VIA Mother Board

PT88BSPRO

User's Manual

Intel LGA775 Processor Motherboard
VIA PT880PRO + VIA 8237

NO. G03PT88BPR207

Revision 2.0

Table of Content

Manual Revision History

Revision	Manual Revision History	Date of Release
Rev 2.0	First Edition copy of Mother Boards adopts VIA Chipsets: VIA PT880PRO and VIA VT8237	2005/08/17

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

Safety Instructions

1. Please read these safety instructions carefully.
2. Please keep this User‘s Manual for later reference.
3. 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.
5. All cautions and warnings on the equipment should be noted.
6. Disconnect this equipment from connecter before inserting add-on interfaces or modules.
7. Never pour any liquid into the opening, this could cause fire or electrical shock.
8. Explosion may occur if the battery is replaced incorrectly. Replace only with the type recommended by the manufacturer.
9. 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.
10. Do not leave the equipment in an humidity or unconditional environment, storage temperature above 60°C(140°C), it may damage the equipment.

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

Packing Item Checklist

☑ Motherboard
☑ Cable for IDE/Floppy
☑ Cable for Serial ATA IDE Port
☑ CD for motherboard utilities
☐ Cable for USB Port 3/4 (Option)
☑ User's Manual

Intel Pentium 4 LGA775 Processor Thermal Solutions

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

Chapter 1

Introduction of PT88BSPRO Motherboard

Thank you for purchasing the PT88BSPRO which provide extremely performance and meet future specification demand.

PT88BSPRO series motherboards are adopted with advanced technologies to deliver the extremely performance for Intel Pentium 4 Northwood/ Hyper-Threading/ Prescott LGA775 processors. The motherboard also feature AGP 8X/ PCI-Express x4 mode , Serial ATA RAID0, 1, USB 2.0 as well as 6-channel audio which are based on the advanced VIA PT880PRO chipset with FSB 800MHz and DDR400 Memory clock support. The PT88BSPRO also supports Dual channel DDR400 Memory clock. Now we could know more details by reading the features of motherboards below.

1-1 Feature of motherboard

PT88BSPRO motherboard is designed for Intel Pentium 4 LGA775 533MHz/ 800MHz Front Side Bus Frequency CPUs and the memory size expandable to 4.0GB.

By using VIA PT880PRO chipset which provides 800/533MHz Front Side Bus frequency and Dual channel DDR266/333/400 SDRAM support as a obvious further step to the next generation of 533/800MHz processors. These motherboards also offered ULTRA ATA **133** and **Serial ATA RAID 0, 1** functions to provide speedier HDD throughout that boosts overall system performance.

Integrated AC'97 CODEC audio on system supports 8-channel speaker for 3D Surround Effect which is fully compatible with Sound Blaster Pro® that gives you the best sound quality and compatibility. AGP 8X slot enables more complex models and detailed textures with AGP 8X graphic accelerators which creates richer and more lifelike virtual environments.

The unique VIA Universal Graphics Interface allows connection of both AGP and PCI Express graphics cards on the same motherboard, truly bridging the gap between the two standards. Furthermore, users can enable advanced VIA DualGFX Express technology by running AGP and PCI Express graphics cards simultaneously, opening up a new expanse of user options.

The PT88BSPRO used VIA VT6103 LAN PHY supports 10/100Mbps data transfer rate full duplex, half duplex operation. USB control as well as capability of expanding to 8 USB function ports support USB2.0/1.1 Devices.

Built-in hardware monitor function will monitor and protect your computer which is the special design in hardware for protecting Pentium 4 CPU from burned, and will shutdown power supply automatically when CPU is overheated or the CPU cooling fan is not working.
Some special features--***- CPU Thermal Throttling/ CPU Vcore 7-shift/ CPU Smart Fan*** in this motherboard for power user to use the over-clocking function more flexible. For detail description please read next 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℃ to 90 ℃). 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. *(for detail operating please read Section 3-11 Bi-turbo Configuration)*

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 7 steps for the precisely over-clocking of extra demanding computing performance.

1-2 Specification

Spec	Description
Design	* ATX form factor 4 layers PCB size: 30.5x22.0cm
Chipset	* VIA PT880PRO North Bridge Chipset * VIA VT8237 South Bridge
CPU Socket	* Support Intel Pentium 4 LGA775 package utilizes Flip-Chip Pin Grid Array (FC-PGA4) package processor * Support 3.2G~3.8G LGA775 Pentium 4 processor * Reserves support for future Intel Pentium 4 processors
Memory Socket	* 184-pin DDR module socket x4 * Support 4 pcs DDR266/DDR333/DDR400 DDR Modules Expandable to 4.0GB * Dual channel support
Expansion Slot & Headers	* AGP slot x1 support AGP 2.0 & 3.0 for 4X/8X mode * One PCI-Express x16 slot support PCI-E x4 transfer rate mode * 32-bit PCI slot x4
Integrate IDE and Serial ATA RAID	* Two PCI IDE controllers support PCI Bus Mastering, ATA PIO/DMA and the ULTRA DMA 33/66/100/133 functions that deliver the data transfer rate up to 133 MB/s; Two Serial ATA ports provide 150 MB/sec data transfer rate for two Serial ATA Devices and offer RAID 0, 1 functions
On board LAN	* VIA VT6103 LAN PHY support 10/100Mbps full duplex, half duplex operation * Support Boot On LAN function
Audio	* AC'97 Digital Audio controller integrated * AC'97 Audio CODEC on board * Audio driver and utility included * Support 8 channel Speaker for 3D surround effect
BIOS	* Award 4MBit Flash ROM
Multi I/O	* PS/2 keyboard and PS/2 mouse connectors * Floppy disk drive connector x1 * Parallel port x1 * Serial port x2 * USB2.0 connector x4 * USB2.0 headers x4 (connecting cable option) * Audio connector (Line-in, Line-out, MIC/8-CH 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 Pentium 4 LGA775 3.2G (800Mhz FSB)

DRAM: TwinMOS HY5DU56822CT 512M DDR400 X 2 1Gbyte Memory

VGA Expansion Card: ATI 9800 PRO 128M (1024X768X32BIT Color)

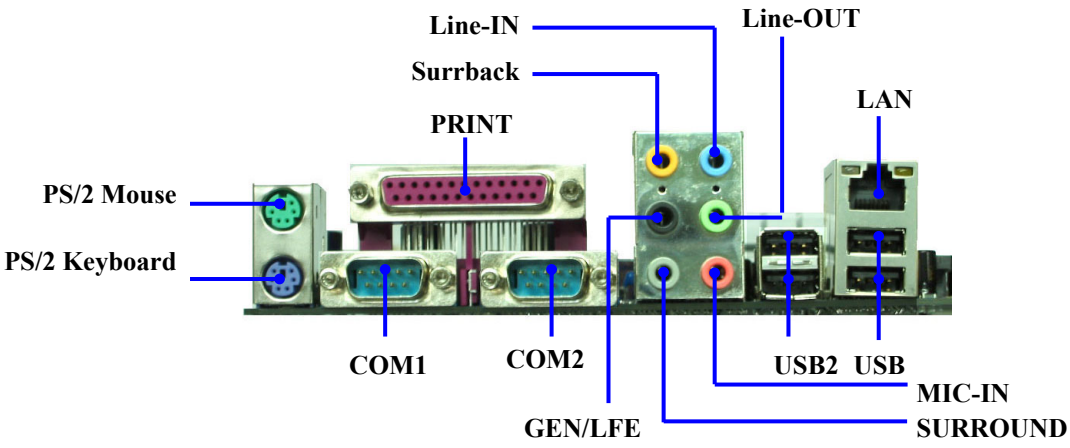
Hard Disk Driver: Maxtor Diamond Max Plus8 (ATA-133 7200RPM)

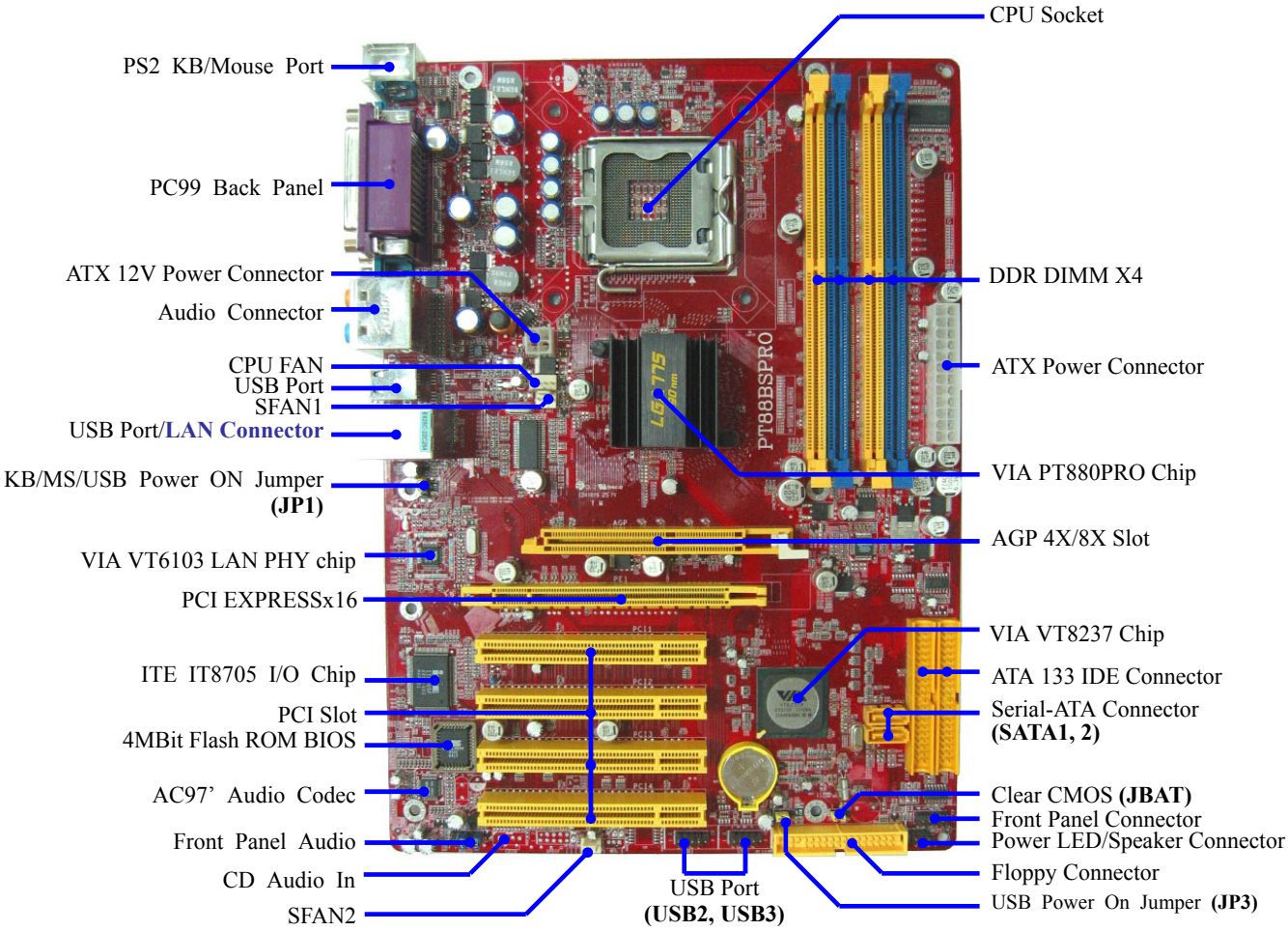
BIOS: Award Optimal default

OS: Windows XP Professional (SERVICE PACK 1)

		200/200
3D Mark 2001SE		17942
3D Mark 2003		5947
AQUAMRK3		43016
PCMark2004		
System / CPU / Memory		4885 / 4889 / 4810
Graph / HDD		4155 / 3847
Content Creation Winstone 2004		29.9
Business Winstone 2004		24.1
Winbench 99 V2.0:		
Business/Hi-end Disk Winmark99		23300 / 53300
Business/Hi-end Graphic Winmark		630 / 1250
SISMark 2004: SISMark Rating(Internet Content Creation / Office Productivity)		
SISMark 2004		183 (209 / 161)
3D Creation / 2D Creation		200 / 258
/ Web publication		177
Communication / Document Creation		130 / 182
/ Data Analysis		178
SISOFT Sandra 2004 : 1.CPU Arithmetic Benchmark 2.Memory bandwidth Benchmark 3.CPU Multi-Media Benchmark		
1.Dhrystone ALU	MIPS	8409
Whetstone FPU iSSE2	FLOPS	3689 / 6722
2.Int/Float Buffered iSSE2	MB/S	4875 / 4892
3.Integer/Floating-Point SSE2	IT/S	22607 / 30379
UT2003 Benchmark (flyby/botmatch)		269.68 / 95.36
Quake3 DEMO1 / DEMO2	FPS	323.8 / 316.9
Return to Castle Wolfenstein	FPS	153.5
Super Pi (1M)	Second	43s
CPUZ System / CPU Clock		200.1 / 3201.4

1-4 Layout Diagram & Jumper Setting





Jumpers

Jumper	Name	Description	Page
JBAT	CMOS RAM Clear	3-pin Block	P.6
JP1	Keyboard/USB Power On Enable/Disabled	3-pin Block	P.7
JP3	USB Power On Enable/Disabled	3-pin Block	P.7

Connectors

Connector	Name	Description	Page
ATXPWR24P	ATX Power Connector	24-pin Block	P.23
ATX12V	ATX 12V Power Connector	4-pin Block	P.23
PS2KBMS1	PS/2 Mouse & PS/2 Keyboard Connector	6-pin Female	P.24
PARALLEL	Parallel Port Connector	25-pin Female	P.24
USB, USB1	USB Port Connector	4-pin Connector	P.24
LAN	LAN Port Connector	RJ-45 Connector	P.24
COM1,COM2	Serial Port COM1,COM2 Connector	9-pin Male Connector	P.24
CN1 (AUDIO)	Audio Connector	6 phone jack	P.24
FDD	Floppy Driver Connector	34-pin Block	P.24
IDE1/IDE2	Primary/Secondary IDE Connector	40-pin Block	P.25
SATA1, SATA2	Serial ATA Port Connector	7-pin Block	P.25

Headers

Header	Name	Description	Page
AUDIO	Line-Out, MIC Header	9-pin Block	P.26
USB2/USB3	USB Port Headers	9-pin Block	P.26
JW 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.26
SPEAK	PC Speaker Connector	4-pin Block	P.26
PWR LED	Power LED	3-pin Block	P.26
CPUFAN	FAN Headers	4-pin Block	P.27
SFAN1, SFAN2	FAN Headers	3-pin Block	P.27
CDIN	CD Audio-In Header	4-pin Block	P.27

Expansion Sockets

Socket/Slot	Name	Description	Page
LGA 775 Socket	CPU Socket	LGA775 CPU Socket	P.8
DIMM1 ~ 4	DDR Module Socket	184-pin DDR Module expansion Socket	P.18
PCI1 ~ PCI4	PCI Slot	32-bit PCI Local Bus Expansion slots	P.19
AGP	AGP 8X Mode Slot	AGP Expansion Slot	P.22
PE1	PCI-Express x16 Slot	PCI-Express x16 Expansion Slot	P.22

Chapter 2

Hardware installation

2-1 Pre-Hardware installation

Before starting to use the computer with the motherboard installed the components on it, please make sure complete the following steps:

1. To verify the jumper settings of your motherboard
2. To install the CPU and Cooling Kits
3. To install the system memory
4. To install the expansion cards
5. To connect with ribbon cables, panel wires, and power supply
6. To setup BIOS
7. To install software driver & utility

2-2 To verify the jumper settings of the motherboard

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

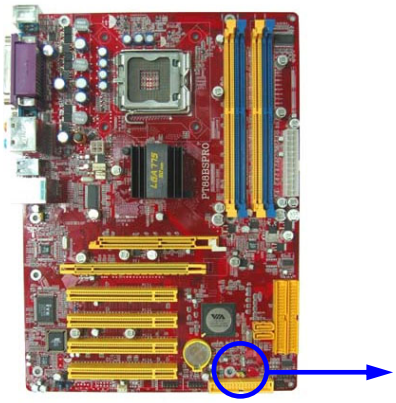
A battery must be used to retain the motherboard configuration in CMOS RAM short 1-2 pins of JBAT to store the CMOS data.

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

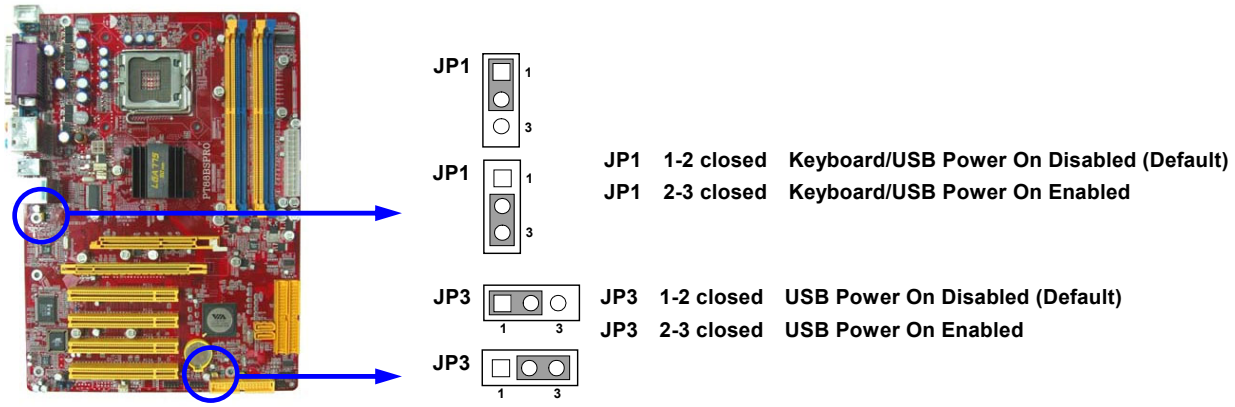


1-2 closed Normal (Default) 2-3 closed Clear CMOS

CMOS RAM Clear Setting

(2) Keyboard/USB Power On function Enabled/Disabled: JP1, JP3

When setting Enabled you can using keyboard by key in password/USB to power on system.



2-3 To install the 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 devises, and adapter cards.
Processor socket - the socket used to mount the system processor on the motherboard.
Slot (AGP, PCI, ISA, RAM DIMMs) - the slots used to mount adapter cards and system RAM.
AGP - **A**ccelerated **G**raphics **P**ort - the high speed interface for video cards which runs at 1X (66MHz), 2X (133MHz), 4X (266MHz), and 8X (533MHz).
PCI - **P**eripheral **C**omponent **I**nterconnect - the high speed interface for video cards, sound cards, network interface cards, and modems which 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 - the low speed interface typically used for mouse and external modems.
Parallel Port - the low speed interface typically used for printers.
PS/2 - the low speed interface used for mouse and keyboards.
USB - **U**niversal **S**erial **B**us - the 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) - **L**ocal **A**rea **N**etwork - the interface links to local area network.
BIOS (**B**asic **I**nput/**O**utput **S**ystem) - the program logic used to boot up a computer and establish the relationship between various components.
Driver - software, which defines the characteristics of a device for use by another device or 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, normally Athlon serial CPU has 256K or above, and Duron has 64K.

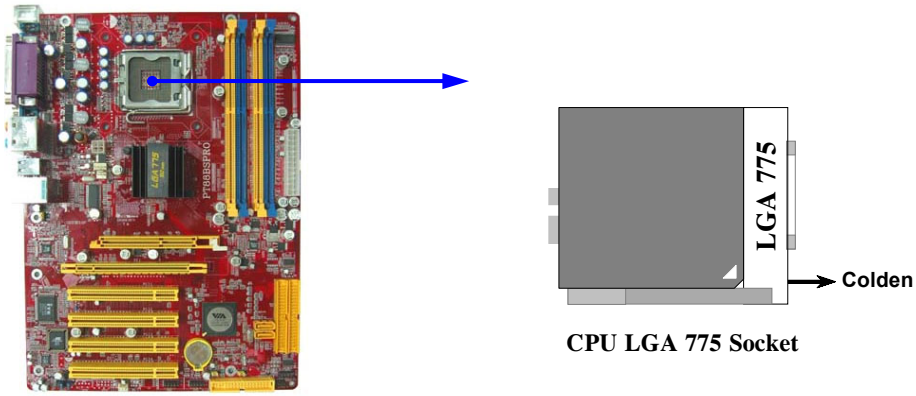
2-3-2 About INTEL PENTIUM 4 775PIN CPU

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-LGA4) 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 heatsink 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.



CPU LGA 775 Socket

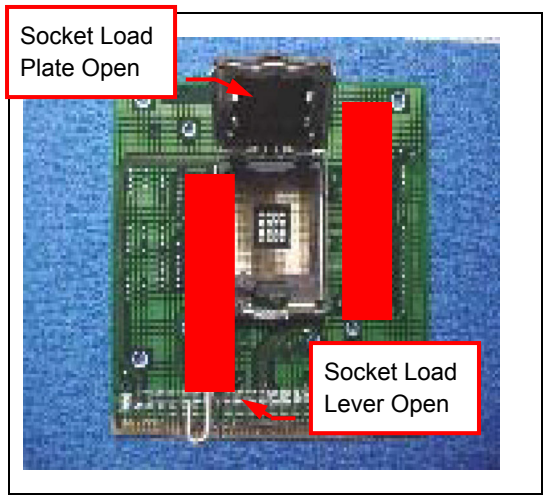
When you put the CPU into the LGA775 socket. No force require to insert of the CPU, then press the level to Locate position slightly without any extra force.

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)



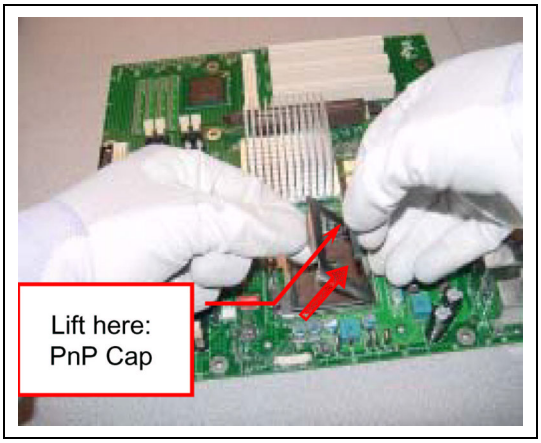
1. Disengage Load Lever by **depressing down** and **out** on the hook to clear retention tab
2. Rotate Load Lever to fully open position at approximately 135degrees
3. Rotate Load Plate to fully open position at approximately 100degrees

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.

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

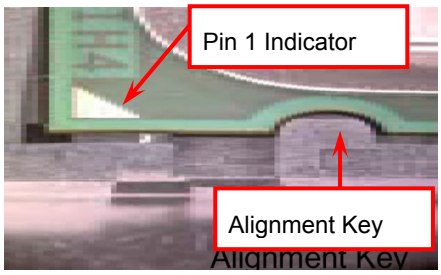
775-land LGA Package Insertion

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

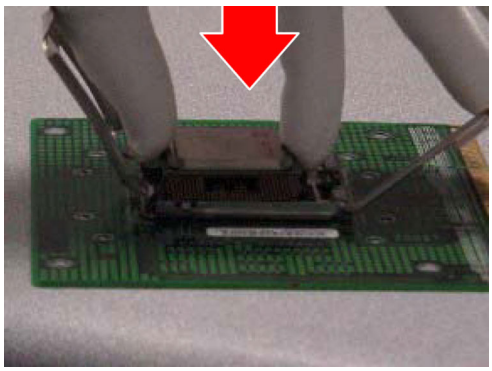
2. Land Side Cover Handling: Remove land side cover with the opposite hand by depressing larger retention tab and peeling the cover away
3. Set and reserve the land side cover aside.

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

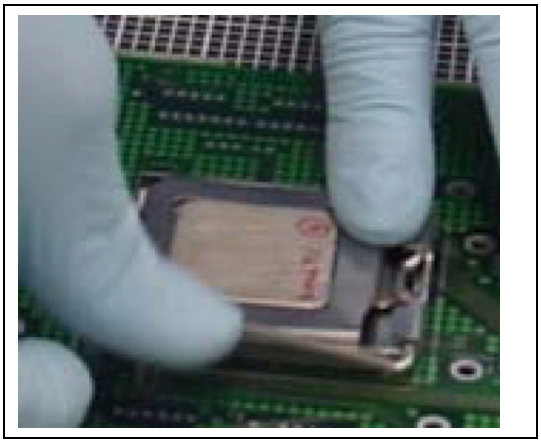


7. Verify that package is within the socket body and properly mated to the orient keys
8. Close the socket by

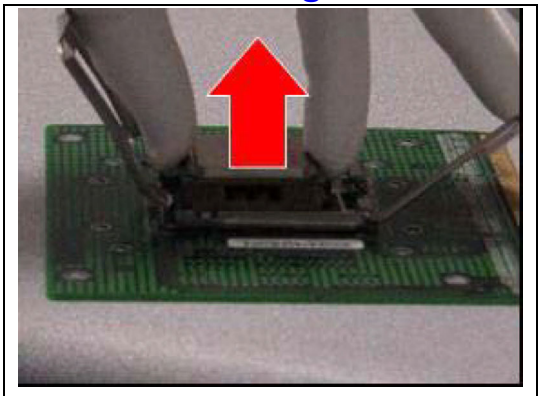
i. Rotating the Load Plate onto the package HIS

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

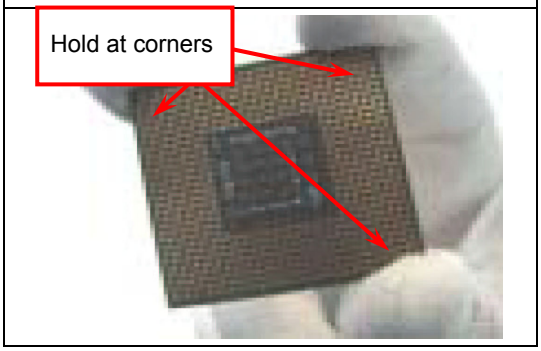


1. Open the Load Plate/Lever with both hands:
   With left hand index finger and thumb to support the load plate edge, engage PnP cap with right hand thumb and peel the cap from LGA775 Socket while pressing on center of PnP cap to assist in removal.
2. Pick up 775-land LGA package:
   By Vacuum Pen: 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

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

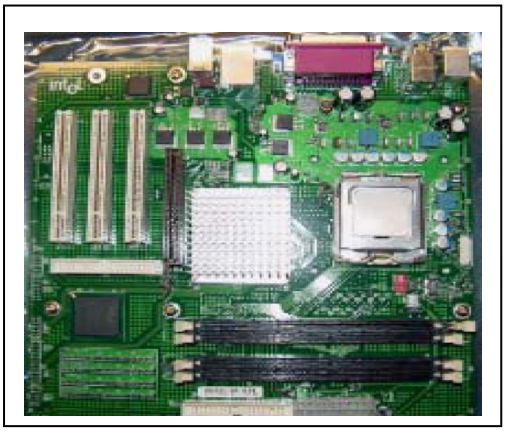
i. Secure/Hook the back side of PnP cap.

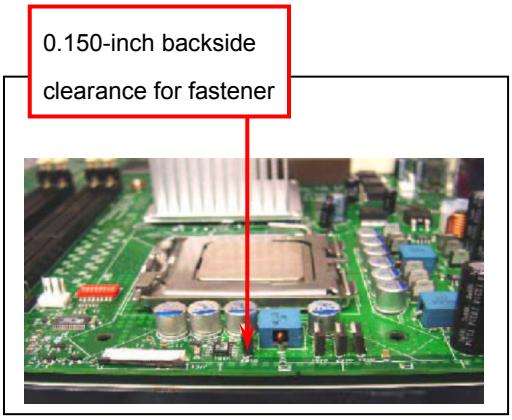
ii. Snap down the front side to fully secure

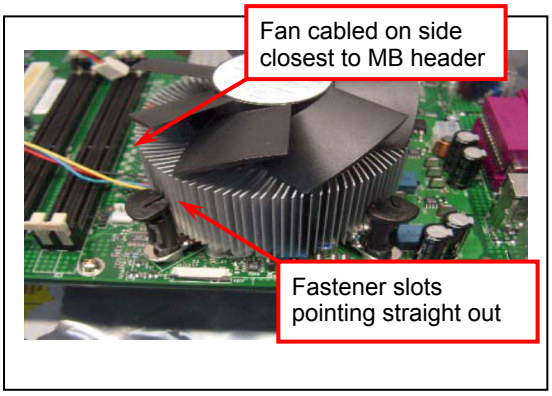
7. Close the Socket

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.

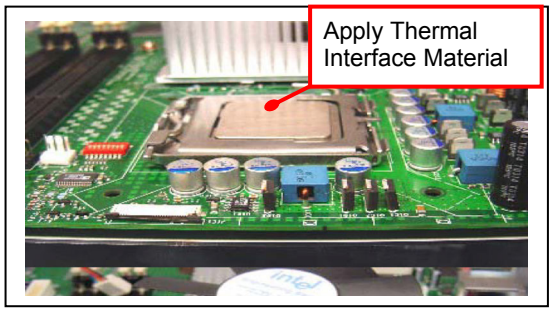






1. Place motherboard on support structure providing minimum 0.150-inch backside clearance

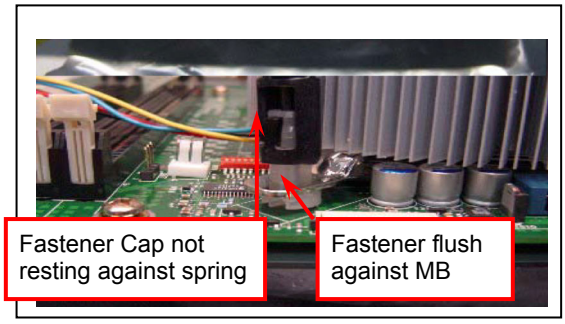
2. Apply 300 mg of Thermal Interface Material (Shin- Etsu G751) onto center of IHS



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

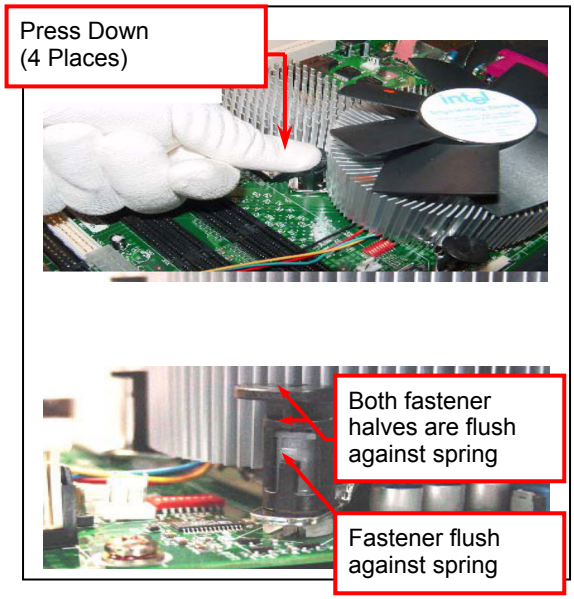
3. Remove Heat Sink (HS) from packaging media
4. Place HS onto the LGA775 Socket

- 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



6. Actuate fasteners

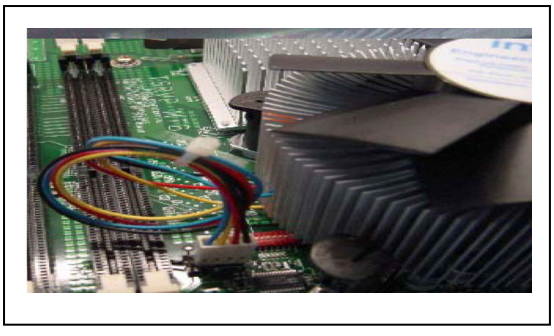
- While holding HS to prevent tilting, press down on fastener caps with thumb to install and lock

Repeat with remaining fasteners

7. Inspection

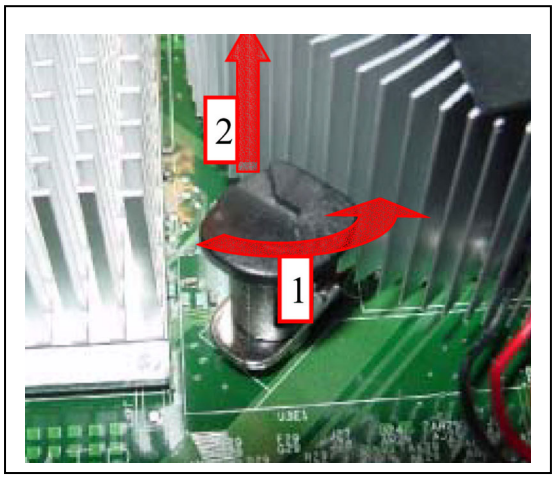
- Verify the fasteners are properly seated
- Ensure both fastener cap and base are flush with spring and motherboard

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.

Intel Reference Thermal Solution Disassembly



1. Rotate fastener cap. turn to un-lock
2. Pull up fastener cap to un-seat 12

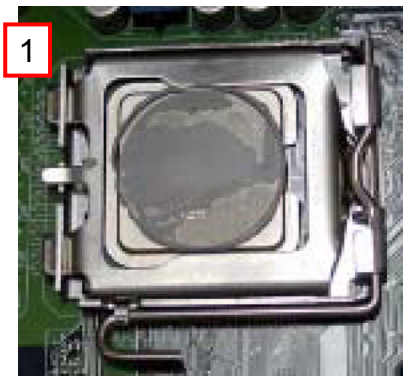
1. Disconnect fan cable from motherboard header
2. Turn fastener caps (4) counter-clock wise 90degrees to the un-locked position

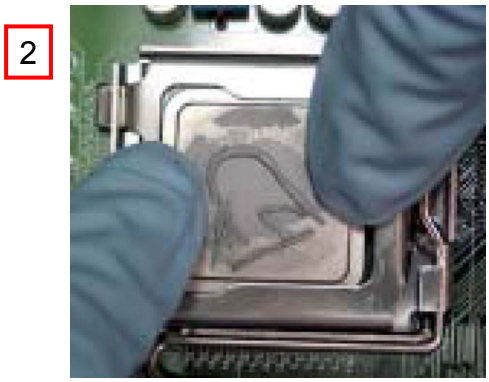
- A flat-bladed screwdriver may be used if required

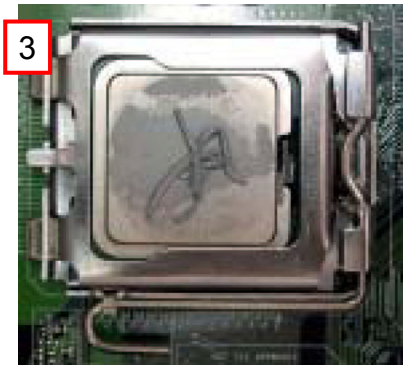
3. Pull up on fastener caps to unseat
4. Manually remove HS with gentle twist motion.
5. To re-assemble the HS, reset the fastener caps to their original position with the slot perpendicular to the HS. Then, follow the assembly instructions.

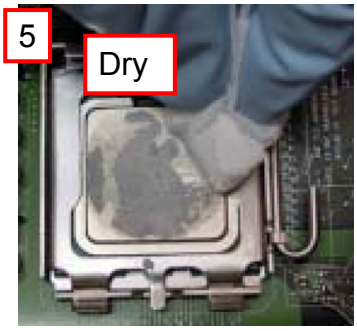
Note: Thermal grease should be reapplied

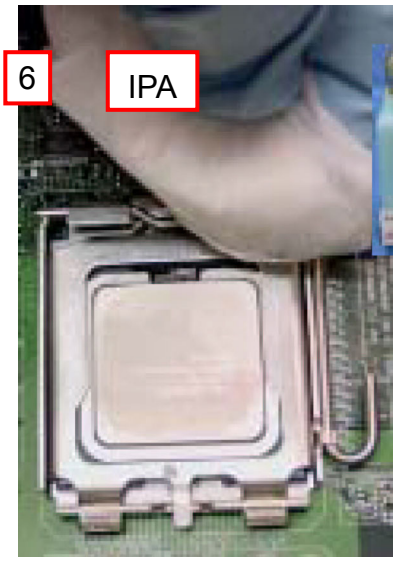
TIM and Grease Removal from CPU









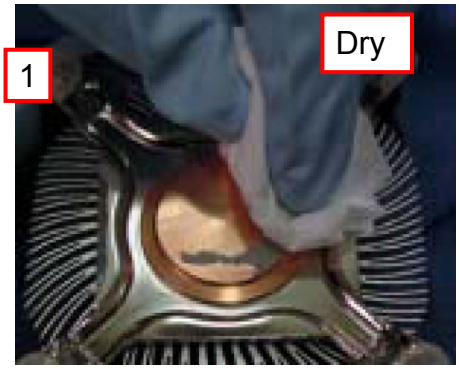


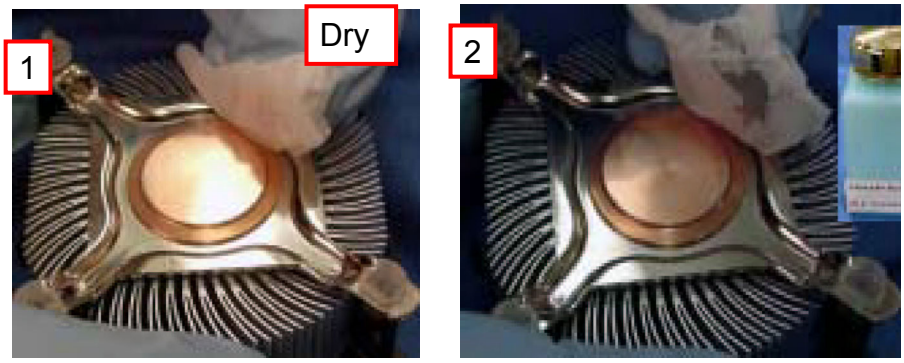
1. Remove the heatsink from the socket
2. Gently push loose thermal interface material (TIM) to center of processor (pictures 2 and 3)
3. Remove pieces with dry cloth (picture 4)
4. Wipe with dry, lint-free cloth to remove most of the material (picture 5)
5. Wet another lint-free cloth with isopropyl 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





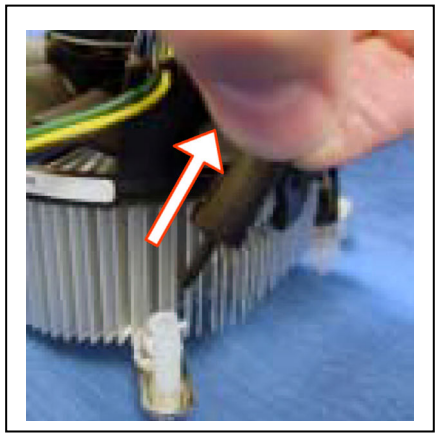
Replacing Damaged Fasteners

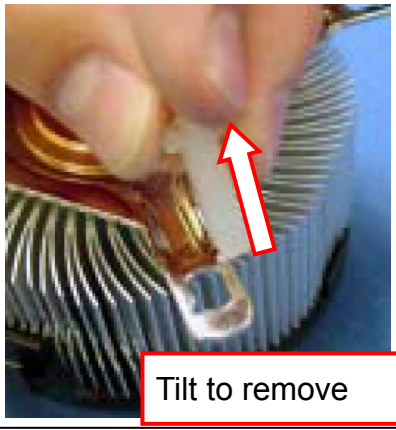
- To prevent damage, avoid setting the thermal solution with the prongs down
  - Set on heatsink side or with fan down
- The plastic fasteners on the heatsink can be replaced.
  - Use Shop Intel to order spare fasteners
  - http://www.shop-intel.com
- To remove a damaged fastener

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

Damaged. Attempts to straighten not recommended



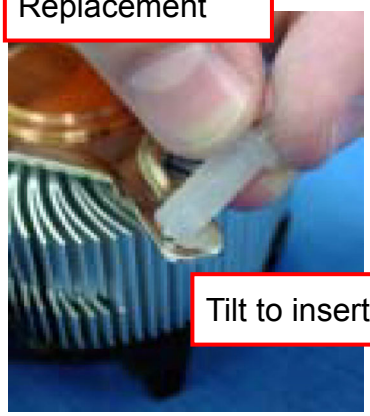


Tilt to remove

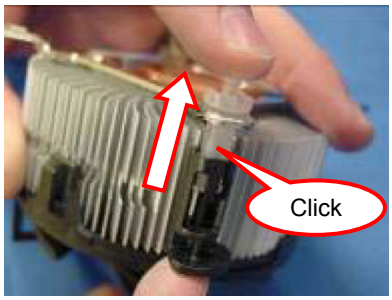
Replacing Fasteners

- 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”

Replacement



Tilt to insert



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 heatsink

2-4 To install the system memory

This motherboard provides four 184-pin DDR DUAL INLINE MEMORY MODULES (DIMM) sites for DDR memory expansion available from minimum memory size of 128MB to maximum memory size of 4.0GB DDR SDRAM.

Valid Memory Configurations

Bank	184-Pin DIMM	PCS	Total Memory
Bank 0, 1 (DIMM1)	DDRDDR266/DDR333/DDR400 DDR SDRAM Module	X1	128MB~1.0GB
Bank 2, 3 (DIMM2)	DDRDDR266/DDR333/DDR400 DDR SDRAM Module	X1	128MB~1.0GB
Bank 4, 5 (DIMM3)	DDRDDR266/DDR333/DDR400 DDR SDRAM Module	X1	128MB~1.0GB
Bank 6,7 (DIMM4)	DDRDDR266/DDR333/DDR400 DDR SDRAM Module	X1	128MB~1.0GB
Total	System Memory (Max. 4.0GB)	4	128MB~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.

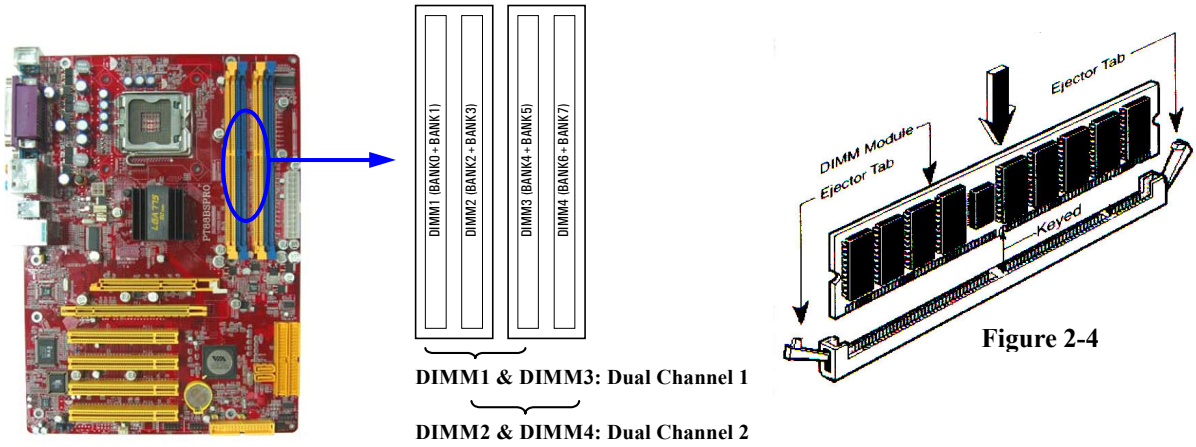


Figure 2-4

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 indention 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.

2-5 To install the 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. To read documentations or manuals for your expansion cards and make any necessary hardware or software settings for your expansion card such as jumpers.
2. To remove your computer's cover and the bracket plate on the slot you intend to use.
3. To align the card's connectors and press firmly.
4. To secure the card on the slot with the screen you remove above.
5. To replace the computer system's cover.
6. To set up the BIOS if it's necessary.
7. To install the necessary software drivers for your expansion cards.

2-5-2 Assigning IRQs For Expansion Card

Some expansion cards need to assign an IRQ address to operate. Generally speaking, an IRQ address must exclusively assign to one use only. With standard factory design, there are 16 IRQs available, but most of them are already 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.

2-5-3 Interrupt Request Table For This Motherboard

IMPORTANT! While 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 that will make the system unstable or cards inoperable.

Interrupt request are shared as shown the table below:

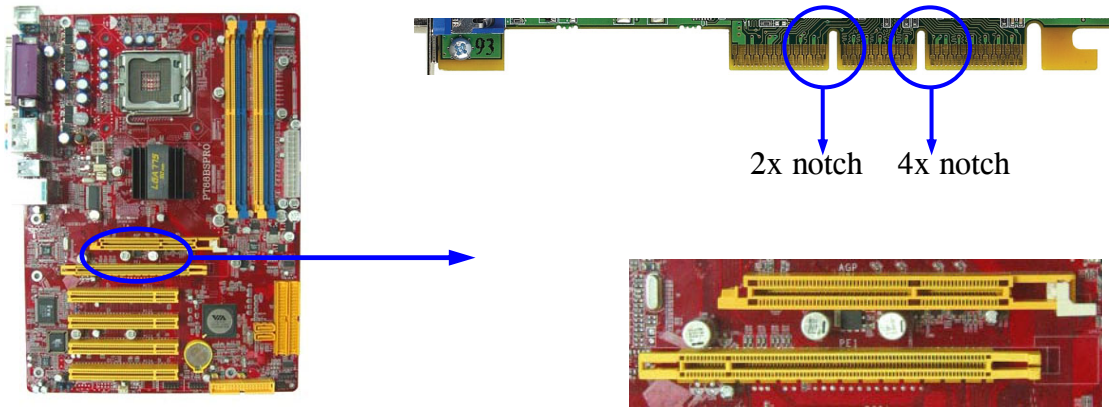
	INT A	INT B	INT C	INT D	INT E	INT F	INT G	INT H
Slot 1		√						
Slot 2			√					
Slot 3				√				
Slot 4						√		
Onboard LAN					√			
Onboard USB 1								√
Onboard USB 2				√				
Onboard USB 3			√					
Sound		√						

2-5-4 AGP Slot/ PCI Express Slot

This motherboard provides both AGP Slot and PCI-Express Slot, support the 4X/8X AGP VGA card and PCI-Express x16 VGA card.

Recommend use PCI Express x16 Display Card List

No	Chipset	Brand Name	Model Name
1	NVIDIA GeForce PCX5300	Gigabyte	GV-NX53128D
2	NVIDIA GeForce PCX5750	Gigabyte	GV-NX57128D
3	NVIDIA GeForce PCX5900	nVIDIA	NV5900
4	NVIDIA GeForce 6200TC	JETWAY	6200TC
5	NVIDIA GeForce 6200	JETWAY	NV6200
6	NVIDIA GeForce 6600	JETWAY	NV6600
7	NVIDIA GeForce 6600GT	JETWAY	NV6600GT
8	NVIDIA GeForce 6800GT	nVIDIA	NV6800GT
9	ATI Radeon X600 XT	JETWAY	X600XT
10	ATI Radeon X600 PRO	JETWAY	600PRO
11	ATI Radeon X600 PRO	ASUS	EAX600PRO
12	ATI Radeon X700	ASUS	EAX700
13	ATI Radeon X800 XT	Gigabyte	GV-RX80T256V
14	ATI Radeon X800 XL	Gigabyte	GV-RX80L256V
15	ATI Radeon X850 XT	ATI	X850XT
16	ATI Radeon X850 XT	ASUS	EAX850XT



2-6 Connectors and pin headers

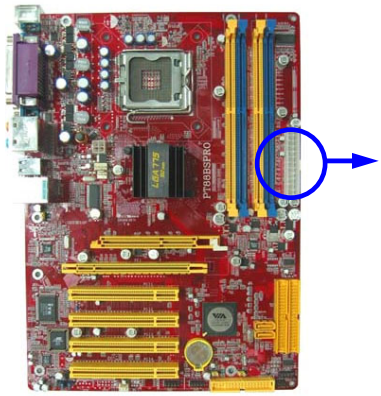
2-6-1 Connectors

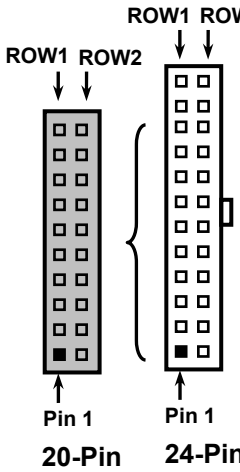
(1) Power Connector (24-pin block) : ATXPWR24P

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

** 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.

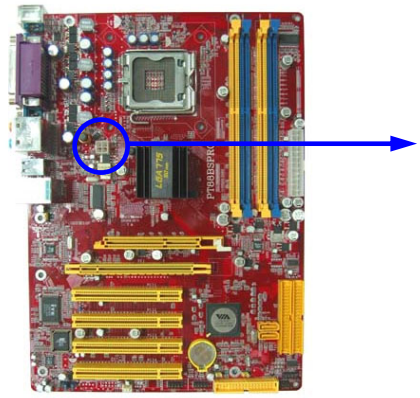




PIN	ROW1	ROW2
1	3.3V	3.3V
2	3.3V	-12V
3	GND	GND
4	5V	Soft Power On
5	GND	GND
6	5V	GND
7	GND	GND
8	Power OK	-5V
9	+5V (for Soft Logic)	+5V
10	+12V	+5V
11	+12V	+5V
12	+3V	GND

(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.



(3) PS/2 Mouse & PS/2 Keyboard Connector: PS2KBMS1

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

(4) USB Port connector: USB, USB1

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

(6) Parallel Port connector (25-pin D-sub connector): PARALLEL

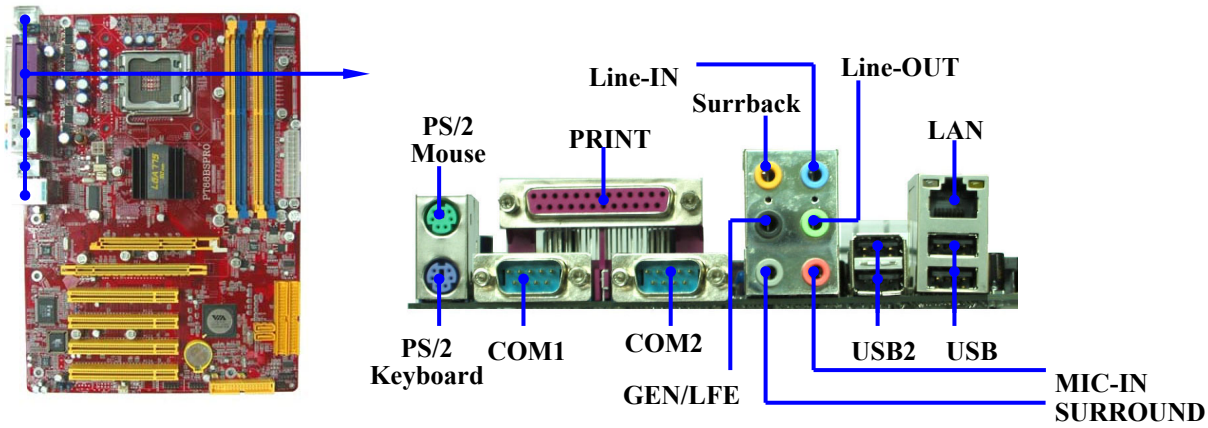
(7) Serial Port connector: COM1, COM2

The connectors is 9-pin Male connector that connect serial devices to the system board.

(8) Audio Line-In, Lin-Out, MIC, Surrback, Surround, CEN/LEF Connector : CN1(Audio)

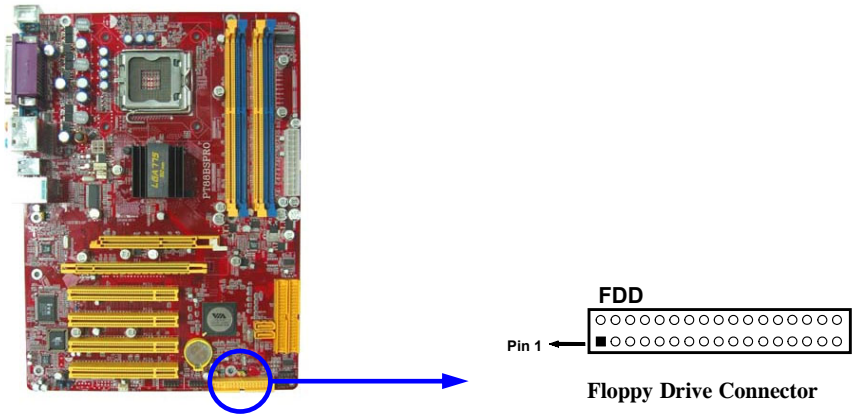
This Connector are 6 phone Jack for LINE-OUT, LINE-IN, MIC, Surrback, Surround, CEN/LEF

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



(9) 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.

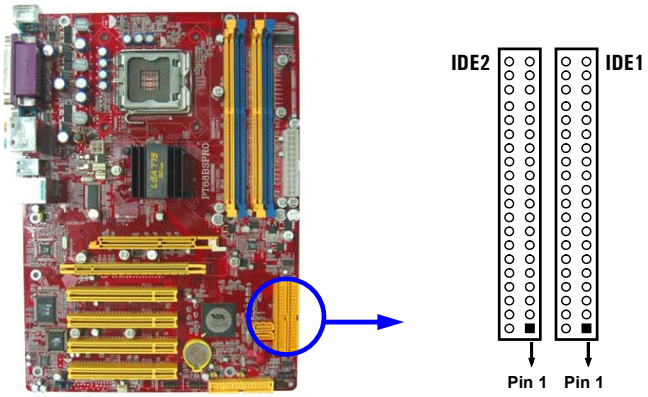


(10) Primary IDE Connector (40-pin block): IDE1

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.

(11) Secondary IDE Connector (40-pin block): IDE2

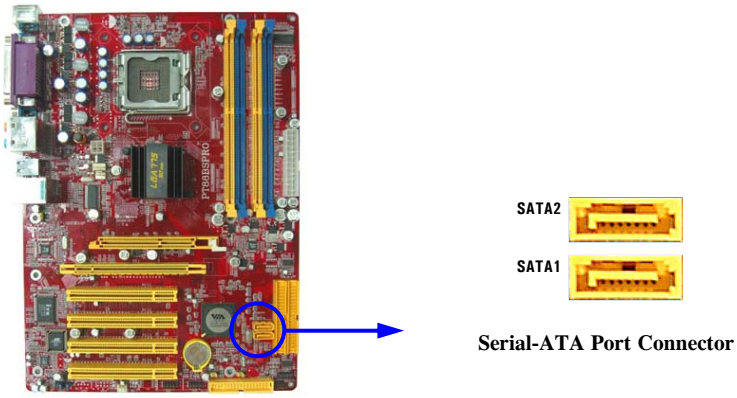
This connector connects to the next set of Master and Slave hard disks. Follow the same procedure described for the primary IDE connector. You may also configure two hard disks to be both Masters using one ribbon cable on the primary IDE connector and another ribbon cable on the secondary IDE connector.



- 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.

(12) Serial-ATA Port connector: SATA1/SATA2

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

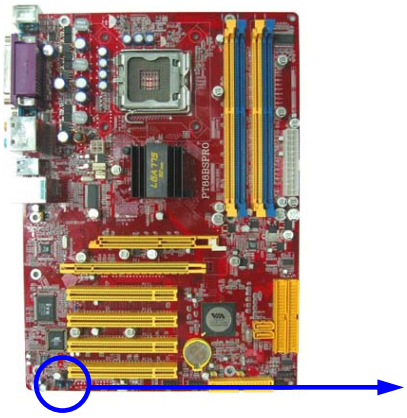


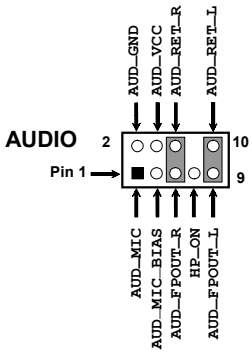
Serial-ATA Port Connector

2-6-2 Pin headers

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

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

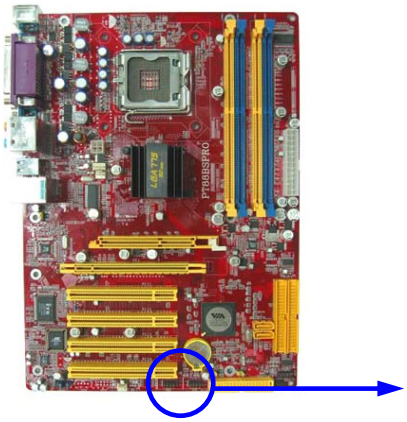


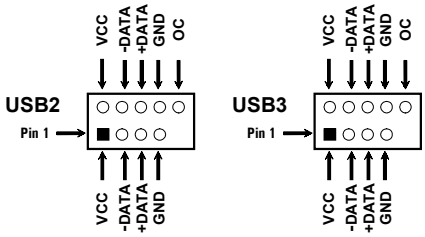


Line-Out, MIC Headers

(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) 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 lift of the system's power supply. See the figure below.

(4) IDE Activity LED: HD LED

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

(5) Power switch: PWR BTN

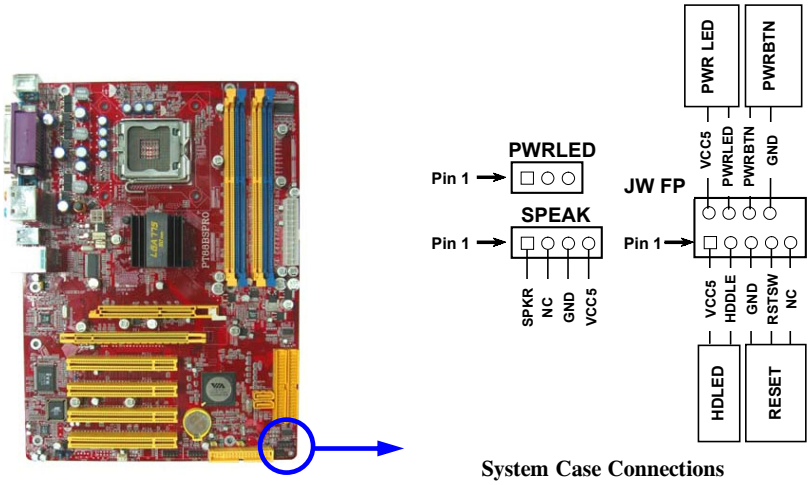
This 2-pin connector connects to the case-mounted power switch to power ON/OFF the system.

(6) Speaker connector: SPEAK

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

(7) Power LED: PWR LED

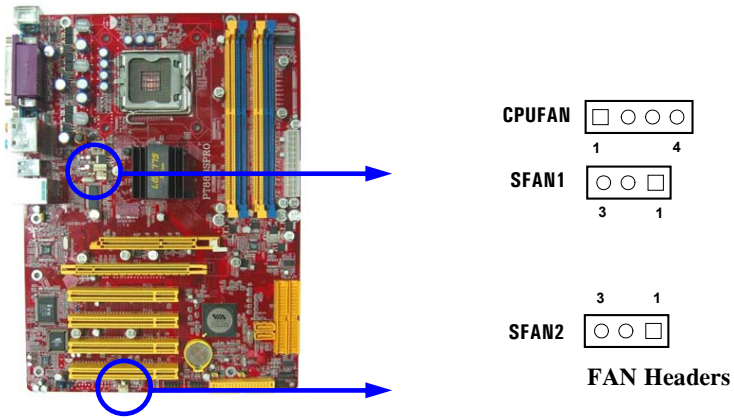
The Power LED is light on while the system power is on. Connect the Power LED from the system case to this pin.



System Case Connections

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

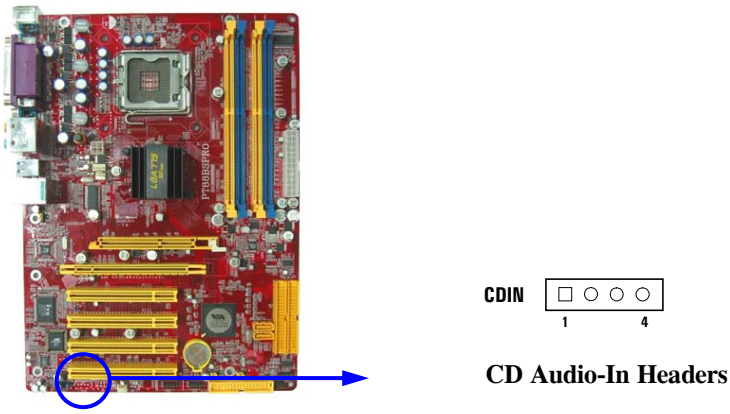
These connectors support cooling fans of 350mA (4.2 Watts) or less, depending on the fan manufacturer, the wire and plug may be different. The red wire should be positive, while the black should be ground. Connect the fan's plug to the board taking into consideration the polarity of connector.



FAN Headers

(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

2-7 Starting up your computer

1. After all connection are ready, close your computer case cover.
2. Be sure all the switches 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 peripherals as following order:
   a. Your monitor.
   b. Other external peripherals (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.

Chapter 3

Introducing BIOS Settings

The BIOS is a program located on a Flash Memory of the motherboard. Using this program as a bridge between motherboard and operating system. When the computer starting to work, the BIOS program 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 BIOS Setup. If the message disappears before your respond and you still wish to enter BIOS 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>.

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.

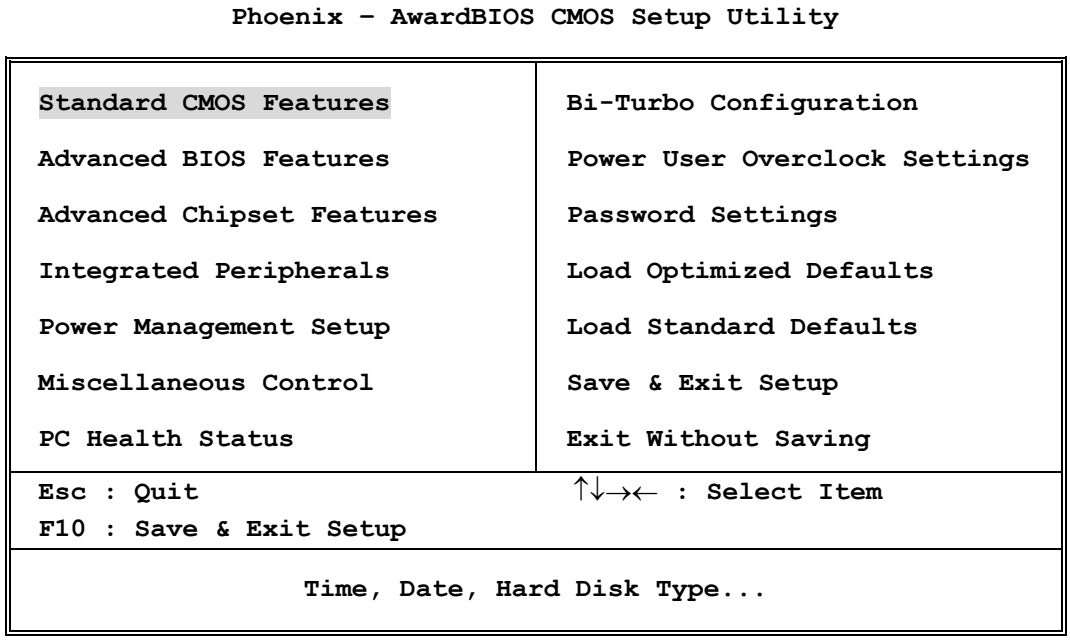


Figure 3-1

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.

Miscellaneous Control

Use this menu to specify your settings for Miscellaneous control.

PC Health Status

This entry shows your PC health status.

Bi-Turbo Configuration

This entry appears if your system supports BiTurbo Configurations.

Power User Overclock Settings

Use this menu to specify your settings (frequency, Voltage) for overclocking demand

Password Settings

This entry for setting Supervisor password and User password

Load Optimized Defaults

Use this menu to load the BIOS default values these are setting for optimal performances system operations for performance use.

Load Standard Defaults

Use this menu to load the BIOS default values for the stable performance system operation that are factory settings for normal use.

Save & Exit Setup

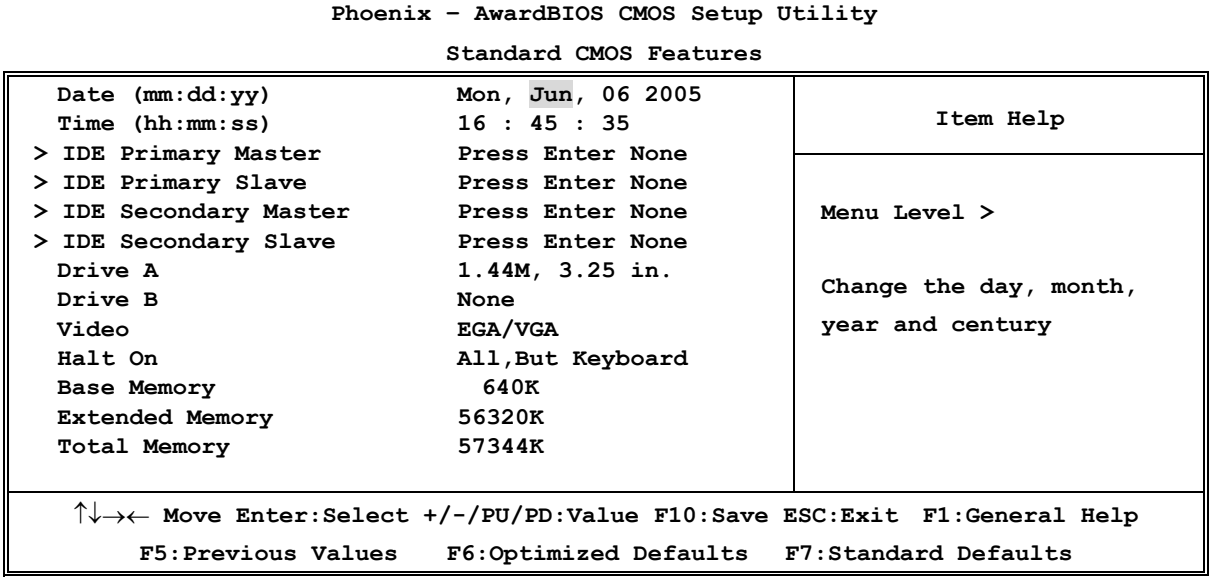
Save CMOS value changes to CMOS and exit setup.

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.



Date

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

Day	Day of the week, from Sun to Sat, determined by BIOS. Read-only.
Month	The month from Jan. through Dec.
Date	The date from 1 to 31 can be keyed by numeric function keys.
Year	The year depends on the year of the BIOS.

Time

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

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 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
```

Anti-Virus Protection	Disabled	Item Help
Limit CPUID MaxVal	Disabled	
C1E Function	Auto	
> HardDisk Boot Priority	Press Enter	
CPU L1 & L2 Cache	Enabled	Menu Level >
Hyper-Threading Technology	Enabled	
CPU L2 Cache ECC Checking	Disabled	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	Hard Disk	
Third Boot Device	CDROM	
Boot other Device	Enabled	
Boot Up Floppy Seek	Enabled	
Boot Up NumLock Status	On	
Typematic Rate Setting	Disabled	
x Typematic Rate (Chars/Sec)	6	
x Typematic Delay (Msec)	250	
Security Option	Setup	
MPS Version Control For OS	1.4	
OS Select for DRAM > 64MB	Non-OS2	
Report No FDD For Windows	Yes	
Video BIOS Shadow	Enabled	

```
↑↓→← 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.

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

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

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.

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)

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 is 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.

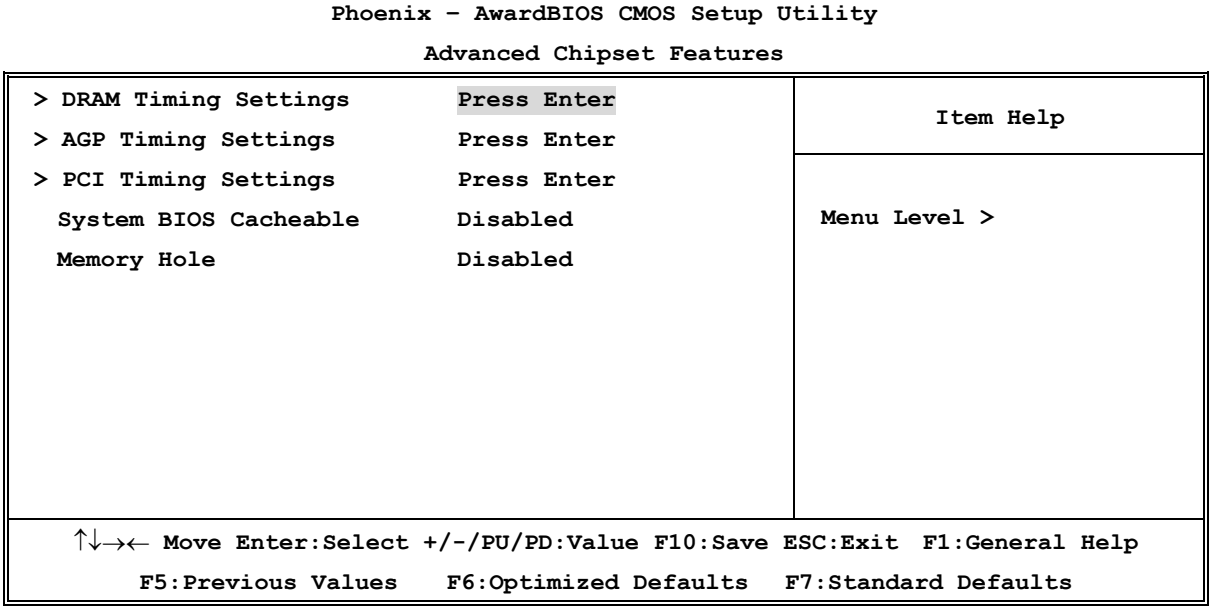
System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
Setup (default)	The system will boot, but access to Setup will be denied if the correct password is not entered prompt.

OS Select For DRAM > 64MB

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

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.



DRAM Timing Control

Please refer to section 3-6-1

AGP Timing Control

Please refer to section 3-6-2

PCI Timing Settings

Please refer to section 3-6-3

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.

Memory Hole

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.

3-6-1 DRAM Timing Settings

```
                    Phoenix – AwardBIOS CMOS Setup Utility
                              DRAM Timing Setting
```

	Auto Configuration	By SPD	Item Help
x	RAS Active Time	8T	
x	RAS to CAS Delay	3T	Menu Level >>
x	RAS Percharge Time	3T	
x	DRAM CAS Latency Time	2.5	
x	Bank Interleave	Disabled	
	DRAM Command Rate	2T Command	

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

RAS Active Time

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 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, 3T and 4T.

DRAM 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.

3-6-2 AGP Timing Settings

```
                    Phoenix – AwardBIOS CMOS Setup Utility
                              AGP Timing Settings
```

	AGP Aperture Size	128M	Item Help
	AGP 3.0 Mode	8X	
	AGP Driving Control	Auto	Menu Level >>
*	AGP Driving Value	DA	
	AGP Fast Write	Disabled	
	AGP 3.0 Calibration cycle	Enabled	
	DBI Output for AGP Trans.	Disabled	
	AGP Master 1 WS Write	Enabled	
	AGP Master 1 WS Read	Enabled	
	DBI Output for Frame Trans.	Disabled	
	** PCI Express relative items **		
	Maximum Payload Size	4096	

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

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

3-6-3 PCI Timing Settings

```
Phoenix – AwardBIOS CMOS Setup Utility
PCI Timing Settings
```

PCI Master 0 WS Write	Enabled	Item Help
PCI Delay Transaction	Enabled	
Vlink Mode Selection	By Auto	Menu Level >>
Vlink 8X Support	Enabled	

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

PCI 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.

3-7 Integrated Peripherals

```
Phoenix – AwardBIOS CMOS Setup Utility
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	

↑↓→← 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.

3-7-1 Onboard IDE Function

```
                    Phoenix – AwardBIOS CMOS Setup Utility
                              Onboard IDE Function
```

OnChip SATA	Enabled	Item Help
OnChip IDE Channel0	Enabled	
Primary Master PIO	Auto	Menu Level >>
Primary Slave PIO	Auto	
Primary Master UDMA	Auto	
Primary Slave UDMA	Auto	
OnChip IDE Channel1	Enabled	
Secondary Master PIO	Auto	
Secondary Slave PIO	Auto	
Secondary Master UDMA	Auto	
Secondary Slave UDMA	Auto	
IDE DMA Prefetch Access	Enabled	
IDE Prefetch Mode	Enabled	
IDE HDD Block Mode	Enabled	

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

OnChip IDE Channal0/Channel1

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.

3-7-2 Onboard Device Function

```
Phoenix – AwardBIOS CMOS Setup Utility
Onboard Device Function
```

Onboard VIA Device	Enabled	Item Help
Onboard LAN Boot ROM	Disabled	
VIA LAN BootROM Boot Option	Hook INT18	Menu Level >>
VIA LAN BootROM PXERPL Option	PXE	
Current VIA MAC Address is	003018-814E0D	
VIA MAC Address Input	Press Enter	
AC97 Audio Device	Auto	
USB Host Controller	All Enabled	
USB 2.0 Controller	Enabled	
USB Keyboard Legacy Support	OFF	
x USB Keyboard Legacy Support	Disabled	
x USB Mouse 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
```

AC97 Audio Device

This item allows you to decide to enable/disable the chipset family to support AC97 Audio. The settings are: Enabled, Disabled.

USB Host 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.

3-7-3 Onboard Super IO Function

```
Phoenix – AwardBIOS CMOS Setup Utility
Onboard Super IO Function
```

Onboard FDC Controller	Enabled	Item Help
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	Menu Level >>
UART Mode Select	Normal	
x UR2 Duplex Mode	Half	
Onboard Parallel Port	378/IRQ7	
Parallel Mode	SPP	
x 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 FDC 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.

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
  ACPI Suspend Type             S1(POS)          |
  Power Management Option       User Define      |
  HDD Power Down                Disabled         |  Menu Level >
  Suspend Mode                  Disabled         |
  Video Off Option              Suspend -> off   |
  Video off Method              V/H SYNC+Blank   |
  MODEM Use IRQ                 3                |
  Power Button Function         Instant-Off      |
  PWRON After Power Failure     Always-Off       |
  CPU Thermal Management Timer  32 Min           |
> IRQ/Event Activity Detect     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.

Video Off Option

This determines the manner in which the monitor is blanked. The choice are Suspend (off, All Modes (Off, and 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.

IRQ/Event Activity Detect

Please refer to section 3-8-1

3-8-1 IRQ/Event Activity Detect

```
Phoenix – AwardBIOS CMOS Setup Utility
IRQ/Event Activity Detect
```

VGA	OFF	Item Help
LPT & COM	LPT/COM	
HDD & FDD	ON	Menu Level >>
PCI Master	OFF	
PS2KB Wakeup Select	Hot key	
PS2KB Wakeup from S3/S4/S5	Disabled	
Wake-Up on GPI	Disabled	
Wake-Up on PCI Card	Disabled	
Modem Ring Resume	Disabled	
RTC Alarm Resume	Disabled	
x Date of Month Alarm	0	
x Time (hh:mm:ss)	0 : 0 : 0	
> IRQs Activity Monitoring	Press Enter	

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

Modem Ring Resume

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.

RTC Alarm Resume

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.

IRQs Activity Monitoring

Please refer to section 3-8-1.1

3-8-1.1 IRQs Activity Monitoring

```
Phoenix – AwardBIOS CMOS Setup Utility
IRQs Activity Monitoring
```

Primary INTR	ON	Item Help
IRQ3 (COM 2)	Enabled	
IRQ4 (COM 1)	Enabled	Menu Level >>>
IRQ5 (LPT 2)	Enabled	
IRQ6 (Floppy Disk)	Enabled	
IRQ7 (LPT 1)	Enabled	
IRQ8 (RTC Alarm)	Disabled	
IRQ9 (IRQ2 Redir)	Disabled	
IRQ10 (Reserved)	Disabled	
IRQ11 (Reserved)	Disabled	
IRQ12 (PS/2 Mouse)	Enabled	
IRQ13 (Coprocessor)	Disabled	
IRQ14 (Hard Disk)	Enabled	
IRQ15 (Reserved)	Disabled	

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

3-9 Miscellaneous Control

This section is for setting CPU Frequency/Voltage Control.

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                            Miscellaneous Control

  Spread Spectrum                  Disabled          |      Item Help
  Auto Detect PCI Clk              Enabled           |
  Flash Part Write Protect         Enabled           | Menu Level >

> IRQ Resources                    Press Enter
  PCI/VGA Palette Snoop            Disabled

 ↑↓→← 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 Clock

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

Spread Spectrum

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

The settings are: Enabled, Disabled.

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

3-9-1 IRQ Resources

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                               IRQ Resources

   IRQ-3   assigned to           PCI Device      |      Item Help
   IRQ-4   assigned to           PCI Device      |
   IRQ-5   assigned to           PCI Device      | Menu Level >>
   IRQ-7   assigned to           PCI Device
   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
```

3-10 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.

```
                    Phoenix – AwardBIOS CMOS Setup Utility
                              PC Health Status
```

Show PC Health in Post	Enabled	Item Help
Current CPU Temperature	70°C/158°F	
Current SYS Temperature	30°C/ 86°F	Menu Level >
Current CPUFAN Speed	0 RPM	
Current SYSFAN Speed	4687 RPM	
Current SYSFAN1 Speed	0 RPM	
Vcore	1.35V	
VDIMM	2.54V	
VCC3.3	3.20V	
+5V	5.16V	
+12V	12.04V	
3.3VSB(V)	3.19V	
VBAT	1.89V	
5VSB(V)	5.27V	

```
↑↓→← 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 Temperature/Current FAN1, FAN2 Speed/ Vcore/3.3V/+5V/+12V/-12V/VBAT(V)/5VSB(V)
This will show the CPU/FAN/System voltage chart and FAN Speed.

3-11 Bi-Turbo Configuration

```
                    Phoenix – AwardBIOS CMOS Setup Utility
                              BiTurbo Configurations
```

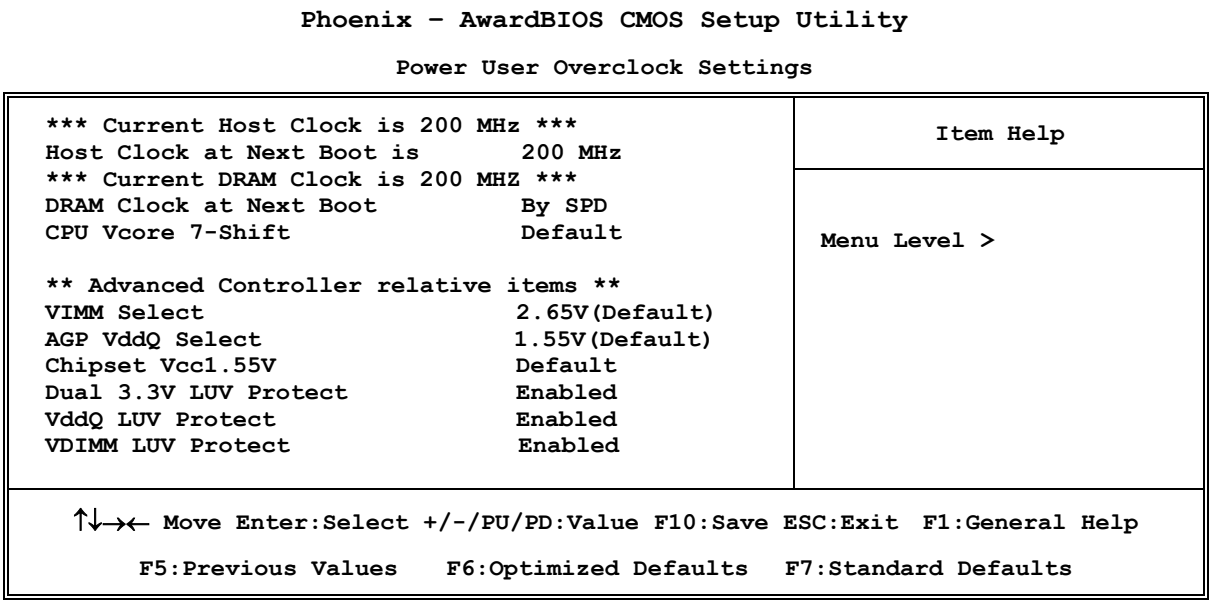
CPU Thermal-Throttling	Disabled	Item Help
x CPU Thermal-Throttling Temp	70	
x CPU Thermal-Throttling Duty	50.00%	Menu Level >
x CPU Thermal-Throttling Beep	Enabled	

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

CPU Thermal Throttling Temp

This item allows you to activate the CPU Thermal Throttling function when the CPU temperature is over the value which you set to low down the CPU temperature when at high workload to protect processor from damage or accidental shutdown.

3-12 Power User Overclock Settings



CPU/DRAM Clock at next Boot is

This item allows you change the CPU Host /DRAM clock for overclock demand. *When the CPU Host clock is over the CPU default value BIOS will auto disabled Bi-Turbo function*.

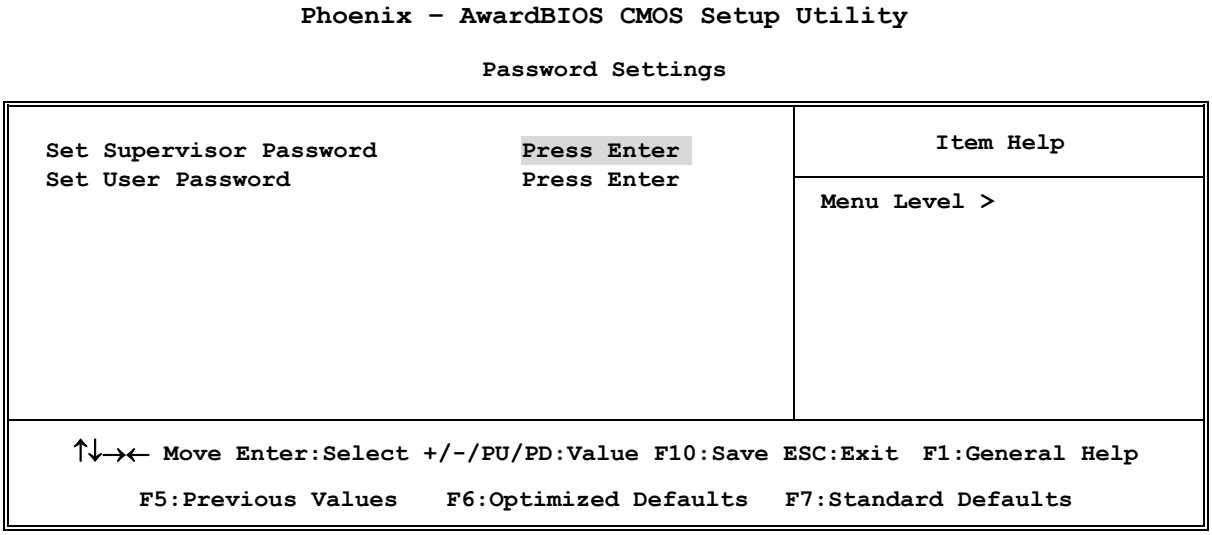
CPU Vcore 7-Shift

This item allows you select the CPU Vcore Voltage xx% more than the standard value, by this function for the precise over-clocking for extra demanding of performance.

VDIMM Select

This item allows you to select 2.5V of the DDR Module. The choice are: 2.55V, 2.6V, 2.65V, 2.7V.

3-13 Password Settings



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.

3-14 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.

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 9X/NT/2K/XP

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 10 selections:

1. VIA 4 IN 1 install VIA Service Pack 4 IN 1 driver
2. SOUND install AC97 Audio Codec Installing driver
3. LAN install VIA LAN Controller driver
4. USB2.0 install USB 2.0 driver
5. SATA install VIA Serial ATA driver
6. DIRECTX9 install Microsoft DirectX 9 driver
7. PC-CILLIN install PC-CILLIN2005 anti-virus program
8. PC-HEALTH install ITE Smart Guardian Utility
9. BROWSE CD to browse the contents of the CD
10. EXIT to exit from MAGIC INSTALL menu

4-1 VIA 4IN1 Install VIA Service Pack 4 IN 1 Driver

*** The path of the file is X:\VIA\DRIVER\SETUP.EXE**

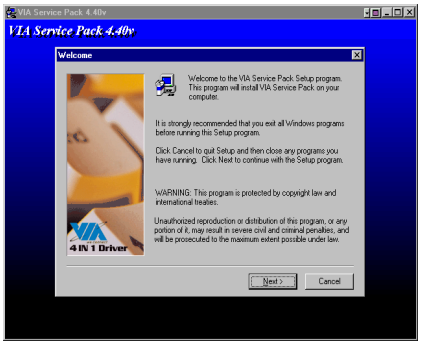
IDE : VIA ATAPI VENDOR SUPPORT DRIVER IS USED TO FIXED COMPATIBILITY ISSUE FOR IDE DEVICES

AGPVXD : VIA AGPVXD DRIVER IS TO BE INSTALLED, IF YOU ARE USING AN AGP VGA CARD, VIAGART.VXD WILL PROVIDE SERVICE ROUTINES TO YOUR VGA DRIVER AND INTERFACE DIRECTLY TO HARDWARE, PROVIDING FAST GRAPHIC ACCESS

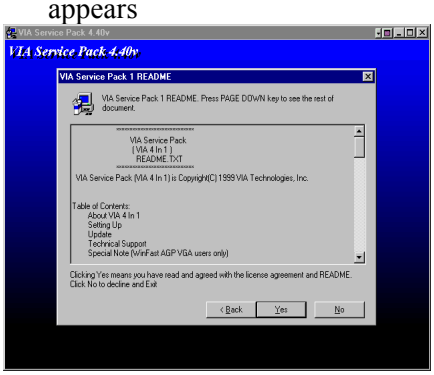
IRQ ROUTING : VIA PCI IRQ MINIPORT DRIVER IS TO BE INSTALLED UNDER WIN98 ONLY, IT WILL FIX PCI IRQ ROUTING SEQUENCE

INF : VIA REGISTRY DRIVER IS TO BE INSTALLED UNDER WINDOWS THE DRIVER WILL ENABLE VIA POWER MANAGERMENT CONTROLLER

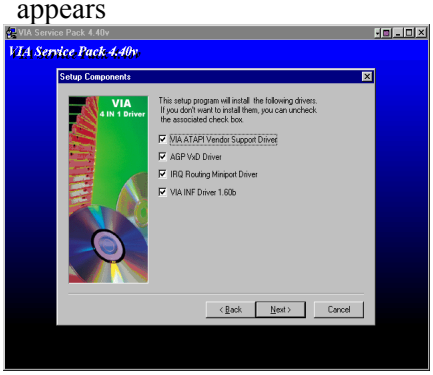
1. Click IDE when MAGIC INSTALL MENU appears



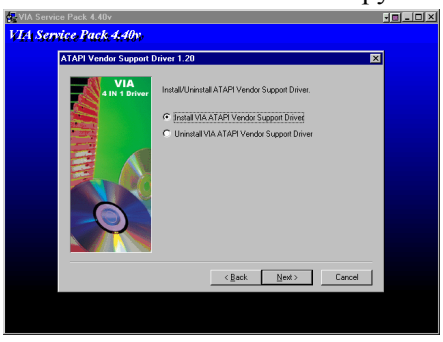
2. Click NEXT when VIA Service Pack Wizard appears



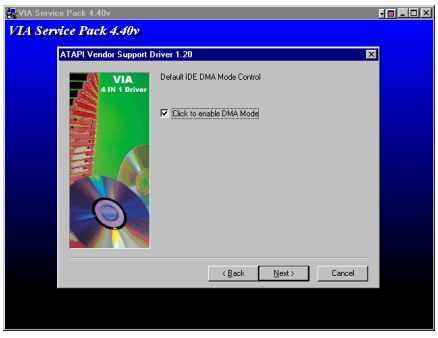
3. This is to announce the Copy Write, click Yes



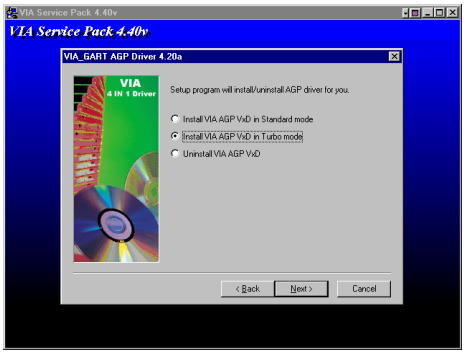
4. Click NEXT to choose all driver



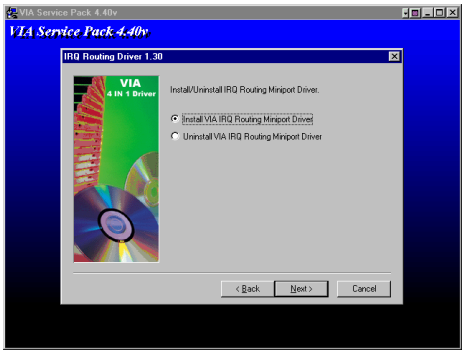
5. Click NEXT to Install ATAPI Vender Support Driver



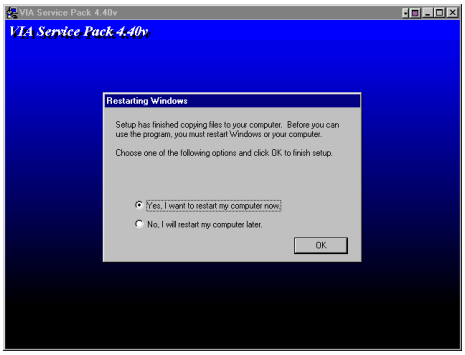
6. Click NEXT to choose enabled DMA Mode



7. Click NEXT to Install VIA AGP VXD Driver



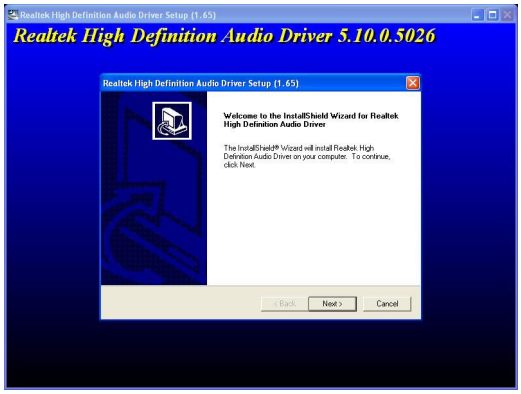
8. Click NEXT to Install VIA IRQ Routing Mini port Driver



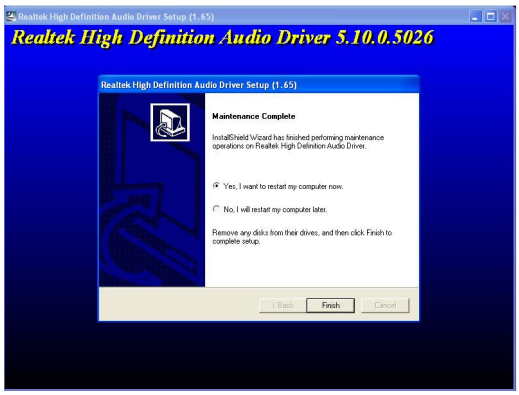
9. Click Finish to restart computer

4-2 SOUND install ALC Audio Codec Driver

1. Click SOUND when MAGIC INSTALL MENU appears



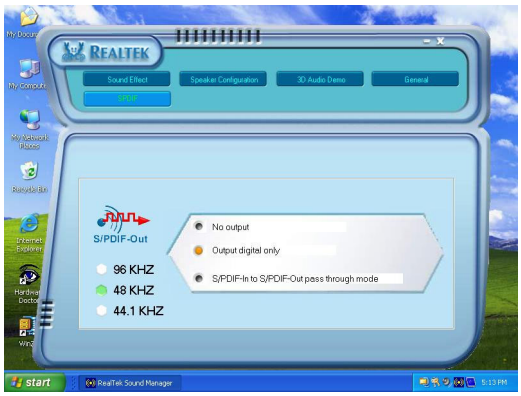
2. Click NEXT When Realtek High Definition Audio driver windows appear



3. Click FINISH and restart your computer

4. Manual Sound Effect Setting

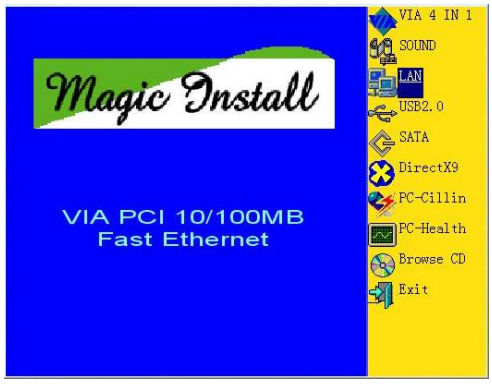
5. Speaker configuration setting



6. SPDIF out setting

4-3 LAN Install VIA LAN Controller Driver

The VIA 10/100Mb PCI Ethernet Adapter Driver path is X:\VIA\LANDRV



1. Click LAN when Magic Install Menu appear

2. Click OK and finish LAN driver installation

4-4 USB2.0 Install VIA USB2.0 DEVICE DRIVER

1. Click USB2.0 when MAGIC INSTALL MENU Appear

2. When USB2.0 Setup Program Appear, Click NEXT

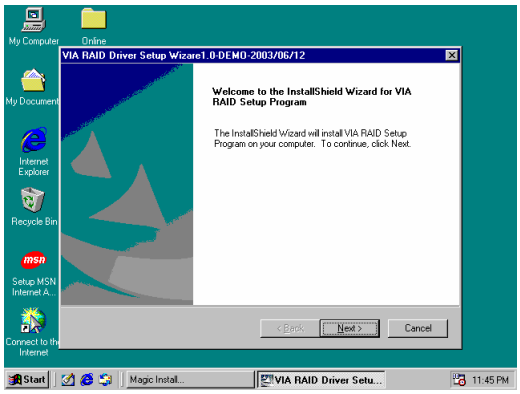
Note: Please Install Microsoft Service Pack 1 in Windows XP OS Before you Install VIA USB2.0 Device Driver.

Please Install Microsoft Service Pack 4 in Windows 2000 OS Before you Install VIA USB2.0 Device Driver.

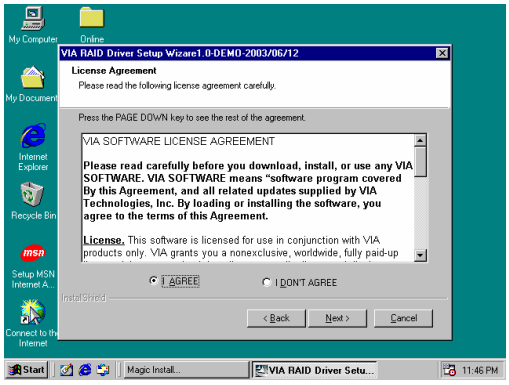
The Path of the file is X:\VIA\VIAUSB20\SETUP.EXE

4-5 SATA Install VIA Serial ATA

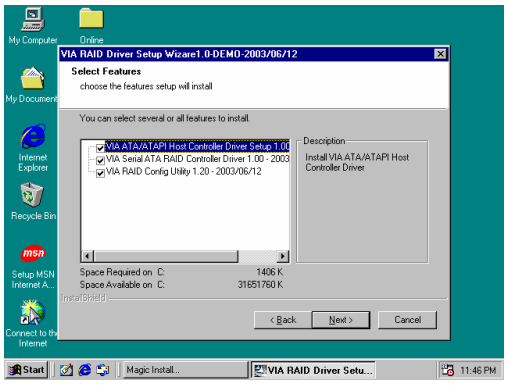
1. Click SATA when MAGIC INSTALL MENU appears



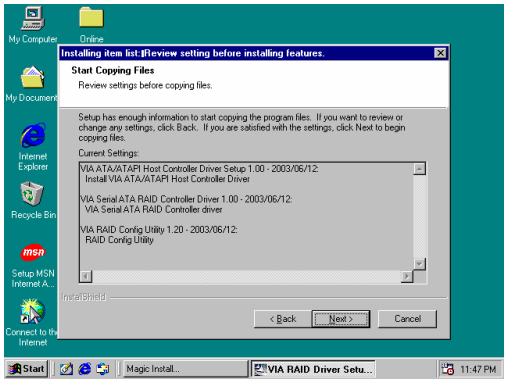
2. Start install VIA serial ATA driver , then click NEXT



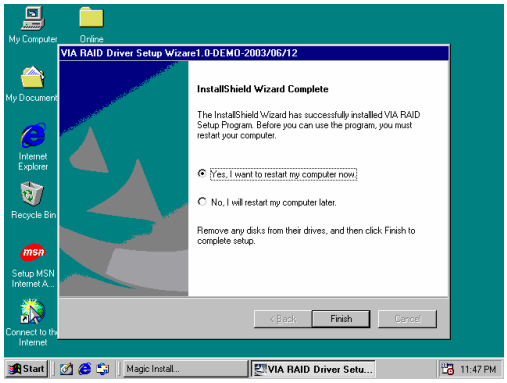
3. When license agreement appear, choose I agree and click NEXT



4. Select you want to install driver



5. Review install driver and utility component, then click NEXT



6. Click FINISH and restart your computer

Making SATA HDD driver diskette before Install WindowsXP/2000

If you only have Serial ATA HDDs on your system, before you install the Windows XP or Windows 2000, you will need to make a SATA HDD driver diskette before you start to install the Operating System.

How to make a SATA HDD driver diskette?

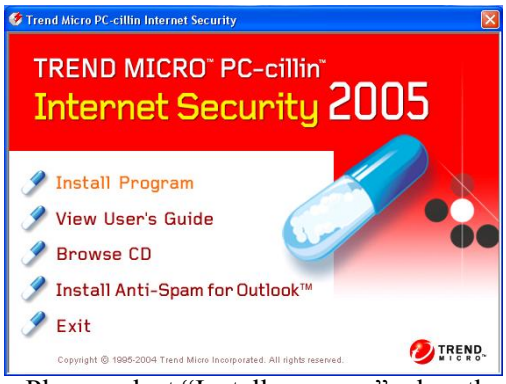
STEP 1: Insert the diskette which be formatted in floppy drive on a system which can start OS.
STEP 2: After booting OS insert the bundle CD in your CD-ROM
STEP 3: Copy all the files from \VIA\VIASATA\DriverDisk to floppy diskette
Once you have the SATA driver diskette ready, you may start to install Windows XP or Windows 2000 on your System.

Installation of Windows XP/ Windows 2000

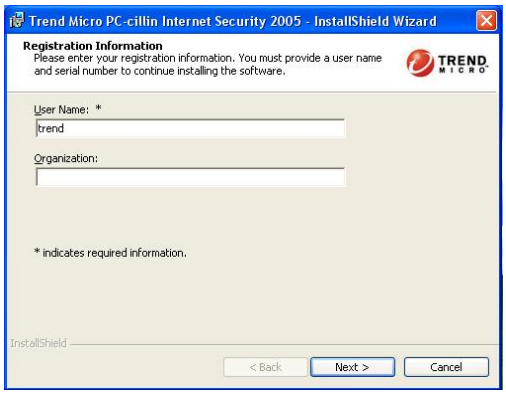
For installation of Windows XP or Windows 2000, please insert Windows XP or Windows 2000 CD into the CD-ROM drive. Then remove the floppy diskette, and boot the system. At the very beginning, you will see the message at the bottom of screen, "Press F6 if you need to install a third party SCSI or RAID driver…."
At this moment, please press <F6> key and follow the instructions of Windows XP or Windows 2000 for the proper installation.

4-6 PC-CILLIN Install PC-CILLIN 2005 Anti-virus program

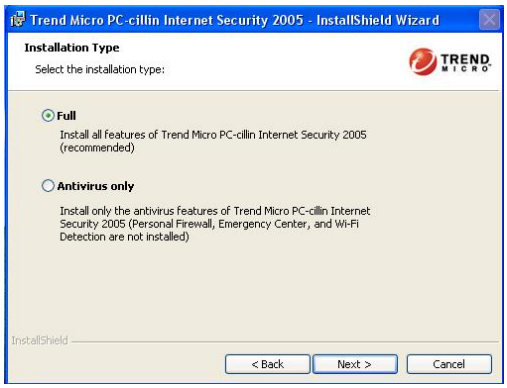
1. Click PC-CILLIN when MAGIC INSTALL MENU appear



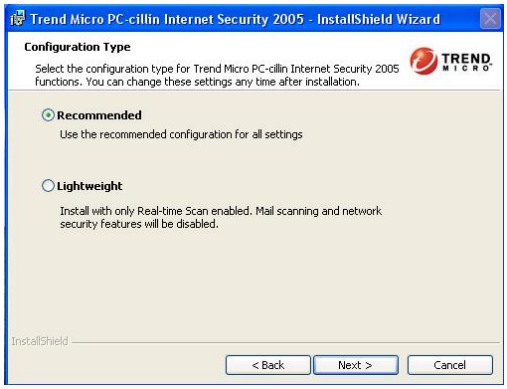
2. Please select “Install program” when the "Trend Micro internet security" installshield wizard windows appear



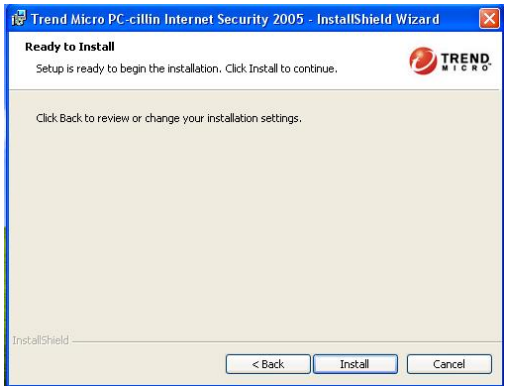
3. Click NEXT and Enter your Customer Information, Click NEXT or choose Change to change the path for the file to be stored



4. Please select install “FULL” function or install “Antivirus software” only



5. We suggest to use “Recommend configuration”.



6. Click Install , start install Pccillin 2005 internet security software , after finish Installation , please select restart your computer

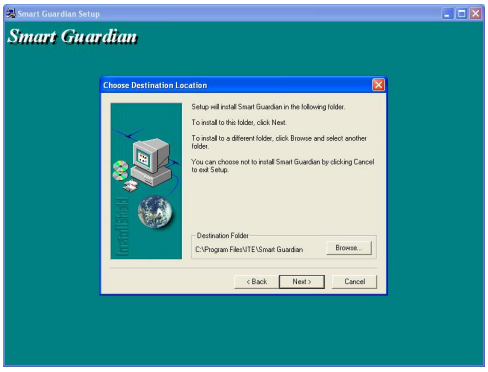
Note : Please install ACROBAT READER, Before you read PC-CILLIN 2004 User Manual, the path at X:\acrobat\adberdr6_enu_full.exe

4-7 PC-HEALTH install ITE Smart Guardian utility

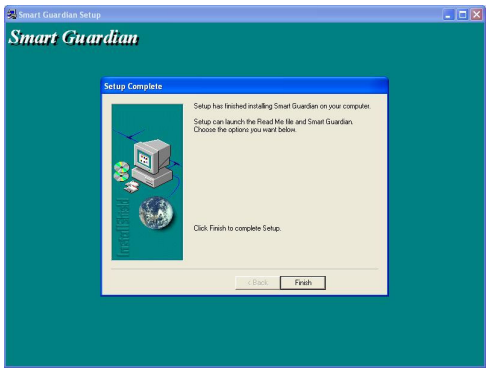
The path of the file is X:\VIA\ITESMARTGD\SETUP.EXE

(Support Windows 9X/ME/2K/NT/XP)

1. Click PC-Health when Magic Install Menu appears



2. Click Next , install ITE Smart Guardian utility



3. Click Finish , complete install ITE Smart Guardian utility

4. executing Program → ITE Smart Guardian , The ITE Smart Guardian auto detect system voltage, Fan speed and CPU/ SYSTEM Temperature. Because this is a On-time Monitoring program therefore the value will change after it detected , if the value is over default setting the system will have warning picture and beeps

4-8 HOW TO DISABLE ON-BOARD SOUND

Enter BIOS SETUP choose INTEGRATE PERIPHERALS choose ON-CHIP DEVICE FUNCTION choose AC97 SOUND DEVICE

Disable on-board sound function by press PAGE DOWN KEY to Disable

4-9 HOW TO UPDATE BIOS

Method 1. In DOS Mode

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 PT88BSPRO from our web site to your boot disc.

STEP 4. Insert your boot disc into A:,
start the computer, type "Awdflash A:\PT88BSPROAxxx.BIN /SN/PY/CC/R"
PT88BSPROAxxx.BIN is the file name of latest BIOS it can be PT88BSPRO A3.BIN or PT88BSPROB2.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.

4-10 Pro Magic Plus Function Introduction

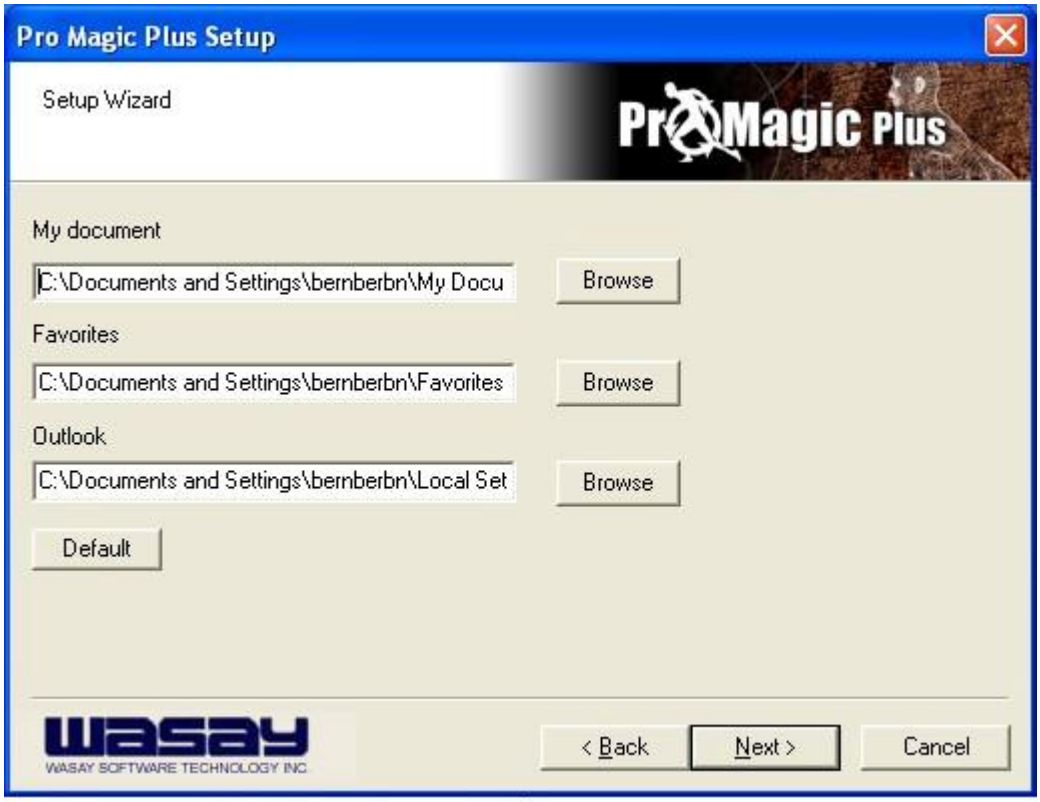
What's Pro Magic Plus?

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

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

System Requirements

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

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

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.

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.