ASUS

M2V-TVM

Motherboard

E2710

First Edition V1
July 2006

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Notices

Federal Communications Commission Statement

This device complies with Part 15 of the FCC Rules. 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 adapter 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.

The symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Please check local regulations for disposal of electronic products.

M2V-TVM specifications summary

CPU	Support AMD socket AM2 for AMD Athlon™ 64 X2/ Athlon™ 64/AMD Sempron™ processor AMD64 architecture enables simultaneous 32-bit and 64-bit computing Supports AMD Cool 'n' Quiet™ Technology
Chipset	VIA® K8M890 VIA® VT8237R Pluls
System Bus	2000 MT/s
Memory	2 x 240-pin DIMM sockets support up to 2 GB of ECC/ non-ECC unbufferred DDR2 667/533 MHz DIMMs
Expansion slots	1 x PCI Express™ x16 slot 1 x PCI Express™ x1 slot 2 x PCI slots
Graphics	Integrated in the VIA® DeltaChrome Graphics Processing Unit (GPU) Supports a maximum of 256MB shared memory Supports Microsoft® DX9
Storage	VIA® VT8237R Plus supports: - 2 x Ultra DMA 133/100/66/33 interfaces for four hard disk drives - 2 x Serial ATA hard disk drives supporting RAID 0, RAID 1, and JBOD configurations
Audio	Realtek® ALC655 6-channel audio CODEC S/PDIF out support
LAN	Realtek® RTL8100C 10/100 LAN
USB 2.0	Supports up to 8 USB 2.0 ports
Special features	ASUS EZ Flash ASUS MyLogo2
Backpanel I/O ports	1 x Parallel 1 x PS/2 keyboard 1 x PS/2 mouse 1 x 6-channel Audio I/O 1 x RJ45 port 1 x VGA port 4 x USB 1 x Serial port

M2V-TVM specifications summary

Internal I/O connectors	2 x USB connector supports additional 4 USB ports 24-pin ATX power connector 4-pin ATX 12V power connector 1 x COM connector 1 x S/PDIF out connector 1 x CD audio-in connector 1 x AUX audio-in connector 1 x CPU/ 1 x Chassis fan connectors 1 x Front Panel AC'97 audio connector 1 x Buzzer 10-pin system panel connector
BIOS features	4 Mb Flash ROM, AMI BIOS, PnP, DMI2.0, WfM2.0, SM BIOS 2.3
Manageability	WfM 2.0, DMI 2.0, WOL by PME, PXE, RPL, WOR by PME
Support CD contents	Drivers Anti-virus software ASUS LiveUpdate
Form factor	Micro-ATX form factor: 9.6 in x 8.6 in

*Specifications are subject to change without notice.

This chapter describes the motherboard
features and the new technologies
it supports.

Product introduction

1

1.1 Welcome!

Thank you for buying an ASUS® M2V-TVM motherboard!

The motherboard delivers a host of new features and latest technologies, making it another standout in the long line of ASUS quality motherboards!

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 motherboard package for the following items.

Motherboard	ASUS M2V-TVM motherboard
Cables	1 x Serial ATA signal cables 1 x Serial ATA power cable 1 x Ultra DMA 133/100/66 cable 1 x Floppy disk drive cable
Accessories	I/O shield
Application CD	ASUS motherboard support CD
Documentation	User guide

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

1.3 Special features

1.3.1 Product highlights

Latest processor technology

The motherboard supports AMD socket AM2 single-core Athlon 64/Sempron and dual-core Athlon 64 X2 processors with 2MB/1MB/512KB L2 cache, which is based on 64-bit architecture. It features 2000/1600 MT/s HyperTransport Bus, dual-channel un-buffered DDR2 667 memory support and AMD Cool 'n' Quiet Technology. See page 1-8 for details.

AMD Cool 'n' Quiet Technology

The motherboard supports the AMD Cool 'n' Quiet Technology, which monitors system operation and automatically adjusts CPU voltage and frequency for a cool and quiet operating environment.

DDR2 memory support

The motherboard supports DDR2 memory which features data transfer rates of 667 MHz/533 MHz to meet the higher bandwidth requirements of the latest 3D graphics, multimedia, and Internet applications. The dual-channel DDR2 architecture doubles the bandwidth of your system memory to boost system performance, eliminating bottlenecks. See pages 1-12 to 1-14 for details.

PCI Express™ interface

The motherboard fully supports PCI Express, the latest I/O interconnect technology that speeds up the PCI bus. PCI Express features point-to-point serial interconnections between devices and allows higher clockspeeds by carrying data in packets. This high speed interface is software compatible with existing PCI specifications. See page 1-17 for details.

USB 2.0 technology

The motherboard implements the Universal Serial Bus (USB) 2.0 specification, dramatically increasing the connection speed from the 12 Mbps bandwidth on USB 1.1 to a fast 480 Mbps on USB 2.0. USB 2.0 is backward compatible with USB 1.1. See pages 1-21 and 1-6 for details.

10/100 Mbps LAN

Easy connectivity to your network or broadband connection with the onboard LAN port, lets you take gaming online without buying expensive additional LAN cards.

1.3.2 Innovative ASUS features

ASUS EZ Flash

With ASUS EZ Flash, you can easily update the system BIOS even before loading the operating system. No need to use a DOS-based utility or boot from a floppy disk. See page 2-5 for details.

ASUS MyLogo 2

ASUS My Logo 2 is the new feature present in the motherboard that allows you to personalize and add style to your system with customizable and animated boot logos. See page 2-30 for details.

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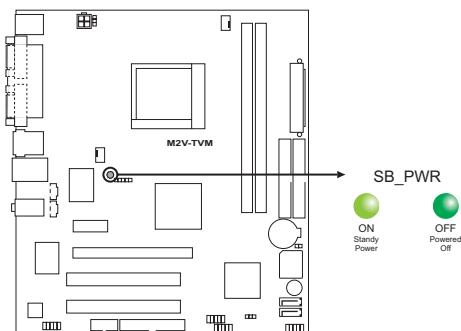
Take note of the following precautions before you install motherboard components or change any motherboard settings.

⚠️
- Unplug the power cord from the wall socket before touching any component.

- Use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity

- Hold components by the edges to avoid touching the ICs on them.

- Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.

- 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.

Onboard LED
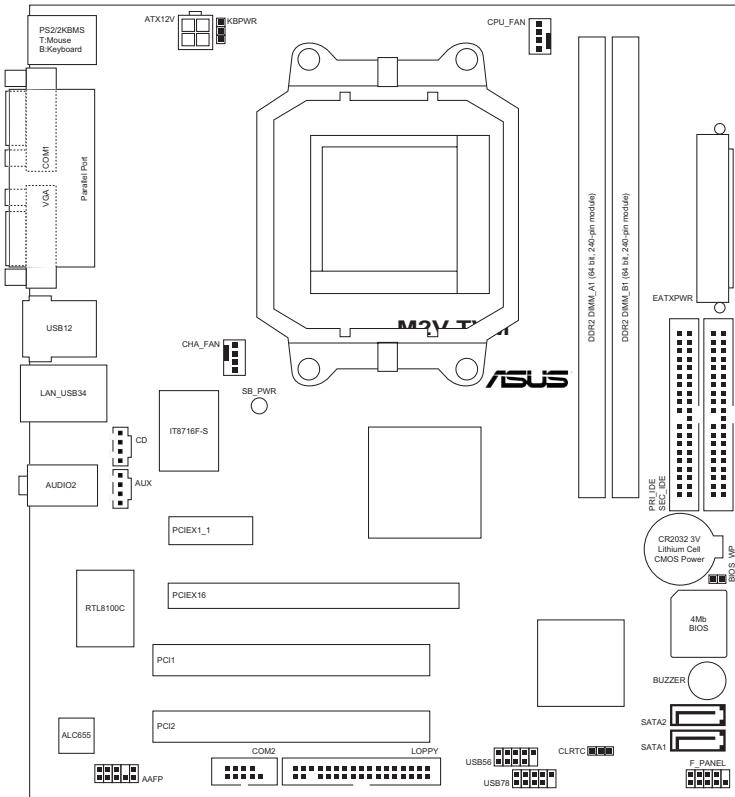
The motherboard comes with a standby power LED that lights up to indicate that the system is ON, in sleep mode, or in soft-off mode. This is a reminder that you should shut down the system and unplug the power cable before removing or plugging in any motherboard component. The illustration below shows the location of the onboard LED.

M2V-TVM Onboard LED connector

1.5   Motherboard overview

1.5.1   Motherboard layout

1.5.2 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.
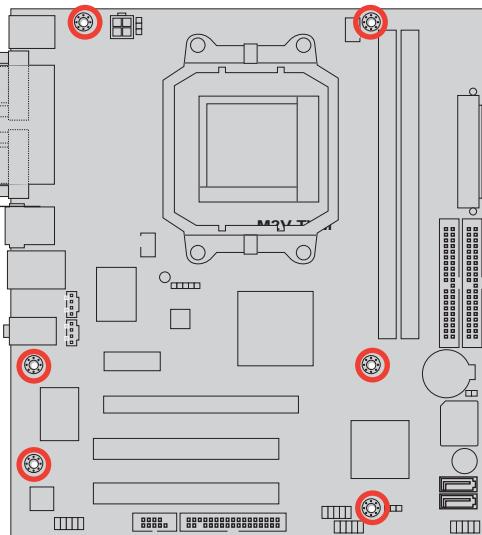
1.5.3 Screw holes

Place six (6) screws into the holes indicated by circles to secure the motherboard to the chassis.

Do not overtighten the screws! Doing so can damage the motherboard.

Place this side towards the rear of the chassis

1.6 Central Processing Unit (CPU)

The motherboard comes with a 940-pin AM2 socket designed for the AMD Athlon™ 64 X2/AMD Athlon™ 64/AMD Sempron™ processor.
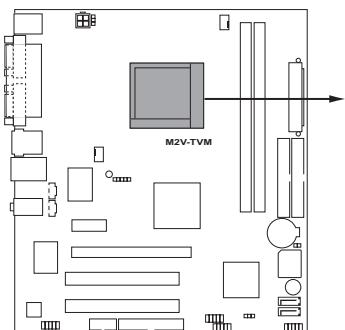
⚠️ Make sure you use a CPU is designed for the AM2 socket. The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU!

1.6.1 Installing the CPU

To install a CPU.
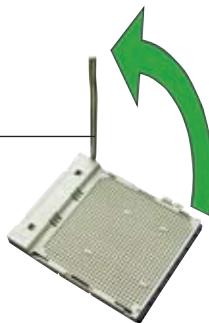
1. Locate the CPU socket on the motherboard.

M2V-TVM CPU Socket AM2
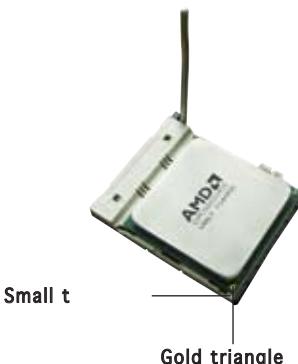
2. Unlock the socket by pressing the lever sideways, then lift it up to a 90°-100° angle.

Socket lever
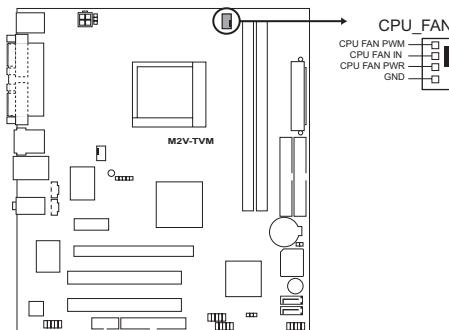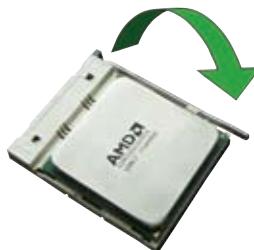
🖎 Make sure that the socket lever is lifted up to 90°-100° angle, otherwise the CPU does not fit in completely.

3. Position the CPU above the socket such that the CPU corner with the gold triangle matches the socket corner with a small triangle.

4. Carefully insert the CPU into the socket until it fits in place.

Small t

Gold triangle

> The CPU fits only in one correct orientation. DO NOT force the CPU into the socket to prevent bending the pins and damaging the CPU!

5. When the CPU is in place, push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked.

6. Install a CPU heatsink and fan following the instructions that came with the heatsink package.

7. Connect the CPU fan cable to the CPU_FAN connector on the motherboard.

CPU_FAN

CPU FAN PWM
CPU FAN IN
CPU FAN PWR
GND

M2V-TVM

M2V-TVM CPU Fan connector

> Do not forget to connect the CPU fan connector! Hardware monitoring errors can occur if you fail to plug this connector.

1.6.2 Installing the heatsink and fan

The AMD Athlon™ 64 X2/AMD Athlon™ 64/AMD Sempron™ processor require a specially designed heatsink and fan assembly to ensure optimum thermal condition and performance.
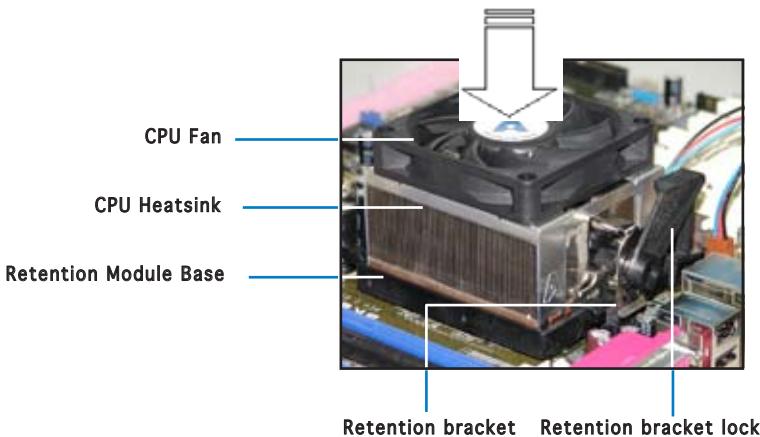
Make sure that you use only qualified heatsink and fan assembly.

Follow these steps to install the CPU heatsink and fan.

1. Place the heatsink on top of the installed CPU, making sure that the heatsink fits properly on the retention module base.
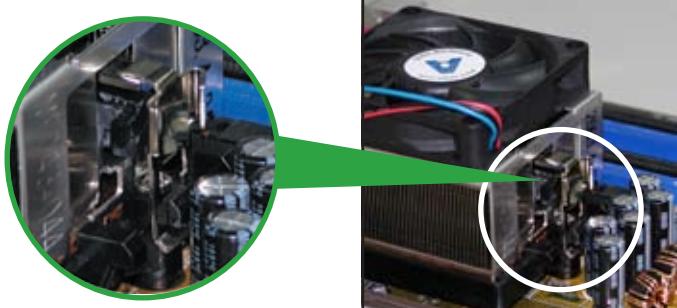
• The retention module base is already installed on the motherboard upon purchase.

• You do not have to remove the retention module base when installing the CPU or installing other motherboard components.

• If you purchased a separate CPU heatsink and fan assembly, make sure that a Thermal Interface Material is properly applied to the CPU heatsink or CPU before you install the heatsink and fan assembly.

CPU Fan

CPU Heatsink

Retention Module Base

Retention bracket   Retention bracket lock

Your boxed CPU heatsink and fan assembly should come with installation instructions for the CPU, heatsink, and the retention mechanism. If the instructions in this section do not match the CPU documentation, follow the latter.

2.   Attach one end of the retention bracket to the retention module base.
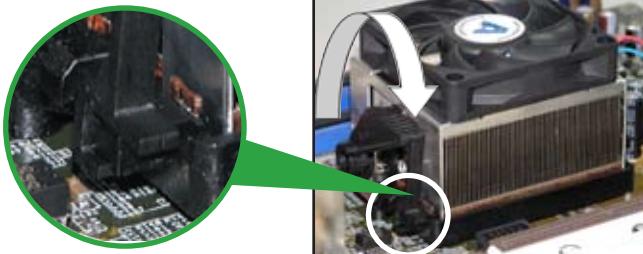
3.   Align the other end of the retention bracket (near the retention bracket lock) to the retention module base. A clicking sound denotes that the retention bracket is in place.

Make sure that the fan and heatsink assembly perfectly fits the retention mechanism module base; otherwise, you cannot snap the retention bracket in place.

4.   Push down the retention bracket lock on the retention mechanism to secure the heatsink and fan to the module base.
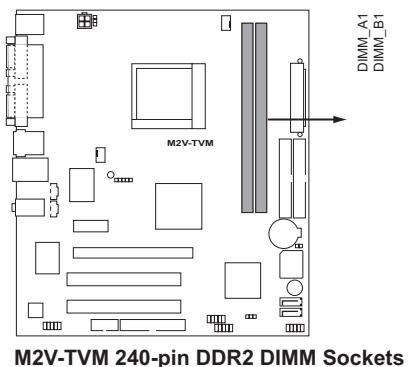
1.7 System memory

1.7.1 Overview

The motherboard comes with two Double Data Rate 2 (DDR2) Dual Inline Memory Modules (DIMM) sockets.

A DDR2 module has the same physical dimensions as a DDR DIMM but has a 240-pin footprint compared to the 184-pin DDR DIMM. DDR2 DIMMs are notched differently to prevent installation on a DDR DIMM socket.

The figure illustrates the location of the DDR2 DIMM sockets:

M2V-TVM 240-pin DDR2 DIMM Sockets

1.7.2 Memory configurations

You may install 256 MB, 512 MB, and 1 GB unbuffered non-ECC DDR2 DIMMs into the DIMM sockets.

For optimum compatibility, we recommend that you obtain memory modules from the same vendor. Visit the ASUS website (www.asus.com) for the latest Qualified Vendors List..

Qualified Vendors Lists (QVL)

Model	Side(s)	Chip Number	Size	Part Number
Kingston	SS	E5116AB-5C-E	256MB	KVR533D2N4/256
Kingston	SS	E5116AF-5C-E	256MB	KVR533D2N4/256
Kingston	DS	HY5PS56821	512MB	KVR533D2N4/512
Kingston	DS	D6408TE7BL-37	1G	KVR533D2N4/1G
Kingston	SS	E2508AB-6E-E	256MB	KVR667D2N5/256
Kingston	SS	D6408TE8WL-27	512MB	KVR667D2N5/512
Kingston	SS	E5108AE-6E-E	512MB	KVR667D2E5/512
Samsung	SS	K4T51083QB-GCD5	512MB	M378T6553BG0-CD5
Samsung	SS	K4T51083QC	512MB	KR M378T6553CZ0-CE6
Samsung	DS	K4T56083QF-ZCE6	512MB	KR M378T6453FZ0-CE6
Samsung	SS	K4T51083QC-ZCE6	1G	KR M378T2953CZ0-CE6
Infineon	SS	HYB18T512160AF-3.7AFSS31270	256MB	HYS64T32000HU-3.7-A
Infineon	SS	HYB18T512800AC37SSS11511	512MB	HYS64T64000GU-3.7-A
Infineon	SS	HYB18T512800AF37SSS12079	512MB	HYS64T64000HU-3.7-A
Infineon	SS	HYB18T512800AF37FSS29334	512MB	HYS64T64000HU-3.7-A
Infineon	SS	HYB18T5128000AF-3SSSS27416	512MB	HYS64T32000HU-3S-A
Infineon	SS	HYB18T512800AF3SFSS05346	512MB	HYS64T64000HU-3S-A
Infineon	DS	HYB18T512800AF3SSSS28104	1G	HYS64T128020HU-3S-A
Micron	DS	D9BOM	512MB	MT 16HTF6464AG-53EB2
Micron	DS	D9CRZ	1G	MT 16HTF12864AY-53EA1
Corsair	DS	MIII0052532M8CEC	512MB	VS512MB533D2
HY	SS	HY5PS12821AFP-Y4	512MB	HYMP564U64AP8-Y4 AA
Kingmax	SS	KKEA88B4IAK-37	512MB	KLBC28F-A8KB4
Kingmax	SS	E5116AB-5C-E	256MB	KLBB68F-36EP4
Kingmax	SS	E5108AE-6E-E	512MB	KLCC28F-A8EB5
VDATA	SS	VD29608A8A-3EC20615	512MB	M2GVD5G3H31A4I1C52
VDATA	DS	VD29608A8A-3EC20620	1G	M2GVD5G3I41C4I1C52

Side(s): SS - Single-sided   DS - Double-sided

Visit the ASUS website for the latest DDR2-667/533 MHz QVL.
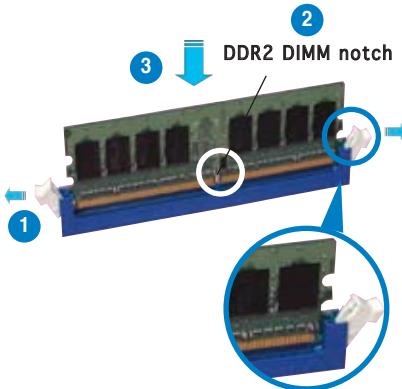
1.7.3 Installing a DIMM

⚠️ Unplug the power supply before adding or removing DIMMs or other system components. Failure to do so can cause severe damage to both the motherboard and the components.

To install a DIMM:

1. Unlock a DIMM socket by pressing the retaining clips outward.
2. Align a DIMM on the socket such that the notch on the DIMM matches the break on the socket.
3. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated.

DDR2 DIMM notch

Unlocked retaining clip

✍️ • A DDR2 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.

• The DDR2 DIMM sockets do not support DDR DIMMs. DO not install DDR DIMMs to the DDR2 DIMM sockets.
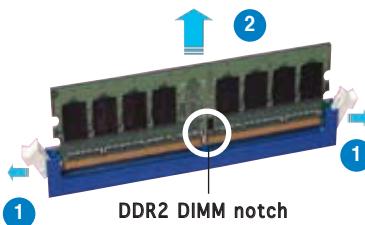
1.7.4 Removing a DIMM

To remove a DIMM:

1. Simultaneously press the retaining clips outward to unlock the DIMM.

✍️ Support the DIMM lightly with your fingers when pressing the retaining clips. The DIMM might get damaged when it flips out with extra force.

DDR2 DIMM notch

2. Remove the DIMM from the socket.

1.8   Expansion slots

In the future, you may need to install expansion cards. The following sub-sections describe the slots and the expansion cards that they support.

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

1.8.1   Installing an expansion card

To install an expansion card:

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

1.8.2   Configuring an expansion card

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

1.   Turn on the system and change the necessary BIOS settings, if any. See Chapter 2 for information on BIOS setup.
2.   Assign an IRQ to the card. Refer to the tables on the next page.
3.   Install the software drivers for the expansion card.

Standard interrupt assignments

IRQ	Priority	Standard Function
0	1	System Timer
1	2	Keyboard Controller
2	–	Re-direct to IRQ#9
3	11	IRQ holder for PCI steering*
4	12	Communications Port (COM1)*
5	13	IRQ holder for PCI steering*
6	14	Floppy Disk Controller
7	15	Printer Port (LPT1)*
8	3	System CMOS/Real Time Clock
9	4	IRQ holder for PCI steering*
10	5	IRQ holder for PCI steering*
11	6	IRQ holder for PCI steering*
12	7	PS/2 Compatible Mouse Port*
13	8	Numeric Data Processor
14	9	Primary IDE Channel
15	10	Secondary IDE Channel

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

IRQ assignments for this motherboard
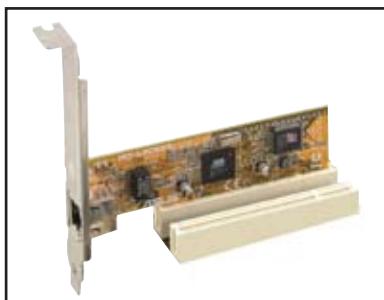
	A	B	C	D
PCI slot 1	used	—	—	—
PCI slot 2	—	used	—	—

When using PCI cards on shared slots, ensure that the drivers support "Share IRQ" or that the cards do not need IRQ assignments; otherwise, conflicts will arise between the two PCI groups, making the system unstable and the card inoperable.

1.8.3 PCI slots

The PCI slots support cards such as a LAN card, SCSI card, USB card, and other cards that comply with PCI specifications. The figure shows a LAN card installed on a PCI slot.

1.8.4 PCI Express x1 slot

This motherboard supports PCI Express x1 network cards, SCSI cards and other cards that comply with the PCI Express specifications. The following figure shows a network card installed on the PCI Express x1 slot.

1.8.5 PCI Express x16 slot

This motherboard has supports PCI Express x16 graphic cards that comply with PCI Express specifications. The figure shows a graphics card installed on the PCI Express x16 slot.

1.9   Jumpers

1.   **Clear RTC RAM (CLRTC)**
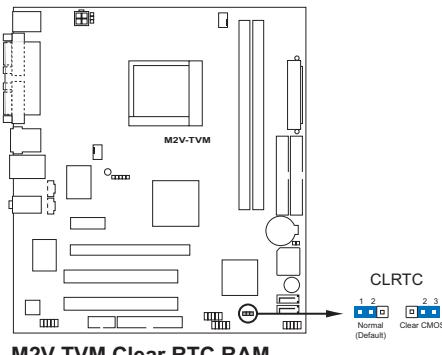
This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.

To erase the RTC RAM:

1.   Turn OFF the computer and unplug the power cord.

2.   Remove the onboard battery.

3.   Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5~10 seconds, then move the cap back to pins 1-2.

4.   Reinstall 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.
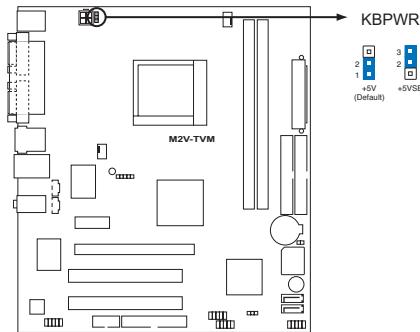
Except when clearing the RTC RAM, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure!

M2V-TVM Clear RTC RAM

2. Keyboard power (3-pin KBPWR)
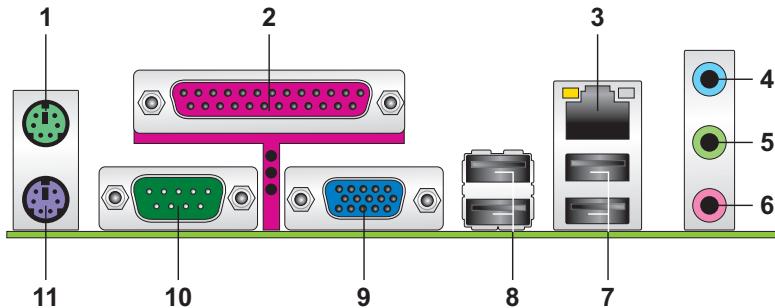
This jumper allows you to enable or disable the keyboard wake-up feature. Set this jumper to pins 2-3 (+5VSB) to wake up the computer when you press a key on the keyboard (the default is the Space Bar). This feature requires an ATX power supply that can supply at least 500 mA on the +5VSB lead, and a corresponding setting in the BIOS.

M2V-TVM Fan connectors

1.10 Connectors

1.10.1 Rear panel connectors

1. **PS/2 mouse port (green).** This port is for a PS/2 mouse.
2. **Parallel port.** This 25-pin port connects a printer, scanner, or other devices.
3. **LAN (RJ-45) port.** This port allows Gigabit connection to a Local Area Network (LAN) through a network hub.

LAN port LED indications

ACT/LINK LED		SPEED LED	
Status	Description	Status	Description
OFF	No link	OFF	10 Mbps connection
Yellow	Linked	GREEN	100 Mbps connection
BLINKING	Data activity		

4. **Line In port (light blue)**. This port connects a tape, CD, DVD player, or other audio sources.
5. **Line Out port (green).** This port connects a headphone or a speaker. In 4-channel, or 6-channel, configuration, the function of this port becomes Front Speaker Out.
6. **Microphone port (pink).** This port connects a microphone.

Refer to the audio configuration table below for the function of the audio ports in 2, 4, or 6-channel configuration.

Audio 2, 4, or 6-channel configuration

Port	Headset 2-channel	4-channel	6-channel
Light Blue	Line In	Surround (Rear)	Surround (Rear)
Green	Line Out	Front Speaker Out	Front Speaker Out
Pink	Mic In	Mic In	Bass/Center

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

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

9. **Video Graphics Adapter (VGA) port.** This 15-pin port is for a VGA monitor or other VGA-compatible devices.

10. **COM port.** This 15-pin port is for a VGA monitor or other VGA-compatible devices.

11. **PS/2 keyboard port (purple).** This port is for a PS/2 keyboard.
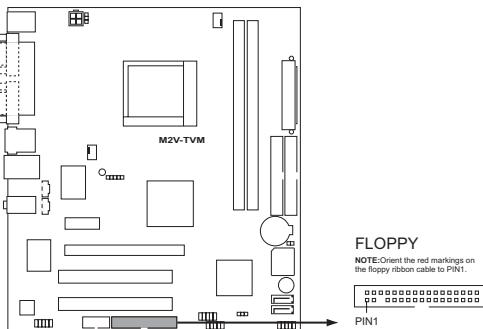
1.10.2 Internal connectors

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

This connector is for the provided floppy disk drive (FDD) signal cable. Insert one end of the cable to this connector, then connect the other end to the signal connector at the back of the floppy disk drive.

Pin 5 on the connector is removed to prevent incorrect cable connection when using an FDD cable with a covered Pin 5.

M2V-TVM Floppy disk drive consnector

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

The onboard IDE connectors are for Ultra DMA 133/100/66 signal cable(s). There are three connectors on each Ultra DMA 133/100/66 signal cable: blue, black, and gray. Connect the blue connector to the motherboard's IDE connector, then select one of the following modes to configure your device(s).
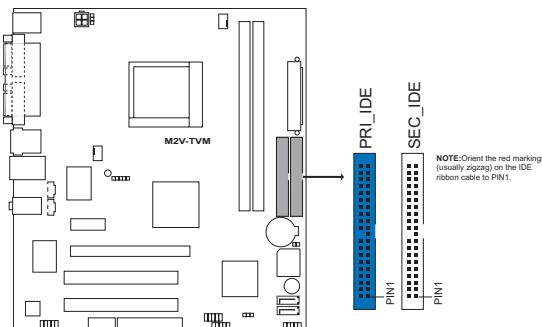
	Drive jumper setting	Mode of device(s)	Cable connector
Single device	Cable-Select or Master	-	Black
Two devices	Cable-Select	Master	Black
		Slave	Gray
	Master	Master	Black or gray
	Slave	Slave	

- Pin 20 on the IDE connector is removed to match the covered hole on the Ultra DMA cable connector. This prevents incorrect insertion when you connect the IDE cable.

- Use the 80-conductor IDE cable for Ultra DMA 133/100/66 IDE devices.

If any device jumper is set as "Cable-Select," make sure all other device jumpers have the same setting.

NOTE: Orient the red markings (usually zigzag) on the IDE ribbon cable to PIN1.
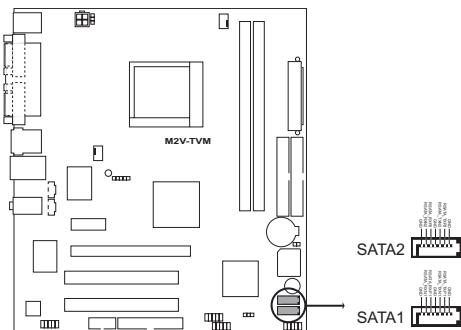
M2V-TVM IDE connectors

3. Serial ATA connectors (7-pin SATA1, SATA2)

These connectors are for the Serial ATA signal cables for Serial ATA hard disk and optical disk drives that allows up to 150 MB/s data transfer rates, faster than the standard parallel ATA with 133 MB/s (Ultra DMA133).

If you install Serial ATA hard disk drives, you can create a RAID 0, RAID 1, and JBOD configuration through the onboard VIA® VT8237R Plus controller.

M2V-TVM SATA connectors

Important note on Serial ATA

Install the Windows® 2000 Service Pack 4 or the Windows® XP Service Pack1 before using Serial ATA.
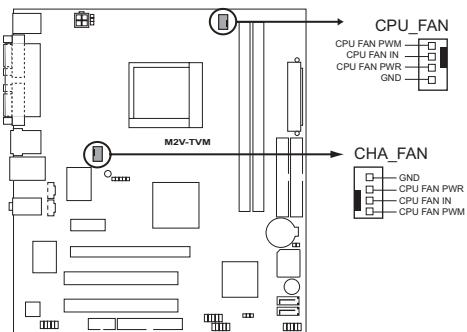
- For detailed instructions on how to configure RAID 0, 1, and JBOD, refer to the RAID manual in the support CD.

- The RAID function of these connectors is set to [Disabled] by default. See section "2.4.4 Onboard Device Configuration" for details.

4. CPU, and Chassis Fan connectors (4-pin CPU_FAN, CHA_FAN)

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.

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

CPU_FAN

CPU FAN PWM
CPU FAN IN
CPU FAN PWR
GND

M2V-TVM

CHA_FAN

GND
CPU FAN PWR
CPU FAN IN
CPU FAN PWM
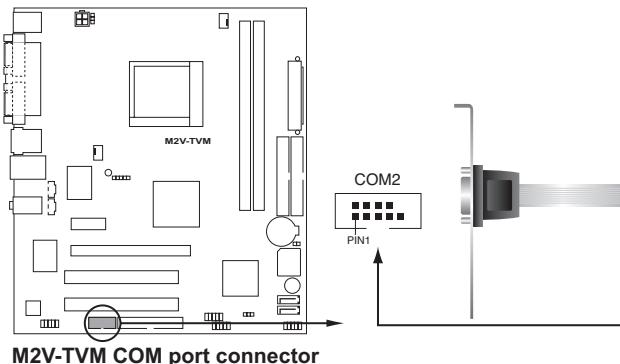
M2V-TVM Fan connectors

5. Serial port connector (10-1 pin COM2)

This connector is for serial (COM) port. Connect the serial port module cable to this connector, then install the module to a slot opening at the back of the system chassis.
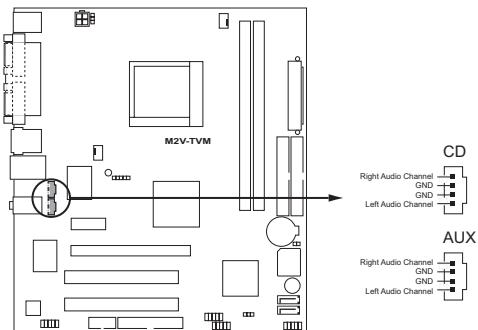
The serial port bracket (COM) is purchased separately.

M2V-TVM COM port connector

6. Optical drive audio in connectors (4-pin CD/AUX)
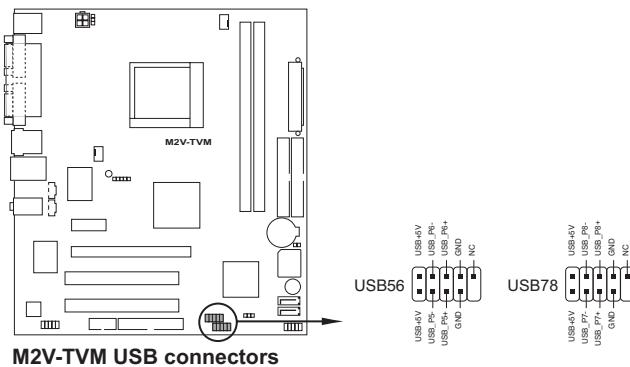
These connectors allow you to receive stereo audio input from sound sources such as a CD-ROM, TV tuner, or MPEG card.

M2V-TVM Internal audio connectors

7. USB connectors (10-1 pin USB56, USB78)

These connectors are for USB 2.0 ports. Connect the USB module cable to any of these connectors, then install the module to a slot opening at the back of the system chassis. These USB connectors comply with USB 2.0 specification that supports up to 480 Mbps connection speed.

USB56

USB78

USB+5V
USB_P6-
USB_P6+
GND
NC

USB_P5-
USB_P5+
GND
USB+5V

USB+5V
USB_P8-
USB_P8+
GND
NC

USB_P7-
USB_P7+
GND
USB+5V

M2V-TVM USB connectors
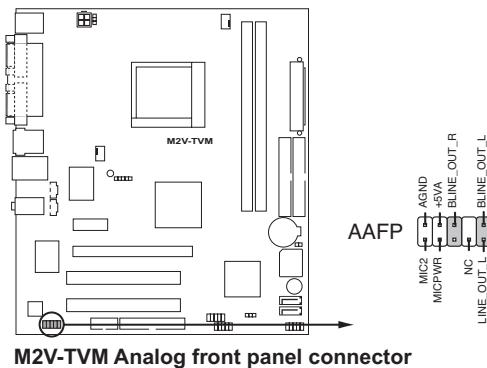
Never connect a 1394 cable to the USB connectors. Doing so will damage the motherboard!

The USB 2.0 module is purchased separately.

8. Front panel audio connector (10-1 pin AAFP)

This connector is for a chassis-mounted front panel audio I/O module that supports the AC`97 audio standard. Connect one end of the front panel audio I/O module cable to this connector.

M2V-TVM Analog front panel connector
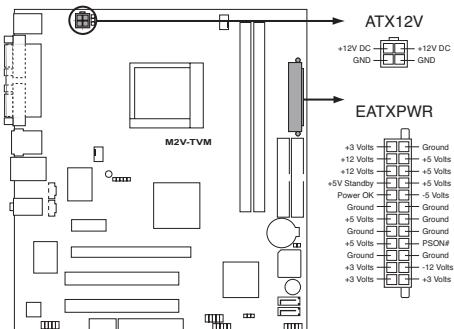
9. ATX power connectors (24-pin EATXPWR, 4-pin ATX12V)

These connectors are for an ATX 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.
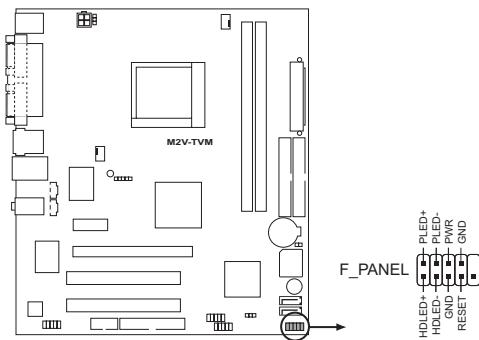
- • We recommend that you use an ATX 12 V Specification 2.0-compliant power supply unit (PSU) with a minimum of 300 W power rating. This PSU type has 24-pin and 4-pin power plugs.

- • If you intend to use a PSU with 20-pin and 4-pin power plugs, make sure that the 20-pin power plug can provide at least 15 A on +12 V and that the PSU has a minimum power rating of 300 W. The system may become unstable or may not boot up if the power is inadequate.

- • Do not forget to connect the 4-pin ATX +12 V power plug; otherwise, the system will not boot up.

- • We recommend that you use a PSU with higher power output when configuring a system with more power-consuming devices. The system may become unstable or may not boot up if the power is inadequate.

- • You must install a PSU with a higher power rating if you intend to install additional devices.

M2V-TVM ATX power connectors

10. System panel connector (2x5 10 pin F_PANEL)

This connector supports several chassis-mounted functions.

M2V-TVM System panel connector

- **System power LED**
  This 3-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

- **Hard disk drive activity LED**
  This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD.

- **System warning speaker**
  This 4-pin connector is for the chassis-mounted system warning speaker. The speaker allows you to hear system beeps and warnings.

- **Power/Soft-off button**
  This connector is for the system power button. Pressing the power button turns the system ON or puts the system in SLEEP or SOFT-OFF mode depending on the BIOS settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.

- **Reset button**
  This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

This chapter tells how to change
the system settings through the BIOS
Setup menus. Detailed descriptions
of the BIOS parameters are also
provided.

BIOS setup 2

2.1 Managing and updating your BIOS

The following utilities allow you to manage and update the motherboard
Basic Input/Output System (BIOS) setup.

1. ASUS AFUDOS - Updates the BIOS using a bootable floppy disk in DOS
   mode.
2. ASUS EZ Flash - Updates the BIOS using a floppy disk during POST.
3. ASUS Update - Updates the BIOS in a Windows® environment.

Refer to the corresponding sections for details on these utilities.

Important notes

• Save a copy of the original motherboard BIOS file to a bootable
floppy disk in case you need to restore the BIOS in the future. Copy the
original motherboard BIOS using the AFUDOS utility.

• Visit the ASUS website (www.asus.com) and download the latest
BIOS file for this motherboard using the ASUS Update utility.

2.1.1 Creating a bootable floppy disk

1. Do either one of the following to create a bootable floppy disk.

   DOS environment

   Insert a 1.44 MB floppy disk into the drive. At the DOS prompt, type:

          format A:/S   then press <Enter>.

   Windows® 2000/XP environment

   a. Insert a 1.44 MB floppy disk into the floppy disk drive.
   b. From your Windows desktop, click on Start, then select My
      Computer.
   c. Select the 3 1/2 Floppy Drive icon.
   d. Click File from the menu, then select Format. A Format 3 1/2
      Floppy Disk window appears.
   e. If you are using Windows® XP, select Create an MS-DOS startup disk
      from the format options field, then click Start.
      OR
      If you are using Windows® 2000, select Full option button from the
      format type, then click Start.

2. Copy the original (or the latest) motherboard BIOS to the bootable floppy disk.

2.1.2 Using AFUDOS to update the BIOS

To update the BIOS using the AFUDOS.EXE utility:

1. Visit the ASUS website to download the latest BIOS file for your motherboard. Save the BIOS file to a bootable floppy disk.

> Write the BIOS file name on a piece of paper. You need to type the exact BIOS file name at the prompt.

2. Copy the AFUDOS.EXE utility from the support CD to the bootable floppy disk that contains the BIOS file.
3. Boot the system from the floppy disk.
4. At the DOS prompt, type the command line:

       afudos /i[filename]

   where **[filename]** means the latest (or original) BIOS file that you copied to the bootable floppy disk.

5. Press <Enter>. The succeeding screen displays the status of the update process.

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

```
A:\>afudos /iM2VTVM.ROM
AMI Firmware Update Utility - Version 1.10
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.


    Reading file ..... done
    Erasing flash .... done
    Writing flash .... 0x0008CC00 (9%)
```

> DO NOT shut down or reset the system while updating the BIOS! Doing so can cause system boot failure!

When the BIOS update process is complete, the utility returns to the DOS prompt.

```
A:\>afudos /iM2VTVM.ROM
AMI Firmware Update Utility - Version 1.10
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.


    Reading file ..... done
    Erasing flash .... done
    Writing flash .... 0x0008CC00 (9%)
    Verifying flash .. done


A:\>
```

6. Reboot the system from the hard disk.

2.1.3 Using AFUDOS to copy BIOS from PC

You can use the AFUDOS.EXE utility to copy the current system BIOS to a floppy or hard disk and use it as a backup in case the system BIOS fails or gets corrupted.

To copy the BIOS from your PC using AFUDOS.EXE:

1. At the DOS prompt, type the command line:

    afudos /o[filename]

    where **[filename]** string of not more than eight (8) alpha-numeric characters for the main filename and three (3) alpha-numeric characters for the extension name.
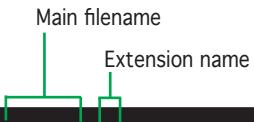
2. Press <Enter>.

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

Main filename

Extension name

```
A:\>afudos /oMYBIOS03.ROM
AMI Firmware Update Utility - Version 1.10
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.


    Reading flash ..... 0x0008CC00 (9%)
```

3. The utility will copy the current system BIOS by default to the floppy disk. Make sure that the floppy disk has at least 600KB of free disk space and is not write-protected.

```
A:\>afudos /oMYBIOS03.rom
AMI Firmware Update Utility - Version 1.10
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.

    Reading flash ..... done

A:\>
```

When the copy process is complete, the utility returns to the DOS prompt.

2.1.4 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 to the BIOS firmware so it is accessible by simply pressing <Alt + F2> during the Power-On Self Tests (POST).

To update the BIOS using ASUS EZ Flash:

1. Visit the ASUS website (www.asus.com) to download the latest BIOS file for your motherboard and rename the downloaded file as M2VTVM.ROM. Save the BIOS file to a floppy disk.
2. Reboot the system.
3. To launch EZ Flash, press <Alt+F2> during POST to display the following.

```
User recovery requested. Starting BIOS recovery...

Checking for floppy...
```

• If there is no floppy disk in the drive, the error message "Floppy not found!" appears.

• If the correct BIOS file is not in the floppy disk, the error message "Floppy not found!" is displayed. Make sure to rename the downloaded BIOS file as "M2VTVM.ROM".

4. Insert the floppy disk that contains the BIOS file. If all the necessary files are found in the floppy disk, EZ Flash performs the BIOS update process and automatically reboots the system when done.

DO NOT shut down or reset the system while updating the BIOS! Doing so can cause system boot failure!

```
User recovery requested. Starting BIOS recovery...

Checking for floppy...

Floppy found!

Reading file "M2VTVM.ROM". Completed.

Start flashing...

Flashed successfully. Rebooting.
```

2.1.5 ASUS Update

The ASUS Update is a utility that allows you to update the motherboard BIOS in Windows® environment. This utility is available in the support CD that comes with the motherboard package. ASUS Update requires an Internet connection either through a network or an Internet Service Provider (ISP).
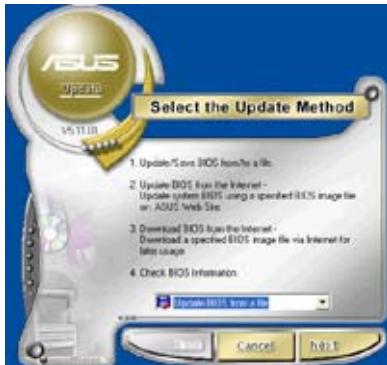
To install ASUS Update:

1. Insert the support CD into the CD-ROM drive. The Drivers menu appears.
2. Click the Utilities tab, then click Install ASUS Update VX.XX.XX. See page 5-3 for the Utilities menu screen.
3. The ASUS Update utility is copied into your system.

To update the BIOS using ASUS Update:

1. Launch the utility from the Windows desktop by clicking Start > Programs > ASUS > ASUSUpdate > ASUSUpdate. The ASUS Update initial screen appears.
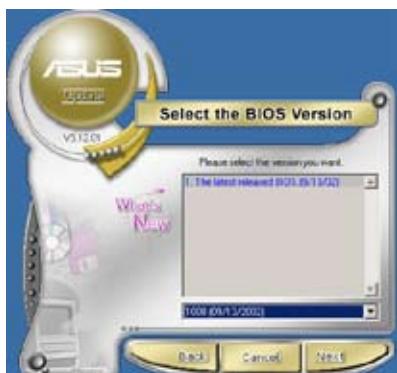
2. Select your desired update method, then click Next.
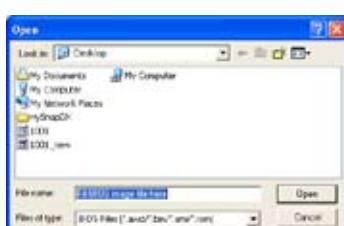
3. If you select updating/
    downloading from the Internet,
    select the ASUS FTP site
    nearest you to avoid network
    traffic, or choose Auto Select.
    Click Next.

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

5. Follow the instructions on
    the succeeding screens to
    complete the update process.

6. If you select the option to
    update the BIOS from a file, a
    window prompts you to locate
    the file. Select the file, click
    Open, then follow the screen
    instructions to complete the
    update process.

2.2   BIOS setup program

This motherboard supports a programmable Low-Pin Count (LPC) chip that you can update using the provided utility described in section "2.1 Managing and updating your BIOS."

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

Even if you are not prompted to use the Setup program, you can change the configuration of your computer in the future. For example, you can enable the security password feature or change 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 LPC chip.

The LPC chip 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 <Del> during the Power-On Self-Test (POST) to enter the Setup utility; otherwise, POST continues with its test routines.

If you wish to enter Setup after POST, reboot the system by doing any of the following procedures:

- **Restart using the OS standard shut-down procedure.**
- **Press <Ctrl>+<Alt>+<Del> simultaneously.**
- **Press the reset button on the system chassis.**
- **Press the power button to turn the system off then back on.**
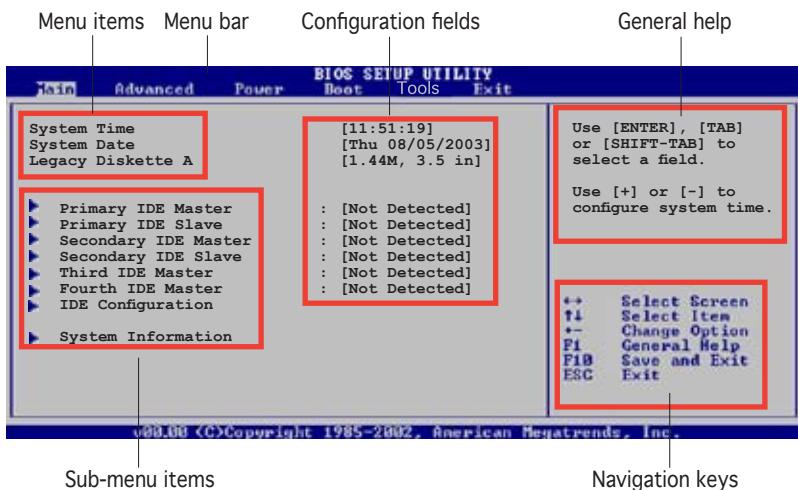
Using the power button, reset button, or the <Ctrl>+<Alt>+<Del> keys to force reset from a running operating system can cause damage to your data or system. We recommend to always shut-down the system properly from the operating system.

The Setup program is designed to make it as easy to use as possible. Being a menu-driven program, it lets you scroll through the various sub-menus and make your selections from the available options using the navigation keys.

- The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. Select the Load Default Settings item under the Exit Menu. See section "2.8 Exit Menu."

- The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.

- Visit the ASUS website (www.asus.com) to download the latest BIOS file for this motherboard.

2.2.1 BIOS menu screen

Menu items   Menu bar   Configuration fields   General help

```
                        BIOS SETUP UTILITY
  Main    Advanced    Power    Boot    Tools    Exit

  System Time                [11:51:19]          Use [ENTER], [TAB]
  System Date                [Thu 08/05/2003]    or [SHIFT-TAB] to
  Legacy Diskette A          [1.44M, 3.5 in]     select a field.

  ► Primary IDE Master       : [Not Detected]    Use [+] or [-] to
  ► Primary IDE Slave        : [Not Detected]    configure system time.
  ► Secondary IDE Master     : [Not Detected]
  ► Secondary IDE Slave      : [Not Detected]
  ► Third IDE Master         : [Not Detected]
  ► Fourth IDE Master        : [Not Detected]    ←→    Select Screen
  ► IDE Configuration                            ↑↓    Select Item
                                                 +-    Change Option
  ► System Information                           F1    General Help
                                                 F10   Save and Exit
                                                 ESC   Exit

       v00.00 (C)Copyright 1985-2002, American Megatrends, Inc.
```

Sub-menu items   Navigation keys

2.2.2 Menu bar

The menu bar on top of the screen has the following main items:

Main	For changing the basic system configuration
Advanced	For changing the advanced system settings
Power	For changing the advanced power management (APM) configuration
Boot	For changing the system boot configuration
Exit	For selecting the exit options and loading default settings

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

2.2.3 Navigation keys

At the bottom right corner of a menu screen are the navigation keys for that particular menu. Use the navigation keys to select items in the menu and change the settings.

Some of the navigation keys differ from one screen to another.

2.2.4 Menu items

The highlighted item on the menu bar displays the specific items for that menu. For example, selecting Main shows the Main menu items.

The other items (Advanced, Power, Boot, and Exit) on the menu bar have their respective menu items.

Main menu items

2.2.5 Sub-menu items

An item with a sub-menu on any menu screen is distinguished by a solid triangle before the item. To display the sub-menu, select the item and press <Enter>.

2.2.6 Configuration fields

These fields show the values for the menu items. If an item is user-configurable, you may change the value of the field opposite the item. You can not select an item that is not user-configurable.
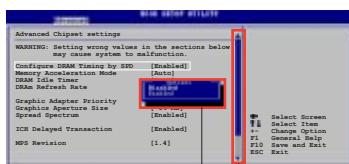
A configurable field is enclosed in brackets, and is highlighted when selected. To change the value of a field, select it then press <Enter> to display a list of options. Refer to "2.2.7 Pop-up window."

2.2.7 Pop-up window

Select a menu item then press <Enter> to display a pop-up window with the configuration options for that item.

2.2.8 Scroll bar

A scroll bar appears on the right side of a menu screen when there are items that do not fit on the screen. Press Up/ Down arrow keys or PageUp/PageDown keys to display the other items on the screen.

Pop-up window

Scroll bar

2.2.9 General help

At the top right corner of the menu screen is a brief description of the selected item.

2.3   Main menu

When you enter the BIOS Setup program, the Main menu screen appears, giving you an overview of the basic system information.

> Refer to section "2.2.1 BIOS menu screen" for information on the menu screen items and how to navigate through them.

```
                        BIOS SETUP UTILITY
   Main    Advanced    Power    Boot    Tools    Exit

System Time                [11:51:19]           Use [ENTER], [TAB]
System Date                [Thu 08/05/2003]     or [SHIFT-TAB] to
Legacy Diskette A          [1.44M, 3.5 in]      select a field.

 ▶  Primary IDE Master      : [Not Detected]    Use [+] or [-] to
 ▶  Primary IDE Slave       : [Not Detected]    configure system time.
 ▶  Secondary IDE Master    : [Not Detected]
 ▶  Secondary IDE Slave     : [Not Detected]
 ▶  Third IDE Master        : [Not Detected]
 ▶  Fourth IDE Master       : [Not Detected]
 ▶  IDE Configuration                           ←→    Select Screen
                                                ↑↓    Select Item
 ▶  System Information                          +-    Change Option
                                                F1    General Help
                                                F10   Save and Exit
                                                ESC   Exit

           v00.00 (C)Copyright 1985-2002, American Megatrends, Inc.
```

2.3.1   System Time [xx:xx:xxxx]

Allows you to set the system time.

2.3.2   System Date [Day xx/xx/xxxx]

Allows you to set the system date.

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

Sets the type of floppy drive installed.
Configuration options: [Disabled] [360K, 5.25 in.] [1.2M , 5.25 in.] [720K, 3.5 in.] [1.44M, 3.5 in.] [2.88M, 3.5 in.]

2.3.4 Primary and Secondary IDE Master/Slave

While entering Setup, BIOS auto-detects the presence of IDE devices. There is a separate sub-menu for each IDE device. Select a device item then press <Enter> to display the IDE device information.

```
                           BIOS SETUP UTILITY
 Main

   Primary IDE Master
                                                     Select the type
   Device      :Not Detected                         of device connected
                                                     to the system
   Type                       [Auto]
   LBA/Large Mode             [Auto]
   Block(Multi-sector Transfer)  [Auto]
   PIO Mode                   [Auto]
   DMA Mode                   [Auto]
   SMART Monitoring           [Auto]
   32Bit Data Transfer        [Disabled]
                                                 ↔    Select Screen
                                                 ↑↓   Select Item
                                                 +-   Change Option
                                                 F1   General Help
                                                 F10  Save and Exit
                                                 ESC  Exit

          v00.00 (C)Copyright 1985-2002, American Megatrends, Inc.
```

The values opposite the dimmed items (Device, Vendor, Size, LBA Mode, Block Mode, PIO Mode, Async DMA, Ultra DMA, and SMART monitoring) are auto-detected by BIOS and are not user-configurable. These items show N/A if no IDE device is installed in the system.

Type [Auto]

Selects the type of IDE drive. Setting to Auto allows automatic selection of the appropriate IDE device type. Select CDROM if you are specifically configuring a CD-ROM drive. Select ARMD (ATAPI Removable Media Device) if your device is either a ZIP, LS-120, or MO drive. Configuration options: [Not Installed] [Auto] [CDROM] [ARMD]

LBA/Large Mode [Auto]

Enables or disables the LBA mode. Setting to Auto enables the LBA mode if the device supports this mode, and if the device was not previously formatted with LBA mode disabled.
Configuration options: [Disabled] [Auto]

Block (Multi-sector Transfer) [Auto]

Enables or disables data multi-sectors transfers. When set to Auto, the data transfer from and to the device occurs multiple sectors at a time if the device supports multi-sector transfer feature. When set to Disabled, the data transfer from and to the device occurs one sector at a time. Configuration options: [Disabled] [Auto]

PIO Mode [Auto]

Selects the PIO mode. Configuration options: [Auto] [0] [1] [2] [3] [4]

DMA Mode [Auto]

Selects the DMA mode. Configuration options: [Auto] [SWDMA0] [SWDMA1] [SWDMA2] [MWDMA0] [MWDMA1] [MWDMA2] [UDMA0] [UDMA1] [UDMA2] [UDMA3] [UDMA4] [UDMA5]

SMART Monitoring [Auto]

Sets the Smart Monitoring, Analysis, and Reporting Technology. Configuration options: [Auto] [Disabled] [Enabled]
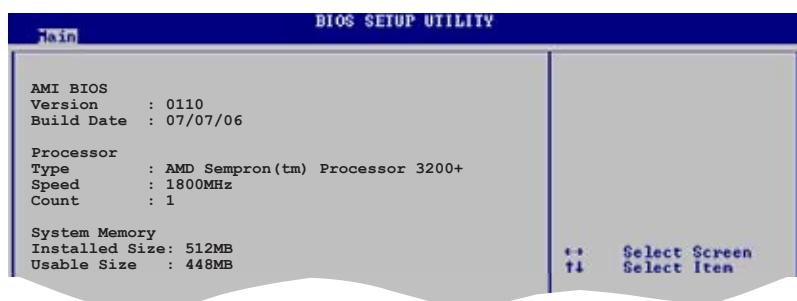
32Bit Data Transfer [Disabled]

Enables or disables 32-bit data transfer. Configuration options: [Disabled] [Enabled]

2.3.5 System Information

This menu gives you an overview of the general system specifications. The items in this menu are auto-detected by BIOS.

```
                        BIOS SETUP UTILITY
 Main

  AMI BIOS
  Version     : 0110
  Build Date  : 07/07/06

  Processor
  Type        : AMD Sempron(tm) Processor 3200+
  Speed       : 1800MHz
  Count       : 1

  System Memory
  Installed Size: 512MB                      ←→   Select Screen
  Usable Size   : 448MB                      ↑↓   Select Item
```

AMI BIOS

Displays the auto-detected BIOS information.

Processor

Displays the auto-detected processor information.

System Memory
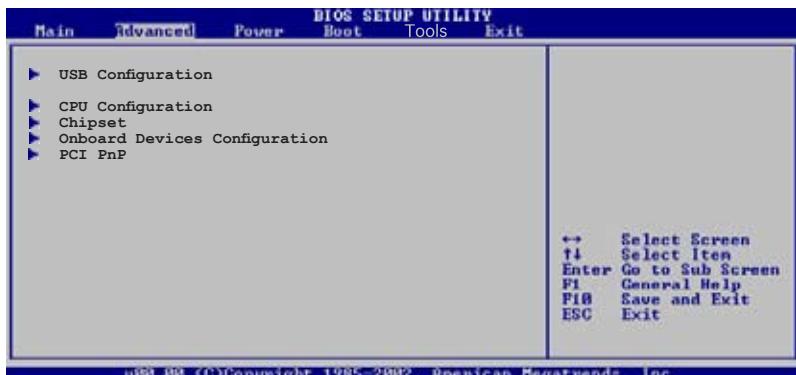
Displays the auto-detected system memory.

2.4   Advanced menu

The Advanced menu items allow you to change the settings for the CPU and other system devices.
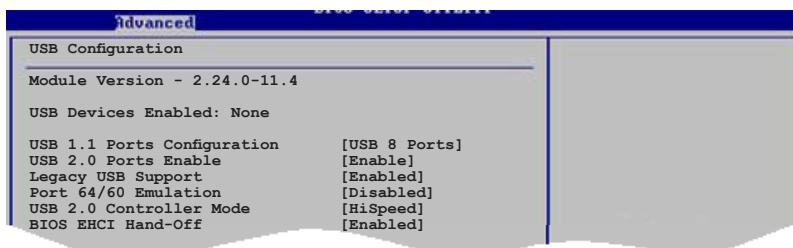
> ⚠️ Take caution when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction.

2.4.1   USB Configuration

The items in this menu allows you to change the USB-related features. Select an item then press <Enter> to display the configuration options.

> 📝 The Module Version and USB Devices Enabled items show the auto-detected values. If no USB device is detected, the item shows None.

USB Ports Configuration [USB 8 Ports]

Allows you to configure the USB ports.
Configuration options: [Disabled] [USB 2 Ports] [USB 4 Ports] [USB 6 Ports] [USB 8 Ports]

USB 2.0 Ports Enable [Enable]

Allows you to enable or disable the USB 2.0 ports.
Configuration options: [Disabled] [Enable]

Legacy USB Support [Enabled]

Allows you to enable or disable support for USB devices on legacy operating systems (OS). Setting to Auto allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled. Configuration options: [Disabled] [Enabled] [Auto]

Port 64/60 Emulation [Enabled]

Allows you to enable or disable the Port 64/60 Emulation.Configuration options: [Disabled] [Enabled].

USB 2.0 Controller Mode [HiSpeed]
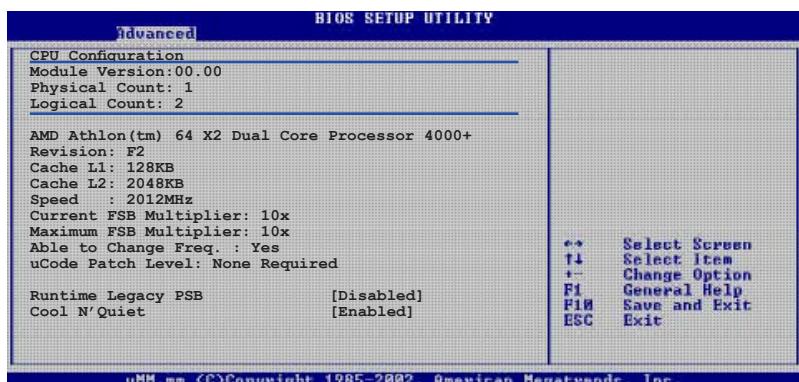
Allows you to configure the USB 2.0 controller in HiSpeed (480 Mbps) or Full Speed (12 Mbps). Configuration options: [HiSpeed] [Full Speed]

BIOS EHCI Hand-Off [Enabled]

Allows you to enable or disable the BIOS EHCI hand-off support. Configuration options: [Disabled] [Enabled]

2.4.2   CPU Configuration

The items in this menu show the CPU-related information that the BIOS automatically detects.

```
                    BIOS SETUP UTILITY
    Advanced
CPU Configuration
Module Version:00.00
Physical Count: 1
Logical Count: 2

AMD Athlon(tm) 64 X2 Dual Core Processor 4000+
Revision: F2
Cache L1: 128KB
Cache L2: 2048KB
Speed   : 2012MHz
Current FSB Multiplier: 10x
Maximum FSB Multiplier: 10x
Able to Change Freq. : Yes
uCode Patch Level: None Required

Runtime Legacy PSB            [Disabled]
Cool N'Quiet                  [Enabled]
                                          ↔    Select Screen
                                          ↑↓   Select Item
                                          +-   Change Option
                                          F1   General Help
                                          F10  Save and Exit
                                          ESC  Exit

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```

Runtime Legacy PSB [Disabled]

Allows you to enable or disable the Runtime Legacy PSB (performance state blocks) feature necessary for implementing the AMD PowerNow! technology. Configuration options: [Disabled] [Enabled]

Cool N'Quiet [Enabled]
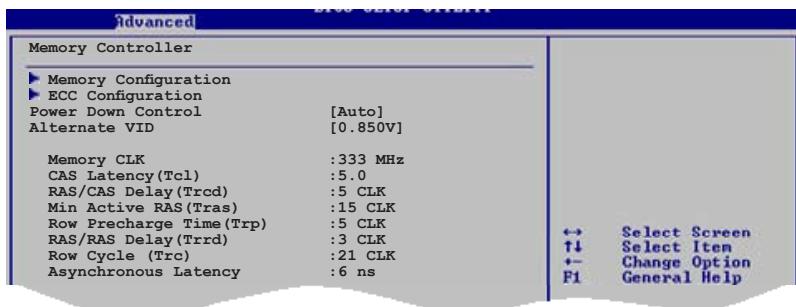
Enables or disables the AMD Cool 'n' Quiet! technology feature.
Configuration options: [Disabled] [Enabled]

2.4.3 Chipset
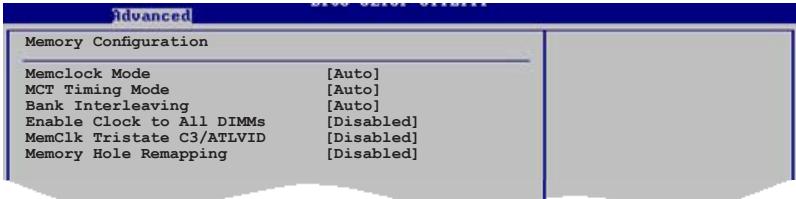
The items in this menu allows you to change the chipset-related features. Select an item then press <Enter> to display the configuration options.

```
          Advanced
 Advanced Chipset Settings

 Warning: Setting wrong values in below sections
          may cause system to malfunction.

   ▶  NorthBridge Configuration
   ▶  AGP Bridge K8M890 AGP/PCI EXPRESS Configuration
   ▶  Hyper Transport Configuration
```

NorthBridge Configuration

```
          Advanced
 Memory Controller

 ▶ Memory Configuration
 ▶ ECC Configuration
 Power Down Control              [Auto]
 Alternate VID                   [0.850V]

   Memory CLK                  :333 MHz
   CAS Latency(Tcl)            :5.0
   RAS/CAS Delay(Trcd)         :5 CLK
   Min Active RAS(Tras)        :15 CLK          ↔   Select Screen
   Row Precharge Time(Trp)     :5 CLK           ↑↓  Select Item
   RAS/RAS Delay(Trrd)         :3 CLK           +-  Change Option
   Row Cycle  (Trc)            :21 CLK          F1  General Help
   Asynchronous Latency        :6 ns
```

Memory Configuration

```
          Advanced
 Memory Configuration

 Memclock Mode               [Auto]
 MCT Timing Mode             [Auto]
 Bank Interleaving           [Auto]
 Enable Clock to All DIMMs   [Disabled]
 MemClk Tristate C3/ATLVID   [Disabled]
 Memory Hole Remapping       [Disabled]
```

Memclock Mode [Auto]

Allows you to set the memory clock mode.Set by the code using [Auto] or select [Manual] to set using one of the standard values.
Configuration options: [Auto] [Manual] [Limit]

MCT Timing Mode [Auto]

Appears only when the Parallel Port Mode is set to [ECP]. This item allows you to set the Parallel Port ECP DMA.
Configuration options: [DMA0] [DMA1] [DMA3]

Bank Interleacving [Auto]

Sets whether to allow memory accesses to be spread out over BANKS on the same node or across nodes, decreasing access contention. Configuration options: [Disabled] [Enabled]

Enable Clock to All DIMMs [Disabled]

Allows you to enable or disable clock to all DIMMs.
Configuration options: [Disabled] [Enabled]
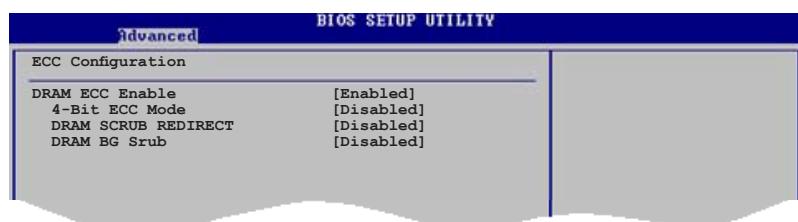
MemClk Tristate C3/ATLVID [Disabled]

Allows you to enable or disable the MemCLK Tri-Stating During C3 and Alt VID. Configuration options: [Disabled] [Enabled]

Memory Hole Remapping [Disabled]

Allows you to enable or disable Memory Remapping around the memory hole. Configuration options: [Disabled] [Enabled]

ECC Configuration

```
                    BIOS SETUP UTILITY
 Advanced

  ECC Configuration

 DRAM ECC Enable              [Enabled]
   4-Bit ECC Mode             [Disabled]
   DRAM SCRUB REDIRECT        [Disabled]
   DRAM BG Srub               [Disabled]
```

DRAM ECC Enable [Disabled]

Enables or disables the DRAM ECC that allows hardware to report and correct memory errors automatically to maintain system integrity. Configuration options: [Disabled] [Enabled]

> The following item appears only when the **DRAM ECC** item is set to [Enabled].

4-Bit ECC Mode [Disabled]

Enables or disables the 4-Bit ECC mode.
Configuration options: [Disabled] [Enabled]

DRAM SCRUB REDIRECT [Disabled]

Sets the system to correct DRAM ECC Errors immediately when they occur, even if background scrubbing is on. Configuration options: [Disabled] [Enabled]

DRAM BG Scrub [Disabled]

Disables or sets the DRAM scrubbing functionality that corrects and rewrites memory errors so later reads are correct. During this while the memory is not being used improves performance. Configuration options: [Disabled] [40ns] [80ns] [160ns] [320ns] [640ns] [1.28us] [2.56us] [5.12us] [10.2us] [20.5us] [41.0us] [81.9us] [163.8us] [327.7us] [655.4us]

Power Down Control [Auto]
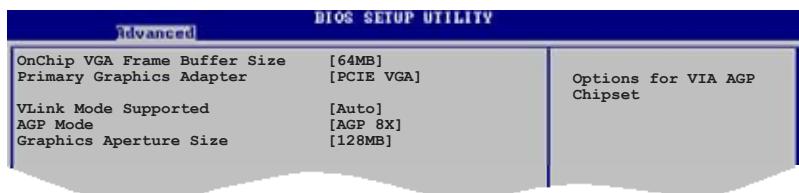
Allows DIMMs to enter power down mode by deasserting the clock enable signal when DIMMs are not in use. Configuration options: [Auto] [Disabled]

Alternate VID [0.850V]

Specifies the alternate VID while in low power states.
Configuration options: [1.050V] [1.025V] [1.000V] [0.975V] [0.950V] [0.925V] [0.900V] [0.875V] [0.850V] [0.825V] [0.800V]

AGP Bridge K8M890 AGP/PCI EXPRESS Configuration

```
                         BIOS SETUP UTILITY
     Advanced

OnChip VGA Frame Buffer Size    [64MB]
Primary Graphics Adapter        [PCIE VGA]            Options for VIA AGP
                                                      Chipset
VLink Mode Supported            [Auto]
AGP Mode                        [AGP 8X]
Graphics Aperture Size          [128MB]
```

OnChip VGA Frame Buffer Size [64MB]

Sets the onchip VGA frame buffer size.
Configuration options: [64MB] [128MB] [256MB]

Primary Graphics Adapter [PCIE VGA]

Switches the PCI Bus scanning order while searching for a video card. This
allows you to select the type of Primary VGA in case of multiple video
controllers. Configuration options: [PCI] [PCIE VGA] [Integrated VGA]

VLink Mode Supported [Auto]

Sets the VLink 8X support. Configuration options: [Auto] [Mode 0]
[Mode 1] [Mode 2] [Mode 3] [Mode 4]

AGP Mode [8X]
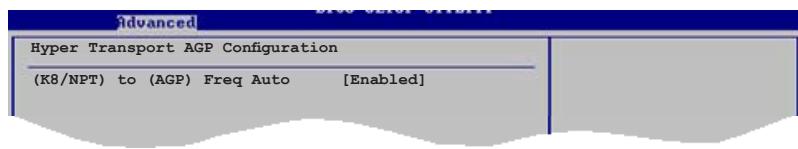
Allows you to change the AGP mode for the onboard VGA.
Configuration options: [AGP 8X] [AGP 4X]

Graphics Aperture Size [128MB]

Allows you to select the size of mapped memory for onboard VGA graphic
data. Configuration options: [32MB] [64MB] [128MB] [256MB]

Hyper Transport AGP Configuration

```
Advanced

Hyper Transport AGP Configuration

(K8/NPT) to (AGP) Freq Auto    [Enabled]
```
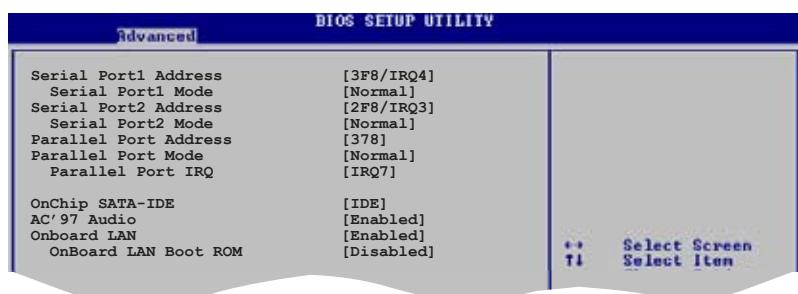
Hyper Transport AGP Configuration [Enabled]

Allows you to enable or disable the K8/NPT to AGP frequency selection by CPU capability. Configuration options: [Enabled] [Disabled]

2.4.4   Onboard Devices Configuration

```
                        BIOS SETUP UTILITY
     Advanced

Serial Port1 Address           [3F8/IRQ4]
  Serial Port1 Mode            [Normal]
Serial Port2 Address           [2F8/IRQ3]
  Serial Port2 Mode            [Normal]
Parallel Port Address          [378]
Parallel Port Mode             [Normal]
  Parallel Port IRQ            [IRQ7]

OnChip SATA-IDE                [IDE]
AC'97 Audio                    [Enabled]
Onboard LAN                    [Enabled]
  OnBoard LAN Boot ROM         [Disabled]       ++    Select Screen
                                                ↑↓    Select Item
```

Serial Port1 Address [3F8/IRQ4]

Allows you to select the Serial Port1 base address.
Configuration options: [Disabled] [3F8/IRQ4] [3E8/IRQ4] [2E8/IRQ3]

Serial Port1 Mode [Normal]

Allows you to select the Serial Port1 mode.
Configuration options: [Normal] [IrDA] [ASK IR]

Serial Port2 Address [2F8/IRQ3]

Allows you to select the Serial Port1 base address.
Configuration options: [Disabled] [2F8/IRQ3] [3E8/IRQ4] [2E8/IRQ3]

Serial Port2 Mode [Normal]

Allows you to select the Serial Port2 mode.
Configuration options: [Normal] [IrDA] [ASK IR]

Parallel Port Address [378]

Allows you to select the Parallel Port base addresses.
Configuration options: [Disabled] [378] [278] [3BC]

Parallel Port Mode [Normal]

Allows you to select the Parallel Port mode.
Configuration options: [Normal] [EPP] [ECP] [EPP+ECP]

> _ECP Mode DMA Channel [DMA3]_
>
> Allows you to select the Parallel Port ECP DMA.
> Configuration options: [DMA0] [DMA1] [DMA3]

Parallel Port IRQ [IRQ7]

Allows you to select the Parallel Port IRQ.
Configuration options: [IRQ5] [IRQ7]

OnChip SATA-IDE [IDE]

Allows you to disable or set the onchip SATA-IDE.
Configuration options: [Disabled] [IDE] [RAID]

AC'97 Audio [Enabled]

Enables or disables the AC'97 audio controller.
Configuration options: [Enabled] [Disabled]

Onboard LAN [Enabled]

Enables or disables the onboard LAN controller.
Configuration options: [Enabled] [Disabled]

Onboard LAN Boot ROM [Disabled]
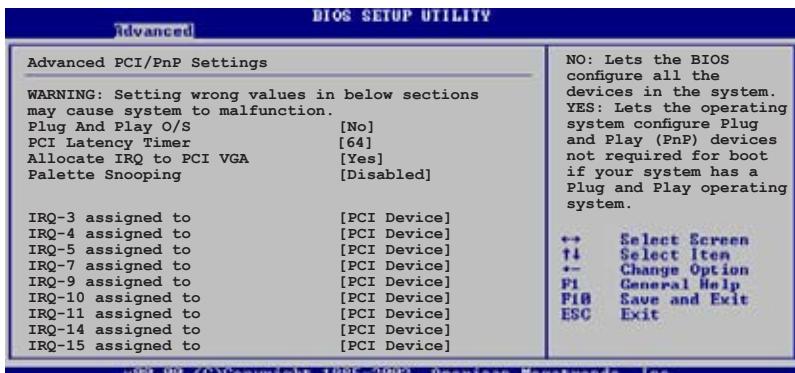
Enables or disables the onboard LAN Boot ROM.
Configuration options: [Enabled] [Disabled]

2.4.5 PCI PnP

The PCI PnP menu items allow you to change the advanced settings for PCI/PnP devices. The menu includes setting IRQ and DMA channel resources for either PCI/PnP or legacy ISA devices, and setting the memory size block for legacy ISA devices.

> Take caution when changing the settings of the PCI PnP menu items. Incorrect field values can cause the system to malfunction.

```
                       BIOS SETUP UTILITY
  Advanced

  Advanced PCI/PnP Settings                              NO: Lets the BIOS
                                                         configure all the
  WARNING: Setting wrong values in below sections        devices in the system.
  may cause system to malfunction.                       YES: Lets the operating
  Plug And Play O/S              [No]                     system configure Plug
  PCI Latency Timer             [64]                      and Play (PnP) devices
  Allocate IRQ to PCI VGA       [Yes]                     not required for boot
  Palette Snooping              [Disabled]                if your system has a
                                                          Plug and Play operating
                                                          system.
  IRQ-3 assigned to             [PCI Device]
  IRQ-4 assigned to             [PCI Device]
  IRQ-5 assigned to             [PCI Device]              ←→    Select Screen
  IRQ-7 assigned to             [PCI Device]              ↑↓    Select Item
  IRQ-9 assigned to             [PCI Device]              +-    Change Option
  IRQ-10 assigned to            [PCI Device]              F1    General Help
  IRQ-11 assigned to            [PCI Device]              F10   Save and Exit
  IRQ-14 assigned to            [PCI Device]              ESC   Exit
  IRQ-15 assigned to            [PCI Device]

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```

Plug and Play O/S [No]

When set to [No], BIOS configures all the devices in the system. When set to [Yes] and if you installed a Plug & Play operating system, the operating system configures the Plug & Play devices not required for boot. Configuration options: [No] [Yes]

PCI Latency Timer [64]

Allows you to select the value in units of PCI clocks for the PCI device latency timer register. Configuration options: [32] [64] [96] [128] [160] [192] [224] [248]

Allocate IRQ to PCI VGA [Yes]

When set to [Yes], BIOS assigns an IRQ to PCI VGA card if the card requests for an IRQ. When set to [No], BIOS does not assign an IRQ to the PCI VGA card even if requested. Configuration options: [Yes] [No]

Palette Snooping [Disabled]

When set to [Enabled], the pallete snooping feature informs the PCI devices that an ISA graphics device is installed in the system so that the latter can function correctly. Setting to [Disabled] deactivates this feature. Configuration options: [Disabled] [Enabled]

IRQ xx [Available]

When set to [Available], the specific IRQ is free for PCI/PnP devices to use. When set to [Reserved], the IRQ is reserved for legacy ISA devices. Configuration options: [Available] [Reserved]

2.5   Power menu

The Power menu items allow you to change the settings for the Advanced Power Management (APM) feature. Select an item then press <Enter> to display the configuration options.

```
                        BIOS SETUP UTILITY
  Main    Advanced   Power    Boot   Tools    Exit

                                              Select the ACPI state
  Suspend Mode              [Auto]            used for System
  ACPI APIC Support         [Enabled]         Suspend.

  ▶  APM Configuration
  ▶  Hardware Monitor

                                              ←→    Select Screen
                                              ↑↓    Select Item
                                              Enter Go to Sub Screen
                                              F1    General Help
                                              F10   Save and Exit
                                              ESC   Exit

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```
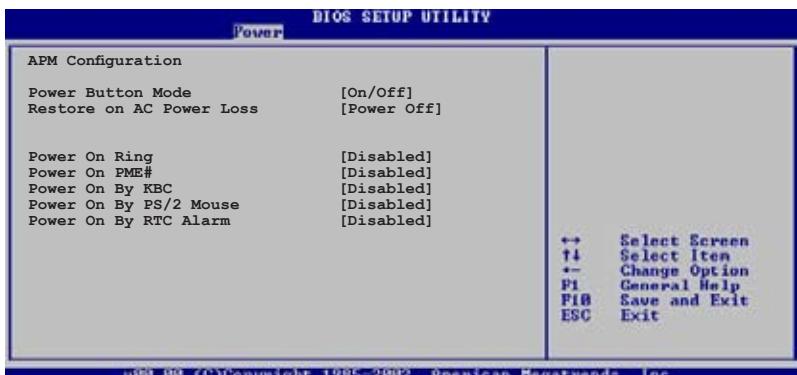
2.5.1   Suspend Mode [Auto]

Allows you to select the ACPI state to be used for system suspend. Configuration options: [S1 (POS) Only] [S3 Only] [Auto]

2.5.2   ACPI APIC Support [Enabled]

Enables or disables the ACPI support in the ASIC. When set to Enabled, the ACPI APIC table pointer is included in the RSDT pointer list. Configuration options: [Disabled] [Enabled]

2.5.3 APM Configuration

```
                        BIOS SETUP UTILITY
                    Power

  APM Configuration

  Power Button Mode              [On/Off]
  Restore on AC Power Loss       [Power Off]

  Power On Ring                  [Disabled]
  Power On PME#                  [Disabled]
  Power On By KBC                [Disabled]
  Power On By PS/2 Mouse         [Disabled]
  Power On By RTC Alarm          [Disabled]
                                                 ↔    Select Screen
                                                 ↑↓   Select Item
                                                 +-   Change Option
                                                 F1   General Help
                                                 F10  Save and Exit
                                                 ESC  Exit

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```

Power Button Mode [On/Off]

Allows the system to go into On/Off mode or suspend mode when the
power button is pressed. Configuration options: [On/Off] [Suspend]

Restore on AC Power Loss [Power Off]

When set to Power Off, the system goes into off state after an AC power
loss. When set to Power On, the system goes on after an AC power
loss. When set to Last State, the system goes into either off or on
state whatever the system state before the AC power loss.
Configuration options: [Power Off] [Power On] [Last State]

Power On Ring [Disabled]

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]

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

Power On PME# [Disabled]

Allows you to enable or disable the PME#-wake up feature.
Configuration options: [Disabled] [Enabled]

Power On By KBC [Disabled]

Allows you to enable or disable the keyboard wake-up feature. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled]

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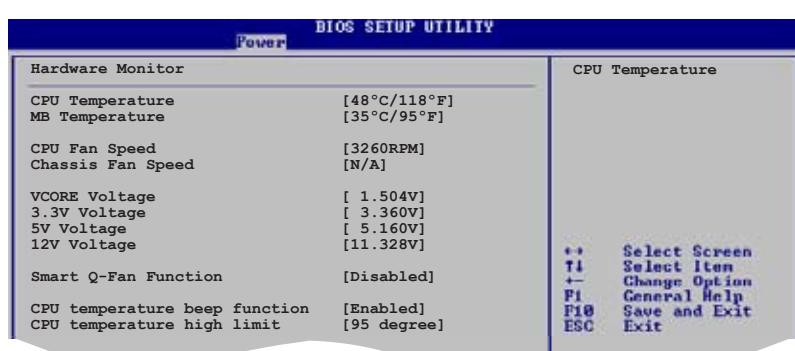
When set to [Enabled], this parameter allows you to use the PS/2 mouse to resume the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead.
Configuration options: [Disabled] [Enabled]

Power On By RTC Alarm [Disabled]

Allows you to enable or disable RTC to generate a wake event. When this item is set to Enabled, the items RTC Alarm Date, RTC Alarm Hour, RTC Alarm Minute, and RTC Alarm Second appear with set values. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled]

2.5.4   Hardware Monitor

```
                        BIOS SETUP UTILITY
                Power
 Hardware Monitor                              CPU Temperature

 CPU Temperature              [48°C/118°F]
 MB Temperature               [35°C/95°F]

 CPU Fan Speed                [3260RPM]
 Chassis Fan Speed            [N/A]

 VCORE Voltage                [ 1.504V]
 3.3V Voltage                 [ 3.360V]
 5V Voltage                   [ 5.160V]
 12V Voltage                  [11.328V]         ←→   Select Screen
                                                ↑↓   Select Item
 Smart Q-Fan Function         [Disabled]        +-   Change Option
                                                F1   General Help
 CPU temperature beep function    [Enabled]     F10  Save and Exit
 CPU temperature high limit       [95 degree]   ESC  Exit
```

CPU Temperature [xxx ºC/xxx ºF]
MB Temperature [xxx ºC/xxx ºF]

The onboard hardware monitor automatically detects and displays the CPU, motherboard and power temperatures. Select Disabled if you do not wish to display the detected 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 and chassis fan speeds in rotations per minute (RPM). If any of the fans is not connected to the motherboard, the specific 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.

Smart Q-Fan function [Disabled]

Allows you to enable or disable the smart Q-fan control function. When this field is set to [Enabled], the item Fan Auto Mode Start Speed, Fan Auto Mode Start Speed Temp, and Fan Auto Mode Full Speed Temp items appear.   Configuration options: [Disabled] [Enabled]

Fan Auto Mode Start Speed [40%]

Sets the fan auto mode start speed. Configuration options: [20%] [40%] [60%] [80%]

Fan Auto Mode Start Speed Temp [25ºC]

Sets the fan auto mode start speed temperature.
Configuration options: [25ºC] [26ºC] - [50ºC]

Fan Auto Mode Full Speed Temp [55ºC]

Sets the fan auto mode full speed temperature.
Configuration options: [55ºC] [56ºC] - [75ºC]

CPU temperature beep function [Enabled]

Enables or disables the CPU temperature beep function.
Configuration options: [Enabled] [Disabled]
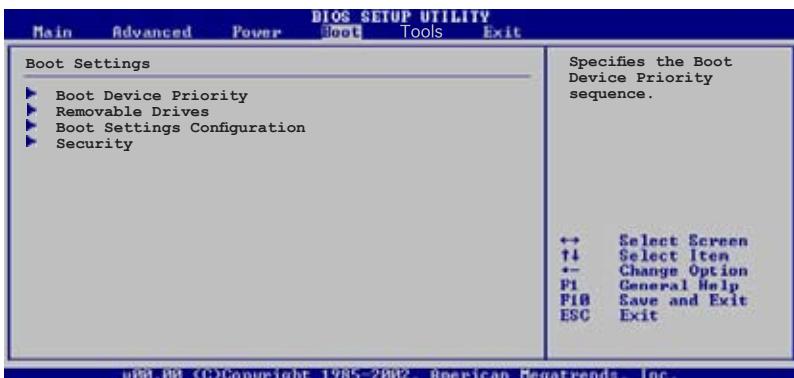
CPU temperature high limit [95 degree]

Disables or sets the CPU temperature high limit.
Configuration options: [Disabled] [95 Degree] [85 Degree] [75 Degree] [65 Degree]
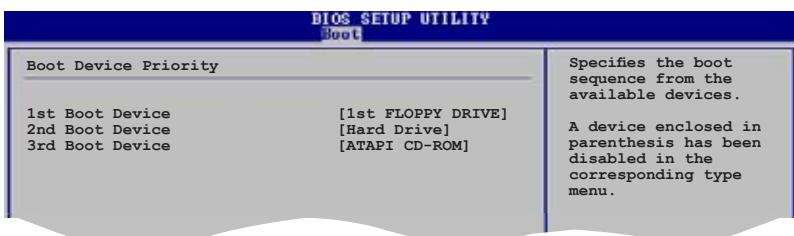
2.6 Boot menu

The Boot menu items allow you to change the system boot options. Select an item then press <Enter> to display the sub-menu.

```
                        BIOS SETUP UTILITY
  Main    Advanced    Power    Boot    Tools    Exit

  Boot Settings                              Specifies the Boot
  _____               Device Priority
  ▶ Boot Device Priority                     sequence.
  ▶ Removable Drives
  ▶ Boot Settings Configuration
  ▶ Security

                                             ←→    Select Screen
                                             ↑↓    Select Item
                                             +-    Change Option
                                             F1    General Help
                                             F10   Save and Exit
                                             ESC   Exit

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```

2.6.1   Boot Device Priority

```
                        BIOS SETUP UTILITY
                             Boot

  Boot Device Priority                       Specifies the boot
  _____                sequence from the
                                             available devices.
  1st Boot Device          [1st FLOPPY DRIVE]
  2nd Boot Device          [Hard Drive]      A device enclosed in
  3rd Boot Device          [ATAPI CD-ROM]    parenthesis has been
                                             disabled in the
                                             corresponding type
                                             menu.
```

1st ~ xxth Boot Device [1st Floppy Drive]

These items specify the boot device priority sequence from the available devices. The number of device items that appear on the screen depends on the the number of devices installed in the system.
Configuration options: [xxxxx Drive] [Disabled]

2.6.2 Boot Settings Configuration

```
                    BIOS SETUP UTILITY
                        Boot

Boot Settings Configuration                    Allows BIOS to skip
                                               certain tests while
Quick Boot                  [Enabled]          booting. This will
Full Screen Logo            [Enabled]          decrease the time
AddOn ROM Display Mode      [Force BIOS]       needed to boot the
Bootup Num-Lock             [On]               system.
PS/2 Mouse Support          [Auto]
Wait for 'F1' If Error      [Enabled]
Hit 'DEL' Message Display   [Enabled]
Interrupt 19 Capture        [Disabled]
```

Quick Boot [Enabled]

Enabling this item allows the BIOS to skip some Power On Self Tests (POST) while booting to decrease the time needed to boot the system. When set to [Disabled], BIOS performs all the POST items.   Configuration options: [Disabled] [Enabled]

Full Screen Logo [Enabled]

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

> Make sure that the above item is set to [Enabled] if you want to use the ASUS MyLogo2™ feature.

Add On ROM Display Mode [Force BIOS]

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

Bootup Num-Lock [On]

Allows you to select the power-on state for the NumLock. Configuration options: [Off] [On]

PS/2 Mouse Support [Auto]

Allows you to enable or disable support for PS/2 mouse. Configuration options: [Disabled] [Enabled] [Auto]

Wait for 'F1' If Error [Enabled]

When set to Enabled, the system waits for F1 key to be pressed when error occurs. Configuration options: [Disabled] [Enabled]

Hit 'DEL' Message Display [Enabled]
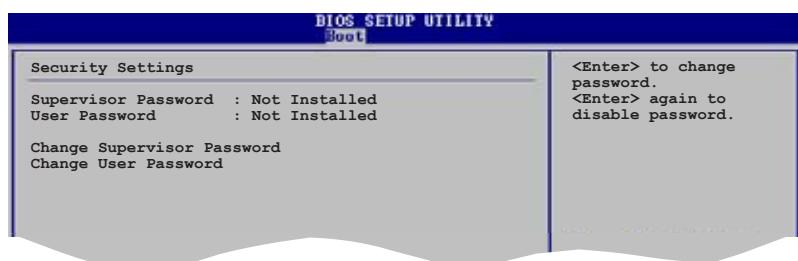
When set to Enabled, the system displays the message "Press DEL to run Setup" during POST. Configuration options: [Disabled] [Enabled]

Interrupt 19 Capture [Disabled]

When set to [Enabled], this function allows the option ROMs to trap Interrupt 19. Configuration options: [Disabled] [Enabled]

2.6.3   Security

The Security menu items allow you to change the system security settings. Select an item then press <Enter> to display the configuration options.

```
                         BIOS SETUP UTILITY
                              Boot

    Security Settings                      <Enter> to change
                                           password.
    Supervisor Password   : Not Installed  <Enter> again to
    User Password         : Not Installed  disable password.

    Change Supervisor Password
    Change User Password
```

Change Supervisor Password

Select this item to set or change the supervisor password. The Supervisor Password item on top of the screen shows the default Not Installed. After you have set a password, this item shows Installed.

To set a Supervisor Password:

1. Select the Change Supervisor Password item and press <Enter>.
2. From the password box, type a password combination of at least six (6) letters and/or numbers, then press <Enter>.
3. Confirm the password when prompted.
    The message "Password Installed" appears after you have successfully set your password.
    The Supervisor Password item now shows Installed.

To change the supervisor password, follow the same steps as in setting a user password.

To clear the supervisor password, select the Change Supervisor Password then press <Enter>. The message "Password Uninstalled" appears.

If you forget your BIOS password, you can clear clear it by erasing the CMOS Real Time Clock (RTC) RAM. See section "2.6 Jumpers" for information on how to erase the RTC RAM.

After you have set a supervisor password, the other items appear to allow you to change other security settings.

```
                        BIOS SETUP UTILITY
                           Boot

  Security Settings                          <Enter> to change
                                             password.
  Supervisor Password  : Installed User Password   <Enter> again to
  : Not Installed                            disabled password.
  Change Supervisor Password
  User Access Level              [Full Access]
  Change User Password
  Clear User Password
  Password Check                 [Setup]


                                             ←→    Select Screen
                                             ↑↓    Select Item
                                             +-    Change Option
```

User Access Level (Full Access)

Allows you to select the access restriction to the Setup items.
Configuration options: [No Access] [View Only] [Limited] [Full Access]

No Access prevents user access to the Setup utility.

View Only allows access but does not allow change to any field.

Limited allows change only to selected fields, such as Date and Time.

Full Access allows viewing and changing all the fields in the Setup utility.

Change User Password

Select this item to set or change the user password. The User Password item on top of the screen shows the default Not Installed. After you have set a password, this item shows Installed.

To set a User Password:

1. Select the Change User Password item and press <Enter>.
2. On the password box that appears, type a password combination of at least six (6) letters and/or numbers, then press <Enter>.
3. Confirm the password when prompted.
    The message "Password Installed" appears after you have successfully set your password.
    The User Password item now shows Installed.

After you have set a supervisor password, the other items appear to allow you to change other security settings.

```
                            BIOS SETUP UTILITY
                            Boot

    Security Settings

    Supervisor Password    : Not Installed
    User Password          : Not Installed

    Change Supervisor Password
    User Access Level              [Full Access]
    Change User Password
    Clear User Password
    Password Check                 [Setup]
```

User Access Level [Full Access]

This item allows you to select the access restriction to the Setup items. Configuration options: [No Access] [View Only] [Limited] [Full Access]

No Access prevents user access to the Setup utility.

View Only allows access but does not allow change to any field.

Limited allows changes only to selected fields, such as Date and Time.

Full Access allows viewing and changing all the fields in the Setup utility.

Change User Password

Select this item to set or change the user password. The User Password item on top of the screen shows the default Not Installed. After you set a password, this item shows Installed.

To set a User Password:

1.   Select the Change User Password item and press <Enter>.
2.   On the password box that appears, type a password composed of at least six letters and/or numbers, then press <Enter>.
3.   Confirm the password when prompted.

The message "Password Installed" appears after you set your password successfully.

To change the user password, follow the same steps as in setting a user password.

## Clear User Password

Select this item to clear the user password.

Password Check [Setup]

When set to [Setup], BIOS checks for user password when accessing the Setup utility. When set to [Always], BIOS checks for user password both when accessing Setup and booting the system.
Configuration options: [Setup] [Always]

2.7   Exit menu

The Exit menu items allow you to load the optimal or failsafe default values for the BIOS items, and save or discard your changes to the BIOS items.

```
                           BIOS SETUP UTILITY
  Main    Advanced    Power    Boot    Tools    Exit

  Exit Options                                Exit system setup
                                              after saving the
  Exit & Save Changes                         changes.
  Exit & Discard Changes
  Discard Changes                             F10 key can be used
                                              for this operation.
  Load Setup Defaults




                                              ←→    Select Screen
                                              ↑↓    Select Item
                                              +-    Change Option
                                              F1    General Help
                                              F10   Save and Exit
                                              ESC   Exit

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```

> 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 that the values you selected are saved to the CMOS RAM. An onboard backup battery sustains the CMOS RAM 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. Press <Enter> to save the changes while exiting.

Exit & Discard 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

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.

This chapter describes the contents
of the support CD that comes with
the motherboard package.

Software
3
support

3.1 Installing an operating system

This motherboard supports Windows® 2000/XP operating systems (OS). Always install the latest OS version and corresponding updates to maximize the features of your hardware.

- • Motherboard settings and hardware options vary. Use the setup procedures presented in this chapter for reference only. Refer to your OS documentation for detailed information.

- • Make sure that you install Windows® 2000 Service Pack 4 or the Windows® XP Service Pack 1 or later versions before installing the drivers for better compatibility and system stability.

3.2 Support CD information
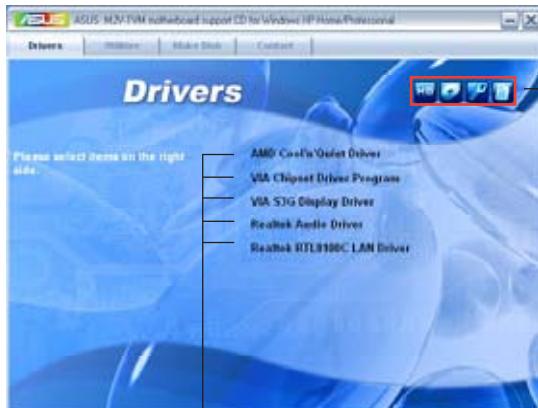
The support CD that came with the motherboard package contains the drivers, software applications, and utilities that you can install to avail all motherboard features.

The contents of the support CD are subject to change at any time without notice. Visit the ASUS website(www.asus.com) for updates.

3.2.1 Running the support CD

Place the support CD to the optical drive. The CD automatically displays the Drivers menu if Autorun is enabled in your computer.

Click an icon to display support CD/motherboard information

Click an item to install

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

The drivers menu shows the available device drivers if the system detects installed devices. Install the necessary drivers to activate the devices.

AMD Cool 'n' Quiet Driver

Installs the AMD Cool 'n' Quiet driver.

VIA Chipset Driver Program

Installs the VIA chipset driver program.

VIA S3G Display Driver

Installs the VIA S3G display driver.

Realtek Audio Driver

Installs the Realtek® audio driver.

Realtek RTL8100C LAN Driver

Installs the Realtek® RTL8100C LAN driver.

The screen display and drivers option may not be the same for different operating system versions.

3.2.3 Utilities menu

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

ASUS Cool 'n' Quiet Utility

Installs the ASUS Cool 'n' Quiet utility.

ASUS Update

The ASUS Update utility allows you to update the motherboard BIOS in a Windows® environment. This utility requires an Internet connection either through a network or an Internet Service Provider (ISP).

ADOBE Acrobat Reader V7.0

The Adobe® Acrobat® Reader V7.0 is for opening, viewing, and printing documents in Portable Document Format (PDF).

Microsoft DirectX 9.0c

The Microsoft® DirectX® 9.0c is a multimedia technology that enhances computer graphics and sounds. DirectX® improves the multimedia features of your computer so you can enjoy watching TV and movies, capturing videos, or playing games on your computer.

Microsoft® Windows® XP Service Pack 2 already includes Microsoft® DirectX® 9.0c. If your system is Microsoft® Windows® XP Service Pack 2-embedded, skip Microsoft® DirectX® 9.0c installation.

Anti-Virus utility

The anti-virus utility scans, identifies, and removes computer viruses. View the online help for detailed information.

ASUS Screen Saver

Installs the ASUS screen saver.

> The screen display and utilities option may not be the same for different operating system versions.

3.2.4 Make Disk menu

The Make Disk menu allows you to make a RAID driver disk.

Make VIA VT8237 RAID Controller Driver

Allows you to create a VIA® VT8237 RAID driver disk.

3.2.5 ASUS Contact information

Click the Contact tab to display the ASUS contact information. You can also find this information on the inside front cover of this user guide.