Contents

Item Checkup

- Mainboard
- Multi-lingual Quick Installation Guide
- User Manual (Mainboard)
- Support CD
- Bundled Bonus Pack CD
- Bundled Bonus Pack Manual
- 2 x Floppy Diskette with RAID Driver
- Cable :
    2 x ATA66/100 IDE Cable
    4 x Serial ATA Cable
    2 x SATA Power Cable
    1 x FDD Cable
    1 x 1394 Cable

Chapter 1 Specification

Introduction

This mainboard features an integration of the powerful processor Intel Pentium 4 and the single-chip North Bridge Intel 865PE. The Intel P4 processor is a rapid execution engine providing 800/533/400MHz system bus, while North Bridge Intel 865PE is a high performance integrated chipset providing Dual Channel DDR 400/333/266 SDRAM memory interface, Hub interface as well as AGP interface.

Integrated with Intel 865PE, South Bridge Intel ICH5 supports 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. 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 Mainboard Layout
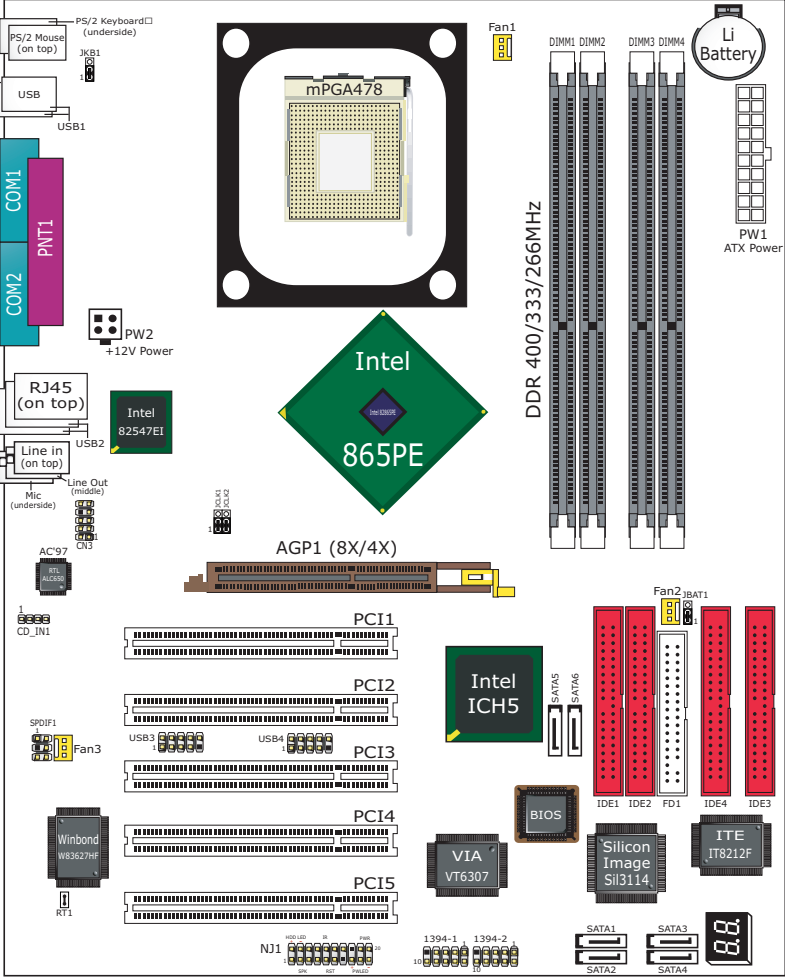
1-2 Mainboard Specification Table

865Pro-FGR Specifications and Features	
CPU	Socket 478B for P4 CPU(HT CPU included)
North Bridge	Intel 865PE, 800/533/400MHz FSB
South Bridge	Intel ICH5
BIOS	AMI BIOS
Memory	Dual-channel DDR 400/333/266 SDRAM, up to 4GB in 4 DIMM slots
I/O Chip	W83627HF, with 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 ATA100 IDE ports, 2 ATA133 IDE ports by IT8212F IDE RAID Controller
SATA Interface	4 Serial ATA connectors by Silicon Image SIL3114 supporting 4 SATA Hard Disks 2 Serial ATA connectors supported by ICH5
RAID Interface	4 Serial ATA connectors by Silicon Image SIL3114 supporting RAID 0, 1, 0+1 2 ATA133 IDE ports by IT8212F supporting RAID 0, 1, 0+1
PCI Slots	5 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	Gigabit LAN Controller Intel 82547EI
IEEE1394 Interface	2 IEEE1394 ports by VIA VT6307
Other Features	Keyboard/Mouse Wake Up Debug LED

1-3 Chipset System Block Diagram
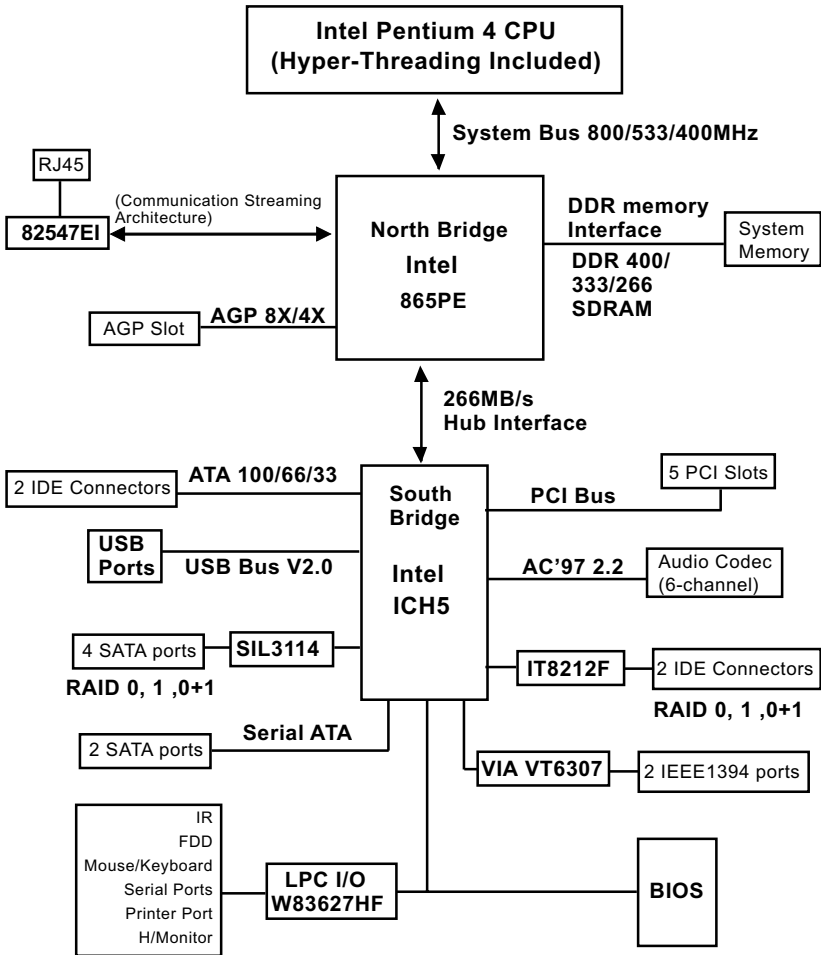
Pentium 4 + Intel 865PE + Intel ICH5 Diagram

1-4 Mainboard Specifications

1-4.1 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   -- 512KB L2 Advanced Transfer Cache

-- Hyper-pipelined technology -- Advanced dynamic execution;

-- Rapid Execution Engine -- Streaming SIMD Extensions 2

-- 128 Bit Enhanced Floating Point Unit -- Execution Trace Cache

1-4.2 System Chipsets

North Bridge Intel 865PE:
- A high performance integrated chipset providing processor interface (including Hyper-threading Technology), Dual channel DDR 400/333/ 266 SDRAM memory interface, Hub interface, AGP interface.
- Showing Hyper-Threading Logo when booting with a Hyper-threading 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.

1-4.3 Memory

4 DDR DIMM 184-pin slots on board :
- Supporting unregistered, non-ECC Dual-channel DDR 400/333/266 SDRAM up to 4 GBs
- DIMMs to be populated in identical pairs for Dual-channel operation
- SPD (Serial Presence Detect) Scheme for DIMM Detection supported

1-4.4 AMI BIOS

Flash Memory for easy upgrade, supporting 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)

1-4.5 Accelerated Graphics Port (AGP) Interface

AGP Controller embedded on board, supporting:
- 1.5V(8X/4X) power mode only, 1 AGP Slot supported
- 8X 66MHz AD and SBA signaling; AGP pipelined split-transaction long burst transfers up to 2GB/sec.
- AGP 8X/4X supported, AGP V3.0 compliant

1-4.6 Multi-I/O Functions

- Serial ATA Controller integrated in ICH5, supporting:
  - -- 2x Serial ATA connectors supporting up to 150MByte/s transfer rate
- PCI EIDE Controller, supporting:
  - -- 2x UATA100/66/33 IDE connectors supporting up to 4 IDE drives
- 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:
  - -- One 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 Windows 9X/ME)
  - -- 4 built-in USB connectors 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 (COM1 & COM2) on board

1-4.7 Expansion Slots

- 5 PCI Bus Master slots
- 1 AGP slot
- 4 DDR SDRAM DIMM slots

1-4.8 Gigabit Ethernet Controller on board

Gigabit Ethernet Controller Intel 82547EI on board:
- Supporting 10/100/1000Mb data transfer
- Supporting Wake On LAN function through the on-board RJ45 LAN Connector
- LAN Driver enclosed in Support CD for user's installation.

1-4.9 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)
- Supporting Real Time Clock (RTC) for date alarm, month alarm, and century field configuration

1-4.10 Hardware Monitor on board

- Hardware Monitor supported by W83627HF, 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.

1-4.11 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.

1-4.12 Serial ATA RAID Controller

- Silicon Image SIL3114 integrated on board
- Supporting 4 Serial ATA connectors for 4 Serial ATA hard disks with up to 150MB/s transfer rate
- Supporting RAID 0, 1, 0+1
- SATA RAID Controller Driver enclosed in Support CD / Floppy Disk for user's installation.

1-4.13 IDE RAID Controller

- ITE IT8212F integrated on board
- Supporting 2 ATA133 IDE connectors for 4 Hard Disks
- Supporting RAID 0, 1, 0+1
- IDE RAID Controller Driver enclosed in Support CD / Floppy Disk for user's installation.

1-4.14 IEEE 1394 Interface

The IEEE 1394 Controller, VIA VT6307 chipset on board, providing en-
hanced PC connectivity for a wide range of devices, including consumer
audio/video components, storage periperals, and other portable devices.

• PCI-bus based open host controller, compliant with IEEE 1394A-2000
  standard for high performance serial bus
• Supporting two fully compliant ports with Plug and Play-compatible
  expansion interface. The IEEE 1394 controller can be up to 400MB/
  sec transfer rate to fulfill various requirments of any multimedia
  devices.

1-4.15 Form Factor

• ATX Form Factor, ATX Power Supply, version 2.03 compliant, sup-
  ported by one Main Power Connector, one +12V Power Connector.
• Mainboard size: 305mm x 244mm

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 AGP 8X/4X Slot Installation
2-5 IDE Connectors Installation
2-6 Serial ATA RAID Connectors
2-7 Floppy Drive Connector 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

2.80 GHz / 512 / 800
```

(Hyper-Threading CPU included)

3) System Bus

2) CPU L2 Cache

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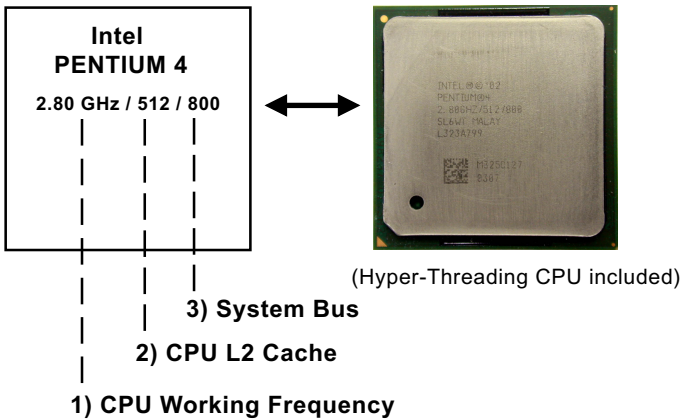
On the heatsink side of a Pentium 4 CPU, there printed a line of figures to identify its specifications. The line consists of 4 parts:

1. CPU Working Frequency: this part depicts the working frequency of the CPU. The Intel P4 processor with three differeent System Bus mode provides a variety of speeds ranging from 2A Ghz to 3.2Ghz.
   400MHz System Bus: 2.60, 2.50, 2.40, 2.20, 2A GHz
   533MHz System Bus: 3.06, 2.80, 2.66, 2.53, 2.40, 2.26 GHz
   800MHz System Bus: 3.20, 3, 2.80C, 2.60C, 2.40C GHz

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 Bus: this part depicts the System Bus (Front Side Bus) is provided by CPU clock x 4. For example,
   800MHz = 200MHz(CPU clock) x 4; 533MHz = 133MHz x 4
   400MHz = 100MHz x 4

Note: System Bus vs CPU Clock
P4 CPU is a quad-pumped CPU. The system bus is provided by the CPU clock x 4. Therefore, users can figure out the P4 CPU clock by the System Bus divided by 4.

Pentium 4 with Hyper Threading Technology :
The new P4 processors at 2.40C, 2.60C, 2.80C, 3, 3.20GHz with an advanced 800MHz system bus and P4 processor at 3.06Ghz with 533MHz system bus all support Hyper Threading Technology.

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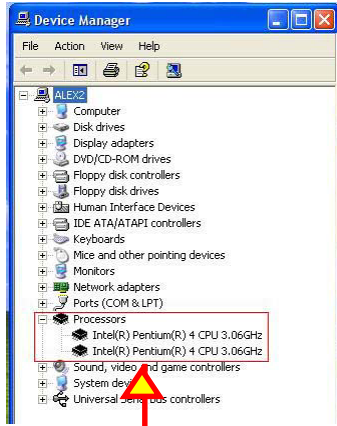
(If Hyper-threading CPU is installed successfully with O/S Win XP, the O/S will enable the dual-in-one CPU function.)

1. First pull sideways the lever of Socket 478, and then turn it up 90⁰ so as to raise the upper layer of the socket from the lower platform.
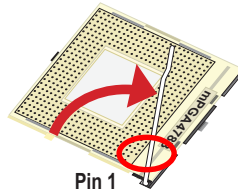
Pin 1

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
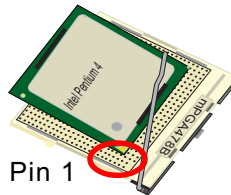
3. Make sure that all CPU pins have completely entered the socket and then lower down the lever to lock up CPU to socket.
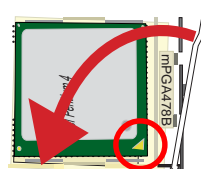
2-2 Pentium 4 CPU Fan Installation

CPU Fan Connector   Pentium 4 Fanbase
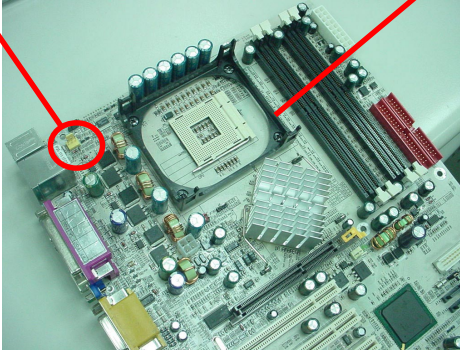
1.Press down 4 latches.
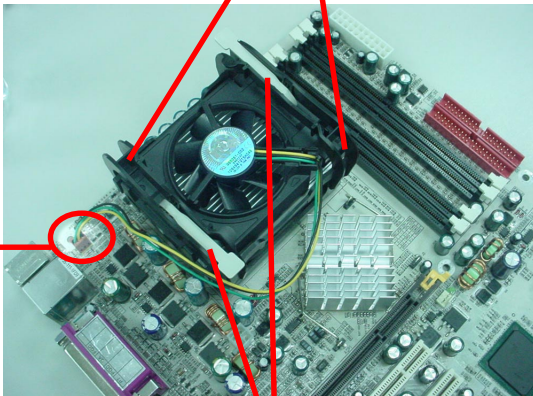
2.Press down the 2 levers to lock fan to fanbase

3.Connect Fan Connector to CPU FAN connector

The above pictures are taken from sample mainboards as installation illustr-ation. 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 To Install DDR SDRAM Module

- DDR DIMM slot has 184 pins and one notch. Insert a DDR SDRAM vertically into the 184-pin slot with the notch-to-rib matching.
- To enable Dual-channel memory function, <u>users should insert totally identical (size and frequency) DDR module pair into the bank-pair.</u> In this series, DIMM1 and DIMM3 is a pair, and DIMM2 and DIMM4 is another.

184-Pin DIMM Notch Key Definition

DIMM1+DIMM3 = DIMM2+DIMM4 = Dual Channel Memory
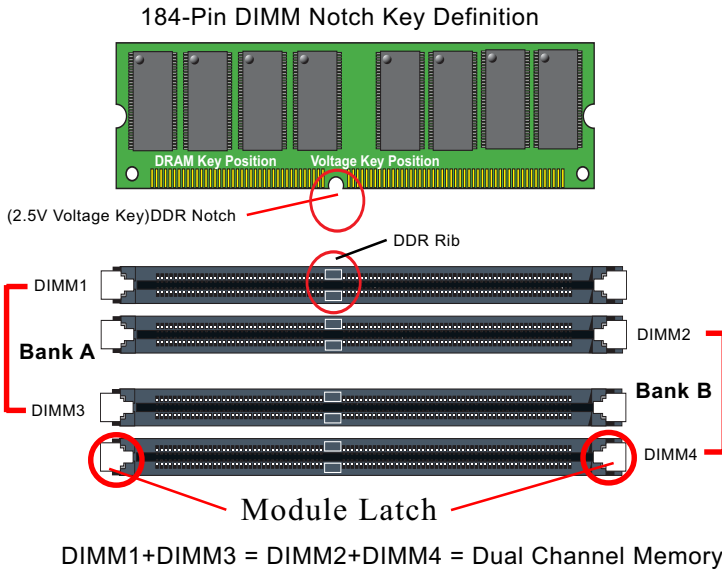
2-3.2 Dual Channel Memory Features

- Dual Channel memory configuration provides higher performance than Single Channel configurations
- Matched DIMMs need to have identical density, DRAM technology, DRAM bus width, and equal number of memory banks.
- This series supports up to 4GB unbuffered Dual-channel DDR 400/333/266 SDRAM, with 4 DDR DIMM slots on board. Do not insert other type of modules into these slots.
- The dual memory controller can double the DDR memory bandwidth up to 6.4GB/s with DDR400, 5.4GB/s with DDR333 and 4.2GB/s with DDR266.

2-3.3 To Remove a DIMM

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

2-4 AGP 8X/4X Slot Installation

The AGP slot on board supports 1.5V AGP 8X/4X card only. A Rib is specifically added to the 8X/4X slot so as to match the AGP 8X/4X card. To insert a 3.3V AGP 2X card into the AGP 4X slot will damage the system chip and burn the 1.5V circuitry.

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.
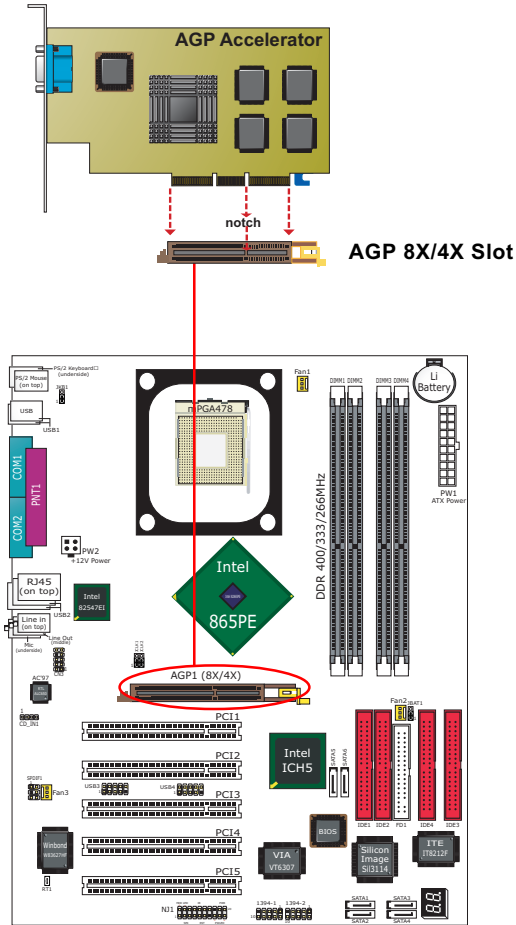
2-5 IDE Connectors Installation

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.

IDE RAID Controller ITE IT8212F built on board supports 2 IDE Connectors IDE3 and IDE4 for 4 Hard Disks with RAID 0/1/0+1 modes.

IDE1

IDE2

IDE3 and IDE4 supported by IDE RAID Controller IT8212F

Hard Disk Drive Connector

Orient the red line on the IDE Flat Cable to Pin1.

Pin 1 (to Red Line)

Gray connector
(To Slave device)

80-conductor cable

Black connector
(To Master Device)

Red line

Blue connector
(To Mainboard)
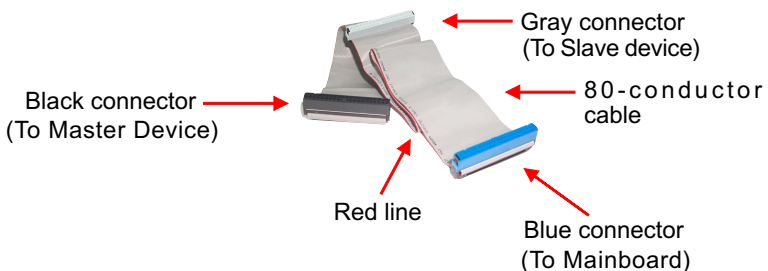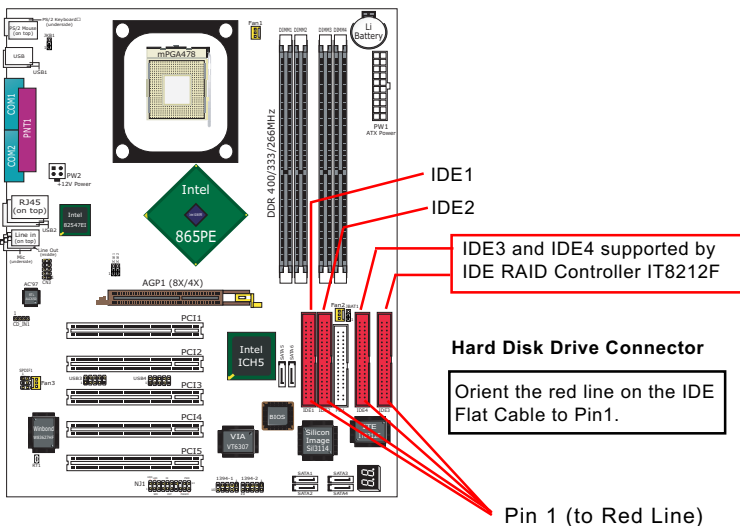
IDE Flat Cable

2-6 Serial ATA RAID Connectors

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 SATA5 and SATA6 supported by ICH5 for 2 SATA Hard Disk Drives and the other Serial ATA connectors SATA1 to SATA4 supported by the SATA RAID Controller Silicon Image SIL3114 for 4 SATA Hard Disk Drives to provide RAID 0/1/0+1 modes.

SATA Connectors SATA5 and SATA6

SATA Connectors SATA1 to SATA4 supported by SATA RAID Controller SIL3114

To Power Supply

SATA Power Connector

Serial ATA Hard Disk

Serial ATA Power Cable
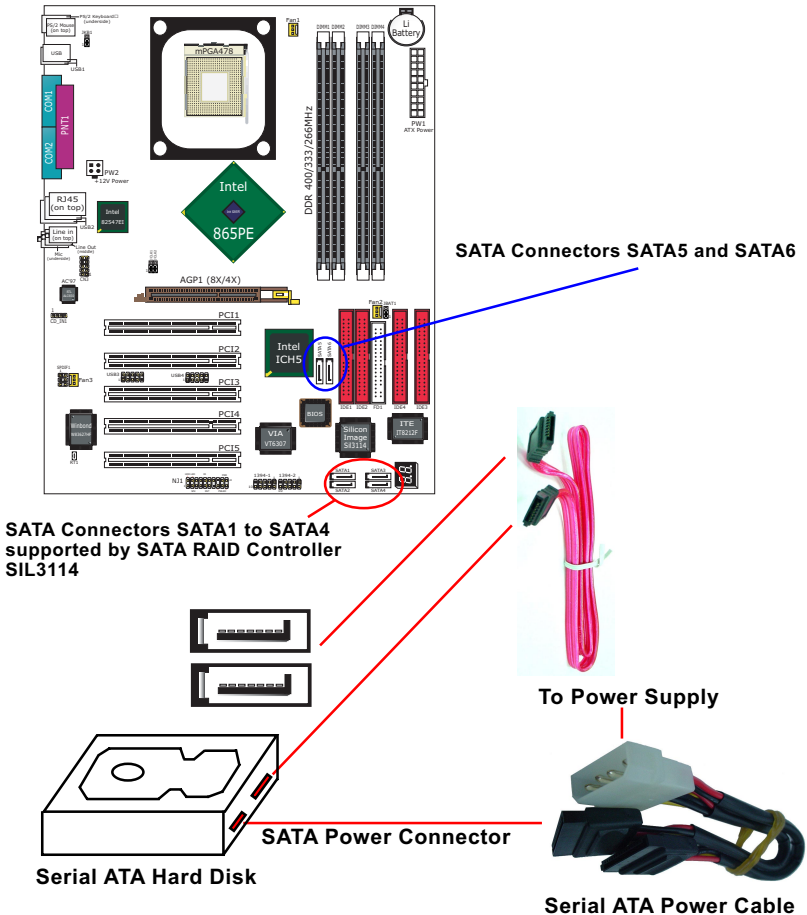
2-7 Floppy Drive Connector Installation

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

Floppy Drive Connector:

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

Pin 1 (to Red Line)

Signal Swap End

To 2nd Floppy Drive

To 1st Floppy Drive

Red line

To Mainboard

FDD Cable

2-8 ATX V2.03 Power Supply Installation

+12V Power Connector

GND GND

| 1 | ○ ○ | 2 |
| 3 | ○ ○ | 4 |

+12V ■ +12V

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

Pin1   Pin11
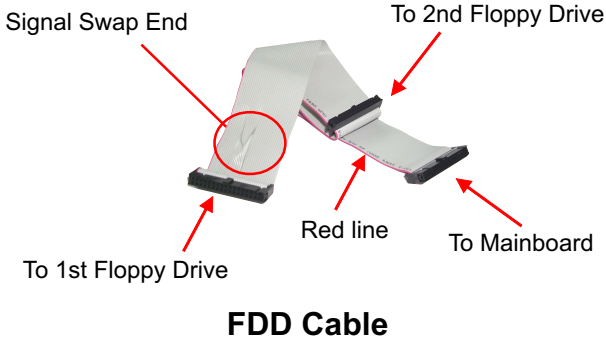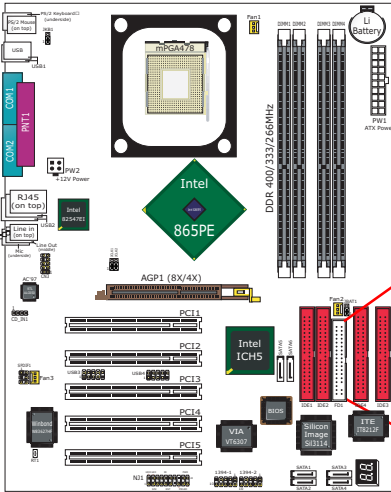
Main Power Connector
(20-pin)
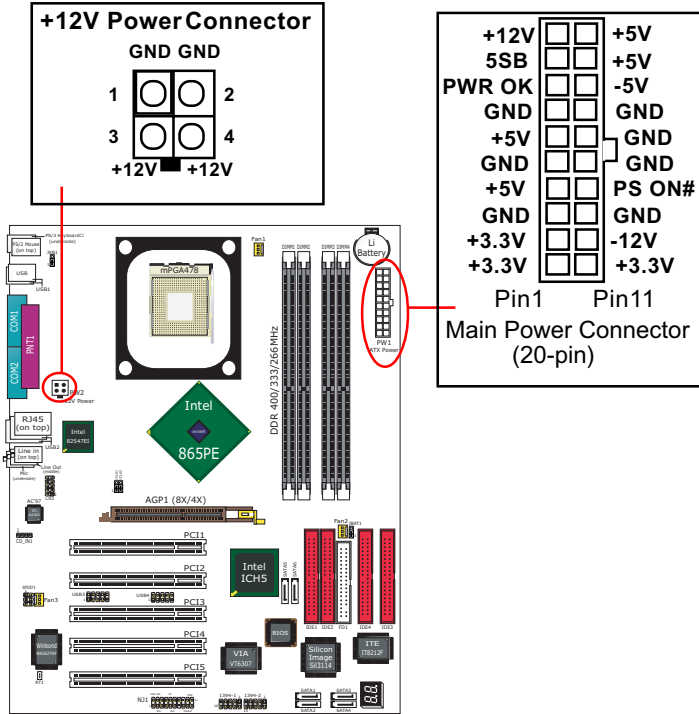
ATX V2.03 Power Supply is strongly recommended for mainboard running with 2GHz or higher CPU.

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

JCLK1&JCLK2: CPU Frequency Select			
(default) **CPU** **Auto-** **Detection**	**100MHz** (FSB400)	**133MHz** (FSB533)	**200MHz** (FSB800)
JCLK1 JCLK2	JCLK1 JCLK2	JCLK1 JCLK2	JCLK1 JCLK2

JBAT1 Clear CMOS
1-2 closed **(default)** To hold data
2-3 closed To clear CMOS

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How to tackle the Jumpers:

1 2 3
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.
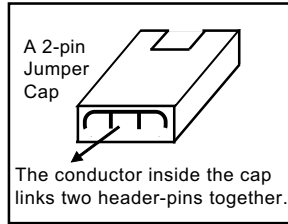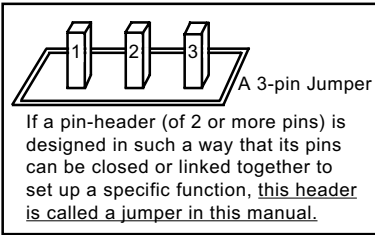
- A Jumper is usually but not necessarily given a "JpX" legend.
- In the Jumper setting diagram, the jumper pins covered with black marks stand for closed pins with jumper cap.

Jp X
1 ○●● 3
Jumper with Pin 2-3 closed

1 ○○○ 3
Jumper with all pins opened

1 ●●○ 3
Jumper with Pin 1-2 closed

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

2-9.1 JCLK1 & JCLK2: CPU Frequency Select

JCLK1 and JCLK2 are designed on board for CPU frequency select.

1. Setting JCLK1 and JCLK2 1-2 closed will allow CPU on board to Auto Detect its own frequency and apply it to the System Bus.

2. Setting JCLK1 and JCLK2 2-3 closed is for 100 MHz CPU.
3. Setting JCLK1 open and JCLK2 2-3 closed is for 133 MHz CPU.
4. Setting JCLK1 2-3 closed and JCLK2 open is to select a CPU clock at 200 MHz for your 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.)

JCLK1&JCLK2: CPU Frequency Select			
(default) CPU Auto-Detection	100MHz (FSB400)	133MHz (FSB533)	200MHz (FSB800)
JCLK1 JCLK2	JCLK1 JCLK2	JCLK1 JCLK2	JCLK1 JCLK2

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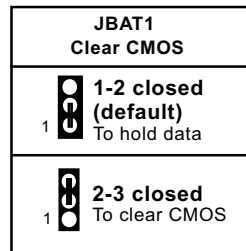
2-9.3 JKB1: Keyboard / Mouse Wake Up

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

JKB1: Keyboard / Mouse Wake Up
1-2 closed (default) Disabled
2-3 closed Enabled
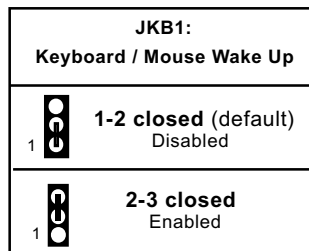
2-10 Other Connectors Configuration

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

2-10.1 On Board Fan Connectors
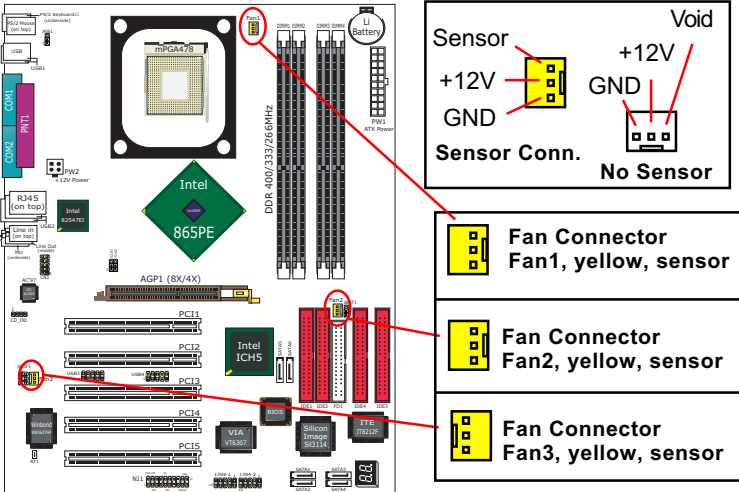
Both Sensor and No-sensor Fan Connectors support CPU/AGP/System/Case cooling fan with +12V mode. When connecting the wire to any Fan Connector, users should make sure that the red wire is for the positive current and should be connected to pin +12V, and the black wire is Ground and should be connected to pin GND.

A Hardware Monitor chipset is on board, with which users can install a Hardware Monitor Utility and read the fan speed transmitted from the sensor fan. Otherwise, users can read the fan speed from the "Hardware Monitor Status" in BIOS.

A running Fan will send out 2 electric pulses per rotation of its fan blade. A Sensor Fan Connector will count the electric pulses and send the information to the System Hardware Monitor which in turn will work out the fan rotation speed and display it on screen.

2-10.2 USB Ports and USB Pin-headers

This series provides four USB ports USB0 to USB3 on board support-
ing various USB devices. In addition, two USB pin-headers are added
on board to provide expansion of four more optional USB ports by us-
ing two 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
Windows 2000 and up (no support for Windows 9X/ME). Please see
Chapter 3 for USB2.0 Installation.

USB connectors USB0 and USB1
USB connectors USB2 and USB3

USB Cable (Optional)

USB Port

Red wire

USB Pin-headers USB3 and USB4

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
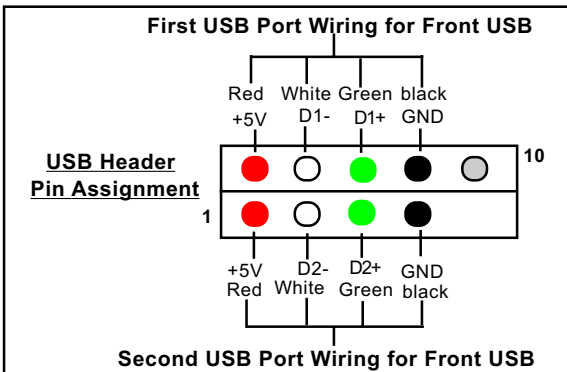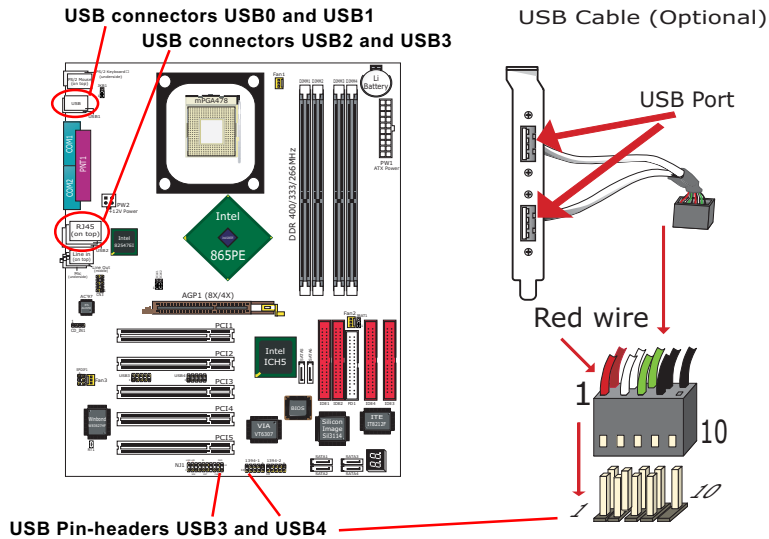
2-10.3 Chassis Panel Connectors
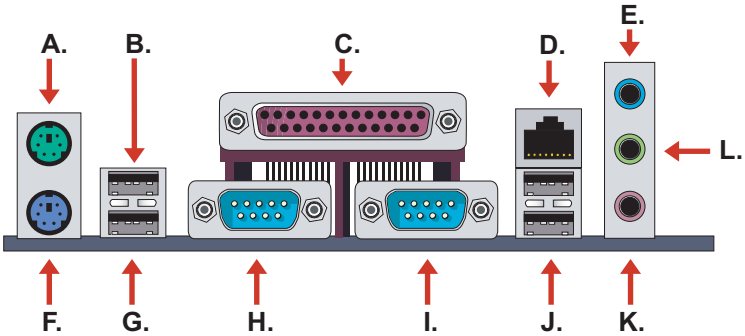
A : PS/2 Mouse
B : USB 0 (top)
C : LPT1 Port
D : RJ45
E : Line in/
     Rear Speaker Out
F : PS/2 Keyboard
G : USB 1 (underside)

H : COM1 Connector
I : COM2 Connector
J : USB 2 (middle)
     USB 3 (underside)
K : Microphone Input /
     Center Subwoofer Out
L : Line Out /
     Front Speaker Out

2-10.4 Thermal Detector

Thermal Detector RT1

 RT1

RT1 is mounted with Thermal Detector by default for detecting system temperature.
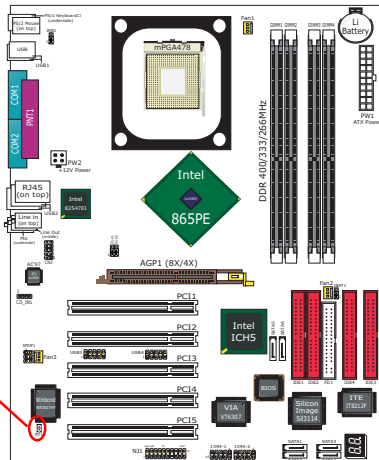
2-10.5 CD-ROM Audio Connectors

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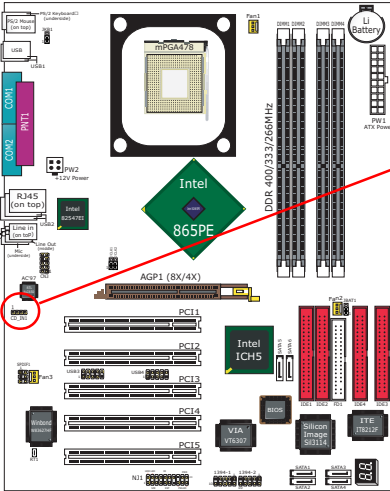
CD-ROM Audio Pin Assignment

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

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
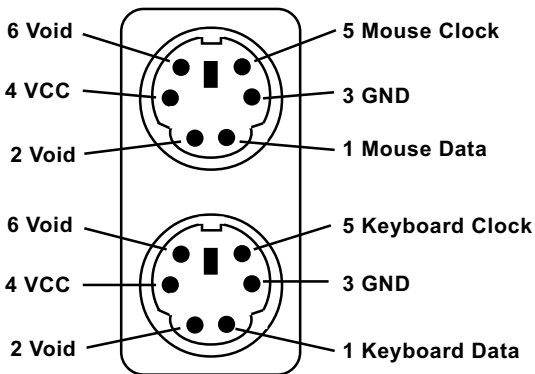
(PS/2 Keyboard Connector: Underside, purple)

2-10.7 Front Panel Audio Connector

This Mainboard is designed with a Front Panel Audio connector "CN3" which provides connection to your chassis.

1. When CN3 is set to 5-6 closed and 9-10 closed, this default setting disables this connector and leaves the Back Panel Audio enabled.
2. To use this Front Panel Audio Connector, please open all pins of CN3 and connect it to your chassis.

JAUD1: Front Audio Panel Connector

Pin 10 RET L		Pin 9 FPOUT L
		Pin 7 (Key)
Pin 6 RET R		Pin 5 FPOUT R
Pin 4 Aud Vcc		Pin 3 Mic VREF
Pin 2 Aud GND		Pin 1 Mic In
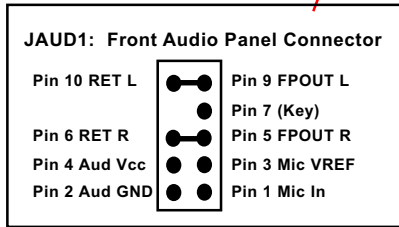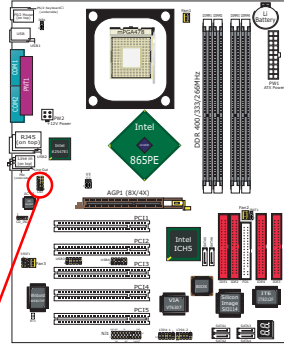
2-10.8 LAN Connector

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 10/100/1000 Base T mode.
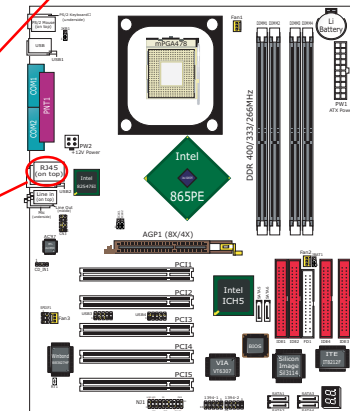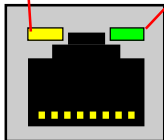
2-10.9 Complex Pin-header

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#	PLED-
PWRBT	NC
	PLED+ — Power LED (4)
IR_VCC	
NC	RSTGND
(2)Infrared(IR) — IRRX	RST1 — Reset Switch(5)
IRGND	SP1
IRTX	NC
(3)HDD LED — HDLED-	SP3 — Speaker (6)
HDLED+	SPVCC
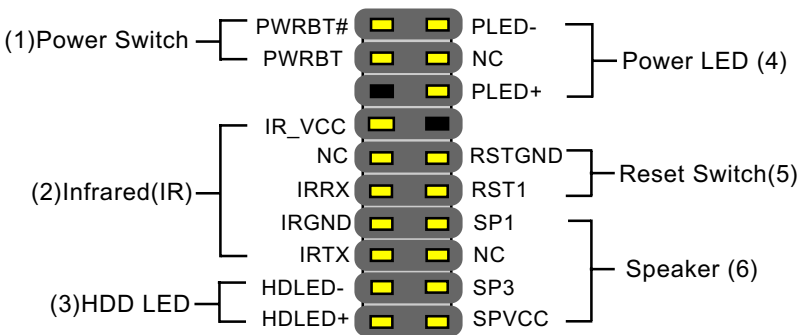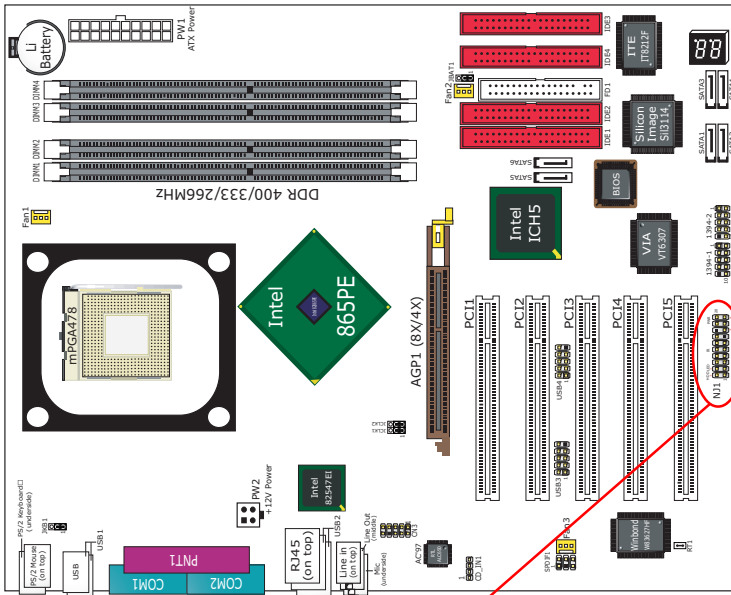
(1) Power Switch Connector:

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.

2-10.10 LED2: Debug LED

A Debug LED is built in on board to display various digital messages which stand for the running status of the mainboard. The CheckPoint and Beep Code List is enclosed in Appendices of this manual. Please refer to the tables describing the type of checkpoints for more information.
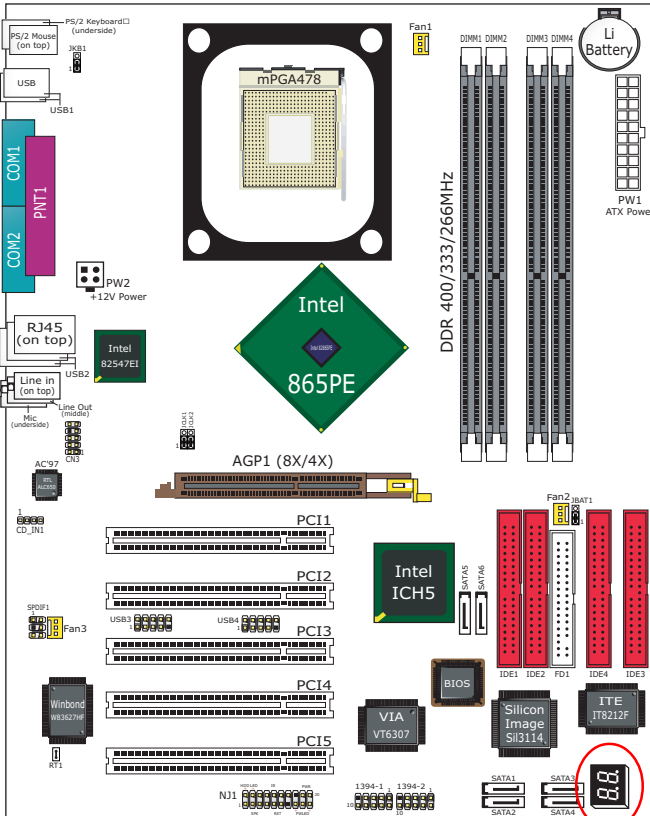
Debug LED

2-10.11 IEEE 1394 Connectors

IEEE 1394 controller, VIA VT6307 chipset on board, supports up to 400MB/s transfer rate with Plug and Play expansion interface.

IEEE3 Headers are built on board, which require two IEEE 1394 cables (optional) to provide 9-pin serial connectors for devices. Because of the same pin allocation between the IEEE 1394 Header and the USB Header, **please do not insert an USB cable to the IEEE 1394 Header**. The devices may be damaged or burned for the sake of mistakenly inserting the wrong cable.
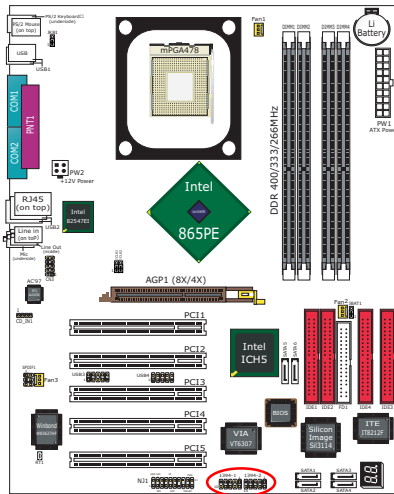
IEEE 1394 Header   Pin Assignment

| 1 |
10 | 2

Pin 1 TPA+   Pin 2 TPA-
Pin 3 Gnd   Pin 4 Gnd
Pin 5 TPB+   Pin 6 TPB-
Pin 7 +12V(Fused) Pin 8 +12V(Fused)
Pin 9 Key (no pin) Pin10 Gnd

2-10.12 S/PDIF Connector

S/PDIF (Sony/Philips Digital Interface) is a newest audio transfer file format, which provides amazing quality through optical fiber and allows you to enjoy digital audio instead of analog audio, which could degrade signal quality. Through an optional audio cable, you can connect the SPDIF connector to other end of the S/PDIF audio module, which bears S/PDIF digial output. However, users must have a S/PDIF supported speaker with SPDIF digital input to connect to the SPDIF digital output to make the most out of this function.

SPDIF Connector   Pin Assignment

```
1  ● ●  2
   ● ●
5  ● ●  6
```

Pin 1 VCC	Pin 2 SPDIF-Out
Pin 3	Pin 4 NC
Pin 5 SPDIF-In	Pin 6 Ground
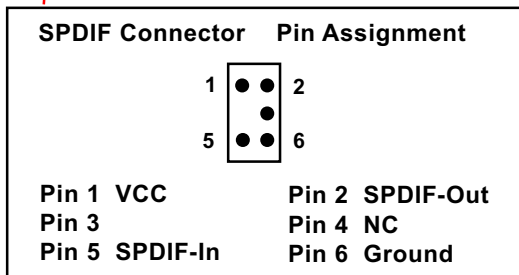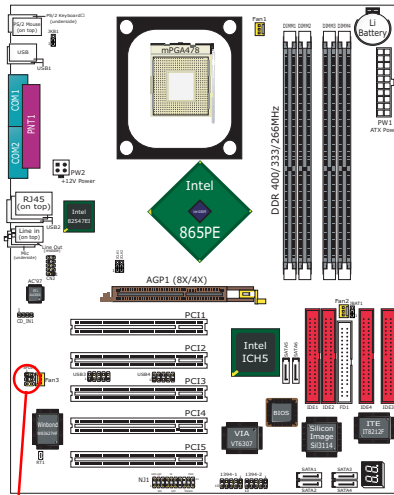
Chapter 3 Software Setup

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 AC'97 Audio Drivers
3-4 To Install Hardware Monitor Utility
3-5 To Install LAN Drivers
3-6 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.
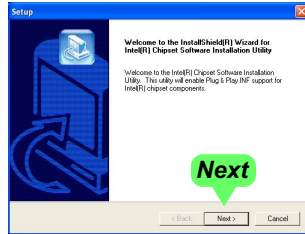
3. **"Intel Software License Agreement"** screen will appear, please click the **"Yes"** button to agree with the Licence Agreement and continue.
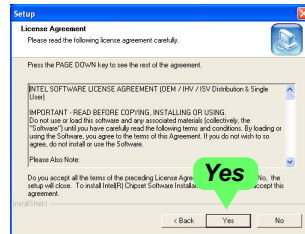
4. After all the setup process is finished, please restart your computer by clicking on "Finish" so as to take the Utility into effect.
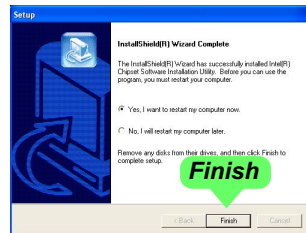
3-3 AC'97 Audio Driver Installation

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.

3-3.1 Install 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".
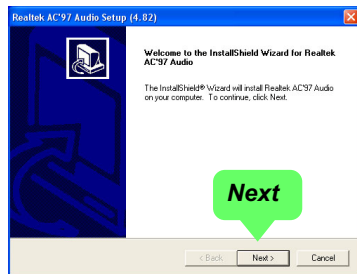
3. instantly, the Setup program proceeds to install the softwares which include AC'97 driver and AVRack. (If you want to stop setup, click the "Cancel" button.)
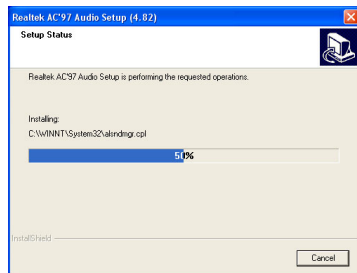
4. After the setup process is finished, please check the radial button "Yes, I want to restart my computer now." And click "Finish" to restart your system.
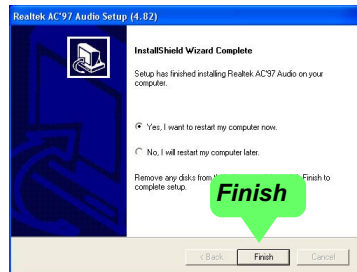
3-3.2 Verify 6-channel Audio

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:

Pale Blue Connector to Rear Speaker

Pale Green Connector to Front Speaker

Pale Pink Connector to Center/Subwoofer Speaker
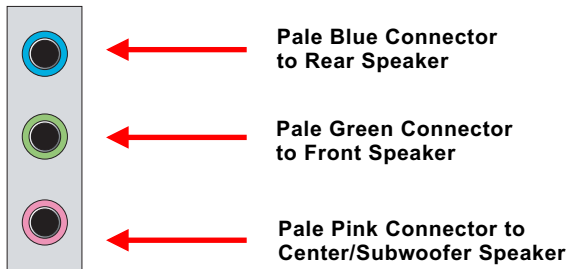
2. After Connection is done, start your Windows system and double click the Avance Sound Effect manager icon to enter 6-channel configuration:

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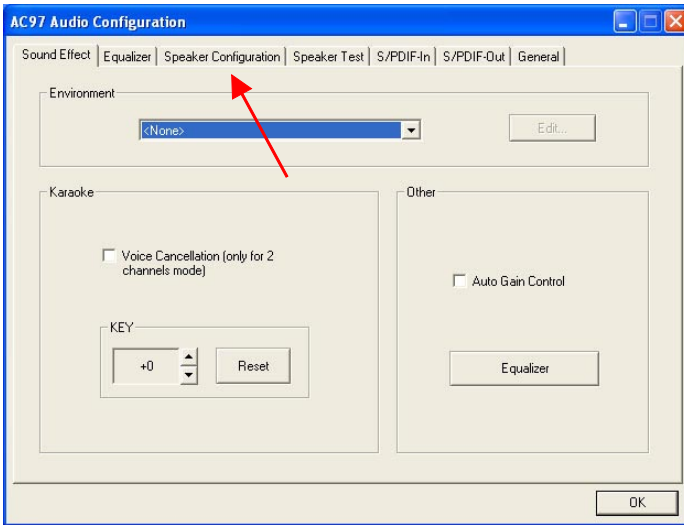
4. Instantly, the "Speaker Configuration" screen will pop out. Pick the items "6-channel mode for 5.1 speakers output" and " Synchronize the phonejack switch with the speakers settings" and then click "OK" to finish configuration.
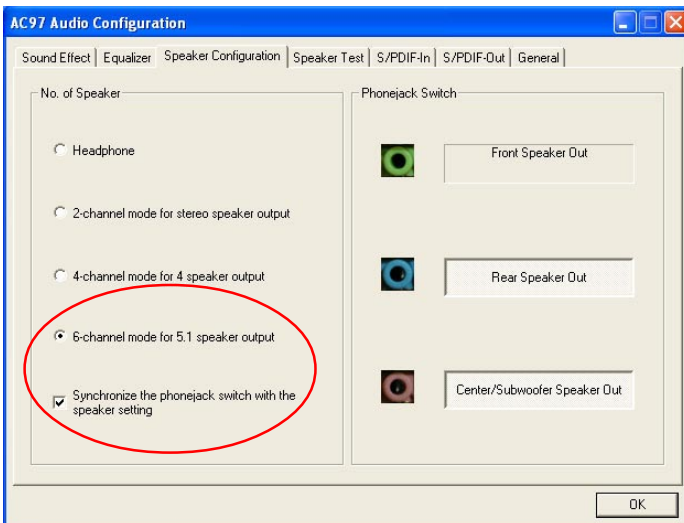
5. At finishing the Speakers Configuration, you can also click the "Speaker Test" bar on the screen to test the 6-channel performance. The figure below is the "Speaker Test" screen with testing instructions enclosed on it. Follow the instructions to perform the Speakers Test.

3-4 To Install Hardware Monitor Utility

3-4.1 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.
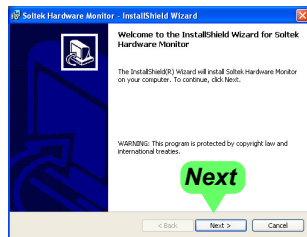
3. The **InstallShield Wizard**
   screen will show the current
   setting, please click the
   "Install" button to continue.
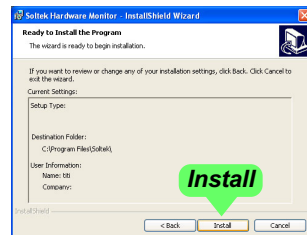
4. After all the setup process
   is finished, click "Finish" to
   exit the wizard.

49
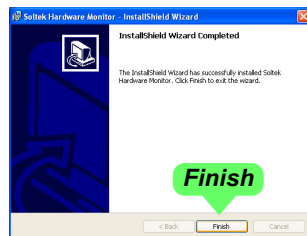
3-4.2 Verification

1. After installing Soltek Hardware
    Monitor, double click "SoltekHM"
    icon on the desktop to open the main
    window of the Soltek Hardware
    Doctor.
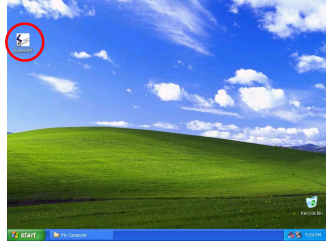
2. Then the pop-up screen will show all information about CPU
   Temperature, Fan Speed and various Voltages.

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.

3-5 To Install LAN Drivers

3-5.1 Intel 82547EI LAN driver on Windows ME / 2000 / XP

The LAN driver contained in the Support CD is not included in the Autorun Menu. To install Intel 82547EI LAN driver on Windows 2000 / XP, please follow the steps shown below:

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

   \My Computer\Properties\Hardware\Device manager (on 2000/XP)

   \My Computer\Properties\Device manager (on ME)

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 Intel 82547EI 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.

This picture is taken from Windows XP
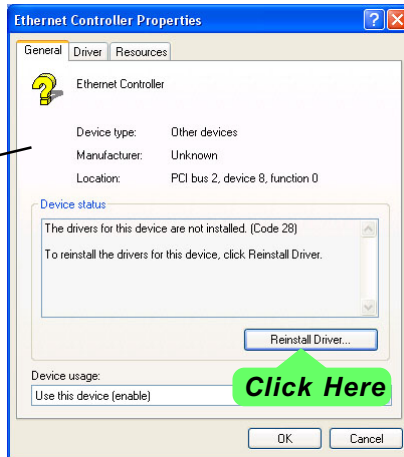
5. The "Hardware Update Wizard" will guide you through all setup and install the driver of the Ethernet controller completely.

6. When the "Finish" screen shows up, click "Finish" to end the LAN driver installation. 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.

3-5.2 Intel 82547EI LAN driver on Windows 9X

The LAN driver contained in the Support CD is not included in the Autorun Menu. To install Intel 82547EI 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 Intel 82547EI 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".
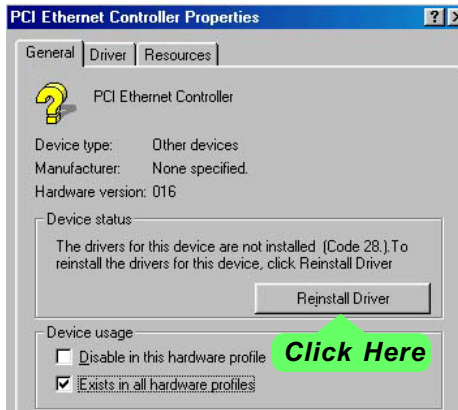
5. In the "Update device Driver Wizard" screen, click "Next" to continue until you see a dialog box asking you to "Specify a location" for the driver. You should **now** insert the Support CD into your CD-ROM.

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\Intel_LAN\GIGABPS\Win9x_me\Win_98me into the blank bar. Then click the "Next" button to continue.

Enter the correct path for the location of LAN driver
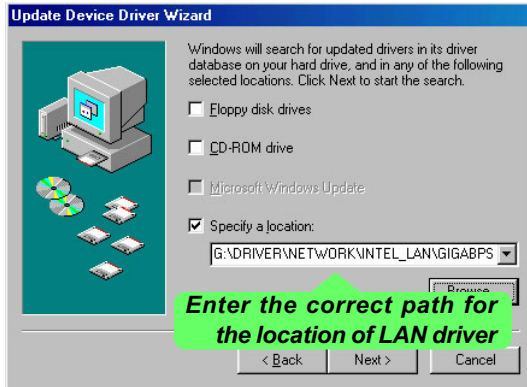
7. The Update Device Driver Wizard will then go on installing the driver, until the "Insert Disk" dialog box shows up. Please withdraw your Support CD and insert the Windows 98 CD-ROM into the CD-ROM drive for updating system and click "OK" to continue.

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.

Finish

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.

3-6 To Install USB 2.0 Driver for Windows 2000/XP

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

1. After installation of Intel Chipset software installation Utility in Windows 2000 or Windows XP, start to install the latest Service Pack version into the operating system. The installation of the latest Service Pack will support USB2.0 in Windows 2000 or Windows XP now.(The latest Service Pack can be found in Microsoft Web Site.)

2. To verify USB2.0 installation, please enter "Device Manager" of "My Computer". On the "Device Manager" screen, you should be able to see the item "Standard Enhanced PCI to USB Host Controller", verifying USB2.0 Driver is installed successfully.
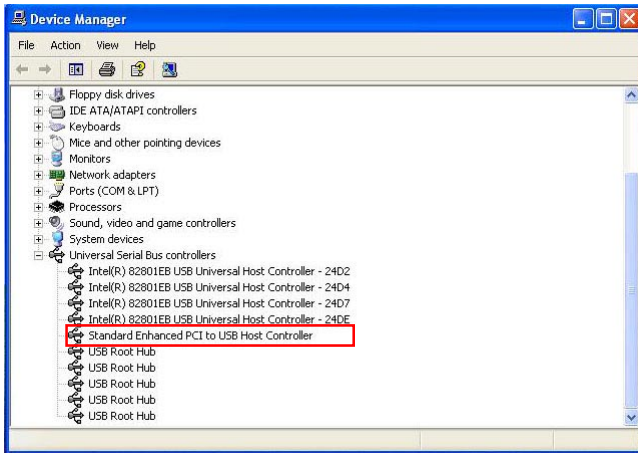
3-7 Install SIL3114 SATA Driver on Windows 98SE/ME

For Windows 98SE/ME users of SATA interface supported by Silicon Image Sil3114 SATA RAID Controller, please pay attention to the following extraordinary configuration in BIOS Setup:

When Windows 98SE/ME system is to be installed on SATA interface, the configuration of "Sil3114 Configuration" in "Advanced BIOS Features" of BIOS should be set to "IDE Mode".

(1) Get ready the Support CD holding the SATA Driver.
(2) Check that SATA Hard Disks are connected properly to the SATA connectors.
(3) Start your system and format the hard disks.
(4) Now, apply the Windows 98SE/ME CD to CD-ROM for operating system installation.
(5) Start Windows 98SE/ME.
(6) On the "Start" screen of your system, please click to the following path:

   \My Computer\properties\Device manager

(7) In the "Device manager" screen, you can see the item " PCI RAID Controller" with a yellow question mark on its left side, which indicates that the RAID controller is already detected by system but the driver is not installed yet. Please point to this item with your mouse and double click on it (or click the "Properties" button).

The question mark here indicates that SATA Controller Driver is not installed yet.
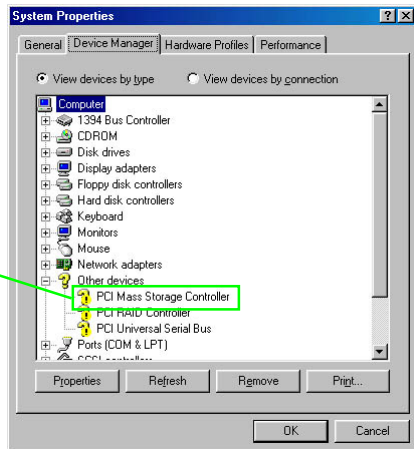
(9) Instantly, the "PCI Mass Storage Controller Properties" screen shows up. Please click the "General" bar to continue.

(10) 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".

(11) 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 SATA Driver CD/Diskette into CD-ROM/Drive A.

(12)Check the "Specify a location" on next creen and click the "Browse" button to find out the correct path for the driver. As the RAID Driver is in Drive A, please type into the blank bar the correct path and click "Next" to continue.

(13) The Update Device Driver Wizard will then go on installing the driver. In a few seconds, installation completes. Please click the "Finish" button on the screen to complete the installation.
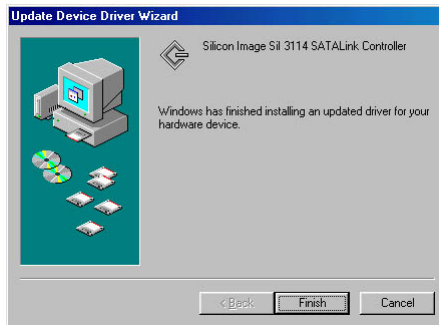
3-8 To Install RAID Driver

For SATA RAID Driver Setup and IDE RAID Driver Setup, please refer to Chapter 5 for further detailed installation guide.

2 IDE connectors supporting 4 IDE Hard Disks for RAID mode.

Chipset IT8212F supporting IDE RAID Interface.

Chipset SIL3114 supporting SATA/SATA RAID Interfaces.

4 SATA connectors supporting 4 SATAHard Disks for RAID mode.
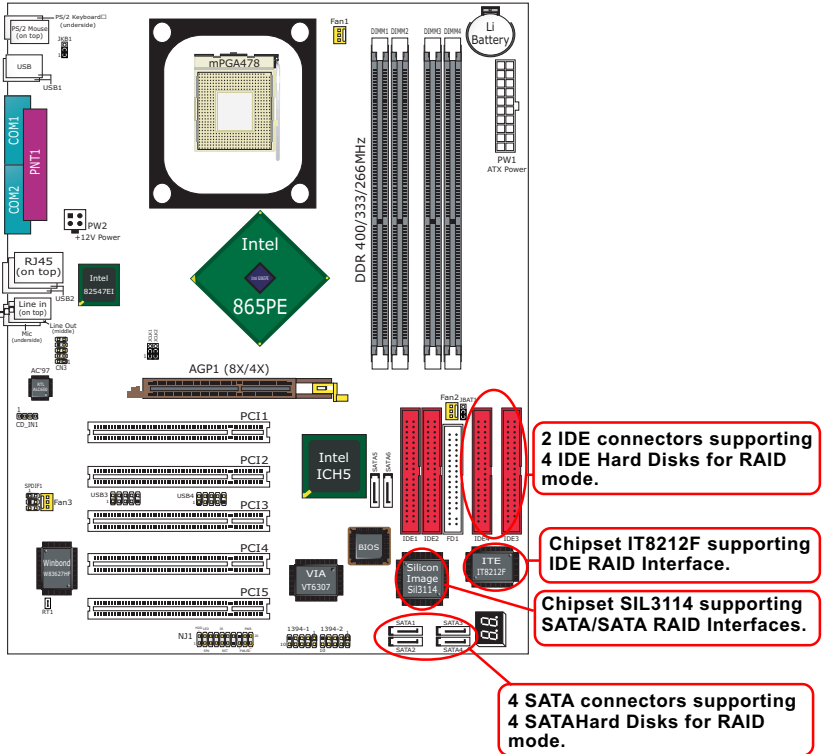
Chapter 4 AMI BIOS Setup

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

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

4-1 About BIOS Setup

BIOS 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, 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 "**amiflash.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 "**amiflash.exe**" into the diskette.

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

Step 4. Under " A " prompt, type **" amiflash *.ROM "** and then press <Enter> to run BIOS update program. (*.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 "amiflash MP005.rom ".

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.

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

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

Use [Enter], [Tab] or [Shift-Tab] to select a field.
Use [+] or [-] to choose the options.

<F1>: "General Help" provides explanations of the hot-key functions
available.
<F7>: "Previous values" allows user to discard previous values or not.
<F8>: "Fail-safe defaults" allows user to load Fail-safe Defaults or not. Save
and Exit Setup.
<F9>: "Optimized Defaults" alows user to load Optimal Defaults or not.

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

4-6.2 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:
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 Version : 08.00.10 Build Date : 12/26/03 ID : 0AAAA000 **Processor** Type : Intel(R) Pentium(R) 4 CPU 1500MHz Speed : 1500MHz Count : 1 **System Memory** Size : 256MB **System Time** **09 : 25 : 29** **System Date** **Wed 12/31/2003**	Use [Enter], [Tab] or [Shift-Tab] to select a field. Use [+] or [-] to configure system Time.

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

AMIBIOS/Processor/ System memory These three items only show the respective current 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:

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	
▶ USB Configuration Press Enter	
▶ Frequency/Voltage Control Press Enter	
▶ Power Management Press Enter	
▶ Sil3114 Configuration Press Enter	

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

4-6.3.1 CPU Configuration

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

CPU Configuration

Configure advanced CPU settings	Help Item
Manufacturer : Intel Brand String : Intel(R) Pentium (R) 4 CPU 1500MHz Frequency : 1500MHz FSB Speed : 400MHz Cache L1 :8KB Cache L2 :512KB Ratio Status : Locked Ratio Actual Value : 15 Ratio CMOS Setting : 8 Hyper Threading Technology Enabled	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.
Cache L1/L2	BIOS shows the actual CPU internal Level 1/2 cache size.
Ratio Status	BIOS shows the current ratio (multiplier) status of on-board CPU. For P4 CPUs, the ratio is usually locked.
Ratio Actual Value	BIOS shows the actual CPU ratio.
Ratio CMOS Setting	BIOS shows the CPU Ratio in CMOS. If an invalid ratio is set in CMOS, then actual and setpoint values may differ.
Hyper Threading Technology	BIOS shows the current status of Hyper Threading Technology. If a Hyper Threading CPU is running on board, this item will show "Enabled" status. If a Hyper-threading CPU is not on-board, this item shows "Disabled".

4-6.3.2 IDE Configuration

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

IDE Configuration

IDE Configuration		**Help Item**
IDE Configuration	P-ATA only	
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	Allows you to configurare IDE device mode. Choices: P-ATA only: for Parallel IDE only; 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-ATA only" to configure the following :
S-ATA Running Enhanced Mode (Combined Mode Option)	S-ATA will be running in enhanced Mode, yet supporting Windows 2000/XP only (A warning message in red will appear on the booting screen). 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 Definition	Allows you 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 (this choice supports Windows 98/Me only):
Combined Mode Option	Choices: P-ATA 1st Channel; S-ATA 1st Channel;
S-ATA Ports Definition	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

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 Win627 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	
OnBoard CIR Port	Disabled	
Parallel Port Address	378	
Parallel Port Mode	Normal	
Parallel Port IRQ	IRQ7	

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

Serial Port1 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

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

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

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

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

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

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

4-6.3.5 Hardware Health Configuration

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

Hardware Health Configuration

Hardware Health Configuration		Help Item
System Temperature	: 34°C/93°F	Enables Hardware Health Monitoring Device.
CPU Temperature	: 32°C/89°F	
Fan1 Speed	: 3125 RPM	
Fan2 Speed	: 3169 RPM	
Fan3 Speed	: N/A	
CPU Core	: 1.516 V	
+1.50V	: 1.516 V	
+3.30V	: 3.258 V	
+12.0V	: 12.074 V	
-12.0V	: -12.048 V	
5VSB	: 5.467 V	
Battery	: 3.444 V	

↑↓←→ : 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.

Fan1/2/3 Speed   Displaying the current speed of Chassis/CPU/Power Fan.

CPU Core   Showing CPU core actual voltage value.

1.5V/3.3V/+12V/5VSB/ Battery   Showing current voltage against the 1.5V/3.3V/ +12V/5VSB/Battery power supply.

4-6.3.6 ACPI Configuration

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

ACPI Configuration

ACPI Settings		Help Item
▶ General ACPI Configuration	Press Enter	Enables Hardware ACPI support for Operating System.
▶ Advanced ACPI Configuration	Press Enter	Enable: If OS supports ACPI.
		Disable: If OS Does not support ACPI.

▶ **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)(Optional); Auto

(Optional) Repost Video at S3 Resume — If STR mode or Auto mode is selected, this item
allows you to enable / disable this function.
Choices: Yes; No

(Optional) USB Device Wakeup From S3/S4 — This item allows you to enable / disable the USB
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.

APIC ACPI SCI IRQ If APIC ACPI Support is enabled (Yes), it allows you to enable / disable APIC ACPI 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 USB Configuration

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 - 2.23.2-7.4		Enable USB host controllers.
USB Devices Enabled : None		
USB Function	8 USB Ports	
Legacy USB Support	Enabled	
USB 2.0 Controller	Enabled	
USB 2.0 Controller Mode	FullSpeed	
▶ USB Mass Storage Device Config Press Enter		

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

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

Legacy USB Support Allows you to enable/ disable the Legacy USB
support.
Choices: Enabled; Disabled; Auto

USB 2.0 Controller Allows you to enable/ disable the USB 2.0 Controller.

USB 2.0 Controller Mode Allows you to configure the USB 2.0 Controller Mode.
Choices: FullSpeed(12Mbps); HiSpeed(480Mbps)

If users have installed USB Devices on the system, these items will appear as below for further configuration.

▶ **USB Mass Storage Device Config**	Press "Enter" to view its submenu shown below.
USB Mass Storage Reset Delay	To select number of seconds POST waits for the USB mass storage device after start unit command. Choices: 10 Sec; 20 Sec; 30 Sec; 40 Sec
Device #X	(USB Device Name)
Emulation Type	USB devices which are less than 530MB will be emulated as Floppy and remaining as hard drive. "Forced FDD" can be used to force a HDD format- ted drive to boot as FDD. (Ex. ZIP drive). Choices: Auto; Floppy; Forced FDD; Hard Disk; CDROM

4-6.3.8 Frequency/Voltage Control

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	Enabled	Press "+"/"-" to select.
CPU Clock	100MHz	
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.

CPU Clock If CPU Linear Frequency is set at Enabled, this item allows you to set CPU Clock.
Choices: 100MHz ~350MHz in 1MHz stepping.
(100MHz~250MHz is for 100MHz CPU; 133MHz~283MHz is for 133MHz CPU; 200MHz~350MHz is for 200MHz CPU.)

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: 2.5V; 2.6V; 2.7V; 2.8V; 2.9V; 3.0V; 3.1V; 3.2V; 3.3V

4-6.3.9 Power Management

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	Enable or disable APM.
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	Power Off	
Resume On Ring	Disabled	
Resume On LAN	Disabled	
Resume On PME#	Disabled	
Resume On RTC Alarm	Disabled	

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

Power Management/ APM Allows you to enable (default)/ disable the Power management / Advanced Power Management function.

Video Power Down Mode Allows you to select the Video Power Down Mode. Choices: Disabled; Standby; Suspend

Hard Disk Power Down Mode Allows you to select the Hard Disk Power Down Mode.
Choices: Disabled; Standby; Suspend

Standby Time Out (Minute) To set the duration of Standby Time Out. Choices: Disabled; 1; 2; 4; 8; 10; 20; 30; 40; 50; 60

Suspend Time Out (Minute) To set the duration of Suspend Time Out. Choices: Disabled; 1; 2; 4; 8; 10; 20; 30; 40; 50; 60

Power Button Function   Allows you to set power Button function.
Choices: On/Off (default); Suspend

Restore on AC/Power Loss   Allows you to set the restore state from AC/Power Loss.
Choices: Last State; Power Off (default); Power On

Resume on Ring   Allows you to enable / disable (default)the Resume on Ring Signal function.
An input signal on the serial Ring Indicator (RI) Line (in other words, an incoming call on the modem) awakens the system from a soft off state.

Resume on LAN   Allows you to enable / disable the Resume on LAN function.

Resume on PME#   Allows you to enable / disable the Resume on PME# function.

Resume On RTC Alarm   Allows you to enable / disable (default)the Resume On RTC Alarm function.

RTC Alarm Date / Hour / Minute / Second	If resume On RTC Alarm is enabled, this field allows you to set the Alarm date Hour, Minute and second. Date Choices: Every Day; 01 ~ 31 Hour Choices: 00 ~ 23 Minute Choices: 00 ~ 59 Second Choices: 00 ~ 59

4-6.3.10 Sil3114 Configuration

Choose "Sil3114 Configuration" in "Advanced BIOS Features" and press
<Enter>. The following sub-screen will appear for configuration:

Sil3114 Configuration

Sil3114 Configuration		Help Item
IDE or RAID Mode	IDE Mode	

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

IDE or RAID Mode Allows you to configure IDE or RAID mode on SATA
RAID Controller SIL3114.

4-6.4 Advanced Chipset Features

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

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

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

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

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

4-6.4.1 NorthBridge Configuration

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

NorthBridge Configuration

		Help Item
DRAM Frequency	Auto	
Configure DRAM Timing by SPD	Enabled	
Memory Hole	Disabled	
Init. Graphic Adapter Priority	AGP/PCI	
Graphics Aperture Size	64MB	
C.S.A Gigabit Ethernet	Auto	

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

Configure SDRAM Timing by SPD SPD (Serial presence detect) is a device in memory module for storing the module information such as DRAM timing and chip parameters. If this option is enabled, BIOS will access SPD automatically to configure module timing. If disabled, DRAM timing can be configured manually.
Default: Enabled

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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	Allows you 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 Allows you to enable / disable (default) the support of Memory Hole which is reserved for ISA card.
Choices: Disabled; 15MB-16MB

Primary Graphics Adapter Allows you to select the Primary Graphics Adapter.
Choices: AGP/PCI; PCI/AGP

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.

C.S.A Gigabit Ethernet Allows you to enable/disable C.S.A Gigabit Ethernet.
Choices: Auto(default); Disabled;

4-6.4.2 SouthBridge Configuration

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

SouthBridge Configuration

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

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

Onboard AC'97 Audio Allows you to enable/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.

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

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;

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.

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	
▶Hard Disk Drives	Press Enter	
▶Removable Drives	Press Enter	
▶ATAPI CDROM Drives	Press Enter	
If users have installed hard disks, removable drives (including Floppies and USB storage devices), CDROM drives on the system, BIOS will show these items to let users configure the devices to decide the primary boot device.		

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

4-6.6.1 Boot Settings Configuration

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

Boot Configuration Setup

Boot Settings		Help Item
Quick Boot	Enabled	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 enabled, 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 Display The system will show "Press DEL key to run Setup when enabled.
Choices: Enabled(default); Disabled

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

4-6.6.2 Boot Device Priority

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

Boot Device Priority

Boot Device Priority		Help Item
1st Boot Device	1st FLOPPY DRIVE	Configure Settings during System Boot.
2nd Boot Device	PM-WDC WD400BB-00	
3rd Boot Device	SS-COPY-ROM 5238E	

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

4-6.7 Boot Security Features

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

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

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

Security Settings		Help Item
		Install or Change the password.
Supervisor Password : Not Installed		
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

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. If you enter a new password into the box, you will be using this new password after you have finished and saved this new setup. Instead, if you press <Enter> before you enter any new password into the instruction box, another message box appears, telling you that you have disabled the Supervisor Password. That means, no password is set for either entering BIOS Setup or system:

[Password uninstalled]
[OK]

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

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

4-6.7.4 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 Allows you to set BIOS to check up password with a password prompt at BIOS Setup or whenever re-starting system. This option will appear when you have set Supervisor Password or User Password. Choices: Setup (default); Always

4-6.7.6 Boot Sector Virus Protection

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

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

4-6.8 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 cancel the modifications that you have specified in the Setup Utility. Highlight this option on the Main Menu and press <Enter> and the following message appears:

[Discard Changes?]
[OK]   **[Cancel]**

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

MEMO

Chapter 5 RAID & Driver Setup

Silicon Image SATA RAID and ITE RAID Controller

Silicon Image RAID (Redundant Array of Independent Disks) Controller SIL3114 is built in this mainboard to provide RAID configuration of RAID 0, RAID 1, and RAID 0+1 modes. RAID Drivers are enclosed in a Driver CD as well as a Floppy diskette to support various RAID systems (Windows 98SE/ME/2000/XP) setup.

ITE RAID Controller IT8212F is built in this mainboard to provide RAID configuration of Parallel IDE RAID 0, RAID 1, and RAID 0+1 modes. RAID Drivers are enclosed in a Driver CD as well as a Floppy diskette to support various RAID systems (Windows 98SE/Me/2000/XP) setup.

This Chapter is to introduce the SATA/SATA RAID Configurations :
5-0 About Disk Array
5-1 Enable Silicon Image SATA RAID in System BIOS
5-2 Select Silicon Image SATA RAID in System BIOS
5-3 To Enter RAID BIOS Setup
5-4 Creating RAID set
5-5 Deleting RAID set
5-6 Finishing RAID set
5-7 To Install Sil3114 SATA/SATA RAID Driver
5-8 To Set up IT8212F with ITE RAID Interface

5-0 About Disk Array

5-0-1 Disk Array Interpretation

A "Disk Array" is formed from a group of 2 or more disk drives with the RAID (Redundent Array of Independent Disks) technology. The aim of a Disk Array is to provide better performance and/or data fault tolerance.

5-0-2 Disk Array Member

The individual disk drive in an array is called a "member". Each member of a specific disk array is coded in their "reserved sector" with configuration information that identifies the drive as a member. All disk members in a formed disk aarray are recognized as a single physical drive to the system.

5-0-3 Disk Array Types

Different types or modes of Disk Array have different formation models and functions.

1. RAID 0 (or Striping mode):

    RAID 0 is a group of 2 to 4 Disk Drives configured together with RAID technology to provide better data transfer performance than a single drive since the workload is balanced between the array members. Reads and Writes of RAID 0 data are interleaved between multiple drives. When any disk member fails, it affects the entire array. The disk array size is equal to the number of drive members times the smallest member capacity. For example, one 1GB drive and three 1.2GB drives will form a 4GB (4x1GB) disk array.

2. RAID 1 (or Mirroring mode):

    RAID 1 is a group of 2 Disk Drives configured together with RAID Technology to provide the fault tolerance function. Writes duplicate data on to RAID 1 while reads are performed in parallel. If one of the mirrored drives suffers a mechanical failure (e.g. spindle failure) or does not respond , the remaining drive will continue to function. This is called Fault Tolerance.

    The drive capacity of RAID 1 is half the total drive capacity of two equal-size drive.

3. RAID 0+1 (Mirror/Stripe):

    RAID 0+1 is formed by a RAID 0 member mirrored to another RAID member to establish a RAID 0+1 Array. RAID 0+1 requires at least 4 disk drive to set up the RAID 0+1 configuration.

5-1 Enable Silicon Image SATA RAID in System BIOS

Chipset SIL3114 supporting SATA/SATA RAID Interfaces.

4 SATA connectors supporting 4 SATAHard Disks for RAID mode. User can choose the connectors Randomly:
   2 to 4 drives for RAID 0
   2 drives for RAID 1
   4 drives for RAID 0+1
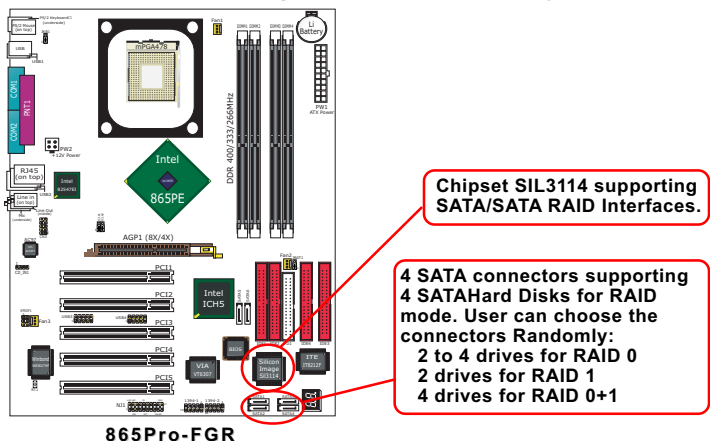
865Pro-FGR

To enable Silicon SATA RAID controller, first configure SATA Hard Disks to the SATA connectors. Then boot the 865Pro-FGR system and watch for the following initial screen to appear:

Sil 3114 SATARAID BIOS Version 5.0.20
Copyright (C) 1997-2003 Silicon Image, Inc.

Press <Ctrl+S> or F4 to enter RAID utility
0   ST3120026AS   114473MB
1   ST3120026AS   114473MB

(The above message indicates that the SATA hard disks on board are detected by the RAID BIOS.)

As soon as the above screen appears, press < Delete > key to enter CMOS BIOS Setup. Choose "Advanced BIOS Features" and "Sil3114 Configuration". Choose "RAID" to enable the Onboard Serial ATA RAID controller.

5-2 Select Silicon Image SATA RAID in System BIOS

Enter CMOS BIOS Setup and choose "Advanced BIOS Features" and "Sil3114 Configuration". Choose either "IDE" or "RAID" to enable the Onboard SATA-RAID interface.

IDE or RAID Mode Allows you to configure IDE or RAID mode on SATA RAID Controller SIL3114.

Sil3114 Configuration

Sil3114 Configuration		Help Item
IDE or RAID Mode	RAID Mode	

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

Attention: If IDE Mode is selected in the above BIOS setup, it means SATA IDE interface is enabled and no RAID system can be configured into the hard disks.

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5-3 To Enter RAID BIOS Setup

Boot the 865Pro-FGR system with "RAID Interface" enabled in system BIOS Setup and watch for the following initial screen to appear:

```
Sil 3114 SATARAID  BIOS Version 5.0.20
Copyright (C) 1997-2003 Silicon Image, Inc.

Press <Ctrl+S> or F4 to enter RAID utility
0    ST3120026AS                      114473MB
1    ST3120026AS                      114473MB
```

(The above message indicates that the SATA hard disks on board are detected by the RAID BIOS.)

As soon as the above screen appears, <u>press < Ctrl+S > key or <F4></u> to enter RAID BIOS Setup.
In a few seconds, the RAID BIOS Setup Utility appears as shown below:

```
        RAID Configuration Utility - Silicon Image Inc. Copyright (C) 2003
              MAIN MENU                                HELP

         Create RAID set                         RAID0=Striped
         Delete RAID set
         Rebuild RAID1 set
         Resolve Conflicts
         Low Level Format
         Logical Drive Info




              PHYSICAL DRIVE                       LOGICAL DRIVE

         0 ST3120026AS      114473MB          0 ST3120026AS      114473MB
         1 ST3120026AS      114473MB          1 ST3120026AS      114473MB

       ↑↓:Select Menu   ESC: Previous Menu   Enter: Select   Ctrl-E: Exit
```

5-4 Creating RAID

1. When you press <Enter> on the "Create RAID set" bar, the following screen shows up. Press the "Arrow" key to select the RAID mode you want to set up with and then press <Enter> on the RAID bar to select the RAID0,1 or 0+1 mode.

```
 RAID Configuration Utility - Silicon Image Inc. Copyright (C) 2003
    MAIN MENU                                      HELP

  Create RAID set                   RAID0=Striped
  Delete RAID set
  Rebuild RAID1 set
  Resolve Conflicts
  Low Level Format
  Logical Drive Info      RAID0
                          RAID1
                          RAID10
                          SPARE DRIVE


      PHYSICAL DRIVE                         LOGICAL DRIVE

  0 ST3120026AS      114473MB      0 ST3120026AS      114473MB
  1 ST3120026AS      114473MB      1 ST3120026AS      114473MB

  ↑↓:Select Menu   ESC: Previous Menu   Enter: Select   Ctrl-E: Exit
```

2. Select Auto configuration of the RAID set.

```
 RAID Configuration Utility - Silicon Image Inc. Copyright (C) 2003
    MAIN MENU                                      HELP

  Auto configuration              Press "Enter" to automatically
  Manual configuration            create a striped(RAID0) set

                                  Stripe size is 64K
                                  First drive is drive 0
                                  Second drive is drive 1


   PHYSICAL DRIVE                      LOGICAL DRIVE

  0 ST3120026AS      114473MB      0 ST3120026AS      114473MB
  1 ST3120026AS      114473MB      1 ST3120026AS      114473MB


  ↑↓:Select Menu   ESC: Previous Menu   Enter: Select   Ctrl-E: Exit
```

3. Press Y to proceed with the configuration or press N to abort the creation of the new RAID sets.

5-5 Deleting RAID

1. To remove one or more RAID sets, select "Delete RAID set".
2. Select the destination RAID set and press Enter.
3. Press "Y" to perform the configuration or press "N" to abandon.
4. The drives will return the original condition where a new RAID set can be created.

```
 RAID Configuration Utility - Silicon Image Inc. Copyright (C) 2003
   MAIN MENU                          HELP

   Create RAID set                    Press "Enter" to delete RAID set
   Delete RAID set
   Rebuild RAID1 set
   Resolve Conflicts
   Low Level Format
   Logical Drive Info




 PHYSICAL DRIVE                     LOGICAL DRIVE

 0 ST3120026AS      114473MB        0 ST3120026AS      114473MB
 1 ST3120026AS      114473MB        1 ST3120026AS      114473MB




 ↑↓:Select Menu    ESC: Previous Menu    Enter: Select    Ctrl-E: Exit
```

5-6 Finishing RAID

After creating RAID sets, press <Ctrl-E> key to complete the entire configuration and go on installing the Driver.

5-7 To Install Sil3114 SATA/SATA RAID Driver

Silicon Image Sil3114 RAID Driver is incorporated in Support CD/Floppy Diskette for user's installation. This driver is intended for Windows 98/ Me/NT4/2000/XP/2003.

5-7-1 Install SATA/SATA RAID Driver on Windows 2000/XP

(1) Get ready the Floppy Diskette holding the RAID Driver.
   (This Driver Diskette should have been enclosed in the mainboard Package.)
(2) Check that Hard Disks are connected properly to the RAID conn-tors.
(3) Start your PC system and use RAID BIOS Setup Utility to configure RAID 0 / 1/ 0+1 to the hard disks.
(4) Restart System and apply the Windows 2000/XP CD to CD-ROM for operating system installation.
(5) On the Windows 2000/XP Setup screen, press "F6" key for RAID driver setup.

Windows Setup

Press F6 if you need to install a third party SCSI or RAID driver....

(6) On next screen press "S" to confirm the mass storage device setup.

Windows Setup

Setup could not determine the type of one or more mass storage devices installed in your system, or you have chosen to manually specify an adapter. Currently, Setup will load support for the following mass storage devices(s):

      \<none\>

    * To specify additional SCSI adapters, CD-ROM drives, or special disk controllers for use with Windows, including those for which you have a device support disk from a mass storage device manufacturer, press S.

    * If you do not have any device support disks from a mass storage device manufacturer, or do not want to specify additional mass storage devices for use with Windows, press ENTER.

S=Specify Additional Device   Enter=Continue   F3=Exit

(7) On next screen apearing, insert the RAID Driver Diskette to Drive "A" and then press \<Enter\>.

Windows Setup

      Please insert the disk labeled

    Manufacturer-supplied hardware support disk

        into Drive A:

      *   Press ENTER when ready.

Enter=Continue   ESC=Cancel   F3=Exit

(8) On next screen appearing, choose the driver suitable for your operating system and press <Enter> to continue.

Windows Setup

You have chosen to configure a SCSI Adapter for use with Windows, using a device support disk provided by an adapter manufacturer.

Select the SCSI Adapter you want from the following list, or press ESC to return to the previous screen.

For RAID mode:

Silicon Image Sil3114 SATARAID Controller for Windows XP/Server 2003
Silicon Image Sil3114 SATARAID Controller for Windows NT 4.0 and 2000

For IDE mode:

Silicon Image Sil3114 SATALink Controller for Windows XP/Server 2003
Silicon Image Sil3114 SATALink Controller for Windows NT 4.0 and 2000

S=Specify Additional Device   Enter=Continue   F3=Exit

The Installation Program will then guide you through the rest of system setup. The RAID driver will then be installed into your system.

5-7-2 Sil3114 SATA RAID Driver on Windows 98SE/Me

For Windows 98SE/Me users of SATA RAID interface supported by Silicon Image SIL3114 SATA RAID Controller, please pay attention to the following extraordinary configuration in BIOS Setup:

When Windows 98SE/Me system is to be installed on SATA RAID interface, the configuration of "Sil3114 Configuration" in "Advanced BIOS Features" of BIOS should be set to "RAID Mode".

(1) Get ready the Floppy Diskette holding the SATA/RAID Driver.
(2) Check that SATA Hard Disks are connected properly to the SATA Connectors.
(3) Start your system and use RAID BIOS Setup Utility to configure RAID 0 or RAID 1 or RAID 0+1 to the hard disks. (For SATA Interface, skip the RAID configuration.)
(4) Restart System and format the bootable hard disks.
(5) Now, apply the Windows 98SE/Me CD to CD-ROM for operating system installation.
(6) Start the Windows 98SE/Me system.

(7) On the "Start" screen of your system, please click to the following path:

      \My Computer\properties\Device manager

(8) In the "Device manager" screen, you can see the item " PCI RAID Controller" with a yellow question mark on its left side, which indicates that the RAID controller is already detected by system but the driver is not installed yet. Please point to this item with your mouse and double click on it (or click the "Properties" button).

The question mark here indicates that RAID Controller Driver is not installed yet.
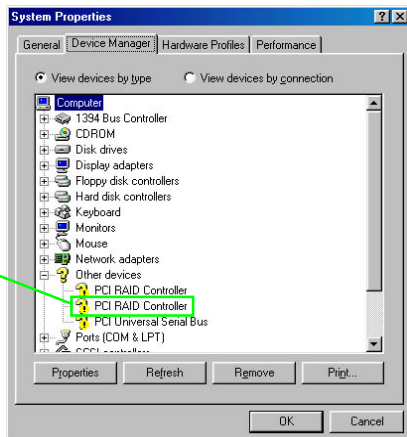
(9) Instantly, the "PCI RAID Controller Properties" screen shows up. Please click the "General" bar to continue.

(10) 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".
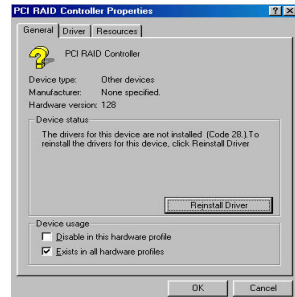
(11) In the "Update device Driver Wizard" screen, click "Next" to continue until you see a dialog box asking you to "Specify a location" for the driver. <u>You should **now** insert the SATA RAID Driver CD/Diskette into CD-ROM/Drive A.</u>

(12) Check the "Specify a location" on next creen and click the "Browse" button to find out the correct path for the driver. As the RAID Driver is in Drive A, please type into the blank bar the correct path and click "Next" to continue.

(13) The Update Device Driver Wizard will then go on installing the driver. In a few seconds, installation completes. Please click the "Finish" button on the screen to complete the installation.
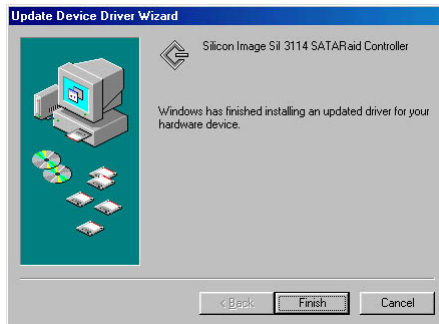
5-8 To Set up IT8212F with ITE RAID Interface
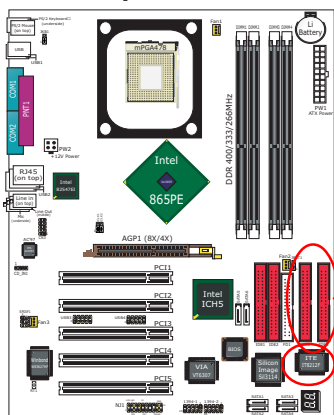
2 IDE connectors (IDE3 & IDE4) supported by IT8212F for 4 Parallel IDE RAID HDDs Setup
   2 to 4 drives for RAID 0
   2 drives for RAID 1
   4 drives for RAID 0+1

Chipset IT8212F supporting Parallel IDE RAID Interface.

865Pro-FGR

To set up ITE Parallel RAID system, first set up IDE hard disks to IDE3 and IDE4 connectors and then boot the 865Pro-FGR system and watch for the following initial screen to appear:

IT8212 RAID BIOS V1.4.1.6 F/W Ver 02093030
Copyright 2003-2003 ITE, Inc. All Rights Reserved

Press wait for IDE scan..
Drive 0:   ST3120026AS   114473MB
Drive 1:   ST3120026AS   114473MB
Drive 2:   Not Detected
Drive 3:   Not Detected

Press <Ctrl-F> or <Ctrl-E> to enter Setup Utility or
Press <ESC> or <S> to continue booting.....

As soon as the above screen appears, press the <Ctrl-F> keys to set up ITE RAID Utility.

5-8-1 ITE RAID Setup

1. For quick installation of RAID, please select <1> to enter Auto configuration to set up RAID mode.

```
       IT8212 Setup Utility (C)Copyright 2002-2003 ITE, Inc.
                          Main Menu


         Auto Configuration..............[1]

         Define RAID.........................[2]

         Delete RAID.........................[3]

         Rebuild RAID.......................[4]

         RAID Card Configuration.......[5]




 [1]..[5] Select                                    [ESC] Exit
```
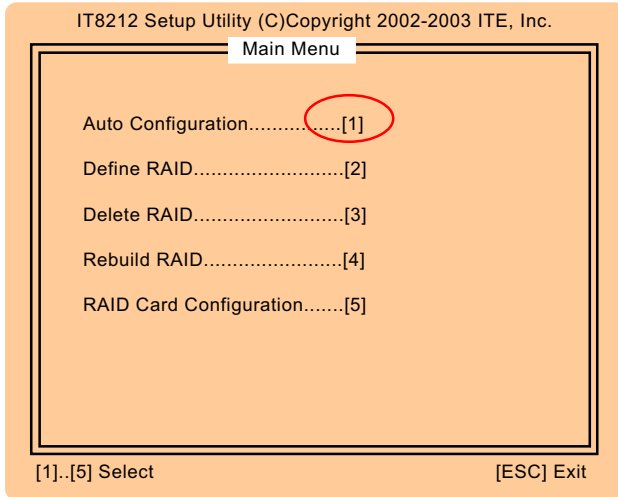
2. To choose RAID mode, press <space> key to change to whatever mode you are about to set up. Detailed information about Disk Arrays will show in "Array Configuration Menu" as illustrated below.

```
       IT8212 Setup Utility (C)Copyright 2002-2003 ITE, Inc.
                     Auto Configuration Menu


         Setup Array Type as:            RAID 0



                     Array Configuration Menu

         RAID Mode............................Stripe

         Un-used Drive(s)....................0

         Drive(s) in Array......................2

         Array Capacity (size in MB).......228946


 [→,←, Space] Change Option    [CTRL-Y] Save    [ESC] Exit
```

111
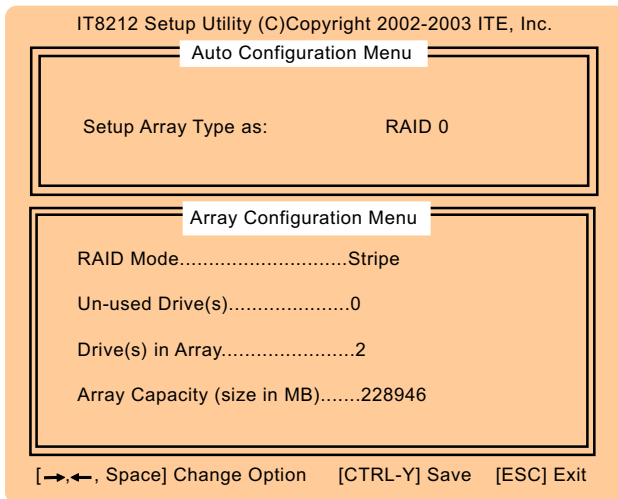
3. When the RAID mode has been selected and is to be created, a message appears as illustrated below. Press <Y> to continue or <ANY KEY> to go back.

```
          IT8212 Setup Utility (C)Copyright 2002-2003 ITE, Inc.
      ┌─────────────── Auto Configuration Menu ───────────────┐
      │                                                        │
      │                                                        │
      │   Setup Array Type as:                RAID 0           │
      │                                                        │
      │                                                        │
      └────────────────────────────────────────────────────────┘
      ┌─────────────── Array Configuration Menu ──────────────┐
      │   RAID Mode............................Stripe          │
      │   ┌────────────────────────────────────────────────┐  │
      │   U│ The data in the drive(s) will lose.            │  │
      │    │ Are You Sure?                                  │  │
      │   D│ Press Y to continue or ANY KEY to go back      │  │
      │   └────────────────────────────────────────────────┘  │
      │   Array Capacity (size in MB).......228946             │
      └────────────────────────────────────────────────────────┘
       [→,←, Space] Change Option    [CTRL-Y] Save   [ESC] Exit
```
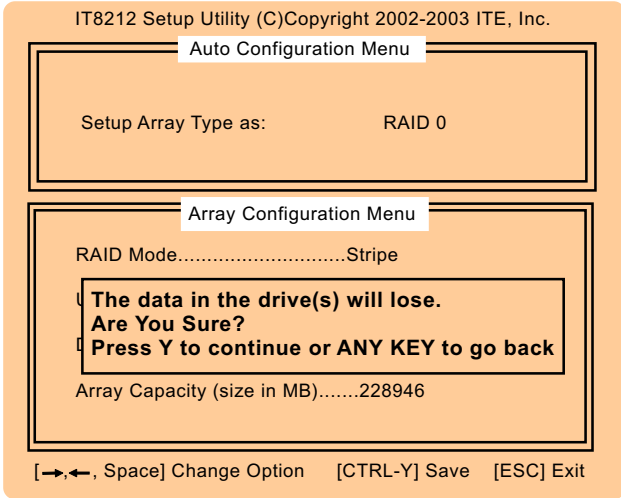
4. When the procedure is complete, press <ANY KEY> to return to Main Menu and press <Ctrl+Y> to save. To exit this screen, press <ESC>.

```
          IT8212 Setup Utility (C)Copyright 2002-2003 ITE, Inc.
      ┌─────────────── Auto Configuration Menu ───────────────┐
      │                                                        │
      │                                                        │
      │   Setup Array Type as:                RAID 0           │
      │                                                        │
      │                                                        │
      └────────────────────────────────────────────────────────┘
      ┌─────────────── Array Configuration Menu ──────────────┐
      │   RAID Mode............................Stripe          │
      │   Un┌────────────────────────────────────────────┐     │
      │     │ Array has been created....                 │     │
      │     │ Press ANY KEY to return to Main Menu.      │     │
      │   Dr└────────────────────────────────────────────┘     │
      │   Array Capacity (size in MB).......228946             │
      └────────────────────────────────────────────────────────┘
       [→,←, Space] Change Option    [CTRL-Y] Save   [ESC] Exit
```
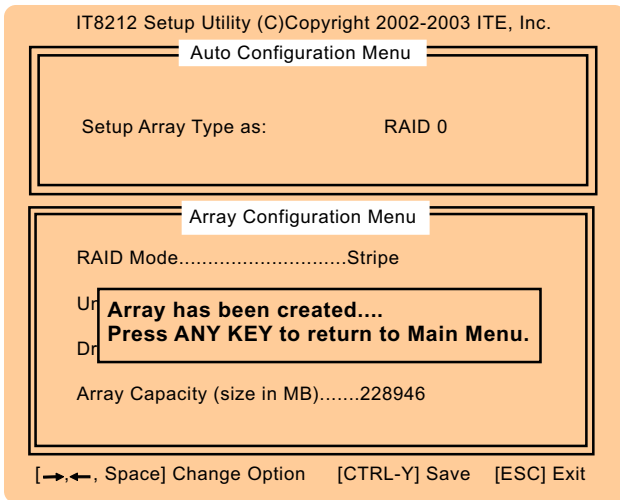
5-8-2 To Install ITE RAID Driver

ITE RAID Driver is incorporated in Support CD/Floppy Diskette for user's installation. This driver is intended for Windows 98/Me/NT4/2000/XP/ 2003.

To install ITE RAID driver, please refer to the Silicon Image RAID Driver Setup illustrated in the former sections of this chapter. The two driver setups will be similar to each other.

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