



Athena System Manual

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Version 1.0, March 2002

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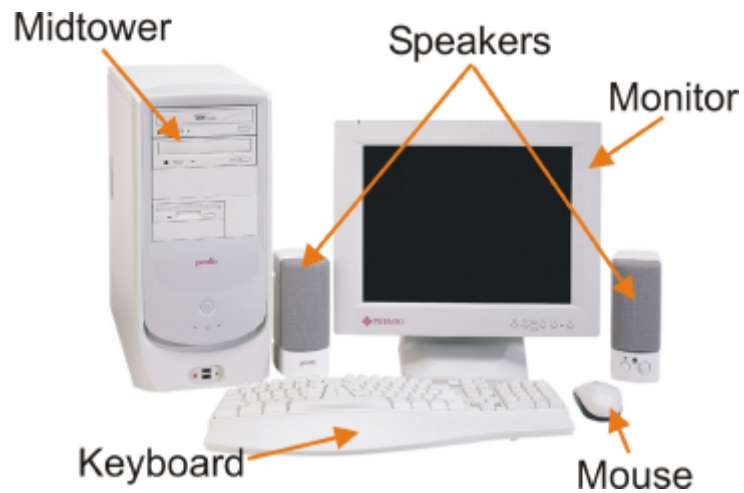
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Getting Started

Your PREMIO® Athena system typically consists of five main components:

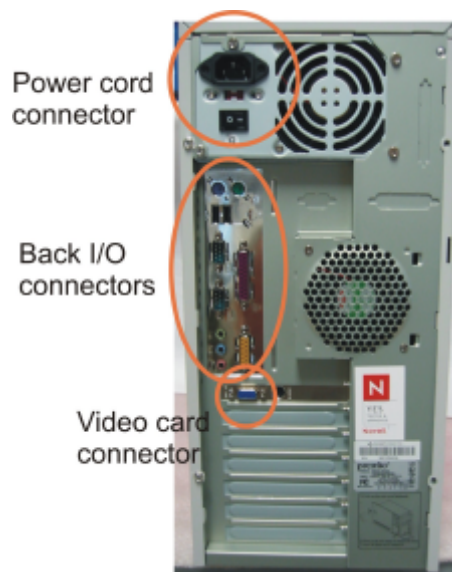
- Midtower
- Monitor
- Speakers
- Keyboard
- Mouse



Depending on which components you've ordered with your Athena system, the components shown in the picture above may vary.

Setting Up

To set up your Athena system, simply connect your monitor, mouse, keyboard, and speakers to the rear of the midtower.



1. Connect the female end of the power cord to the chassis power cord connector, and then connect the male end of the power cord to your wall outlet or power strip
2. Connect the keyboard, mouse, speakers (if any) to the back I/O connectors (see next page for details)
3. Connect your monitor to the video card connector

Connecting Your Keyboard, Mouse, and Speakers

The picture below is an enlarged view of the back I/O connectors.



The keyboard, mouse, and speakers connectors are color coded for your reference. Simply connect your keyboard to the purple keyboard connector, and your mouse to the green mouse connector.

Next, connect your speakers to the light-green connector; this is assuming you are using the **onboard audio**. If you have an add-on audio card, please consult the manual for the location of the speakers connector.

Connecting Your Monitor

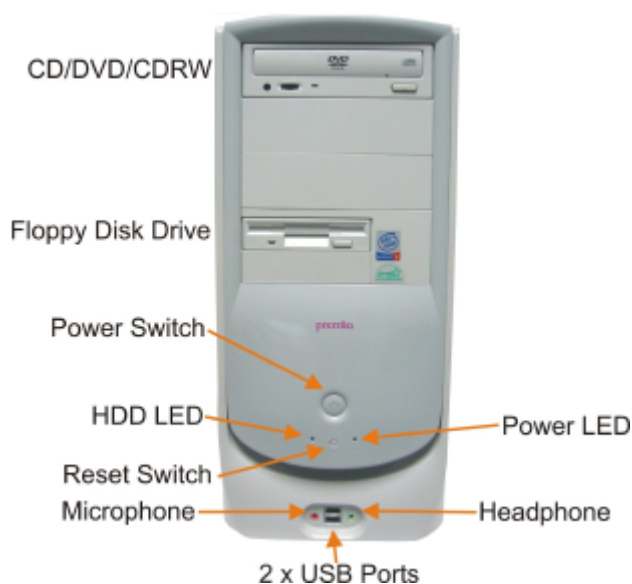
The next step is to connect your monitor to your video card. See picture below for the location of the video card connector.



Once everything is connected, you can now turn on your monitor and system. See the next page for the location of the midtower's power switch.

Switches and Indicators

The system unit's front panel provides access to the CD-ROM, DVD-ROM, or CD-RW and floppy drives, and to the system's switches and indicator LEDs.



- The **CD/DVD/CDRW drive** reads information on CDs or DVDs
- The **floppy disk drive** reads and writes data to 3.5" 1.44MB floppy disks
- The **power switch** turns the system on and off
- The **hard disk drive (HDD) LED** lights when the HDD is in use
- The **power LED** lights when the system is on
- The **reset switch** restarts the system in the event of a hardware lockup
- The **microphone connector** allows you to connect a microphone for audio input
- The **headphone connector** allows you to connect a standard headphone
- The **USB ports** allows you to connect USB devices such as printers, digital cameras, scanners, etc.

Upgrading

You can upgrade your PREMIO system with:

- Expansion cards
- Additional system memory
- Additional hard disk drive

To install an upgrade, you must open the system unit. Before proceeding, read the important cautionary note below. Then follow the steps on the next page.

Caution! *Static discharge can cause permanent damage to internal electronic components of your computer. Always use the following precautions when working inside the system unit:*

- **Avoid working in an area with carpeted floor**
- **Touch the back of the midtower's power supply first**
- **Wear a grounding wrist strap (available at most electronics stores) when handling electronic components**
- **Do not remove a component from its antistatic packaging until you are ready to install it**

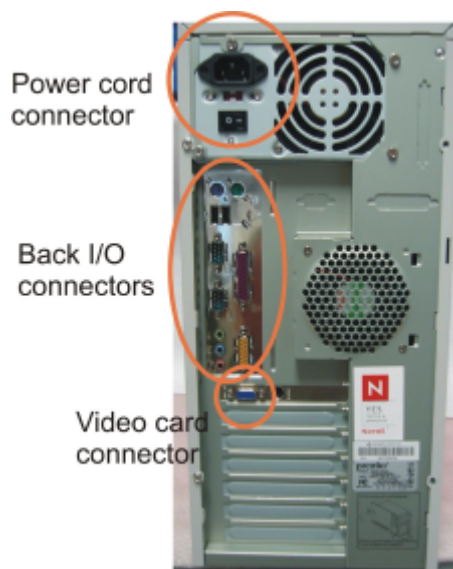
Opening the System Unit

Note *Opening the system unit could affect your warranty. Check with the dealer where you purchased your system before opening the system unit.*

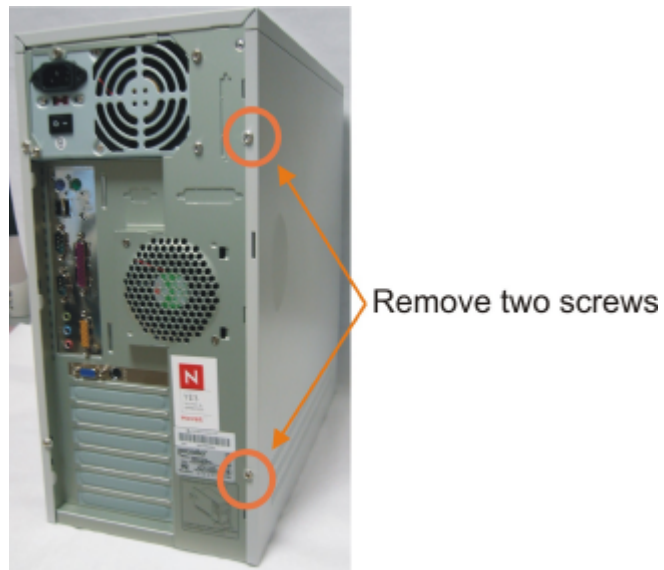
To open the system unit, you will need a standard philips (the cross head, not the flat head) screwdriver:



Turn off the system and unplug the power cord from the power cord connector (see picture below):



Next, using the screwdriver, remove the two screws as shown in the picture below.



Once the two screws are removed, you can simply slide the side cover off by pulling it towards you.

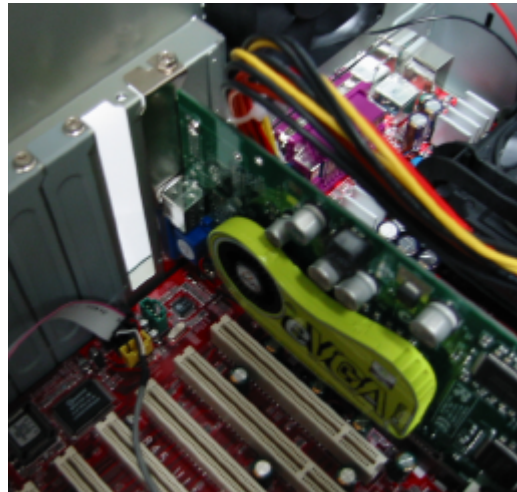
Closing the System Unit

To close the unit, slide the side panel back on and reinstall the two screws.

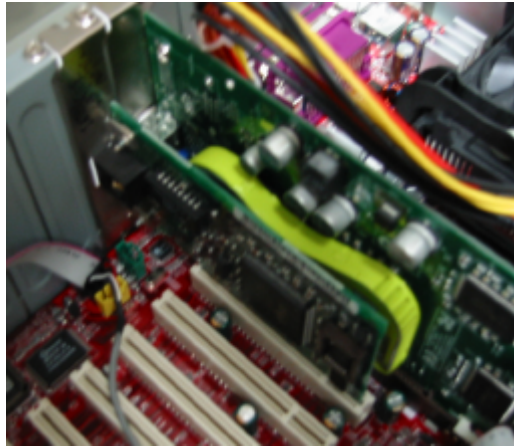
Installing an Expansion Card

To install an expansion card, open the system unit as described on the previous page.

Next, remove the screw securing the slot bracket cover for the expansion slot you want to use. Then remove the slot bracket and install your expansion card. Save the screw to secure the expansion card later. You should also keep the slot bracket, in case you wish to remove the expansion card later in then future.



Insert the expansion card firmly into the slot, making sure it is seated completely. Then install the screw onto the expansion card.



Installing Additional Memory

For details on memory configuration, including the placement and type of memory to use in your system, please refer to the motherboard user's manual that came with your system.

Installing an Additional Hard Disk Drive

To install an additional hard disk drive in your system, follow these steps:

- Disconnect the hard drive cable and power connector.
- Remove the two screws securing the drive bay.
- Slide the bay toward the rear of the system unit to remove it.
- Insert the new drive into an open position in the bay and secure it with four screws.
- Slide the bay back into the system unit and secure it with two screws.
- Connect the cables.

Getting Help

Troubleshooting

Your PREMIO system is designed to provide years of trouble-free performance. If you have a problem with your system, first check the information in this section for a quick solution.

Monitor Does Not Work

If your monitor appears not to be working properly:

Check that the monitor's power cable is securely attached to the monitor and to an outlet that is receiving power.

Check that the monitor's video cable is securely attached to the monitor and to the system unit's video card connector.

Check that the monitor's power switch is on.

Adjust the monitor's brightness and contrast controls.

If possible, substitute another monitor that is in good working order. If the substitute works, your monitor may need repair or replacement.

Keyboard Does Not Work

If the NumLock indicator in the upper right corner of the keyboard does not light when the system powers up, or the keyboard does not work:

Check that the keyboard cable is securely attached to the system unit's keyboard connector.

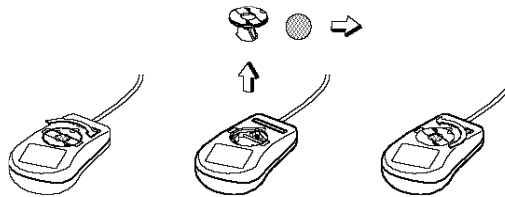
If possible, substitute another keyboard that is in good working order. If the substitute works, your keyboard may need replacement.

Mouse Does Not Work

If your mouse pointer does not move or moves erratically when you move the mouse:

Check that the mouse cable is securely attached to the mouse connector on the system unit.

Disassemble the mouse and clean the roller ball. (This does not apply if you have an optical mouse.)



System Unit Problems

The fan inside the system unit should make a low, steady sound when operating properly. If the fan is totally silent:

- Check that the system power cord is securely attached to the back of the system unit and to a power outlet. Verify that the outlet has power.
- If possible, substitute another power cord that is in good working order. If the substitute works, replace your power cord.
- If the fan makes excessive noise:
- Turn off the system, open the system unit case, and inspect the fan for any obstructions.
- Turn on the system and listen closely to the fan. If the noise comes from inside the fan housing, your power supply may need replacement.

Hard Disk Problems

Your hard disk should make a slight whirring sound when operating properly. If the disk is totally silent:

- Turn off the system, open the system unit case, and check that the power cable between the power supply and the hard disk is securely attached at both ends. If it is, your hard disk may be defective.
- If the hard disk makes excessive noise:
- Turn off the system, open the system unit case, and remove the hard disk power cable connector from the hard disk. Then turn the system back on. If the noise disappears, your hard disk may be defective.

Warranty Service

If you have a problem with your PREMIO system that requires service during the warranty period, contact the dealer where you purchased your system. Your dealer will try to resolve the problem for you. If your dealer cannot resolve the problem, you can contact PREMIO directly at the address below.

Note *To obtain warranty service, you must provide proof of purchase, including the purchase date.*

Technical Support

You can contact PREMIO technical support at the following address:

Premio Computer, Inc.
918 Radecki Court
City of Industry, CA 91748

Telephone: 800-568-6388

Fax: 626-839-3191

Email: support@premiopc.com

PREMIO on the Internet

PREMIO maintains a web page on the Internet with the latest information on PREMIO products, updated drivers, answers to common problems, an extensive component troubleshooting guide, and more. Visit our web page at:

<http://www.premiopc.com>

Appendix

Limited 3-Year Warranty

Premio Computer, Inc. warrants its line of PREMIO® computer systems (hereinafter "Product") to be free from defects in material and workmanship for a period of three (3) years from the date of original purchase from Premio Computer, Inc. or a Premio Computer, Inc. authorized reseller. This warranty does not cover monitor and LCD panels, nor third-party hardware and software which has a separate manufacturer's warranty. Warranty for such third-party hardware and software, if any, is subject to the third-party's warranty policy.

PREMIO branded monitors are warranted as follows:

- Three (3) year parts and labor except for CRT
- One (1) year parts and labor for CRT

PREMIO branded LCD panels are warranted as follows:

- One (1) year parts and labor

SERVICE UNDER WARRANTY

If this Product fails to be in good working order during this 3-year warranty period (or specific period of time as noted above), Premio Computer, Inc. will, at its option, repair or replace the Product. Repair parts and/or replacement Products may be either new or reconditioned at Premio Computer Inc.'s discretion. The limited warranty does not include service to repair damage from improper installation, abuse or modifications to the Product not approved in writing by Premio Computer, Inc. Any service repair outside the scope of this limited warranty shall be at Premio Computer, Inc.'s or its Authorized Service Provider's rates and terms in effect.

This warranty is valid only within the United States and applies only to Products which are new and in cartons which are unopened on the date of purchase.

EXCLUSIONS FROM PREMIO, INC. LIMITED WARRANTY PROGRAM

ALL OTHER EXPRESSED AND IMPLIED WARRANTIES FOR THIS PRODUCT, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED. IF THIS PRODUCT IS NOT IN GOOD WORKING ORDER AS WARRANTED ABOVE, PREMIO COMPUTER, INC.'S SOLE AND EXCLUSIVE REMEDY SHALL BE REPAIR OR REPLACEMENT AS STATED ABOVE.

IN NO EVENT WILL PREMIO COMPUTER, INC. BE LIABLE TO THE CUSTOMER OR ANY THIRD PARTY FOR ANY DAMEAGES IN EXCESS OF THE PURCHASE PRICE OF THE PRODUCT. THIS LIMITATION APPLIES TO DAMAGES OF ANY KIND INCLUDING ANY DIRECT OR INDIRECT DAMAGES, LOST PROFITS, LOST SAVINGS OR OTHER SPECIAL, INCIDENTAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES WETHER ARISING OUT OF THE USE OF OR INABILITY TO USE SUCH PRODUCT, EVEN IF PREMIO COMPUTER, INC. OR AN AUTHORIZED PREMIO COMPUTER, INC. REPRESENTATIVE OR DEALER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR OF ANY CLAIM BY ANY OTHER PARTY. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR SOME PRODUCTS, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU. PREMIO COMPUTER, INC. AUTHORIZED RESELLERS AND SERVICE PROVIDERS/PARTNERS MAY BE CHANGED, ADDED OR DELETED, WITHOUT NOTICE OR LIABILITY. PREMIO COMPUTER, INC. DISCLAIMS ANY AUTHORIZED RESELLERS AND SERVICE PROVIDER/PARTNER TO THE PROGRAM. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY FROM STATE TO STATE.

FCC Standards

The FCC (Federal Communications Commission) restricts the amount of radiation and radio frequency emissions from computing equipment.

This equipment generates and uses radio frequency energy and if not installed and used properly in strict accordance with the operation instructions, reference manuals, and the service manual, may cause interference to radio or television reception.

This equipment can be 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 the 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, then the user is encouraged to try to correct the interference by one or more of the following procedures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into 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

Important Safety Instructions

These instructions are provided by Underwriters Laboratories, Inc.

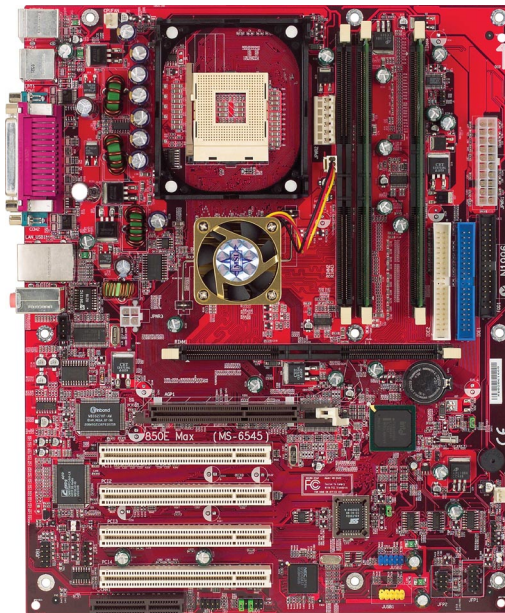
1. Read all of these instructions and save them for later reference.
2. Follow all warnings and instructions marked on the product.
3. Unplug this product from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
4. Do not use this product near water.
5. Do not place this product on an unstable cart, stand or table. The product may fall, causing serious damage to the product.
6. Slots and openings on the cabinet and the back or bottom are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, do not block or cover these openings. The openings should never be blocked by placing the product on a bed, sofa, rug or other similar surface. This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.
7. This product should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
8. This product is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.
9. Do not allow anything to rest on the power cord. Do not locate this product where the cord will be walked on.
10. If an extension cord is used with this product, make sure that the total of the ampere ratings on the products plugged into the extension cord do not exceed the extension cord ampere rating. Also, make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.
11. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.
12. Except as explained elsewhere in this manual, don't attempt to service this product yourself. Opening and removing those covers that are marked "Do Not Remove" may expose you to dangerous

voltage points or other risks. Refer all servicing on those compartments to service personnel.

13. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - A. When the power cord or plug is damaged or frayed.
 - B. If liquid has been spilled into the product.
 - C. If the product has been exposed to rain or water.
 - D. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
 - E. If the product has been dropped or the cabinet has been damaged.
 - F. If the product exhibits a distinct change in performance, indicating a need for service.

MSI 850E Max

MICRO-STAR INTERNATIONAL
MS-6545 (v2.X) ATX Mainboard



Version 2.0
G52-MA6545X1

Manual Rev: 2.0
Release Date: July 2002



FCC-B Radio Frequency Interference Statement

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 when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

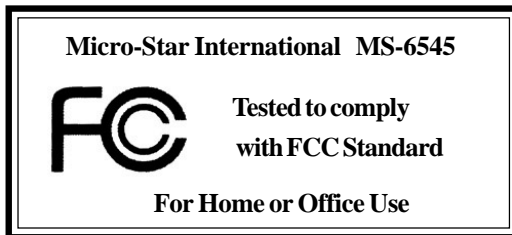
Notice 1

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2

Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

VOIR LA NOTICE D'INSTALLATION AVANT DE RACCORDER AU RESEAU.



Edition

July 2002

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Award® is a registered trademark of Phoenix Technologies Ltd.

AMI® is a registered trademark of American Megatrends Inc.

Revision History

Revision	Revision History	Date
V2.0	First release for PCB 2.X	July 2002

Safety Instructions

1. Always read the safety instructions carefully.
2. Keep this User's Manual for future reference.
3. Keep this equipment away from humidity.
4. Lay this equipment on a reliable flat surface before setting it up.
5. The openings on the enclosure are for air convection hence protects the equipment from overheating. **DO NOT COVER THE OPENINGS.**
6. Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
7. Place the power cord such a way that people can not step on it. Do not place anything over the power cord.
8. Always Unplug the Power Cord before inserting any add-on card or module.
9. All cautions and warnings on the equipment should be noted.
10. Never pour any liquid into the opening that could damage or cause electrical shock.
11. If any of the following situations arises, get the equipment checked by a service personnel:
 - The power cord or plug is damaged.
 - Liquid has penetrated into the equipment.
 - The equipment has been exposed to moisture.
 - The equipment has not work well or you can not get it work according to User's Manual.
 - The equipment has dropped and damaged.
 - The equipment has obvious sign of breakage.
12. **DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT UNCONDITIONED, STORAGE TEMPERATURE ABOVE 60°C (140°F), IT MAY DAMAGE THE EQUIPMENT.**



CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

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Getting Started

1

The 850 E Max (MS-6545 v2.X) ATX mainboard is a high-performance computer mainboard based on Intel® 850E chipset. It is optimized to support Intel® Pentium® 4 processors for high-end business/personal desktop markets, and it is a highly-flexible chipset which is designed to extend the basic graphics/multimedia PC platform up to the mainstream performance desktop platform.

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Mainboard Specification

CPU

- Supports Intel® Pentium® 4 (Willamette/Northwood) processor in the 478 pin package.
- Supports from 1.6GHz to 2.53GHz and up.

Chipset

- Intel® 850E
 - Supports Direct RDRAM up to 2GB maximum memory.
 - Supports System bus at 100/133 HMz (400/533 MHz System bus).
 - 1.5V AGP interface with 4x data transfer and 4x fast write capability.
- Intel® ICH2
 - Upstream hub interface for access to the Intel MCH.
 - 2-channel Ultra ATA 100 Bus Master IDE controller.
 - USB controller 1.1 (expanded capabilities for 4 ports).
 - I/O APIC.
 - SMBus controller.
 - FWH interfaceAuto enables onboard SCSI terminator
 - LPC interface, AC'97 2.1 interface, PCI 2.2 interface.
 - Integrated system management controller.
 - Low pin count interface for SIO.

Main Memory

- Supports four 184-pin gold-lead RIMM sockets.
- Supports a maximum memory size of 2GB.

Slots

- One AGP (Accelerated Graphics Port) 4x slot.
- Four 32-bit/33 MHz PCI bus slots.
- Support 3.3v/5v PCI bus interface.
- One CNR (Communication Network Riser) slot.

On-Board IDE

- An IDE controller on the Intel® ICH2 chipset provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA 100 operation modes.
- Can connect up to four IDE devices.

On-Board Peripherals

- Intergrated Super I/O Controller
 - 1 floppy port supports 2 FDDs with 360K, 720K, 1.2M, 1.44M and

- 2.88Mbytes.
- 2 serial ports (COM A + COM B).
- 1 parallel port supports SPP/EPP/ECP mode.
- 1 IrDA connector for SIR.
- 1 Line-in/Line-out/Mic-in port.
- 1 RJ45 connector.

USB Interface

- 4 USB 1.1 ports (Rear * 4, one for BlueTooth Networking function) and 4 NEC USB 2.0 ports (Front * 4) (Optional)

Audio

- C-Media CMI8738/PCI-6ch-LX supports 2/4/6 ch speaker
 - 6CH DAC for AC3[®] 5.1CH purpose.
 - HRTF-based 3D positional audio, supporting DirectSound™ 3D and A3D™ interface.
 - Supports 4.1/5.1 speakers, C3DX positional audio in 4/6 CH speaker mode.
 - Legacy audio SBPRO™ compatible.
 - DLS-based wavetable music synthesizer.

Intel® LAN (Optional)

- Intel® 82562ET chip
 - Integrated Fast Ethernet MAC and PHY in one chip.
 - Supports 10 Mb/s and 100 Mb/s.
 - Compliance with PCI v2.2.
 - Supports ACPI Power Management.

BIOS

- The mainboard BIOS provides “Plug & Play” BIOS which detects the peripheral devices and expansion cards of the board automatically.
- IDE drive auto configure, Advanced Power Management (APM) 1.2, ACPI 1.0a, DMI 2.0, ECC/Parity support, LS 120 support, PnP 1.0a, SMBIOS 2.3, WFM 2.0, Auto enables onboard SCSI terminator.
- Supports boot from Lan and boot from USB device.

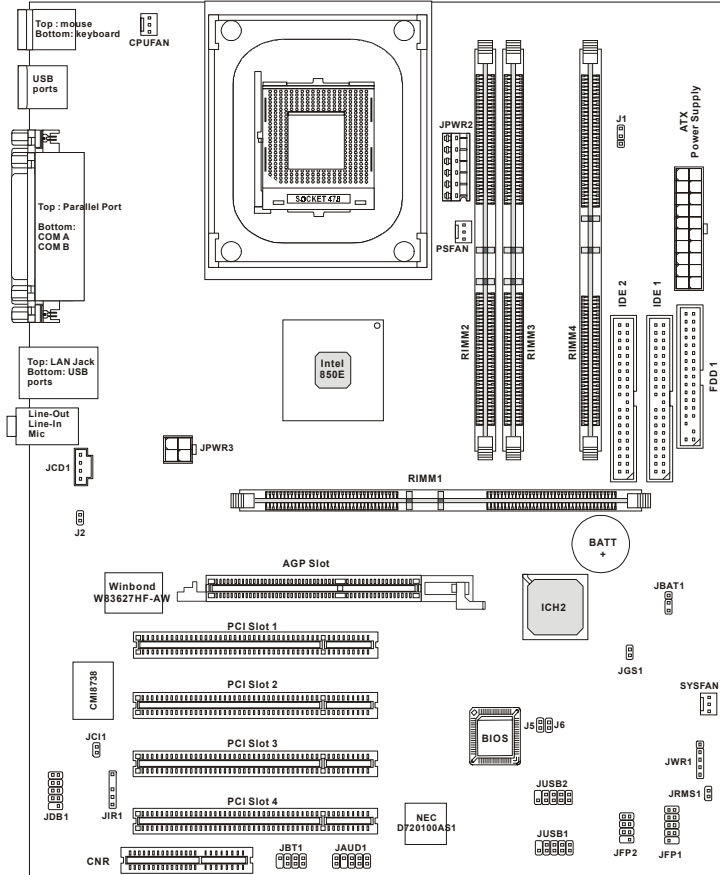
Dimension

- ATX Form Factor: 305 mm (L) x 244 mm (W) x 4 layers PCB.

Mounting

- 12 mounting holes.

Mainboard Layout



850 E Max (MS-6545 v2.X) ATX Mainboard

Quick Components Guide

Component	Function	Reference
JPWR1/2/3	ATX power connectors	See p. 2-7
JKBMS1	Mouse/keyboard connectors	See p. 2-9
USB 1.1 Connectors	Connecting to USB devices	See p. 2-10
COM A & COM B	Serial port connector	See p. 2-11
LPT1	Parallel port connector	See p. 2-12
FDD1	Floppy disk drive connector	See p. 2-13
IDE1& IDE2	Hard disk connectors	See p. 2-14
JFP1 & JFP2	Front panel connectors	See p. 2-15
CPU/SYS/PS FAN	Fan power connectors	See p. 2-16
JAUD1	Front panel audio connector	See p. 2-17
JBAT1	Bluetooth connector	See p. 2-18
JCD1	CD connector	See p. 2-19
JWR1	Wake On Ring Connector	See p. 2-19
JIR1	IrDA infrared module connector	See p. 2-20
JCI1	Chassis intrusion switch connector	See p. 2-20
JRMS1	Remote power on/off switch	See p. 2-21
JGS1	Power saving switch connector	See p. 2-21
JUSB1 & JUSB2	Front USB 2.0 Connectors	See p. 2-22
JDB1	D-Bracket connector	See p. 2-24
JBAT1	Clear CMOS jumper	See p. 2-25
J6	Clear BIOS password jumper	See p. 2-26
J5	BIOS flash jumper	See p. 2-26
J2	LAN Enable/Disable Jumper	See p. 2-27
J1	RDRAM Over Voltage Jumper	See p. 2-28
AGP Slot	Connecting to AGP cards	See p. 2-30
PCI Slots	Connecting to expansion cards	See p. 2-30
CNR Slot	Connecting to expansion cards	See p. 2-30

Chapter 1

Key Features

- ATX Form Factor
- CPU: Intel® Pentium® 4 processor in the 478 pin package
- USB PC to PC networking function (Optional)
- Fuzzy Logic 4
- Live BIOS / Live Driver
- PC Alert™ III system hardware monitor
- D-LED/D-Bracket (Optional)
- LAN/Modem Ring Wake Up Function
- Suspend to RAM/Disk
- PC2001 Compliant
- STD/STR (S3/S4)
- Chassis intrusion

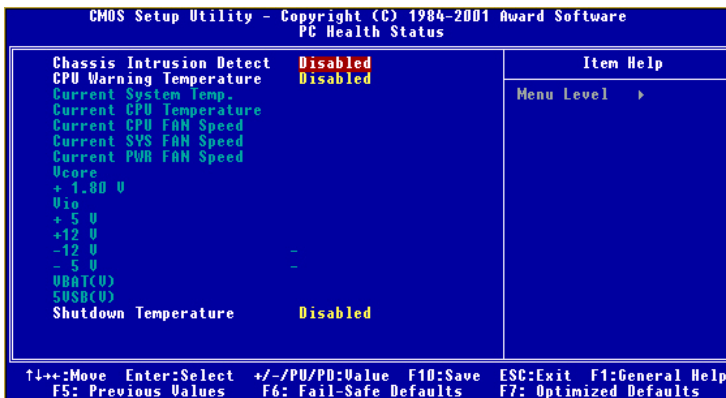
MSI Special Features

T.O.P Tech™

The T.O.P Tech™ is an extended sensing device that can 100% accurately detect the CPU's temperature. You can find out the temperature on BIOS setup menu. The PC Alert™ also provides the information.



CPU temperature on Setup menu



Fuzzy Logic™ 4

The *Fuzzy Logic™ 4* utility is a user friendly tool that allows users to view and adjust the current system status. To overclock the CPU FSB (Front Side Bus) frequency under the Windows operating system, click **FSB** and use the right and left arrow keys to select the desired FSB, and then click **Apply** to apply the new setup value. To enable the system running at the specified FSB every time when you click **Turbo**, click **Save** to save the desired FSB first. If you want to know the maximal CPU overclocking value, click **Auto** to start testing. The CPU FSB will automatically increase the testing value until the PC reboots. After rebooting, click **Turbo** to apply the test result. Click **Default** to restore the default values.



Features:

- MSI Logo links to the MSI Web site
- CPU Speed allows users to adjust the CPU speed through CPU Multiplier and FSB
- Voltage allows user to adjust the voltage of CPU/Memory/AGP
- MSI Info provides information about the mainboard, BIOS and OS
- CPU Info provides detailed information about the CPU
- CPU Fan Speed shows the current running speed of CPU Fan
- CPU Temp. shows the current CPU temperature



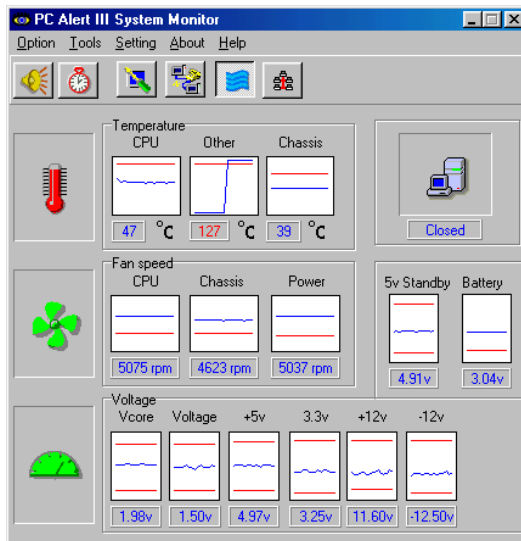
Note: To adjust the options under **CPU Speed** and **Voltage**, use the right and left arrow keys to select the desired value and then click **Apply** to run the setup value.

PC Alert™ III

The PC Alert™ III is a utility you can find in the CD-ROM disk. The utility is just like your PC doctor that can detect the following PC hardware status during real time operation:

- * monitor CPU & system temperatures
- * monitor fan speed(s)
- * monitor system voltage
- * monitor chassis intrusion

If one of the items above is abnormal, the program main screen will be immediately shown on the screen, with the abnormal item highlighted in red. This will continue to be shown until users disable the warning.



Note: Items shown on PC Alert III vary depending on your system's status.

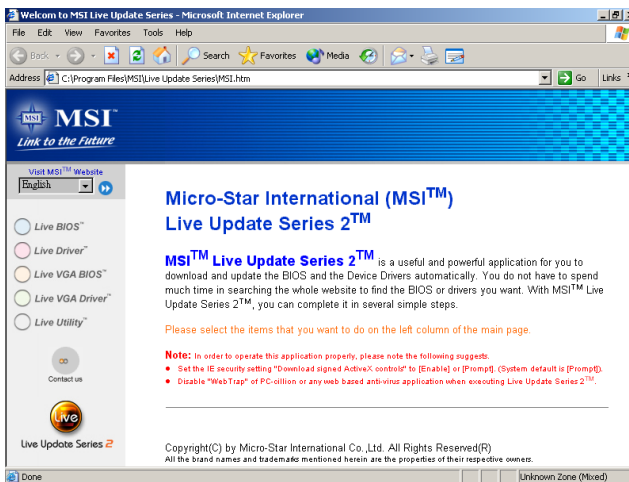
Chapter 1

Live BIOS™/Live Driver™

The Live BIOS™/Live Driver™ is a tool used to detect and update your BIOS/drivers online so that you don't need to search for the correct BIOS/driver version throughout the whole Web site. To use the function, you need to install the "MSI Live Update Series 2" application. After installation, the "MSI Live Update Series 2" icon (as shown on the right) will appear on the screen.



Double click the "MSI Live Update Series 2" icon, and the following screen will appear:



Five buttons are placed on the leftmost pane of the screen. Click the desired button to start the update process.


- **Live BIOS** – Updates the BIOS online.
- **Live Driver** – Updates the drivers online.
- **Live VGA BIOS** – Updates the VGA BIOS online.
- **Live VGA Driver** – Updates the VGA driver online.
- **Live Utility** – Updates the utilities online.

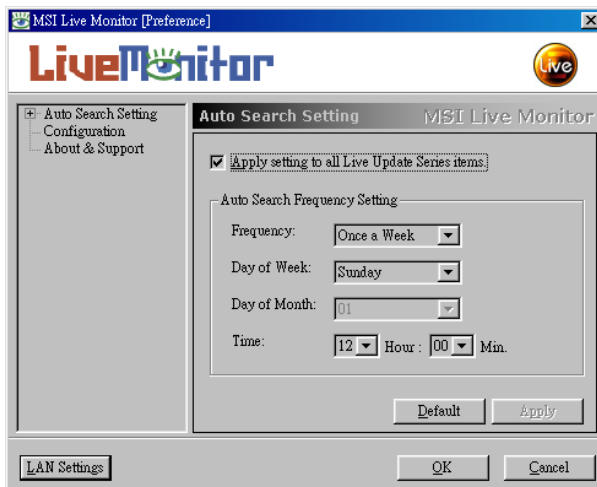
If the product you purchased does not support any of the functions listed above, a "sorry" message is displayed. For more information on the update instructions, insert the companion CD and refer to the "Live Update Series Guide" under the "Manual" Tab.

Live Monitor™

The Live Monitor™ is a tool used to schedule the search for the latest BIOS/drivers version on the MSI Web site. To use the function, you need to install the “MSI Live Update Series 2” application. After the installation, the “MSI Live Monitor” icon (as shown on the right) will appear on the screen. Double click this icon to run the application.



Double click the “MSI Live Monitor” icon  at the lower-right corner of the taskbar, and the following dialog box will appear. You can specify how often the system will automatically search for the BIOS/drivers version, or change the LAN settings right from the dialog box.



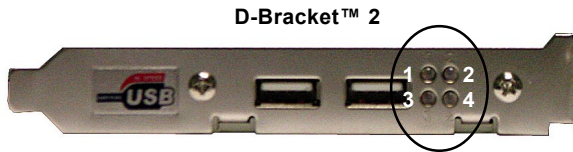
You can right-click the MSI Live Monitor icon  to perform the functions listed below:

- **Auto Search** – Searches for the BIOS/drivers version you need immediately.
- **View Last Result** – Allows you to view the last search result if there is any.
- **Preference** – Configures the Search function, including the Search schedule.
- **Exit** – Exits the Live Monitor™ application.

D-Bracket™ 2 (Optional)

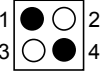









D-Bracket™ 2 is a USB bracket integrating four Diagnostic LEDs, which use graphic signal display to help users understand their system. The LEDs provide up to 16 combinations of signals to debug the system. The 4 LEDs can detect all problems that fail the system, such as VGA, RAM or other failures. This special feature is very useful for overclocking users. These users can use the feature to detect if there are any problems or failures.

D-Bracket™ 2 supports both USB 1.1 & 2.0 spec.



● Red ○ Green

D-Bracket™ 2	Description
	System Power ON - The D-LED will hang here if the processor is damaged or not installed properly.
	Early Chipset Initialization
	Memory Detection Test - Testing onboard memory size. The D-LED will hang if the memory module is damaged or not installed properly.
	Decompressing BIOS image to RAM for fast booting.
	Initializing Keyboard Controller.
	Testing VGA BIOS - This will start writing VGA sign-on message to the screen.

D-Bracket™ 2	Description
	<p>Processor Initialization</p> <p>- This will show information regarding the processor (like brand name, system bus, etc...)</p>
	<p>Testing RTC (Real Time Clock)</p>
	<p>Initializing Video Interface</p> <p>- This will start detecting CPU clock, checking type of video onboard. Then, detect and initialize the video adapter.</p>
	<p>BIOS Sign On</p> <p>- This will start showing information about logo, processor brand name, etc....</p>
	<p>Testing Base and Extended Memory</p> <p>- Testing base memory from 240K to 640K and extended memory above 1MB using various patterns.</p>
	<p>Assign Resources to all ISA.</p>
	<p>Initializing Hard Drive Controller</p> <p>- This will initialize IDE drive and controller.</p>
	<p>Initializing Floppy Drive Controller</p> <p>- This will initializing Floppy Drive and controller.</p>
	<p>Boot Attempt</p> <p>- This will set low stack and boot via INT 19h.</p>
	<p>Operating System Booting</p>

Hardware Setup

2

This chapter provides you with the information about hardware setup procedures. While doing the installation, be careful in holding the components and follow the installation procedures. For some components, if you install in the wrong orientation, the components will not work properly.

Use a grounded wrist strap before handling computer components. Static electricity may damage the components.

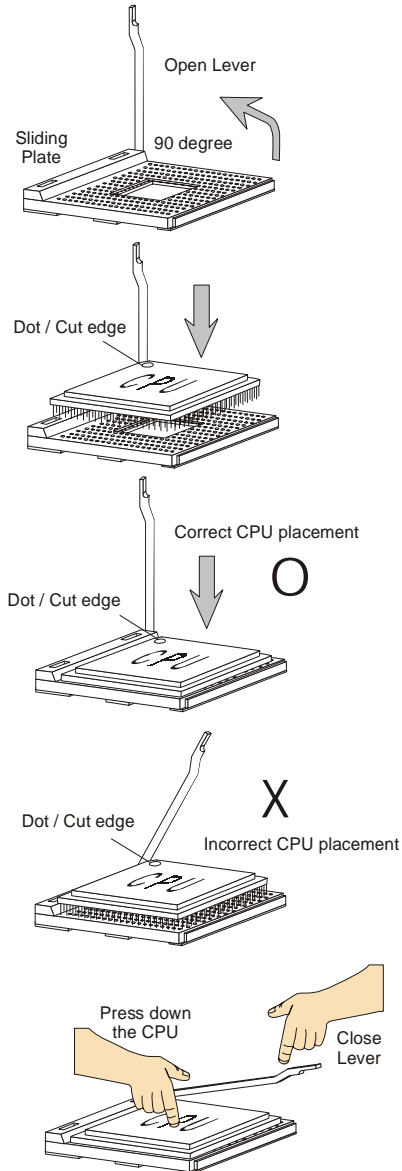
This chapter contains the following topics:

Central Processing Unit: CPU	2-2
Memory Installation	2-5
Power Supply	2-7
Back Panel	2-9
Connectors	2-13
Jumpers	2-25
Slots	2-29

Chapter 2

CPU Installation Procedures for Socket 478

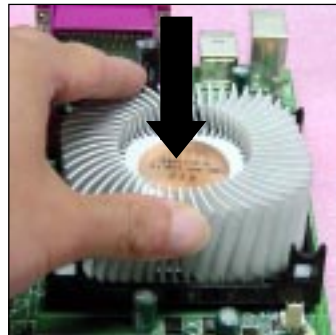
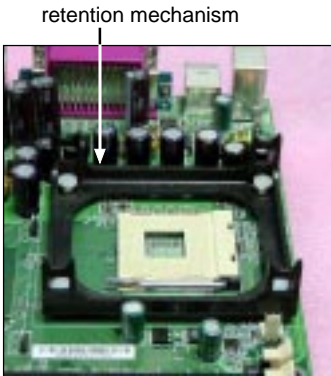
1. Please turn off the power and unplug the power cord before installing the CPU.
2. Pull the lever sideways away from the socket. Make sure to raise the lever up to a 90-degree angle.
3. Look for the cut edge. The cut edge should point towards the lever pivot. The CPU can only fit in the correct orientation.
4. If the CPU is correctly installed, the pins should be completely embedded into the socket and can not be seen. Please note that any violation of the correct installation procedures may cause permanent damages to your mainboard.
5. Press the CPU down firmly into the socket and close the lever. As the CPU is likely to move while the lever is being closed, always close the lever with your fingers pressing tightly on top of the CPU to make sure the CPU is properly and completely embedded into the socket.



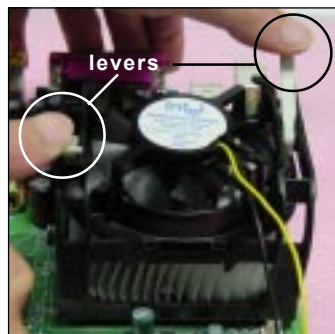
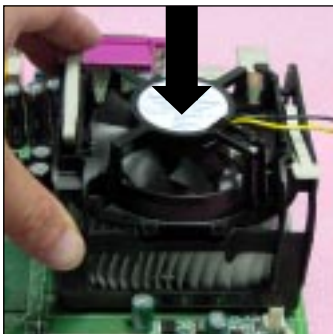
Installing the CPU Fan

As processor technology pushes to faster speeds and higher performance, thermal management becomes increasingly important. To dissipate heat, you need to attach the CPU cooling fan and heatsink on top of the CPU. Follow the instructions below to install the Heatsink/Fan:

1. Locate the CPU and its retention mechanism on the motherboard.
2. Position the heatsink onto the retention mechanism.

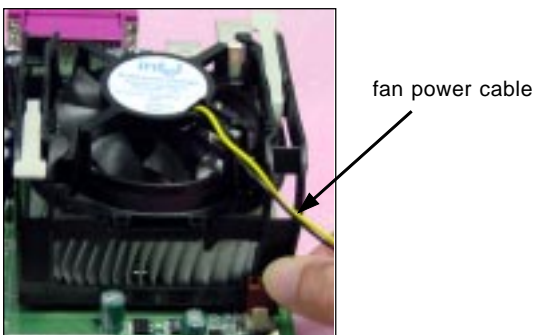


3. Mount the fan on top of the heatsink. Press down the fan until its four clips get wedged in the holes of the retention mechanism.
4. Press the two levers down to fasten the fan. Each lever can be pressed down in only ONE direction.



Chapter 2

5. Connect the fan power cable from the mounted fan to the 3-pin fan power connector on the board.



CPU Core Speed Derivation Procedure

If CPU Clock = 100MHz
Core/Bus ratio = 17
then CPU core speed = Host Clock x Core/Bus ratio
= 100MHz x 17
= 1.7GHz

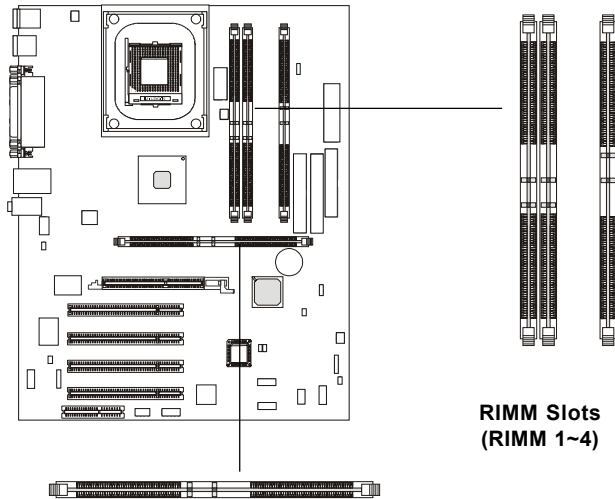


Overclocking

*This motherboard is designed to support overclocking. However, please make sure your components are able to tolerate such abnormal setting, while doing overclocking. Any attempt to operate beyond product specifications is not recommended. **We do not guarantee the damages or risks caused by inadequate operation or beyond product specifications.***

Memory Installation

The mainboard provides 4 gold-lead sockets for 184-pin RIMM modules. To operate properly, at least two RIMM modules must be installed. The mainboard supports the memory size up to 2 GB.



Memory Population Rules

- Support RIMM only.
- To operate properly, make sure that the RIMM banks are using the same type and equal size density memory.
- Support PC600/PC800 RIMM.
- Support up to 16 Direct Rambus Device.
- Support ECC Single bit Correction and Multiple bit error detection (Setting in BIOS).
- Install two RIMM modules either on “RIMM 1 and RIMM 2” or on “RIMM3 and RIMM4” slots.



About RIMM Module


RIMM module is a module integrated with RDRAM chips. It is similar to a DIMM package but uses different pin settings. Rambus trademarked the term RIMM as an entire word for a module using Rambus technology.

Chapter 2

Installing RIMM Modules

You can install two or four RIMM modules in the following combination:

DIMM Socket	Memory Module	Total Memory
Socket 1 (Bank 0 & Bank 1)	32MB, 64MB, 128MB, 256MB, 512MB	32MB ~ 512MB
Socket 2 (Bank 2 & Bank 3)	32MB, 64MB, 128MB, 256MB, 512MB	32MB ~ 512MB
Socket 3 (Bank 4 & Bank 5)	32MB, 64MB, 128MB, 256MB, 512MB	32MB ~ 512MB
Socket 4 (Bank 6 & Bank 7)	32MB, 64MB, 128MB, 256MB, 512MB	32MB ~ 512MB
Total System Memory		64MB ~ 2GB

 **Note:** If only two RIMM slots are populated, you must install C-RIMM (Continuity RIMM) modules on the other unused RIMM slots. A C-RIMM module is a dummy module for continuing the signal connection.



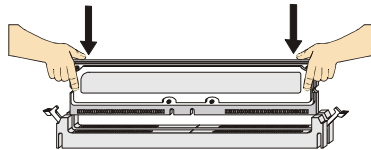
C-RIMM Module

1. The RIMM slot has 2 Notch Keys, so the RIMM memory module can only fit in one orientation.



RIMM Module

2. Insert the RIMM memory module vertically into the RIMM slot. Then push it in.



3. The plastic clips at sides of the RIMM slot will automatically close.

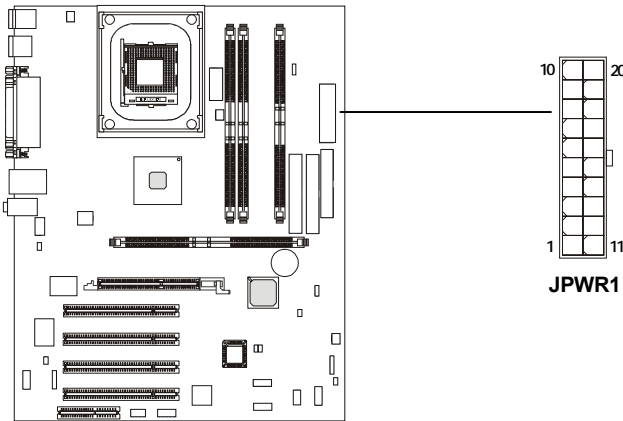
4. If you won't insert any RIMM modules on the other two RIMM slots, you must install C-RIMM modules on the empty slots.

Power Supply

The mainboard supports ATX power supply for the power system. Before inserting the power supply connector, always make sure that all components are installed properly to ensure that no damage will be caused.

ATX 20-Pin Power Connector: JPWR1

This connector allows you to connect to an ATX power supply. To connect to the ATX power supply, make sure the plugs of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector. The power connector supports **instant power on** function which means that system will boot up immediately when the power supply connector is inserted on the board.



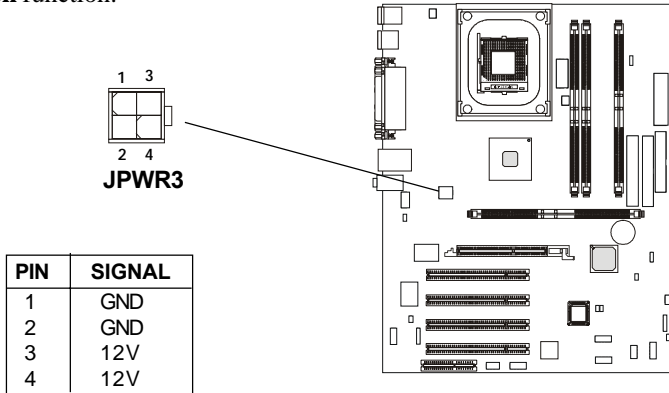
JPWR1 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS_ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW_OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V

Chapter 2

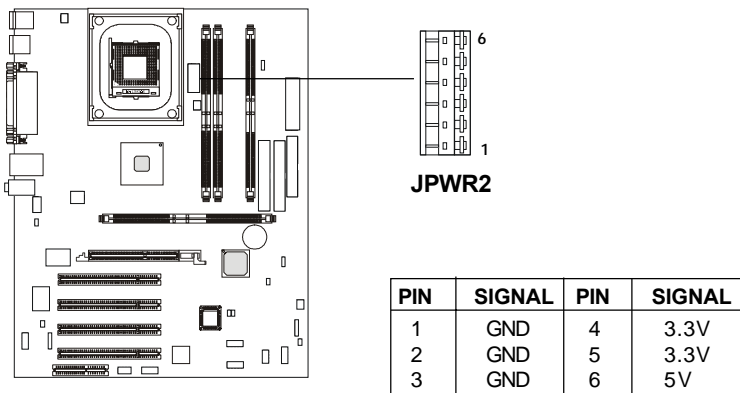
ATX 12V Power Connector: JPWR3

Attaching the ATX power supply to the connector help offer sufficient voltage to Pentium 4 CPU. This power connector also supports **instant power on** function.



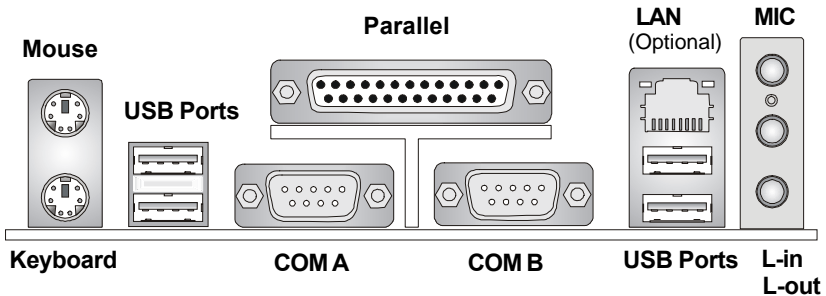
ATX 5V/3V Power Connector: JPWR2

The mainboard provides an extra 5V/3V power connector for you to connect to the ATX power supply.



Back Panel

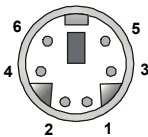
The Back Panel provides the following connectors:



Mouse Connector: JKBMS1

The mainboard provides a standard PS/2[®] mouse mini DIN connector for attaching a PS/2[®] mouse. You can plug a PS/2[®] mouse directly into this connector. The connector location and pin assignments are as follows:

Pin Definition		
PIN	SIGNAL	DESCRIPTION
1	Mouse DATA	Mouse DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Mouse Clock	Mouse clock
6	NC	No connection

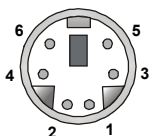


PS/2 Mouse (6-pin Female)

Chapter 2

Keyboard Connector: JKBMS1

The mainboard provides a standard PS/2[®] keyboard mini DIN connector for attaching a PS/2[®] keyboard. You can plug a PS/2[®] keyboard directly into this connector.



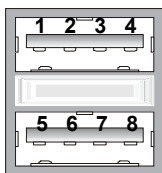
PS/2 Keyboard (6-pin Female)

Pin Definition

PIN	SIGNAL	DESCRIPTION
1	Keyboard DATA	Keyboard DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Keyboard Clock	Keyboard clock
6	NC	No connection

USB 1.1 Connectors

The mainboard provides a UHCI (Universal Host Controller Interface) Universal Serial Bus root for attaching USB devices such as keyboard, mouse or other USB-compatible devices. You can plug the USB device directly into this connector.



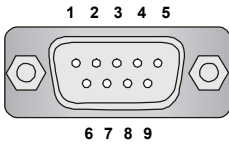
USB Ports

USB Port Description

PIN	SIGNAL	DESCRIPTION
1	VCC	+5V
2	-Data 0	Negative Data Channel 0
3	+Data0	Positive Data Channel 0
4	GND	Ground
5	VCC	+5V
6	-Data 1	Negative Data Channel 1
7	+Data 1	Positive Data Channel 1
8	GND	Ground

Serial Port Connector: COM A & COM B

The mainboard offers two 9-pin male DIN connectors for serial port COM A and COM B. The ports are 16550A high speed communication ports that send/receive 16 bytes FIFOs. You can attach a serial mouse or other serial devices directly to them.



9-Pin Male DIN Connectors

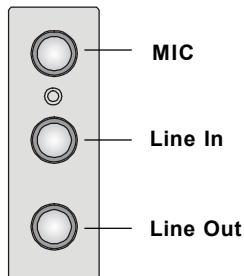
Pin Definition


PIN	SIGNAL	DESCRIPTION
1	DCD	Data Carry Detect
2	SIN	Serial In or Receive Data
3	SOUT	Serial Out or Transmit Data
4	DTR	Data Terminal Ready)
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicate

Audio Port Connectors

Line Out is a connector for Speakers or Headphones. **Line In** is used for external CD player, Tape player, or other audio devices. **Mic** is a connector for microphones.

1/8" Stereo Audio Connectors

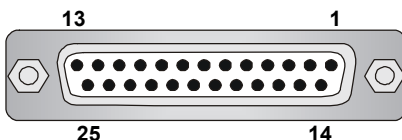


 *Note: Details on the application of 6-channel audio can be acquired by installing the CMI8738 Audio Driver on the CD-ROM (enclosed in the product package).*

Chapter 2

Parallel Port Connector: LPT1

The mainboard provides a 25-pin female centronic connector for LPT. A parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.



Pin Definition

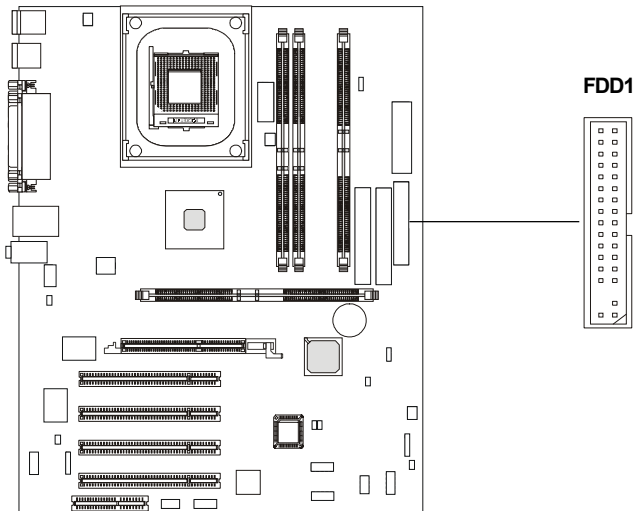
PIN	SIGNAL	DESCRIPTION
1	STROBE	Strobe
2	DATA0	Data0
3	DATA1	Data1
4	DATA2	Data2
5	DATA3	Data3
6	DATA4	Data4
7	DATA5	Data5
8	DATA6	Data6
9	DATA7	Data7
10	ACK#	Acknowledge
11	BUSY	Busy
12	PE	Paper End
13	SELECT	Select
14	AUTO FEED#	Automatic Feed
15	ERR#	Error
16	INIT#	Initialize Printer
17	SLIN#	Select In
18	GND	Ground
19	GND	Ground
20	GND	Ground
21	GND	Ground
22	GND	Ground
23	GND	Ground
24	GND	Ground
25	GND	Ground

Connectors

The mainboard provides connectors to connect to FDD, IDE HDD, case, modem, LAN, USB Ports, IR module and CPU/System FAN.

Floppy Disk Drive Connector: FDD1

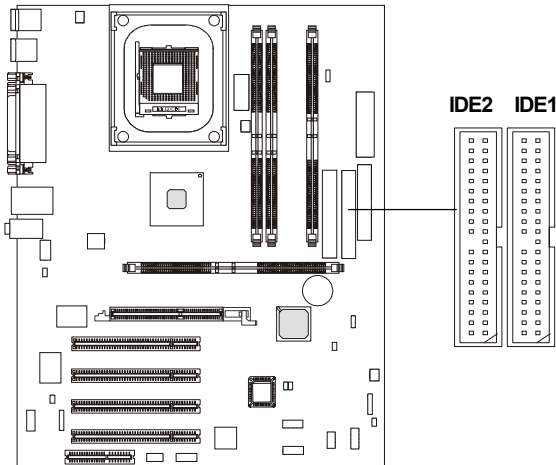
The mainboard provides a standard floppy disk drive connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types.



Chapter 2

Hard Disk Connectors: IDE1 & IDE2

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA 33/66/100 controller that provides PIO mode 0~4, Bus Master, and Ultra DMA/33/66/100 function. You can connect up to four hard disk drives, CD-ROM, 120MB Floppy (reserved for future BIOS) and other devices. These connectors support the provided IDE hard disk cable.



IDE1 (Primary IDE Connector)

The first hard drive should always be connected to IDE1. IDE1 can connect a Master and a Slave drive. You must configure second hard drive to Slave mode by setting the jumper accordingly.

IDE2 (Secondary IDE Connector)

IDE2 can also connect a Master and a Slave drive.

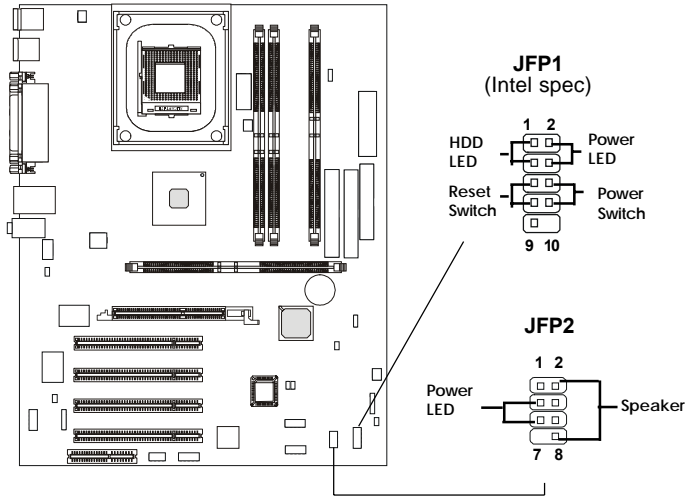


TIP:

If you install two hard disks on cable, you must configure the second drive to Slave mode by setting its jumper. Refer to the hard disk documentation supplied by hard disk vendors for jumper setting instructions.

Front Panel Connector: JFP1 and JFP2 (Optional Intel spec)

This connector is for electrical connection to the front panel switches and LEDs.



JFP1 Pin Definition

PIN	SIGNAL	DESCRIPTION
1	HD_LED_P	Hard disk LED pull-up
2	FP PWR/SLP	MSG LED pull-up
3	HD_LED_N	Hard disk active LED
4	FP PWR/SLP	MSG LED pull-up
5	RST_SW_1	Reset Switch 1
6	PWR_SW_P	Power Switch high reference pull-up
7	RST_SW_2	Reset Switch 2
8	PWR_SW_N	Power Switch low reference pull-down to GND
9	RSVD_DNU	Reserved. Do not use.

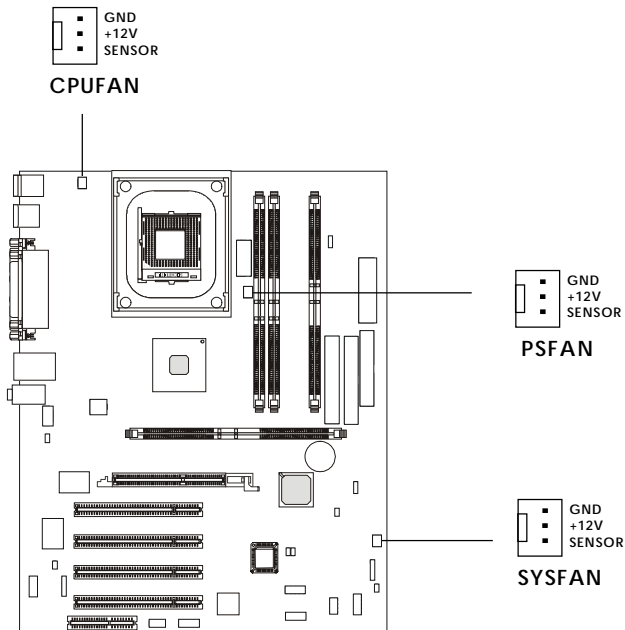
JFP2 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	GND	2	SPK-
3	SLED	4	BUZ+
5	PLED	6	BUZ-
7	NC	8	SPK+

Chapter 2

Fan Power Connectors: CPUFAN/SYSFAN/PSFAN

The CPUFAN (processor fan), SYSFAN (system fan) and PSFAN (power supply fan) support system cooling fan with +12V. It supports three-pin head connector. When connecting the wire to the connectors, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.

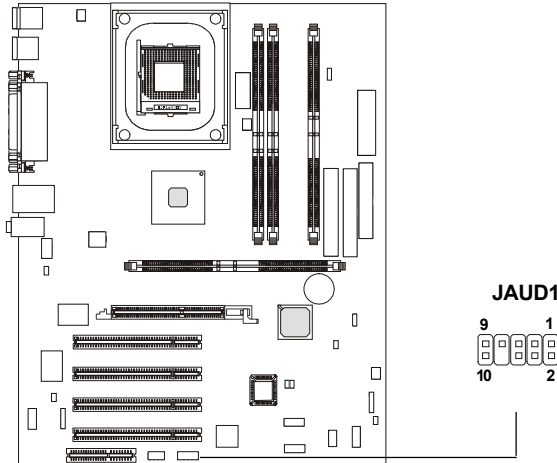


Note:

1. Always consult the vendor for proper CPU cooling fan.
2. CPU Fan supports the fan control. You can install the PC Alert utility that will automatically control the CPU Fan speed according to the actual CPU temperature.

Front Panel Audio Connector: JAUD1 (Optional Intel spec)

This connector allows you to connect to the front panel audio.



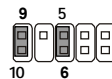
Pin Definition

PIN	SIGNAL	DESCRIPTION
1	AUD_MIC	Front panel microphone input signal
2	AUD_GND	Ground used by analog audio circuits
3	AUD_MIC_BIAS	Microphone power
4	AUD_VCC	Filtered +5V used by analog audio circuits
5	AUD_FPOUT_R	Right channel audio signal to front panel
6	AUD_RET_R	Right channel audio signal return from front panel
7	HP_ON	Reserved for future use to control headphone amplifier
8	KEY	No pin
9	AUD_FPOUT_L	Left channel audio signal to front panel
10	AUD_RET_L	Left channel audio signal return from front panel



Note:

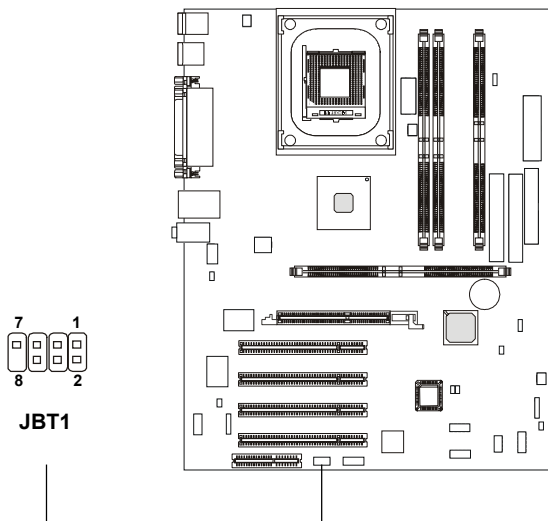
If you don't want to connect to the front audio header, pins 5 & 6, 9 & 10 have to be jumpered in order to have signal output directed to the rear audio ports. Otherwise, the Line-Out connector on the back panel will not function.



Chapter 2

Bluetooth Connector: JBT1 (Optional)

This connector is used to connect a bluetooth module for wireless connection.



Pin Definition

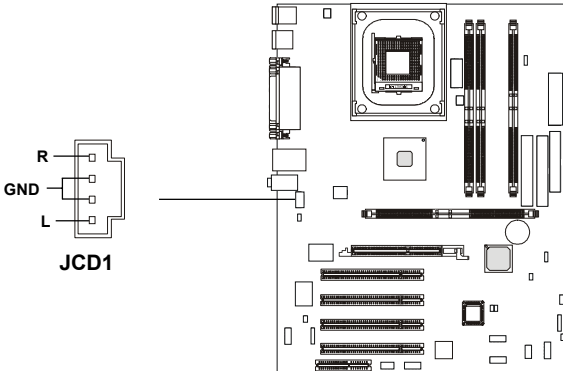
PIN	SIGNAL	PIN	SIGNAL
1	5VDUAL	2	3VDUAL
3	D+ (USB signal)	4	GND
5	D- (USB signal)	6	GND
7	GND	8	NC



Note: Because the bluetooth connector shares the USB1.1 connector, the upper USB1 USB 1.1 port will not function when you attach a bluetooth module to this connector.

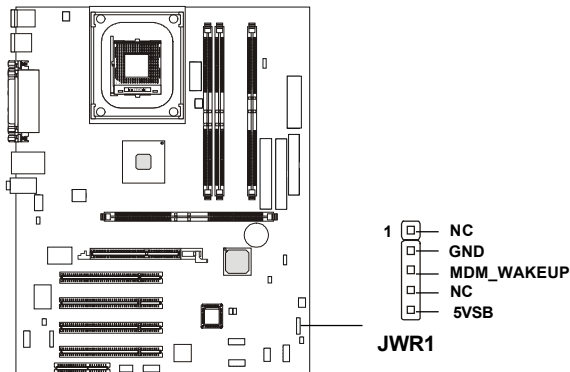
CD-In Connector: JCD1

JCD1 connector is for CD-ROM audio connector.



Wake On Ring Connector: JWR1

This connector allows you to connect to a modem card with Wake On Ring function. The connector will power up the system when a signal is received through the modem card.

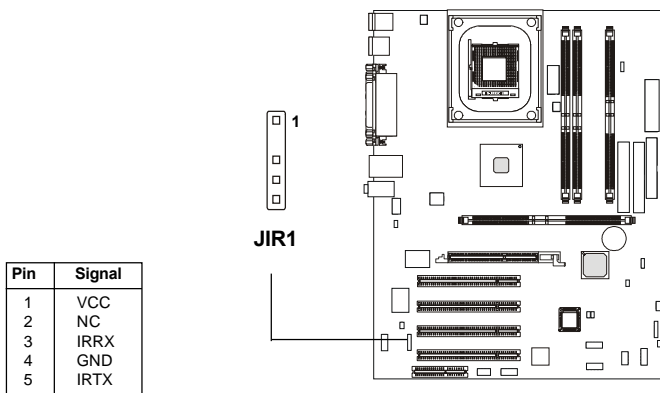


Note: Modem wake-up signal is active “low”.

Chapter 2

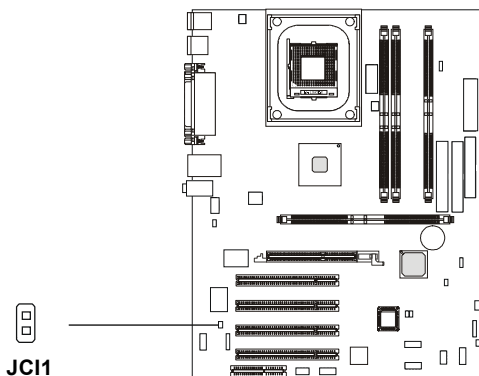
IrDA Infrared Module Connector: JIR1

This connector allows you to connect to an IrDA Infrared module. You must configure the setting through the BIOS setup to use the IR function.



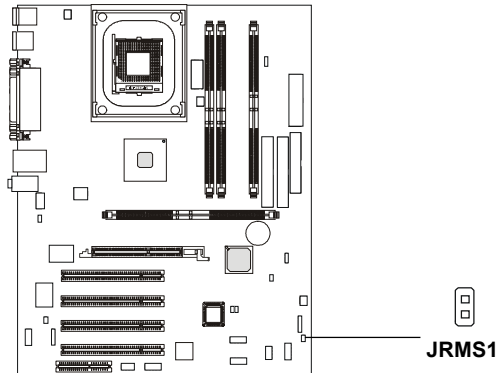
Chassis Intrusion Switch Connector: JCI1

The connector is connected to a 2-pin chassis switch. If the chassis is opened, the switch will be short. The system will record this status and show a warning message on the screen. To clear the warning, you must enter the BIOS utility and clear the record.



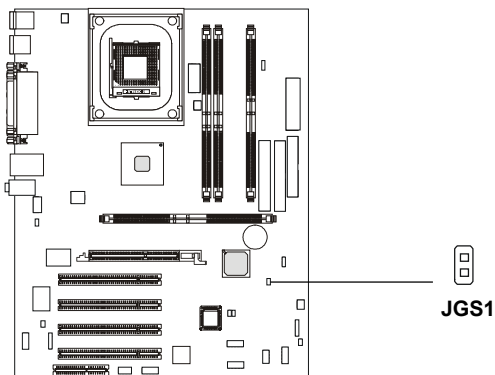
Remote Power On/Off Switch Connector: JRMS1

Connect to a 2-pin push button switch. When OFF, pressing the button can turn the system on. When ON, pressing the button once will make the system enter the sleep/suspend state. If the button is pressed for more than four seconds, the system will be turned off. To change the setup, go to the BIOS Power Management Setup.



Power Saving Switch Connector: JGS1

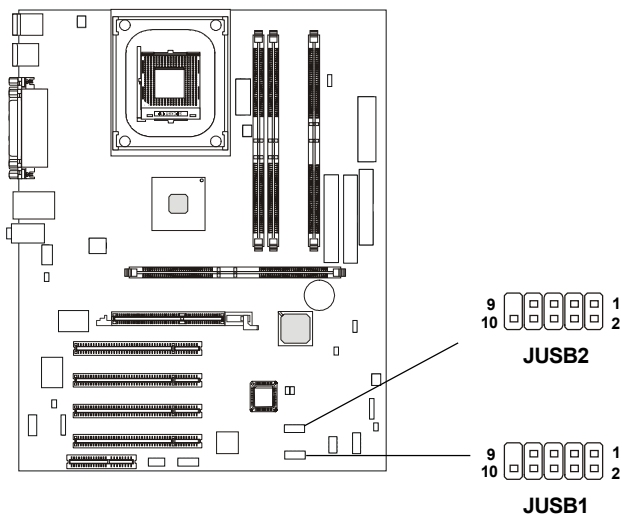
Attach a power saving switch to this connector. Pressing the switch once will have the system enter the sleep/suspend state. Press any key to wake up the system.



Chapter 2

Front USB 2.0 Connectors: JUSB1 & JUSB2 (Optional)

The mainboard provides two USB 2.0 pin headers USB1 & USB2 (optional USB 2.0 Bracket available). USB 2.0 technology increases data transfer rate up to a maximum throughput of 480Mbps, which is 40 times faster than USB 1.1, and is ideal for connecting high-speed USB interface peripherals such as **USB HDD, digital cameras, MP3 players, printers, modems and the like**. Both USB1 & USB3 are compliant with Intel[®] Front Panel I/O Connectivity Design Guide.

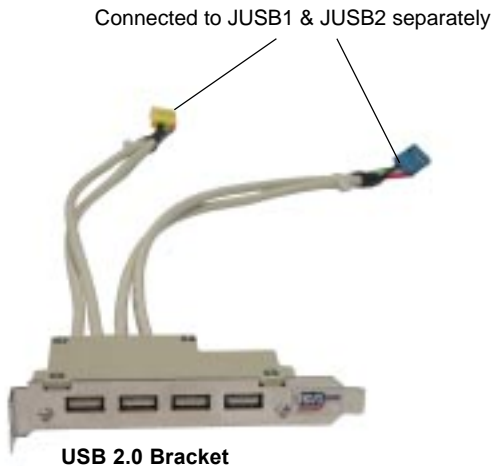


Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	USBPWR	2	USBPWR
3	USBP2-	4	USBP3-
5	USBP2+	6	USBP3+
7	GND	8	GND
9	NC	10	USBOC

To Attach the Optional USB 2.0 Ports:

1. Take out the USB 2.0 bracket
2. Locate the JUSB1 and JUSB2 pin headers on the motherboard.
3. Connect the USB cables from USB 2.0 bracket to the JUSB1 and JUSB2 pin headers separately. The blue connector of the USB bracket should be attached to the blue pin header on the board, and the yellow connector to the yellow pin header on the board.



4. Place the USB 2.0 bracket into the appropriate slot of the system case.

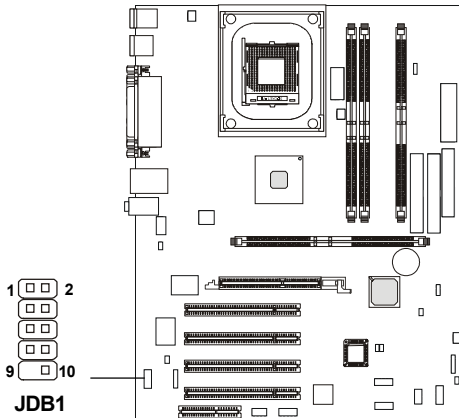


Note: The USB 2.0 controller is backwards compatible with USB 1.1 spec. To use the USB 2.0 ports, you still need to install USB 2.0 driver, which is supplied by Microsoft for Windows® 2000 and XP. If you have any problems regarding USB 2.0 driver, please visit Microsoft website for more information.

Chapter 2

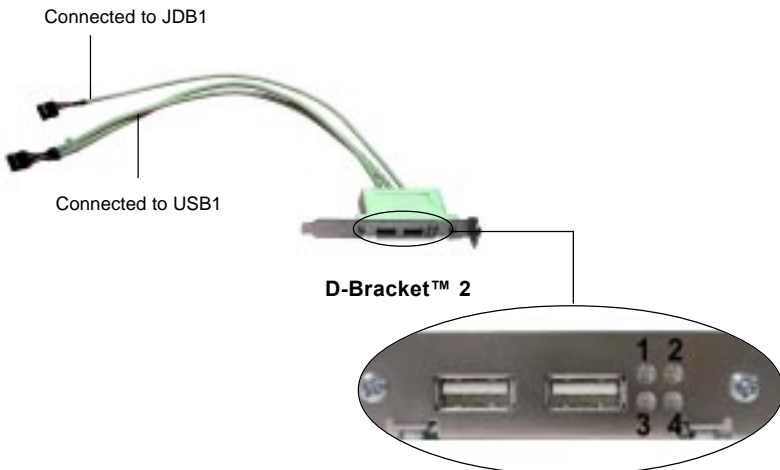
D-Bracket™ 2 Connector: JDB1

The D-Bracket™ 2 is a USB Bracket that supports both USB 1.1 & 2.0 spec. It integrates four LEDs and allows users to identify system problems through 16 various combinations of LED signals. For definitions of 16 signal combinations, please refer to *D-Bracket™ 2* in Chapter 1.



JDB1 Pin Definition

Pin	Signal
1	DBG1 (high for green color)
2	DBR1 (high for red color)
3	DBG2 (high for green color)
4	DBR2 (high for red color)
5	DBG3 (high for green color)
6	DBR3 (high for red color)
7	DBG4 (high for green color)
8	DBR4 (high for red color)
9	Key
10	NC

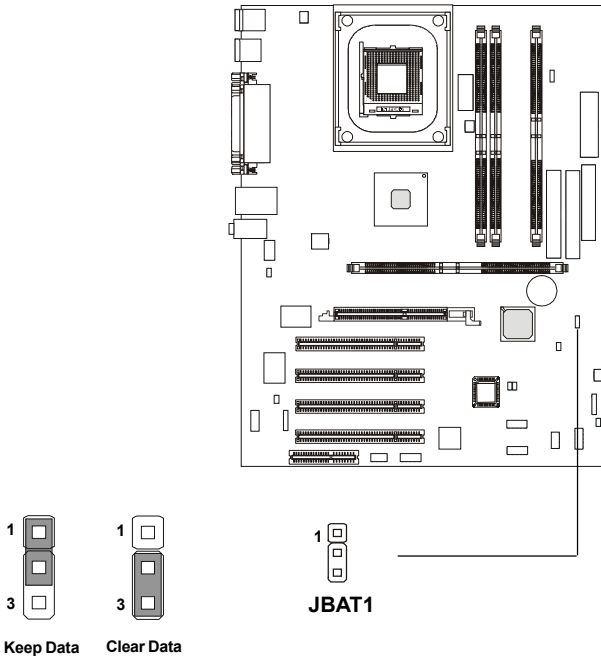


Jumpers

The motherboard provides one jumper for you to set the computer's function. This section will explain how to change your motherboard's function through the use of the jumper.

Clear CMOS Jumper: JBAT1

There is a CMOS RAM on board that has a power supply from external battery to keep the data of system configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. That battery has long life time for at least 5 years. If you want to clear the system configuration, use the JBAT1 (Clear CMOS Jumper) to clear data. Follow the instructions below to clear the data:

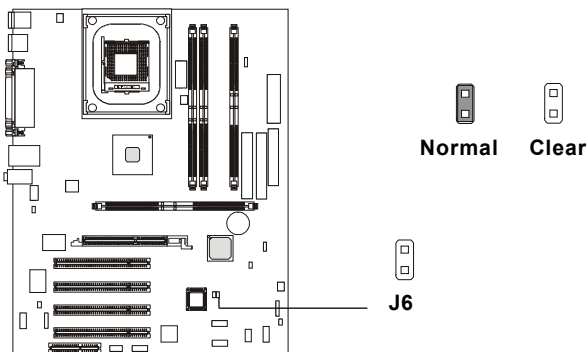


	<p><i>You can clear CMOS by shorting 2-3 pin while the system is off. Then return to 1-2 pin position. Avoid clearing the CMOS while the system is on; it will damage the mainboard.</i></p>
<p>WARNING!</p>	

Chapter 2

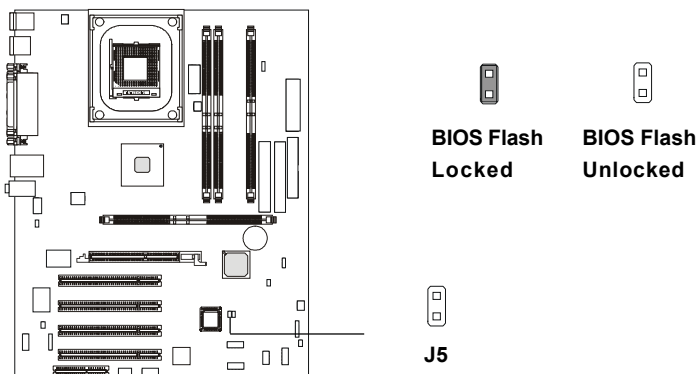
Clear BIOS Password Jumper: J6

The jumper is used to clear the BIOS password. To clear the password, open the jumper and restart your computer.



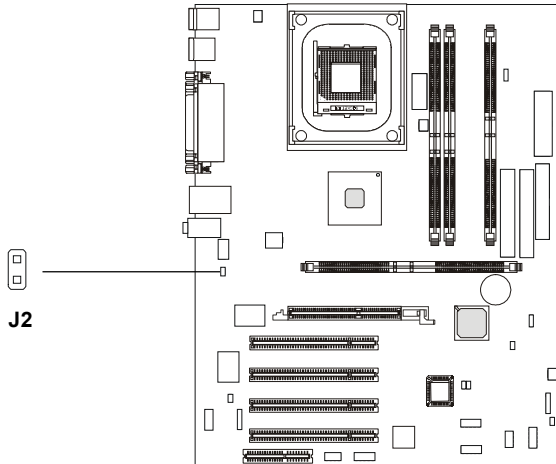
BIOS Flash Jumper: J5

This jumper is used to lock or unlock the boot block area on BIOS. When unlocked, the BIOS boot block area can be updated. When locked, the BIOS boot block area cannot be updated.



LAN Enable/Disable Jumper: J2

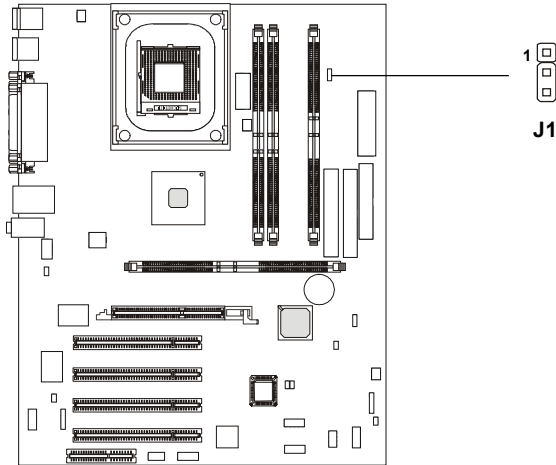
The jumper is used to disable the onboard LAN function, and the status should be set in the BIOS Setup program.



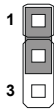
Chapter 2

RDRAM Over Voltage Jumper: J1

The jumper is used to set the RDRAM voltage for overcolcking purpose.



Normal
(2.6V)



Over Voltage
(2.58V)



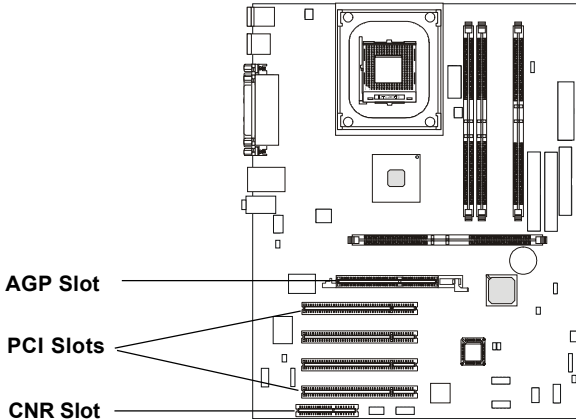
Over Voltage
(2.68V)



*This motherboard is designed to support over voltage. However, please make sure your components are able to tolerate such abnormal setting while doing over voltage. Any attempt to operate beyond product specification is not recommended. **We do not guarantee the damages or risks caused by inadequate operation or beyond product specifications.***

Slots

The motherboard provides four 32-bit Master PCI Bus Slots, one AGP and one CNR slot.



AGP (Accelerated Graphics Port) Slot

The AGP slot allows you to insert the AGP graphics card only. AGP is an interface specification designed for the throughput demands of 3D graphics. It introduces a 66MHz, 32-bit channel for the graphics controller to directly access main memory. The slot only supports **1.5V 4x** AGP card.

PCI Slots

Four PCI slots allow you to insert the expansion cards to meet your needs. When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to make any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.

CNR (Communication Network Riser) Slot

The CNR slot allows you to insert the CNR expansion cards. CNR is a specially designed network, audio, or modem riser card for ATX family motherboards. Its main processing is done through software and controlled by the motherboard's chipset.

Chapter 2

PCI Interrupt Request Routing

The IRQ, abbreviation of interrupt request line and pronounced I-R-Q, are hardware lines over which devices can send interrupt signals to the microprocessor. The PCI IRQ pins are typically connected to the PCI bus as follows:

	Order 1	Order 2	Order 3	Order 4
PCI Slot 1	INTC#	INTF#	INTG#	INTA#
PCI Slot 2	INTF#	INTG#	INTA#	INTC#
PCI Slot 3	INTG#	INTA#	INTC#	INTF#
PCI Slot 4	INTA#	INTC#	INTF#	INTG#

AWARD® BIOS Setup 3

The mainboard uses AWARD® BIOS Setup program that provides a Setup utility for users to modify the basic system configuration. The information is stored in a battery-backed CMOS RAM so it retains the Setup information when the power is turned off.

This chapter provides you with the overview of the BIOS Setup program. It contains the following topics:

<i>Entering Setup</i>	3-2
<i>Control Keys</i>	3-2
<i>Getting Help</i>	3-3
<i>The Main Menu</i>	3-4
<i>Standard CMOS Features</i>	3-6
<i>Advanced BIOS Features</i>	3-8
<i>Advanced Chipset Features</i>	3-12
<i>Integrated Peripherals</i>	3-14
<i>Power Management Setup</i>	3-19
<i>PNP/PCI Configurations</i>	3-23
<i>PC Health Status</i>	3-25
<i>Frequency/Voltage Control</i>	3-26
<i>High System Performance</i>	3-28
<i>Load Optimized Defaults</i>	3-29
<i>Set Supervisor/User Password</i>	3-30
<i>Save & Exit Setup</i>	3-32
<i>Exit Without Saving</i>	3-33

Chapter 3

Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press key to enter Setup.

Press DEL to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

Control Keys

<↑>	Move to the previous item
<↓>	Move to the next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Enter>	Select the item
<Esc>	Jumps to the Exit menu or returns to the main menu from a submenu
<+/PU>	Increase the numeric value or make changes
<-/PD>	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F6>	Load the default CMOS value from Fail-Safe default table, only for Option Page Setup Menu
<F7>	Load Optimized defaults
<F10>	Save all the CMOS changes and exit

Getting Help

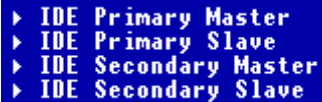
After entering the Setup menu, the first menu you will see is the Main Menu.

Main Menu

The main menu lists the setup functions you can make changes to. You can use the control keys (↑↓) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Sub-Menu

If you find a right pointer symbol (as shown in the right view) appears to the left of certain fields that means a sub-menu containing additional options can be launched from this field. You can use control keys (↑↓) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press <Esc>.



```
▶ IDE Primary Master
▶ IDE Primary Slave
▶ IDE Secondary Master
▶ IDE Secondary Slave
```

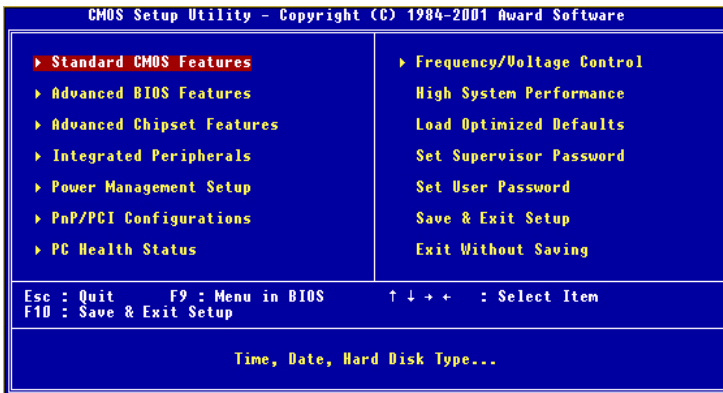
General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

Chapter 3

The Main Menu

Once you enter Award® BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from twelve setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.



Standard CMOS Features

Use this Menu for basic system configurations.

Advanced BIOS Features

Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

PC Health Status

This entry shows your PC health status.

Frequency/Voltage Control

Use this menu to specify your settings for frequency/voltage control.

High System Performance

Use this menu to load the BIOS values for the best system performance, but the system stability may be affected.

Load Optimized Defaults

Use this menu to load factory default settings into the BIOS for optimal and stable system operations.

Set Supervisor/User Password

Use this menu to set User and Supervisor Passwords.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

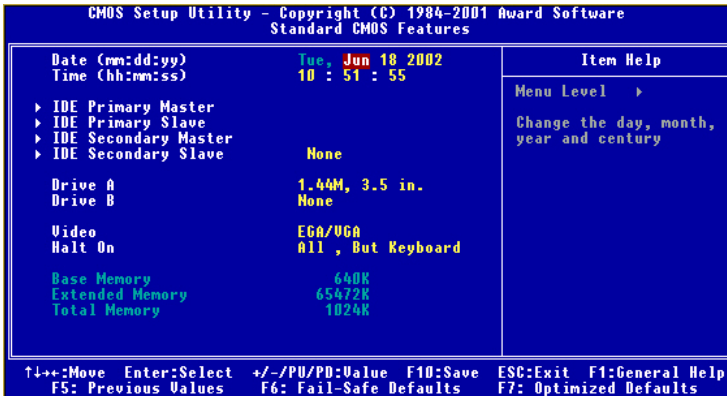
Exit Without Saving

Abandon all CMOS value changes and exit setup.

Chapter 3

Standard CMOS Features

The items in Standard CMOS Features Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.



Date

The date format is <day><month> <date> <year>.

day Day of the week, from Sun to Sat, determined by BIOS. Read-only.

month The month from Jan. through Dec.

date The date from 1 to 31 can be keyed by numeric function keys.

year The year, depends on the year of the BIOS

Time

The time format is <hour> <minute> <second>.

IDE Primary/Secondary Master/Slave

Press PgUp/<+> or PgDn/<-> to select Manual, None, Auto type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Manual to define your own drive type manually.

If you select Manual, related information is asked to be entered to the follow-

ing items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is SCSI, the selection shall be “None”.

If the controller of HDD interface is CD-ROM, the selection shall be “None”.

Access Mode	The settings are CHS, LBA, Large, Auto.
Capacity	The formatted size of the storage device.
Cylinder	Number of cylinders.
Head	Number of heads.
Precomp	Write precompensation.
Landing Zone	Cylinder location of the landing zone.
Sector	Number of sectors.

Drive A/B

This item allows you to set the type of floppy drives installed. Available options are *None*, *360K, 5.25 in.*, *1.2M, 5.25 in.*, *720K, 3.5 in.*, *1.44M, 3.5 in.*, *2.88M, 3.5 in.*

Video

The setting controls the type of video adapter used for the primary monitor of the system. Available options are *EGA/VGA* , *CGA 40*, *CGA 80* and *Mono*.

Halt On

The setting determines whether the system will stop if an error is detected at boot. Available options are:

<i>All Errors</i>	The system stops when any error is detected.
<i>No Errors</i>	The system doesn't stop for any detected error.
<i>All, But Keyboard</i>	The system doesn't stop for a keyboard error.
<i>All, But Diskette</i>	The system doesn't stop for a disk error.
<i>All, But Disk/Key</i>	The system doesn't stop for either a disk or a keyboard error.

Advanced BIOS Features



Virus Warning

The setting is to set the virus warning feature for IDE hard disk boot sector protection. If the function is enabled and any attempt to write data into this area is made, BIOS will display a warning message on the screen and beep. Setting options: *Disabled, Enabled.*

BIOS Flash Write Control

This function protects the BIOS from accidental corruption by unauthorized users or computer viruses. When disabled, the BIOS' data cannot be changed when attempting to update the BIOS with a Flash utility. To successfully update the BIOS, you'll need to enable this BIOS Flash Write Control function. Setting options: *Disabled, Enabled.*

CPU L1 & L2 Cache

Cache memory is additional memory that is much faster than conventional DRAM (system memory). When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU. This setting enables/disables the internal cache (also known as L1 or level 1 cache) and external cache (also known as L2 or level 2 cache). Setting options: *Disabled, Enabled.*

Quick Power On Self Test

The option speeds up Power On Self Test (POST) after you power on the

computer. When setting the item to *Enabled*, BIOS will shorten or skip some check items during POST. Setting options: *Enabled, Disabled*.

First/Second/Third Boot Device

The items allow you to set the sequence of boot devices where BIOS attempts to load the disk operating system. The settings are:

<i>Floppy</i>	The system will boot from floppy drive.
<i>LS120</i>	The system will boot from LS-120 drive.
<i>HDD-0</i>	The system will boot from the first HDD.
<i>SCSI</i>	The system will boot from the SCSI.
<i>CDROM</i>	The system will boot from the CD-ROM.
<i>HDD-1</i>	The system will boot from the second HDD.
<i>HDD-2</i>	The system will boot from the third HDD.
<i>HDD-3</i>	The system will boot from the fourth HDD.
<i>ZIP100</i>	The system will boot from ATAPI ZIP drive.
<i>USB-FDD</i>	The system will boot from the USB FDD.
<i>USB-ZIP</i>	The system will boot from the USB ZIP drive.
<i>USB-CDROM</i>	The system will boot from the USB CD-ROM
<i>USB-HDD</i>	The system will boot from the USB HDD.
<i>LAN</i>	The system will boot from the Network drive.
<i>Disabled</i>	Disable this sequence.

Boot Other Device

Setting the option to *Enabled* allows the system to try to boot from other device if the system fails to boot from the First/Second/Third boot device.

Swap Floppy Drive

Setting to *Enabled* will swap floppy drives A: and B:.

Boot Up Floppy Seek

Setting to *Enabled* will make BIOS seek floppy drive A: before booting the system. Settings: *Disabled* and *Enabled*.

Boot Up NumLock Status

This setting is to set the Num Lock status when the system is powered on. Setting to *On* will turn on the Num Lock key when the system is powered on. Setting to *Off* will allow users to use the arrow keys on the numeric keypad. Setting options: *On, Off*.

Chapter 3

Gate A20 Option

This item is to set the Gate A20 status. A20 refers to the first 64KB of extended memory. When the default value *Fast* is selected, the Gate A20 is controlled by Port92 or chipset specific method resulting in faster system performance. When *Normal* is selected, A20 is controlled by a keyboard controller or chipset hardware.

Typematic Rate Setting

This setting is used to enable or disable the typematic rate setting including Typematic Rate & Typematic Delay.

Typematic Rate (Chars/Sec)

After *Typematic Rate Setting* is enabled, this item allows you to set the rate (characters/second) at which the keys are accelerated. Settings: *6, 8, 10, 12, 15, 20, 24* and *30*.

Typematic Delay (Msec)

This item allows you to select the delay between when the key was first pressed and when the acceleration begins. Settings: *250, 500, 750* and *1000*.

Security Option

This specifies the type of BIOS password protection that is implemented. Settings are described below:

Option	Description
<i>Setup</i>	The password prompt appears only when end users try to run Setup.
<i>System</i>	A password prompt appears every time when the computer is powered on or when end users try to run Setup.

APIC Mode

This field is used to enable or disable the APIC (Advanced Programmable Interrupt Controller). Due to compliance to PC2001 design guide, the system is able to run in APIC mode. Enabling APIC mode will expand available IRQs resources for the system. Settings: *Enabled, Disabled*.

MPS Version Control For OS

This field allows you to select which MPS (Multi-Processor Specification) version to be used for the operating system. You need to select the MPS version supported by your operating system. To find out which version to use, consult the vendor of your operating system. Settings: *1.4* and *1.1*.

OS Select For DRAM > 64MB

This allows you to run the OS/2® operating system with DRAM greater than 64MB. Setting options: *Non-OS2*, *OS2*.

HDDS.M.A.R.T. Capability

This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) capability for the hard disks. S.M.A.R.T. is a utility that monitors your disk status to predict hard disk failure. This gives you an opportunity to move data from a hard disk that is going to fail to a safe place before the hard disk becomes offline. Settings: *Enabled* and *Disabled*.

Report No FDD For WIN 95

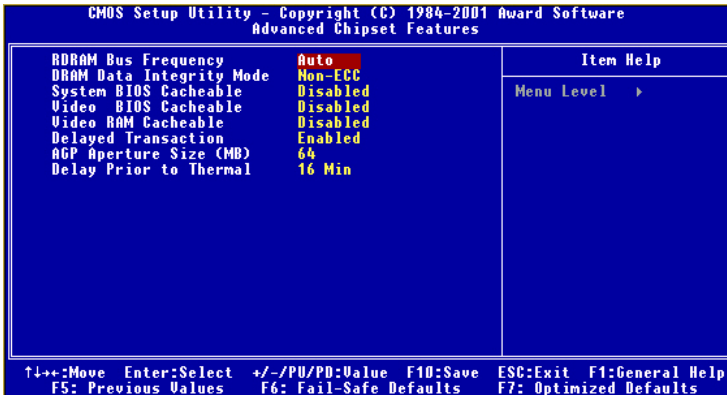
For compatibility with Windows 95 logo certification, select *Yes* to release IRQ6 when the system contains no floppy drive. When this setting is set to *Yes*, users have to select *Disabled* for the *Onboard FDC Controller* in the Integrated Peripherals menu. Setting options: *Yes*, *No*.

Chapter 3

Advanced Chipset Features

The Advanced Chipset Features Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.

Choose the “ADVANCED CHIPSET FEATURES” from the Main Menu and the following screen will appear.



Note: Change these settings only if you are familiar with the chipset.

RDRAM Bus Frequency

This setting allows you to set the bus frequency for installed RDRAM. Setting options: *Auto, 533MHz, 400 MHz, 300 MHz.*

DRAM Data Integrity Mode

Select *ECC* (Error-Checking & Correcting Code) or *Non-ECC* according to the type of DRAM installed.

System BIOS Cacheable

Selecting *Enabled* allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result. Setting options: *Enabled, Disabled.*

Video BIOS Cacheable

Selecting *Enabled* allows caching of the video BIOS ROM at C0000h to C7FFFh, resulting in better video performance. However, if any program writes to this

memory area, a system error may result. Setting options: *Enabled, Disabled*.

Video RAM Cacheable

Selecting *Enabled* allows caching of the video memory (RAM) at A0000h to AFFFFh, resulting in better video performance. However, if any program writes to this memory area, a memory access error may result. Setting options: *Disabled, Enabled*.

Delayed Transaction

The chipset has an embedded 32-bit posted write buffer to support delayed transactions cycles so that transactions to and from the ISA bus are buffered and PCI bus can perform other transactions while the ISA transaction is underway. Select *Enabled* to support compliance with PCI specification version 2.1. Setting options: *Enabled, Disabled*.

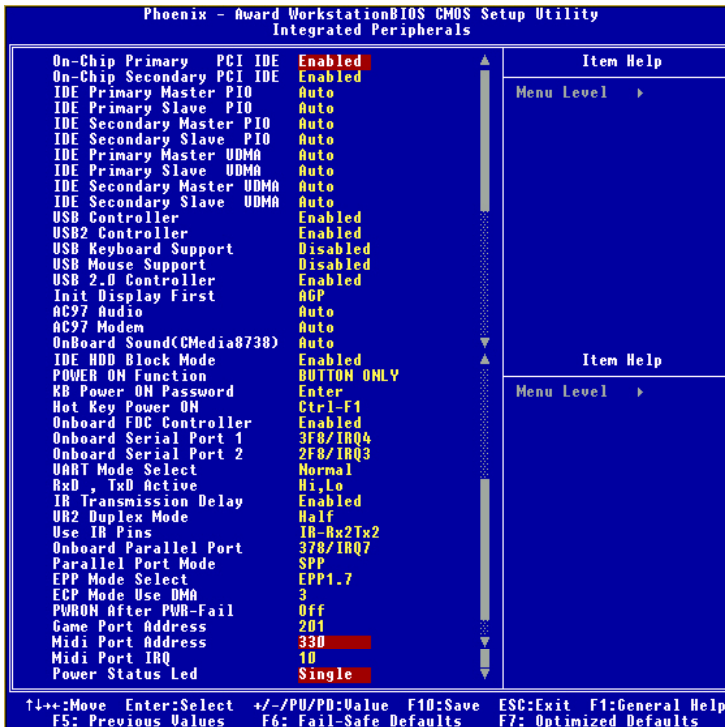
AGP Aperture Size (MB)

This setting controls just how much system RAM can be allocated to AGP for video purposes. The aperture is a portion of the PCI memory address range dedicated to graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. The option allows the selection of an aperture size of *4MB, 8MB, 16MB, 32MB, 64MB, 128MB, and 256MB*.

Delay Prior to Thermal

When the CPU temperature reaches a factory preset level, a thermal monitoring mechanism will be enabled following the appropriate timing delay specified in this field. With the thermal monitoring enabled, clock modulation controlled by the processor's internal thermal sensor is also activated to keep the processor within allowable temperature limit. Setting options: *4 Mins, 8 Mins, 16 Mins, 32 Mins*.

Integrated Peripherals



On-Chip Primary/Secondary PCI IDE

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Choose *Enabled* to activate each channel separately.

IDE Primary/Secondary Master/Slave PIO

The four items allow you to set a PIO (Programmed Input/Output) mode for each of the four IDE devices that the onboard IDE interface supports. *Modes 0~4* provide increased performance. In *Auto* mode, BIOS automatically determines the best mode for each IDE device.

IDE Primary/Secondary Master/Slave UDMA

Ultra DMA implementation is possible only if your IDE device supports it and your operating environment contains a DMA driver. If both your hard drive and software support Ultra DMA 33/66/100, select *Auto* to enable BIOS support.

USB/USB2 Controller

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals. Setting options: *Enabled, Disabled*.

USB Keyboard Support

Set to *Enabled* if your need to use an USB keyboard in the operating system that does not support or have any USB driver installed, such as DOS and SCO Unix.

USB Mouse Support

Set to *Enabled* if your need to use an USB mouse in the operating system that does not support or have any USB driver installed, such as DOS and SCO Unix.

USB 2.0 Controller

Select *Enabled* if your system contains a Universal Serial Bus (USB) 2.0 controller and you have USB 2.0 peripherals. Setting options: *Enabled, Disabled*.

Init Display First

This item specifies which VGA card is your primary graphics adapter. Settings: *PCI Slot* and *AGP*.

AC'97 Audio

Auto allows the mainboard to detect whether an audio device is used. If the device is detected, the onboard AC'97 (Audio Codec'97) controller will be enabled; if not, it is disabled. Disable the controller if you want to use other controller cards to connect an audio device. Settings: *Auto, Disabled*.

AC'97 Modem

Auto allows the mainboard to detect whether a modem is used. If a modem is used, the onboard MC'97 (Modem Codec'97) controller will be enabled; if not, it is disabled. Disable the controller if you want to use other controller cards to connect to a modem. Settings: *Auto, Disabled*.

Onboard Sound (CMedia8738)

This setting enables/disables the onboard sound chip CMedia8738. The onboard audio controller will be enabled if the device is detected. If you want to use other controller cards to connect an audio device, disable the controller. Settings: *Auto, Disabled*.

Chapter 3

IDE HDD Block Mode

This allows your hard disk controller to use the fast block mode to transfer data to and from the hard disk drive. Block mode is also called block transfer, multiple commands or multiple sector read/write. *Enabled* enables IDE controller to use block mode; *Disabled* allows the controller to use standard mode.

POWER ON Function

This controls which part on the PS/2 mouse or keyboard can power on the system. Settings: *Password*, *Hot KEY*, *Mouse Left*, *Mouse Right*, *Any Key*, *BUTTON ONLY* and *Keyboard 98*.

KB Power ON Password

If *POWER ON Function* is set to *Password*, then you can set a password in the field for the PS/2 keyboard to power on the system.

Hot Key Power ON

If *POWER ON Function* is set to *Hot KEY*, you can assign a hot key combination in the field for the PS/2 keyboard to power on the system. Settings: *Ctrl-F1* through *Ctrl-F12*.

Onboard FDC Controller

The item is used to enable or disable the onboard Floppy controller. Select *Enabled* when you have installed a floppy disk drive and want to use it.

Onboard Serial Port 1/2

The items specify the base I/O port address and IRQ for the onboard Serial Port A/Serial Port B. Selecting *Auto* allows BIOS to automatically determine the correct base I/O port address. Settings: *Disabled*, *3F8/IRQ4*, *2F8/IRQ3*, *3E8/IRQ4*, *2E8/IRQ3* and *Auto*.

UART Mode Select

The field allows you to specify the operation mode for serial port "COM B". Settings are:

Normal: RS-232C Serial Port

IrDA: IrDA-compliant Serial Infrared Port

ASKIR: Amplitude Shift Keyed Infrared Port

RxD, TxD Active

This setting controls the receiving and transmitting speed of the IR peripheral

in use. Setting options: *Hi/Hi, Hi/Lo, Lo/Hi, Lo/Lo*.

IR Transmission Delay

This setting determines whether the IR transmission rate will be delayed while converting to receiving mode. Setting options: *Disabled, Enabled*.

UR2 Duplex Mode

This setting controls the operating mode of IR transmission/reception. Setting options: *Full, Half*. Under Full Duplex mode, synchronous, bi-directional transmission/reception is allowed. Under Half Duplex mode, only asynchronous, bi-directional transmission/reception is allowed.

Use IR Pins

Please consult your IR peripheral documentation to select the correct setting of the TxD and RxD signals. Setting options: *RxD2/TxD2, IR-Rx2Tx2*.

Onboard Parallel Port

This specifies the I/O port address and IRQ of the onboard parallel port. Settings: *378/IRQ7, 278/IRQ5, 3BC/IRQ7* and *Disabled*.

Parallel Port Mode

SPP : Standard Parallel Port

EPP : Enhanced Parallel Port

ECP : Extended Capability Port

ECP + EPP: Extended Capability Port + Enhanced Parallel Port

SPP/EPP/ECP/ECP+EPP/Normal

To operate the onboard parallel port as Standard Parallel Port only, choose "SPP." To operate the onboard parallel port in the EPP mode simultaneously, choose "EPP." By choosing "ECP", the onboard parallel port will operate in ECP mode only. Choosing "ECP + EPP" will allow the onboard parallel port to support both the ECP and EPP modes simultaneously.

EPP Mode Select

The onboard parallel port is EPP Spec. compliant, so after the user chooses the onboard parallel port with the EPP function, the following message will be displayed on the screen: "EPP Mode Select." At this time either EPP 1.7 spec or EPP 1.9 spec can be chosen.

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ECP Mode Use DMA

The ECP mode has to use the DMA channel, so choose the onboard parallel port with the ECP feature. After selecting it, the following message will appear: “ECP Mode Use DMA.” At this time, the user can choose between DMA channel 3 or 1.

PWRON After PWR-Fail

This setting specifies whether your system will reboot after a power failure or interrupts occurs. Available settings are:

- Off* Leaves the computer in the power off state.
- On* Reboots the computer.
- Former-Sts* Restores the system to the status before power failure or interrupt occurs.

Game Port Address

This setting disables or assigns an address for the onboard game/midi port. Settings: *Disabled, 201, 209*.

Midi Port Address

This setting specifies the base I/O port address for the onboard midi port. Settings: *Disabled, 330, 300, 290*.

Midi Port IRQ

This setting specifies which IRQ the midi port will use. Settings: *5, 10*.

Power Status Led

This item sets how the system uses Power LED on the case to indicate the suspend/sleep state. Settings are:

- Single* The Power LED blinks to indicate the suspend/sleep state.
- Dual* The Power LED changes its color to indicate the suspend/sleep state.

Power Management Setup

The Power Management Setup allows you to configure your system to most effectively save energy while operating in a manner consistent with your own style of computer use.



ACPI Function

This item is to activate the ACPI (Advanced Configuration and Power Management Interface) Function. If your operating system is ACPI-aware, such as Windows 98SE/2000/ME, select *Enabled*. Settings: *Enabled* and *Disabled*.

ACPI Suspend Type

This item specifies the power saving modes for ACPI function. Options are:

- S1 (POS)* The S1 sleep mode is a low power state. In this state, no system context (CPU or chipset) is lost and hardware maintains all system context.
- S3 (STR)* The S3 sleep mode is a power-down state in which power is supplied only to essential components such as main memory and wake-capable devices and all system con-

Chapter 3

text is saved to main memory. The information stored in memory will be used to restore the PC to the previous state when an “wake up” event occurs.

Run VGABIOS if S3 Resume

This item allows the system to initialize the VGA BIOS from S3 (Suspend to RAM) sleep state. Setting options: *Auto, Yes, No.*

Power Management

This item is used to select the degree (or type) of power saving and is related to these modes: Suspend Mode and HDD Power Down. There are three options for power management:

- User Define* Allows end users to configure each mode separately.
- Min Saving* Minimum Power Management. Suspend Mode = 1 Hour, and HDD Power Down = 15 Min.
- Max Saving* Maximum Power Management. Suspend Mode = 1 Min, and HDD Power Down = 1 Min.

Video Off Method

This determines the manner in which the monitor is blanked.

- Blank Screen* This option only writes blanks to the video buffer.
- V/H SYNC+Blank* This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
- DPMS* Initial display power management signaling.

Video Off In Suspend

This setting determines whether the monitor will be turned off during suspend mode. Setting options: *Yes, No.*

Suspend Type

This setting allows you to select the type of Suspend mode. Setting options: *Stop Grant* (saves the state of the entire system to disk and then powers off the system), *PwrOn Suspend* (the CPU and core system remain powered on in a very low-power mode).

Modem Use IRQ

Name the interrupt request (IRQ) line assigned to the modem (if any) on your

system. Activity of the selected IRQ always awakens the system. Settings are 3, 4, 5, 7, 9, 10, 11 and NA.

Suspend Mode

After the selected period of system inactivity, all devices except the CPU shut off. Settings are *Disabled, 1 Min, 2 Min, 4 Min, 8 Min, 12 Min, 20 Min, 30 Min, 40 Min* and *1 Hour*.

HDD Power Down

If HDD activity is not detected for the length of time specified in this field, the hard disk drive will be powered down while all other devices remain active. Settings are *Disabled* and *1 through 15 Min*.

Soft-Off by PWR-BTTN

This feature allows users to configure the power button function. Settings are:

Instant-Off The power button functions as a normal power-on/-off button.

Delay 4 Sec. When you press the power button, the computer enters the suspend/sleep mode, but if the button is pressed for more than four seconds, the computer is turned off.

Wake Up by PCI Card, Power On by Ring, Wake Up On LAN, USB KB Wake-Up From S3

These fields specify whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or component is detected.



Note: To use the function of "Power On by Ring", you need to install a modem/LAN card supporting power on function.

CPU THRM-Throttling

The item allows you to specify the CPU speed (at percentage) to which it will slow down when the CPU reaches the predetermined overheat temperature. Settings range from 12.5% to 87.5% at 12.5% increment.

Resume by Alarm

The field is used to enable or disable the feature of booting up the system on a scheduled time/date.

Chapter 3

Date (of Month) Alarm

The field specifies the date for Resume by Alarm. Settings: 0~31.

Time (hh:mm:ss) Alarm

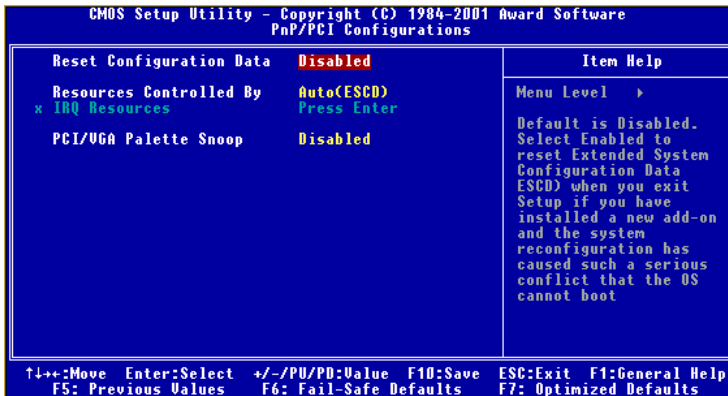
The field specifies the time for *Resume by Alarm*. Format is <hour> <minute><second>.

Reload Global Timer Events: Primary IDE 0/1, Secondary IDE 0/1, FDD/COM/LPT Port, PCIPIRQ [A-D]#

Global Timer Events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to a device that is configured as *Enabled*, even when the system is in a power down mode.

PNP/PCI Configurations

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.



Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot. The settings are: *Enabled* and *Disabled*.

Resource Controlled By

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows 95/98. If you set this field to “manual” choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a “>”). The settings are: *Auto (ESCD)*, *Manual*.

IRQ Resources

The items are adjustable only when *Resources Controlled By* is set to *Manual*.

Chapter 3

Press <Enter> and you will enter the sub-menu of the items. IRQ Resources list IRQ 3/4/5/7/9/10/11/12/14/15 for users to set each IRQ a type depending on the type of device using the IRQ. Settings are:

- PCI Device* For Plug & Play compatible devices designed for PCI bus architecture.
- Reserved* The IRQ will be reserved for further request.

PCI/VGA Palette Snoop

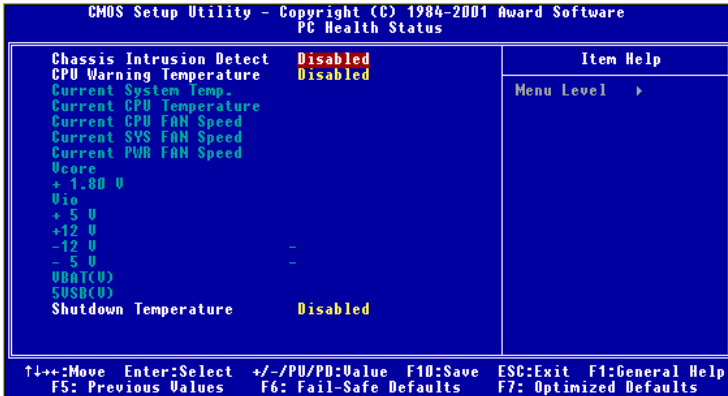
When set to *Enabled*, multiple VGA devices operating on different buses can handle data from the CPU on each set of palette registers on every video device. Bit 5 of the command register in the PCI device configuration space is the VGA Palette Snoop bit (0 is disabled). For example, if there are two VGA devices in the computer (one PCI and one ISA) and the:

VGA Palette Snoop Bit Setting	Action
<i>Disabled</i>	Data read or written by the CPU is only directed to the PCI VGA device's palette registers.
<i>Enabled</i>	Data read or written by the CPU is directed to both the PCI VGA device's palette registers and the ISA VGA device's palette registers, permitting the palette registers of both VGA devices to be identical.

The setting must be set to *Enabled* if any ISA bus adapter in the system requires VGA palette snooping.

PC Health Status

This section shows the status of your CPU, fan, warning for overall system status.



Chassis Intrusion Detect

Set this option to enable, reset, or disable the chassis intrusion detector. During *Enabled*, any intrusion on the system chassis will be recorded. The next time you turn on the system, it will show a warning message. To be able to clear those warnings, choose *Reset*. After clearing the message it will go back to *Enabled*.

CPU Warning Temperature

If the CPU temperature reaches the upper limit preset in this setting, the warning mechanism will be activated. This helps you to prevent the CPU overheat problem.

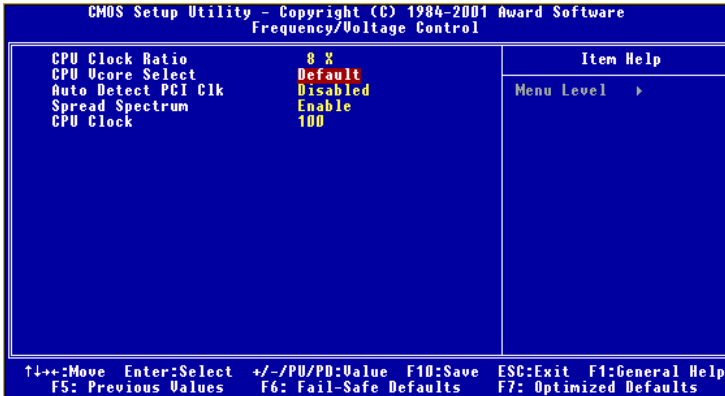
Current System/CPU Temperature, Current CPU/SYS/PWR FAN Speed, Vcore, +1.80 V, Vio, +5 V, +12 V, -12 V, -5 V, VBAT(V), 5VSB(V)

These items display the current status of all of the monitored hardware devices/components such as CPU voltages, temperatures and all fans' speeds.

Shutdown Temperature

The setting allows ACPI-aware OS to automatically shutdown if the system temperature reaches a thermal level preset in the field. This can prevent the system components from being damaged due to overheat.

Frequency/Voltage Control



CPU Clock Ratio

This setting controls the multiplier that is used to determine the internal clock speed of the processor relative to the external or motherboard clock speed.

CPU Vcore Select

This setting allows you to set the CPU core voltage. Setting options: *Default*, *+25mV*, *+50mV*, *+75mV*, *+100mV*, *+125mV*, *+150mV*.

Auto Detect PCI Clk

To reduce the occurrence of electromagnetic interference (EMI), the BIOS detects the presence or absence of components in PCI slots and turns off system clock generator pulses to empty slots. The settings are: *Enabled*, *Disabled*.

Spread Spectrum

When the motherboard's clock generator pulses, the extreme values (spikes) of the pulses creates EMI (Electromagnetic Interference). The Spread Spectrum function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves. If you do not have any EMI problem, leave the setting at *Disabled* for optimal system stability and performance. But if you are plagued by EMI, setting to *Enabled* for EMI reduction. Remember to disable Spread Spectrum if you are overclocking because even a slight jitter can introduce a temporary boost in clockspeed of

25MHz (with a 1GHz CPU) which may just cause your overclocked processor to lock up.

CPU Clock

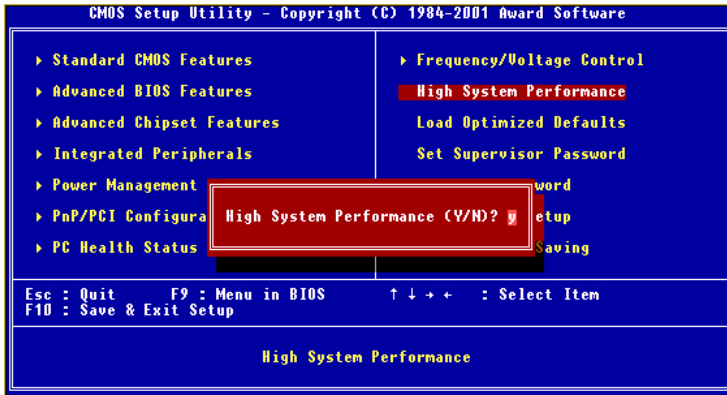
This setting specifies the clock frequency of CPU host bus (FSB) and provides a method for end-users to overclock the processor accordingly.

Chapter 3

High System Performance

This option on the main menu allows users to restore all the BIOS settings to the default High Performance values. The High Performance Defaults are the default values set by the mainboard manufacturer specifically for maximal system performance but will probably cause a stability issue.

When you select High System Performance, a message as below appears:



Pressing 'Y' loads the default BIOS values that enable the best system performance (better than the Optimized Defaults) but may result in the instability of the system.



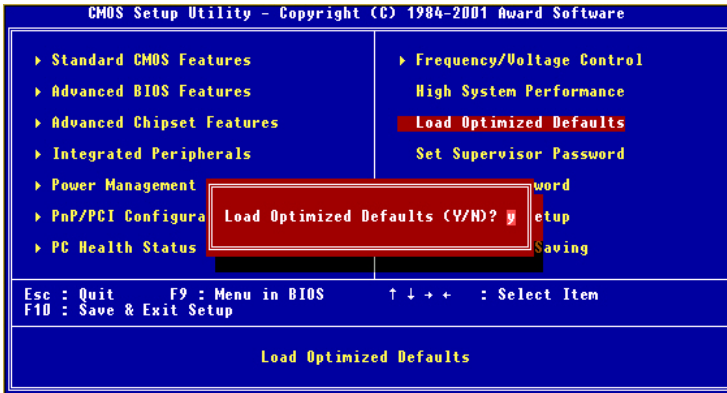
WARNING!

This setting is for experienced or overclocking users only. If the system crashes or hangs after enabling the feature, please CLEAR CMOS DATA to resolve the problem. For more information, refer to Clear CMOS Jumper in Chapter 2.

Load Optimized Defaults

This option on the main menu allows users to restore all the BIOS settings to the default Optimized values. The Optimized Defaults are the default values also set by the mainboard manufacturer for both optimized and stable performance of the mainboard.

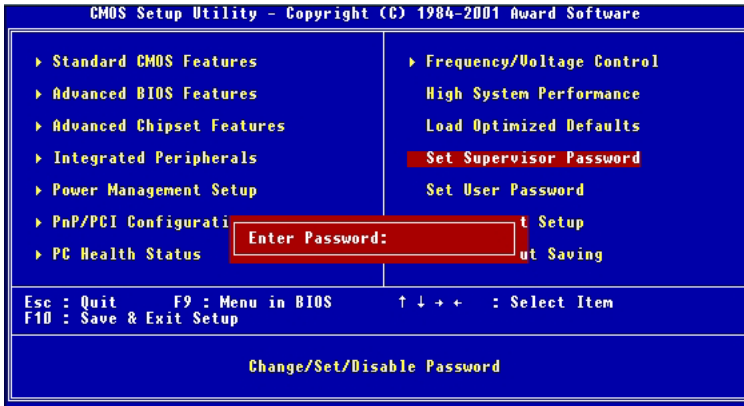
When you select Load Optimized Defaults, a message as below appears:



Pressing 'Y' loads the default values that are factory settings for optimal and stable system performance.

Set Supervisor/User Password

When you select this function, a message as below will appear on the screen:



Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously set password from CMOS memory. You will be prompted to confirm the password. Re-type the password and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To clear a set password, just press <Enter> when you are prompted to enter the password. A message will show up confirming the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup without entering any password.

When a password has been set, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also have BIOS to request a password each time the system is booted. This would prevent unauthorized use of your computer. The setting to determine when the password prompt is required is the Security Option of the Advanced BIOS Features menu. If the Security Option is set to *System*, the password is required both at boot and at

entry to Setup. If set to *Setup*, password prompt only occurs when trying to enter Setup.



About Supervisor Password & User Password:

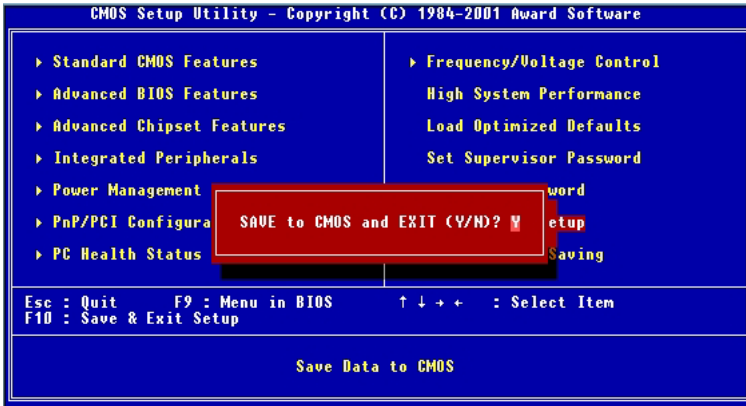
Supervisor password : Can enter and change the settings of the setup menus.

User password: Can only enter but do not have the right to change the settings of the setup menus

Chapter 3

Save & Exit Setup

When you want to quit the Setup menu, you can select this option to save the changes and quit. A message as below will appear on the screen:

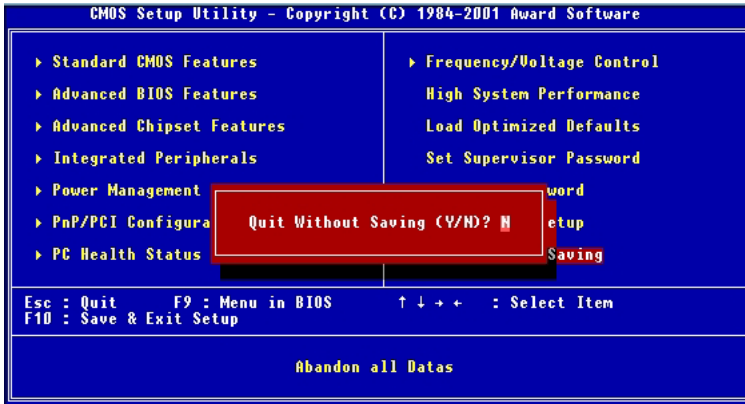


Typing “Y” will allow you to quit the Setup Utility and save the user setup changes to RTC CMOS.

Typing “N” will return to the Setup Utility.

Exit Without Saving

When you want to quit the Setup menu, you can select this option to abandon the changes. A message as below will appear on the screen:



Typing “Y” will allow you to quit the Setup Utility without saving any changes to RTC CMOS.

Typing “N” will return to the Setup Utility.

Using 4-/6-channel Audio Function **A**

The mainboard comes with C-Media 6-channel audio function, which allows you to attach 4 or 6 speakers for better space sound effect. The section will tell you how to activate 4-/6-channel audio function.

This section includes the following topics:

Installing C-Media Drivers	A-2
Hardware Configuration	A-2
Software Configuration	A-3

Appendix A

Installing C-Media Drivers

The mainboard is able to transform the audio connectors on the back panel from 2-channel to 4-/6-channel. To use the function, you need to install the C-Media drivers.

To install C-Media drivers:

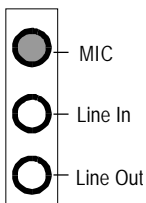
1. Insert the companion CD into the CD-ROM drive. The setup screen will automatically appear.
2. Click on **C-Media Sound Drivers**.
3. Follow the on-screen instructions to complete installation.
4. Restart the system.



Note: For Windows NT4.0, you need to install the C-Media Sound Drivers *manually*.

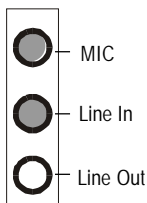
Hardware Configuration

After installing the C-Media drivers, you can attach the speakers for 4-/6-channel audio output. Always connect the speakers to the LINE OUT connectors. Different connector configurations for 2-/4-/6-channel operations are listed below:



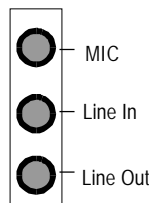
2-Channel

In 2-channel configuration, Line Out, Line In and MIC functions all exist.



4-Channel

When set to 4-channel configuration, LINE IN function DOES NOT WORK any more.




6-Channel

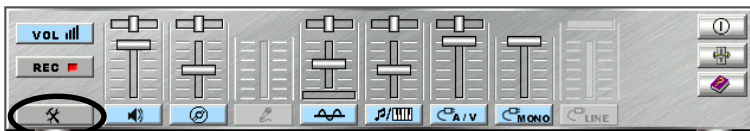
When set to 6-channel configuration, LINE IN and MIC functions DO NOT WORK anymore.

Software Configuration

To have 4-/6-channel audio work, you must set appropriate configuration in the C-Media software application.

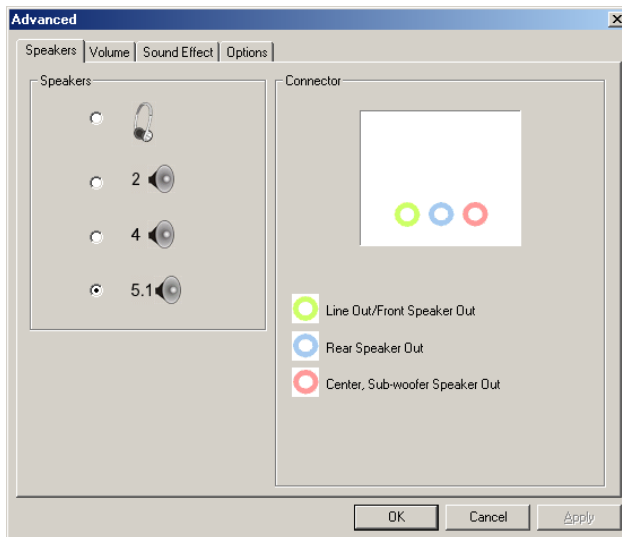
To set the multi-channel configuration:

1. Click the C-Media Mixer icon  from the window tray on the bottom.
2. The following screen appears. Click the indicated button.



Click here

3. The “Advanced” window appears.



4. Select 5.1 for 6-channel or 4 for 4-channel audio output.
5. Click OK.

Glossary

ACPI (*Advanced Configuration & Power Interface*)

This power management specification enables the OS (operating system) to control the amount of power given to each device attached to the computer. Windows 98/98SE, Windows 2000 and Windows ME can fully support ACPI to allow users managing the system power flexibly.

AGP (*Accelerated Graphics Port*)

A new, high-speed graphics interface that based on PCI construction and designed especially for the throughput demands of 3-D graphics. AGP provides a direct channel (32-bit wide bus) between the display controller and main memory for high graphics quality and performance.

ATX

A modern shape and layout of mainboard that supersedes the widely-used Baby AT form factor. It improves many placement of components and makes a more efficient design.

BIOS (*basic input/output system*)

On PCs, an essential software that contains all the control code of input/output interface (such as keyboard, disk drives, etc.). It executes hardware test on booting the system, starts the OS, and provides an interface between the OS and the components. The BIOS is stored in a ROM chip.

Bus

A set of hardware lines within the computer system, through which the data is transferred among different components. In a PC, the term **bus** usually refers to a local bus that connects the internal components to the CPU and main memory.

Cache

A special memory subsystem that is used to speed up the data transfer. It stores the contents of frequently accessed RAM locations and the addresses where these data items are stored.

Chipset

A collection of integrated chips designed to perform one or more related functions. For

Glossary

example, a modem chipset contains all the primary circuits for transmitting and receiving data; a PC chipset provides the electronic interfaces between all subsystems.

CMOS (*complementary metal-oxide semiconductor*)

CMOS is a widely used type of semiconductor, which features high speed and low power consumption. PCs usually contain a small amount of battery-powered CMOS memory to retain the date, time, and system setup parameters.

COM

In MS-DOS system, the name of a serial communications port. DOS supports four serial ports. For example, if a modem is connected to one serial port and a serial mouse to another, they are identified as COM1 and COM2.

DIMM (*dual in-line memory module*)

A small circuit board that holds memory chips. A **SIMM** (*single in-line memory module*) has a 32-bit path to the memory chips whereas a DIMM has 64-bit path.

DRAM (*Dynamic RAM*)

A most common type of computer memory. It usually uses one transistor and a capacitor to represent a bit. As the development of technology, the memory type and specification used in computer becomes variety, such as SDRAM, DDR SDRAM, and RDRAM. For further instruction, please see the table below:

Dynamic RAM (DRAM) Memory Technologies					
Type	First Used	Clock Rate	Bus* Width	Peak Bandwidth	Volts
FPM (60,70ns)	1990	25MHz	64 bits	200 MBps	5v
EDO (50,60,70ns)	1994	40MHz	64 bits	320 MBps	5v
SDRAM (66MHz)	1996	66MHz	64 bits	528 MBps	3.3v
SDRAM (100MHz)	1998	100MHz	64 bits	800 MBps	3.3v
SDRAM (133MHz)	1999	133MHz	64 bits	1.1 GBps	3.3v
RDRAM (Direct Rambus)	1999	400MHz	16 bits	1.6 GBps	2.5v
DDR SDRAM (100MHz)	2000	100MHz	64 bits	1.6 GBps	3.3v
DDR SDRAM (133MHz)	2000	133MHz	64 bits	2.1 GBps	3.3v

* Memory channel width (64 bits started with 75MHz Pentium)

Source: Computer Desktop Encyclopedia

ECC Memory (*error correcting code memory*)

A type of memory that contains special circuitry for testing the accuracy of data and correcting the errors on the fly.

IDE (*Integrated Drive Electronics*)

A type of disk-drive interface widely used to connect hard disks, CD-ROMs and tape drives to a PC, in which the controller electronics is integrated into the drive itself, eliminating the need for a separate adapter card. The IDE interface is known as the ATA (AT Attachment) specification.

IEEE 1394

A new, high speed external bus standard, also known as *FireWire* or *iLink*, which supports data transfer rates of up to 400 Mbps for connecting up to 63 external devices.

IrDA (*Infrared Data Association*)

A group of device vendors, including computer, component and telecommunications, who have developed a standard for transmitting data via infrared light waves. This enables you to transfer data from one device to another without any cables.

LAN (*local area network*)

A computer network that covers a relatively smaller area, such as in a building or an enterprise. It is made up of servers, workstations, shared resources, a network operating system and a communications link. These individual PCs and devices on a LAN are known as “nodes”, and are connected by cables to access data and devices anywhere on the LAN, so that many users can share expensive devices and data.

LED (*light emitting diode*)

A semiconductor device that converts electrical energy into light. Since it lights up (usually red) when electricity is passed through it, it is usually used for the activity lights on computer’s component, such as disk drivers.

LPT (*line printer terminal*)

Logical device name for a line printer; a name reserved by the MS-DOS for up to three parallel printer ports: LPT1, LPT2, and LPT3. It is frequently used by the OS to identify a printer.

Glossary

PCI (*Peripheral Component Interconnect*)

A local bus standard developed by Intel that first appeared on PCs in late 1993. PCI provides “plug and play” capability and allows IRQs to be shared. The PCI controller can exchange data with the system's CPU either 32 bits or 64 bits at a time.

PnP (*Plug and Play*)

A set of specifications that allows a PC to configure itself automatically to work with peripherals. The user can “plug” in a peripheral device and “play” it without configuring the system manually. To implement this useful feature, both the BIOS that supports PnP and a PnP expansion card are required.

POST (*Power On Self Test*)

During booting up your system, the BIOS executes a series of diagnostic tests, include checking the RAM, the keyboard, the disk drives, etc., to see if they are properly connected and operating.

PS/2 Port

A type of port developed by IBM for connecting a mouse or keyboard to a PC. The PS/2 port supports a mini DIN plug containing just 6 pins. Most modern PCs equipped with PS/2 ports so that the special port can be used by another device, such as a modem.

USB (*universal serial bus*)

A hardware interface for low-speed peripherals such as the keyboard, mouse, joystick, etc. USB provides a maximum bandwidth of 12 Mbit/sec (Mbps) for connecting up to 127 peripheral devices to PC. USB features hot swap capability and multiple data streams, allows external devices to be plugged in and unplugged without turning the system off.

Virus

A program or a piece of code that infects computer files by inserting in those files copies of itself. The virus code is buried within an existing program, and is activated when that program is executed. All the viruses are man-made, and often have damaging side effects.

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