

# Motherboard

# 875P MAX

## User's Manual

Intel Socket 478 Processors Motherboard

Intel 875P + Intel ICH5

Revision 2.0

P / N: G03 –875P MAX

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# Table of Content

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Manual Revision History .....	ii
Copyright Announcement .....	ii
Trademarks Notice.....	ii
Safety Instructions.....	iii
Packing Item Checklist .....	iv
Intel Pentium 4 Processor Family .....	iv
<b>Chapter 1 Introduction of 875PMAX motherboard</b>	
1-1 Features of Motherboard.....	1
1-2 Specifications .....	4
1-3 Performance List .....	5
1-4 Motherboard Overview .....	6
<b>Chapter 2 Hardware Installation</b>	
2-1 Motherboard Installation .....	8
2-2 Before You Proceed.....	8
2-3 Steps of Hardware Installation .....	9
2-4 Checking Motherboard's Jumper Setting .....	9
2-5 Installing the CPU .....	10
2-5-1 Overview .....	10
2-5-2 CPU Installation.....	11
2-5-2.1 Installing CPU.....	11
2-5-2.2 Installing heatsink & cooling fan .....	11
2-6 Installing System Memory .....	13
2-6-1 Overview .....	13
2-6-2 Valid Memory Configurations.....	13
2-6-3 Installing a DIMM .....	14
2-6-4 Removing a DIMM .....	15
2-7 Expansion Cards .....	15
2-7-1 Procedures for Expansion Cards Installation .....	15
2-7-2 Assigning IRQs For Expansion Card.....	16
2-7-3 Interrupt Request Table For This Motherboard.....	16
2-7-4 AGP Slot .....	17
2-8 Connectors, Headers .....	18
2-8-1 Connectors .....	18
2-8-2 Headers .....	21
2-9 Starting Up Your Computer .....	25
<b>Chapter 3 BIOS Setup</b>	
3-1 Introducing BIOS.....	26
3-2 Entering Setup .....	26
3-3 Getting Help.....	27
3-4 The Main Menu .....	27
3-5 Standard CMOS Features .....	29
3-6 Advanced BIOS Features .....	30
3-7 Advanced Chipset Features.....	32
3-7-1 DRAM Timing Settings .....	33
3-8 Integrated Peripherals .....	34
3-8-1 Onchip IDE Function .....	35
3-8-2 Onchip Device Function .....	36

---



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3-8-3	Onchip Super IO Function.....	37
3-9	Power Management Setup.....	38
3-9-1	PM Timer Reload Events.....	40
3-10	PNP/PCI Configuration Setup.....	40
3-10-1	IRQ Resources.....	41
3-11	PC Health Status.....	42
3-12	Miscellaneous Control.....	43
3-13	Load Standard/Optimized Defaults.....	44
3-14	Set Supervisor/User Password.....	44
<b>Chapter 4 Driver &amp; Free Program Installation</b>		
<b>Magic Install Supports Windows 9X/NT/2K/XP.....</b>		
4-1	INF Install Intel 865/875 chipset system driver.....	46
4-2	SOUND Install CMI8738/C3DX PCI Audio Driver.....	47
4-3	LAN Install Intel® Pro/1000 Giga Ethernet Driver.....	49
4-4	USB 2.0 Install Intel USB 2.0 Driver.....	49
4-5	SATA Install Promise PDC20378 Serial ATA Controller Driver.....	50
4-6	RAID Install Promise PDC20378 Fasttrak Controller Driver.....	51
4-7	PC-HEALTH Intel 865 PC-Health Monitor.....	52
4-8	MBIOS&DX9 Install BIOS Live Update Utility and DIRECTX9.....	53
4-9	PC-CILLIN Install PC-Cillin2002 Anti-Virus Program.....	54
4-10	How to Update BIOS.....	56
4-11	RAID Configurations.....	57
4-11-1	Install the Hard Disks.....	58
4-11-2	Enter the MBFastBuild™ utility.....	59
4-11-3	Creating a RAID 0 array (Performance).....	60
4-11-4	Creating a RAID 1 array (Security).....	61
4-11-5	Other FastBuild Utility Commands.....	63

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## **Manual Revision History**

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<b>Revision</b>	<b>Manual Revision History</b>	<b>Date of Release</b>
Rev 2.0	First released copy of Mother Boards adopts Intel chipsets:	01/02/2004 Intel 875P and Intel ICH5

## **Copyright Announcement**

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All materials mentioned and described in this manual are the literary property of the manufacturer. With the continual improvement of the products, we reserve the right to make changes without notice.

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**\*\*The ranking above is by the sequence of alphabets.\*\***

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## **Safety Instructions**

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1. Please read these safety instructions carefully.
2. Please keep this User's Manual for later reference.
1. Please place the equipment on a reliable flat surface before installation.
4. Make sure the voltage of the power source when you try to connect the equipment to the power outlet.
6. All cautions and warnings on the equipment should be noted.
7. Disconnect this equipment from connector before inserting add-on interfaces or modules.
8. Never pour any liquid into the opening, this could cause fire or electrical shock.
9. Explosion may occur if the battery is replaced incorrectly. Replace only with the type recommended by the manufacturer.
10. If one of the following situations arises, get the equipment checked by a service personnel:
  - a. Liquid has penetrated into the equipment.
  - b. The equipment has been exposed to moisture.
  - c. The equipment has not work well or you can not get it work according to user's manual.
  - d. The equipment has dropped and damaged.
  - e. If the equipment has obvious sign of breakage.
11. Do not leave the equipment in an humidity or unconditional environment, storage temperature above 60°C(140°F), it may damage the equipment.

**Precaution: It may void the warranty if any label on the equipment been removed.**

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## **Packing Item Checklist**

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- 875PMAX Motherboard
- Cable for IDE/Floppy
- Cable for Serial ATA IDE Port x 2
- CD for motherboard utilities
- Cable for 1394 Ports (One port)
- SPDIF-IN/SPDIF-OUT Adaptor
- Cable for USB Port 3/4 (Option)
- 875PMAX User's Manual

## **Intel Pentium 4 Processor Family**

### **Cooling Solutions**

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As processor technology pushes to faster speeds and higher performance, thermal management becomes increasingly crucial when building computer systems. Maintaining the proper thermal environment is key to reliable, long-term system operation. The overall goal in providing the proper thermal environment is keeping the processor below its specified maximum case temperature. Heatsinks induce improved processor heat dissipation through increased surface area and concentrated airflow from attached fans. In addition, interface materials allow effective transfers of heat from the processor to the heatsink. For optimum heat transfer, Intel recommends the use of thermal grease and mounting clips to attach the heatsink to the processor.

When selecting a thermal solution for your system, please refer to the website below for collection of heatsinks evaluated and recommended by Intel for use with Intel processors. Note, those heatsinks are recommended for maintaining the specified Maximum T case requirement. In addition, this collection is not intended to be a comprehensive listing of all heatsinks that support Intel processors.

For vendor list of heatsink and fan, please visit :

<http://developer.intel.com/design/Pentium4/components/index>

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# Chapter 1

## Introduction of 875PMAX motherboard

**Thank you for purchasing 875PMAX which provides extremely performance and meets future specification demand.**

This chapter describes the features of the 875PMAX motherboard. It includes brief explanations of the special attributes of the motherboard and the new technology it supports.

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### 1-1 Features of Motherboard

#### 875PMAX Highlights

##### **The Latest processor technology**

The motherboard supports the latest Intel® Pentium® 4 Processor via a 478-pin surface mount ZIF socket. The Pentium 4 processor with 512KB L2 cache includes a 800/533/400 MHz system bus and features the Intel Hyper-Threading Technology and new power design that allow up to 3.20GHz core frequencies. 875PMAX motherboard will also support the next generation Intel Prescott CPU when available.

##### **Dual-channel DDR400 memory support**

Employing the dual-channel DDR memory architecture, the motherboard provides a solution that doubles the system memory bandwidth to boost system performance. The motherboard supports up to 4GB of system memory by using PC3200/2700/2100 non-ECC/ECC DDR DIMMs to deliver up to 6.4GB/s data transfer rate for the latest 3D graphics, multimedia, and Internet applications.

##### **Intel Performance Acceleration Technology (PAT)**

Incorporating the Intel PAT, which is a turbo mode enabled in the Intel 875P to work with DDR 400 memory and boost system performance, the motherboard delivers a new level of performance to beat.

##### **Serial ATA technology**

The motherboard bundles the new Serial ATA technology through the SATA interfaces onboard. The SATA specification allows for thinner, more flexible cables with lower pin count, reduced voltage requirement, up to 150 MB/s data transfer rate.

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## **Multi-RAID solution**

The motherboard has the Promise® PDC20378 controller to support multi-RAID solution by using Serial ATA/150 and Ultra ATA/133 hard disks. The RAID0 (striping), RAID1 (mirroring), and RAID 0+1 provide a cost-effective high-performance solution for added system performance and reliability.

## **AGP 8X support**

The motherboard supports the latest graphic architecture, the AGP Pro/8X interface (AGP 3.0), offering 2.1GB/s bandwidth which is twice that of its predecessor AGP 4X.

## **Integrated NET solution**

The Intel 82547EI Gigabit PCI LAN controller chipset is onboard to provide a single-chip solution for LAN on Motherboard (LOM) applications. The Intel 82547EI controller integrates 32-bit 10/100/1000BASE-T Gigabit Ethernet Media Access Control (IEEE 802.3 compliant) and Physical Layer Transceiver solution to support high performance network applications.

## **Integrated Audio technology**

The CMI8738-6CH hardware AC '97 audio CODEC supports 6-channel 3D surround positioning Audio which is fully compatible with Sound Blaster Pro® that gives you the best sound quality and compatibility. The motherboard provided SPDIF-In/ SPDIF-Out optical function support SPDIF device.

## **Adjustable CPU Ratio and Voltage**

This is a function for user to select preferable multiplying factor for CPU speed in case of over-clocking operation. User can adjust the ratio in BIOS setup option "Miscellaneous Control" in auto stepping or per MHz micro stepping. Also available is the adjustment of the voltage level of processor (Vcore) for optimal and more stable over-clocking operation. If the processor was re-installed or removed, you will be prompted with warning message to re-adjust the ratio upon POST.

## **Adjustable DRAM / AGP / North Bridge Voltage**

According to the processor over-clocking setting, user can adjust the voltage level of DRAM, AGP and North Bridge for optimal and stable over-clocking operation. Under "Miscellaneous Control" option in BIOS setup screen you will see the various selections.

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## **CPU Over Heat Protection**

The built-in circuitry will detect fan status (speed, improper installed) and processor temperature to determine if there will be possible overheat on the processor. The mechanism will automatically shut down power to protect the processor from possible heat damage.

## **Over Current/Under Voltage Protection**

Any faulty mechanical actions causing over current or under voltage on processor, AGP and DRAM socket will be detected and accordingly trigger power shut down to protect the circuitry from damage. This can be set up in BIOS option of “Miscellaneous Control” by selecting Dual 3.3V LUV Protect, VRAM LUV Protect, or VAGP LUV Protect.

## **HDD Boot Sprite**

Boot Sprite provides user option to boot from selected HDD when multiple HDD is in presence, be it fixed HDD, removable HDD, or external HDD. This makes multiple operating system environments boot easily for user. Once the “HDD Boot Sprite” is enabled in BIOS, your will be prompted with first boot selection menu after POST for friendly operation.

## **IEEE 1394 support (on 1394 models only)**

The IEEE 1394 interfaces and the VIA 6307 controller onboard provide high-speed and flexible PC connectivity to a wide range of peripherals and devices compliant to IEEE 1394a standards. The IEEE 1394 allows up to 400Mbps transfer rates through simple, low-cost, high-bandwidth asynchronous (real-time) data interfacing between computers, peripherals, and consumer electronic devices such as camcorders, VCRs, printers, TVs, and digital cameras.

## **USB 2.0 technology**

The motherboard implements the Universal Serial Bus (USB) 2.0 specification, dramatically increasing the connection speed from the 12 Mbps bandwidth on USB 1.1 to a fast 480 Mbps on USB 2.0. USB 2.0 is backward compatible with USB 1.1.

## 1-2 Specifications

Spec	Description
<b>Design</b>	* ATX form factor 4 layers PCB size: 30.5x24.5cm
<b>Chipset</b>	* Intel 875P Memory Controller Hub (MCH) Chipset (features the <b>Intel Performance Acceleration Technology</b> ) * Intel 82801EB I/O Controller Hub (ICH5) Chipset
<b>CPU</b> (mPGA478B Socket)	* Socket 478 for Intel® Pentium® 4/Celeron with speeds up to 3.2+ GHz * On-die 512KB/256KB L2 cache with full speed * Supports Intel® Hyper-Threading Technology * New power design supports next generation Intel Prescott CPU
<b>Front Side Bus</b>	* 800/533/400 MHz
<b>Memory Socket</b>	* Dual-channel memory architecture * 4 x 184-pin DDR DIMM sockets for up to 4GB memory * Supports PC3200/2700/2100 non-ECC/ECC DDR DIMMs
<b>Expansion slots</b>	* AGP slot x1 for AGP 0.8V/1.5V standard only, supports AGP 2.0/3.0 & 4X/8X mode * 32-bit PCI slot x 5
<b>Integrated Storage</b>	* Supported by South Bridge (ICH5) - 2 x UltraDMA 100 connectors * Supported by Promise® PDC20378 controller (optional) - 1 x UltraDMA 133 connector - 2 x Serial ATA connectors - RAID0, RAID1, RAID0+1 configurations
<b>Integrated LAN connection</b>	* Intel 82547EI communications streaming Architecture (CSA) Interface Gigabit Ethernet (GbE) controller * Supports 10/100/1000 Mb/sec data transfer rate
<b>IEEE 1394</b>	* VIA 6307 IEEE 1394 controller- supports 2 x IEEE 1394 connectors
<b>Audio</b>	* CMI8738-6CH PCI Audio controller integrated * Support 6-channel 3D surround & Positioning Audio * SPDIF-In/ SPDIF-Out Optical support * Audio driver and utility included
<b>BIOS</b>	* Award 4MB Flash ROM
<b>Multi I/O</b>	* PS/2 keyboard and PS/2 mouse connectors * Floppy disk drive connector x1 * Parallel port x1, Serial port x2 * USB 2.0 connector x6, headers x2 (connecting cable option) * Audio connector Line-in, Line-out, MIC & Game Port
<b>Power requirement</b>	* ATX power supply (with 4-pin 12V plug)

## 1-3 Performance List

The following performance data list is the testing result of some popular benchmark testing programs. These data are just referred by users, and there is no responsibility for different testing data values gotten by users (the different Hardware & Software configuration will result in different benchmark testing results.)

### Performance Test Report

**CPU:** Intel Pentium 4 2.53GHz (533MHz FSB)/3GHZ (800MHz FSB) mPGAB package

**DRAM:** 512MB DDR400 SDRAM x2 (KINGSTON D328DW)

**On Board VGA:** 1024x768x32bit Color

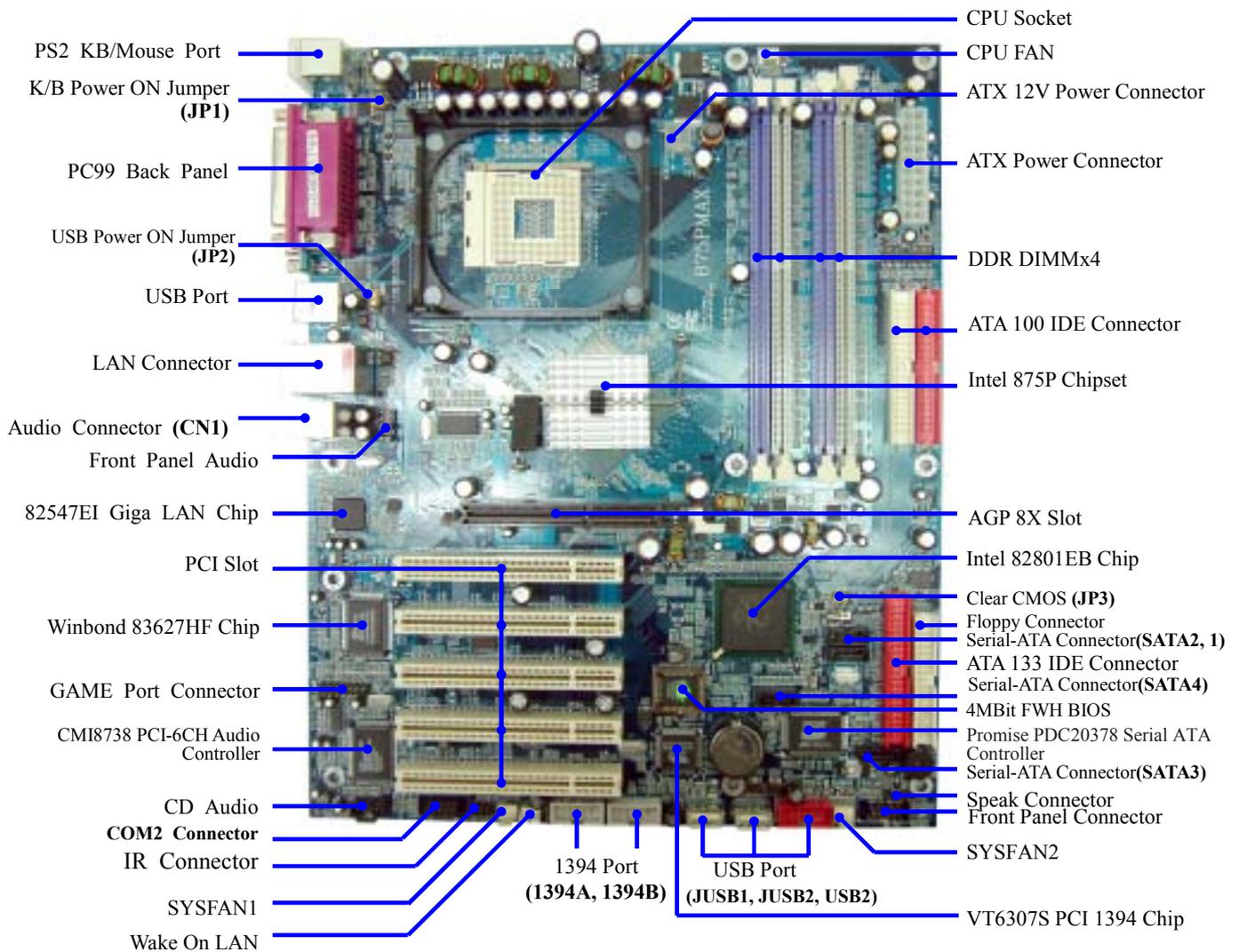
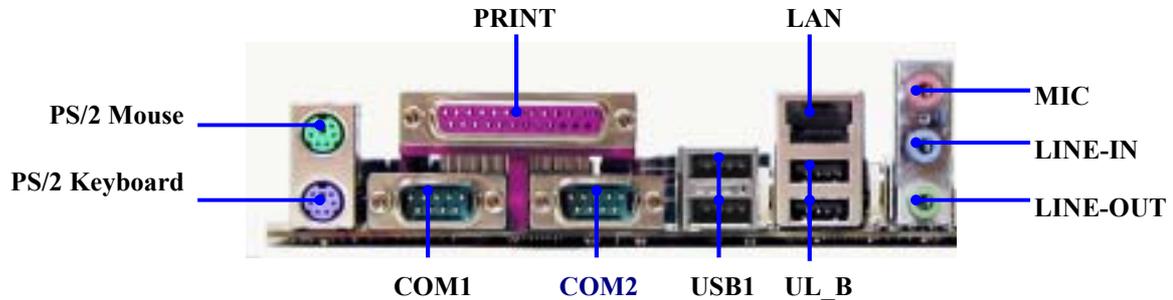
**Hard Disk Driver:** IBM IC35L040AVVN07-0 (ATA-100 7200RPM)

**BIOS:** Award Optimal default

**OS:** Win XP Professional (Service Pack 1)

	200/200 3G	200/200 3G Daul Channel	200/200 3G Daul Channel Hyper-Threading Support
3D Mark 2001SE	15917	16337	16274
3D Mark 2003	4806	4852	4849
3D Winbench 2000 (32/32bit)	440	450	438
PC Mark 2002			
CPU/Memory/HDD	7478 / 7898 / 891	7525 / 9328 / 866	7502 / 9090 / 866
Content Creation Winstone 2002	53	54.4	48.9
Content Creation Winstone 2003	52	53	50.9
Business Winstone 2002	33.8	34.9	36
Winbench 99 V1.2 :			
Business Disk Winmark99	8840	9130	9060
Hi-end Disk Winmark99	33200	32700	33100
Business Graphic Winmark	559	567	543
Hi-end Graphic Winmark	1330	1350	1240
SYS Mark 2001/2002: SISMark 2001/2002 Rating (Internet Content Creation / Office Productivity)			
SISMark 2001	287 (317 / 260)	296 (333 / 264)	283 (321 / 249)
SISMark 2002	297 (409 / 215)	304 (414 / 223)	322 (454 / 229)
SISOFT Sandra 2003 :			
Dhrystone ALU	MIPS	7825	7838
Whetstone FPU	MFLOPS	1732 / 3990	1728 / 3989
RAM Int Buffered iSSE2	MB/S	3052	4717
RAM Float Buffered iSSE2	MB/S	3055	4717
Integer SSE2	IT/S	12056	12057
Floating-Point SSE2	IT/S	15311	15308
QUAKE3 DEMO1	FPS	298.7	315.8
DEMO2	FPS	292.9	312.1
Return to Castle Wolfenstein	FPS	157.2	166.5
WCPUID System / CPU Clock	210.92 / 3028.82	210.95 / 3029.21	210.92 / 3028.82

## 1-4 Motherboard Overview



## *Jumpers*

<b>Jumper</b>	<b>Name</b>	<b>Description</b>	<b>Page</b>
JP3	CMOS RAM Clear	3-pin Block	P.9
JP1	Keyboard Power On Enable/Disabled	3-pin Block	P.10
JP2	USB Power On Enable/Disabled	3-pin Block	P.10

## *Connectors*

<b>Connector</b>	<b>Name</b>	<b>Description</b>	<b>Page</b>
ATXPWR	ATX Power Connector	20-pin Block	P.18
ATX12V	ATX 12V Power Connector	4-pin Block	P.18
USB1, JUSB1, JUSB2	USB Port Connector	4-pin Connector	P.19
UL_B	USB Port Connector	4-pin Connector	P.19
LAN	LAN Connectors	RJ-45 Connector	P.19
KB (PS2 KB/MOUSE)	PS/2 Mouse & PS/2 Keyboard Connector	6-pin Female	P.19
PARALLEL	Parallel Port Connector	25-pin Female	P.19
CN1	Audio Line In/Out MIC Connector	3 phone jack Connector	P.19
COM1	Serial Port COM1 Connector	9-pin Connector	P.19
COM2	Serial Port COM2 Connector	9-pin Connector	P.19
FDD	Floppy Driver Connector	34-pin Block	P.20
IDE1/IDE2/IDE3	Primary/Secondary/Third IDE Connector	40-pin Block	P.20
SATA1~4	Serial-ATA Port Connector	7-pin Block	P.21

## *Headers*

<b>Header</b>	<b>Name</b>	<b>Description</b>	<b>Page</b>
AUDIO	Line-Out, MIC Headers	9-pin Block	P.22
USB2	USB Port Headers	9-pin Block	P.22
1394A/1394B	1394 Port Headers	9-pin Block	P.22
SPEAK	Speaker connector	4-pin Block	P.22
FP (Power LED/Reset/ IDE LED/ Power Button)	Front Panel Header (including Power LED/ IDE activity LED/ Reset switch / Power On Button lead)	9-pin Block	P.22
WOL	Wake On-LAN Headers	3-pin Block	P.23
SYSFAN1, SYSFAN2, CPUFAN	FAN Speed Headers	3-pin Block	P.23
IR	IR infrared module Headers	5-pin Block	P.24
CDIN	CD Audio-In Headers	4-pin Block	P.24
GAME	Game Port Header	15-pin Block	P.24
JP7	Optical In/Out Header	10-pin Block	P.24

## *Expansion Sockets*

<b>Socket/Slot</b>	<b>Name</b>	<b>Description</b>	<b>Page</b>
ZIF Socket 478	CPU Socket	478-pin mPGAB CPU Socket	P.11
DIMM1 ~ DIMM4	DDR Module Socket	184-pin DDR SDRAM Module Expansion Socket	P.13
PCI1 ~ PCI5	PCI Slot	32-bit PCI Local Bus Expansion slots	P.15
AGP	AGP 4X/8X Mode Slot	AGP Expansion Slot	P.17

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## Chapter 2

### Hardware Installation

This chapter describes the hardware setup procedures that you have to perform when installing system components. It includes details on the switches, jumpers, and connectors on the motherboard.

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#### 2-1 Motherboard Installation

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

**Caution:**

1. Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause you physical injury and damage motherboard components.
2. When installing the motherboard, make sure that you place it into the chassis in the correct orientation. The edge with external ports goes to the rear part of the chassis.
3. Place ten (10) screws into the holes indicated by circles to secure the motherboard to the chassis. And Do not overtighten the screws! Doing so may damage the motherboard.

---

#### 2-2 Before You Proceed

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

1. Unplug the power cord from the wall socket before touching any component.
2. Use a grounded wrist strap or touch a safely grounded object or to a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity.
3. Hold components by the edges to avoid touching the ICs on them.
4. Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.
5. **Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply.** Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

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## 2-3 Steps of Hardware Installation

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Before using your computer, you had better complete the following steps:

1. Check motherboard setting
2. Install CPU
3. Install memory
4. Install expansion cards
5. Connect ribbon cables, panel wires, and power supply
6. Setup BIOS
7. Install software driver & utility

## 2-4 Checking Motherboard's Jumper Setting

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### (1) CMOS RAM Clear (3-pin) : JP3

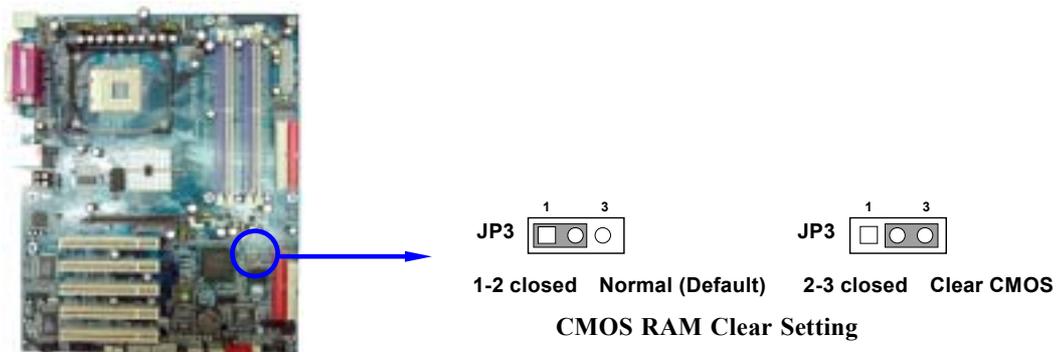
A battery must be used to retain the motherboard configuration in CMOS RAM short 1-2 pins of JP3 to store the CMOS data.

To clear CMOS, follow the procedures below:

1. Turn off the system and unplug the AC power
2. Remove ATX power cable from ATX power connector
3. Locate JP3 and short pins 2-3 for a few seconds
4. Return JP3 to its factory setting by shorting pins 1-2
5. Connect ATX power cable back to ATX power connector

**Note: When should clear CMOS**

1. **Troubleshooting**
2. **Forget password**
3. **After over clocking system boot fail**

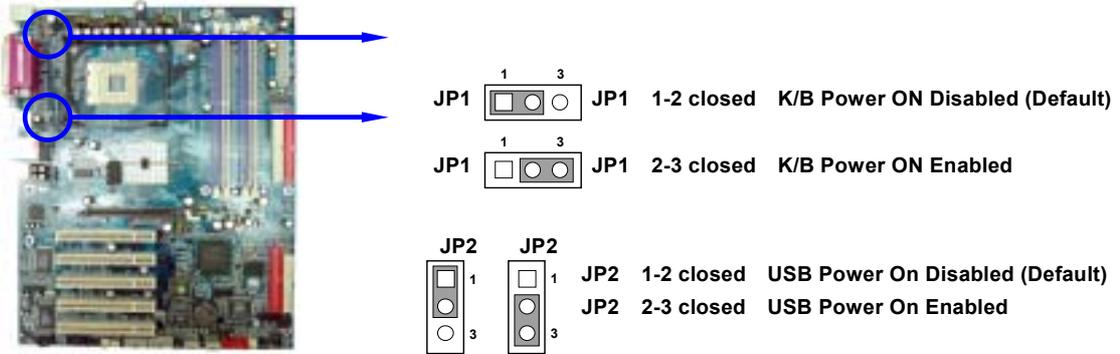


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## (2) Keyboard Power On function Enabled/Disabled: JP1

### USB Power on function Enabled/Disabled: JP2

When set as Enabled you can use keyboard to power on the system by password key-in, and use USB device to wake up the system.



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## 2-5 Installing the CPU

### 2-5-1 Overview

The motherboard comes with a surface mount 478-pin Zero Insertion Force (ZIF) socket designed for the Intel® Pentium® 4 Processor in the 478-pin package with 512KB L2 cache. The Pentium 4 processor features the Intel® NetBurst™ micro-architecture, Hyper-Threading Technology, and 800/533/400MHz system bus. Together, these attributes improve system performance by allowing higher core frequencies, faster execution of integer instructions, and data transfer rates up to 6.4GB/s. The socket will also support the Intel Prescott CPU when available.

#### Note! Intel® Hyper-Threading (HT)Technology

1. This motherboard supports Intel Pentium 4 CPUs with HT Technology.
2. HT Technology is supported under **Windows XP, Linux 2.4.x (kernel)** and later versions only. Under Linux, use the HT compiler to compile the code. If you are using any other operating systems, disable the HT Technology item in BIOS to ensure system stability and performance.
3. It is recommended that you install WinXP Service Pack 1.
4. Make sure to enable the Hyper-Threading Technology item in BIOS before installing a supported operating system.
5. For more information on HT Technology, visit [www.intel.com/info/hyperthreading](http://www.intel.com/info/hyperthreading)

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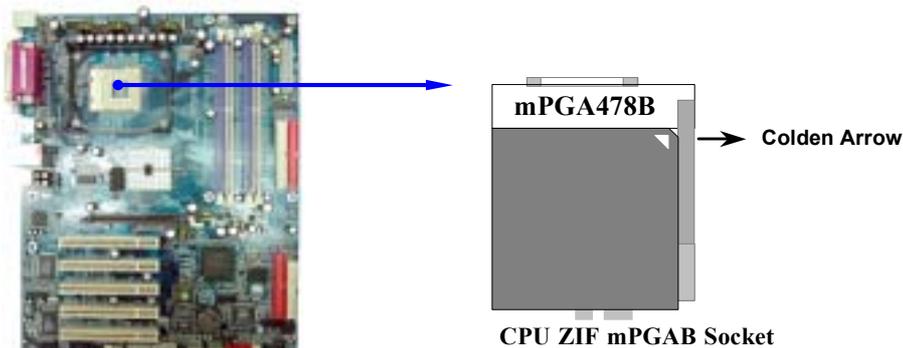
**Note! To use the Hyper-Threading Technology on this motherboard:**

1. Buy an Intel Pentium 4 CPU that supports Hyper-Threading Technology. Install the CPU.
2. Power up the system and enter BIOS Setup (see Chapter 4). Under the Advanced Menu, make sure that the item **Hyper-Threading Technology** is set to Enabled. The item appears only if you installed a CPU that supports Hyper-Threading Technology.
3. Reboot the system.

## 2-5-2 CPU Installation

### 2-5-2.1 Installing CPU

To install a CPU, first turn off your system and remove its cover. Locate the ZIF socket and open it by first pulling the lever sideways away from the socket and lift the lever upward to a 90-degree angle. Insert the CPU with the correct orientation as shown below. The notched corner should be pointed toward the end of the lever. The CPU has corner pin on two of the four corners and the CPU will only fit in the orientation as shown.



When you insert the CPU onto the ZIF socket, no force is required. After inserting, press the lever slightly without any extra force to lock CPU in position.

### 2-5-2.2 Installing heatsink & cooling fan

The Intel® Pentium® 4 Processor requires a specially designed heatsink and cooling fan assembly to ensure optimum thermal condition and performance.

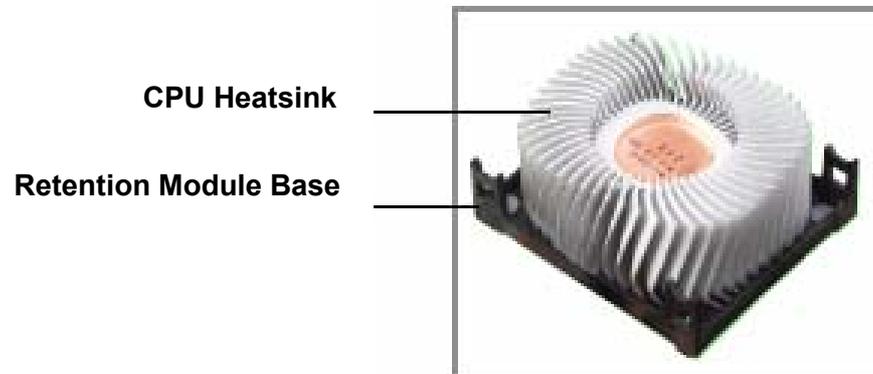
**Note!** When you buy a boxed Intel Pentium 4 Processor, the package includes the heatsink, fan, and retention mechanism. In case you buy a CPU separately, make sure that you use only Intel

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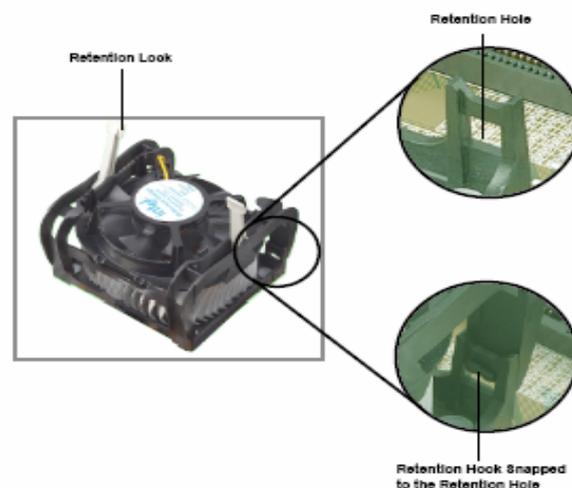
Follow these steps to install the CPU heatsink and fan.

1. Place the heatsink on top of the installed CPU, making sure that the heatsink fits properly on the retention module base.



**Note!**

- 1). The retention module base is already installed on the motherboard upon purchase. You do not have to remove the retention module base when installing the CPU or installing other motherboard components.
  - 2). Your boxed Intel Pentium 4 Processor package should come with installation instructions for the CPU, heatsink, and the retention mechanism. If the instructions in this section do not match the CPU, please refer to the installation instructions inside the boxed Intel Pentium 4 Processor package.
2. Position the fan with the retention mechanism on top of the heatsink. Align and snap the four hooks of the retention mechanism to the holes on each corner of the module base.



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**Caution:**

- 1). Make sure that the fan and retention mechanism assembly perfectly fits the heatsink and module base, otherwise you cannot snap the hooks into the holes.
- 2). Keep the retention locks lifted upward while fitting the retention mechanism to the module base.
- 3). Push down the locks on the retention mechanism to secure the heatsink and fan to the module base. When secure, the retention locks should point to opposite directions.



**Caution:** Don't forget to connect the CPU fan connector! Hardware monitoring errors may occur if you fail to plug this connector.

---

## 2-6 Installing System Memory

### 2-6-1 Overview

The motherboard comes with four Double Data Rate (DDR) Dual Inline Memory Module (DIMM) sockets. These sockets support up to 4GB system memory by using 184-pin non-ECC PC3200/ PC2700/PC2100 DDR DIMMs, and allow up to 6.4GB/s data transfer rate.

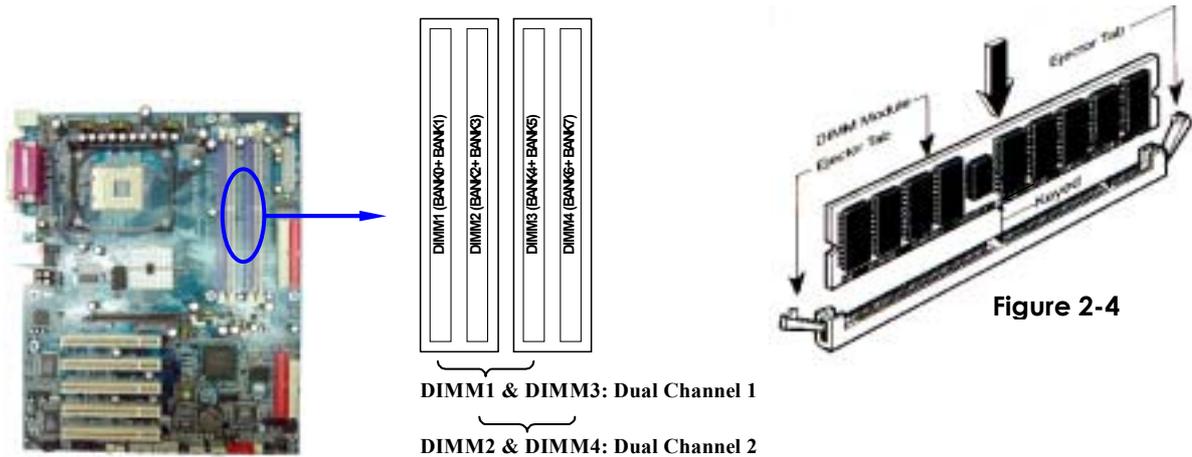
### 2-6-2 Valid Memory Configurations

Bank	184-Pin DIMM	PCS	Total Memory
Bank 0, 1 (DIMM1)	DDRDDR266/DDR333/DDR400 DDR SDRAM Module	X1	64MB~1.0GB
Bank 2, 3 (DIMM2)	DDRDDR266/DDR333/DDR400 DDR SDRAM Module	X1	64MB~1.0GB
Bank 4, 5 (DIMM3)	DDRDDR266/DDR333/DDR400 DDR SDRAM Module	X1	64MB~1.0GB
Bank 6,7 (DIMM4)	DDRDDR266/DDR333/DDR400 DDR SDRAM Module	X1	64MB~1.0GB
Total	System Memory (Max. 4.0GB)	4	64MB~4.0GB

**For Dual channel Limited!**

1. Dual channel function only supports when 2 DIMM Modules plug in either both DIMM1 & DIMM3 or DIMM2 & DIMM4, or four DIMM Modules plug in DIMM1~DIMM4.
2. DIMM1 & DIMM3, or DIMM2 & DIMM4 must be the same type, same size, same frequency for dual channel function.

Generally, installing DDR SDRAM modules to your motherboard is very easy, you can refer to figure 2-4 to see what a 184-Pin DDR266/DDR333/DDR400 DDR SDRAM module looks like.



**NOTE!**

When you install DIMM module fully into the DIMM socket the eject tab should be locked into the DIMM module very firmly and fit into its indentation on both sides.

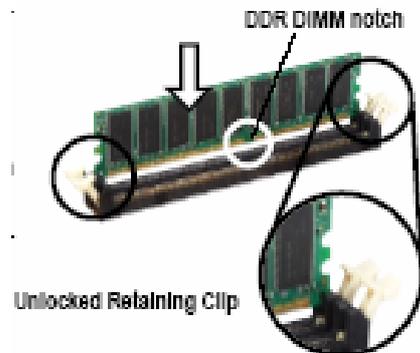
**WARNING!**

For the DDR SDRAM CLOCK is set at 200MHz, use only DDR400-compliant DDR Modules. When this motherboard operate at 200Mhz, most system will not even boot if non-compliant modules are used because of the strict timing issues, if your SDR Modules are not DDR266-compliant, set the DDR SDRAM clock to 133MHz to ensure system stability.

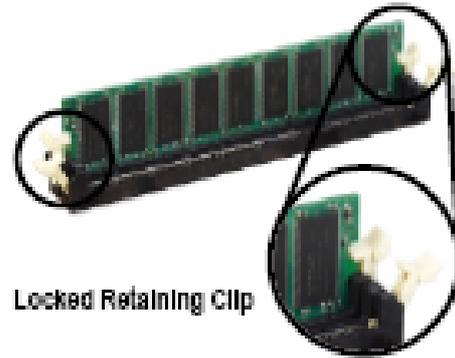
### 2-6-3 Installing a DIMM

Follow these steps to install a DIMM.

1. Unlock a DIMM socket by pressing the retaining clips outward.
2. Align a DIMM on the socket such that the notch on the DIMM matches the break on the socket.



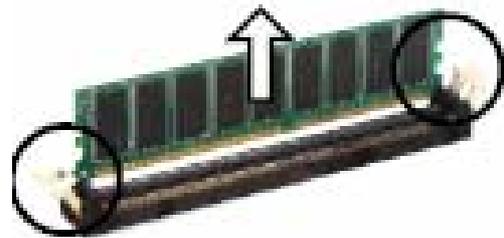
- 
- 
3. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated.



#### 2-6-4 Removing a DIMM

Follow these steps to remove a DIMM.

1. Simultaneously press the retaining clips outward to unlock the DIMM.
2. Remove the DIMM from the socket.



---

## 2-7 Expansion Cards

**WARNING!** Turn off the power when adding or removing expansion cards or other system components. Failing to do so may cause severe damage to both the motherboard and expansion cards.

### 2-7-1 Procedures for Expansion Cards Installation

1. Read the documentation of the expansion card and make any necessary hardware or software setting on the expansion card, such as jumpers, before installing.
2. Remove computer cover and the bracket plate on the slot you intend to use.
3. Align the card's connectors and press firmly.
4. Secure the card on the slot with the screw you remove above.
5. Replace the computer system's cover.
6. Set up the BIOS if necessary.
7. Install the necessary software driver of expansion card.

---

---

## 2-7-2 Assigning IRQs For Expansion Card

Some expansion cards need an IRQ to operate. Generally, an IRQ must be exclusively assigned. In a standard design, there are 16 IRQs available, but most of them might already be in use.

### Standard Interrupt Assignments

IRQ	Priority	Standard function
0	N/A	System Timer
1	N/A	Keyboard Controller
2	N/A	Programmable Interrupt
3 *	8	Communications Port (COM2)
4 *	9	Communications Port (COM1)
5 *	6	Sound Card (sometimes LPT2)
6 *	11	Floppy Disk Controller
7 *	7	Printer Port (LPT1)
8	N/A	System CMOS/Real Time Clock
9 *	10	ACPI Mode when enabled
10 *	3	IRQ Holder for PCI Steering
11 *	2	IRQ Holder for PCI Steering
12 *	4	PS/2 Compatible Mouse Port
13	N/A	Numeric Data Processor
14 *	5	Primary IDE Channel
15 *	1	Secondary IDE Channel

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

## 2-7-3 Interrupt Request Table For This Motherboard

Interrupt requests are shared as shown in the table below:

	INT A	INT B	INT C	INT D
PCI slot 1	Shared	—	—	—
PCI slot 2	—	Shared	—	—
PCI slot 3	—	—	Shared	—
PCI slot 4	—	—	—	Shared
PCI slot 5	Shared	—	—	—
AGP slot	Shared	—	—	—
AC97/MC97	—	—	Shared	—
Onboard USB	—	—	—	Shared
Onboard USB 1	—	—	—	Shared
Onboard USB 2	—	—	—	Shared

**IMPORTANT!** If using PCI cards on shared slots, make sure that the drivers support “Shared IRQ” or that the cards don’t need IRQ assignments. Conflicts will arise between the two PCI groups and will make the system unstable or cards inoperable.

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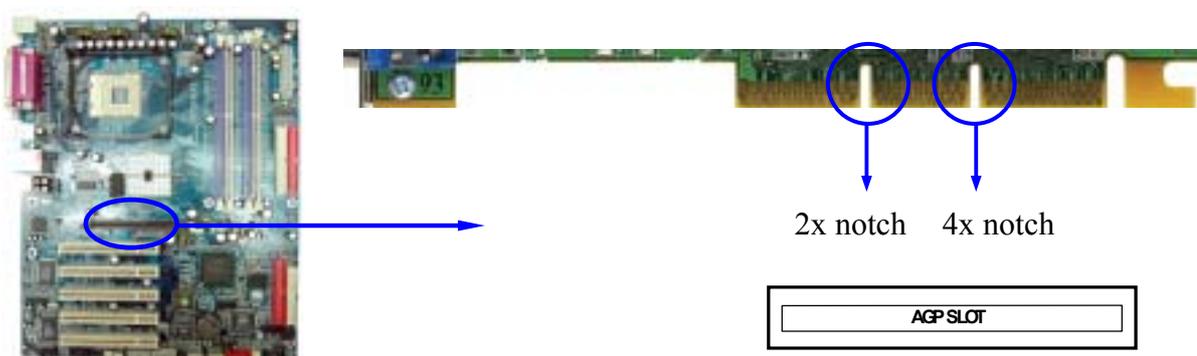
## 2-7-4 AGP Slot

This motherboard provides an AGP Slot, only support the 1.5V 4X/0.8V 8X AGP VGA card.

Do not use AGP 2X card (3.3V) in this motherboard. It will burn and damage the motherboard due to Intel® 875 chipset can not support AGP 2X (3.3V).

The AGP Slot also supports AGP Digital Display Card for digital display and TV-out.

**IMPORTANT!** Before you plug-in AGP card, please make sure the following notice is fully understood and practiced. If your AGP card has “AGP 4X notch (show below) please make sure your AGP card is AGP 4X/8X (1.5V/0.8V) not AGP 2X (3.3V)



**Example 1:** SiS 305 & ATi Rage 128 Pro AGP card those golden finger is compatible with 2X/4X mode AGP slot, but only can support 2X (3.3V) only. If you install these cards in Intel® 865 based motherboard it will burn and damage the motherboard.

**Example 2:** We also find Diamond Vipper V770 golden finger is design for 2X/4X mode AGP Slot. It can be adjusted the jumper for AGP 2X (3.3V) or AGP 4X (1.5V). But the factory default setting is 2X (3.3V). If you install this AGP card in motherboard without change the jumper setting to 4X (1.5V), it will burn the motherboard.

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## 2-8 Connectors, Headers

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### 2-8-1 Connectors

#### (1) Power Connector (20-pin block) : ATXPWR

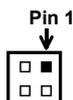
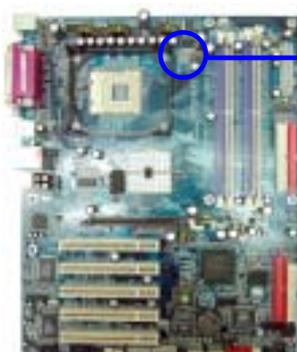
ATX Power Supply connector. This is a new defined 20-pins connector that usually comes with ATX case. The ATX Power Supply allows to use soft power on momentary switch that connect from the front panel switch to 2-pins Power On jumper pole on the motherboard. When the power switch on the back of the ATX power supply turned on, the full power will not come into the system board until the front panel switch is momentarily pressed. Press this switch again will turn off the power to the system board.



PIN	ROW2	ROW1
1	3.3V	3.3V
2	-12V	3.3V
3	GND	GND
4	Soft Power On	5V
5	GND	GND
6	GND	5V
7	GND	GND
8	-5V	Power OK
9	+5V	+5V (for Soft Logic)
10	+5V	+12V

#### (2) ATX 12V Power Connector (4-pin block) : ATX12V

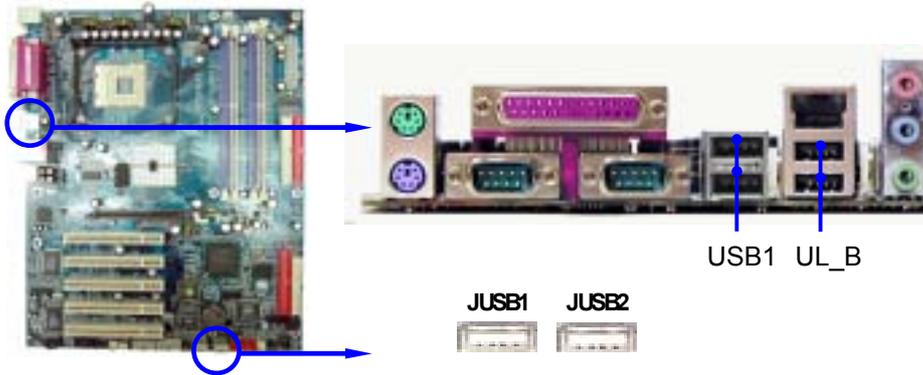
This is a new defined 4-pins connector that usually comes with ATX Power Supply. The ATX Power Supply which fully support Pentium 4 processor must including this connector for support extra 12V voltage to maintain system power consumption. Without this connector might cause system unstable because the power supply can not provide sufficient current for system.



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**(3) USB Port connector: USB1, JUSB1, JUSB2**



**(4) USB Port connector: UL\_B (USB)**

The connectors are 4-pin connector that connect USB devices to the system board.

**(5) LAN Port connector: LAN**

This connector is standard RJ45 connector for Network connector.

**(6) PS/2 Mouse & PS/2 Keyboard Connector: KB (PS2 KB/MOUSE)**

The connectors for PS/2 keyboard and PS/2 Mouse.

**(7) Parallel Port Connector (25-pin female): PARALLEL**

Parallel Port connector is a 25-pin D-Subminiature Receptacle connector. The On-board Parallel Port can be disabled through the BIOS SETUP. Please refer to Chapter 3 “INTEGRATED PERIPHERALS SETUP” section for more detail information.

**(8) Audio Line-In, Lin-Out, MIC Connector : CN1**

This Connector are 3 phone Jack for LINE-OUT, LINE-IN, MIC

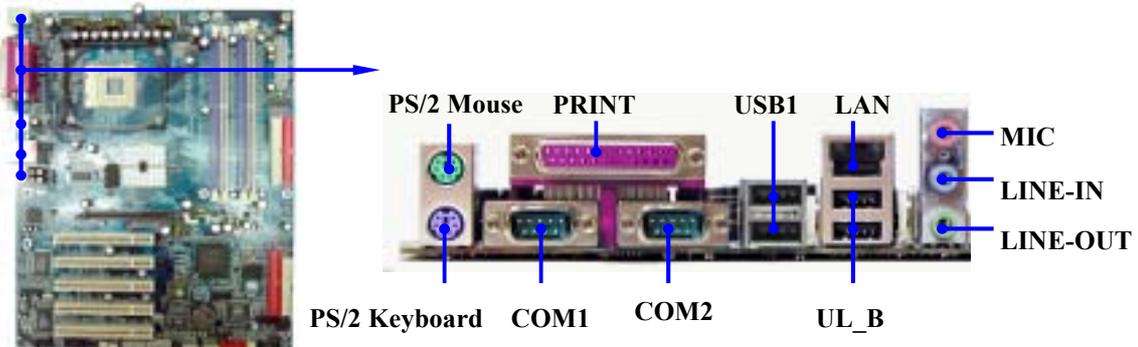
**Line-out :** Audio output to speaker

**Line-in :** Audio input to sound chip

**MIC :** Microphone Connector

**(9) Serial Port COM1/COM2: COM1/COM2**

COM1/COM2 is the 9-pin D-Subminiature mail connector. The On-board serial port can be disabled through BIOS SETUP. Please refer to Chapter 3 “INTEGRATED PERIPHERALS SETUP” section for more detail information.

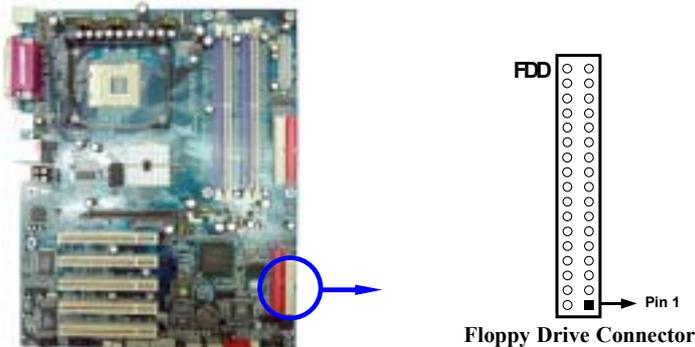


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**(10) Floppy drive Connector (34-pin block): FDD**

This connector supports the provided floppy drive ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to the floppy drives.

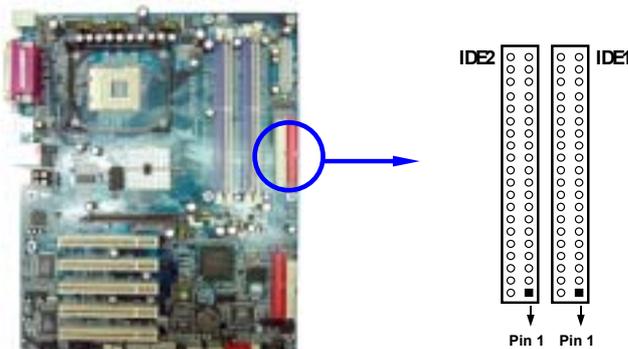


**(11) Primary IDE Connector (40-pin block): IDE1**

This connector supports the provided IDE hard disk ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to your hard disk(s). If you install two hard disks, you must configure the second drive to Slave mode by setting its jumpers accordingly. Please refer to the documentation of your hard disk for the jumper settings.

**(12) Secondary IDE Connector (40-pin block): IDE2**

This connector connects to the next set of Master and Slave hard disks. Follow the same procedure described for the primary IDE connector. You may also configure two hard disks to be both Masters using one ribbon cable on the primary IDE connector and another ribbon cable on the secondary IDE connector.



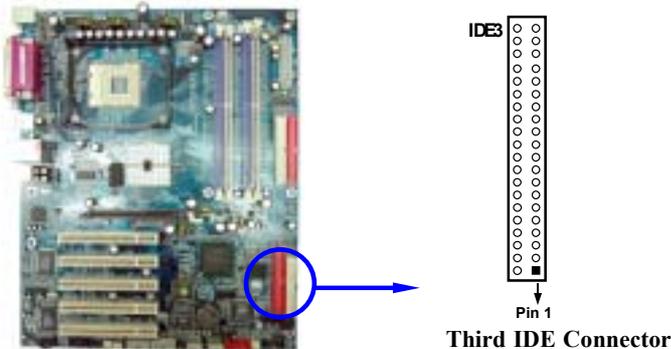
- Two hard disks can be connected to each connector. The first HDD is referred to as the “Master” and the second HDD is referred to as the “Slave”.
- For performance issues, we strongly suggest you don’t install a CD-ROM or DVD-ROM drive on the same IDE channel as a hard disk. Otherwise, the system performance on this channel may drop.

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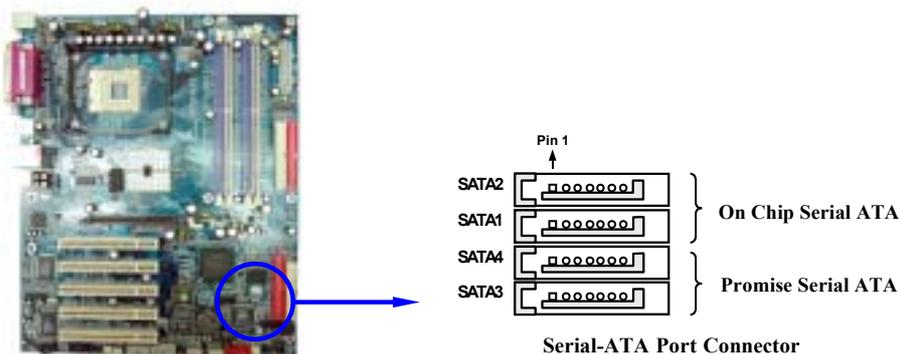
**(13) Third IDE Connector (40-pin block): IDE3**

This connector supports the provided IDE hard disk ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to your hard disk(s). Please refer to the documentation of your hard disk for the jumper settings.



**(14) Serial-ATA Port connector: SATA1/SATA2/SATA3/SATA4**

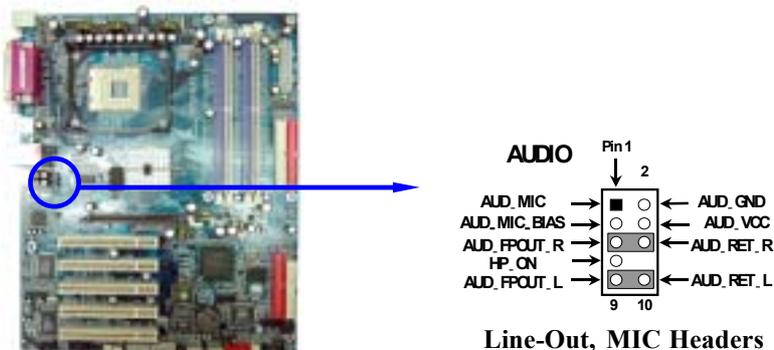
This connector support the provided Serial ATA IDE hard disk cable to connecting the motherboard and serial ATA hard disk.



**2-8-2 Headers**

**(1) Line-Out, MIC Header (9-pin): AUDIO**

This header connect to Front Panel Line-out, MIC connector with cable.

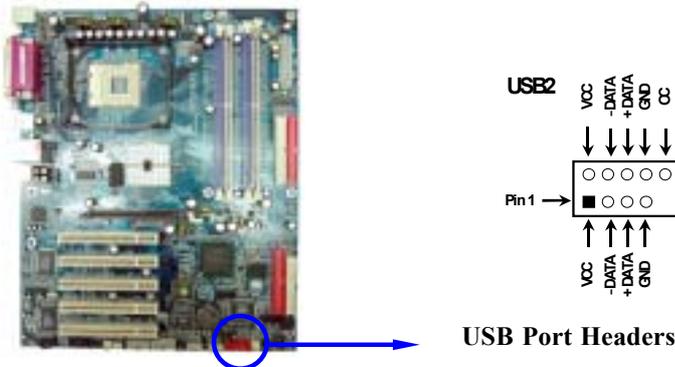


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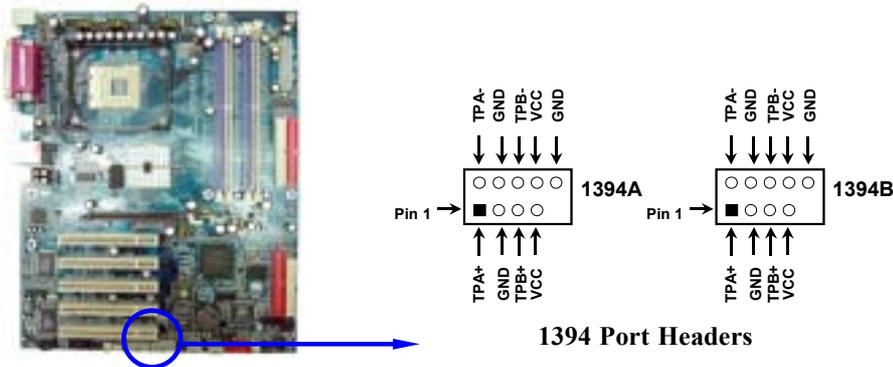
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**(2) USB Port Headers (9-pin) : USB2**

The header is used for connecting the additional USB port plug. By attaching an option USB cable, your can be provided with two additional USB plugs affixed to the back panel.



**(3) 1394 Port Headers (9-pin): 1394A, 1394B**



**(4) IDE Activity LED: IDE LED**

This connector connects to the hard disk activity indicator light on the case.

**(5) Reset switch lead: RESET**

This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply. See the figure below.

**(6) Speaker connector: SPEAK**

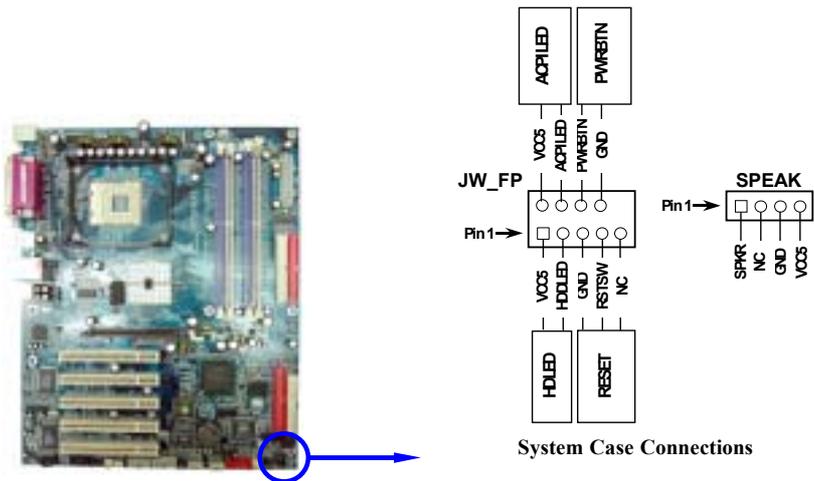
This 4-pin connector connects to the case-mounted speaker. See the figure below.

**(7) Power LED: PWR-LED**

The Power LED is light on while the system power is on. Connect the Power LED from the system case to this pin.

**(8) Power switch: PWR BTN**

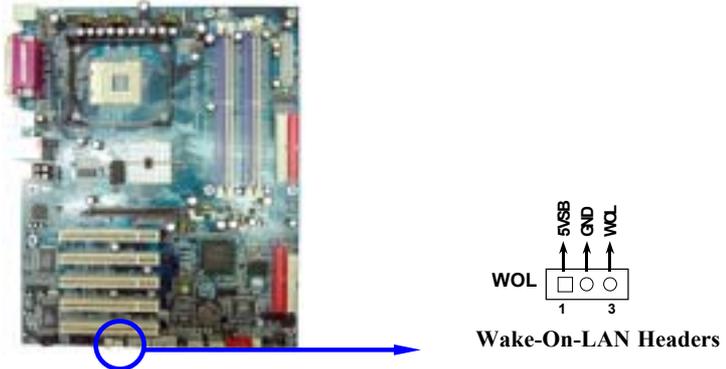
This 2-pin connector connects to the case-mounted power switch to power ON/OFF the system.



**(9) Wake On-LAN Headers (3-pin) : WOL**

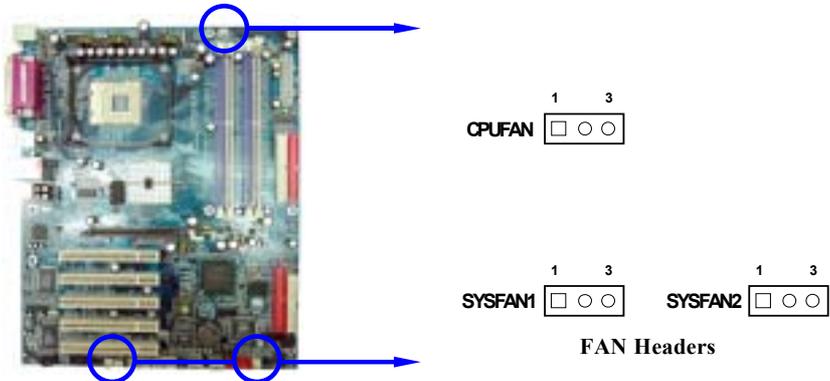
This connector connects to a LAN card with a WAKE ON-LAN output. This connector power up the system when a wake up signal is received through the LAN card.

**NOTE:** This feature requires that Wake On LAN or Ring In Wake up is enabled.



**(10) FAN Speed Headers (3-pin) : SYSFAN1, SYSFAN2, CPUFAN**

These connectors support cooling fans of 350mA (4.2 Watts) or less, depending on the fan manufacturer, the wire and plug may be different. The red wire should be positive, while the black should be ground. Connect the fan's plug to the board taking into consideration the polarity of connector.

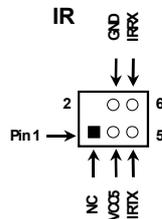


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**(11) IR infrared module Headers (5-pin) : IR**

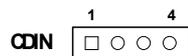
This connector supports the optional wireless transmitting and receiving infrared module. You must configure the setting through the BIOS setup to use the IR function.



**IR infrared module Headers**

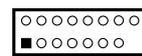
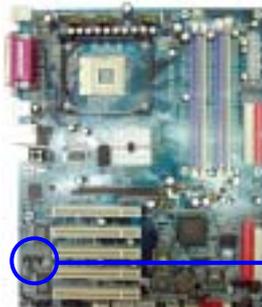
**(12) CD Audio-In Headers (4-pin) : CDIN**

CDIN are the connectors for CD-Audio Input signal. Please connect it to CD-ROM CD-Audio output connector.



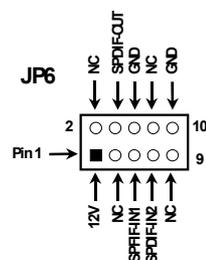
**CD Audio-In Headers**

**(13) Game Port Header: GAME**



**GAME Port Headers**

**(14) Optical In/Out Header: JP7**



**SPDIF-Bracket Connector**

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## 2-9 Starting Up Your Computer

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1. After all connection are made, close your computer case cover.
2. Be sure all the switch are off, and check that the power supply input voltage is set to proper position, usually in-put voltage is 220V~240V or 110V~120V depending on your country's voltage used.
3. Connect the power supply cord into the power supply located on the back of your system case according to your system user's manual.
4. Turn on your peripheral as following order:
  - a. Your monitor.
  - b. Other external peripheral (Printer, Scanner, External Modem etc...)
  - c. Your system power. For ATX power supplies, you need to turn on the power supply and press the ATX power switch on the front side of the case.
5. The power LED on the front panel of the system case will light. The LED on the monitor may light up or switch between orange and green after the system is on. If it complies with green standards or if it is has a power standby feature. The system will then run power-on test. While the test are running, the BIOS will alarm beeps or additional message will appear on the screen.

If you do not see any thing within 30 seconds from the time you turn on the power. The system may have failed on power-on test. Recheck your jumper settings and connections or call your retailer for assistance.

Beep	Meaning
One short beep when displaying logo	No error during POST
Long beeps in an endless loop	No DRAM install or detected
One long beep followed by three short beeps	Video card not found or video card memory bad
High frequency beeps when system is working	CPU overheated System running at a lower frequency

6. During power-on, press <Delete> key to enter BIOS setup. Follow the instructions in BIOS SETUP.
7. **Power off your computer:** You must first exit or shut down your operating system before switch off the power switch. For ATX power supply, you can press ATX power switching after exiting or shutting down your operating system. If you use Windows 9X, click "**Start**" button, click "**Shut down**" and then click "**Shut down the computer?**" The power supply should turn off after windows shut down.

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## Chapter 3

### BIOS Setup

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

#### **3-1 Introducing BIOS**

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The BIOS is a program stored in a flash memory on the motherboard. The program serves as a bridge between motherboard and operating system. When you switch on the system, the BIOS program gains immediate control. The BIOS first executes an auto-diagnostic test called POST (power on self test) on all the necessary hardware. It detects the entire hardware devices and configures the parameters of the hardware for synchronization. Only when these tasks are completed it gives up control of the computer to operating system (OS). Since the BIOS is the only communication channel for hardware and software, it is the key to ensure system stability and optimal system performance.

You will see various options in the BIOS Setup main menu as shown in Figure 3-1. These options will be explained step by step in the following pages. Before going further, let us first take a short look at the descriptions of the function keys you may use here:

- Press <Esc> to quit the BIOS Setup.
- Press ↑↓←→ (up, down, left, right) to choose, in the main menu, the option you want to confirm or to modify.
- Press <F10> to save these parameters and to exit the BIOS Setup menu when you have completed the setup of BIOS parameters.
- Press Page Up/Page Down or +/- keys when you want to modify the BIOS parameters for an active option.

#### **3-2 Entering Setup**

---

Power on the computer and press <Del> immediately allows you to enter BIOS Setup. If the POST message disappears before you press <Del> and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to

**Press <F1> to continue, <Ctrl-Alt-Esc> or <Del> to enter Setup**

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## 3-3 Getting Help

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### Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

### Status Page Setup Menu/Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help window, press <Esc>.

---

## 3-4 The Main Menu

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Once you enter Award® BIOS CMOS Setup Utility, the Main Menu (Figure 3-1) will appear on the screen. There are fourteen setup functions and two exit choices allowing you to select under the Main Menu. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

CMOS Setup Utility - Copyright(C) 1984-2003 Award Software

<b>Standard CMOS Features</b>	<b>Miscellaneous Control</b>
Advanced BIOS Features	Load optimized Defaults
Advanced Chipset Features	Load Standard Defaults
Integrated Peripherals	Set Supervisor Password
Power Management Setup	Set User Password
PnP/PCI Configurations	Save & Exit Setup
PC Health Status	Exit Without Saving
Esc : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	
Time, Date, Hard Disk Type...	

Figure 3-1

### 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.

**Miscellaneous Control**

Use this menu to specify your settings for Miscellaneous Control.

**Load Optimized Defaults**

Use this menu to load the BIOS default values that are factory-set for optimal system performances operation.

**Load Standard Defaults**

Use this menu to load the BIOS default values for the minimal/stable performance system operation.

**Set Supervisor/User Password**

Use this menu to set User and Supervisor Passwords.

**Save & Exit Setup**

Save changes of CMOS value to CMOS and exit setup.

**Exit Without Saving**

Abandon all CMOS values changed and exit setup.

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## **3-5 Standard CMOS Features**

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The items in Standard CMOS Setup Menu are divided into categories. There might be no, one, or more than one setup items in the category. 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.

CMOS Setup Utility - Copyright(C) 1984-2003 Award Software  
Standard CMOS Features

Date (mm:dd:yy)	Wed, <b>May</b> , 14 2003	Item Help
Time (hh:mm:ss)	11 : 02 : 35	
> IDE Primary Master	Press Enter None	Menu Level >  Change the day, month, year and century
> IDE Primary Slave	Press Enter None	
> IDE Secondary Master	Press Enter None	
> IDE Secondary Slave	Press Enter None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All, But Keyboard	
Base Memory	640K	
Extended Memory	56320K	
Total Memory	57344K	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

### 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 in using numeric function keys.

**Year** The year depends on the year of the BIOS.

### Time

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

### Primary Master/Primary Slave

### Secondary Master/Secondary 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 drive specifications information are required to be entered. Enter the information directly from the keyboard. This information is provided from the documentation of your hard disk.

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 Auto Normal, Large, and LBA.

**Cylinder** number of cylinders

**Head** number of heads

**Precomp**      write precomp  
**Landing Zone**      landing zone  
**Sector**          number of sectors

## 3-6 Advanced BIOS Features

CMOS Setup Utility - Copyright(C) 1984-2003 Award Software  
 Advanced BIOS Features

Anti-Virus Protection	Disabled	Item Help
CPU L1 & L2 Cache	Enabled	
CPU Hyper Threading	Disabled	Menu Level >
Quick Power On Self Test	Enabled	
HDD Boot Sprite	Disabled	
Hard Disk Boot Priority	Press Enter	
Promise378-SATA & SCSI Order	P378, SCSI	
First Boot Device	Floppy	
Second Boot Device	HDD 0	
Third Boot Device	CDROM	
Boot other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Enabled	
Boot Up NumLock Status	On	
Gate A20 Option	Fast	
Typematic Rate Setting	Disabled	
Typematic Rate (Chars/Sec)	6	
Typematic Delay (Msec)	250	
Security Option	Setup	
APIC Mode	Disabled	
MPS Version Control For OS	1.4	
OS Select For DRAM > 64MB	Non-OS2	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

### Anti-Virus Protection

Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

**Disabled** (default) No warning message to appear when anything attempts to access the boot sector or hard disk partition table.

**Enabled** Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector of hard disk partition table.

### CPU Internal Cache

The default value is Enabled.

---

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**Enabled** (default) Enable cache

**Disabled** Disable cache

**Note:** *The internal cache is built in the processor.*

### **External Cache**

Choose Enabled or Disabled. This option enables the Level 2 cache memory.

### **CPU L2 Cache ECC Checking**

Choose Enabled or Disabled. This option enables the Level 2 cache memory ECC (error check correction).

### **Quick Power On Self Test**

This category speeds up Power On Self Test (POST) after you power on the computer. If this is set to Enabled, BIOS will shorten or skip some check items during POST.

**Enabled** (default) Enable quick POST

**Disabled** Normal POST

### **First/Second/Third/Fourth Boot Device**

The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The settings are Floppy, LS/ZIP, HDD-0/HDD-1/HDD-3, SCSI, CDROM, LAD and Disabled.

### **Swap Floppy Drive**

Switches the floppy disk drives between being designated as A and B. Default is Disabled.

### **Boot Up Floppy Seek**

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks.

### **Boot Up NumLock Status**

The default value is On.

**On** (default) Keypad is numeric keys.

**Off** Keypad is arrow keys.

### **Gate A20 Option**

**Normal** The A20 signal is controlled by keyboard controller or chipset hardware.

**Fast** (default) The A20 signal is controlled by port 92 or chipset specific method.

### **Typematic Rate Setting**

Keystrokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected. The settings are: Enabled/Disabled.

### **Typematic Rate (Chars/Sec)**

Sets the number of times a second to repeat a keystroke when you hold the key down. The settings are: 6, 8, 10, 12, 15, 20, 24, and 30.

### Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke. The settings are 250, 500, 750, and 1000.

### Security Option

This category allows you to limit access to the system and Setup, or just to Setup.

**System** The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.

**Setup (default)** The system will boot, but access to Setup will be denied if the correct password is not entered prompt.

### OS Select For DRAM > 64MB

Allows OS2® to be used with >64MB of DRAM. Settings are Non-OS/2 (default) and OS2. Set to OS/2 if using more than 64MB and running OS/2.

## 3-7 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.

CMOS Setup Utility - Copyright(C) 1984-2003 Award Software  
Advanced Chipset Features

> DRAM Timing Settings	Press Enter	Item Help
System BIOS Cacheable	Enabled	
Video BIOS Cacheable	Enabled	
Memory Hole At 15M-16M	Disabled	
Delay Transaction	Enabled	Menu Level >
AGP Transfer Mode	Auto	
AGP Aperture Size	128MB	
On-Chip VGA	Enabled	
On-Chip Frame Buffer Size	16MB	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

### DRAM Timing Settings

Please refer to section 3-6-1

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---

### 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. The settings are: Enabled and Disabled.

### Video RAM Cacheable

Select Enabled allows caching of the video BIOS, resulting in better system performance. However, if any program writes to this memory area, a system error may result. The settings are: Enabled and Disabled.

### Memory Hole At 15M-16M

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements. The settings are: Enabled and Disabled.

### Delay Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1. The settings are: Enabled and Disabled.

### AGP Transfer Mode

In this item you can select AGP transfer mode Auto/8X/4X the Default setting is Auto.

## 3-7-1 DRAM Timing Settings

CMOS Setup Utility - Copyright(C) 1984-2003 Award Software  
DRAM Timing Settings

Auto Configuration	Standard	Item Help
SDRAM CAS Latency Time	2.5	Menu Level >>
SDRAM Cycle Time	7	
SDRAM RAS# to CAS# Delay	3	
SDRAM RAS# Precharge Time	3	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

### SDRAM CAS Latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. The settings are: 2T and 2.5T.

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

### SDRAM RAS# to CAS# Delay

This field let's you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The settings are: 2T, 3T and 4T.

### SDRAM RAS# Precharge Time

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain date. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The settings are: 2T, 3T and 4T.

## 3-8 Integrated Peripherals

CMOS Setup Utility - Copyright(C) 1984-2003 Award Software  
Integrated Peripherals

> Onboard IDE Function	Press Enter	Item Help
> Onboard Device Function	Press Enter	
> Onboard Super IO Function	Press Enter	Menu Level >
Init Display First	PCI Slot	
Power On Function	Button Only	
KB Power On Password	Enter	
Hot Key Power On	Ctrl-F1	
Power Loss Function	Always Off	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

### Onboard IDE Function

Please refer to section 3-7-1

### Onboard Device Function

Please refer to section 3-7-2

### Onboard Super IO Function

Please refer to section 3-7-3

### Init Display First

This item allows you to decide to activate whether PCI Slot or AGP VGA first. The settings are: PCI Slot, AGP Slot.

### 3-8-1 Onboard IDE Function

CMOS Setup Utility - Copyright(C) 1984-2003 Award Software  
Onboard IDE Function

OnChip Primary PCI IDE      Enabled OnChip Secondary PCI IDE    Enabled Primary Master    PIO            Auto Primary Slave     PIO            Auto Secondary Master PIO            Auto Secondary Slave   PIO            Auto Primary Master    UDMA          Auto Primary Slave     UDMA          Auto Secondary Master UDMA          Auto Secondary Slave   UDMA          Auto IDE DMA Transfer Access       Enabled IDE 32-bit Transfer Mode       Enabled IDE HDD Block Mode            Enabled Delay For HDD (Secs)            0 *** On-Chip Serial ATA Setting *** On-Chip Serial ATA            Disabled x Serial ATA Port0 Mode        Primary Master Serial ATA Port1 Mode        Primary Master	Item Help  Menu Level >>
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults	

**OnChip IDE Primary/Secondary**

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately. The settings are: Enabled and Disabled.

**Primary/Secondary Master/Slave PIO**

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The settings are: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

**Primary/Secondary Master/Slave UDMA**

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33 and Ultra DMA/66, select Auto to enable BIOS support. The settings are: Auto, Disabled.

**IDE HDD Block Mode**

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support. The settings are: Enabled, Disabled.

**On-Chip Serial ATA**

The settings are: Disabled, Auto, Combined Mode, Enhanced Mode, SATA Only. Default setting is Auto. *Due to the Intel ICH5 Specification limited only provided two controllers. When plug the Serial ATA hard drive in SATA1 or SATA2 only can support either IDE1 or IDE2 can works in Windows 9X/ME/2000. But in the Windows XP the OS can support 6 IDE devices both IDE1, IDE2 and SATA1/SATA2 can works.*

## 3-8-2 Onboard Device Function

CMOS Setup Utility - Copyright(C) 1984-2003 Award Software

### Onboard Device Function

CMI8738 Sound Chip	Enabled	Item Help	
Promise378 Operation Mode	SATA		
CSA Gigabit Ethernet	Enabled	Menu Level >>	
CSA Gigabit LAN BootROM	Disabled		
USB Controller	Enabled		
USB 2.0 Controller	Enabled		
USB Keyboard Legacy Support	Disabled		
USB Mouse Legacy Support	Disabled		
Game Port Address	201		
Midi Port Address			
Midi Port IRQ	10		
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults			

### CMI8738 Sound Chip

This will determine which on Board Sound Chip Function will use. The settings are: Enabled, Disabled.

### Promise378 Operation Mode

Select *RAID Mode* if you want to use the RAID function in Serial ATA drive. The settings are: SATA Mode, RAID Mode

### CSA Gigabit Ethernet

This will determine which CSA LAN controller will use. The settings are: Enabled, Disabled.

### USB Controller

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

### USB Keyboard Legacy Support

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard. The settings are: Enabled, Disabled.

### Game Port Address/Midi Port Address

This will determine which Address the Game Port/Midi Port will use.

## 3-8-3 Onboard Super IO Function

CMOS Setup Utility - Copyright(C) 1984-2003 Award Software  
Onboard Super IO Function

Onboard FDD Controller	Enabled	Item Help	
Onboard Serial Port 1	3F8/IRQ4	Menu Level >>	
Onboard Serial Port 2	2F8/IRQ3		
UART2 Mode Select	Normal		
RxD, TxD Active	Hi, Lo		
IR Transmission Delay	Enabled		
IR Duplex Mode	Half		
IR Pins	IRRX/IRTX		
Onboard Parallel Port	378/IRQ7		
Parallel Mode	SPP		
EPP Mode Select	EPP1.7		
ECP Mode Use DMA	3		
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults			

**Onboard FDD Controller**

Select Enabled if your system has a floppy disk controller (FDD) installed on the system board and you wish to use it. If you install add-on FDC or the system has no floppy drive, select Disabled in this field. The settings are: Enabled and Disabled.

**Onboard Serial Port 1/Port 2**

Select an address and corresponding interrupt for the first and the second serial ports. The settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

**UART2 Mode Select**

This item allows you to determine which InfraRed(IR) function of the onboard I/O chip, this functions uses.

**Onboard Parallel Port**

There is a built-in parallel port on the on-board Super I/O chipset that Provides Standard, ECP, and EPP features. It has the following option:

**Disabled**

- (3BCH/IRQ7)/ Line Printer port 0
- (278H/IRQ5)/ Line Printer port 2
- (378H/IRQ7) Line Printer port 1

**Parallel Port Mode**

- SPP : Standard Parallel Port
- EPP : Enhanced Parallel Port
- ECP : Extended Capability Port

**SPP/EPP/ECP/ECP+EPP**

To operate the onboard parallel port as Standard Parallel Port only, choose “SPP.” To operate the onboard parallel port in the EPP modes 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. 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 channels 3 to 1. 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.

### 3-9 Power Management Setup

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

CMOS Setup Utility - Copyright(C) 1984-2003 Award Software

#### Power Management Setup

ACPI Function	Enabled	Item Help	
ACPI Suspend Type	S1(POS)		
Power Management	User Define	Menu Level >	
Video off Method	V/H SYNC+Blank		
Video Off In Suspend	Yes		
Suspend Type	Stop Grant		
MODEM Use IRQ	3		
Suspend Mode	Disabled		
HDD Power Down	Disabled		
Soft-off by PWR-BTTN	Instant-off		
Wake-Up by PCI card	Disabled		
Power On by Ring	Disabled		
Resume by Alarm	Disabled		
X Date (of Month)	0		
X Time (hh:mm:ss)	0 : 0 :0		
CPU Thermal Management Timer	32 Min		
> PM Timer Reload Events	Press Enter		
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults			

#### ACPI Function

This item allows you to Enabled/Disabled the Advanced Configuration and Power Management (ACPI). The settings are Enabled and Disabled.

#### ACPI Suspend Type

This item allows you to select ACPI Suspend Type.

The setting are: S1(POS), S3(STR)

#### Video Off in Suspend

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This determines the manner in which the monitor is blanked. The choice are Yes → Video will off , and No→ Video always On.

### **Video Off Method**

This determines the manner in which the monitor is blanked.

- DPMS (default)** Initial display power management signaling.
- 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.

### **Modem Use IRQ**

This determines the IRQ in which the MODEM can use.

The settings are: 3, 4, 5, 7, 9, 10, 11, NA.

### **Power Button Function**

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state. The settings are: Delay 4 Sec, Instant-Off.

### **Wake-Up by PCI card /Power On by Ring**

During Disabled, the system will ignore any incoming call from the PCI card/modem.

During Enabled, the system will boot up if there's an incoming call from the PCI card /modem.

### **Wake-Up on RTC Alarm**

This function is for setting date and time for your computer to boot up. During Disabled, you cannot use this function. During Enabled, choose the Date and Time Alarm:

#### **Date(of month) Alarm**

You can choose which month the system will boot up. Set to 0, to boot every day.

#### **Time(hh:mm:ss) Alarm**

You can choose what hour, minute and second the system will boot up.

**Note:** If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work

### **PM Timer Reload Events**

Please refer to section 3-9-1

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### 3-9-1 PM Timer Reload Events

CMOS Setup Utility - Copyright(C) 1984-2003 Award Software  
PM Timer Reload Events

Primary IDE 0	Disabled	Item Help
Primary IDE 1	Disabled	Menu Level >>
Secondary IDE 0	Disabled	
Secondary IDE 1	Disabled	
FDD, COM, LPT Port	Disabled	
PCI PIRQ [A-D] #	Disabled	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

---

### 3-10 PnP/PCI Configuration Setup

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.

CMOS Setup Utility - Copyright(C) 1984-2003 Award Software  
PnP/PCI Configurations

Reset Configuration Data	Disabled	Item Help
Resources Controlled By	Manual	Menu Level >
x IRQ Resources	Press Enter	
PCI/VGA Palette Snoop	Disabled	
Assign IRQ For VGA	Enabled	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

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### 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

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

Please refer to section 3-9-1

### PCI/VGA Palette Snoop

Leave this field at *Disabled*. The settings are Enabled, Disabled.

## 3-10-1 IRQ Resources

CMOS Setup Utility - Copyright (C) 1984-2003 Award Software

### IRQ Resources

IRQ-3	assigned to	PCI Device	Item Help
IRQ-4	assigned to	PCI Device	
IRQ-5	assigned to	PCI Device	
IRQ-7	assigned to	PCI Device	Menu Level >>
IRQ-9	assigned to	PCI Device	
IRQ-10	assigned to	PCI Device	
IRQ-11	assigned to	PCI Device	
IRQ-12	assigned to	PCI Device	
IRQ-14	assigned to	PCI Device	
IRQ-15	assigned to	PCI Device	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults			

## 3-11 PC Health Status

This section shows the Status of you CPU, Fan, Warning for overall system status. This is only available if there is Hardware Monitor onboard.

CMOS Setup Utility - Copyright(C) 1984-2003 Award Software  
PC Health Status

Shutdown Temperature	Disabled	Item Help	
CPU Warning Temperature	Disabled		
Show PC Health in Post	Enabled	Menu Level >	
Current System Temperature	25°C		
Current CPU Temperature	38°C		
Current CPUFAN Speed	5000 rpm		
Current SYSFAN Speed	5000 rpm		
Current SYSFAN2 Speed	5000 rpm		
Vcore	1.71V		
Vcc1.5	1.51V		
Vcc3.3	3.31V		
+5V	4.98V		
+12V	12.22V		
-12V	-12.36V		
-5V	-4.99V		
VBAT(V)	3.21V		
5VSB(V)	5.02V		
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults			

### Show PC Health in Post

During Enabled, it displays information list below. The choice is either Enabled or Disabled.

### Current CPU Temperature/Current System Temp/Current FAN1, FAN2

### Speed/Vcore/Vdd/ 3.3V/+5V/+12V/-12V/VBAT(V)/5VSB(V)

This will show the CPU/FAN/System voltage chart and FAN Speed.

### Shutdown Temperature

This item can let users setting the Shutdown temperature, when CPU temperature over this setting the system will auto shutdown to protect CPU.

## 3-12 Miscellaneous Control

This section is for setting CPU Frequency/Voltage Control.

CMOS Setup Utility - Copyright(C) 1984-2003 Award Software  
Miscellaneous Control

CPU Clock Ratio	8 X	Item Help
Auto Detect PCI Clk	Enabled	
Spread Spectrum	Disabled	Menu Level >
** Current Host Clock is 100/33MHz **		
HOST/PCI Clock at Next Boot is	100/33MHz	
** Current DRAM Clock is 133MHz **		
DRAM Clock at Next Boot is	DDR266	
CPU Vcore Select	Default	
Vcc1.5 Select	1.5V	
VDIMM Select	2.5V	
Flash Part Write Protect	Enabled	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

### Auto Detect PCI Clk

This item allows you to enable/disable auto detect PCI Clock.

The settings are: Enabled, Disabled.

### Spread Spectrum

This item allows you to set the CPU Host/PCI clock and Spread Spectrum.

The settings are: Enabled, Disabled.

### Host/PCI Clock at Next Boot

This item allows you to select CPU frequency step by step increasing.

The choice are: 400MHz CPU---100MHz~350MHz, 533MHz CPU---133MHz~350MHz  
800MHz CPU---200MHz~350MHz

### DRAM Clock at Next Boot is

This item allows you select the DRAM Clock for DDR266/DDR333/DDR400. The setting are:

DDR266 for P4/400MHz CPU, DDR266/DDR333 for P4/533MHz CPU, DDR266/DDR333 /DDR400 for P4/800MHz CPU

### CPU Vcore Select

This item allows you select CPU Vcore Voltage by increase 0.0125V step by step from 0.8375V to 1.6V or 1.65V, 1.7V, 1.75V the Default setting is Default (CPU manufacturer Default setting).

### Vcc1.5 Select

This item allows you to select 1.5V of the AGP VGA card. The choice are: Default, 1.5V, 1.6V, 1.7V, 1.8V.

### VDIMM Select

This item allows you to select DRAM Voltage. The choice are: 2.55V/2.6V/2.7V/2.8V.

### Flash Part Write Protect

This item allows you protect your BIOS chip from Virus destroy data. When Flash BIOS you have Disabled this item.

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## 3-13 Load Standard/Optimized Defaults

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### Load Standard Defaults

When you press <Enter> on this item, you get confirmation dialog box with a message similar to:

Load Standard Defaults (Y/N)? N

Pressing <Y> loads the BIOS default values for the most stable, minimal-performance system operations.

### Load Optimized Defaults

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)? N

Pressing <Y> loads the default values that are factory settings for optimal performance system operations.

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## 3-14 Set Supervisor/User Password

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You can set either supervisor or user password, or both of them. The differences are:

**Supervisor password:** be able to enter and change the options of the setup menus.

**User password:** be able to enter, but not the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

### ENTER PASSWORD:

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

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm that the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

### PASSWORD DISABLED.

When a password has been enabled, 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 require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You can determine when the password is required within the BIOS Features Setup Menu and its Security option. If the Security option is set to “System”, the password will be required both at boot and at entry of Setup. If set to “Setup”, prompting only occurs when trying to enter Setup.

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## Chapter 4

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## Driver & Free Program Installation

Check your package and there is A MAGIC INSTALL CD included. This CD consists of all DRIVERS you need and some free application programs and utility programs. In addition, this CD also include an auto detect software which can tell you which hardware is installed, and which DRIVERS needed so that your system can function properly. We call this auto detect software MAGIC INSTALL.

### **MAGIC INSTALL Supports WINDOWS 98SE/ME/NT4.0/2000/XP**

Insert CD into your CD-ROM drive and the MAGIC INSTALL Menu should appear as shown below. If the menu does not appear, double-click MY COMPUTER / double-click CD-ROM drive or click START / click RUN / type X:\SETUP.EXE (assuming X is your CD-ROM drive).



**From MAGIC INSTALL MENU you may make 10 selections:**

1. INF                   install Intel 865/875 chipset system driver
2. SOUND               install CMI8738-6CH Audio driver
3. LAN                   install Intel LAN Controller driver
4. USB2.0               install USB 2.0 driver
5. SATA                  install Serial ATA driver
6. PC-CILLIN           install PC-CILLIN2002 anti-virus program
7. PC-HEALTH          install Intel 865 PC-HEALTH monitor
8. MBIOS&DX9       install BIOS Live Update Utility and Microsoft DirectX 9 driver
9. BROWSE CD         to browse the contents of the CD
10. EXIT                to exit from MAGIC INSTALL menu

---

### **4-1 INF   install Intel 865/875 chipset system driver**







9. This is the C-Media Audio Rack Play table



10. Click Start\Program\PCI Audio Application\Multi-Channel Audio Demo to test the 6CH Speaker position



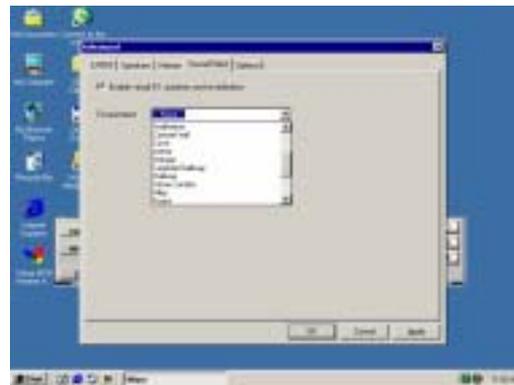
11. Click C-Media Mixer\Advanced\Speakers, this is the C-Media Audio speaker Configuration setting. (S/PDIF supports only 2 CH speaker output)



12. Enable **USING Xear 3D**, you can select 4/6 Speakers Xear Functions



13. Click C-Media Mixer\Advanced\volume, this is for the 6CH speaker volume Setting



14. By clicking C-Media Mixer\Advanced\Sound Effect selection. You can set up the Sound Environment Simulator

**NOTE: MAGIC INSTALL will auto detect and install, or the file path is:  
X:\CMI8738\SETUP.EXE (for WINDOWS 95/98/98SE/ME/NT4.0/2000/XP**

---

---

## 4-3 LAN Install INTEL® PRO/1000 GIGA Ethernet Driver

---

### WINDOWS 98SE/98ME/2000/XP Setup



1. Click LAN when Magic Install Menu appears
2. Select wired LAN Adapters to install INTEL®PRO/1000 GIGA Ethernet Driver and utility
3. Select
  - 1) Install INTEL®PRO/1000 GIGA Ethernet software utility
  - 2) Install INTEL®PRO/1000 GIGA Ethernet Driver
  - 3) Make INTEL®PRO/1000 GIGA Ethernet Driver DISK



---

## 4-4 USB2.0 Intel USB2.0 DRIVER

---

### Windows 98SE/ME USB 2.0 Driver installation



1. Click USB2.0 when Magic Install Menu appears
2. When License agreement menu appears, click Yes, then finish installing driver , click Close and restart your computer

### Windows 2000/XP USB 2.0 Driver installation

#### Windows 2000

**Method1** Start Windows 2000 OS and Internet Connect, Select "Windows Update", Select Driver Update, Install Windows2000 USB2.0 Driver

**Method2** Install Windows 2000 Service Pack 4 or later

#### Windows XP

Install Windows XP Service Pack 1 or later

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---

## **4-5 Install Promise PDC20378 SERIAL ATA Controller Driver**

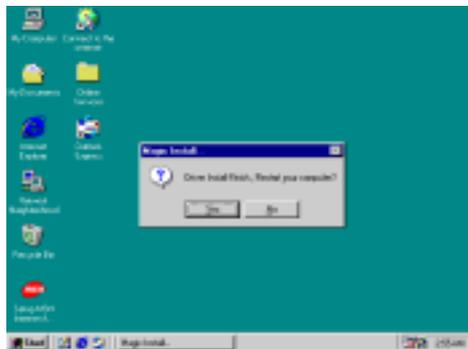
### **Windows 98SE/ME Driver installation**



1. Click SATA when Magic Install Menu appears



2. Install Promise PDC20378 serial ATA Driver



3. Click YES and restart your computer

### **Windows 2000/XP Driver installation**

1. Boot from Windows 2000/XP, and go to: Control panel\System\Hardware\Device Manager
2. Double Click "Other Device \ Mass Storage Controller, and Select "Driver \ Update Driver", Change the directory to "**X:\SATA378\SATA\WINXP**", **then** select "OK".

It will auto detect "WinXP Promise SATA378 (tm) IDE Controller" driver

The path of the file:

For Windows 9X is X:\SATA378\SATA\WIN98-ME (including Win95/98/ME)

For Windows NT4.0 is X:\SATA378\SATA\NT4

For Windows 2000 is X:\SATA378\SATA\WIN2000

For Windows XP is X:\SATA378\SATA\WINXP

#### **NOTE :**

**When you try to install Window NT4.0/2000/XP OS with Serial ATA hard disk drive, Please Copy NT4.0/2000/XP driver to disk and insert the Serial ATA DISK from A:\ , then Press F6 key to install driver first when installing OS menu asks you to do so.**

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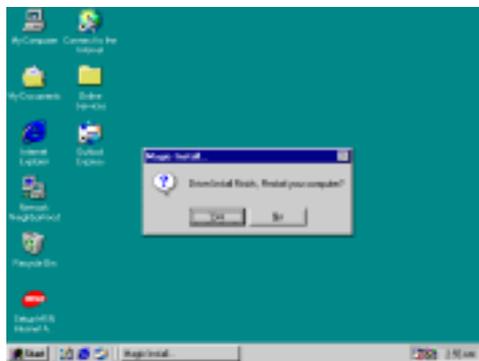
## 4-6 Install Promise PDC20378 FastTrak Controller Driver



1. Click RAID when Magic Install Menu appears



2. Install Promise PDC20378 RAID Driver



3. Click YES and restart your computer

### Windows 2000/XP Driver installation

1. Boot from Windows 2000/XP , go to: Control panel\System\Hardware\Device Manager
2. Double Click the "Other Device \ Mass Storage Controller, Select "Driver \ Update Driver",  
Change the directory to "X:\SATA378\RAID\WINXP" , then select "OK".

It will auto detect " WinXP Promise FastTrak 376/378 (tm) Controller " driver

#### The path of the file:

For Windows 9X is X:\SATA378\RAID\WIN98-ME (including Win95/98/ME)

For Windows NT4.0 is X:\SATA378\RAID\NT4

For Windows 2000 is X:\SATA378\RAID\WIN2000

For Windows XP is X:\SATA378\RAID\WINXP

#### NOTE :

**When you try to install Window NT4.0/2000/XP OS with RAID functions,  
Please copy the NT4.0/2000/XP driver to floppy disk and insert the Serial ATA DISK  
from A:\ , then Press F6 key to install driver first when installing OS menu asks you to  
do so.**

## 4-7 PC-HEALTH Intel 875 PC-Health Monitor

The path of the file is X:\INTEL865\HW30\SETUP.EXE (Only support WINDOWS 98SE/ME)

In Windows 98, Winbond Hardware Doctor Monitoring Software needs some system files to copy in utility that's why it needs install PC-HEALTH twice to complete the setup.



1. Click PC-Health when Magic Install Menu appears



2. Click Next when Winbond Hardware Doctor Setup Window appears



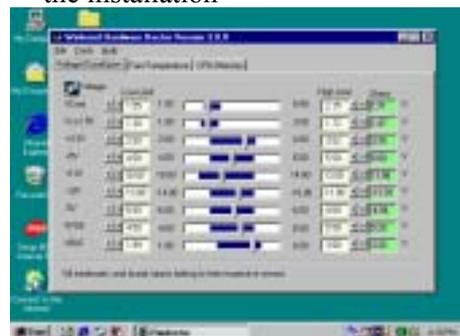
3. Click Next to continue installation



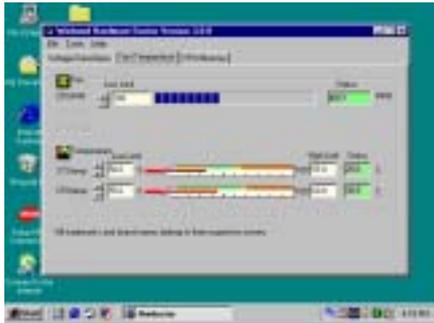
4. Select Program Group or enter a new group, click Next, and then click Finish to complete the installation



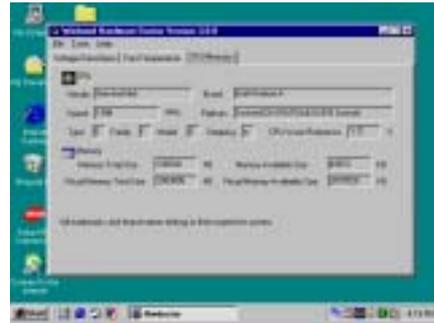
5. Click Program → Winbond Hardware Doctor → Hardware Doctor, then the Winbond Hardware Doctor will appear. You can remove the Utility from Control Panel → Add/Remove Program icon



6. After executing Winbond Hardware Doctor, system voltage, Fan speed and CPU/SYSTEM Temperature can be displayed. Because this is a On-time Monitoring program therefore the value will change after it detected. If the value is over default setting, you will be prompted with warning picture and beeps. This is a System Voltage status



7. This is a CPU/System Fan Speed and Temperature status information



8. This is a CPU and System Memory status information

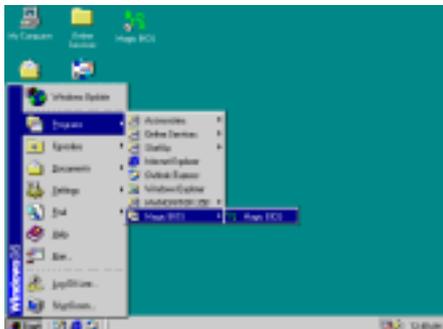
#### 4-8 MBIOS&DX9 Install BIOS Live Update Utility and DIRECTX9



1. Click Magic BIOS when Magic Install MENU appears



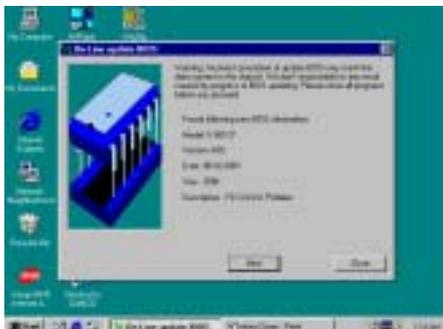
2. Click Next to install the Magic BIOS in Destination Folder



3. After finish Setup you will have a Magic BIOS icon on your screen



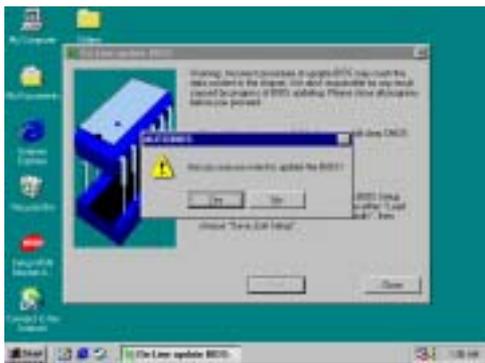
4. The above picture will appear after double click the Magic BIOS icon. You can upgrade BIOS On-line by choose internet.



5. When updating BIOS on-line, the program will auto-check your BIOS version



6. Click Next if you need to update BIOS. After BIOS is updated, the system will clear CMOS and automatically restart



7. Click Yes if you want to update the BIOS otherwise choose No to exit



8. When System programming BIOS don't turn off power after finish update BIOS, the system will clear CMOS and automatically Restart



9. When choose From Local Driver to update BIOS, you must have the correct BIOS file in your Local Driver

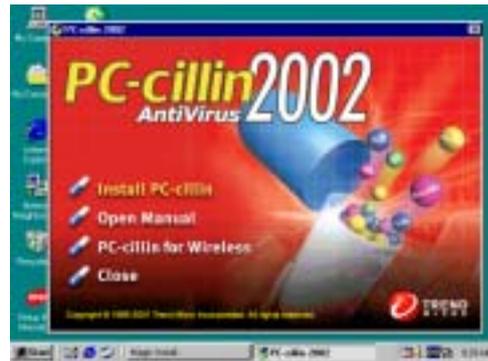


10. Choose the correct BIOS file to update BIOS

#### **4-9 PC-CILLIN Install PC-CILLIN 2002 Anti-virus program**



1. Click PC-CILLIN when MAGIC INSTALL MENU appears



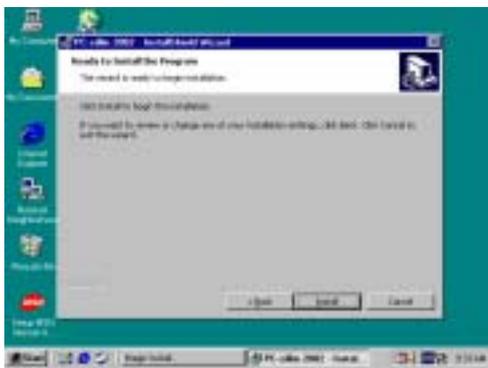
2. (1) Click "Install PC-CILLIN" when PC-CILLIN 2002 main menu appears, and click NEXT when "Install Shield Wizard For PC-CILLIN 2002" shows up.  
(2) Click Open Manual, and you can learn more about how to use PC-CILLIN 2002



3. This is the license agreement, select "I Accept the terms" and then click NEXT



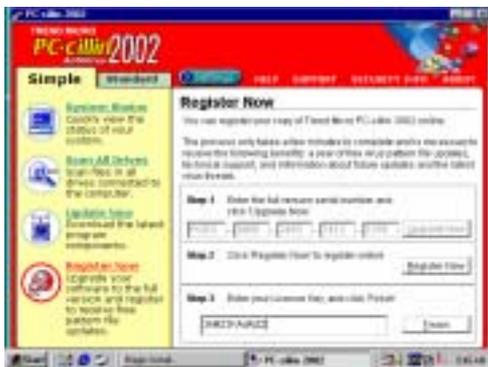
4. Click NEXT and Enter your Customer Information, then click NEXT or choose change the path for the file to be stored



5. Click INSTALL, and start to install the software



6. Setup Complete and click FINISH



7. After PC-CILLIN 2002 set up complete, Please register your information and get LICENSE KEY from TREND MICRO web site, then enter your license key and click FINISH to exit the registration menu.



8. After finishing register procedures, we highly recommend you to select update item for downloading the newest engine codes and virus definitions.

**Note :** Please install ACROBAT READER before you read PC-CILLIN 2002 User Manual, the path is X:\acrobat\ar500eng.exe

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## 4-10 HOW TO UPDATE BIOS

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Before update BIOS please choose Disabled in “Flash Part Write Protect” item on “Miscellaneous Control” in BIOS Setup. Please refer to page 43 for detail.

**Method 1.** Use “Magic BIOS” to update BIOS in Windows 98 (refer [page 53](#))

**Method 2.** In DOS Mode

**STEP 1.** Prepare a boot diskette. (you may make one by clicking START, clicking RUN, typing SYS A:, and clicking OK)

**STEP 2.** Copy utility program to your boot diskette. You may copy from DRIVER CD X:\FLASH\AWDFLASH.EXE or download from our web site.

**STEP 3.** Copy the latest BIOS for N2PA-LITE/N2PAP-LITE from our web site to your boot diskette.

**STEP 4.** Insert your boot disc into A:,

Start the computer and type “Awdflash A:\875PMAXAxxx.BIN /SN/PY/CC/R”

875PMAXAxxx.BIN is the file name of the latest BIOS it can be 875PMAXA03.BIN or 875PMAXB02.BIN

SN means not to save existing BIOS data

PY means to renew existing BIOS data

CC means to clear existing CMOS data

R means to restart computer

**STEP 5.** Press ENTER and the BIOS will be updated. System will be restarted automatically.

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## 4-11 RAID configurations

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The motherboard includes the Promise® PDC20378 controller chipset to support Redundant Array of Independent Disks (RAID) configurations. Using two Serial ATA hard disks on SATA\_RAID1/SATA\_RAID2 interfaces, and two ATA133 hard disks on the PRI\_RAID interface, you may set up RAID0, RAID1, RAID0+1, and Multi-RAID configurations. Use the MBFastTrak378™ BIOS and the FastBuild™ utility to configure a disk array.

**RAID 0** (called data striping) optimizes two identical hard disk drives to read and write data in parallel, interleaved stacks. Two hard disks perform the same work as a single drive but at a sustained data transfer rate, double that of a single disk alone, thus improving data access and storage

**RAID 1** (called data mirroring) copies and maintains an identical image of data from one drive to a second drive. If one drive fails, the disk array management software directs all applications to the surviving drive as it contains a complete copy of the data in the other drive. This RAID configuration provides data protection and increases fault tolerance to the entire system.

**RAID 0+1** is data striping and data mirroring combined without parity (redundancy data) having to be calculated and written. The advantage of RAID 0 + 1 is fast data access (like RAID 0), but with the ability to lose one drive and have a complete duplicate surviving drive or set of drives (like RAID 1).

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## 4-11-1 Install the hard disks

The PDC20378 chipset supports Ultra ATA/133/100/66 hard disk drives. For optimal performance, install identical drives of the same model and capacity when creating a disk array.

- If you are creating a **RAID 0 (striping)** array for performance, use two new drives.
- If you are creating a **RAID 1 (mirroring)** array for protection, you can use two new drives or use an existing drive and a new drive (the new drive must be of the same size or larger than the existing drive).

Follow these steps to install the hard disks for RAID configuration.

1. Set the jumpers of each hard disk as Master/Slave.
2. Install the hard disks into the drive bays.
3. Connect the HDD cables. These connection options are available for creating a RAID 0 or RAID 1 array:
  - a) Connect two Parallel ATA HDDs to PRI\_RAID1 connector and one Serial ATA HDD to either one of the two Serial ATA connectors, using separate parallel ATA or serial ATA cables.
  - b) Connect one Serial ATA HDD to each Serial ATA connector, using separate serial ATA cables.
4. Connect the power cable to the power connector on each drive.
5. Boot the system and enter the BIOS Setup Utility.
6. Go to the Advanced menu in BIOS and set the appropriate IDE configuration settings.
7. Save your changes and Exit Setup.
8. Proceed to section 4-11-2 for the next procedure.

---

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## 4-11-2 Enter the MBFastBuild™ utility

1. Boot the system.

If this is the first time you boot the system with the new hard disks installed and connected to the ATAIDE connectors on the motherboard, the MBFastTrak378™ BIOS displays the following:

```
SATA378 TX2plus™ BIOS Version 1.00.0.23
©2002-2005 Promise Technology, Inc. All Rights reserved.

No Array defind..

Press <Ctrl-F> to enter FastBuild™ Utility
Or Press <ESC> key to continue booting.
```

2. Press <Ctrl-F> simultaneously to display the FastBuild™ utility main menu.

```
FastBuild™ Utility 2.00 © 2002-2005 Promise Technology, Inc.
```

```
===== [Main Menu] =====
Auto Setup.....[1]
View Drive Assignments.....[2]
Define Array.....[3]
Delete Array.....[4]
Rebuild Array.....[5]

===== [Keys Available] =====
Press 1...5 to select Option                                [ESC] Exit
```

---

---

### 4-11-3 Creating a RAID 0 array (Performance)

1. In the FastBuild™ utility main menu, press “1” to select Auto Setup. The following screen appears.

FastBuild™ Utility 2.00 © 2002-2005 Promise Technology, Inc.

```

===== [Auto Setup Options Menu] =====
      Optimize Array for:                Performance
===== [Array Setup Configuration] =====
Mode.....Stripe
Spare Drive.....0
Drive(s) Used in Array.....2
Array Disk Capacity (size in MB) Spare Drive....240068
===== [Keys Available] =====
[↑] Up [↓] Down [←.→.Space] Change Option [ESC] Exit [CTRL-Y] Save

```

2. Use the arrow keys to go to the field **Optimize Array for** and select “Performance” with the space bar. The **Mode** field displays “Stripe”.
3. After making a selection, press <Ctrl-Y> to save and create a RAID 0 array.
4. Press any key to reboot the system. During the boot process, the MBFastTrak378 BIOS checks and displays the disk array information.

```

MBFastTrak378™ BIOS Version 1.00
©2002-2005 Promise Technology, Inc. All Rights Reserved.

ID      Mode          SIZE      TRACK-MAPPING  STATUS
-----
1*      2+0 Stripe        240068M   29186/255/63   Function

Press <Ctrl-F> to enter Fastbulid™ Utility...

```

5. Once the array is created, use the FDISK utility to format the array as a single hard drive.
6. After you have formatted the arrayed drives, install an operating system (OS). The OS will treat the RAID 0 array as a single drive unit.
7. Install the RAID driver from the support CD that came with the motherboard package.

**Note!** Depending on the operating system you are installing, you may need to install the RAID driver during or after the OS installation.

---

---

## 4-11-4 Creating a RAID 1 array (Security)

### Creating a Security Array with New Drives

1. In the FastBuild™ utility main menu, press “1” to select Auto Setup.

FastBuild™ Utility 2.00 © 2002-2005 Promise Technology, Inc.

```

===== [Auto Setup Options Menu] =====
      Optimize Array for:                Security
===== [Array Setup Configuration] =====
Mode.....Mirror
Spare Drive.....0
Drive(s) Used in Array.....2
Array Disk Capacity (size in MB) Spare Drive....4000
===== [Keys Available] =====
[↑] Up [↓] Down [←.→.Space] Change Option [ESC] Exit [CTRL-Y] Save

```

Use the arrow keys to go to the field **Optimize Array for** and select “Security” with the space bar. The **Mode** field displays “Mirror”.

3. Press <Ctrl-Y> to save your selection.
4. The following message appears:

```

Do you want disk image to be duplicated to another? (Yes/No)

Y - Create and Duplicate
N - Create Only

```

5. Press N for the Create Only option. A message appears confirming that your Security array has been created.

```

Array has been created.

<Press any key to reboot>

```

- 
- 
6. Press any key to reboot the system. During the boot process, the MBFastTrak376 BIOS checks and displays the disk array information.

```
MBFastTrak376™ BIOS Version 1.00
©2002-2005 Promise Technology, Inc. All Rights Reserved.

  ID      Mode          SIZE      TRACK-MAPPING      STATUS
  ---      -          -          -          -
  1*      1x2 Mirror      1628M      027/64/63          Functional

Press <Ctrl-F> to enter Fastbulid™ Utility
```

7. Use the FDISK utility and follow the format procedure for installing a new hard drive. After you have formatted the arrayed drives, install an operating system (OS).
8. Install the RAID driver from the support CD that came with the motherboard package.

Depending on the operating system you are installing, you may need to install the RAID driver during or after the OS installation.

### Creating a Security Array with Existing Data Drive

If you would like to use an existing drive that already contains data and/or is the bootable drive in your system, make sure that the new hard drive you will use in the array has the same or larger capacity as the existing drive.

Backup all important data before creating an array. Failure to do so may cause data loss.

1. In the FastBuild™ utility main menu, press “1” to select Auto Setup.
2. Use the arrow keys to go to the field **Optimize Array for** and select “Security” with the space bar. The **Mode** field displays “Mirror”.
3. Press <Ctrl-Y> to save your selection. The following message appears:

```
Do you want the disk image to be duplicated to another? (Yes/No)

Y - Create and Duplicate
N - Create Only
```

4. Press **Y** for the Create and Duplicate option. The next window prompts you to select the source drive to use.
5. Use the arrow keys to select the source drive. The FastBuild utility will copy all the data from the source drive to the target drive.

- 
- 
6. Press <Ctrl-Y> to save the selection and start the duplication. The following message appears:

```
Start to duplicate the image...
Do you want to continue? (Yes/No)

Y - Continue  N - Abort
```

7. Select **Y** to continue. Select **N** to return to the main menu.
8. When the duplication process is completed, a message appears confirming that your Security array has been created.
9. Press any key to reboot the system.
10. Install the RAID driver from the support CD that came with the motherboard package.  
Depending on the operating system you are installing (or that is already installed), the RAID driver installation sequence may vary.

#### 4-11-5 Other FastBuild Utility Commands

Command options 3-6 on the FastBuild™ Utility main menu are not required for setting up an array, but they are useful for reconfiguring an array.

**View Array (3):** This command allows you to view the drive assignments of hard disks in an array.

**Delete Array (4):** This command deletes an array to reconfigure the system. Deleting an array does not remove information on the hard disks. If an array is deleted by mistake, recover it immediately by redefining it as the deleted array.

**Rebuild Array (5):** This command restores the array and system data after faults on RAID 1 arrays.

Follow these steps to rebuild and restore data in the array:

1. On boot-up, an error message notifies of a system failure.
2. Press <Ctrl-F> to enter the FastBuild™ Main Menu.
3. Select <3> for View Array to verify the ID of the defunct hard disk.
4. Power off the system and replace the hard disk with an identical model.
5. Reboot and enter the FastBuild™ Main Menu again.
6. Select <5> for Rebuild Array. The malfunctioning array is highlighted.  
Press **Enter** to select.

---

---

FastBuild™ Utility 2.00 © 2002-2005 Promise Technology, Inc.

```
===== [Rebuild array Menu] =====
```

Array No	RAID Mode	Total Drv	Capacity	Status
Array 1	Mirror/Stripe	4	7999	Critical
Array 2	----	----	----	----
Array 3	----	----	----	----
Array 4	----	----	----	----

```
===== [Keys Available] =====
```

[↑] Up [↓] Down [ESC] Exit [Enter] Select

7. Select the replacement drive. Press <Enter>.

FastBuild™ Utility 2.00 © 2002-2005 Promise Technology, Inc.

```
===== [View Array Definition Menu] =====
```

Array No	RAID Mode	Total Drv	Status
Array 1	Mirror/Stripe	4	Critical

Stripe Block: not Available                      Gigabyte Boundary: On

```
===== [Select Drive for Rebuild] =====
```

Channel: ID	drive Model	Capacity (MB)
3:Mas	FUJITSU MPD3043AT	4325

```
===== [Key Available] =====
```

[↑] Up [↓] Down [ESC] Exit [Enter] Select

8. Confirm the command to copy data from the intact source hard disk onto a new replacement hard disk. A progress gauge displays the copy progress for the duration of the task.
9. After the rebuild process is complete, the user is prompted to reboot the system.

**Controller Configuration (6):** This command shows the default for Controller Configuration. The default value is [Enabled].