

Chapter 2 Hardware Setup

To Get Things Ready for Hardware Setup !

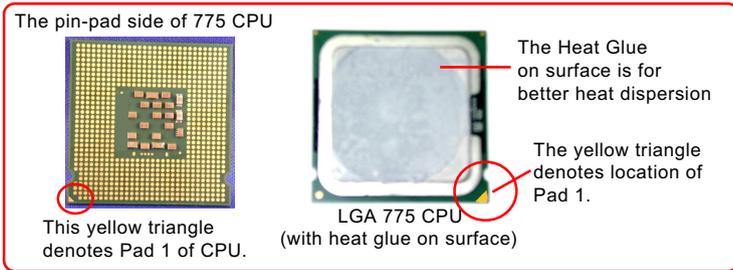
1. We recommend to install your CPU before any other components. For detailed installation instructions of processor, you can also refer to the pamphlet enclosed in your CPU package.
2. Installing a cooling fan with a good heat sink is a must for proper heat dissipation for your CPU. Get ready an appropriate fan with heat sink for proper installation. Improper fan and installation will damage your CPU.
3. In case CPU Vcore, CPU clock or Frequency Ratio is adjustable on board, please follow the instructions described in the User's manual for proper setup. Incorrect setting will cause damage to your CPU.

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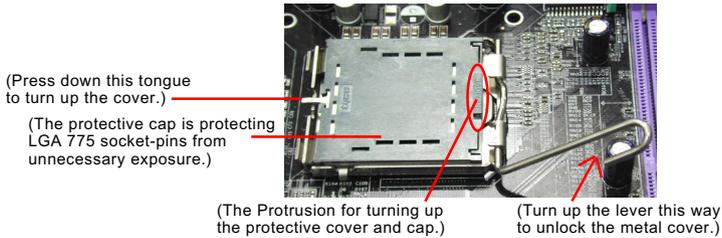
2-1 775-pin Prescott CPU and Socket LGA 775

2-1.1 To Identify a 775-pin Prescott CPU

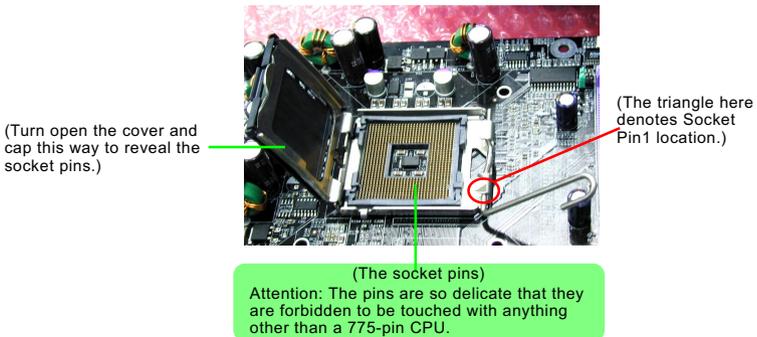


2-1.2 To install 775-pin Prescott CPU into Socket LGA 775

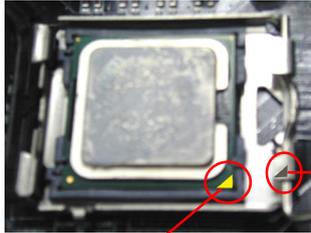
1. LGA 775 socket is safeguarded by a metal cover and a protective cap on top. Never remove the protective cap before CPU has already been installed into socket.



2. Pull sideways the socket lever and turn it up so as to unlock the metal cover from the socket base.
3. Since the metal cover together with the cap is unlocked from the socket base now, use a fingertip to pull at the protrusion at one end of cap so as to turn the cover and cap up.
4. The cover and the cap are turned open now, revealing the socket-pins. We should be aware that the pins are so delicate they are forbidden to be touched with anything other than a 775-pin CPU.



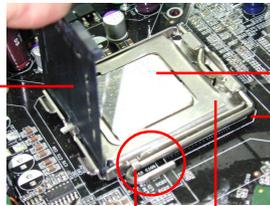
- 5. As soon as the Cover and Cap is lifted up, place down the 775 CPU gently into 775 Socket with Pad1 matching Socket Pin1.



(This yellow triangle on CPU denotes Pad1 of CPU.)

(This triangle on socket denotes Socket Pin1 location.)

- 6. When you have made sure the 775-CPU is properly laid down, you should now return the Metal Cover to Socket so as to fix down the CPU.
- 7. After returning the Metal Cover to Socket, pull back the Socket Lever to Socket until it gets back to the latch.
- 8. Since the Metal Cover is returned to Socket, use a fingertip to lift and remove the protective Cap for the Cooling Fan installation.



(The Cap is lifted up away from the Cover and can be removed now.)

(Attention: Remove this Protective Cap only if CPU is in Socket, and preserve this Cap for future mainboard repair / maintenance)

(The 775 CPU)

(The 775-Socket)

(Lever returned to Latch)

(The Metal cover)

- 9. CPU is installed, Metal cover fixed to socket, Protective Cap removed, we should install CPU Cooling Fan now.

(CPU installed, Metal Cover fixed to Socket, and Protective Cap removed, we should install CPU Cooling Fan now.)



(Cooling Fan Support Hole)

(Cooling Fan Support Hole)

- 10. Insert the 4 Fan Supporters into the Support Holes on board, and then connect the Fan Power cable to the Fan Connector on board.



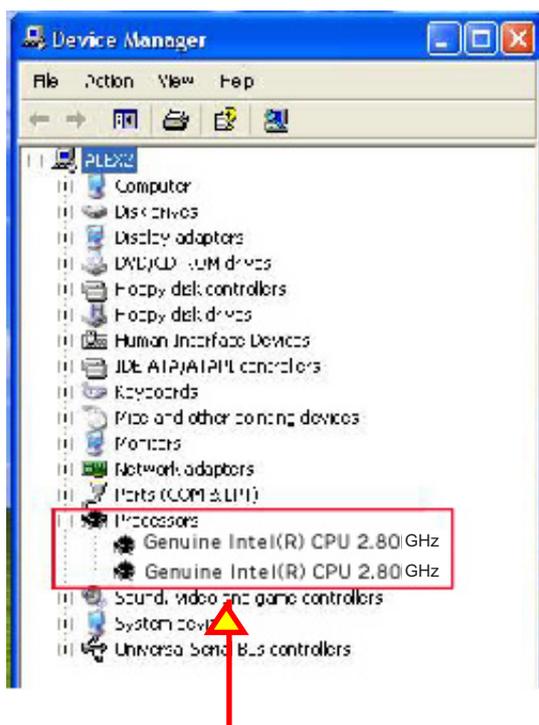
(775 Cooling Fan Supporter)

(The Fan cable is connected to Fan connector on board.)

CPU Fan and Fan Power cable are set up.

2-1.3 775-Prescott CPU Installation with Hyper-threading

- 775-Prescott CPU also supports hyper-threading technology.
- After installation of 775-Prescott CPU, you should also install Windows XP to enable Hyper-threading dual-in-one CPU function. Win98/Me/2K do not support Hyper-threading dual-in-one CPU function.



(If Hyper-threading CPU is installed successfully with O/S Win XP, the O/S will enable the dual-in-one CPU function.)

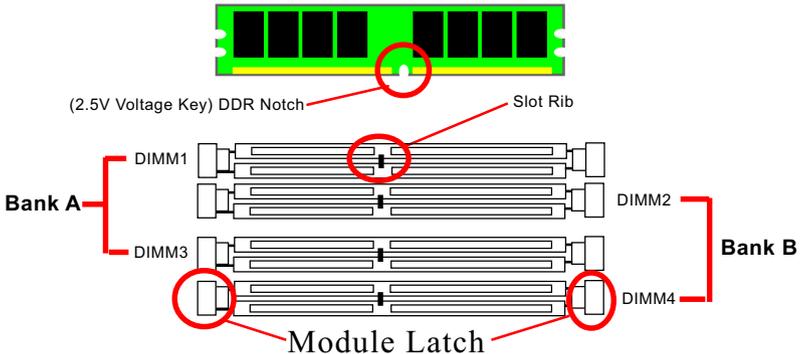
2-2 Memory Installation

2-2.1 To Install DDR SDRAM Module

- DDR DIMM slot has 184 pins and one notch. Insert a DDR SDRAM vertically into the 184-pin slot with the notch-to-rib matching.
- This mainboard supports up to 4GB unbuffered Dual-channel DDR 400/333 SDRAM, with 4 DDR DIMM slots on board. Do not insert other type of modules into these slots.

2-2.2 Dual Channel Memory Features

- Dual Channel Memory Configuration is formed by couple of identical DDR SDRAMs.
- Matched DIMMs need to have identical density, DRAM technology, DRAM bus width, and equal number of memory banks.
- This series supports up to 4GB unbuffered Dual Channel DDR 400/333 SDRAM, with 4 DDR DIMM slots on board. Do not insert other type of modules into these slots.
- The dual memory controller can double the DDR memory bandwidth up to 6.4GB/s with DDR400, 5.4GB/s with DDR333..



To Boot PC with Dual Channel Memory Configuration
Populate Bank A / Bank B / Bank A+Bank B with identical DIMMs

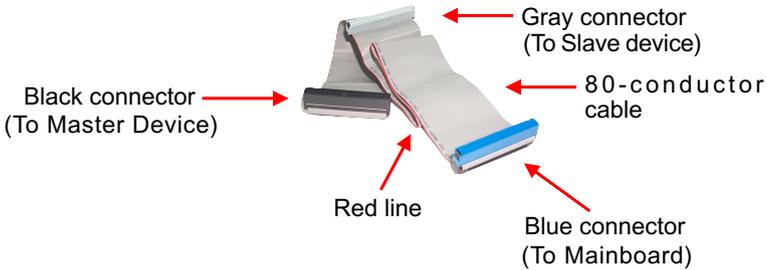
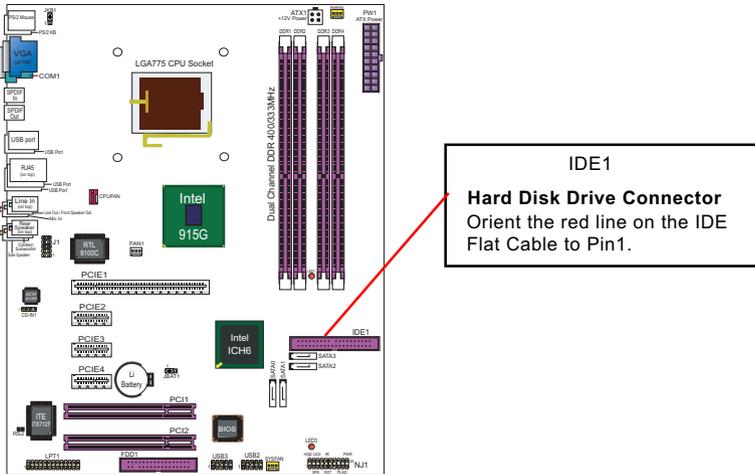
To Boot PC with Single Channel Memory Configuration
To Populate one DIMM or two DIMMs in 2 different Banks will boot PC with single-channel memory configuration.

2-2.3 To Remove a DIMM

Power off the system first, and then press down the holding latches on both sides of slot to release the module from the DIMM slot.

2-3 IDE Connector Installation

To install IDE Connector, you may connect the blue connector of IDE cable to IDE1 on board, and then connect the gray connect to your slave device and the black connector to your master device.



IDE Flat Cable

2-4 Serial ATA Connectors Installation

The Serial ATA is designed to improve the Parallel ATA with the capability of Hot Plug and offer a data bandwidth of 150Mbytes/second. It also reduce voltage and pin count and can be implemented with thin cables which improve the inner ventilaton of PC cases.

4 Serial ATA connectors are built on board, supported by the ICH6 for SATA Hard Disk Drives.

2-4.1 How to set up SATA modes

To set up SATA modes, please enter BIOS Setup and click on “IDE Configuration of the Main Menu “Advanced BIOS Features. Then configure SATA as illustrated in the IDE Configuration:

ATA/IDE Configuration

Allows you to configurare IDE device mode.

Choices: Disabled; Compatible; Enhanced

Disabled: If disabled, no Primary/Secondary IDE mode will be presented for configuration.

Compatible: If Compatible selected, Legacy IDE Channels will be presented for configuration.

Legacy IDE Channels:

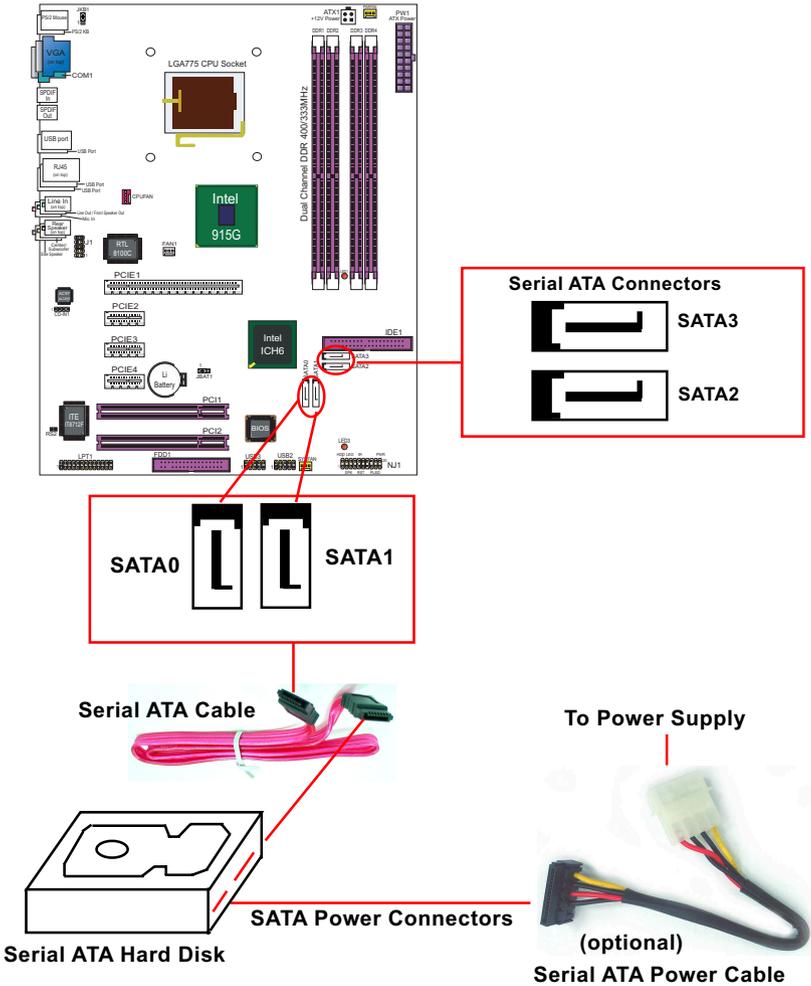
This item allows you to select the onboard IDE mode.

- Choices: SATA only: Pri IDE Master SATA0
- Pri IDE Slave SATA2
- Sec IDE Master SATA1
- Sec IDE Slave SATA3
- PATA Pri, SATA Secondary:
 - PATA Master
 - PATA Slave
 - SATA Master (SATAS1)
 - SATA Slave (SATA3)
- SATA Pri. PATA Secondary:
 - SATA Master (SATA0)
 - SATA Slave (SATA2)
 - PATA MASTER
 - PATA SLAVE

PATA only: No SATA can be set up.

Enhanced: If Enhanced selected, Configure SATA as mode will be presented for configuration.

2-4.2 How to set up SATA connectors and cables



3. To configure PCIE-x16 display, choose “NorthBridge Configuration” in “Advanced Chipset Features” and press <Enter>. The following sub-screen will appear for configuration (please see Chapter 4 BIOS Setup for detailed PCIE setup):

North Bridge Configuration

| North Bridge Chipset Configuration | Help Item |
|------------------------------------|---------------|
| DRAM Frequency | Auto |
| Configure DRAM Timing by SPD | Enabled |
| Memory Hole | Disabled |
| Boots Graphic Adapter Priority | PEG/PCI |
| Internal Graphics Mode Select | Enabled, 8MB |
| Graphics Aperture Size | 64MB |
| PEG Port Configuration | |
| PEG Port | Enabled |
| PEG Port VC1/Map | Enabled/TC7 |
| PEG Force x1 | Disabled |
| Video Function Configuration | Press Enter |
| DVMT Mode Select | Combo Mode |
| Boot Display Device | Auto |
| Flat Panel Type | Type 1 |
| Local Flat Panel Scaling | A Suto |
| TV Connector | Auto |
| HDTV Output | Auto |
| TV Standard | VBIOS-Default |

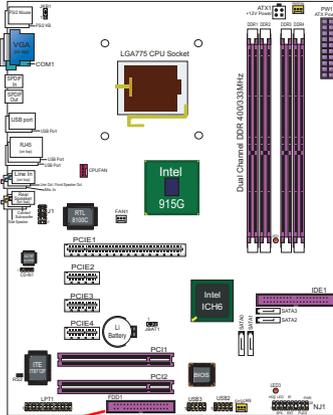
4. to configure PCIE-x1 setup, choose “SouthBridge Configuration” in “Advanced Chipset Features” and press <Enter>. The following sub-screen will appear for configuration (see Chapter 4 BIOS Setup for detailed PCIE setup):

SouthBridge Configuration

| South Bridge Chipset Configuration | Help Item |
|------------------------------------|----------------|
| Audio Codec | Auto |
| PRO-NIC Controller | Enabled |
| SMBUS Controller | Enabled |
| CHAP Controller | Disabled |
| Reserved Page Route | LPC |
| SLP_S4# Min. Assertion Width | 2 to 3 seconds |
| Restore on AC Power Loss | Power Off |
| PCI-EX Ports Configuration | |
| PCI Express Port 1 | Enabled |
| PCI Express Port 2 | Enabled |
| PCI Express Port 3 | Enabled |
| VC1 for Azalia & Root Ports | Disabled |

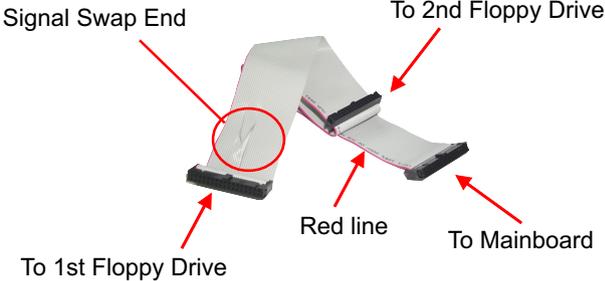
2-7 Floppy Drive Connector Installation

To install FDC, you should connect the end of FDC cable with single connector to the board, and connect the other end with two connectors to the floppy drives.



Pin 1
(to Red Line)

Floppy Drive Connector:
Orient the red line of the
Floppy Flat Cable to Pin1.



FDD Cable

2-8 ATX V2.03 Power Supply Installation

+12V Power Connector

| | | | |
|------|---|---|------|
| | 4 | 3 | |
| +12V | ○ | ○ | +12V |
| GND | ○ | ○ | GND |
| | 2 | 1 | |

| | | | |
|--------|---|---|--------|
| +12V | □ | □ | +5V |
| 5SB | □ | □ | +5V |
| PWR OK | □ | □ | -5V |
| GND | □ | □ | GND |
| +5V | □ | □ | GND |
| GND | □ | □ | GND |
| +5V | □ | □ | PS ON# |
| GND | □ | □ | GND |
| +3.3V | □ | □ | -12V |
| +3.3V | □ | □ | +3.3V |

Pin1 Pin11

Main Power Connector (20-pin)

ATX V2.03 Power Supply is needed for mainboard running with 2GHz or higher CPU. Both the Main Power Connector and the +12V Power Connector should be connected to Power Supply; otherwise, the system may either be damaged or not start.

2-9 Jumper Setup

How to tackle the Jumpers:

A 3-pin Jumper

If a pin-header (of 2 or more pins) is designed in such a way that its pins can be closed or linked together to set up a specific function, this header is called a jumper in this manual.

A 2-pin Jumper Cap

The conductor inside the cap links two header-pins together.

- A Jumper is usually but not necessarily given a “JpX” legend.
- In the Jumper setting diagram, the jumper pins covered with black marks stand for closed pins with jumper cap.

Jp X 1 3

Jumper with Pin 2-3 closed

1 3

Jumper with all pins opened

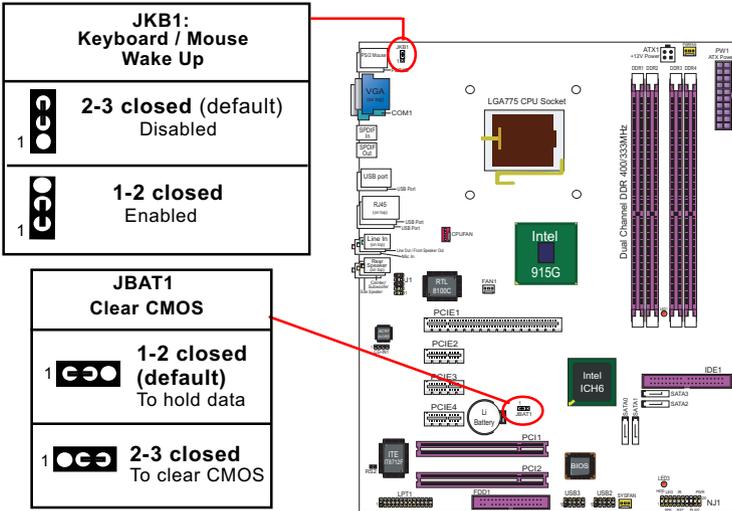
1 3

Jumper with Pin 1-2 closed

- Do not remove any jumper cap when power is on. Always make sure the power is off before changing any jumper settings. Otherwise, the mainboard will be damaged.

2-9.1 JKB1: Keyboard / Mouse Wake Up

JKB1 is designed on board as a jumper to enable/disable the PS/2 keyboard/mouse Wake Up from suspend mode. USB keyboard/mouse Wake Up function is also supported on this mainboard.



2-9.2 JBAT1: Clear CMOS

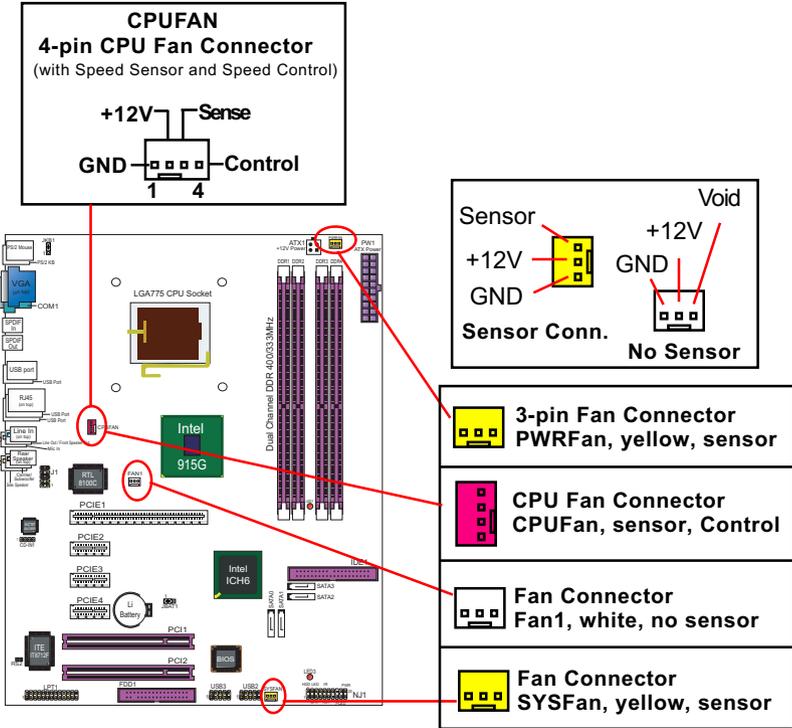
When you have problem with rebooting your system, you can clear CMOS data and restore it to default value. To clear CMOS with Jumper JBAT1, please follow the steps below:

1. Power off system.
2. Set JBAT1 to Pin 2-3 closed.
3. After 2 or 3 seconds, restore the JBAT1 setting to Pin 1-2 closed.
4. CMOS data are restored to default now. Remember never clear CMOS when system power is on.

2-10 Other Connectors Configuration

This section lists out all connectors configurations for users' reference.

2-10.1 On Board Fan Connectors



CPUFAN is a 4-pin speed sensor and speed control Fan connector supporting speed detection and speed control. CPUFAN is typically for CPU cooling fan.

PWRFAN / SYSFAN is a sensor Fan connector supporting Fan speed detection function.

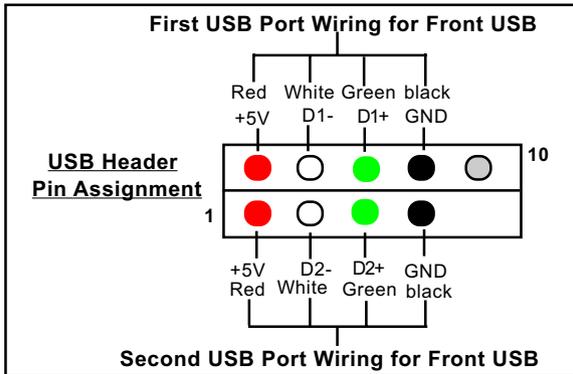
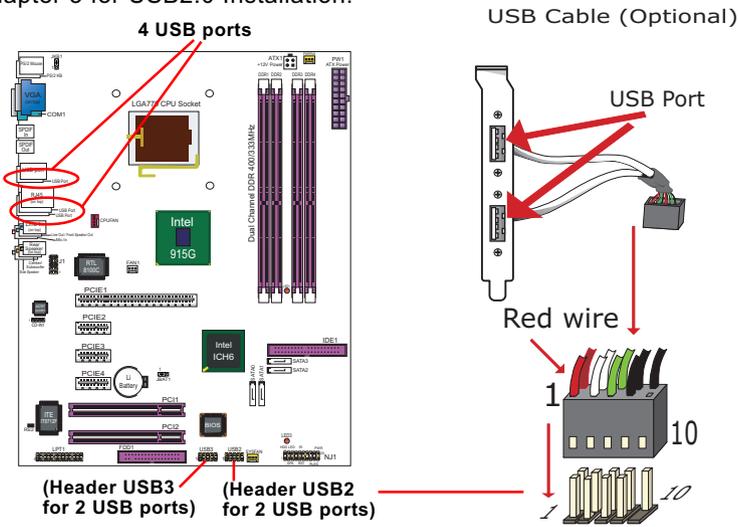
Fan1 is a non-sensor Fan connector for cooling down temperature only.

2-10.2 USB Ports and USB Pin-headers

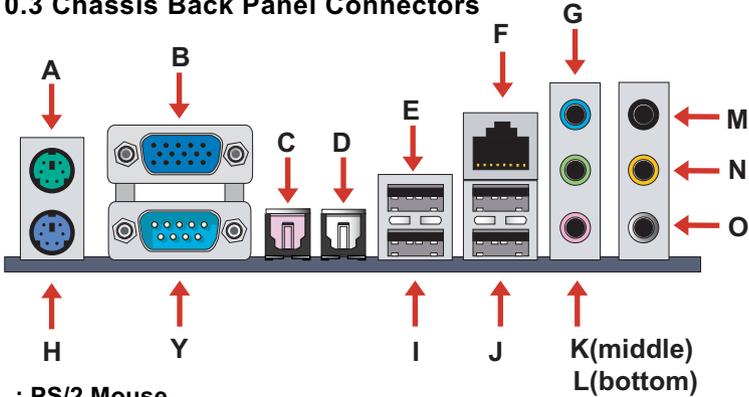
This series provides four USB ports on board supporting various USB devices. In addition, two USB pin-headers are added on board to provide expansion of four more optional USB ports by using two additional USB cables. Users can order the optional USB cables from your main-board dealer or vendor.

When plugging the USB cable to USB Header, users must make sure the red wire is connected to Pin 1.

All 8 USB ports are compliant with 1.1 / 2.0 USB Bus. USB 2.0 supports Windows 2000 and up (no support for Windows 9X/ME). Please see Chapter 3 for USB2.0 Installation.

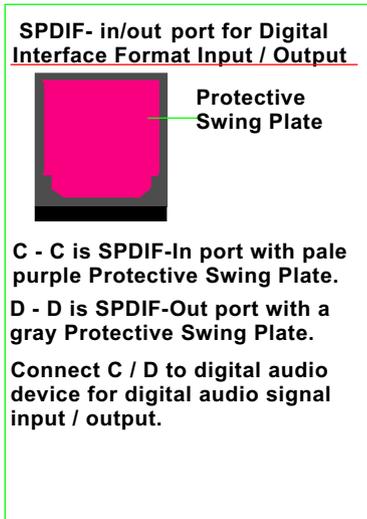
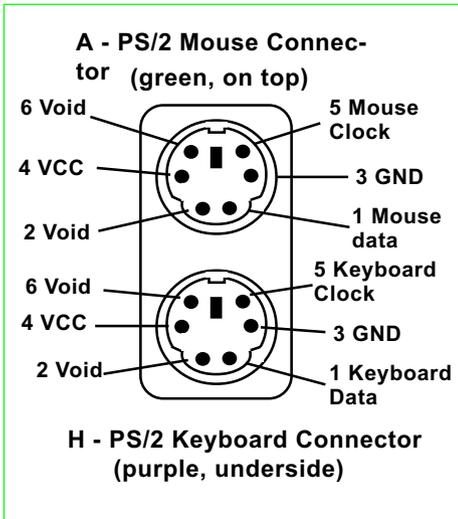


2-10.3 Chassis Back Panel Connectors



- A : PS/2 Mouse
- B : VGA Connector
- C : S/PDIF In
- D : S/PDIF Out
- E : USB port
- F : RJ45 Connector
- G : Line In
- H : PS/2 Keyboard
- Y : COM1
- I : USB port
- J : 2 USB ports
- K : Line out/Front Speaker Out
- L : Microphone In
- M : Rear Speaker Out
- N : Center/Subwoofer Out
- O : Side Speaker Out

2-10.4 PS/2 Mouse , PS/2 Keyboard, SPDIF In/Out connector



2-10.5 RJ45 Connector (for SL-915G-L)

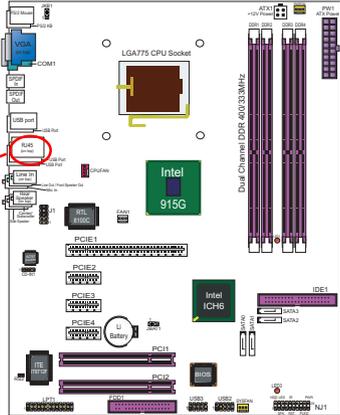
One RJ45 connector is on board for LAN connection, supporting 10/100Mb data transfer.

Orange LED blinks to indicate that data transmission is undergoing in 1000 Base T mode.

Yellow LED "On" to indicate Network hub is in connection with the system.

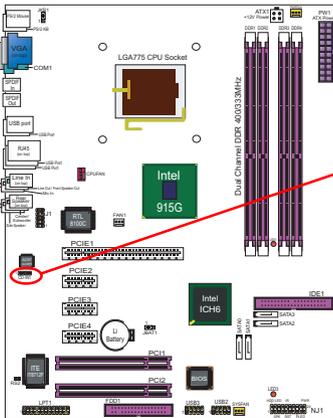
F: RJ45

Green LED blinks to indicate that data transmission is undergoing in 10/100 Base T mode.



2-10.6 CD-ROM Audio Connectors (CD_IN1)

CD-IN1 is an audio connector connecting CD-ROM audio to mainboard.



| CD-ROM Audio Connector | |
|--|---------------|
| 1  | Pin Signal |
| Pin 1 | Left Channel |
| Pin 2 | GND |
| Pin 3 | GND |
| Pin 4 | Right Channel |

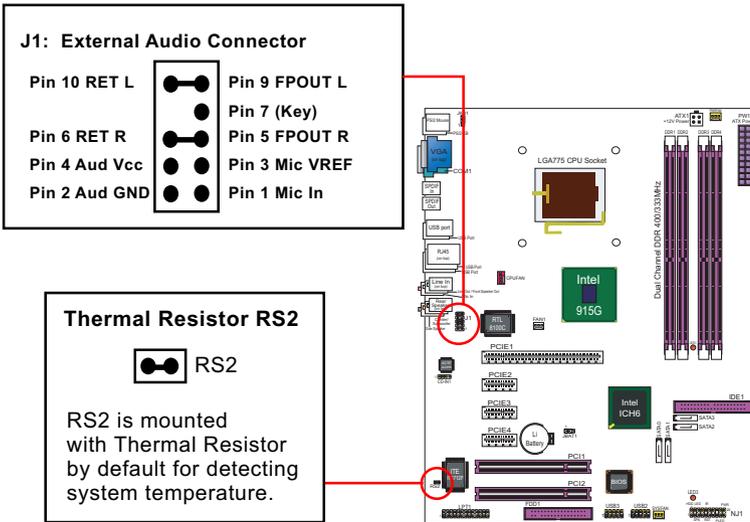
2-10.7 External Audio Connector

This Mainboard is designed with an External Audio connector J1 which provides connection to your chassis.

1. When J1 is set to 5-6 closed and 9-10 closed, this default setting disables this connector and leaves the Back Panel Audio enabled.
2. To use this Front Panel Audio Connector, please open all pins of J1 and connect it to your chassis.

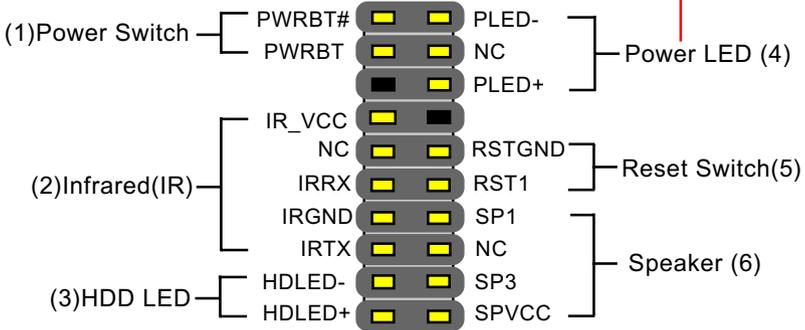
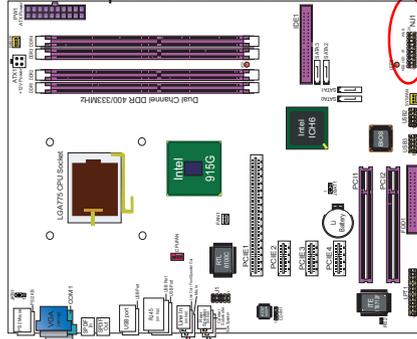
2-10.8 Thermal Detector

RS2 is mounted with Thermal Resistor by default for detecting system temperature.



2-10.9 Complex Pin-header (Front Panel Connectors)

This complex Pin-header consists of the following connectors for various supports. When you have fixed the mainboard to the case, join the connectors of this Complex Pin-header to the case Front Panel.



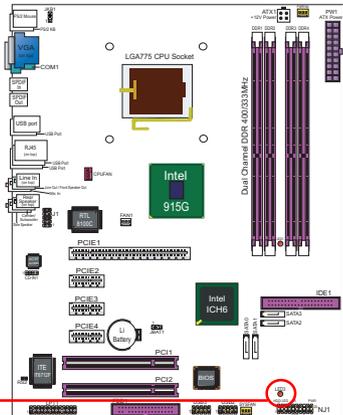
2-10.9 CPU Smart Acceleration LED: LED3

Smart Acceleration Technology:

In BIOS Setup, if CPU Linear Frequency is disabled, this item "Smart Acceleration Technology" will appear to allow you to enable the CPU dynamic overclocking. If enabled, LED3 will light up, and the running CPU onboard will dynamically (automatically) adjust its own CPU performance during necessary or appropriate conditions.

- Choices: Disabled;
Enhanced Mode;
Performance Mode;
Maximum Mode

LED3 will light up if Smart Acceleration Technology is enabled in BIOS Setup.



Chapter 3 Software Setup

Drivers, Utilities and Software Installation

- Support CD:

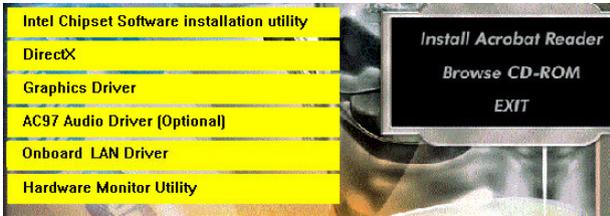
This series of mainboards will be shipped with a Support CD which contains those necessary driver files, Application Softwares and some helpful utilities. It is a user-friendly, auto-run CD which will open itself up in a CD-ROM automatically.

This chapter is introduce the installations of all these essential drivers and utilities on Windows 9X, Windows ME, Windows 2000 and Windows XP. And installation on Windows 2K is taken as the general illustration hereby.

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3-1 To Open up the Support CD

1. Please put the Support CD enclosed in your mainboard package into the CD-ROM drive. In a few seconds, the Main Menu will automatically appear, displaying the contents to be installed for this series:



2. In case your system does not open the Support CD automatically, please click to the following path to enter the Main Installation Menu:

D:\Autorun.exe (assuming that your CD-ROM Drive is Drive D)

3. Drivers will be updated from time to time in our web site. If you are installing a newer driver than the one illustrated in this chapter, please be aware that the illustration pictures might be different.

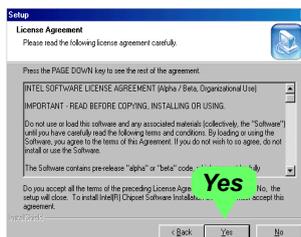
3-2 Intel Chipset Software Installation Utility

1. Following the procedures of opening the Support CD, click to “Install Intel Chipset software installation Utility” to proceed.

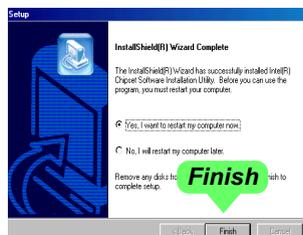
2. The Intel Service Pack InstallShield Wizard will pop up to guide you to the Intel Service pack installation. Press “**Next**” button to continue.



3. “Intel Software License Agreement” screen will appear, please click the “**Yes**” button to agree with the Licence Agreement and continue.



4. After all the setup process is finished, please restart your computer by clicking on “Finish” so as to take the Utility into effect.

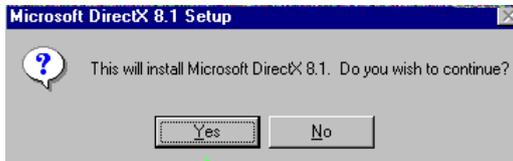


3-3 DirectX Installation (for Win98se/Me)

Following the installation of INF, you have to restart system so that your system can be reconfigured with the driver just installed. When restarting procedures finish, please open the Support CD with your CD-ROM to enter the Main Installation Menu.

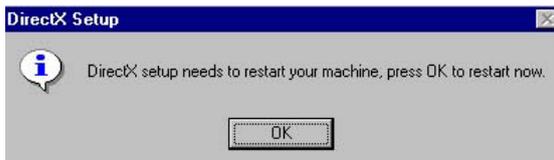
Then click to “Install DirectX”. This utility will support a better graphic display of the built-in VGA interface. Please note that DirectX installation is needed for Windows 98SE/ME only, because WinXP/2K is already incorporated with DirectX.

1. When the screen of “Microsoft DirectX 8.X Setup” appears, please press “Yes” button to continue.



Yes

2. After all the setup procedures have completed, click to “OK” button to exit the Installation program and re-start your system.



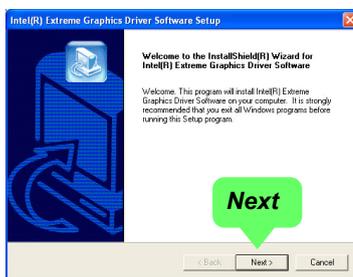
OK

3-4 Graphics Driver Installation

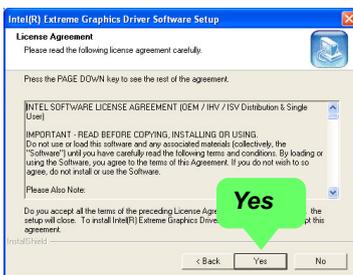
Please open the Support CD with your CD-ROM to enter the Main Installation Menu.

1. For installation of on-board VGA driver, you must first connect the monitor to the on-board VGA connector. Then click to “Install Graphics Driver”. The Graphics Driver is specifically for on-board VGA.

2. When the screen of “Intel(R) Extreme Graphics Driver Software Setup” appears, please press “Next” button to continue.



3. On the “Licence Agreement” screen, click on “Yes” to continue.



3. After all the setup procedures have completed, click to “Finish” button to exit the Installation program and re-start your system.



3-5 AC'97 Audio Driver Installation

RTL ALC850 8-channel AC97 Audio Codec on board, AC'97 2.3 compatible stereo audio code for PC multimedia systems. AC'97 Audio Codec Driver is provided in Support CD for user's installation.

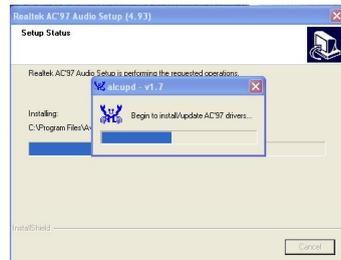
3-5.1 Installing AC'97 8-channel Audio Driver

1. Following the procedures of opening the Support CD, click to "AC'97 Audio Driver" to proceed.

2. Instantly, the "installShield Wizard" screen appears to guide you through the "AC'97 Audio Setup".



3. Instantly, the Setup program proceeds to install the softwares. (If you want to stop setup, click the "Cancel" button.)



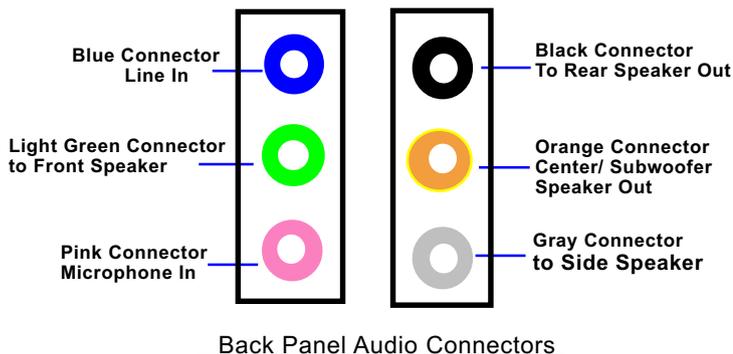
4. After the setup process is finished, please check the radial button "Yes, I want to restart my computer now." And click "Finish" to restart your system.



3-5.2 Verifying 8-channel Audio

After installation of AC'97 8-channel Codec, you must configure the 7.1 Speaker connection to enable the 8-channel audio.

1. Connect your on-board Audio Connectors to your 8-channel speakers as depicted in the figure below:



2. After Connection is done, start your Windows system and double click the Sound manager icon to enter 8-channel configuration:



Sound Effect Manager icon on Windows XP

3. The AC'97 Audio Configuration” screen will pop out. Click the “Speaker Configuration” bar with your mouse.



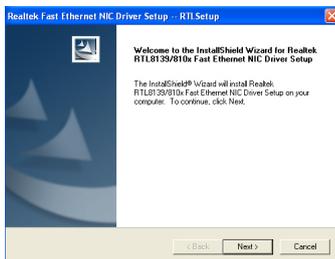
4. Instantly, the “Speaker Configuration” screen will pop out. Pick the items “8-channelSpeaker” and then click on the Auto Test button. Instantly, the Speaker Auto-test starts until all speakers installed are tested.



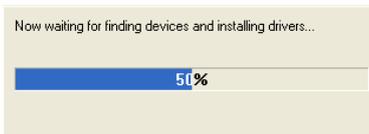
3-6 To Install RTL8100C Fast Ethernet Drivers

RTL8100C LAN driver for Windows 98/ME / 2000 / XP. After restarting system, click on the Onboard LAN Driver to start setup.

1. Instantly, the InstallShield Wizard pop out. Click Next to continue.



2. Next, the program starts to copy files.



3. In a few seconds, setup completes. Restart system and complete setup.



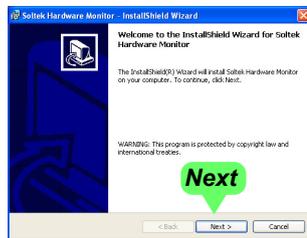
3-7 To Install Hardware Monitor Utility

3-7.1 Installation

Hardware Monitor is built on this mainboard. Its installation is programmed to a fully automated mode on Windows 9X/Me/NT4/2000/XP. Users can follow the model installation below for its installation on various Windows System.

1. Following the procedures of opening the Support CD, click to “Hardware Monitor Utility” to proceed.

2. The Soltek Hardware Monitor InstallShield Wizard will pop up to guide you to the Intel Service pack installation. Press “Next” button to continue.



3. The InstallShield Wizard screen will show the current setting, please click the “Install” button to continue.



4. After all the setup process is finished, click “Finish” to exit the wizard.



3-7.2 Verification

1. After installing Soltek Hardware Monitor, double click “SoltekHM” icon on the desktop to open the main window of the Soltek Hardware Doctor.



2. Then the pop-up screen will show all information about CPU Temperature, Fan Speed and various Voltages.

Showing the temperature(s), the function of which is supported by the mainboard.

Showing the Fan Speed(s) that is supported by the mainboard.

Click on “Soltek” button to display the function menu.

Showing the Voltage(s) that is supported by the mainboard.

Status Warning LED

| TEMPERATURE | | FAN TACHOMETER | |
|-------------|----|----------------|-----------|
| CPU Del | 40 | Fan 1 | not found |
| ABS II | 47 | Fan 2 | 6750 |
| RT 2 | 79 | Fan 3 | not found |

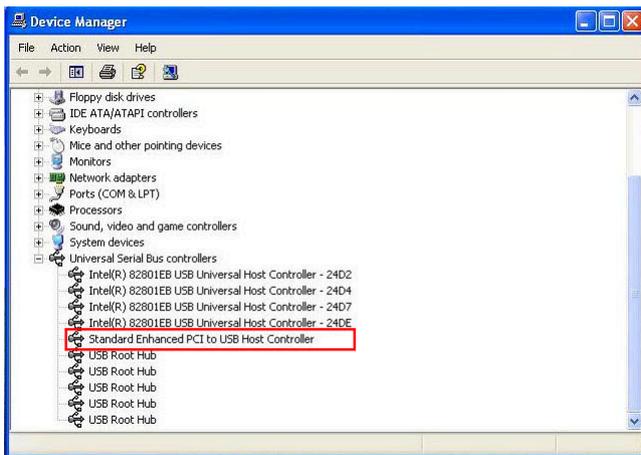
| VOLTAGE | |
|--------------|-------|
| CPU Voltage | 1.712 |
| DRAM Voltage | 2.432 |
| 3.3V | 3.296 |
| 5V | 4.919 |
| Battery | 7.080 |

*Note: Not all items or functions showing in the above picture will show up. Only those items or functions that are supported by the mainboard will reveal themselves in the above screen.

3-8 To Install USB 2.0 Driver for Windows 2000/XP

USB V2.0 with its 480Mb/s transfer rate supports operating system Windows 2000 and Windows XP via the Windows 2000 and Windows XP Service Pack. For archieving Intel USB 2.0 support, users should install the latest Service Pack for Windows 2000 or Windows XP. (intel USB 2.0 does not support Windows 9X/ME.)

1. After installation of Intel Chipset software installation Utility in Windows 2000 or Windows XP, start to install the latest Service Pack version into the operating system. The installation of the latest Service Pack will support USB2.0 in Windows 2000 or Windows XP now.(The latest Service Pack can be found in Microsoft Web Site.)
2. To verify USB2.0 installation, please enter “Device Manager” of “My Computer”. On the “Device Manager” screen, you should be able to see the item “Standard Enhanced PCI to USB Host Controller”, verifying USB2.0 Driver is installed successfully.



Chapter 4 AMI BIOS Setup

THE BIOS

BIOS performs the following functions:

1. Initializing and testing hardware in your computer (a process called "POST", for Power On Self Test).
2. Loading and running your operating system.
3. Helping your operating system and application programs manage your PC hardware by means of a set of routines called BIOS Run-Time Service.

This Chapter includes the following topics :

- 4-1 About BIOS Setup.....46.**
- 4-2 To Run BIOS Setup.....46.**
- 4-3 About CMOS.....46..**
- 4-4 The POST(PowerOn SelfTest).....46**
- 4-5 To Update BIOS.....47..**
- 4-6 BIOS SETUP --- CMOS Setup Utility.....48**
 - 4-6.1 CMOS Setup Utility 48
 - 4-6.2 Standard BIOS Features 50
 - 4-6.3 Advanced BIOS Features 51
 - 4-6.4 Advanced Chipset Features 64
 - 4-6.5 PCI/PNP Resource Management 68
 - 4-6.6 Boot Configuration Features 69
 - 4-6.7. Power Management Features 72
 - 4-6.8. Boot Security Features 74
 - 4-6.9 Load Optimal Defaults 77
 - 4-6.10 Discard Changes 78
 - 4-6.11 Save Changes and Exit 78
 - 4-6.12 Discard Changes and Exit 78

Attention: The BIOS Setup is subject to constant update without further notice to users. It is necessary for users to update the onboard BIOS by the latest BIOS version provided in our web site: www.soltek.com.tw

4-1 About BIOS Setup

BIOS stands for Basic Input and Output System. It was once called ROM BIOS when it was stored in a Read-Only Memory (ROM) chip. Now manufacturers would like to store BIOS in EEPROM which means Electrically Erasable Programmable Memory. BIOS used in this series of mainboard is stored in EEPROM, and is the first program to run when you turn on your computer.

BIOS setup is an interactive BIOS program that you need to run when:

1. Changing the hardware of your system. (For example: installing a new Hard Disk etc.)
2. Modifying the behavior of your computer. (For example: changing the system time or date, or turning special features on or off etc.)
3. Enhancing your computer's behavior. (For example: speeding up performance by turning on shadowing or cache)

4-2 To Run BIOS Setup

First access BIOS setup menu by pressing < DEL > key after "POST" is complete (before OS is loaded). BIOS will then display the following message:

```
DEL : SETUP
```

4-3 About CMOS

CMOS is the memory maintained by a battery. CMOS is used to store the BIOS settings you have selected in BIOS Setup. CMOS also maintains the internal clock. Every time you turn on your computer, the BIOS Looks into CMOS for the settings you have selected and configures your computer accordingly. If the battery runs out of power, the CMOS data will be lost and POST will issue a "CMOS invalid" or "CMOS checksum invalid" message. If this happens, you have to replace the battery and check and configure the BIOS Setup for the new start.

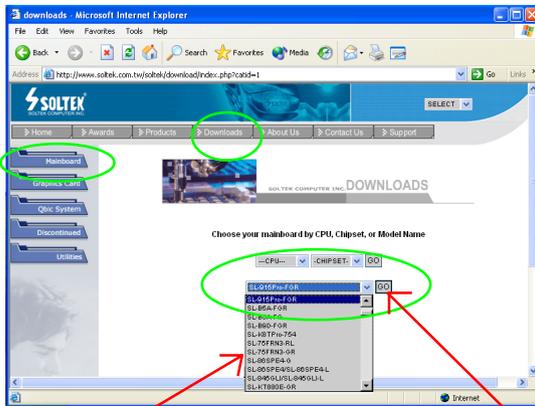
4-4 The POST (PowerOn SelfTest)

POST is an acronym for Power On Self Test. This program will test all things the BIOS does before the operating system is started. Each of POST routines is assigned a POST code, a unique number which is sent to I/O port 080h before the routine is executed.

4-5 To Update BIOS

- System BIOS is incorporated into a Flash memory component. Flash BIOS allows user to update BIOS without the need to replace an EPROM component.
- The Update Utility should be loaded on a floppy diskette for updating, saving, and verifying the system BIOS.
- **Please follow the steps below for updating the system BIOS:**

Step 1. Please visit Soltek website: www.soltek.com.tw, download the .zip files of the latest BIOS and BIOS-update utility into your hard disk for your mainboard.



Choose the Model you want to update here.

Click on "Go" to download the BIOS and BIOS-update Utility to your hard disk first.

Step 2. Create a bootable diskette. Then copy the BIOS file and BIOS-Update utility (an execution file) into the diskette.

Step 3. Insert the diskette into drive A, boot your system from the diskette.

Step 4. Under "A" prompt, type on the DOS screen the BIOS-Update Execution file name and the BIOS file name with a space between them and then press <Enter> to run BIOS update program.

```
A:> BIOS-update Execution file name BIOS file name.Extension
```

Should type a space here

Step 5. When the message "Flash ROM Update Completed - Pass." appears, please restart your system. You have now updated the system BIOS successfully.

4-6 BIOS SETUP --- CMOS Setup Utility

4-6.1 CMOS Setup Utility

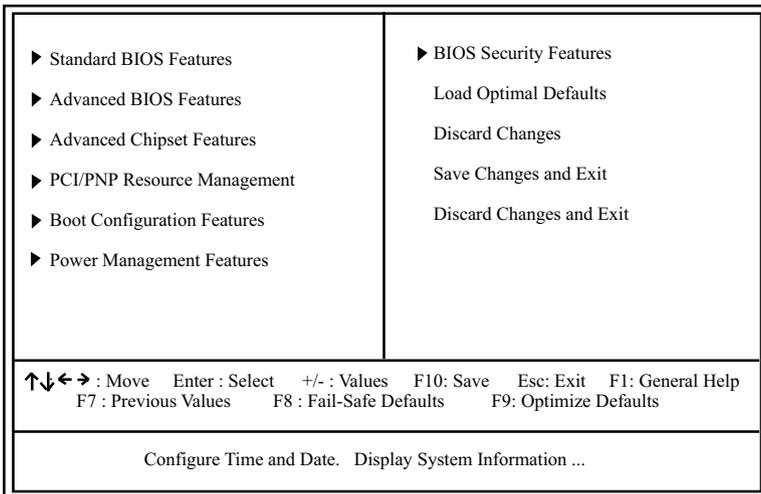
This mainboard comes with the AMI BIOS from American Megatrends Inc. Enter the CMOS Setup Utility Main Menu by:

1. Turn on or reboot your system. After a series of diagnostic checks, the following message will appear:

PRESS TO RUN SETUP

2. Press the key and the main program screen will appear as follows.

CMOS Setup Utility - Copyright (C) 1985-2002, American Megatrends, Inc.



3. Use the arrow keys on your keyboard to select an option, and press <Enter>. Modify the system parameters to reflect the options installed in your system.
4. You may return to the Main Menu anytime by pressing <Esc>.
5. In the Main Menu, "Save Changes and Exit" saves your changes and reboots the system, and "Discard Changes and Exit" ignores your changes and exits the program.

6. In entering the Main option of the Main Menu, please use the functions in the Function List to configure the setting:

↑↓←→ : Move Enter : Select +/- : Values F10: Save Esc: Exit F1: General Help
F7 : Previous Values F8 : Fail-Safe Defaults F9: Optimized Defaults

Use [Enter], [Tab] or [Shift-Tab] to select a field.

Use [+] or [-] to choose the options.

<F1>: “General Help” provides explanations of the hot-key functions available.

<F7>: “Previous values” allows user to discard previous values or not.

<F8>: “Fail-safe defaults” allows user to load Fail-safe Defaults or not. Save and Exit Setup.

<F9>: “Optimized Defaults” allows user to load Optimal Defaults or not.

Attention: The BIOS Setup is subject to constant update without further notice to users. It is necessary for users to update the onboard BIOS by the latest BIOS version provided in our web site: www.soltek.com.tw

4-6.3 Advanced BIOS Features

Advanced BIOS Features allows user to configure HDD, Floppy, Serial Port, Parallel Port etc....

Run the Advanced BIOS Features as follows:

Choose “Advanced BIOS Features” from the Main Menu and a screen with a list of options will appear:

**CMOS Setup Utility - Copyright (C) 1985-2002, American Megatrends, Inc.
Advanced BIOS Features**

| Advanced Settings | Help Item |
|--|--|
| <p>Warning: Setting wrong values in below sections may cause system to malfunction.</p> | |
| <ul style="list-style-type: none"> ▶ CPU Configuration ▶ IDE Configuration ▶ Floppy Configuration ▶ SuperIO Configuration ▶ Hardware Health Configuration ▶ ACPI Configuration ▶ Event Log Configuration ▶ PCI Express Configuration ▶ USB Configuration ▶ ATXP6 Voltage Control ▶ Soltex Performance Options ▶ PCI Device Configuration | <ul style="list-style-type: none"> Press Enter |

↑↓←→ : Move Enter : Select +/- : Values F10: Save Esc: Exit F1: General Help
 F7 : Previous Values F8 : Fail-Safe Defaults F9: Optimized Defaults

4-6.3.1 CPU Configuration

Choose “CPU Configuration” in “Advanced BIOS Features” and press <Enter>. The following sub-screen will appear for configuration:

CPU Configuration

| Configure advanced CPU settings Module Version - 3C.04 | Help Item |
|---|-----------|
| Manufacturer : Intel | |
| Brand String : Intel(R) Pentium (R) 4 CPU 1500MHz | |
| Frequency : 1500MHz | |
| FSB Speed : 400MHz | |
| Cache L1 :16KB | |
| Cache L2 :1024KB | |
| Ratio Status: Locked | |
| Ratio Actual Value 14 | |
| Ratio CMOS Setting 14 | |
| Max CPUID Value Limit Disabled | |
| Hardware Prefetcher Enabled | |
| Adjacent Cache Line Prefetch Enabled | |
| Hyper Threading Technology Enabled | |

Module Version

BIOS shows the current Module Version.

Manufacturer

BIOS shows the current manufacturer of on-board CPU.

Brand String

BIOS shows the current brand of on-board CPU.

Frequency

BIOS shows the current on-board CPU frequency.

FSB Speed

BIOS shows the current Front Side Bus of the on-board CPU.

Cache L1/L2

BIOS shows the actual CPU internal Level 1/2/3 cache size.

Ratio Status

BIOS shows the current ratio (multiplier) status of on-board CPU. For P4 CPUs, the ratio is usually locked.

Ratio Actual Value

BIOS shows the actual CPU ratio.

Ratio CMOS Setting

BIOS shows the CPU Ratio in CMOS. If an invalid ratio is set in CMOS, then actual and setpoint values may differ.

Max CPUID Value Limit

To enable/disable the Max CPU ID Value Limit.

Hardware Prefetcher

To enable/disable the hardware prefetcher.

Adjacent Cache Line Prefetch

To enable/disable the Adjacent Cache Line Prefetch.

Hyper Threading Technology

BIOS shows the current status of Hyper Threading Technology. If a Hyper Threading CPU is running on board, this item will show “Enabled” status. If a Hyper-threading CPU is not on-board, this item shows “Disabled”.

4-6.3.2 IDE Configuration

Choose "IDE Configuration" in "Advanced BIOS Features" and press <Enter>. The following sub-screen will appear for IDE Devices configuration:

| IDE Configuration | | Help Item |
|-------------------------------|---------------|-----------|
| ATA/IDE Configuration | Enhanced | |
| Configure SATA as | IDE | |
| ▶ Primary IDE Master | Hard Disk | |
| ▶ Primary IDE Slave | ATAPI CDROM | |
| ▶ Secondary IDE Master | Not Detected | |
| ▶ Secondary IDE Slave | Not Detected | |
| ▶ Third IDE Master | Not Detected | |
| ▶ Third IDE Slave | Not Detected | |
| Hard Disk Write Protect | Disabled | |
| IDE Detect Time Out (Sec) | 35 | |
| ATA(PI) 80Pin Cable Detection | Host & Device | |

4-6.3.2-1 IDE Configuration

ATA/IDE Configuration

Allows you to configurare IDE device mode.
 Choices: Disabled; Compatible; Enhanced

Disabled: If disabled, no Primary/Secondary IDE mode will be presented for configuration.

Compatible: If Compatible selected, Legacy IDE Channels will be presented for configuration.

Legacy IDE Channels:

This item allows you to select the onboard IDE mode.

Choices: SATA only: Pri IDE Master SATA0
 Pri IDE Slave SATA2
 Sec IDE Master SATA1
 Sec IDE Slave SATA3

PATA Pri, SATA Secondary:
 PATA Master
 PATA Slave
 SATA Master (SATA1)
 SATA Slave (SATA3)

SATA Pri, PATA Secondary:
 SATA Master (SATA0)
 SATA Slave (SATA2)
 PATA MASTER
 PATA SLAVE

PATA only: No SATA can be set up.

Enhanced: If Enhanced selected, Configure SATA as mode will be presented for configuration.

Configure SATA As:

This item allows you to configure SATA mode
 Choices: IDE;

AHCI: If AHCI is chosen, it allows you to enable/disable the Stagger Spinup Support.

4-6.3.2-2 Primary/Secondary IDE Master/Slave and Third IDE Master/Slave

| | |
|------------------------|--------------|
| ▶ Primary IDE Master | Hard Disk |
| ▶ Primary IDE Slave | ATAPI CDROM |
| ▶ Secondary IDE Master | Not Detected |
| ▶ Secondary IDE Slave | Not Detected |
| ▶ Third IDE Master | Not Detected |
| ▶ Third IDE Slave | Not Detected |

If any IDE device is detected in any one of the above items press <Enter> to reveal the IDE information:

Primary/(Secondary/Third/Fourth) IDE Master/(Slave)

| Primary/(Secondary/Third/Fourth) IDE Master/(Slave) | Help Item |
|--|--|
| Device : Hard Disk Vendor : WDC WD400BB-00DEA0 Size : 40.0GB LBA Mode : Supported Block Mode : 16Sectors PIO Mode : 4 Async DMA : MultiWord DMA-2 Ultra DMA : Ultra DMA-5 S.M.A.R.T. : Supported | Select the type of device connected to the system. |
| Type : Auto LBA/Large mode : Auto Block (Multi-Sector Transfer) : Auto PIO Mode : Auto S.M.A.R.T. : Auto 32Bit Data Transfer : Disabled | |

Type

To select the types of the IDE devices:
 Not Installed;
 Auto: Setting type automatically
 CD-ROM: ATAPI (Packet Interface) CD-ROM drive
 ARMD: ATAPI Removable Media Device

LBA/Large mode

To select or disable LBA/Large mode.

Block (Multi-Sector Transfer)

To select or disable Block Mode. The data transfer from and to the device occurs one sector or multiple sectors at a time.

PIO Mode

To select or disable PIO Mode.
 Choices: Disabled; 1, 2, 3, 4

DMA Mode

To select DMA Mode.
 Choices: Auto; SWDMAN; MWDMAN; UDMAN

S.M.A.R.T

Allows you to enable / disable the Self Monitoring Analysis and Reporting Technology for the hard disk.

32Bit Data Transfer

To auto-select (default) or disable 32Bit Data Transfer.

4-6.3.4 Super IO Configuration

Choose “SuperIO Configuration” in “Advanced BIOS Features” and press <Enter>. The following sub-screen will appear for configuration:

SuperIO Configuration

| Configure ITE8712 Super IO Chipset | Help Item |
|------------------------------------|-----------|
| OnBoard Floppy Controller | Enabled |
| Serial Port1 Address | 3F8/IRQ4 |
| Serial Port1 Mode | Normal |
| Serial port2 Address | 2F8/IRQ3 |
| Serial port2 Mode | Normal |
| OnBoard CIR Port | Disabled |
| Parallel Port Address | 378 |
| Parallel Port Mode | Normal |
| Parallel Port IRQ | IRQ7 |

OnBoard Floppy Controller

Allows you to enable / disable the Onboard Floppy Controller.
 Choices: Enabled; Disabled

Serial Port1/2 Address

Allows you to set the Onboard Serial Port1/2 Address.
 Choices: Disabled; 2E8/IRQ3; 3F8/IRQ4; 3E8/IRQ4;

Serial Port 1/2 Mode

If Serial Port2 Address is not disabled, it allows you to set the Serial Port 2 Mode. Choices:

- Normal;
- IrDA: Providing 2 items for configuration:
 - IR I/O Pin Select: SINB/SOUTB; IRRX/IRTX
 - IR Duplex Mode: Half Duplex; Full Duplex
- ASK IR: Providing 2 items for configuration:
 - IR I/O Pin Select: SINB/SOUTB; IRRX/IRTX
 - IR Duplex Mode: Half Duplex; Full Duplex

OnBoard CIR Port

Allows you to set the onboard CIR Port.
 Choices: Disabled; 2E0; 3E0

CIR Port IRQ

Allows you to set the onboard CIR Port IRQ for 2E0 or 3E0.
 Choices: IRQ3; IRQ4; IRQ9; IRQ10; IRQ11

Parallel Port Address

Allows you to configure Parallel Port Address.
 Choices: Disabled; 378; 278; 3BC;

- Disabled: To disable this function;
- 378: 2 items to configure for address 378:
 - Parallel Port Mode:
 - Normal;
 - Bi-Directional;
 - EPP:
 - EPP Version: 1.9; 1.7
 - ECP:
 - ECP Mode DMA Channel: DMA0; DMA1; DMA3
- Parallel Port IRQ: IRQ5; IRQ7

4-6.3.5 Hardware Health Configuration

Choose “Hardware Health Configuration” in “Advanced BIOS Features” and press <Enter>. The following sub-screen will appear for configuration:

| Hardware Health Configuration | | Help Item |
|-------------------------------|----------------|--|
| System Temperature | : 34°C/93°F | Enables Hardware Health Monitoring Device. |
| CPU Temperature | : 45°C/113°F | |
| CPU Fan Speed Control | Automatic Mode | |
| CPU Fan PWM | 2PWM | |
| CPU Fan Speed | : 3125 RPM | |
| System Fan2 Speed | : 3169 RPM | |
| System Fan3 Speed | : N/A | |
| CPU Voltage | : 1.360 V | |
| DIMM Voltage | : 2.576 V | |
| +3.30V | : 3.258 V | |
| Vcc5 | : 5.094V | |
| +12.0V | : 12.074 V | |
| Vcc1.5 | : 1.504 V | |
| 5VSB | : 5.088 V | |
| Vbat | : 3.136 V | |

System Temperature Shows current system temperature.

CPU Temperature Shows current CPU internal temperature.

CPU Fan Speed To select CPU Fan Speed Control mode.

Control Choices: Automatic mode; Silent mode; Enhance mode; maximum mode

CPU Fan PWM To select size of CPU Fan PWM.

Choices: 2PWM; 4PWM; 8PWM;
16PWM; 32PWM; 64PWM

CPU Fan /System Fan2/System Fan3 Speed Displaying the current speed of Chassis/CPU/Power Fan.

CPU Voltage/DIMM Voltage Showing CPU / DIMM voltage value.

3.3V/Vcc5/+12V/Vcc1.5 /5VSB/Battery Showing current voltage against the 3.3V/+12V/Vcc1.5V/5VSB/Battery power supply.

4-6.3.6 ACPI Configuration

Choose “ACPI Configuration” in “Advanced BIOS Features” and press <Enter>. The following sub-screen will appear for ACPI configuration:

ACPI Configuration

| ACPI Settings | Help Item |
|-------------------------------|-------------|
| ▶ General ACPI Configuration | Press Enter |
| ▶ Advanced ACPI Configuration | Press Enter |
| ▶ Chipset ACPI Configuration | Press Enter |

▶ General ACPI Configuration:

Press< Enter > on General ACPI Configuration to reveal following items.

Suspend mode

This item allows you to select the Suspend mode. You can select S3(STR) for suspending to DRAM if your system supports this mode. Or you can select S1 (POS) for Power on Suspend under ACPI mode.

Choices: S1(POS); S3(STR)(Optional); Auto

(Optional) Repost Video on S3 Resume

If STR mode or Auto mode is selected, this item allows you to enable / disable this function. Choices: Yes; No

▶ Advanced ACPI Configuration:

Press< Enter > on Advanced ACPI Configuration to reveal following.

ACPI 2.0 Features

To enable / disable ACPI (Advanced Configuration and Power Interface) 2.0 Support function. Choices: Yes; No

ACPI APIC Support

Allows you to enable / disable ACPI APIC (Advanced Programmable Interrupt Controller) Support function.

AMI OEMB table

To include AMI OEMB table pointer to R(X) SDT pointer lists.

Headless mode

To enable / disable Headless operation mode through ACPI.

▶ Chipset ACPI Configuration:

Press< Enter > on Chipset ACPI Configuration to reveal following.

APIC ACPI SCI IRQ

To enable / disable APIC ACPI SCI IRQ.

(Optional) USB Device Wakeup From S3/S4

This item allows you to enable / disable the USB device Wakeup function from S3/S4 mode.

4-6.3.7. Event Log Configuration

Choose “Event Log Configuration” in “Advanced BIOS Features” and press <Enter>. The following sub-screen will appear for configuration:

| Event Log Configuration | | Help Item |
|-------------------------|-------------|-----------|
| Event Logging details | | |
| View Event Log | Press Enter | |
| Mark all events as read | Press Enter | |
| Clear Event Log | Press Enter | |
| Event Log Statistics | Press Enter | |

View Event Log

To press Enter to reveal the Event Log. For Example:

| |
|---|
| 01/02/02 03:05:16 Keyboard not functional |
|---|

Mark all events as read

Press Enter to mark up all events as read. Example:

| | |
|-------------------------------------|----------|
| Mark all events as read now? | |
| [OK] | [Cancel] |

Clear Event Log

Press Enter to clear event log.

| | |
|-----------------------------|----------|
| Clear Event Log now? | |
| [OK] | [Cancel] |

Event Log Statistics

Press Enter to reveal Event Log Statistics.

| | |
|-------------------------------|-----------|
| Event Log Statistics | |
| Total size (in events) | 63 |
| Free size (in events) | 63 |
| unread events | 00 |

4-6.3.8. PCI Express Configuration

Choose “PCI Express Configuration” in “Advanced BIOS Features” and press <Enter>. The following sub-screen will appear for configuration:

| PCI Express Configuration | | Help Item |
|-------------------------------|----------|-----------|
| <hr/> | | |
| Active State Power management | Disabled | |

Active State Power Management

To enable / disable Active State Power Management.

4-6.3.9. USB Configuration

Choose “USB Configuration” in “Advanced BIOS Features” and press <Enter>. The following sub-screen will appear for configuration:

| USB Configuration | | Help Item |
|-------------------------------|-------------|------------------------------|
| <hr/> | | |
| Module Version - 2.23.2-9.4 | | Enable USB host controllers. |
| USB Devices Enabled : None | | |
| USB Function | 8 USB Ports | |
| Legacy USB Support | Enabled | |
| USB 2.0 Controller | Enabled | |
| USB 2.0 Controller Mode | HiSpeed | |

USB Function

Allows you to set the USB Function on the USB port(s).
Choices: 8 USB Ports; Disabled

Legacy USB Support

Allows you to enable / disable the Legacy USB support.

USB 2.0 Controller

Allows you to enable/ disable the USB 2.0 Controller.

USB 2.0 Controller Mode

Allows you to configure the USB 2.0 Controller Mode.
Choices: FullSpeed; HiSpeed.

4-6.3.10. Voltage Control

Choose “Voltage Control” in “Advanced BIOS Features” and press <Enter>. The following sub-screen will appear for configuration:

| Voltage Configuration | | Help Item |
|-----------------------|------|-----------|
| Core Voltage Control | 1.5V | |
| DIMM Voltage Control | 2.6V | |
| CPU Voltage Control | Auto | |

↑↓←→ : Move Enter : Select +/- : Values F10: Save Esc: Exit F1: General Help
F7 : Previous Values F8 : Fail-Safe Defaults F9: Optimized Defaults

Core Voltage Control

Allows you to configure the chipset core Voltage.
Choices: 1.5V; 1.6V; 1.7V; 1.8V

DIMM Voltage Control

Allows you to configure the DIMM Voltage.
Choices: 2.6V; 2.7V; 2.8V; 2.9V

CPU Voltage Control

Allows you to configure the CPU Voltage. Usually, to raise CPU voltage will raise the chance of CPU overclocking and yet risk damage of CPU.
Choices: Auto; 0.8500V ~1.6000V in 0.0125V stepping

4-6.3.11. Soltek Performance Options

Choose “Soltek Performance Options” in “Advanced BIOS Features” and press <Enter>. The following sub-screen will appear for configuration:

| Soltek Performance Options | | Help Item |
|----------------------------------|----------|-----------|
| Soltek Performance Configuration | | |
| CPU FSB Selection | Auto | |
| CPU Linear Frequency | Enabled | |
| CPU Clock | 200MHz | |
| PCI Express Linear Mode | DIV Mode | |
| Smart Acceleration Technology | Disabled | |

CPU FSB Selection

This item allows you to select CPU Front Side Bus.
Choices: Auto (Auto-selection); 133MHz; 200MHz

CPU Linear Frequency

To enable / disable CPU Linear Frequency adjusment.
Choices: Enabled; Disabled;

CPU Clock

If CPU Linear Frequency is enabled, this item “CPU Clock” will appear to allow you to adjust (with “+/-” key) CPU clock in linear format.
Choices: 133 ~ 350 MHz in 1MHz stepping

PCI Express Linear Mode

This item allows user to select PCI Express operation mode (under CPU overclocking).
Choices: DIV Mode - DIV Mode provides PCI Express frequency which equals half of the CPU clock.

Table Mode - Table mode will provide PCI Express frequency which is a bit lower than DIV mode but safer and stabler.

Smart Acceleration Technology

If CPU Linear Frequency is disabled, this item “Smart Acceleration Technology” will appear to allow you to enable the CPU dynamic overclocking. If enabled, a running CPU onboard will dynamically (automatically) adjust its own CPU performance during necessary or appropriate conditions.

Choices: Disabled;
Enhanced Mode;
Performance Mode;
Maximum Mode

4-6.3.12. PCI Device Configuration

Choose “PCI Device ConfigurationI” in “Advanced BIOS Features” and press <Enter>. The following sub-screen will appear for configuration:

PCI Device Configuration

| PCI Device management Options | Help Item |
|---|-----------|
| PCI Auto Detection feature Enabled ClockGen Spread Spectrum Disabled | |
| LAN Enabled | |

PCI Auto Detection feature

To enable / disable the PCI auto-detection feature.
Choices: Enabled; Disabled

ClkGen Spread Spectrum

To set the Clock Generation Spread Spectrum.
Choices: Disabled; -0.25%; -0.50%; 0.125%; 0.250%; 0.375%; 0.500%; 0.750%

LAN

To enable / disable the 10/100 Fast Ethernet LAN interface.

4-6.4 Advanced Chipset Features

Advanced Chipset Features is used to modify the values of chipset buffers. These buffers control the system options.

Run the Advanced Chipset Features as follows:

Choose "Advanced Chipset Features" from the Main Menu and a list of option will appear:

CMOS Setup Utility - Copyright (C) 1985-2002, American Megatrends, Inc.
Advanced Chipset Features

| Advanced Chipset Settings | Help Item |
|---|---|
| <p>Warning: Setting wrong values in below sections may cause system to malfunction.</p> <p>▶ NorthBridge Configuration Press Enter ▶ SouthBridge Configuration Press Enter</p> | <p>Options for NBEnable USB host controllers.</p> |

↑↓←→ : Move Enter : Select +/- : Values F10: Save Esc: Exit F1: General Help
F7 : Previous Values F8 : Fail-Safe Defaults F9: Optimized Defaults

4-6.4.1 NorthBridge Configuration

Choose “NorthBridge Configuration” in “Advanced Chipset Features” and press <Enter>. The following sub-screen will appear for configuration:

North Bridge Configuration

| North Bridge Chipset Configuration | | Help Item |
|------------------------------------|---------------|-----------|
| DRAM Frequency | Auto | |
| Configure DRAM Timing by SPD | Enabled | |
| Memory Hole | Disabled | |
| Boots Graphic Adapter Priority | PEG/PCI | |
| Internal Graphics Mode Select | Enabled, 8MB | |
| Graphics Aperture Size | 64MB | |
| PEG Port Configuration | | |
| PEG Port | Enabled | |
| PEG Port VC1/Map | Enabled/TC7 | |
| PEG Force x1 | Disabled | |
| Video Function Configuration | Press Enter | |
| DVMT Mode Select | Combo Mode | |
| Boot Display Device | Auto | |
| Flat Panel Type | Type 1 | |
| Local Flat Panel Scaling | ASuto | |
| TV Connector | Auto | |
| HDTV Output | Auto | |
| TV Standard | VBIOS-Default | |

DRAM Frequency

Allows you to set the current SDRAM frequency.
 Choices: Auto; 333MHz; 400MHz

Configure SDRAM Timing by SPD

SPD (Serial presence detect) is a device in memory module for storing the module information such as DRAM timing and chip parameters. If this option is enabled, BIOS will access SPD automatically to configure module timing. If disabled, the following items will appear for user's configuration:

DRAM CAS# Latency

With SDRAM Timing by SPD disabled, you can select the SDRAM CAS# (Column Address Strobe)latency manually.

Choices: 2 Clocks; 2.5 Clocks; 3 Clocks

DRAM RAS# to CAS# Delay

With SDRAM Timing by SPD disabled, you can select the SDRAM RAS# to CAS# delay cycle manually.

Choices: 2 DRAM Clocks; 3 DRAM Clocks; 4 DRAM Clocks; 5 DRAM Clocks

DRAM RAS# Precharge

With SDRAM Timing by SPD disabled, you can select the SDRAM RAS# (Row Address Strobe)Precharge cycle manually.

Choices: 2 Clocks; 3 Clocks; 4 Clocks; 5 Clocks

DRAM RAS# Activate to Prec

Allows you to set the DRAM RAS Activate to Precharge cycle.

Choices: 4 Clocks ~15 Clocks with 1 clock stepping

Memory Hole

Allows you to enable / disable (default) the support of Memory Hole which is reserved for ISA card.

Choices: Disabled; 15MB-16MB

Boots Graphic Adapter Priority

Select which graphics controller to use as the primary boot device.

Choices: IGD; PEG(PCI Express Graphics)/IGD; PEG/PCI; PCI/PEG; PCI/IGD

Internal Graphics Mode Select

Select the amount of system memory used by the Internal Graphics device.

Choices: Disabled; Enabled, 1MB; Enabled, 8MB

Graphics Aperture Size

To select the Aperture size of the Graphics adapter.

Choices: 256MB; 128MB

PEG(PCI Express Graphics) Port Configuration:**PEG Port**

To enable / disable the PEG port.

PEG Port VC1/Map

To select / disable the PEG Port VC1/Map.

Choices: Disabled; Enabled/TC1; Enabled/TC2; Enabled/TC3; Enabled/TC4; Enabled/TC5; Enabled/TC6; Enabled/TC7

PEG Force x1

To enable / disable PEG Force x1

Video Function Configuration: Press Enter to reveal following items.**DVMT Mode Select**

To select the video mode.

Choices: Fixed mode; DVMT mode; Combo mode

Boot Display Device

To select the Boot Display device.

Choices: Auto; CRT on Port0; LFP on Port 2; LFP on Port3;
DFP on Port2; DFP on Port3; TV on Port2; TV on Port3;
CRT-Port 0 & CRT-Port2; CRT-Port 0 & CRT-Port3;
CRT-Port 0 & LFP-Port2; CRT-Port 0 & LFP3;
CRT-Port 0 & DFP-Port2; CRT-Port 0 & DFP-Port3;
DFP-Port2 & DFP-Port3

Flat Panel Type

To select the Flat Panel Type.

Choices: Type 1~ Type 16 (totally 16 types)

Local Flat Panel Scaling

To set the local flat panel scaling

Choices: Auto; Forced Scaling; Disabled

TV Connector

To select the TV connector.

Choices: Auto; Composite; Component; Composite & Component; SCART Composite;
SCART Component; SCART Compos & Compon; SCART Compos & Compon RGB;
HDTV Serial; HDTV Component; HDTV Component RGB; HDTV PnP HDMI

HDTV Output

To select the HDTV Output mode.

Choices: Auto; 480i60; 480p60; 576i50; 576p50; 720p60; 1080i50 1080i60;
1080p24; 1080p25; 1080p30; 1080p50; 1080p60

TV Standard

To select the TV standard.

Choices: VBIOS-default; NTSC; PAL; SECAM; SMPTE240M; SMPTE260M; SMPTE274M;
SMPTE295M; SMPTE296M; SMPTE293M; SMPTE170M; ITURBT601

4-6.4.2 SouthBridge Configuration

Choose “SouthBridge Configuration” in “Advanced Chipset Features” and press <Enter>. The following sub-screen will appear for configuration:

| SouthBridge Configuration | | Help Item |
|------------------------------|----------------|-----------|
| Audio Codec | Auto | |
| PRO-NIC Controller | Enabled | |
| SMBUS Controller | Enabled | |
| CHAP Controller | Disabled | |
| Reserved Page Route | LPC | |
| SLP_S4# Min. Assertion Width | 2 to 3 seconds | |
| Restore on AC Power Loss | Power Off | |
| PCI-EX Ports Configuration | | |
| PCI Express Port 1 | Enabled | |
| PCI Express Port 2 | Enabled | |
| PCI Express Port 3 | Enabled | |
| VC1 for Azalia & Root Ports | Disabled | |

Audio Codec

To select AC'97 Audio Codec.
Choices: All Disabled; Auto

PRO-NIC Controller

To enable / disable PRO-NIC Controller.

SMBUS Controller

To enable / disable SMBUS Controller.

CHAP Controller

To enable / disable the CHAP Controller

Reserved Page Route

To select the reserved Page route.
Choices: PCI; LPC

SLP_S4# Min. Assertion Width

To select the SLP_S4# Min. Assertion Width.
Choices: 4 to 5 seconds; 3 to 4 seconds; 2 to 3 seconds; 1 to 2 seconds

Restore on AC Power Loss

To select the Restore on AC Power Loss mode.
Choices: Power Off; Power On; Last State

PCI EX Ports Configuration:

PCI Express Port 1/2/3

To enable / disable the PEG Port 1/2/3.

VC1 for Azalia & Root Ports

To enable / disable VC1 for Azalia & Root Ports.

4-6.5 PCI/PNP Resource Management

PCI/PNP Resource Management allows you to modify the system's power saving functions.

Choose "PCI/PNP Resource Management" from the Main Menu and a screen with a list of options will appear:

CMOS Setup Utility - Copyright (C) 1985-2002, American Megatrends, Inc.
PCI/PNP Resource Management

| Advanced PCI/PNP Settings | Help Item |
|---|--|
| Warning: Setting wrong values in below sections may cause system to malfunction. | |
| Clear NVRAM Plug & Play O/S PCI Latency Timer Allocate IRQ to PCI VGA Palette Snooping PCI IDE BusMaster OnBoard PCI/ISA IDE Card | No No 64 Yes Disabled Enabled Auto |
| IRQ3 IRQ4 IRQ5 IRQ7 IRQ9 IRQ10 IRQ11 IRQ14 IRQ15 | Available Available Available Available Available Available Available Available |
| DMA Channel 0 DMA Channel 1 DMA Channel 3 DMA Channel 5 DMA Channel 6 DMA Channel 7 | Available Available Available Available Available Available |
| Reserved Memory Size | Disabled |

↑↓←→ : Move Enter : Select +/- : Values F10: Save Esc: Exit F1: General Help
 F7 : Previous Values F8 : Fail-Safe Defaults F9: Optimized Defaults

Clear NVRAM

To select the Clear NVRAM during system boot.
 Choices: No; Yes

Plug & Play O/S

Allows you to configure the PNP devices by BIOS or O/S.
 Choices: No; Yes

PCI Latency Timer (PCI Clocks)

Allows you to set the PCI Latency Time.
 Choices: 32; 64; 96;128; 160; 192; 224; 248;

Allocate IRQ to PCI VGA

Allows you to assign IRQ to PCI VGA card if card requests IRQ.
 Choices: Yes; No

Palette Snooping

This option allows the BIOS to preview VGA status, and to modify the information delivered from the feature Connector of the VGA card to MPEG card. This option can solve the display inversion to black after you have used a MPEG card.

PCI IDE BusMaster

Allows you to enable / disable(default) the PCI IDE Bus Master function.

OffBoard PCI/ISA IDE Card

Some PCI IDE cards may require this to be set to the PCI slot number that is holding the card.
 Choices: Auto; PCI Slot1; PCI Slot2;

IRQ 3/4/5/7/9/10/11/14/15

Allows you to specify available IRQs to be used by PCI/PNP devices.
 Choices: Available(default); Reserved

DMA 0/1/3/5/6/7

Allows you to specify available DMAs to be used by PCI/PNP devices.
 Choices: Available(default); Reserved

Reserved Memory Size

Allows you to specify memory size to reserve for legacy ISA devices.
 Choices: Disabled(default); 16K; 32K; 64K

4-6.6 Boot Configuration Features

Boot Configuration Setup allows you to modify the system’s boot settings.

Choose “Boot Configuration Features” from the Main Menu and a screen with a list of options will appear:

CMOS Setup Utility - Copyright (C) 1985-2002, American Megatrends, Inc.
Boot Configuration Setup

| Boot Settings | Help Item |
|------------------------------|--|
| ▶ Boot Setting Configuration | Configure Settings during System Boot. |
| ▶ Boot Device Priority | |
| ▶ Removable Drives | |

↑↓←→ : Move Enter : Select +/- : Values F10: Save Esc: Exit F1: General Help
 F7 : Previous Values F8 : Fail-Safe Defaults F9: Optimized Defaults

4-6.6.1 Boot Settings Configuration

Choose "Boot Settings Configuration" in "Boot Configuration Setup" and press <Enter>. The following items will appear for onfiguration:

Boot Configuration Setup

| Boot Settings | Help Item |
|---------------------------|------------|
| Quick Boot | Enabled |
| Quiet Boot | Disabled |
| AddOn ROM Display Mode | Force BIOS |
| Bootup Num-Lock | On |
| PS/2 Mouse Support | Auto |
| Wait For 'F1' If Error | Enabled |
| Hit 'DEL' Message Display | Enabled |
| Interrupt 19 Capture | Disabled |

Quick Boot

Allows you to enable (default)/ disable quick boot of your system. If enabled, BIOS will skip certain tests while booting. This will decrease the time needed to boot the system.

Quiet Boot

The bootup screen displays normal POST messages with Disabled selected; the bootup screen displays OEM Logo instead of POST messages with Enabled selected.
Choices: Enabled; Disabled

AddOn ROM Display Mode

If "Force BIOS" is chosen, the vendor's logo screen will be followed by the "AddOn ROM" initial screen (the screen showing the add-on card BIOS message). If "Keep Current" is chosen, no "Add-On ROM" screen is followed.
Choices: Force BIOS; Keep Current

Bootup Num-lock

Allows you to toggle key between On or Off to control the state of the NumLock keys when the system boots. If On, the numeric keypad is in numeric mode. If off, the numeric keypad is in cursor control mode.

PS/2 Mouse Support

Enabled (default), PS/2 mouse is supported. Disabled, PS/2 Mouse is not supported. If "Auto" is set, the system will auto detect the PS/2 Mouse.

Wait For 'F1' If Error

Allows you to hit F1 key when errors occur.
Choices: Enabled(default); Disabled

Hit 'DEL' Message Display

The system will show "Press DEL key to run Setup when enabled.
Choices: Enabled(default); Disabled

Interrupt 19 Capture

Allows option ROMs to trap interrupt 19.
Choices: Enabled; Disabled(default)

4-6.6.2 Boot Device Priority

Choose "Boot Device Priority" in "Boot Configuration Setup" and press <Enter>. The bootable devices installed on board will appear and are allowed to assign the Boot Priority.

Boot Device Priority

| Boot Device Priority | | Help Item |
|----------------------|-------------------|-----------|
| 1st Boot Device | 1st FLOPPY DRIVE | |
| 2nd Boot Device | PM-WDC WD400BB-00 | |

1st/2nd Boot Device

Allows you to set (by pressing <Enter>) floppy or IDE devices already installed to be the 1st/2nd/3rd boot device.
 Choices: Disabled; Device(s) installed

4-6.6.3 Removable Drives

Choose "Boot Device Priority" in "Boot Configuration Setup" and press <Enter>.

Removable Drives

| Removable Drives | | Help Item |
|------------------|------------------|-----------|
| 1st Drive | 1st FLOPPY DRIVE | |

1st Drive

Allows you to set (by pressing <Enter>) floppy as 1st removable drive.
 Choices: Disabled; 1st Floppy Drive.

4-6.7. Power Management Features

Choose “Power Management Features” from the Main Menu and a screen with a list of options will appear:

CMOS Setup Utility - Copyright (C) 1985-2002, American Megatrends, Inc.
Power Management Features

| Power management Features | Help Item |
|--|-----------|
| ▶ APM Configuration Press Enter | |

↑↓←→ : Move Enter : Select +/- : Values F10: Save Esc: Exit F1: General Help
F7 : Previous Values F8 : Fail-Safe Defaults F9: Optimized Defaults

Choose “APM Configuration” in “Power management Features” and press <Enter>. The following items will appear for onfiguration:

APM Configuration

| APM Configuration | Help Item |
|--|------------------------|
| Power Management/APM Enabled | Enable or disable APM. |
| Video Power Down Mode Suspend | |
| Hard Disk Power Down Mode Suspend | |
| Standby Time Out Disabled | |
| Suspend Time Out Disabled | |
| Keyboard & PS/2 Mouse Monitor | |
| FDC/LPT/COM Ports Monitor | |
| Primary Master IDE Monitor | |
| Primary Slave IDE Monitor | |
| Secondary Master IDE Monitor | |
| Secondary Slave IDE Monitor | |
| Power Button Mode On/Off | |
| Resume On Ring Disabled | |
| Resume On LAN Disabled | |
| Resume On PME# Disabled | |
| Resume On RTC Alarm Disabled | |

↑↓←→ : Move Enter : Select +/- : Values F10: Save Esc: Exit F1: General Help
F7 : Previous Values F8 : Fail-Safe Defaults F9: Optimized Defaults

Power Management/APM

Allows you to enable / disable APM (Advanced Power Management).

Video Power Down Mode

To power down video to Suspend or Standby mode.
Choices: Disabled; Suspend; Standby

Hard Disk Power Down Mode

To power down Hard Disk to Suspend or Standby mode.
Choices: Disabled; Suspend; Standby

Standby Time Out

This item allows you to select the time for Standby Time Out mode..
Choices: Disabled; 1 min; 2 min; 4 min; 8 min; 10 min; 20 min; 30 min; 40 min; 50 min;
60 min

Suspend Time Out

This item allows you to select the time for Suspend Time Out mode..
Choices: Disabled; 1 min; 2 min; 4 min; 8 min; 10 min; 20 min; 30 min; 40 min; 50 min;
60 min

Keyboard & PS/2 Mouse

To ignore or monitor the Keyboard & PS/2 Mouse with Power Management/APM.
Choices: Ignore; Monitor

FDC/LPT/COM Ports

To ignore or monitor the FDC/LPT/COM ports with Power Management/APM.
Choices: Ignore; Monitor

Primary Master/Slave IDE

To ignore or monitor the Primary Master/Slave IDE with Power Management/APM.
Choices: Ignore; Monitor

Secondary Master/Slave IDE

To ignore or monitor the Secondary Master/Slave IDE with Power Management/APM.
Choices: Ignore; Monitor

Power Button Mode

To select the Power Button function.
Choice: On/Off; Suspend

Resume On Ring / LAN / PME# / RTC Alarm

To enable / disable the Resume on Ring / LAN / PME# / RTC(Real lime Clock) alarm.
Choices:Disabled; Enabled

4-6.8. Boot Security Features

Boot Security Features allows you to modify the system’s boot security settings.

Choose “Boot Security Features” from the Main Menu and a screen with a list of options will appear:

**CMOS Setup Utility - Copyright (C) 1985-2002, American Megatrends, Inc.
Boot Security Features**

| Security Settings | Help Item |
|---|---------------------------------|
| Supervisor Password : Not Installed User Password : Not Installed | Install or Change the password. |
| ▶ Change Supervisor Password Press Enter | |
| ▶ Change User Password Press Enter | |
| Clear User Password Press Enter | |
| Boot Sector Virus Protection Disabled | |

↑↓←→ : Move Enter : Select +/- : Values F10: Save Esc: Exit F1: General Help
F7 : Previous Values F8 : Fail-Safe Defaults F9: Optimized Defaults

4-6.8.1. Supervisor Password

To show the status of Supervisor Password. “Installed” is displayed when supervisor password is set up. Otherwise, “Not Installed” is displayed.

4-6.8.2. User Password

To show the status of User Password. “Installed” is displayed when supervisor password is set up. Otherwise, “Not Installed” is displayed.

4-6.8.3 Change Supervisor Password

This option allows you to set a new Supervisor password for the system:

1. Choose "Change Supervisor Password" in the "BIOS Security Features" and press <Enter>. Then the following message appears:

[Enter new supervisor password]

2. The first time you run this option, enter your password up to 6 characters and press <Enter>. (The screen does not display the entered characters.)
3. After you enter the password, the following message appears, prompting you to confirm the password:

[Confirm New Password]

4. Enter the same password "exactly" the same as you have just typed to confirm the password and press <Enter>.
5. The following message appears to confirm the new password setup.

| |
|------------------------|
| [Password installed] |
| [OK] |

6. Then press any key to continue your CMOS Setup. To save the password setup, you should press "Save Changes and Exit" and choose "OK" to exit and save setup.
7. If you enter a new password into the box, you will be using this new password after you have finished and saved this new setup. Instead, if you press <Enter> before you enter any new password into the instruction box, another message box appears, telling you that you have disabled the Supervisor Password. That means, no password is set for either entering BIOS Setup or system:

| |
|--------------------------|
| [Password uninstalled] |
| [OK] |

User Access Level Allows you to set four different Access Levels when Supervisor Password has been set.
 Choices: Full Access; Limited; View Only; No Access

Note: "User Access Level" and "Password Check" will appear when "Supervisor Password" has been set.

4-6.8.4 Change User Password

This option allows you to set a new User password for the system:

1. Choose "Change User Password" in the "BIOS Security Features" and press <Enter>. Then the following message appears:

[Enter New Password]

2. The first time you run this option, enter your password up to 6 characters and press <Enter>. (The screen does not display the entered characters.)
3. After you enter the password, the following message appears, prompting you to confirm the password:

[Confirm New Password]

4. Enter the same password "exactly" the same as you have just typed to confirm the password and press <Enter>.
5. The following message appears to confirm the new password setup.

| |
|------------------------|
| [Password installed] |
| [OK] |

6. Then press any key to continue your CMOS Setup. To save the password setup, you should press "Save Changes and Exit" and choose "OK" to exit and save setup.

4-6.8.5. Clear User Password

1. To remove the current user password, choose "Clear User Password" and press <Enter>. An instruction box appears on the screen, assuring to clear User Password:

| |
|----------------------|
| Clear User Password? |
| [OK] [Cancel] |

2. Then choose [OK] and press <Enter>. The User Password is successfully removed.

Password Check Allows you to set BIOS to check up password with a password prompt at BIOS Setup or whenever re-starting system. This option will appear when you have set Supervisor Password or User Password. Choices: Setup (default); Always

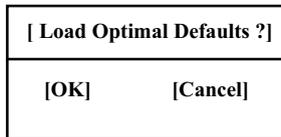
4-6.8.6 Boot Sector Virus Protection

Boot Sector Virus Protection When enabled, you receive a warning message if a program (specifically, a virus) attempts to write to the boot sector or the partition table of the hard disk drive. You should then run an antivirus program. Keep in mind that this feature protects only the boot sector, not the entire hard drive.

NOTE: Many disk diagnostic programs that access the boot sector table can trigger the virus warning message. If you plan to run such a program, we recommend that you disable the virus warning.

4-6.9 Load Optimal Defaults

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



Press <Enter> now to load Optimal values for all the Setup options.

4-6.10 Discard Changes

Discard Changes option allows you to cancel the modifications that you have specified in the Setup Utility. Highlight this option on the Main Menu and press <Enter> and the following message appears:

| | |
|---------------------|----------|
| [Discard Changes?] | |
| [OK] | [Cancel] |

Follow the message and press <Enter> key to cancel the modifications that you have specified.

4-6.11 Save Changes and Exit

Save Changes and Exit allows you to save all modifications you have specified into the CMOS memory. Highlight this option on the Main Menu and press <Enter>. The following message appears:

| | |
|--|----------|
| [Saving configuration changes and exit setup?] | |
| [OK] | [Cancel] |

Press <Enter> key to save the configuration changes and exit CMOS Setup to restart your system.

4-6.12 Discard Changes and Exit

Discard Changes option allows you to exit (or not exit) the Setup Utility without saving the modifications that you have specified. Highlight this option on the Main Menu and press <Enter> and the following message appears:

| | |
|---------------------------------|----------|
| Discard Changes and exit setup? | |
| [OK] | [Cancel] |

Follow the message and press <Enter> key to exit CMOS Setup and restart system.