Chapter 1 Specification

Introduction

This series of mainboards features an integration of the powerful processor Intel Pentium 4 and the single-chip North Bridge Intel SPRINGDALE-G. The Intel P4 processor is a rapid execution engine supporting 800/533/400MHz system bus, while North Bridge Intel Springdale-G is a high performance integrated chipset providing Dual Channel DDR 400/333/266 SDRAM memory interface, Hub interface, AGP interface as well as an integrated Graphics Port for VGA display.

Integrated with Springdale-G, South Bridge Intel ICH5 supports the LPC I/O, upstream Hub interface, PCI interface, IDE interface, Serial-ATA interface (SATA), USB 2.0 interface, AC'97 2.2 (6-channel) Audio interface and the interrupt control. This chapter is to introduce to users every advanced function of this high performance integration.

Topics included in this chapter are:
**1-1 Mainboard Layout**
1-2 Mainboard Specifications**
1-3 Mainboard Specification Table
1-4 Chipset Diagram

** If any difference is found between the mainboard description and the Mainboard you are using, please look up the Errata/ Update Slip enclosed inside for the correction or updated information, or else contact the mainboard Dealer or visit our Web Site for the latest manual update.

1-1 SL-B8E-F Mainboard Layout
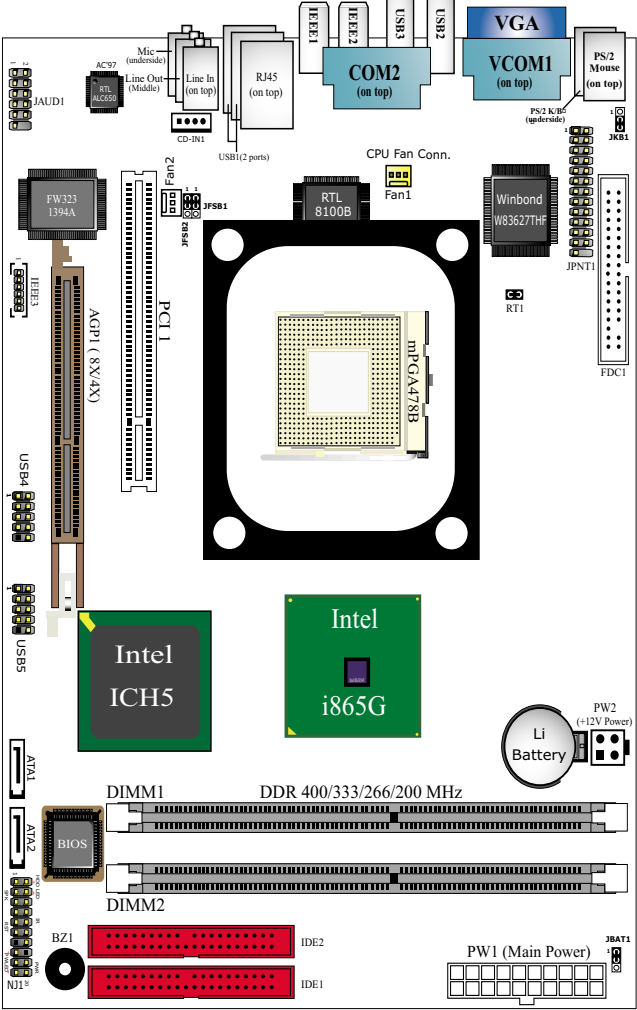
1-2 Mainboard Specifications

1-2.1 CPU Socket

CPU Socket 478B on board, supporting Intel® Pentium 4 processors (including Intel Hyper-Threading CPUs) in 478-pin package for :

-- 800/533/400MHz System Bus;Hyper-pipelined technology;
-- Advanced dynamic execution;Advanced transfer cache;

1-2.2 System Chipsets

North Bridge Intel Springdale-G:
• A high performance integrated chipset providing P4 processor interfac (including Hyper-threading Technology), 800/533/400MHz FSB, Dual -channel DDR 400/333/266 SDRAM memory, Hub interface, AGP interface as well as another integrated VGA interface with one on-board display port.
• Showing Hyper-Threading Logo when booting with a Hyper-thread ing CPU.
South Bridge Intel ICH5:
• Supporting the LPC I/O, upstream Hub interface, PCI interface, IDE interface, Serial ATA interface, USB 2.0 interface, AC'97 2.2 (6-channel) Audio interface and the interrupt control.

1-2.3 Memory

2 DDR DIMM 184-pin slots on board :
• Supporting unregistered, non-ECC Dual-channel DDR 400/333/266 SDRAM to 2GBs
• DIMMs to be populated in identical pairs for Dual-channel operation
• SPD (Serial Presence Detect) Scheme for DIMM Detection supported

1-2.4 AMI BIOS

Flash Memory for easy upgrade, supporting BIOS Writing Protection, Year 2000 compliant, and supporting various hardware configuration during booting system (See Chapter 4 BIOS Setup):
• Standard BIOS Features(Times, Date, System Information etc.)
• Advanced BIOS Features (CPU,IDE, Floppy, SuperIO, Hardware Health, ACPI, USB, and Frequency/Voltage Control)
• Advanced Chipset Features (NorthBridge, SouthBridge Configuration)
• PCI/PNP Resource Management (IRQ Settings, Latency Timers etc.)
• Boot Configuration Setup (Boot Settings, Boot Device Priority etc.)
• BIOS Security Features (Supervisor Password, User Password)

1-2.5 Integrated Multiplexed AGP and DVO Interface

Integrated multiplexed AGP and DVO interface in Springdale-G,sup-
porting AGP performance and analog/Digital display:

• One AGP slot on board, supporting both Digital Video Out card or
  AGP8x/4x card for analog/digital display (TMDS,LVDS and TV-out)
  (See AGP Installation in Chapter 2 of this manual)
• One 15-pin VGA connector on board, supporting analog display
• Hardware motion compensation assist for software MPEG/DVD de-
  code
• Integrated 2D/3D graphics accelerator
• VGA Driver enclosed in Support CD for user's installation

1-2.6 Multi-I/O Functions

• Serial ATA Controller integrated in ICH5, supporting:
    -- 2 Serial ATA connectors supporting up to 150MByte/s transfer rate
• PCI EIDE Controller, supporting:
    -- 2 UATA100/66/33 IDE connectors supporting up to 4 IDE devices
• Dedicated IR Functions:
    -- Third serial port dedicated to IR function either through the two
      complete serial ports or the third dedicated port Infrared-IrDA (HPSIR)
      and ASK (Amplitude Shift Keyed) IR
• Multi-mode Parallel Data Transfer:
    -- Standard mode, high speed mode ECP and enhanced mode EPP
• Floppy Disk Connector:
    -- 1 FDD connector supporting 2 floppy drives with drive swap support
• Universal Serial Bus Transfer Mode:
    -- USB V2.0 compliant; 480Mb/s USB Bus, supporting Windows 2000 or
      later operating systems (no support for Win 9X/Me)
    -- 4 built-in USB Ports and 2 USB Headers which require 2 additional
      USB cables to provide 4 more optional USB ports

• PS/2 Keyboard and PS/2 Mouse
• UARTs (Universal Asynchronous Receiver / Transmitter):
    -- Two serial ports on board

1-2.7 Expansion Slots

• 1 PCI Bus Master slots
• 1 AGP slot
• 2 DDR SDRAM DIMM slots

1-2.8 Advanced System Power Management

• ACPI 1.0B compliant (Advanced Configuration and Power Interface), including ACPI suspend mode support (See ACPI Configuration of Advanced BIOS Features in BIOS Setup)
• APM V1.2 compliant (Legacy Power Management)
• Keyboard / Mouse Power On/Wake Up (See ACPI Configuration of Advanced BIOS features in BIOS Setup)
• Supporting Wake-on-LAN
• Supporting Real Time Clock (RTC) for date alarm, month alarm, and century field configuration

1-2.9 LAN on board

PCI local bus single-chip Fast Ethernet Controller RTL8100B on board:
• Supporting 10/100Mb data transfer
• Supporting Wake On LAN function through the on-board RJ45 LAN Connector
• LAN Driver enclosed in Support CD for user's installation.

1-2.10 Hardware Monitor on board

• Hardware Monitor supported by W83627THF, providing monitoring and alarm for flexible desktop management of hardware voltage, temperatures and fan speeds.
• Utility Software Soltek Hardware Monitor for displaying system status is enclosed in Support CD for user's installation.

1-2.11 AC'97 Audio Codec on board

AC'97 Audio Codec 2.2 compliant on board

• Supporting 6-channel display of PCM audio output
• 6 channel audio consists of Front Left, Front Right, Back Left, Back Right, Center and Subwoofer for complete surround sound effect
• AC'97 Audio Codec Driver enclosed in Support CD for user's installation

1-2.12 Front Panel Audio-out Connector

• 1 Front Panel Audio-out connector supporting Front Panel S/PDIF Input/Output, Front Panel Mic-In and Front Panel Line-out
• This Front Panel Audio-out distinguishing itself from the Back Panel Audio Connectors

1-2.13 1394A-- high performance serial bus

1394A Interface, via FW323 PCI PHY/Link Open Host Controller:
- PCI-bus based open host controller, compliant with IEEE 1394A-2000 standard for high performance serial bus
- supporting 3x 1394A ports, each supporting 400/200/100 Mbits transfer rate
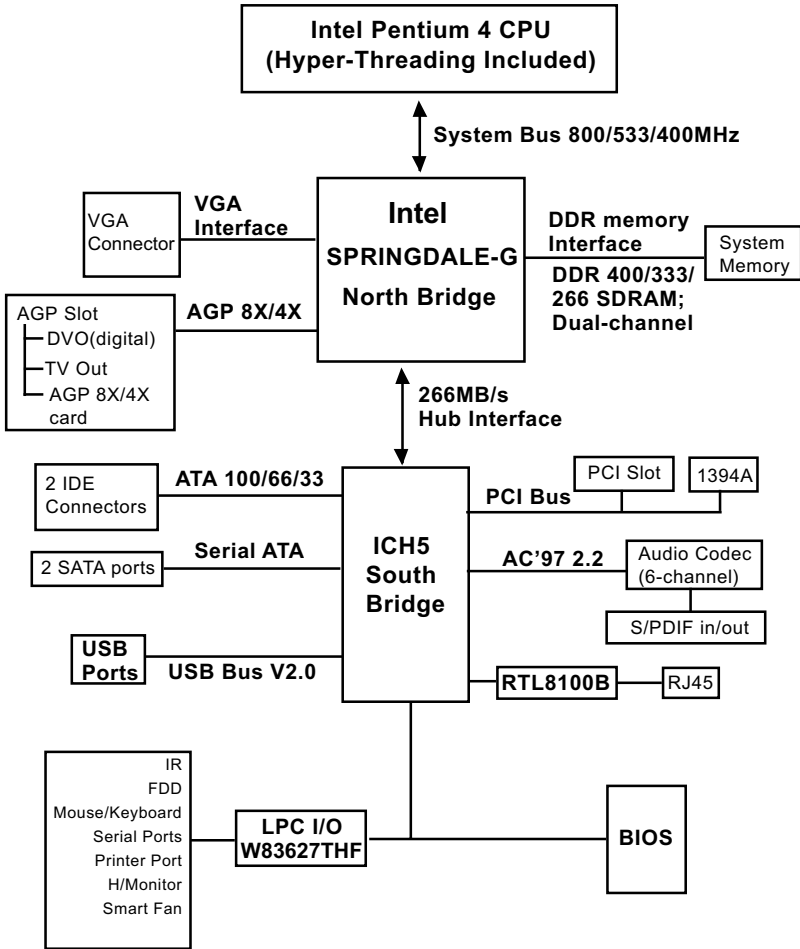
1-2.14 Form Factor

- Soltek Mini Form Factor, ATX Power Supply, version 2.03 compliant, supported by 1x Main Power Connector, 1x +12V Power Connector.
- Mainboard size: 180mm x 260mm

1-3 Mainboard Specification Table

B8E-F Specifications and Features	
CPU	Socket 478B for P4 CPU (HT CPU included)
North Bridge	Intel Springdale-G, supporting 800/533/400MHz FSB
South Bridge	Intel ICH5
BIOS	AMI BIOS
Memory	Supporting Dual-channel DDR 400/333/266 SDRAM, up to 2GB in 2 DIMM slots
I/O Chip	W83627THF, with Soltek Hardware Monitor
AGP interface	AGP8X/4X Mode only; 1 AGP Slot on board
Audio	AC'97 Audio 2.2 compliant, 6-channel audio
IDE Interface	2 UATA 66/100 IDE ports
SATA Interface	2 Serial ATA connectors
PCI Slots	1 PCI Master slots on board
I/O Connectors	8 USB V2.0, 1 FDD port, 2 COM ports, 1 LPT, 1 IrDA, 1 PS/2 K/B, 1 PS/2 Mouse
Networking	LAN Controller RTL8100B and Connector RJ45
VGA Display	1 x VGA connector on board for analog display
1394A Interface	Built-in 1394A Interface, supporting 3x 1394A Ports
Other common features	Keyboard/Mouse Wake Up ATX 2.03 Power Supply Soltek Mini Form Factor

1-4 Chipset System Block Diagram

```
                    ┌─────────────────────────────┐
                    │    Intel Pentium 4 CPU      │
                    │  (Hyper-Threading Included)  │
                    └─────────────────────────────┘
                               ↕
                    System Bus 800/533/400MHz

  ┌──────────┐  VGA        ┌─────────────────┐
  │   VGA    │  Interface  │     Intel       │  DDR memory    ┌────────┐
  │Connector │─────────────│  SPRINGDALE-G   │  Interface     │ System │
  └──────────┘             │                 │────────────────│ Memory │
                           │  North Bridge   │  DDR 400/333/   └────────┘
  ┌──────────┐  AGP 8X/4X  │                 │  266 SDRAM;
  │ AGP Slot │─────────────└─────────────────┘  Dual-channel
  │ DVO(digital)│                   ↕
  │ TV Out   │              266MB/s
  │ AGP 8X/4X│              Hub Interface
  │ card     │
  └──────────┘

  ┌──────────┐ ATA 100/66/33  ┌──────────┐  PCI Bus   ┌──────────┐ ┌──────┐
  │ 2 IDE    │────────────────│          │────────────│ PCI Slot │ │ 1394A│
  │Connectors│                │   ICH5   │            └──────────┘ └──────┘
  └──────────┘  Serial ATA    │  South   │  AC'97 2.2 ┌──────────────┐
  ┌──────────┐────────────────│  Bridge  │────────────│ Audio Codec  │
  │2 SATA ports│              │          │            │ (6-channel)  │
  └──────────┘                │          │            └──────────────┘
  ┌──────────┐  USB Bus V2.0  │          │            ┌──────────────┐
  │   USB    │────────────────│          │            │ S/PDIF in/out│
  │  Ports   │                │          │            └──────────────┘
  └──────────┘                └──────────┘  ┌──────────┐  ┌──────┐
                                            │ RTL8100B │──│ RJ45 │
  ┌──────────────┐                          └──────────┘  └──────┘
  │     IR       │  ┌──────────┐           ┌──────┐
  │     FDD      │  │ LPC I/O  │           │      │
  │Mouse/Keyboard│──│W83627THF │───────────│ BIOS │
  │ Serial Ports │  └──────────┘           └──────┘
  │ Printer Port │
  │  H/Monitor   │
  │  Smart Fan   │
  └──────────────┘
```

Pentium 4 + Intel SPRINGDALE-G + Intel ICH5 Diagram

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.

The following topics are included in this chapter:

2-1 CPU Installation with Socket 478B
2-2 Pentium 4 CPU Fan Installation
2-3 Memory Installation
2-4 VGA / AGP 8X/4X Slot Installation
2-5 IDE Connectors Installation
2-6 Floppy Drive Connector Installation
2-7 Serial ATA Connectors Installation
2-8 ATX V2.03 Power Supply Installation
2-9 Jumper Settings
2-10 Other Connectors Configuration

2-1 CPU Installation with Socket 478B

2-1.1 To Identify a Pentium 4 CPU

```
┌─────────────────────────┐
│        Intel            │
│      pentium 4          │
│ 2.4 GHz / 512 / 533 / 1.5V │
│     │     │   │    │    │
│     │     │   │    │    │
│     │     │   │    │    │
└─────┼─────┼───┼────┼────┘
      │     │   │    │
      │     │   │    │
      │     │   │    4) CPU Voltage Vcore
      │     │   │
      │     │   3) System Clock
      │     │
      │     2) CPU L2 Cache
      │
```

(Hyper-Threading CPU included)

1) CPU Working Frequency
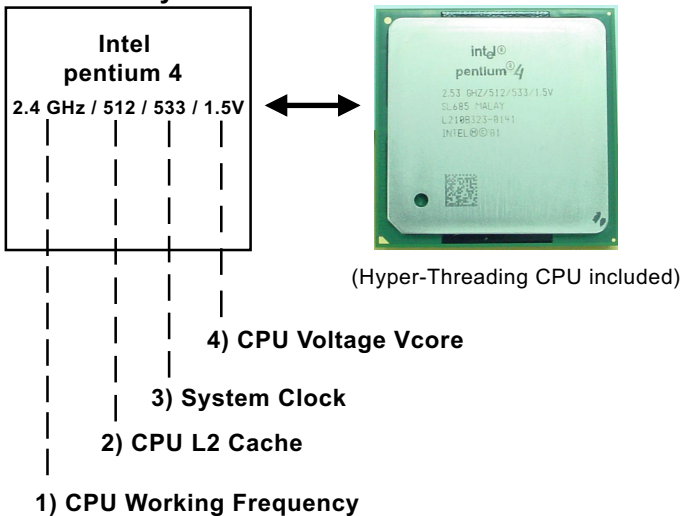
On the heatsink side of a Pentium 4 CPU, there printed a line of figures to identify its specifications. The line consists of 4 parts:

1. CPU Working Frequency: this part depicts the working frequency of the CPU. For example,

   2.4 GHz depicts that this CPU is locked to 2.4 GHz working frequency (18 x 133MHz CPU clock);

   2A GHz depicts that this CPU is an A version, locked to 2.0 GHz working frequency (20 x 100MHz CPU clock)

   3.06GHz depicts that this is a 3.06GHz hyper-threading CPU

2. CPU L2 Cache: this part depicts the L2 Cache size. For example, 512 stands for 512 KB L2 Cache; 256 stands for 256 KB L2 Cache

3. System Clock: this part depicts the System Clock (Front Side Bus) provided by the CPU. For example,

   533 stands for a 533MHz system clock provided by a 133MHz CPU times 4;

   400 stands for a 400 system clock provided by a 100 MHz CPU x 4.

4. CPU Voltage Vcore: this part depicts the CPU Voltage. For example, 1.5V stands for a CPU of 1.5V Vcore.

Note: System Clock vs CPU Clock

P4 CPU is a quadpumped CPU. The system bus is provided by the CPU clock x 4. Therefore, users can figure out the P4 CPU clock by the System Clock divided by 4.

2-1.2 CPU Installation with Socket 478B

This mainboard is built with CPU Socket 478B (478-pin) supporting the Intel Pentium 4 CPU:

• Follow the steps described in this section to install the 478-pin Pentium 4 CPU into the on board Socket 478.

• After installation of Pentium 4 CPU, you must also install the specific Pentium 4 CPU fan designed in tandem with this CPU. This CPU Fan installation is described in next section.

• This mainboard supports Hyper-threading dual-in-one CPU, the function of which can be enabled by Windows XP. (See illustration on the right.)
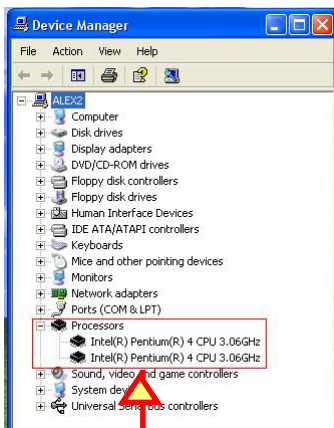
(If Hyper-threading CPU is installed successfully with O/S Win XP, the O/S will enable the dual-in-one CPU function.)

1. First pull sideways the lever of Socket 478, and then turn it up 90^0 so as to raise the upper layer of the socket from the lower platform.
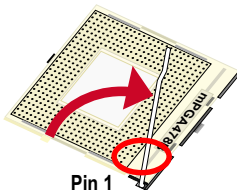
Pin 1

2. Configure Pin 1 of CPU to Pin 1 of the Socket, just as the way shown in the diagram on the right. Adjust the position of CPU until you can feel all CPU pins get into the socket with ease.

Pin 1
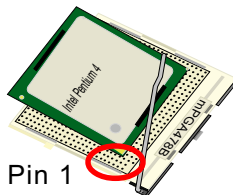
3. Make sure that all CPU pins have completely entered the socket and then lower down the lever to lock up CPU to socket.

18
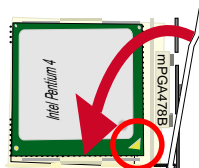
2-2 Pentium 4 CPU Fan Installation

CPU Fan Connector   Pentium 4 Fanbase
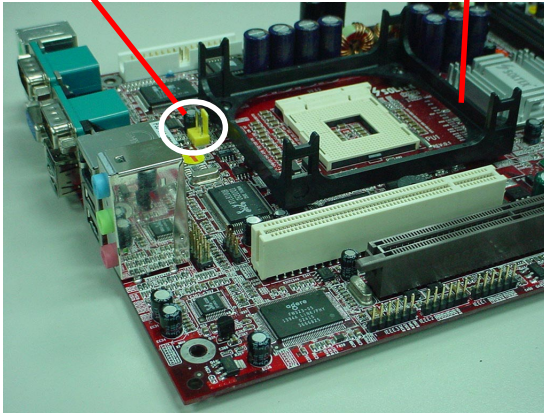
Press down the spring locks to lock up the fan
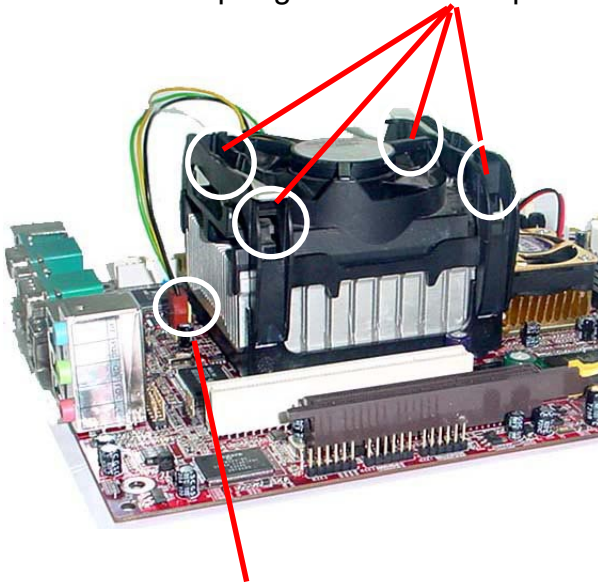
Cooling Fan to CPU FAN connector

The above pictures are taken from sample mainboards as installation illustration. The layout in the pictures may be different from your mainboard.

2-3 Memory Installation

How to tackle the memory Modules:
- Make sure to unplug your power supply before adding or removing memory module.
- Pay attention to the orientation of the DIMM slots.

2-3.1 Dual-Channel DIMM Installation

- Dual Channel memory configuration provides higher performance than Single Channel configurations
- Matched DIMMs with identical density, DRAM technology, DRAM bus width, and equal number of memory banks are needed .
- This series supports up to 2GB unbuffered Dual-channel DDR 400/ 333/266 SDRAM, with 2 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 and 4.2GB/s with DDR266.
- To enable Dual-channel memory function, users should insert totally identical (size and frequency) DDR module pair into the bank-pair.
- 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.
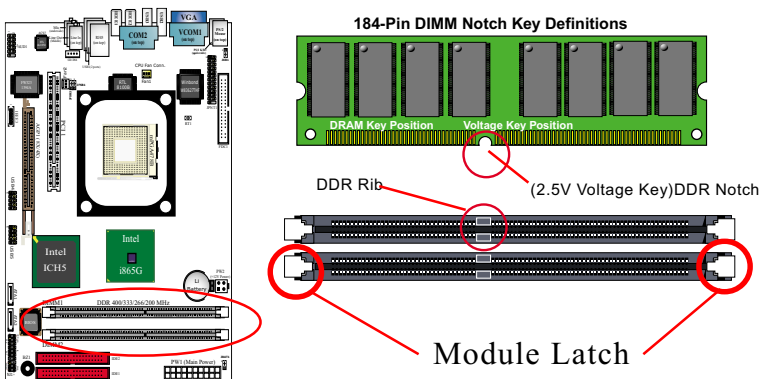
2-3.2 To Remove a DIMM

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.

2-4 VGA / AGP 8X/4X Slot Installation

1. To install on-board VGA, please connect your monitor directly to VGA connector on board.

2. To install Digital-Video-Out(DVO) / TV Out display, please insert an AGP / DVO /TV Out card into the AGP slot. This AGP slot supports AGP 8X/4X card(analog), DVO card and TV Out card, respectively but not simultaneously.

TV Out Display (analog)

DVI Cable

DVO Card

DVI Connector

LCD (digital) Monitor

VGA Connector

Insert an AGP 8X/4X card / DVO / TV Out card to AGP slot for AGP / DVO / TV Out Display

Analog Monitor
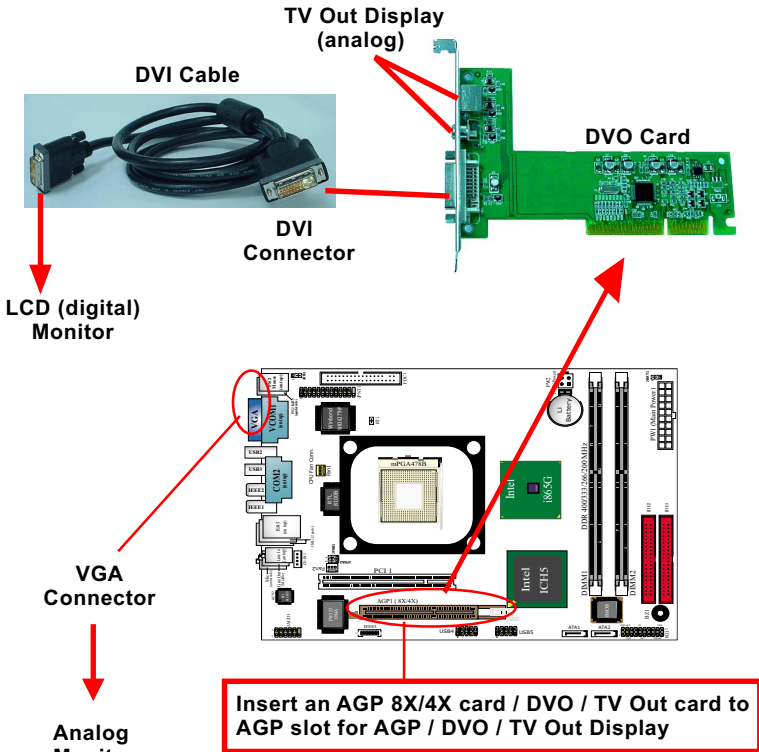
3. If user wants AGP display, please insert 1.5V AGP 8X/4X card into the AGP slot to boot system. A Rib is specifically added to the 8X/4X slot so as to match the AGP 8X/4X card. <u>To insert a 3.3V AGP 2X card into the AGP 8X/4X slot will damage the system chip and burn the 1.5V circuitry.</u>
   An AGP 8X card will support a data transfer rate up to 2GB/sec, while an AGP 4X card will provide 1GB/sec transfer rate.

AGP Accelerator

notch

AGP 8X/4X Slot

Insert an AGP 8X/4X card / DVO / TV Out card to AGP slot for AGP / DVO / TV Out Display
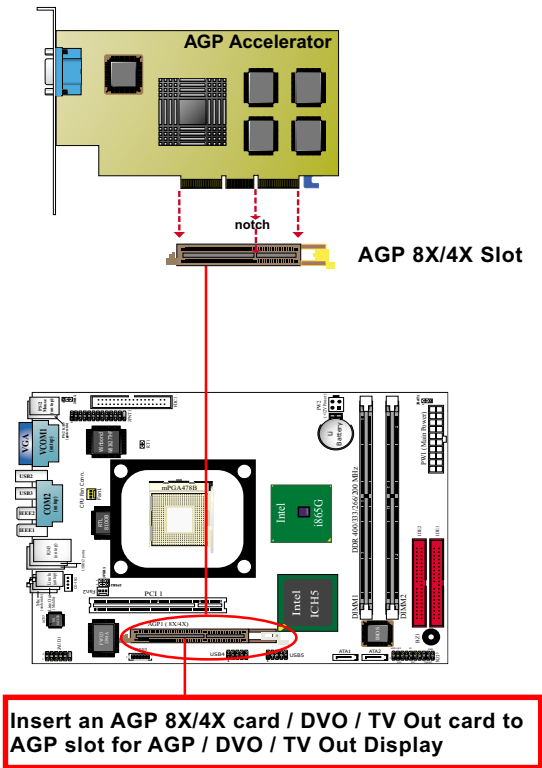
2-5 IDE Connector Installation

To install IDE Connector, you may connect the blue connector of IDE cable to the primary (IDE1) or secondary (IDE2) connector on board, and then connect the gray connector to your slave device and the black connector to your master device. If you install two hard disks, you must configure the second drive to Slave mode by setting its jumpers correctly. Please refer to your hard disk documentation for the jumper settings.

IDE1 / IDE2
Hard Disk Drive Connector
Orient the red line on the IDE Flat Cable to Pin1.
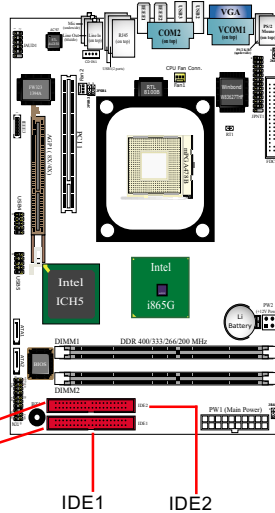
Pin 1 (to Red Line)

IDE1   IDE2

80-conductor IDE Cable
(with Slave Connector)
This kind of cable is not recommmended for the Mini-barebone system because the ribbon cannot be bundled up and will block the air flow in the barebone cabinet.

Gray connector
(To slave device)

Red line

Black connector
(To Master Device)

Blue connector
(To Mainboard)
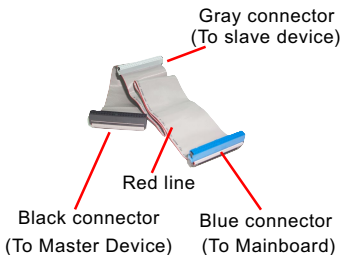
80-conductor IDE Cable
(dedicated for Barebone)
This kind of cable is dedicated for Mini-barebone system because the ribbon can be bundled up and will not block the air flow in the barebone cabinet. A dedicated cable with a gray connector for a slave device is an optional item in the Mini-barebone System.

Bundle Strap

Red line

80-conductor IDE cable

Blue connector
(To Mainboard)

Black connector
(To Master Device)
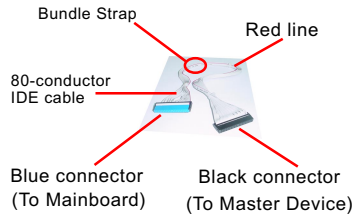
2-6 Floppy Drive Connector Installation

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.
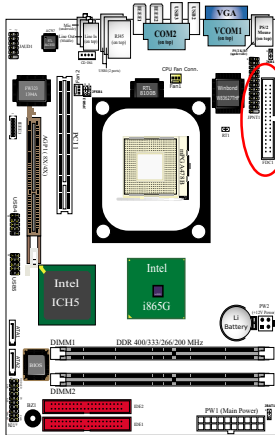
Floppy Drive Connector:

Orient the red line of the Floppy Flat Cable to Pin1.

Pin 1 (to Red Line)

34-conductor FDC cable (w/2nd Connector)

This kind of cable is not recommmended for the Mini-barebone system because the ribbon cannot be bundled up and will block the air flow in the barebone cabinet.

To 2nd Floppy Drive

To 1st Floppy Drive

To mainboard

Red line

34-conductor FDC cable (dedicated for Barebone)

This kind of cable is dedicated for Mini-barebone system because the ribbon can be bundled up and will not block the air flow in the barebone cabinet. A dedicated cable with 2nd connector for 2nd floppy drive is an optional item in the Mini-barebone System.

Signal Swap End   Red line

To 1st Floppy Drive   To mainboard

2-7 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.
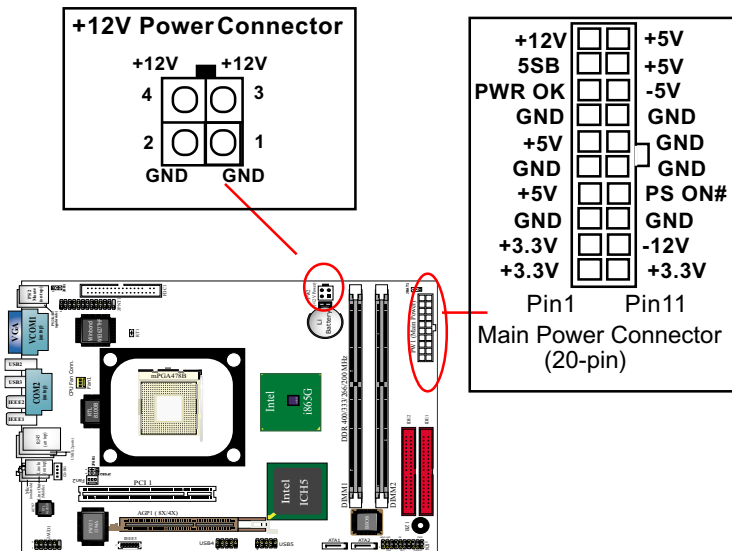2 Serial ATA connectors are built on board, supported by the SATA Controller for SATA Hard Disk Drives.

Serial ATA Cable

Serial ATA Connector ATA1 and ATA2

Serial ATA Hard Disk
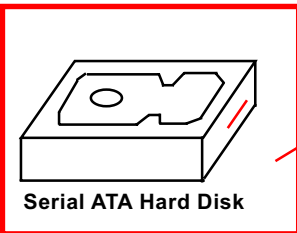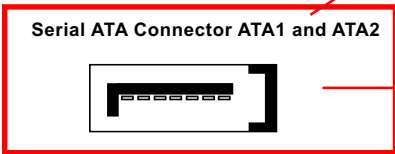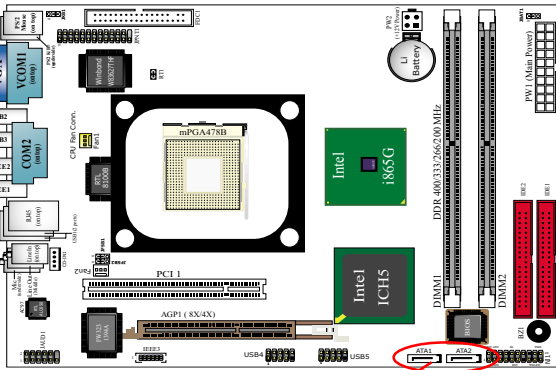
2-8 ATX V2.03 Power Supply Installation

ATX V2.03 Power Supply is strongly recommended for mainboard running with 2GHz or higher CPU.

To set up Power Supply on this mainboard:
1. Connect the on-board Main Power Connector (20-pin) to the Main Power Connector (20-pin) of an ATX Power Supply which can be of the latest version 2.03 model, and then connect the square-shaped +12V Power Connector on board to the square-shaped +12V Power Connector of the Power Supply.
   Warning: Both the Main Power Connector and the +12V Power Connector should be connected to Power Supply; otherwise, the system may either not start or be damaged.
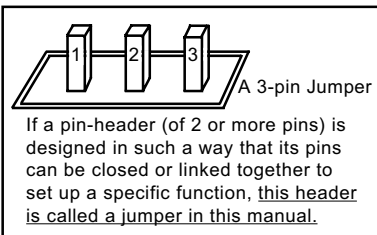2. This ATX Power Supply should be able to provide at least 720mA/ +5V standby power for Wake On Lan function.

2-9 Jumper Settings

The following diagrams show the locations and settings of jumper blocks on the mainboard.

JKB1: KB / Mouse Wake Up	
[jumper] 1	1-2 closed Disabled
[jumper] 1	2-3 closed (default) Enabled

JBAT1 Clear CMOS	
[jumper] 1	1-2 closed (default) To hold data
[jumper] 1	2-3 closed To clear CMOS

JFSB1&JFSB2: CPU Frequency Select			
CPU Auto-Detect (default)	(400MHz FSB) 100MHz CPU Selected	(533MHz FSB) 133MHz CPU Selected	(800MHz FSB) 200MHz CPU Selected
JFSB1 1 [jumper] 1 [jumper] JFSB2	JFSB1 1 [jumper] 1 [jumper] JFSB2	JFSB1 1 [jumper] 1 [jumper] JFSB2	JFSB1 1 [jumper] 1 [jumper] JFSB2

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, <u>this header is called a jumper in this manual.</u>

A 2-pin Jumper Cap

The conductor inside the cap links two header-pins together.
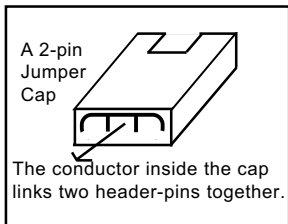
• A Jumper is usually but not necessarily given a "JpX" legend.
• In the Jumper setting diagram, the jumper pins covered with black marks stand for closed pins with jumper cap.

Jp X

1 ⬤⬤⬤ 3	1 ⬤⬤⬤ 3	1 ⬤⬤⬤ 3
Jumper with Pin 2-3 closed	**Jumper with all pins opened**	**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 JFSB1 & JFSB2: CPU Frequency Select

JFSB1 and JFSB2 are designed on board for CPU frequency select.

1. Setting JFSB1 1-2 closed and JFSB2 1-2 closed will allow CPU on board to Auto Detect its own frequency and apply it to the System Bus.
2. Setting JFSB1 2-3 closed and JFSB2 2-3 closed is for 100 MHz CPU.
3. Setting JFSB1 2-3 closed and JFSB2 open is for 133 MHz CPU.
4. Setting JFSB1 open and JFSB2 2-3 closed is for 200MHz CPU. If 200MHz is an overclock for your CPU, it may or may not boot your system. If an overclok fails to boot system, you should restore the default setting and then clear CMOS to reboot your system. (See Clear CMOS in next paragraph.)

| JFSB1&JFSB2: CPU Frequency Select			
CPU Auto-Detect (default)	(400MHz FSB) **100MHz CPU Selected**	(533MHz FSB) **133MHz CPU Selected**	(800MHz FSB) **200MHz CPU Selected**
JFSB1 1 ⬤⬤⬤	**JFSB1** 1 ⬤⬤⬤	**JFSB1** 1 ⬤⬤⬤	**JFSB1** 1 ⬤⬤⬤
1 ⬤⬤⬤ **JFSB2**	1 ⬤⬤⬤ **JFSB2**	1 ⬤⬤⬤ **JFSB2**	1 ⬤⬤⬤ **JFSB2**

Further Notes on CPU Overclocking:
1. If you have successfully booted system, with or without CPU overclock, you still can try another CPU overclock in BIOS Setup. Please enter BIOS Setup, choose "Frequency/Voltage Control" of Advanced BIOS Features, and configure the "CPU Clock" item to raise your CPU clock.
2. CPU overclocking should take all components on board into account. If you fail in BIOS overclocking, you will not be able to restart system. In such case, Power off system and clear CMOS by JBAT1 and then restart your system. And remember to reconfigure whatever should be reconfigured.
3. If your system is already fixed in a cabinet or case, you may not like to take the trouble to clear CMOS. Then power on your system with the power button on the PC case and simultaneously press down the "Insert" key on the keyboard until you see the initial bootup screen appear. And remember you should also enter CMOS BIOS Setup instantly and choose "Load Optimized Defaults" to restore default BIOS .

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 Pin1-2 closed.
4. CMOS data are restored to default now. Remember never clear CMOS when system power is on.

| JBAT1 Clear CMOS	
1	1-2 closed (default) To hold data
1	2-3 closed To clear CMOS
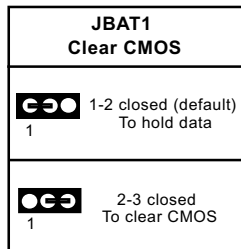
2-9.3 JKB1: KB / Mouse Wake Up

JKB1 is designed on board as a jumper to enable/disable the PS/2 keyboard/mouse Wake Up from suspend mode. Yet user should still enter the " ACPI Configuration" of BIOS setup to choose the Wake Up mode. USB keyboard/mouse Wake Up function is also supported on this mainboard.

JKB1: KB / Mouse Wake Up	
	1-2 closed Disabled
	2-3 closed (default) Enabled

2-10 Other Connectors Configuration

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

2-10.1 On Board Fan Connectors
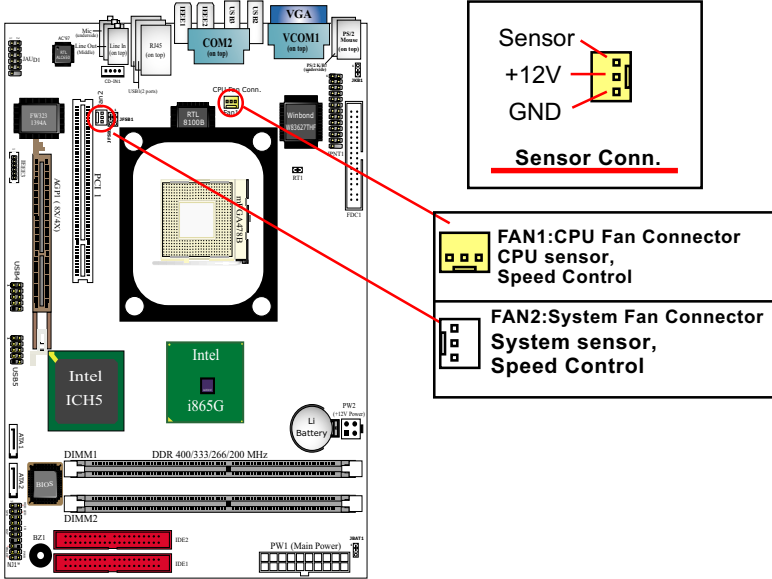
Please populate the cooling fans as illustrated above.
FAN1: FAN1 should be connected to CPU cooling FAN only for CPU temperature detection and CPU Han speed control.

FAN2: FAN2 should be connected to System cooling Fan for system temperature detection and system Fan speed control.

Wrong application will cause mal-functioning of the fan connectors.

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2-10.2 USB Ports and USB Pin-headers

This series provides 4 USB ports via 3 USB connectors on board supporting various USB devices. In addition, 2 USB pin-headers are added on board to provide expansion of 4 more optional USB ports by using 2 additional USB cables. Users can order the optional USB cables from your mainboard 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 Win 2000 and up (no support for Win9X / Me). Please see Chapter 3 for USB2.0 Installation.

USB Cable (Optional)

USB connectors USB1/2/3

USB Port

Red wire

USB Pin-headers USB4/5

First USB Port Wiring for Front USB

Red White Green black
+5V D1-   D1+   GND

USB Header Pin Assignment

10

1

+5V   D2-   D2+   GND
Red   White Green black

Second USB Port Wiring for Front USB

32
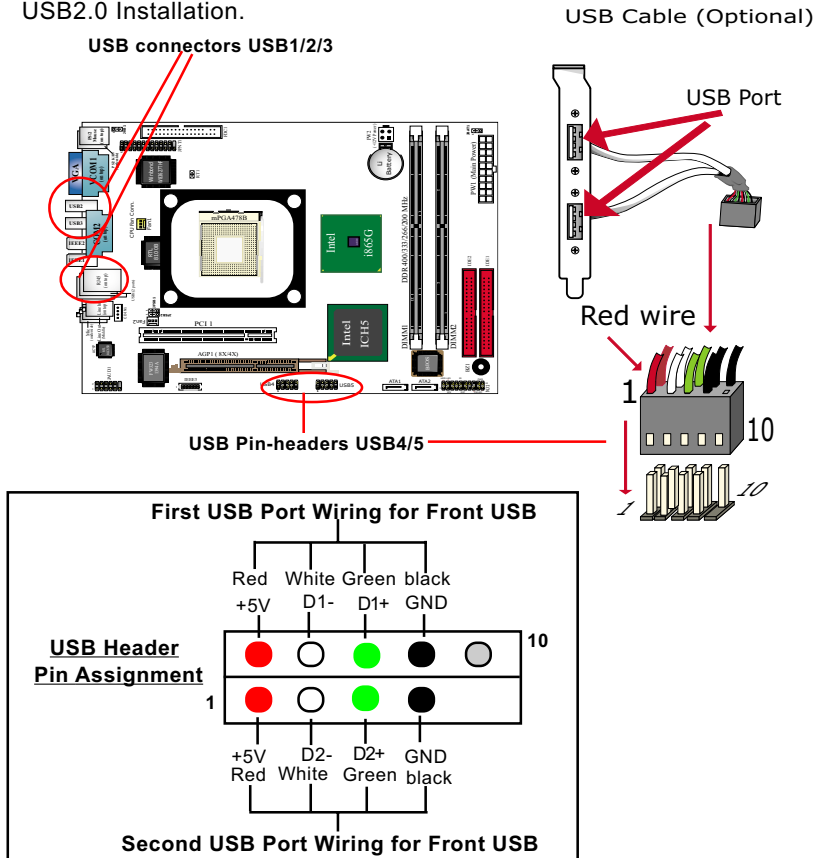
2-10.3 Complex Pin-header (Front Panel Connectors)

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.

(1)Power Switch	PWRBT# / PWRBT	PLED- / NC / PLED+	Power LED (4)
(2)Infrared(IR)	IR_VCC / NC / IRRX / IRGND / IRTX	RSTGND / RST1	Reset Switch (5)
(3)HDD LED	HDLED- / HDLED+	SP1 / NC / SP3 / SPVCC	Speaker (6)
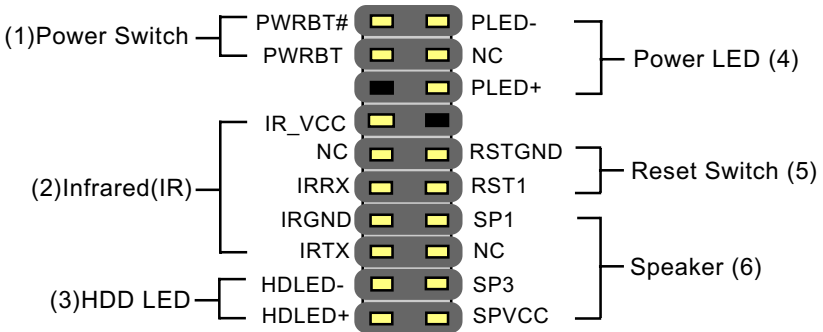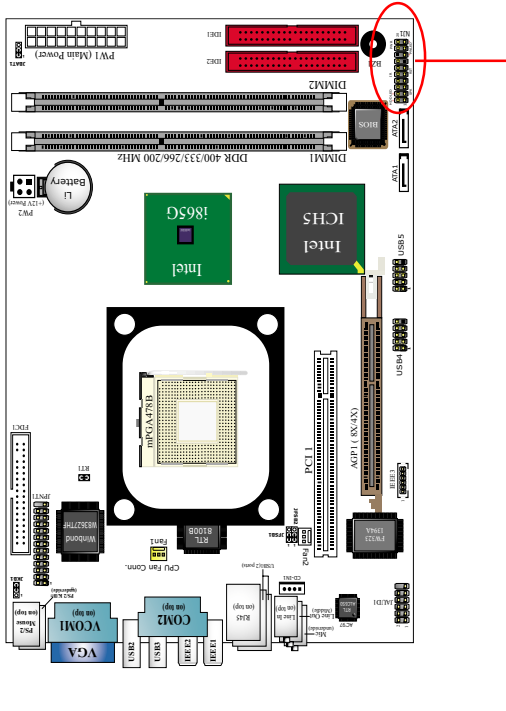
(1) Power Switch Connector:
Connection**:** Connected to a momentary button or switch.
Function: Manually switching the system between "On" and "Soft Off". Pressing the momentary button for more than 4 seconds will also turn the system off.

(2) IR Connector (Infrared Connector):
Connection: Connected to Connector IR on board.
Function: Supporting wireless transmitting and receiving module on board.

(3) HDD LED Connector:
Connection: Connected to HDD LED.
Function: To supply power to HDD LED.

(4) Power LED Connector:
Connection: Connected to System Power LED.
Function: To supply power to "System Power LED".

(5) Reset Switch Connector:
Connection: Connected to case-mounted "Reset Switch".
Function: To supply power to "Reset Switch" and support system reboot function.

(6) Speaker Connector:
Connection: Connected to the case-mounted Speaker.
Function: To supply power to the case-mounted Speaker.

2-10.4 Back Panel Connectors
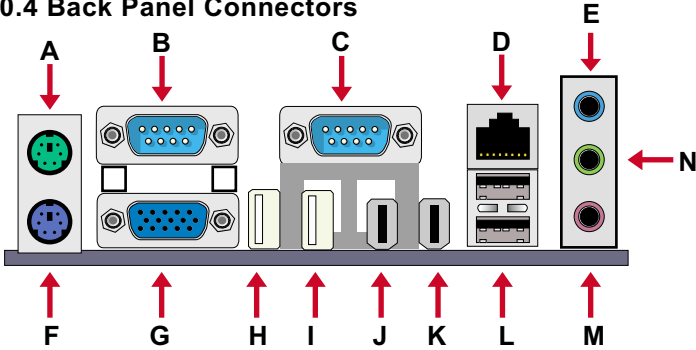
A : PS/2 Mouse
B : VCOM1
C : VCOM2
D : RJ45 (LAN)
E : Line In /
     Rear Speaker Out
F : PS/2 Keyboard

G : VGA Connector
H : USB2
I : USB3
J : IEEE2
K : IEEE1
L : USB1
M : Mic-in/Center/Subwoofer Out
N : Line-out/Front Speaker Out

2-10.5 LAN Connector
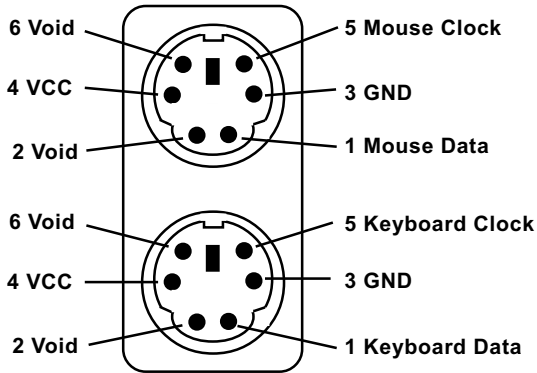
One RJ45 connector is on board for network connection.

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

Green LED blinks to indicate that data transmission is undergoing in 10/100 Base T mode.
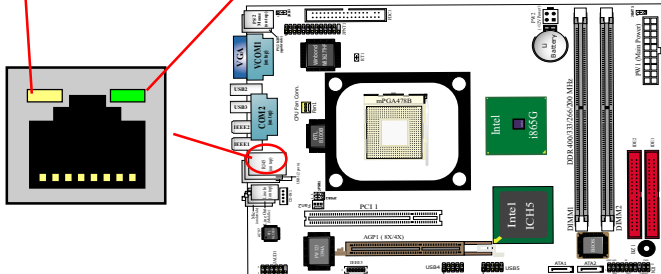
2-10.6 PS/2 Mouse And PS/2 Keyboard

(PS/2 Mouse: On top of keyboard connector, green)

6 Void	**5 Mouse Clock**
4 VCC	**3 GND**
2 Void	**1 Mouse Data**
6 Void	**5 Keyboard Clock**
4 VCC	**3 GND**
2 Void	**1 Keyboard Data**

(PS/2 Keyboard Connector: Underside, purple)

2-10.7 CD-ROM Audio Connectors

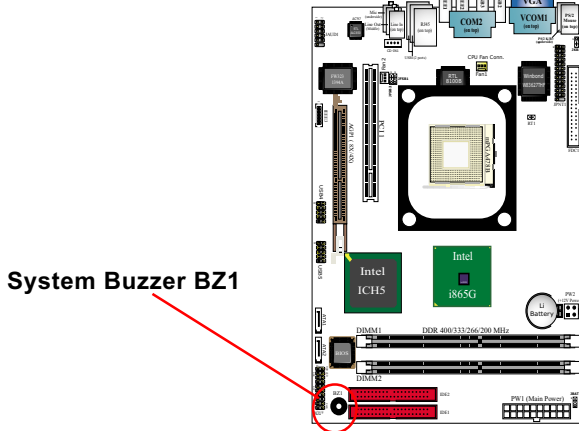CD-IN1 is an audio connector connecting CD-ROM audio to mainboard.
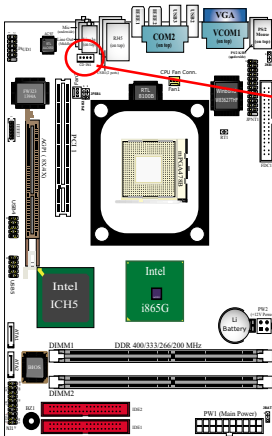
CD-ROM Audio Pin Assignment

CD-IN1	Pin 1	Pin 2	Pin 3	Pin 4
	Left Channel	GND	GND	Right Channel

2-10.8 System Buzzer: BZ1

A buzzer BZ1 is designed on board for sending a beep at starting system as well as warning of CPU temperature problems.
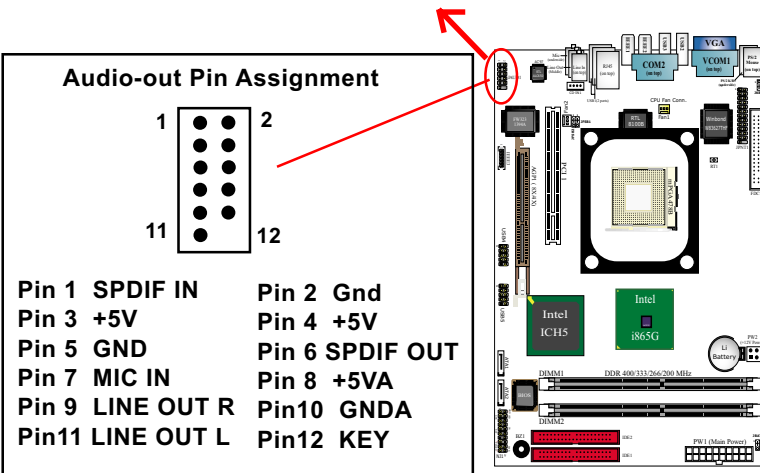
System Buzzer BZ1
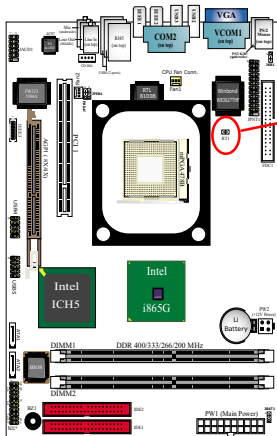
2-10.9 JAUD1: Front Panel Audio Connector

This series is designed with a Front Panel Audio connector "JAUD1.
• Supporting Front Panel S/PDIF Input/Output, Front Panel Mic-In and Front Panel Line-out;
• A S/PDIF cable is needed to connect this connector to Front Panel.

To Front Panel

Audio-out Pin Assignment

1   2

11   12

Pin 1 SPDIF IN
Pin 3 +5V
Pin 5 GND
Pin 7 MIC IN
Pin 9 LINE OUT R
Pin11 LINE OUT L

Pin 2 Gnd
Pin 4 +5V
Pin 6 SPDIF OUT
Pin 8 +5VA
Pin10 GNDA
Pin12 KEY

2-10.10 RT1: Thermal Resistor

RT1

RT1 is mounted with Thermal Resistor by default for detecting system temperature.

2-10.11 1394A Front Connectors : IEEE1/2/3

1394A Interface, via FW323 PCI PHY/Link Open Host Controller on board, supporting 3 x 1394A serial ports:
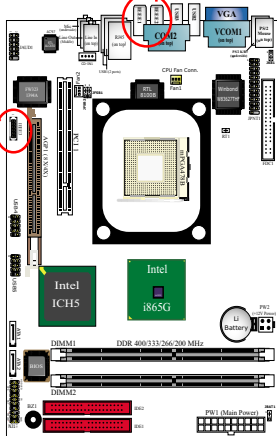
IEEE3

Pin Assignment

Pin 1 BPWR(+12V)
Pin 2 GND
Pin 3 TPB(0/1/2)-
Pin 4 TPB(0/1/2)+
Pin 5 TPA (0/1/2)-
Pin 6 TPA (0/1/2)+
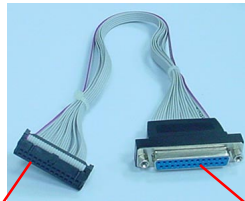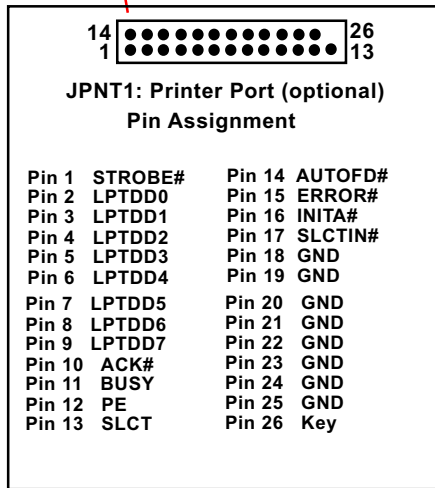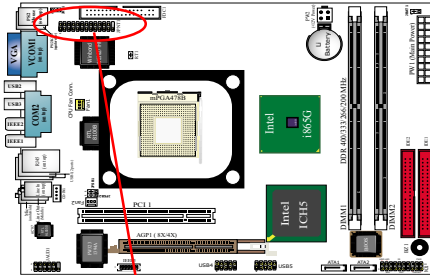
Connecting to Front Panel with IEEE cable

IEEE1/2 Connecting to 1394 device.

• Supporting three fully compliant cable ports, each supporting 400/ 200/100 Mbits transfer rate.

• PCI-bus based open host controller, compliant with IEEE 1394a-2000 standard for high performance serial bus

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2-10.12 Printer Port: JPNT1 (optional)

JPNT1 is an optional parallel printer port.

JPNT1: Printer Port (optional)
Pin Assignment

Pin 1 STROBE#	Pin 14 AUTOFD#
Pin 2 LPTDD0	Pin 15 ERROR#
Pin 3 LPTDD1	Pin 16 INITA#
Pin 4 LPTDD2	Pin 17 SLCTIN#
Pin 5 LPTDD3	Pin 18 GND
Pin 6 LPTDD4	Pin 19 GND
Pin 7 LPTDD5	Pin 20 GND
Pin 8 LPTDD6	Pin 21 GND
Pin 9 LPTDD7	Pin 22 GND
Pin 10 ACK#	Pin 23 GND
Pin 11 BUSY	Pin 24 GND
Pin 12 PE	Pin 25 GND
Pin 13 SLCT	Pin 26 Key

To Printer Connector on board

To Printer

Printer Cable (optional)

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 devoted to describing the installations of all these essential drivers and utilities on Windows 9X, Windows ME, Windows 2000 and Windows XP. And installation on Windows XP as the general illustration hereby.

The priority of drivers to be installed should also be noted. Users are recommended to take the following installation orders :

3-1 To Open up the Support CD
3-2 To Install Intel Chipset Software Installation Utility
3-3 To Install DirectX
3-4 To Install Graphics Driver
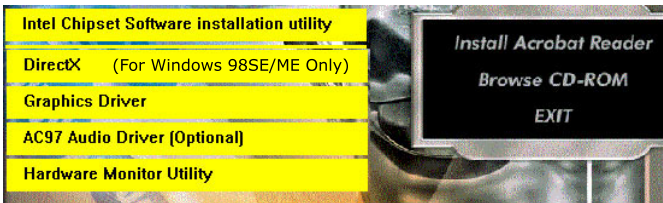**3-5 To Install AC'97 Audio Drivers**
3-6 To Install Hardware Monitor Utility
3-7 To Install LAN Drivers
3-8 To Install Intel USB V2.0 Drivers

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. We should take "Intel Chipset Software installation Utility" as first installation priority to optimize the Intel system.
   From next section, we provide detailed descriptions of all these installations with graphical illustrations.

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.
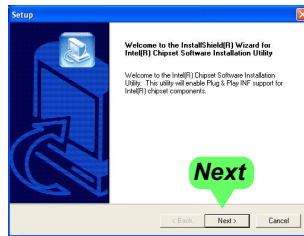
3. **"Intel Software License Agreement"** screen will appear, please click the **"Yes"** button to agree with the Licence Agreement and continue.
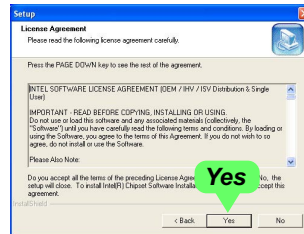
4. After all the setup process is finished, please restart your computer by clicking on "Finish" so as to take the Utility into effect.
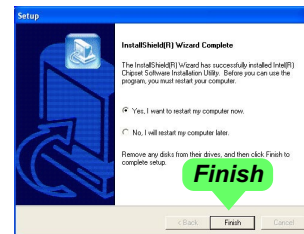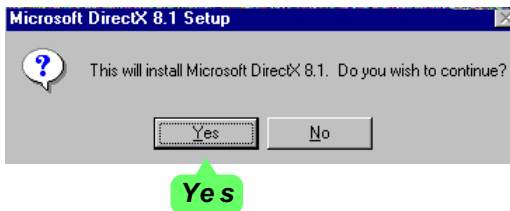
3-3 DirectX Installation

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 for Windows 98SE/ME only.
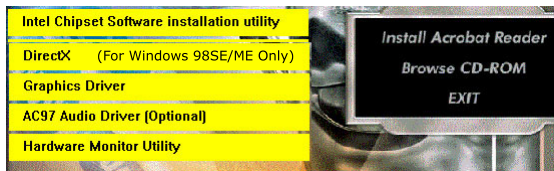
1. When the screen of "Microsoft DirectX 8.X Setup" appears, please press "Yes" button to continue.

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

3-4 Graphics Driver Installation

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

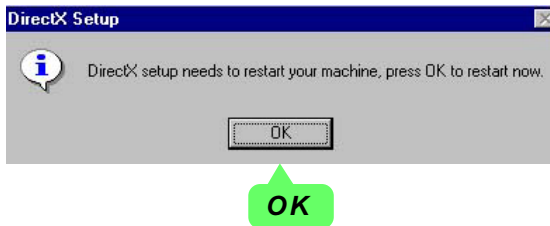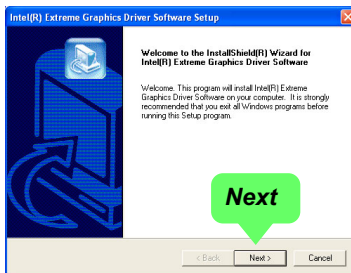1. For installation of on-board VGA driver, you must first connect the monitor to the on-board VGA connector. Then click to "Install Graphics Driver". The Graphics Driver is specifically for on-board VGA.

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

Next

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

Yes

3. After all the setup procedures have completed, click to "Finish" button to exit the Installation program and restart your system.
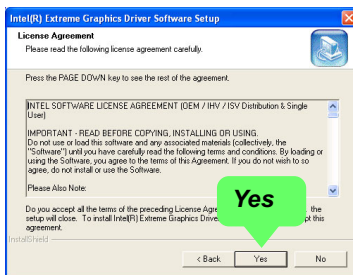

Finish
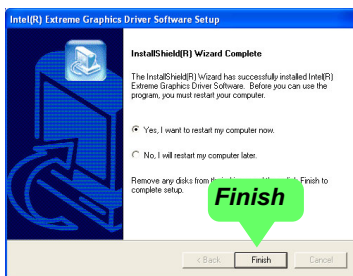
3-5 AC'97 Audio Driver Installation

Avance AC97 Audio Codec on board, AC'97 2.2 compatible stereo audio code for PC multimedia systems. Avance AC'97 Audio Codec Driver is provided in Support CD for user's installation.

3-5.1 Installing AC'97 6-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 "Avance AC'97 Audio Setup"".
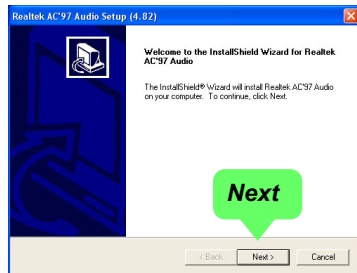
3. instantly, the Setup program proceeds to install the softwares which include AC'97 driver and AVRack. (If you want to stop setup, click the "Cancel" button.)
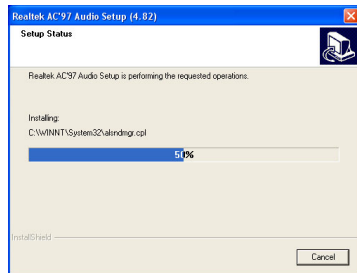
4. After the setup process is finished, please check the radial button "Yes, I want to restart my computer now." And click "Finish" to restart your system.

45
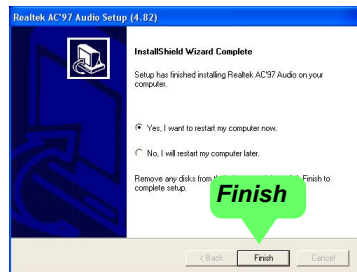
3-5.2 Verifying 6-channel Audio

After installation of AC'97 6-channel Codec, you must configure the 5.1 Speaker connection to enable the 6-channel audio.

1. Connect your on-board Audio Connector to your 6-channel speakers as depicted in the figure below:

Light Blue Connector to Rear Speaker

Light Green Connector to Front Speaker

Light Pink Connector to Center/Subwoofer Speaker
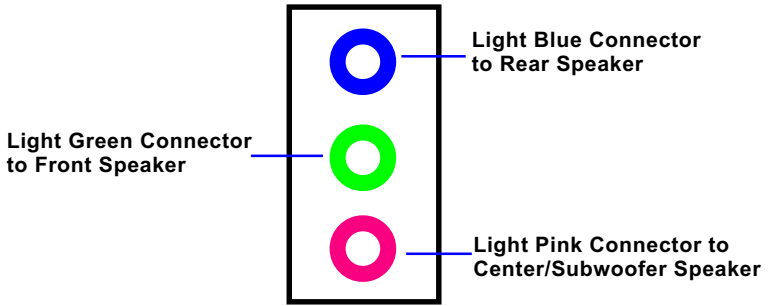
Back Panel Audio Connectors

2. After Connection is done, start your Windows system and double click the Avance Sound Effect manager icon to enter 6-channel configuration:

Sound Effect Manager icon on Windows XP

3. The AC'97 Audio Configuration" screen will pop out. Clikc the "Speaker Configuration" bar with your mouse.
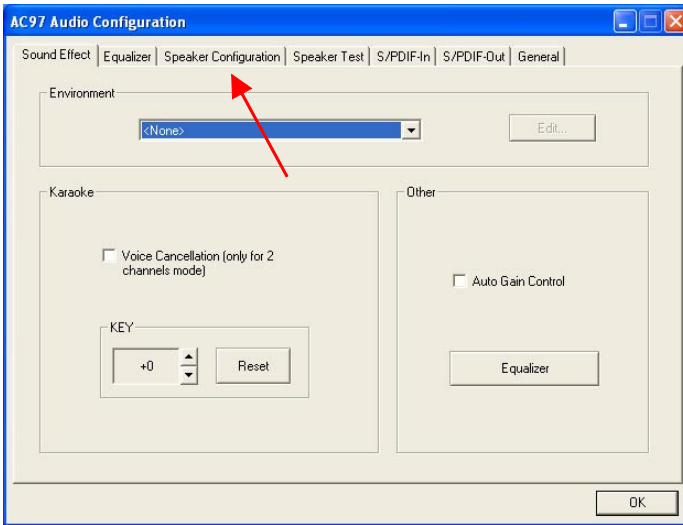
4. Instantly, the "Speaker Configuration" screen will pop out. Pick the items "6-channel mode for 5.1 speakers output" and " Synchronize the phonejack switch with the speakers settings" and then click "OK" to finish configuration.
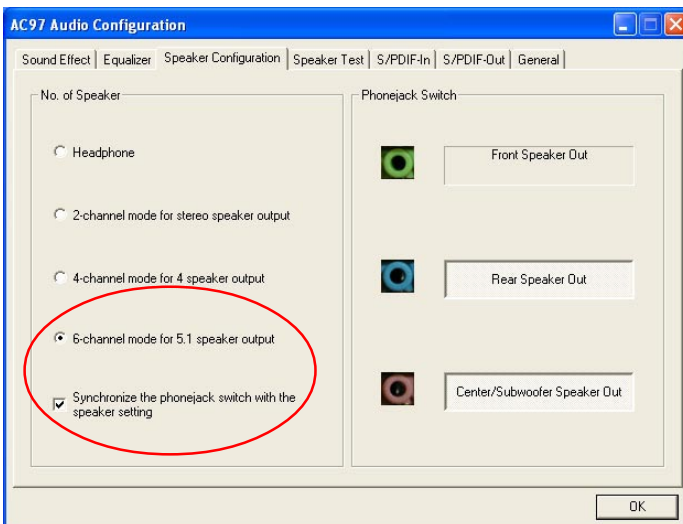
5. At finishing the Speakers Configuration, you can also click the "Speaker Test" bar on the screen to test the 6-channel performance. The figure below is the "Speaker Test" screen with testing instructions enclosed on it. Follow the instructions to perform the Speakers Test.

3-6 To Install Hardware Monitor Utility

3-6.1 Installation

Hardware Monitor is built on this mainboard. Its installation is pro-grammed 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.
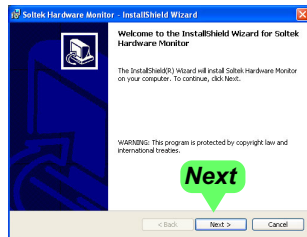
3. The **InstallShield Wizard** screen will show the current setting, please click the **"Install"** button to continue.

4. After all the setup process is finished, click "Finish" to exit the wizard.
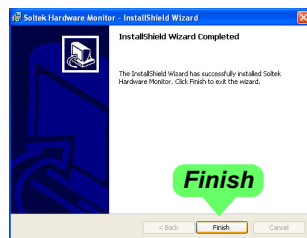
3-6.2 Verification

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

Showing the temperature(s), the function of which 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

*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.

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3-7 To Install LAN Drivers

3-7.1 RTL8100B LAN driver on Windows ME / 2000 / XP

1. When you newly install Windows ME, Windows 2000 or Windows XP, the system will detect the LAN Controller on board and configure it automatically into system. Therefore, users need not bother to install the LAN controller into these operating systems.
2. To verify the existence of RTL8100B Controller and Driver, please enter the "Control Panel" of your system and click "Network" to open the "Configuration" screen. You can then see the "Realtek8139 (A/B/C) PCI Fast Ethernet Adapter" is already installed in system.

3-7.2 RTL8100B LAN driver on Windows 9X

The LAN driver contained in the Support CD is not included in the Autorun Menu. To install RTL8100B LAN driver on Windows 9X, please follow the steps shown below:

1. On the "Start" screen of your system, please click to the following path:

    \My Computer\properties\Device manager

2. In the "Device manager" screen, you can see the item " PCI Ethernet Controller" with a yellow question mark on its left side, which indicates that the LAN controller is already detected by system but the driver for this on-board RTL8100B Ethernet Controller is not installed yet. Please point to this item with your mouse and double click on it (or click the "Properties" button).
3. Instantly, the "PCI Ethernet Controller Properties" screen shows up. Please click the "General" bar to continue.
4. In the "General" screen, click "reinstall Driver" button to continue. Please note that the status of "Device Usage" should stay at "Exists in all hardware profiles".
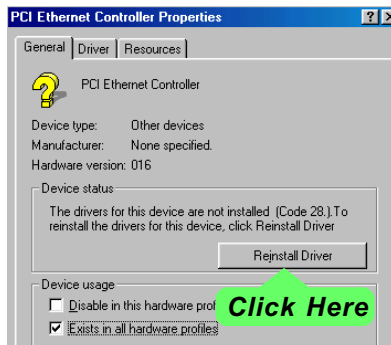
5. In the "Update device Driver Wizard" screen, click "Next" to continue until you see a dialog box asking you to "Specify a location" for the driver. You should **now** insert the Support CD into your CD-ROM.

6. As illustrated in the picture below, check the item "Specify a location" and click the "Browse" button to find out the correct path for the driver. Supposing your CD-ROM drive is Drive E, please type: E:\Driver\Network\RTL8139\Win98 into the blank bar. (Please note that both RTL8100B and RTL8139C controllers are supported by Driver RTL8139.) Then click the "Next" button to continue.
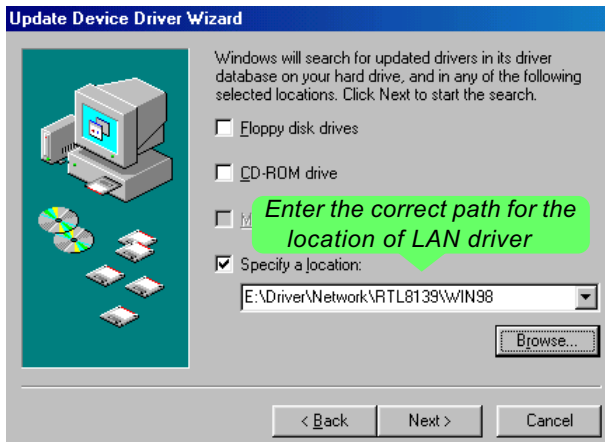
7. The Update Device Driver Wizard will then go on installing the driver, until the "Insert Disk" dialog box shows up. Please withdraw your Support CD and insert the Win 98 CD-ROM into the CD-ROM drive for updating system and click "OK" to continue.

8. The Update Device Driver Wizard will then proceed to update the system with the LAN driver. When the "Finish" screen shows up, click "Finish" to continue.

9. Final Dialog box will appear to remind you that you must restart your computer to finish updating the new hardware. Please click "Yes" to restart system and finish the LAN driver installation.

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. <u>For achieving 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)</u>

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.
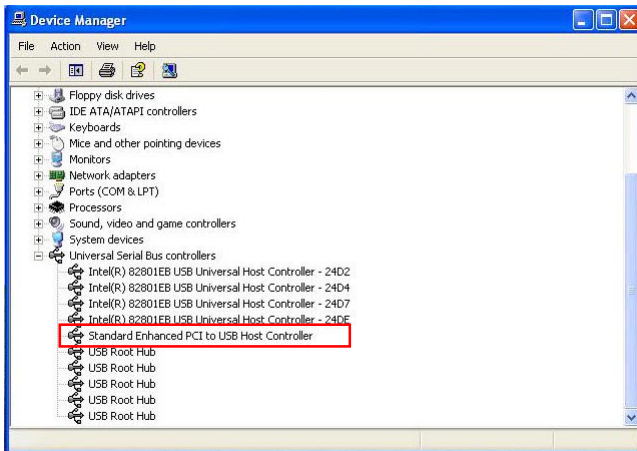
Chapter 4 AMI BIOS Setup

THE BIOS

BIOS 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 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
4-2 To Run BIOS Setup
4-3 About CMOS
4-4 The POST (Power On Self Test)
4-5 To Update BIOS
4-6 BIOS Setup

4-1 About BIOS Setup

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 (Power On Self Test)

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 upgrade BIOS without the need to replace an EPROM component.
- The Upgrade Utility can be loaded on a floppy diskette for upgrading saving, and verifying the system BIOS. The Update Utility can also be run from a hard disk drive or a network drive.

- It is highly recommended that you save a copy of the original mainboard BIOS along with a Flash EPROM Programming utility (afudos.exe) to a bootable floppy disk so that you can reinstall the BIOS when in need.

- Normally, to update BIOS is unnecessary if the system is working fine. Users should only update BIOS when incompatible problems are encountered or new features have to be added to system.

- "AFUDOS.EXE" is a Flash EPROM Programming utility that updates the BIOS by uploading a new BIOS file to the programmable flash ROM on the mainboard. This program only works in ***DOS environment, the utility can not be executed in Windows 95/98, ME, NT, WINDOWS 2000 or Windows XP environment.***

• Please follow the steps below for updating the system BIOS:

Step 1. Please visit the board maker's website, download the zip files of the latest BIOS and AMI flash utility "**afudos.exe**" for your mainboard. After unzipping, the BIOS file format will be *.ROM, of which " * " stands for the specific BIOS file name.

Step 2. Create a bootable diskette. Then copy the BIOS file and AMI flash utility "**afudos.exe**" into the diskette.

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

Step 4. Under " A " prompt, type **" afudos /i*.ROM /pbnc "** and then press <Enter> to run BIOS update program. Please note that there should be no space between **/i** and ***.ROM**. (*.ROM depends on your mainboard model and version code. Instead of typing "*", you should type the specific file name for your specific mainboard). For example, you may type "afudos /iMP005.rom /pbnc".

Step 5. When the message "Flash ROM Update Completed - Pass." appears, please restart your system.

Step 6. You will see a message "CMOS Memory Size Wrong" during booting the system. Press <Del> or <F1> to run CMOS setup utility, then reload "Load Failsafe Defaults" or **"Load Optimal Defaults"** and save this change.

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 <Del> TO RUN SETUP

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

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

▶ Standard BIOS Features	Discard Changes and Exit
▶ Advanced BIOS Features	Load Optimal Defaults
▶ Advanced Chipset Features	Discard Changes
▶ PCI/PNP Resource Management	
▶ Boot Configuration Setup	
▶ BIOS Security Features	
Save Changes and Exit	

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

Configure Time and Date.   Display System Information ...

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.

4-6.2 Standard BIOS Features

"Standard BIOS Features" allows users to configure Time and Date. This menu also displays system information.

Run the Standard BIOS Features as follows:
1. Choose "Standard BIOS Features" from the Main Menu and press <Enter>. The following screen will appear:

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

System Overview	Help Item
AMIBIOS	Use [Enter], [Tab] or [Shift-Tab] to select a field.
Version : 08.00.09	
Build Date : 04/25/03	Use [+] or [-] to configure
ID : AAAA000	system Time.
Processor	
Type : Intel(R) Pentium(R) 4 CPU 1500MHz	
Speed : 1500MHz	
Count : 1	
System Memory	
Size : 248MB	
System Time 00 : 19 : 29	
System Date Thu 05/22/2003	

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

2. Use [Enter], [Tab] or [Shift-Tab] to select a field.
   Use [+] or [-] to configure System Time.

<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" alows user to load Optimal Defaults or not.

3. Press <ESC> to return to the Main Menu when you finish setting up Time and date. The following descriptions are provided as a quick guide to your setup.

AMIBIOS/Processor/ These three items only show the respective current
System memory statuses. They cannot be changed in the BIOS
Setup.

System Time The BIOS shows the time of the day in the format:
hh:mm:ss. Choose the field with the Arrow keys
and change the time with the Page Up/Page
Down +/- keys.

System Date The BIOS shows the date of the day in the format:
mm:dd:yy :day of the Week. Choose the field with
the Arrow keys and change the value with the
Page Up/Page Down +/- keys.

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:

1. 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
Warning: Setting wrong values in below sections may cause system to malfunction.	Configure CPU.
▶ CPU Configuration Press Enter	
▶ IDE Configuration Press Enter	
▶ Floppy Configuration Press Enter	
▶ SuperIO Configuration Press Enter	
▶ Hardware Health Configuration Press Enter	
▶ ACPI Configuration Press Enter	
▶ Power Management Press Enter	
▶ USB Configuration Press Enter	
▶ Frequency/Voltage Control Press Enter	
▶ B8E Onboard Device Press Enter	

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

2. Use one of the arrow keys to move between options and modify the
   selected options by using + / - keys. An explanation of the <F> keys
   follow (The option marked with a triangle by the left consists of sub-
   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" alows user to load Optimal Defaults or not.

3. Press <ESC> to return to the Main Menu when you finish setting up
   all items. The following descriptions are provided as a quick guide.

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	Help Item
Manufacturer : Intel Brand String : Intel(R) Pentium (R) 4 CPU 1500MHz Frequency : 1500MHz PSB Speed : 8 Ratio Status : Locked Ratio Actual Value : 15 Ratio CMOS Setting : 8 Hyper-threading Function Disabled	Sets the ratio between CPU core clock and the FSB Frequency. Note: If an invalid ratio is set in CMOS, then actual and setpoint values may differ.

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.
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.
Hyper-threading Function	BIOS shows the current status of Hyper-threading function. If Hyper-threading CPU is running on board, this item will show "Enabled" status. If 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

IDE Configuration		**Help Item**
IDE Configuration	P/S-ATA (Auto)	
S-ATA Running Enhanced Mode	Yes	
P-ATA Channel Selection	Both	
S-ATA Ports Definition	P0-3rd./P1-4th	
▶ 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	
▶ Fourth IDE Master	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

IDE Configuration	To configurare IDE device mode. Choices: P/S-ATA(Auto): Parallel/Serial ATA combined mode; S-ATA Only: For S-ATA running on board only; P/S-ATA(Win98/Me): P/S-ATA on Win98/Me only Disabled: IDE Configuration disabled

IDE Configuration ——	Choosing "P/S-ATA(Auto)" to configure the following:
S-ATA Running En-hanced Mode (Combined Mode Option)	If P/S-ATA (Auto) is chosen, use this item to choose S-ATA Running Enhanced Mode. Choices: Yes : Choose from the following option: P-ATA (parallel ATA) Channel Selection: Choices: Primary; Secondary; Both S-ATA Ports Definition: Choices: P0-3rd./P1-4th; P0-4th./P1-3rd. No : Choose from the following options: P-ATA (parallel ATA) Channel Selection: Choices: Primary; Secondary; Both

IDE Configuration ——	Choosing "S-ATA Only" to configure the following:
S-ATA Ports Defini-tion	To assign the S-ATA port locations. Choices: P0-3rd./P1-4th.; P0-4th./P1-3rd.;

IDE Configuration ——	Choosing "P/S-ATA(Win98/Me)" to configure the following:
Combined Mode Option	Choices: P-ATA 1st Channel; S-ATA 1st Channel;
S-ATA Ports Defini-tion	Choices: P0-Master/P1-Slave; P0-Slave/P1-Master;

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

▶ 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
▶ Fourth IDE Master	Not Detected

Primary/Secondary IDE Master/Slave Press <Enter> To show the detected information of the Primary / Secondary IDE Master/Slave device (s).

Third/Fourth IDE Master Press <Enter> to show the detected information of third/fourth IDE Master device(s).

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 DMA 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 auto-select (default) or disable LBA/Large mode.
Block (Multi-Sector Transfer)	To auto-select (default) or disable Block Mode. If disabled, the data transfer from and to the device occurs one sector at a time; if enabled, the data transfer from and to the device occurs multiple sectors at a time.
PIO Mode	To auto-select (default) or disable PIO Mode. Choices: Disabled; 1, 2, 3, 4
DMA Mode	To auto-select (default) or disable DMA Mode. Choices: Auto; SWDMA(0-2); MWDMA(0-2); UDMA(0-4)
S.M.A.R.T	Allows you to enable / disable the Self Monitoring Analysis and Reporting Technology for the hard disk. Choices: Auto(default); Enabled; Disabled
32Bit Data Transfer	To auto-select (default) or disable 32Bit Data Transfer.

4-6.3.2-3 Hard Disk Write Protect

Hard Disk Write Protect	Allows you to Enabled / Disable(default) Hard Disk Write Protection

4-6.3.2-4 IDE Detect Time Out

IDE Detect Time Out (Sec)	Allows you to set time out for IDE Detection. Choices: 0 - 35 seconds in 5 seconds stepping

4-6.3.2-5 ATA(P) 80Pin Cable Detection

ATA(PI) 80Pin Cable Detection	Allows you to select ATA(PI) devices for 80Pin Cable Detection. To set Host & Device allows onboard IDE controller and IDE disk drive to detect the type of IDE cable used. Choices: Host & Device, Host, Device

4-6.3.3 Floppy Configuration

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

Floppy Configuration

Floppy Configuration		Help Item
Floppy A	1.44 MB 3.5 in	Select the type of floppy drive connected to the system.
Floppy B	Disabled	

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

Floppy A/B Press Enter on "Floppy A/B" will let you select this field to the type(s) of floppy disk drive(s) installed in your system. The choices are:
360KB 5.25 in.
1.2MB, 5.25 in.
720KB, 3.5 in.
1.44MB, 3.5 in.
2.88MB, 3.5 in.
Disabled

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 Win627THF Super IO Chipset		Help Item
OnBoard Floppy Controller	Enabled	Allows BIOS to Enable or Disable Floppy Controller.
Serial Port1 Address	3F8/IRQ4	
Serial port2 Address	2F8/IRQ3	
Serial port2 Mode	Normal	
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 Address Allows you to set the Onboard Serial Port1 Address.
Choices: Disabled; 3F8/IRQ4; 3E8/IRQ4; 2E8/IRQ3;

Serial Port2 Address Allows you to set the Onboard Serial Port2 Address.
Choices: Disabled; 2F8/IRQ3; 3E8/IRQ4; 2E8/IRQ3;

Serial Port 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

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

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

Hardware Health Configuration

Hardware Health Configuration		Help Item
System Temperature	: 34˚C/93˚F	Enables Hardware Health Monitoring Device.
CPU Temperature	: 35˚C/96˚F	
Chasis Fan Speed	: 4805 RPM	
CPU Fan Speed	: 4115 RPM	
CPU Core	: 1.724 V	
+3.3V	: 3.258 V	
+12V	: 11.829V	
+5.00V	: 5.094 V	
VDIMM	: 2.612 V	
Vbat	: 3.528 V	
5Vsb	: 4.915 V	
Sys Smart Fan Control	50˚C/118˚F	
CPU Smart Fan Control	55˚C/131˚F	
Smart FAN Minimum Speed	Silent	

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

System Temperature Shows current system temperature.

CPU Temperature Shows current CPU internal temperature.

Chasis/CPU Fan Speed Displaying the current speed of Chassis/CPU/Power Fan.

CPU Core Showing CPU core actual voltage value.

3.3V/+12V/+5.00V Showing current voltage against the 3.3V/+12V/+5V power supply.

Sys Smart Fan Control Use this item to control the System Fan operation.
Choices:
Disabled (Disabling the control function);
45˚C/113˚F; 50˚C/118˚F; 55˚C/131˚F:
Choose a temperature limit for shutting down
the system Fan.

CPU Smart Fan Control Use this item to control the CPU Fan operation.
Choices:
Disabled (Disabling the control function);
45˚C/113˚F; 55˚C/131˚F; 65˚C/149˚F:
Choose a temperature limit for shutting down
the CPU Fan.

Smart Fan Minimum Speed Use this item to choose the Smart Fan minimum
speed.
Choices: Silent; Low; Middle

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	

▸ **General ACPI Configuration:**

To press< Enter > on General ACPI Configuration will reveal the following
item(s).

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); Auto

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

▶ Advanced ACPI Configuration:

To press< Enter > on Advanced ACPI Configuration will reveal the following item(s).

ACPI 2.0 Support	Allows you 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.
ACPIC ACPI SCI IRQ	If ACPI APIC Support is enabled (Yes), it allows you to enable / disable ACPI APIC SCI IRQ function.
BIOS-->AML ACPI table	Allows you to enable / disable BIOS-->AML ACPI table function.
Headless mode	Allows you to enable / disable Headless operation mode through ACPI.

4-6.3.7 Power management

1. Choose "Power Management" in "Advanced BIOS Features" and press <Enter>. The following sub-screen will appear for configuration:

Power Management

APM Configuration		Help Item
Power Management/APM	Enabled	
Video Power Down Mode	Suspend	
Hard Disk Power Down Mode	Suspend	
Standby Time Out	Disabled	
Suspend Time Out	Disabled	
Power Button Mode	On/Off	
Restore on AC Power Loss	Last State	
Resume On Ring	Disabled	
Resume On LAN/PME	Disabled	
Resume On RTC Alarm	Disabled	

Power Management/ APM	To enable/disable the Power Management/Advanced Power Management function. Choices: Enabled; Disabled
Video Power Down Mode	To choose the Power down video mode. Choices: Disabled; Standby; Suspend
Hard Disk Power Down Mode	To choose the Power down hard Disk mode. Choices: Disabled; Standby; Suspend
Standby Time Out	To choose the time for the Standby Time out. 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	To choose the time for the Suspend Time out. Choices: Disabled; 1 min; 2 min; 4 min; 8 min; 10 min; 20 min; 30 min; 40 min; 50 min; 60 min

Power Button Mode To choose the Power Button mode.
Choices: On/Off; Suspend

Restore on AC Power Loss To choose the Restore mode of the "Restore on AC Power Loss" event.
Choice: Power Off; Power On; Last State

Resume On Ring To enable/disable the Resume on Ring signal function (via network).
Choices: Enabled; Disabled

Resume On LAN/PME To enable/disable the Resume on LAN/PME signal function.
Choices: Enabled; Disabled

Resume On RTC Alarm To enable/disable the Resume on RTC Alarm function.
Choices: Enabled; Disabled

4-6.3.8 USB Configuration

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

USB Configuration

USB Configuration	Help Item
Module Version - 2.22.5-7.4 USB Devices Enabled : 　　　　None USB Function　　　　　　8 USB Ports Legacy USB Support　　　Enabled USB 2.0 Controller　　　Enabled USB 2.0 Controller Mode　FullSpeed	Enable USB host controllers.

USB Function To set the USB Function on the USB port(s).
Choices: 8 USB Ports (default); 6 USB Ports ; 4 USB
Ports; 2 USB Ports; Disabled

Legacy USB Support To enable(default) / disable the Legacy USB support.
Choices: Enabled(default); Disabled; Auto

USB 2.0 Controller To enable(default)/ disable the USB 2.0 Controller.

USB 2.0 Controller Mode To choose the USB 2.0 Controller mode.
Choices: FullSpeed; HiSpeed

4-6.3.9 Frequency/Voltage Control

1. Choose "Frequency/Voltage Control" in "Advanced BIOS Features" and press <Enter>. The following sub-screen will appear for configuration:

Frequency/Voltage Control

Frequency/Voltage Configuration		Help Item
CPU Linear Frequency	Disabled	
Clock Spread Spectrum	Disabled	
AGP Voltage Control	1.5V	
DIMM Voltage Control	2.6V	

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

CPU Linear Frequency	This item allows you to enable / disable this setting function. Choices: Disabled: CPU Linear Frequency is disabled. Enabled: To Provide the following options: (1) CPU Clock: Press +/- to adjust CPU clock by 1MHz stepping between 100MHz and 250MHz. (2) Fix AGP/PCI Frequency: To enable/disable Fix AGP/PCI Frequency (3) Clock Spread Spectrum Control: to enable/disable this function.
Clock Spread Spectrum	To disable/enable the CPU Clock Spred Spectrum. Choices: Enabled; Disabled
AGP Voltage Control	Allows you to configure the AGP 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

4-6.3.10 B8E Onboard Device

Choose "B8E Onboard Device" in "Advanced BIOS Features" and press
<Enter>. The following sub-screen will appear configuration:

B8E Onboard Device

B8E Onboard Device Configuration		Help Item
Realtek 8100b Ethernet Control	Enabled	
Agere FW323 1394 Control	Enabled	

Relatek 8100b Ethernet Control   Allows you to enable /Disable the Realtek 8100b Ethernet Control.
Choices: Enabled; Disabled

Agere FW323 1394 Control   Allows you to enable /Disable the Agere FW323 1394 Control.
Choices: Enabled; Disabled

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:

1. 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
Warning: Setting wrong values in below sections may cause system to malfunction. ▶ NorthBridge Configuration　　　　　　Press Enter ▶ SouthBridge Configuration　　　　　　Press Enter	Options for NBEnable USB host controllers.

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

2. Use one of the arrow keys to move between options and modify the selected options by using + / - keys. An explanation of the <F> keys follow (The option marked with a triangle by the left consists of sub-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" alows user to load Optimal Defaults or not.

3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following descriptions are provided as a quick guide.

4-6.4.1 NorthBridge Configuration

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

NorthBridge Configuration

DRAM Frequency	Auto	**Help Item**
Configure DRAM Timing by SPD	Enabled	
Memory Hole	Disabled	
Init. Graphic Adapter Priority	AGP/Int-VGA	
Internal Graphics Mode Select	Enabled, 8MB	
Graphics Aperture Size	64MB	
Boot Display Device	Auto	
Flat Panel Type	640x480LVDS	
TV Standard	Auto	

DRAM Frequency   Allows you to set the current SDRAM frequency.
Choices: Auto; 266MHz; 333MHz; 400MHz

Configure DRAM   SPD (Serial presence detect) is a device in memory
Timing by SPD   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, DRAM timing can be configured manually.
Choices: Enabled; Disabled

Configure DRAM Timing by SPD	if disabled, configure the following items manually:
DRAM CAS# Latency	With SDRAM Timing by SPD disabled, you can select the SDRAM CAS# (Column Address Strode)latency manually. Choices: 2 Clocks; 2.5 Clocks; 3 Clocks
DRAM RAS# Precharge	With SDRAM Timing by SPD disabled, you can select the SDRAM RAS# (Row Address Strode) Precharge cycle manually. Choices: 2 Clocks; 3 Clocks; 4 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 Clocks; 3 Clocks; 4 Clocks
DRAM Precharge Delay	To set the SDRAM Precharge Delay cycle. Choices: 5 Clocks; 6 Clocks; 7 Clocks; 8 Clocks
DRAM Burst Length	With SDRAM Timing by SPD disabled, you can select the SDRAM Burst length manually. Choices: 8; 4

Memory Hole	To enabled / disabled (default) the support of Memory Hole which is reserved for ISA card. Choices: Disabled; 15MB-16MB
Init. Graphics Adapter Priority	To select the initial Graphics Adapter. Choices: Internal VGA; AGP/Int-VGA(default); AGP/PCI; PCI/AGP; PCI/Int-VGA;
Internal Graphics Mode Select	To set the internal graphic mode. Choices: Enabled,(1MB; 4MB; 8MB; 16MB; 32MB); Disabled
AGP Aperture Size	Series of options are available: 4, 8, 16, 32, 64, 128, 256MB. Memory mapped and graphics data structures can reside in a Graphics Aperture. This area is like a linear buffer. BIOS will automatically report the starting address of this buffer to the O.S. The default setting is 64MB.

Boot Display Device To select the Boot Display device.
Choices: Auto (default); CRT; TV; EFP; LFP;
CRT+EFP; CRT+LFP

Flat Panel Type Allows you to select the flat panel type.
Choices: 640x480LVDS;800x600LVDS;
1024x768LVDS; 1280x1024LVDS;
1400x1050LVDS;1600x1200LVDS;
640x480CMOS; 800x600CMOS;
1024x768CMOS; 1280x1024CMOS;
1400x1050CMOS; 1600x1200CMOS

TV Standard To select the TV standard.
Choices: Auto ; NTSC_M / _M_J / _433 / _N;
PAL_B / _G / _D / _H / _I / _M / _N / _60;
SECAM_L / _L1 / _B / _D / _G / _H / _K /
_K1

4-6.4.2 SouthBridge Configuration

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

SouthBridge Configuration

OnBoard AC'97 Audio	Auto	**Help Item**

Onboard AC'97 Audio To Auto select/disable AC' 97 Audio.
Choices: Auto; Disabled

4-6.5 PCI/PNP Resource Management

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

1. 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.		No: lets the BIOS configure all the devices in the system. Yes: lets the operating system configure Plug and Play (PnP) devices not required for boot if your system has a Plug and Play operating system.
Plug & Play O/S	No	
PCI Latency Timer	32	
Allocate IRQ to PCI VGA	Yes	
Palette Snooping	Disabled	
PCI IDE BusMaster	Disabled	
OffBoard PCI/ISA IDE Card	Auto	
IRQ3	Available	
IRQ4	Available	
IRQ5	Available	
IRQ7	Available	
IRQ9	Available	
IRQ10	Available	
IRQ11	Available	
IRQ14	Available	
IRQ15	Available	
DMA Channel 0	Available	
DMA Channel 1	Available	
DMA Channel 3	Available	
DMA Channel 5	Available	
DMA Channel 6	Available	
DMA Channel 7	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

2. Use one of the arrow keys to move between options and modify the selected options by using + / - keys. An explanation of the <F> keys follow (The option marked with a triangle by the left consists of sub-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" alows user to load Optimal Defaults or not.

3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following descriptions are provided as a quick guide.

Plug & Play O/S	Allows you to configure the PNP devices by BIOS or O/S. Choices: No(by BIOS) (default); Yes(by O/S)
PCI Latency Timer (PCI Clocks)	Allows you to set the PCI Latency Time. Choices: 32(default); 64; 96; 192; 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(default); 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; PCI Slot3; PCI Slot4; PCI Slot5; PCI Slot6
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 Setup

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

1. Choose "Boot Configuration Setup" 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	Press Enter	Configure Settings during System Boot.
▶Boot Device Priority	Press Enter	

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

2. Use one of the arrow keys to move between options and modify the selected options by using + / - keys. An explanation of the <F> keys follow (The option marked with a triangle by the left consists of sub-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" alows user to load Optimal Defaults or not.

3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following descriptions are provided as a quick guide.

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	Configure Settings during System Boot.
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 disabled, BIOS will skip certain tests whle 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" (default) 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.

Bootup Num-lock Allows you to toggle between On (default) 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 The system will show "Press DEL key to run Setup
Display 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	Configure Settings during System Boot.
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 boot device.
Choices: Disabled; Device(s) installed

4-6.7 BIOS Security Features

BIOS Security Features allows you to modify the system's boot security settings.

1. Choose "BIOS 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		Install or Change the password.
User Password : Not Installed		
Change Supervisor Password	Press Enter	
User Access Level	Full Access	
Change User Password	Press Enter	
Clear User Password	Press Enter	
Password Check	Setup	
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

2. Use one of the arrow keys to move between options and modify the selected options by using + / - keys. An explanation of the <F> keys follow (The option marked with a triangle by the left consists of sub-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" alows user to load Optimal Defaults or not.

3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following descriptions are provided as a quick guide.

4-6.7.1 Supervisor Password

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

4-6.7.2 User Password

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

4-6.7.3 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. To change an installed password, press< enter>to "Change Supervisor Password" and do the same procedures as newly-installing a new password.

8. As soon as a Supervisor password is installed, the "User Access Level" line will appear for supervisor's setup.

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

4-6.7.4 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.

4-6.7.5 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** If Password has set up, this item appears to allow you to set BIOS to check up password with a password prompt at BIOS Setup or whenever restarting system. This option will appear when you have set Supervisor Password or User Password.
> Choices: Setup (default); Always

4-6.7.6 Boot Sector Virus Protection

Boot Sector Virus When enabled, you receive a warning message if a
Protection 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.

4-6.8 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.

4-6.9 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.

4-6.10 Load Optimal Defaults

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

[Load Optimal Defaults ?]
[OK]   **[Cancel]**

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

4-6.11 Discard Changes

Discard Changes option allows you to discard changes without exiting the Menu Setup. 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 exit CMOS Setup and restart system.