

**FB86**

**Intel Pentium 4 Desktop , LGA 775 Processor  
Based MAINBOARD**

# Shuttle® FB86

Intel Pentium 4 Desktop

LGA 775 Processor Based Mainboard

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## Statement of Shuttle Mainboard via the EMI Test

Shuttle mainboards have been via the EMI test in terms of series of regulations: EN55022/ CISPR22/AS/NZS3548 Class B, EN55024 (1998/AS/NZS), EN4252.1 (1994), EN61000, ANSI C63.4 (1992), CFR47 Part 15 Subpart B, and CNS13438 (1997). The items tested are illustrated as follows:

(A) Voltage: AC 110V/60HZ & AC 230V/50HZ

(B) Tested Product Information:

Product Name: PC Mainboard

Status: Sample

Model Name: FB86

S/N: N/A

CPU:

External Frequency: 133 MHz

Intel Pentium 4, LGA 775 Processor: 2.53/ 2.66/ 2.8/ 2.93 GHz

External Frequency: 200 MHz

Intel Pentium 4, LGA 775 Processor: 2.8/ 3/ 3.2/ 3.4/ 3.6 GHz

Serial Port: one port with 9 pins

VGA Port: one port with 15 pins

Keyboard Port: one port with 6 pins

Mouse Port: one port with 6 pins

USB 2.0 Port: four ports with 4 pins respectively

1394a Port: two ports with 6 pins respectively

Mic-In Port: one port

Line-OUT Port: five ports

Line-In Port: one port

SPDIF-Out (Coaxial) Port: one port

SPDIF-Out (Optical) Port: one port

SPDIF-In (Optical) Port: one port

Clear CMOS button: one port

DIMM Memory (optional): DDR 400 256 MB \*2

Power Cable: Detachable and Shielded (with a GND pin)

Monitor: CRT+DVI

Maximum Resolution: 1280 X 1024 V:60Hz

All CPUs have completely been tested, and values offered by the worst EMI combination of CPU external frequency are listed as follows:

Test Mode	External Frequency	CPU	CPU Open/Close
1	200MHz	P4 3.6 GHz	Close
2	200MHz	P4 3.6 GHz	Open
3	133MHz	P4 2.93 GHz	Close
4	133MHz	P4 2.93 GHz	Open

(C) Remedy for the Tested Product & Its EMI Interference:

Remedy: N/A

EMI Interference:

Crystal : 14.318MHz(X2)/ 25MHz(X3)/ 32.768KHz(X1)/ 24.576MHz(X4)

Clock Generator: U4

(D) Supported Host Peripherals:

Host Peripheral	Product Name	Model Name
# 1	Case	FB86
# 2	Power Supply	PC45I2753
# 3	Serial ATA Western Digital	WD1200JD-00FYB0
# 4	Panasonic FDD	JU-257A606P
# 5	Pioneer DVD Player	DVD-116

(E) Notices for Assembling Computers:

1. Cases should be made of iron or other metal that has good electric conductivity.
2. Cylinders in a case should be made of metal, and as having a mainboard mounted in a case, make sure screws are all utilized and fastened on a mainboard.
3. An I/O shielding should be contacted with I/O metallic parts of a mainboard.
4. Cables should appropriately be arranged and fixed in a case. Follow instructions:
  - Leave IDE cables not crossed upon CPU and SDRAM;
  - Leave power cables minimum in length, and not crossed upon a mainboard;
  - Leave CPU fan cables minimum in length, and not near CPU;
  - Leave cables on panels and other spare cables tied in a computer case.
5. Make sure an EMI shielding attached to a case has properly been installed.
6. Make sure a 5.25" and screws are fastened to an EMI shielding.
7. Make sure a case is closely in contact with EMI connected points.
8. Make sure there is no cleft in a case which is not deformed.
9. Make sure a PCI door is bound to a case.
10. Make sure cables of other devices (fans or some others) are fixed in a case.

## **Important Safety Information**

### **SAFETY INSTRUCTIONS**

1. Please read these safety instructions carefully.
2. Please keep this User's Manual for later reference.
3. Please disconnect this equipment from AC outlet before cleaning. Don't use liquid or sprayed detergent for cleaning.
4. For pluggable equipment, the socket-outlet shall be installed near the equipment and shall be easily accessible.
5. Please keep this equipment from humidity.
6. Lay this equipment on a reliable surface when install. A drop or fall could cause injury.
7. Do not leave this equipment in an environment unconditioned, it may damage the equipment.
8. The openings on the enclosure are for air convection hence Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
9. Make sure the voltage of the power source when connect the equipment to the power outlet.
10. Place the power cord such a way that people can not step on it. Do not place anything over the power cord. The power cord must be rated for the product and for the voltage and current marked on the product's electrical ratings label. The voltage and current rating of the cord should be greater than the voltage and current rating marked on the product.
11. All cautions and warnings on the equipment should be noted.
12. If the equipment is not use for long time, disconnect the equipment from mains to avoid being damaged by transient over-voltage.
13. Never pour any liquid into ventilation openings, this could cause fire or electrical shock.
14. **CAUTION:** The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacture. Discard used batteries according to the manufacturer's instructions.

**CAUTION : RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN  
INCORRECT TYPE. DISPOSE OF USED BATTERIES  
ACCORDING TO THE INSTRUCTIONS**

15. THE COMPUTER IS PROVIDED WITH CD DRIVES COMPLY WITH APPROPRIATE SAFETY STANDARDS INCLUDING IEC 60825.

**CLASS 1 LASER PRODUCT**

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# WHAT'S IN THE MANUAL

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## About This Manual

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For Experienced DIY User .....	Page 6
For System Integrator .....	Page 6

# 1 INTRODUCTION

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## 1.1 To Different Users

### **First-Time DIY System Builder**

Welcome to the DIY world! Building your own computer system is not as difficult as you may think. To make your first computer DIY experience successful, right from the start, we have designed the 3.1 Hardware Installation section in a step-by-step fashion for all the first-time DIY system builders. Prior to installation, we also suggest you to read the whole manual carefully to gain a complete understanding of your new Shuttle FB86 mainboard.

### **Experienced DIY User**

Congratulate on your purchase of the Shuttle FB86 mainboard. You will find that installing your new Shuttle FB86 mainboard is just easy. Bundled with an array of onboard functions, the highly-integrated FB86 mainboard provides you with a total solution to build the most stable and reliable system. Refer to sections 3.2 Jumper Settings and Chapter 4 Drivers/Software Utilities to find out how to get the best out of your new mainboard. Chapter 5 BIOS Setup also contains the relevant information on how to tune up your system to achieve higher performance.

### **System Integrator**

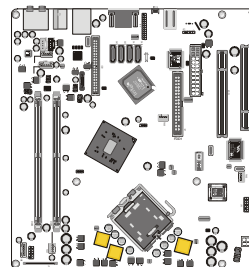
You have wisely chosen Shuttle FB86 to construct your system. Shuttle FB86 incorporates all the state-of-the-art technology of the 915G + ICH6R chipset from Intel. It integrates the most advanced functions you can find to date in a compact BTX board.

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## 1.2 Item Checklist

Check all items with your FB86 mainboard to make sure nothing is missing.  
The complete package should include:

- ✳ One piece of Shuttle FB86 Mainboard



- ✳ One piece of ATA 100/66/33 Ribbon Cable



- ✳ One piece of Floppy Cable (Optional)



- ✳ One piece of Serial ATA Cable



- ✳ FB86 User's Manual

- ✳ ICH6R RAID Manual



- ✳ One piece of Bundled CD-ROM with containing:

- FB86 user's manual saved in PDF format
- Install Intel Chipset Driver
- Install Intel VGA Driver
- Install Intel IAA Driver
- Install Marvell Giga LAN Driver
- Install Intel USB 2.0 Driver
- Install Intel High Definition Bus
- Install Intel High Definition Audio Driver
- Install DirectX9 Utility
- Award Flashing Utility



## 2 FEATURES

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FB86 mainboard is carefully designed for the demanding PC user who wants high performance and maximum intelligent features in a compact package.

### 2.1 Specifications

#### ★ CPU Support

Intel Pentium 4 Desktop Processors in the LGA 775 pin package with 533 / 800 MHz FSB.

#### ★ Chipset

Features Intel 915G N.B. and ICH6R S.B..

Onboard Lan

Marvell 88E8053 Lan Chipset support 10/100/1000 Mbps operation rate and wake-on-Lan (WOL) function.

Onboard 1394a

VIA VT6307, supports 400 Mb/s, 200 Mb/s, or 100 Mb/s data transfer rate.

#### ★ Jumperless CPU Configuration

Soft-configuration FSB (The FSB speed is software configurable from 100 MHz to 355 MHz of BIOS setup program.)

#### ★ On Board 7.1 Channel High Definition Audio

Realtek ALC880 supports 16/20/24 bits ADC and DAC resolution and 7.1 channel slot selectable DAC Output for multi-channel applications.

#### ★ Versatile Memory Support

Features the dual-channel mode of 128 bit data transfer rate.

Two 184-pin DIMM slots to support up to 4GB of PC2700 or PC3200 compliant unbuffered without ECC DDR SDRAM module.

Available bandwidth up to 3.2 GB/s(DDR400) for Single Channel mode and 6.4 GB/s(DDR400) in Dual Channel mode. System memory supports 128Mb/ 256Mb/ 512Mb/ 1Gb technologies up to 4GB capacity max and 2GB per DIMM.

#### ★ PCI Express Graphics & SDVO Interface Slot

The GMCH multiplexes a PCI Express interface with two Intel SDVO ports.

One 16-Lane PCI Express port for Graphic Attach, fully compliant to the PCI Express Base Specification 1.0a.

The X16 port operates at a frequency of 2.5 Gb/s while employing 8b / 10b encoding. Supports Analog / Digital display & TMDS transmitters or TV-OUT encoders via an Advance Digital Display card.

---

### **\* USB 1.1/2.0 Complaint Interface Onboard**

- 4 UHCI host controller, 1 EHCI host controllers to support 8 USB 1.1/2.0 devices. All 8 USB ports can be assigned to USB 2.0 interface with BIOS option

### **\* I/O Interface**

Provides a variety of I/O interfaces:

- 1 x 1394a port.
- 1 x PS/2 Mouse port.
- 1 x PS/2 Keyboard port.
- 1 x Clear CMOS Button.
- 1 x DB9 Serial port.
- 1 x DB15 VGA connector.
- 1 x Giga LAN port.
- 2 x USB 1.1/2.0 ports.
- 1 x SPDIF-Out Coaxial port.
- 1 x SPDIF-Out Optical port.
- 1 x 7.1 Channel Bass/Center port.
- 1 x 7.1 Channel Rear-Out port.
- 1 x SPDIF-IN Optical port.
- 1 x 7.1 Channel Front-Out port.
- 1 x 7.1 Channel Surround-Back port.
- 1 x Line-In port.

### **\* PCI Bus Master IDE Controller Onboard**

One Ultra DMA 100/66/33 Bus Master Dual-channel IDE ports provide support to a maximum of two IDE devices (one Master and one Slave per channel). The IDE Bus implements data transfer speeds of up to 100/66/33 MB/sec and also supports Enhanced PIO Modes. 80-pin Cable Backward Compatible Legacy ATAPI Devices, ATAPI IDE CD-ROM, CD-R, CD-RW, and LS-120 supports.

### **\* ATX Power Supply Connector**

ATX power supply unit can connect to the onboard 24-pin Pentium 4 standard ATX power connectors, supporting Suspend and Soft-On/Off by dual-function power button. The Pentium 4 ATX power include other 4-pin +12V ATX power connector.

---

## ★ **Advanced Configuration and Power Interface**

Features four power saving modes: S1 (Snoop), S3 (Suspend to RAM), S4 (Suspend to DISK), and S5 (Soft-Off). ACPI provides more efficient Energy Saving Features controlled by your operating system that supports OS Direct Power Management (OSPM) functionality.

## ★ **System BIOS**

Provides licensed Award BIOS V6.0 PG on 4Mb Flash core and supports Green PC, Desktop Management Interface (DMI).

## ★ **Form Factor**

System board conforms to BTX specification.

Board dimension: 266.7 mm x 227 mm.

## ★ **Advanced Features**

- Low EMI - Built in spread spectrum to reduce EMI.
- Dual Function Power Button - The system can be in one of two states, one is Suspend mode and the other is Soft-Off mode. Pushing the power button for less than 4 seconds places the system into Suspend mode.  
  
When the power button is pressed for longer than 4 seconds, the system enters Soft-Off mode.
- Modem Ring Power-On - The system can be powered on automatically by the activation of modem ringing.

## ★ **Intelligent Features**

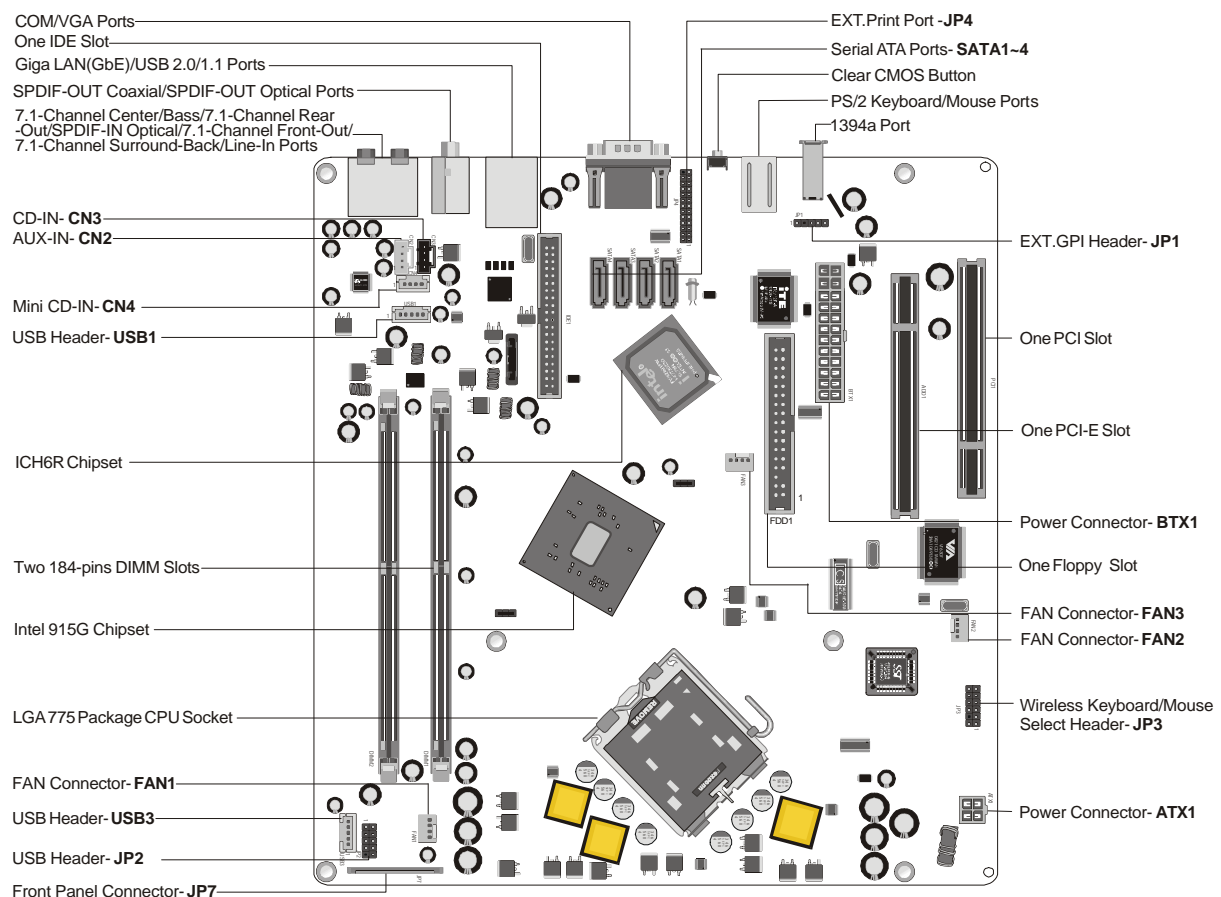
- Voltage Monitoring - Monitors various voltages of key elements, such as the CPU, and other critical system voltage levels to ensure stable current passing through mainboard components.
- Fan Status Monitoring - To prevent CPU from overheating, the CPU fan is monitored for RPM and failure. (CPU Cooling FAN with RPM sensor is required.)
- Temperature Monitoring - This item allows users to make sure whether the CPU or system runs in a suitable temperature.
- CPU Fan AutoGuardian - This SMART Bios enabled Variable Fan Speed and CPU temperature Control feature.

# 3 HARDWARE INSTALLATION

Before removing or installing any of these devices including CPU, DIMMs, Add-On Cards, Cables, please make sure to unplug the onboard power connector.

This section outlines how to install and configure your mainboard. Refer to the following mainboard layout to help you to identify various jumpers, connectors, slots, and ports. Then follow these steps designed to guide you through a quick and correct installation of your system.

## 3.1 Step-by-Step Installation Accessories Of FB86





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## Step 1

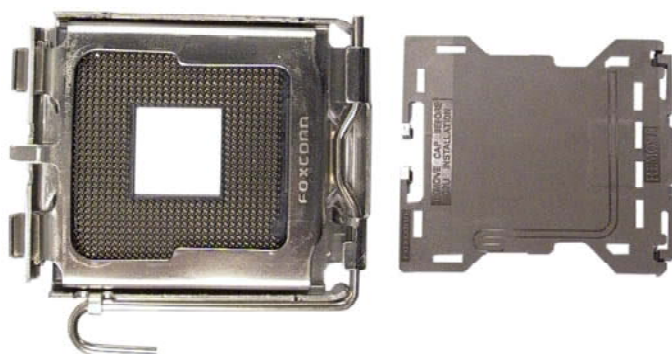
### CPU Installation:

This mainboard supports Socket 775 Intel Pentium 4 Desktop processor (CPU).

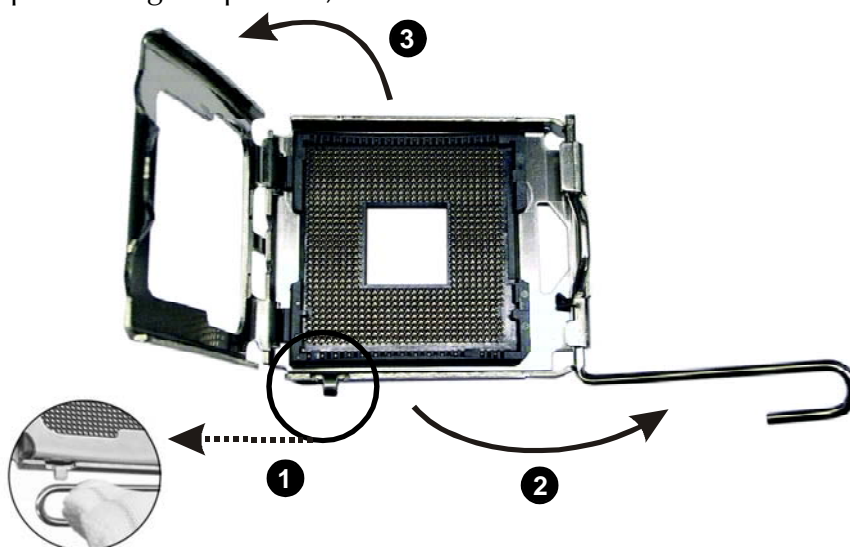
To install, follow the steps outlined below. Note the CPU orientation carefully when you insert it into the socket.

Caution : This 775 pin socket is fragile and easily damaged.  
Always use extreme care when installing a CPU and limit the number of times that you remove or change the CPU.

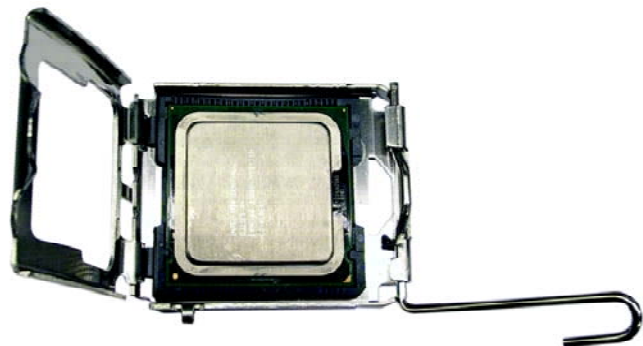
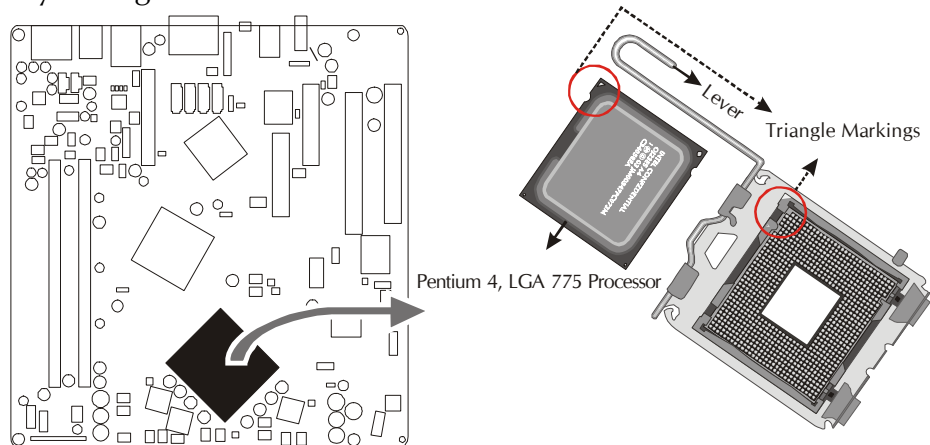
1. Remove the protective cover.



2. Unlock the socket lever and lift it to 90-degrees (be careful not to touch the socket pins during this process).



- 
3. Orientate the CPU and socket, aligning the yellow triangle on the corner of the CPU with the triangle on the socket. Gently insert. Take care not to place any sideways force on the CPU when inserting, as the socket is fragile and easily damaged.



4. Lower the CPU socket lever and lock in place.

Note : The CPU might be damaged if you do not match the CPU socket Pin 1 and cut edge well.



5. The Socket 775 processor requires a heat sink and cooling fan to run efficiently, cool and stable. If you do not receive a bundled heat sink and fan when you purchase you CPU, it is essential that you acquire one.

---

## Step 2

### Set Jumpers

This mainboard is jumperless! The default jumper settings have been set for the common usage standard of this mainboard. Therefore, you do not need to reset the jumpers unless you require special adjustments as any of the following cases:

#### 1. Clear CMOS

For first-time DIY system builders, we recommend that you do not change the default jumper settings if you are not totally familiar with the mainboard configuration procedures. The factory-set default settings are tuned for optimum system performance. For the advanced users who wish to customize their system, section 3.2 Jumper Settings will provide detailed information on how to configure your mainboard manually.

Caution: If you did not place the battery appropriately, which may cause risk of explosion. Please refer to the related rule for the dispose of used batteries.

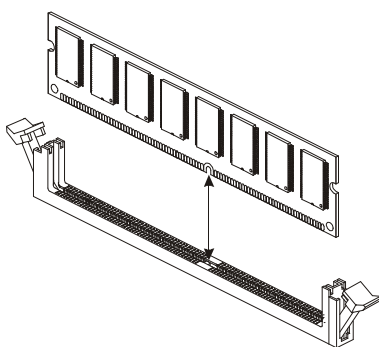
## Step 3

### Install DDR SDRAM System Memory

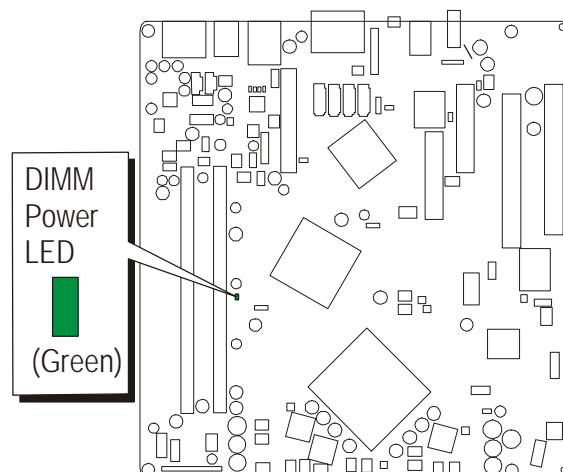
To install memory, insert DDR SDRAM memory module(s) in DIMM slot(s). Note that DDR SDRAM modules are directional and will not go in the DIMM slots unless properly oriented. After the module is fully inserted into the DIMM slots, lift the clips of both sides of the DIMM slot to lock the module in place.

Do not remove memory modules while DIMM LED is on. It might cause short or other unexpected damages due to the 2.6V stand by voltage. Remove memory modules only when AC Power cord is disconnected.

#### DDR SDRAM



#### DIMM Power LED



---

## **Step 4**

### **Install Internal Peripherals in System Case**

Before you install and connect the mainboard into your system case, we recommend that you first assemble all the internal peripheral devices into the computer housing, including but not limited to the hard disk drive (IDE/HDD), floppy disk drive (FDD), CD-ROM drive, and ATX power supply unit. This will greatly facilitate in making the connections to the mainboard described below.

To install IDE & FDD drives, follow this procedure:

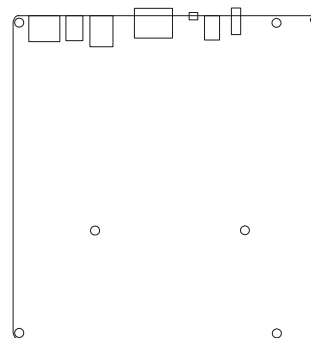
1. Set the required jumpers on each device according to the instructions provided by the manufacturer. (IDE devices, HDD, and CD-ROM, have to set jumpers to Master or Slave mode depending on whether you install more than one device of each kind.)
2. Connect IDE cable and FDD cable on the back-panel of the internal peripheral devices to the corresponding headers on board. Note that the cable should be oriented with its colored stripe (usually red or magenta) connected to pin#1 both on the mainboard IDE or FDD connector and on the device as well.
3. Connect an available power cable from your system power supply unit to the back-panel of each peripheral device. Note that the power cable is directional and cannot fit in if not properly positioned.

---

## Step 5

### Mount the Mainboard on the Computer Chassis

1. You may find that there are a lot of different mounting hole positions both on your computer chassis and on the mainboard. To choose correct mounting holes, the key point is to keep the backpanel of the mainboard in a close fit with your system case.
2. After deciding on the proper mounting holes, position the studs between the frame of the chassis and the mainboard. The studs are used to fix the mainboard and to keep a certain distance between the system's chassis and the mainboard, in order to avoid any electrical shorts between the board and the metal frame of the chassis.



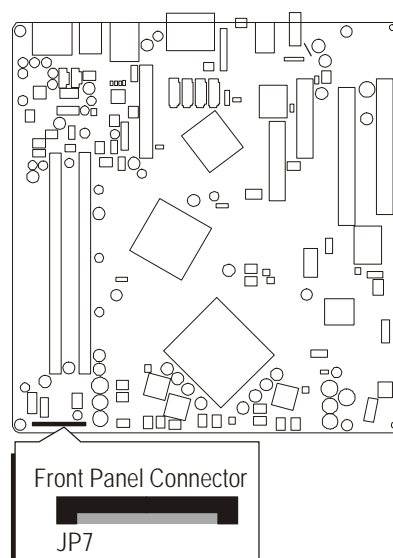
(If your computer case is already equipped with mounting studs, you will need to tighten screws to attach the mainboard.)

**Note :** In most computer housings, you will be able to find 4 or more attachment points to install mounting studs and then fix the mainboard. If there aren't enough matching holes, then make sure to install at least 4 mounting studs to ensure proper attachment of the mainboard.

## Step 6

### Connect Front-Panel Connector

You can find there are several different cables already existing in the system case and originating from the computer's front-panel devices (HDLED, GLED, USB6/7, Mic-In, Earphone, 1394a devices etc.). These cables serve to connect the HDLED, GLED, USB6/7, Mic-In, Earphone and 1394a connectors to the mainboard's front-panel connectors group, as shown below.

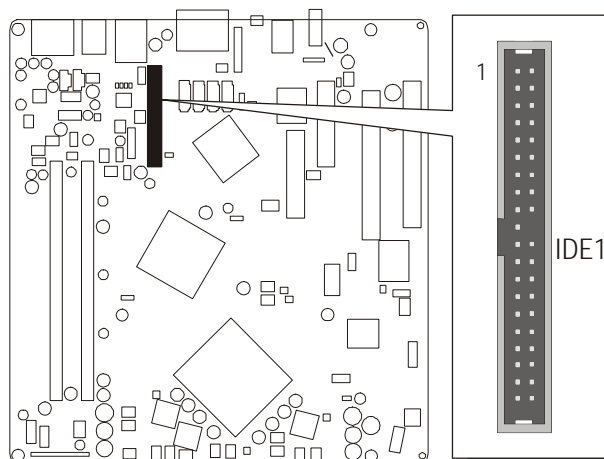


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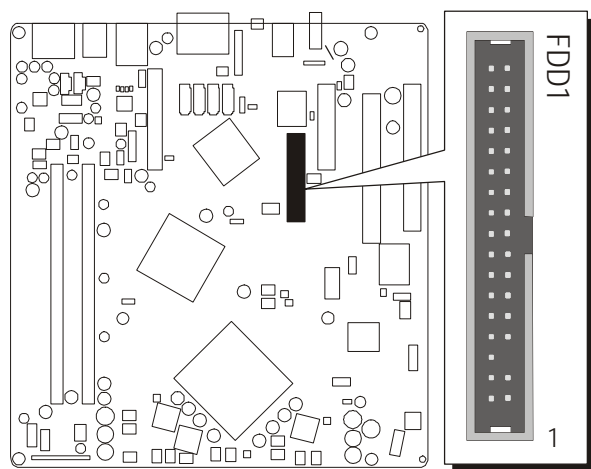
## Step 7

### Connect IDE, Floppy and Serial ATA Disk Drives

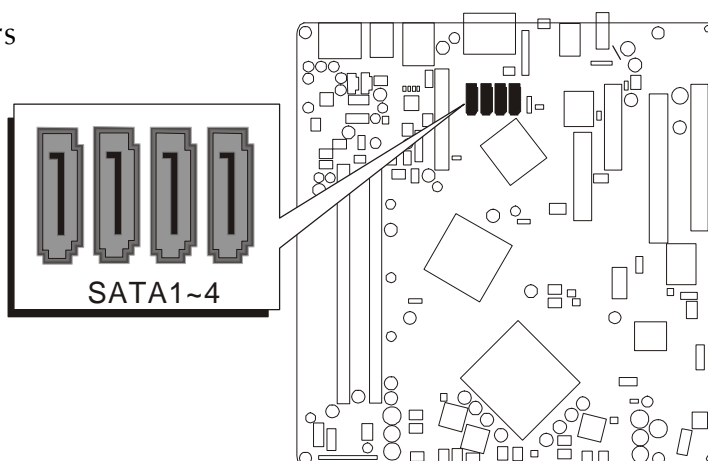
#### 1. IDE cable connector



#### 2. Floppy disk



#### 3. Serial ATA connectors

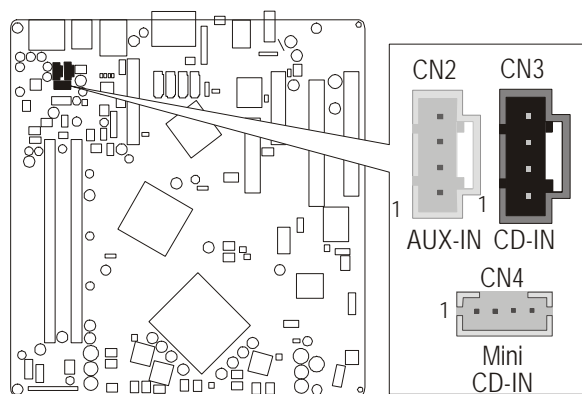


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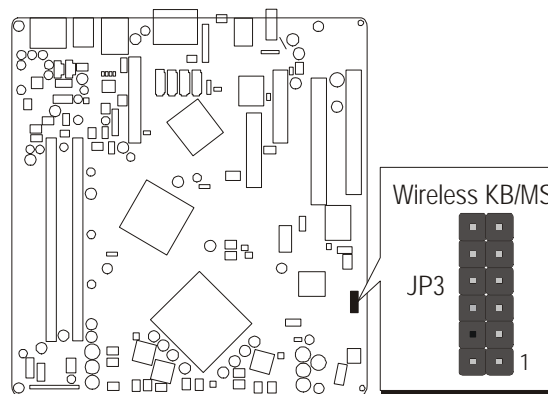
## Step 8

### Connect Other Internal Peripherals

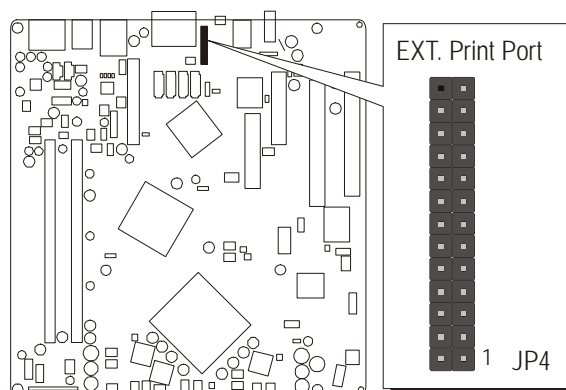
1. AUX-IN Connector (CN2)(White);  
CD-IN Connector (CN3)(Black);  
Mini CD-IN Connector (CN4)



2. Wireless Keyboard/Mouse Select Header (JP3)

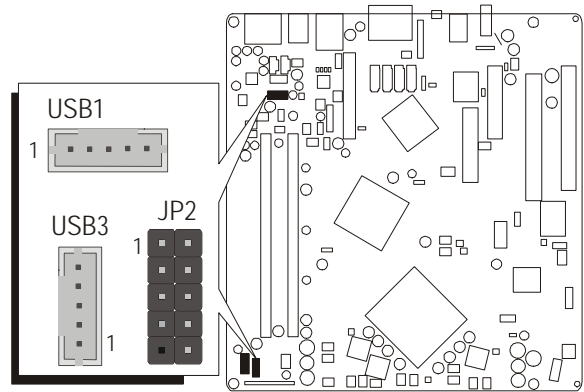


3. EXT. Print Port Connector (JP4)

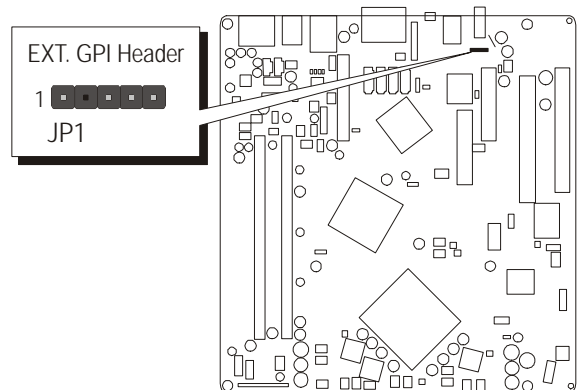


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#### 4. USB Headers (USB1/USB3/JP2)



#### 5. EXT.GPI Header (JP1)



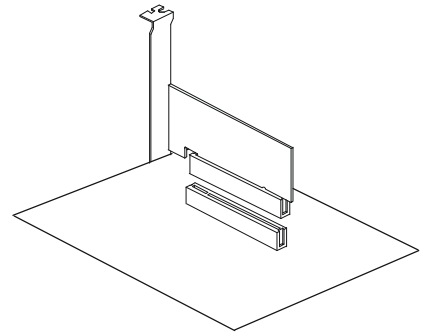


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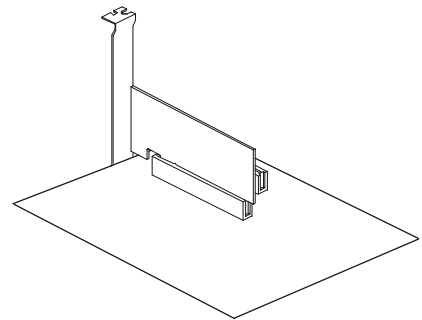
## **Step 9**

### **Install Add-on Cards in Expansion Slots**

1. PCI Card



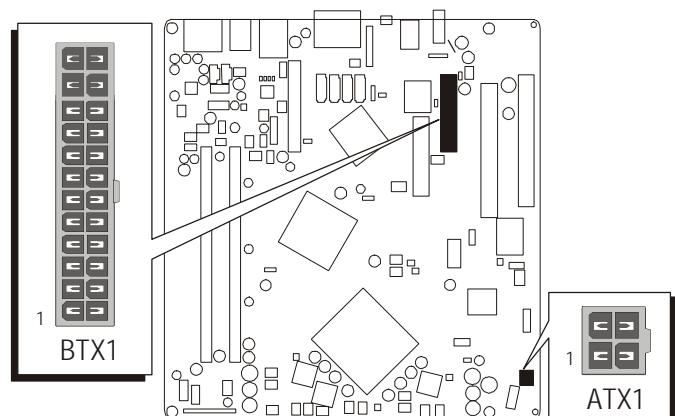
2. PCI Express Graphics & SDVO Interface Card



## **Step 10**

### **Connect the Power Supply**

1. System power connectors (ATX1/BTX1)



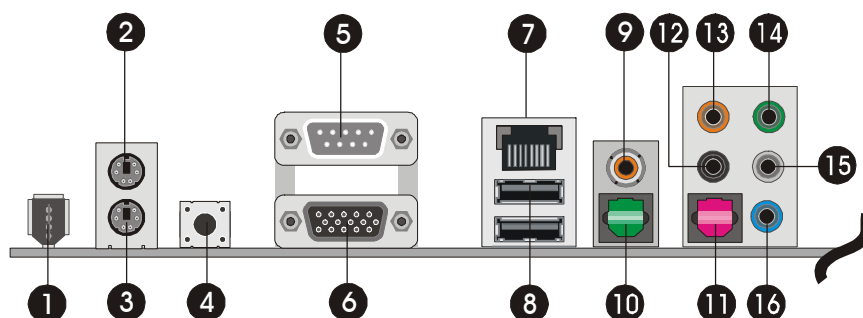
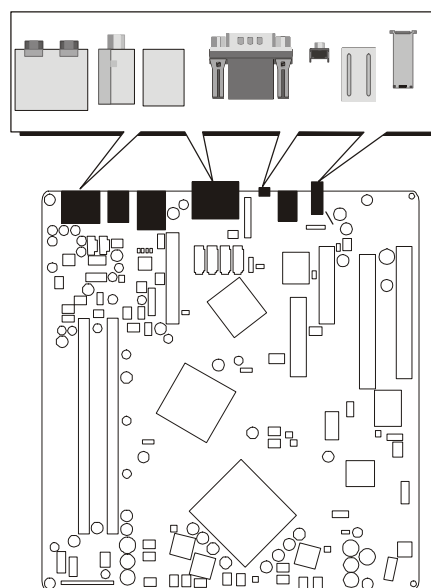
---

## Step 11

### Connect External Peripherals to Back-Panel

You are now ready to put the computer case back together and get on to the external peripherals connections to your system's back-panel.

1. 1394a port
2. PS/2 Mouse port
3. PS/2 Keyboard port
4. Clear CMOS button
5. DB9 Serial port
6. DB15 VGA connector
7. Giga LAN port
8. USB 1.1/2.0 ports
9. SPDIF-Out Coaxial port
10. SPDIF-Out Optical port
11. SPDIF-IN Optical port
12. 7.1 Channel Rear-Out port
13. 7.1 Channel Bass/Center port
14. 7.1 Channel Front-Out port
15. 7.1 Channel Surround-Back port
16. Line-In port



---

## Step 12

### First Time System Boot Up

To assure the completeness and correctness of your system installation, you may check the above installation steps once again before you boot up your system for the first time.

1. Insert a bootable system floppy disk (DOS 6.2x, Windows 95/98/NT, or others) which contains FDISK and FORMAT utilities into the FDD.
2. Turn on the system power.
3. First, you must use the FDISK utility to create a primary partition of the hard disk. You can also add an extended partition if your primary partition does not use all of the available hard disk space. If you choose to add an extended partition, you will have to create one or more logical partitions to occupy all the space available to the extended partition. The FDISK utility will assign a drive letter (i.e., C:, D:, E:,...) to each partition which will be shown in the FDISK program. After FDISK procedure, reboot your system by using the same system floppy disk.

Note : DOS 6.2x and Windows 95A can only support up to 2.1GB of HDD partition. If you use the FDISK utility with one of the operating systems mentioned above, you can only install your HDD into partitions no larger than 2.1GB each.

4. Now, use the FORMAT utility to format all the partitions you've created. When formatting the primary partition (C:), make sure to use the FORMAT C: /S command.

Note : FORMAT C: /S can transfer all the necessary system files into the primary partition of your hard disk. Then, your HDD will become a bootable drive.

5. Install all the necessary drivers for CD-ROM, Mouse, etc.
6. Setup the complete operating system according to your OS installation guide.

---

## **Step 13**

### **Install Drivers & Software Components**

Please note that all the system utilities and drivers are designed for Win 2000/XP operating systems only. Make sure your operating system is already installed before running the drivers installation CD-ROM programs.

1. Insert the FB86 bundled CD-ROM into your CD-ROM drive. The autorun program will display the drivers main installation window on screen.
2. Choose "Install Intel Chipset Driver" and complete it.
3. Choose "Install Intel VGA Driver" and complete it.
4. Choose "Install Intel IAA Driver" and complete it.
5. Choose "Install Marvell Giga LAN Driver" and complete it.
6. Choose "Install Intel USB 2.0 Driver" and complete it.
7. Choose "Install Intel High Definition Bus" and complete it.
8. Choose "Install Intel High Definition Audio Driver" and complete it.
9. Choose "Install DirectX9 Utility" and complete it.
10. Exit from the autorun drivers installation program.


⚙ Please refer to section Chapter 4 Software Utility to install driver.

---


## 3.2 Jumper Settings


Several hardware settings are made through the use of jumper caps to connect jumper pins to the mainboard. Pin #1 could be located at any corner of each jumper; you just find a location marked with a white right angle, which stands for pin 1#. There are several types of pin 1# shown as below:


3-pin and multi-pin (> 3) jumpers show as follows:

Pin #1 to the left: 1 

1 

Pin #1 on the top: 1 

Pin #1 to the right:  1

Pin #1 on the bottom:  1

Jumpers with two pins are shown as  for Close [On] or  for Open [Off]. To Short jumper pins, simply place a plastic jumper cap over the desired pair of pins.

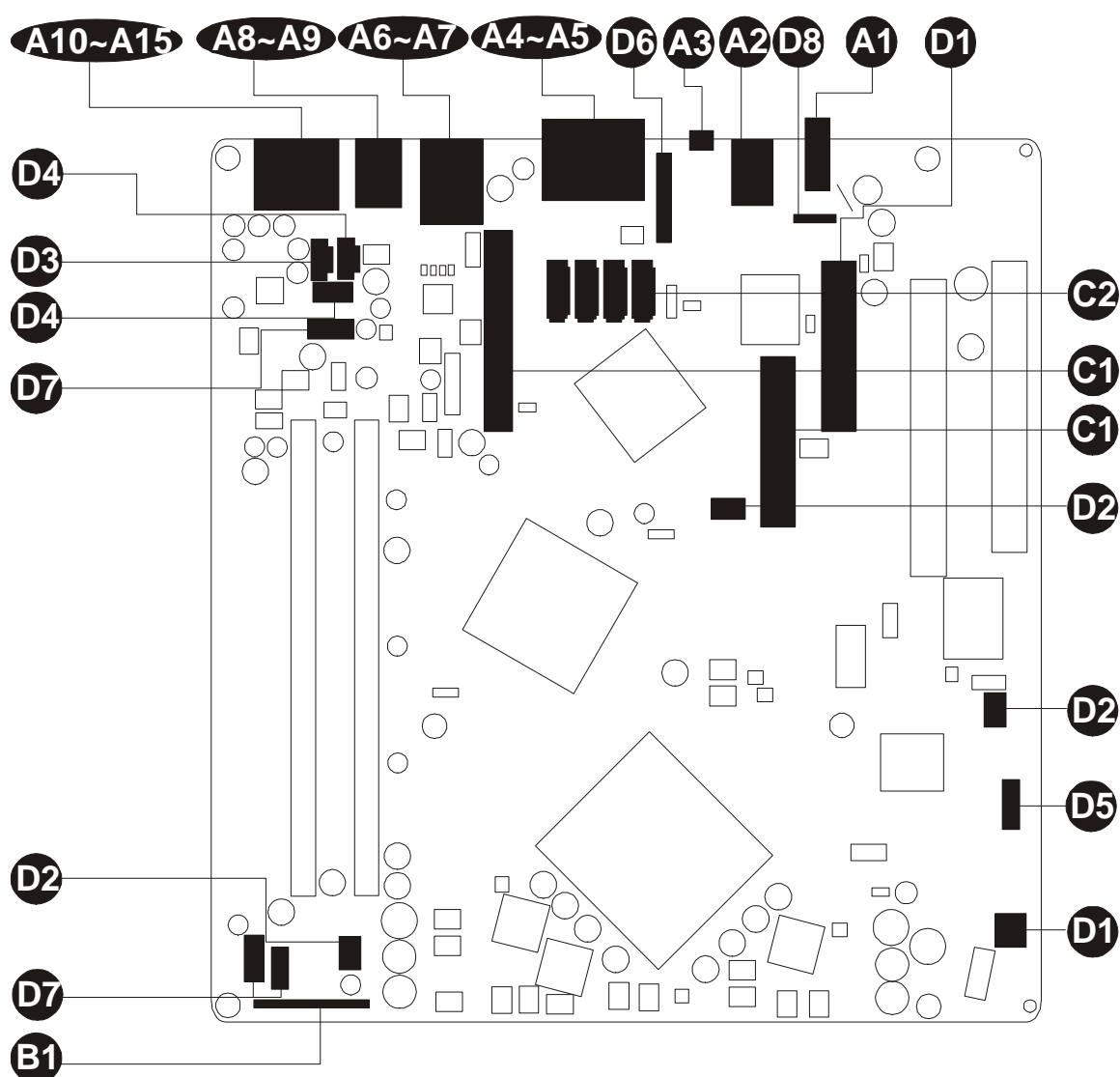
### Caution!

1. Do not remove the mainboard from its antistatic protective packaging until you are ready to install it.
2. Carefully hold the mainboard by its edges and avoid touching its components. When putting the mainboard down, place it on the top of its original packaging film and on an even surface, and components side up.
3. Wear an antistatic wrist strap or take other suitable measures to prevent electrostatic discharge (ESD) whenever handling this equipment.

---

## Jumpers & Connectors Guide

Use the mainboard layout on page 11 to locate CPU socket, memory banks, expansion slots, jumpers and connectors on the mainboard during the installation. The following list will help you to identify jumpers, slots, and connectors along with their assigned functions:



---

### ***CPU/Memory/Expansion Slots***

LGA 775	: CPU Socket for Intel Pentium 4 Desktop processors
DIMM1/2	: Two 184-pin DIMM Slots for 128 Mb, 256Mb, 512 Mb, and 1GB of 2.6V DDR SDRAM (The total installed memory does not exceed 4GB)
PCI	: One 32-bit PCI Expansion Slot
PCI-E	: One 16-Lane PCI Express port for Graphic Attach

### ***Back Panel Connectors***

<b>A1</b>	1394a	: 1394a Port
<b>A2</b>	MS	: PS/2 mouse Port
<b>A2</b>	KB	: PS/2 keyboard Port
<b>A3</b>	Clear CMOS	: Clear CMOS button
<b>A4</b>	COM	: Serial Port (DB9 male)
<b>A5</b>	VGA	: VGA Port (DB15 female)
<b>A6</b>	LAN	: Giga LAN Port
<b>A7</b>	USB	: 2 USB 2.0/1.1 Ports
<b>A8</b>	SPDIF-Out Coaxial	: SPDIF-Out Coaxial Port
<b>A9</b>	SPDIF-Out Optical	: SPDIF-Out Optical Port
<b>A10</b>	Bass/Center	: 7.1-Channel Bass/Center Port
<b>A11</b>	Rear-OUT	: 7.1-Channel Rear-Out Port
<b>A12</b>	SPDIF-IN	: SPDIF-IN Optical Port
<b>A13</b>	Front-OUT	: 7.1-Channel Front-Out Port
<b>A14</b>	Surround-Back	: 7.1-Channel Surround-Back Port
<b>A15</b>	Line-In	: Line-In Port

### ***Front Panel Connectors***

<b>B1</b>	JP7	: Front Panel Connector
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### ***Internal Peripherals Connectors***

<b>C1</b>	IDE1	: IDE primary interface (Dual-channel)
<b>C1</b>	FDD1	: Floppy disk drive interface
<b>C2</b>	SATA1 ~ 4	: Serial ATA connectors

---

### ***Other Connectors***

<b>D1</b>	ATX1/BTX1	: Power Connectors (4-pin ATX1, 24-pin BTX1)
<b>D2</b>	FAN1/2/3	: Fan Connectors
<b>D3</b>	CN2	: AUX-IN Connector
<b>D4</b>	CN3/CN4	: CD-IN/ Mini CD-IN Connectors
<b>D5</b>	JP3	: Wireless Keyboard and Mouse Select Header
<b>D6</b>	JP4	: EXT. Print Port
<b>D7</b>	USB1/USB3/JP2	: USB Headers
<b>D8</b>	JP1	: EXT. GPI Header

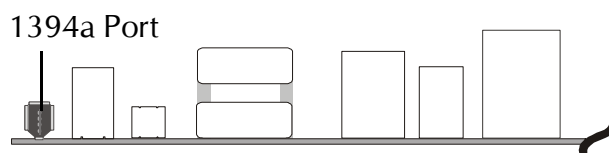


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## **Back-Panel Connectors**

### **A1 1394a Port**

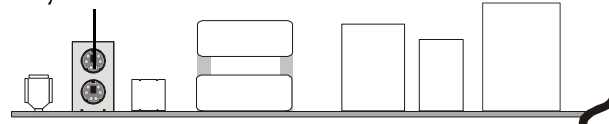
This mainboard offers one 1394a port on back-panel. Plug device jack into an available 1394a port.



### **A2 PS/2 Keyboard & PS/2 Mouse Ports**

Two 6-pin female PS/2 keyboard & Mouse connectors are located at the rear panel of the mainboard.

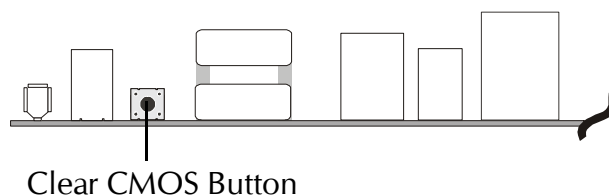
PS/2 Keyboard & Mouse Ports



Depending on the computer housing you use (desktop or tower), the PS/2 Mouse port is situated at the top of the PS/2 Keyboard port when the mainboard is laid into a desktop, as opposed to a tower where the PS/2 Mouse port is located at the right of the PS/2 Keyboard's. Plug the PS/2 keyboard and mouse jacks into their corresponding ports.

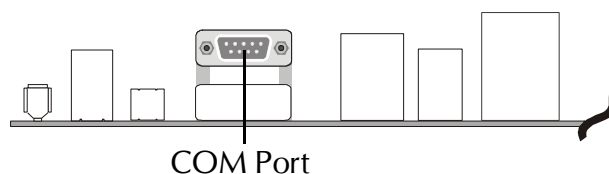
### **A3 Clear CMOS Button**

This button is used to clear CMOS data. You can clear CMOS without opening the chassis. It's a very friendly button.



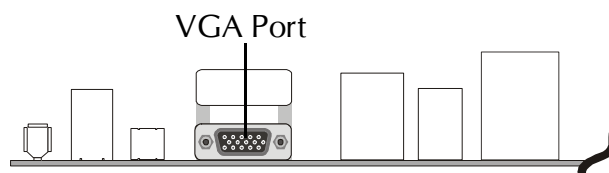
### **A4 COM Port**

This mainboard can accommodate one serial device on. Attach a serial device cable to the DB9 serial port at the back-panel of your computer.



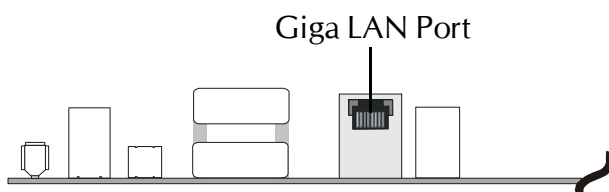
### **A5 VGA Port**

One 15-pin VGA port is located at the rear panel of the mainboard.



### **A6 Giga LAN Port**

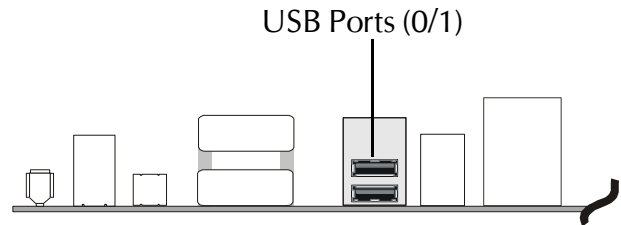
This mainboard can accommodate one device on Giga LAN. Attach a CAT-5 cable to the Giga LAN port at the back-panel of your computer.



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### **A7 USB Ports**

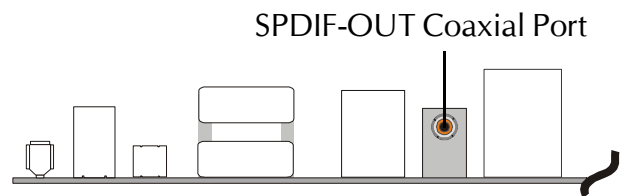
Two ports USB 0/1 share the same USB (Universal Serial Bus) bracket at the rear panel of your mainboard. Plug each USB device jack into an available USB 0/USB1 port.



### **A8 SPDIF-Out Coaxial Port**

This mainboard can accommodate one device on SPDIF-OUT Coaxial.

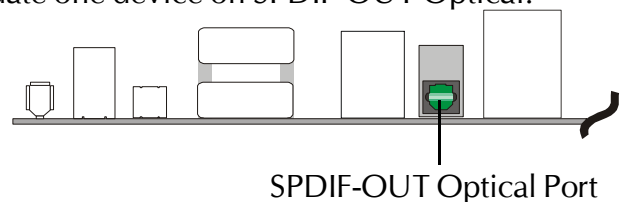
Attach a SPDIF cable to the SPDIF-OUT Coaxial Port at the back-panel of your computer.



### **A9 SPDIF-Out Optical Port**

This mainboard can accommodate one device on SPDIF-OUT Optical.

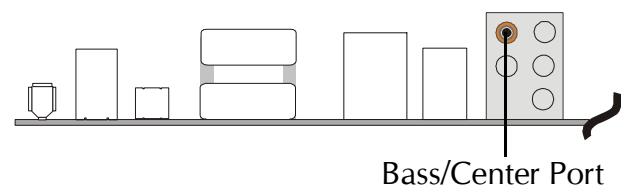
Attach a SPDIF cable to the SPDIF-OUT Optical Port at the back-panel of your computer.



### **A10 7.1 Channel Bass/Center Port**

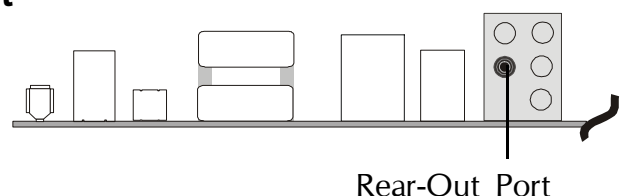
Bass/Center is a stereo output port through which the combined signal of all internal and external audio sources on the board is output.

It can be connected to 1/8-inch TRS stereo headphones or to bass/center amplified speakers.



### **A11 7.1 Channel Rear-Out Port**

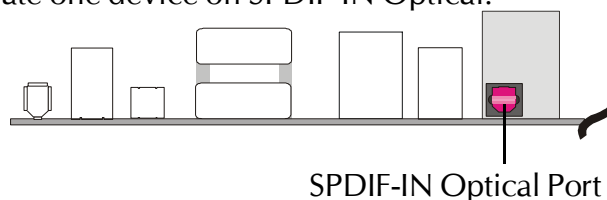
Rear-Out is a stereo line-level output port that accepts a 1/8-inch TRS stereo plug.



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### **A12 SPDIF-In Optical Port**

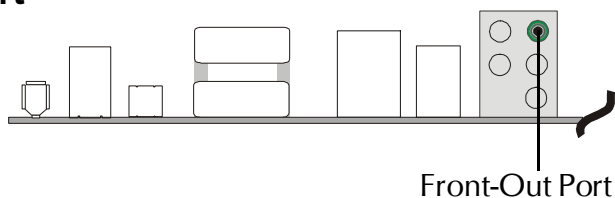
This mainboard can accommodate one device on SPDIF-IN Optical. Attach a SPDIF cable to the SPDIF-IN Optical Port at the back-panel of your computer.



### **A13 7.1 Channel Front-Out Port**

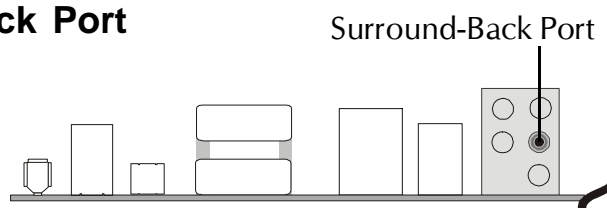
Front-Out is a stereo output port through which the combined signal of all internal and external audio sources on the board is output.

It can be connected to 1/8-inch TRS stereo headphones or to amplified speakers.



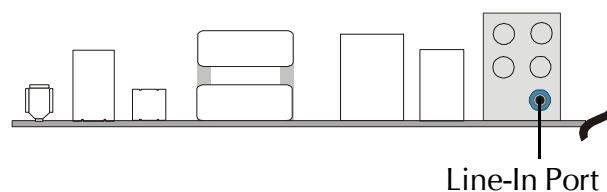
### **A14 7.1 Channel Surround-Back Port**

Surround-Back is a stereo line-level output port that accepts a 1/8-inch TRS stereo plug.



### **A15 Line-In Port**

Line-In is a stereo line-level input port that accepts a 1/8-inch TRS stereo plug. It can be used as a source for digital sound recording, a source to be mixed with the output, or both.

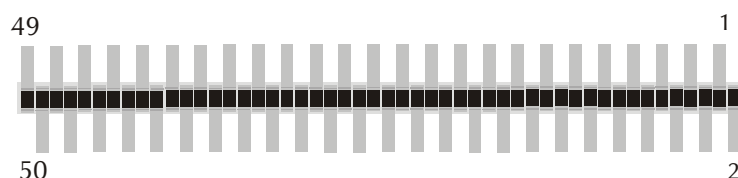
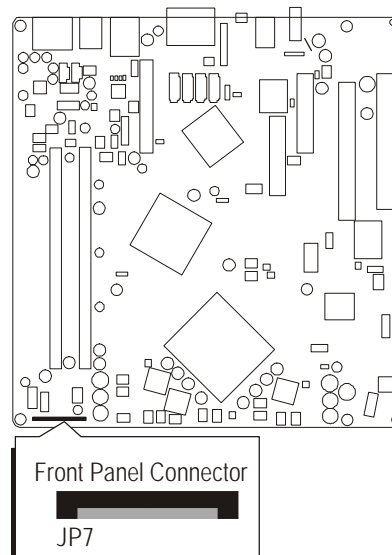


## **Front-Panel Connector**

### **⑧ FRONT PANEL Connector (JP7)**

Header JP7 is used to connect cable to front panel connector mounted on front-panel or back-panel.

The front panel is where the hard drive activity lights, on/off button, computer power on light, USB connectors, 1394a connectors, and audio headers, are located.



#### Pin Assignments (JP7):

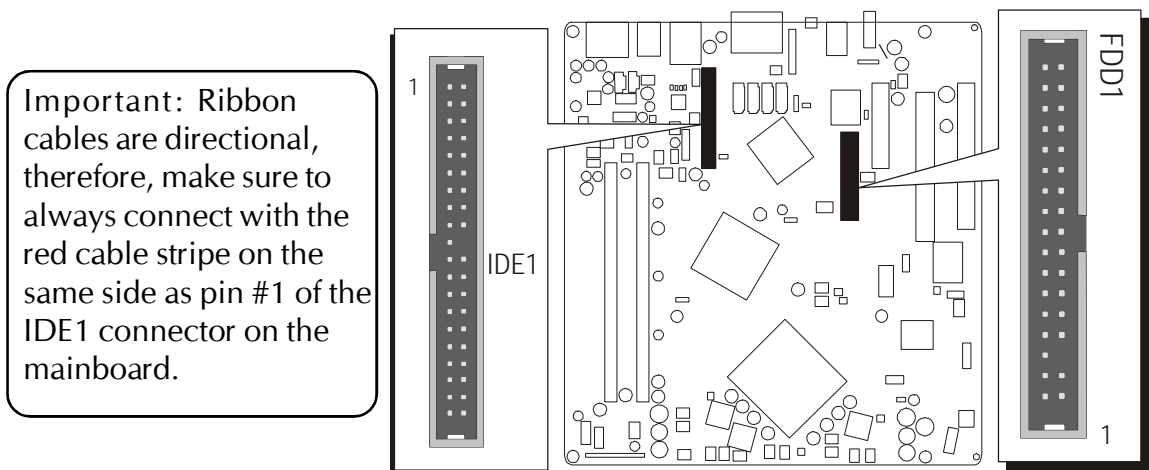
1 = USBVCC	2 = USBVCC	3 = USBVCC
4 = USBVCC	5 = USBVCC	6 = USBVCC
7 = USBVCC	8 = USBVCC	9 = USB7 +
10 = USB7-	11 = GND	12 = GND
13 = USB6 +	14 = USB6-	15 = GND
16 = GND	17 = TPA1 +	18 = TPA1-
19 = GND	20 = GND	21 = TPB1 +
22 = TPB1-	23 = GND	24 = GND
25 = 1394aPWR	26 = 1394aPWR	27 = 1394aPWR
28 = 1394aPWR	29 = GND_Audio	30 = GND_Audio
31 = Sense_Send2	32 = Line2_L	33 = Sense_RET2
34 = Line2_R	35 = GND_Audio	36 = GND_Audio
37 = Sense_Send1	38 = Line1_L	39 = Sense_RET1
40 = Line1_R	41 = PRESENCE#	42 = GND_Audio
43 = HDLED_PU	44 = GLEDA	45 = HDLED
46 = GLEDB	47 = Reset_Sw	48 = Power_Sw
49 = VCC	50 = VCC	

---

## **Internal Peripherals Connectors**

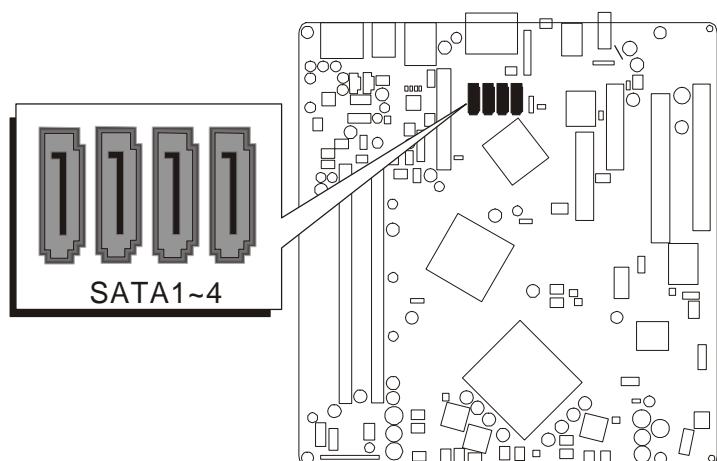
### **Enhanced IDE, Floppy Connectors**

The mainboard features one 40-pin dual-channel IDE device connectors (IDE1) providing support for up to two IDE devices, such as CD-ROM and Hard Disk Drives (H.D.D.). This mainboard also includes one 34-pin floppy disk controller (FDC) to accommodate the Floppy Disk Drive (FDD). Moreover, this mainboard comes with one 80-pin ATA 100/66/33 ribbon cable to connect to IDE H.D.D. and one 34-pin ribbon cable for F.D.D. connection.



### **Serial ATA Connectors**

The Serial ATA is an evolutionary replacement for the Parallel ATA physical storage interface. Serial ATA is scalable and will allow future enhancements to the computing platform. The Serial ATA interface supports data transfer rates up to 150MB/s.

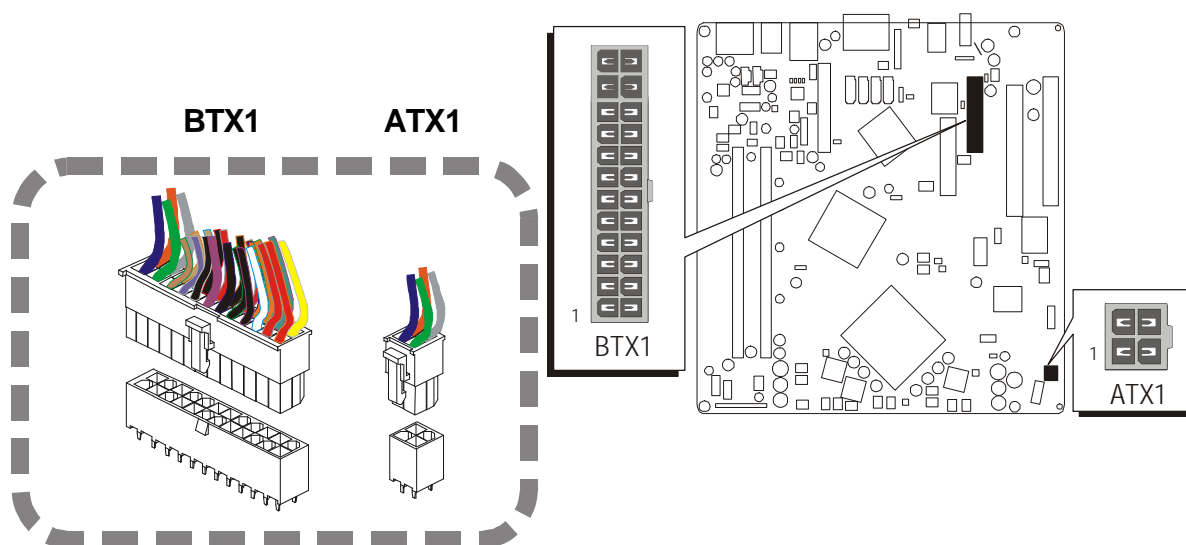


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## Other Connectors

### ATX Power Supply Connectors (ATX1/BTX1)

This mainboard uses 24-pin (BTX1) Pentium 4 standard ATX power header , ATX1 with 1X4-pin. Please make sure you plug in the right direction.

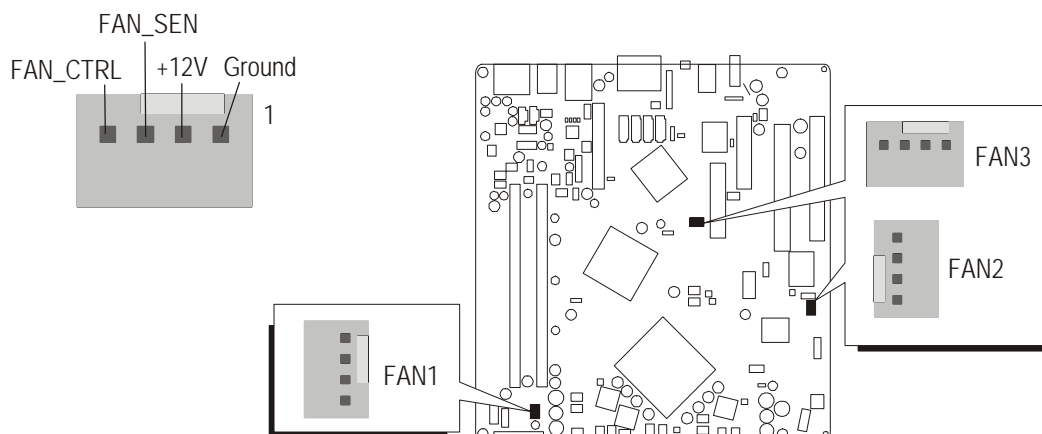


- Note 1: The ATX power connector is directional and will not go in unless the guides match perfectly making sure that pin#1 is properly positioned.
- Note 2: Make sure the latch of the ATX power connector clicks into place to ensure a solid attachment.
- Note 3: Your ATX power supply must be supplied to ACPI +5V standby power and at least 720mA compatible.
- Note 4: Make sure your power supply have enough power for higher speed processor installed.

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## D2 Fan Connectors - FAN1/2/3

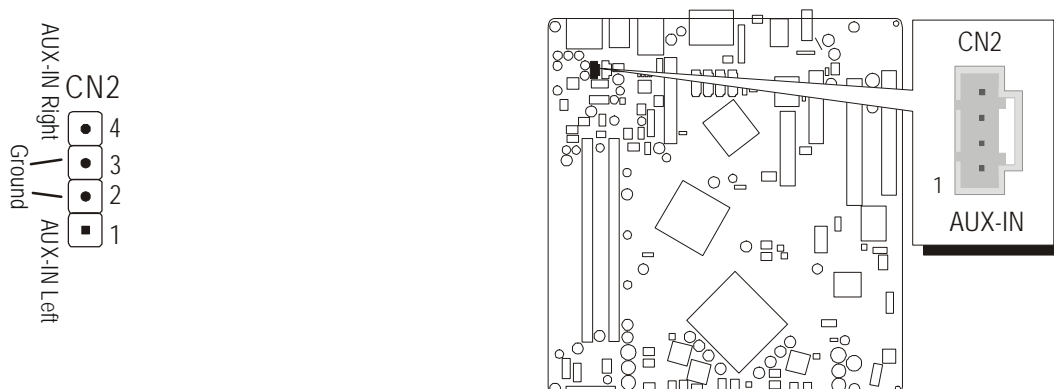
The mainboard provides three onboard 12V fan's power connectors to support cooling fans.



Note : Both cable wiring and type of plug may vary , which depends on the fan maker. Keep in mind that the red wire should always be connected to the +12V header and the black wire to the ground (GND) header.

## D3 AUX-IN Connector (CN2)

Port CN2 can be used to connect a stereo audio input from CD-ROM, TV-tuner or MPEG card.



Pin Assignments (CN2):

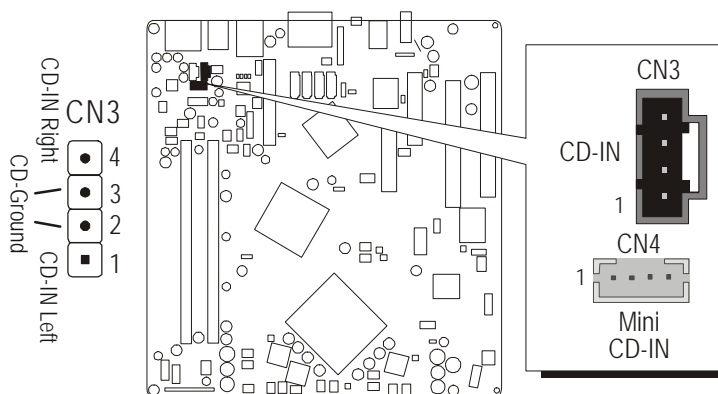
- 1 = AUX-IN Left
- 2 = GND
- 3 = GND
- 4 = AUX-IN Right

#### D4 CD-IN (CN3)(Black)/ Mini CD-IN (CN4) Connectors

Port CN3 (Black) and CN4 are used to attach an audio connector cable from the CD-ROM drive.

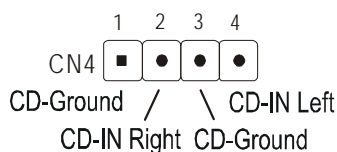
Pin Assignments (CN3):

- 1 = CD-in Left
- 2 = CD-GND
- 3 = CD-GND
- 4 = CD-in Right



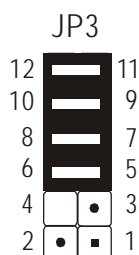
Pin Assignments (CN4):

- 1 = CD-GND
- 2 = CD-in Right
- 3 = CD-GND
- 4 = CD-in Left



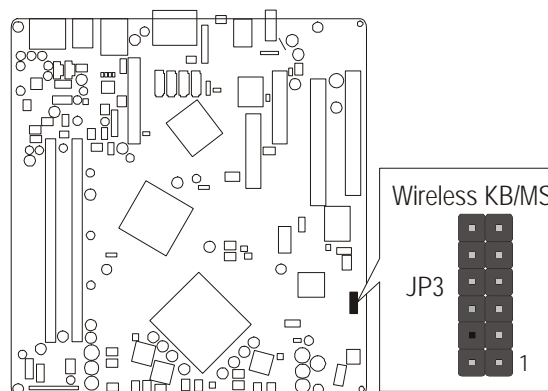
#### D5 Wireless Keyboard and Mouse Connector (JP3)

Port JP3 can be used to connect wireless keyboard and mouse device. 4 mini Jumper must be setted on pin 5-6, 7-8, 9-10 and 11-12 when this header is not used.



Pin Assignments (JP3):

- 1 = VCC                      2 = VCC
- 3 = Ground                4 = KEY
- 5 = MSCLK                6 = MS\_CK
- 7 = MSDATA              8 = MS\_DK
- 9 = KBCLK                10 = KB\_CK
- 11 = KBDATA             12 = KB\_DK



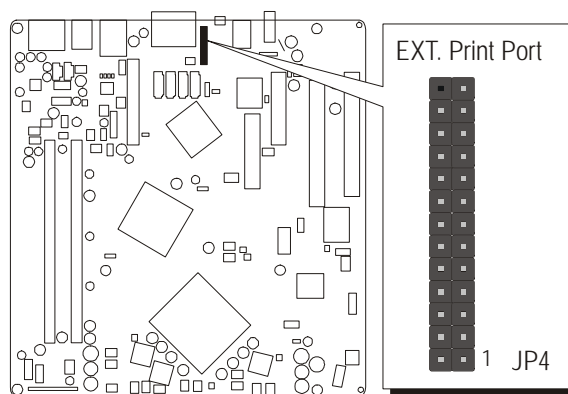


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## **D6 EXT. Print Port (JP4)**

One DB25 male parallel port header is located at the rear panel of the motherboard. The header is used to connect the cable attached to parallel connector. But the parallel cable is optional at the time of purchase.

26		•	13
25	•	•	12
24	•	•	11
23	•	•	10
22	•	•	9
21	•	•	8
20	•	•	7
19	•	•	6
18	•	•	5
17	•	•	4
16	•	•	3
15	•	•	2
14	•	■	1

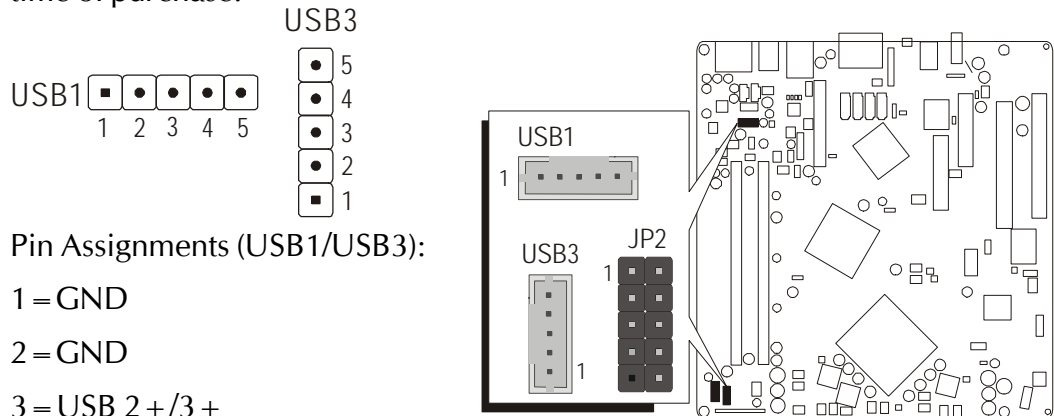


### Pin Assignments (JP4):

1 = P_-STB	2 = P_-PPD0	3 = P_-PPD1
4 = P_-PPD2	5 = P_-PPD3	6 = P_-PPD4
7 = P_-PPD5	8 = P_-PPD6	9 = P_-PPD7
10 = P_-ACK	11 = P_-BUSY	12 = P_-PE
13 = P_-SLCT	14 = P_-AFD	15 = P_-ERR
16 = P_-INIT	17 = P_-SLIN	18 = GND
19 = GND	20 = GND	21 = GND
22 = GND	23 = GND	24 = GND
25 = GND	26 = KEY	

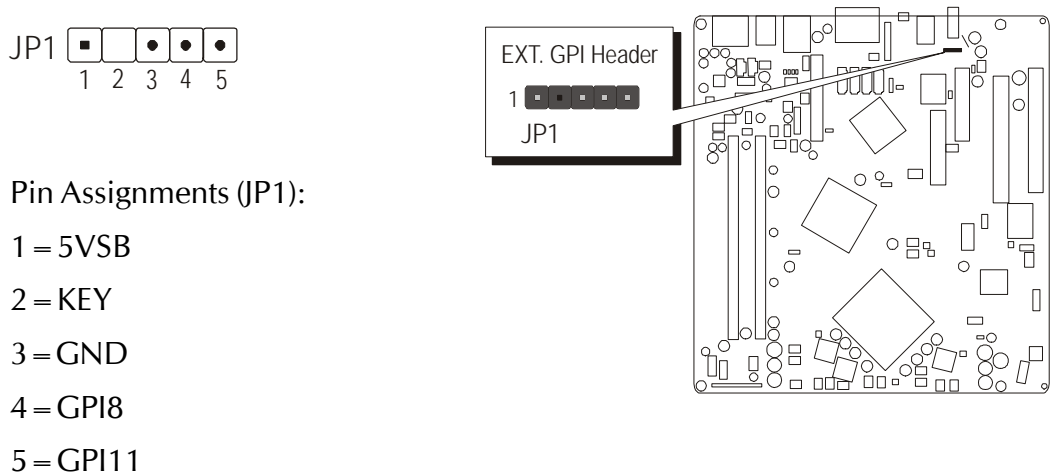
## D7 USB Headers (USB1/USB3/JP2)

The headers are used to connect the cable attached to USB connectors which are mounted on front panel or back panel. But the USB cable is optional at the time of purchase.



## D8 EXT. GPI Header (JP1)

Port JP1 can be used to connect special device.



---

### 3.3 System Memory Configuration

The FB86 mainboard has two 184-pin DIMM slots that allow you to install from 128MB up to 4GB of system memory. Each 184-pin DIMM (Dual In-line Memory Module) Slot can accommodate 128MB, 256MB, 512MB, 1GB, and 2GB of PC2700/PC3200 compliant 2.6V single (1 Bank) or double (2 Bank) side 64-bit wide data path DDR SDRAM modules.

#### Install Memory:

Install memory in any or all of the banks. The combination shown as follows.

TOTAL 2 DIMM in Single or Dual Channel Mode up to 4GB and 2GB per DIMM								
Density	128 Mbit		256 Mbit		512 Mbit		1024 Mbit	
Device Width	X8	X16	X8	X16	X8	X16	X8	X16
Single Side	128MB	128MB	256MB	256MB	512MB	512MB	1024MB	1024MB
Double Side	256MB	256MB	512MB	512MB	1024MB	N/A	2048MB	N/A

- Note: 1. Double -side X16 DDR-SDRAM chips are not supported.  
2. Registered DIMM are not supported.  
3. Only unbuffered without ECC DIMM are supported.

Note : You do not need to set any jumper to configure memory since the BIOS utility can detect the system memory automatically.  
You can check the total system memory value in the BIOS Standard CMOS Setup menu.

#### Upgrade Memory:

You can easily upgrade the system memory by inserting additional DDR SDRAM modules in available DIMM slots. The total system memory is calculated by simply adding up the memory in all DIMM slots. After upgrade, the new system memory value will automatically be computed and displayed in the field "Standard CMOS Setup" of BIOS setup program.

# 4 SOFTWARE UTILITY

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## 4.1 Mainboard CD Overview

Note : The CD contents attached in FB86 mainboard are subject to change without notice.

To start your mainboard CD disc, just insert it into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click or run D:\Autorun.exe (assuming that your CD-ROM drive is drive D:)

### Navigation Bar Description:

- ☞ Install Mainboard Software - Installing Intel Chipset, Intel VGA, Intel IAA, Marvell Giga LAN, Intel USB 2.0, Intel High Definition Bus, Intel High Definition Audio and DirectX9 Utility.
- ☞ Install Utility - Installing Acrobat Reader, WinFlash Utility.
- ☞ Manual - FB86 user's manual and ICH6R RAID manual in PDF format.
- ☞ Link to Shuttle Homepage - Link to shuttle website homepage.
- ☞ Browse this CD - Allows you to see contents of this CD.
- ☞ Quit - Close this CD.



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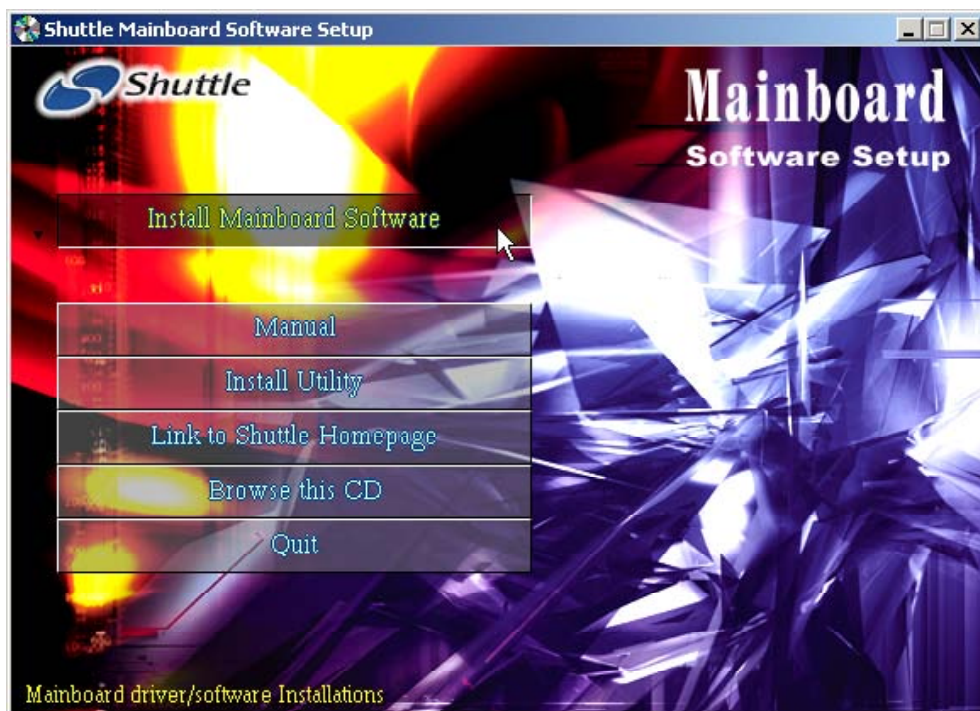
## 4.2 Install Mainboard Software

Insert the attached CD into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click on Autorun icon in My Computer to bring up Shuttle Mainboard Software Setup screen.

Select using your pointing device (e.g. mouse) on the "Install Mainboard Software" bar to run into sub-menu.

The Mainboard Software include:

- [4.2.A] Install Intel Chipset Driver
- [4.2.B] Install Intel VGA Driver
- [4.2.C] Install Intel IAA Driver
- [4.2.D] Install Marvell Giga LAN Driver
- [4.2.E] Install Intel USB 2.0 Driver
- [4.2.F] Install Intel High Definition Bus
- [4.2.G] Install Intel High Definition Audio Driver
- [4.2.H] Install DirectX9 Utility





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### 4.2.A Install Intel Chipset Driver

Select using your pointing device (e.g. mouse) on the "Install Intel Chipset Driver" bar to install Intel Chipset Driver.



Once you made your selection, a Setup window run the installation automatically.

When the copying files is done, make sure you reboot the system to take the installation effect.

### 4.2.B Install Intel VGA Driver

Select using your pointing device (e.g. mouse) on the "Install Intel VGA Driver" bar to install Intel VGA Driver.



Once you made your selection, a Setup window run the installation automatically.

When the copying files is done, make sure you reboot the system to take the installation effect.

---

### 4.2.C Install Intel IAA Driver

Select using your pointing device (e.g. mouse) on the "Install Intel IAA Driver" bar to install IAA Driver.



Once you made your selection, a Setup window run the installation automatically.

When the copying files is done, make sure you reboot the system to take the installation effect.

### 4.2.D Install Marvell Giga LAN Driver

Select using your pointing device (e.g. mouse) on the "Install Marvell Giga LAN Driver" bar to install Giga LAN Driver.



Once you made your selection, a Setup window run the installation automatically.

When the copying files is done, make sure you reboot the system to take the installation effect.

---

#### 4.2.E Install Intel USB 2.0 Driver

Select using your pointing device (e.g. mouse) on the "Install Intel USB 2.0 Driver" bar to Giga LAN Driver. Once you made your selection, a Setup window will run the installation automatically. Reboot the system after the installation.



#### 4.2.F Install Intel High Definition Bus

Click on the "Install Mainboard Software"; then click on the "Install Intel High Definition Bus" bar to install the High Definition Bus driver. Once you made your selection, a Setup window will run the installation automatically. Reboot the system after the installation.





---

#### 4.2.G Install Intel High Definition Audio Driver

Click on the "Install Mainboard Software"; then click on the "Install Intel High Definition Audio Driver" bar to install the High Definition Audio driver. Once you made your selection, a Setup window will run the installation automatically. Reboot the system after the installation.



Important:  
Under Win 98/Me,  
please check the  
"Read me" file and  
follow steps for  
manual installation.

#### 4.2.H Install DirectX9 Utility

Select using your pointing device (e.g. mouse) on the "Install DirectX9 Utility" bar to install DirectX9. Once you made your selection, a Setup window will run the installation automatically. Reboot the system after the installation.



---

### 4.3 View the User's Manual

Insert the attached CD into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click on AutoRun icon in My Computer to bring up Shuttle Mainboard Software Setup screen. Select using your pointing device (e.g. mouse) on the "Manual" bar. Then Online Information windows will appear on your screen. Click on the "Install Acrobat Reader" bar if you need to install acrobe reader.

Then Click on "FB86 Manual" bar to view user's manual.



Click on "ICH6R Manual" bar to view RAID manual.



# 5 BIOS SETUP

---

FB86 BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This information is stored in battery-backed RAM so that it retains the Setup information even if the system power is turned off.

The system BIOS is managing and executing a variety of hardware related functions in the system, including:

System date and time

Hardware execution sequence

Power management functions

Allocation of system resources

## 5.1 Enter the BIOS

To enter the BIOS (Basic Input / Output System) utility, follow these steps:

- Step 1. Power on the computer, and the system will perform its POST (Power-On Self Test) routine checks.
- Step 2. Press <Del> key immediately, or at the following message:  
Press DEL to enter SETUP, or simultaneously press <Ctrl>, <Alt>, <Esc> keys

Note1. If you miss trains of words mentioned in step2 (the message disappears before you can respond) and you still wish to enter BIOS Setup, restart the system and try again by turning the computer OFF and ON again or by pressing the <RESET> switch located at the computer's front-panel. You may also reboot by simultaneously pressing the <Ctrl>, <Alt>, <Del> keys simultaneously.

Note2. If you do not press the keys in time and system does not boot, the screen will prompt an error message, and you will be given the following options:

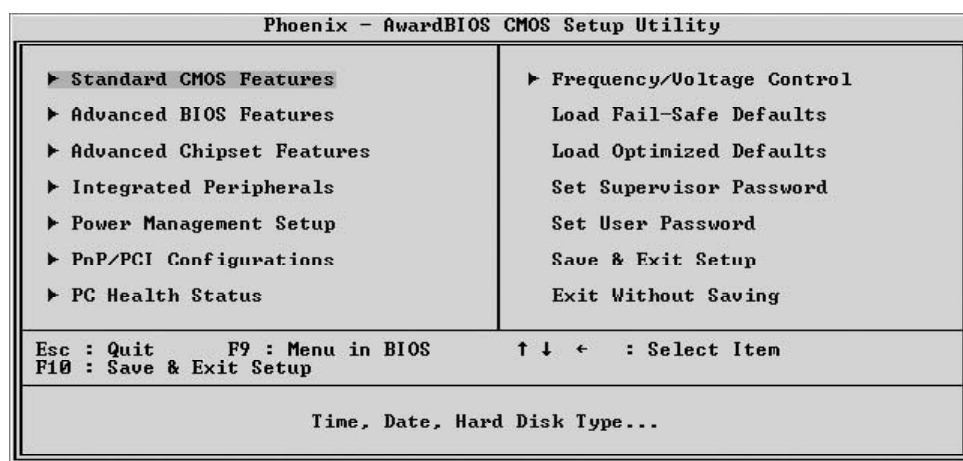
"Press F1 to Continue, DEL to Enter Setup"

- Step 3. As you enter the BIOS program, the CMOS Setup Utility will prompt you the Main Menu, as shown in the next section.

---

## 5.2 The Main Menu

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



Note that a brief description of each highlighted selection appears at the bottom of the screen.

### **Setup Items**

The main menu includes the following main setup categories. Recall that some systems may not include all entries.

### **Standard CMOS Features**

Use this menu for basic system configuration.

### **Advanced BIOS Features**

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

### **Advanced Chipset Features**

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

### **Integrated Peripherals**

Use this menu to specify your settings for integrated peripherals.

### **Power Management Setup**

Use this menu to specify your settings for power management.

### **PnP / PCI Configurations**

This entry appears if your system supports PnP / PCI.

---

### ***PC Health Status***

This entry shows the current system temperature, Voltage, and FAN speed.

### ***Frequency/Voltage Control***

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

### ***Load Fail-Safe Defaults***

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

### ***Load Optimized Defaults***

Use this menu to load the BIOS default values that are factory-set for optimal performance system operation. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet users' needs.

### ***Set Supervisor / User Password***

Use this menu to change, set, or disable password. It allows you to limit access to the system and Setup, or only to Setup.

### ***Save & Exit Setup***

Save CMOS value changes in CMOS and exit from setup.

### ***Exit Without Saving***

Abandon all CMOS value changes and exit from setup.



## Standard CMOS Features

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

Phoenix - AwardBIOS CMOS Setup Utility		
Standard CMOS Features		
Date (mm:dd:yy)	Tue, Apr 27 2004	Item Help Menu Level ▶ Change the day, month, year and century
Time (hh:mm:ss)	23 : 33 : 23	
▶ IDE Channel 0 Master	[ None ]	
▶ IDE Channel 0 Slave	[ None ]	
▶ IDE Channel 2 Master	[ None ]	
▶ IDE Channel 2 Slave	[ None ]	
▶ IDE Channel 3 Master	[ None ]	
▶ IDE Channel 3 Slave	[ None ]	
Drive A	[ 1.44M, 3.5 in. ]	
Video	[ EGA/VGA ]	
Halt On	[ All Errors ]	
Base Memory	640K	
Extended Memory	64512K	
Total Memory	65536K	
↑↓←→:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

### Date

<mm> <dd> <yy>

Set the system date. Note that the 'Day' automatically changes when you set the date.

### Time

<hh : mm : ss>

The time is converted based on the 24-hour military-time clock. For example, 5 p.m. is 17:00:00.

### IDE Channel 0/2/3

Options are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

### Drive A

Select the type of floppy disk drive installed in your system.

- The choice: None, 360K, 5.25 in, 1.2M, 5.25 in, 720K, 3.5 in, 1.44M, 3.5 in, or 2.88M, 3.5 in.

### Video

Select the default video device.

- The choice: EGA/VGA, CGA 40, CGA 80 or MONO.

---

### Halt On

Select the situation in which you want the BIOS to stop the POST process and notify you.

- The choice: All Errors, No Errors, All, But Keyboard, All, But Diskette, or All, But Disk/Key.

### Base Memory

Displays the amount of conventional memory detected during boot up.

- The choice: N/A.

### Extended Memory

Displays the amount of extended memory detected during boot up.

- The choice: N/A.

### Total Memory

Displays the total memory available in the system.

- The choice: N/A.

\*\*\*\*\*

## ***IDE Adapters***

The IDE adapters control the hard disk drive. Use a separate sub-menu to configure each hard disk drive.

### IDE HDD Auto-Detection

Press <Enter> to auto-detect HDD on this channel. If detection is successful, it fills the remaining fields on this menu.

- Press Enter

### IDE Channel 0/2/3 Master/Slave

Selecting 'manual' lets you set the remaining fields on this screen and select the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc., Note: PRECOMP = 65535 means NONE !

- The choice: None, Auto or Manual.

### Access Mode

Choose the access mode for this hard disk.

- The choice: CHS, LBA, Large or Auto.

### Capacity

Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk checking program.

- Auto-Display your disk drive size.

---

The following options are selectable only if the 'IDE Primary Master' item is set to 'Manual', and Access mode set to CHS.

Cylinder

Set the number of cylinders for this hard disk.

➤ Min = 0, Max = 65535.

Head

Set the number of read/write heads.

➤ Min = 0, Max = 255.

Precomp

Warning: Setting a value of 65535 means no hard disk.

➤ Min = 0, Max = 65535.

Landing zone

Set the Landing zone size.

➤ Min = 0, Max = 65535.

Sector

Number of sector per track.

➤ Min = 0, Max = 255.

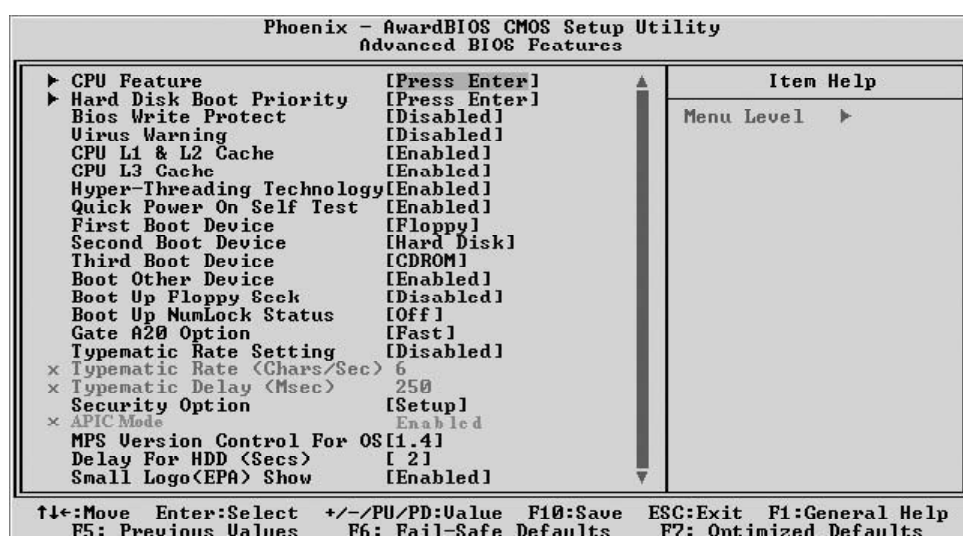
\*\*\*\*\*



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## **Advanced BIOS Features**

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing, and security.



### CPU Feature

Options are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

### Delay Prior to Thermal

This item is select Delay Prior to Thermal.

- The Choice: 4 Min, 8 Min, 16 Min or 32 Min.

### Thermal Management

This item is select Thermal Management . Thermal Monitor 1 (On die throttling). Thermal Monitor 2 (Ratio & VID transition).

- The Choice: Thermal Monitor 1 or Thermal Monitor 2.

### TM2 Bus Ratio

Represents the frequency (bus ratio of the throttled performance state that will be initiated when the on-die sensor goes from not hot to hot.

- The Choice: Min = 0, Max = 255.

Note: CPU support TM2, item appear.

---

### TM2 Bus VID

Represents the voltage of the throttled performance state that will be initiated when the on die sensor goes from not hot to hot.

➤ The Choice: 0.8375V ~ 1.6000V.

Note: CPU supports TM2, item appear.

### Limit CPUID MaxVal

Set Limit CPUID MaxVal to 3, Should Be "Disabled" for WinXp.

➤ The Choice: Disabled or Enabled.

Note: Some older O.S.'s (Win98, WinMe..) cannot handle a CPUID MaxVal greater than 3. Please choose "Enabled" if you use one of those O.S. If your O.S. is WinXP or Win2000, we suggest you "Disabled" the item.

### NX BIOS Control

When disabled, forces the NX feature flag to always return 0.

➤ The Choice: Enabled or Disabled.

Note: CPU supports NX-Bit, item appear.

### Hard Disk Boot Priority

This item allows you to select Hard Disk Boot Device Priority.

### Bios Write Protect

This item allows you to enable or disable the Bios Write Protect. If you want to flash BIOS, you must set it [Disabled].

➤ The choice: Enabled or Disabled.

### Virus Warning

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

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

Disabled No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

- 
- The choice: Enabled or Disabled.

#### CPU L1&L2&L3 Cache

All processors that can be installed in this mainboard use internal level1(L1) , external 2(L2) and (L3) cache memory to improve performance.

Leave this item at the default value for better performance.

- The choice: Enabled or Disabled.

Note: CPU supports, L3 item appear.

#### Hyper-Threading Technology

The latest Intel application defines a high-speed calculating ability to optimize your system by two CUPs supported(one virtual, one physical) in a multi-task environment. "Enabled" for Windows XP and Linux 2.4.x (OS optimized for Hyper Threading Technology) and "Disable" for other OS(OS not optimized for Hyper Threading Technology)

- The choice: Enabled or Disabled.

#### Quick Power On Self Test

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

- The choice: Enabled or Disabled.

#### First/Second/Third Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items.

- The Choice:Floppy, LS120, Hard Disk, CDROM, ZIP100, USB-FDD, USB-ZIP, USB-CDROM, LAN or Disabled.

#### Boot Other Device

If BIOS can't load O.S. from First/Second/Third boot device you select above, BIOS will search other devices and attempt to load O.S..

- The choice:Enabled or Disabled.

#### Boot Up Floppy Seek

Enabled tests floppy drives to determine whether they have 40 or 80 tracks

- The choice: Enabled or Disabled.

#### Boot Up NumLock Status

Selects power on state for NumLock.

- 
- The choice: Off or On.

#### Gate A20 Option

This entry allows you to select how the Gate A20 is handled. The gate A20 is a device used for above 1MByte of address memory. Initially, the gate A20 was handled via a pin on the keyboard. Today, while a keyboard still provides this support, it is more common and much faster in setting to fast for the system chipset to provide support for gate A20.

- The choice: Normal or Fast.

#### Typematic Rate Setting

Keystrokes repeat at a rate determined by the keyboard controller. When this controller enabled, the typematic rate and typematic delay can be selected.

- The choice: Enabled or Disabled.

#### Typematic Rate (Chars/Sec)

This item sets how many times the keystroke will be repeat in a second when you hold the key down.

- The choice: 6, 8, 10, 12, 15, 20, 24 or 30.

#### Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke.

- The choice: 250, 500, 750 or 1000.

#### Security Option

Select whether the password is required every time the system boots or only when you enter setup.

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

Setup The system will boot, but access to Setup will be denied if the correct password is not entered promptly.

- The choice: System or Setup.

Note : To disabled security, select PASSWORD SETTING at Main Menu, and then you will be asked to enter password. Don't type anything and just press <Enter> ; it will disable security. Once the security is disabled, the system will boot, and you can enter Setup freely.

---

### APIC Mode

Via the routing, I/O APIC support a total of 24 interrupts.

- The choice: Always "Enabled".

### MPS Version Control For OS

Selects the operating system multiprocessor support version.

- The choice: 1.1 or 1.4.

### Delay For HDD <Secs>

This item allows you to set delay for HDD <secs> .

Key in a DEC number: (Between Min and Max.) The default value is 4 secs..

- The choice: 0 ~ 15.

### Small Logo (EPA) Show

This item allows you to enable/disable the EPA Logo.

- The choice: Enabled or Disabled.



## Advanced Chipset Features

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It states that these items should never need to be altered.

The default settings have been chosen because they provide the best operating conditions for your system. If you discovered that data was being lost while using your system, you might consider making any changes.

Phoenix - AwardBIOS CMOS Setup Utility	
Advanced Chipset Features	
System BIOS Cacheable	[Enabled]
Video BIOS Cacheable	[Disabled]
Memory Hole At 15M-16M	[Disabled]
Menu Level ▶	
** UGA Setting **	
PEG/Onchip UGA Control	[Auto]
PEG Force X1	[Disabled]
On-Chip Video Memory Size	[Press Enter]
On-Chip Frame Buffer Size	[8MB]
FIXED Memory Size	[24MB]
DUMT Memory Size	[63MB]

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

### System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F0000h ~ FFFFFh, resulting in better system performance. However, if any program is written to this memory area, a system error may result.

- The Choice: Enabled or Disabled.

### Video BIOS Cacheable

Selecting Enabled allows caching of the video BIOS, resulting in better system performance. However, if any program is written to this memory area, a system error may result.

- The Choice: Enabled or Disabled.

### Memory Hole At 15M-16M

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it can't be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.

- The Choice: Enabled or Disabled.

---

\*\*\*\*\* VGA Setting \*\*\*\*\*

PEG/Onchip VGA Control

This item allows you to decide to activate whether PEG slot or Onchip VGA first.

- The choice: Auto, Onchip VGA or PEG Port .

PEG Force X1

This item allows you to force PEG link X1.

- The Choice: Enabled or Disabled.

On-Chip Video Memory Size

Press <Enter> to set the onboard VGA share memory size.

On-Chip Frame Buffer Size

This item allows you to set the onboard frame share memory size.

- The Choice: 1MB or 8MB.

FIXED Memory Size

This item allows you to set the FIXED Memory Size.

- The Choice: 0MB, 56MB, 63MB, 120MB or 127MB.

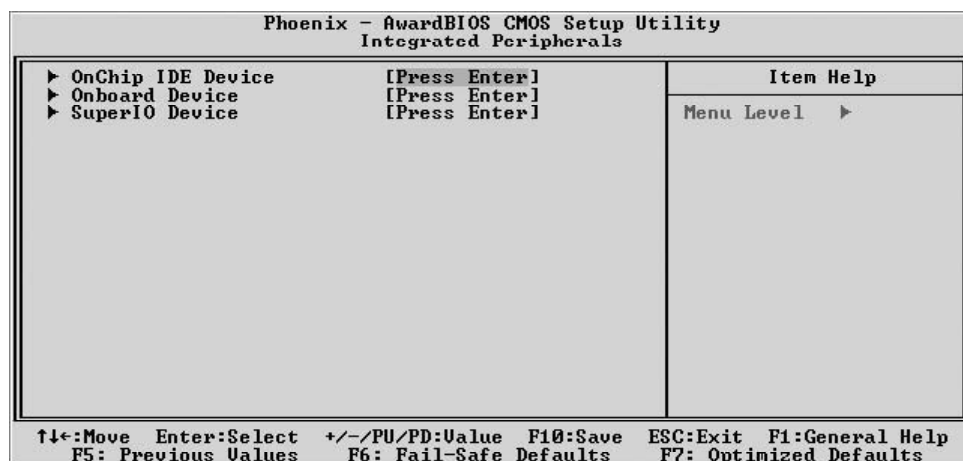
DVMT Memory Size

This item allows you to set the DVMT Memory Size.

- The Choice: 0MB, 56MB, 63MB, 120MB, 127MB or MAX. DVMT.

---

## **Integrated Peripherals**



### On-Chip IDE Device

Options are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

#### IDE HDD Block Mode

If your IDE hard disk drive supports block mode (most new drives do), select Enabled to automatically detect the optimal number of block reads and writes per sector that the drive can support and improves the speed of access to IDE devices.

- The choice: Enabled or Disabled.

#### IDE DMA transfer access

Improve IDE HD/CDROM transfer performance.

- The choice: Enabled or Disabled.

#### On-Chip Primary PCI IDE

Use these items to enable or disable the PCI IDE channels that are integrated on the mainboard.

- The choice: Enabled or Disabled.

#### IDE Primary Master/Slave PIO

Each IDE channel supports a master device and a slave device. These four items let you assign which kind of PIO (Programmed Input/Output) is used by IDE devices. Choose Auto to let the system automatically detect which PIO mode is best or select a PIO mode from 0-4.

- The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3 or Mode 4.



---

### IDE Primary Master/Slave UDMA

Each IDE channel supports a master device and a slave device. This mainboard supports UltraDMA technology, which provides faster access to IDE devices.

If you install a device that supports UltraDMA, change the appropriate item on this list to Auto. You may have to install the UltraDMA driver supplied with this mainboard in order to use an UltraDMA device.

➤ The Choice: Auto or Disabled.

\*\*\*\*\* On-Chip Serial ATA Setting \*\*\*\*\*

### SATA Mode

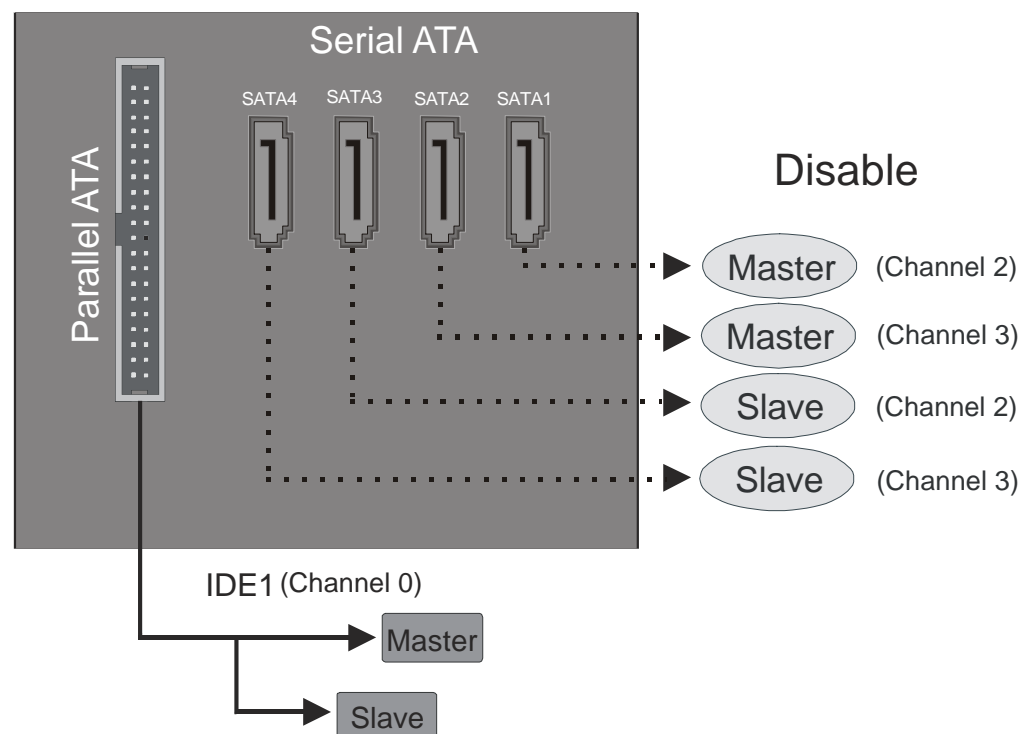
This item allows you to set the SATA Mode.

➤ The choice: IDE, RAID or AHCI.

### On-Chip Serial ATA

➤ The Choice: Disabled, Enhanced Mode or SATA Only.

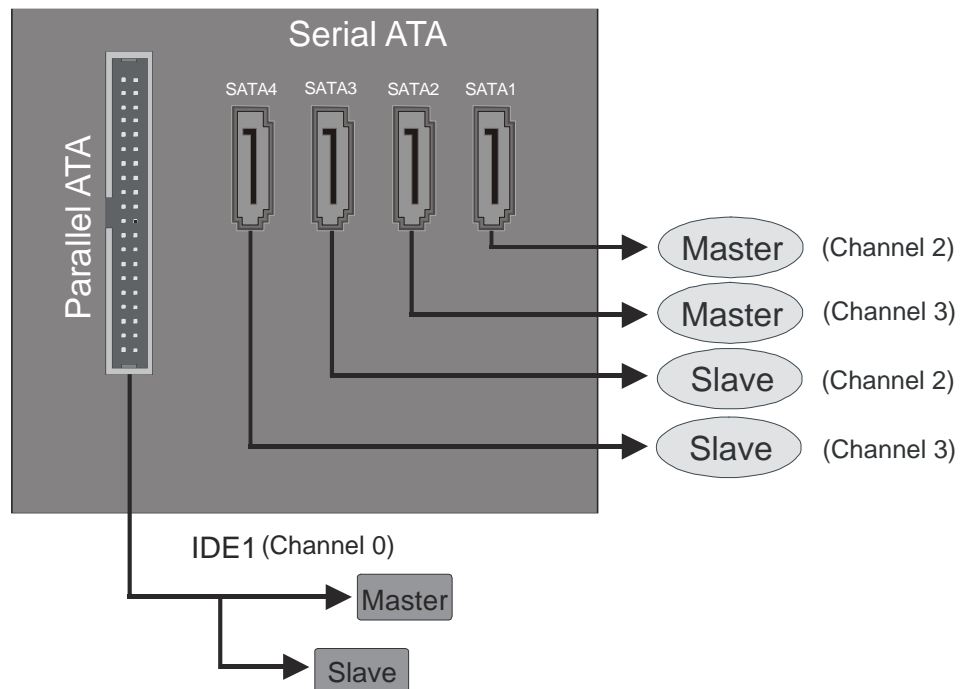
Disabled : Disabled SATA Controller.



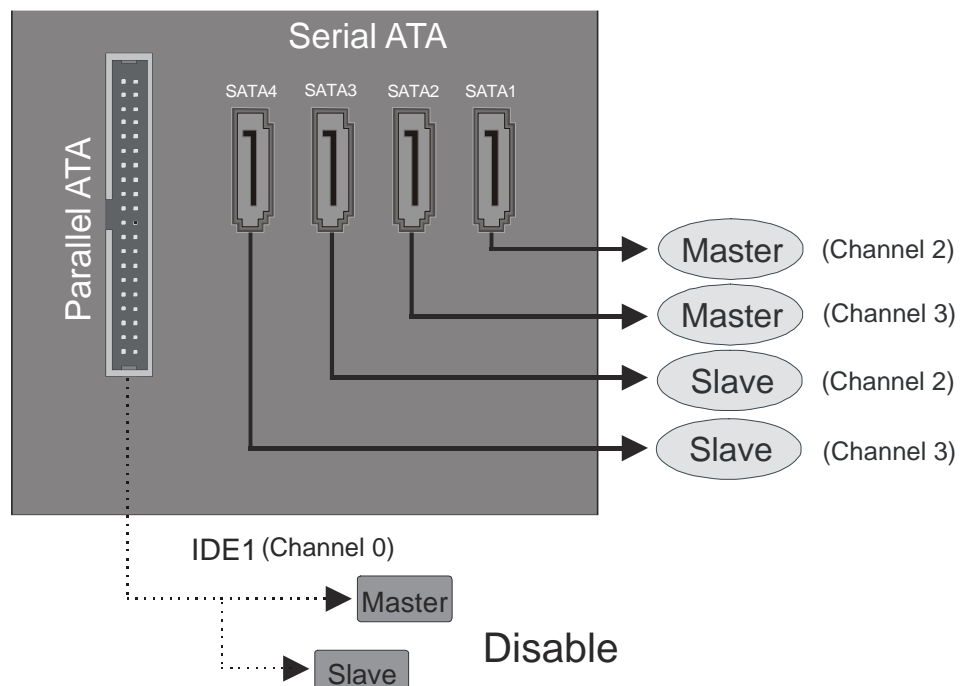
---

Enhanced Mode: Enable both SATA and PATA. Max. of 4 ATA drives are supported.

New OS that support switch to Enhanced mode (WinXP, Windows.NET Server, Windows 2000 ) can set SATA and PATA to Enhanced Mode.



SATA-Only: SATA is operating in legacy mode.



---

## Onboard Device

Options are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

### USB Controller

Select Enabled if your system contains a Universal Serial Bus (USB) port on this mainboard.

➤ The choice: Enabled or Disabled.

### USB 2.0 Controller

Select Enabled if your system contains a Universal Serial Bus (USB) 2.0 controller and you have USB peripherals.

➤ The choice: Enabled or Disabled.

### High Definition Audio

This item allows you to set high definition audio.

➤ The choice: Auto or Disabled.

### Onboard Lan Boot ROM

Decide whether to invoke the boot ROM of the onboard LAN chip

➤ The choice: Enabled or Disabled.

## SuperIO Device

Options are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

### Onboard FDC Controller

This item specifies onboard floppy disk drive controller. This setting allows you to connect your floppy disk drives to the onboard floppy connector.

➤ The choice: Enabled or Disabled.

### Onboard Serial Port 1

This option is used to assign the I/O address and interrupt request (IRQ) for the onboard serial port 1 (COM1).

➤ The choice: Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, or Auto.

---

### Onboard Parallel Port

This item allows you to determine onboard parallel port controller I/O address and interrupt request ( IRQ ).

- The choice: 378/IRQ7, 278/IRQ5, 3BC/IRQ7 or Disabled.

### Parallel Port Mode

Select an operating mode for the onboard parallel (printer) port. Select Normal, Compatible, or SPP unless you are certain your hardware and software both support one of the other available modes.

- The choice: SPP, EPP, ECP or ECP + EPP.

### ECP Mode Use DMA

When the onboard parallel is set to ECP mode, the parallel port can use DMA3 or DMA1.

- The choice: 1 or 3.



## Power Management Setup

Phoenix - AwardBIOS CMOS Setup Utility	
Power Management Setup	
ACPI Function	Enabled
ACPI Suspend Type	[S1<POS>]
x Run VGABIOS if S3 Resume	Auto
Power Management	[User Define]
Video Off Method	[DPMS]
Video Off In Suspend	[Yes]
Suspend Type	[Stop Grant]
MODEM Use IRQ	[3]
Suspend Mode	[Disabled]
HDD Power Down	[Disabled]
Soft-Off by PWR-BTN	[Instant-Off]
Wake-Up by PCI card	[Disabled]
Power On by Ring	[Disabled]
x USB KB/MS Wake-Up From S3	Disabled
Resume by Alarm	[Disabled]
x Date(of Month) Alarm	0
x Time(hh:mm:ss) Alarm	0 : 0 : 0
** Reload Global Timer Events **	
Primary IDE 0	[Disabled]
Primary IDE 1	[Disabled]
FDD, COM, LPT Port	[Disabled]
PCI PIRQ[A-D]#	[Disabled]
PS2 Keyboard Power ON	[Disabled]
KB Power ON Password	[Enter]
Hot Key Power ON	[Any Key]
PS2 Mouse Power ON	[Disabled]
PWRON After PWR-Fail	[Off]

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

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

### ACPI Function

This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI).

- Always "Enabled".

### ACPI Suspend Type

This item allows you to select sleep state when suspend.

- The choice: S1(POS), S3(STR) or S1 & S3.

### Run VGABIOS if S3 Resume

This item allows the system to initialize the VGA BIOS from S3(Suspend to RAM) sleep state.

- The choice: Auto, Yes or No.

### Power Management

This item allows you to decide the timing to enter suspend mode.

- The choice: User Define, Min Saving or Max Saving.

---

### Video Off Method

This determines the manner in which the monitor is blanked.

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.

Blank Screen This option only writes blanks to the video buffer.

DPMS Initial display power management signaling.

- The choice: V/H SYNC + Blank, Blank Screen or DPMS.

### Video Off In Suspend

This item determines the manner in which the monitor is blanked.

- The choice: Yes or No.

### Suspend Type

This item allows you to select the Suspend Type.

- The choice: Stop Grant or PwrOn suspend.

### MODEM Use IRQ

This determines the IRQ which the MODEM can use.

- The choice: 3, 4, 5, 7, 9, 10, 11 or NA.

### Suspend Mode

When this item enabled and after the set up time of system inactivity, all devices except the CPU will be shut off.

- The choice: Disabled, 1Min, 2Min, 4Min, 8Min, 12Min, 20Min, 30Min, 40Min or 1Hour.

### HDD Power Down

When this item enabled and after the set up time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

- The choice: Disabled or 1 Min ~ 15 Min.

### Soft-Off by PWR-BTTN

Under ACPI you can create a software power down. In a software power down, the system can be resumed by Wake UP Alarms. This item lets you install a software power down that is controlled by the power button on your system. If the item is set to Instant-Off, then the power button causes a software power down. If the item is set to Delay4 Sec. then you have to hold the power button down for 4 seconds to cause a software power down.

- 
- The choice: Instant-Off or Delay 4 Sec.

#### Wake-Up by PCI card

This item Enabled/Disabled PCI Power Management Event to wake up system.

- The choice: Enabled or Disabled.

#### Power On by Ring

This item determine the system will resume by activating of modem ring.

- The choice: Enabled or Disabled.

#### USB KB/MS Wake-up From S3

If you are using a USB KB/MS, and the ACPI suspend type is set to S3, you can enable this item to allow a KB/MS to wake up the system from power saving mode.

- The choice: Enabled or Disabled.

#### Resume by Alarm

When this item enabled, your can set the date (day of the month) and time to turn on your system.

- The choice: Enabled or Disabled.

Date(of Month) Alarm

This item selects the alarm Date (day of the month).

- Key in a DEC number: Min = 0, Max = 31.

Time(hh : mm : ss) Alarm

This item selects the alarm Time.

- [hh] ➤ Key in a DEC number: Min = 0, Max = 23.

- [mm/ss] ➤ Key in a DEC number: Min = 0, Max = 59.

#### \*\*\* Reload Global Timer Events \*\*\*

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

#### Primary IDE 0/1

When these items are enabled, the system will restart the power-saving time out counters when any activity is detected on any of the drives or devices on the primary or secondary IDE channels.

- The choice: Disabled or Enabled.

---

#### FDD, COM, LPT Port

When this item is enabled, the system will restart the power-saving timeout counters when any activity is detected on the floppy disk drive, serial ports, or the parallel port.

- The choice: Disabled or Enabled.

#### PCI PIRQ [A-D] #

When this item is disabled, any PCI device set as the Master will not power on the system.

- The choice: Disabled or Enabled.

#### PS2 Keyboard Power ON

This item allows you to set the PS2 Keyboard Power On function.

- The choice: Disabled, Password or Hot Key.

#### KB Power ON Password

This item allows you to set the KB Power On Password.

- Press "Enter" to set Password.

#### Hot Key Power ON

This item allows you to set the Hot Key Power On.

- The choice: Any Key or Ctrl-F1 ~ Ctrl-F12.

#### PS2 Mouse Power ON

This item allows you to enable or disable the PS2 Mouse Power On.

- The choice: Disabled or Enabled.

#### PWRON After PWR-Fail

This item defines if the system will be rebooted after the power fails.

- The choice: Off, On or Former-Sts.





## PnP/PCI Configurations

Phoenix - AwardBIOS CMOS Setup Utility		
PnP/PCI Configurations		
Init Display First	[PCI Slot]	Item Help Menu Level ▶
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto<ESCD>]	
x IRQ Resources	Press Enter	
PCI/UGA Palette Snoop	[Disabled]	
INT Pin 1 Assignment	[Auto]	
INT Pin 2 Assignment	[Auto]	
INT Pin 3 Assignment	[Auto]	
INT Pin 4 Assignment	[Auto]	
INT Pin 5 Assignment	[Auto]	
INT Pin 6 Assignment	[Auto]	
INT Pin 7 Assignment	[Auto]	
INT Pin 8 Assignment	[Auto]	
** 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: Fail-Safe Defaults F7: Optimized Defaults

This section describes the configuration of PCI bus system. PCI or Personal Computer Interconnection is a system which allows I/O devices to operate at the speed CPU itself keeps when CPU communicating with its own special components.

This section covers some very technical items, and it is strongly recommended that only experienced users should make any changes to the default settings.

### Init Display First

This item allows you to decide to activate whether PCI slot or PCIEx first.

- The Choice: PCI Slot, Onboard or PCIEx.

### Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit from Setup if you have installed a new device or software and the system reconfiguration has caused such a serious conflict that the operating system can not boot.

- The choice: Enabled or Disabled.

### Resource Controlled By

The Award Plug-and-Play BIOS has the capacity to automatically configure all of the boot and Plug-and-Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug-and-Play operating system such as Windows 95.

---

If you set this field to "manual" , choose specific resources by going into each of the sub-menu that follows this field (a sub-menu is proceeded by a ">").

- The choice: Auto(ESCD) or Manual.

#### IRQ Resources

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

IRQ3/4/5/7/10/11/12/14/15 assigned to

This item allows you to determine the IRQ assigned to the ISA bus and is not available to any PCI slot. Legacy ISA for devices is compliant with the original PC AT bus specification; PCI/ISA PnP for devices is compliant with the Plug-and-Play standard whether designed for PCI or ISA bus architecture.

- The choice: PCI Device or Reserved.

#### PCI/VGA Palette Snoop

It determines whether the MPEG ISA/VESA VGA Cards can work with PCI/VGA or not. If you have MPEG ISA/VESA VGA Cards and PCI/VGA Card worked, Enable this field. Otherwise, please Disable it.

- The choice: Enabled or Disabled.

#### INT Pin1 ~ 8 Assignment

Names the interrupt request(IRQ) line assigned to a device connected to the PCI interface on your system.

- The choice: Auto, 3, 4, 5, 7, 9, 10, 11, 12, 14 or 15.

\*\*\*\*\* PCI Express relative items \*\*\*\*\*

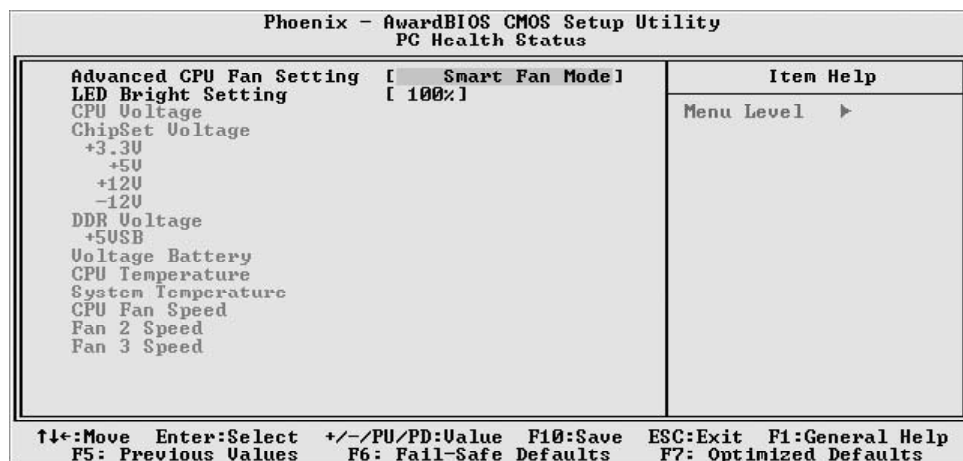
#### Maximum Payload Size

Set maximum TLP payload size for the PCI Express devices.  
The unit is byte.

- The choice: 4096, 2048, 1024, 512, 256 or 128.



## PC Health Status



### Advanced CPU Fan Setting

Set the CPU Fan Speed.

- The choice : Smart Fan Mode, Ultra- Low Fan Speed,  
Low Fan Speed, Mid Fan Speed or Full Fan Speed.

Smart Fan Mode : Keep FAN speed as low as possible, and maintain CPU temp not over setting in the same time automatically.

Ultra- Low Fan Speed: When the CPU fan set up as Ultra-Low and the temperature of CPU is over the trip point, the CPU Fan being Full Speed.

Low Fan Speed : When the CPU fan set up as Low and the temperature of CPU is over the trip point, the CPU Fan being Full Speed.

Mid Fan Speed : When the CPU fan set up as Mid and the temperature of CPU is over the trip point , the CPU Fan being Full Speed.

Full Fan Speed : CPU fan full speed.

---

### LED Bright Setting

The item allows you to set the LED bright.

- The choice: 0%, 25%, 37.5%, 50%, 62.5%, 75%, 87.5% or 100%

CPU Voltage

Chipset Voltage

+ 3.3V

+ 5V

+ 12V

- 12V

DDR Voltage

+ 5VSB

Voltage Battery

CPU Temperature

System Temperature

CPU Fan Speed

Fan 2 Speed

Fan 3 Speed

Warning : It is Strongly recommended to disable CPU Fan Auto Guardian feature, if you wish to use other fan cooler, allowing the fan to run at its default speed.



## Frequency/Voltage Control

Phoenix - AwardBIOS CMOS Setup Utility	
Frequency/Voltage Control	
Auto Detect PCI Clk	[Enabled]
Spread Spectrum	[Enabled]
DRAM Timing Selectable	[By SPD]
CAS Latency Time	[Auto]
DRAM RAS# to CAS# Delay	[Auto]
DRAM RAS# Precharge	[Auto]
Precharge delay (tRAS)	[Auto]
System Memory Frequency	[Auto]
Refresh Mode Select	[Auto]
***** Clock *****	
Now CPU Frequency	
Now DDR Frequency	
CPU Clock Ratio	[ 8 X]
CPU Ratio Fixed 14x	[Disabled]
CPU Clock	[200MHz]
PCIEX CLK	[Sync by CPU clock]
***** Voltage *****	
CPU Voltage set	[Auto]
DDR Voltage set	[Auto]
ChipSet Voltage set	[Auto]

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

### Auto Detect PCI Clk

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

- The choice: Enabled or Disabled.

### Spread Spectrum

This item allows you to enable or disable the spread spectrum modulation.

- The choice: Enabled or Disabled.

### DRAM Timing Selectable

The value in this field depends on performance parameters of the installed memory chips(DRAM). Don't change the value from the factory setting unless you install new memory that has a different performance rating than the original DRAMs.

- The Choice: Manual or By SPD.

### CAS Latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Don't change this field from the default value specified by the system designer.

- The Choice: 3, 2.5, 2 or Auto.

### DRAM RAS # to CAS # Delay

This field lets you insert a timing delay between the CAS and RAS strobe signals, and you can use it when DRAM is written to, read from, or refreshed. Faster performance is gained in high speed, more stable performance, in low speed. This field is applied only when synchronous DRAM is installed in the system.

- 
- The Choice: 2, 3, 4, 5 or Auto.

#### DRAM RAS# Precharge

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be-incompleted, and the DRAM may fail to retain data. Fast gives faster performance; and Slow gives more stable performance. This field is applied only when synchronous DRAM is installed in the system.

- The Choice: 2, 3, 4, 5 or Auto.

#### Precharge delay (tRAS)

The item allows you to set precharge delay.

- The Choice: Auto or 4 ~ 15.

#### System Memory Frequency

This item is select SDRAM Frequency.

- The Choice: Auto, 333MHz, 400MHz or 533MHz .

#### Refresh Mode Select

The item allows you to select refresh mode.

- The Choice: 7.8 us, 15.6 us, 64 us or Auto.

\*\*\*\*\* Clock \*\*\*\*\*

#### Now CPU Frequency

#### Now DDR Frequency

#### CPU Clock Ratio

This item allows the user to adjust CPU Clock Ratio. If CPU is unlocked, item appear.

- The Choice: 8X ~ 50X.

#### CPU Ratio Fixed 14x

You can select "Enabled" to fixed CPU ratio 14.

(Note: Only supports CPU FSB800 3.4/3.6/3.8 or above.)

You can select "Disabled", CPU ratio run native mode.

- The choice: Enabled or Disabled.

#### CPU Clock

This item allows the user to adjust CPU Host Clock.

Min: 100, Max: 355

- Key in a DEC number: (Between Min and Max.)

---

### PCIEX\_CLK

This item allows the user to adjust PCIEX CLK.

- The Choice: Sync by CPU Clock or Fixed 100 MHz.

\*\*\*\*\* Voltage \*\*\*\*\*

### CPU Voltage set

This item allows you to set the CPU & AGP/PCI Clock Set.

The choice: Auto, 0.8250V ~ 1.5875 V.

### DDR Voltage Select

This item allows you to adjust RAM Voltage.

- The choice: Auto, 2.70 V, 2.80 V or 2.9V.

### Chipset Voltage Select

This item allows you to adjust chipset Voltage.

- The choice: Auto, 1.6 V, 1.7V or 1.8 V.



## ***Load Fail-Safe Defaults***

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

Load Fail-Safe Defaults (Y/N) ? N

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



## ***Load Optimized Defaults***

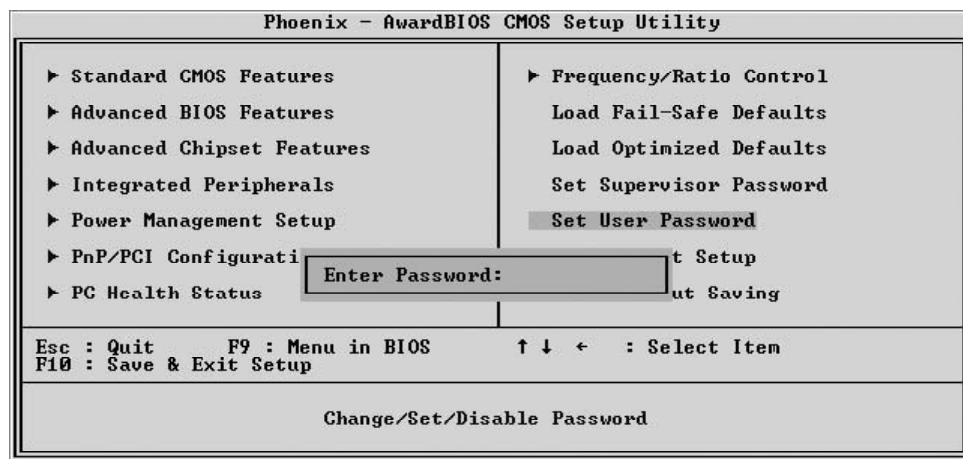
When you press <Enter> on this item, you will get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N) ? N

Pressing 'Y' loads the default values that are factory-set for optimal performance system operation.



## Set Password



This item is to set supervisor password. Please follow below steps.

### New Password Setting :

1. While pressing <Enter> key to start setting password function, a dialog box appears to ask you "Enter password: ".
2. Key in a new password now. However, the password can not be over eight characters or numbers.
3. Then system will request you to confirm new password by asking you to key in new password again.
4. Once the confirmation is completed, new code takes effect.

### No Password Setting :

5. If you want to delete password, just press <Enter> key instead of new password while password input is requested. And the other procedures are the same as above password setting.

### If You Forget Password :

6. While being asked of password, you just forget it and you must access the system. The only way is to turn off system and clear CMOS memory. Please take reference in page 28 **A3** for clear CMOS setting.



---

## **Save & Exit Setup**

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing "Y" stores the selections made in the menus of CMOS - a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

## **Exit Without Saving**

Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? Y

This allows you to exit from Setup without storing in CMOS any change. The previous selections remain in effect. This exits from the Setup utility and restarts your computer.