

***USER'S MANUAL***  
***Of***  
***Intel P35Express Chipset***  
***And***  
***Intel FW82801GB ICH Chipset***  
***Based***  
***M/B for LGA775 Quad Core Ready***  
***Intel Core Processor Family***

*NO. G03-BI-100 -F*

*Rev:1.0*

Release date: Nov. 2007

**Trademark:**

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## Environmental Protection Announcement

Do not dispose this electronic device into the trash while discarding. To minimize pollution and ensure environment protection of mother earth, please recycle.



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## Manual Revision Information

Reversion	Revision History	Date
1.0	First Edition	Nov. 2007

### Item Checklist

- Intel P35 and ICH7 chipset based Motherboard
- Cable for IDE
- CD for motherboard utilities
- Cable for Serial ATA IDE Port
- Intel P35 and ICH7 chipset based Motherboard User's Manual
- I/O Back Panel
- Promotion Card of motherboard

## Intel Core Processor Family Cooling Solutions

As processor technology pushes to faster speeds and higher performance, thermal management becomes increasingly crucial while building computer systems. Maintaining the proper thermal environment is the 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. Heat sinks 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 heat sink. For optimum heat transfer, Intel recommends the use of thermal grease and mounting clips to attach the heat sink to the processor.

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

For vendor list of certified heat sinks and cooling fans, please visit :

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

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# Chapter 1

## Introduction of P35 and ICH7 chipset based Motherboards

### 1-1 Features of Motherboard

The P35 and ICH7 chipset motherboard series are based on Intel P35 and ICH7 chipset technology which supports the innovative 65nm Quad-Core, Dual-Core Intel® Core 2 Quad, Core 2 Duo (Code Name: Conroe) processors, 90nm Dual-Core Intel® D Processor 8 series (except Pentium® D Intel 805.) and 9 Series processors, Pentium 4 and Celeron with Intel® Hyper-Threading Technology.

The P35 and ICH7 chipset Based motherboard series deliver the revolutionary levels of performance enabling vivid, high-definition experiences and multi-tasking responsiveness from state-of-the-art Intel dual-core and quad-core technologies through the high bandwidth of dual channel DDR2 800 / 667MHz system memories which are expandable to 8GB and the next generation PCI Express interface for the latest graphics cards from AMD and nVidia, the P35 and ICH7 chipset motherboard series are absolutely the ultimate solution for game enthusiasts and applications, and it also meets the demanding usage of computing of gaming, multimedia entertainment and business applications.

The INTEL P35 and ICH7 chipset motherboard series support Front Side Bus 1333 MHz data transferring rate and provide with 400MHz/333MHz memory clock frequency for Dual channel DDR2 800/667MHz memory DIMMs expandable to 8GB. The motherboard is embedded with ICH7 chipset of providing four serial ATA2 interface of 3.0 Gb / s data transfer rate for four serial ATA devices. More over, the motherboard provides also 1 extra Ultra ATA interface for two IDE devices of 100 MB / s data transfer rate.

The P35 and ICH7 chipset Based motherboard provides Gigabit LAN function by using the optional Realtek RTL8111B and RTL8111C PCI-E Gigabit LAN which supports 10M / 100M / 1Gbps data transfer rate. Embedded Azalia 8-channel CODEC is fully compatible with Sound Blaster Pro® standards that offer you with the home cinema quality and absolutely software compatibility.

The P35 chipset Based motherboard series offer one PCI-Express x16 graphics slot which offers 4 Gbyte/sec data transfer rate at each relative direction which get 3.5 times of bandwidth more than AGP8X and up to 8 Gbyte/sec concurrent bandwidth at full speed to guarantee the ultimate GPU computing performance. Two PCI Express x1 I/O slots offer 512Mbyte/sec concurrently, over 3.5 times more bandwidth than PCI at 133Mbyte/sec, tackling the most demanding multimedia tasks nowadays. Three 32-bit PCI slots guarantee the rich connectivity for the I/O of peripherals.

Embedded USB controllers as well as capability of expanding to 8 of USB2.0 functional ports delivering 480Mb/s bandwidth of rich connectivity, these motherboards meet the future USB demands which are also equipped with hardware monitor function on system to monitor and protect your system and maintain your non-stop business computing.

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Some special features---**CPU Thermal Throttling/ CPU Vcore 7-shift/ CPU Smart Fan** in this motherboard are designed for power user to use the over-clocking function in more flexible ways. But please be caution that the over-clocking may cause the fails in system reliabilities. This motherboard provides the guaranteed performance and meets the demands of the next generation computing. But if you insist to gain more system performance with variety possibilities of the components you choose, please be careful and make sure to read the detailed descriptions of these value added product features, please get them in the coming section.

## **1-1.1 Special Features of motherboard**

### **CPU Thermal Throttling Technology**---(The CPU Overheat Protection Technology)

To prevent the increasing heat from damage of CPU or accidental shutdown while at high workload, the CPU Thermal Throttling Technology will force CPU to enter partially idle mode from 87.5% to 12.5% according to preset CPU operating temperature in BIOS (from 40 °C to 90°C). When the system senses the CPU operating temperature reaching the preset value, the CPU operating bandwidth will be decreased to the preset idle percentage to cool down the processor. When at throttling mode the beeper sound can be optionally selected to indicate it is in working.

### **CPU Smart Fan**---( The Noise Management System )

It's never been a good idea to gain the performance of your system by sacrificing its acoustics. CPU Smart Fan Noise Management System is the answer to control the noise level needed for now-a-day's high performance computing system. The system will automatically increase the fan speed when CPU operating loading is high, after the CPU is in normal operating condition, the system will low down the fan speed for the silent operating environment. The system can provide the much longer life cycle for both CPU and the system fans for game use and business requirements.

### **CPU Vcore 7-Shift**--- ( Shift to Higher Performance )

The CPU voltage can be adjusted up by 8 stages for the precisely over-clocking of extra demanding computing performance.

## 1-2 Specification

Spec	Description
<b>Design</b>	* ATX form factor 4 layers PCB size: 30.5x22.0cm
<b>Chipset</b>	* Intel P35 Chipset * Intel ICH7 chipset
<b>CPU Socket LGA775</b>	* Support Intel Pentium 4, Celeron (FSB 800/1066/1333 MHz) , Pentium D, Core 2 Duo and Core 2 Quad 775-Land LGA Package utilizes Flip-Chip Land Grid Array (FCLGA) package processor * Support FSB Frequency 800 / 1066/1333MHz
<b>Memory Socket</b>	* 240-pin DDR2 Module socket x 4 * Support 4 pcs DDR2 667 /DDR2 800MHz DDR2 Modules Expandable to 8.0GB * Support Dual channel function
<b>Expansion Slot</b>	* PCI-Express x16 slot 1pcs ; * PCI-Express x1 slot 2pcs delivers up to 512MB/s concurrent bandwidth * 32-bit PCI slot x 3pcs
<b>Integrate IDE and Serial ATA2 RAID</b>	* The Intel ICH7 supports four Serial ATA ports provide 3.0 Gb /sec data transfer rate. * One IDE controllers support PCI Bus Mastering, ATA PIO/DMA and the ULTRA DMA 33/66/100 functions that deliver the data transfer rate up to 100 MB/s for 2 IDE Devices;.
<b>Gigabit LAN</b>	* Integrated Realtek RTL8111B/RealtekRTL8111C PCI-Express Gigabit LAN function. * Supports Fast Ethernet LAN function provide 10Mb/100Mb/ 1Gb /s data transfer rate
<b>8CH-Audio</b>	* Realtek ALC888 Azalia 8-channel Audio Codec integrated * Support 8-channel 3D surround & Positioning Audio * Audio driver and utility included
<b>BIOS</b>	* Award 8MB SPI Flash ROM
<b>Multi I/O</b>	* PS/2 keyboard and PS/2 mouse connectors * Floppy disk drive connector x1 * Serial Port x1 * Serial Port header x1 * Parallel header x1 * Coaxial In/Out connector x1 * USB2.0 port x 4 and headers x2 (connecting cable optional) * Audio connector (Line-in, Line-out, MIC/ 8CH Audio)

## 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.)

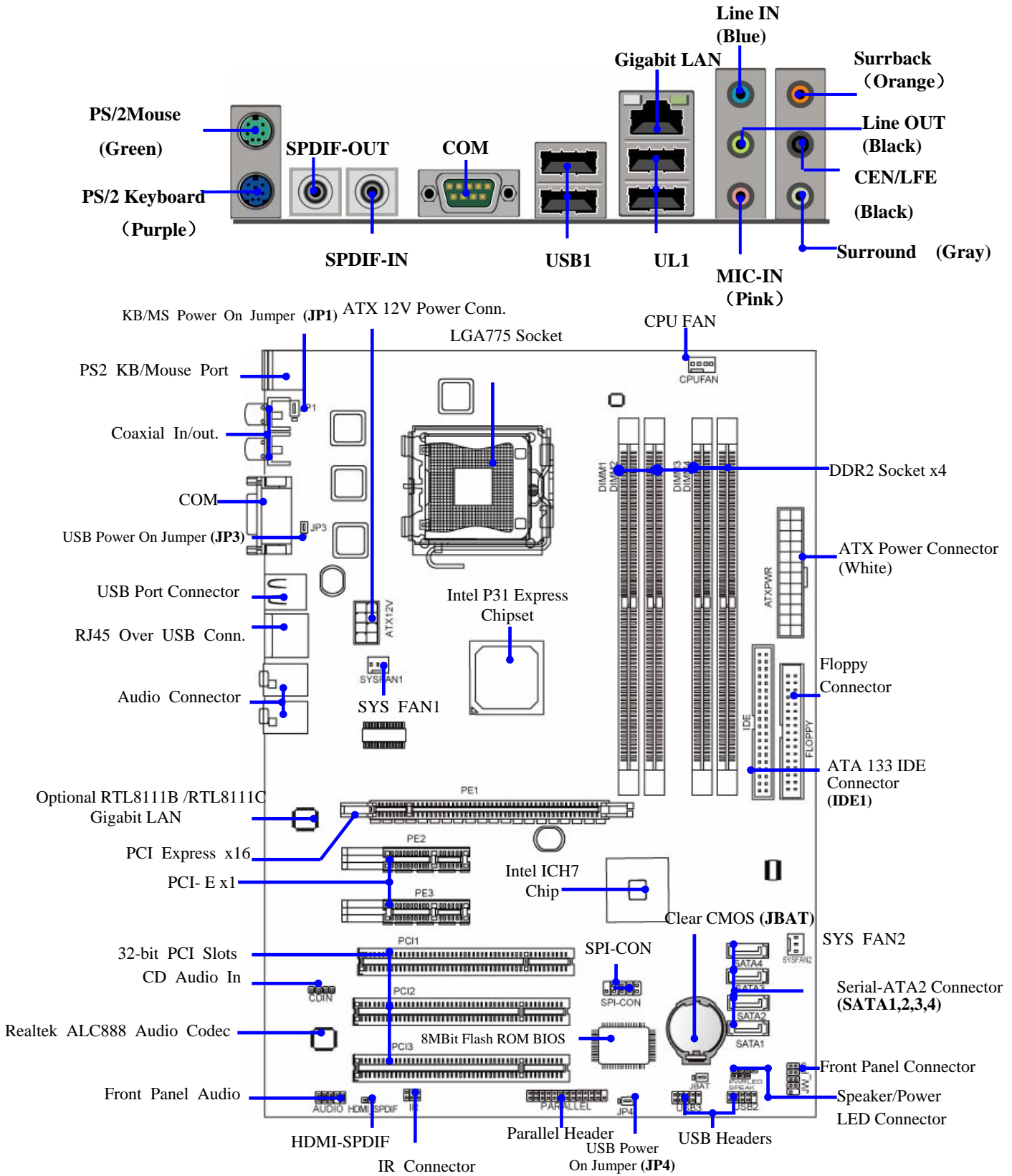
### Performance Test Report

**CPU:** Intel Core 2 Duo Conroe E6850 3.0GHz (C1E disable)  
**DRAM:** CORSAIR 512M DDR2-1066 X 2 1Gbyte Memory  
**VGA Card:** Nvidia Geforce 8600GTS 256M (1024X768X32BIT Color)  
**Hard Disk Driver:** Seagate Barracude 7200.9 SATA2  
**BIOS:** Award Optimal default  
**OS:** Windows XP Professional (SERVICE PACK 2)

<b>3D Mark 2001SE</b>		43041
<b>3D Mark 2003</b>		20159
<b>3D Mark 2005</b>		12202
<b>3D Mark 2006</b>		7315
<b>AQUAMRK3</b>		142778 (25215 / 16452)
<b>PCMark2005</b>		
<b>System / CPU / Memory</b>		7644 / 7697 / 6257
<b>Graph / HDD</b>		7954 / 5761
<b>Content Creation Winstone 2004</b>		49.8
<b>Business Winstone 2004</b>		28.6
<b>Winbench 99 V2.0:</b>		
<b>Business/Hi-end Disk Winmark99</b>		7510 / 32700
<b>Business/Hi-end Graphic Winmark</b>		1630 / 2820
<b>SISMark 200: SISMark Official Rating</b>		
<b>E-Learning</b>		156
<b>Video Creation</b>		140
<b>Productivity</b>		168
<b>3D</b>		165
<b>SysMark 2007 Preview Rating</b>		157
<b>SISOFT Sandra 2004 : 1.CPU Arithmetic Benchmark 2.Memory bandwidth Benchmark 3.CPU Multi-Media Benchmark</b>		
<b>1.Dhrystone ALU</b>	<b>MIPS</b>	27752
<b>Whetstone FPU iSSE2</b>	<b>FLOPS</b>	19080
<b>2.Int/Float Buffered iSSE2</b>	<b>MB/S</b>	6161/6161
<b>3.Integer/Floating-Point SSE2</b>	<b>IT/S</b>	165178/895507
<b>DOOM3</b>	<b>FPS</b>	205.0
<b>Return to Castle Wolfenstein</b>	<b>FPS</b>	26s
<b>Super Pi (1M)</b>	<b>Second</b>	17s
<b>CPUZ System / CPU Clock</b>		332 / 399.6 / 2997.1



# 1-4 Layout Diagram & Jumper Setting



### Jumpers

Jumper	Name	Description	Page
JBAT	CMOS RAM Clear	3-pin Block	P.7
JP1	Keyboard Power On Enabled/Disabled	3-pin Block	P.8
JP3	USB Power On Enabled/Disabled	3-pin Block	P.8
JP4	USB Power On Enabled/Disabled	3-pin Block	P.8

### Connectors

Connector	Name	Description	Page
ATXPWR24P	ATX Power Connector	24-pin Block	P.23
ATX12V	ATX 12V Power Connector	8-pin Block	P.24
PS2KB/MS	PS/2 Mouse & PS/2 Keyboard Connector	6-pin Female	P.24
US1	USB Port Connector	4-pin Connector	P.24
UL2(USB)	USB Port Connector	4-pin Connector	P.24
UL2	RJ45 LAN Port Over USB Conn.	RJ-45, Connector	P.24
AUDIO1 / SURROUND1	8-CH Audio Connector	6 phone jack Connector	P.24
FDD	Floppy Driver Connector	34-pin Block	P.25
IDE1	Primary IDE Connector	40-pin Block	P.25
SATA1~4	Serial ATA2 Connector	7-pin Connector	P.26
SPDIF in/ Out	SPDIF In/Out coaxial Connectors	Coaxial connectors	P.29
COM1	Serial Port	9-pin Block	P.29

### Headers

Header	Name	Description	Page
AUDIO	SPEAKER, MIC header	9-pin Block	P.27
USB2, USB3	USB Port Headers	9-pin Block	P.27
SPEAK	PC Speaker connector	4-pin Block	P.27
PWR LED	Power LED	3-pin Block	P.27
JW_FP (PW LED/Reset/ IDE LED/PW Switch)	Front Panel Header (including Power LED/ IDE activity LED/Reset switch / Power On Button lead)	9-pin Block	P.27
CPUFAN	FAN Headers	4-pin Block	P.28
SFAN1, SFAN2	FAN Headers	3-pin Block	P.28
CDIN	CD Audio-In Header	4-pin Block	P.28
IR	IR Header	5-pin Block	P.29
Parallel	Parallel Header	25-pin Block	P.29
HDMI-SPDIF	SPDIF header	2-pin Block	P.29

### Expansion Sockets

Socket/Slot	Name	Description	Page
LGA 775 Socket	CPU Socket	LGA 775 CPU Socket	P.9
DIMM1~4	DDR2 Module Sockets	240-pin DDR2 Module Sockets	P.19
PCI1~ PCI3	PCI Slots	32-bit PCI Local Bus Expansion slots	P.21
PE1	PCI-Express x16 Slot	PCI-Express x16 Expansion Slot	P.21
PE2,PE3	PCI-Express x1 Slot	PCI-E x 1 Bandwidth	P.21

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# Chapter 2

## Hardware Installation

### 2-1 Hardware installation Steps

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

1. Check motherboard jumper setting
2. Install CPU and Fan
3. Install System Memory (DIMM)
4. Install Expansion cards
5. Connect IDE Front Panel /Back Panel cable
6. Connect ATX Power cable
7. Power-On and Load Standard Default
8. Reboot
9. Install Operating System
10. Install Driver and Utility

### 2-2 Checking Motherboard's Jumper Setting

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

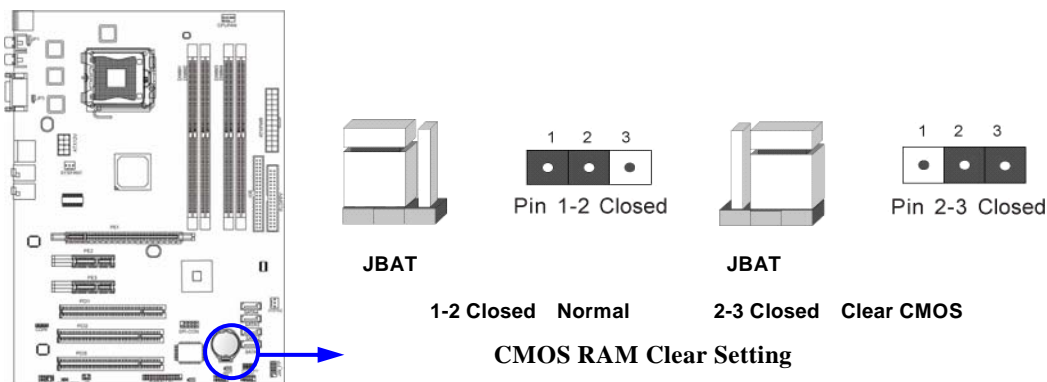
A battery must be used to retain the motherboard configuration in CMOS RAM short 1-2 pins of JBAT to store the CMOS data.

To clear the CMOS, follow the procedure below:

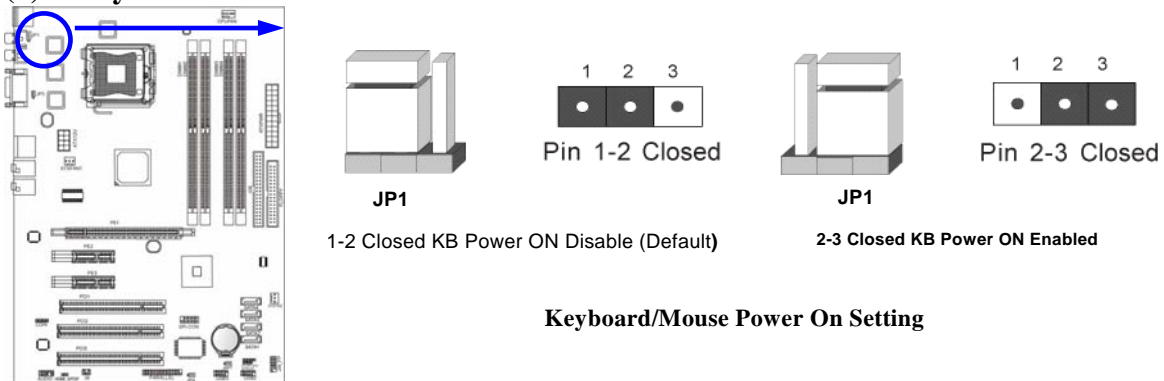
1. Turn off the system and unplug the AC power
2. Remove ATX power cable from ATX power connector
3. Locate JBAT and short pins 2-3 for a few seconds
4. Return JBAT to its normal setting by shorting pins 1-2
5. Connect ATX power cable back to ATX power connector

**Note: When should clear CMOS**

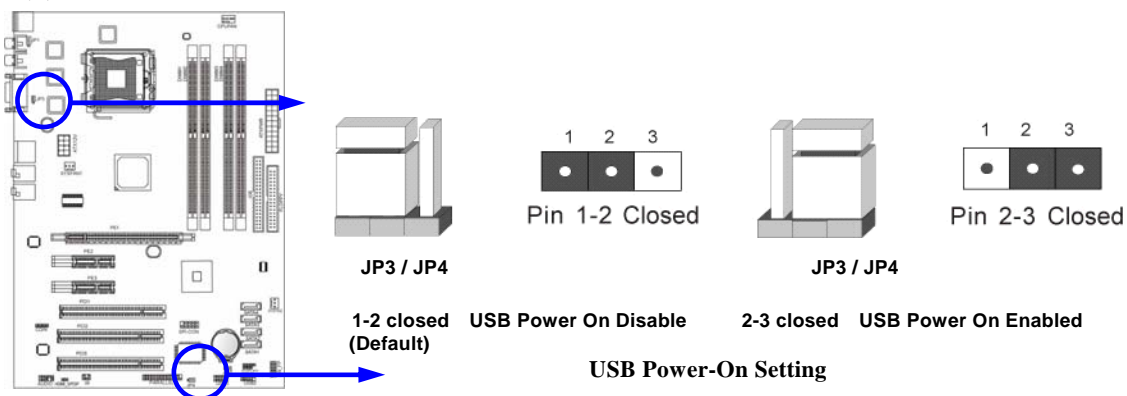
1. *Troubleshooting*
2. *Forget password*
3. *After over clocking system boot fail*



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



## (3) USB Power On function Enabled/Disabled: JP3 / JP4



## 2-3 Install CPU

### 2-3-1 Glossary

**Chipset (or core logic)** - two or more integrated circuits which control the interfaces between the system processor, RAM, I/O devices, and adapter cards.

**Processor slot/socket** - the slot or socket used to mount the system processor on the motherboard.

**Slot (PCI-E, PCI, RAM)** - the slots used to mount adapter cards and system RAM.

**PCI** - Peripheral Component Interconnect - a high speed interface for video cards, sound cards, network interface cards, and modems; runs at 33MHz.

**PCI Express**- Peripheral Component Interconnect Express- a high speed interface for video cards, sound cards, network interface cards, and modems.

**Serial Port** - a low speed interface typically used for mouse and external modems.

**Parallel Port** - a low speed interface typically used for printers.

**PS/2** - a low speed interface used for mouse and keyboards.

**USB** - Universal Serial Bus - a medium speed interface typically used for mouse, keyboards, scanners, and some digital cameras.

**Sound** (interface) - the interface between the sound card or integrated sound connectors and speakers, MIC, game controllers, and MIDI sound devices.

**LAN** (interface) - Local Area Network - the interface to your local area network.

**BIOS** (Basic Input/Output System) - the program logic used to boot up a computer and establish the relationship between the various components.

**Driver** - software, which defines the characteristics of a device for use by another device or

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other software.

**Processor** - the "central processing unit" (CPU); the principal integrated circuit used for doing the "computing" in "personal computer"

**Front Side Bus Frequency** - the working frequency of the motherboard, which is generated by the clock generator for CPU, DRAM and PCI BUS.

**CPU L2 Cache** - the flash memory inside the CPU, normal it depend on CPU type.

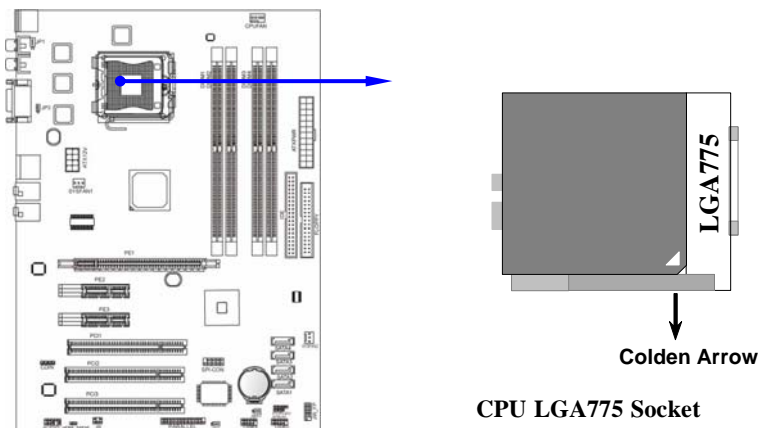
## 2-3-2 About Intel LGA775 CPU

This motherboard provides a 775-pin surface mount, LGA775 Land Grid Array socket, referred to as the LGA775 socket supports Intel Pentium 4 processor in the 775 Pin package utilizes Flip-Chip Land Grid Array (FC-LGA) package technology.

The CPU that comes with the motherboard should have a cooling FAN attached to prevent overheating. If this is not the case, then purchase a correct cooling FAN before you turn on your system.

**WARNING!** Be sure that there is sufficient air circulation across the processor's heat sink and CPU cooling FAN is working correctly, otherwise it may cause the processor and motherboard overheat and damage, you may install an auxiliary cooling FAN, if necessary.

To install a CPU, first turn off your system and remove its cover. Locate the LGA775 socket and open it by first pulling the level sideways away from the socket then upward to a 90-degree angle. Insert the CPU with the correct orientation as shown below. The notched corner should point toward the end of the level. Because the CPU has a corner pin for two of the four corners, the CPU will only fit in the orientation as shown.



When you install the CPU into the LGA775 socket, there's no force required CPU insertion; then press the level to locate position slightly without any extra force.

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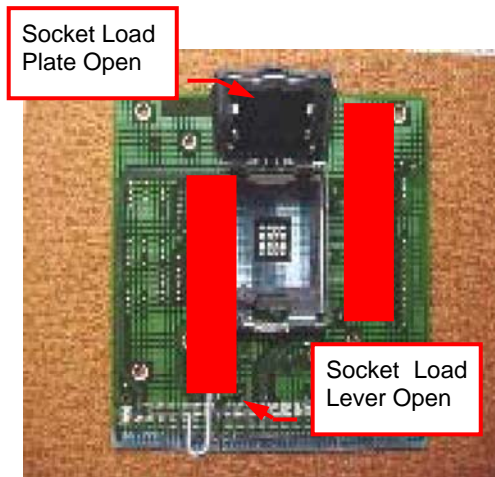
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## 2-3-3 LGA 775 CPU Installation Guide

### Socket Preparation

#### 1. Opening the socket:

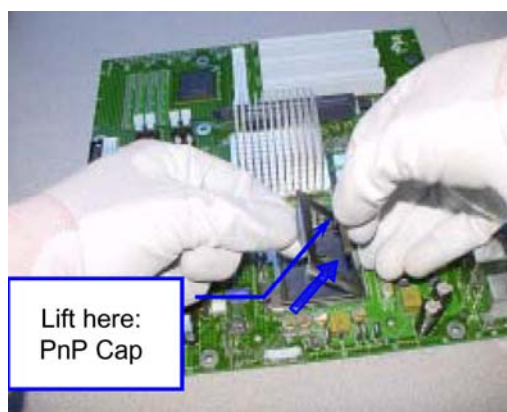
**Note:** Apply pressure to the corner with right hand thumb while opening/closing the load lever, otherwise lever can bounce back like a “mouse trap” and WILL cause bent contacts (when loaded)



- i. Disengage Load Lever by **depressing down** and **out** on the hook to clear retention tab
- ii. Rotate Load Lever to fully open position at approximately 135degrees
- iii. Rotate Load Plate to fully open position at approximately 100degrees

#### 2. Remove PnP Cap (Pick & Place Cap)

- i. With left hand index finger and thumb to support the load plate edge, engage PnP cap with right hand thumb and peel the cap from LGA775 Socket while pressing on center of PnP cap to assist in removal.
- ii. Set PnP cap aside. Always put PnP cap back on if the processor is removed from the socket.
- iii. Visually inspect PnP cap for damage. If damage observed, replace the PnP cap.



**Note:** After PnP cap removal, make sure socket load plate and contacts are free of foreign material; Refer to Overview Module for FM cleaning.

**Note:** Optionally, remove PnP cap after CPU insertion. This will compromise the ability to visually inspect socket.



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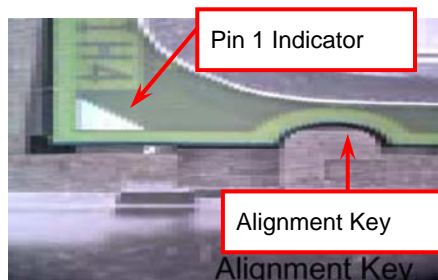
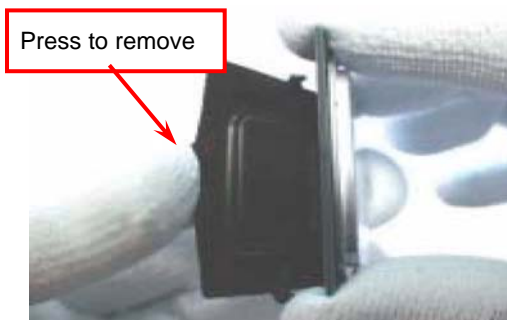
### 3. Visually inspect for bent contacts (Recommend at least 1stpass visual inspection)

**NOTE:** Refer to the Handling and Inspection Module for 1stand 2ndpass inspection details.

**NOTE:** Glove images are for illustrative purposes only. Please consult local safety guidelines for specific requirements

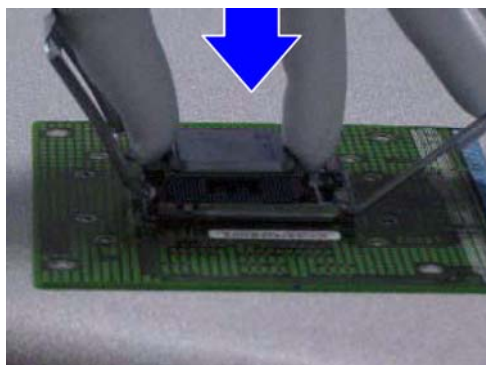
**NOTE:** Recommend not to hold the load plate as a lever, instead hold at tab with left hand, removing the PnP cap with right hand

## 775- Land LGA Package Insertion



1. Lift processor package from shipping media by grasping the substrate edges ONLY.  
Note: Orient processor package such that the Pin 1 triangle mark is on bottom left and both key notches are on left side
2. Land Side Cover Handling: Remove land side cover with the opposite hand by depressing larger retention tab and peeling the cover away
3. Set and reserve the land side cover aside.  
Note: Always keep the land side cover on the processor when not in the socket.
4. Visually inspect the package gold pads: Scan the processor package gold pad array for presence of foreign material. Refer to Overview Module for FM cleaning recommendations
5. Orient the package with IHS up. Locate Pin 1 and the two orientation key notches
6. Carefully place the package into the socket body using a purely vertical motion

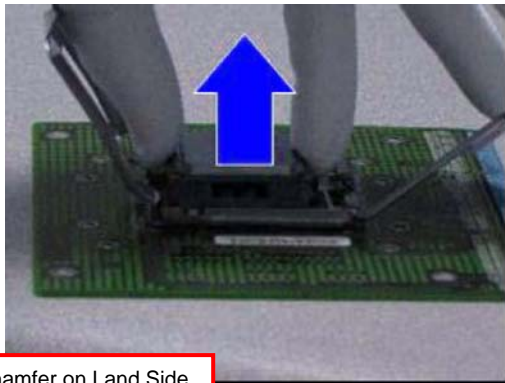
**CAUTION:** Using Vacuum Pen for installation is *not recommended*.



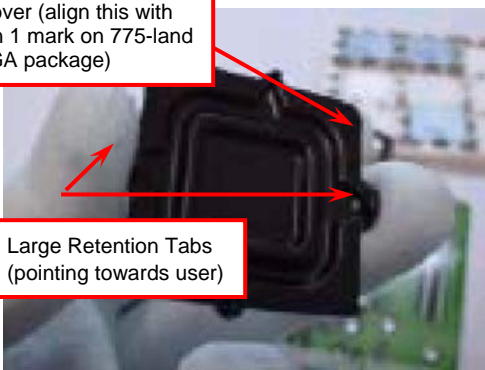
7. Verify that package is within the socket body and properly mated to the orient keys
8. Close the socket by
  - i. Rotating the Load Plate onto the package HIS
  - ii. While pressing down lightly on Load Plate, engage the Load Lever.
  - iii. Securing Load Lever with Load Plate tab under retention tab of Load Lever



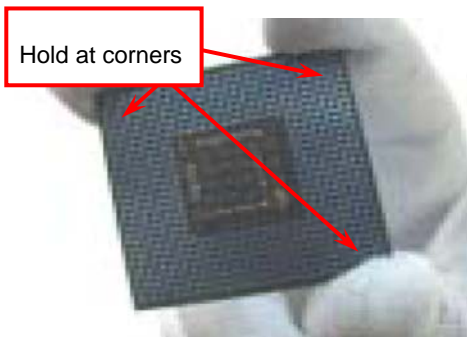
## 775- Land Package Removal



Chamfer on Land Side Cover (align this with pin 1 mark on 775-land LGA package)



Large Retention Tabs (pointing towards user)



Hold at corners

1. Open the Load Plate/Lever with both hands:
  - With left hand index finger and thumb to support the load plate edge, engage PnP cap with right hand thumb and peel the cap from LGA775 Socket while pressing on center of PnP cap to assist in removal.
2. Pick up 775-land LGA package:
  - By Vacuum Pen: Place a minimum 9-mm cup at approximately the center of IHS. Recommend not to place Vacuum Pen on IHS edge. Risk of dropping and causing bent contact. Recommend not to use Vacuum Pen for inserting CPU
  - By Hand: Index finger to hold load plate hinge side and thumb to hold load lever side
3. Lift the package straight up and away.
4. Assemble processors land side cover immediately to prevent contamination.
  - i. While holding the processor by the 3 corners, the other hand lift land side cover from work surface by grasping at the large retention tabs. Ensure retention tabs and package are pointing each other.
  - ii. Orientate so that land side cover chamfer is matching with package Pin 1 location.
  - iii. Hook the first large retention tab on the package substrate. Then press the opposite tab onto the substrate.
  - iv. Place processor with land side cover installed onto proper shipping media or other ESD approved work surface



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## 5. Visually inspect socket contact array

### 1. First Pass Inspection

- i. Scan socket contact array at varying angles noting the presence of any foreign material
- ii. If foreign material can't be blown off by compressed air, or mechanical damage (Mode1 or 4) observed, reject the motherboard for further evaluation or socket replacement.

### 2. Second Pass Inspection

- i. Repeat 2 more times to sight down the rows and columns from each of the 4 sides of the socket to ensure all contacts within the array are inspected
- ii. Inspect for Mode2, Mode3, and Mode5 failures

**Note:** Refer to the Test Module for detail visual inspections

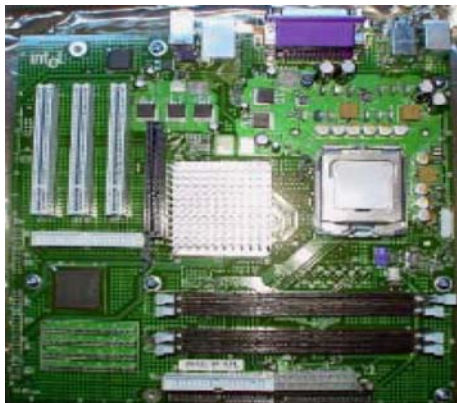
## 6. Assemble LGA775 socket PnP cap

- i. Secure/Hook the back side of PnP cap.
- ii. Snap down the front side to fully secure

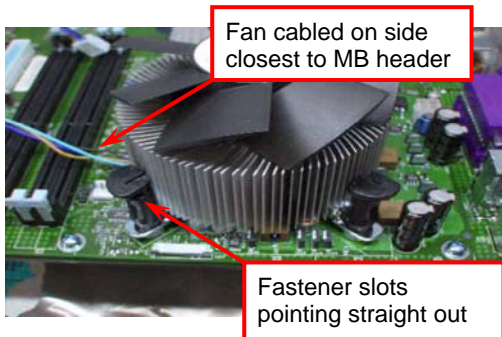
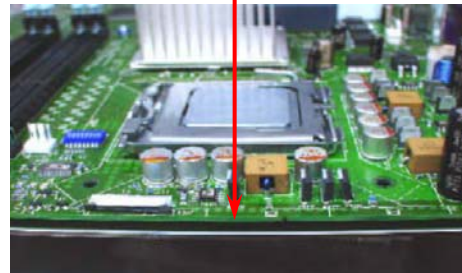
## 7. Close the Socket

# Intel Reference Thermal Solution Assembly

**NOTE:** Depending on the configuration, Thermal Solution Integration procedure could perform with M/B alone or with M/B in the Chassis.



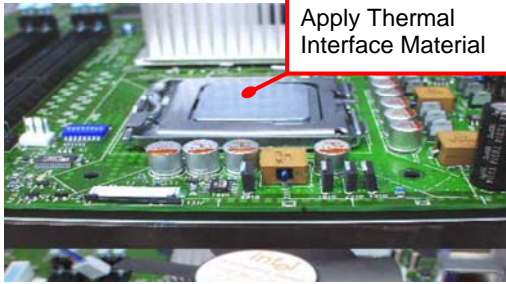
0.150-inch backside clearance for fastener installation



Fan cabled on side closest to MB header

Fastener slots pointing straight out

1. Place motherboard on support structure providing minimum 0.150-inch backside clearance
2. Apply 300 mg of Thermal Interface Material (Shin-Etsu G751) onto center of IHS



NOTE: Thermal Solutions that come with Intel® boxed processor use pre-applied thermal interface material and not grease.

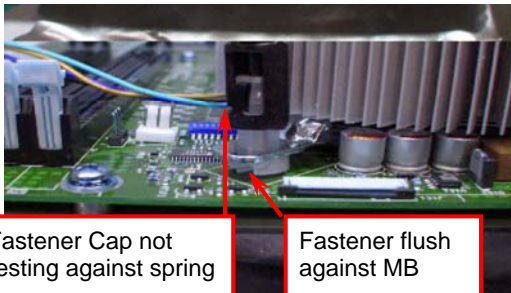
3. Remove Heat Sink (HS) from packaging media

4. Place HS onto the LGA775 Socket

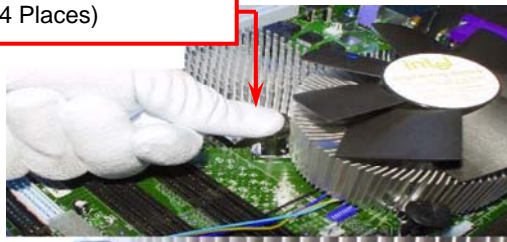
- Ensure fan cables are oriented on side closest to fan header
- Align Fasteners with MB through-holes

5. Inspection

- Ensure cables are not trapped or interfere fastener operation
- Ensure fastener slots are pointing straight out from heatsink



Press Down  
(4 Places)



6. Actuate fasteners

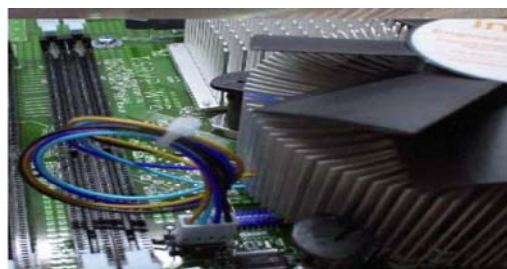
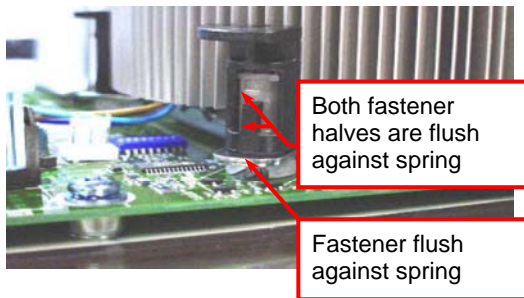
- While holding HS to prevent tilting, press down on fastener caps with thumb to install and lock

Repeat with remaining fasteners

7. Inspection

- Verify the fasteners are properly seated
- Ensure both fastener cap and base are flush with spring and motherboard

8. Connect fan header with Board header

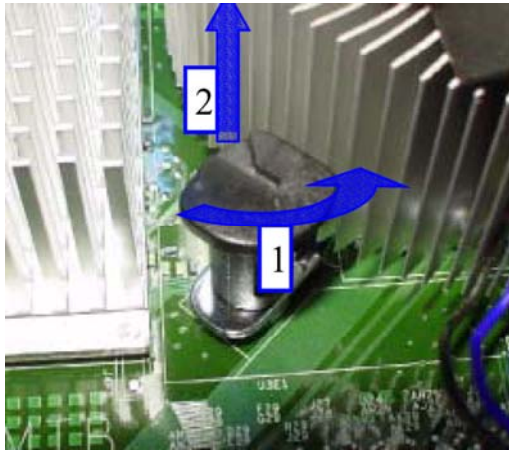


9. Secure excess cable with tie-wrap to ensure cable does not interfere with fan operation or contact other components.

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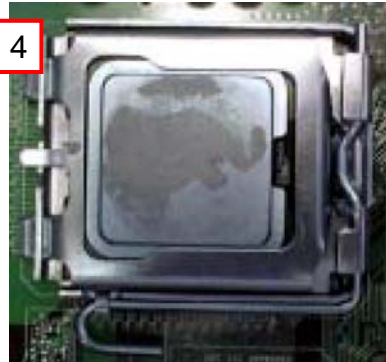
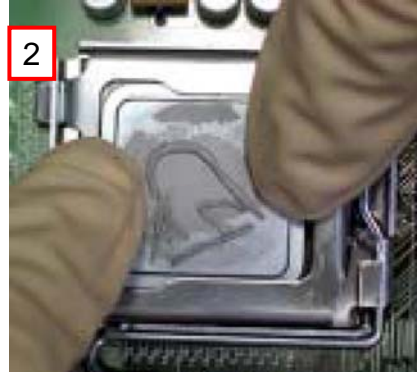
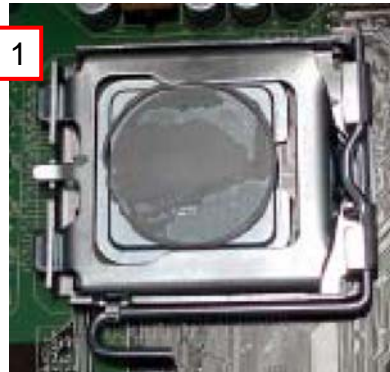
## Intel Reference Thermal Solution Disassembly



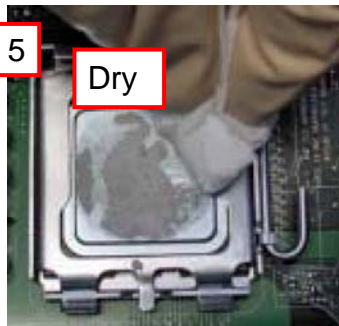
1. Rotate fastener cap. turn to un-lock
  2. Pull up fastener cap to un-seat
1. Disconnect fan cable from motherboard header
  2. Turn fastener caps (4) counter-clock wise 90degrees to the un-locked position
    - A flat-bladed screwdriver may be used if required
  3. Pull up on fastener caps to unseat
  4. Manually remove HS with gentle twist motion.
  5. To re-assemble the HS, reset the fastener caps to their original position with the slot perpendicular to the HS. Then, follow the assembly instructions.

Note: Thermal grease should be reapplied

## TIM and Grease Removal from CPU







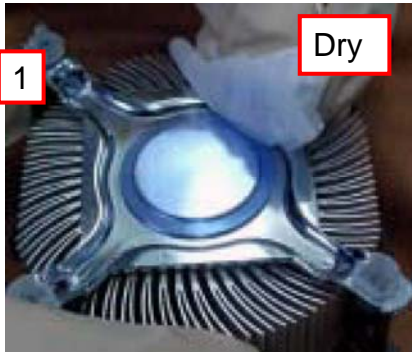
1. Remove the heatsink from the socket
2. Gently push loose thermal interface material (TIM) to center of processor (pictures 2 and 3)
3. Remove pieces with dry cloth (picture 4)
4. Wipe with dry, lint-free cloth to remove most of the material (picture 5)
5. Wet another lint-free cloth with isopropyl alcohol (IPA) and wipe to clean remaining material (picture 6)
6. Be careful to remove material from gaps between processor and load plate
7. For thermal grease removal use Step 4-6

### **TIM and Grease Removal from Heat-sink**

Note: Remove and replace the TIM from the heatsink if you are re-using the heatsink on a new processor

1. Use dry, lint-free cloth and wipe package to remove most of the material
2. Wet another lint-free cloth with isopropyl alcohol (IPA) and wipe heatsink to clean remaining material





## Replacing Damaged Fasteners

- To prevent damage, avoid setting the thermal solution with the prongs down
  - Set on heatsink side or with fan down
- The plastic fasteners on the heatsink can be replaced.
  - Use Shop Intel to order spare fasteners
  - <http://www.shop-Intel.com>
- To remove a damaged fastener

**Note:** Protective gloves are not required for this procedure

- Rotate the black pin counterclockwise until it “snaps”. There will be some resistance
- Remove the black pin from the white prong
- Tilt the white prong to remove it from the heatsink leg

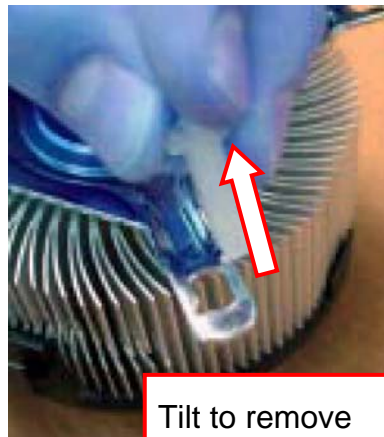


Avoid damage; avoid placing prongs on hard surface



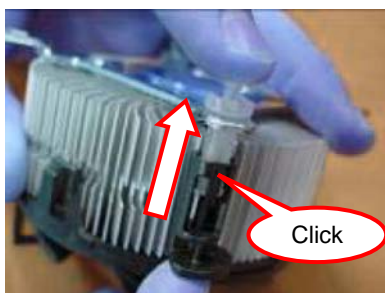
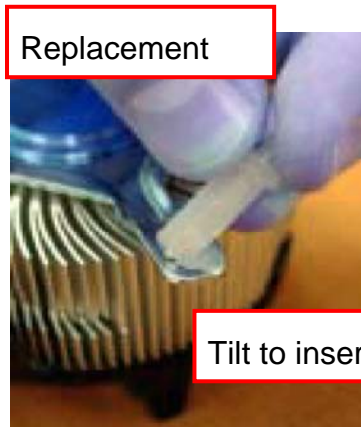
Damaged. Attempts to straighten not recommended





### Replacing Fasteners

- To **replace** the fastener
  - Start with the white prong
  - Note the “keying” notch feature
  - Tilt the prong to insert into the heatsink leg.
  - Holding the white prong without bending it, push the black pin on from the bottom until you hear a single “click”



**Note:** The black pin and white prong will only “snap” on in one orientation  
Check to ensure the black pin is rotated properly for installation with the slot perpendicular to the heat Sink.

## 2-4 Install Memory

This motherboard provides four 240-pin DDR2 DUAL INLINE MEMORY MODULES (DIMM) socket for DDR2 memory expansion available from minimum memory volume of 128MB to maximum memory volume of 8.0GB DDR SDRAM.

### Valid Memory Configurations

Bank	240-Pin DIMM	PCS	Total Memory
Bank 0, 1 (DIMM1)	DDR2 667 /DDR2 800	X1	128MB~2.0GB
Bank 2, 3 (DIMM2)	DDR2 667 /DDR2 800	X1	128MB~2.0GB
Bank 4, 5 (DIMM3)	DDR2 667 /DDR2 800	X1	128MB~2.0GB
Bank 6,7 (DIMM4)	DDR2 667 /DDR2 800	X1	128MB~2.0GB
Total	System Memory (Max. 8.0GB)	4	128MB~8.0GB

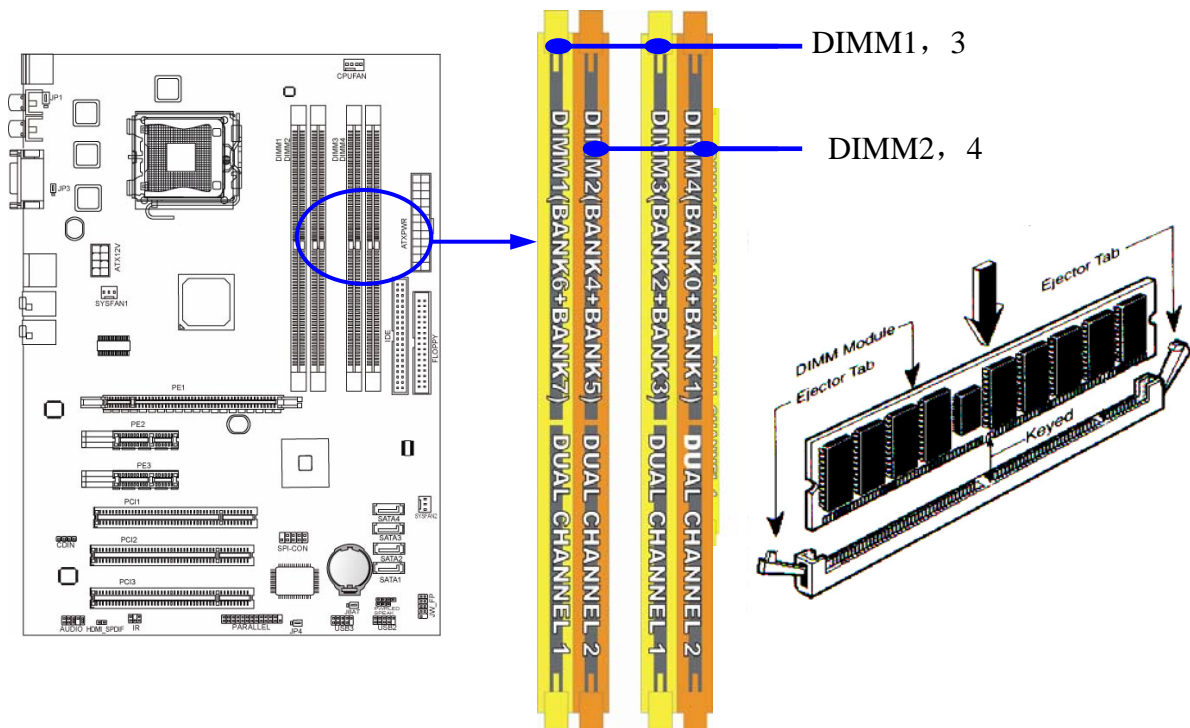
### Recommend DIMM Module Combination

1. **One DIMM Module** ---Plug in DIMM1
2. **Two DIMM Modules**---Plug in DIMM1 & DIMM3 or DIMM2 & DIMM4 for Dual channel function
3. **Four DIMM Modules**---Plug in DIMM1/DIMM2/DIMM3/DIMM4.

### For Dual channel Limited!

4. 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.
5. DIMM1 & DIMM3 or DIMM2 & DIMM4 must be the same type, same size, same frequency for dual channel function.

Install DDR SDRAM modules to your motherboard is not difficult, you can refer to figure below to see how to install a 240-Pin DDR2 667/DDR2 800 SDRAM module.



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

**WARNING!** This motherboard only support DDR2 667/800 or higher frequency-compliant DDR2 Modules.

## 2-5 Expansion Cards

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

### 2-5-1 Procedure For Expansion Card Installation

1. Read the documentation for your expansion card and make any necessary hardware or software setting for your expansion card such as jumpers.
2. Remove your computer's 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 screen you remove above.
5. Replace the computer system's cover.
6. Set up the BIOS if necessary.
7. Install the necessary software driver for your expansion card.

### 2-5-2 Assigning IRQs For Expansion Card

Some expansion cards need to set up the IRQ to operate. An IRQ must be assigned exclusively to single interface use only. There are 16 IRQs available but most of them are already being used.

#### 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.

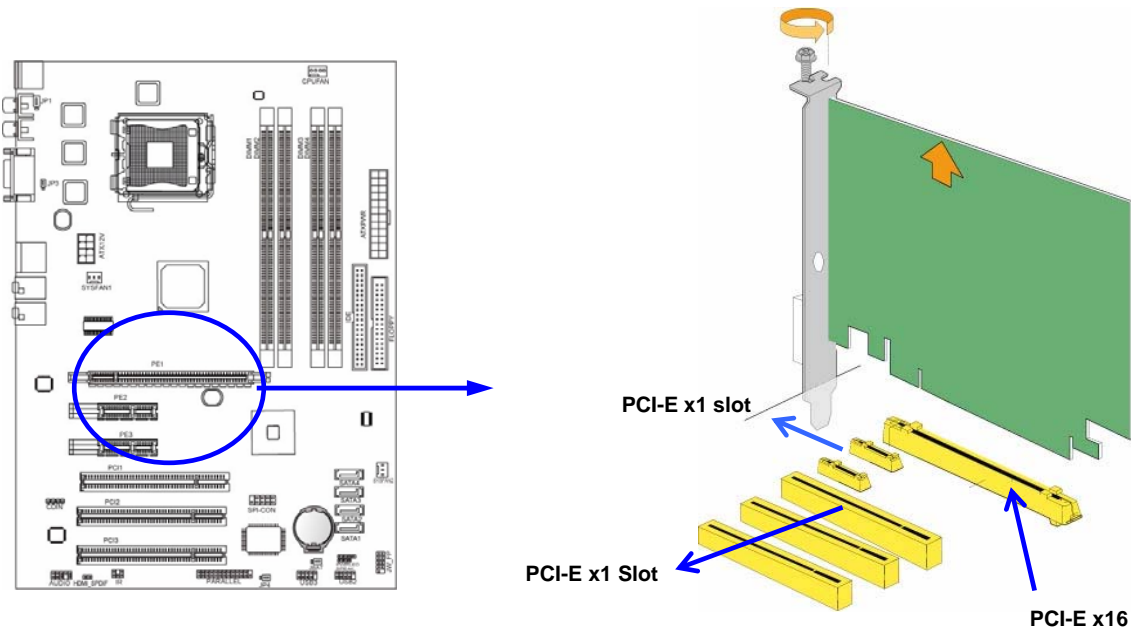


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### 2-5-3 PCI Express Slot

The P35 chipset Based motherboard series offer one 16-LANE PCI-Express x16 graphics slot of 4Gbyte/sec data transfer rate at each relative direction which get 3.5 times of bandwidth more than AGP8X and it's up to a peak concurrent bandwidth of 8Gbyte/sec at full speed to guarantee the performance and compatibility of GPU graphics add-in cards. The whole series carry three 32-bit PCI slots guarantee the rich connectivity for the I/O peripheral devices. Two PCI Express x1 I/O slots offer 512Mbyte/sec concurrently, over 3.5 times more bandwidth than PCI at 133Mbyte/sec, tackling the most demanding multimedia tasks nowadays.



## 2-6 Connectors, Headers

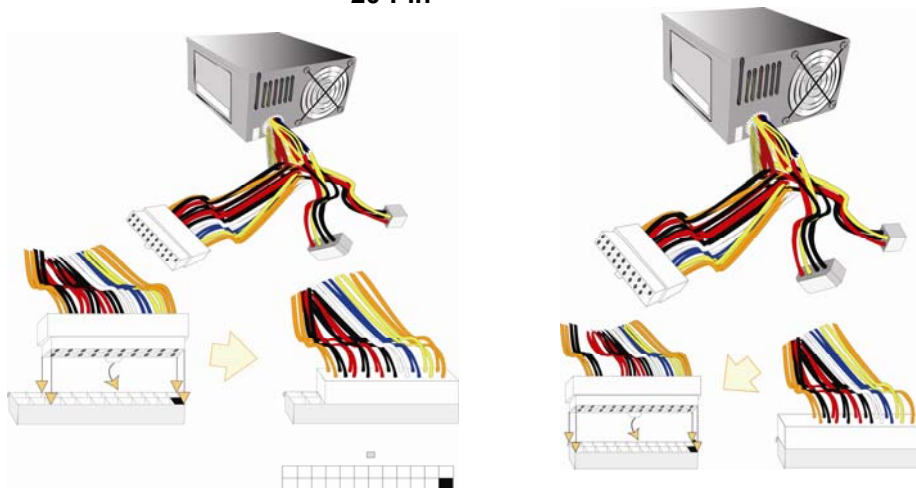
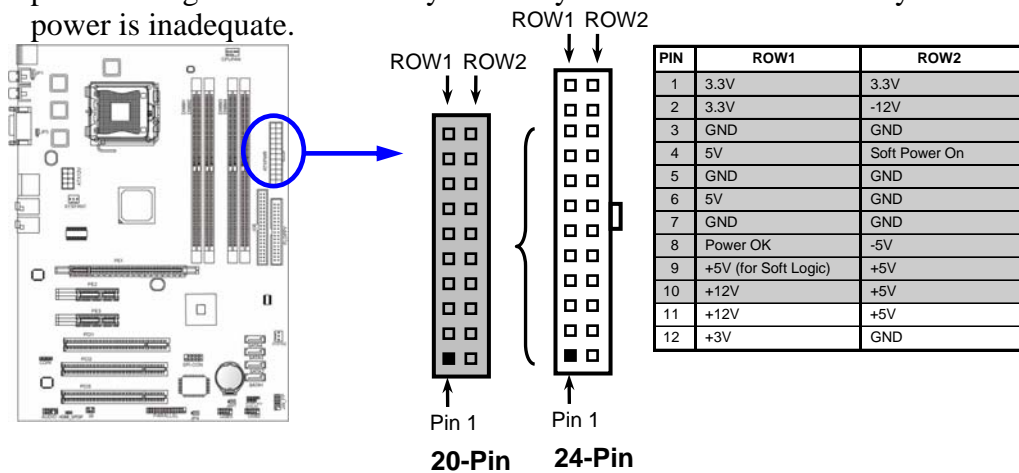
### 2-6-1 Connectors

#### (1) Power Connector (24-pin block) : ATXPWR24P

ATX Power Supply connector: This is a new defined 24-pins connector that usually comes with ATX case. The ATX Power Supply allows using 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.

\*\* We recommend that you use an ATX 12V Specification 2.0-compliant power supply unit (PSU) with a minimum of 350W power rating. This type has 24-pin and 4-pin power plugs.

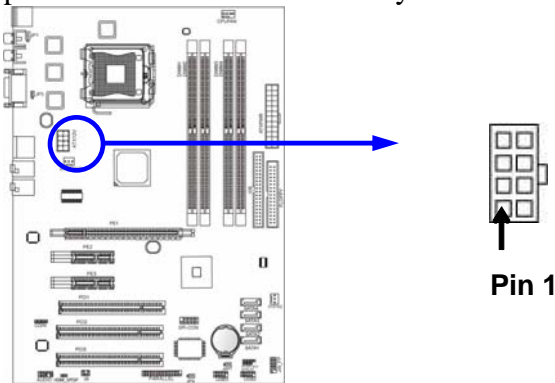
\*\* If you intend to use a PSU with 20-pin and 4-pin power plugs, make sure that the 20-pin power plug can provide at least 15A on +12V and the power supply unit has a minimum power rating of 350W. The system may become unstable or may not boot up if the power is inadequate.



#### (2) ATX 12V Power Connector (8-pin block) : ATX12V

This is a new defined 8-pins connector that usually comes with ATX Power Supply. The ATX Power Supply which fully supports LGA775 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.



**(3) PS/2 Mouse & PS/2 Keyboard Connector: KB**

The connectors are for PS/2 keyboard and PS/2 Mouse input devices.

**(4) USB Port connector:US1, UL2**

The connectors are 4-pin connectors that connect USB devices with the 400Mbit / sec data transfer rate to the system board.

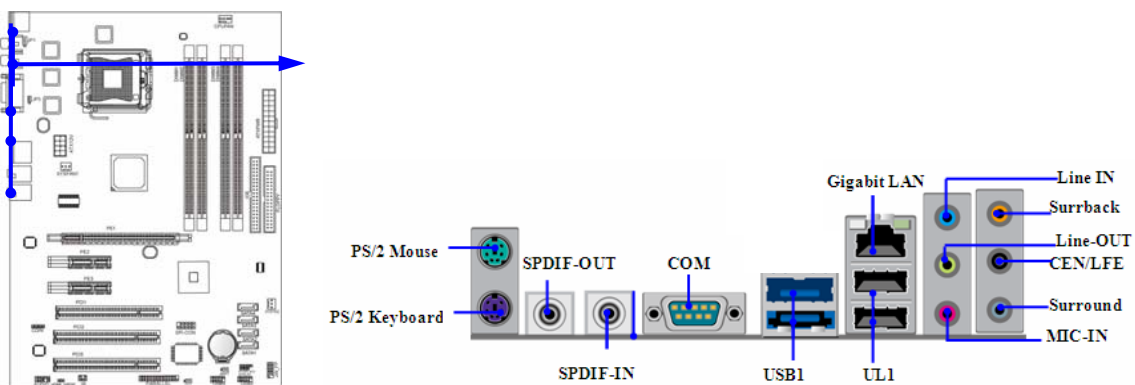
**(5) LAN Port connector: UL2**

This connector is standard RJ45 over USB connectors for Network and USB devices connection. The UL2 support 10M/100Mb/1G b/s data transfer rate.

**(6) Audio Line-In, Lin-Out, MIC, Surrback, Surround, CEN/LEF Connector: SURROUND1**

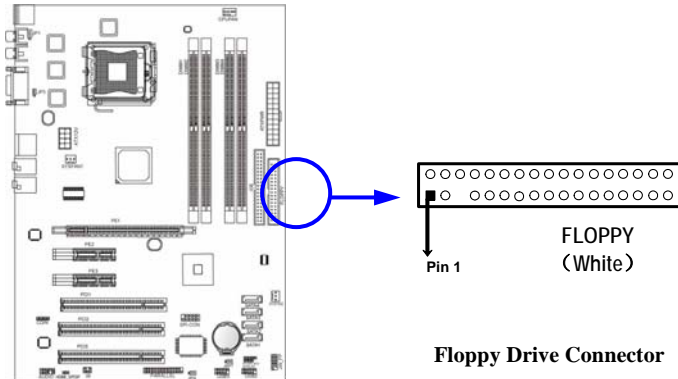
These Connectors are 6 Phone-Jack for LINE-OUT, LINE-IN, MIC, Surrback, Surround, CEN/LEF audio connections.

- Line-in : (BLUE)** Audio input to sound chip
- Line-out : (GREEN)** Audio output to speaker
- MIC : (PINK)** Microphone Connector
- Surrback : (ORANGE)** Audio output to speaker-Rear speaker out
- CEN/LEF : (BLACKNESS)** Audio output to speaker-Center/Subwoofer speaker out
- Surround: (GRAY)** Audio output to speaker-Side speaker out



**(7) Floppy drive Connector (34-pin block): FLOPPY**

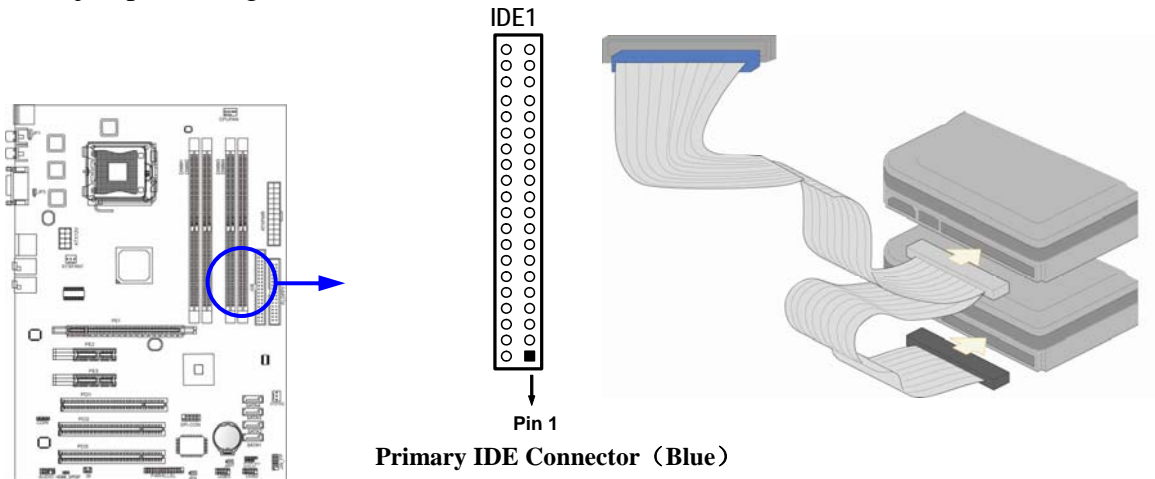
This connector supports the provided floppy drive ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to the floppy drives.



Floppy Drive Connector

**(8) Primary IDE Connector (40-pin block): IDE**

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.

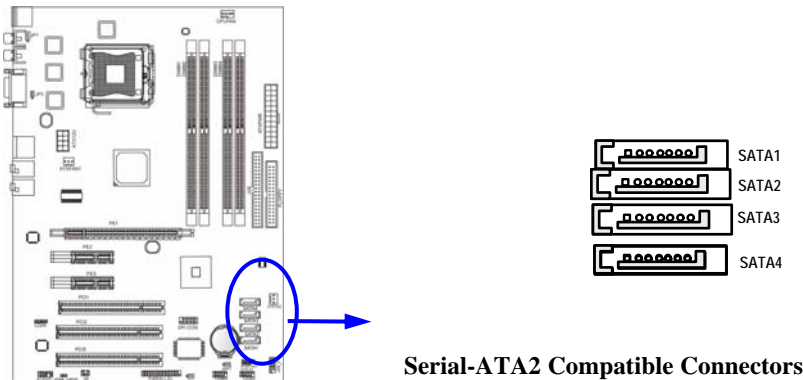


Primary IDE Connector (Blue)

- 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.

**(9) Serial-ATA2 Port connectors: SATA1 / SATA2 / SATA3/ SATA4**

These connectors support the provided Serial ATA and Serial ATA2 IDE hard disk cable to connect the motherboard and serial ATA2 hard disk drives.



Serial-ATA2 Compatible Connectors

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### (10) SPDIF In/Out coaxial connectors: SPDIF In/SPDIF Out

The SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby digital decoder. Use this feature only when your stereo system has digital input function. Use SPDIF IN feature only when your device has digital output function.

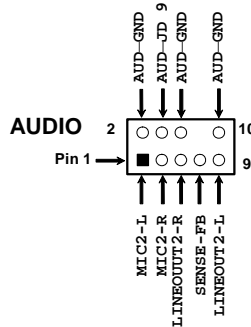
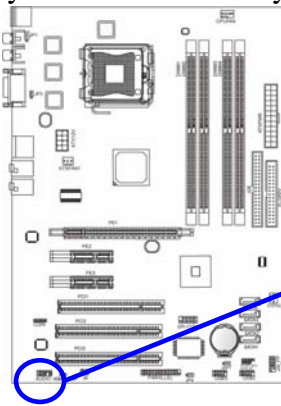
### (11) Serial COM Port Connectors: COM1

Serial COM ports are the 9-pin D-Subminiature male connectors. The On-board serial port can be disabled through BIOS SETUP. Please refer to Chapter 3 “INTEGRATED PERIPHERALS SETUP” section for more detail information

## 2-6-2 Headers

### (1) Line-Out/MIC Header for Front Panel (9-pin): AUDIO

These headers connect to Front Panel Line-out, MIC connector with cable. Without install the cable, this header default setting is 5-6 short, 9-10 short. When you install the cable you have take off these jumpers.

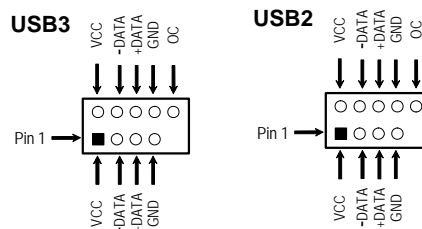
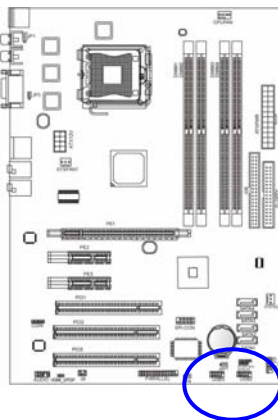


Line-Out, MIC Headers

ALC883

### (2) USB Port Headers (9-pin) : USB2/USB3

These headers are 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.



USB Port Headers

**(3) Speaker connector: SPEAK**

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

**(4) 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.

**(5) IDE Activity LED: HD LED**

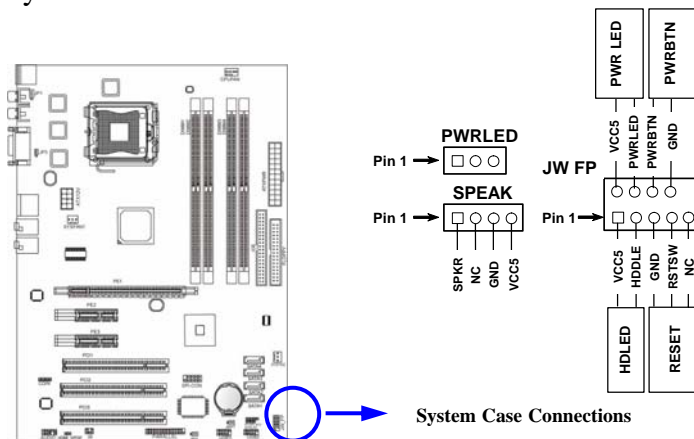
This connector connects to the hard disk activity indicator light on the case.

**(6) 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.

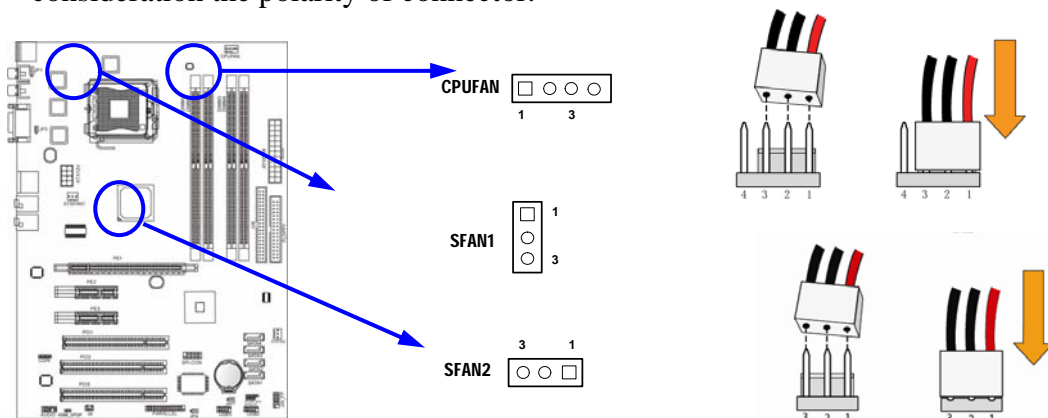
**(7) Power switch: PWR BTN**

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



**(8) FAN Headers : SFAN1, SFAN2(3-pin), CPUFAN(4Pin)**

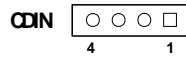
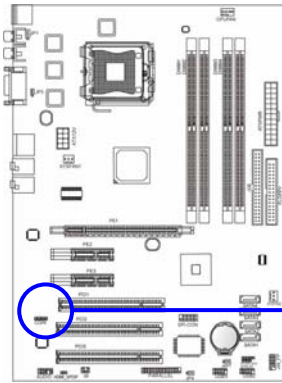
These connectors support cooling fans of 350mA (4.2 Watts) or less, depending on the fan manufacturer, the wire and plug may be different. The red wire should be positive, while the black should be ground. Connect the fan's plug to the board taking into consideration the polarity of connector.



**(9) 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.

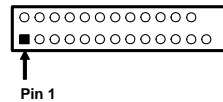
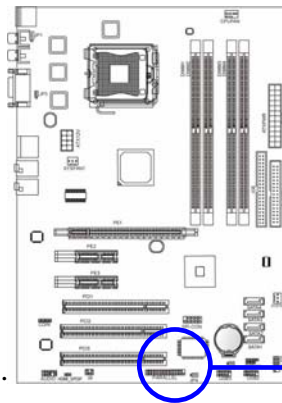




**CD Audio-In Headers**

**(11) Parallel Port Header (25-pin male): PARALLEL**

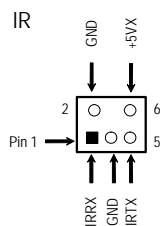
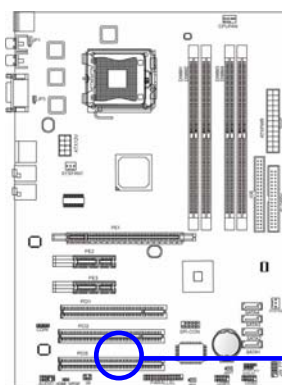
The On-board Parallel Port can be disabled through the BIOS SETUP. Please refer to Chapter 3 “INTEGRATED PERIPHERALS SETUP” section for more detail information.



**PARALLEL Connector**

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

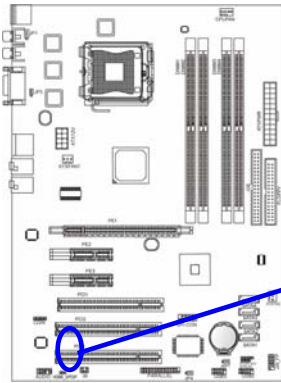
This connector supports the optional wireless transmitting and receiving infrared module. You must configure the setting through the BIOS setup to use the IR function.



**IR infrared module Headers**

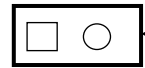
**(13) HDMI-SPDIF Out header: SPDIF Out**

The SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby digital decoder. Use this feature only when your stereo system has digital input function.



HDMI\_SPDIF\_OUT →

SPDIF



← GND

1 2



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## 2-7 Starting Up Your Computer

1. After all connection is 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

## Introducing BIOS

The BIOS is a program located on a Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program will gain control. The BIOS first operates an auto-diagnostic test called POST (power on self test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization. Only when these tasks are completed done it gives up control of the computer to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performance as its best.

In the BIOS Setup main menu of Figure 3-1, you can see several options. We will explain these options step by step in the following pages of this chapter, but let us first see a short description 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> when you have completed the setup of BIOS parameters to save these parameters and to exit the BIOS Setup menu.
- Press Page Up/Page Down or +/- keys when you want to modify the BIOS parameters for the active option.

### 3-1 Entering Setup

Power on the computer and by pressing <Del> immediately allows you to enter Setup.

If the message disappears before your respond 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**

### 3-2 Getting Help

#### 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>.

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### 3-3 The Main Menu

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

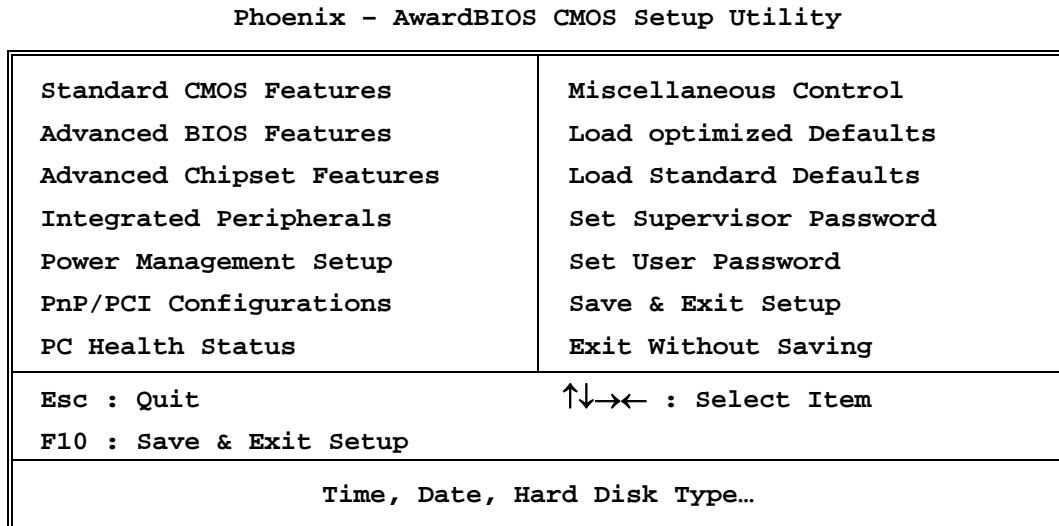


Figure 3-1

#### **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 settings for optimal performances system operations.

#### **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 CMOS value changes to CMOS and exit setup.

## Exit Without Saving

Abandon all CMOS value changes and exit setup.

## 3-4 Standard CMOS Features

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

### Phoenix - AwardBIOS CMOS Setup Utility Standard CMOS Features

Date (mm:dd:yy)	Mon, April, 09 2007	Item Help	
Time (hh:mm:ss)	16 : 48 : 35		
> IDE Channel 0 Master	None	Menu Level >  Change the day, month, year and century	
> IDE Channel 0 Slave	None		
IDE Channel 1 Master	None		
IDE Channel 1 Slave	None		
Drive A	1.44M, 3.5 in.		
Video	EGA/VGA		
Halt On	All Errors		
Base Memory	640K		
Extended Memory	523264k		
Total Memory	524288k		
↑↓←→ 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 is from Sun to Sat, determined by BIOS. Read-only.

**Month** The month is from Jan. through Dec.

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

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

### Time

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

### IDE Channel 0 Master / Channel 0 Slave / IDE Channel 1 Master / Channel 1 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 the type of hard disk drives is not matched or listed, you can use Manual to define your own drive type manually.

If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

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

If the controller of HDD interface is CD-ROM, the selection shall be "None"

**Access Mode** The settings are Auto Normal, Large, and LBA.

**Cylinder** number of cylinders

**Head** number of heads

**Precomp** write precomp

**Landing Zone** landing zone  
**Sector** number of sectors

## 3-5 Advanced BIOS Features

Phoenix - AwardBIOS CMOS Setup Utility

Advanced BIOS Features

Virus Warning	Disabled	Item Help
CPU L1&L2 Cache	Enabled	
CPU L3 Cache	Enabled	Menu Level >
>CPU Feature	Press Enter	
>Hard Disk Boot Priority	Press Enter	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	CDROM	
Boot Other Device	Enabled	
Boot Up Floppy Seek	Enabled	
Boot Up NumLock Status	On	
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	
HDD S.M.A.R.T. Capability	Disabled	
Report No FDD For Windows	Yes	
↑↓←→ Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

### Hard Disk Boot Priority

The selection is for you to choose the hard disk drives priorities to boot from.

### Virus Warning

The selection allows you to choose the VIRUS Warning feature for IDE Hard Disk booting 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 L1and L2 Cache

The default value is Enabled.

**Enabled** (default) Enable cache

**Disabled** Disable cache

*Note: The L1 cache is built in the processor.*

### 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

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**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.

### **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.

### **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)**

Set 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.

### **HDD S.M.A.R.T Capability**

This option allow you to enable the HDD S.M.A.R.T Capability (Self-Monitoring, Analysis and Reporting Technology) . You can choose from Enabled and Disabled.

### **MPS Version Control For OS      1.4**

This option is only valid for multiprocessor motherboards as it specifies the version of the Multiprocessor Specification (MPS) that the motherboard will use.

### **OS Select For DRAM > 64MB**

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

## 3-6 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.

### Phoenix - AwardBIOS CMOS Setup Utility

#### Advanced Chipset Features

DRAM Timing Selectable	By SPD	Item Help
* DRAM CAS Latency Time	Auto	Menu Level >
* DRAM RAS# to CAS# Delay	Auto	
* DRAM RAS# Precharge Time	Auto	
* DRAM Cycle Time	Auto	
* DRAM Write Recovery Time	Auto	
* DRAM Min Ref to ACT/CMD Time	Auto	
* DRAM Int Wrt to RD Delay	Auto	
* DRAM Row AcT to Row ACT Delay	Auto	
* DRAM Int Rd to Pre Delay	Auto	
System BIOS Cacheable	Disabled	
Memory Hole at 15-16M	Disabled	
>PCI Press Root Port Function	Press enter	
Force PEG to x1	Disabled	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

### CAS # Latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. The settings are: Auto,3, 4 and 5.

### 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: 4T and 3T.

### 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 and 3T.

### System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFFh, 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.

## 3-7 Integrated Peripherals

### Phoenix - AwardBIOS CMOS Setup Utility

#### Integrated Peripherals

> Onboard IDE Function	Press Enter	Item Help
> Onboard Device Function	Press Enter	Menu Level >
> Onboard Super IO Function	Press Enter	
PWR status after PWR Failure	Always Off	
Init Display First	PCI Slot	
↑↓→← 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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## 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.

## 3-7-1 Onboard IDE Function

### Phoenix - AwardBIOS CMOS Setup Utility

#### OnChip IDE Function

Onchip Primary PCI IDE	Enabled	Item Help
Onchip Secondary PCI IDE	Enabled	
IDE Primary Master PIO	Auto	Menu Level >>
IDE Primary Slave PIO	Auto	
IDE Secondary Master PIO	Auto	
IDE Secondary Slave PIO	Auto	
IDE Primary Master UDMA	Auto	
IDE Primary Slave UDMA	Auto	
IDE Secondary Master UDMA	Auto	
IDE Secondary Slave UDMA	Auto	
IDE DMA Transfer Access	Enabled	
IDE HDD Block Mode	Enabled	
Delay for HDD (Secs)	0	
* * * Onchip Serial ATA Setting * * *		
Onchip Serial ATA	Auto	
* PATA IDE Mode	Primary	
SATA Port	P1, P3 is Secondary	
* SATA Port Speed Setting is	Disabled	

↑↓←→ Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help  
F5:Previous Values F6:Optimized Defaults F7:Standard Defaults

### IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-2) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 2 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.

### IDE 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.

### 3-7-2 Onboard Device Function

Phoenix - AwardBIOS CMOS Setup Utility

OnChip Device Function

Onboard PCIE LAN Controller	Enabled	Item Help
Onboard PCIE LAN Boot Rom	Disabled	
High Definition Audio	Enabled	Menu Level >>
USB Host Controller	Enabled	
USB 2.0 Function	Enabled	
USB Keyboard Legacy Support	Disabled	
USB Mouse Legacy Support	Disabled	
USB Storage Legacy Support	Disabled	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

#### Onboard PCIELAN Function

Setting to [Enabled] allows the BIOS to auto-detect the LAN controller and enable it. Setting options:[ Enabled] and [Disabled] .

#### High Definition Audio

The selection for you to choose the embedded Audio function or 3<sup>rd</sup> party audio interface installed. The settings are: Enabled and Disabled.

#### USB 2.0 Controller

This setting allows you to enable/disable the onboard USB controller. Selecting [Enabled] enables the system to support USB 2.0 spec. setting options:[Disabled],[Enabled].

#### USB Keyboard/Storage Support

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

### 3-7-3 OnChip Super IO Function

Phoenix - AwardBIOS CMOS Setup Utility

Onboard Super IO Function

Onboard FDD Controller	Enabled	Item Help
UART1 Resources Select	3F8/IRQ4	
UART2 Resources Select	Disabled	Menu Level >>
* UART2 Mode Select	IrDA	
* IR Duplex Mode	Half	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	SPP	
* 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.

#### UART2 Mode Select

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

#### IrDA Duplex Mode

This field is available when UART Mode is set to either ASKIR or IrDA. This item enables you to determine the infrared function of the onboard infrared chip. The options are Full and Half (default). Full-duplex means that you can transmit and send information simultaneously. Half-duplex is the transmission of data in both directions , but only one direction at a time.

### 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.

## 3-8 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.

### Phoenix - AwardBIOS CMOS Setup Utility

#### Power Management Setup

ACPI Function	Enabled	Item Help
Power Management	User Define	
Video off Method	V/H SYNC+Blank	
Video Off In Suspend	Yes	
Suspend Type	Stop Grant	Menu Level >
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	
Wake-up by USB KB from S4	Disabled	
PS2 KB/MS Wake up by S5	Disabled	
Resume by Alarm	Disabled	
X Date (of Month)Alarm	0	
X Time (hh:mm:ss)Alarm	0 : 0 :0	
PM Timer Reload Event	Press Enter	
↑↓←→ 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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### ACPI Function

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

### 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.

### HDD Power Down (Disabled)

The IDE hard drive will spin down if it is not accessed within a specified length of time. Options are from 1 Min to 15 Min and Disable.

### Soft-Off by PWRBTN

Under ACPI (Advanced Configuration and Power management Interface) you can create a software power down. In a software power down, the system can be resumed by Wake up Alarms. This item lets you install a software power down that is controlled by the power Button on your system. If the item is set to Instant-Off, then the power button causes a software power down. If the item is set to Delay 4 Sec, then you have to hold the power button down for four seconds to cause a software power down.

### Wake Up On Ring

During Disabled, the system will ignore any incoming call from the modem. During Enabled, the system will boot up if there's an incoming call from the modem.

### Resume by 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.

## 3-9 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.

Phoenix - AwardBIOS CMOS Setup Utility

### PnP/PCI Configurations

IRQ Resources	Press Enter	Item Help
PCI/VGA Palette Snoop	Disabled	
***PCI Express Relative Items***		
Maxim Payload Size	128	

↑↓→← Move Enter:Select Item +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help  
F5:Previous Values F6:Optimized Defaults F7:Standard Defaults

### IRQ Resources

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

## PCI/VGA Palette Snoop

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

## 3-10 PC Health Status

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

Phoenix - AwardBIOS CMOS Setup Utility

### PC Health Status

Shutdown Temperature	Disabled	Item Help
Show PCHealth in POST	Enabled	
> Smart FAN Configurations	Press Enter	Menu Level >
VCC3v	3.31V	
Vcore	1.28V	
NB1.25V	1.26V	
+5V	5.12V	
+12V	11.88V	
5VSB	5.00V	
VDIMM	1.87V	
3VSB	3.37V	
Vbat	3.28V	
CPU Temperature	64°C/147°F	
System Temperature	38°C/96°F	
CPUFAN Speed	2912RPM	
SFAN1 Speed	0 RPM	
SFAN2 Speed	0 RPM	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

### 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.

### Show PC Health in Post

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

### Smart FAN Configurations

Please refer to section 3-10-1

Vcc3V/Vcore/NB1.25V/+5V/+12V/5VSB/VDIMM/3VSB/Vbat/CPU

Temperature/System Temperature/CPU Fan Speed/ SYSFAN1, SYSFAN2 Speed

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

## 3-10-1 Smart FAN Configurations

Phoenix - AwardBIOS CMOS Setup Utility

### Smart FAN Configurations

CPUFAN Smart Mode	Enabled	Item Help	
CPU SmartFAN Full-Speed	50		
CPU SmartFAN Idle Temp	30	Menu Level >	
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults			

### CPU/SFAN1 Smart FAN Full-Speed Temp

This item allows you setting the FAN works in full speed when the temperature over the value which out set. If the temperature below the value but over the Idle Temperature, the FAN will works over 60% of full speed, and the higher temperature will gain higher FAN speed,

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after over the temperature which this item setting, the FAN works in full speed.

### CPU/SFAN1 Smart FAN Idle Temp

This item allows you setting the FAN works in 60% of full speed, when the temperature lower than the temperature which you setting.

## 3-11 Miscellaneous Control

This section is for setting CPU Miscellaneous Control.

Phoenix - AwardBIOS CMOS Setup Utility

### Miscellaneous Control

Auto Detect PCI Clk	Disabled	Item Help  Menu Level >
Spread Spectrum	Disabled	
Linear PCIEX Clock	100MHZ	
** Current Host/PCI Clock is	200/33MHZ	
Host/PCI Clock at Next Boot	200/33MHZ	
DRAM Clock at Next Boot	Auto/800MHZ	
CPU Vcore Select	Defaulted(1.28750v)	
CPU Vcore 7-Shift	Normal	
NB Voltage	1.25v(Defaultte)	
SB Voltage	1.50v(Defaultte)	
VDIMM Voltage	1.87V(Default)	
FSB Voltage	1.20v(Defaultte)	
↑↓→← Move Enter:Select Item +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

### CPU Clock Ratio

This item allows you to select the CPU ratio.

### Auto Detect PCI/DIMM Clock

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

The settings are: Enabled, Disabled.

### Spread Spectrum

This item allows you to set the Spread Spectrum.

### Host/PCI Clock at Next Boot is

This item allows you to select the CPU/PCI Clock.

By press PageDown/PageUp key you can change the CPU Host/PCI Clock

## 3-12 Load Standard/Optimized Defaults

### 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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## 3-13 SET SUPERVISOR/USER PASSWORDS

Phoenix - AwardBIOS CMOS Setup Utility

### Password Settings

Set Supervisor Password	Press Enter	Item Help
Set User Password	Press Enter	Menu Level >
↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Optimized Defaults F7:Standard Defaults		

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

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

**User password:** Can only enter but do not have 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 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 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 to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

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## Chapter 4

### 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 2000/XP / Vista

Insert CD into your CD-ROM drive and the MAGIC INSTALL Menu should appear as 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 8 selections:**

1. INF                      install Intel P35 chipset system driver
2. SOUND                  install ALC888 HD Codec Audio Driver
3. LAN                      install Realtek LAN Controller Driver
4. USB2.0                  install USB 2.0 driver
5. PC-CILLIN              install PC-CLINIC anti-virus program
6. PC-HEALTH             install MyGuard Hardware Doctor Utility
7. BROWSE CD             to browse the contents of the CD
8. EXIT                     to exit from MAGIC INSTALL menu

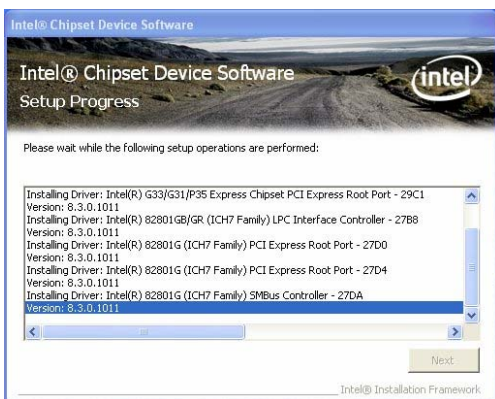
## 4-1 INF Install Intel P35 chipset system driver



1. Click INF of the MAGIC INSTALL MENU
2. Click NEXT when Chipset Software Install Utility appears



3. Click Yes to agree the license agreement and continue the installing process.
4. Read the readme information and click Next.



5. Wait for the installation process.
6. Select if you want computer re-started click Finish to complete the installation.



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## 4-2 SOUND Install ALC888 HD Codec Audio Driver

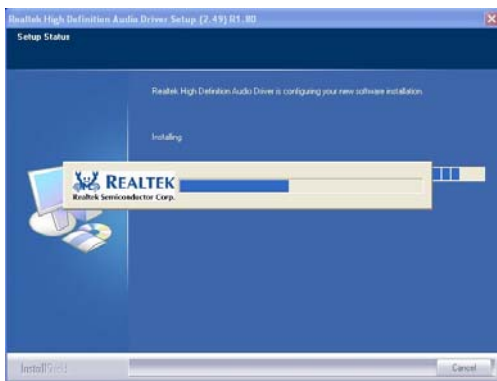
**NOTE:** Please upgrade your Windows XP to Service Pack 1 / Windows 2000 to Service Pack 4 or later before you the HD Audio CODEC driver.



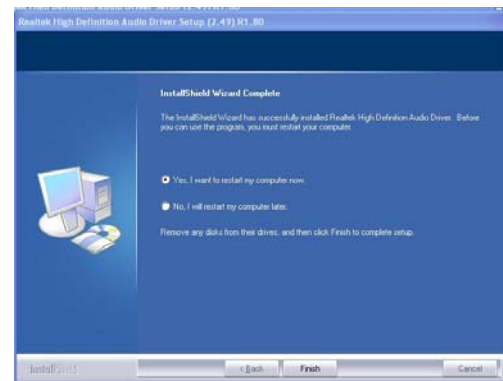
1. Click SOUND when MAGIC INSTALL MENU appears



2. Click NEXT When Realtek High Definition Audio driver windows appear .



3. The installation process.



4. Select if you want computer re-started click Finish to complete the installation.



5. Manual Sound Effect Setting



6. Mixer Setting.



7. Audio Input and Output Setting.



8. Microphone Setting.

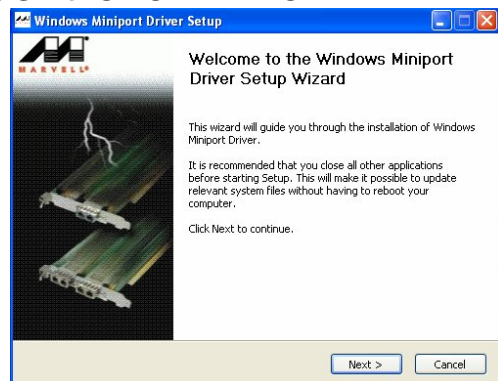


9. 3D Audio Demo Setting.

### 4-3 LAN Install Realtek LAN Controller Driver



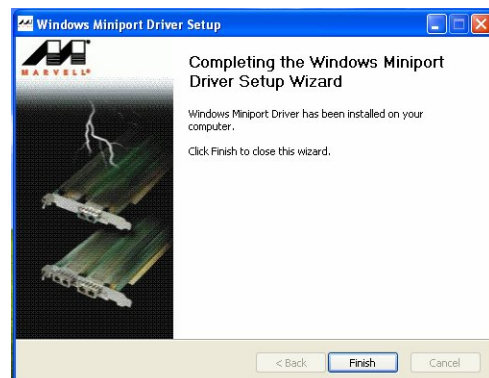
1. Click LAN when Magic Install Menu appear



2. Click NEXT, install REALTEK LAN and Fast Ethernet NIC Driver



3. Click 'I agree the terms in the license agreement' and click 'install'.



4. Click Finish to complete the installation.

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

### Windows 2000 OS

Please install Windows 2000 service pack 4 or later.

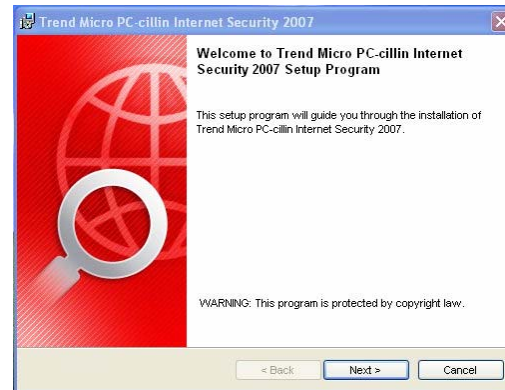
### Windows XP OS

Please install Windows XP service pack 1 or later.

## 4-5 PC-CILLIN Install PC-CILLIN 2007 Anti-virus program



1. Click PC-CILLIN when MAGIC INSTALL MENU appears.



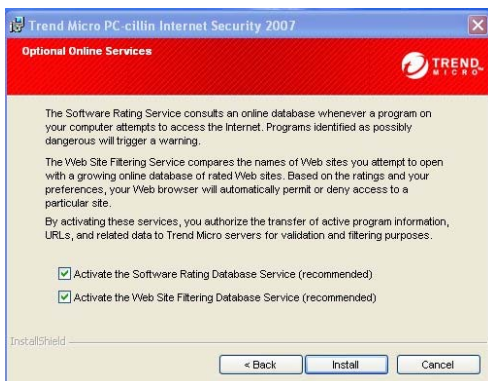
2. Select "Next" when the "Trend Micro internet security" windows appears



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



4. Click NEXT or choose Change to change the path for the file to be stored



5. Click INSTALL, Start to install the software



6. Setup Complete and click FINISH

**Note :** Please install ACROBAT READER for reading PC-CILLIN 2007 User Manual which locates at the path "X:\acrobat\adberdr6\_enu\_full.exe".

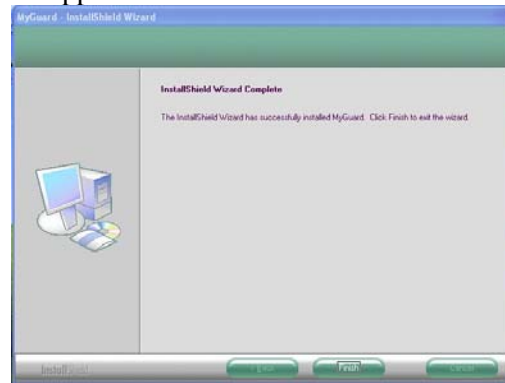
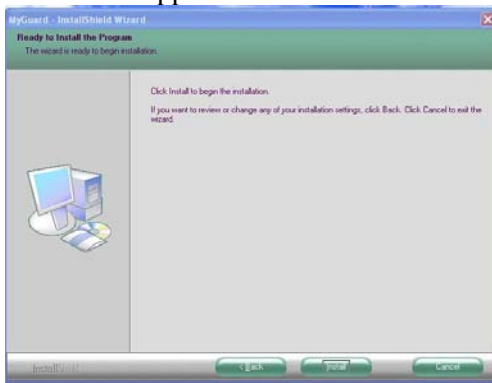
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## 4-6 PC-HEALTH Install MyGuard Hardware monitor Utility



1. Click PC-HEALTH when MAGIC INSTALL MENU appears
2. Click Next when Install shield wizard Window appears.



3. Click install to begin the installation.
4. Click Finish to complete the installation.

**NOTE: MAGIC INSTALL will auto detect file path X:\P35\MYGUARD\SETUP.EXE**

## 4-7 HOW TO UPDATE BIOS

Before update BIOS users have to “Disable”, “Flash Part Write Protect” item which in “Miscellaneous Control” of BIOS SETUP. Otherwise the system will not allow you to upgrade BIOS by Award Flash Utility.

**STEP 1.** Prepare a boot disc. (you may make one by click START click RUN type SYS A: click OK)

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

**STEP 3.** Copy latest BIOS for P35XXX from our web site to your boot disc.

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

start the computer, type “Awdflash A:\P35XXXXxxx.BIN /SN/PY/CC/R”

P35XXXX Axxx.BIN is the file name of latest BIOS it can be P35XXXX A03.BIN or P35XXXX CPB02.BIN

SN means don't save existing BIOS data

PY means renew existing BIOS data

CC means clear existing CMOS data

R means restart computer

**STEP 5.** Push ENTER and the BIOS will be updated, computer will be restarted automatically.



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## 4-8 Pro Magic Plus Function Introduction

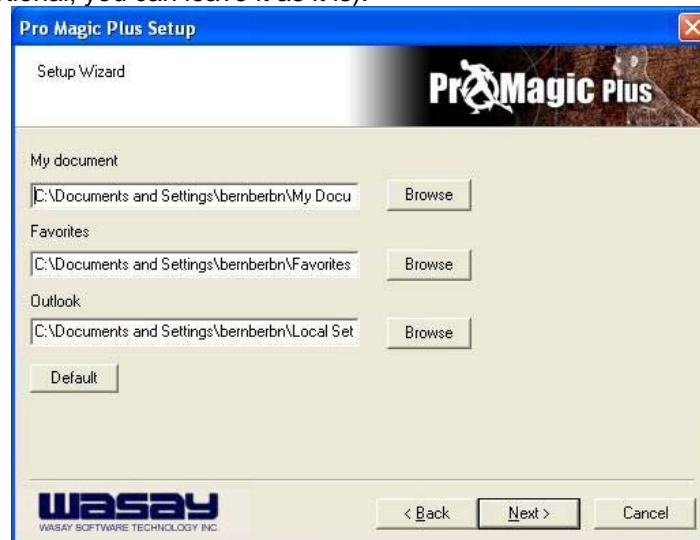
### What's Pro Magic Plus?

Tired with reinstall OS each time when it doesn't work? Does your computer often crash down or unable to work after installed new software? Have you had great loses and troubles because of computer problems? Still using time-consuming backup software that occupies lots of HD space?

Pro Magic Plus- an instant system recovery software tailored to solve these problems for you. It combines various application tools (e.g. anti-virus, backup software, uninstall software, multi-boot software) to satisfy your needs of all sorts of system protections.

### What functions does Pro Magic Plus have?

1. **Instant System Restoration** – Regardless of mis-operation or system crash, install Pro Magic Plus beforehand would allow you to instantly restore your system back by simply reboot your computer.
2. **Easy-to-use** – Auto installation from CD ROM; Supports Mouse
3. **System Uninstall** – Pro Magic provides a protection mode, which allows user to freely test any software. If user does not want to keep the software, just reboot the computer to restore back to the previous state, and Pro Magic will remove it completely from you computer.
4. **Password Security** – Pro Magic provides double password protection, including user password for entering each OS and manager password for managing 'Pro Magic', which can effectively prevent others from using your computer without permission or data from being stolen. (disable item for OEM version)
5. **Complete Protection** – Pro Magic not only protects the system disk, but also can protect your data disk, and does not require to reboot when backup or restore data disk.
6. **Multipoint Save/Restore** – You can backup your system whenever you need and restore them back to anytime you wish, 1 hour, 1 day or 1 month ago. Restore points are unlimited. (disable item for OEM version)
7. **Data Disk Protection** – Pro Magic Plus now comes with data disk protection, provides complete protection for your computer! (disable item for OEM version)
8. **You can choose to change the default path of 'My Document', 'My Favorite' and 'Outlook Express'**, so that when you are restoring the system, data in these folders will not be restored as well. (This is optional, you can leave it as it is).



graph 4

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NOTE: Functions of each version will differ from each other, and will be based on the function descriptions of each version.

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### System Requirements

- ◇ First OS must be Windows 98 SE/ME/2000/XP
- ◇ Support Only Windows OS (No Linux)

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- ◇ Windows server OS and Windows NT not supported
  - ◇ Minimum of Intel 486 or above, 16MB of memory or above
  - ◇ Minimum of 500MB free/usable space or above
  - ◇ Support for SCSI & SATA Hard disk

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*Pro Magic Plus only supports SCSI hard disk with Windows 2000 or OS above*

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### Notice Before Installation

1. Before install Pro Magic Plus, turn off all anti-virus software. (Include BIOS anti-virus function)
2. Pro Magic Plus does not support multiple PRI partitions. If you have multiple PRI partitions, please repartition your HD before installation.
3. If your HDD is not fully partitioned (with un-partitioned/unused space at end of HDD), please repartition the HDD before install Pro Magic Plus.



