

M2V-MX



Motherboard

E2826

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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. Check local regulations for disposal of electronic products.

M2V-MX specifications summary

CPU	Support AMD socket AM2 for AMD Athlon™ 64 FX/ 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® VT8237A
System Bus	2000 MT/s
Memory	2 x 240-pin DIMM sockets support up to 4 GB of ECC/ non-ECC unbuffered DDR2 800/667/533 MHz DIMMs
Expansion slots	1 x PCI Express™ x16 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® VT8237A supports: <ul style="list-style-type: none"> - 2 x Ultra DMA 133/100/66/33 - 2 x Serial ATA 3.0 Gb/s hard disk drives supporting RAID 0, RAID 1, and JBOD configurations JMicron® JMB363 controller supports: <ul style="list-style-type: none"> - 2 x Serial ATA 3.0 Gb/s hard disk drives supporting RAID 0, and RAID 1 configuration
Audio	Realtek® ALC883 Azalia 6-channel audio CODEC Supports Jack-Sensing and Enumeration Technology Supports Multi-Streaming Technology Supports Jack-Retasking Technology 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 2 ASUS CrashFree BIOS 2 ASUS MyLogo™ ASUS C.P.R. (CPU Parameter Recall) ASUS Q-Fan2

(continued on the next page)

M2V-MX specifications summary

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
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 S/PDIF out connector 1 x CD audio-in connector 1 x CPU/ 1 x Chassis fan connectors 1 x Front Panel AC'97 audio connector 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.

1 Product introduction

1.1 Welcome!

Thank you for buying an ASUS® M2V-MX 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-MX 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 64FX/ 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 800MHz memory support



DDR2 is the next generation memory technology to replace the current DDR. With the highest speed up to 800MHz, DDR2 memory provides great performance for 3D graphics and other memory demanding applications.

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 1-19 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 1-23 and 1-28 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. See pages 1-22 for details.

1.3.2 Innovative ASUS features

ASUS EZ Flash 2

EZ Flash 2 is a user-friendly BIOS update utility. Simply press the predefined hotkey to launch the utility and update the BIOS without entering the OS. Update your BIOS easily without preparing a bootable diskette or using an OS-based flash utility. See page 2-3 for details.

CrashFree BIOS 2

This feature allows you to restore the original BIOS data from the support CD in case when the BIOS codes and data are corrupted. This protection eliminates the need to buy a replacement ROM chip. See page 2-6 for details.

ASUS Q-Fan2 technology

The ASUS Q-Fan2 technology smartly adjusts both the CPU and chassis fan speeds according to the system loading to ensure quiet, cool, and efficient operation. See page 2-33 for details.

ASUS MyLogo™

This new feature present in the motherboard allows you to personalize and add styles to your system with customizable boot logos. See page 2-35 for details.

C.P.R. (CPU Parameter Recall)

The C.P.R. feature of the motherboard BIOS allows automatic re-setting to the BIOS default settings in case the system hangs due to overclocking. When the system hangs due to overclocking, C.P.R. eliminates the need to open the system chassis and clear the RTC data. Simply shut down and reboot the system, and the BIOS automatically restores the CPU default setting for each parameter.



Due to chipset behavior, AC power off is required prior using C.P.R. function.

1.4 Before you proceed

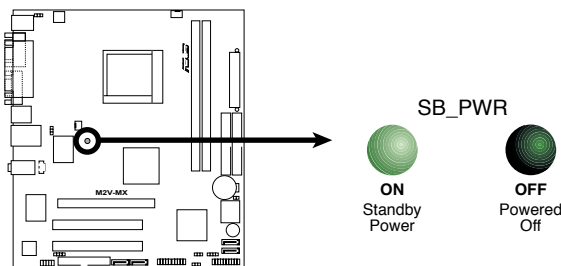
Take note of the following precautions before you install motherboard components or change any motherboard settings.



- 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

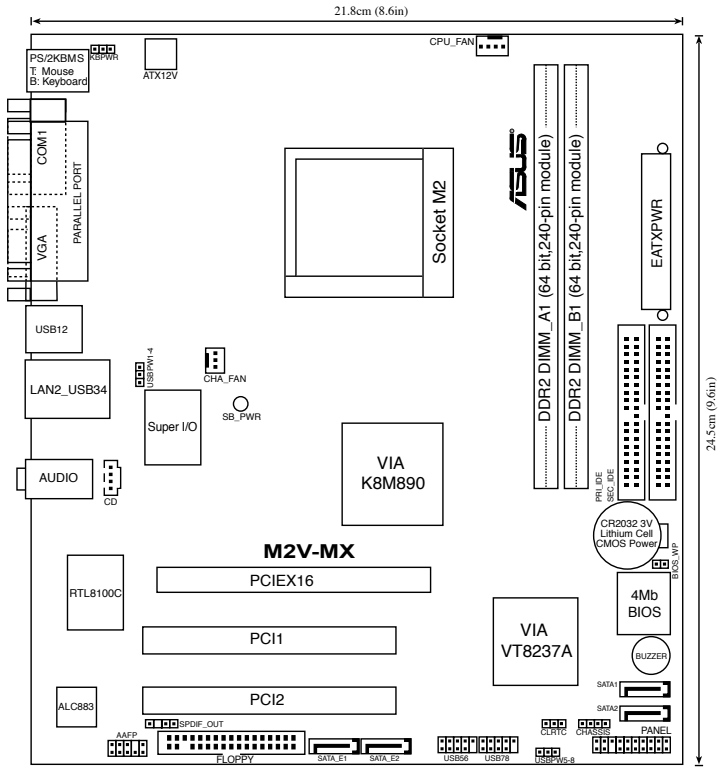
The motherboard comes with a standby power LED that lights up to indicate that the system is ON, in sleep mode, or in soft-off mode. This is a reminder that you should shut down the system and unplug the power cable before removing or plugging in any motherboard component. The illustration below shows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



M2V-MX Onboard LED

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.

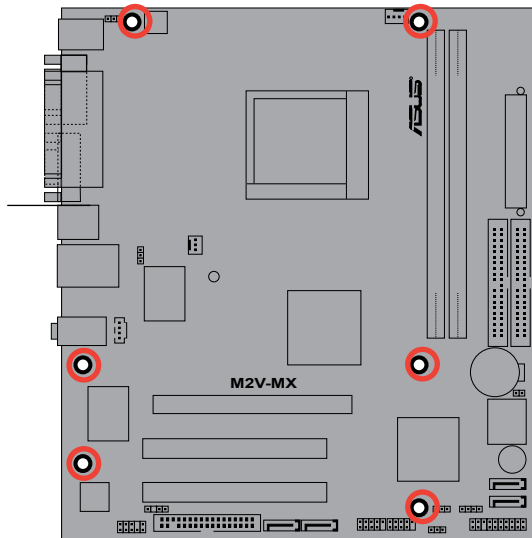
1.5.3 Screw holes

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 FX/Athlon™ 64 X2/AMD Athlon™ 64/AMD Sempron™ processor.

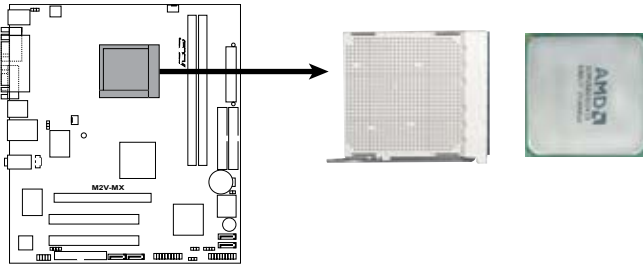


Make sure you use a CPU is designed for the AM2 socket. The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU!

1.6.1 Installing the CPU

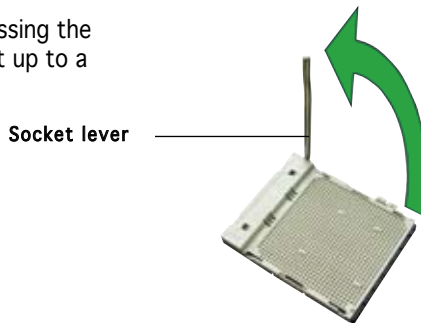
To install a CPU.

1. Locate the CPU socket on the motherboard.



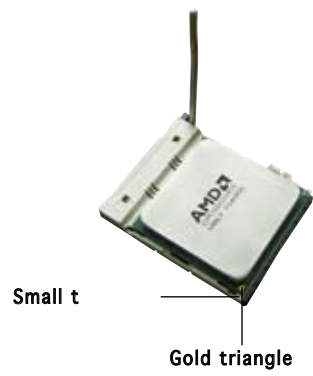
M2V-MX CPU Socket M2

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



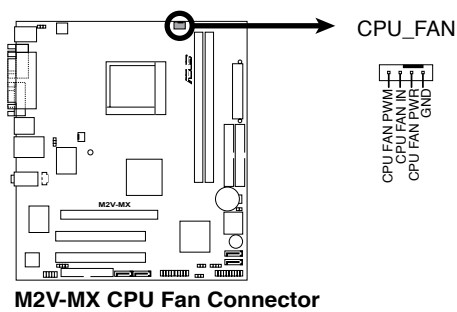
Make sure that the socket lever is lifted up to 90°-100° angle, otherwise the CPU does not fit in completely.

- Position the CPU above the socket such that the CPU corner with the gold triangle matches the socket corner with a small triangle.
- Carefully insert the CPU into the socket until it fits in place.



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!

- 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.
- Install a CPU heatsink and fan following the instructions that came with the heatsink package.
- Connect the CPU fan cable to the CPU_FAN connector on the motherboard.



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 FX/ Athlon™ 64 X2/AMD Athlon™ 64/AMD Sempron™ processor require a specially designed heatsink and fan assembly to ensure optimum thermal condition and performance.



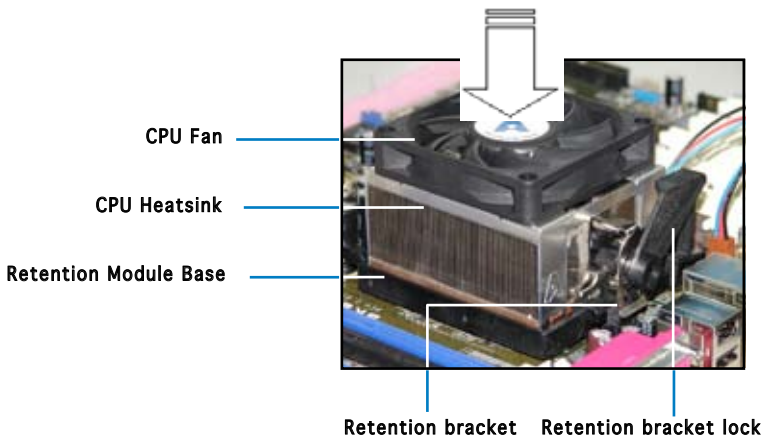
Make sure that you use only qualified heatsink and fan assembly.

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.

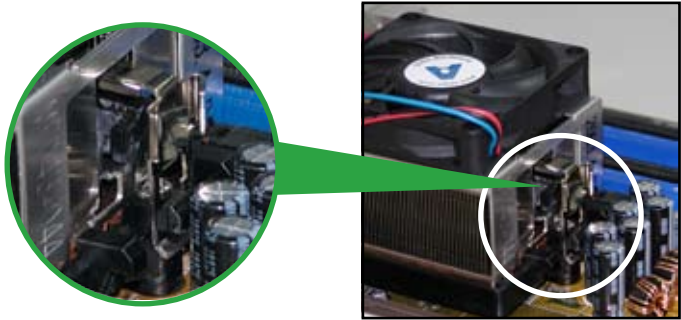


- The retention module base is already installed on the motherboard upon purchase.
 - You do not have to remove the retention module base when installing the CPU or installing other motherboard components.
 - If you purchased a separate CPU heatsink and fan assembly, make sure that a Thermal Interface Material is properly applied to the CPU heatsink or CPU before you install the heatsink and fan assembly.
-



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.

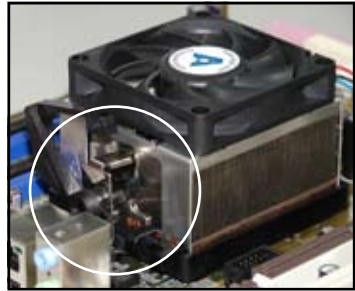
2. Attach one end of the retention bracket to the retention module base.



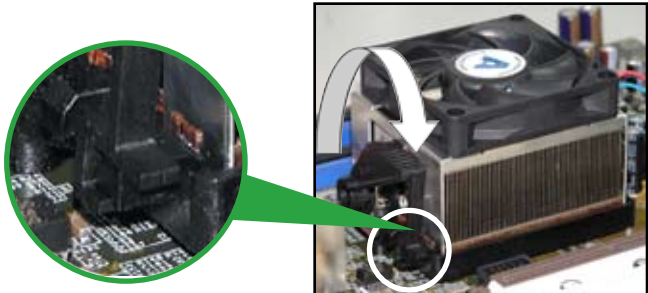
3. Align the other end of the retention bracket (near the retention bracket lock) to the retention module base. A clicking sound denotes that the retention bracket is in place.



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.



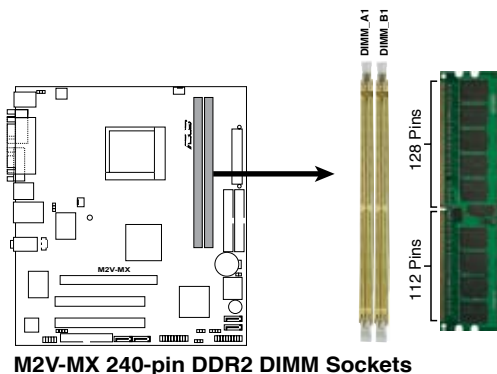
1.7 System memory

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-MX 240-pin DDR2 DIMM Sockets

1.7.2 Memory configurations

You may install 256 MB, 512 MB, 1 GB, and 2 GB unbuffered non-ECC DDR2 DIMMs into the DIMM sockets.



- Due to chipset resource allocation, the system may detect less than 4 GB system memory when you installed two 2 GB DDR2 memory modules.
- 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.

1.7.3 DDR2 Qualified Vendors List

The following table lists the memory modules that have been tested and qualified for use with this motherboard. Visit the ASUS website (www.asus.com) for the latest DDR2 DIMM modules for this motherboard.

DDR2 533 Qualified Vendors List

Size	Vendor	Model	Side(s)	Component	DIMM support	
					A	B
256MB	KINGSTON	E5116AF-5C-E	SS	KVR533D2N4/256	•	•
512MB	KINGSTON	HYB18T512800AF37	SS	KVR533D2N4/512	•	•
1024MB	KINGSTON	5YDII9GCT	DS	KVR533D2N4/1G	•	•
256MB	Qimonda	HYB18T512160AF-3.7	SS	HYS64T32000HU-3.7-A	•	
256MB	Qimonda	HYB18T5121608BF-3.7	SS	HYS64T32000HU-3.7-B	•	•
1024MB	Qimonda	HYB18T512800BF37	DS	HYS64T128020HU-3.7-B	•	•
512MB	Hynix	HY5PS12821F-C4(ECC)	SS	HYMP564U728-C4	•	•
512MB	Hynix	HY5PS12821FP-C4(ECC)	SS	HYMP564U728-C4	•	•
1024MB	Hynix	HY5PS12821AFP-C3	DS	HYMP512U64AP8-C3	•	•
512MB	ELPIDA	E5108AB-5C-E(ECC)	SS	EBE51ED8ABFA-5C-E	•	•
512MB	KINGMAX	KKEA88E4AAK-37	SS	KLBC28F-A8KE4	•	•

DDR2 667 Qualified Vendors List

Size	Vendor	Model	Side(s)	Component	DIMM support	
					A	B
512MB	KINGSTON	E5108AE-6E-E	SS	KVR667D2N5/512	•	•
512MB	KINGSTON	E5108AE-6E-E	SS	KVR667D2E5/512	•	•
256MB	KINGSTON	HYB18T256800AF3	SS	KVR667D2N5/256	•	•
512MB	KINGSTON	D6408TEBGL3U	SS	KVR667D2N5/512	•	•
256MB	KINGSTON	HYB18T256800AF3S	SS	KVR667D2N5/256	•	•
256MB	Qimonda	HYB18T512160AF-3S	SS	HYS64T32000HU-3S-A	•	•
256MB	Qimonda	HYB18T256800AF3S(ECC)	SS	HYS72T32000HU-3S-A	•	•
512MB	Qimonda	HYB18T512800AF3S(ECC)	SS	HYS72T64000HU-3S-A	•	•
1024MB	Qimonda	HYB18T512800AF3S(ECC)	DS	HYS72T128020HU-3S-A	•	
512MB	Qimonda	HYB18T512800BF3S(ECC)	SS	HYS72T64000HU-3S-B	•	•
1024MB	Qimonda	HYB18T512800BF3S(ECC)	DS	HYS72T128020HU-3S-B	•	•
256MB	Qimonda	HYB18T512160BF-3S	SS	HYS64T32000HU-3S-B	•	•
512MB	Qimonda	HYB18T512800BF3S	SS	HYS64T64000HU-3S-B	•	•
1024MB	Qimonda	HYB18T512800BF3S	DS	HYS64T128020HU-3S-B	•	•
256MB	SAMSUNG	K4T51163QC-ZCE6	SS	M378T3354CZ0-CE6	•	•
1024MB	SAMSUNG	ZCE6K4T51083QC	DS	M378T2953CZ0-CE6	•	•
512MB	Hynix	HY5PS12821AFP-Y5	SS	HYMP564U64AP8-Y5	•	•
1024MB	Hynix	HY5PS1G831FP-Y5(ECC)	SS	HYMP112U72P8-Y5	•	•

(continued on the next page)

DDR2 667 Qualified Vendors List

Size	Vendor	Model	Side(s)	Component	DIMM support	
					A	B
512MB	Hynix	HY5PS12821AFP-Y5(ECC)	SS	HYMP564U72AP8-Y5	•	•
512MB	Hynix	HY5PS12821AFP-Y4	SS	HYMP564U64AP8-Y4	•	•
512MB	Hynix	HY5PS12821AFP-Y4(ECC)	SS	HYMP564U72AP8-Y4	•	•
512MB	CORSAIR	64M8CFEG	SS	VS512MB667D2	•	•
1024MB	CORSAIR	64M8CFEG	SS	VS1GB667D2	•	
256MB	ELPIDA	E2508AB-6E-E	SS	EBE25UC8ABFA-6E-E	•	•
512MB	ELPIDA	E5108AE-6E-E	SS	EBE51UD8AEFA-6E-E	•	•
512MB	A-DATA	AD29608A8B-3EG	SS	M20AD5Q3H3163J1C52	•	•
512MB	A-DATA	AD29608A8A-3EG	SS	M20AD5G3H316611C52	•	•
512MB	crucial	Heat-Sink Package	SS	BL6464AA663.8FD	•	•
1024MB	crucial	Heat-Sink Package	DS	BL12864AA663.16FD	•	•
512MB	Apacer	AM4B5708GQJS7E	SS	AU512E667C5KBGC	•	•
1024MB	Apacer	AM4B5708GQJS7E	DS	AU01GE667C5KBGC	•	•
512MB	Apacer	AM4B5708PJS7E	SS	AU512E667C5KBGC	•	•
512MB	Apacer	AM4B5708GQJS7E	SS	AU512E667C5KBGC	•	•
512MB	Kingmax	KKEA88B4LAUG-29DX	SS	KLCC28F-A8KB5	•	•
1024MB	Kingmax	KKEA88B4LAUG-29DX	DS	KLCD48F-A8KB5	•	•
512MB	Transcend	E5108AE-6E-E	SS	TS64MLQ64V6J	•	•
1024MB	Transcend	E5108AE-6E-E	DS	TS128MLQ64V6J	•	
512MB	Transcend	J12Q3AB-6	SS	JM367Q643A-6	•	•

(continued on the next page)

DDR2 800 Qualified Vendors List

Size	Vendor	Model	Side(s)	Component	DIMM support	
					A	B
1024MB	KINGSTON	K4T51083QC	DS	KVR800D2N5/1G	•	
1024MB	KINGSTON	Heat-Sink Package	SS	KHX6400D2LLK2/1GN	•	•
512MB	Qimonda	HYB18T256800AF25	DS	HYS64T64520HU-2.5-A	•	•
512MB	Qimonda	HYB18T256800AF25F	DS	HYS64T64020HU-25F-A	•	•
256MB	Qimonda	HYB18T512160BF-25F	SS	HYS64T32000HU-25F-B	•	•
512MB	Qimonda	HYB18T512800BF25F	SS	HYS64T64000HU-25F-B	•	•
1024MB	Qimonda	HYB18T512800BF25F	DS	HYS64T128020HU-25F-B	•	•
512MB	SAMSUNG	EDD339XX	SS	M378T6553CZ3-CE7	•	•
256MB	SAMSUNG	K4T51163QC-ZCE7	SS	M378T3354CZ3-CE7	•	•
512MB	Hynix	HY5PS12821BFP-S5	SS	HYMP564U64BP8-S5	•	•
1024MB	Hynix	HY5PS12821BFP-S5	DS	HYMP512U64BP8-S5	•	•
512MB	MICRON	5JAIIZ9DQQ	SS	MT8HTF6464AY-80EA3	•	•
1024MB	MICRON	5JAIIZ9DQQ	DS	MT16HTF12864AY-80EA3	•	•
512MB	MICRON	5ZD22D9GKX	SS	MT8HTF6464AY-80ED4	•	•
1024MB	MICRON	5ZD22D9GKX	DS	MT16HTF12864AY-80ED4	•	•
512MB	MICRON	6CD22D9GKX	SS	MT8HTF6464AY-80ED4	•	•
1024MB	MICRON	6CD22D9GKX	DS	MT16HTF12864AY-80ED4	•	•
1024MB	CORSAIR	Heat-Sink Package	DS	CM2X1024-6400C4	•	•
512MB	A-DATA	N/A	SS	M20AD6G3H3160J1E52	•	
512MB	Crucial	Heat-Sink Package	SS	BL6464AA804.8FD	•	•
1024MB	Crucial	Heat-Sink Package	DS	BL12864AA804.16FD	•	•
512MB	Apacer	Heat-Sink Package	SS	AHU512E800C5K1C	•	•
1024MB	Apacer	Heat-Sink Package	DS	AHU01GE800C5K1C	•	•

Side(s): **SS** - Single Sided

DS - Double Sided

DIMM Support:

A - supports one module inserted in any slot as Single-channel memory configuration

B - supports one pair of modules inserted into either slots as one pair of Dual-channel memory configuration



Visit the ASUS website (www.asus.com) for the latest memory Qualified Vendor List (QVL).

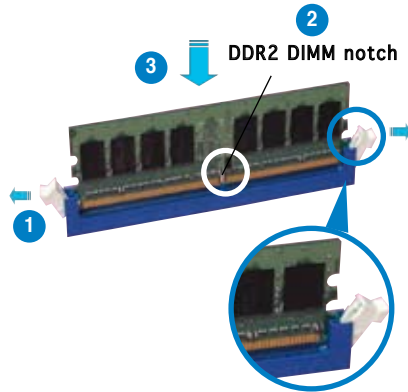
1.7.3 Installing a DIMM



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.



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.

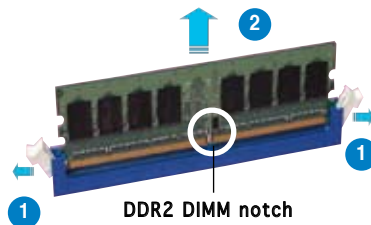
1.7.4 Removing a DIMM

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.



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

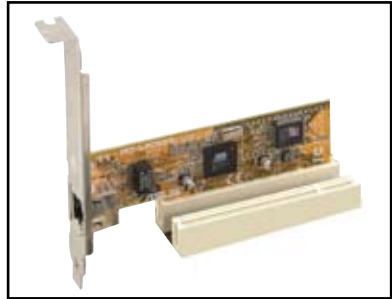
	A	B	C	D
PCI slot 1	used	—	—	—
PCI slot 2	—	used	—	—



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 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 (CLRRTC)

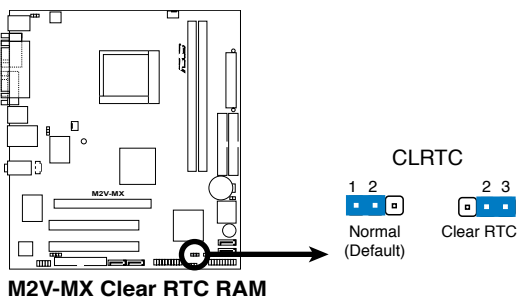
This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.

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 key during the boot process and enter BIOS setup to re-enter data.

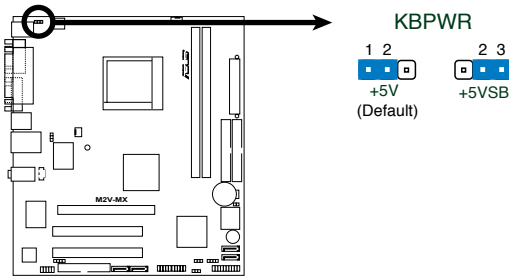


Except when clearing the RTC RAM, never remove the cap on CLRRTC jumper default position. Removing the cap will cause system boot failure!



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.

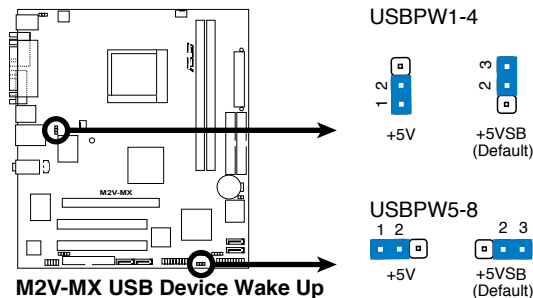


M2V-MX Keyboard Power Setting

3. USB device wake-up (3-pin USBPW1-4, USBPW5-8)

Set these jumpers to +5V to wake up the computer from S1 sleep mode (CPU stopped, DRAM refreshed, system running in low power mode) using the connected USB devices. Set to +5VSB to wake up from S3 and S4 sleep modes (no power to CPU, DRAM in slow refresh, power supply in reduced power mode).

The USBPW1-4 jumper is for the rear USB ports (USB port 1-4). The USBPW5-8 jumper is for the internal USB connectors (USB port 5-8) that you can connect to additional USB ports.



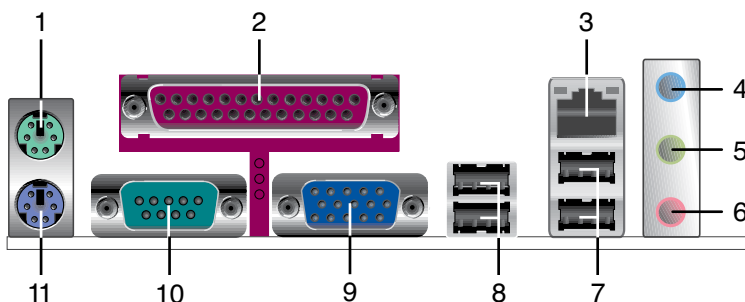
M2V-MX USB Device Wake Up



- The USB device wake-up feature requires a power supply that can provide 500 mA on the +5VSB lead for each USB port; otherwise, the system would not power up.
- The total current consumed must NOT exceed the power supply capability (+5VSB) whether under normal condition or in sleep mode.

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	ORANGE	100 Mbps connection
BLINKING	Data activity		

ACT/LINK LED

SPEED LED



LAN port

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.

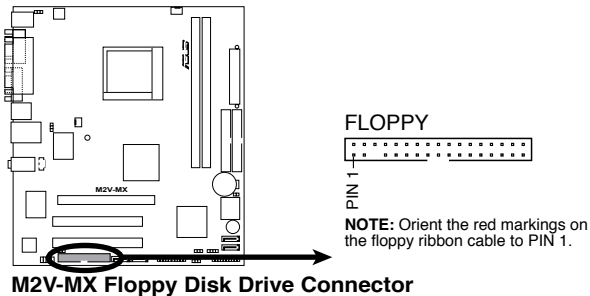
1.10.2 Internal connectors

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.



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).

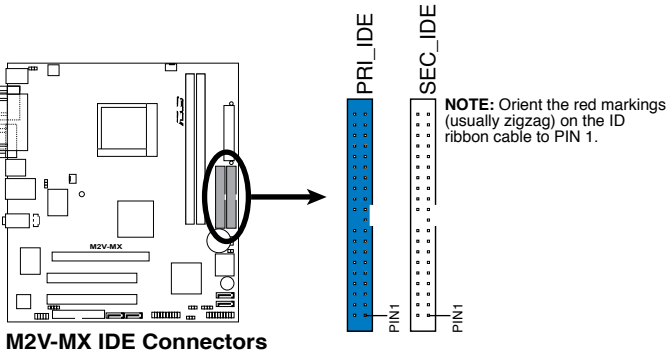
	Drive jumper setting	Mode of device(s)	Cable connector
Single device	Cable-Select or Master	-	Black
Two devices	Cable-Select	Master	Black
		Slave	Gray
	Master Slave	Master Slave	Black or gray



- 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.



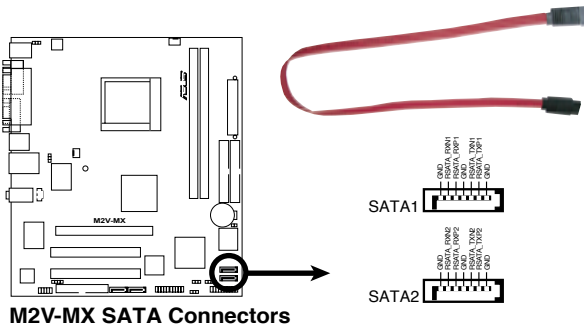
If any device jumper is set as “Cable-Select,” make sure all other device jumpers have the same setting.



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

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® VT8237A Plus controller.



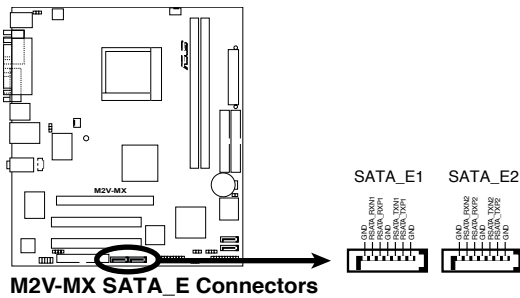
For detailed instructions on how to configure RAID 0, 1, and JBOD, refer to the RAID manual in the support CD.

4. JMicron JMB363® Serial ATA RAID connectors (7-pin SATA_E1[black], SATA_E2[black])

These connectors are for Serial ATA signal cables. These connectors support Serial ATA hard disk drives that you can configure for RAID through the onboard Serial ATA RAID controller.



The **JMicron SATA controller mode** item in the BIOS is set to [IDE] by default. Set the item to [RAID] if you want to build a RAID set. See section “2.4.5 Onboard Device Configuration” for details.



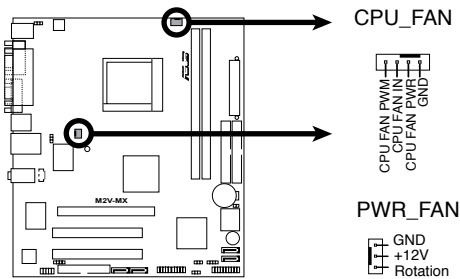
- Before creating a RAID set using Serial ATA hard disks, make sure that you have connected the Serial ATA signal cables and installed Serial ATA hard disk drives; otherwise, you cannot enter the JMicron® JMB363 RAID utility and SATA BIOS setup during POST.
- Install an internal Serial ATA hard disk drive to SATA_E1 or SATA_E2 and an external Serial ATA hard disk drive on your system before creating the JMicron® JMB363 RAID.

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.



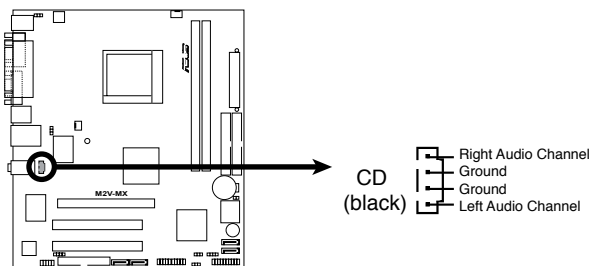
Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! DO NOT place jumper caps on the fan connectors.



M2V-MX Fan Connectors

6. Optical drive audio in connectors (4-pin CD)

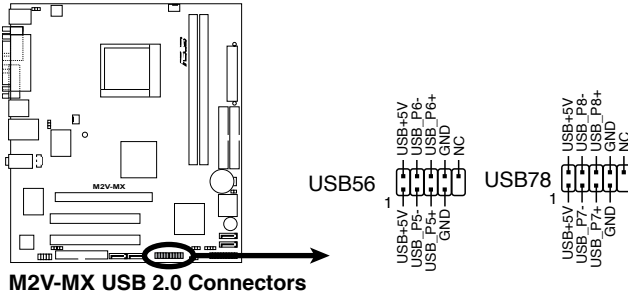
These connectors allow you to receive stereo audio input from sound sources such as a CD-ROM, TV tuner, or MPEG card.



M2V-MX Internal Audio Connector

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.



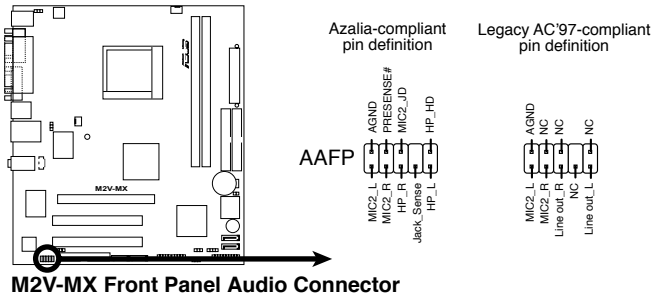
Never connect a 1394 cable to the USB connectors. Doing so will damage the motherboard!



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.



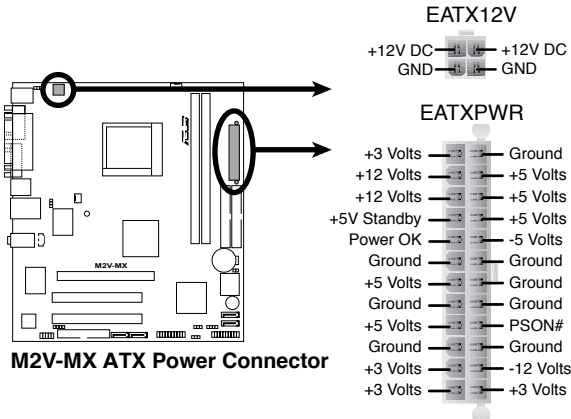
- We recommend that you connect a high-definition front panel audio module to this connector to avail of the motherboard's high-definition audio capability.
- By default, this connector is set to HD Audio. If you want to connect a AC'97 front panel audio module to this connector, set the **Front Panel Support Type** item in the BIOS setup to [AC97]. See section 2.4.5 Onboard Device Configuration for details.

9. ATX power connectors (24-pin EATXPWR, 4-pin EATX12V)

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.

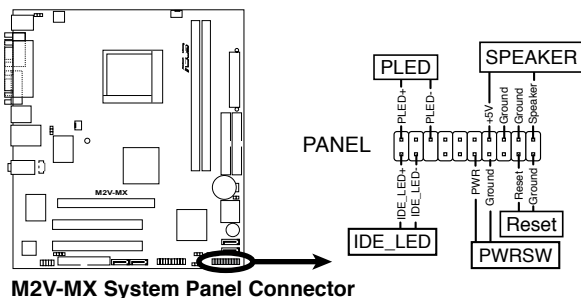


- We recommend that you use an ATX 12 V Specification 2.0-compliant power supply unit (PSU) with a minimum of 300 W power rating. This PSU type has 24-pin and 4-pin power plugs.
- If you intend to use a PSU with 20-pin and 4-pin power plugs, make sure that the 20-pin power plug can provide at least 15 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.



10. System panel connector (20-8 pin PANEL)

This connector supports several chassis-mounted functions.



- **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 EZ Flash 2** (Updates the BIOS using a floppy disk, USB Flash, or the motherboard support CD during POST.)
2. **ASUS AFUDOS** (Updates the BIOS in DOS mode using a bootable floppy disk.)
3. **ASUS CrashFree BIOS 2** (Updates the BIOS using a bootable floppy, or the motherboard support CD when the BIOS file fails or gets corrupted.)
4. **ASUS Update** (Updates the BIOS in Windows® environment.)

Refer to the corresponding sections for details on these utilities.



Save a copy of the original motherboard BIOS file to a bootable floppy disk or a USB flash disk in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the ASUS Update or AFUDOS utilities.

AMI BIOS beep codes

Test Item	BIOS Beeps
VGA found beep	One short beep
System boot	One short beep (Quick Boot set to Disabled)
No memory found	One long beep, two short beeps, pause a period of time, and loop
No keyboard error	One short beep
No VGA found	One long beep with three short beeps
Hardware monitoring error	One long beep with four short beeps

2.1.1 Creating a bootable floppy disk

1. Do either one of the following to create a bootable floppy disk.
 - DOS environment*
 - a. Insert a 1.44MB floppy disk into the drive.
 - b. At the DOS prompt, type `format A:/s` then press <Enter>.
 - Windows® XP environment*
 - a. Insert a 1.44 MB floppy disk to the floppy disk drive.
 - b. Click **Start** from the Windows® desktop, 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. Select **Create an MS-DOS startup disk** from the format options field, then click **Start**.

Windows® 2000 environment

To create a set of boot disks for Windows® 2000:

- a. Insert a formatted, high density 1.44 MB floppy disk into the drive.
- b. Insert the Windows® 2000 CD to the optical drive.
- c. Click **Start**, then select **Run**.
- d. From the Open field, type
`D:\bootdisk\makeboot a:`
assuming that D: is your optical drive.
- e. Press <Enter>, then follow screen instructions to continue.

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

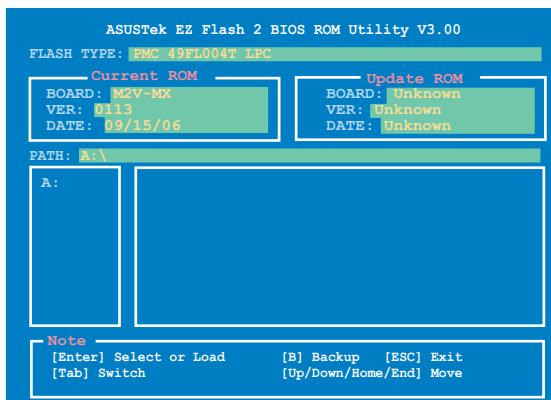
2.1.2 ASUS EZ Flash 2 utility

The ASUS EZ Flash 2 feature allows you to update the BIOS without having to go through the long process of booting from a floppy disk and using a DOS-based utility. The EZ Flash 2 utility is built-in the BIOS chip so it is accessible by pressing <Alt> + <F2> during the Power-On Self-Test (POST).

To update the BIOS using EZ Flash 2:

1. Visit the ASUS website (www.asus.com) to download the latest BIOS file for the motherboard.
2. Save the BIOS file to a floppy disk or a USB flash disk, then restart the system.
3. You can launch the EZ Flash 2 by two methods.
 - (1) Insert the floppy disk / USB flash disk that contains the BIOS file to the floppy disk drive or the USB port.

Press <Alt> + <F2> during POST to display the following.



(2) Enter BIOS setup program. Go to the **Tools** menu to select **EZ Flash2** and press <Enter> to enable it.

You can switch between drives by pressing <Tab> before the correct file is found. Then press <Enter>.

4. When the correct BIOS file is found, EZ Flash 2 performs the BIOS update process and automatically reboots the system when done.



-
- This function can support devices such as USB flash disk, or floppy disk with **FAT 32/16** format only.
 - Do not shut down or reset the system while updating the BIOS to prevent system boot failure!
-

2.1.3 AFUDOS utility

The AFUDOS utility allows you to update the BIOS file in DOS environment using a bootable floppy disk with the updated BIOS file. This utility also allows you to copy the current BIOS file that you can use as backup when the BIOS fails or gets corrupted during the updating process.

Copying the current BIOS

To copy the current BIOS file using the AFUDOS utility:



-
- Make sure that the floppy disk is not write-protected and has at least 1024KB free space to save the file.
 - The succeeding BIOS screens are for reference only. The actual BIOS screen displays may not be same as shown.
-

1. Copy the AFUDOS utility (afudos.exe) from the motherboard support CD to the bootable floppy disk you created earlier.
2. Boot the system in DOS mode, then at the prompt type:

```
afudos /o[filename]
```

where the [filename] is any user-assigned filename not more than eight alphanumeric characters for the main filename and three alphanumeric characters for the extension name.

```
A:\>afudos /oOLDBIOS1.com
```

Main filename Extension name

3. Press <Enter>. The utility copies the current BIOS file to the floppy disk.

```
A:\>afudos /oOLDBIOS1.rom
AMI Firmware Update Utility - Version 1.19(ASUS V2.07(03.11.24BB))
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.
Reading flash ..... done
Write to file..... ok
A:\>
```

The utility returns to the DOS prompt after copying the current BIOS file.

Updating the BIOS file

To update the BIOS file using the AFUDOS utility:

1. Visit the ASUS website (www.asus.com) and download the latest BIOS file for the motherboard. Save the BIOS file to a bootable floppy disk.



Write the BIOS filename on a piece of paper. You need to type the exact BIOS filename at the DOS prompt.

2. Copy the AFUDOS utility (afudos.exe) from the motherboard support CD to the bootable floppy disk you created earlier.
3. Boot the system in DOS mode, then at the prompt type:

```
afudos /i[filename]
```

where [filename] is the latest or the original BIOS file on the bootable floppy disk.

```
A:\>afudos /iM2VMX.ROM
```

4. The utility verifies the file and starts updating the BIOS.

```
A:\>afudos /iM2VMX.ROM
AMI Firmware Update Utility - Version 1.19(ASUS V2.07(03.11.24BB))
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.

WARNING!! Do not turn off power during flash BIOS
Reading file ..... done
Reading flash ..... done

Advance Check .....
Erasing flash ..... done
Writing flash ..... 0x0008CC00 (9%)
```



Do not shut down or reset the system while updating the BIOS to prevent system boot failure!

5. The utility returns to the DOS prompt after the BIOS update process is completed. Reboot the system from the hard disk drive.

```
A:\>afudos /iM2VMX.ROM
AMI Firmware Update Utility - Version 1.19 (ASUS V2.07 (03.11.24BB))
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.

WARNING!! Do not turn off power during flash BIOS
Reading file ..... done
Reading flash ..... done

Advance Check .....
Erasing flash ..... done
Writing flash ..... done
Verifying flash .... done

Please restart your computer

A:\>
```

2.1.4 ASUS CrashFree BIOS 2 utility

The ASUS CrashFree BIOS 2 is an auto recovery tool that allows you to restore the BIOS file when it fails or gets corrupted during the updating process. You can update a corrupted BIOS file using the motherboard support CD, or the floppy disk that contains the updated BIOS file.



- Prepare the motherboard support CD, or the floppy disk containing the updated motherboard BIOS before using this utility.
- Make sure that you rename the original or updated BIOS file in the floppy disk to **M2VMX.ROM**

Recovering the BIOS from a floppy disk

To recover the BIOS from a floppy disk:

1. Turn on the system.
2. Insert the floppy disk with the original or updated BIOS file to the floppy disk drive.
3. The utility displays the following message and automatically checks the floppy disk for the original or updated BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for floppy...
```

When found, the utility reads the BIOS file and starts flashing the corrupted BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for floppy...
Floppy found!
Reading file "M2VMX.ROM". Completed.
Start flashing...
```




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

4. Restart the system after the utility completes the updating process.

Recovering the BIOS from the support CD

To recover the BIOS from the support CD:

1. Remove any floppy disk from the floppy disk drive, then turn on the system.
2. Insert the support CD to the optical drive.
3. The utility displays the following message and automatically checks the floppy disk for the original or updated BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for floppy...
```

When no floppy disk is found, the utility automatically checks the optical drive for the original or updated BIOS file. The utility then updates the corrupted BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for floppy...
Floppy not found!
Checking for CD-ROM...
CD-ROM found!
Reading file "M2VMX.ROM". Completed.
Start flashing...
```



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

4. Restart the system after the utility completes the updating process.



The recovered BIOS may not be the latest BIOS version for this motherboard. Visit the ASUS website (www.asus.com) to download the latest BIOS file.

2.1.5 ASUS Update utility

The ASUS Update is a utility that allows you to manage, save, and update the motherboard BIOS in Windows® environment. The ASUS Update utility allows you to:

- Save the current BIOS file
- Download the latest BIOS file from the Internet
- Update the BIOS from an updated BIOS file
- Update the BIOS directly from the Internet, and
- View the BIOS version information.

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).

Installing ASUS Update

To install ASUS Update:

1. Place the support CD in the optical drive. The Drivers menu appears.
2. Click the **Utilities** tab, then click **Install ASUS Update**. See page 5-3 for the **Utilities** screen menu.
3. The ASUS Update utility is copied to your system.

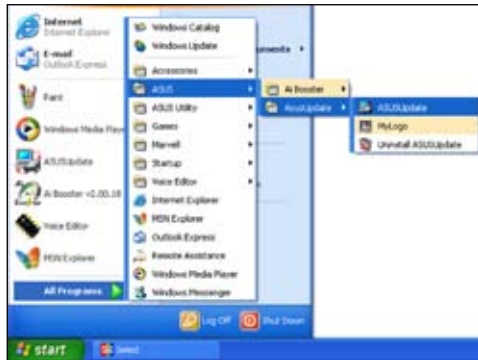


Quit all Windows® applications before you update the BIOS using this utility.

Updating the BIOS through the Internet

To update the BIOS through the Internet:

1. Launch the ASUS Update utility from the Windows® desktop by clicking **Start > Programs > ASUS > ASUSUpdate > ASUSUpdate**. The ASUS Update main window appears.



2. Select **Update BIOS from the Internet** option from the drop-down menu, then click **Next**.
3. Select the ASUS FTP site nearest you to avoid network traffic, or click **Auto Select**. Click **Next**.

- From the FTP site, select the BIOS version that you wish to download. Click **Next**.
- Follow the screen instructions to complete the update process.



The ASUS Update utility is capable of updating itself through the Internet. Always update the utility to avail all its features.



Updating the BIOS through a BIOS file

To update the BIOS through a BIOS file:

- Launch the ASUS Update utility from the Windows® desktop by clicking **Start > Programs > ASUS > ASUSUpdate > ASUSUpdate**. The ASUS Update main window appears.
- Select **Update BIOS from a file** option from the drop-down menu, then click **Next**.



- Locate the BIOS file from the **Open** window, then click **Open**.
- 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 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>+ simultaneously.**
- **Press the reset button on the system chassis.**
- **Press the power button to turn the system off then back on.**



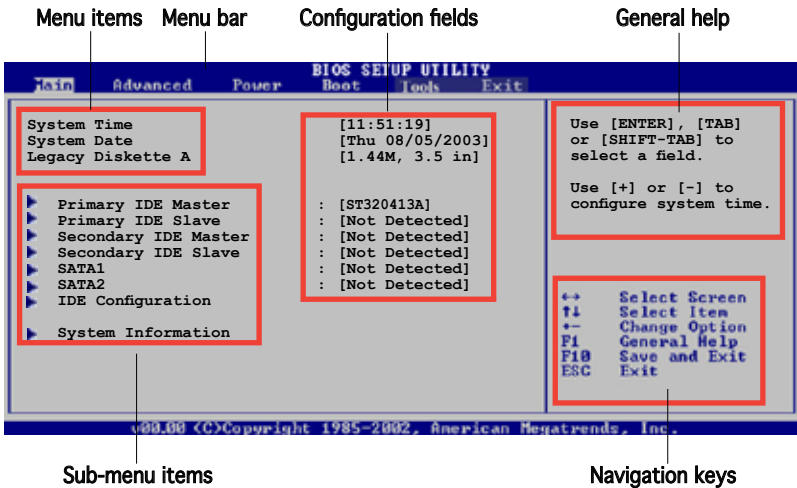
Using the **power button**, **reset button**, or the **<Ctrl>+<Alt>+** keys to force reset from a running operating system can cause damage to your data or system. We recommend to always shut-down the system properly from the operating system.

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



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
- Tools** For setting EZ Flash 2
- 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

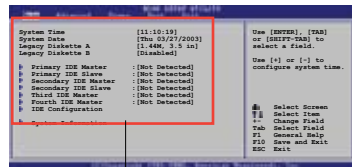
At the **bottom right corner** of a menu screen are the navigation keys for that particular menu. Use the navigation keys to select items in the menu and change the settings.



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.



Main menu items

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

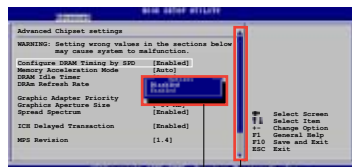
A configurable field is enclosed in brackets, and is highlighted when selected. To change the value of a field, select it then press <Enter> to display a list of options. Refer to “2.2.7 Pop-up window.”

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]
System Date           [Thu 08/05/2003]
Legacy Diskette A     [1.44M, 3.5 in]

▶ Primary IDE Master   : [ST320413A]
▶ Primary IDE Slave    : [Not Detected]
▶ Secondary IDE Master : [Not Detected]
▶ Secondary IDE Slave  : [Not Detected]
▶ SATA1                : [Not Detected]
▶ SATA2                : [Not Detected]
▶ IDE Configuration

▶ System Information

Use [ENTER], [TAB]
or [SHIFT-TAB] to
select a field.

Use [+] or [-] to
configure system time.

↔ Select Screen
↑ Select Item
+ Change Option
F1 General Help
F10 Save and Exit
ESC Exit

v60.00 (C)Copyright 1985-2002, American Megatrends, Inc.

```

2.3.1 System Time [xx:xx:xx]

Allows you to set the system time.

2.3.2 System Date [Day xx/xx/xxxx]

Allows you to set the system date.

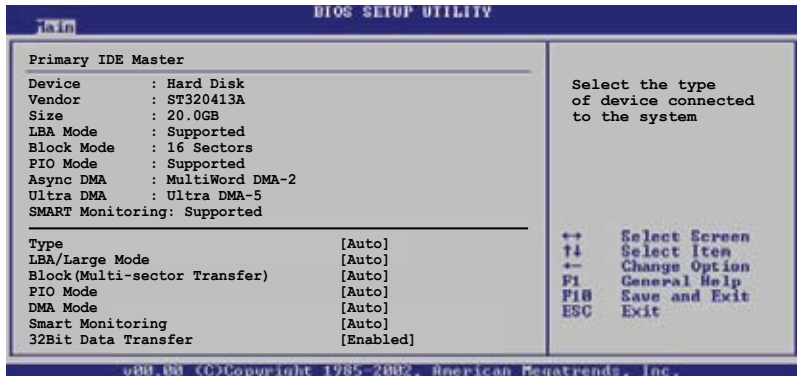
2.3.3 Legacy Diskette A [1.44M, 3.5 in.]

Sets the type of floppy drive installed.

Configuration options: [720K, 3.5 in.] [1.44M, 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.



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]

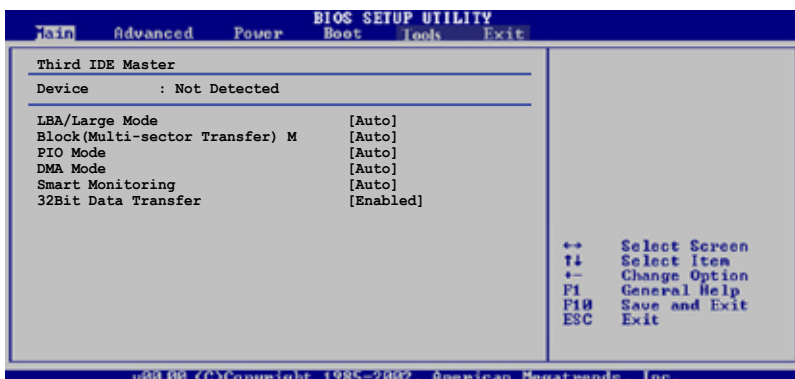
Sets the Smart Monitoring, Analysis, and Reporting Technology.
Configuration options: [Auto] [Disabled] [Enabled]

32Bit Data Transfer [Enabled]

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

2.3.5 SATA1 and SATA2

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



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

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) M [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]

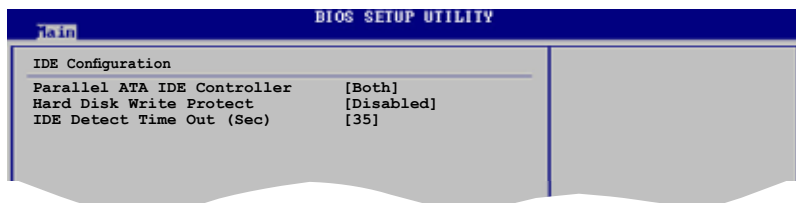
Sets the Smart Monitoring, Analysis, and Reporting Technology. Configuration options: [Auto] [Disabled] [Enabled]

32Bit Data Transfer [Disabled]

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

2.3.6 IDE Configuration

The items in this menu allow you to set or change the configurations for the IDE devices installed in the system. Select an item then press <Enter> if you wish to configure the item.



Parallel ATA IDE Controller [Both]

Disables or allows selection of the IDE controller. Sets to Primary to enable the primary IDE controller only. Sets to Secondary to enable the secondary IDE controller only. Sets to Both to enable both the primary and secondary IDE controllers. Configuration options: [Disabled] [Primary] [Secondary] [Both]

Hard Disk Write Protect [Disabled]

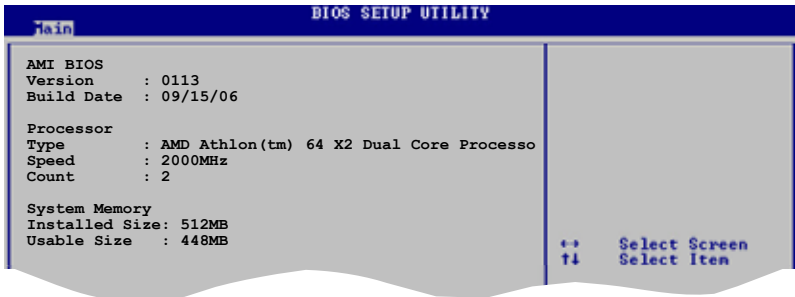
Disables or enables the devices write protection. This will be effective only when the device is accessed through BIOS. Configuration options: [Disabled] [Enabled]

IDE Detect Time Out [35]

Selects the time out value for detecting ATA/ATAPI devices. Configuration options: [0] [5] [10] [15] [20] [25] [30] [35]

2.3.7 System Information

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



AMI BIOS

Displays the auto-detected BIOS information.

Processor

Displays the auto-detected processor information.

System Memory

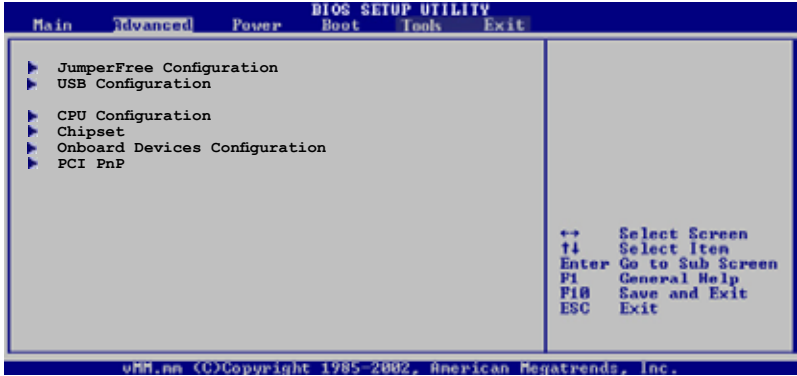
Displays the auto-detected system memory.

2.4 Advanced menu

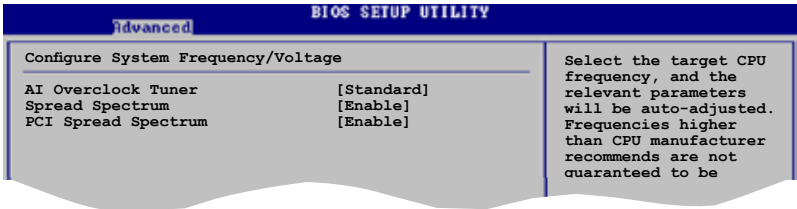
The Advanced menu items allow you to change the settings for the CPU and other system devices.



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



2.4.1 JumperFree Configuration



AI Overclock Tuner [Standard]

Allows selection of CPU overclocking options to achieve desired CPU internal frequency. Select either one of the preset overclocking options. Configuration options: [Manual] [Standard] [Overclock 5%] [Overclock 10%] [Overclock 20%]

Spread Spectrum [Enable]

Allows you to enable or disable the clock generator spread spectrum. Configuration options: [Disabled] [Enable] [-0.50%] [+/-0.25%] [-1.00%]

PCI Spread Spectrum [Enable]

Allows you to enable or disable the PCI spread spectrum. Configuration options: [Disabled] [Enable]



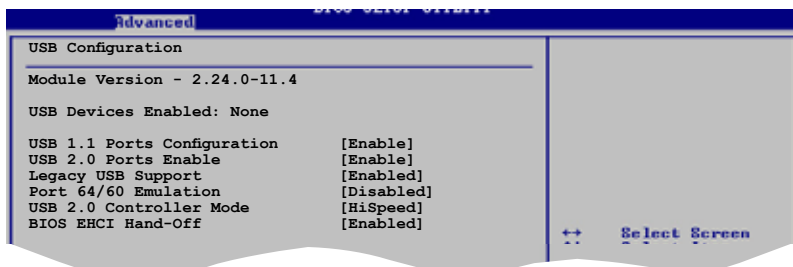
The following item appears only when you set the AI Overclocking item to [Manual].

CPU Frequency [XXX]

Displays the frequency sent by the clock generator to the system bus and PCI bus. The value of this item is auto-detected by the BIOS. Use the <+> and <-> keys to adjust the CPU frequency. You can also type the desired CPU frequency using the numeric keypad. The values range from 200 to 240.

2.4.2 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 1.1 Ports Configuration [Enable]

Allows you to configure the USB ports.
Configuration options: [Disabled] [Enable]

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]

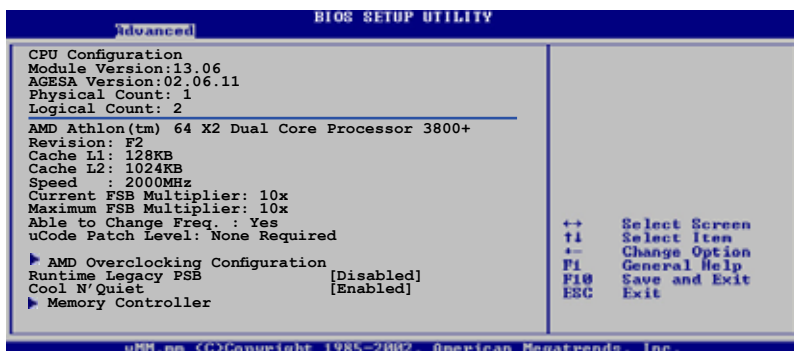
Allows you to configure the USB 2.0 controller in HiSpeed (480 Mbps) or Full Speed (12 Mbps). Configuration options: [HiSpeed] [Full Speed]

BIOS EHCI Hand-Off [Enabled]

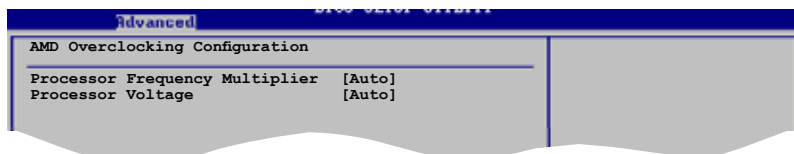
Allows you to enable or disable the BIOS EHCI hand-off support. Configuration options: [Disabled] [Enabled]

2.4.3 CPU Configuration

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



AMD Overclocking Configuration



Processor Frequency Multiplier [Auto]

Allows you to select the processor frequency. Configuration options:
[Auto] [x5.0 1000MHz] [x6.0 1000MHz] [x7.0 1000MHz]
[x8.0 1000MHz] [x9.0 1000MHz] [x5.0 1000MHz] [x10.0 1000MHz]

Processor Voltage[Auto]

Allows you to select the processor voltage. Configuration options:
[Auto] [1.400V] [1.375V] [1.350V] [1.325V] [1.300V] [1.275V]
[1.250V] [1.225V] [1.200V]

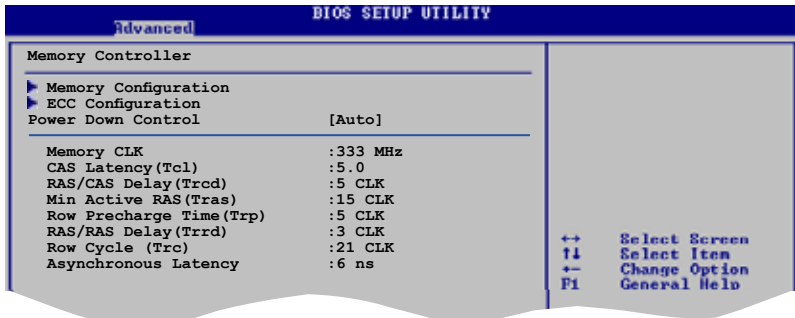
Runtime Legacy PSB [Disabled]

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]

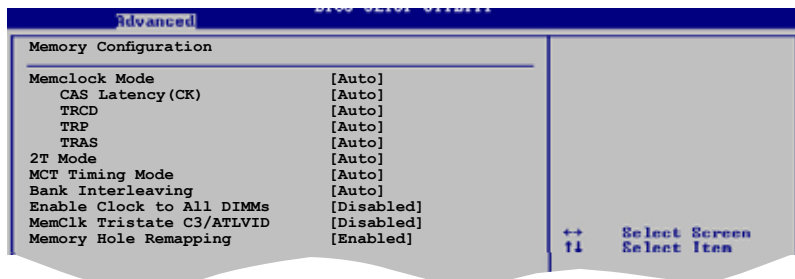
Cool N'Quiet [Enabled]

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

Memory Controller



Memory Configuration



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]

CAS Latency (CL) [Auto]

Configuration options: [Auto] [3.0] [4.0] [5.0] [6.0]

TRCD [Auto]

Configuration options: [Auto] [3 CLK] [4 CLK] [5 CLK] [6 CLK]

TRP [Auto]

Configuration options: [Auto] [3 CLK] [4 CLK] [5 CLK] [6 CLK]

TRAS [Auto]

Configuration options: [Auto] [5 CLK] [6 CLK]... [12 CLK]

2T Mode [Auto]

Sets the 2T mode. Configuration options: [Auto] [Disabled] [Enable]

MCT Timing Mode [Auto]

Sets the MCT Timing mode. Configuration options: [Auto] [Manual]



The following item appears when the **MCT Time Mode** item is set to [Manual].

TTRD [Auto]

Configuration options: [Auto] [2T] [3T] [4T] [5T]

TRC [Auto]

Configuration options: [Auto] [11T] [12T] ... [18T]

Bank Interleaving [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] [Auto]

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

Advanced		BIOS SETUP UTILITY	
ECC Configuration			
DRAM ECC Enable		[Enabled]	
4-Bit ECC Mode		[Disabled]	
DRAM SCRUB REDIRECT		[Disabled]	
DRAM BG Scrub		[Disabled]	

DRAM ECC Enable [Enabled]

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

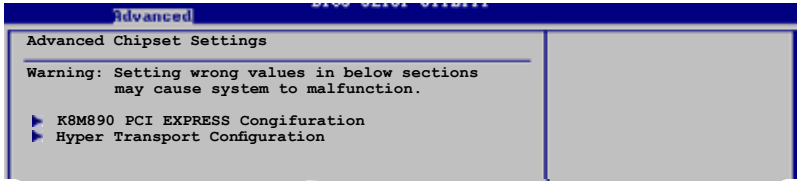
Disables or sets the DRAM scrubbing functionality that corrects and rewrites memory errors so later reads are correct. During this while the memory is not being used improves performance. Configuration options: [Disabled] [40ns] [80ns] [160ns] [320ns] [640ns] [1.28us] [2.56us] [5.12us] [10.2us] [20.5us] [41.0us] [81.9us] [163.8us] [327.7us] [655.4us] [1.31ms] [2.62ms] [5.24ms] [10.49ms] [20.97ms] [42.00ms] [84.00ms]

Power Down Control [Auto]

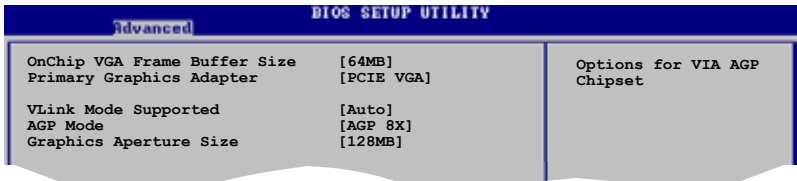
Allows DIMMs to enter power down mode by deasserting the clock enable signal when DIMMs are not in use.
Configuration options: [Auto] [Disabled]

2.4.4 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.



K8M890 PCI EXPRESS Configuration



OnChip VGA Frame Buffer Size [64MB]

Sets the onchip VGA frame buffer size.

Configuration options: [Disabled] [8MB] [16MB] [32MB] [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]

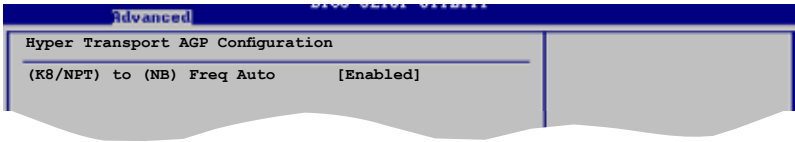
AGP Mode [8X]

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]

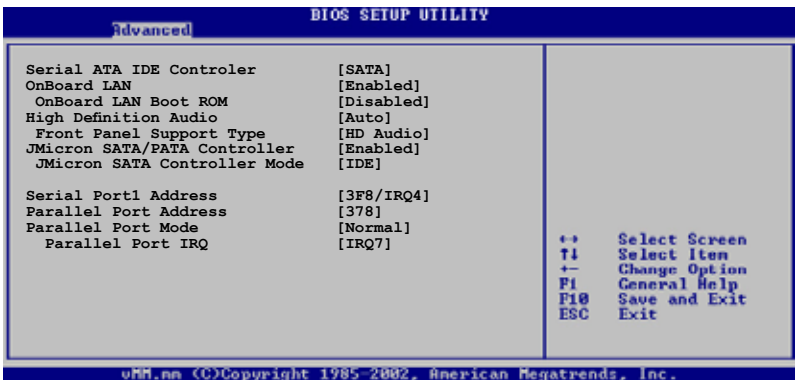
Hyper Transport AGP Configuration



(K8/NPT) to (NB) Freq Auto [Enabled]

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

2.4.5 Onboard Devices Configuration



Serial ATA IDE Controller [SATA]

Allows you to disable or select the Serial ATA controller mode. Configuration options: [SATA] [RAID] [Disabled]

OnBoard LAN [Enabled]

Allows you to disable or enable the onboard LAN controller. Configuration options: [Disabled] [Enabled]

OnBoard LAN Boot ROM [Disabled]

Allows you to enable or disable the option ROM in the onboard LAN controller. This item appears only when the Onboard LAN item is set to Enabled. Configuration options: [Disabled] [Enabled]

High Definition Audio [Auto]

Allows you to disable or set the high definition audio. Configuration options: [Disabled] [Auto]

Front Panel Support Type [HD Audio]

Allows you to set the front panel audio connector (AAFP) mode to legacy AC'97 or high-definition audio depending on the audio standard that the front panel audio module supports. Configuration options: [AC97][HD Audio]

JMicron SATA/PATA Controller [Enabled]

Allows you to enable or disable the JMicron SATA/PATA controller. Configuration options: [Disabled] [Enabled]

JMicron SATA Controller Mode [IDE]

Allows you to set the JMicron SATA controller mode. This item appears only when the JMicron SATA/PATA Controller item is set to Enabled. Configuration options: [IDE] [AHCI] [RAID]

Serial Port1 Address [3F8/IRQ4]

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

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]

Parallel Port IRQ [IRQ7]

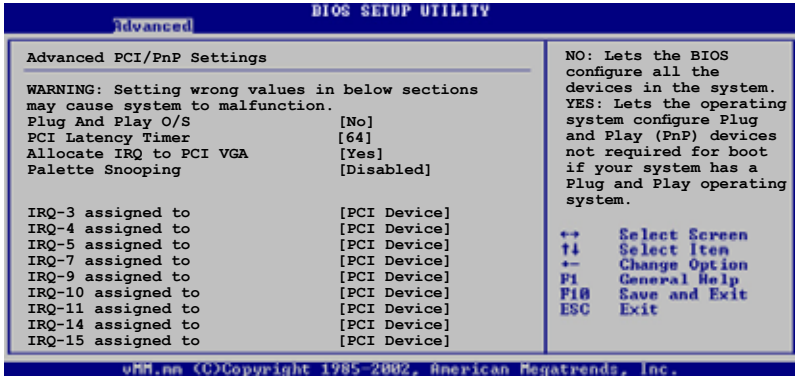
Allows you to select the Parallel Port IRQ. Configuration options: [IRQ5] [IRQ7]

2.4.6 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.



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 palette 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.



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]

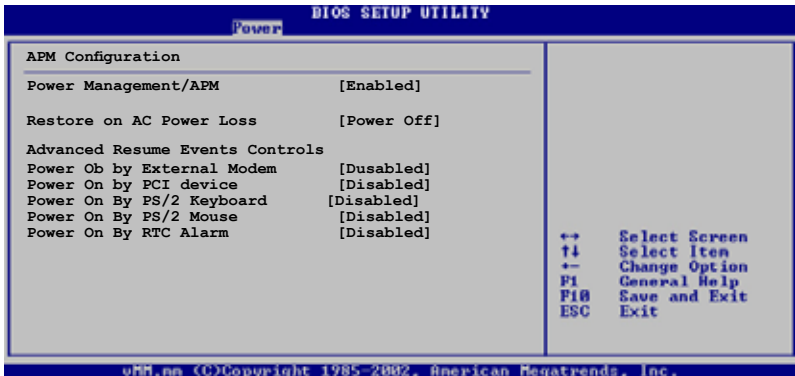
2.5.2 ACPI 2.0 Support [No]

Allows you to add more tables for Advanced Configuration and Power Interface (ACPI) 2.0 specifications. Configuration options: [No] [Yes]

2.5.3 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]

2.5.4 APM Configuration



Power Management/APM [Enabled]

Allows you to enable or disable the Advanced Power Management (APM) feature. Configuration options: [Disabled] [Enabled]

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 By External Modems [Disabled]

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



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 By PCI Devices [Disabled]

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

Power On By PS/2 Keyboard [Disabled]

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

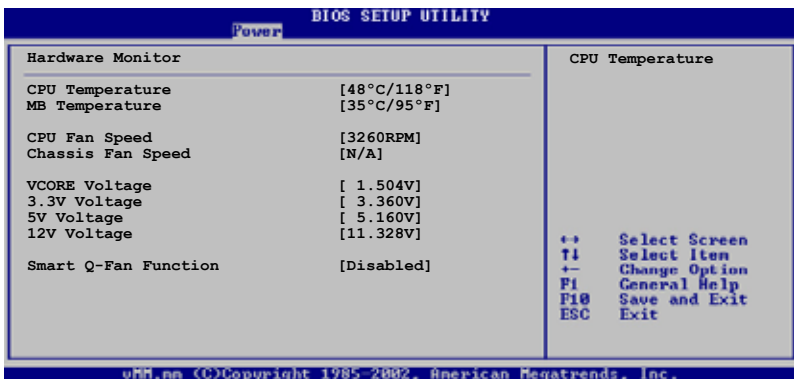
Power On By PS/2 Mouse [Disabled]

When set to [Enabled], this parameter allows you to use the PS/2 mouse to 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]

2.5.5 Hardware Monitor



CPU Temperature [xxx °C/xxx °F]

MB Temperature [xxx °C/xxx °F]

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] or [Ignored]

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.

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

The onboard hardware monitor automatically detects and displays the chassis fan speed in rotations per minute (RPM). If the fan is not connected to the chassis, the specific field shows N/A. Select Ignored if you do not wish to display the detected speed.

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 **Smart Fan Mode** appears.

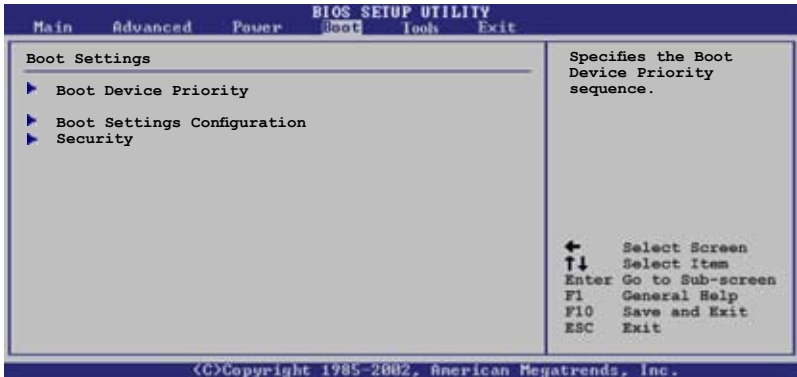
Configuration options: [Disabled] [Enabled]

Smart Fan Mode [Optimal]

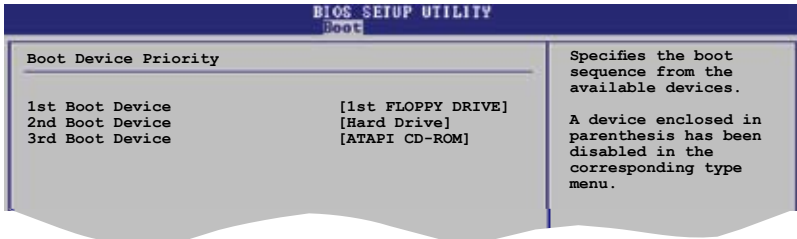
Sets the smart fan mode. Configuration options: [Performance] [Optimal] [Silent]

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.



2.6.1 Boot Device Priority

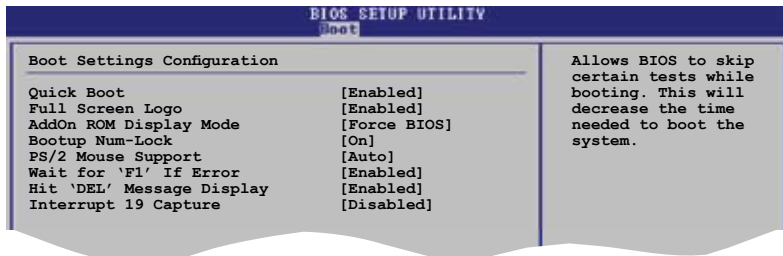


1st ~ xxth Boot Device [1st Floppy Drive]

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



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 MyLogo™ 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]

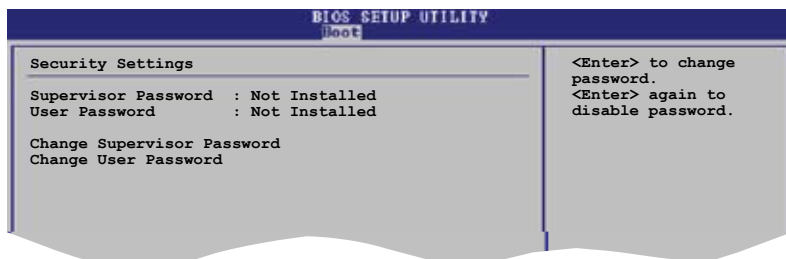
When set to Enabled, the system displays the message "Press DEL to run Setup" during POST. Configuration options: [Disabled] [Enabled]

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.



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.

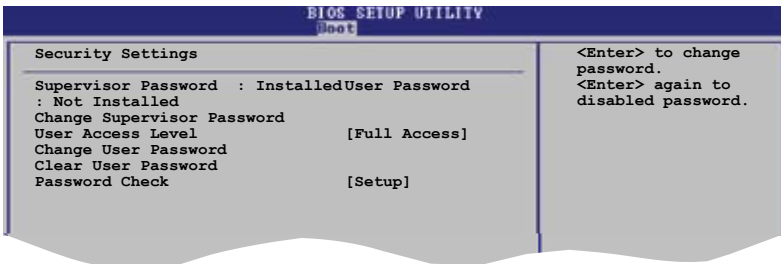
To change the supervisor password, follow the same steps as in setting a user password.

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 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.



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.

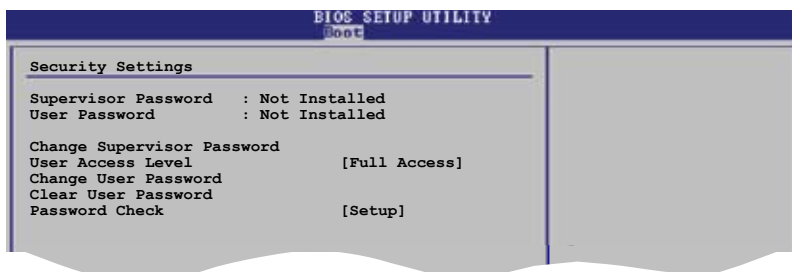
Change User Password

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.



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.

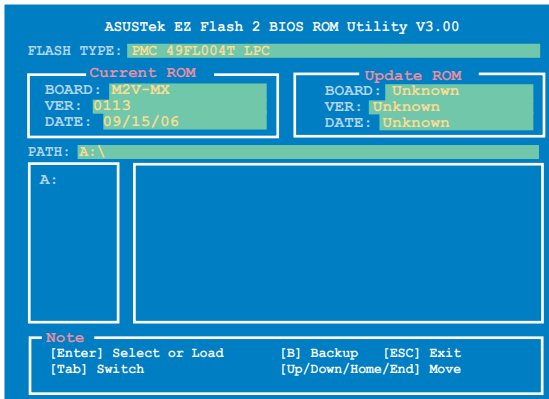
Configuration options: [Setup] [Always]

2.7 Tools menu



2.7.1 ASUS EZ Flash 2

Allows you to run ASUS EZ Flash 2. When you press <Enter>, a confirmation message appears. Use the left/right arrow key to select between [Yes] or [Cancel], then press <Enter> to confirm your choice. Please see page 2-2, section 2.1.2 for details.



2.8 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.



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.

3 Software 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.



ASUS InstAll-Drivers Installation Wizard

Installs the ASUS InstAll-Drivers Installation Wizard.

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.

JMicron JMB36X RAID Controller Driver

Installs the JMicron® JMB36X Serial ATA RAID controller driver.

Realtek RTL8100C LAN Driver

Installs the Realtek® RTL8100C LAN driver.

USB 2.0 Driver

Installs the USB 2.0 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 InstAll-Installation Wizard for Utilities

Install the ASUS InstAll-Installation Wizard.

ADOBE Acrobat Reader V7.0

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

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).

ASUS PC Probe II

This smart utility monitors the fan speed, CPU temperature, and system voltages, and alerts you of any detected problems. This utility helps you keep your computer in healthy operating condition.

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.



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.



VIA VT8237A RAID Controller Driver

Allows you to create a VIA® VT8237A RAID driver disk.

Make JMicron JMB36X 32bit SATA/RAID Driver

Allows you to create a JMicron® JMB36X 32bit RAID driver.

Make JMicron JMB36X 64bit SATA/RAID Driver

Allows you to create a JMicron® JMB36X 64bit RAID driver.

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.



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