabled]

2.4.3.1   PCI IRQ Resource Exclusion

IRQ XX Reserved [No/ICU]

These fields indicate whether or not the displayed IRQ for each field is being used by a legacy device. The setting [No/ICU] for an IRQ field indicates that this particular IRQ is NOT required by a legacy device. Set the IRQ field to [Yes] if you install a legacy device that requires a unique IRQ.
Configuration options: [No/ICU] [Yes]

2.5   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.
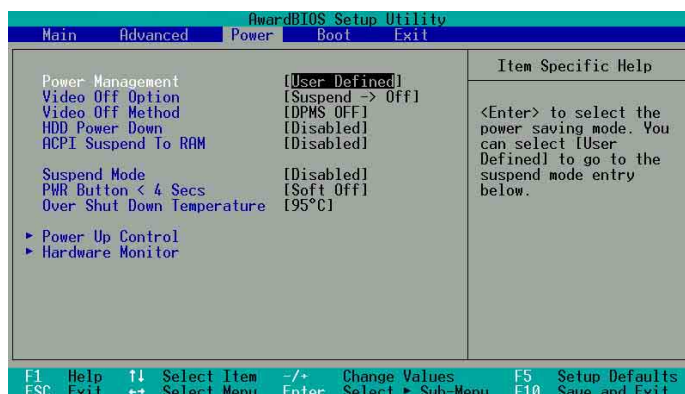
Power Management [User Defined]

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]

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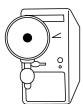
Even if installed, your screen saver does not display when you select [Blank Screen] for the above field.

[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 [Enabled]

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]
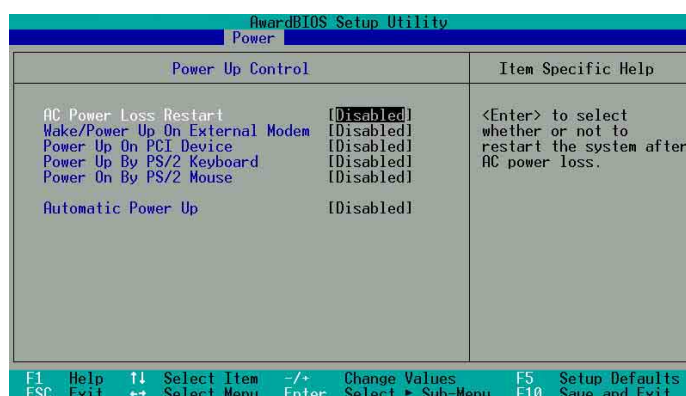
PWR Button < 4 Secs [Soft Off]

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]

Over Shut Down Temperature [95ºC]

This field allows you to set the CPU maximum temperature. When the CPU temperature exceeds the set value on this field, the system will automatically shut down to prevent damage to CPU.

2.5.1   Power Up Control


```
                    AwardBIOS Setup Utility
                    Power

        Power Up Control                  Item Specific Help

AC Power Loss Restart            [Disabled]     <Enter> to select
Wake/Power Up On External Modem  [Disabled]     whether or not to
Power Up On PCI Device           [Disabled]     restart the system after
Power Up By PS/2 Keyboard        [Disabled]     AC power loss.
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 External Modem [Disabled]

This allows either settings of [Enabled] or [Disabled] for powering up the computer when the external modem receives a call while the computer is in Soft-off mode. Configuration options: [Disabled] [Enabled]

Wake/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 [Double Click], 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] [Double Click]
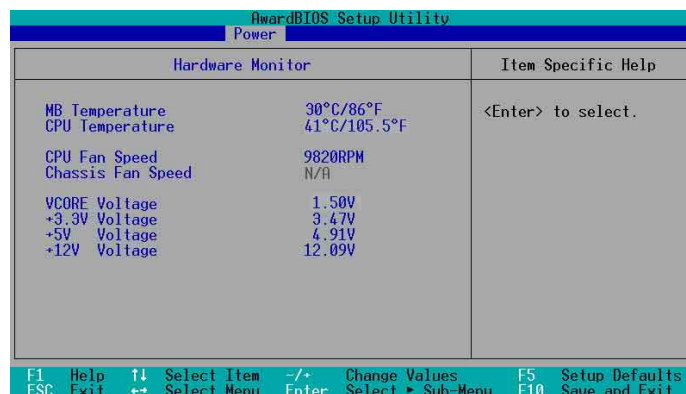
Power Up On PCI Card [Disabled]

When set to [Enabled], this parameter allows you to turn on the system through a PCI LAN or modem card. 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]

2.5.2   Hardware Monitor

```
                      AwardBIOS Setup Utility
                    Power

         Hardware Monitor                        Item Specific Help

    MB Temperature            30°C/86°F          <Enter> to select.
    CPU Temperature           41°C/105.5°F

    CPU Fan Speed             9820RPM
    Chassis Fan Speed         N/A

    VCORE Voltage             1.50V
    +3.3V  Voltage            3.47V
    +5V    Voltage            4.91V
    +12V   Voltage            12.09V




    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]

The onboard hardware monitor automatically detects and displays the motherboard and CPU temperatures.
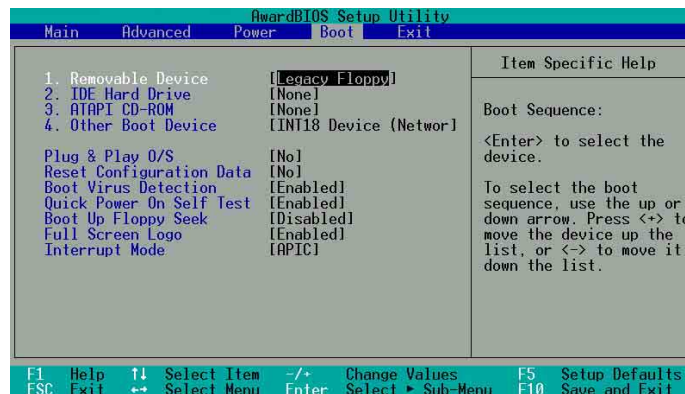
CPU Fan Speed [xxxxRPM] or [N/A]
Chassis Fan Speed [xxxxRPM] or [N/A]

The onboard hardware monitor automatically detects and displays the CPU, chassis, and power fan speeds in rotations per minute (RPM). If any of the fans is not connected to the motherboard, that field shows N/A.

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

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

2.6   Boot Menu

```
                     AwardBIOS Setup Utility
  Main    Advanced    Power    Boot    Exit

                                              Item Specific Help
  1. Removable Device      [Legacy Floppy]
  2. IDE Hard Drive        [None]
  3. ATAPI CD-ROM          [None]            Boot Sequence:
  4. Other Boot Device     [INT18 Device (Networ]
                                             <Enter> to select the
  Plug & Play O/S          [No]              device.
  Reset Configuration Data [No]
  Boot Virus Detection     [Enabled]         To select the boot
  Quick Power On Self Test [Enabled]         sequence, use the up or
  Boot Up Floppy Seek      [Disabled]        down arrow. Press <+> to
  Full Screen Logo         [Enabled]         move the device up the
  Interrupt Mode           [APIC]            list, or <-> to move it
                                             down the list.




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

Boot Sequence

The Boot menu allows you to select four types of boot devices 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 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] [USB FDD] [USB ZIP/Flash]

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 [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: [No] [Yes]

Boot Virus Detection [Enabled]

This field allows you to set boot virus detection, ensuring a virus-free boot sector. The system halts and displays a warning message when it detects a virus. If this occurs, you can either allow the operation to continue or use a virus-free bootable floppy disk to restart and investigate your system. 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]

When enabled, the BIOS will seek the floppy disk drive to determine whether the drive has 40 or 80 tracks. Configuration options: [Disabled] [Enabled]

Full Screen Logo [Enabled]

This allows you to enable or disable the full screen logo display feature. Configuration options: [Disabled] [Enabled]

Interrupt Mode [APIC]

The Advanced Programmable Interrupt Controller (APIC) setting allows you to distribute interrupt routings other than the 16 IRQs. The Programmable Interrupt Controller (PIC) setting allows you to use the 16 IRQs only. Configuration options: [PIC] [APIC]

2.7   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.
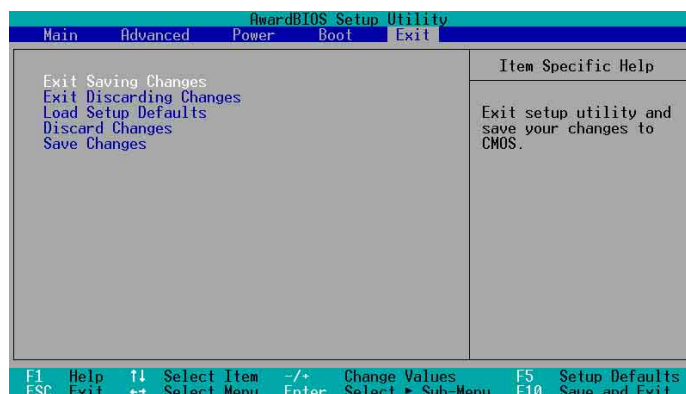
Pressing <Esc> does not immediately exit this menu. Select one of the options from this menu or <F10> from the legend bar to exit.

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.

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 3

This chapter helps you power up your system and install drivers and utilities that came with the support CD.

Starting Up

3.1 Install an operating system

The A7V8X-X motherboard supports Windows ME/NT/2000/XP operating systems (OS). Always install the latest OS version and corresponding updates so you can maximize the features of your hardware.

> 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.

3.2 Support CD information

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

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

3.2.1 Running the support CD

To begin using the support CD, simply insert the CD into your CD-ROM drive. The CD automatically displays the **Drivers** menu if Autorun is enabled in your computer.
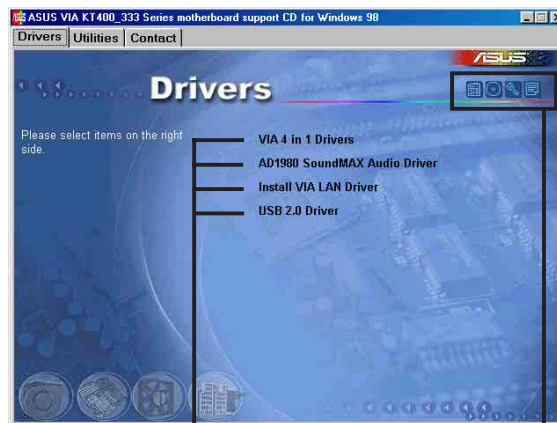
Click an item to install   **Click an icon to display more information**

> If **Autorun** is NOT enabled in your computer, browse the contents of the support CD to locate the file ASSETUP.EXE from the BIN folder. Double-click the **ASSETUP.EXE** to run the CD.

3.2.2 Drivers menu

VIA 4 in 1 Driver

The item installs the following drivers:
- VIA Registry (INF) driver
- VIA AGP VxD driver
- VIA ATAPI vendor support driver
- VIA PCI IRQ Miniport driver
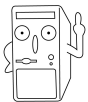
AD1980 SoundMAX Audio Driver

This item installs the AD1980 SoundMAX audio driver and applications.

Install VIA LAN Driver

Click this item to load the installation wizard and install the VIA Local Area Network (LAN) driver.
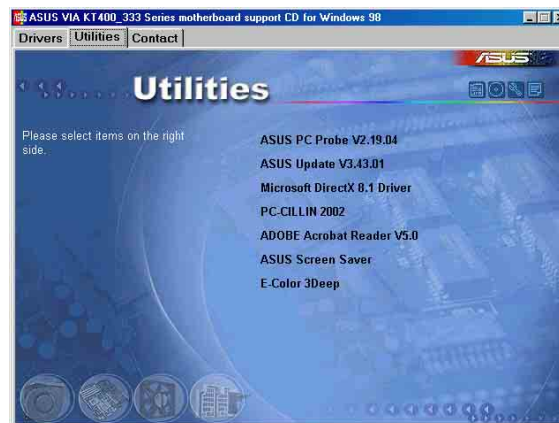
USB 2.0 Driver

This item installs the USB 2.0 driver.

> Some menu items appear only to specific operating system versions.

3.2.3 Utilities menu

The Utilities menu shows the applications and other software that the motherboard supports.

ASUS PC Probe

Install utility that can monitor Fan, Speed, Voltage, and CPU temperature.

ASUS Update

Installs utility to download and update motherboard BIOS & drivers.

Microsoft DirectX 8.1 Driver

This item installs the Microsoft V8.1 driver.

PC-cillin 2002

This item installs the PC-cillin 2002 V9.02 anti-virus software.

ADOBE Acrobat Reader V5.0

This installs software for viewing files in Portable Document Format (PDF).

ASUS Screen Saver

This item installs the ASUS screen saver.

E-Color 3Deep

This item installs application to optimize 3D graphics output.

3.2.4   ASUS Contact Information

Clicking the ASUS Contact Information tab displays as stated. You may also find this information on page viii of this user guide.

3.2.5   Multi-channel audio feature

The ADI AD1980 AC '97 audio CODEC provides 6-channel audio capability. Install the **SoundMAX Audio Driver and Application** from the support CD that came with the motherboard package to activate the 6-channel audio feature.

You must use 4-channel or 6-channel speakers for this setup.

Setting to multi-channel audio

After installing the audio driver, you can adjust the audio settings to avail the 6-channel audio feature onboard.

1. From the taskbar, double-click on the **SoundMAX Digital Integrated Audio** icon to display the **SoundMAX Control Panel**.

Sound MAX Digital Integrated Audio icon

2. The **Listening Environment** screen allows you to set to multi-channel speakers, enable or disable the **Virtual Theater Surround**, and select **Acoustic Environments** and **Virtual Ear**.
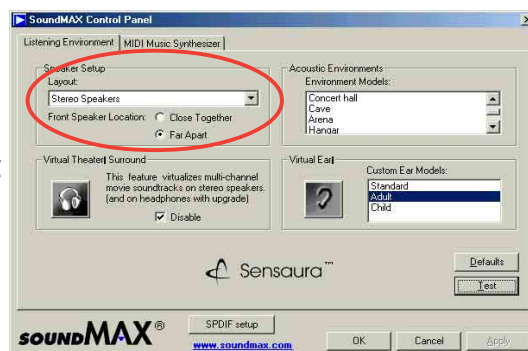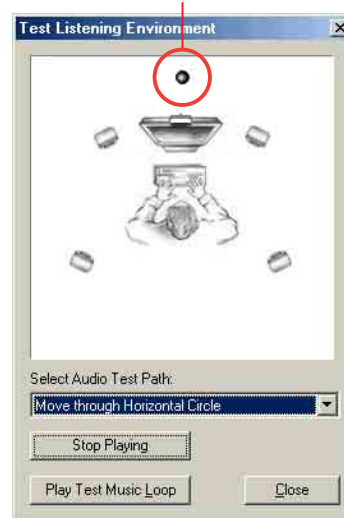

3. The default setting is **Stereo Speakers** (2-channel). To set to a 6-channel speaker system, click the arrow under **Speaker Setup** to display a list of options.

4. Select the option **Surround Sound Speakers (5.1 Surround)**.

5. Click the **Apply** button.

6. Click the **Test** button to display the **Test Listening Environment** window.

Audio path indicator

7. Click the arrow under **Select Audio Test Path** to display a list of options. Choose your desired setting.

8. After selecting an option, test your setting by clicking the **Play Test Noise** button. While testing, you will see a black circle moving on the screen indicating the audio path.
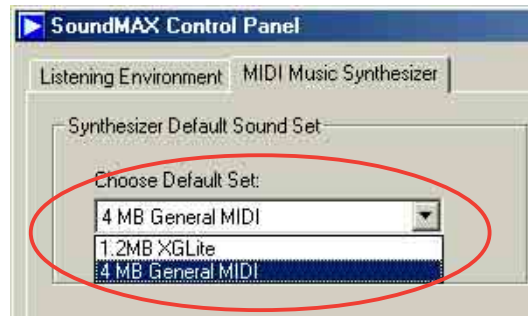
    The **Play Test Noise** button becomes **Stop Playing** button. Click this button at any time to stop playing.

9. Click the **Close** button when done.

10. The **MIDI Music Synthesizer** screen allows you to select a setting for the MIDI.
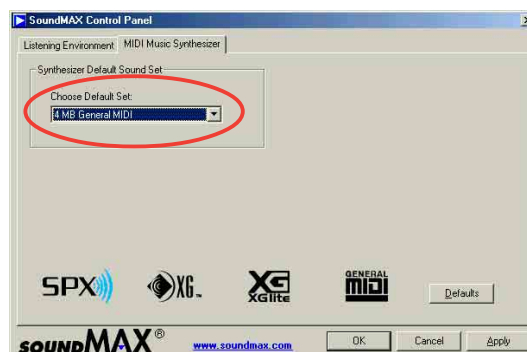
11. Click the arrow under **Synthesizer Default Set** to display a list of options. Choose your desired setting.

12. Click **Apply**, then click **OK** when done.
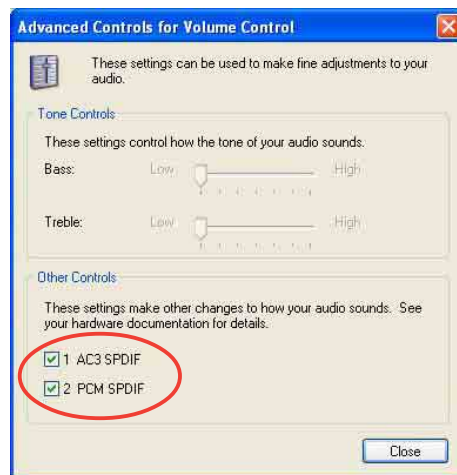
Adjusting the volume settings

1. After rebooting the system, click on the volume control icon on the taskbar (lower right corner of your desktop) to display the **Volume Control** panel.

Volume control icon ——————

2. If you installed an S/PDIF module, click on the Volume Control **Advanced** button from the Volume Control panel. The **Advanced Controls for Volume Control** window appears.

   To achieve 6-channel audio capability when playing DVDs, check the boxes opposite **AC3 SPDIF** and **PCM SPDIF**. Click **Close**.

Adjusting the microphone settings

1. Click on the Microphone **Advanced** button to display the **Advanced Controls for Microphone** window.

2. Check the box opposite **Mic2 Select** to enable the front panel microphone, if you installed a front panel audio device such as the ASUS iPanel.

3. Click **Close** to effect the new setting.
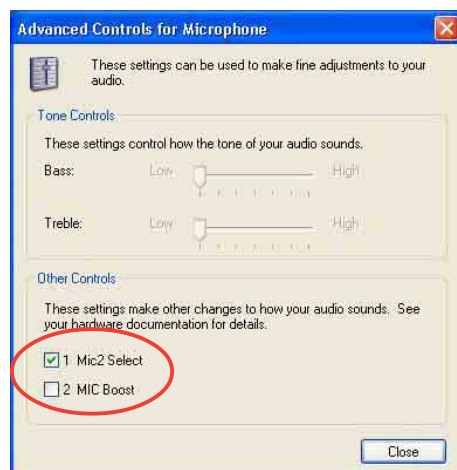
The rear panel microphone is automatically disabled when you enable the front panel microphone. Only one microphone port works at a time.