A7N8X-VM

User Guide

Motherboard

Contents

Notices v
Safety information vi
About this guide vii
Conventions used in this guide vii
A7N8X-VM specifications summary viii

Chapter 1: Motherboard Info 1

1.1 Welcome! 2
1.2 Motherboard components 3
1.3 Motherboard layout 6
1.4 Before you proceed 7
1.5 Central Processing Unit (CPU) 7
1.76 System memory 8
1.6.1 Installing a DIMM 8
1.7 Expansion slots 8
1.7.1 Configuring an expansion card 8
1.7.2 Standard Interrupt Assignments 9
1.7.3 AGP slot 9
1.7.4 CNR slot 10
1.8 Jumpers 11
1.9 Connectors 13

Chapter 2: BIOS Information 1

2.1 BIOS Setup program 2
2.1.1 BIOS menu bar 2
2.1.2 Legend bar 3
2.2 Main Menu 4
2.2.1 Primary and Secondary IDE Master/Slave 5
2.2.2 System Information 7
2.3 Advanced Menu 8
2.3.1 Chipset 8
2.3.2 Onboard Devices Configurations 9
2.3.3 PCIPnP 11
2.4 Power Menu 13
2.4.1 Hardware Monitor 14

Contents

2.4.2 Power Up Control 15
2.5 Boot Menu 17
2.5.1 Boot Settings Configuration 17
2.5.2 Security 19
2.6 Exit Menu 21

FCC/CDC statements

Federal Communications Commission Statement

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

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

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

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

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

Canadian Department of Communications Statement

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

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

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.

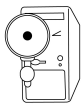
About this guide

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: 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.

A7N8X-VM specifications summary

CPU	Socket A for AMD Athlon™ / Athlon™XP 3000+ or above 333 MHz FSB Support
Chipset	Northbridge: NVIDEA nFORCE2 IGP Southbridge: NVIDEA nFORCE2 MCP
Front Side Bus (FSB)	333/266 MHz
Memory	2 x 184-pin DDR DIMM Sockets Max. 2 GB unbuffered PC2700/2100 non-ECC DDR RAM memory
Expansion slots	3 x PCI 1 x AGP 8X (1.5V only)
IDE	2 x UltraDMA 133/100/66/33
Audio (optional)	RealTek ALC650 6-channel audio CODEC linked w/ South Bridge
LAN (optional)	1Port Realtek 8201BL PHY
Special features	ASUS C.O.P. (CPU Overheating Protection) Supports S/PDIF in/out
Back panel I/O Ports	1 x Parallel 1 x Serial 1 x PS/2 keyboard 1 x PS/2 mouse 1 x RJ-45 port 1 x Audio I/O 1 x VGA port 2 x USB 2.0
Internal I/O Connectors	2 x USB 1.1 connectors support 4 additional USB2.0 ports CPU/Chassis fan connectors 20-pin ATX power connector PANEL connector CD / AUX S/PDIF in/out connector TV out connector Front panel audio connector (optional)
BIOS features	4Mb Flash ROM, ACPI 2.0, AMI BIOS, TCAV, PnP, DMI2.0, DMI, Green, SMBIOS 2.3
Industry standard	PCI 2.2, USB 1.1/2.0
Manageability	DMI 2.0, WOL, WOR, WO_USB, WO_KB/MS, SM Bus
Form Factor	Micro-ATX form factor: 9.6 in x 8.6 in (24.5 cm x 21.9 cm)

** Specifications are subject to change without notice.*

Chapter 1

Motherboard Info

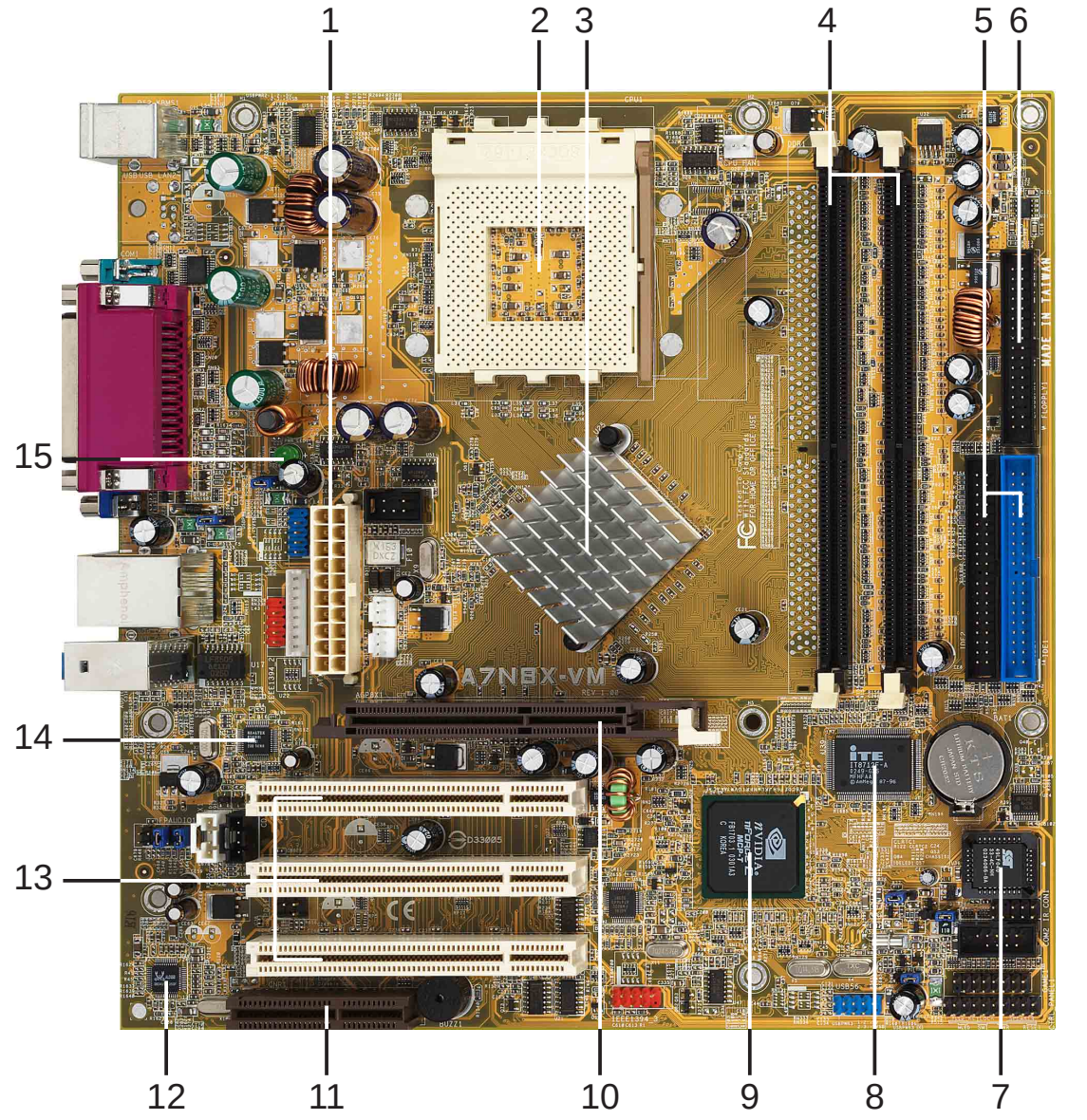
This chapter gives information about the ASUS A7N8X-VM motherboard that came with the system.This chapter includes the motherboard layout, jumper settings, and connector locations.

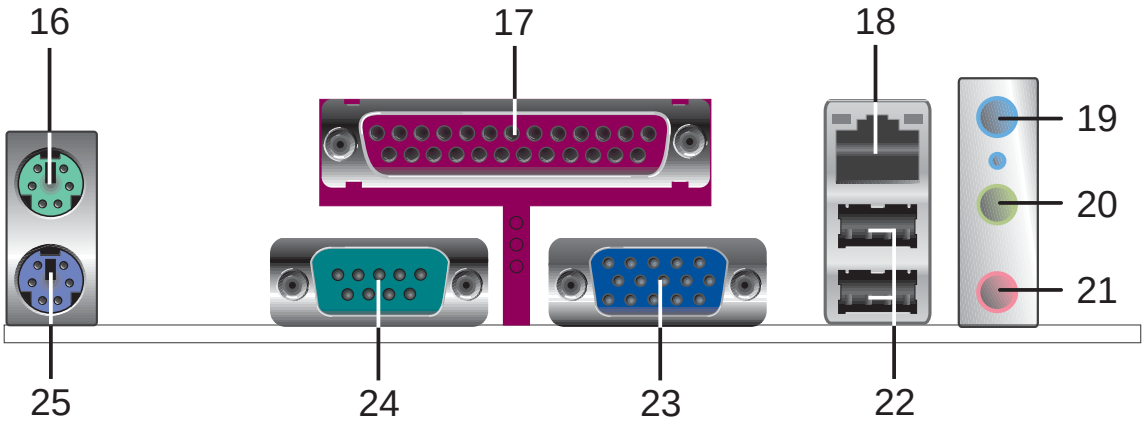
1.1 Welcome!

Thank you for buying the ASUS® A7N8X-VM motherboard!

The ASUS A7N8X-VM 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. For future upgrades or system reconfiguration, this chapter provides technical information about the motherboard.

1.2 Motherboard components





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

2 **CPU Sockets.** Socket 462 (Socket A) Zero Insertion Force (ZIF) socket for the AMD Athlon™/Athlon XP™ 3000+ processors or higher.

3 **NorthBridge Controller.** The NVIDIA® nForce2™ IGP North Bridge controller chipset. The controller supports a 64/128bit DDR memory controller and up to 2 GB of 333/266/200MHz DDR memory.

4 **DDR DIMM Sockets.** Equipped with two Double Data Rate Dual Inline Memory Module (DDR DIMM) sockets to support up to 2GB of DDR DRAM, the newest memory standard with the highest bandwidth and lowest latency currently available. This memory technology supplies data transfer rates up to 5.4GB/s for 333MHz DDR SDRAM.

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 connects 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 **Flash ROM.** This 4Mb firmware contains the programmable BIOS program.

8 **Super I/O chipset.** ITE IT8712F-A offers support for a variety of I/O functions. Provides two high-speed UART compatible serial ports and one parallel port with EPP and ECP capabilities. UART2 can also be directed from COM2 to the Infrared Module for wireless connections. The Super I/O controller supports a floppy disk drive, PS/2 keyboard, and PS/2 mouse.

9 **South bridge controller.** Features the brand new NVIDIA® MCP integrated peripheral South Bridge controller operates at 800MB/sec to communicate with the North Bridge for maximum bandwith required for PCI, USB and support for Fast Ethernet devices. The controller supports standard UltraDMA133/100/66/33 and separate data paths for each IDE channel are built-in for up to two IDE devices. The controller supports six USB ports, one LAN port and is PCI rev2.2 compliant.

10 **AGP Slot.** This Accelerated Graphics Port (AGP) slot only supports 1.5V AGP 8X mode graphics cards for 3D graphical applications.

11 **CNR slot.** The Communications and Networking Riser (CNR) slot supports interface cards that integrates audio, modem, and network functionality.

12 **Audio CODEC.** The Realtek 6-channel CODEC is an AC'97 compliant audio CODEC designed for PC multimedia systems.

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

14 **LAN chip.** The Realtek 8201BL PHY Fast Ethernet controller allows connection to a Local Area Network (LAN) through a network hub.

15 **Onboard LED.** This onboard 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.

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

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

18 **RJ-45 port.** Using the NVIDIA® LAN 10/100 Mbps fast ethernet controller, this port allows connection to a Local Area Network (LAN) through a network hub.

19 **Line In jack.** This Line In (light blue) jack connects a tape player or other audio sources.

20 **Line Out jack.** This Line Out (lime) jack connects a headphone or a speaker.

21 **Microphone jack.** This Mic (pink) jack connects a microphone.

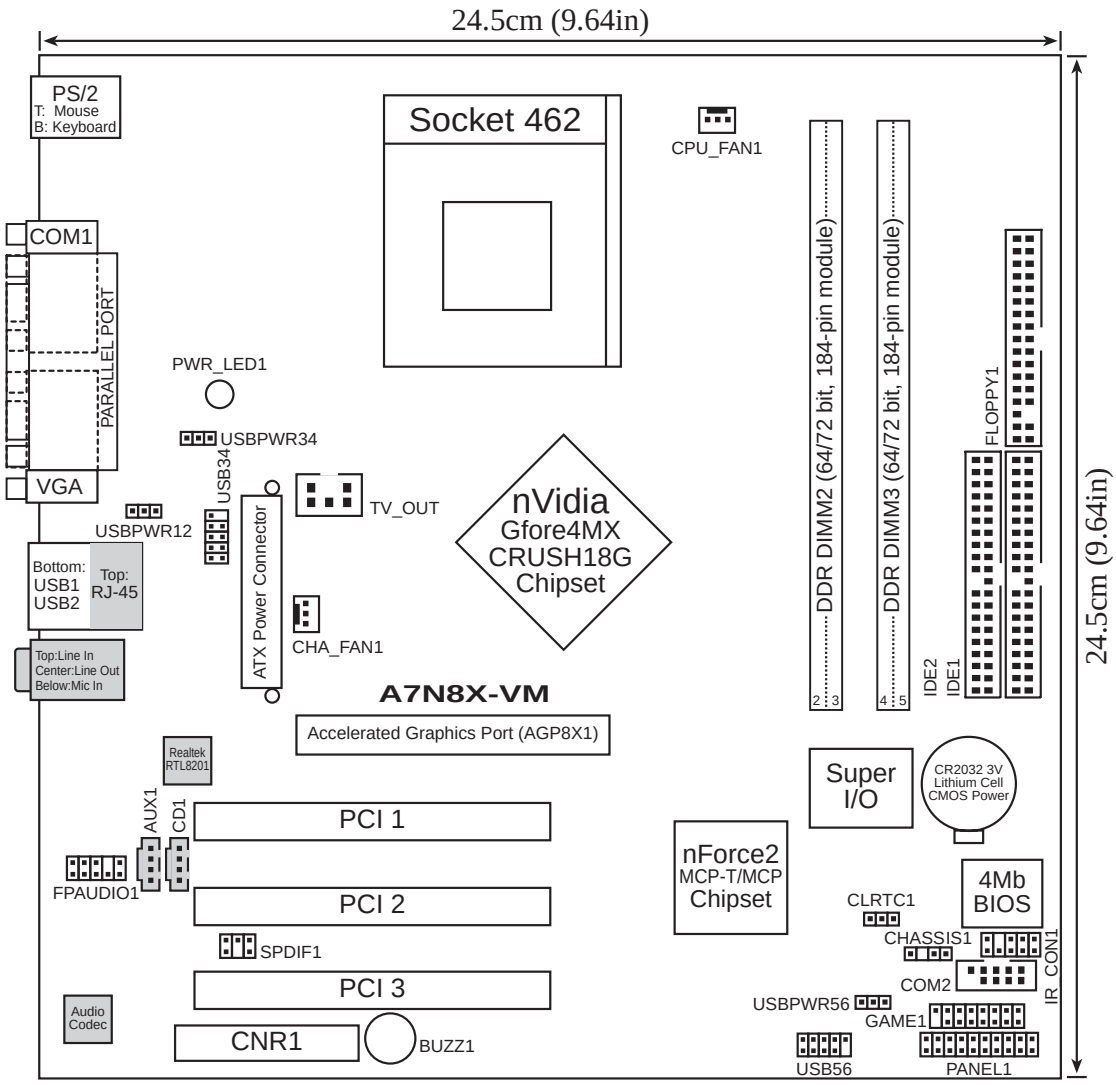
22 **USB 2.0 ports.** These two 4-pin Universal Serial Bus 2.0 (USB 2.0) ports are available for connecting USB devices such as a mouse and PDA.

23 **VGA port.** This 15-pin VGA port connects to a VGA monitor.

24 **Serial port.** This port connects to your serial mouse and other serial devices.

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

1.3 Motherboard layout



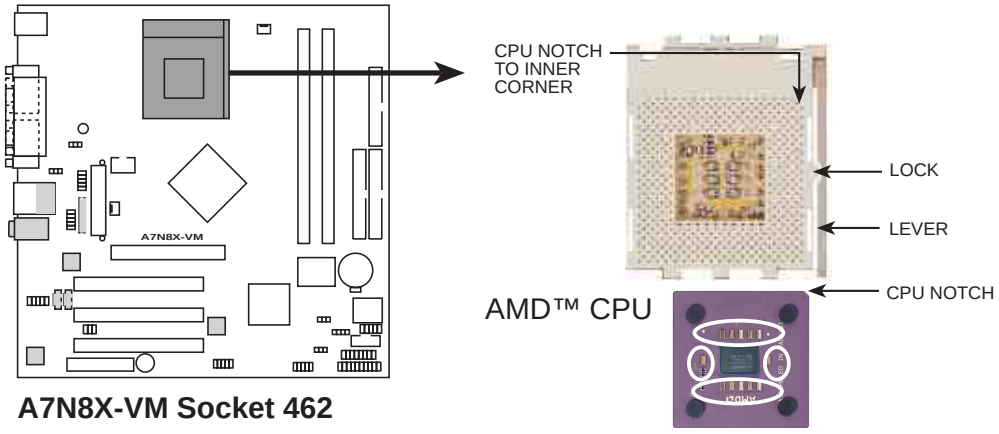
1.4 Before you proceed

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.

1.5 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 A7N8X-VM supports Athlon™ XP processors with "QuantiSpeed" data processing, large data caches, 3D enhancements and 333/266Mhz bus speeds.

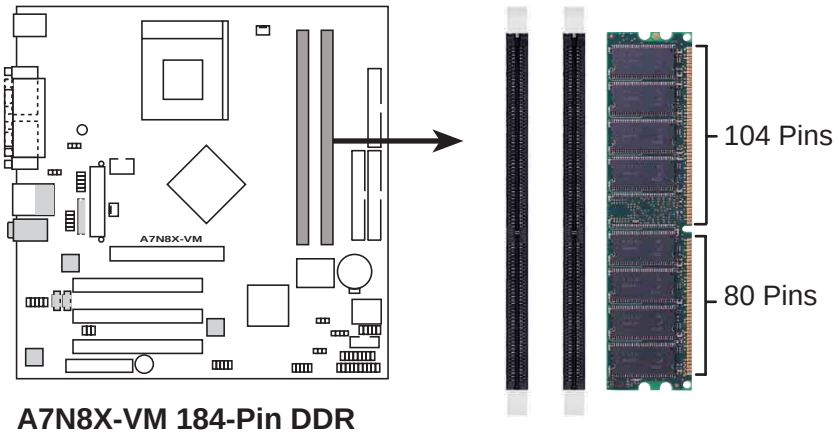


A7N8X-VM Socket 462

Each AMD CPU has a "marked" corner. This corner is usually indicated with a notch, and/or a golden square or triangle. Refer to this indicator while orienting the CPU.

1.6 System memory

The motherboard has two Double Data Rate (DDR) DIMM sockets that supports up to 2GB non-ECC PC2700/2100 DDR DIMMs.



A7N8X-VM 184-Pin DDR DIMM Sockets

A DDR 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.

1.6.1 Installing a DIMM

1. Unlock a DIMM socket by pressing the retaining clips outward.
2. Align a DIMM on the socket. Make sure the notches on the DIMM exactly match the notches in the socket.
3. Firmly insert the DIMM into the socket until the retaining clips lock into place.

1.7 Expansion slots

The A7N8X-VM motherboard has five (5) expansion slots. The following sub-sections describe the slots and the expansion cards that they support.

1.7.1 Configuring an expansion card

Some expansion cards need an IRQ to operate. Generally, an IRQ must be exclusively assigned to one function at a time. In a standard design configuration, 16 IRQs are available but most are already in use.

Normally, 6 IRQs are free for expansion cards. Sometimes IRQs are “shared” by more than one function; in this case, IRQ assignments are swapped automatically or adjusted through the BIOS firmware.

1.7.2 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

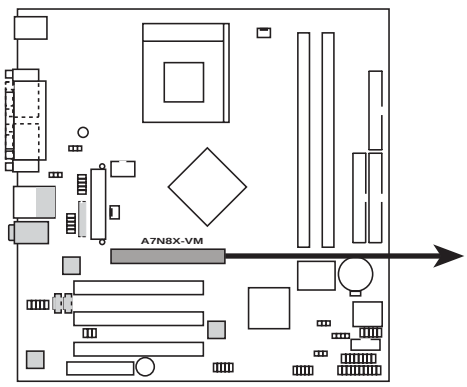
*These IRQs are usually available for ISA or PCI devices.

IRQ assignments for this motherboard

	A	B	C	D
PCI slot 1	used	—	—	—
PCI slot 2	—	—	—	used
PCI slot 3	—	—	used	—

1.7.3 AGP slot

This motherboard has an Accelerated Graphics Port (AGP) slot that supports +1.5V AGP 8X cards. Note the notches on the card golden fingers to ensure that they fit the AGP slot on your motherboard.



AGP Card without Retention Notch

A7N8X-VM Accelerated Graphics Port (AGP8X)

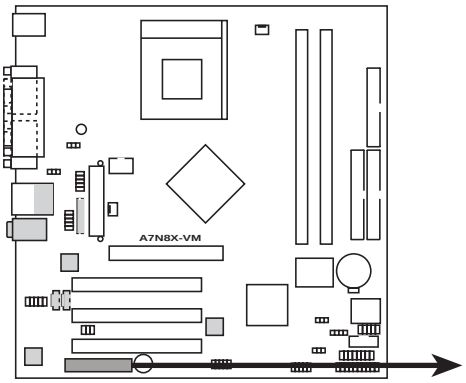
1.7.4 CNR slot

The Communications and Networking Riser (CNR) slot supports interface cards that integrates audio, modem, and network functionality.

The CNR specification supports interfaces including:

- Audio Codec '97 (AC '97) - for audio and/or modem functions
- Local Area Network (LAN) - for networking functions
- Universal Serial Bus (USB) - for functions implemented in the USB interface, and technologies such as broadband, DSL, and wireless
- System Management Bus (SMB) - for Plug-n-Play functionality
- Power - to provide the signals required for power management, and the main power supplies to operate the CNR circuitry

The CNR is tagged to replace the current Audio Modem Riser (AMR) slot because of its flexibility and added features. Also, the CNR slot does not take up the motherboard space for one PCI slot because it is a shared slot; rather, it provides you more options.



A7N8X-VM Communication & Networking Riser Slot

1.8 Jumpers

This section describes and illustrates the jumpers on the motherboard.

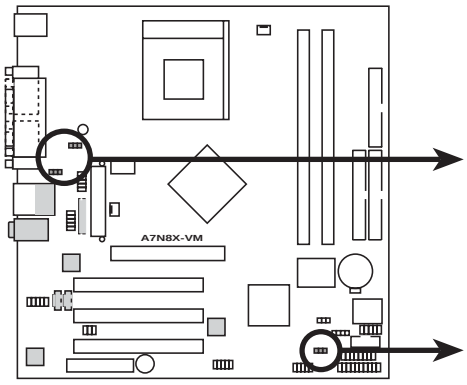
1. USB device wake-up (3-pin USBPWR12,USBPWR34,USBPWR56)

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.

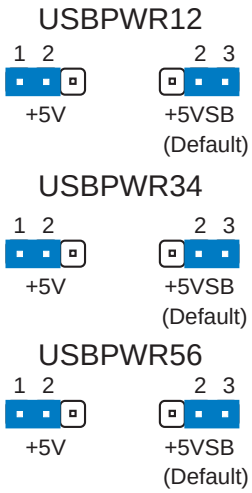
The USBPWR12 and USBPWR34 jumpers are for the rear USB port. USBPWR56 is for the internal USB header that you can connect to the front USB ports.

This feature requires a power supply that can provide at least 2A on the +5VSB lead when these jumpers are set to +5VSB. Otherwise, the system does not power up.

The total current consumed must NOT exceed the power supply capability (+5VSB) whether under normal condition or in sleep mode.



A7N8X-VM USB Device Wake Up

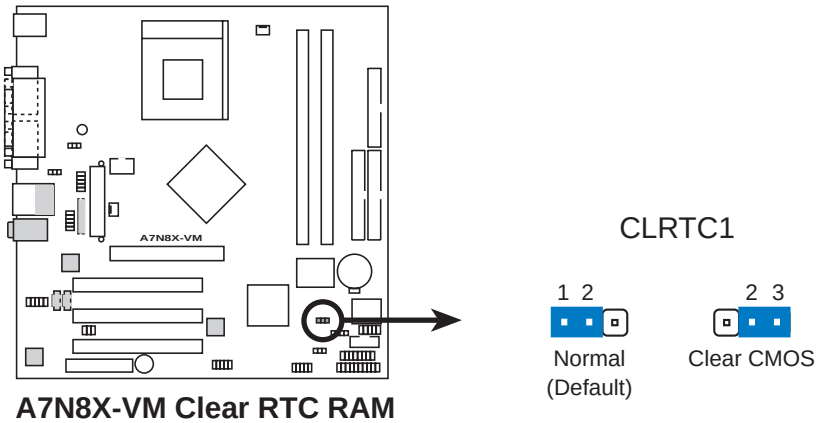


2. Clear RTC RAM (CLRTC1)

This jumper clears the Real Time Clock (RTC) RAM of date, time and system setup parameters in CMOS. 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. Move the jumper caps from [1-2] to [2-3] momentarily. Replace the jumper cap to the original position, [1-2].
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.



A7N8X-VM Clear RTC RAM

1.9 Connectors

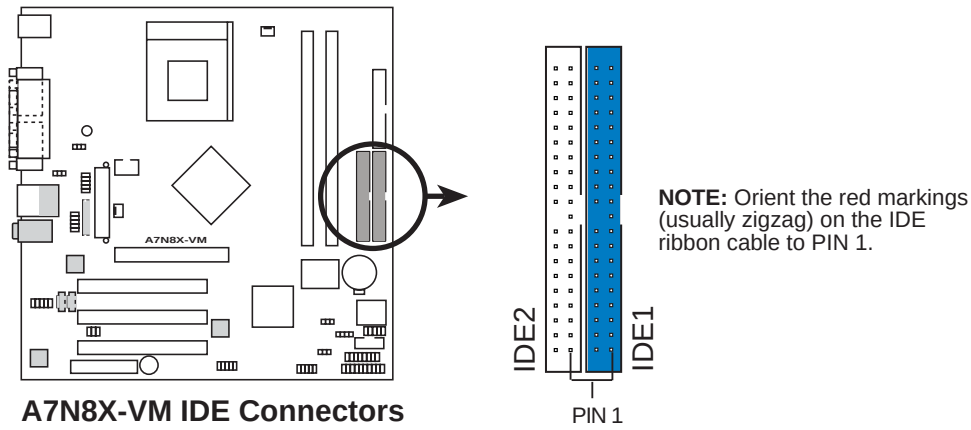
This section describes and illustrates the connectors on the motherboard.

1. IDE connectors (40-1 pin IDE1, IDE2)

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.

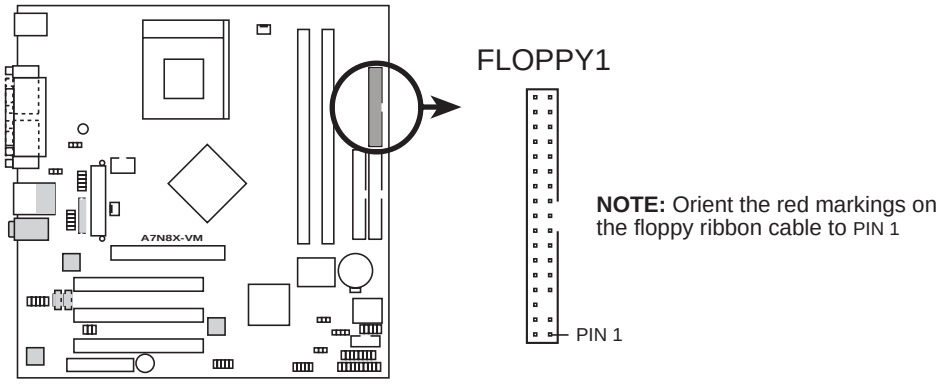
For UltraDMA/133/100/66 IDE devices, use an 80-conductor IDE cable.



A7N8X-VM IDE Connectors

2. Floppy disk drive connector (34-1 pin FLOPPY)

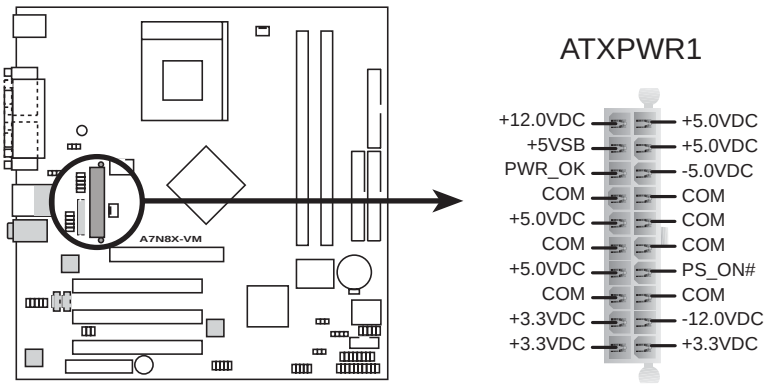
This connector supports the provided floppy drive ribbon cable. After connecting one end to the motherboard, connect the other end to the floppy drive. (Pin 5 is removed to prevent incorrect insertion when using ribbon cables with pin 5 plug).



A7N8X-VM Floppy Disk Drive Connector

3. ATX power connectors (20-pin ATXPWR1)

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.

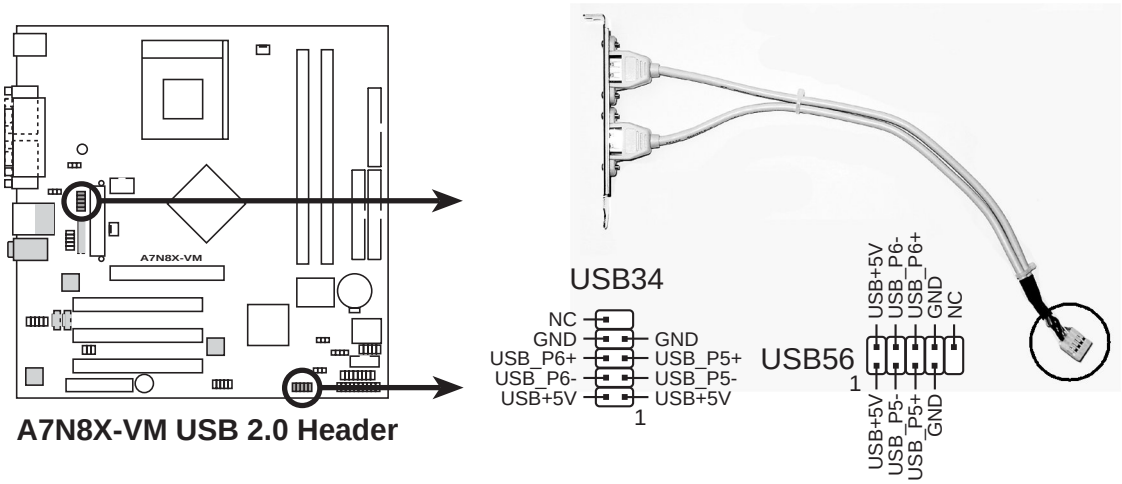


A7N8X-VM ATX Power Connector

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.

4. USB headers (10-1 pin USB34, USB56)

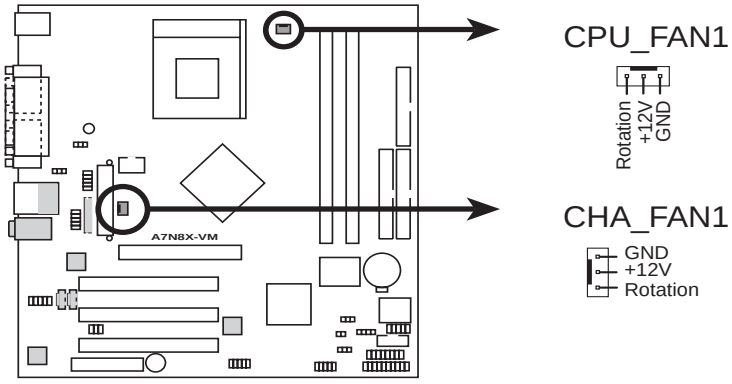
If the USB 2.0 port connectors on the back panel are inadequate, one USB header is available for four additional USB port connectors. Connect a 2-port USB connector set to a USB header and mount the USB bracket to an open slot in the chassis.



A7N8X-VM USB 2.0 Header

6. CPU, Chassis and Power Fan Connectors (3-pin CPU_FAN1, CHA_FAN1)

The fan connectors support cooling fans of 350mA~740mA (8.88W max.) or a total of 1A~2.22A (26.64W max.) at +12V. Connect the fan cables to the fan connectors on the motherboard, making sure that the black wire of each cable matches the ground pin of the connector.



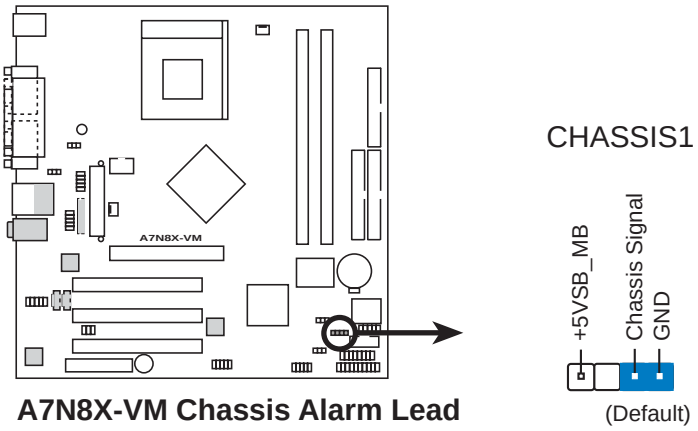
A7N8X-VM 12-Volt Cooling Fan Power

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. Chassis intrusion connector (4-1 pin CHASSIS1)

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.

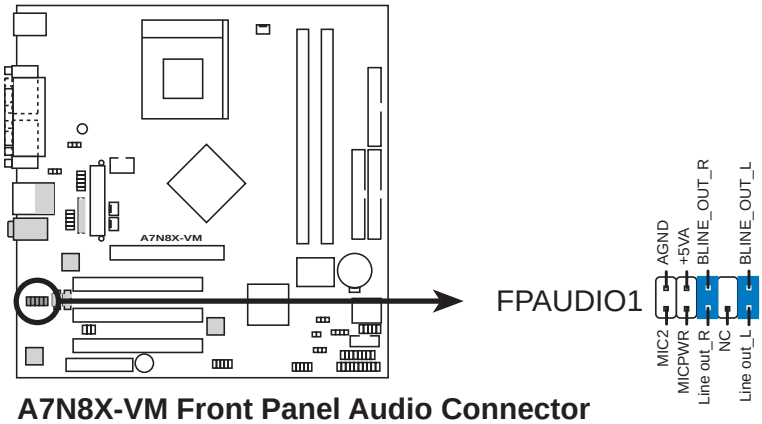
By default, the pins labeled “Chassis Signal” and “Ground” are shorted with a jumper cap. If you wish to use the chassis intrusion detection feature, remove the jumper cap from the pins.



A7N8X-VM Chassis Alarm Lead

8. Front panel audio connectors (10-1 pin FPAUDIO1)

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

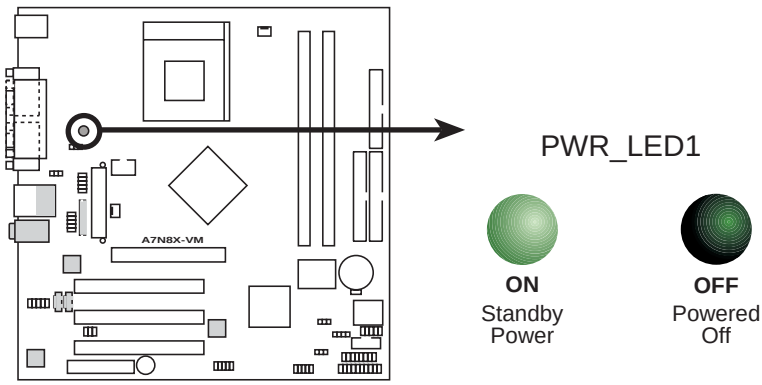


A7N8X-VM Front Panel Audio Connector

Without frontpanel connected you have to set jumpers to
Line out_R -> BLINE_OUT_R and
Line out_L -> BLINE_OUT_L

9. OnBoard LED

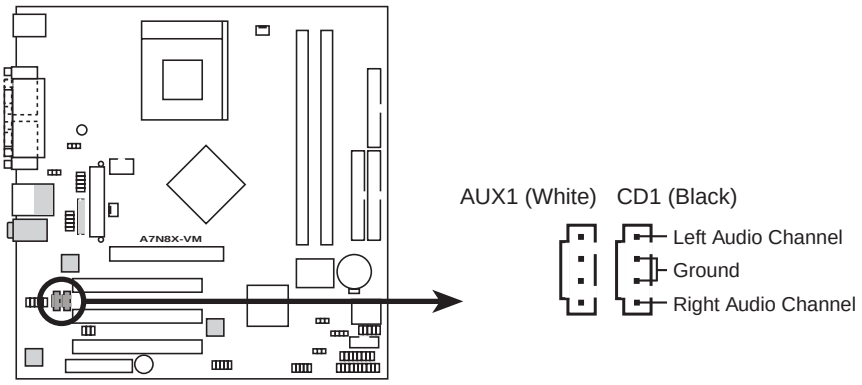
The green Light Emitting Diode (LED) lights-ON if there is standby power and lights-OFF when the power is turned off. The red LED lights on when an incorrect AGP card is inserted.



A7N8X-VM Onboard LED

10. Internal audio connectors (4-pin CD1, AUX1)

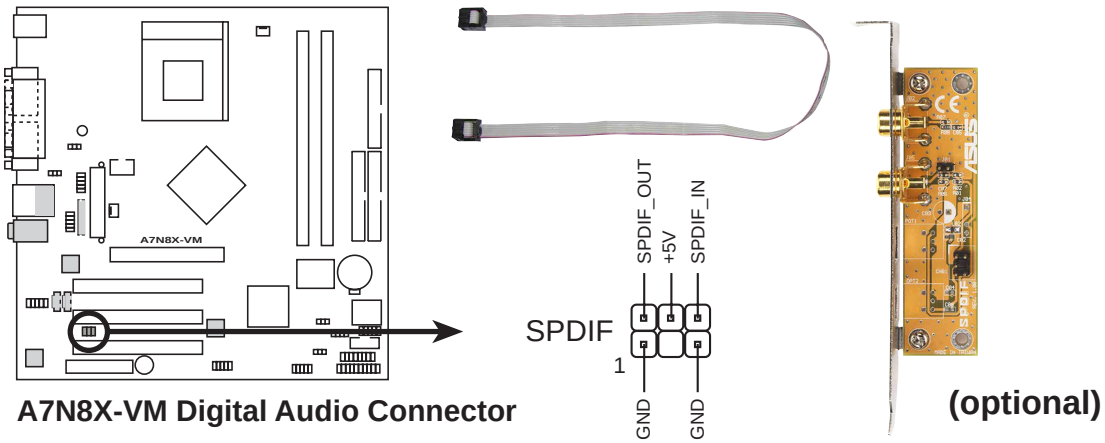
These connectors allow you to receive stereo audio input from sound sources such as a CD-ROM, TV tuner, MPEG card or modem.



A7N8X-VM Internal Audio Connectors

11. Digital Audio Connector (6 pin SPDIF) (optiopnal)

This connector is for optional S/PDIF audio module that allows digital instead of analog sound input and output.

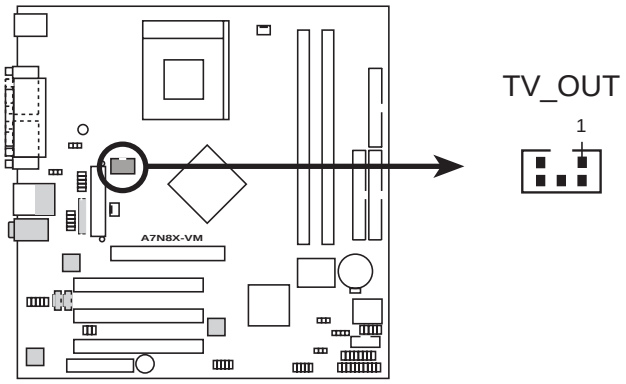


A7N8X-VM Digital Audio Connector **(optional)**

When you input sound for S/PDIF IN, the LINE_OUT will output the sound. Mute LINE_OUT to impede sound output from S/PDIF IN.

13. TV out connector (6-1 pin TV_OUT)

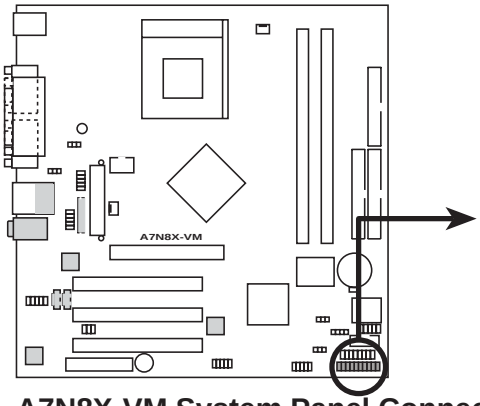
This 6-1 pin connector connects to the front panel daughter card with the audio and tv-out ports.

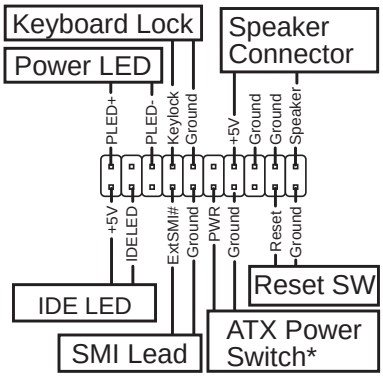


A7N8X-VM TV Out Connector

15. System panel connector (20-pin PANEL1)

This connector accommodates several system front panel functions.





A7N8X-VM 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.

- **Keyboard Lock Lead (2-1 pin KEYLOCK)**

  This 2-1 pin connector connects to the case-mounted switch to allow the use of the keyboard lock feature.

- **System Warning Speaker Lead (4-pin SPEAKER)**

  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 permits switching to suspend mode, or “Green” mode, in which system activity is instantly decreased to save power and to expand the life of certain system components.

- **Reset Switch (2-pin RESET)**

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

- **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.

- **Hard Disk Activity Lead (2-pin IDELED)**

  This connector supplies power to the hard disk activity LED. The read or write activities of any device connected to the primary or secondary IDE connector cause this LED to light up.

Chapter 2

BIOS Information

This chapter gives information about the ASUS A7N8X-VM Basic Input/Output System (BIOS).This chapter includes updating the BIOS using the ASUS AFLASH BIOS that is bundled with the support CD.

2.1 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.

2.1.1 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.

2.1.2 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

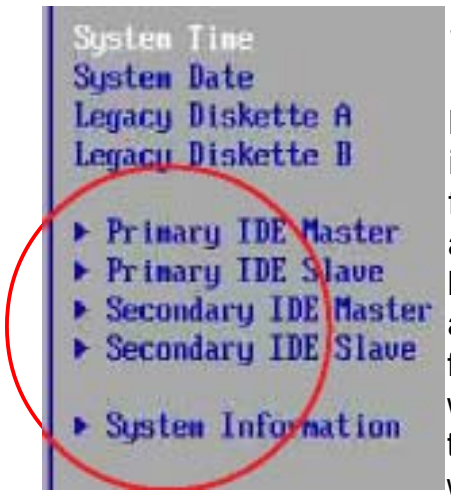
General help

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>.

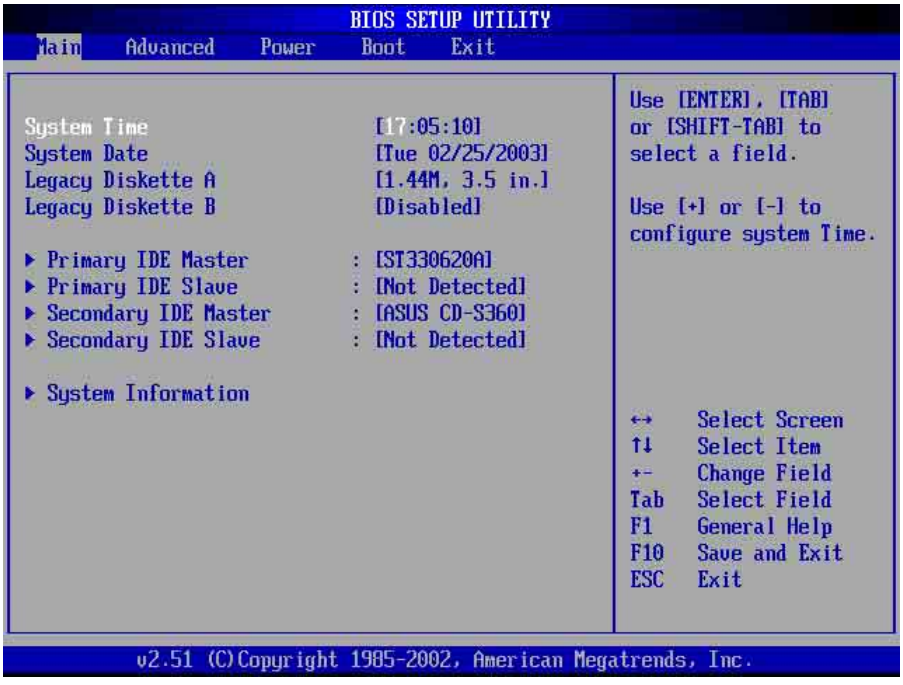


Sub-menu

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.

2.2 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.

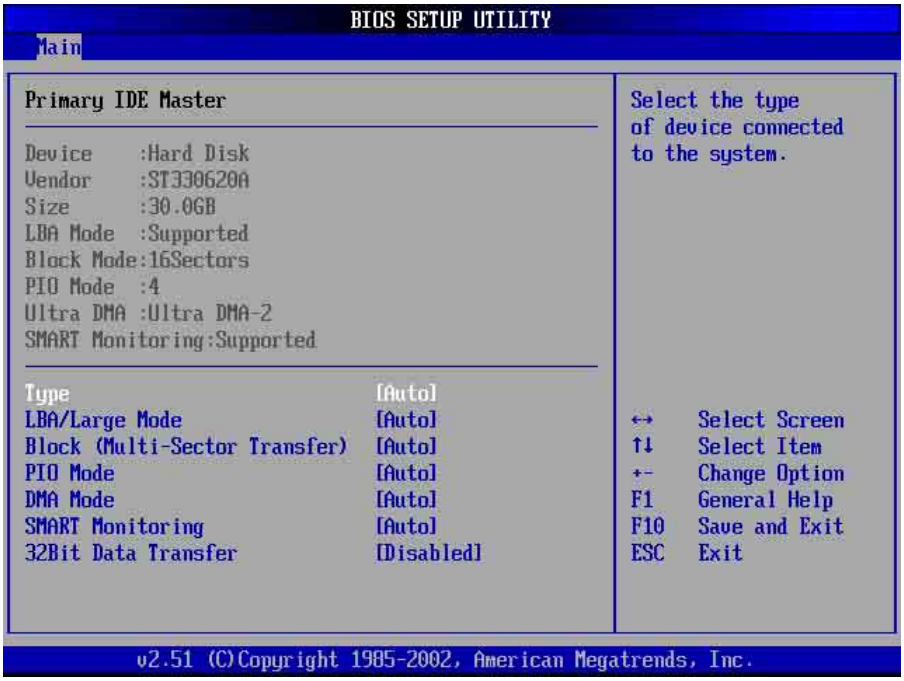
System Date [XX/XX/XXXX]

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.]

2.2.1 Primary and Secondary IDE Master/Slave



Type [Auto]

Select [Auto] to automatically detect an IDE hard disk drive. If automatic detection is successful, Setup automatically fills in the correct values for the remaining fields on this sub-menu. Configuration options: [Not Installed] [Auto] [CDROM] [ARMD]

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

LBA/Large Mode [Auto]

This field configures the LBA mode. Select [Auto] to enable LBA mode if the device supports it and the device is not already formatted with LBA Mode disabled. [Disable] disables the LBA mode.

Block (Multi-Sector Transfer) [Auto]

This field configures the Multi-Sector Transfer Block. Select [Auto] to enable the data to transfer from and to the device occurs multiple sectors at a time if the device supports it. When [Disabled], the data transfer from and to the device occurs one sector at a time.

PIO Mode [Auto]

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]

DMA Mode [Auto]

This field enables you to select the DMA mode.

SMART Monitoring [Auto]

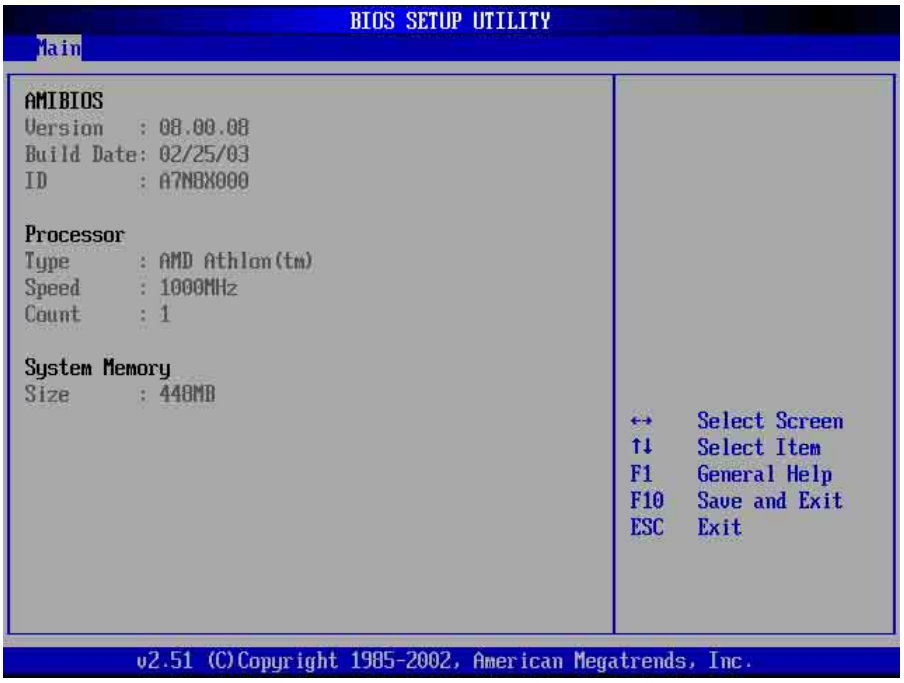
This field allows you to enable or disable the S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) system that utilizes internal hard disk drive monitoring technology. This parameter is normally disabled because the resources used in the SMART monitoring feature may decrease system performance.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

32Bit Data Transfer [Auto]

This field enables or disables the 32Bit data transfer mode.

2.2.2 System Information

This option displays detailed information about the BIOS, processor and system memory. The values for these fields are automatically detected. Refer to the screen capture below for details.



2.3 Advanced Menu

2.3.1 Chipset

Video Frame Buffer Size [Auto]

This field sets the size of the video frame buffer. The settings on this field is valid only for motherboard models with onboard VGA controller.
Configuration options: [Auto] [8MB] [16MB] [32MB] [64MB] [128MB]

Graphics Aperture Size [Auto]

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.

MDA Access Control [PCI]

This field selects the MDA Access cycles direction. Configuration options: [AGP] [PCI]

Primary Video [PCI]

This will switch the PCI Bus scanning order while searching for a video card. This allows the user to select the type of Primary VGA in case of multiple video controllers. Configuration options: [PCI] [AGP/Onboard]

Onboard TV-out format [PAL]

This field sets the onboard TV-out format. Configuration options: [PAL] [NTSC]

2.3.2 Onboard Devices Configurations

Serial Port1, Port2 Address [3F8/IRQ4], [2F8/IRQ3]

This field allows you to set the address for the onboard serial connector. Configuration options: [3F8/IRQ4] [3E8/IRQ4] [2E8/IRQ3]

Serial Port1, Port2 Mode [Normal], [Normal]

This field allows you to set the serial port mode. Configuration options: [Normal] [IrDA] [ASK IR]

Parallel Port Mode [ECP]

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 Mode DMA Channel [DMA3]

This field allows you to select the parallel port ECP DMA. Configuration options: [DMA0] [DMA1] [DMA3]

Parallel Port IRQ [IRQ7]

This field allows you to set the IRQ of the onboard parallel port connector. Configuration options: [IRQ5] [IRQ7]

SMBUS Interface [Enabled]

This field allows you to enable or disable the SMBus interface. Configuration options: [Disabled] [Enabled]

Modem CODEC Interface [Auto]

This field allows you to disable or set to automatic the modem CODEC interface. Configuration options: [Disabled] [Auto]

Audio CODEC Interface [Auto]

This field allows you to disable or set to automatic the internal audio CODEC interface. Configuration options: [Disabled] [Auto]

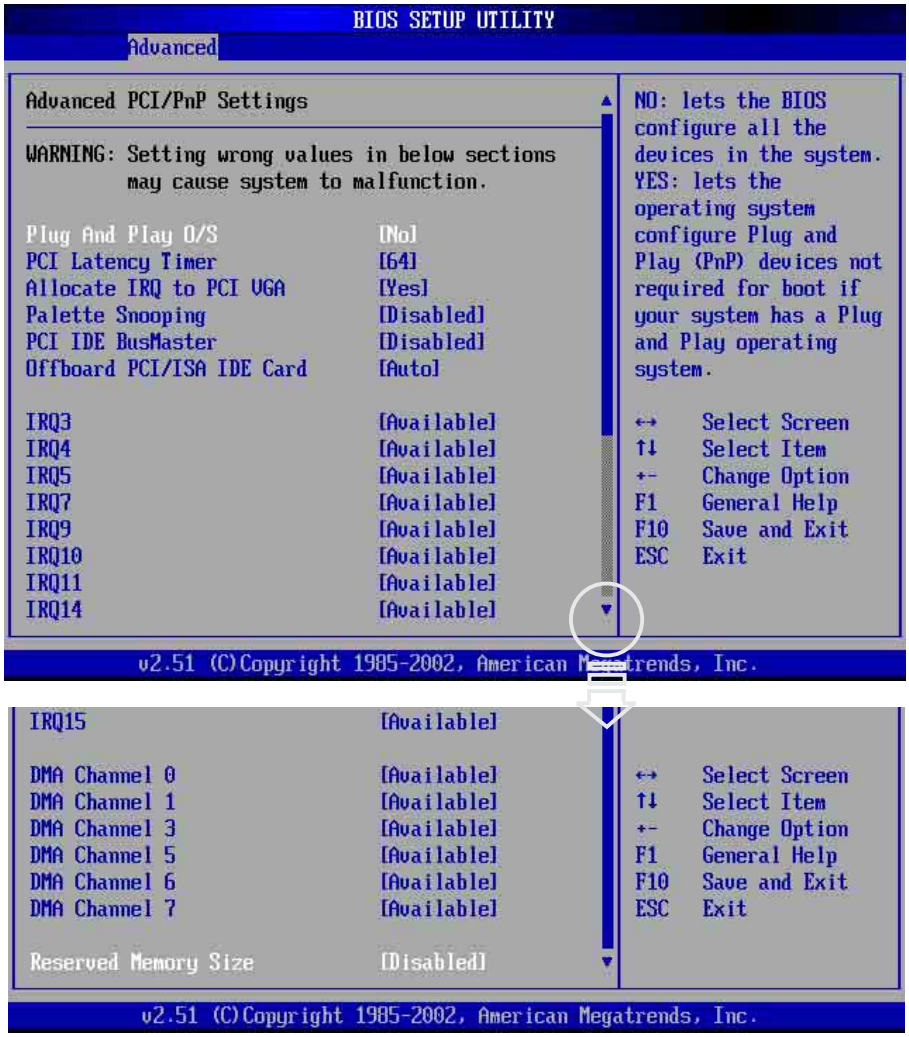
Onboard LAN [Enabled]

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

Onboard LAN Boot ROM [Disabled]

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

2.3.3 PCIPnP



Plug and Play O/S [No]

This field configures the Plug and Play O/S feature. If set to [No] the BIOS configures all the devices attached to the system. If set to [Yes], the operating system configures Plug and Play (PnP) devices not required for boot if the system has a Plug and Play operating system feature. Configuration options: [No] [Yes]

PCI Latency Timer [64]

Leave this field to the default setting [32] for best performance and stability. Configuration options: [32] [64] [96] [128] [160] [192] [224] [248]

Allocate IRQ to PCI VGA [Yes]

Select [Yes] to automatically assign IRQ to PCI VGA card if card requests IRQ. If set to [No], no IRQ is assigned even the card requests an IRQ.

Palette Snooping [Disabled]

This field enables or disables the Palette Snooping feature. Set to [Enabled] and the PCI devices will detect that an ISA graphics device is installed in the system so the device will function correctly. Configuration options: [Disabled] [Enabled]

PCI IDE BusMaster [Disabled]

This field allows the BIOS, when [Enabled], to use PCI busmastering for reading and writing to IDE drives. Configuration options: [Disabled] [Enabled]

Offboard PCI/ISA IDE Card [Auto]

This field allows the setting of the proper slot of installed PCI IDE cards. Some PCI IDE cards require this to be set to the PCI slot number that is holding the card. Configuration options: [Auto] [PCI Slot1] [PCI Slot2] [PCI Slot3] [PCI Slot4] [PCI Slot5] [PCI Slot6]

IRQ3, IRQ4, IRQ5, IRQ7, IRQ9, IRQ10, IRQ11, IRQ14, IRQ15 [Available]

This field specifies if the IRQ is reserved or available for use by Legacy ISA devices. Configuration options: [Available] [Reserved]

DMA Channel 0, 1, 3, 5, 6, 7 [Available]

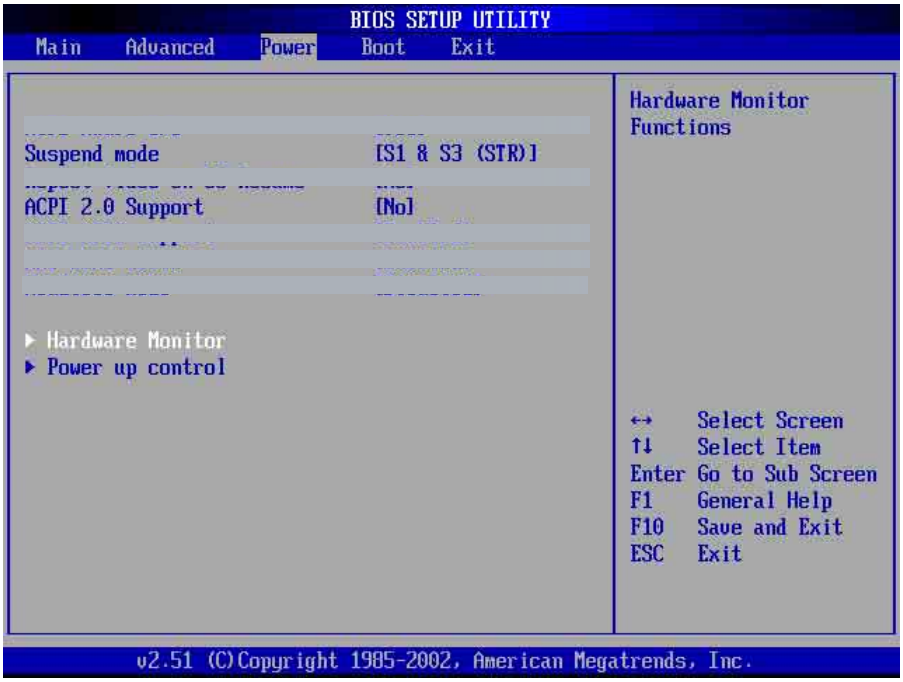
This field specifies if the DMA Channel is reserved or available for use by Legacy ISA devices. Configuration options: [Available] [Reserved]

Reserved Memory Size [Disabled]

This field specifies the reserved memory block for use of legacy ISA devices. Configuration options: [Disabled] [16k] [32k] [64k]

2.4 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.



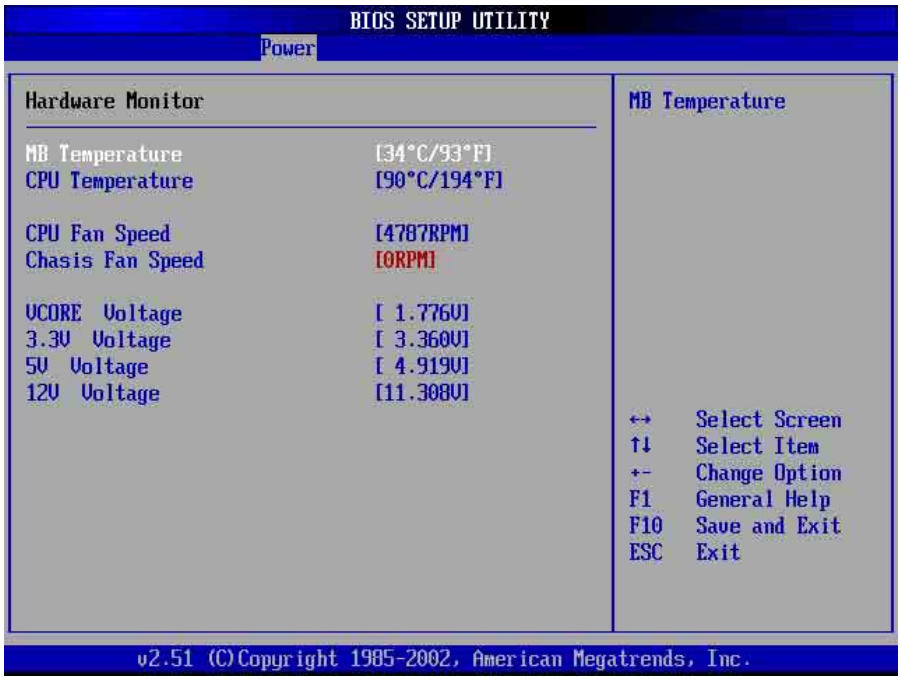
Suspend Mode [S1 & S3 (STR)]

This field sets the ACPI state used for system suspend.
Configuration options: [S1 (POS) only] [S1 & S3 (STR)]

ACPI 2.0 Support [No]

This field sets whether to enable RSDP pointers to 64-bit Fixed System Description Tables. Configuration options: [No] [Yes]

2.4.1 Hardware Monitor



MB Temperature [xxxC/xxxF]
CPU Temperature [xxxC/xxxF]

The onboard hardware monitor automatically detects and displays the motherboard and CPU temperatures.

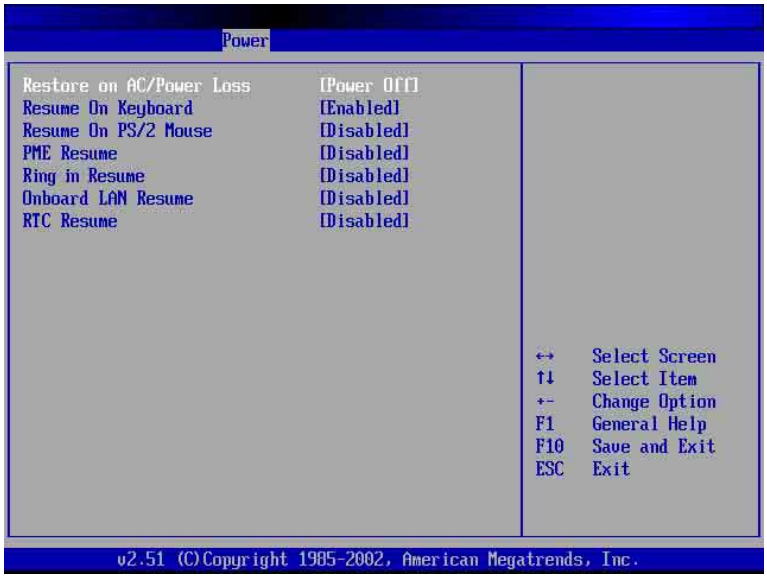
CPU Fan Speed [xxxxRPM] or [N/A]
Chassis Fan Speed [xxxxRPM] or [N/A]

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 0RPM.

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

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

2.4.2 Power Up Control



Restore on AC/Power Loss [Power Off]

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

Resume on Keyboard [Enabled]

This parameter allows you to use the keyboard keys to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled]

Resume on PS/2 Mouse [Disabled]

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

PME Resume [Disabled]

This parameter enables or disables PME to generate a wake event. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled]

RI Resume [Disabled]

This parameter enables or disables RI to generate a wake event. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled]

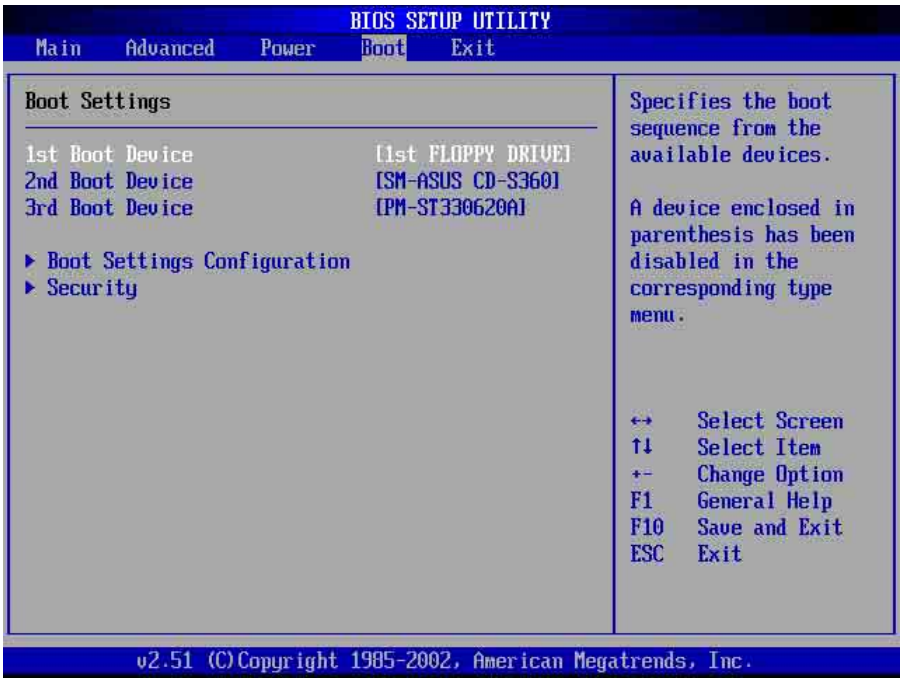
Onboard LAN Resume [Disabled]

This parameter enables or disables the onboard LAN to generate a wake event. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled]

RTC Resume [Disabled]

This parameter enables or disables RTC to generate a wake event. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled]

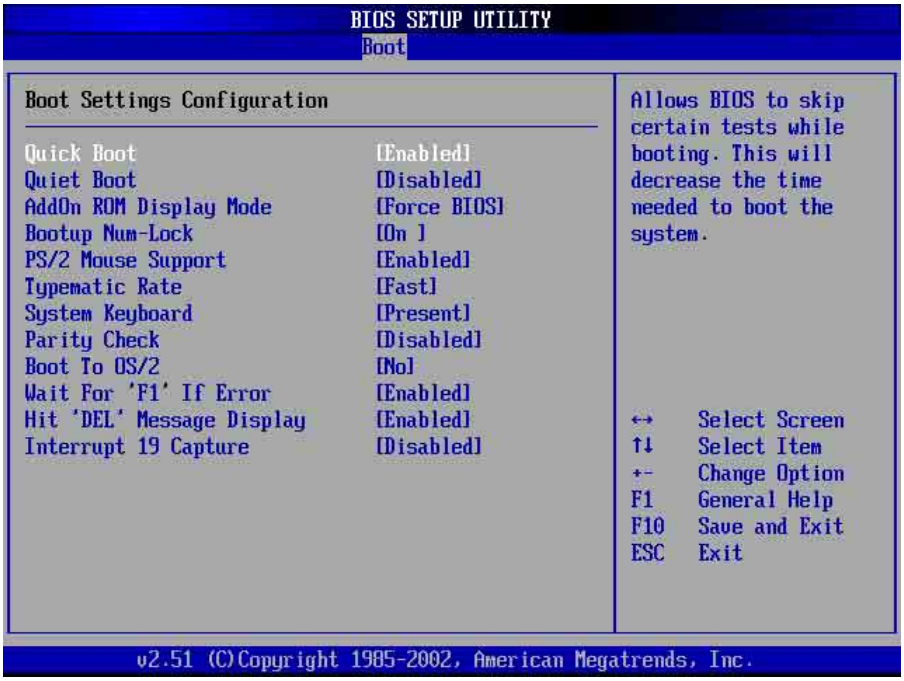
2.5 Boot Menu



1st, 2nd, 3rd Boot Device

This field specifies the boot sequence from the available devices. Additional plug-in boot devices installed appear in sequence after the list of current boot devices . Configuration fields include FLOPPY DRIVE, IDE Hard Drive, ATAPI CD-ROM, and Other Boot Device.

2.5.1 Boot Settings Configuration



Quick Boot [Enabled]

This field allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system. Configuration options: [Disabled] [Enabled]

Quiet Boot [Disabled]

When [Enabled], the normal POST messages are displayed and displays only OEM Logo instead of POST messages. Configuration options: [Disabled] [Enabled]

AddOn ROM Display Mode [Force BIOS]

This field sets the display mode for option ROM. Configuration options: [Force BIOS] [Keep Current]

Bootup Num-Lock [On]

This field selects the power-on state for the NumLock key. Configuration options: [Off] [On]

PS/2 Mouse Support [Enabled]

This sets the PS/2 mouse support. Configuration options: [Disabled] [Enabled]

Typematic Rate [Fast]

This field configures the typematic rate of the keyboard. Configuration options: [Slow] [Fast]

System Keyboard [Present]

This allows you to enable or disable all the keyboards attached to the system. Configuration options: [Absent] [Present]

Parity Check [Disabled]

This field enables or disables the memory or parity error checking feature. Configuration options: [Disabled] [Enabled]

Boot to OS/2 [No]

This field sets compatibility mode to OS/2 operating system. Configuration options: [No] [Yes]

Wait for 'F1' If Error [Enabled]

This field sets whether to wait for F1 key to be pressed if an error occurs. Configuration options: [Disabled] [Enabled]

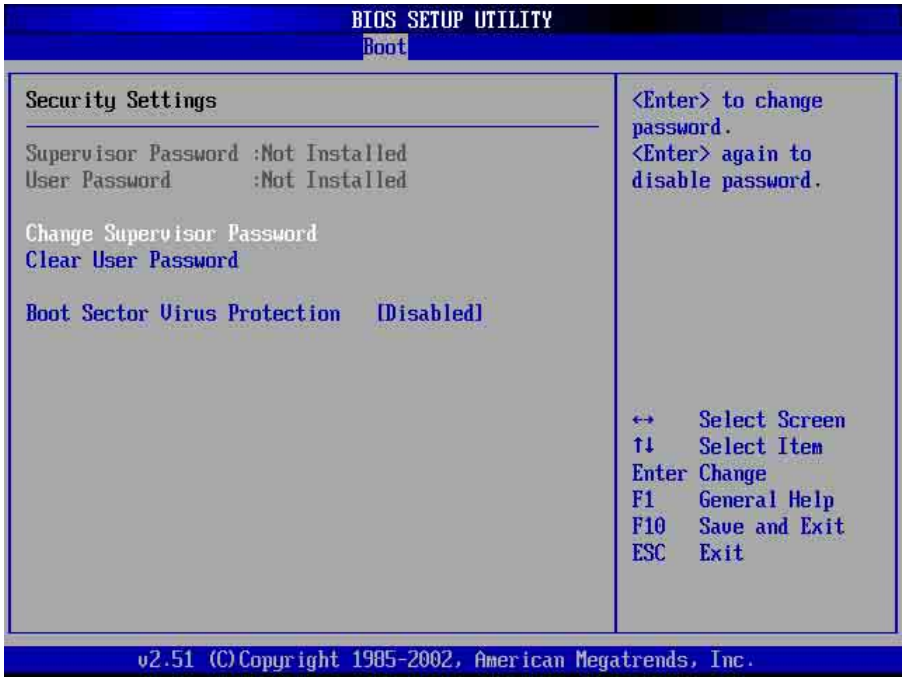
Hit 'Del' Message Display [Disabled]

This field toggles the display of "Press DEL to run Setup". Configuration options: [Disabled] [Enabled]

Interrupt 19 Capture [Disabled]

When [Enabled], it allows option ROMs to trap interrupt 19. This is required by some PCI cards that provide a ROM based setup utility. Configuration options: [Disabled] [Enabled]

2.5.2 Security



Change Supervisor Password / User Password

These fields allow you to set passwords. To set a password, highlight the appropriate field and press <Enter>. A pop-up window will appear; 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. 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 cleared.

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 Boot 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.

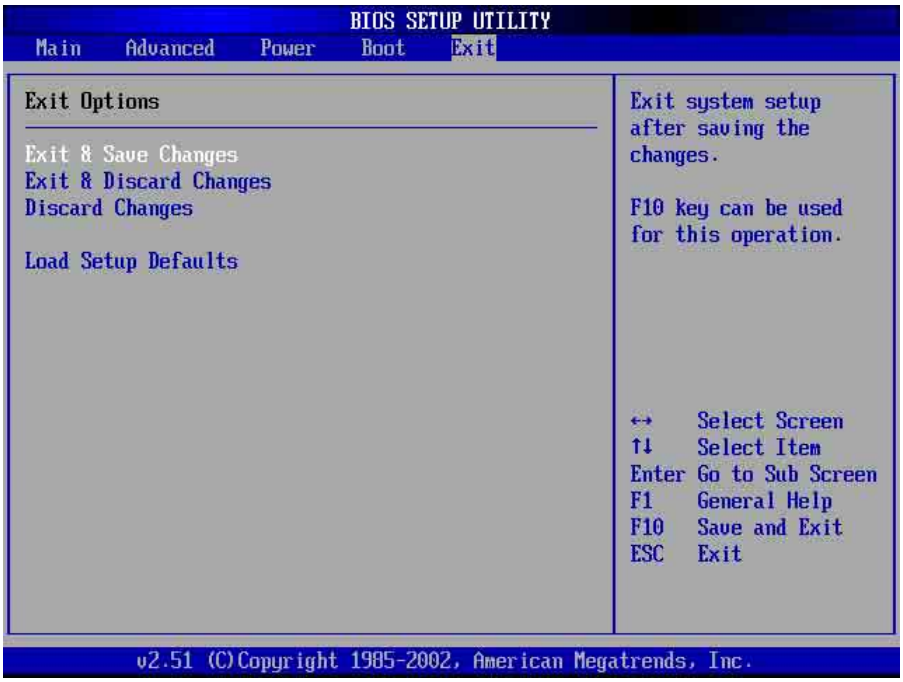
Forgot the password?
If you forget your password, you can clear it by erasing the CMOS Real Time Clock (RTC) RAM. The RAM data containing the password information is powered by the onboard button cell battery. If you need to erase the CMOS RAM, unplug the all the power cables and remove the button cell battery. Re-install the battery after about 2 seconds, then power up the system. Refer to section “Managing and updating your BIOS” on how to update the BIOS.

Boot Sector Virus Protection [Disabled]

This field allows you to set boot sector virus protection, 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]

2.6 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 & Save 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.

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.

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.